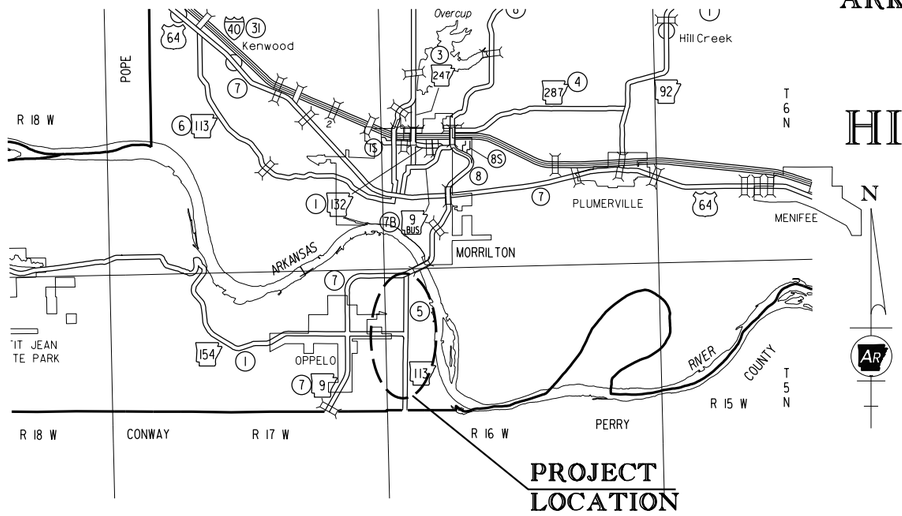
DATE REVISED	DATE REVISED	FED.RD. DIST.NO.	STATE	JOB NO.	SHEET NO.	TOTAL SHEETS
		6	ARK.	080711	1	123
		HIGHWAY 113 RELOCATION (CONWAY CO.) (S)				

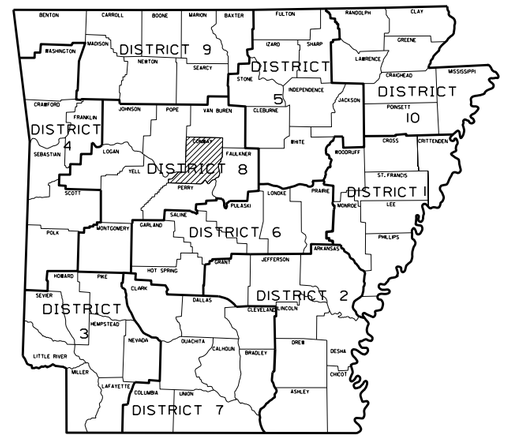
ARKANSAS DEPARTMENT OF TRANSPORTATION
CONSTRUCTION PLANS

HIGHWAY 113 RELOCATION
(CONWAY CO.) (S)
CONWAY COUNTY
ROUTE 113 SECTION 5
JOB 080711
FED. AID PROJ. STPR-0015(33)



VICINITY MAP

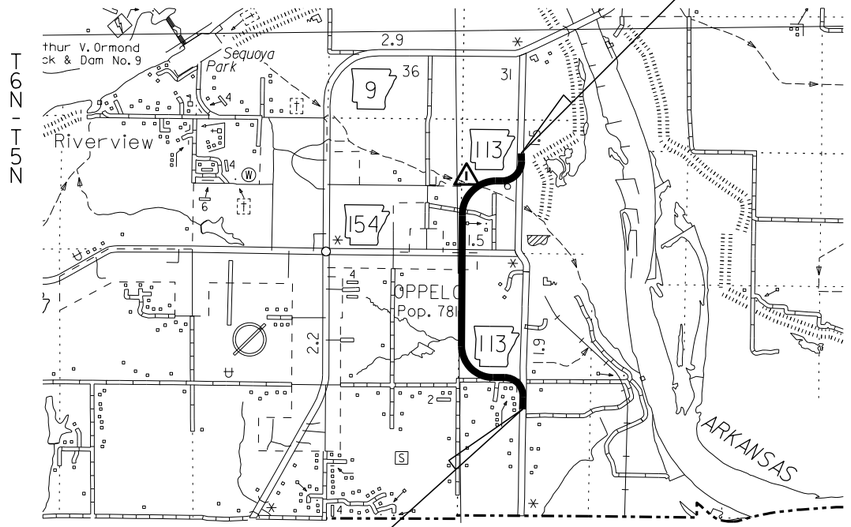
NOT TO SCALE



ARKANSAS HIGHWAY DISTRICT 8

STRUCTURES OVER 20'-0" SPAN

⚠ STA. 204+27.44 CONSTRUCT
TRI. 9' X 9' X 114' R.C. BOX CULVERT
WITH 3:1 WINGS LT. & RT.
WITH 35° RT. FWD SKEW
Q25=998 CFS D.A.= 2.67 SQ. MI.
SPAN= 37.03'



• DESIGN TRAFFIC DATA •

DESIGN YEAR----------2044
2024 ADT----------3400
2044 ADT----------4200
2044 DHV----------462
DIRECTIONAL DISTRIBUTION-------0.60
TRUCKS----------25%
DESIGN SPEED----------60 MPH

	BEGIN OF PROJECT	MID-POINT OF PROJECT	END PROJECT
LATITUDE	N 35°05'05"	N 35°05'53"	N 35°06'48"
LONGITUDE	W 92°44'30"	W 92°44'55"	W 92°44'29"

LENGTH COMPUTED ALONG C.L. HWY. 113 RELOCATION		
GROSS LENGTH OF PROJECT	12500.00 FEET	2.367 MILES
NET LENGTH OF ROADWAY	12462.97 FEET	2.360 MILES
NET LENGTH OF BRIDGES	37.03 FEET	0.007 MILES
NET LENGTH OF PROJECT	12500.00 FEET	2.367 MILES

CERTIFICATE OF AUTHORIZATION
MICHAEL BAKER INTERNATIONAL INC
No. 1126
ARKANSAS - ENGINEER

STATE OF ARKANSAS
LICENSED PROFESSIONAL ENGINEER
No. 20584
ROBERT B. DARRINGTON
03-01-2024

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WORKSPACE: ARDOT
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REVISED DATE: $$REVDATE$$

DATE REVISED	DATE REVISED	FED.RD. DIST.NO.	STATE	JOB NO.	SHEET NO.	TOTAL SHEETS
03-25-24		6	ARK.	080711	2	123
		INDEX OF SHEETS AND STANDARD DRAWINGS				

STATE OF ARKANSAS
LICENSED PROFESSIONAL ENGINEER
No.20584
ROBERT B. DARRINGTON
03-25-2024

INDEX OF SHEETS

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

ROADWAY STANDARD DRAWING

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REVISED DATE: $$REVDATE$$

DATE REVISED	DATE REVISED	FED.RD. DIST.NO.	STATE	JOB NO.	SHEET NO.	TOTAL SHEETS
		6	ARK.	080711	3	123
		GOVERNING SPECIFICATIONS AND GENERAL NOTES				

STATE OF ARKANSAS
LICENSED PROFESSIONAL ENGINEER
No.20584
ROBERT B. DARRINGTON
03-11-2024

GOVERNING SPECIFICATIONS

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

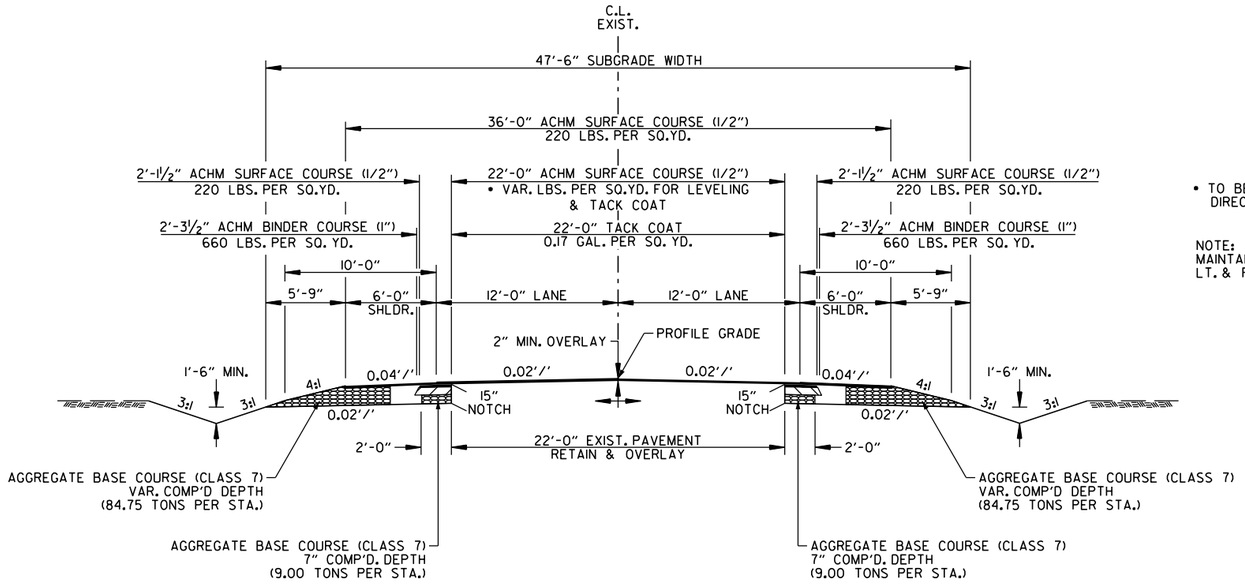
NUMBER **TITLE**

ERRATA ____ERRATA FOR THE BOOK OF STANDARD SPECIFICATIONS
FHWA-1273__REQUIRED CONTRACT PROVISIONS FEDERAL-AID CONSTRUCTION CONTRACTS
FHWA-1273__SUPPLEMENT - EQUAL EMPLOYMENT OPPORTUNITY - NOTICE TO CONTRACTORS
FHWA-1273__SUPPLEMENT - SPECIFIC EQUAL EMPLOYMENT OPPORTUNITY RESPONSIBILITIES (23 U.S.C. 140)
FHWA-1273__SUPPLEMENT - EQUAL EMPLOYMENT OPPORTUNITY - GOALS AND TIMETABLES
FHWA-1273__SUPPLEMENT - EQUAL EMPLOYMENT OPPORTUNITY - FEDERAL STANDARDS
FHWA-1273__SUPPLEMENT - POSTERS AND NOTICES REQUIRED FOR FEDERAL-AID PROJECTS
FHWA-1273__SUPPLEMENT - WAGE RATE DETERMINATION
FHWA-1273__SUPPLEMENT - TRAINING PROGRAM - JOB 080711
100-3_____CONTRACTOR'S LICENSE
100-4_____DEPARTMENT NAME CHANGE
102-2_____ISSUANCE OF PROPOSALS
103-2_____CONTACT INFROMATION FOR MOTORIST 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
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
620-1_____MULCH COVER
800-1_____STRUCTURES
802-4_____CEMENT
804-2_____REINFORCING STEEL FOR STRUCTURES
JOB 080711__AIRPORT CLEARANCE REQUIREMENTS
JOB 080711__BIDDING REQUIREMENTS AND CONDITIONS
JOB 080711__BROADBAND INTERNET SERVICE FOR ASPHALT CONCRETE PLANT
JOB 080711__BROADBAND INTERNET SERVICE FOR FIELD OFFICE
JOB 080711__BUY AMERICA - CONSTRUCTION MATERIALS
JOB 080711__CARGO PREFERENCE ACT REQUIREMENTS
JOB 080711__COLD MILLING – COUNTY PROPERTY
JOB 080711__CONSTRUCTION IN SPECIAL FLOOD HAZARD AREAS
JOB 080711__CONSTRUCTION PROJECT INFORMATION SIGN
JOB 080711__DESIGN AND QUALITY CONTROL ASPHALT MIXTURES
JOB 080711__DESIGN OF ASPHALT MIXTURES - AGGREGATES
JOB 080711__DISADVANTAGED BUSINESS ENTERPRISE BIDDER'S RESPONSIBILITIES
JOB 080711__ESTABLISHING CONTRACT TIME – CALENDAR DAY CONTRACT
JOB 080711__GOALS FOR DISADVANTAGED BUSINESS ENTERPRISE PARTICIPATION
JOB 080711__LIQUIDATED DAMAGES PROCEDURE FOR BID LETTINGS
JOB 080711__MANDATORY ELECTRONIC CONTRACT
JOB 080711__MANDATORY ELECTRONIC DOCUMENT SUBMITTAL
JOB 080711__OFF-SITE RESTRAINING CONDITIONS FOR INDIANA AND NORTHERN LONG-EARED BATS
JOB 080711__PARTNERING REQUIREMENTS
JOB 080711__PERCENT AIR VOIDS AND NDESIGN FOR ACHM SURFACE MIX DESIGNS
JOB 080711__PERCENT WITHIN LIMITS/PAVEMENT SMOOTHNESS (IRI)
JOB 080711__PLASTIC PIPE
JOB 080711__PRE-BID ON SITE INVESTIGATION OF SOIL CONDITIONS
JOB 080711__PRICE ADJUSTMENT FOR ASPHALT BINDER
JOB 080711__PRICE ADJUSTMENT FOR FUEL
JOB 080711__PROHIBITION OF CERTAIN TELECOMMUNICATIONS AND VIDEO SURVEILLANCE SERVICES OR EQUIPMENT
JOB 080711__SHORING FOR CULVERTS
JOB 080711__SOIL STABILIZATION
JOB 080711__STORM WATER POLLUTION PREVENTION PLAN
JOB 080711__SUBMISSION OF ASPHALT CONCRETE HOT MIX ACCEPTANCE TEST RESULTS
JOB 080711__UTILITY ADJUSTMENTS
JOB 080711__VALUE ENGINEERING
JOB 080711__WARM MIX ASPHALT

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 RESIDENT 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.
11. THIS PROJECT IS COVERED UNDER A SECTION 404 NATIONWIDE 14 PERMIT. REFER TO SECTION 110 OF THE STANDARD SPECIFICATIONS, EDITION OF 2014, FOR PERMIT REQUIREMENTS.
12. CLEARING & GRUBBING OPERATIONS TO BE PERFORMED BY OTHERS PRIOR TO ISSUANCE OF WORK ORDER PER ARDOT.

DATE REVISED	DATE REVISED	FED.RD. DIST.NO.	STATE	JOB NO.	SHEET NO.	TOTAL SHEETS
		6	ARK.	080711	4	123
		TYPICAL SECTIONS				

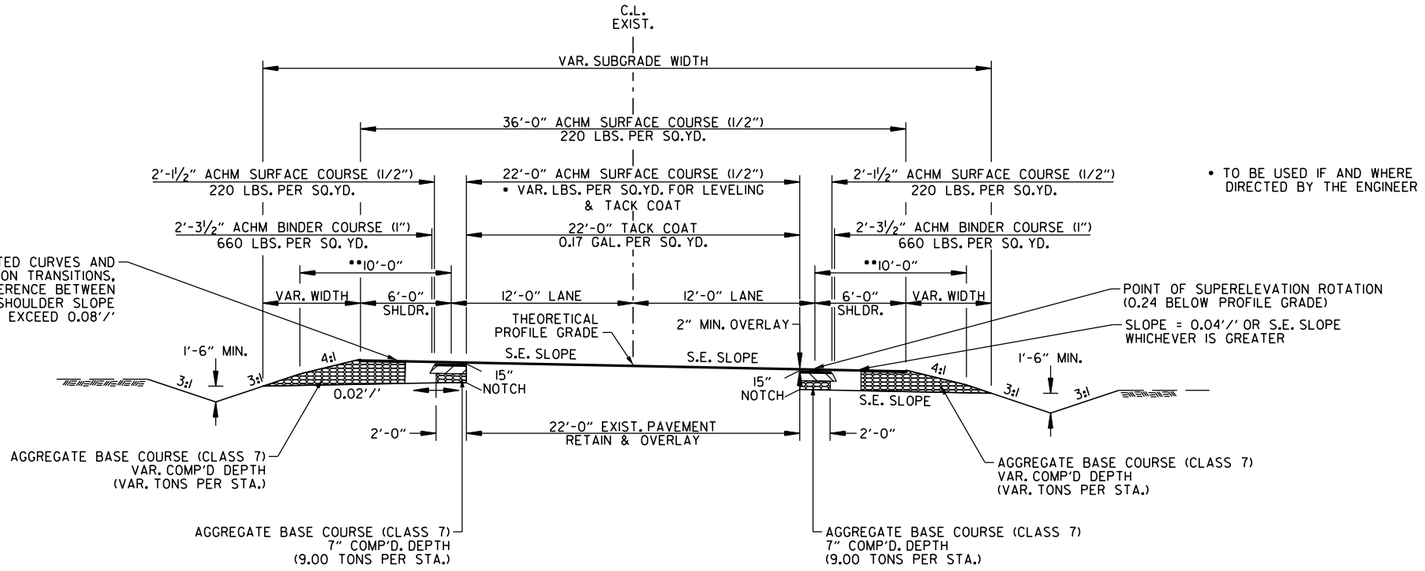


• TO BE USED IF AND WHERE DIRECTED BY THE ENGINEER

NOTE:
MAINTAIN 1'-6" DITCH BELOW SUBGRADE LT. & RT.

TANGENT SECTION NOTCH AND WIDEN

STA. 103+95.00 TO STA. 114+82.59
STA. 221+97.41 TO STA. 228+95.00



• TO BE USED IF AND WHERE DIRECTED BY THE ENGINEER

SUPERELEVATED SECTION NOTCH AND WIDEN

NOTES:

1. 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.
2. 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.
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4. THE FINAL 2" OF SURFACE COURSE IS TO BE PLACED AFTER ALL OTHER COURSES HAVE BEEN LAID. LONGITUDINAL JOINTS SHALL BE AT LANE LINES.
5. BLEEDER DITCHES - PRIOR TO AND DURING PLACEMENT OF PAVEMENT AT THE NOTCH, THE CONTRACTOR SHALL PROVIDE POSITIVE DRAINAGE AT ALL TIMES. THE METHOD(S) AND SPACING USED SHALL BE APPROVED BY THE ENGINEER. PAYMENT FOR THIS WORK SHALL BE CONSIDERED INCLUDED IN THE PRICE BID FOR THE VARIOUS CONTRACT ITEMS.

STATE OF ARKANSAS
LICENSED PROFESSIONAL ENGINEER
No.20584
ROBERT B. DARRINGTON
03-01-2024

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WORKSPACE: ARDOT
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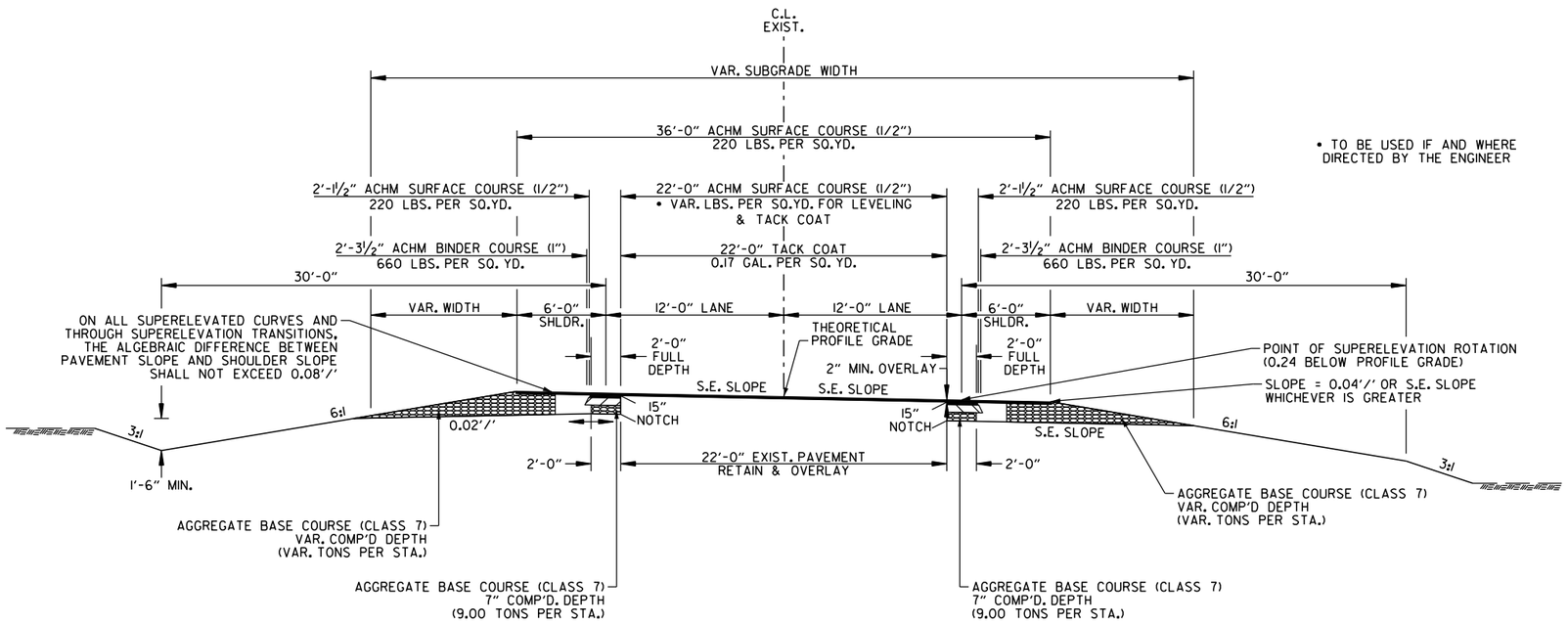
REVISED DATE: $$REVDATE$$

DATE REVISED	DATE REVISED	FED.RD. DIST.NO.	STATE	JOB NO.	SHEET NO.	TOTAL SHEETS
03-25-24		6	ARK.	080711	5	123
		TYPICAL SECTIONS				



SUPERELEVATED SECTION
NOTCH AND WIDEN

STATE OF ARKANSAS
LICENSED PROFESSIONAL ENGINEER
No.20584
ROBERT B. DARRINGTON
03-25-2024

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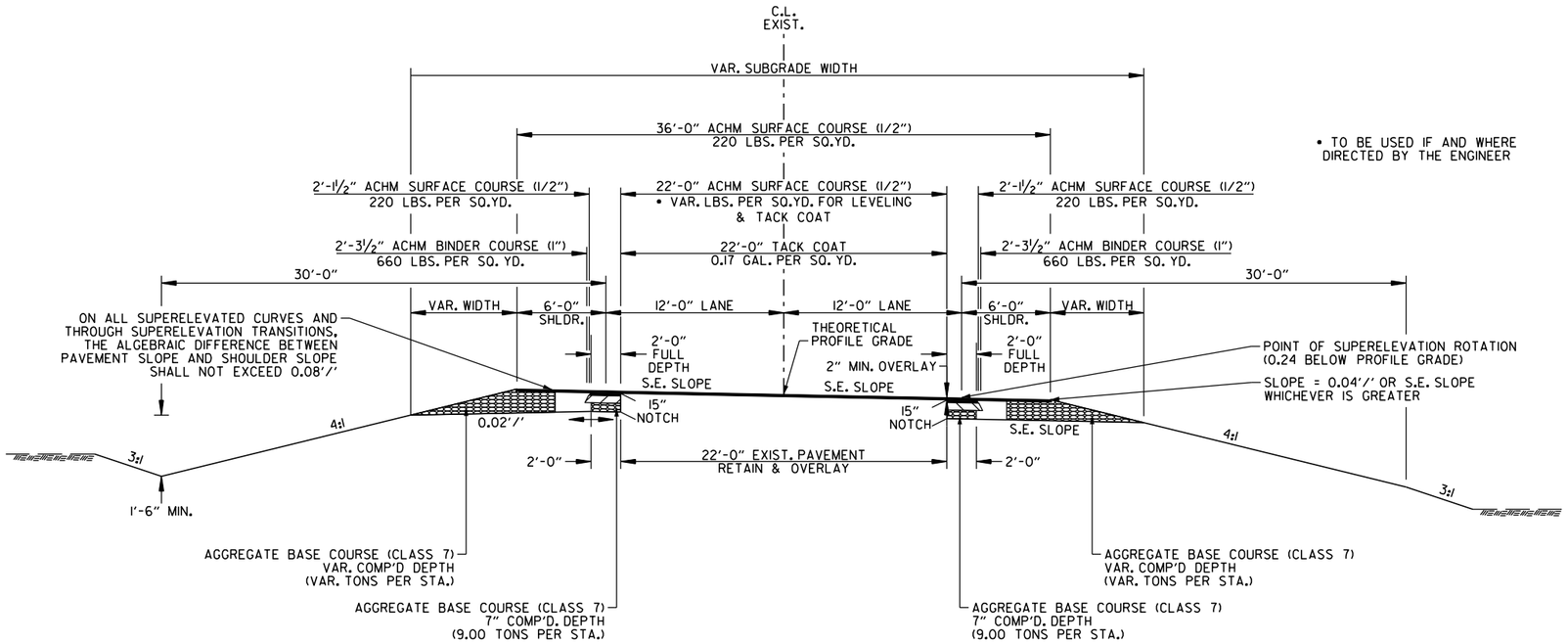

SUPERELEVATED SECTION
NOTCH AND WIDEN

TYPICAL SECTIONS

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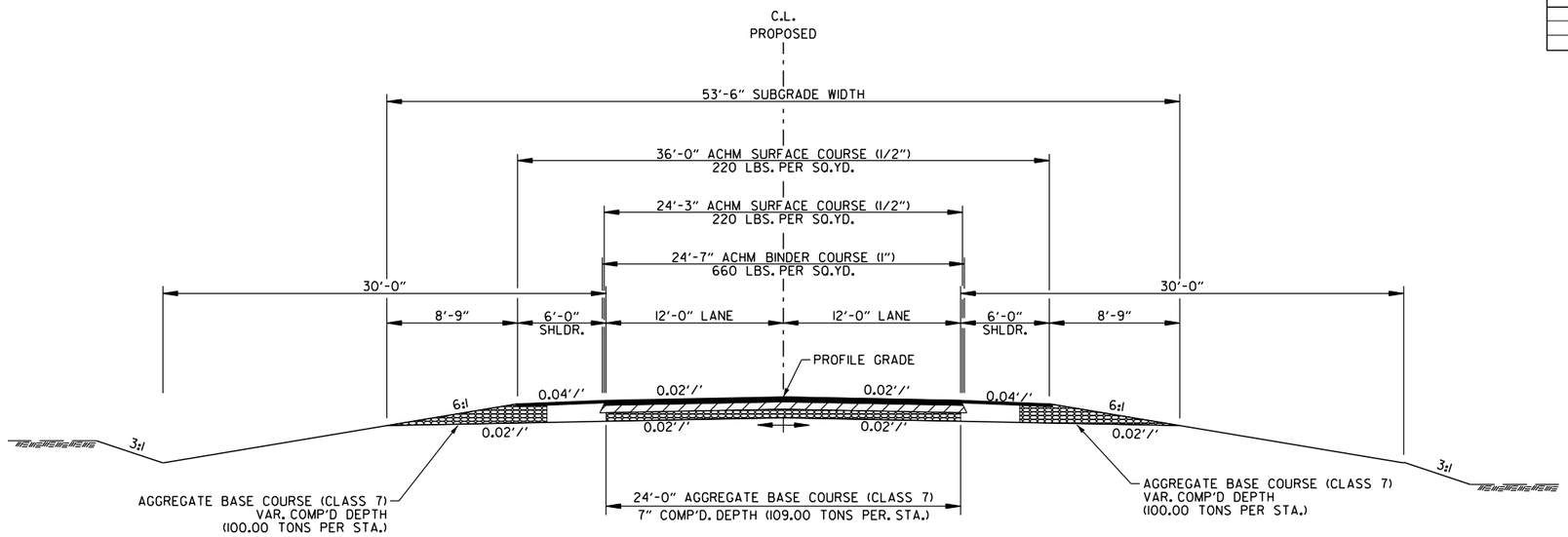
REVISED DATE: $$REVDATE$$

DATE REVISED	DATE REVISED	FED.RD. DIST.NO.	STATE	JOB NO.	SHEET NO.	TOTAL SHEETS
		6	ARK.	080711	6	123
		TYPICAL SECTIONS				

TRANSITION FROM 2 LANE TO 3 LANE
STA. 158+40.00 TO STA. 162+00.00

TRANSITION FROM 3 LANE TO 2 LANE
STA. 179+60.26 TO STA. 184+40.26



TANGENT SECTION
FULL DEPTH

STA. 114+82.59 TO STA. 158+40.00
STA. 184+40.26 TO STA. 221+97.41

NOTES:

1. 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.
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STATE OF ARKANSAS
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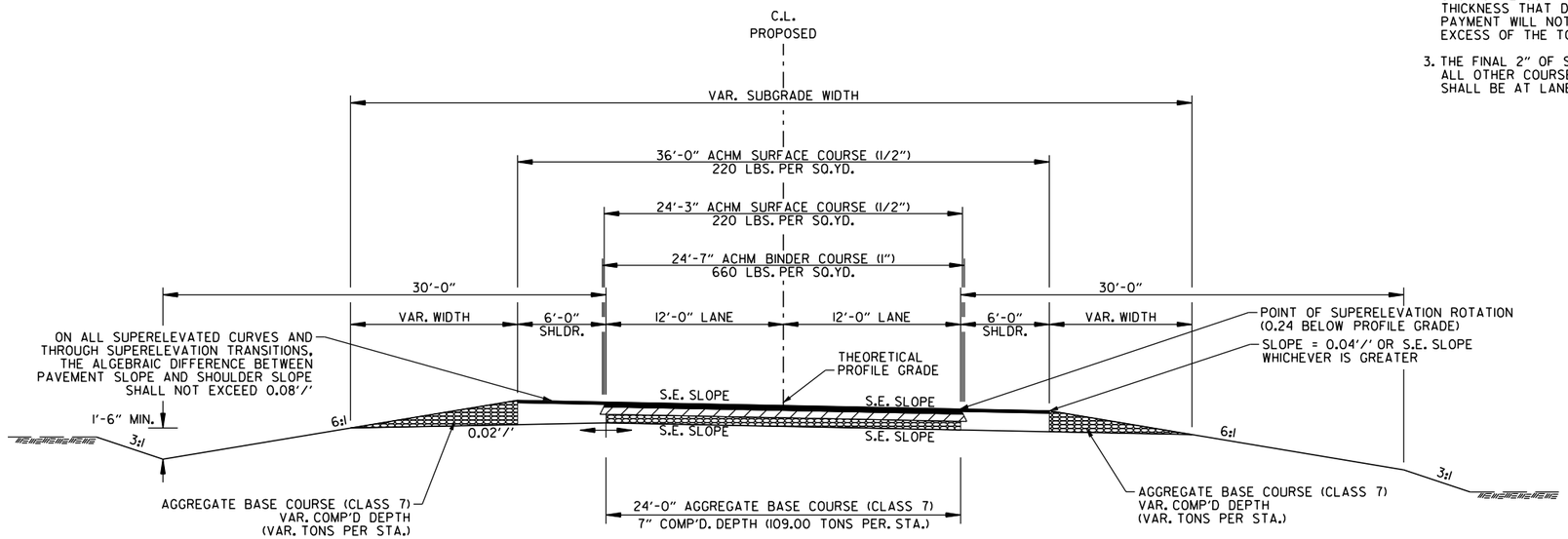
ROBERT B. DARRINGTON
03-01-2024

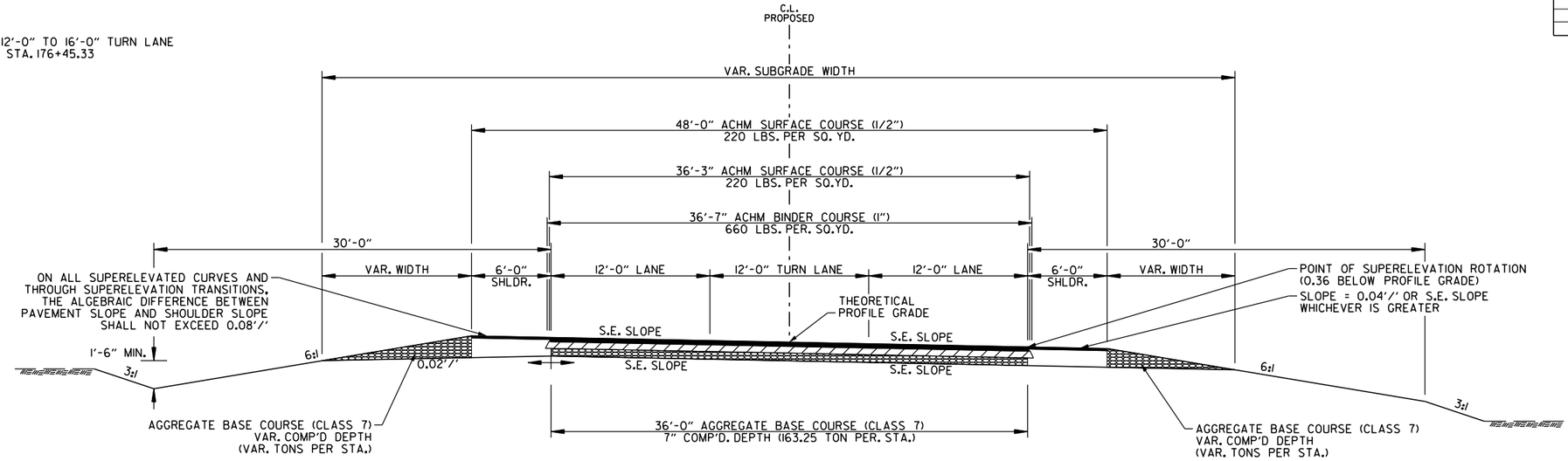


SUPERELEVATED SECTION
FULL DEPTH - 2 LANE

TYPICAL SECTIONS

DATE REVISED	DATE REVISED	FED.RD. DIST.NO.	STATE	JOB NO.	SHEET NO.	TOTAL SHEETS
		6	ARK.	080711	7	123
		TYPICAL SECTIONS				

TRANSITION FROM 12'-0" TO 16'-0" TURN LANE
STA. 175+25.33 TO STA. 176+45.33



SUPERELEVATED SECTION
FULL DEPTH - 12' TURN LANE

NOTES:

1. 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.
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STATE OF ARKANSAS
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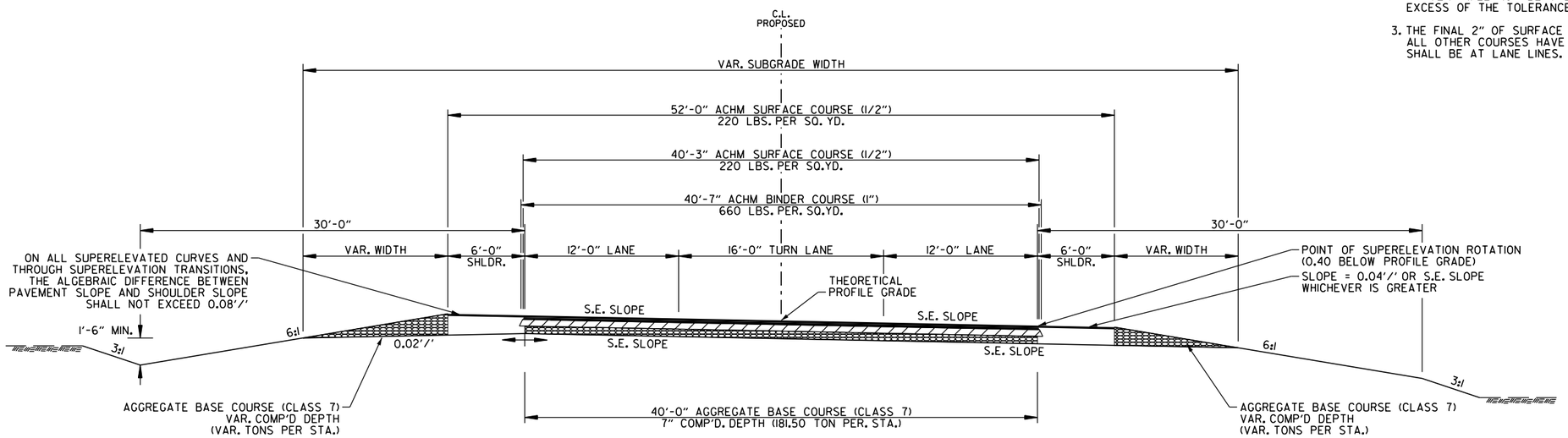
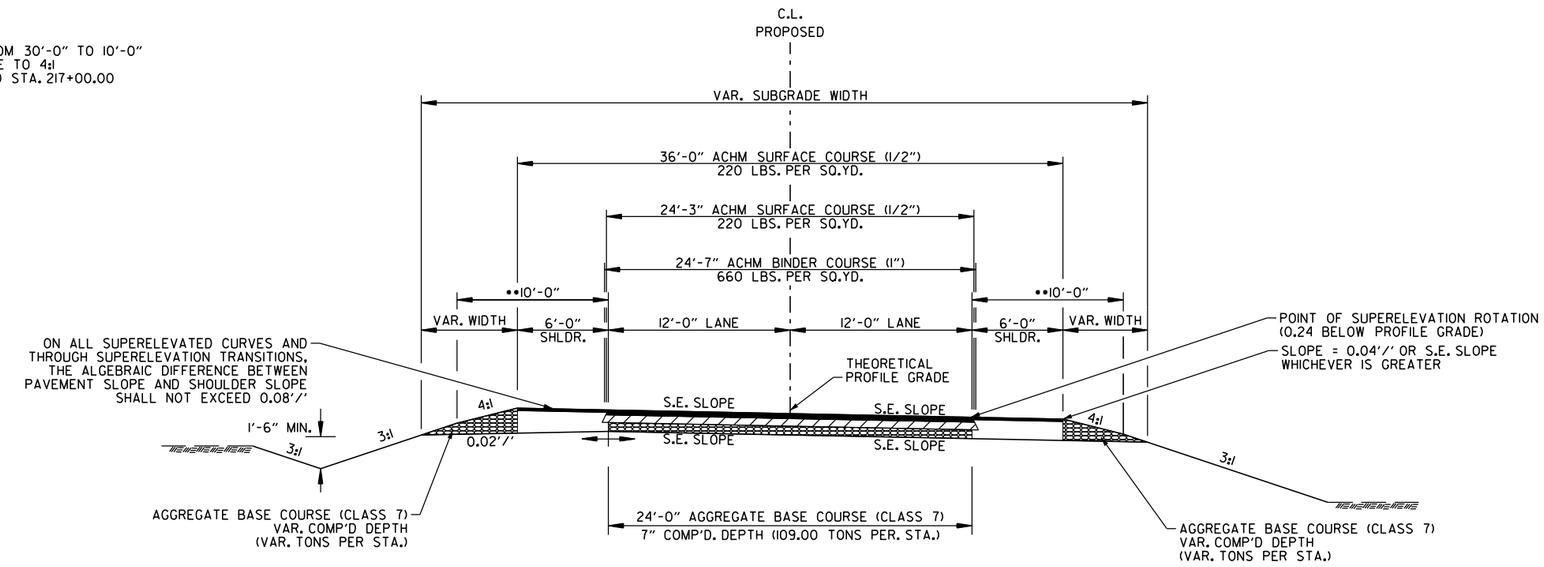


SUPERELEVATED SECTION
FULL DEPTH - 16' TURN LANE

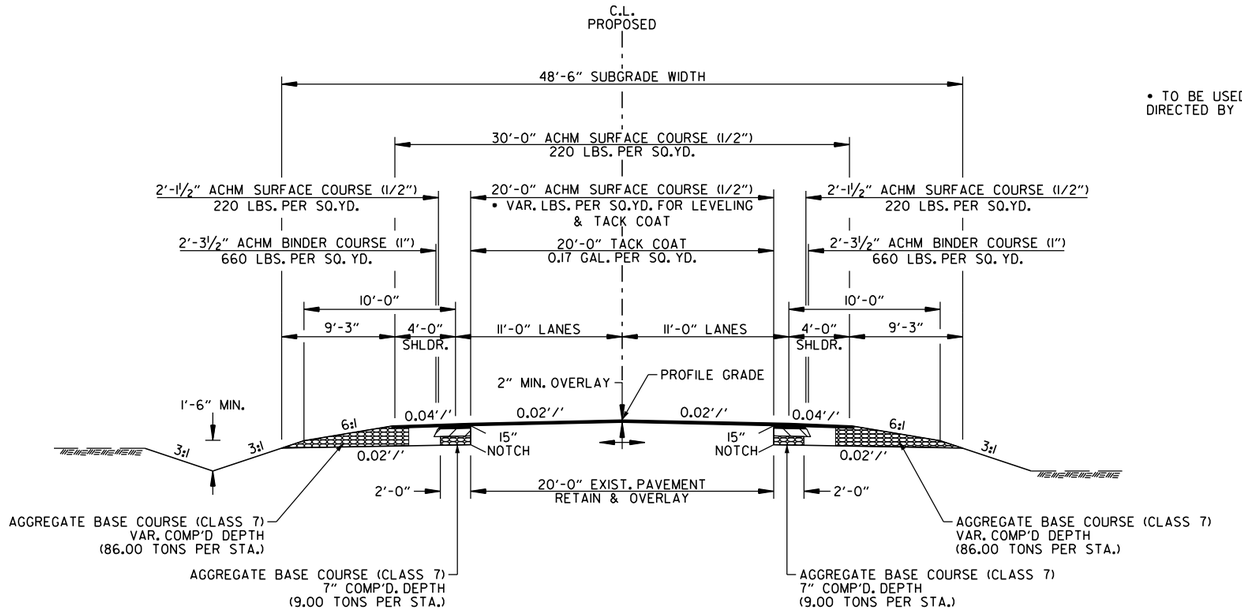
TYPICAL SECTIONS

DATE REVISED	DATE REVISED	FED.RD. DIST.NO.	STATE	JOB NO.	SHEET NO.	TOTAL SHEETS
03-25-24		6	ARK.	080711	8	123
		TYPICAL SECTIONS				

•• TRANSITION FROM 30'-0" TO 10'-0"
AND 6:1 FORESLOPE TO 4:1
STA. 216+00.00 TO STA. 217+00.00



SUPERELEVATED SECTION
FULL DEPTH - 2 LANE



• TO BE USED IF & WHERE DIRECTED BY THE ENGINEER

HWY. 154 - TANGENT SECTION
NOTCH AND WIDEN

STA. 2100+10.87 TO STA. 2103+89.80

NOTES:

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STATE OF ARKANSAS
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TYPICAL SECTIONS

DATE REVISED	DATE REVISED	FED.RD. DIST.NO.	STATE	JOB NO.	SHEET NO.	TOTAL SHEETS
		6	ARK.	080711	9	123
		SPECIAL DETAILS				

STATE OF ARKANSAS
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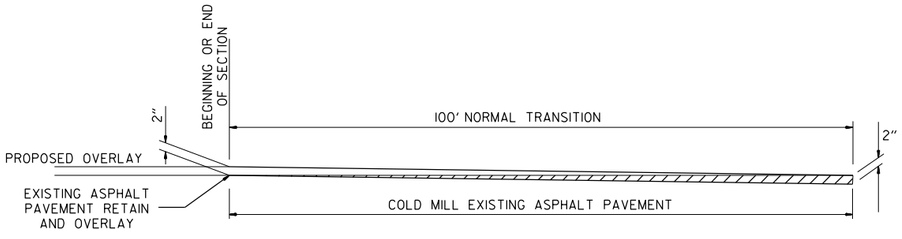
ROBERT B. DARRINGTON
03-01-2024



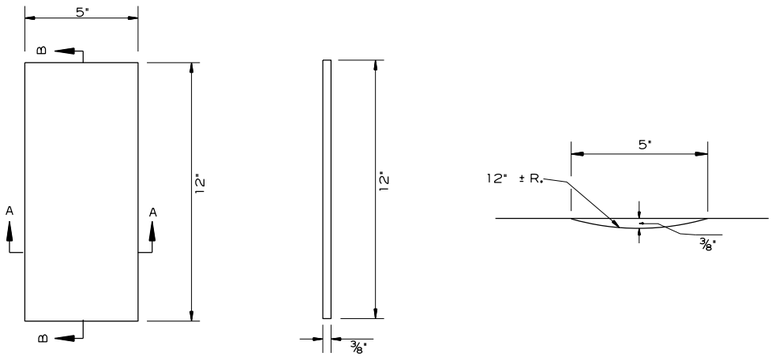
DETAIL FOR PAVEMENT TRANSITIONS

6.0" Radius, 1.3" Border, Black on Orange;
'Job XXXXXX' C 2K; 'Start Date Mo Year' C 2K;
'Est Completion Mo Year' C 2K; 'IDRIVE ' Arial;
' ARKANSAS.COM ' Arial;

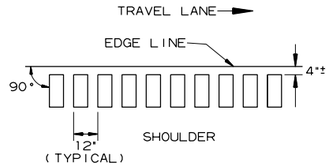
CONSTRUCTION PROJECT INFORMATION SIGN

DATE REVISED	DATE REVISED	FED.RD. DIST.NO.	STATE	JOB NO.	SHEET NO.	TOTAL SHEETS
		6	ARK.	080711	10	123
		SPECIAL DETAILS				

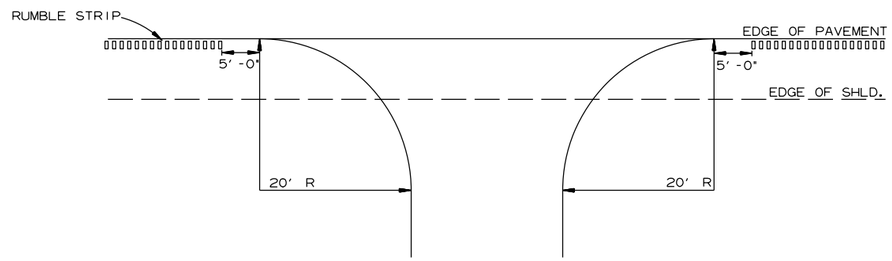
STATE OF ARKANSAS
LICENSED PROFESSIONAL ENGINEER
No.20584
ROBERT B. DARRINGTON
03-01-2024



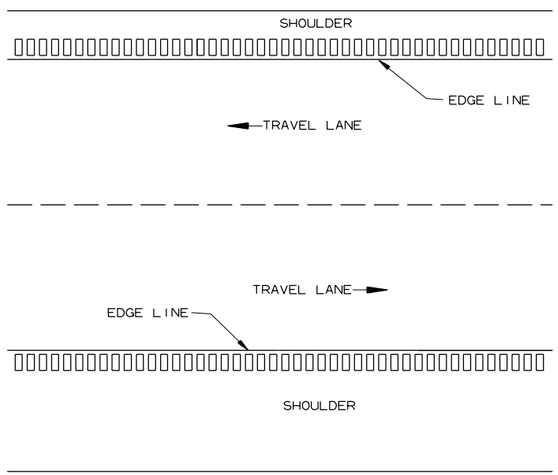
DETAILS OF RUMBLE STRIPS



LOCATION PLAN OF RUMBLE STRIPS
LEFT OR RIGHT SHOULDER



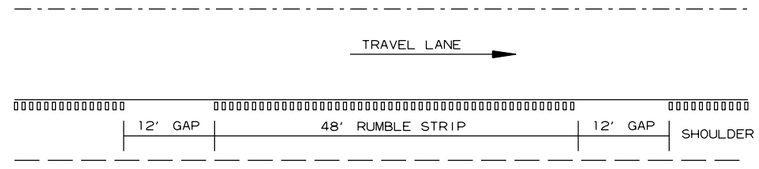
DETAIL FOR RUMBLE STRIP GAP
AT DRIVEWAY TURNOUTS



PLAN VIEW

GENERAL NOTES

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

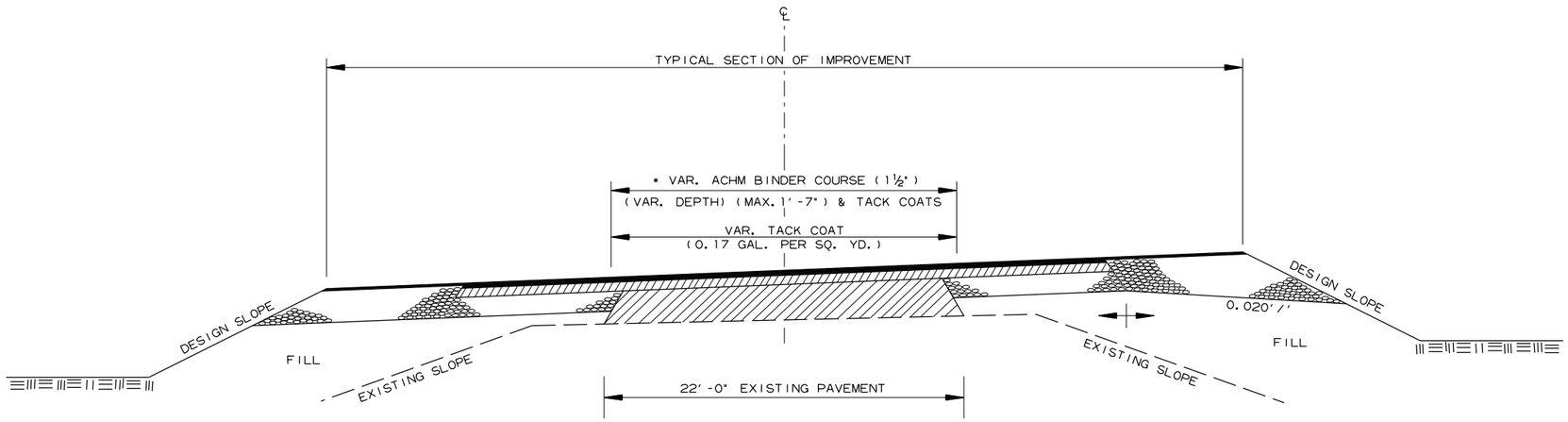


NOTE: GAP PATTERN SHALL BE ADJUSTED BY THE ENGINEER IN THE FIELD ALLOWING FOR DRIVEWAYS TO SERVE AS THE GAP.

DETAIL FOR GAP PATTERN RUMBLE STRIP

DATE REVISED	DATE REVISED	FED.RD. DIST.NO.	STATE	JOB NO.	SHEET NO.	TOTAL SHEETS
		6	ARK.	080711	11	123
		SPECIAL DETAILS				

STATE OF ARKANSAS
LICENSED PROFESSIONAL ENGINEER
No.20584
ROBERT B. DARRINGTON
03-01-2024



* 7" AGGREGATE BASE COURSE (CLASS 7)
TO BE REPLACED WITH ACHM BINDER COURSE (1-½")

METHOD OF RAISING GRADE
(GRADE ADJUST)

HWY. 113
STA. 103+95.00 TO STA. 114+82.59
STA. 221+97.41 TO STA. 228+95.00

HWY. 154
STA. 2101+00 TO STA. 2103+89.80

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.

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WORKSPACE: ARDOT
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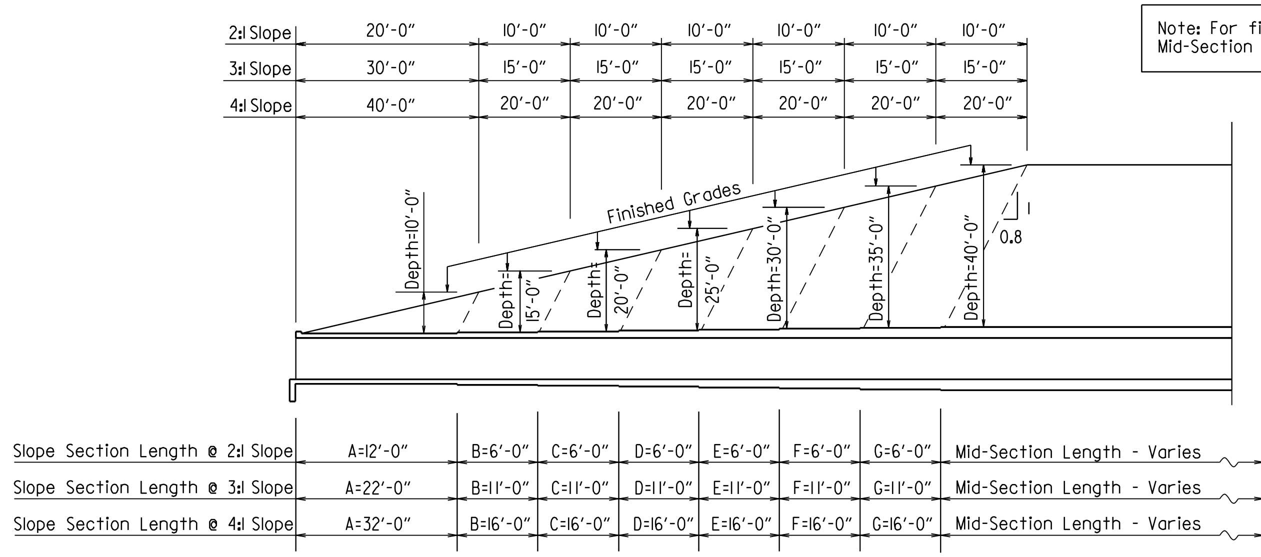
REVISED DATE: $$REVDATE$$

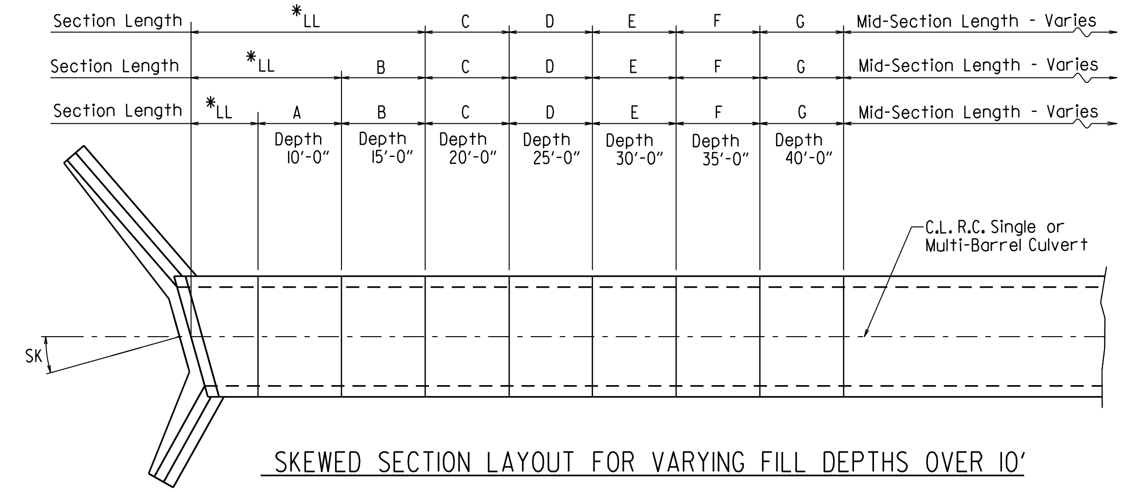
Note: For fill depths 10' and under, use Mid-Section full length of box culvert.

*LL = Skewed End Section Length - See "Skewed End Section Details" Length LL varies with skew angle, overall box width and fill depth and may eliminate the need for some slope section lengths as shown.



LONGITUDINAL SECTION LENGTH SCHEDULE FOR VARYING FILL DEPTHS OVER 10'

Lengths for Non-Skewed Boxes



SKEWED SECTION LAYOUT FOR VARYING FILL DEPTHS OVER 10'

GENERAL NOTES:

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, Fifth Edition (2010) with 2010 interim revisions.

LIVE LOADING: HL-93

All concrete shall be Class S with a minimum 28-day compressive strength of 3,500 psi and shall be poured in the dry. All exposed corners to have ¾" chamfers.

Reinforcing Steel shall be Grade 60 (yield strength = 60,000 psi) conforming to AASHTO M31 or M322, Type A, with mill test reports.

Reinforcing Steel Tolerances: The tolerances for reinforcing steel shall meet those listed in 'Manual of Standard Practice' published by Concrete Reinforcing Steel Institute (CRSI) except that the tolerance for truss bars such as Figure 3 on page 7-4 of the CRSI Manual shall be minus zero to plus 1/2 inch.

Excavation and backfilling shall be in accordance with the requirements of Section 801.

Membrane Waterproofing shall conform to the requirements of Section 815. Membrane Waterproofing shall be Type C and as directed by the Engineer applied to all construction joints in the top slab and the sidewalls of R.C. Box culverts and to the construction joint between wingwalls and R.C. Box culvert walls.

Weep Holes in box culvert walls shall have a maximum horizontal spacing of 10'-0" and shall be spaced to clear all reinforcing steel. The drain opening shall be 4" diameter and shall be placed 12" above the top of the bottom slab.

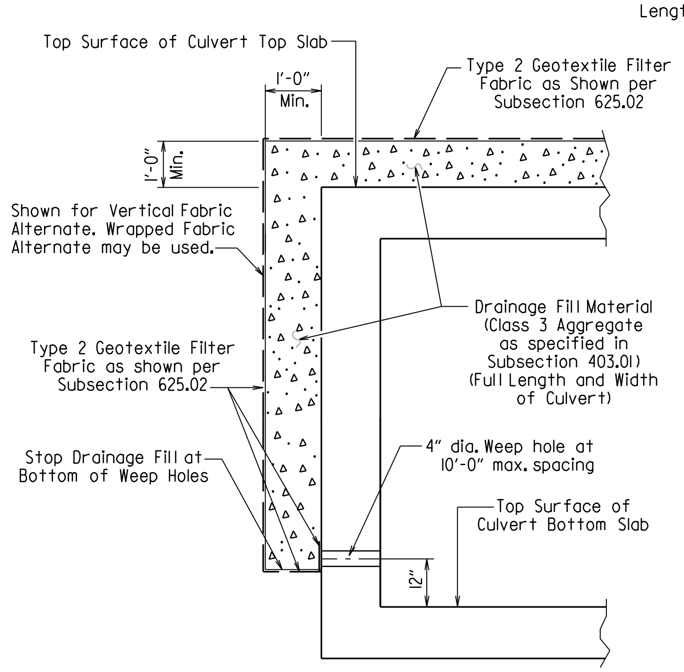
Weep Holes in wingwalls shall have a maximum horizontal spacing of 10'-0" and shall be spaced to clear all reinforcing steel. There shall be a minimum of two (2) weep holes in each wingwall. The drain opening shall be 4" diameter and shall be placed 12" above the top of the wingwall footing.

The barrel components of the culvert may be constructed using continuous pours. For longer culvert construction, the Contractor may use multiple pours with transverse construction joints spaced a minimum of 50 feet apart unless superseded by stage construction or site constraints as approved by the Engineer. Construction joints between footings and walls shall be made only where shown in the Plans. Joints shall be keyed and shall be normal to the centerline of barrel except as noted. Reinforcing shall be continuous through joints unless noted otherwise. Reinforcing through stage construction joints shall provide the minimum bar lap length shown on the Tabular Data Sheets. All longitudinal construction joints shall be submitted to the Engineer for approval.

Membrane Waterproofing, Weep Holes, Geotextile Filter Fabric, and Drainage Fill Material will not be paid for directly but shall be considered subsidiary to Class S Concrete.

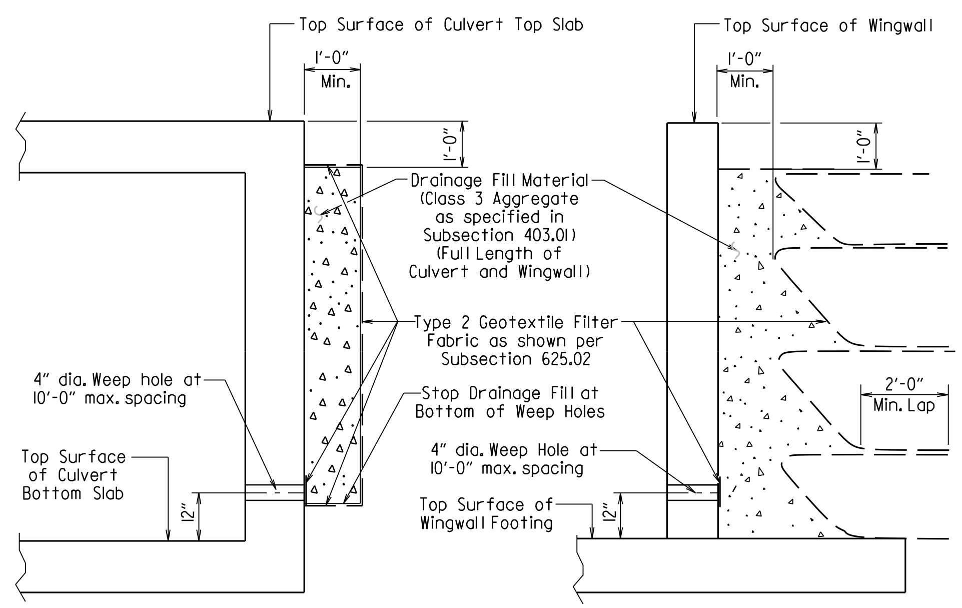
When the top slab of the box culvert serves as finished roadway surface, curing and finishing shall be in accordance with subsections 802.17 and 802.20 for bridge roadway surface and a tine finish shall be applied in accordance with subsection 802.19 for Class 5 Tined Bridge Roadway Surface Finish. Curing and finishing shall not be paid for directly, but shall be considered incidental to the item "Class S Concrete-Roadway". Class 1 Protective Surface Treatment shall be applied to the roadway surface and this work shall be paid for under the unit price bid for "Class 1 Protective Surface Treatment".

When precast reinforced concrete box culverts are substituted for cast in place box culverts, they shall be manufactured according to ASTM C 1577 and meet the requirements of Section 607. When the top slab of the box culvert serves as the finished roadway surface, a precast reinforced concrete box culvert substitution is not allowed.



CULVERT DRAINAGE DETAIL FOR ROCK FILL

This detail shall be used when rock fill is specified for embankment construction.

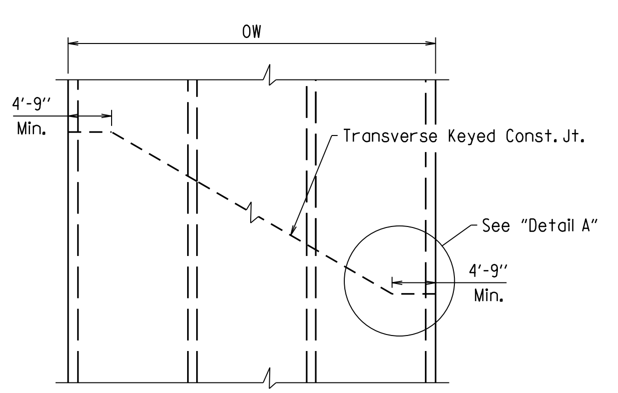


For Details of Excavation and Pay Limits, see Standard Drawing RCB-2.

VERTICAL FABRIC ALTERNATE
(Shown for Culvert, Similar for Wingwall)

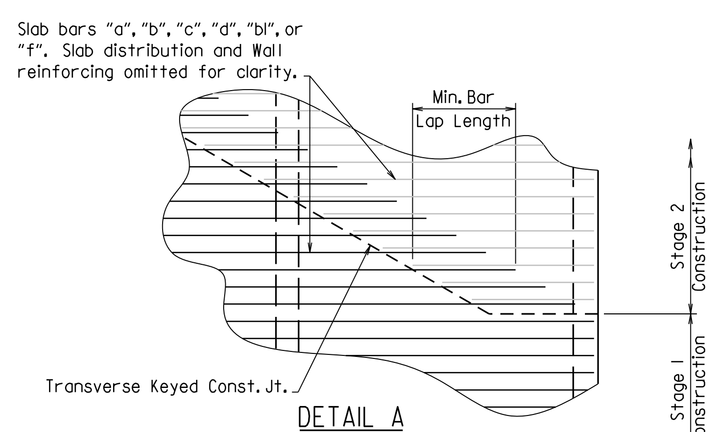
WRAPPED FABRIC ALTERNATE
(Shown for Wingwall, Similar for Culvert)

WINGWALL & CULVERT DRAINAGE DETAIL



SKEWED TRANSVERSE JOINT DETAIL

This detail shall be used to construct a skewed transverse joint only for Multi-Barrel Culverts and only when required by the Maintenance of Traffic Plans. Otherwise, transverse joints should be made normal to the centerline of the barrel.



DETAIL A

See Tabular Data Sheets for Minimum Bar Lap Lengths.

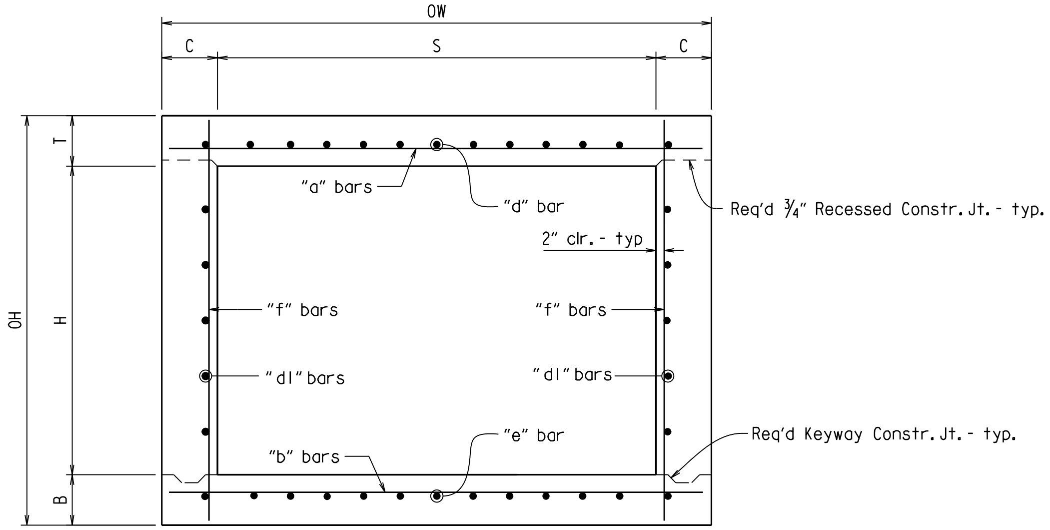
Shown for transverse reinforcing, longitudinal reinforcing similar.

SHEET 1 OF 4
GENERAL DETAILS OF R.C. BOX CULVERT
GENERAL NOTES & LONGITUDINAL SECTION LENGTH SCHEDULE
SPECIAL DETAILS

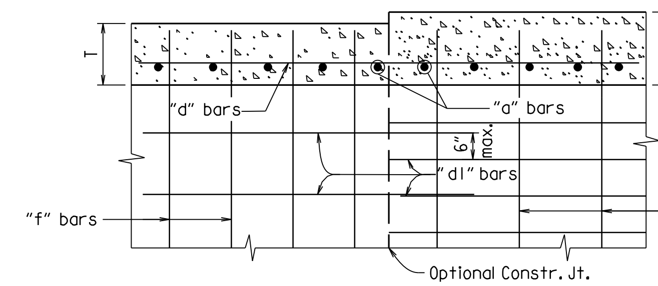
LRFD

DATE REVISED	DATE REVISED	FED.RD. DIST.NO.	STATE	JOB NO.	SHEET NO.	TOTAL SHEETS
		6	ARK.	080711	13	123
		SPECIAL DETAILS				

Note: When top slab of culvert serves as finished roadway surface, see General Notes on Sheet 1 of 4.



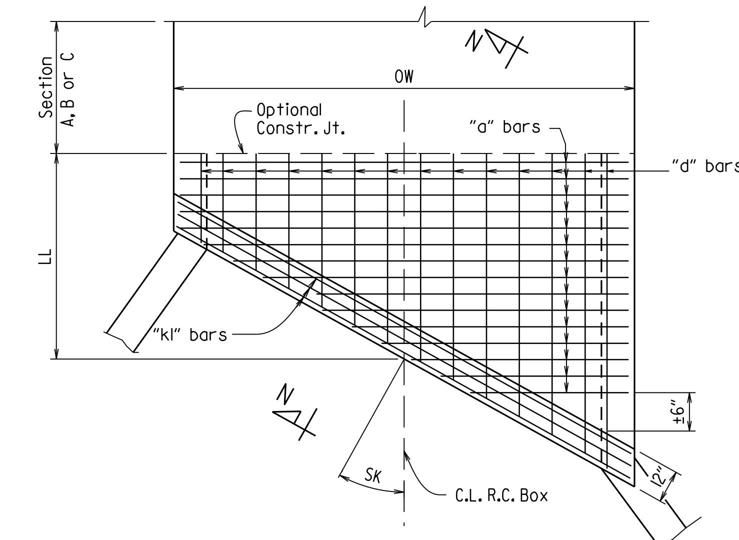
TYPICAL SECTION M-M



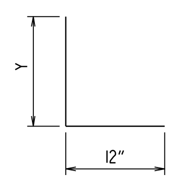
Longitudinal Bar Spacing at individual sections shall be maintained, which may result in noncontact bar laps.

LONGITUDINAL LAP DETAIL AT CHANGE IN SECTIONS

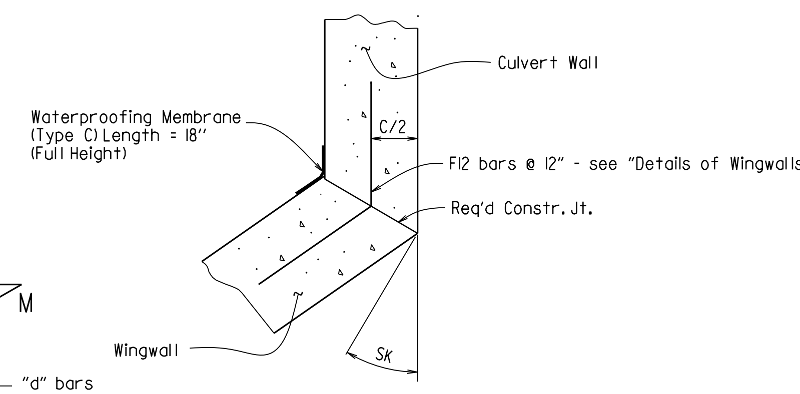
TOP SLAB SHOWN, BOTTOM SLAB SIMILAR



TOP SLAB REINFORCEMENT

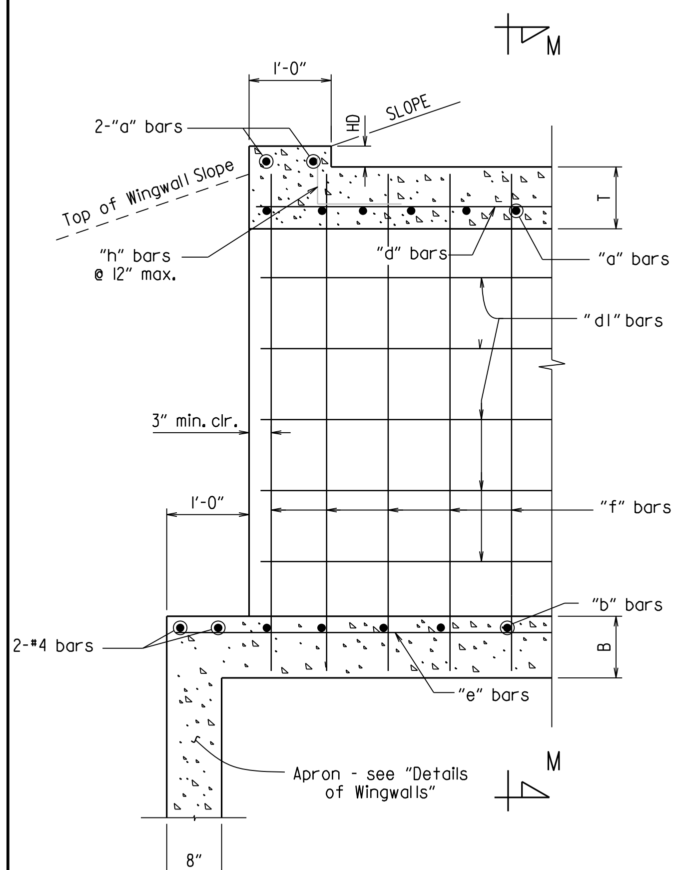


"h" bars sketch



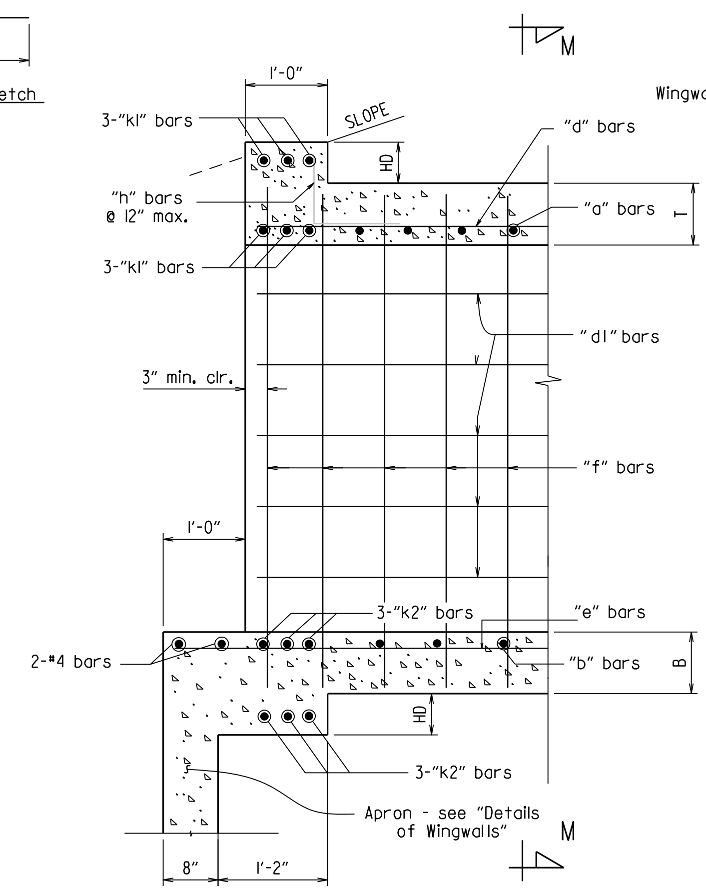
WINGWALL ATTACHMENT

See "Details of Wingwalls" for additional information and wingwall details.



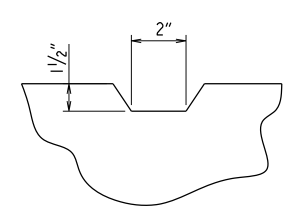
PART LONGITUDINAL SECTION

(Non-Skewed Ends)



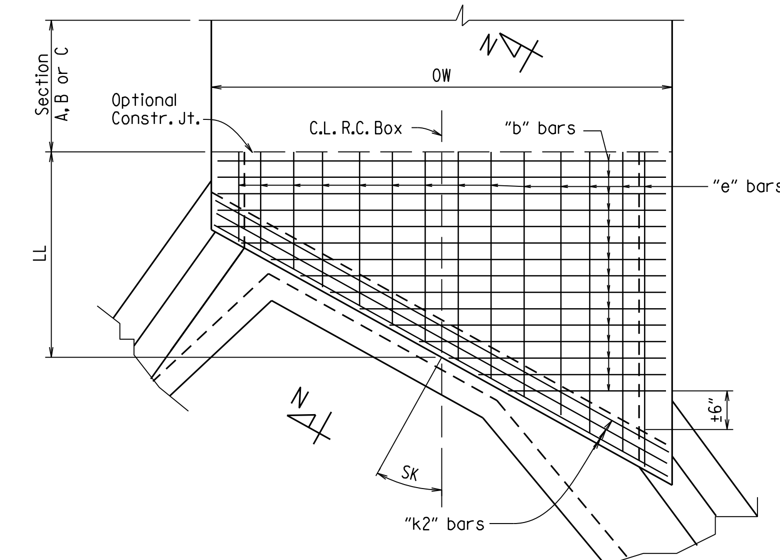
PART LONGITUDINAL SECTION N-N

(Skewed Ends)



TYPICAL KEYWAY DETAIL

(All Construction Joints)



BOTTOM SLAB REINFORCEMENT

SKEWED END SECTION DETAILS

SHEET 2 OF 4

GENERAL DETAILS OF R.C. BOX CULVERT

DETAILS OF SINGLE BARREL R.C. BOX CULVERT

SPECIAL DETAILS

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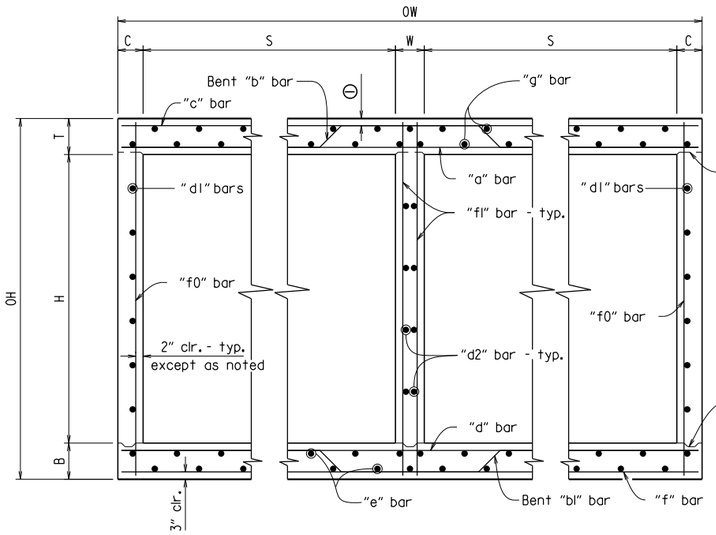
REVISED DATE: $$REVDATE$$

DATE REVISED	DATE REVISED	FED.RD. DIST.NO.	STATE	JOB NO.	SHEET NO.	TOTAL SHEETS
		6	ARK.	080711	14	123
		SPECIAL DETAILS				

① 2" clr. for fill depth (D) greater than 2 ft.
2½" clr. for fill depth (D) equal to or less than 2 ft.

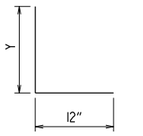
Note: When top slab of culvert serves as finished roadway surface, see General Notes on Sheet 1 of 4.



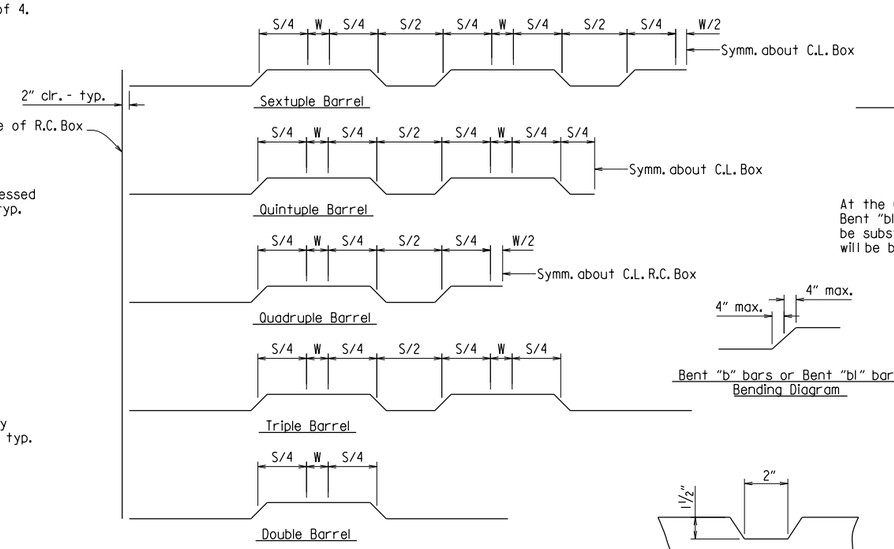
TYPICAL SECTION M-M

Top Slab
Straight "c" bars shall alternate with Bent "b" bars in top.
Straight "a" bars shall alternate with Bent "b" bars in bottom.

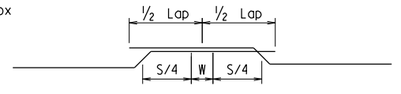
Bottom Slab
Straight "d" bars shall alternate with Bent "bl" bars in top.
Straight "f" bars shall alternate with Bent "bl" bars in bottom.



"h" bars sketch



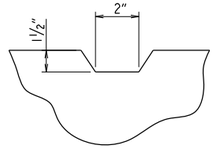
Bent "b" bars or Bent "bl" bars sketch



Lap Detail
For Bent "b" bars and Bent "bl" bars

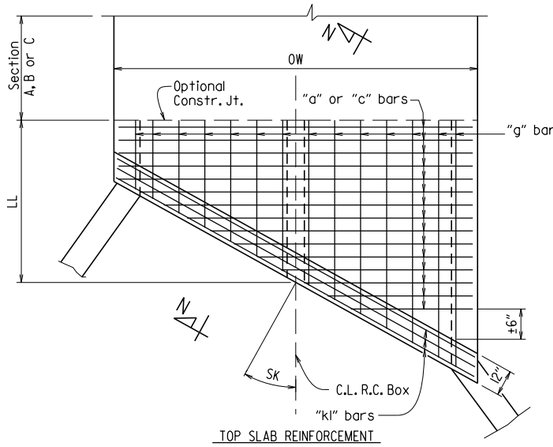
At the Contractor's option in lieu of providing Bent "b" or Bent "bl" bars, one bar top and bottom of equivalent size may be substituted for each bent bar. Payment for the reinforcing will be based on the weight of the "b" or "bl" bar.

Bent "b" bars or Bent "bl" bars
Bending Diagram

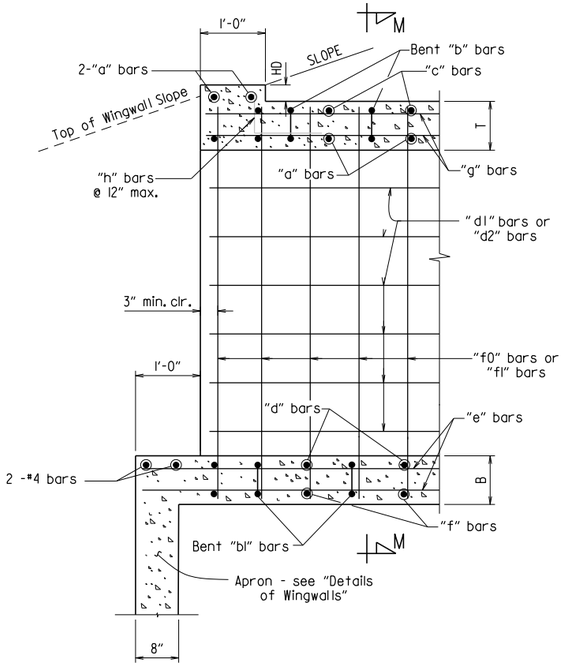


TYPICAL KEYWAY DETAIL

(All Construction Joints)

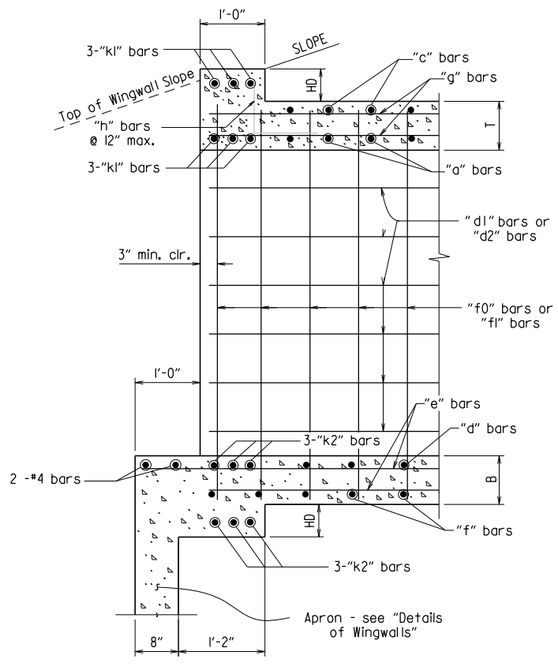


TOP SLAB REINFORCEMENT
Straight "c" bars in top.
Straight "a" bars in bottom.



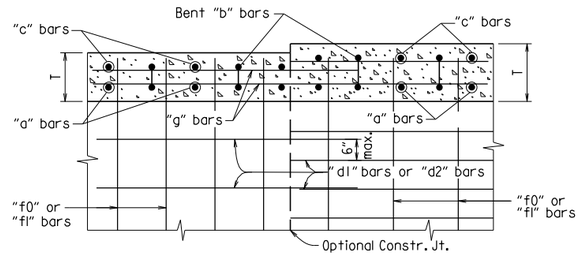
PART LONGITUDINAL SECTION

(Non-Skewed Ends)



PART LONGITUDINAL SECTION N-N

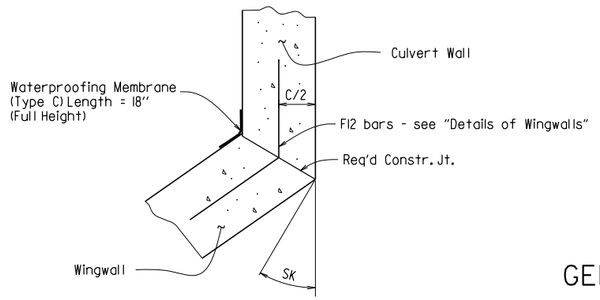
(Skewed Ends)



Longitudinal Bar Spacing at individual sections shall be maintained, which may result in noncontact bar laps.

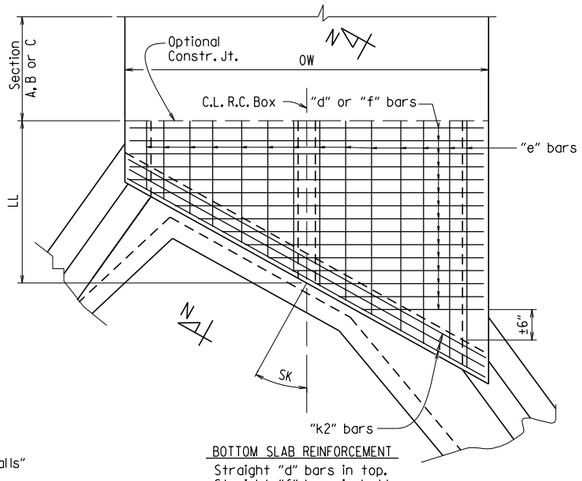
LONGITUDINAL LAP DETAIL AT CHANGE IN SECTIONS

TOP SLAB SHOWN, BOTTOM SLAB SIMILAR



WINGWALL ATTACHMENT

See "Details of Wingwalls" for additional information and wingwall details.



BOTTOM SLAB REINFORCEMENT
Straight "d" bars in top.
Straight "f" bars in bottom.

SKEWED END SECTION DETAILS

SHEET 3 OF 4
GENERAL DETAILS OF R.C. BOX CULVERT

DETAILS OF MULTI-BARREL R.C. BOX CULVERT

SPECIAL DETAILS

STATE OF ARKANSAS
LICENSED PROFESSIONAL ENGINEER
No. 20113
ETHAN R. B. BAKER
5-1-24

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REVISED DATE: $$REVDATE$$

DATE REVISED	DATE REVISED	FED.RD. DIST.NO.	STATE	JOB NO.	SHEET NO.	TOTAL SHEETS
		6	ARK.	080711	15	123
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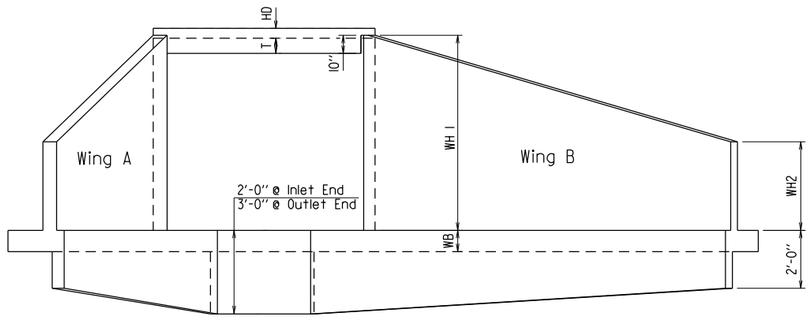
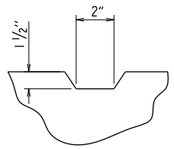
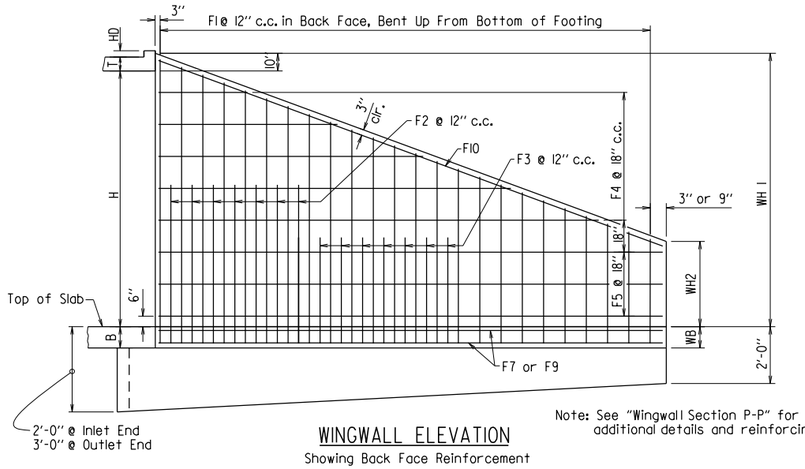


END ELEVATION
Flared Wingwalls Shown

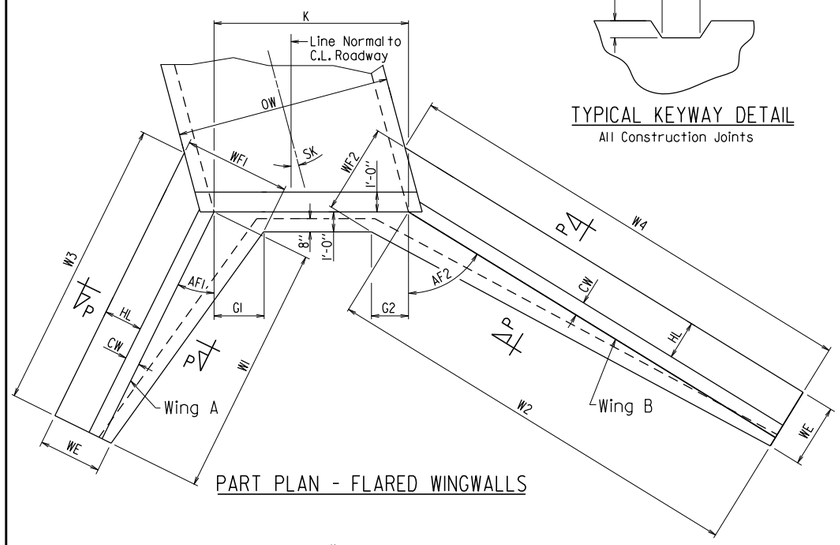


TYPICAL KEYWAY DETAIL
All Construction Joints

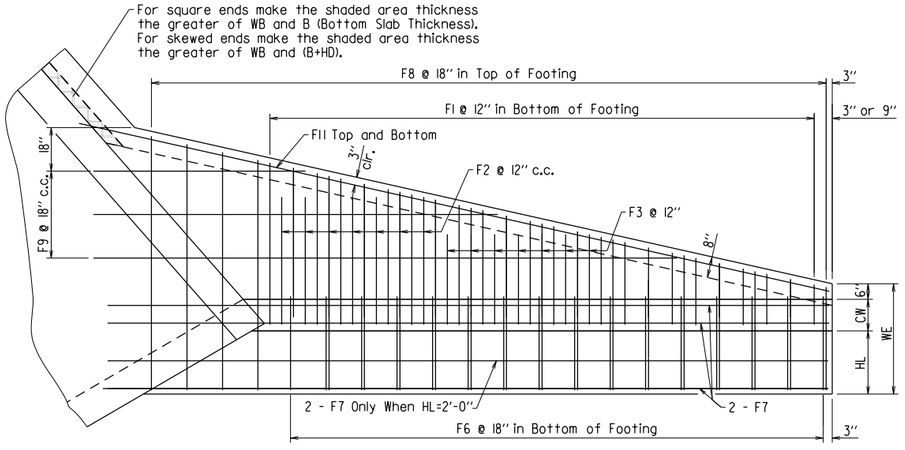


WINGWALL ELEVATION
Showing Back Face Reinforcement

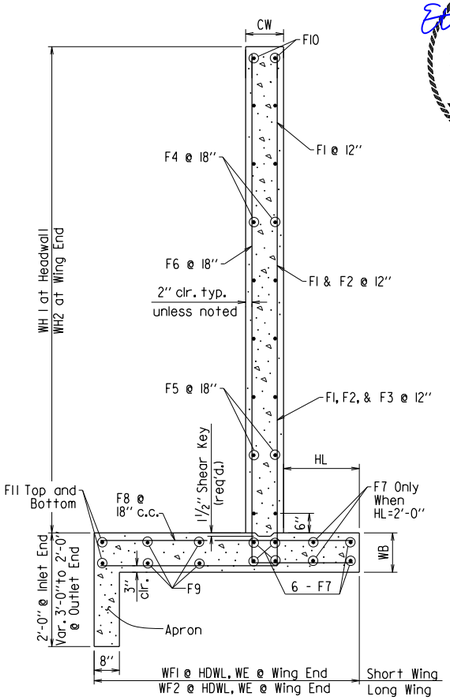
Note: See "Wingwall Section P-P" for additional details and reinforcing.



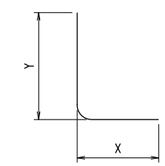
PART PLAN - FLARED WINGWALLS



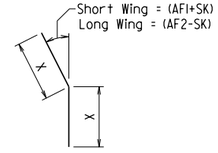
PLAN - FLARED WINGWALLS
Showing Footing Reinforcement



WINGWALL SECTION P-P

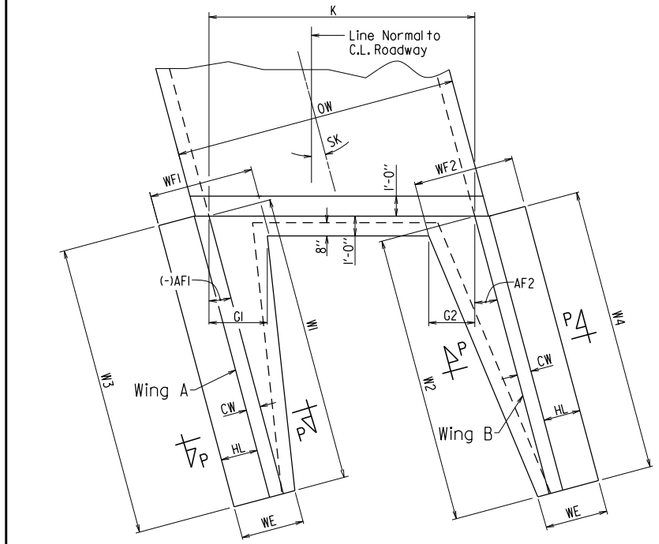


F1, F2, F3, & F6 BARS

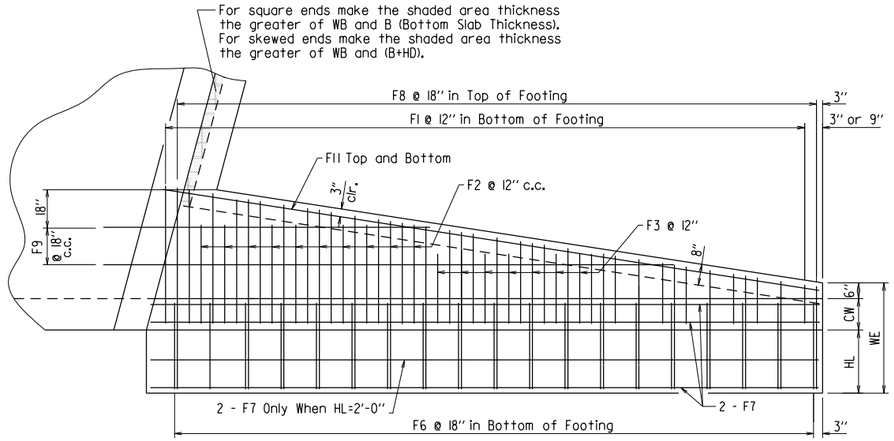


①F12 BAR

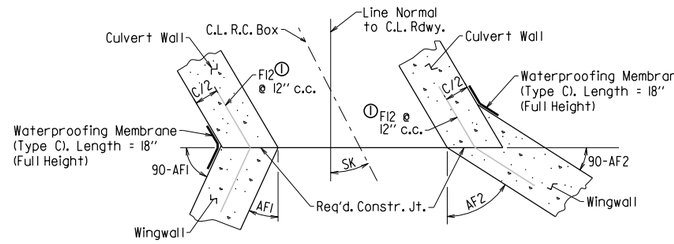
①F12 is a straight bar for parallel wingwalls



PART PLAN - PARALLEL WINGWALLS



PLAN - PARALLEL WINGWALLS
Showing Footing Reinforcement



CONSTRUCTION JOINTS
Flared Wingwalls Shown

SHEET 4 OF 4

GENERAL DETAILS OF R.C. BOX CULVERT

DETAILS OF WINGWALLS

SPECIAL DETAILS

STATE OF ARKANSAS
LICENSED PROFESSIONAL ENGINEER
No.20113
ETHAN R. B. BAKER
3-1-24

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WORKSPACE: ARDOT
Y:\Projects\ARDOT_19643_080711_Highway 113 Relocation\Design\CIVIL\Drawings\R080711_04_SD_002 (Culvert-General).dgn
REVISED DATE: $$REVDATE$$

INLET WINGWALL TABLE

OVER ALL WIDTH	CLEAR HEIGHT	FOOTING THK.	WING WALL THK.	BOX SKEW (DEG.)	SLOPE	HDWL LENGTH	HEEL	WALL HEIGHT		WINGWALL ANGLE (DEGREE)		FOOTING WIDTH AT WALL END	WIDTH OF WING FOOTINGS AT HDWL		FOOTING DIMENSION PARALLEL WITH HDWL		LENGTH OF WINGWALLS		LENGTH OF FOOTING HEEL	
								AT HDWL	AT WING END	WING A	WING B		WING A	WING B	WING A	WING B	WING A	WING B	WING A	WING B
OW	**H**	**WB**	**CW**	**SK**	**SL**	**K**	**HL**	**WH1**	**WH2**	**AF1**	**AF2**	**WE**	**WF1**	**WF2**	**G1**	**G2**	**W1**	**W2**	**W3**	**W4**
29'-9"	9'-0"	0'-10"	0'-9"	35	3:1	34'-7 1/8"	2'-0"	9'-10"	3'-0"	0	60	3'-3"	4'-4 3/8"	5'-4 1/2"	1'-7 3/8"	3'-6 1/4"	20'-6"	41'-0"	23'-2 1/4"	45'-2 5/8"

CLASS "S" CONCRETE (Includes apron)	REINFORCING STEEL (Includes apron and laps if required)
INLET	INLET
CU.YD	**LBS.**
22.69	2081

WING	F1						F2					F3					F4				F5				F6					
	BAR SIZE	MAX. SPACING	NO. REQ'D	LENGTHS VARY			BAR SIZE	SPACING	NO. REQ'D	LENGTHS		BAR SIZE	SPACING	NO. REQ'D	LENGTHS		BAR SIZE	SPACING	NO. REQ'D	LENGTHS VARY	BAR SIZE	SPACING	NO. REQ'D	LENGTHS	BAR SIZE	SPACING	NO. REQ'D	LENGTHS VARY		
WING A	4	12	21	L	Min	4'-2"	4	12	6	L	5'-2"	-	-	-	L	-	4	18	8	Min	4	18	4	20'-2"	4	18	14	L	Min	5'-11"
					Max	12'-0"														4'-10"									Max	12'-5"
				X	Min	0'-10"				X	1'-8"				X	-												X	Min	2'-5"
					Max	2'-0"														Max									Max	2'-5"
				Y	Min	3'-5"				Y	3'-7"				Y	-				18'-4"								Y	Min	3'-7"
					Max	10'-1"																							Max	10'-1"
WING B	4	12	41	L	Min	4'-3"	4	12	18	L	6'-5"	-	-	-	L	-	4	18	8	Min	4	18	4	40'-8"	4	18	28	L	Min	5'-8"
					Max	12'-11"														9'-10"									Max	12'-6"
				X	Min	0'-10"				X	1'-11"				X	-												X	Min	2'-5"
					Max	2'-10"														Max									Max	2'-5"
				Y	Min	3'-6"				Y	4'-7"				Y	-				36'-10"								Y	Min	3'-4"
					Max	10'-2"																							Max	10'-2"

WING	F7			F8				F9				F10			F11			F12					REINF. STEEL QTY. PER WING (LBS)
	BAR SIZE	NO. REQ'D	LENGTHS	BAR SIZE	SPACING	NO. REQ'D	LENGTHS VARY	BAR SIZE	SPACING	NO. REQ'D	LENGTHS	BAR SIZE	NO. REQ'D	LENGTHS	BAR SIZE	NO. REQ'D	LENGTHS	BAR SIZE	SPACING	NO. REQ'D	LENGTHS		
WING A	4	8	24'-0"	6	18	14	Min	4	18	2	Min	4	2	21'-2"	4	2	21'-4"	6	12	9	L	3'-4"	697
							2'-9"				28'-2"												
							Max				Max										X	1'-8"	
							3'-10"				28'-2"												
WING B	4	8	46'-1"	6	18	30	Min	4	18	2	Min	4	2	41'-1"	4	2	46'-8"	6	12	9	L	3'-4"	1384
							2'-9"				33'-5"												
							Max				Max										X	1'-8"	
							4'-11"				33'-5"												

MID-SECTION BAR LAP TABLE

# of Long. Laps Req'd.	SL = Section Length
0	< 40.0 ft
1	>40.0 ft - 78.0 ft
2	>78.0 ft - 116.0 ft
3	>116.0 ft - 154.0 ft
4	>154.0 ft - 192.0 ft
5	>192.0 ft - 230.0 ft
6	>230.0 ft - 268.0 ft
7	>268.0 ft - 306.0 ft
8	>306.0 ft -344.0 ft

Min. Bar Lap Length	
#4	1'-9"
#5	2'-2"
#6	2'-7"
#7	3'-6"
#8	4'-7"

Bar Pin Dia. Table	
#4	3"
#5	3 3/4"
#6	4 1/2"
#7	5 1/4"
#8	6"

Ethan Baker

ETHAN R. B. BAKER
No.20113
3-1-24

TABULAR DATA BY: TBK DATE: 1/17/2024
CHECKED BY: MHA DATE: 1/25/2024

This drawing to be used in conjunction with
SHEET 1 OF 4, "GENERAL DETAILS OF R.C. BOX CULVERT", 'GENERAL NOTES & LONGITUDINAL SECTION LENGTH SCHEDULE',
SHEET 3 OF 4, "GENERAL DETAILS OF R.C. BOX CULVERT", 'DETAILS OF MULTI-BARREL R.C. BOX CULVERT',
SHEET 4 OF 4, "GENERAL DETAILS OF R.C. BOX CULVERT", 'DETAILS OF WINGWALLS', and
STANDARD DRAWING RCB-2.

For additional information and outlet sections, see Sheet 2 of 2.

① Any Bar Lap Required for the Skewed End Section shall be considered subsidiary to the item "Reinforcing Steel - Roadway (Grade 60)."

INLET SKEWED END SECTION

SKEW (DEGREE)	SLOPE	DESIGN FILL DEPTH (FT.)	CLEAR SPAN (FT.)	CLEAR HEIGHT (FT.)	SECTION LENGTH	TOP SLAB THK.	HDWL DEPTH	BOTTOM SLAB THK.	SIDE WALL THK.	INTERIOR WALL THK.	OVER ALL WIDTH	OVER ALL HEIGHT	TOP SLAB REINFORCING STEEL								BOTTOM SLAB REINFORCING STEEL							
													"a"				"c"				"d"				"f"			
SK	**SL**	**D**	**S**	**H**	**LL**	**T**	**HD**	**B**	**C**	**W**	**OW**	**OH**	SIZE	SPACING	LENGTHS VARY	NO. REQ'D	SIZE	SPACING	LENGTHS VARY	NO. REQ'D	SIZE	SPACING	LENGTHS VARY	NO. REQ'D	SIZE	SPACING	LENGTHS VARY	NO. REQ'D
35	3:1	10	9	9	12'-5"	8.5	3	10	8.5	8	29'-9"	10'-6 1/2"	4	4	Max	56	6	6.5	Max	35	5	4.5	Max	50	4	5	Max	45
															29'-5"				29'-5"				29'-5"				29'-5"	
															Min				Min				Min				Min	
															2'-10"				2'-10"				2'-10"				2'-10"	
															29'-5"	6			29'-5"	4			29'-5"	6			29'-5"	5

SIDE WALL REINFORCING STEEL				INTERIOR WALL REINFORCING STEEL				TOP SLAB DISTRIBUTION REINFORCING STEEL				BOTTOM SLAB DISTRIBUTION REINFORCING STEEL				SIDE WALL DISTRIBUTION REINFORCING STEEL				INTERIOR WALL DISTRIBUTION REINFORCING STEEL			
"f0"				"f1"				"g"				"e"				"d1"				"d2"			
SIZE	SPACING	NO. REQ'D	LENGTH	SIZE	SPACING	NO. REQ'D	LENGTH	SIZE	SPACING	NO. REQ'D	LENGTHS VARY	SIZE	SPACING	NO. REQ'D	LENGTHS VARY	SIZE	SPACING	NO. REQ'D	LENGTH	SIZE	SPACING	NO. REQ'D	LENGTH
7	8	38	10'-3"	4	12	54	10'-3"	4	12	59	Max	4	11	59	Max	4	12	9	LONG	4	12	18	LONG
											22'-8"				22'-8"				22'-3"				15'-8"
											Min				Min			9	SHORT			18	SHORT
											1'-10"				1'-10"				2'-3"				8'-10"

CLASS "S" CONCRETE (Includes HDWL)	① REINFORCING STEEL (GR 60) (Includes HDWL)
CU. YDS.	LBS.
33.20	6256

"k1" HDWL BARS			"k2" HDWL BARS			"h" HDWL BARS			
SIZE	LENGTH	NO. REQ'D	SIZE	LENGTH	NO. REQ'D	SIZE	LENGTH	Y	NO. REQ'D
4	36'-0"	6	4	36'-0"	6	4	1'-7"	0'-7"	38

INLET SLOPE SECTION(S)

R.C. BOX SECTION	DESIGN FILL DEPTH (FT.)	CLEAR SPAN (FT.)	CLEAR HEIGHT (FT.)	TOP SLAB THK.	BOTTOM SLAB THK.	SIDE WALL THK.	INTERIOR WALL THK.	OVER ALL WIDTH	OVER ALL HEIGHT	SECTION LENGTH (FT.)	LENGTH = OW - 4" + BENDS								BOTTOM SLAB REINFORCING STEEL LENGTH = OW - 4" + BENDS								SIDE WALL REINFORCING STEEL "f0" LENGTH = OH - 4"				INTERIOR WALL REINFORCING STEEL "f1" LENGTH = OH - 4"				TOP SLAB DISTRIBUTION REINFORCING STEEL "g" LENGTH = SL			BOTTOM SLAB DISTRIBUTION REINFORCING STEEL "e" LENGTH = SL			SIDE WALL DISTRIBUTION REINFORCING STEEL "d1" LENGTH = SL			INTERIOR WALL DISTRIBUTION REINFORCING STEEL "d2" LENGTH = SL		
											"a"		Bent "b"		"c"		SPACING	NO. REQ'D	"d"		Bent "b1"		"f"		SPACING	NO. REQ'D	SIZE	SPACING	NO. REQ'D	LENGTH	SIZE	SPACING	NO. REQ'D	LENGTH	SIZE	SPACING	NO. REQ'D	SIZE	SPACING	NO. REQ'D	SIZE	SPACING	NO. REQ'D	SIZE	SPACING	NO. REQ'D
	D	**S**	**H**	**T**	**B**	**C**	**W**	**OW**	**OH**	**SL**	SIZE	L	SIZE	L	SIZE	L			SIZE	L	SIZE	L	SIZE	L																						

CLASS "S" CONCRETE	REINFORCING STEEL (GR. 60)
CU. YDS.	LBS.
TOTAL	

HDWL DEPTH	ADDITIONAL REINF. FOR HDWL	"h" HDWL BARS			
HD	LBS.	SIZE	Y	LENGTH	NO. REQ'D

Design Fill Depth	Range of Actual Fill Depth
2	0.0 ft - 2.0 ft
5	>2.0 ft - 5.0 ft
10	>5.0 ft - 10.0 ft
15	>10.0 ft - 15.0 ft
20	>15.0 ft - 20.0 ft
25	>20.0 ft - 25.0 ft
30	>25.0 ft - 30.0 ft
35	>30.0 ft - 35.0 ft
40	>35.0 ft - 40.0 ft

Data shown for Mid-Section, Slope Section(s), and Skewed End Section is based on the design fill depth shown in the table, see PLAN AND PROFILE SHEETS for actual fill depth.

MID-SECTION

R.C. BOX SECTION	DESIGN FILL DEPTH (FT.)	CLEAR SPAN (FT.)	CLEAR HEIGHT (FT.)	TOP SLAB THK.	BOTTOM SLAB THK.	SIDE WALL THK.	INTERIOR WALL THK.	OVER ALL WIDTH	OVER ALL HEIGHT	SECTION LENGTH (FT.)	TOP SLAB REINFORCING STEEL LENGTH = OW - 4" + BENDS								BOTTOM SLAB REINFORCING STEEL LENGTH = OW - 4" + BENDS								SIDE WALL REINFORCING STEEL "f0" LENGTH = OH - 4"				INTERIOR WALL REINFORCING STEEL "f1" LENGTH = OH - 4"				TOP SLAB DISTRIBUTION REINF. STEEL "g" LENGTH = SL			BOTTOM SLAB DISTRIBUTION REINF. STEEL "e" LENGTH = SL			SIDE WALL DISTRIBUTION REINF. STEEL "d1" LENGTH = SL			INTERIOR WALL DISTRIBUTION REINF. STEEL "d2" LENGTH = SL		
											"a"		Bent "b"		"c"		SPACING	NO. REQ'D	"d"		Bent "b1"		"f"		SPACING	NO. REQ'D	SIZE	SPACING	NO. REQ'D	LENGTH	SIZE	SPACING	NO. REQ'D	LENGTH	SIZE	SPACING	NO. REQ'D	SIZE	SPACING	NO. REQ'D	SIZE	SPACING	NO. REQ'D	SIZE	SPACING	NO. REQ'D
	D	**S**	**H**	**T**	**B**	**C**	**W**	**OW**	**OH**	**SL**	SIZE	L	SIZE	L	SIZE	L			SIZE	L	SIZE	L	SIZE	L																						
A	10	9	9	9.5	10.5	12	8	30'-4"	10'-8"	89.17	4	30'-0"	8	30'-5"	4	30'-0"	14	76	4	30'-0"	7	30'-5"	7	30'-0"	13	82	5	6	356	10'-4"	4	12	356	10'-4"	4	11	65	4	10	71	4	9	24	4	12	36

CLASS "S" CONCRETE	REINFORCING STEEL (GR. 60)
CU. YDS.	LBS.
266.04	39524

SHEET 1 OF 2
DETAILS OF R.C. BOX CULVERT
TRIPLE BARREL BOX CULVERT
STA. 204+27.44
SPECIAL DETAILS

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Y:\Projects\ARDOT_19643I_08071I_Highway 113 Relocation\Design\CIVIL\Drawings\R08071I_04_SD_003.dgn
REVISED DATE: $$REVDATE$$

DATE REVISED	DATE REVISED	FED.RD. DIST.NO.	STATE	JOB NO.	SHEET NO.	TOTAL SHEETS
		6	ARK.	080711	17	123
		SPECIAL DETAILS				

OUTLET WINGWALL TABLE

OVER ALL WIDTH	CLEAR HEIGHT	FOOTING THK.	WING WALL THK.	BOX SKEW (DEG.)	SLOPE	HDWL LENGTH	HEEL	WALL HEIGHT		WINGWALL ANGLE (DEGREE)		FOOTING WIDTH AT WALL END	WIDTH OF WING FOOTINGS AT HDWL		FOOTING DIMENSION PARALLEL WITH HDWL		LENGTH OF WINGWALLS		LENGTH OF FOOTING HEEL	
								AT HDWL	AT WING END	WING A	WING B		WING A	WING B	WING A	WING B	WING A	WING B	WING A	WING B
OW	**H**	**WB**	**CW**	**SK**	**SL**	**K**	**HL**	**WH1**	**WH2**	**AF1**	**AF2**	**WE**	**WF1**	**WF2**	**G1**	**G2**	**W1**	**W2**	**W3**	**W4**
29'-9"	9'-0"	0'-10"	0'-9"	35	3:1	34'-7 1/8"	2'-0"	9'-10"	3'-0"	0	60	3'-3"	4'-4 3/8"	5'-4 1/2"	1'-7 3/8"	3'-6 1/4"	20'-6"	41'-0"	23'-2 1/4"	45'-2 5/8"

CLASS "S" CONCRETE (Includes apron)	REINFORCING STEEL (Includes apron and laps if required)
OUTLET	OUTLET
CU.YD	**LBS.**
24.20	2081

WING	F1						F2					F3					F4				F5			
	BAR SIZE	MAX. SPACING	NO. REQ'D	LENGTHS VARY			BAR SIZE	SPACING	NO. REQ'D	LENGTHS		BAR SIZE	SPACING	NO. REQ'D	LENGTHS		BAR SIZE	SPACING	NO. REQ'D	LENGTHS VARY	BAR SIZE	SPACING	NO. REQ'D	LENGTHS
WING A	4	12	21	L	Min	4'-2"	4	12	6	L	5'-2"	-	-	-	L	-	4	18	8	Min	4	18	4	20'-2"
					Max	12'-0"														4'-10"				
				X	Min	0'-10"				X	1'-8"				X	-								
					Max	2'-0"														Max				
				Y	Min	3'-5"				Y	3'-7"				Y	-				18'-4"				
					Max	10'-1"																		
WING B	4	12	41	L	Min	4'-3"	4	12	18	L	6'-5"	-	-	-	L	-	4	18	8	Min	4	18	4	40'-8"
					Max	12'-11"														9'-10"				
				X	Min	0'-10"				X	1'-11"				X	-								
					Max	2'-10"														Max				
				Y	Min	3'-6"				Y	4'-7"				Y	-				36'-10"				
					Max	10'-2"																		

WING	F6						F7			F8				F9				F10			F11			F12					REINF. STEEL QTY. PER WING (LBS)
	BAR SIZE	SPACING	NO. REQ'D	LENGTHS VARY			BAR SIZE	NO. REQ'D	LENGTHS	BAR SIZE	SPACING	NO. REQ'D	LENGTHS VARY	BAR SIZE	SPACING	NO. REQ'D	LENGTHS	BAR SIZE	NO. REQ'D	LENGTHS	BAR SIZE	NO. REQ'D	LENGTHS	BAR SIZE	SPACING	NO. REQ'D	LENGTHS		
WING A	4	18	14	L	Min	5'-11"	4	8	24'-0"	6	18	14	Min	4	18	2	Min	4	2	21'-2"	4	2	21'-4"	6	12	9	L	3'-4"	697
					Max	12'-5"							2'-9"				28'-2"												
				X	Min	2'-5"																							
					Max	2'-5"							Max				Max										X	1'-8"	
				Y	Min	3'-7"							3'-10"				28'-2"												
					Max	10'-1"																							
WING B	4	18	28	L	Min	5'-8"	4	8	46'-1"	6	18	30	Min	4	18	2	Min	4	2	41'-1"	4	2	46'-8"	6	12	9	L	3'-4"	1384
					Max	12'-6"							2'-9"				33'-5"												
				X	Min	2'-5"																							
					Max	2'-5"							Max				Max										X	1'-8"	
				Y	Min	3'-4"							4'-11"				33'-5"												
					Max	10'-2"																							

Min. Bar Lap Length	
#4	1'-9"
#5	2'-2"
#6	2'-7"
#7	3'-6"
#8	4'-7"

Bar Pin Dia. Table	
#4	3"
#5	3 3/4"
#6	4 1/2"
#7	5 1/4"
#8	6"

① Any Bar Lap Required for the Skewed End Section shall be considered subsidiary to the item "Reinforcing Steel - Roadway (Grade 60)."

Ethan Baker

ETHAN R. B. BAKER
No.20113
3-1-24

TABULAR DATA BY: TBK DATE: 1/17/2024
CHECKED BY: MHA DATE: 1/25/2024

OUTLET SKEWED END SECTION

SKEW (DEGREE)	SLOPE	DESIGN FILL DEPTH (FT.)	CLEAR SPAN (FT.)	CLEAR HEIGHT (FT.)	SECTION LENGTH	TOP SLAB THK.	HDWL DEPTH	BOTTOM SLAB THK.	SIDE WALL THK.	INTERIOR WALL THK.	OVER ALL WIDTH	OVER ALL HEIGHT	TOP SLAB REINFORCING STEEL								BOTTOM SLAB REINFORCING STEEL								SIDE WALL REINFORCING STEEL				INTERIOR WALL REINFORCING STEEL				TOP SLAB DISTRIBUTION REINFORCING STEEL				BOTTOM SLAB DISTRIBUTION REINFORCING STEEL				SIDE WALL DISTRIBUTION REINFORCING STEEL				INTERIOR WALL DISTRIBUTION REINFORCING STEEL				CLASS "S" CONCRETE (Includes HDWL)	① REINFORCING STEEL (GR 60) (Includes HDWL)
													"a"				"c"				"d"				"f"				"f0"				"f1"				"g"				"e"				"d1"				"d2"					
SK	**SL**	**D**	**S**	**H**	**LL**	**T**	**HD**	**B**	**C**	**W**	**OW**	**OH**	SIZE	SPACING	LENGTHS VARY	NO. REQ'D	SIZE	SPACING	LENGTHS VARY	NO. REQ'D	SIZE	SPACING	LENGTHS VARY	NO. REQ'D	SIZE	SPACING	LENGTHS VARY	NO. REQ'D	SIZE	SPACING	NO. REQ'D	LENGTH	SIZE	SPACING	NO. REQ'D	LENGTH	SIZE	SPACING	NO. REQ'D	LENGTHS VARY	SIZE	SPACING	NO. REQ'D	LENGTHS VARY	SIZE	SPACING	NO. REQ'D	LENGTH	SIZE	SPACING	NO. REQ'D	LENGTH	CU. YDS.	LBS.
35	3:1	10	9	9	12'-5"	8.5	3	10	8.5	8	29'-9"	10'-6 1/2"	4	4	Max	56	6	6.5	Max	35	5	4.5	Max	50	4	5	Max	45	7	8	38	10'-3"	4	12	54	10'-3"	4	12	59	Max	4	11	59	Max	4	12	9	LONG	4	12	18	LONG	33.20	6256
															29'-5"				29'-5"				29'-5"				29'-5"													22'-8"				22'-8"				22'-3"				15'-8"		
															Min				Min				Min				Min													Min				Min			9	SHORT			18	SHORT		
															2'-10"				2'-10"				2'-10"				2'-10"													1'-10"				1'-10"				2'-3"				8'-10"		
															29'-5"	6			29'-5"	4			29'-5"	6			29'-5"	5																										

"k1" HDWL BARS			"k2" HDWL BARS			"h" HDWL BARS			
SIZE	LENGTH	NO. REQ'D	SIZE	LENGTH	NO. REQ'D	SIZE	LENGTH	Y	NO, REQ'D
4	36'-0"	6	4	36'-0"	6	4	1'-7"	0'-7"	38

OUTLET SLOPE SECTION(S)

R.C. BOX SECTION	DESIGN FILL DEPTH (FT.)	CLEAR SPAN (FT.)	CLEAR HEIGHT (FT.)	TOP SLAB THK.	BOTTOM SLAB THK.	SIDE WALL THK.	INTERIOR WALL THK.	OVER ALL WIDTH	OVER ALL HEIGHT	SECTION LENGTH (FT.)	LENGTH = OW - 4" + BENDS								BOTTOM SLAB REINFORCING STEEL LENGTH = OW - 4" + BENDS								SIDE WALL REINFORCING STEEL "f0" LENGTH = OH - 4"				INTERIOR WALL REINFORCING STEEL "f1" LENGTH = OH - 4"				TOP SLAB DISTRIBUTION REINFORCING STEEL "g" LENGTH = SL			BOTTOM SLAB DISTRIBUTION REINFORCING STEEL "e" LENGTH = SL			SIDE WALL DISTRIBUTION REINFORCING STEEL "d1" LENGTH = SL			INTERIOR WALL DISTRIBUTION REINFORCING STEEL "d2" LENGTH = SL		
											"a"		Bent "b"		"c"		SPACING	NO. REQ'D	"d"		Bent "b1"		"f"		SPACING	NO. REQ'D																				
	D	**S**	**H**	**T**	**B**	**C**	**W**	**OW**	**OH**	**SL**	SIZE	L	SIZE	L	SIZE	L			SIZE	L	SIZE	L	SIZE	L			SIZE	SPACING	NO. REQ'D	LENGTH	SIZE	SPACING	NO. REQ'D	LENGTH	SIZE	SPACING	NO. REQ'D	SIZE	SPACING	NO. REQ'D	SIZE	SPACING	NO. REQ'D	SIZE	SPACING	NO. REQ'D

HDWL DEPTH	ADDITIONAL REINF. FOR HDWL	"h" HDWL BARS			
HD	LBS.	SIZE	Y	LENGTH	NO. REQ'D

CLASS "S" CONCRETE	REINFORCING STEEL (GR. 60)
CU. YDS.	LBS.
TOTAL	

The required number of bars and lengths shown are for estimating purpose only.
The actual number and length required shall be determined in field.

Unless otherwise noted, all dimensions are in inches.

SHEET 2 OF 2

DETAILS OF R.C. BOX CULVERT

TRIPLE BARREL BOX CULVERT
STA. 204+27.44

SPECIAL DETAILS

LRFD

Raiyan.Chowdhury3/1/2024 3:39:14 PM
WORKSPACE: ARDOT
Y:\Projects\ARDOT_196431_080711_Highway 113 Relocation\Design\CIVIL\Drawings\R080711_04_SD_003.dgn
REVISED DATE: $$REVDATE$$

DATE REVISED	DATE REVISED	FED.RD. DIST.NO.	STATE	JOB NO.	SHEET NO.	TOTAL SHEETS
		6	ARK.	080711	18	123
		TEMPORARY EROSION CONTROL DETAILS				

LEGEND

- (E-6) = ROCK DITCH CHECK
- (E-5) = SAND BAG DITCH CHECK
- (E-11) = SILT FENCE

NOTES:

1. CLEARING & GRUBBING OPERATIONS TO BE PERFORMED BY OTHERS PRIOR TO ISSUANCE OF WORK ORDER PER ARDOT.

2. EROSION CONTROL ITEMS ARE TO BE INSTALLED AND MAINTAINED BY THE CONTRACTOR.

STATE OF ARKANSAS
LICENSED PROFESSIONAL ENGINEER
ROBERT B. DARRINGTON
No.20584
03-01-2024

N

POB 99+95.00
100+00
EXIST. R/W
C.L. EXIST. HWY. 113
EXIST. R/W
PC 103+63.37
105+00
N02°39'57"E
C.L. PROP. HWY. 113
N02°39'57"E N0°48'04"E
PI 107+36.34
110+00
PCC 111+09.25
PROP. R/W
EXIST. R/W
C.L. PROP. HWY. 113
N0°48'04"E
EXIST. R/W
PROP. R/W
T.C.E.
115+00

STA. 103+95.00
BEGIN JOB 080711
LOG MILE 0.855

TEMPORARY EROSION CONTROL GENERAL NOTES:

THE QUANTITIES AND LOCATIONS OF THE EROSION CONTROL DEVICES SHOWN IN THE PLANS ARE ESTIMATED AND MAY BE ALTERED IF AND WHERE DIRECTED BY THE ENGINEER TO MAXIMIZE THEIR EFFECTIVENESS. THE DEVICES ARE TO BE INSTALLED IN AN AREA ONLY WHEN THE SOIL DISTURBING ACTIVITY IN THAT AREA BEGINS.

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REVISIONS

DATE OF REVISION	REVISION

SILT FENCE (E-11)		LIN. FT.
STA. 104+00 TO STA. 130+00	LT.	2754
STA. 104+00 TO STA. 130+00	RT.	2455
ROCK DITCH CHECKS (E-6)		**INSTALLATION**
STA. 104+00 TO STA. 130+00	LT.	2
STA. 104+00 TO STA. 130+00	RT.	6
SANDBAG DITCH CHECKS (E-5)		**INSTALLATION**
STA. 104+00 TO STA. 130+00	LT.	5
STA. 104+00 TO STA. 130+00	RT.	5

115+00
PROP. R/W
120+00
PI 125+65.69
125+00
C.L. PROP. HWY. 113
N75°39'43"W
130+00
PROP. R/W
PROP. R/W
EXIST. R/W
N0°48'04"E
EXIST. HWY. 113
EXIST. R/W
T.C.E.
PI 119+65.16
N75°39'43"W

N

HWY. 113 - CLEARING AND GRUBBING
TEMPORARY EROSION CONTROL DETAILS

Rajyan.Chowdhury3/1/2024 2:52:36 PM
WORKSPACE: ARDOT
Y:\Projects\ARDOT_19643\080711_Highway 113 Relocation\Design\CIVIL\Drawings\R080711L_05_EC00_001.dgn
REVISED DATE: $$REVDATE$$

DATE REVISED	DATE REVISED	FED.RD. DIST.NO.	STATE	JOB NO.	SHEET NO.	TOTAL SHEETS
03-25-24		6	ARK.	080711	19	123
		TEMPORARY EROSION CONTROL DETAILS				

UNNAMED TRIBUTARY

UNNAMED TRIBUTARY

PROP. R/W

C.L. PROP. HWY. 113

130+00

135+00

N75°39'43"W

25' BUFFER. REFER TO SPECIAL PROVISION "STORM WATER POLLUTION PREVENTION PLAN".

PC 133+08.56

PROP. R/W

C.L. PROP. HWY. 113

140+00

PI 144+43.77

N13°48'02"E

25' BUFFER. REFER TO SPECIAL PROVISION "STORM WATER POLLUTION PREVENTION PLAN".

PROP. R/W

PROP. R/W

STATE OF ARKANSAS
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No.20584
03-25-2024

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NOTES:

1. CLEARING & GRUBBING OPERATIONS TO BE PERFORMED BY OTHERS PRIOR TO ISSUANCE OF WORK ORDER PER ARDOT

2. EROSION CONTROL ITEMS ARE TO BE INSTALLED AND MAINTAINED BY THE CONTRACTOR.

SILT FENCE (E-II)		LIN. FT.
STA. 130+00 TO STA. 160+00	LT.	2960
STA. 130+00 TO STA. 160+00	RT.	2790

PROP. R/W

145+00

N13°48'02"E

150+00

C.L. PROP. HWY. 113

PROP. R/W

PT 150+97.80

155+00

C.L. PROP. HWY. 113

PROP. R/W

PC 158+72.70

N13°48'02"E

160+00

N13°48'02"E

PROP. R/W

N

LEGEND

(E-6) = ROCK DITCH CHECK

(E-II) = SILT FENCE

REVISIONS

DATE OF REVISION	REVISION

HWY. 113 - CLEARING AND GRUBBING
TEMPORARY EROSION CONTROL DETAILS

Rolyan.Chowdhury3/25/2024 3:08:22 PM
WORKSPACE: ARDOT
Y:\Projects\ARDOT_19643_080711_Highway 113 Relocation\Design\CIVIL\Drawings\R080711_05_EC00_002.dgn
REVISED DATE: $$REVDATE$$

DATE REVISED	DATE REVISED	FED.RD. DIST.NO.	STATE	JOB NO.	SHEET NO.	TOTAL SHEETS
03-25-24		6	ARK.	080711	20	123
		TEMPORARY EROSION CONTROL DETAILS				

REVISIONS

DATE OF REVISION	REVISION

LEGEND

- (E-6) = ROCK DITCH CHECK
- (E-5) = SAND BAG DITCH CHECK
- (E-11) = SILT FENCE

STATE OF ARKANSAS
LICENSED PROFESSIONAL ENGINEER
No.20584
ROBERT B. DARRINGTON
03-25-2024

NOTES:

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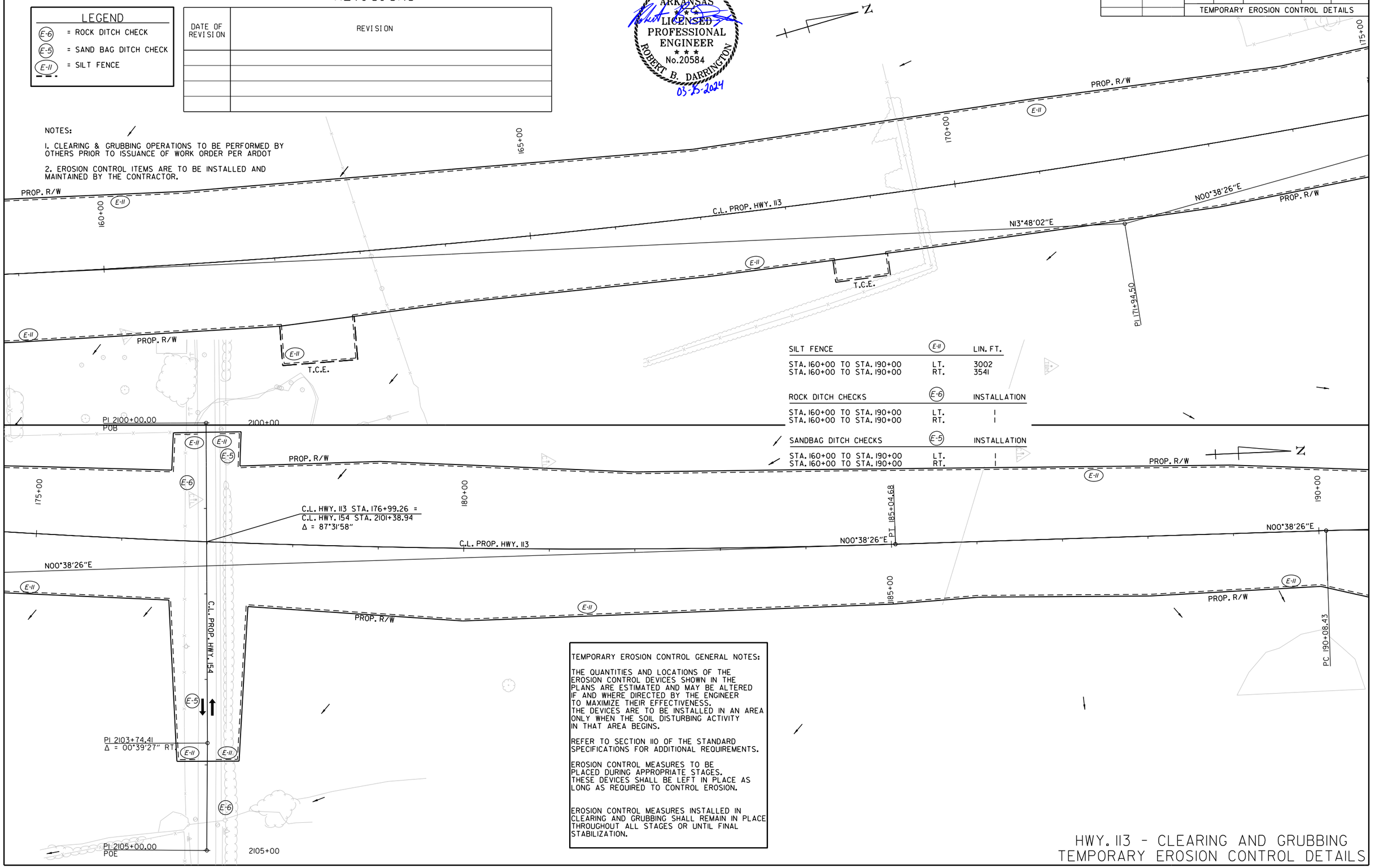

SILT FENCE	(E-11)	LIN. FT.
STA. 160+00 TO STA. 190+00	LT.	3002
STA. 160+00 TO STA. 190+00	RT.	3541

ROCK DITCH CHECKS	(E-6)	INSTALLATION
STA. 160+00 TO STA. 190+00	LT.	1
STA. 160+00 TO STA. 190+00	RT.	1

SANDBAG DITCH CHECKS	(E-5)	INSTALLATION
STA. 160+00 TO STA. 190+00	LT.	1
STA. 160+00 TO STA. 190+00	RT.	1

TEMPORARY EROSION CONTROL GENERAL NOTES:

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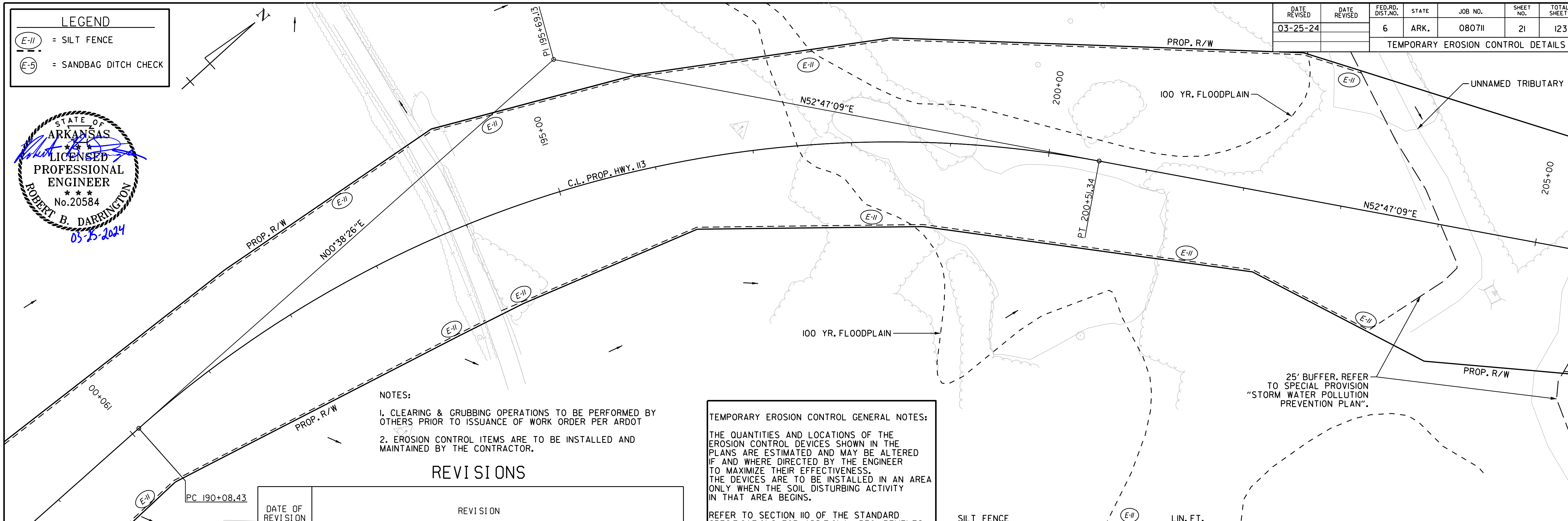
HWY. 113 - CLEARING AND GRUBBING
TEMPORARY EROSION CONTROL DETAILS

DATE REVISED	DATE REVISED	FED.RD. DIST.NO.	STATE	JOB NO.	SHEET NO.	TOTAL SHEETS
03-25-24		6	ARK.	080711	21	123
		TEMPORARY EROSION CONTROL DETAILS				

LEGEND

- (E-11) = SILT FENCE
- (E-5) = SANDBAG DITCH CHECK

STATE OF ARKANSAS LICENSED PROFESSIONAL ENGINEER ★ ★ ★ No.20584 ROBERT B. DARRINGTON
03-25-2024



NOTES:

1. CLEARING & GRUBBING OPERATIONS TO BE PERFORMED BY OTHERS PRIOR TO ISSUANCE OF WORK ORDER PER ARDOT
2. EROSION CONTROL ITEMS ARE TO BE INSTALLED AND MAINTAINED BY THE CONTRACTOR.

REVISIONS

DATE OF REVISION	REVISION

TEMPORARY EROSION CONTROL GENERAL NOTES:

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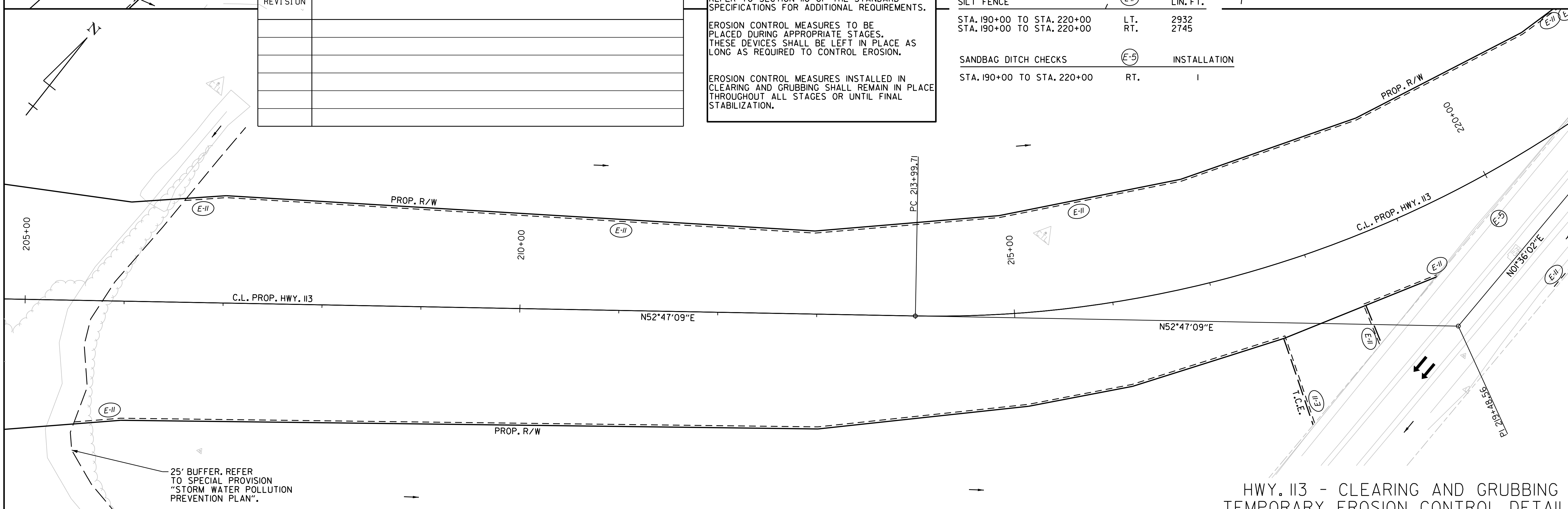
SILT FENCE	(E-11)	LIN. FT.
STA. 190+00 TO STA. 220+00	LT.	2932
STA. 190+00 TO STA. 220+00	RT.	2745

SANDBAG DITCH CHECKS	(E-5)	INSTALLATION
STA. 190+00 TO STA. 220+00	RT.	1



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WORKSPACE: ARDOT
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REVISED DATE: $$REVDATE$$

HWY. 113 - CLEARING AND GRUBBING TEMPORARY EROSION CONTROL DETAILS

DATE REVISED	DATE REVISED	FED.RD. DIST.NO.	STATE	JOB NO.	SHEET NO.	TOTAL SHEETS
03-25-24		6	ARK.	080711	22	123
		TEMPORARY EROSION CONTROL DETAILS				

REVISIONS

DATE OF REVISION	REVISION

LEGEND

E-6 = ROCK DITCH CHECK

E-5 = SAND BAG DITCH CHECK

E-II = SILT FENCE

NOTES:

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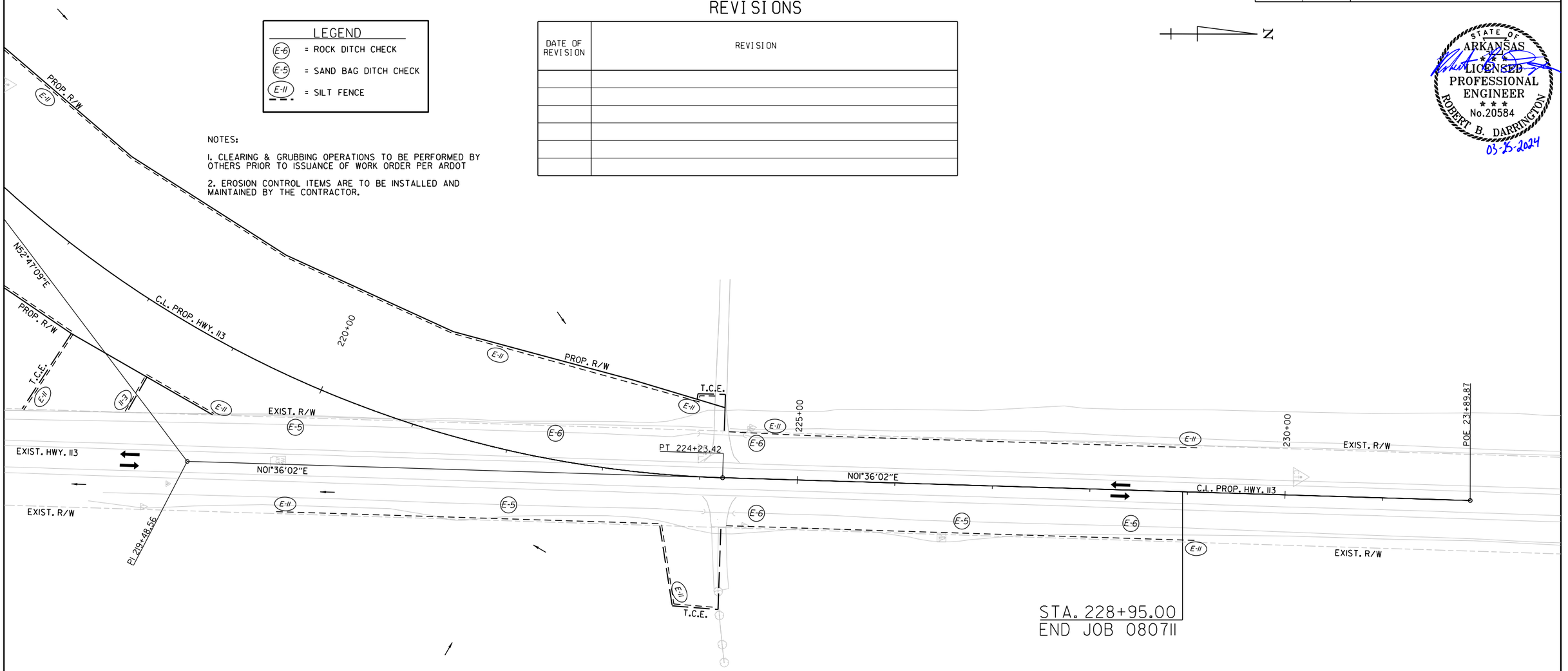
STATE OF ARKANSAS
LICENSED PROFESSIONAL ENGINEER
No.20584
ROBERT B. DARRINGTON
03-25-2024



STA. 228+95.00
END JOB 080711

TEMPORARY EROSION CONTROL GENERAL NOTES:

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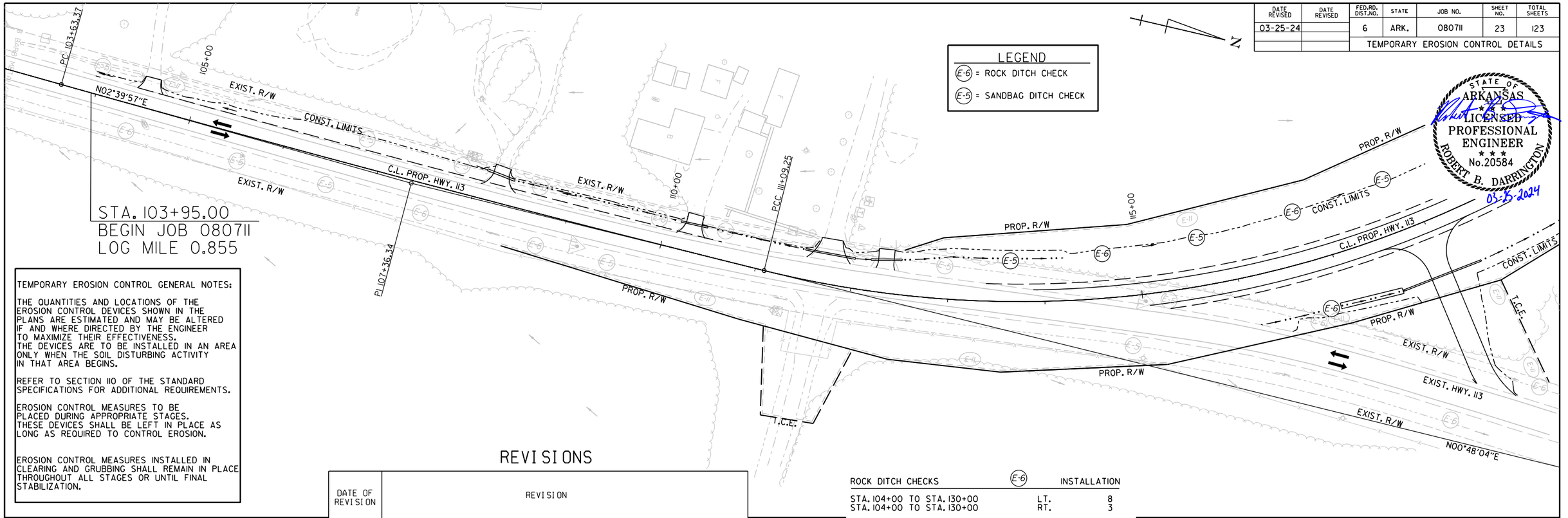
SILT FENCE	E-II	LIN. FT.
STA. 220+00 TO STA. 229+00	LT.	1328
STA. 220+00 TO STA. 229+00	RT.	1002
ROCK DITCH CHECKS	**E-6**	**INSTALLATION**
STA. 220+00 TO STA. 229+00	LT.	2
STA. 220+00 TO STA. 229+00	RT.	2
SANDBAG DITCH CHECKS	**E-5**	**INSTALLATION**
STA. 220+00 TO STA. 229+00	RT.	2

HWY. 113 - CLEARING AND GRUBBING
TEMPORARY EROSION CONTROL DETAILS

DATE REVISED	DATE REVISED	FED.RD. DIST.NO.	STATE	JOB NO.	SHEET NO.	TOTAL SHEETS
03-25-24		6	ARK.	080711	23	123
		TEMPORARY EROSION CONTROL DETAILS				



STA. 103+95.00
BEGIN JOB 080711
LOG MILE 0.855

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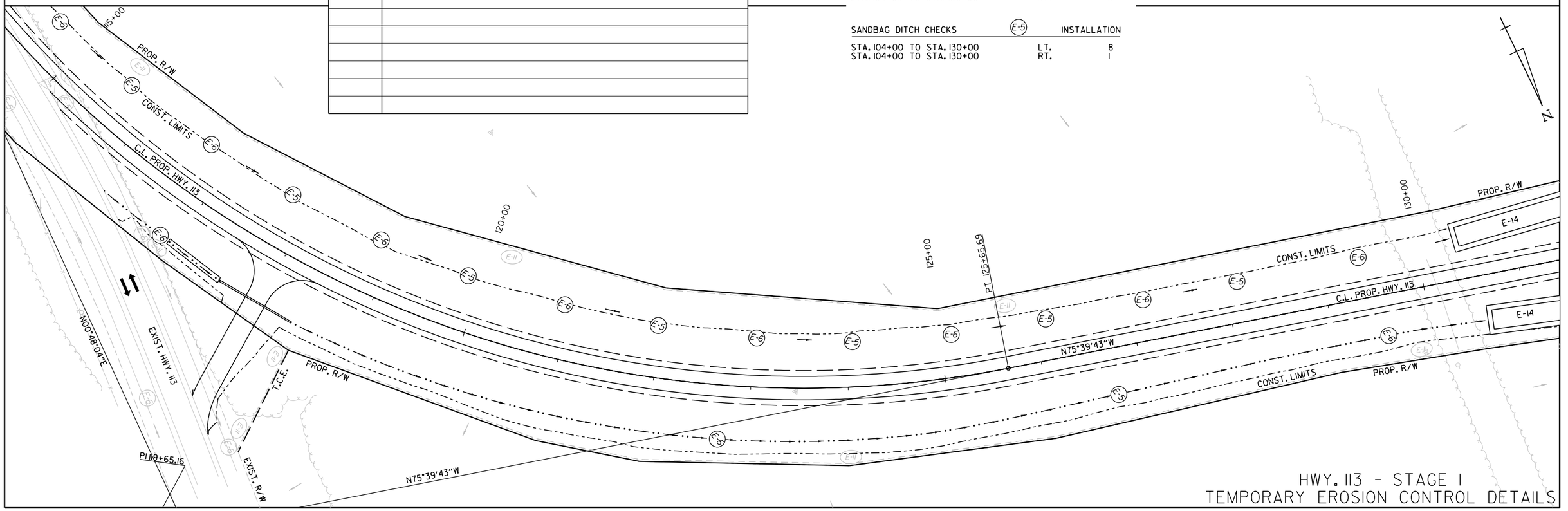
STATE OF ARKANSAS
LICENSED PROFESSIONAL ENGINEER
ROBERT B. DARRINGTON
No.20584
03-25-2024

REVISIONS

DATE OF REVISION	REVISION

ROCK DITCH CHECKS (E-6)		INSTALLATION
STA. 104+00 TO STA. 130+00	LT.	8
STA. 104+00 TO STA. 130+00	RT.	3

SANDBAG DITCH CHECKS (E-5)		INSTALLATION
STA. 104+00 TO STA. 130+00	LT.	8
STA. 104+00 TO STA. 130+00	RT.	1



HWY. 113 - STAGE I
TEMPORARY EROSION CONTROL DETAILS

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WORKSPACE: ARDOT
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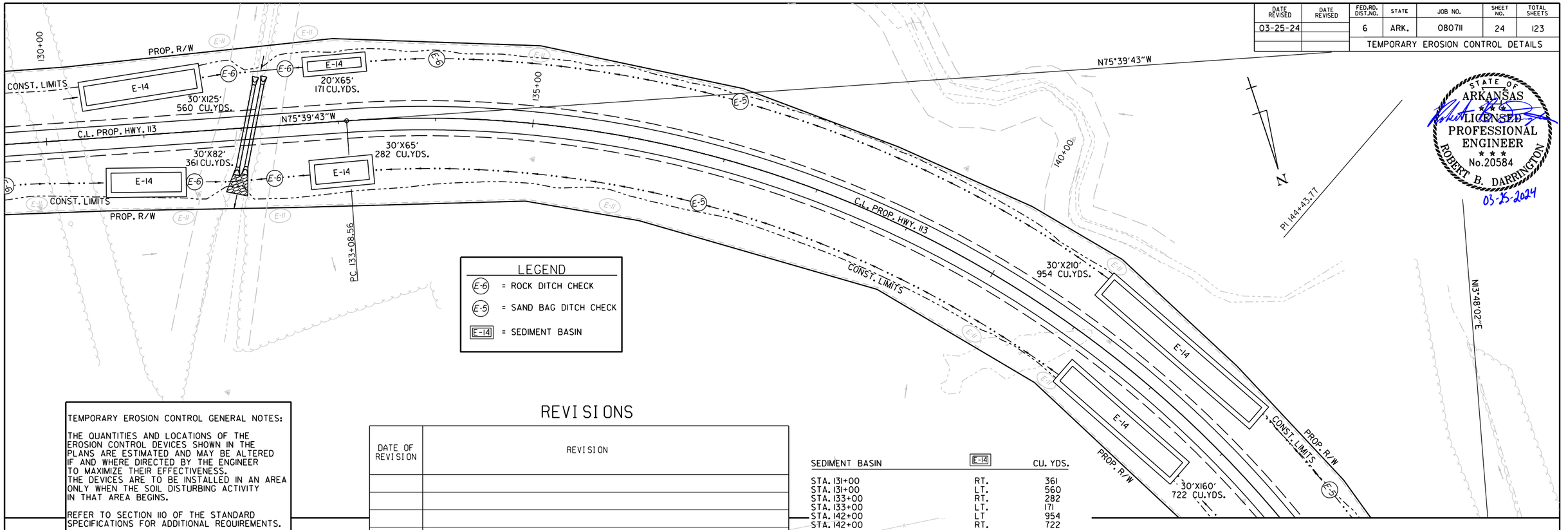
REVISED DATE: $$REVDATE$$

DATE REVISED	DATE REVISED	FED.RD. DIST.NO.	STATE	JOB NO.	SHEET NO.	TOTAL SHEETS
03-25-24		6	ARK.	080711	24	123
		TEMPORARY EROSION CONTROL DETAILS				



STATE OF ARKANSAS
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REVISIONS

DATE OF REVISION	REVISION

SEDIMENT BASIN	E-14	CU. YDS.
STA. 131+00	RT.	361
STA. 131+00	LT.	560
STA. 133+00	RT.	282
STA. 133+00	LT.	171
STA. 142+00	LT	954
STA. 142+00	RT.	722

ROCK DITCH CHECKS	E-6	INSTALLATION
STA. 130+00 TO STA. 160+00	LT.	6
STA. 130+00 TO STA. 160+00	RT.	4

SANDBAG DITCH CHECKS	E-5	INSTALLATION
STA. 130+00 TO STA. 160+00	LT.	5
STA. 130+00 TO STA. 160+00	RT.	4

HWY. 113 - STAGE I
TEMPORARY EROSION CONTROL DETAILS

DATE REVISED	DATE REVISED	FED.RD. DIST.NO.	STATE	JOB NO.	SHEET NO.	TOTAL SHEETS
03-25-24		6	ARK.	080711	25	123
		TEMPORARY EROSION CONTROL DETAILS				

REVISIONS

DATE OF REVISION	REVISION

LEGEND

E-6 = ROCK DITCH CHECK

E-5 = SAND BAG DITCH CHECK

E-11 = SILT FENCE

STATE OF ARKANSAS
LICENSED PROFESSIONAL ENGINEER
No.20584
ROBERT B. DARRINGTON
03-25-2024

160+00 165+00 170+00 175+00

PROP. R/W
CONST. LIMITS
C.L. PROP. HWY. 113
T.C.E.
N13°48'02"E
N00°38'26"E
PI 171+94.50

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ROCK DITCH CHECKS (E-6)		INSTALLATION
STA. 160+00 TO STA. 190+00	LT.	7
STA. 160+00 TO STA. 190+00	RT.	11

SANDBAG DITCH CHECKS (E-5)		INSTALLATION
STA. 160+00 TO STA. 190+00	LT.	10
STA. 160+00 TO STA. 190+00	RT.	10

SEDIMENT BASIN (E-14)		CU. YDS.
STA. 179+00	LT.	282
STA. 179+00	RT.	130

180+00 185+00 190+00

PT 185+04.67
PC 190+08.43
E-14
30'X65'
282 CU. YDS.
20'X50'
130 CU. YDS.
EXISTING HWY. 154

HWY. 113 - STAGE 1
TEMPORARY EROSION CONTROL DETAILS

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WORKSPACE: ARDOT
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REVISED DATE: $$REVDATE$$

DATE REVISED	DATE REVISED	FED.RD. DIST.NO.	STATE	JOB NO.	SHEET NO.	TOTAL SHEETS
03-25-24		6	ARK.	080711	26	123
		TEMPORARY EROSION CONTROL DETAILS				

LEGEND

- (E-6) = ROCK DITCH CHECK
- (E-5) = SAND BAG DITCH CHECK
- (E-11) = SILT FENCE
- [E-14] = SEDIMENT BASIN

PI 195+69.13

100 YR. FLOODPLAIN

195+00

PROP. R/W

CONST. LIMITS

N00°38'26"E

C.L. PROP. HWY. 113

N52°47'09"E

20'X40'
102 CU.YDS.

E-14

200+00

100 YR. FLOODPLAIN

PROP. R/W

CONST. LIMITS

190+00

PC 190+08.43

PT 200+51.34

100 YR. FLOODPLAIN

C.L. PROP. HWY. 113

CONST. LIMITS

PROP. R/W

205+00

PROP. R/W

STATE OF ARKANSAS
LICENSED PROFESSIONAL ENGINEER
ROBERT B. DARRINGTON
No.20584
03-25-2024

TEMPORARY EROSION CONTROL GENERAL NOTES:

THE QUANTITIES AND LOCATIONS OF THE EROSION CONTROL DEVICES SHOWN IN THE PLANS ARE ESTIMATED AND MAY BE ALTERED IF AND WHERE DIRECTED BY THE ENGINEER TO MAXIMIZE THEIR EFFECTIVENESS. THE DEVICES ARE TO BE INSTALLED IN AN AREA ONLY WHEN THE SOIL DISTURBING ACTIVITY IN THAT AREA BEGINS.

REFER TO SECTION 110 OF THE STANDARD SPECIFICATIONS FOR ADDITIONAL REQUIREMENTS.

EROSION CONTROL MEASURES TO BE PLACED DURING APPROPRIATE STAGES. THESE DEVICES SHALL BE LEFT IN PLACE AS LONG AS REQUIRED TO CONTROL EROSION.

EROSION CONTROL MEASURES INSTALLED IN CLEARING AND GRUBBING SHALL REMAIN IN PLACE THROUGHOUT ALL STAGES OR UNTIL FINAL STABILIZATION.

REVISIONS

DATE OF REVISION	REVISION

ROCK DITCH CHECKS (E-6)		INSTALLATION
STA. 190+00 TO STA. 215+00	LT.	2
STA. 190+00 TO STA. 215+00	RT.	6

SANDBAG DITCH CHECKS (E-5)		INSTALLATION
STA. 190+00 TO STA. 215+00	LT.	20
STA. 190+00 TO STA. 215+00	RT.	22

SEDIMENT BASIN [E-14]		CU. YDS.
STA. 198+30	RT.	102
STA. 206+30	RT.	560
STA. 207+19	LT.	630

100 YR. FLOODPLAIN

PROP. R/W

CONST. LIMITS

205+00

210+00

PC 213+99.71

215+00

PROP. R/W

CONST. LIMITS

E-14

30'X140'
630 CU.YDS.

C.L. PROP. HWY. 113

N52°47'09"E

N52°47'09"E

CONST. LIMITS

30'X125'
560 CU.YDS.

E-14

CONST. LIMITS

PROP. R/W

PROP. R/W

100 YR. FLOODPLAIN

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WORKSPACE: ARDOT
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REVISED DATE: $$REVDATE$$

HWY. 113 - STAGE 1
TEMPORARY EROSION CONTROL DETAILS

DATE REVISED	DATE REVISED	FED.RD. DIST.NO.	STATE	JOB NO.	SHEET NO.	TOTAL SHEETS
03-25-24		6	ARK.	080711	27	123
		TEMPORARY EROSION CONTROL DETAILS				

N

LEGEND

(E-6) = ROCK DITCH CHECK

(E-5) = SAND BAG DITCH CHECK

TEMPORARY EROSION CONTROL GENERAL NOTES:

THE QUANTITIES AND LOCATIONS OF THE EROSION CONTROL DEVICES SHOWN IN THE PLANS ARE ESTIMATED AND MAY BE ALTERED IF AND WHERE DIRECTED BY THE ENGINEER TO MAXIMIZE THEIR EFFECTIVENESS. THE DEVICES ARE TO BE INSTALLED IN AN AREA ONLY WHEN THE SOIL DISTURBING ACTIVITY IN THAT AREA BEGINS.

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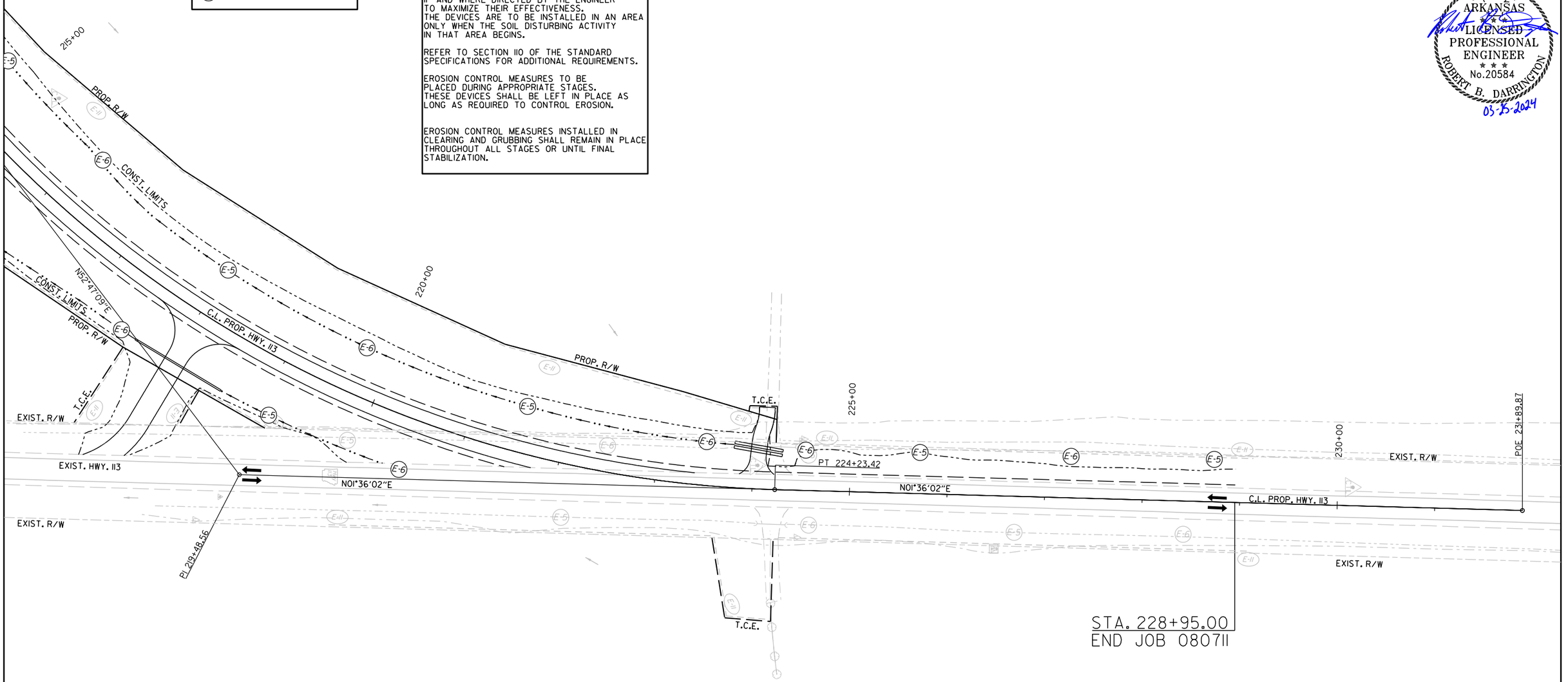
STATE OF ARKANSAS
LICENSED PROFESSIONAL ENGINEER
ROBERT B. DARRINGTON
No.20584
03-25-2024



REVISIONS

DATE OF REVISION	REVISION

ROCK DITCH CHECKS (E-6)		INSTALLATION
STA. 215+00 TO STA. 229+00	LT.	5
STA. 215+00 TO STA. 229+00	RT.	2

SANDBAG DITCH CHECKS (E-5)		INSTALLATION
STA. 215+00 TO STA. 229+00	LT.	4
STA. 215+00 TO STA. 229+00	RT.	1

HWY 113 - STAGE I
TEMPORARY EROSION CONTROL DETAILS

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WORKSPACE: ARDOT
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REVISED DATE: $$REVDATE$$

DATE REVISED	DATE REVISED	FED.RD. DIST.NO.	STATE	JOB NO.	SHEET NO.	TOTAL SHEETS
03-25-24		6	ARK.	080711	28	123
		TEMPORARY EROSION CONTROL DETAILS				

N

LEGEND

E-6 = ROCK DITCH CHECK

E-5 = SAND BAG DITCH CHECK

TEMPORARY EROSION CONTROL GENERAL NOTES:

THE QUANTITIES AND LOCATIONS OF THE EROSION CONTROL DEVICES SHOWN IN THE PLANS ARE ESTIMATED AND MAY BE ALTERED IF AND WHERE DIRECTED BY THE ENGINEER TO MAXIMIZE THEIR EFFECTIVENESS. THE DEVICES ARE TO BE INSTALLED IN AN AREA ONLY WHEN THE SOIL DISTURBING ACTIVITY IN THAT AREA BEGINS.

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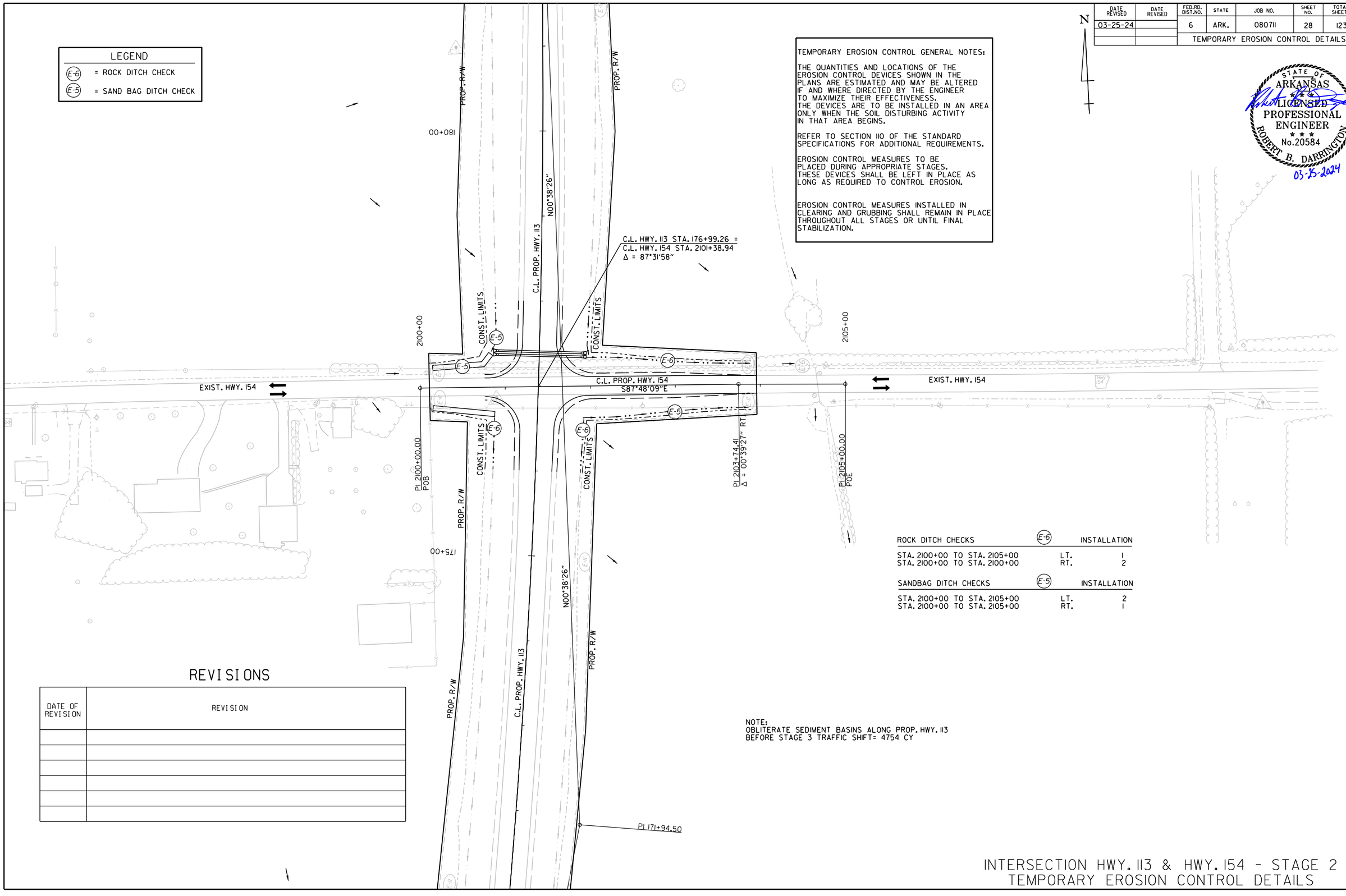
STATE OF ARKANSAS
LICENSED PROFESSIONAL ENGINEER
No.20584
ROBERT B. DARRINGTON
03-25-2024



ROCK DITCH CHECKS (E-6)		INSTALLATION
STA. 2100+00 TO STA. 2105+00	LT.	1
STA. 2100+00 TO STA. 2100+00	RT.	2

SANDBAG DITCH CHECKS (E-5)		INSTALLATION
STA. 2100+00 TO STA. 2105+00	LT.	2
STA. 2100+00 TO STA. 2105+00	RT.	1

NOTE:
OBLITERATE SEDIMENT BASINS ALONG PROP. HWY. 113 BEFORE STAGE 3 TRAFFIC SHIFT= 4754 CY

REVISIONS

DATE OF REVISION	REVISION

INTERSECTION HWY. 113 & HWY. 154 - STAGE 2
TEMPORARY EROSION CONTROL DETAILS

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WORKSPACE: ARDOT
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REVISED DATE: $$REVDATE$$

DATE REVISED	DATE REVISED	FED.RD. DIST.NO.	STATE	JOB NO.	SHEET NO.	TOTAL SHEETS
03-25-24		6	ARK.	080711	29	123
		TEMPORARY EROSION CONTROL DETAILS				

LEGEND

- (E-6) = ROCK DITCH CHECK
- (E-5) = SAND BAG DITCH CHECK
- (E-11) = SILT FENCE
- = OBLITERATION

TEMPORARY EROSION CONTROL GENERAL NOTES:

THE QUANTITIES AND LOCATIONS OF THE EROSION CONTROL DEVICES SHOWN IN THE PLANS ARE ESTIMATED AND MAY BE ALTERED IF AND WHERE DIRECTED BY THE ENGINEER TO MAXIMIZE THEIR EFFECTIVENESS. THE DEVICES ARE TO BE INSTALLED IN AN AREA ONLY WHEN THE SOIL DISTURBING ACTIVITY IN THAT AREA BEGINS.

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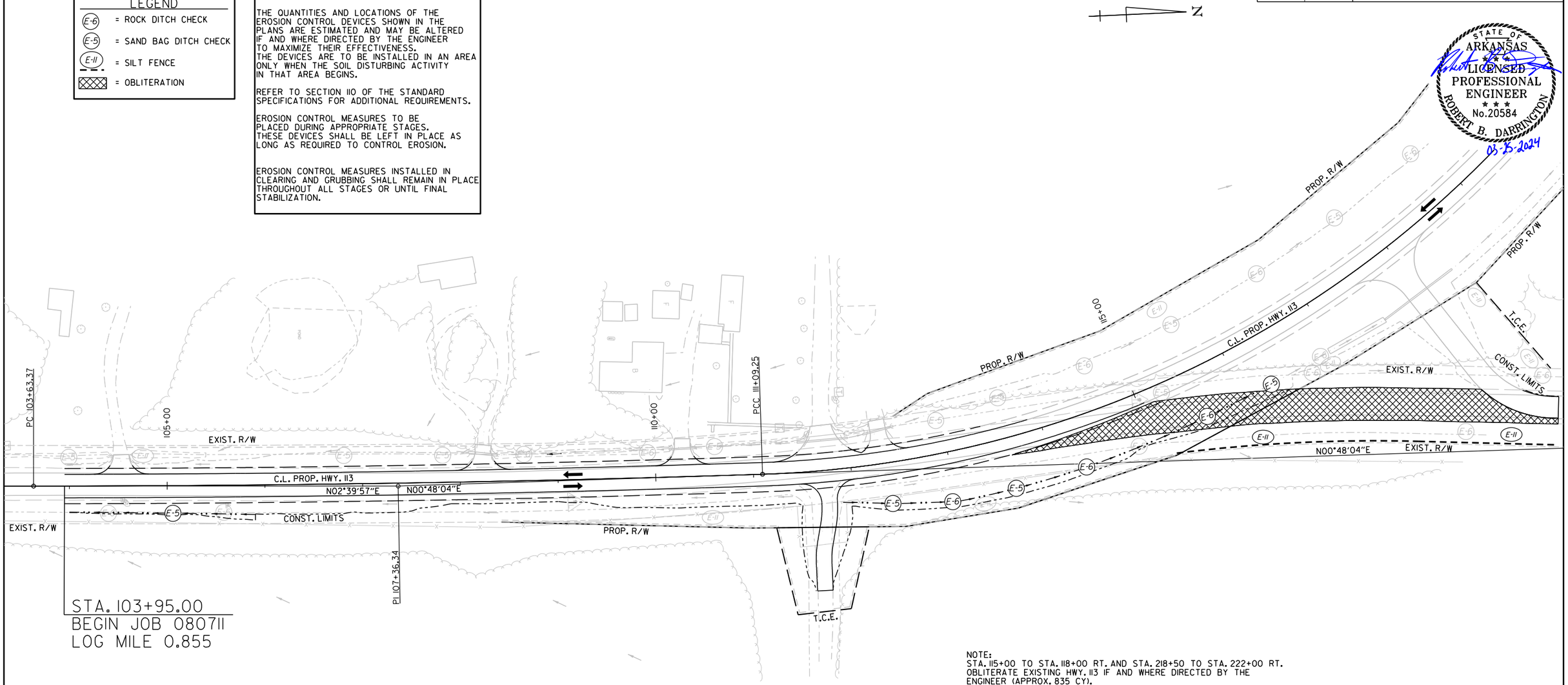
STATE OF ARKANSAS
LICENSED PROFESSIONAL ENGINEER
No.20584
ROBERT B. DARRINGTON
03-25-2024



STA. 103+95.00
BEGIN JOB 080711
LOG MILE 0.855

NOTE:
STA. 115+00 TO STA. 118+00 RT. AND STA. 218+50 TO STA. 222+00 RT. OBLITERATE EXISTING HWY. 113 IF AND WHERE DIRECTED BY THE ENGINEER (APPROX. 835 CY).

REVISIONS

DATE OF REVISION	REVISION

SILT FENCE	(E-11)	LIN. FT.
STA. 115+00 TO STA. 118+00	RT.	390
ROCK DITCH CHECKS	**(E-6)**	**INSTALLATION**
STA. 104+00 TO STA. 119+00	RT.	3
SANDBAG DITCH CHECKS	**(E-5)**	**INSTALLATION**
STA. 104+00 TO STA. 119+00	RT.	4

HWY. 113 - STAGE 3
TEMPORARY EROSION CONTROL DETAILS

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REVISED DATE: $$REVDATE$$

DATE REVISED	DATE REVISED	FED.RD. DIST.NO.	STATE	JOB NO.	SHEET NO.	TOTAL SHEETS
03-25-24		6	ARK.	080711	30	123
		TEMPORARY EROSION CONTROL DETAILS				

LEGEND

- (E-6) = ROCK DITCH CHECK
- (E-5) = SAND BAG DITCH CHECK
- (E-11) = SILT FENCE
- = OBLITERATION

TEMPORARY EROSION CONTROL GENERAL NOTES:

THE QUANTITIES AND LOCATIONS OF THE EROSION CONTROL DEVICES SHOWN IN THE PLANS ARE ESTIMATED AND MAY BE ALTERED IF AND WHERE DIRECTED BY THE ENGINEER TO MAXIMIZE THEIR EFFECTIVENESS. THE DEVICES ARE TO BE INSTALLED IN AN AREA ONLY WHEN THE SOIL DISTURBING ACTIVITY IN THAT AREA BEGINS.

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N

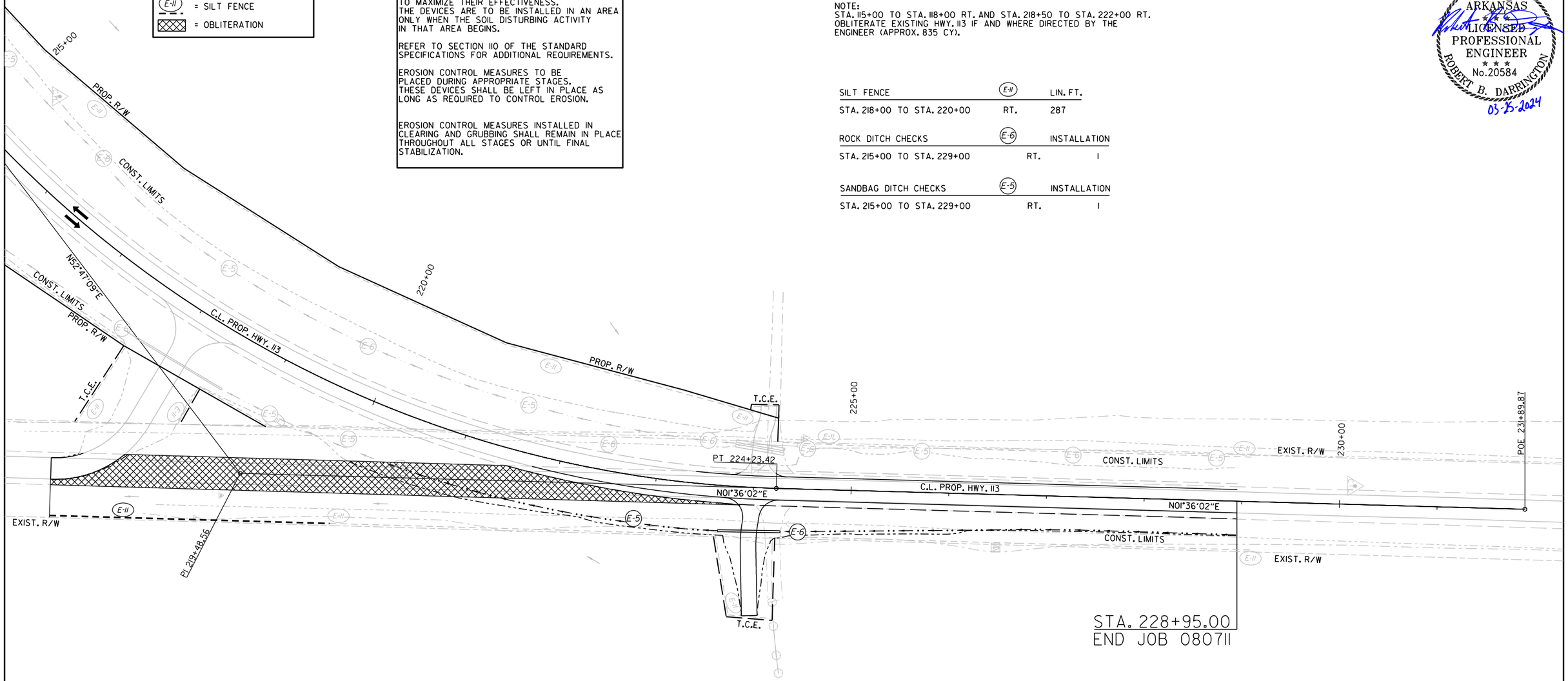
NOTE:
STA. 115+00 TO STA. 118+00 RT. AND STA. 218+50 TO STA. 222+00 RT. OBLITERATE EXISTING HWY. 113 IF AND WHERE DIRECTED BY THE ENGINEER (APPROX. 835 CY).

SILT FENCE	(E-11)	LIN. FT.
STA. 218+00 TO STA. 220+00	RT.	287

ROCK DITCH CHECKS	(E-6)	INSTALLATION
STA. 215+00 TO STA. 229+00	RT.	1

SANDBAG DITCH CHECKS	(E-5)	INSTALLATION
STA. 215+00 TO STA. 229+00	RT.	1

STATE OF ARKANSAS
LICENSED PROFESSIONAL ENGINEER
ROBERT B. DARRINGTON
No.20584
03-25-2024



REVISIONS

DATE OF REVISION	REVISION

HWY 113 - STAGE 3
TEMPORARY EROSION CONTROL DETAILS

DATE REVISED	DATE REVISED	FED.RD. DIST.NO.	STATE	JOB NO.	SHEET NO.	TOTAL SHEETS
		6	ARK.	080711	31	123
		MAINTENANCE OF TRAFFIC DETAILS				

CONSTRUCTION SEQUENCE

STAGE 1:

INSTALL ADVANCE WARNING SIGNS AND TRAFFIC CONTROL DEVICES AS SHOWN. CLEARING AND GRUBBING OPERATIONS ARE TO BE PERFORMED BY OTHERS PRIOR TO ISSUANCE OF WORK ORDER PER ARDOT. EROSION CONTROL ITEMS ARE TO BE INSTALLED AND MAINTAINED BY THE CONTRACTOR.

MAINTAIN TRAFFIC ON EXISTING ROADWAY. INSTALL ALL DRAINAGE STRUCTURES AND CONSTRUCT FULL DEPTH SECTIONS OF HIGHWAY 113 ROADWAY STATION 115+00 - 176+00 AND STATION 178+00 - 222+00 THROUGH FIRST SURFACE LIFT.

PLACE ACHM LEVELING UNDER TRAFFIC IF AND WHERE DIRECTED BY THE ENGINEER, STATION 104+00 - 114+00 AND STATION 223+00 - 232+00. COLD MILL EXISTING RIGHT SHOULDER AND PROVIDE AGGREGATE FOR TEMPORARY SHOULDER AND SLOPES IF AND WHERE DIRECTED BY THE ENGINEER FOR TEMPORARY TRAFFIC SHIFT.

CONSTRUCT NOTCH AND WIDENING STATION 104+00 - 114+00 AND STATION 223+00 - 232+00 LEFT.

STAGE 2:

INSTALL ALL DRAINAGE STRUCTURES AND RECONSTRUCT EXISTING HIGHWAY 154 TO PROPOSED TYPICAL SECTIONS INCLUDING NOTCH AND WIDEN SECTIONS THROUGH FIRST SURFACE LIFT INCLUDING TIE-INS TO PROPOSED HIGHWAY 113.

PLACE TEMPORARY PAVEMENT MARKINGS AND OPEN HIGHWAY 154 TO TRAFFIC.

STAGE 3:

CONSTRUCT HIGHWAY 113 TRANSITIONS TO NEW ROADWAY SECTION UNDER TRAFFIC BY METHOD OF RAISING GRADE IF AND WHERE DIRECTED BY THE ENGINEER, STATION 104+00 - 115+00 AND STATION 222+00 - 232+00. PROVIDE AGGREGATE FOR TEMPORARY SHOULDERS AND SLOPES IF AND WHERE DIRECTED BY THE ENGINEER.

PLACE TEMPORARY PAVEMENT MARKINGS AND REROUTE TRAFFIC TO NEW ALIGNMENT.

CONSTRUCT HIGHWAY 113 NOTCH AND WIDENING STATION 104+00 - 115+00 AND STATION 222+00 - 232+00 RIGHT.

STAGE 4:

PLACE FINAL ACHM SURFACE AND ALL PERMANENT PAVEMENT MARKINGS FOR HIGHWAY 113, HIGHWAY 154 AND DRIVEWAYS AT STATIONS 117+95.00 AND 218+03.00. RETURN TRAFFIC TO NORMAL OPERATIONS.

LEGEND

TRAFFIC FLOW ARROWS

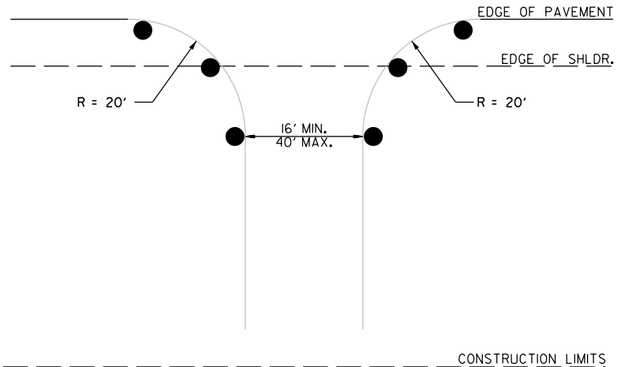
TEMPORARY MOT SIGN

RIGHT SHOULDER CLOSED — (2) W21-5a (36"X36")

DO NOT PASS — (10) R4-1 (24"X30")

BUMP — (4) W8-1 (30"X30")

- IF AND WHERE DIRECTED BY THE ENGINEER



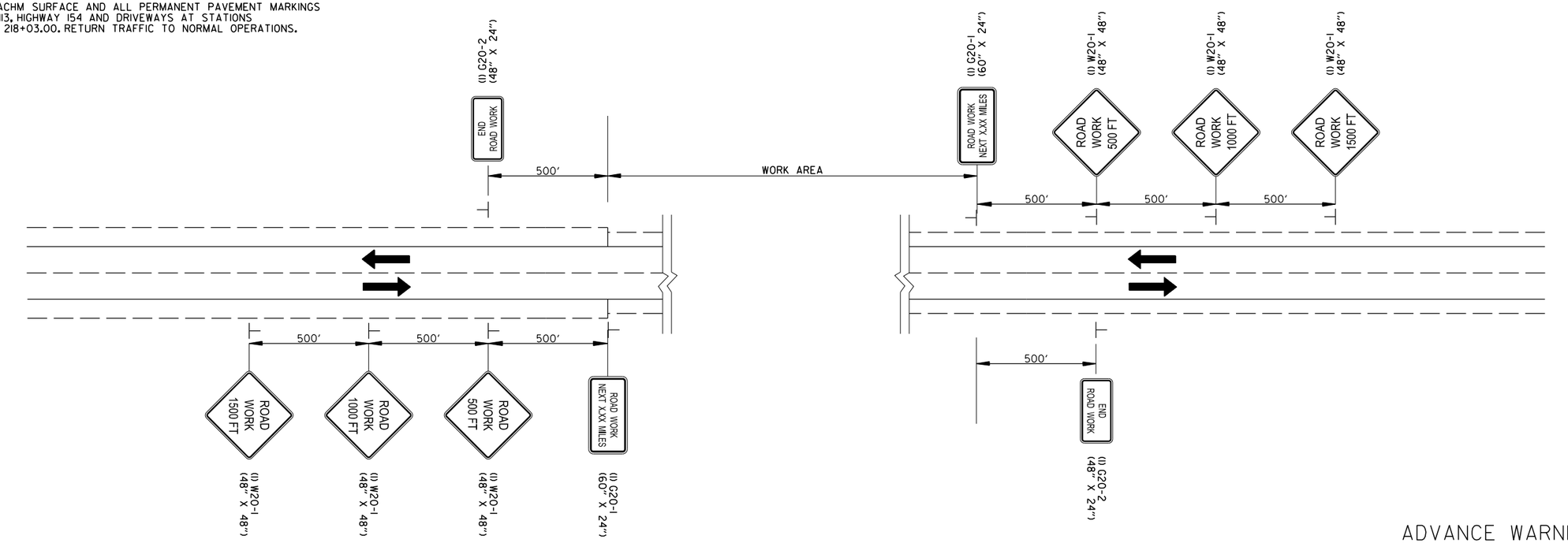
DRIVEWAY TURNOUTS
MAINTENANCE OF TRAFFIC

6 TRAFFIC DRUMS @ 15' O.C.

STAGE 1		STAGE 3	
STA. 104+53	LT.	STA. 111+74	RT.
STA. 108+23	LT.	STA. 224+02	RT.
STA. 110+27	LT.		
STA. 111+74	LT.		
STA. 112+34	LT.		
STA. 224+02	LT.		

STATE OF ARKANSAS
LICENSED PROFESSIONAL ENGINEER
No.20584
ROBERT B. DARRINGTON
03-01-2024

ADVANCE WARNING DETAILS



ADVANCE WARNING SIGNS
MAINTENANCE OF TRAFFIC DETAILS

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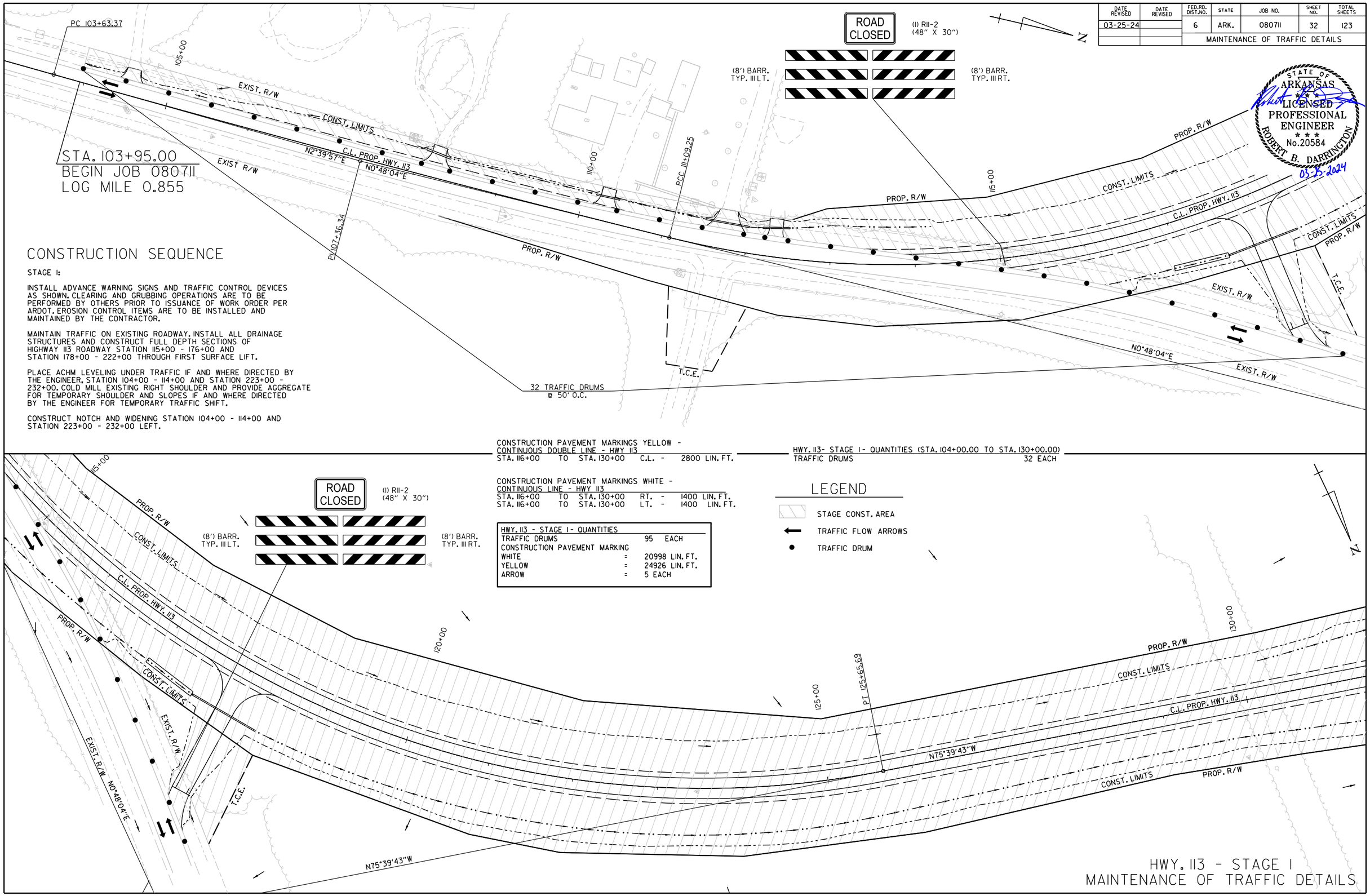
REVISED DATE: $$REVDATE$$

DATE REVISED	DATE REVISED	FED.RD. DIST.NO.	STATE	JOB NO.	SHEET NO.	TOTAL SHEETS
03-25-24		6	ARK.	080711	32	123
		MAINTENANCE OF TRAFFIC DETAILS				



CONSTRUCTION SEQUENCE

STAGE I:

INSTALL ADVANCE WARNING SIGNS AND TRAFFIC CONTROL DEVICES AS SHOWN. CLEARING AND GRUBBING OPERATIONS ARE TO BE PERFORMED BY OTHERS PRIOR TO ISSUANCE OF WORK ORDER PER ARDOT. EROSION CONTROL ITEMS ARE TO BE INSTALLED AND MAINTAINED BY THE CONTRACTOR.

MAINTAIN TRAFFIC ON EXISTING ROADWAY. INSTALL ALL DRAINAGE STRUCTURES AND CONSTRUCT FULL DEPTH SECTIONS OF HIGHWAY 113 ROADWAY STATION 115+00 - 176+00 AND STATION 178+00 - 222+00 THROUGH FIRST SURFACE LIFT.

PLACE ACHM LEVELING UNDER TRAFFIC IF AND WHERE DIRECTED BY THE ENGINEER, STATION 104+00 - 114+00 AND STATION 223+00 - 232+00. COLD MILL EXISTING RIGHT SHOULDER AND PROVIDE AGGREGATE FOR TEMPORARY SHOULDER AND SLOPES IF AND WHERE DIRECTED BY THE ENGINEER FOR TEMPORARY TRAFFIC SHIFT.

CONSTRUCT NOTCH AND WIDENING STATION 104+00 - 114+00 AND STATION 223+00 - 232+00 LEFT.

CONSTRUCTION PAVEMENT MARKINGS YELLOW - CONTINUOUS DOUBLE LINE - HWY 113

STA. 116+00	TO	STA. 130+00	C.L. -	2800	LIN. FT.

CONSTRUCTION PAVEMENT MARKINGS WHITE - CONTINUOUS LINE - HWY 113

STA. 116+00	TO	STA. 130+00	RT. -	1400	LIN. FT.
STA. 116+00	TO	STA. 130+00	LT. -	1400	LIN. FT.

HWY. 113 - STAGE I - QUANTITIES

TRAFFIC DRUMS	95	EACH
CONSTRUCTION PAVEMENT MARKING		
WHITE	=	20998 LIN. FT.
YELLOW	=	24926 LIN. FT.
ARROW	=	5 EACH

HWY. 113- STAGE I - QUANTITIES (STA. 104+00.00 TO STA. 130+00.00)

TRAFFIC DRUMS	32 EACH

LEGEND

- STAGE CONST. AREA
- TRAFFIC FLOW ARROWS
- TRAFFIC DRUM

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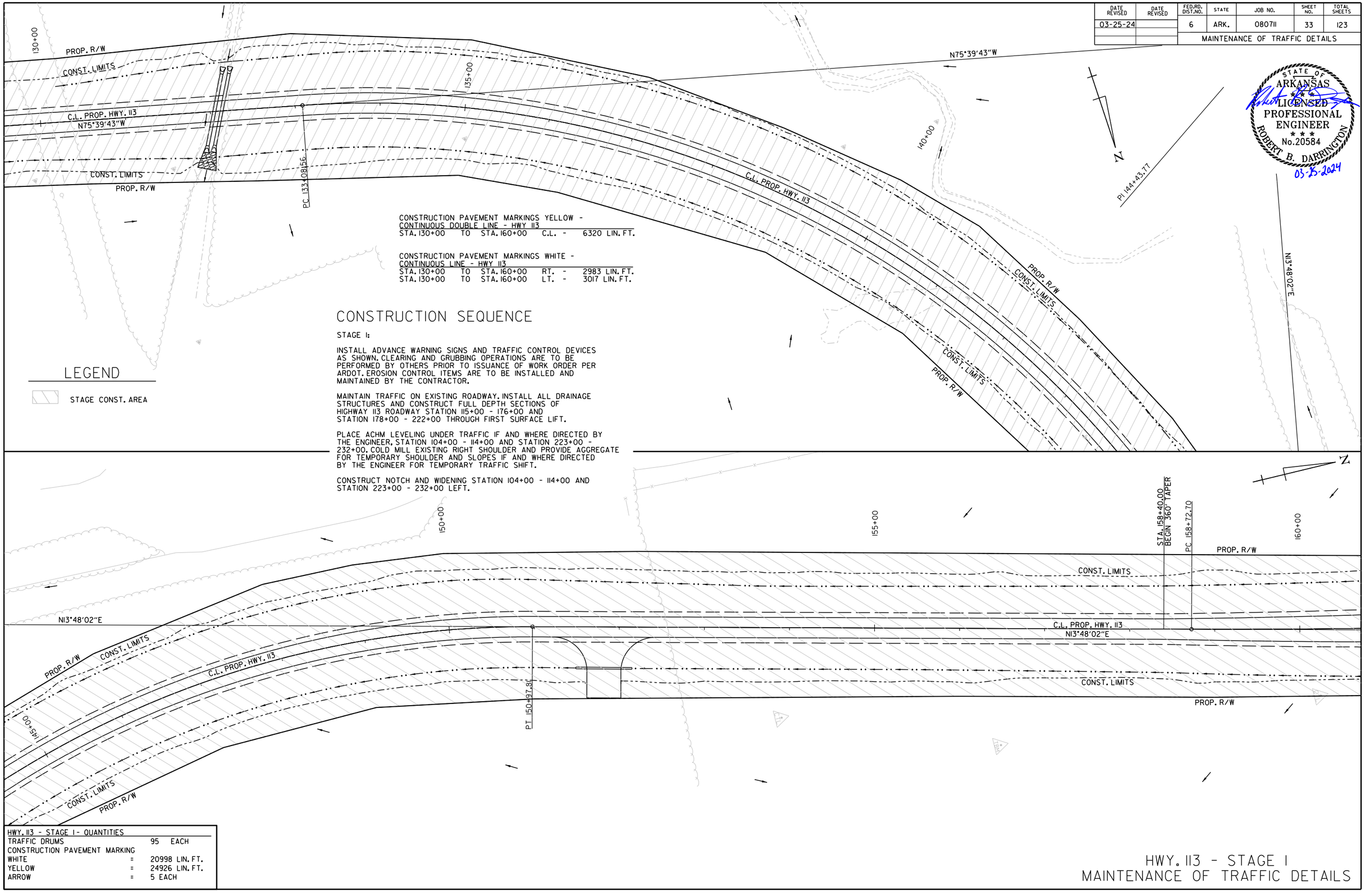
REVISED DATE: $$REVDATE$$

DATE REVISED	DATE REVISED	FED.RD. DIST.NO.	STATE	JOB NO.	SHEET NO.	TOTAL SHEETS
03-25-24		6	ARK.	080711	33	123
		MAINTENANCE OF TRAFFIC DETAILS				

STATE OF ARKANSAS
LICENSED PROFESSIONAL ENGINEER
No.20584
ROBERT B. DARRINGTON
03-25-2024



LEGEND

STAGE CONST. AREA

CONSTRUCTION PAVEMENT MARKINGS YELLOW -
CONTINUOUS DOUBLE LINE - HWY 113
STA. 130+00 TO STA. 160+00 C.L. - 6320 LIN. FT.

CONSTRUCTION PAVEMENT MARKINGS WHITE -
CONTINUOUS LINE - HWY 113
STA. 130+00 TO STA. 160+00 RT. - 2983 LIN. FT.
STA. 130+00 TO STA. 160+00 LT. - 3017 LIN. FT.

CONSTRUCTION SEQUENCE

STAGE 1:

INSTALL ADVANCE WARNING SIGNS AND TRAFFIC CONTROL DEVICES AS SHOWN. CLEARING AND GRUBBING OPERATIONS ARE TO BE PERFORMED BY OTHERS PRIOR TO ISSUANCE OF WORK ORDER PER ARDOT. EROSION CONTROL ITEMS ARE TO BE INSTALLED AND MAINTAINED BY THE CONTRACTOR.

MAINTAIN TRAFFIC ON EXISTING ROADWAY. INSTALL ALL DRAINAGE STRUCTURES AND CONSTRUCT FULL DEPTH SECTIONS OF HIGHWAY 113 ROADWAY STATION 115+00 - 176+00 AND STATION 178+00 - 222+00 THROUGH FIRST SURFACE LIFT.

PLACE ACHM LEVELING UNDER TRAFFIC IF AND WHERE DIRECTED BY THE ENGINEER, STATION 104+00 - 114+00 AND STATION 223+00 - 232+00. COLD MILL EXISTING RIGHT SHOULDER AND PROVIDE AGGREGATE FOR TEMPORARY SHOULDER AND SLOPES IF AND WHERE DIRECTED BY THE ENGINEER FOR TEMPORARY TRAFFIC SHIFT.

CONSTRUCT NOTCH AND WIDENING STATION 104+00 - 114+00 AND STATION 223+00 - 232+00 LEFT.

HWY. 113 - STAGE 1 - QUANTITIES		
TRAFFIC DRUMS		95 EACH
CONSTRUCTION PAVEMENT MARKING		
WHITE	=	20998 LIN. FT.
YELLOW	=	24926 LIN. FT.
ARROW	=	5 EACH

HWY. 113 - STAGE 1
MAINTENANCE OF TRAFFIC DETAILS

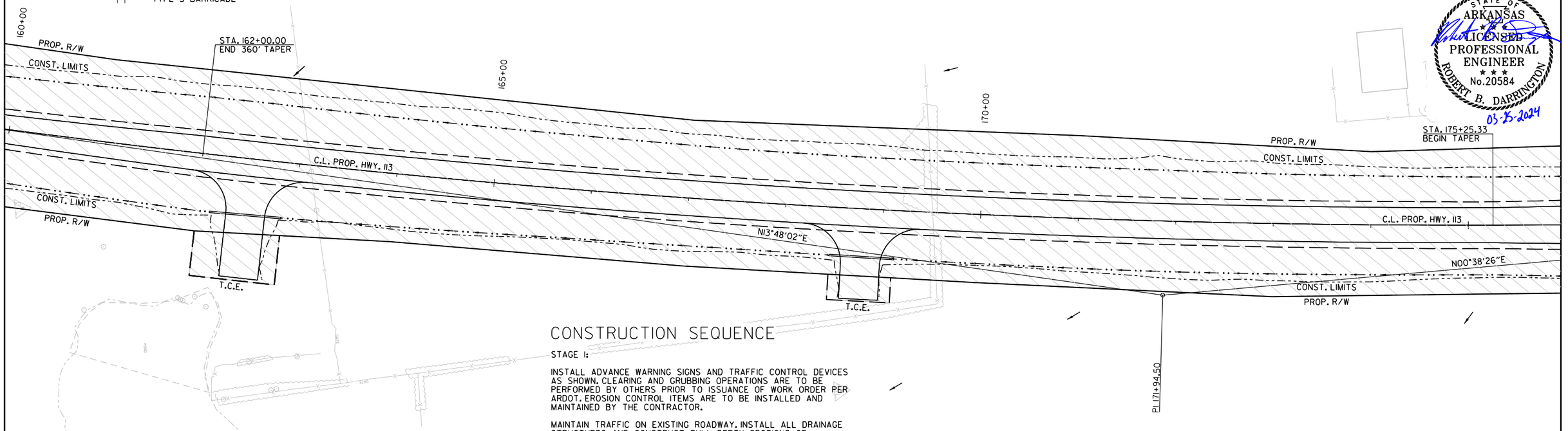
DATE REVISED	DATE REVISED	FED.RD. DIST.NO.	STATE	JOB NO.	SHEET NO.	TOTAL SHEETS
03-25-24		6	ARK.	080711	34	123
		MAINTENANCE OF TRAFFIC DETAILS				

STATE OF ARKANSAS
LICENSED PROFESSIONAL ENGINEER
No.20584
ROBERT B. DARRINGTON
03-25-2024

LEGEND

STAGE CONST. AREA

TYPE 3 BARRICADE



CONSTRUCTION SEQUENCE

STAGE I:

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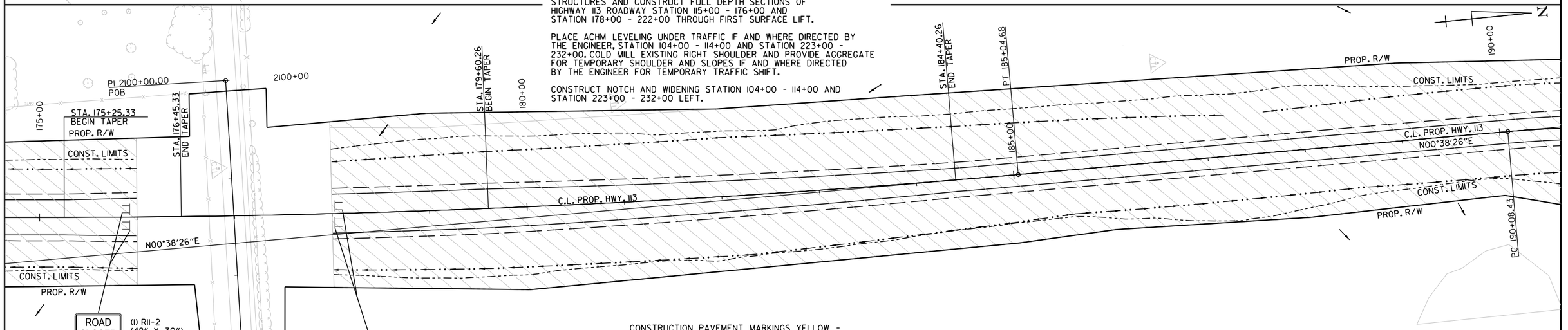
CONSTRUCT NOTCH AND WIDENING STATION 104+00 - 114+00 AND STATION 223+00 - 232+00 LEFT.



HWY. 113 - STAGE 1- QUANTITIES

TRAFFIC DRUMS		95 EACH
CONSTRUCTION PAVEMENT MARKING		
WHITE	=	20998 LIN. FT.
YELLOW	=	24926 LIN. FT.
ARROW	=	5 EACH

CONSTRUCTION PAVEMENT MARKINGS YELLOW - CONTINUOUS DOUBLE LINE - HWY 113

STA. 160+00	TO	STA. 176+00	C.L. -	5488 LIN. FT.
STA. 178+00	TO	STA. 190+00	C.L. -	3488 LIN. FT.

CONSTRUCTION PAVEMENT MARKINGS WHITE - CONTINUOUS LINE - HWY 113

STA. 160+00	TO	STA. 176+00	RT. -	1602 LIN. FT.
STA. 178+00	TO	STA. 190+00	RT. -	1201 LIN. FT.
STA. 160+00	TO	STA. 176+00	LT. -	1598 LIN. FT.
STA. 162+70	TO	STA. 164+20	LT. -	150 LIN. FT.
STA. 168+99	TO	STA. 170+49	LT. -	150 LIN. FT.
STA. 178+00	TO	STA. 190+00	LT. -	1199 LIN. FT.
STA. 178+00	TO	STA. 178+98	LT. -	98 LIN. FT.

CONSTRUCTION PAVEMENT MARKINGS (ARROW)

STA. 162+75	C.L. -	1EACH
STA. 164+12	C.L. -	1EACH
STA. 169+05	C.L. -	1EACH
STA. 170+40	C.L. -	1EACH
STA. 178+90	C.L. -	1EACH

HWY. 113 - STAGE 1
MAINTENANCE OF TRAFFIC DETAILS

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WORKSPACE: ARDOT
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REVISED DATE: $$REVDATE$$

DATE REVISED	DATE REVISED	FED.RD. DIST.NO.	STATE	JOB NO.	SHEET NO.	TOTAL SHEETS
03-25-24		6	ARK.	080711	35	123
		MAINTENANCE OF TRAFFIC DETAILS				

STATE OF ARKANSAS
LICENSED PROFESSIONAL ENGINEER
No.20584
ROBERT B. DARRINGTON
03-25-2024

LEGEND

STAGE CONST. AREA

PI 195+69.13

100 YR. FLOODPLAIN

195+00

N00°38'26"E

N52°47'09"E

PROP. R/W

CONST. LIMIT

C.L. PROP. HWY. 113

190+00

PC 190+08.43

200+00

PT 200+51.34

205+00

CONSTRUCTION SEQUENCE

STAGE I:

INSTALL ADVANCE WARNING SIGNS AND TRAFFIC CONTROL DEVICES AS SHOWN. CLEARING AND GRUBBING OPERATIONS ARE TO BE PERFORMED BY OTHERS PRIOR TO ISSUANCE OF WORK ORDER PER ARDOT. EROSION CONTROL ITEMS ARE TO BE INSTALLED AND MAINTAINED BY THE CONTRACTOR.

MAINTAIN TRAFFIC ON EXISTING ROADWAY. INSTALL ALL DRAINAGE STRUCTURES AND CONSTRUCT FULL DEPTH SECTIONS OF HIGHWAY 113 ROADWAY STATION 115+00 - 176+00 AND STATION 178+00 - 222+00 THROUGH FIRST SURFACE LIFT.

PLACE ACHM LEVELING UNDER TRAFFIC IF AND WHERE DIRECTED BY THE ENGINEER, STATION 104+00 - 114+00 AND STATION 223+00 - 232+00. COLD MILL EXISTING RIGHT SHOULDER AND PROVIDE AGGREGATE FOR TEMPORARY SHOULDER AND SLOPES IF AND WHERE DIRECTED BY THE ENGINEER FOR TEMPORARY TRAFFIC SHIFT.

CONSTRUCT NOTCH AND WIDENING STATION 104+00 - 114+00 AND STATION 223+00 - 232+00 LEFT.

CONSTRUCTION PAVEMENT MARKINGS YELLOW -
CONTINUOUS DOUBLE LINE - HWY 113

STA. 190+00	TO	STA. 215+00	C.L.	-	5000 LIN. FT.

CONSTRUCTION PAVEMENT MARKINGS WHITE -
CONTINUOUS LINE - HWY 113

STA. 190+00	TO	STA. 215+00	RT.	-	2508 LIN. FT.
STA. 190+00	TO	STA. 215+00	LT.	-	2492 LIN. FT.

100 YR. FLOODPLAIN

205+00

210+00

PC 213+99.71

215+00

PROP. R/W

CONST. LIMITS

C.L. PROP. HWY. 113

N52°47'09"E

CONST. LIMITS

PROP. R/W

100 YR. FLOODPLAIN

HWY. 113 - STAGE I - QUANTITIES		
TRAFFIC DRUMS	95	EACH
CONSTRUCTION PAVEMENT MARKING		
WHITE	=	20998 LIN. FT.
YELLOW	=	24926 LIN. FT.
ARROW	=	5 EACH

HWY. 113 - STAGE I
MAINTENANCE OF TRAFFIC DETAILS

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WORKSPACE: ARDOT
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REVISED DATE: $$REVDATE$$

DATE REVISED	DATE REVISED	FED.RD. DIST.NO.	STATE	JOB NO.	SHEET NO.	TOTAL SHEETS
03-25-24		6	ARK.	080711	36	123
		MAINTENANCE OF TRAFFIC DETAILS				

LEGEND

STAGE CONST. AREA

TRAFFIC FLOW ARROWS

CONSTRUCTION SEQUENCE

STAGE I:

INSTALL ADVANCE WARNING SIGNS AND TRAFFIC CONTROL DEVICES AS SHOWN. CLEARING AND GRUBBING OPERATIONS ARE TO BE PERFORMED BY OTHERS PRIOR TO ISSUANCE OF WORK ORDER PER ARDOT. EROSION CONTROL ITEMS ARE TO BE INSTALLED AND MAINTAINED BY THE CONTRACTOR.

MAINTAIN TRAFFIC ON EXISTING ROADWAY. INSTALL ALL DRAINAGE STRUCTURES AND CONSTRUCT FULL DEPTH SECTIONS OF HIGHWAY 113 ROADWAY STATION 115+00 - 176+00 AND STATION 178+00 - 222+00 THROUGH FIRST SURFACE LIFT.

PLACE ACHM LEVELING UNDER TRAFFIC IF AND WHERE DIRECTED BY THE ENGINEER, STATION 104+00 - 114+00 AND STATION 223+00 - 232+00. COLD MILL EXISTING RIGHT SHOULDER AND PROVIDE AGGREGATE FOR TEMPORARY SHOULDER AND SLOPES IF AND WHERE DIRECTED BY THE ENGINEER FOR TEMPORARY TRAFFIC SHIFT.

CONSTRUCT NOTCH AND WIDENING STATION 104+00 - 114+00 AND STATION 223+00 - 232+00 LEFT.

HWY. 113- STAGE 2 - QUANTITIES (STA. 215+00.00 TO STA. 230+00.00)

TRAFFIC DRUMS	27 EACH

CONSTRUCTION PAVEMENT MARKINGS YELLOW - CONTINUOUS DOUBLE LINE - HWY 113

STA. 215+00	TO	STA. 210+00	C.L. -	1200	LIN. FT.

CONSTRUCTION PAVEMENT MARKINGS WHITE - CONTINUOUS LINE - HWY 113

STA. 215+00	TO	STA. 221+00	RT. -	600	LIN. FT.
STA. 215+00	TO	STA. 221+00	LT. -	600	LIN. FT.

STATE OF ARKANSAS
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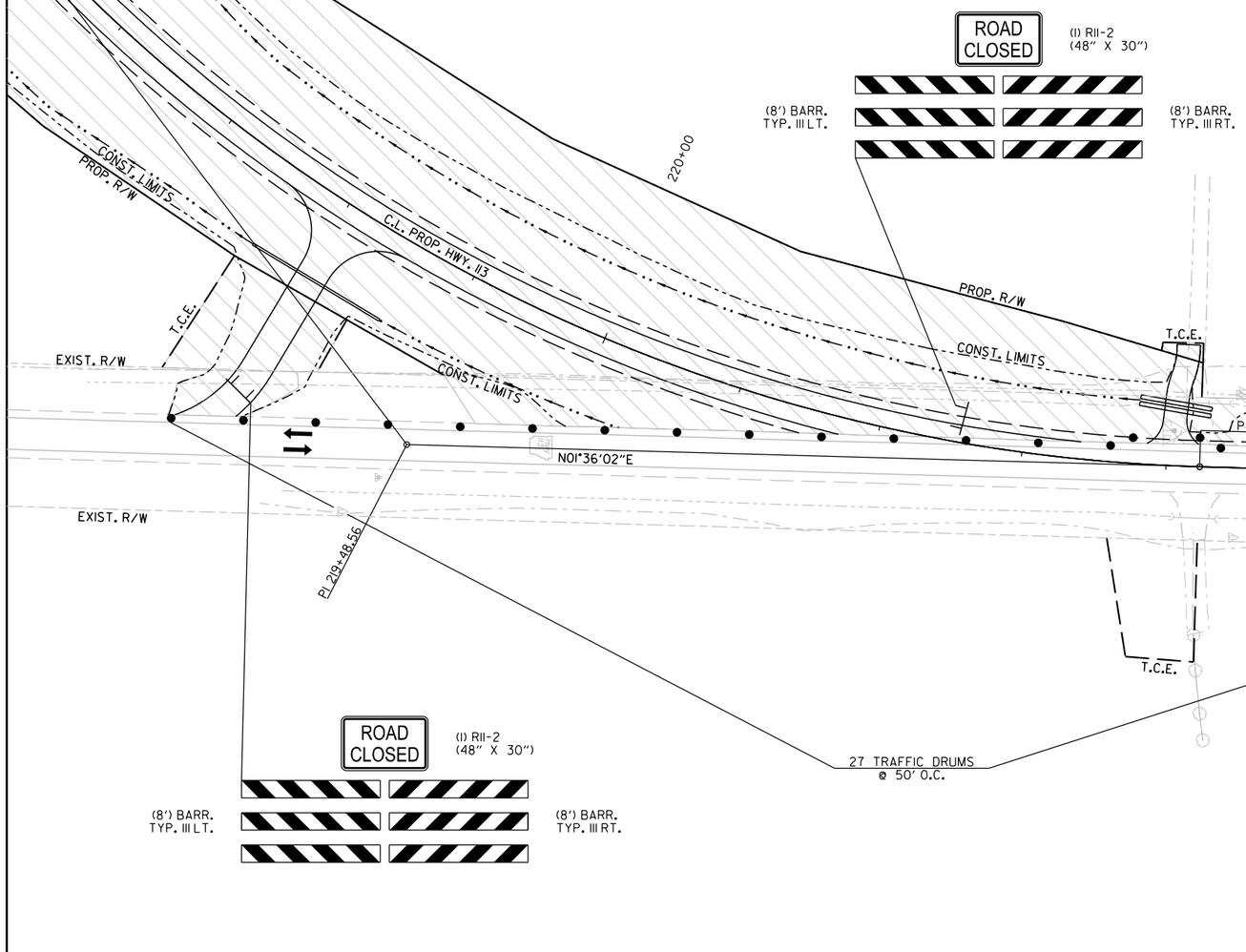
No.20584
ROBERT B. DARRINGTON
03-25-2024



HWY. 113 - STAGE 1- QUANTITIES

TRAFFIC DRUMS	95	EACH
CONSTRUCTION PAVEMENT MARKING		
WHITE	=	20998 LIN. FT.
YELLOW	=	24926 LIN. FT.
ARROW	=	5 EACH

HWY 113 - STAGE I
MAINTENANCE OF TRAFFIC DETAILS

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WORKSPACE: ARDOT
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REVISED DATE: $$REVDATE$$

DATE REVISED	DATE REVISED	FED.RD. DIST.NO.	STATE	JOB NO.	SHEET NO.	TOTAL SHEETS
03-25-24		6	ARK.	080711	37	123
		MAINTENANCE OF TRAFFIC DETAILS				

LEGEND

STAGE CONSTRUCTION

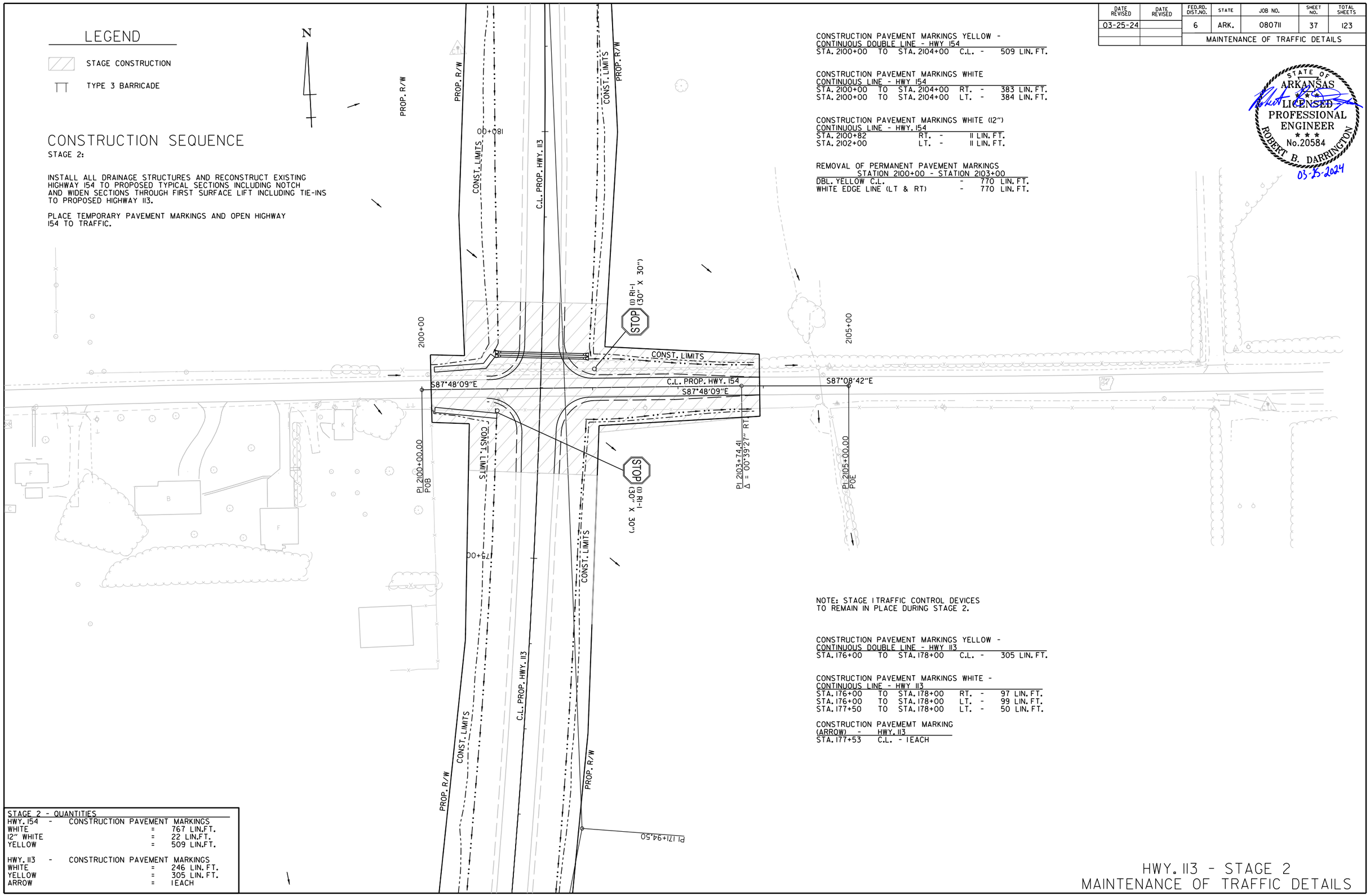
TYPE 3 BARRICADE

CONSTRUCTION SEQUENCE

STAGE 2:

INSTALL ALL DRAINAGE STRUCTURES AND RECONSTRUCT EXISTING HIGHWAY 154 TO PROPOSED TYPICAL SECTIONS INCLUDING NOTCH AND WIDEN SECTIONS THROUGH FIRST SURFACE LIFT INCLUDING TIE-INS TO PROPOSED HIGHWAY 113.

PLACE TEMPORARY PAVEMENT MARKINGS AND OPEN HIGHWAY 154 TO TRAFFIC.



CONSTRUCTION PAVEMENT MARKINGS YELLOW -
CONTINUOUS DOUBLE LINE - HWY 154

STA. 2100+00	TO	STA. 2104+00	C.L. -	509	LIN. FT.

CONSTRUCTION PAVEMENT MARKINGS WHITE
CONTINUOUS LINE - HWY 154

STA. 2100+00	TO	STA. 2104+00	RT. -	383	LIN. FT.
STA. 2100+00	TO	STA. 2104+00	LT. -	384	LIN. FT.

CONSTRUCTION PAVEMENT MARKINGS WHITE (12")
CONTINUOUS LINE - HWY. 154

STA. 2100+82	RT. -	11	LIN. FT.
STA. 2102+00	LT. -	11	LIN. FT.

REMOVAL OF PERMANENT PAVEMENT MARKINGS
STATION 2100+00 - STATION 2103+00

DBL. YELLOW C.L.	-	770	LIN. FT.
WHITE EDGE LINE (LT & RT)	-	770	LIN. FT.

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ROBERT B. DARRINGTON
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NOTE: STAGE 1 TRAFFIC CONTROL DEVICES TO REMAIN IN PLACE DURING STAGE 2.

CONSTRUCTION PAVEMENT MARKINGS YELLOW -
CONTINUOUS DOUBLE LINE - HWY 113

STA. 176+00	TO	STA. 178+00	C.L. -	305	LIN. FT.

CONSTRUCTION PAVEMENT MARKINGS WHITE -
CONTINUOUS LINE - HWY 113

STA. 176+00	TO	STA. 178+00	RT. -	97	LIN. FT.
STA. 176+00	TO	STA. 178+00	LT. -	99	LIN. FT.
STA. 177+50	TO	STA. 178+00	LT. -	50	LIN. FT.

CONSTRUCTION PAVEMEMT MARKING
(ARROW) - HWY. 113
STA. 177+53 C.L. - 1 EACH

STAGE 2 - QUANTITIES

HWY. 154 - CONSTRUCTION PAVEMENT MARKINGS			
WHITE	=	767	LIN. FT.
12" WHITE	=	22	LIN. FT.
YELLOW	=	509	LIN. FT.
HWY. 113 - CONSTRUCTION PAVEMENT MARKINGS			
WHITE	=	246	LIN. FT.
YELLOW	=	305	LIN. FT.
ARROW	=	1	EACH

HWY. 113 - STAGE 2
MAINTENANCE OF TRAFFIC DETAILS

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WORKSPACE: ARDOT
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REVISED DATE: $$REVDATE$$

DATE REVISED	DATE REVISED	FED.RD. DIST.NO.	STATE	JOB NO.	SHEET NO.	TOTAL SHEETS
03-25-24		6	ARK.	080711	38	123
		MAINTENANCE OF TRAFFIC DETAILS				

LEGEND

- STAGE CONST. AREA
- TRAFFIC FLOW ARROWS
- TRAFFIC DRUM
- OBLITERATION

CONSTRUCTION SEQUENCE

STAGE 3:

CONSTRUCT HIGHWAY 113 TRANSITIONS TO NEW ROADWAY SECTION UNDER TRAFFIC BY METHOD OF RAISING GRADE IF AND WHERE DIRECTED BY THE ENGINEER. STATION 104+00 - 115+00 AND STATION 222+00 - 232+00. PROVIDE AGGREGATE FOR TEMPORARY SHOULDERS AND SLOPES IF AND WHERE DIRECTED BY THE ENGINEER.

PLACE TEMPORARY PAVEMENT MARKINGS AND REROUTE TRAFFIC TO NEW ALIGNMENT.

CONSTRUCT HIGHWAY 113 NOTCH AND WIDENING STATION 104+00 - 115+00 AND STATION 222+00 - 232+00 RIGHT.

STAGE 4:

PLACE FINAL ACHM SURFACE AND ALL PERMANENT PAVEMENT MARKINGS FOR HIGHWAY 113, HIGHWAY 154 AND DRIVEWAYS AT STATIONS 117+95.00 AND 218+03.00. RETURN TRAFFIC TO NORMAL OPERATIONS.

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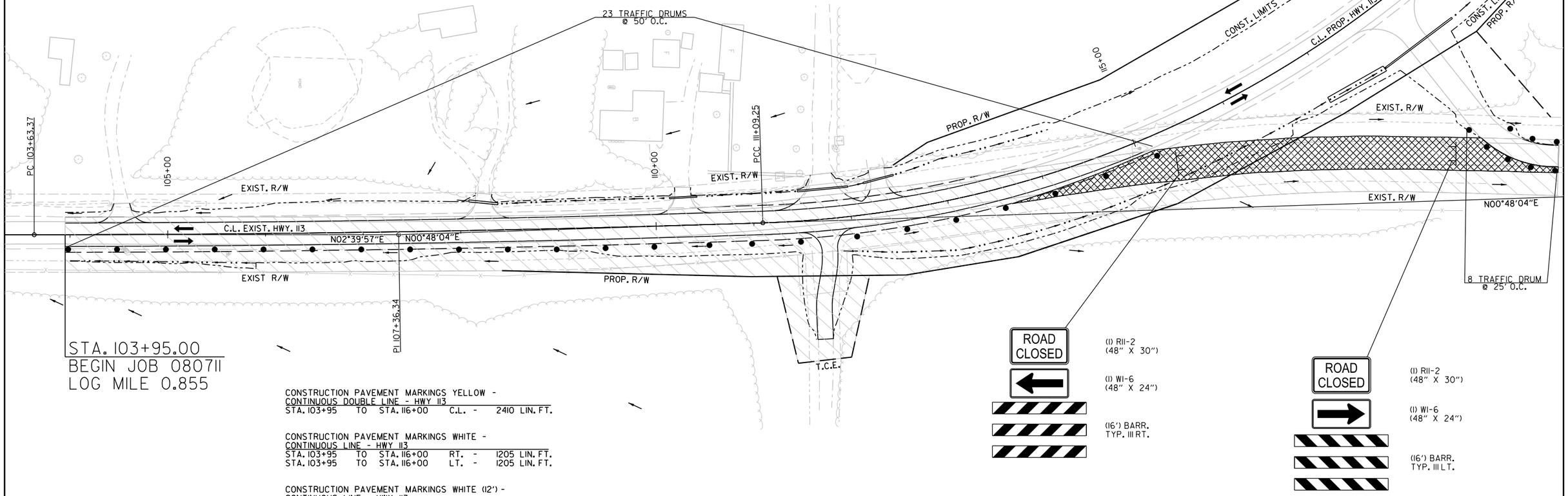

STA. 103+95.00
BEGIN JOB 080711
LOG MILE 0.855

CONSTRUCTION PAVEMENT MARKINGS YELLOW -
CONTINUOUS DOUBLE LINE - HWY 113
STA. 103+95 TO STA. 116+00 C.L. - 2410 LIN. FT.

CONSTRUCTION PAVEMENT MARKINGS WHITE -
CONTINUOUS LINE - HWY 113
STA. 103+95 TO STA. 116+00 RT. - 1205 LIN. FT.
STA. 103+95 TO STA. 116+00 LT. - 1205 LIN. FT.

CONSTRUCTION PAVEMENT MARKINGS WHITE (12") -
CONTINUOUS LINE - HWY. 113
STA. 118+00 TO STA. 118+11 RT. - 11 LIN. FT.

REMOVAL OF PERMANENT PAVEMENT MARKINGS
STATION 103+95 - STATION 119+00
DBL. YELLOW C.L. - 3067 LIN. FT.
WHITE EDGE LINE (LT & RT) - 3067 LIN. FT.

HWY. 113- STAGE 3 - QUANTITIES (STA. 103+95.00 TO STA. 130+00.00)
TRAFFIC DRUMS 31 EACH

HWY. 113 - STAGE 3 - QUANTITIES
CONSTRUCTION PAVEMENT MARKINGS

WHITE	=	4000 LIN. FT.
YELLOW	=	4000 LIN. FT.
12" WHITE	=	22 LIN. FT.
TRAFFIC DRUMS	=	64 EACH

HWY. 113 - STAGE 3
MAINTENANCE OF TRAFFIC DETAILS

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REVISED DATE: $$REVDATE$$

DATE REVISED	DATE REVISED	FED.RD. DIST.NO.	STATE	JOB NO.	SHEET NO.	TOTAL SHEETS
03-25-24		6	ARK.	080711	39	123
		MAINTENANCE OF TRAFFIC DETAILS				

LEGEND

- STAGE CONST. AREA
- TRAFFIC FLOW ARROWS
- TRAFFIC DRUM
- OBLITERATION

CONSTRUCTION SEQUENCE

STAGE 3:

CONSTRUCT HIGHWAY 113 TRANSITIONS TO NEW ROADWAY SECTION UNDER TRAFFIC BY METHOD OF RAISING GRADE IF AND WHERE DIRECTED BY THE ENGINEER, STATION 104+00 - 115+00 AND STATION 222+00 - 232+00. PROVIDE AGGREGATE FOR TEMPORARY SHOULDERS AND SLOPES IF AND WHERE DIRECTED BY THE ENGINEER.

PLACE TEMPORARY PAVEMENT MARKINGS AND REROUTE TRAFFIC TO NEW ALIGNMENT.

CONSTRUCT HIGHWAY 113 NOTCH AND WIDENING STATION 104+00 - 115+00 AND STATION 222+00 - 232+00 RIGHT.

STAGE 4:

PLACE FINAL ACHM SURFACE AND ALL PERMANENT PAVEMENT MARKINGS FOR HIGHWAY 113, HIGHWAY 154 AND DRIVEWAYS AT STATIONS 117+95.00 AND 218+03.00. RETURN TRAFFIC TO NORMAL OPERATIONS.

CONSTRUCTION PAVEMENT MARKINGS YELLOW -
CONTINUOUS DOUBLE LINE - HWY 113

STA. 221+00	TO	STA. 228+95	C.L. -	1590 LIN. FT.

CONSTRUCTION PAVEMENT MARKINGS WHITE
CONTINUOUS LINE - HWY 113

STA. 221+00	TO	STA. 228+95	RT. -	795 LIN. FT.
STA. 221+00	TO	STA. 228+95	LT. -	795 LIN. FT.

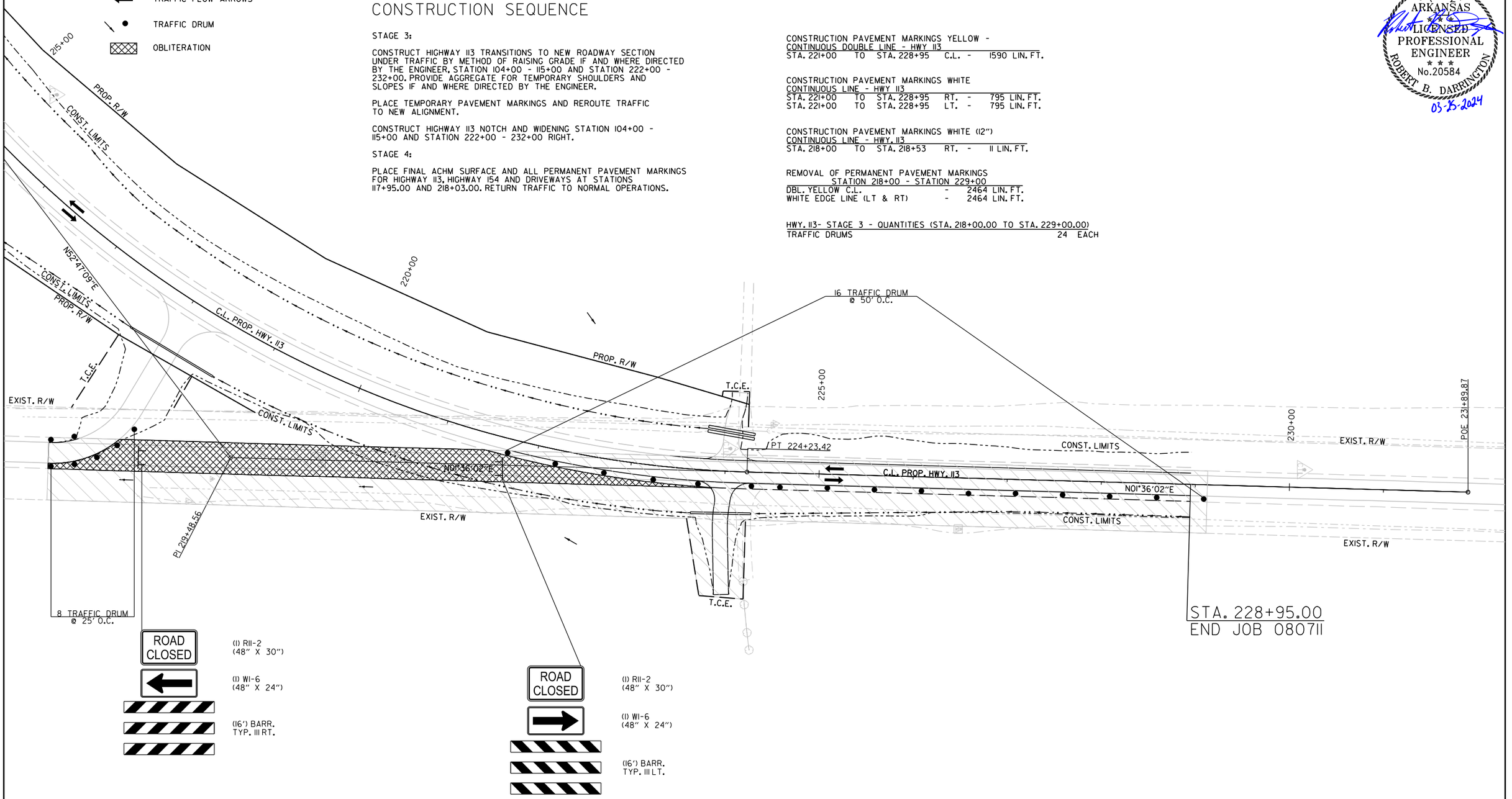
CONSTRUCTION PAVEMENT MARKINGS WHITE (12")
CONTINUOUS LINE - HWY. 113

STA. 218+00	TO	STA. 218+53	RT. -	11 LIN. FT.

REMOVAL OF PERMANENT PAVEMENT MARKINGS
STATION 218+00 - STATION 229+00

DBL. YELLOW C.L.	-	2464 LIN. FT.
WHITE EDGE LINE (LT & RT)	-	2464 LIN. FT.

HWY. 113- STAGE 3 - QUANTITIES (STA. 218+00.00 TO STA. 229+00.00)
TRAFFIC DRUMS 24 EACH



ROAD CLOSED
(1) R11-2 (48" X 30")
(1) W1-6 (48" X 24")
(16') BARR. TYP. III RT.

ROAD CLOSED
(1) R11-2 (48" X 30")
(1) W1-6 (48" X 24")
(16') BARR. TYP. III LT.

HWY. 113 - STAGE 3 - QUANTITIES
CONSTRUCTION PAVEMENT MARKINGS

WHITE	=	4000 LIN. FT.
YELLOW	=	4000 LIN. FT.
12" WHITE	=	22 LIN. FT.
TRAFFIC DRUMS	=	64 EACH

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HWY 113 - STAGE 3
MAINTENANCE OF TRAFFIC DETAILS

DATE REVISED	DATE REVISED	FED.RD. DIST.NO.	STATE	JOB NO.	SHEET NO.	TOTAL SHEETS
03-25-24		6	ARK.	080711	40	123
		PERMANENT PAVEMENT MARKING DETAILS				

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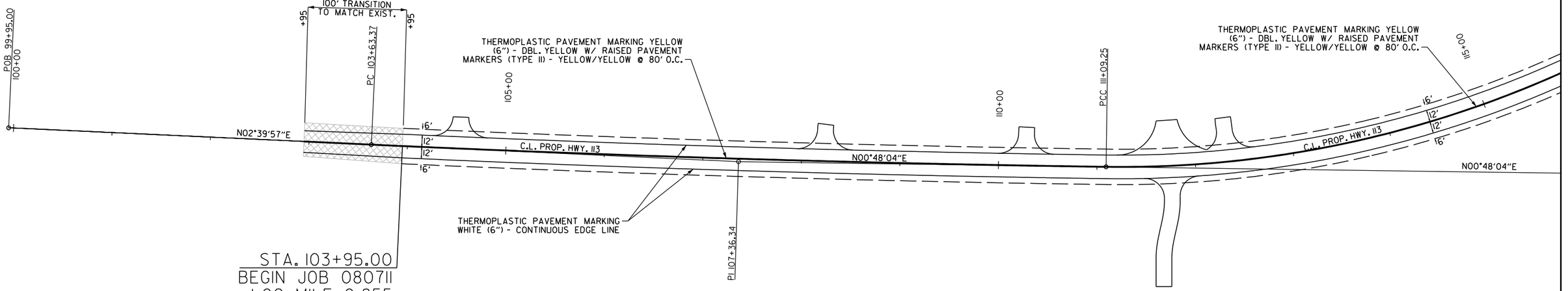
THERMOPLASTIC PAVEMENT MARKING YELLOW (6") -
CONTINUOUS DOUBLE LINE W/ RAISED PAVEMENT
MARKERS (TYPE II) - YELLOW/YELLOW @ 80' O.C. - HWY. 113

STA. 102+95 TO STA. 115+00 C.L. - 2410 LIN. FT. - 15 R.P.M.

THERMOPLASTIC PAVEMENT MARKING WHITE (6")
CONTINUOUS EDGE LINE - HWY. 113

STA. 102+95 TO STA. 115+00 LT. - 1205 LIN. FT.
STA. 102+95 TO STA. 115+00 RT. - 1205 LIN. FT.

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 PROJECT.

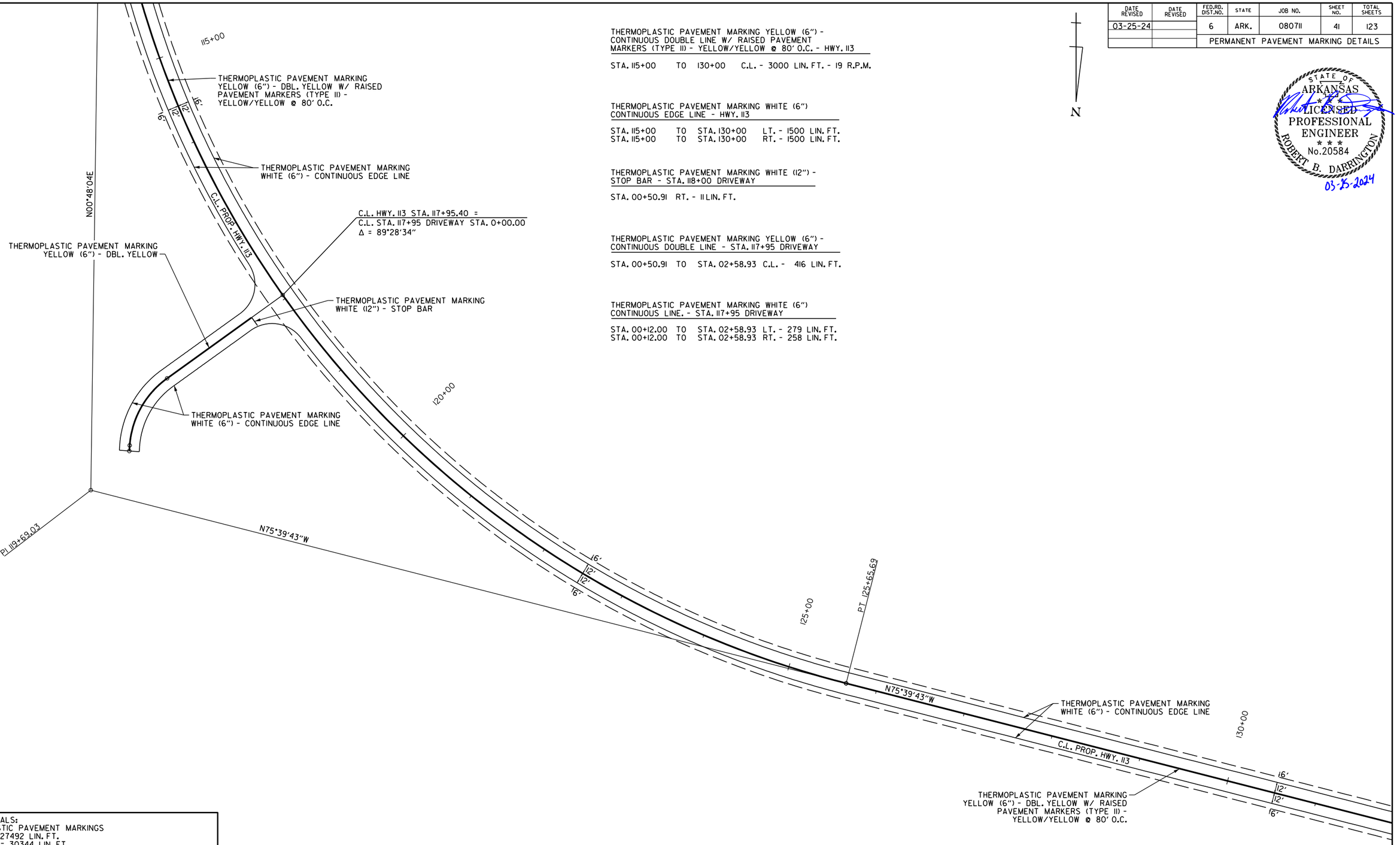


HWY. 113 TOTALS:
THERMOPLASTIC PAVEMENT MARKINGS
6" WHITE = 27492 LIN. FT.
6" YELLOW = 30344 LIN. FT.
12" WHITE = 22 LIN. FT.
ARROW = 6 EACH
WORD (ONLY)= 3 EACH
YEL./YEL. RAISED PAVEMENT MARKERS = 189 EACH
WHITE/RED RAISED PAVEMENT MARKERS = 12

HWY. 154 TOTALS:
THERMOPLASTIC PAVEMENT MARKINGS
6" WHITE = 510 LIN. FT.
12" WHITE = 22 LIN. FT.
6" YELLOW = 510 LINT. FT.
YEL./YEL. RAISED PAVEMENT MARKERS = 4 EACH

PERMANENT PAVEMENT MARKING DETAILS

DATE REVISED	DATE REVISED	FED.RD. DIST.NO.	STATE	JOB NO.	SHEET NO.	TOTAL SHEETS
03-25-24		6	ARK.	080711	41	123
		PERMANENT PAVEMENT MARKING DETAILS				



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THERMOPLASTIC PAVEMENT MARKING YELLOW (6") - CONTINUOUS DOUBLE LINE W/ RAISED PAVEMENT MARKERS (TYPE II) - YELLOW/YELLOW @ 80' O.C. - HWY. 113

STA. 115+00 TO 130+00 C.L. - 3000 LIN. FT. - 19 R.P.M.

THERMOPLASTIC PAVEMENT MARKING WHITE (6") CONTINUOUS EDGE LINE - HWY. 113

STA. 115+00 TO STA. 130+00 LT. - 1500 LIN. FT.
STA. 115+00 TO STA. 130+00 RT. - 1500 LIN. FT.

THERMOPLASTIC PAVEMENT MARKING WHITE (12") - STOP BAR - STA. 118+00 DRIVEWAY

STA. 00+50.91 RT. - 11 LIN. FT.

THERMOPLASTIC PAVEMENT MARKING YELLOW (6") - CONTINUOUS DOUBLE LINE - STA. 117+95 DRIVEWAY

STA. 00+50.91 TO STA. 02+58.93 C.L. - 416 LIN. FT.

THERMOPLASTIC PAVEMENT MARKING WHITE (6") CONTINUOUS LINE. - STA. 117+95 DRIVEWAY

STA. 00+12.00 TO STA. 02+58.93 LT. - 279 LIN. FT.
STA. 00+12.00 TO STA. 02+58.93 RT. - 258 LIN. FT.

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HWY. 113 TOTALS:
THERMOPLASTIC PAVEMENT MARKINGS
6" WHITE = 27492 LIN. FT.
6" YELLOW = 30344 LIN. FT.
12" WHITE = 22 LIN. FT.
ARROW = 6 EACH
WORD (ONLY)= 3 EACH
YEL./YEL. RAISED PAVEMENT MARKERS = 189 EACH
WHITE/RED RAISED PAVEMENT MARKERS = 12

HWY. 154 TOTALS:
THERMOPLASTIC PAVEMENT MARKINGS
6" WHITE = 510 LIN. FT.
12" WHITE = 22 LIN. FT.
6" YELLOW = 510 LINT. FT.
YEL./YEL. RAISED PAVEMENT MARKERS = 4 EACH

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 PROJECT.

PERMANENT PAVEMENT MARKING DETAILS

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WORKSPACE: ARDOT
Y:\Projects\ARDOT_18431_080711_Highway 113 Relocation\Design\CIVIL\Drawings\R080711_07_PM_002.dgn
REVISED DATE: $$REVDATE$$

DATE REVISED	DATE REVISED	FED.RD. DIST.NO.	STATE	JOB NO.	SHEET NO.	TOTAL SHEETS
03-25-24		6	ARK.	080711	42	123
		PERMANENT PAVEMENT MARKING DETAILS				

THERMOPLASTIC PAVEMENT MARKING YELLOW (6") -
CONTINUOUS DOUBLE LINE W/ RAISED PAVEMENT
MARKERS (TYPE II) - YELLOW/YELLOW @ 80' O.C. - HWY. 113

STA. 130+00 TO STA. 145+00 C.L. - 3000 LIN. FT. - 19 R.P.M.

THERMOPLASTIC PAVEMENT MARKING WHITE (6")
CONTINUOUS EDGE LINE - HWY. 113

STA. 130+00 TO STA. 145+00 LT. - 1500 LIN. FT.
STA. 130+00 TO STA. 145+00 RT. - 1500 LIN. FT.

STATE OF ARKANSAS
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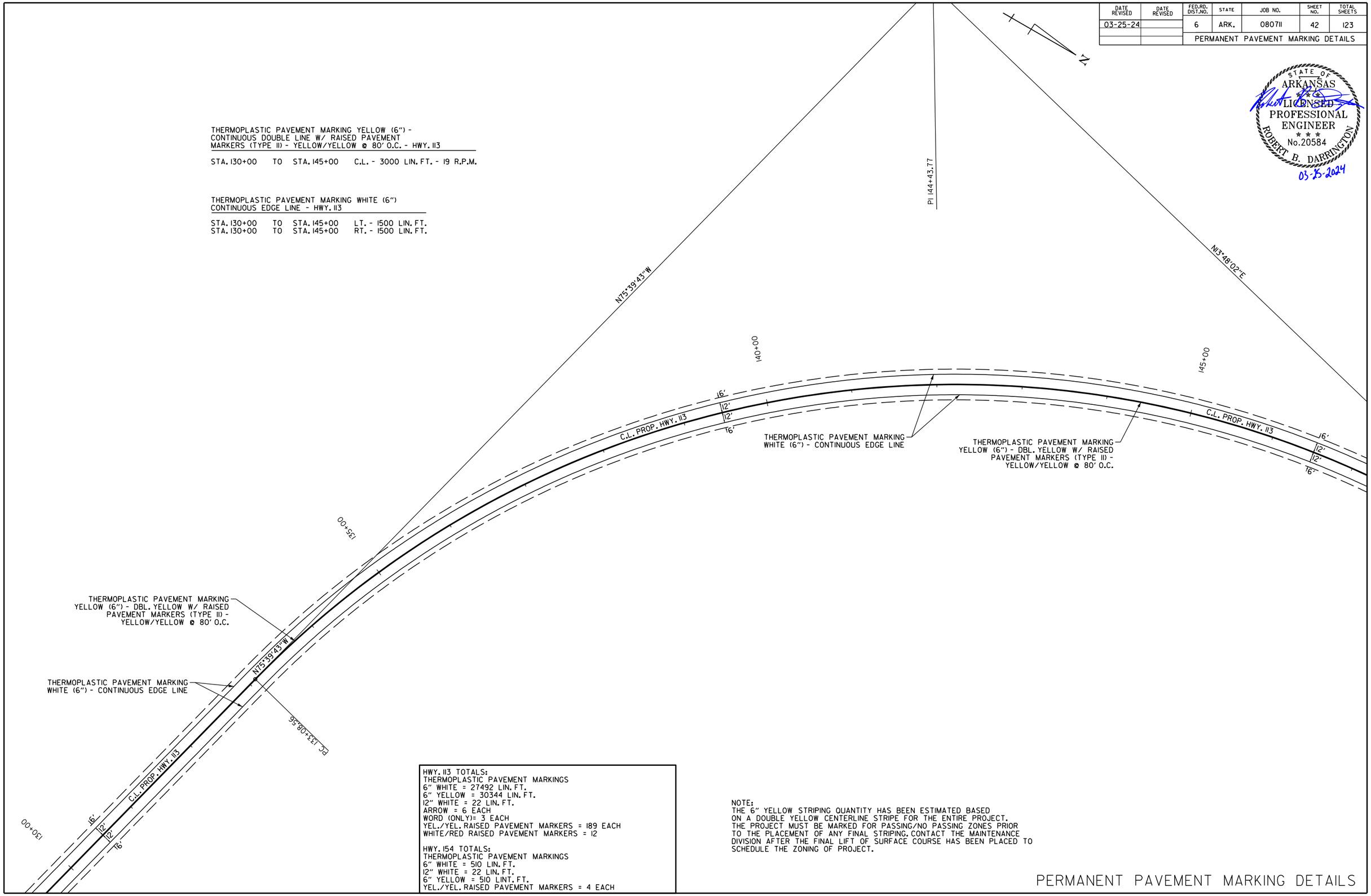

HWY. 113 TOTALS:
THERMOPLASTIC PAVEMENT MARKINGS
6" WHITE = 27492 LIN. FT.
6" YELLOW = 30344 LIN. FT.
12" WHITE = 22 LIN. FT.
ARROW = 6 EACH
WORD (ONLY)= 3 EACH
YEL./YEL. RAISED PAVEMENT MARKERS = 189 EACH
WHITE/RED RAISED PAVEMENT MARKERS = 12

HWY. 154 TOTALS:
THERMOPLASTIC PAVEMENT MARKINGS
6" WHITE = 510 LIN. FT.
12" WHITE = 22 LIN. FT.
6" YELLOW = 510 LINT. FT.
YEL./YEL. RAISED PAVEMENT MARKERS = 4 EACH

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 PROJECT.

PERMANENT PAVEMENT MARKING DETAILS

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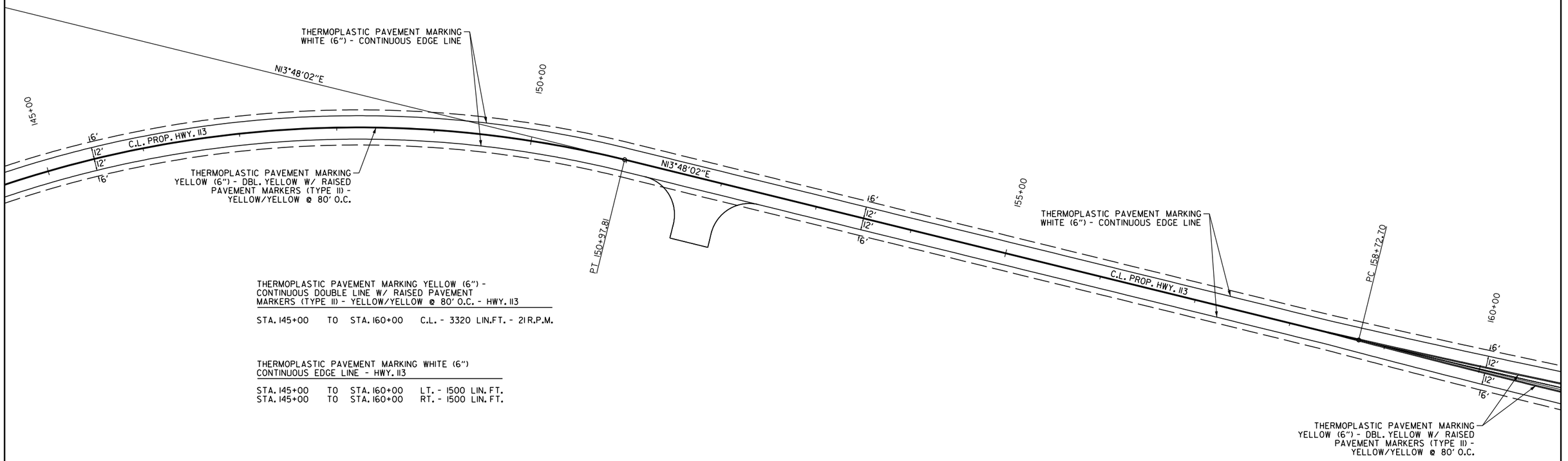
WORKSPACE: ARDOT
Y:\Projects\ARDOT_19643_080711_Highway 113 Relocation\Design\CIVIL\Drawings\R080711_07_PM_003.dgn
REVISED DATE: $$REVDATE$$

DATE REVISED	DATE REVISED	FED.RD. DIST.NO.	STATE	JOB NO.	SHEET NO.	TOTAL SHEETS
03-25-24		6	ARK.	080711	43	123
		PERMANENT PAVEMENT MARKING DETAILS				

STATE OF ARKANSAS
LICENSED PROFESSIONAL ENGINEER
No.20584
ROBERT B. DARRINGTON
03-25-2024



THERMOPLASTIC PAVEMENT MARKING YELLOW (6") - CONTINUOUS DOUBLE LINE W/ RAISED PAVEMENT MARKERS (TYPE II) - YELLOW/YELLOW @ 80' O.C. - HWY. 113

STA. 145+00 TO STA. 160+00 C.L. - 3320 LIN.FT. - 21 R.P.M.

THERMOPLASTIC PAVEMENT MARKING WHITE (6") CONTINUOUS EDGE LINE - HWY. 113

STA. 145+00 TO STA. 160+00 LT. - 1500 LIN. FT.
STA. 145+00 TO STA. 160+00 RT. - 1500 LIN. FT.

HWY. 113 TOTALS:
THERMOPLASTIC PAVEMENT MARKINGS
6" WHITE = 27492 LIN. FT.
6" YELLOW = 30344 LIN. FT.
12" WHITE = 22 LIN. FT.
ARROW = 6 EACH
WORD (ONLY)= 3 EACH
YEL./YEL. RAISED PAVEMENT MARKERS = 189 EACH
WHITE/RED RAISED PAVEMENT MARKERS = 12

HWY. 154 TOTALS:
THERMOPLASTIC PAVEMENT MARKINGS
6" WHITE = 510 LIN. FT.
12" WHITE = 22 LIN. FT.
6" YELLOW = 510 LINT. FT.
YEL./YEL. RAISED PAVEMENT MARKERS = 4 EACH

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 PROJECT.

PERMANENT PAVEMENT MARKING DETAILS

DATE REVISED	DATE REVISED	FED.RD. DIST.NO.	STATE	JOB NO.	SHEET NO.	TOTAL SHEETS
03-25-24		6	ARK.	080711	44	123
		PERMANENT PAVEMENT MARKING DETAILS				

STATE OF ARKANSAS
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No.20584
ROBERT B. DARRINGTON
03-25-2024

THERMOPLASTIC PAVEMENT MARKING YELLOW (6") - CONTINUOUS DOUBLE LINE W/ RAISED PAVEMENT MARKERS (TYPE II) - YELLOW/YELLOW @ 80' O.C. - HWY. 113

STA. 160+00 TO STA. 162+30 C.L. - 922 LIN. FT. - 7 R.P.M.
STA. 162+70 TO SAT. 168+59 C.L. - 2060 LIN. FT. - 15 R.P.M.
STA. 168+99 TO STA. 175+00 C.L. - 2106 LIN. FT. - 15 R.P.M.

THERMOPLASTIC PAVEMENT MARKING WHITE (6") CONTINUOUS EDGE LINE - HWY. 113

STA. 160+00 TO STA. 175+00 LT. - 1500 LIN. FT.
STA. 160+00 TO STA. 175+00 RT. - 1500 LIN. FT.

THERMOPLASTIC PAVEMENT MARKING WHITE (6") - CONTINUOUS LINES W/ RAISED PAVEMENT MARKERS (TYPE II) - WHITE/RED @ 40' O.C. - HWY. 113

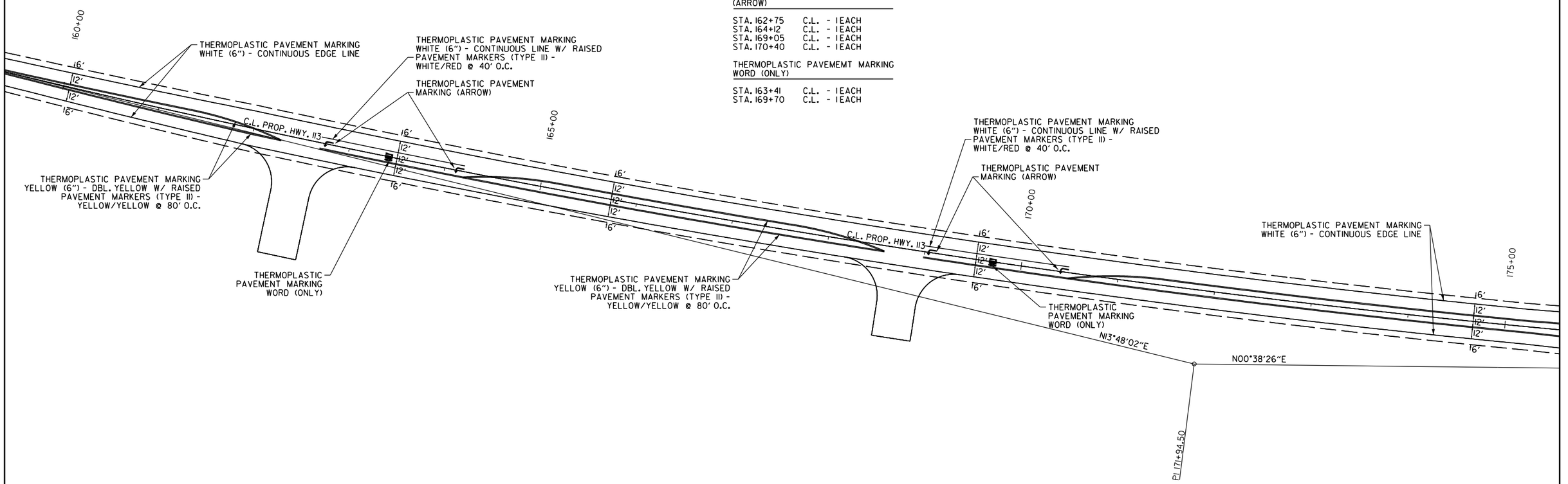
STA. 162+70 TO STA. 164+20 LT. - 150 LIN. FT. - 4 R.P.M.
STA. 168+99 TO STA. 170+49 LT. - 150 LIN. FT. - 4 R.P.M.

THERMOPLASTIC PAVEMEMT MARKING (ARROW)

STA. 162+75 C.L. - 1 EACH
STA. 164+12 C.L. - 1 EACH
STA. 169+05 C.L. - 1 EACH
STA. 170+40 C.L. - 1 EACH

THERMOPLASTIC PAVEMEMT MARKING WORD (ONLY)

STA. 163+41 C.L. - 1 EACH
STA. 169+70 C.L. - 1 EACH



HWY. 113 TOTALS:
THERMOPLASTIC PAVEMENT MARKINGS
6" WHITE = 27492 LIN. FT.
6" YELLOW = 30344 LIN. FT.
12" WHITE = 22 LIN. FT.
ARROW = 6 EACH
WORD (ONLY)= 3 EACH
YEL./YEL. RAISED PAVEMENT MARKERS = 189 EACH
WHITE/RED RAISED PAVEMENT MARKERS = 12

HWY. 154 TOTALS:
THERMOPLASTIC PAVEMENT MARKINGS
6" WHITE = 510 LIN. FT.
12" WHITE = 22 LIN. FT.
6" YELLOW = 510 LINT. FT.
YEL./YEL. RAISED PAVEMENT MARKERS = 4 EACH

NOTE:
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PERMANENT PAVEMENT MARKING DETAILS

DATE REVISED	DATE REVISED	FED.RD. DIST.NO.	STATE	JOB NO.	SHEET NO.	TOTAL SHEETS
03-25-24		6	ARK.	080711	45	123
		PERMANENT PAVEMENT MARKING DETAILS				

N

THERMOPLASTIC PAVEMENT MARKING YELLOW (6") - CONTINUOUS DOUBLE LINE W/ RAISED PAVEMENT MARKERS (TYPE II) - YELLOW/YELLOW @ 80' O.C. - HWY. 113

STA. 175+00 TO STA. 176+76 C.L. - 600 LIN. FT. - 4 R.P.M.
STA. 177+22 TO STA. 190+00 C.L. - 3592 LIN. FT. - 24 R.P.M.

THERMOPLASTIC PAVEMENT MARKING WHITE (6") CONTINUOUS EDGE LINE - HWY. 113

STA. 175+00 TO STA. 190+00 LT. - 1525 LIN. FT.
STA. 175+00 TO STA. 190+00 RT. - 1530 LIN. FT.

THERMOPLASTIC PAVEMENT MARKING WHITE (6") - CONTINUOUS LINE W/ RAISED PAVEMENT MARKERS (TYPE II) - WHITE/RED @ 40' O.C. - HWY. 113

STA. 177+48 TO STA. 178+98 LT. - 150 LIN. FT. - 4 R.P.M.

THERMOPLASTIC PAVEMEMT MARKING (ARROW)

STA. 177+53 C.L. - 1 EACH
STA. 178+90 C.L. - 1 EACH

THERMOPLASTIC PAVEMEMT MARKING WORD (ONLY)

STA. 178+23 C.L. - 1 EACH

THERMOPLASTIC PAVEMENT MARKING YELLOW (6") - CONTINUOUS DOUBLE LINE W/ RAISED PAVEMENT MARKERS (TYPE II) - YELLOW/YELLOW @ 80' O.C. - HWY. 154

STA. 2100+15 TO STA. 2103+85 C.L. - 510 LIN.FT. - 4 R.P.M.

THERMOPLASTIC PAVEMENT MARKING WHITE (6") CONTINUOUS EDGE LINE - HWY. 154

STA. 2100+15 TO STA. 2103+85 LT. - 255 LIN. FT.
STA. 2100+15 TO STA. 2103+85 RT. - 255 LIN. FT.

THERMOPLASTIC PAVEMENT MARKING WHITE (12") STOP BAR - HWY. 154

STA. 2100+82 RT. - 11 LIN. FT.
STA. 2102+00 LT. - 11 LIN. FT.

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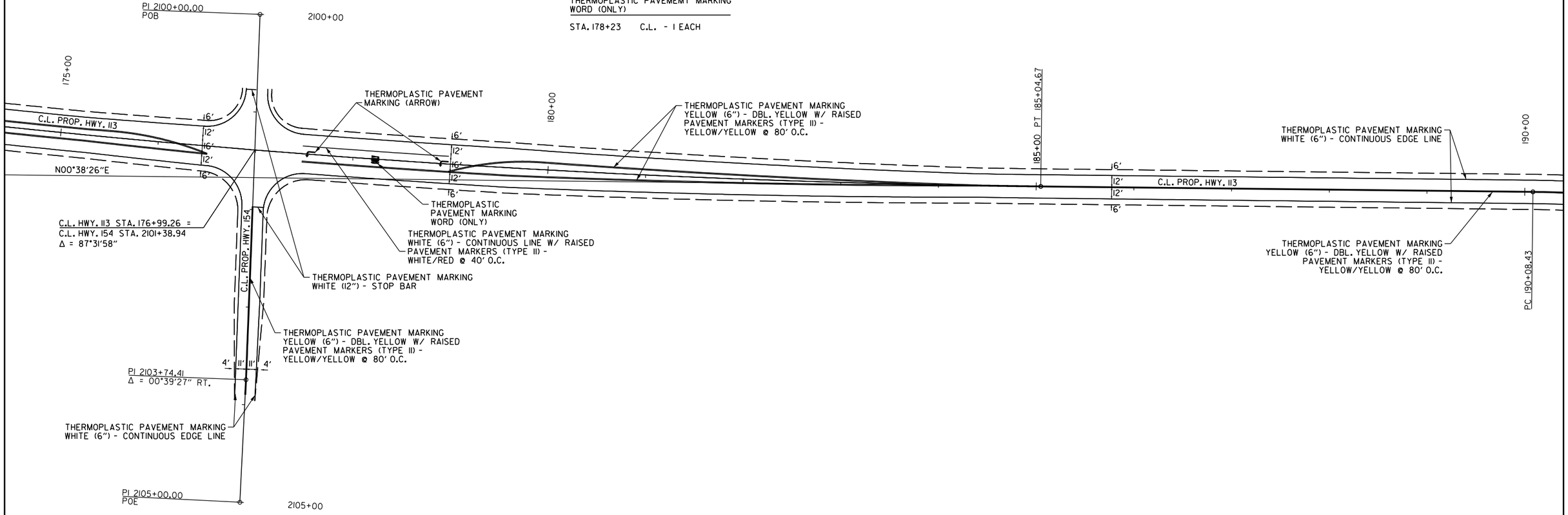

HWY. 113 TOTALS:
THERMOPLASTIC PAVEMENT MARKINGS
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6" YELLOW = 30344 LIN. FT.
12" WHITE = 22 LIN. FT.
ARROW = 6 EACH
WORD (ONLY)= 3 EACH
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WHITE/RED RAISED PAVEMENT MARKERS = 12

HWY. 154 TOTALS:
THERMOPLASTIC PAVEMENT MARKINGS
6" WHITE = 510 LIN. FT.
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YEL./YEL. RAISED PAVEMENT MARKERS = 4 EACH

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PERMANENT PAVEMENT MARKING DETAILS

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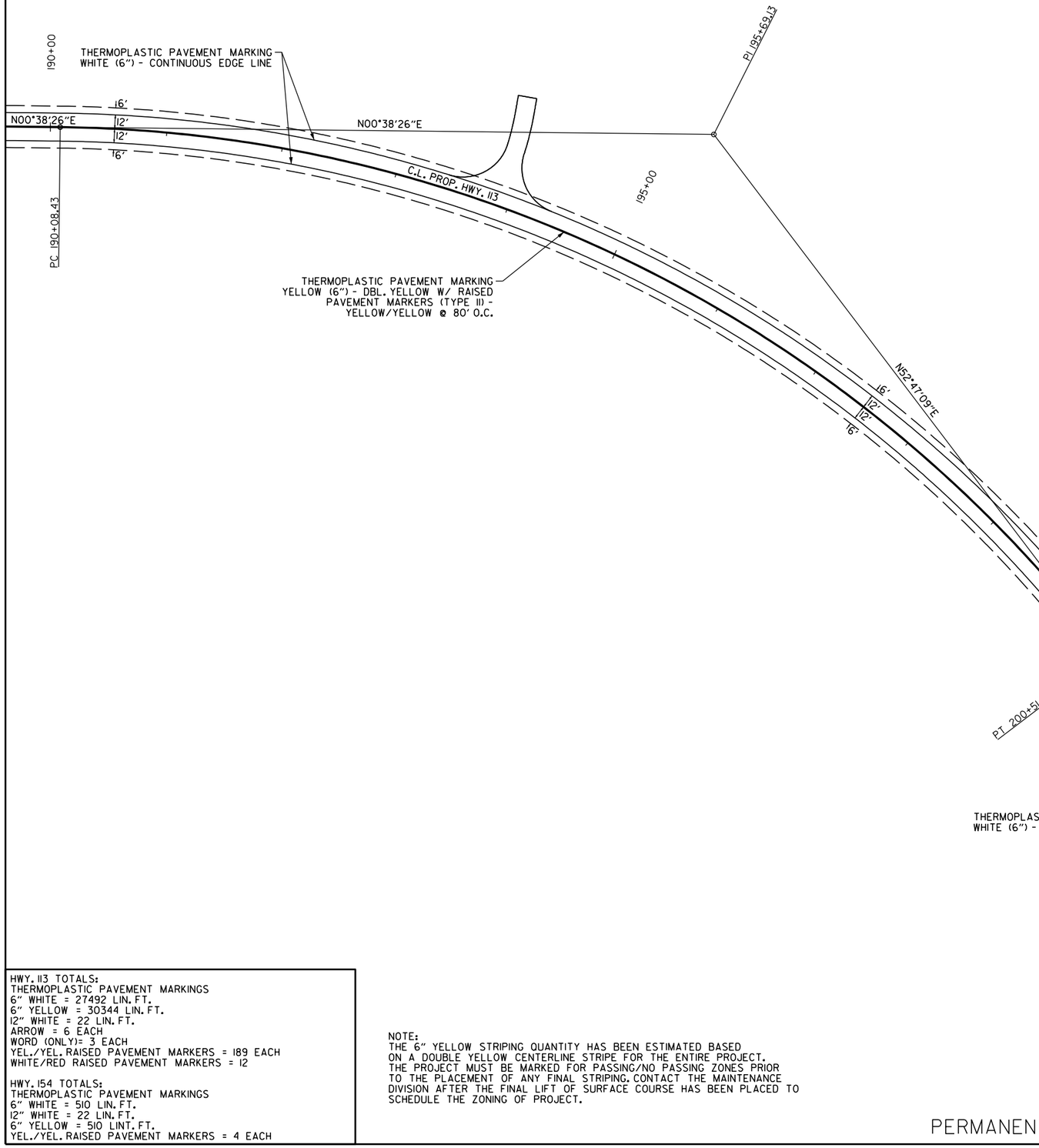
REVISED DATE: $$REVDATE$$

DATE REVISED	DATE REVISED	FED.RD. DIST.NO.	STATE	JOB NO.	SHEET NO.	TOTAL SHEETS
03-25-24		6	ARK.	080711	46	123
		PERMANENT PAVEMENT MARKING DETAILS				



THERMOPLASTIC PAVEMENT MARKING YELLOW (6") -
CONTINUOUS DOUBLE LINE W/ RAISED PAVEMENT
MARKERS (TYPE II) - YELLOW/YELLOW @ 80' O.C. - HWY. 113

STA. 190+00 TO STA. 205+00 C.L. - 3000 LIN. FT. - 19 R.P.M.

THERMOPLASTIC PAVEMENT MARKING WHITE (6")
CONTINUOUS EDGE LINE - HWY. 113

STA. 190+00 TO STA. 205+00 LT. - 1500 LIN. FT.
STA. 190+00 TO STA. 205+00 RT. - 1500 LIN. FT.

STATE OF ARKANSAS
LICENSED PROFESSIONAL ENGINEER
No.20584
ROBERT B. DARRINGTON
03-25-2024

HWY. 113 TOTALS:
THERMOPLASTIC PAVEMENT MARKINGS
6" WHITE = 27492 LIN. FT.
6" YELLOW = 30344 LIN. FT.
12" WHITE = 22 LIN. FT.
ARROW = 6 EACH
WORD (ONLY)= 3 EACH
YEL./YEL. RAISED PAVEMENT MARKERS = 189 EACH
WHITE/RED RAISED PAVEMENT MARKERS = 12

HWY. 154 TOTALS:
THERMOPLASTIC PAVEMENT MARKINGS
6" WHITE = 510 LIN. FT.
12" WHITE = 22 LIN. FT.
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PERMANENT PAVEMENT MARKING DETAILS

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REVISED DATE: $$REVDATE$$

DATE REVISED	DATE REVISED	FED.RD. DIST.NO.	STATE	JOB NO.	SHEET NO.	TOTAL SHEETS
03-25-24		6	ARK.	080711	47	123
		PERMANENT PAVEMENT MARKING DETAILS				

STATE OF ARKANSAS
LICENSED PROFESSIONAL ENGINEER
No.20584
ROBERT B. DARRINGTON
03-15-2024

THERMOPLASTIC PAVEMENT MARKING YELLOW (6") -
CONTINUOUS DOUBLE LINE W/ RAISED PAVEMENT
MARKERS (TYPE II) - YELLOW/YELLOW @ 80' O.C. - HWY. 113

STA. 205+00 TO STA. 220+00 C.L. - 3000 LIN. FT. - 19 R.P.M.

THERMOPLASTIC PAVEMENT MARKING WHITE (6")
CONTINUOUS EDGE LINE - HWY. 113

STA. 205+00 TO STA. 220+00 LT. - 1500 LIN. FT.
STA. 205+00 TO STA. 220+00 RT. - 1500 LIN. FT.

THERMOPLASTIC PAVEMENT MARKING YELLOW (6") -
CONTINUOUS DOUBLE LINE - STA. 218+00 DRIVEWAY

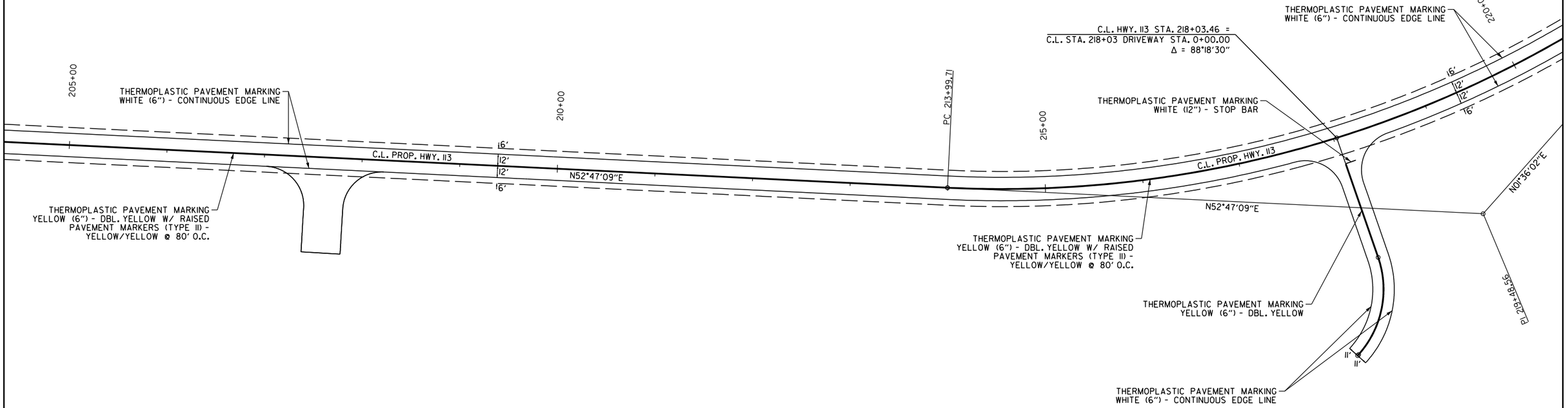
STA. 00+51.12 TO STA. 02+60.00 C.L. - 418 LIN. FT.

THERMOPLASTIC PAVEMENT MARKING WHITE (6")
CONTINUOUS EDGE LINE. - STA. 218+00 DRIVEWAY

STA. 00+12.00 TO STA. 02+60.00 LT. - 281 LIN. FT.
STA. 00+12.00 TO STA. 02+60.00 RT. - 259 LIN. FT.

THERMOPLASTIC PAVEMENT MARKING WHITE (12")
STOP BAR - STA. 218+00 DRIVWAY

STA. 00+51.12 RT. - 11 LIN.FT.



HWY. 113 TOTALS:
THERMOPLASTIC PAVEMENT MARKINGS
6" WHITE = 27492 LIN. FT.
6" YELLOW = 30344 LIN. FT.
12" WHITE = 22 LIN. FT.
ARROW = 6 EACH
WORD (ONLY)= 3 EACH
YEL./YEL. RAISED PAVEMENT MARKERS = 189 EACH
WHITE/RED RAISED PAVEMENT MARKERS = 12

HWY. 154 TOTALS:
THERMOPLASTIC PAVEMENT MARKINGS
6" WHITE = 510 LIN. FT.
12" WHITE = 22 LIN. FT.
6" YELLOW = 510 LINT. FT.
YEL./YEL. RAISED PAVEMENT MARKERS = 4 EACH

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PERMANENT PAVEMENT MARKING DETAILS

DATE REVISED	DATE REVISED	FED.RD. DIST.NO.	STATE	JOB NO.	SHEET NO.	TOTAL SHEETS
03-25-24		6	ARK.	080711	48	123
		PERMANENT PAVEMENT MARKING DETAILS				

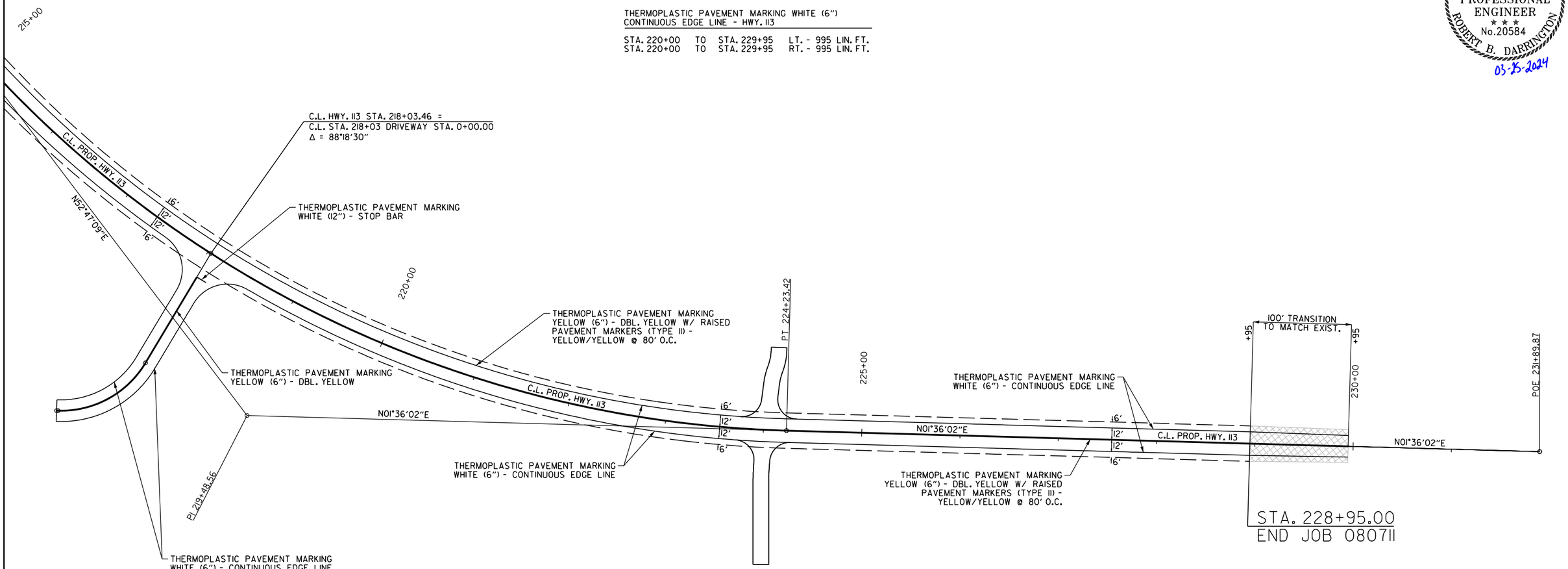
STATE OF ARKANSAS
LICENSED PROFESSIONAL ENGINEER
No.20584
ROBERT B. DARRINGTON
03-25-2024

THERMOPLASTIC PAVEMENT MARKING YELLOW (6") - CONTINUOUS DOUBLE LINE W/ RAISED PAVEMENT MARKERS (TYPE II) - YELLOW/YELLOW @ 80' O.C. - HWY. 113

STA. 220+00 TO STA. 229+95 C.L. - 1990 LIN. FT. - 12 R.P.M.

THERMOPLASTIC PAVEMENT MARKING WHITE (6") CONTINUOUS EDGE LINE - HWY. 113

STA. 220+00 TO STA. 229+95 LT. - 995 LIN. FT.
STA. 220+00 TO STA. 229+95 RT. - 995 LIN. FT.



HWY. 113 TOTALS:
THERMOPLASTIC PAVEMENT MARKINGS
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6" YELLOW = 30344 LIN. FT.
12" WHITE = 22 LIN. FT.
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PERMANENT PAVEMENT MARKING DETAILS

DATE REVISED	DATE REVISED	FED.RD. DIST.NO.	STATE	JOB NO.	SHEET NO.	TOTAL SHEETS
03-25-24		6	ARK.	080711	49	123
		QUANTITY SHEETS				

ADVANCE WARNING SIGNS AND DEVICES

SIGN NUMBER	DESCRIPTION	SIGN SIZE	STAGE 1	STAGE 2	STAGE 3	MAXIMUM NUMBER REQUIRED	TOTAL SIGNS REQUIRED		TRAFFIC DRUMS	BARRICADES (TYPE III)		CONSTRUCTION PROJECT INFORMATION SIGN UPDATE
										RIGHT	LEFT	
			LIN. FT. - EACH				NO.	SQ. FT.	EACH	LIN. FT.		EACH
W20-1	ROAD WORK 1500 FT.	48"x48"	2	2	2	2	2	32.0				
W20-1	ROAD WORK 1000 FT.	48"x48"	2	2	2	2	2	32.0				
W20-1	ROAD WORK 500 FT.	48"x48"	2	2	2	2	2	32.0				
G20-2	END ROAD WORK	48"x24"	2	2	2	2	2	16.0				
G20-1	ROAD WORK NEXT xx MILES	60"x24"	2	2	2	2	2	20.0				
R11-2	ROAD CLOSED	48"x30"	6	4	4	6	6	60.0				
W1-6	LARGE ARROW	48"x24"			4	4	4	32.0				
R4-1	DO NOT PASS	24"x30"	10	10	10	10	10	50.0				
W21-5a	RIGHT SHOULDER CLOSED	36"x36"	2	2	2	2	2	18.0				
W8-1	BUMP	30"x30"	4	4	4	4	4	25.0				
R1-1	STOP	30"x30"		2		2	2	12.5				
	TRAFFIC DRUMS		95	95	67	95			95			
	TYPE III BARRICADE-RT. (8')		4	4		4				32		
	TYPE III BARRICADE-LT. (8')		4	4		4					32	
	TYPE III BARRICADE-RT. (16')		2		2	2				32		
	TYPE III BARRICADE-LT. (16')		2		2	2					32	
	CONSTRUCTION PROJECT INFORMATION SIGN UPDATE											4
TOTALS:								**329.5**	**95**	**64**	**64**	**4**

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

ASPHALT CONCRETE PATCHING FOR MAINTENANCE OF TRAFFIC

LOCATION	TON	TACK COAT
		GALLON
ENTIRE PROJECT - TO BE USED IF AND WHERE DIRECTED BY THE ENGINEER	60	120
TOTALS:	**60**	**120**

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

STATE OF ARKANSAS
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ACHM PATCHING OF EXISTING ROADWAY

DESCRIPTION	TON
ENTIRE PROJECT - TO BE USED IF AND WHERE DIRECTED BY THE ENGINEER	20
TOTAL:	**20**

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

CONSTRUCTION PAVEMENT MARKINGS AND PERMANENT PAVEMENT MARKINGS

DESCRIPTION	STAGE 1	STAGE 2	STAGE 3	END OF JOB	REMOVAL OF PERMANENT PAVEMENT MARKINGS	CONSTRUCTION PAVEMENT MARKINGS	CONSTRUCTION PAVEMENT MARKINGS	RAISED PAVEMENT MARKERS		THERMOPLASTIC PAVEMENT MARKING				
								TYPE II	TYPE II	6"		12"	WORDS	ARROWS
							ARROWS	(WHITE/RED)	(YELLOW/YELLOW)	WHITE	YELLOW	WHITE		
	LIN. FT. - EACH				LIN. FT.		EACH	EACH		LIN. FT.			EACH	EACH
REMOVAL OF PERMANENT PAVEMENT MARKINGS		1540	11062		12602									
CONSTRUCTION PAVEMENT MARKINGS	45294	1849	8022			55165								
CONSTRUCTION PAVEMENT MARKINGS (ARROWS)	5	1					6							
RAISED PAVEMENT MARKERS TYPE II (WHITE/RED)				12				12						
RAISED PAVEMENT MARKERS TYPE II (YELLOW/YELLOW)				193					193					
THERMOPLASTIC PAVEMENT MARKING WHITE (6")				27492						27492				
THERMOPLASTIC PAVEMENT MARKING YELLOW (6")				30344							30344			
THERMOPLASTIC PAVEMENT MARKING WHITE (12")				44								44		
THERMOPLASTIC PAVEMENT MARKING (WORDS)				3									3	
THERMOPLASTIC PAVEMENT MARKING (ARROWS)				6										6
TOTALS:					**12602**	**55165**	**6**	**12**	**193**	**27492**	**30344**	**44**	**3**	**6**

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

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DUMPED RIPRAP AND FILTER BLANKET

STATION	LOCATION	DUMPED RIPRAP	FILTER BLANKET
		CU. YD.	SQ. YD.
132+09	C.L. HWY. 113 - RT.	21	41
198+00	C.L. HWY. 113 - LT.	11	22
198+00	C.L. HWY. 113 - RT.	11	22
	*TO BE USED IF AND WHERE DIRECTED BY THE ENGINEER	10	20
TOTALS:		**53**	**105**

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

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

BENCH MARKS

STATION	LOCATION	BENCH MARKS
		EACH
132+09	RT. C.L. HWY. 113	1
204+30	RT. C.L. HWY. 113	1
TOTAL:		**2**

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

FENCING

STATION	STATION	LOCATION	* 6' CHAIN LINK FENCE	* 16'-0" GATES
			LIN. FT.	EACH
109+09	115+03	RT. OF C.L. HWY. 113	688	1
TOTALS:			**688**	**1**

* DENOTES ALTERNATE BID ITEM.

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.
116+93.00	117+55.00	RT. C.L. HWY. 113	62.00	6.00	41.33	27.56	0.35
191+84.00	193+59.00	LT. C.L. HWY. 113	175.00	6.00	116.67	77.78	0.98
192+03.00	198+00.00	RT. C.L. HWY. 113	597.00	6.00	398.00	265.33	3.34
194+21.00	198+00.00	LT. C.L. HWY. 113	379.00	6.00	252.67	168.44	2.12
201+52.00	204+20.00	RT. C.L. HWY. 113	268.00	6.00	178.67	119.11	1.50
201+58.00	203+41.00	LT. C.L. HWY. 113	183.00	6.00	122.00	81.33	1.02
2100+14.94	2100+87.00	RT. C.L. HWY. 154	72.06	6.00	48.04	32.03	0.40
2100+14.94	2100+83.48	LT. C.L. HWY. 154	68.54	6.00	45.69	30.46	0.38
TOTALS:					**1203.07**	**802.04**	**10.09**

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

REMOVAL AND DISPOSAL OF FENCE

STATION	STATION	LOCATION	FENCE
			LIN. FT.
109+09	115+03	RT. C.L. HWY. 113	760
2100+11	2103+96	RT. C.L. HWY. 154	385
2100+11	2103+96	LT. C.L. HWY. 154	343
TOTAL:			**1488**

NOTE: REMOVAL AND DISPOSAL OF FENCE SHALL INCLUDE REMOVAL OF ALL EXISTING POSTS & GATES.

DATE REVISED	DATE REVISED	FED.RD. DIST.NO.	STATE	JOB NO.	SHEET NO.	TOTAL SHEETS
03-25-24		6	ARK.	080711	50	123
		QUANTITY SHEETS				

EARTHWORK

STATION	STATION	LOCATION / DESCRIPTION	UNCLASSIFIED EXCAVATION	COMPACTED EMBANKMENT
			CU. YD.	
ENTIRE	PROJECT	STAGE 1-MAIN LANES	76316	83173
ENTIRE	PROJECT	STAGE 2-MAIN LANES	557	1461
ENTIRE	PROJECT	STAGE 3-MAIN LANES	1404	2308
ENTIRE	PROJECT	APPROACHES	10	7570
ENTIRE	PROJECT	EXISTING ROADBED OBLITERATION	835	
ENTIRE	PROJECT	CHANNEL CHANGE	2280	
TOTALS:			**81402**	**94512**

4" PIPE UNDERDRAIN

STATION	STATION	LOCATIONS	4" PIPE UNDERDRAINS	UNDERDRAIN OUTLET PROTECTORS
			LIN. FT.	EACH
*ENTIRE PROJECT TO BE USED IF AND WHERE DIRECTED BY THE ENGINEER			1000	8
TOTALS:			**1000**	**8**

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

REMOVAL AND DISPOSAL OF CULVERTS

STATION	DESCRIPTION	PIPE CULVERTS	BOX CULVERTS
		EACH	EACH
108+23	LT. C.L. HWY. 113	1	
110+27	LT. C.L. HWY. 113	1	
111+74	LT. C.L. HWY. 113	1	
112+34	LT. C.L. HWY. 113	1	
204+67	RT. C.L. HWY. 113		1
224+02	LT. C.L. HWY. 113	1	
224+02	RT. C.L. HWY. 113	1	
TOTALS:		**6**	**1**

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

STATE OF ARKANSAS
LICENSED PROFESSIONAL ENGINEER
No.20584
ROBERT B. DARRINGTON
03-15-2024

STRUCTURES

STATION	DESCRIPTION	PIPE CULVERT ALTERNATES: ALT. 1 (CLASS III) 36"	ALT. 1 (CLASS III) 42"	ALT. 2, 3, 4, 5, 6 AND 7* (WITH CLASS III ALT. 1) 36"	ALT. 2, 3, 4, 5, 6 AND 7* (WITH CLASS III ALT. 1) 42"	ALT. 1 (CLASS IV) 24"	ALT. 2, 3, 4, 5, 6 AND 7 * (WITH CLASS IV ALT. 24"	FLARED END SECTION ALTERNATES FOR PIPE CULVERT ALTERNATES 24"	36"	42"	TEMPORARY CULVERTS ** 18"	24"	SPAN	HEIGHT	LENGTH	CLASS S CONCRETE - ROADWAY	REINF. STEEL-ROADWAY (GRADE 60)	UNCL.EXC. FOR STR.-ROADWAY	SOLID SODDING	WATER	STD. DWG. NOS.
		LIN. FT.									LIN. FT.		LIN. FT.			CU.YD.	POUND	CU.YD.	SQ.YD.	M.GAL.	
132+09	C.L. HWY. 113		172		180					4									50	0.63	PCC-1, PCM-1, PCP-1, PCP-2, PCP-3, FES-1, FES-2
177+38	C.L. HWY. 113					194	202	4											18	0.23	PCC-1, PCM-1, PCP-1, PCP-2, PCP-3, SES-1
198+00	C.L. HWY. 113	90		94					2										34	0.43	PCC-1, PCM-1, PCP-1, PCP-2, PCP-3, FES-1, FES-2
ENTIRE PROJECT	TEMPORARY DRIVES										40	40									PCC-1, PCM-1, PCP-1, PCP-2, PCP-3, FES-1, FES-2
SUBTOTALS:		**90**	**172**	**94**	**180**	**194**	**202**	**4**	**2**	**4**	**40**	**40**							**102**	**1.29**	
STRUCTURES OVER 20' - 0" SPAN																					
204+30	C.L. HWY. 113 - TRI. R.C. BOX CULVERT												9	9	114	379.33	56198	136	48	0.60	PBC-1, RCB-1, RCB-2, SPECIAL DETAILS
SUBTOTALS:																**379.33**	**56198**	**136**	**48**	**0.60**	
TOTALS:		**90**	**172**	**94**	**180**	**194**	**202**	**4**	**2**	**4**	**40**	**40**				**379.33**	**56198**	**136**	**150**	**1.89**	

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

NOTE: FOR R.C. PIPE CULVERT INSTALLATIONS USE TYPE 3 BEDDING UNLESS OTHERWISE SPECIFIED.
NOTE: FOR C.M. PIPE CULVERT INSTALLATIONS USE TYPE 2 BEDDING UNLESS OTHERWISE SPECIFIED.
* ALTERNATE 7, PVC PIPE LIMITED TO A MAXIMUM OF 36" IN DIAMETER
**QUANTITY ESTIMATED
SEE SECTION 104.03 OF THE STD. SPECS.
TO BE USED IF AND WHERE DIRECTED BY THE ENGINEER.

SELECTED PIPE BEDDING

LOCATION	SELECTED PIPE BEDDING
	CU.YD.
ENTIRE PROJECT TO BE USED IF AND WHERE DIRECTED BY THE ENGINEER	55
TOTAL:	**55**

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

SOIL STABILIZATION

STATION	STATION	LOCATION / DESCRIPTION	SOIL STABILIZATION
			TON
ENTIRE	PROJECT	TO BE USED IF AND WHERE DIRECTED BY THE ENGINEER	200
TOTAL:			**200**

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

DRIVEWAYS & TURNOUTS

STATION	SIDE	LOCATION	WIDTH	ACHM SURFACE COURSE (1/2") 220 LBS. PER SQ. YD. (PG 64-22) SQ. YD.	ACHM SURFACE COURSE (1/2") 220 LBS. PER SQ. YD. (PG 64-22) TON	AGGREGATE BASE COURSE (CLASS 7) TON	SIDE DRAINS 18"	SIDE DRAINS 24"	SIDE DRAINS 49"X33"	STANDARD DRAWINGS
			FEET				LIN. FT.			
104+53	LT.	C.L. HWY. 113	16	30.43	3.35	12.43				DR-2
108+23	LT.	C.L. HWY. 113	16	30.43	3.35	17.56		30		DR-2, PCC-1, PCM-1, PCP-1, PCP-2, PCP-3
110+27	LT.	C.L. HWY. 113	16	30.43	3.35	18.96	28			DR-2, PCC-1, PCM-1, PCP-1, PCP-2, PCP-3
111+74	RT.	C.L. HWY. 113	16	30.43	3.35	105.76				DR-2
111+74	LT.	C.L. HWY. 113 (SIMPSON LN.)	20	117.56	12.93	63.17	52			DR-2, PCC-1, PCM-1, PCP-1, PCP-2, PCP-3
112+34	LT.	C.L. HWY. 113	16	30.43	3.35	24.56	32			DR-2, PCC-1, PCM-1, PCP-1, PCP-2, PCP-3
117+95	RT.	C.L. HWY. 113	22	610.94	67.20	249.47	86			DR-2, PCC-1, PCM-1, PCP-1, PCP-2, PCP-3
151+82	RT.	C.L. HWY. 113	40	193.11	21.24	154.68		66		DR-2, PCC-1, PCM-1, PCP-1, PCP-2, PCP-3
162+50	RT.	C.L. HWY. 113	40	193.11	21.24	230.52	74			DR-2, PCC-1, PCM-1, PCP-1, PCP-2, PCP-3
168+79	RT.	C.L. HWY. 113	40	193.11	21.24	160.52	62			DR-2, PCC-1, PCM-1, PCP-1, PCP-2, PCP-3
193+90	LT.	C.L. HWY. 113 (ANDREWS RD.)	20	117.56	12.93	100.50	64			DR-2, PCC-1, PCM-1, PCP-1, PCP-2, PCP-3
207+63	RT.	C.L. HWY. 113	40	193.11	21.24	232.59		90		DR-2, PCC-1, PCM-1, PCP-1, PCP-2, PCP-3
218+03	RT.	C.L. HWY. 113	22	578.38	63.62	236.17	102			DR-2, PCC-1, PCM-1, PCP-1, PCP-2, PCP-3
224+02	LT.	C.L. HWY. 113	16	30.43	3.35	61.89			100	DR-2, PCC-1, PCM-1, PCP-1, PCP-2, PCP-3
224+02	RT.	C.L. HWY. 113	16	30.43	3.35	104.00		64		DR-2, PCC-1, PCM-1, PCP-1, PCP-2, PCP-3
*ENTIRE PROJECT TEMPORARY DRIVES						200.00				
TOTALS:				**2409.89**	**265.09**	**1972.78**	**500**	**250**	**100**	

BASIS OF ESTIMATE:
ACHM SURFACE COURSE (1/2").....93.8% MIN. AGGR.....6.2% ASPHALT BINDER

* 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.
NOTE: THE CONTRACTOR, WITH THE APPROVAL OF THE ENGINEER, WILL BE ALLOWED TO SUBSTITUTE A HIGHER PERFORMANCE GRADE ASPHALT SURFACE COURSE FOR DRIVEWAYS AND MINOR SIDE STREET CONSTRUCTION AT NO ADDITIONAL COST TO THE DEPARTMENT.

RUMBLE STRIPS IN ASPHALT SHOULDERS

STATION	STATION	LOCATION	* RUMBLE STRIPS IN ASPHALT SHOULDERS
			LIN.FT.
103+95	228+95	LT. OF C.L. HWY. 113	10000
103+95	228+95	RT. OF C.L. HWY. 113	10000
TOTAL:			**20000**

* QUANTITY ESTIMATED.
SEE SECTION 104.03 OF THE STD. SPECS.
TO BE USED IF AND WHERE DIRECTED BY THE ENGINEER.
NOTE: REFER TO SPECIAL DETAILS FOR RUMBLE STRIP BREAKS AT DRIVEWAY AND COUNTY ROADS.

COLD MILLING ASPHALT PAVEMENT

STATION	STATION	LOCATION	AVG. WIDTH	COLD MILLING ASPHALT PAVEMENT
			FEET	SQ. YD.
102+95.00	103+95.00	MAIN LANES - HWY. 113	35.00	388.89
228+95.00	229+95.00	MAIN LANES - HWY. 113	35.00	388.89
2100+10.87	2101+10.87	MAIN LANES - HWY. 154	25.00	277.78
2102+95.64	2103+95.64	MAIN LANES - HWY. 154	25.00	277.78
TOTAL:				**1333.34**

STOCKPILE LOCATION: CONWAY COUNTY ROAD SHOP,
33 SOUTHERN VALLEY DRIVE, MORRILTON, AR 72110

DATE REVISED	DATE REVISED	FED.RD. DIST.NO.	STATE	JOB NO.	SHEET NO.	TOTAL SHEETS
03-25-24		6	ARK.	080711	51	123
		QUANTITY SHEETS				

STATE OF ARKANSAS
LICENSED PROFESSIONAL ENGINEER
No.20584
ROBERT B. DARRINGTON
03-25-2024

EROSION CONTROL

STATION	STATION	LOCATION	PERMANENT EROSION CONTROL					TEMPORARY EROSION CONTROL								
			SEEDING	LIME	MULCH COVER	WATER	SECOND SEEDING APPLICATION	TEMPORARY SEEDING	MULCH COVER	WATER	SAND BAG DITCH CHECKS (E-5)	ROCK DITCH CHECKS (E-6)	SILT FENCE (E-11)	SEDIMENT BASIN (E-14)	OBLITERATION OF SEDIMENT BASIN	*SEDIMENT REMOVAL & DISPOSAL
			ACRE	TON	ACRE	M.GAL.	ACRE	ACRE	ACRE	M.GAL.	BAG	CU.YD.	LIN. FT.	CU.YD.	CU.YD.	CU. YD.
ENTIRE	PROJECT	CLEARING AND GRUBBING						34.50	34.50	703.8	330	42	25509			974
ENTIRE	PROJECT	STAGE 1	34.09	68.18	34.09	3477.2	34.09	68.18	68.18	1390.9	1870	162		4754		4893
ENTIRE	PROJECT	STAGE 2	0.41	0.82	0.41	41.8	0.41	0.82	0.82	16.7	66	9			4754	6
ENTIRE	PROJECT	STAGE 3	2.04	4.08	2.04	208.1	2.04	4.08	4.08	83.2	110	12	677			34
*ENTIRE PROJECT TO BE USED IF AND WHERE DIRECTED BY THE ENGINEER.			9.14	18.28	9.14	932.3	9.14	26.90	26.90	548.8	594	56	6547	1189	1189	1477
TOTALS:			**45.68**	**91.36**	**45.68**	**4659.4**	**45.68**	**134.48**	**134.48**	**2743.4**	**2970**	**281**	**32733**	**5943**	**5943**	**7384**

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

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

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.

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.)			TACK COAT	ACHM BINDER COURSE (1")				ACHM SURFACE COURSE (1/2")							
				TON / STATION	TON	TOTAL WID.	SQ.YD.	GALLON	TOTAL WID.	SQ.YD.	GALLON	TOTAL GALLONS	AVG. WID.	SQ.YD.	POUND / SQ.YD.	PG 70-22	AVG. WID.	SQ.YD.	POUND / SQ.YD.	PG 70-22	AVG. WID.	SQ.YD.	POUND / SQ.YD.	PG 70-22	TOTAL PG 70-22
			FEET			FEET			FEET				FEET			TON	FEET			TON	FEET			TON	TON
MAIN LANES																								
102+95.00	103+95.00	HWY. 113 - TRANSITION	100.00	178.50	178.50	13.25	147.22	7.36	22.00	244.44	41.55	48.91	4.50	50.00	660.00	16.50	4.25	47.22	220.00	5.19	35.00	388.89	220.00	42.78	47.97
103+95.00	114+82.59	HWY. 113 - NOTCH AND WIDENING	1087.59	195.50	2126.24	18.53	2239.23	111.96				111.96	6.26	756.48	660.00	249.64	6.01	726.27	220.00	79.89	36.00	4350.36	220.00	478.54	558.43
114+82.59	158+40.00	HWY. 113 - FULL DEPTH 2 LANE	4357.41	309.00	13464.40	73.41	35541.94	1777.10				1777.10	24.58	11900.57	660.00	3927.19	24.25	11740.80	220.00	1291.49	36.00	17429.64	220.00	1917.26	3208.75
158+40.00	162+00.00	HWY. 113 - FULL DEPTH 2 LANE TO 3 LANE	360.00	336.25	1210.50	91.41	3656.40	182.82				182.82	30.58	1223.20	660.00	403.66	30.25	1210.00	220.00	133.10	42.00	1680.00	220.00	184.80	317.90
162+00.00	175+25.33	HWY. 113 - FULL DEPTH 3 LANE - 12' TURN LANE	1325.33	363.25	4814.26	109.41	16111.60	805.58				805.58	36.58	5386.73	660.00	1777.62	36.25	5338.13	220.00	587.19	48.00	7068.43	220.00	777.53	1364.72
175+25.33	176+45.33	HWY. 113 - FULL DEPTH 3 LANE - 12' TO 16' TURN LANE	120.00	372.50	447.00	115.41	1538.80	76.94				76.94	38.58	514.40	660.00	169.75	38.25	510.00	220.00	56.10	50.00	666.67	220.00	73.33	129.43
176+45.33	179+60.26	HWY. 113 - FULL DEPTH 3 LANE - 16' TURN LANE	314.93	381.50	1201.46	121.41	4248.41	212.42				212.42	40.58	1419.98	660.00	468.59	40.25	1408.44	220.00	154.93	52.00	1819.60	220.00	200.16	355.09
179+60.26	184+40.26	HWY. 113 - FULL DEPTH 3 LANE TO 2 LANE	480.00	345.25	1657.20	97.41	5195.20	259.76				259.76	32.58	1737.60	660.00	573.41	32.25	1720.00	220.00	189.20	44.00	2346.67	220.00	258.13	447.33
184+40.26	216+00.00	HWY. 113 - FULL DEPTH 2 LANE	3159.74	309.00	9763.60	73.41	25772.95	1288.65				1288.65	24.58	8629.60	660.00	2847.77	24.25	8513.74	220.00	936.51	36.00	12638.96	220.00	1390.29	2326.80
216+00.00	221+97.41	HWY. 113 - FULL DEPTH 2 LANE	597.41	278.50	1663.79	73.41	4872.87	243.64				243.64	24.58	1631.59	660.00	538.42	24.25	1609.69	220.00	177.07	36.00	2389.64	220.00	262.86	439.93
221+97.41	228+95.00	HWY. 113 - NOTCH AND WIDENING	697.59	199.00	1388.20	20.93	1622.28	81.11				81.11	7.06	547.22	660.00	180.58	6.81	527.84	220.00	58.06	36.00	2790.36	220.00	306.94	365.00
228+95.00	229+95.00	HWY. 113 - TRANSITION	100.00	178.50	178.50	13.25	147.22	7.36	22.00	244.44	41.55	48.91	4.50	50.00	660.00	16.50	4.25	47.22	220.00	5.19	35.00	388.89	220.00	42.78	47.97
2100+10.87	2101+10.87	HWY. 154 - TRANSITION	100.00	122.00	122.00	7.05	78.33	3.92	20.00	222.22	37.78	41.70	2.46	27.33	660.00	9.02	2.13	23.67	220.00		25.00	277.78	220.00	30.56	30.56
2101+10.87	2102+95.64	HWY. 154 - NOTCH AND WIDENING	184.77	131.00	242.05	13.41	275.31	13.77				13.77	4.58	94.03	660.00	31.03	4.25	87.25	220.00	9.60	30.00	615.90	220.00	67.75	77.35
2102+95.64	2103+95.64	HWY. 154 - TRANSITION	100.00	122.00	122.00	7.05	78.33	3.92	20.00	222.22	37.78	41.70	2.46	27.33	660.00	9.02	2.13	23.67	220.00	2.60	25.00	277.78	222.00	30.83	33.43
ADDITIONAL FOR LEVELING AND METHOD OF RAISING GRADE																									
103+95.00	114+82.59	HWY. 113 - LEVELING AND METHOD OF RAISING GRADE	1087.59			101.20	12229.35	611.47	20.24	2445.87	415.80	1027.27	20.24	2445.87	1375.00	1681.54	20.24	2445.87	220.00	269.05					269.05
221+97.41	228+95.00	HWY. 113 - LEVELING AND METHOD OF RAISING GRADE	697.59			116.64	9040.77	452.04	19.44	1506.79	256.15	708.19	19.44	1506.79	1485.00	1118.79	19.44	1506.79	220.00	165.75					165.75
2101+00.00	2103+89.80	HWY. 154 - LEVELING AND METHOD OF RAISING GRADE	289.80			80.00	2576.00	128.80	20.00	644.00	109.48	238.28	20.00	644.00	1045.00	336.49	20.00	644.00	220.00	70.84					70.84
ADDITIONAL FOR SUPERELEVATION																									
108+46.75	128+28.19	HWY. 113 - SUPERELEVATION	1981.44	67.00	1327.56																				
130+46.06	153+60.31	HWY. 113 - SUPERELEVATION	2314.25	67.00	1550.55																				
156+02.70	186+84.68	HWY. 113 - SUPERELEVATION	3081.98	36.75	1132.63																				
187+98.43	203+13.83	HWY. 113 - SUPERELEVATION	1515.40	67.00	1015.32																				
211+37.21	216+00.00	HWY. 113 - SUPERELEVATION	462.79	67.00	310.07																				
216+00.00	226+85.92	HWY. 113 - SUPERELEVATION	1085.92	44.75	485.95																				
ADDITIONAL FOR MAINTENANCE OF TRAFFIC																									
111+40.00	117+44.00	EXISTING HWY. 113 MOT STAGE 3	640.00	102.75	657.60	110.00	7822.22	391.11	22.00	1564.44	265.95	657.06	22.00	1564.44	1724.00	1348.55	22.00	1564.44	220.00	172.09					172.09
219+77.00	228+95.00	EXISTING HWY. 113 MOT STAGE 3	1340.00	225.00	3015.00	154.00	22928.89	1146.44	22.00	3275.56	556.85	1703.29	22.00	3275.56	2455.00	4020.75	22.00	3275.56	220.00	360.31					360.31
TOTALS:					**48074.38**		**156123.32**	**7806.17**		**10369.98**	**1762.89**	**9569.06**		**43432.72**		**19724.82**		**42970.60**		**4724.16**		**55129.57**		**6064.54**	**10788.70**

BASIS OF ESTIMATE:
ACHM SURFACE COURSE (1/2").....93.8% MIN. AGGR.....6.2% ASPHALT BINDER
ACHM BINDER COURSE (1").....95.5% MIN. AGGR.....4.5% ASPHALT BINDER

MAILBOXES

LOCATION	MAILBOXES	MAILBOX SUPPORTS (SINGLE)	MAILBOX SUPPORTS (DOUBLE)
	EACH		
ENTIRE PROJECT	3	1	1
TOTALS:	**3**	**1**	**1**

SUMMARY OF QUANTITIES

ITEM NUMBER	ITEM		QUANTITY	UNIT
202	REMOVAL AND DISPOSAL OF FENCE		1488	LIN. FT.
202	REMOVAL AND DISPOSAL OF PIPE CULVERTS		6	EACH
202	REMOVAL AND DISPOSAL OF BOX CULVERTS		1	EACH
SP, SS, & 210	UNCLASSIFIED EXCAVATION		81402	CU. YD.
SP & 210	COMPACTED EMBANKMENT		94512	CU. YD.
SP & 210	SOIL STABILIZATION		200	TON
SP, SS, & 303	AGGREGATE BASE COURSE (CLASS 7)		50047	TON
SS & 401	TACK COAT		9689	GAL.
SP, SS, & 406	MINERAL AGGREGATE IN ACHM BINDER COURSE (1")		18837	TON
SP, SS, & 406	ASPHALT BINDER (PG 70-22) IN ACHM BINDER COURSE (1")		888	TON
SP, SS, & 407	MINERAL AGGREGATE IN ACHM SURFACE COURSE (1/2")		10369	TON
SP, SS, & 407	ASPHALT BINDER (PG 64-22) IN ACHM SURFACE COURSE (1/2")		16	TON
SP, SS, & 407	ASPHALT BINDER (PG 70-22) IN ACHM SURFACE COURSE (1/2")		669	TON
SP & 412	COLD MILLING ASPHALT PAVEMENT		1333	SQ. YD.
SP, SS, & 414	ASPHALT CONCRETE PATCHING FOR MAINTENANCE OF TRAFFIC		60	TON
SP, SS, & 415	ACHM PATCHING OF EXISTING ROADWAY		20	TON
601	MOBILIZATION		1.00	LUMP SUM
SP & 602	FURNISHING FIELD OFFICE		1	EACH
SS & 603	MAINTENANCE OF TRAFFIC		1.00	LUMP SUM
603	18" TEMPORARY CULVERT		40	LIN. FT.
603	24" TEMPORARY CULVERT		40	LIN. FT.
SS & 604	SIGNS		330	SQ. FT.
SP, SS, & 604	CONSTRUCTION PROJECT INFORMATION SIGN UPDATE		4	EACH
SS & 604	BARRICADES		128	LIN. FT.
SS & 604	TRAFFIC DRUMS		95	EACH
604	CONSTRUCTION PAVEMENT MARKINGS		55165	LIN. FT.
604	CONSTRUCTION PAVEMENT MARKINGS (ARROWS)		6	EACH
604	REMOVAL OF PERMANENT PAVEMENT MARKINGS		12602	LIN. FT.
SP, SS, & 605	CONCRETE DITCH PAVING (TYPE B)		1203	SQ. YD.
* SS & 606	24" REINFORCED CONCRETE PIPE CULVERTS (CLASS IV)	(ALTERNATE NO. 1)	194	LIN. FT.
* SS & 606	24" ASPHALT COATED CORRUGATED STEEL PIPE CULVERTS (16 GAUGE)	(ALTERNATE NO. 2)	202	LIN. FT.
* SS & 606	24" ALUMINUM COATED CORRUGATED STEEL PIPE CULVERTS (16 GAUGE)	(ALTERNATE NO. 3)	202	LIN. FT.
* SS & 606	24" POLYMER PRECOATED METALLIC COATED CORRUGATED STEEL PIPE CULVERTS (16 GAUGE)	(ALTERNATE NO. 4)	202	LIN. FT.
* SP, SS, & 606	24" HIGH DENSITY POLYETHYLENE PIPE	(ALTERNATE NO. 5)	202	LIN. FT.
* SP, SS, & 606	24" POLYPROPYLENE PIPE	(ALTERNATE NO. 6)	202	LIN. FT.
* SP, SS, & 606	24" PVC PIPE	(ALTERNATE NO. 7)	202	LIN. FT.
* SS & 606	36" REINFORCED CONCRETE PIPE CULVERTS (CLASS III)	(ALTERNATE NO. 1)	90	LIN. FT.
* SS & 606	36" ASPHALT COATED CORRUGATED STEEL PIPE CULVERTS (14 GAUGE)	(ALTERNATE NO. 2)	94	LIN. FT.
* SS & 606	36" ALUMINUM COATED CORRUGATED STEEL PIPE CULVERTS (14 GAUGE)	(ALTERNATE NO. 3)	94	LIN. FT.
* SS & 606	36" POLYMER PRECOATED METALLIC COATED CORRUGATED STEEL PIPE CULVERT (14 GAUGE)	(ALTERNATE NO. 4)	94	LIN. FT.
* SP, SS, & 606	36" HIGH DENSITY POLYETHYLENE PIPE	(ALTERNATE NO. 5)	94	LIN. FT.
* SP, SS, & 606	36" POLYPROPYLENE PIPE	(ALTERNATE NO. 6)	94	LIN. FT.
* SP, SS, & 606	36" PVC PIPE	(ALTERNATE NO. 7)	94	LIN. FT.
* SS & 606	42" REINFORCED CONCRETE PIPE CULVERTS (CLASS III)	(ALTERNATE NO. 1)	172	LIN. FT.
* SS & 606	42" ASPHALT COATED CORRUGATED STEEL PIPE CULVERTS (14 GAUGE)	(ALTERNATE NO. 2)	180	LIN. FT.
* SS & 606	42" ALUMINUM COATED CORRUGATED STEEL PIPE CULVERTS (14 GAUGE)	(ALTERNATE NO. 3)	180	LIN. FT.
* SS & 606	42" POLYMER PRECOATED METALLIC COATED CORRUGATED STEEL PIPE CULVERT (14 GAUGE)	(ALTERNATE NO. 4)	180	LIN. FT.
* SP, SS, & 606	42" HIGH DENSITY POLYETHYLENE PIPE	(ALTERNATE NO. 5)	180	LIN. FT.
* SP, SS, & 606	42" POLYPROPYLENE PIPE	(ALTERNATE NO. 6)	180	LIN. FT.
SP, SS, & 606	18" SIDE DRAIN		500	LIN. FT.
SP, SS, & 606	24" SIDE DRAIN		250	LIN. FT.
SS & 606	49" X 33" SIDE DRAIN		100	LIN. FT.
* SS & 606	24" FLARED END SECTIONS FOR REINFORCED CONCRETE PIPE CULVERTS	(ALTERNATE NO. 1)	4	EACH
* SS & 606	24" FLARED END SECTIONS FOR CORRUGATED STEEL PIPE CULVERTS	(ALTERNATE NO. 2)	4	EACH
* SS & 606	36" FLARED END SECTIONS FOR REINFORCED CONCRETE PIPE CULVERTS	(ALTERNATE NO. 1)	2	EACH
* SS & 606	36" FLARED END SECTIONS FOR CORRUGATED STEEL PIPE CULVERTS	(ALTERNATE NO. 2)	2	EACH
* SS & 606	42" FLARED END SECTIONS FOR REINFORCED CONCRETE PIPE CULVERTS	(ALTERNATE NO. 1)	4	EACH
* SS & 606	42" FLARED END SECTIONS FOR CORRUGATED STEEL PIPE CULVERTS	(ALTERNATE NO. 2)	4	EACH
SS & 606	SELECTED PIPE BEDDING		55	CU. YD.
SS & 611	4" PIPE UNDERDRAINS		1000	LIN. FT.
SS & 611	UNDERDRAIN OUTLET PROTECTORS		8	EACH
* SS & 619	6' STEEL CHAIN LINK FENCE	(ALTERNATE NO. 1)	688	LIN. FT.
* SS & 619	6' ALUMINUM CHAIN LINK FENCE	(ALTERNATE NO. 2)	688	LIN. FT.
* SS & 619	16' STEEL GATES	(ALTERNATE NO. 1)	1	EACH
* SS & 619	16' ALUMINUM GATES	(ALTERNATE NO. 2)	1	EACH
620	LIME		91	TON
620	SEEDING		45.68	ACRE
SS & 620	MULCH COVER		180.16	ACRE
620	WATER		7414.8	M. GAL.
621	TEMPORARY SEEDING		134.48	ACRE
621	SILT FENCE		32733	LIN. FT.
621	SAND BAG DITCH CHECKS		2970	BAG
621	SEDIMENT BASIN		5943	CU. YD.
621	OBLITERATION OF SEDIMENT BASIN		5943	CU. YD.
621	SEDIMENT REMOVAL AND DISPOSAL		7384	CU. YD.
621	ROCK DITCH CHECKS		281	CU. YD.
623	SECOND SEEDING APPLICATION		45.68	ACRE
624	SOLID SODDING		952	SQ. YD.
635	ROADWAY CONSTRUCTION CONTROL		1.00	LUMP SUM
637	MAILBOXES		3	EACH
637	MAILBOX SUPPORTS (SINGLE)		1	EACH
637	MAILBOX SUPPORTS (DOUBLE)		1	EACH
642	RUMBLE STRIPS IN ASPHALT SHOULDERS		20000	LIN. FT.
719	THERMOPLASTIC PAVEMENT MARKING WHITE (6")		27492	LIN. FT.
719	THERMOPLASTIC PAVEMENT MARKING WHITE (12")		44	LIN. FT.
719	THERMOPLASTIC PAVEMENT MARKING YELLOW (6")		30344	LIN. FT.
719	THERMOPLASTIC PAVEMENT MARKING (WORDS)		3	EACH
719	THERMOPLASTIC PAVEMENT MARKING (ARROWS)		6	EACH
721	RAISED PAVEMENT MARKERS (TYPE II)		205	EACH
SS & 816	FILTER BLANKET		105	SQ. YD.
SS & 816	DUMPED RIPRAP		53	CU. YD.
	STRUCTURES OVER 20' SPAN			
801	UNCLASSIFIED EXCAVATION FOR STRUCTURES-ROADWAY		136	CU. YD.
SP, SS, & 802	CLASS S CONCRETE-ROADWAY		379.33	CU. YD.
SS & 804	REINFORCING STEEL-ROADWAY (GRADE 60)		56198	POUND

* DENOTES ALTERNATE BID ITEMS.

REVISIONS

DATE	REVISION	SHEET NUMBER
3/25/2024	REMOVED SES-1. ADDED TYPICAL SECTION. REVISED WIDTH, SIDE SLOPE AND CONSTRUCTION LIMITS FROM STATION 216+00 TO STATION 223+00. REVISED PROPOSED RIGHT-OF-WAY BETWEEN STATIONS 135+00 - 140+00, 176+00 - 190+00, 207+00 - 225+00, REVISED CROSS DRAIN AT STATION 177+38, ADDED CONTRACTOR DESIGNATED WORK AREA, REVISED SIDE DRAIN AT STATION 224+02 LT. REVISED CONCRETE DITCH PAVING, PAVEMENT MARKING, STRUCTURES, EARTHWORK, DRIVEWAYS, COLD MILLING, AND BASE & SURFACING QUANTITIES.	2, 5, 8, 19-30, 32-39, 40-52, 60-62, 64-70, 99, 114-118, 122-123

SUMMARY OF QUANTITIES AND REVISIONS

STATE OF ARKANSAS
ROBERT B. DARRINGTON
No. 20584
PROFESSIONAL ENGINEER
03-27-2024

DATE REVISED	DATE REVISED	FED.RD. DIST.NO.	STATE	JOB NO.	SHEET NO.	TOTAL SHEETS
03-25-24		6	ARK.	0807II	52	123

SUMMARY OF QUANTITIES AND REVISIONS

DATE REVISED	DATE REVISED	FED.RD. DIST.NO.	STATE	JOB NO.	SHEET NO.	TOTAL SHEETS
		6	ARK.	080711	53	123
		SURVEY CONTROL DETAILS				

STATE OF ARKANSAS
LICENSED PROFESSIONAL ENGINEER
No.20584
ROBERT B. DARRINGTON
03-01-2024

SURVEY CONTROL COORDINATES

Project Name: s080711
Date: 7/19/2023
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	274184.1846	1090500.3114	295.079	CTL	*ARDOT STD MON STAMPED PN: 1 JOB 113
2	274840.9951	1090528.0636	311.446	CTL	*ARDOT STD MON STAMPED PN: 2 JOB 113
3	275422.2077	1090450.7173	314.922	CTL	*ARDOT STD MON STAMPED PN: 3 JOB 113
10	277933.0726	1088311.8863	308.715	CTL	*ARDOT STD MON STAMPED PN: 10
11	278555.4632	1088435.2777	307.478	CTL	*ARDOT STD MON STAMPED PN: 11
12	279372.6901	1088704.4096	316.860	CTL	*ARDOT STD MON STAMPED PN: 12
13	280269.2579	1087794.5276	339.515	CTL	*ARDOT STD MON STAMPED PN: 13
14	280216.4735	1088566.8885	327.843	CTL	*ARDOT STD MON STAMPED PN: 14
15	280165.3854	1089466.6960	320.977	CTL	*ARDOT STD MON STAMPED PN: 15
16	280630.3435	1088540.0813	329.900	CTL	*ARDOT STD MON STAMPED PN: 16
17	281184.8864	1088554.2360	339.840	CTL	*ARDOT STD MON STAMPED PN: 17
18	281733.1674	1088843.2737	331.537	CTL	*ARDOT STD MON STAMPED PN: 18
19	282190.9303	1088844.1957	307.766	CTL	*ARDOT STD MON STAMPED PN: 19
20	282549.7288	1088991.6512	311.517	CTL	*ARDOT STD MON STAMPED PN: 20
21	283006.4846	1089494.2522	284.083	CTL	*ARDOT STD MON STAMPED PN: 21
22	283397.7256	1090237.5849	282.818	CTL	*ARDOT STD MON STAMPED PN: 22
23	284113.5063	1090613.7754	288.763	CTL	*ARDOT STD MON STAMPED PN: 23
24	284723.4646	1090636.3234	291.168	CTL	*ARDOT STD MON STAMPED PN: 24
100	275920.4557	1090439.3808	304.042	GPS	*ARDOT GPS MON 150014
101	277081.5700	1090499.5784	300.160	GPS	*ARDOT GPS MON 150014A
102	285438.4738	1090589.7544	291.010	GPS	*ARDOT GPS MON 150015
103	286714.0236	1090633.5503	286.076	GPS	*ARDOT GPS MON 150015A
900	278176.1691	1088403.7954	308.353	TBM	*5/8 RBR & CAP 260FT N OF T-10
901	280198.8440	1089913.0906	320.077	TBM	*CHIS SQUARE 18FT N CL HWY 154
902	281222.3951	1088453.6085	341.247	TBM	*5/8 RBR & CAP
903	283116.9530	1089499.2885	284.904	TBM	*7FT W EDGE OF DL

*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 0.9999560849 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 s080711gi.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: 150015-150015A-150014-150014A
CONVERGENCE ANGLE: 00 26 07.6 LEFT AT LAT N35-06'12.5581" LON W92-44'53.8957"
GRID AZIMUTH = ASTRONOMICAL AZIMUTH - CONVERGENCE ANGLE.

Alignment Name: PROP. HWY 113

Point	Station	Type	Northing	Easting
8000	99+95.00	POB	273919.7624	1090468.9570
8001	103+63.37	PC	274287.7412	1090486.0901
8003	111+09.25	PCC	275033.2425	1090508.6514
8005	125+65.69	PT	276105.8545	1089687.6767
8006	133+08.56	PC	276289.8234	1088967.9426
8008	150+97.81	PT	277673.3942	1088138.8873
8009	158+72.70	PC	278425.9196	1088323.7327
8011	185+04.68	PT	281031.2857	1088653.8184
8012	190+08.43	PC	281535.0132	1088659.4511
8014	200+51.34	PT	282434.7843	1089112.2490
8015	213+99.71	PC	283250.2773	1090186.0676
8017	224+23.42	PT	284130.8561	1090638.4900
8018	231+89.87	POE	284897.0122	1090659.8969

Alignment Name: HWY 154

Number	Station	Type	Northing	Easting
8025	2100+00.00	POB	280232.2275	1088477.6873
8026	2103+74.41	PI	280217.8711	1088851.8215
8027	2105+00.00	POE	280211.6159	1088977.2561

Alignment Name: STA. 117+95 DRIVEWAY

Number	Station	Type	Northing	Easting
8030	0+00.00	POB	275677.9267	1090308.9614
8031	1+57.13	PC	275769.7180	1090436.4888
8033	2+44.55	PT	275843.6165	1090477.8062
8034	2+50.75	POE	275849.8035	1090478.2567

Alignment Name: STA. 218+03 DRIVEWAY

Number	Station	Type	Northing	Easting
8040	0+00.00	POB	283545.4990	1090458.4158
8041	1+29.60	PC	283478.9297	1090569.6147
8043	2+35.95	PT	283389.9213	1090618.1988
8044	2+37.43	POE	283388.4361	1090618.1512

DATE REVISED	DATE REVISED	FED.RD. DIST.NO.	STATE	JOB NO.	SHEET NO.	TOTAL SHEETS
		6	ARK.	080711	54	123
		SURVEY CONTROL DETAILS				

STATE OF ARKANSAS
LICENSED PROFESSIONAL ENGINEER
No.20584
ROBERT B. DARRINGTON
03-01-2024

HWY. 113

STA. 103+95.00
BEGIN JOB 080711
LOG MILE 0.855

POB 99+95.00
100+00
8000
N02°39'57"E
368.37'
PC 103+63.37
8001
105+00
C.L. PROP. HWY. 113
N02°39'57"F
372.97'
N00°48'04"E
372.97'
110+00
PCC 111+09.25
8003
586.34'
SURVEY BASELINE N 07°34'49" W
C.L. PROP. HWY. 113
N00°48'04"E
859.78'
PN3
PD:ARDOT STD MON STAMPED PN3 JOB 113
SURVEY BASELINE N 02°25'10" E
657.40'
PN1
PD:ARDOT STD MON STAMPED PN1 JOB 113
PI 107+36.34
PN2
PD:ARDOT STD MON STAMPED PN2 JOB 113

HWY 113 CURVE
P.I. = 107+36.34
Δ = 1°51'53" LT.
D = 0°15'00"
T = 372.97'
L = 745.88'
P.C.= 103+63.37
P.C.C.= 111+09.25
NO SUPER

115+00
PN3
PD:ARDOT STD MON STAMPED PN3 JOB 113
C.L. HWY. 113 STA. 117+95.40 =
C.L. 117+95 DRIVEWAY STA. 0+00.00
Δ= 89°28'34"
8030
120+00
0+00.00
POB STA. 117+95 DRIVEWAY
N54°15'16"E
157.13'
SURVEY BASELINE N 01°18'12" W
498.38'
N00°48'04"E
859.78'
C.L. STA. 117+95 DRIVEWAY
8031
N54°15'16"E
46.73'
PC 1+57.13
PI 2+03.85
PT 2+44.55
POE 2+50.75
N04°09'55"E
46.73'
8033
8034
N04°09'55"E
6.20'
PI 119+69.03
PD:ARDOT STD MON 1500#
162.67'
SURVEY BASELINE
N 01°18'12" W

STA. 117+95 DRIVEWAY
CURVE NO.1
P.I. = 2+03.85
Δ = 50°05'21" LT.
D = 57°17'45"
T = 46.73'
L = 87.42'
P.C. = 1+57.13
P.T. = 2+44.55
NO SUPER

HWY 113 CURVE
P.I. = 119+69.03
Δ = 76°27'46" LT.
D = 5°15'00"
T = 859.78'
L = 1456.44'
P.C.C.= 111+09.25
P.T.= 125+65.69
e= 0.100 '/'
Ls= 350'

125+00
PT 125+65.69
8005
C.L. PROP. HWY. 113
N75°39'43"W
742.87'
N75°39'43"W
859.78'

SURVEY CONTROL DETAILS

Rolyan.Chowdhury3/1/2024 2:53:00 PM
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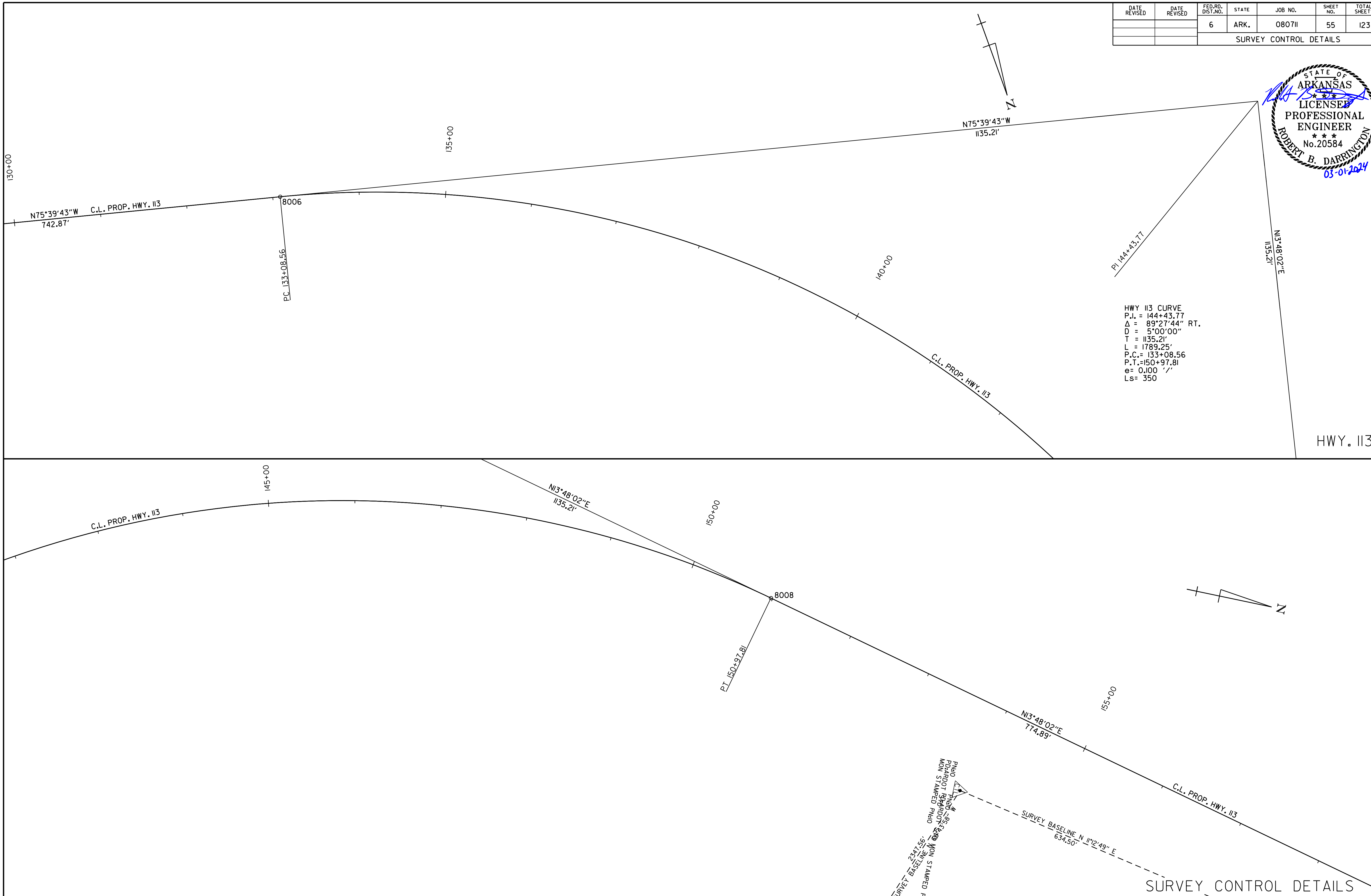
REVISED DATE: $$REVDATE$$

DATE REVISED	DATE REVISED	FED.RD. DIST.NO.	STATE	JOB NO.	SHEET NO.	TOTAL SHEETS
		6	ARK.	080711	55	123
		SURVEY CONTROL DETAILS				

STATE OF ARKANSAS LICENSED PROFESSIONAL ENGINEER No.20584 ROBERT B. DARRINGTON 03-01-2024



N
130+00
135+00
N75°39'43"W
742.87'
C.L. PROP. HWY. 113
8006
PC 133+08.56
N75°39'43"W
1135.21'
PI 144+43.77
N13°48'02"E
1135.21'
140+00
C.L. PROP. HWY. 113
HWY 113 CURVE
P.I. = 144+43.77
Δ = 89°27'44" RT.
D = 5°00'00"
T = 1135.21'
L = 1789.25'
P.C.= 133+08.56
P.T.=150+97.81
e= 0.100 '/'
Ls= 350
HWY. 113
145+00
C.L. PROP. HWY. 113
N13°48'02"E
1135.21'
150+00
8008
PT 150+97.81
155+00
N13°48'02"E
774.89'
C.L. PROP. HWY. 113
N
SURVEY BASELINE N 11°12'49" E
634.50'
SURVEY BASELINE
2347.56'
MON STAMPED PN10
SURVEY CONTROL DETAILS

Raiyan.Chowdhury 3/1/2024 2:53:01 PM
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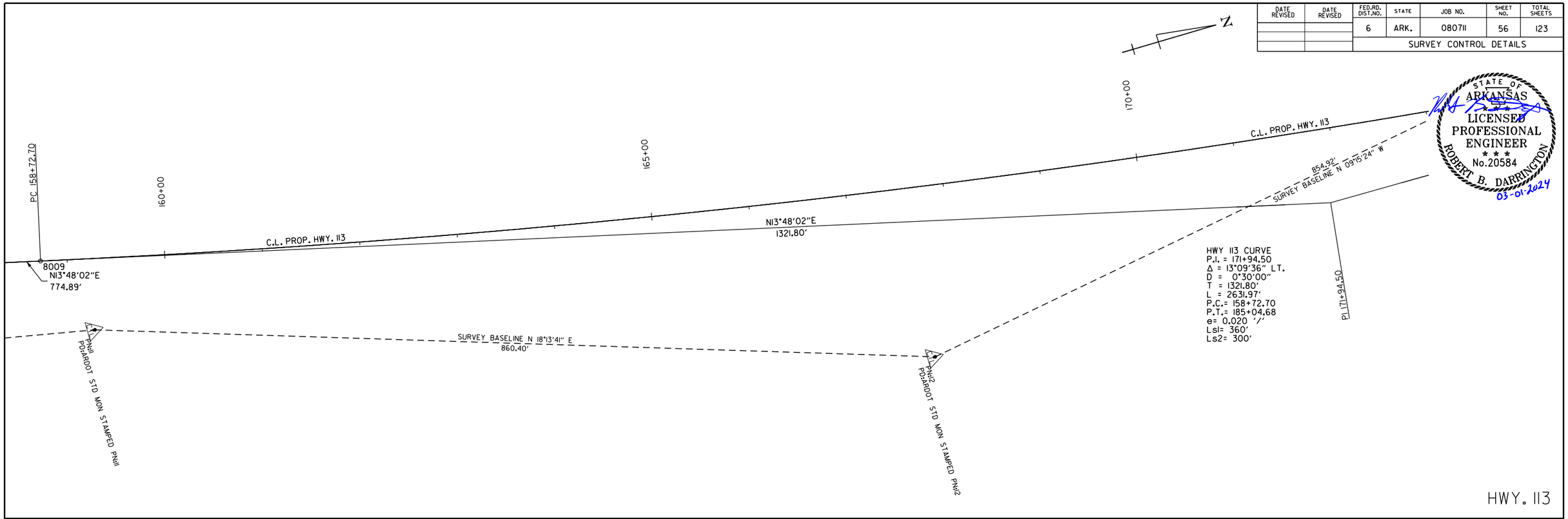
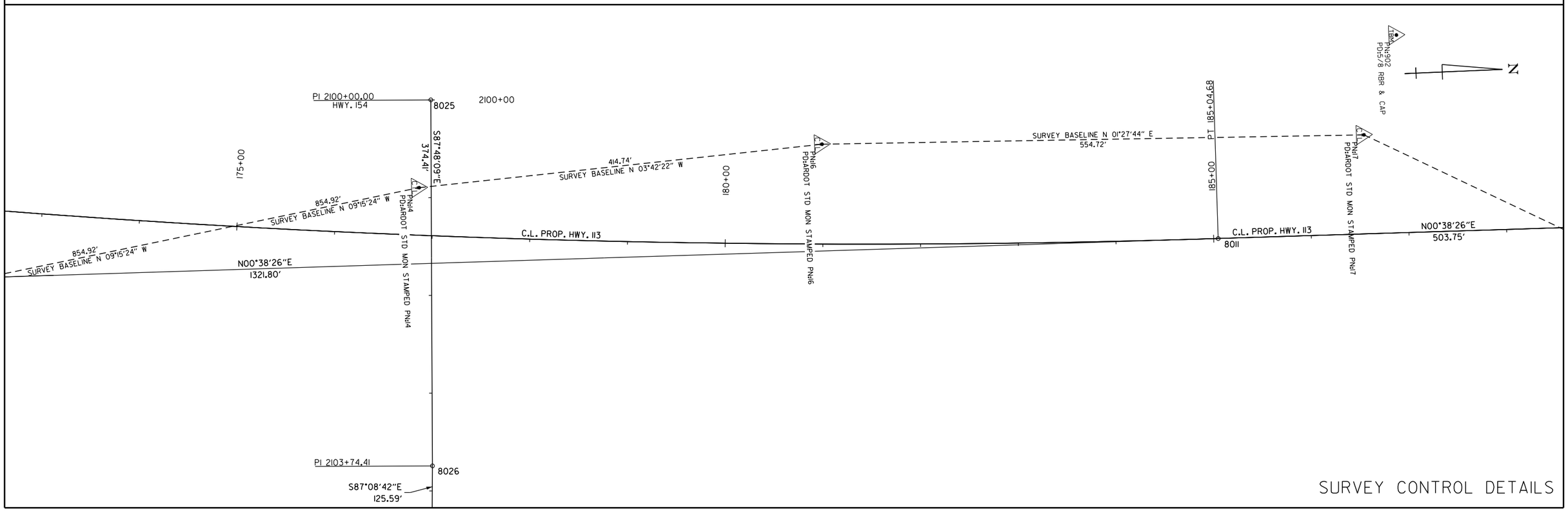
REVISED DATE: $$REVDATE$$

DATE REVISED	DATE REVISED	FED.RD. DIST.NO.	STATE	JOB NO.	SHEET NO.	TOTAL SHEETS
		6	ARK.	080711	56	123
		SURVEY CONTROL DETAILS				



HWY. 113



SURVEY CONTROL DETAILS

Rolyan.Chowdhury3//2024 2:53:01 PM
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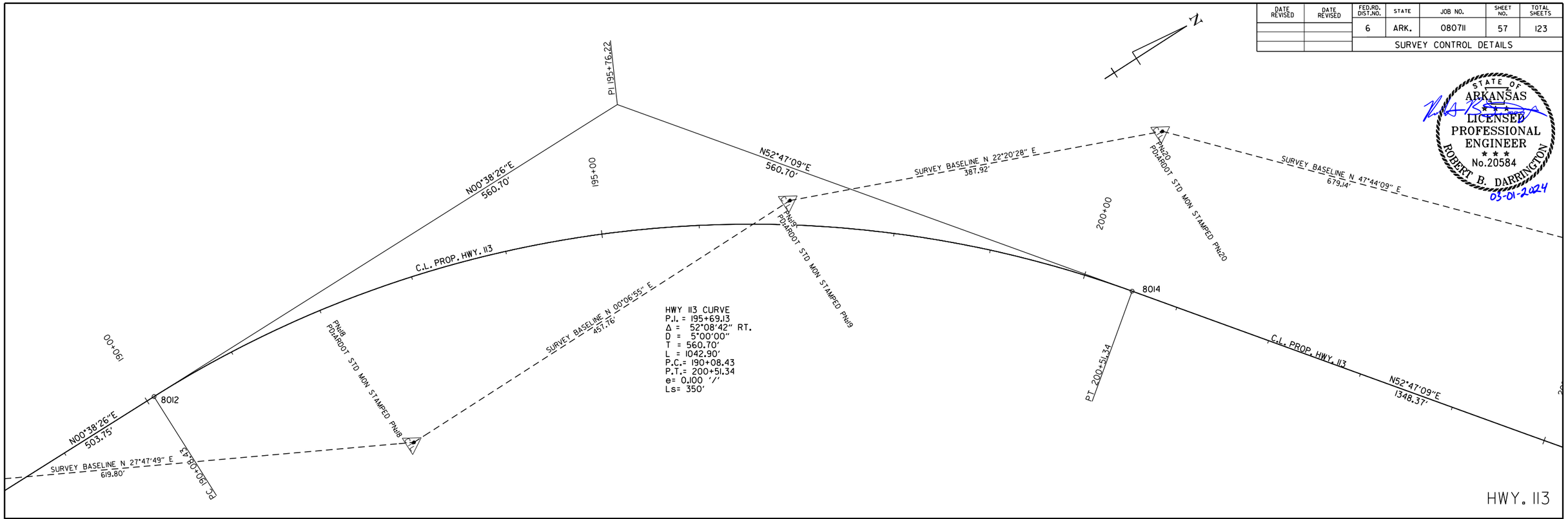
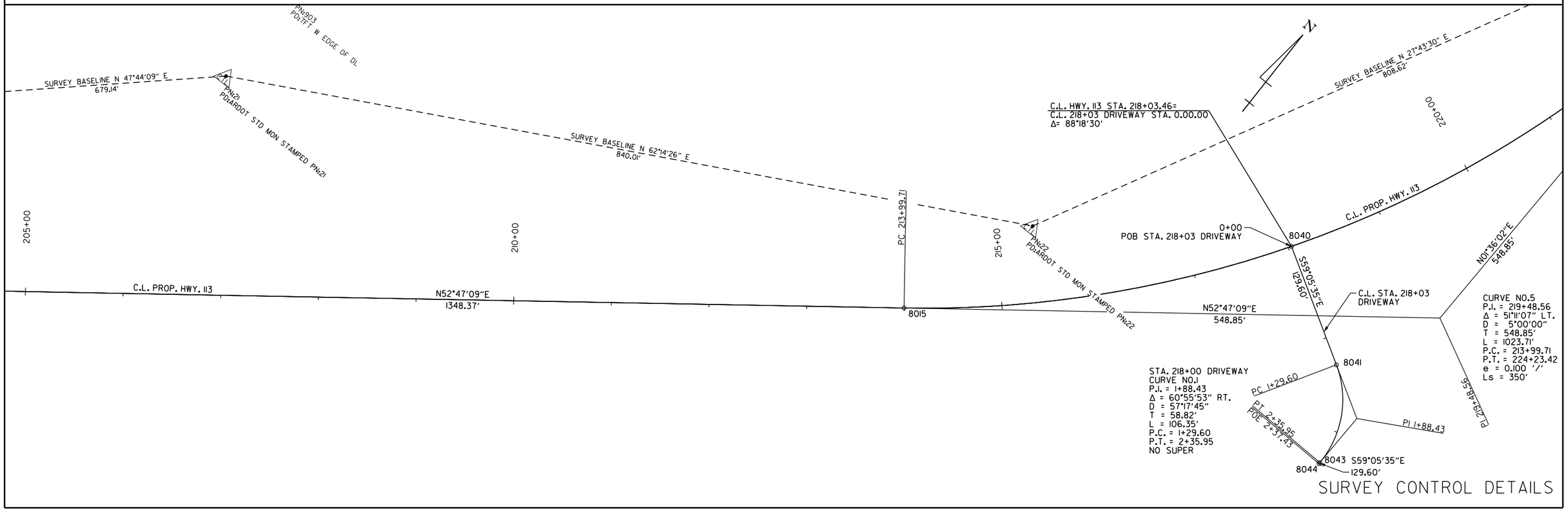
REVISED DATE: $$REVDATE$$

DATE REVISED	DATE REVISED	FED.RD. DIST.NO.	STATE	JOB NO.	SHEET NO.	TOTAL SHEETS
		6	ARK.	080711	57	123
		SURVEY CONTROL DETAILS				

STATE OF ARKANSAS
LICENSED PROFESSIONAL ENGINEER
No.20584
ROBERT B. DARRINGTON
03-01-2024





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REVISED DATE: $$REVDATE$$

DATE REVISED	DATE REVISED	FED.RD. DIST.NO.	STATE	JOB NO.	SHEET NO.	TOTAL SHEETS
		6	ARK.	080711	58	123
		SURVEY CONTROL DETAILS				

N

STATE OF ARKANSAS
LICENSED PROFESSIONAL ENGINEER
★ ★ ★
No.20584
ROBERT B. DARRINGTON
03-01-2024

PN22
PDAROOT STD MON STAMPED PN22

C.L. HWY. 113 STA. 218+03.46=
C.L. 218+03 DRIVEWAY STA. 0+00.00
Δ= 88°18'30"

HWY 113 CURVE
P.I. = 219+33.61
Δ = 51°45'22" LT.
D = 4°00'00"
T = 694.86'
L = 1293.90'
P.C. = 212+38.76
P.T. = 225+32.66
e = 0.094 '/'
Ls = 350'

SURVEY BASELINE N 21°43'30" E
808.62'

8040

C.L. PROP. HWY. 113

220+00

N52°47'09"E
548.85'

S59°05'35"E
129.60'

C.L. STA. 218+00 DRIVEWAY

PC 1+29.60

8041

S59°05'35"E
58.82'

S01°50'18"W
58.82'

PI 1+88.43

PI 2+18+48.56

N01°36'02"E
548.85'

STA. 218+03 DRIVEWAY
CURVE NO.1
P.I. = 1+88.43
Δ = 60°55'53" RT.
D = 57°17'45"
T = 58.82'
L = 106.35'
P.C. = 1+29.60
P.T. = 2+35.95
NO SUPER

PT 224+23.42

225+00

PN23
PDAROOT STD MON STAMPED PN23

8017

C.L. PROP. HWY. 113

N01°36'02"E
766.45'

STA. 228+95.00
END JOB 080711

230+00

PN24
PDAROOT STD MON STAMPED PN24

SURVEY BASELINE N 02°07'01" E
610.37'

716.52'
SURVEY BASELINE N 03°43'35" W

POE 231+89.87

8018

SURVEY CONTROL DETAILS

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WORKSPACE: ARDOT
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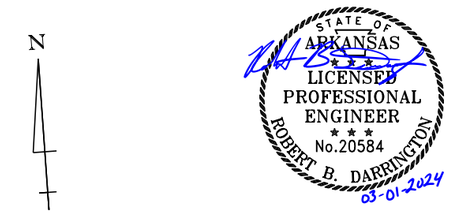
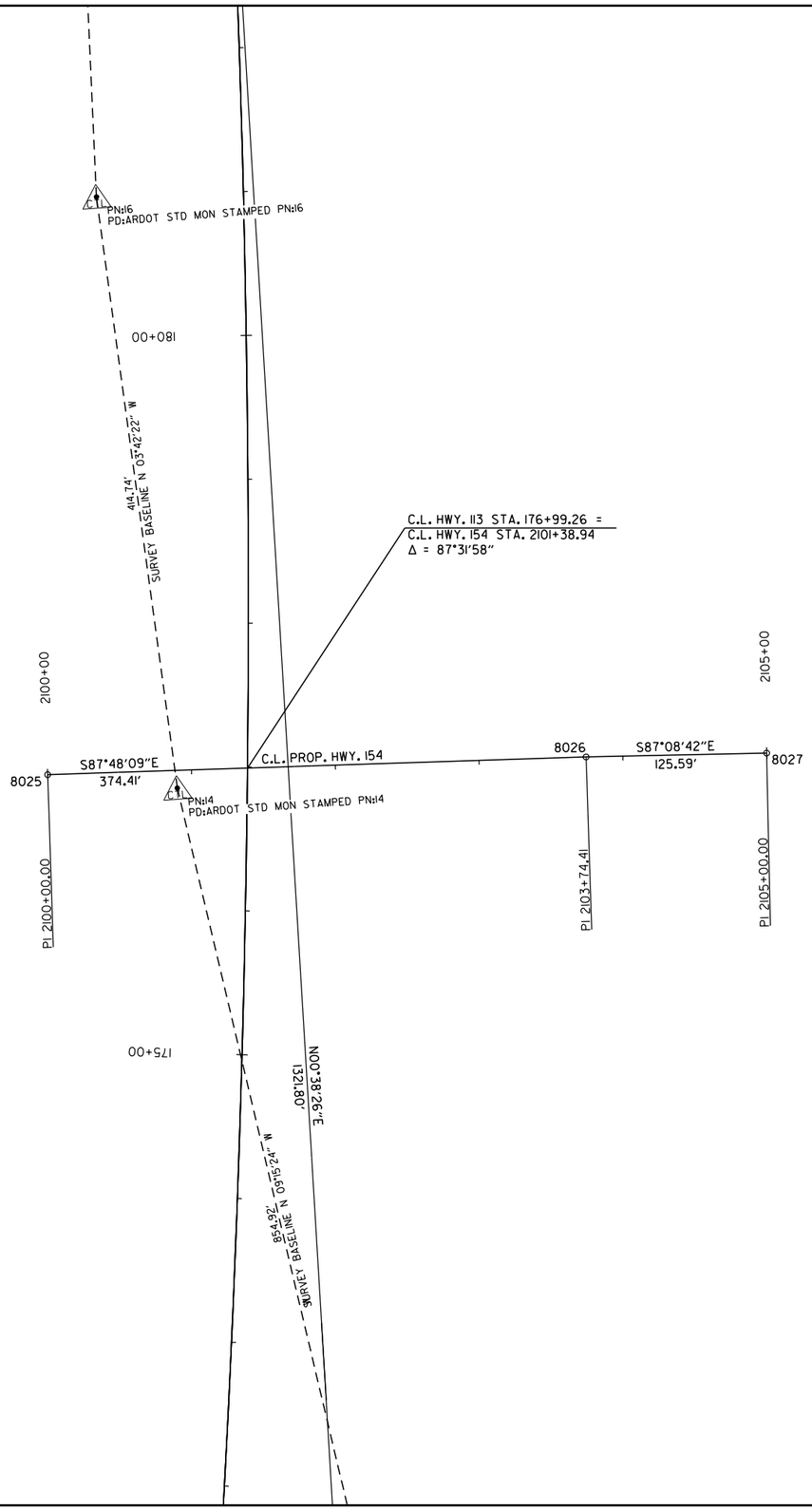
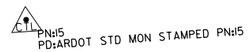
REVISED DATE: $$REVDATE$$

DATE REVISED	DATE REVISED	FED.RD. DIST.NO.	STATE	JOB NO.	SHEET NO.	TOTAL SHEETS
		6	ARK.	080711	59	123
		SURVEY CONTROL DETAILS				







SURVEY CONTROL DETAILS

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REVISED DATE: $$REVDATE$$

STATE OF ARKANSAS
LICENSED PROFESSIONAL ENGINEER
ROBERT B. DARRINGTON
No.20584
03-27-2024

DATE REVISED	DATE REVISED	FED.RD. DIST.NO.	STATE	JOB NO.	SHEET NO.	TOTAL SHEETS
03-25-24		6	ARK.	080711	60	123
		PLAN AND PROFILE SHEETS				

LEGEND

PAVEMENT TRANSITION

STA. 104+53.00 IN PLACE
24"X24' C.M. PIPE
RETAIN
CONST. APPROACH = 5 CU. YDS.

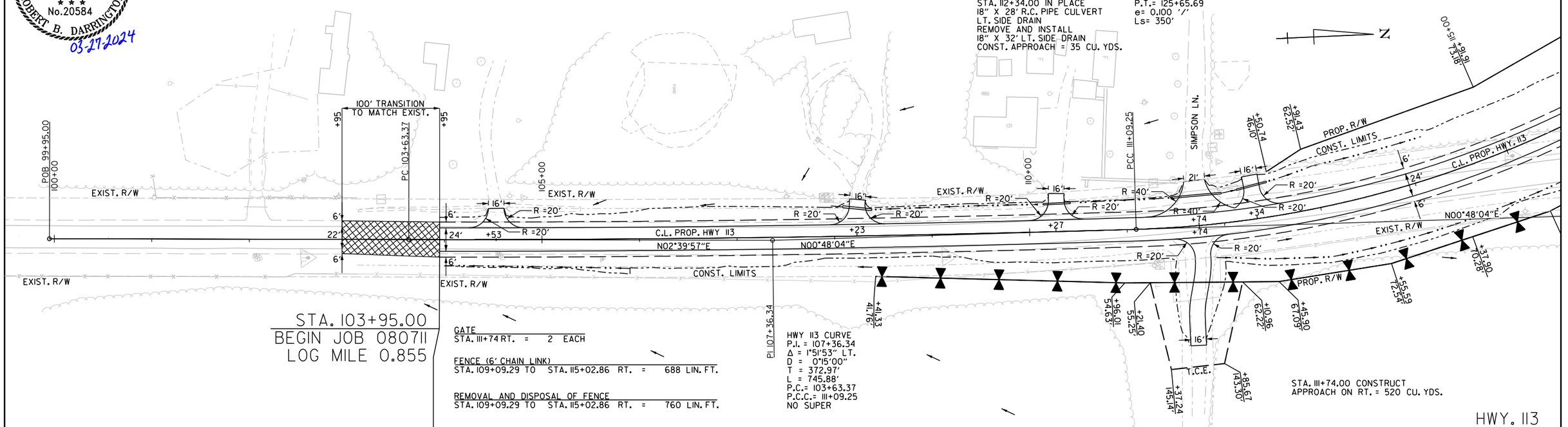
STA. 108+23.00 IN PLACE
24" X 24' C.M. PIPE CULVERT
LT. SIDE DRAIN
REMOVE AND INSTALL
24" X 30' LT. SIDE DRAIN
CONST. APPROACH = 25 CU. YDS.

STA. 110+27.00 IN PLACE
18" X 28' R.C. PIPE CULVERT
LT. SIDE DRAIN
REMOVE AND INSTALL
18" X 28' LT. SIDE DRAIN
CONST. APPROACH = 20 CU. YDS.

STA. 111+74.00 IN PLACE
18" X 28' C.M. PIPE CULVERT
LT. SIDE DRAIN
REMOVE AND INSTALL
18" X 52' LT. SIDE DRAIN
CONST. APPROACH = 35 CU. YDS.

STA. 112+34.00 IN PLACE
18" X 28' R.C. PIPE CULVERT
LT. SIDE DRAIN
REMOVE AND INSTALL
18" X 32' LT. SIDE DRAIN
CONST. APPROACH = 35 CU. YDS.

HWY 113 CURVE
P.I. = 119+69.03
Δ = 76°27'46" LT.
D = 5°15'00"
T = 859.78'
L = 1456.44'
P.C.C.= 111+09.25
P.T.= 125+65.69
e= 0.100 '/'
Ls= 350'



GATE
STA. 111+74 RT. = 2 EACH

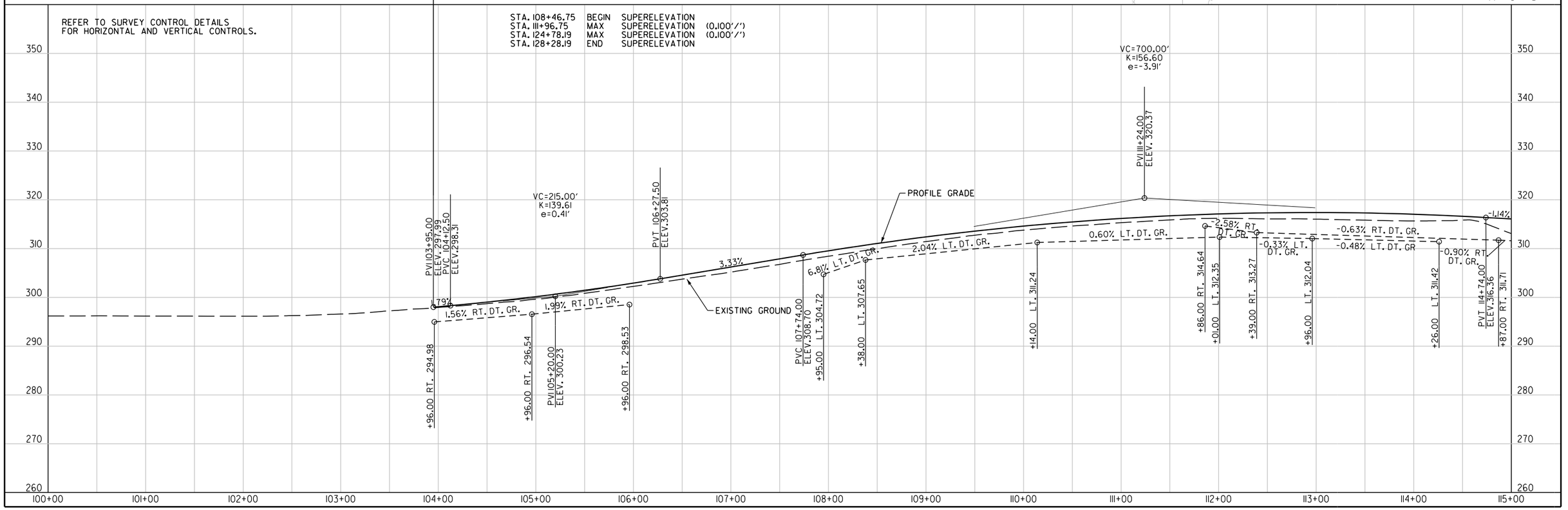
FENCE (6' CHAIN LINK)
STA. 109+09.29 TO STA. 115+02.86 RT. = 688 LIN. FT.

REMOVAL AND DISPOSAL OF FENCE
STA. 109+09.29 TO STA. 115+02.86 RT. = 760 LIN. FT.

HWY 113 CURVE
P.I. = 107+36.34
Δ = 1°51'53" LT.
D = 0°15'00"
T = 372.97'
L = 745.88'
P.C.= 103+63.37
P.C.C.= 111+09.25
NO SUPER

REFER TO SURVEY CONTROL DETAILS
FOR HORIZONTAL AND VERTICAL CONTROLS.

STA. 108+46.75 BEGIN SUPERELEVATION
STA. 111+96.75 MAX SUPERELEVATION (0.100'/')
STA. 124+78.19 MAX SUPERELEVATION (0.100'/')
STA. 128+28.19 END SUPERELEVATION



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REVISED DATE: $$REVDATE$$

DATE REVISED	DATE REVISED	FED.RD. DIST.NO.	STATE	JOB NO.	SHEET NO.	TOTAL SHEETS
03-25-24		6	ARK.	080711	61	123
		PLAN AND PROFILE SHEETS				

HWY 113 CURVE
P.I. = 119+69.03
Δ = 76°27'46" LT.
D = 5°15'00"
T = 859.78'
L = 1456.44'
P.C.C.= 111+09.25
P.T.= 125+65.69
e= 0.100 '/'
Ls= 350'

CONCRETE DITCH PAVING (TYPE B)

STA.	STA.	SIDE	LENGTH	"W"	SQ.YDS.
116+93	117+55	RT.	62 LIN. FT.	6'- 0"	41.33

C.L. HWY. 113 STA. 117+95.40=
C.L. 117+95 DRIVEWAY STA. 0+00.00
Δ= 89°28'34"

STA. 117+95 DRIVEWAY
CURVE NO.1
P.I. = 2+03.85
Δ = 50°05'21" LT.
D = 57°17'45"
T = 46.73'
L = 87.42'
P.C. = 1+57.13
P.T. = 2+44.55
NO SUPER

STA. 117+95.00 CONSTRUCT
18" X 86' RT. SIDE DRAIN
CONST. APPROACH = 1565 CU. YDS.

REFER TO SURVEY CONTROL DETAILS
FOR HORIZONTAL AND VERTICAL CONTROLS.

STA. 108+46.75	BEGIN	SUPERELEVATION
STA. 111+96.75	MAX	SUPERELEVATION (0.100'/')
STA. 124+78.19	MAX	SUPERELEVATION (0.100'/')
STA. 128+28.19	END	SUPERELEVATION

PVI 118+27.00
ELEV. 312.33
Δ= 1°01'08"

-1.14%
-0.90% RT. DT. GR.
-1.84% RT. DT. GR.
-3.99% RT. DT. GR.
-0.46% RT. DT. GR.
-0.79%
-0.70% RT. DT. GR.
-2.75% LT. DT. GR.
-2.66% RT. DT. GR.
PROFILE GRADE
EXISTING GROUND

+98.00 RT. 310.72
+93.00 RT. 308.96
+84.00 RT. 305.33
+27.00 RT. 301.88
+36.00 LT. 300.77
+83.00 RT. 298.69

115+00 116+00 117+00 118+00 119+00 120+00 121+00 122+00 123+00 124+00 125+00 126+00 127+00 128+00 129+00 130+00
360 350 340 330 320 310 300 290 280 270

DATE REVISED	DATE REVISED	FED.RD. DIST.NO.	STATE	JOB NO.	SHEET NO.	TOTAL SHEETS
03-25-24		6	ARK.	080711	62	123
		PLAN AND PROFILE SHEETS				

STA. 132+09.00 CONSTRUCT
DBL. 42"X 86' PIPE CULVERT
FES LT. AND RT.
WITH 15° LT. FWD SKEW
Q25=1104.97 CFS D.A.= 57.15 ACRES
42" R.C. PIPE (CLASS III) (TYPE 2 BEDDING)= 172 LIN.FT.
42" ASPHALT CSP (TYPE 2 BEDDING)= 180 LIN.FT.
42" ALUM. CSP (TYPE 2 BEDDING)= 180 LIN.FT.
42" POLYMER COATED CSP (TYPE 2 BEDDING)= 180 LIN.FT.
42" PVC (TYPE 2 BEDDING)= 180 LIN.FT.
42" HDPE (TYPE 2 BEDDING)= 180 LIN.FT.
42" PPL (TYPE 2 BEDDING)= 180 LIN.FT.
42" FES= 4 EACH

N

N75°39'43"W

PROP. R/W

C.L. PROP. HWY. 113

CONST. LIMITS

PC 133+08.56

PI 144+43.77

HWY 113 CURVE
P.I. = 144+43.77
Δ = 89°27'44" RT.
D = 5°00'00"
T = 1135.21'
L = 1789.25'
P.C.= 133+08.56
P.T.=150+97.81
e= 0.100 '/'
Ls= 350

N3°48'02"E

STA.	SIDE	DUMPED RIPRAP CU. YDS.	FILTER BLANKET SQ. YDS.
STA. 132+09.00	RT.	21	44

HWY. 113

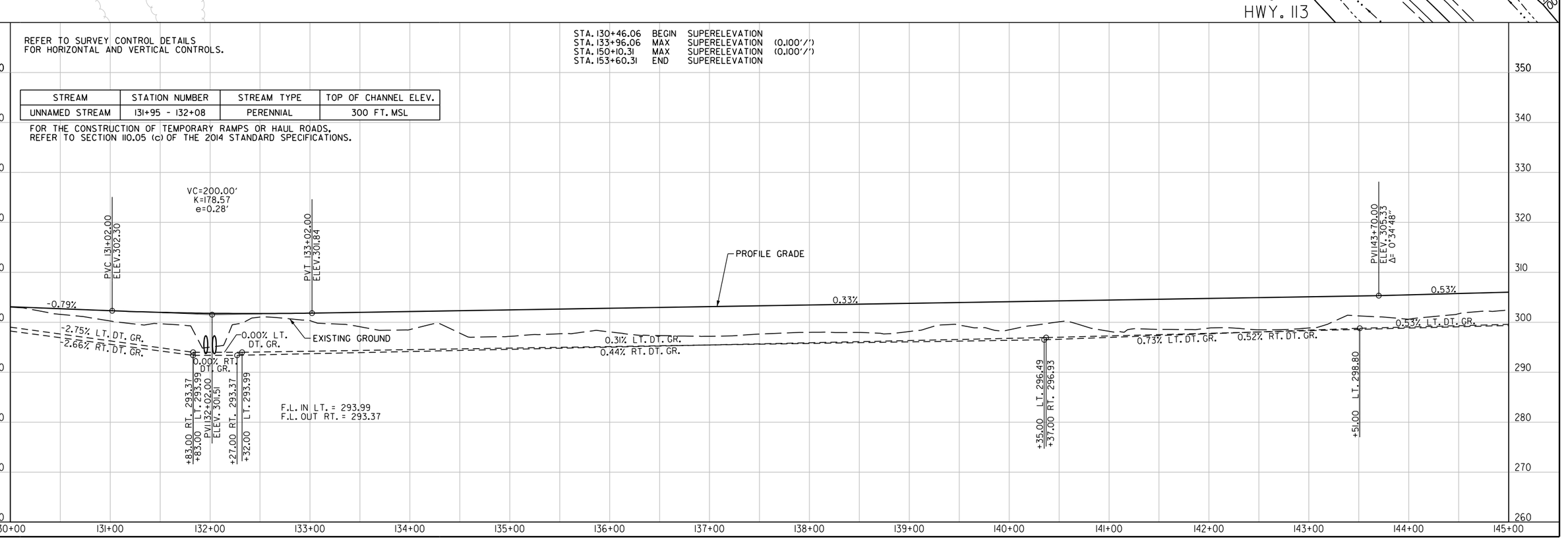
STATE OF ARKANSAS
LICENSED PROFESSIONAL ENGINEER
No.20584
ROBERT B. DARRINGTON
03-25-2024

REFER TO SURVEY CONTROL DETAILS
FOR HORIZONTAL AND VERTICAL CONTROLS.

STA. 130+46.06 BEGIN SUPERELEVATION
STA. 133+96.06 MAX SUPERELEVATION (0.100'/')
STA. 150+10.31 MAX SUPERELEVATION (0.100'/')
STA. 153+60.31 END SUPERELEVATION

STREAM	STATION NUMBER	STREAM TYPE	TOP OF CHANNEL ELEV.
UNNAMED STREAM	131+95 - 132+08	PERENNIAL	300 FT. MSL

FOR THE CONSTRUCTION OF TEMPORARY RAMPS OR HAUL ROADS,
REFER TO SECTION 110.05 (c) OF THE 2014 STANDARD SPECIFICATIONS.



DATE REVISED	DATE REVISED	FED.RD. DIST.NO.	STATE	JOB NO.	SHEET NO.	TOTAL SHEETS
		6	ARK.	080711	63	123
		PLAN AND PROFILE SHEETS				

HWY 113 CURVE
P.I. = 144+43.77
Δ = 89°27'44" RT.
D = 5°00'00"
T = 1135.21'
L = 1789.25'
P.C.= 133+08.56
P.T.=150+97.81
e= 0.100 '/'
Ls= 350

HWY 113 CURVE
P.I. = 171+94.50
Δ = 13°09'36" LT.
D = 0°30'00"
T = 1321.80'
L = 2631.97'
P.C.= 158+72.70
P.T.= 185+04.68
e= 0.020 '/'
Lsl= 360'
Ls2= 300'

STATE OF ARKANSAS
LICENSED PROFESSIONAL ENGINEER
ROBERT B. DARRINGTON
No.20584
03-01-2024

PROP. R/W
CONST. LIMITS
C.L. PROP. HWY. 113
N13°48'02"E
+82
R =40'
40'
6'
24'
STA. 158+40.00 BEGIN 360' TAPER
PC 158+72.70
STA. 151+82.00 CONSTRUCT 24" X 66' RT. SIDE DRAIN CONST. APPROACH = 205 CU. YDS. (DRIVEWAY FOR FUTURE ACCESS)
PT 150+97.80

HWY. 113

REFER TO SURVEY CONTROL DETAILS FOR HORIZONTAL AND VERTICAL CONTROLS.

STA. 130+46.06	BEGIN	SUPERELEVATION	
STA. 133+96.06	MAX	SUPERELEVATION	(0.100'/')
STA. 150+10.31	MAX	SUPERELEVATION	(0.100'/')
STA. 153+60.31	END	SUPERELEVATION	

STA. 156+02.70	BEGIN	SUPERELEVATION	
STA. 159+62.70	MAX	SUPERELEVATION	(0.020'/')
STA. 183+84.68	MAX	SUPERELEVATION	(0.020'/')
STA. 186+84.68	END	SUPERELEVATION	

PROFILE GRADE
EXISTING GROUND
0.53%
0.53% LT. DT. GR.
0.52% RT. DT. GR.
0.41% LT. DT. GR.
0.60%
PVI 156+55.00
ELEV. 312.14
Δ= 01°12'37"
+95.00 LT. 303.25

360 350 340 330 320 310 300 290 280 270

145+00 146+00 147+00 148+00 149+00 150+00 151+00 152+00 153+00 154+00 155+00 156+00 157+00 158+00 159+00 160+00

DATE REVISED	DATE REVISED	FED.RD. DIST.NO.	STATE	JOB NO.	SHEET NO.	TOTAL SHEETS
3-25-24		6	ARK.	080711	64	123
		PLAN AND PROFILE SHEETS				

STATE OF ARKANSAS
LICENSED PROFESSIONAL ENGINEER
ROBERT B. DARRINGTON
No.20584
03-25-2024

LEGEND

CONTRACTOR DESIGNATED WORK AREA
NOTE: CONTRACTOR TO COORDINATE USE OF WORK AREA WITH GREEN BAY PACKAGING COMPANY.

N

STA. 162+50.00 CONSTRUCT
18" X 74' RT. SIDE DRAIN
CONST. APPROACH = 635 CU. YDS.
(DRIVEWAY FOR FUTURE ACCESS)

STA. 168+79.00 CONSTRUCT
18" X 62' RT. SIDE DRAIN
CONST. APPROACH = 190 CU. YDS.
(DRIVEWAY FOR FUTURE ACCESS)

HWY 113 CURVE
P.I. = 171+94.50
Δ = 13°09'36" LT.
D = 0°30'00"
T = 1321.80'
L = 2631.97'
P.C.= 158+72.70
P.T.= 185+04.68
e= 0.020 '/'
Ls1= 360'
Ls2= 300'

HWY. 113

REFER TO SURVEY CONTROL DETAILS
FOR HORIZONTAL AND VERTICAL CONTROLS.

STA. 156+02.70 BEGIN SUPERELEVATION
STA. 159+62.70 MAX SUPERELEVATION (0.020'/')
STA. 183+84.68 MAX SUPERELEVATION (0.020'/')
STA. 186+84.68 END SUPERELEVATION

VC=150.00'
K=238.10
e=0.12'

VC=200.00'
K=444.44
e=-0.11'

PVC 166+64.00
ELEV.318.22

PVT 168+14.00
ELEV.319.59

PVI 167+39.00
ELEV. 318.67

PVI 171+95.00
ELEV. 324.26

PVT 172+95.00
ELEV.325.05

PVC 170+95.00
ELEV.323.04

PVC 174+95.00 ELEV.326.61

PROFILE GRADE

EXISTING GROUND

0.60%
1.23%
0.78%
0.52% RT. DT. GR.
0.41% LT. DT. GR.
1.37% RT. DT. GR.
0.93% LT. DT. GR.
0.99% RT. DT. GR.
1.29% LT. DT. GR.
0.91% RT. DT. GR.
1.00% LT. DT. GR.

+03.00 RT. 308.27
+61.00 LT. 307.59
+76.00 RT. 313.37
+71.00 LT. 311.40
+71.00 RT. 318.26
+100.00 LT. 319.53

360 350 340 330 320 310 300 290 280 270

160+00 161+00 162+00 163+00 164+00 165+00 166+00 167+00 168+00 169+00 170+00 171+00 172+00 173+00 174+00 175+00

DATE REVISED	DATE REVISED	FED.RD. DIST.NO.	STATE	JOB NO.	SHEET NO.	TOTAL SHEETS
03-25-24		6	ARK.	080711	65	123
		PLAN AND PROFILE SHEETS				

NOTE: REFER TO PLAN AND PROFILE SHEET FOR HWY. 154

STA. 177+38 CONSTRUCT
DBL. 24"X 97' PIPE CULVERT
FES LT. AND RT.
Q25=36.22 CFS D.A.= 22.04 ACRES
24" R.C. PIPE (CLASS IV)(TYPE 3 BEDDING)= 194 LIN.FT.
24" ASPHALT CSP (TYPE 2 BEDDING)= 202 LIN.FT.
24" ALUM. CSP (TYPE 2 BEDDING)= 202 LIN.FT.
24" POLYMER COATED CSP (TYPE 2 BEDDING)= 202 LIN.FT.
24" PVC (TYPE 2 BEDDING)= 202 LIN.FT.
24" HDPE (TYPE 2 BEDDING)= 202 LIN.FT.
24" PPL (TYPE 2 BEDDING)= 202 LIN.FT.
24" FES= 4 EACH

STA. 175+25.33 BEGIN TAPER
PI 2100+00.00 POB
STA. 176+45.33 END TAPER
C.L. HWY. 113 STA. 176+99.26 = C.L. HWY. 154 STA. 2101+38.94
Δ = 87°31'58"
STA. 179+60.26 BEGIN TAPER
STA. 184+40.26 END TAPER
PT 185+04.68
PROP. R/W
CONST. LIMITS
C.L. PROP. HWY. 113
C.L. PROP. HWY. 154
R =40'
S87°48'09"E
N00°38'26"E
PI 2103+74.41
Δ = 00°39'27" RT.
S87°08'42"E
+27.69 255.73'
+09.49 256.49'
+46 255'

LEGEND

CONTRACTOR DESIGNATED WORK AREA
NOTE: CONTRACTOR TO COORDINATE USE OF WORK AREA WITH GREEN BAY PACKAGING COMPANY.

STATE OF ARKANSAS
LICENSED PROFESSIONAL ENGINEER
ROBERT B. DARRINGTON
No. 20584
03-25-2024

HWY. 113

REFER TO SURVEY CONTROL DETAILS FOR HORIZONTAL AND VERTICAL CONTROLS.

STA. 156+02.70 BEGIN SUPERELEVATION
STA. 159+62.70 MAX SUPERELEVATION (0.020'/')
STA. 183+84.68 MAX SUPERELEVATION (0.020'/')
STA. 186+84.68 END SUPERELEVATION

PROFILE GRADE
EXISTING GROUND

VC=200.00' K=185.19 e=0.27'
VC=200.00' K=317.46 e=-0.16'
VC=1000.00' K=156.99 e=-7.96'

PVT 176+95.00 ELEV. 329.26
PVI 178+72.56 ELEV. 332.57
PVI 188+85.00 ELEV. 345.00
PVI 175+95.00 ELEV. 327.40
PVC 177+72.56 ELEV. 330.71
PVT 179+72.56 ELEV. 333.80
PVC 183+85.00 ELEV. 338.86
PVI 185+04.68 ELEV. 331.77

1.23%
1.86%
-5.14%
1.00% LT. DT. GR.
0.91% RT. DT. GR.
1.74% LT. DT. GR.
0.68% RT. DT. GR.
0.42% LT. DT. GR.
2.21% RT. DT. GR.
1.87% RT. DT. GR.
1.47% LT. DT. GR.
0.83% RT. DT. GR.
-1.79% LT. DT. GR.
-2.92% RT. DT. GR.
-2.57% RT. DT. GR.

+52.14 LT. 322.06
+63.88 RT. 323.65
+63.84 LT. 324.00
+26.59 LT. 325.21
+36.14 RT. 324.76
+03.88 LT. 327.20
+28.00 RT. 328.11
+94.00 RT. 331.77
+61.00 RT. 334.89
+33.00 LT. 335.00
+54.00 RT. 332.47
+80.00 RT. 329.23

F.L. IN LT. = 325.26
F.L. OUT RT. = 324.77

380 370 360 350 340 330 320 310 300 290
175+00 176+00 177+00 178+00 179+00 180+00 181+00 182+00 183+00 184+00 185+00 186+00 187+00 188+00 189+00 190+00

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WORKSPACE: ARDOT
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REVISED DATE: $$REVDATE$$

DATE REVISED	DATE REVISED	FED.RD. DIST.NO.	STATE	JOB NO.	SHEET NO.	TOTAL SHEETS
03-25-24		6	ARK.	080711	66	123

PLAN AND PROFILE SHEETS

STATION	SIDE	DUMPED RIPRAP CU. YDS.	FILTER BLANKET SQ. YDS.
STA. 198+00.00	RT.	11	22
STA. 198+00.00	LT.	11	22

STA. 193+90.00 INSTALL
18"x64' LT. SIDE DRAIN
CONST. APPROACH
=405 CU. YDS. COMP. EMB.
=10 CU. YDS. UNCL. EXC.

HWY 113 CURVE
P.I. = 195+69.13
Δ = 52°08'42" RT.
D = 5°00'00"
T = 560.70'
L = 1042.90'
P.C.= 190+08.43
P.T.= 200+51.34
e= 0.100 '/'
Ls= 350'

STA. 198+00.00 CONSTRUCT
36" X 90' PIPE CULVERT
FES LT. & RT.
Q25=40.17 CFS D.A.= 23.51 ACRES
36" R.C. PIPE (CLASS III)(TYPE 2 BEDDING)= 90 LIN. FT.
36" ASPHALT CSP (TYPE 2 BEDDING)= 94 LIN.FT.
36" ALUM. CSP (TYPE 2 BEDDING)= 94 LIN.FT.
36" POLYMER COATED CSP (TYPE 2 BEDDING)= 94 LIN.FT.
36" PVC (TYPE 2 BEDDING)= 94 LIN.FT.
36" HDPE (TYPE 2 BEDDING)= 94 LIN.FT.
36" PPL (TYPE 2 BEDDING)= 94 LIN.FT.
36" FES= 2 EACH

STATE OF ARKANSAS LICENSED PROFESSIONAL ENGINEER ★ ★ ★ No.20584 ROBERT B. DARRINGTON 03-25-2024

CONCRETE DITCH PAVING (TYPE B)

STA.	STA.	SIDE	LENGTH	"W"	SQ.YDS.
191+84	193+59	LT.	175 LIN. FT.	6'- 0"	116.67
192+03	198+00	RT.	597 LIN. FT.	6'- 0"	398.00
194+21	198+00	LT.	379 LIN. FT.	6'- 0"	252.67
201+52	204+20	RT.	268 LIN. FT.	6'- 0"	178.67
201+58	203+41	LT.	183 LIN. FT.	6'- 0"	122.00

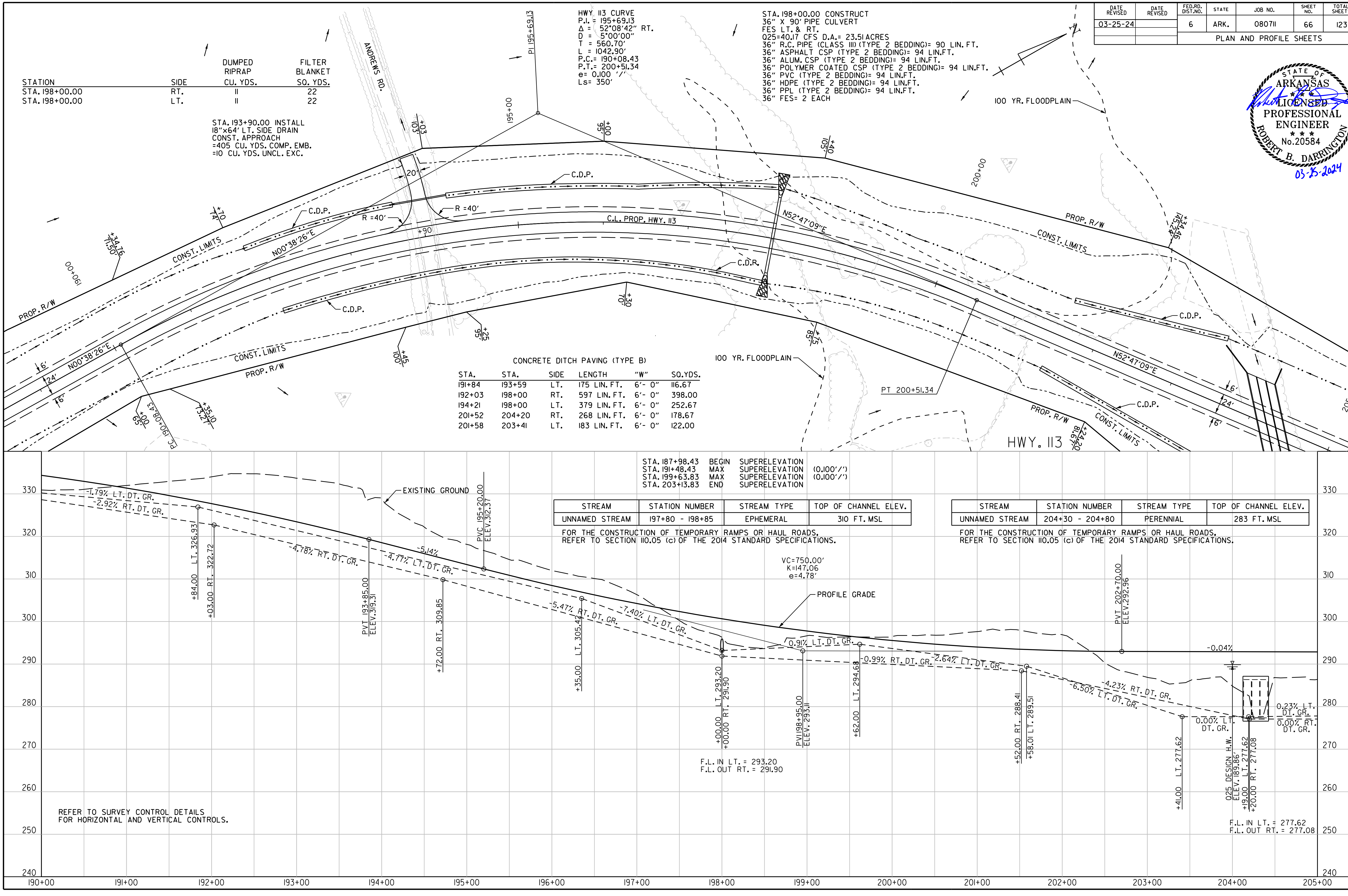
STA. 187+98.43 BEGIN SUPERELEVATION
STA. 191+48.43 MAX SUPERELEVATION (0.100'/')
STA. 199+63.83 MAX SUPERELEVATION (0.100'/')
STA. 203+13.83 END SUPERELEVATION

STREAM	STATION NUMBER	STREAM TYPE	TOP OF CHANNEL ELEV.
UNNAMED STREAM	197+80 - 198+85	EPHEMERAL	310 FT. MSL

FOR THE CONSTRUCTION OF TEMPORARY RAMPS OR HAUL ROADS, REFER TO SECTION 110.05 (c) OF THE 2014 STANDARD SPECIFICATIONS.

STREAM	STATION NUMBER	STREAM TYPE	TOP OF CHANNEL ELEV.
UNNAMED STREAM	204+30 - 204+80	PERENNIAL	283 FT. MSL

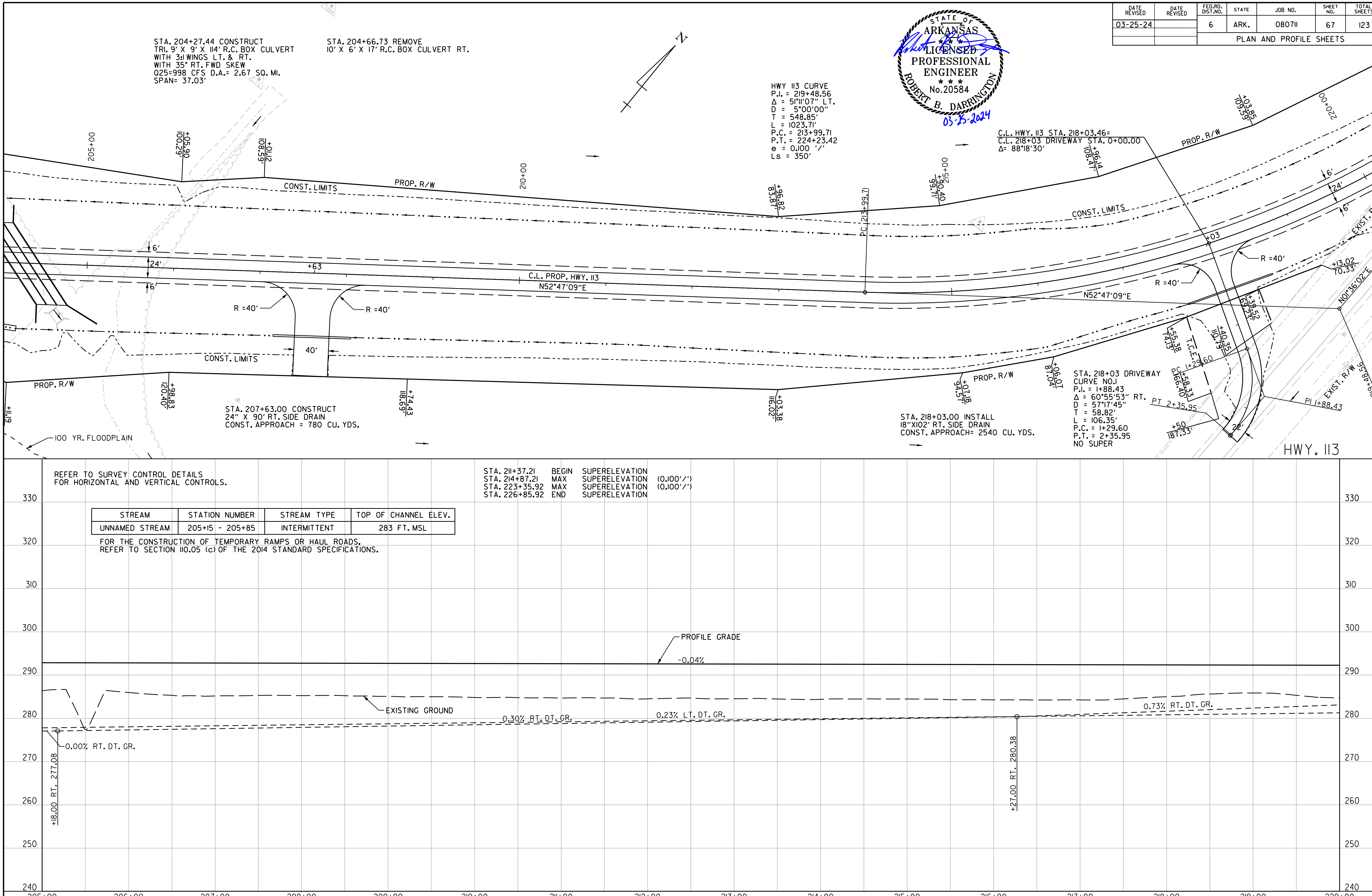
FOR THE CONSTRUCTION OF TEMPORARY RAMPS OR HAUL ROADS, REFER TO SECTION 110.05 (c) OF THE 2014 STANDARD SPECIFICATIONS.



REFER TO SURVEY CONTROL DETAILS
FOR HORIZONTAL AND VERTICAL CONTROLS.

Rajyan.Chowdhury3/25/2024 3:08:52 PM
WORKSPACE: ARDOT
Y:\Projects\ARDOT_19643_080711_Highway 113 Relocation\Design\CIVIL\Drawings\R080711_12_PP_007.dgn
REVISED DATE: $$REVDATE$$

DATE REVISED	DATE REVISED	FED.RD. DIST.NO.	STATE	JOB NO.	SHEET NO.	TOTAL SHEETS
03-25-24		6	ARK.	080711	67	123
		PLAN AND PROFILE SHEETS				



STA. 204+27.44 CONSTRUCT
TRI. 9' X 9' X 114' R.C. BOX CULVERT
WITH 3:1 WINGS LT. & RT.
WITH 35° RT. FWD SKEW
Q25=998 CFS D.A.= 2.67 SQ. MI.
SPAN= 37.03'
STA. 204+66.73 REMOVE
10' X 6' X 17' R.C. BOX CULVERT RT.
STATE OF ARKANSAS LICENSED PROFESSIONAL ENGINEER No.20584 ROBERT B. DARRINGTON
03-25-2024
HWY 113 CURVE
P.I. = 219+48.56
Δ = 51°11'07" LT.
D = 5°00'00"
T = 548.85'
L = 1023.71'
P.C. = 213+99.71
P.T. = 224+23.42
e = 0.100 '/'
Ls = 350'
C.L. HWY. 113 STA. 218+03.46=
C.L. 218+03 DRIVEWAY STA. 0+00.00
Δ= 88°18'30'
PROP. R/W
CONST. LIMITS
C.L. PROP. HWY. 113
N52°47'09"E
R =40'
40'
24'
6'
EXIST. R/W
N01°36'02"E
STA. 207+63.00 CONSTRUCT
24" X 90' RT. SIDE DRAIN
CONST. APPROACH = 780 CU. YDS.
STA. 218+03.00 INSTALL
18"X102' RT. SIDE DRAIN
CONST. APPROACH= 2540 CU. YDS.
STA. 218+03 DRIVEWAY
CURVE NO.1
P.I. = 1+88.43
Δ = 60°55'53" RT.
D = 57°17'45"
T = 58.82'
L = 106.35'
P.C. = 1+29.60
P.T. = 2+35.95
NO SUPER
100 YR. FLOODPLAIN
HWY. 113
REFER TO SURVEY CONTROL DETAILS
FOR HORIZONTAL AND VERTICAL CONTROLS.
STA. 211+37.21 BEGIN SUPERELEVATION
STA. 214+87.21 MAX SUPERELEVATION (0.100'/')
STA. 223+35.92 MAX SUPERELEVATION (0.100'/')
STA. 226+85.92 END SUPERELEVATION
PROFILE GRADE
-0.04%
EXISTING GROUND
0.00% RT. DT. GR.
0.30% RT. DT. GR.
0.23% LT. DT. GR.
0.73% RT. DT. GR.
+18.00 RT. 277.08
+27.00 RT. 280.38
205+00 206+00 207+00 208+00 209+00 210+00 211+00 212+00 213+00 214+00 215+00 216+00 217+00 218+00 219+00 220+00

STREAM	STATION NUMBER	STREAM TYPE	TOP OF CHANNEL ELEV.
UNNAMED STREAM	205+15 - 205+85	INTERMITTENT	283 FT. MSL

FOR THE CONSTRUCTION OF TEMPORARY RAMPS OR HAUL ROADS, REFER TO SECTION 110.05 (c) OF THE 2014 STANDARD SPECIFICATIONS.

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WORKSPACE: ARDOT
Y:\Projects\ARDOT_(9643)_080711_Highway 113 Relocation\Design\CIVIL\Drawings\R080711_12_PP_008.dgn
REVISED DATE: $$REVDATE$$

DATE REVISED	DATE REVISED	FED.RD. DIST.NO.	STATE	JOB NO.	SHEET NO.	TOTAL SHEETS
03-25-24		6	ARK.	080711	68	123
		PLAN AND PROFILE SHEETS				

STATE OF ARKANSAS
LICENSED PROFESSIONAL ENGINEER
No.20584
ROBERT B. DARRINGTON
03-25-2024

HWY 113 CURVE
P.I. = 219+48.56
Δ = 5°11'07" LT.
D = 5°00'00"
T = 548.85'
L = 1023.71'
P.C. = 213+99.71
P.T. = 224+23.42
e = 0.100 '/'
Ls = 350'

LEGEND
PAVEMENT TRANSITION

STA. 224+02.00 IN PLACE
24" X 47' C.M. PIPE CULVERT
LT. SIDE DRAIN
REMOVE AND INSTALL
DBL. 49" X 33" X 50' LT. SIDE DRAIN
CONST. APPROACH = 70 CU. YDS.

STA. 218+03 DRIVEWAY
CURVE NO.1
P.I. = 1+88.43
Δ = 60°55'53" RT.
D = 57°17'45"
T = 58.82'
L = 106.35'
P.C. = 1+29.60
P.T. = 2+35.95
NO SUPER

STA. 224+02.00 IN PLACE
24" X 29' C.M. PIPE CULVERT
RT. SIDE DRAIN
REMOVE AND INSTALL
24" X 64' RT. SIDE DRAIN
CONST. APPROACH = 595 CU. YDS.

STA. 228+95.00
END JOB 080711

HWY. 113

REFER TO SURVEY CONTROL DETAILS
FOR HORIZONTAL AND VERTICAL CONTROLS.

STA. 211+37.21	BEGIN	SUPERELEVATION
STA. 214+87.21	MAX	SUPERELEVATION (0.100'/')
STA. 223+35.92	MAX	SUPERELEVATION (0.100'/')
STA. 226+85.92	END	SUPERELEVATION

VC=100.00'
K=277.78
e=0.05'

PROFILE GRADE
EXISTING GROUND
-0.04%
0.32%
0.73% RT. DT. GR.
0.62% LT. DT. GR.
0.23% LT. DT. GR.
0.30% RT. DT. GR.
0.16% RT. DT. GR.

PVC 226+69.46 ELEV.292.02
PVT 227+69.46 ELEV.292.16
PVI 228+95.00 ELEV. 292.57
PVI 227+19.46 ELEV. 292.00
+65.00 LT. 281.66
+95.00 RT. 285.26
+01.00 LT. 283.12
+96.00 RT. 286.76
+96.00 RT. 286.92

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WORKSPACE: ARDOT
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REVISED DATE: $$REVDATE$$

DATE REVISED	DATE REVISED	FED.RD. DIST.NO.	STATE	JOB NO.	SHEET NO.	TOTAL SHEETS
03-25-24		6	ARK.	080711	69	123
		PLAN AND PROFILE SHEETS				

LEGEND

PAVEMENT TRANSITION

CONTRACTOR DESIGNATED WORK AREA
NOTE: CONTRACTOR TO COORDINATE USE OF WORK AREA WITH GREEN BAY PACKAGING COMPANY.

CONCRETE DITCH PAVING (TYPE B)

STA.	STA.	SIDE	LENGTH	"W"	SQ.YDS.
2100+14.94	2100+87	RT.	72.06 LIN. FT.	6'- 0"	48.04
2100+14.94	2100+83.48	LT.	68.54 LIN. FT.	6'- 0"	45.69

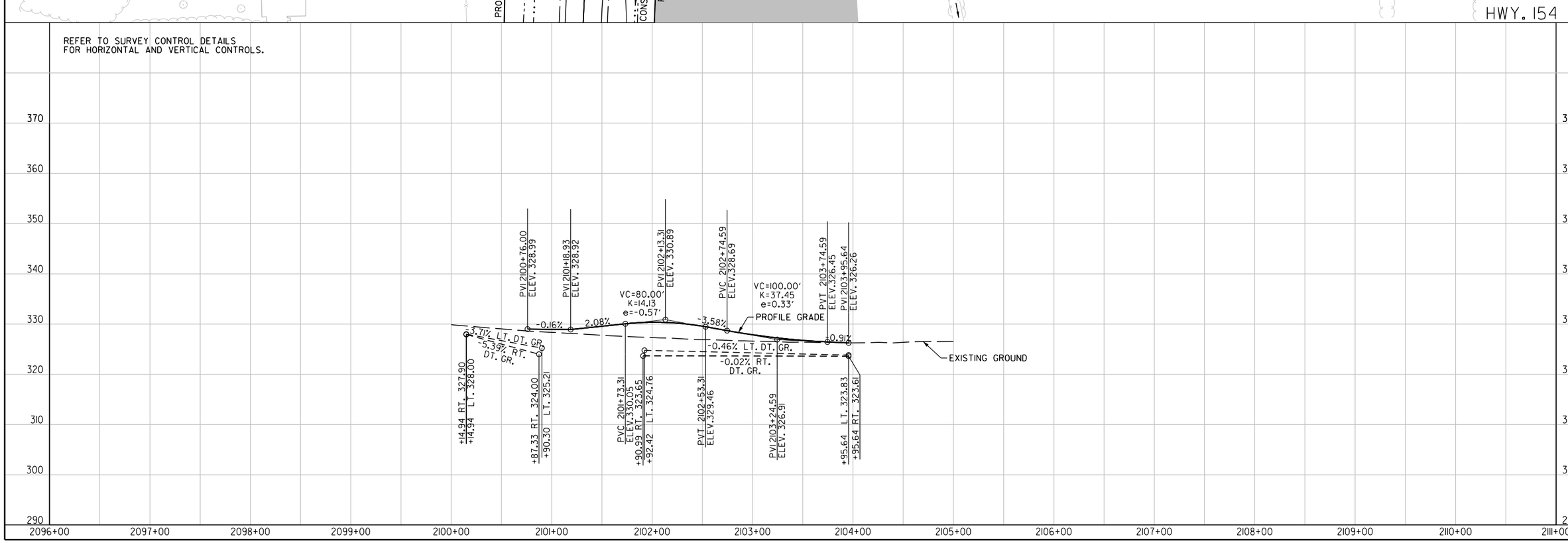
N

STATE OF ARKANSAS
LICENSED PROFESSIONAL ENGINEER
ROBERT B. DARRINGTON
No.20584
03-25-2024

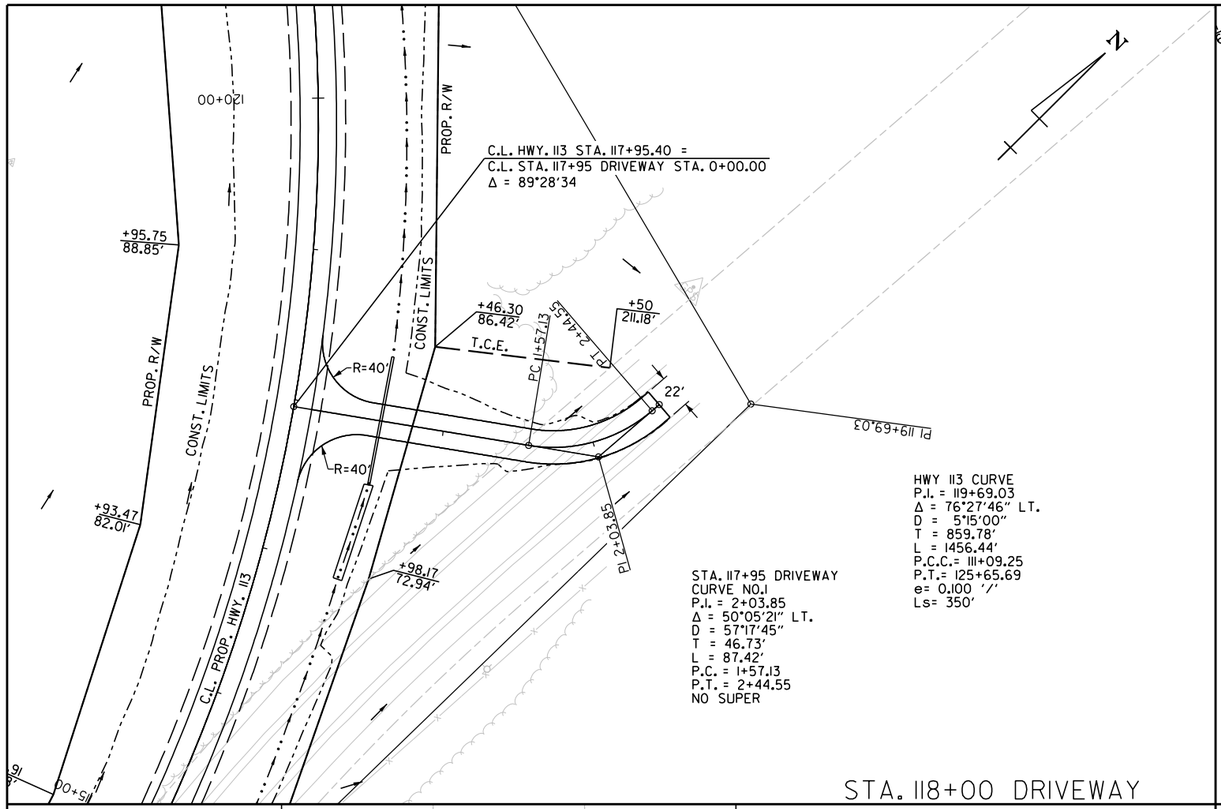
180+00 PROP. R/W CONST. LIMITS
+00 100'
+00 85' CONST. LIMITS
PROP. R/W
C.L. PROP. HWY. 113
C.L. HWY. 113 STA. 176+99.26 = C.L. HWY. 154 STA. 2101+38.94
Δ = 87°31'58"
HWY. 154 STA. 2101+58.96 = HWY. 113 STA. 177+00.12 O/S 20.00' RT.
ELEV. 329.75
100' TRANSITION TO MATCH EXIST.
+10.87
2100+00
C.D.P. +35 90'
+35 130'
+09.77 128.77'
20'
+95.33 128.05'
+54.94 125.59'
C.D.P. +55 82'
PI 2100+00.00 POB
HWY. 154 STA. 2101+18.93 = HWY. 113 STA. 176+98.40 O/S 20.00' LT.
ELEV. 328.92'
PROP. R/W CONST. LIMITS
+95.64
100' TRANSITION TO MATCH EXIST.
+50 74'
+46 255'
+27.69 255.73'
CONST. LIMITS PROP. R/W
4'
C.L. PROP. HWY. 154 S87°48'09"E
22'
20'
+09.49 256.49'
4'
CONST. LIMITS PROP. R/W
+75 258'
+50 70'
PI 2103+74.41 Δ = 00°39'27" RT.
CONST. LIMITS PROP. R/W
2105+00
PI 2105+00.00 POE
EXIST. R/W
EXIST. R/W
HWY. 154

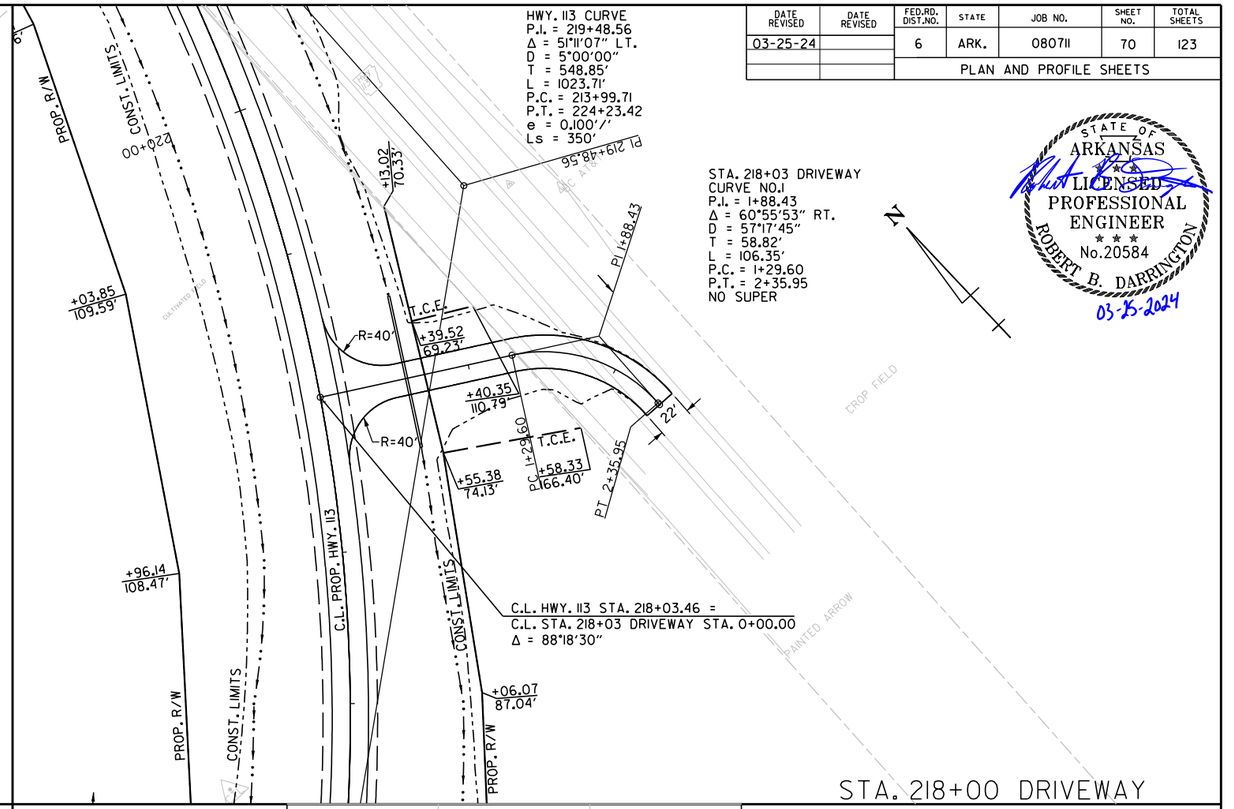
REMOVAL AND DISPOSAL OF FENCE
STA. 2100+11.27 TO STA. 2103+95.92 RT. OF HWY 154 C.L. = 385 LIN FT.
STA. 2100+11.27 TO STA. 2103+95.92 LT. OF HWY 154 C.L. = 343 LIN FT.

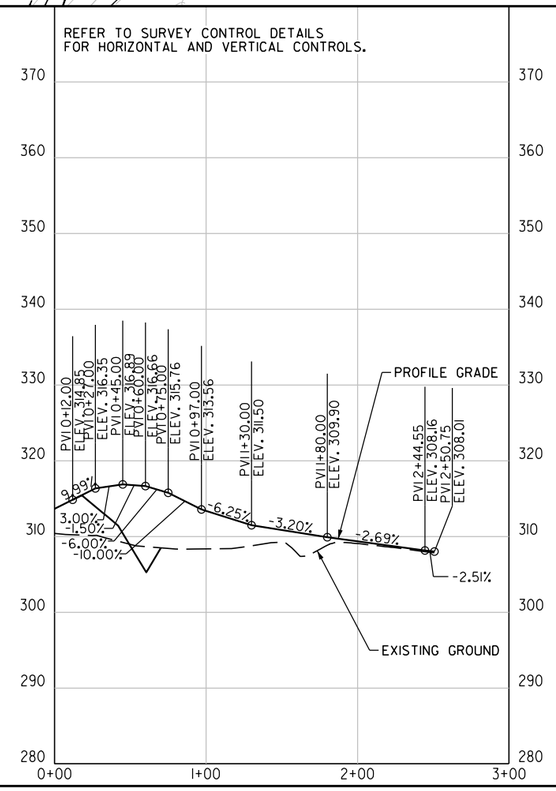
REFER TO SURVEY CONTROL DETAILS
FOR HORIZONTAL AND VERTICAL CONTROLS.

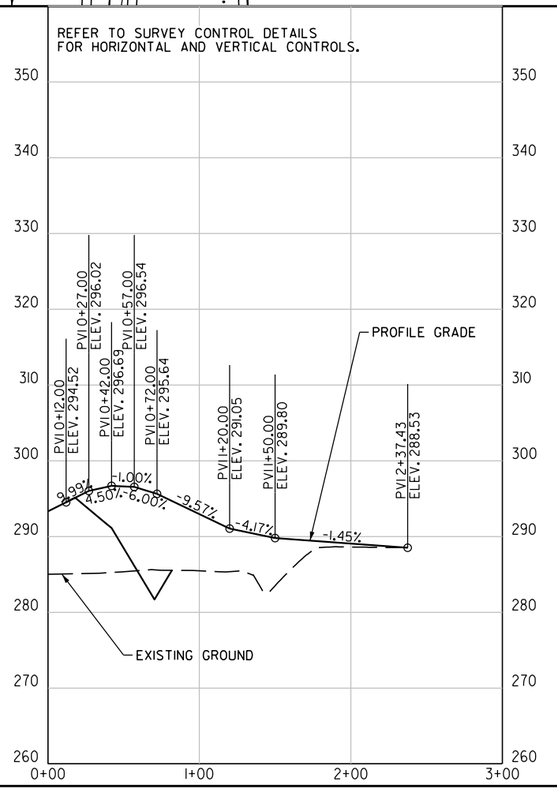


DATE REVISED	DATE REVISED	FED.RD. DIST.NO.	STATE	JOB NO.	SHEET NO.	TOTAL SHEETS
03-25-24		6	ARK.	080711	70	123
		PLAN AND PROFILE SHEETS				





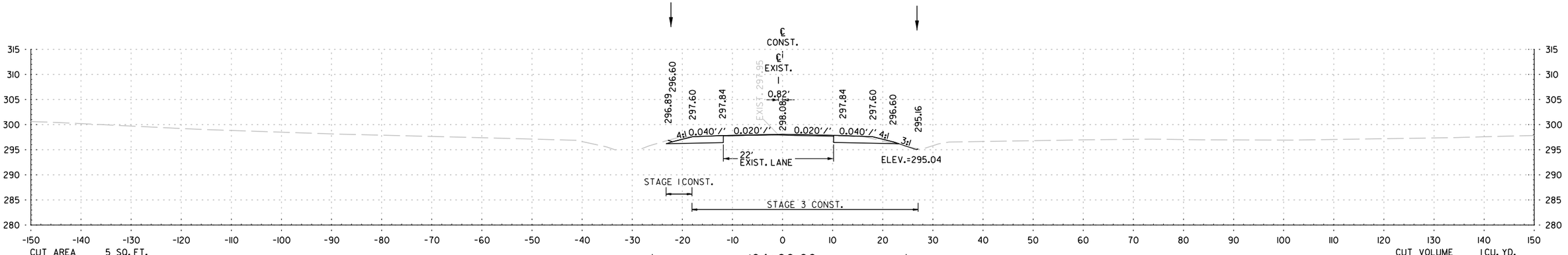




DATE REVISED	DATE REVISED	FED.RD. DIST.NO.	STATE	JOB NO.	SHEET NO.	TOTAL SHEETS
		6	ARK.	080711	71	123
		CROSS SECTIONS				

STAGE 1
STAGE 3

STAGE 1
STAGE 3

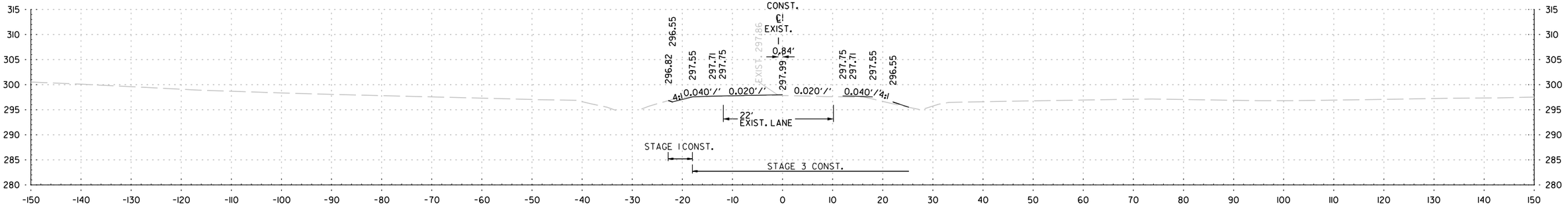


CUT AREA 5 SQ. FT.
FILL AREA 0 SQ. FT.
CUT AREA 20 SQ. FT.
FILL AREA 0 SQ. FT.

104+00.00

STA. 103+96.00
BEGIN SP.DT.RT. 1.56%
ELEV. =294.98

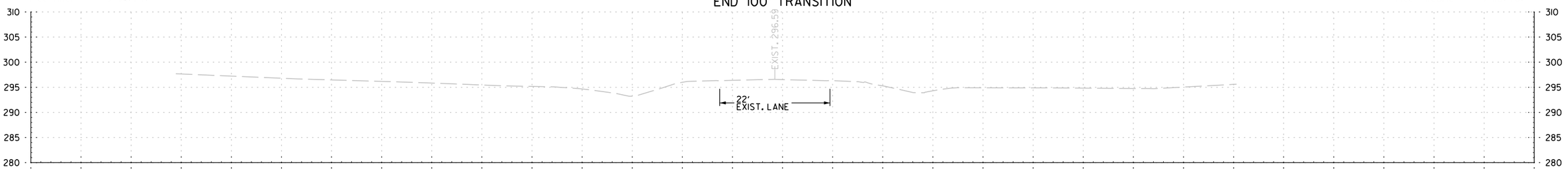
CUT VOLUME 1 CU. YD.
FILL VOLUME 0 CU. YD.
CUT VOLUME 2 CU. YD.
FILL VOLUME 0 CU. YD.



CUT AREA 2 SQ. FT.
FILL AREA 0 SQ. FT.
CUT AREA 0 SQ. FT.
FILL AREA 3 SQ. FT.

103+95.00
BEGIN JOB. 080711
END 100' TRANSITION

CUT VOLUME 0 CU. YD.
FILL VOLUME 0 CU. YD.
CUT VOLUME 0 CU. YD.
FILL VOLUME 5 CU. YD.



CUT AREA 0 SQ. FT.
FILL AREA 0 SQ. FT.
CUT AREA 0 SQ. FT.
FILL AREA 0 SQ. FT.

102+95.00

BEGIN 100' TRANSITION

CUT VOLUME 0 CU. YD.
FILL VOLUME 0 CU. YD.
CUT VOLUME 0 CU. YD.
FILL VOLUME 0 CU. YD.

STA. 103+00 TO STA. 104+00

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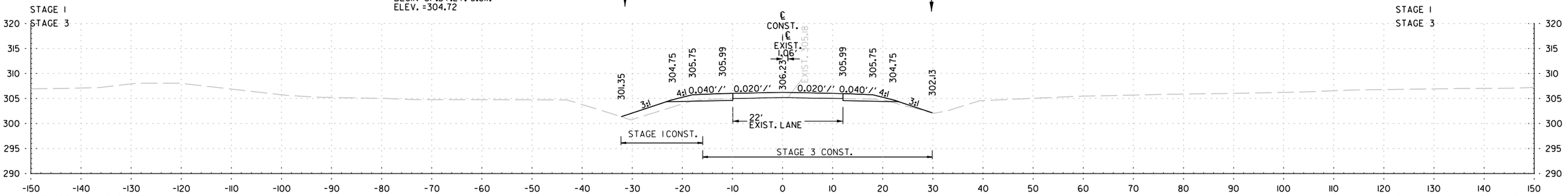
WORKSPACE: ARDOT
Y:\Projects\ARDOT_19643_080711_Highway 113 Relocation\Design\CIVIL\Drawings\R080711_CX.dgn
REVISED DATE: $$REVDATE$$

DATE REVISED	DATE REVISED	FED.RD. DIST.NO.	STATE	JOB NO.	SHEET NO.	TOTAL SHEETS
		6	ARK.	080711	72	123
		CROSS SECTIONS				

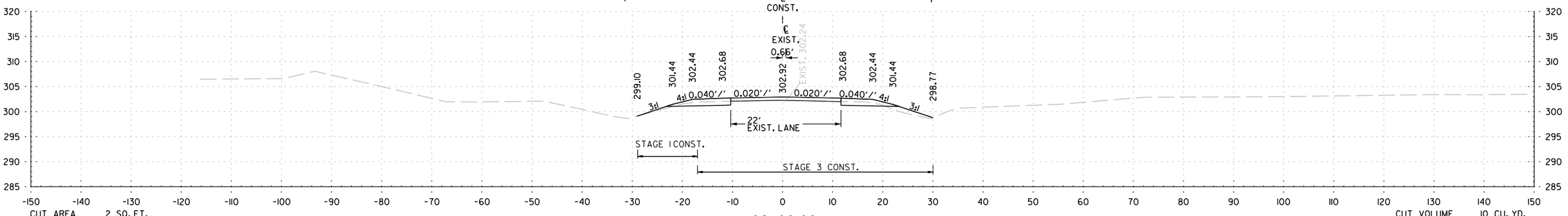
STA. 107+95.00
BEGIN SP.DT.LT. 6.81%
ELEV. =304.72



CUT AREA 0 SQ. FT.
FILL AREA 5 SQ. FT.
CUT AREA 6 SQ. FT.
FILL AREA 2 SQ. FT.

107+00.00

CUT VOLUME 5 CU. YD.
FILL VOLUME 29 CU. YD.
CUT VOLUME 30 CU. YD.
FILL VOLUME 15 CU. YD.

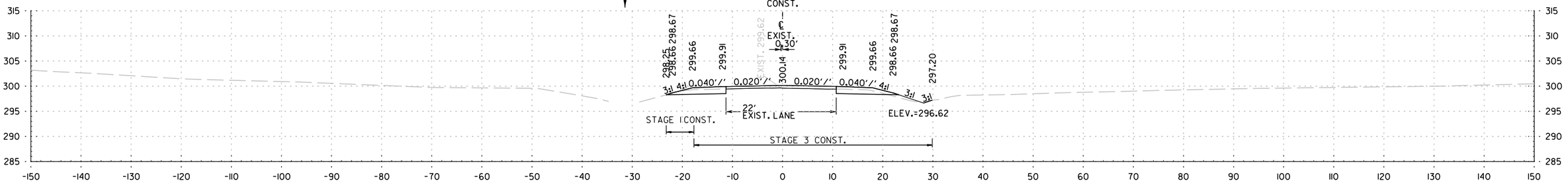


CUT AREA 2 SQ. FT.
FILL AREA 1 SQ. FT.
CUT AREA 11 SQ. FT.
FILL AREA 6 SQ. FT.

106+00.00

CUT VOLUME 10 CU. YD.
FILL VOLUME 3 CU. YD.
CUT VOLUME 45 CU. YD.
FILL VOLUME 15 CU. YD.

STA. 105+96.00
END SP.DT.RT. 1.99%
ELEV. =298.53



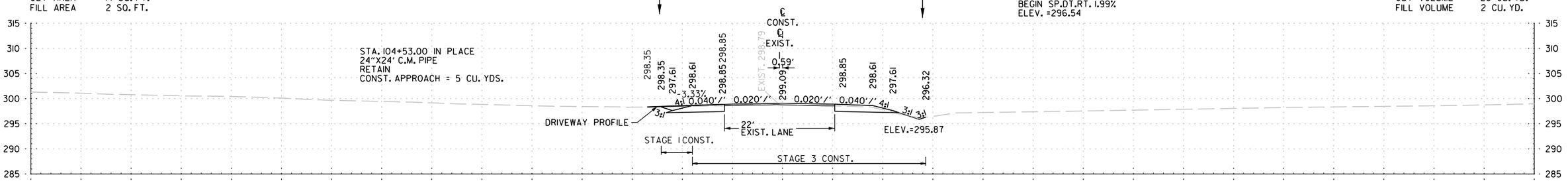
CUT AREA 3 SQ. FT.
FILL AREA 0 SQ. FT.
CUT AREA 14 SQ. FT.
FILL AREA 2 SQ. FT.

105+00.00

CUT VOLUME 8 CU. YD.
FILL VOLUME 0 CU. YD.
CUT VOLUME 28 CU. YD.
FILL VOLUME 2 CU. YD.

STA. 104+96.00
END SP.DT.RT. 1.56%
BEGIN SP.DT.RT. 1.99%
ELEV. =296.54

STA. 104+53.00 IN PLACE
24"X24' C.M. PIPE
RETAIN
CONST. APPROACH = 5 CU. YDS.



CUT AREA 6 SQ. FT.
FILL AREA 0 SQ. FT.
CUT AREA 18 SQ. FT.
FILL AREA 0 SQ. FT.

104+53.00

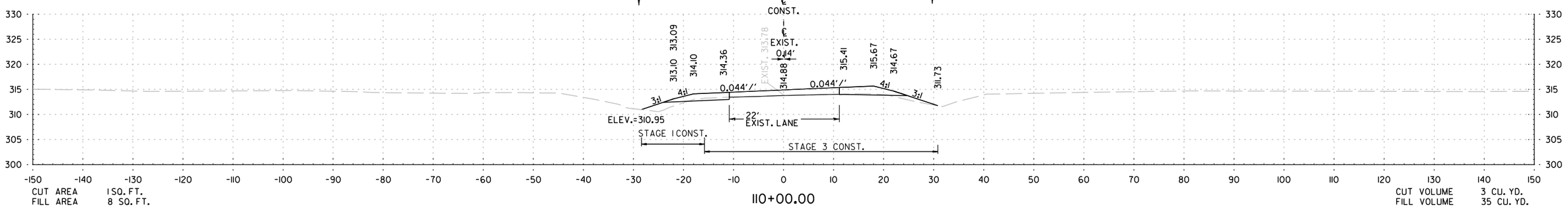
CUT VOLUME 11 CU. YD.
FILL VOLUME 0 CU. YD.
CUT VOLUME 38 CU. YD.
FILL VOLUME 1 CU. YD.

STA. 104+53 TO STA. 107+00

DATE REVISED	DATE REVISED	FED.RD. DIST.NO.	STATE	JOB NO.	SHEET NO.	TOTAL SHEETS
		6	ARK.	080711	73	123
		CROSS SECTIONS				

STAGE 1
STAGE 3

STA. 110+14.00
END SP.DT.LT. 2.04%
BEGIN SP.DT.LT. 0.60%
ELEV. =311.24

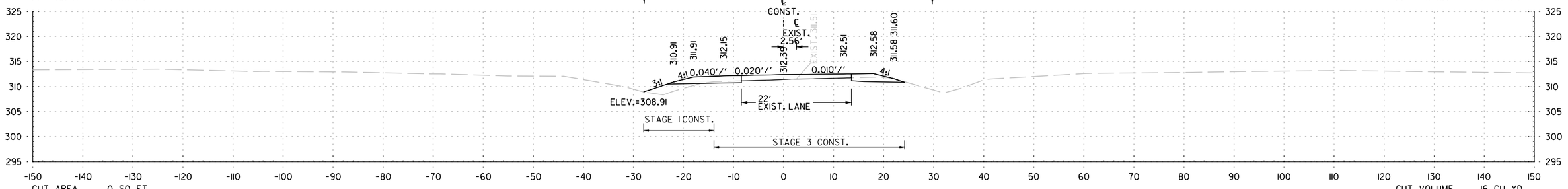


STAGE 1
STAGE 3

CUT AREA 1 SQ. FT.
FILL AREA 8 SQ. FT.
CUT AREA 4 SQ. FT.
FILL AREA 4 SQ. FT.

110+00.00

CUT VOLUME 3 CU. YD.
FILL VOLUME 35 CU. YD.
CUT VOLUME 24 CU. YD.
FILL VOLUME 8 CU. YD.

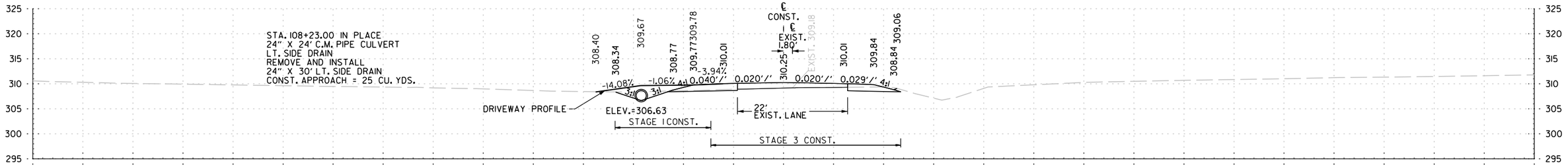


CUT AREA 0 SQ. FT.
FILL AREA 11 SQ. FT.
CUT AREA 9 SQ. FT.
FILL AREA 0 SQ. FT.

109+00.00

CUT VOLUME 16 CU. YD.
FILL VOLUME 16 CU. YD.
CUT VOLUME 27 CU. YD.
FILL VOLUME 0 CU. YD.

STA. 108+23.00 IN PLACE
24" X 24' C.M. PIPE CULVERT
LT. SIDE DRAIN
REMOVE AND INSTALL
24" X 30' LT. SIDE DRAIN
CONST. APPROACH = 25 CU. YDS.

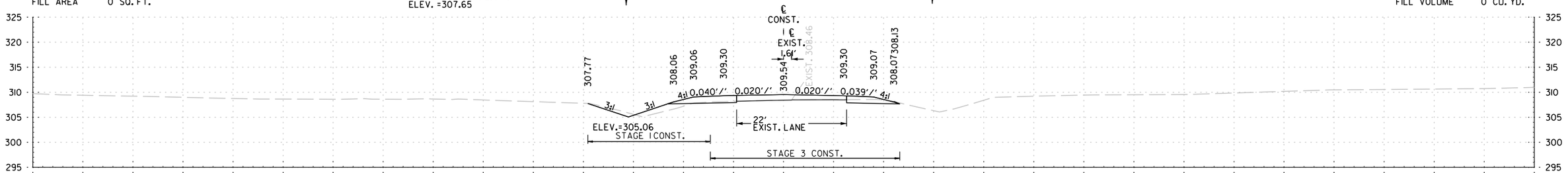


CUT AREA 11 SQ. FT.
FILL AREA 0 SQ. FT.
CUT AREA 10 SQ. FT.
FILL AREA 0 SQ. FT.

108+23.00

CUT VOLUME 7 CU. YD.
FILL VOLUME 4 CU. YD.
CUT VOLUME 8 CU. YD.
FILL VOLUME 0 CU. YD.

STA. 108+38.00
END SP.DT.LT. 6.81%
BEGIN SP.DT.LT. 2.04%
ELEV. =307.65



CUT AREA 5 SQ. FT.
FILL AREA 10 SQ. FT.
CUT AREA 8 SQ. FT.
FILL AREA 0 SQ. FT.

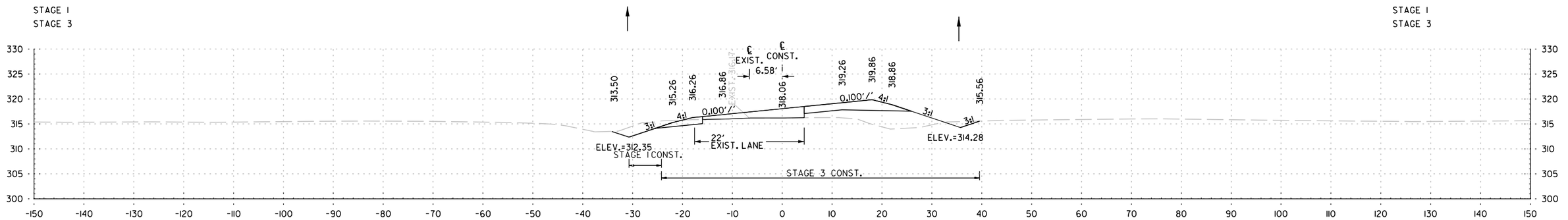
108+00.00

CUT VOLUME 10 CU. YD.
FILL VOLUME 45 CU. YD.
CUT VOLUME 26 CU. YD.
FILL VOLUME 4 CU. YD.

STA. 108+00 TO STA. 110+00

Rajyan.Chowdhury3//2024 2:53:14 PM
WORKSPACE: ARDOT
Y:\Projects\ARDOT_19643_080711_Highway 113 Relocation\Design\CIVIL\Drawings\R080711LCX.dgn
REVISED DATE: $$REVDATE$$

DATE REVISED	DATE REVISED	FED.RD. DIST.NO.	STATE	JOB NO.	SHEET NO.	TOTAL SHEETS
		6	ARK.	080711	74	123
		CROSS SECTIONS				

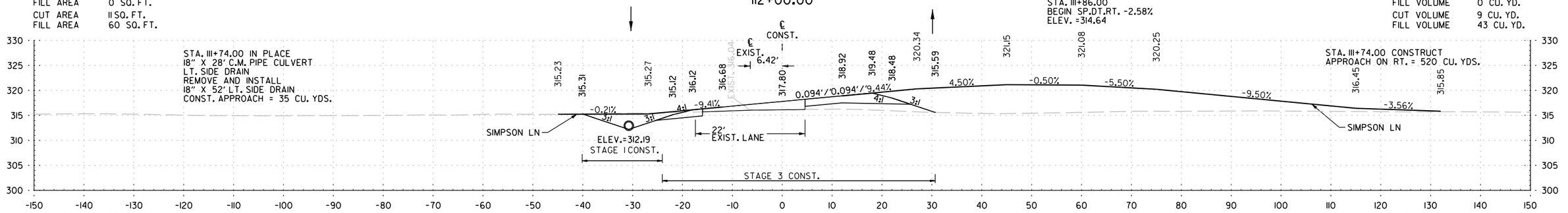


CUT AREA 14 SQ. FT.
FILL AREA 0 SQ. FT.
CUT AREA 11 SQ. FT.
FILL AREA 60 SQ. FT.

112+00.00

CUT VOLUME 21 CU. YD.
FILL VOLUME 0 CU. YD.
CUT VOLUME 9 CU. YD.
FILL VOLUME 43 CU. YD.

STA. 111+86.00
BEGIN SP.DT.RT. -2.58%
ELEV. =314.64



CUT AREA 30 SQ. FT.
FILL AREA 0 SQ. FT.
CUT AREA 9 SQ. FT.
FILL AREA 29 SQ. FT.

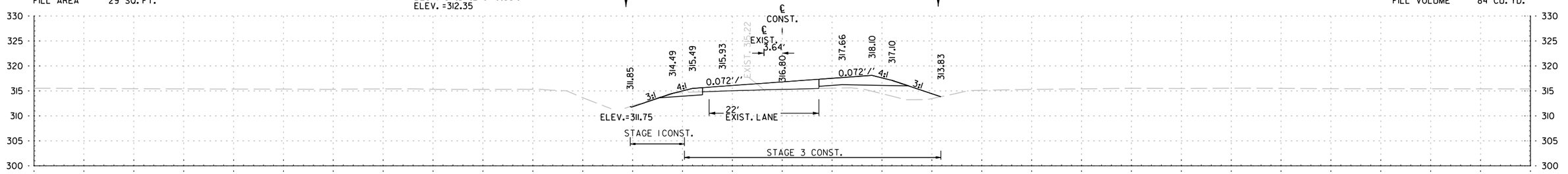
STA. 111+74.00 IN PLACE
18" X 28' C.M. PIPE CULVERT
LT. SIDE DRAIN
REMOVE AND INSTALL
18" X 52' LT. SIDE DRAIN
CONST. APPROACH = 35 CU. YDS.

111+74.00

STA. 111+74.00 CONSTRUCT
APPROACH ON RT. = 520 CU. YDS.

CUT VOLUME 46 CU. YD.
FILL VOLUME 0 CU. YD.
CUT VOLUME 15 CU. YD.
FILL VOLUME 84 CU. YD.

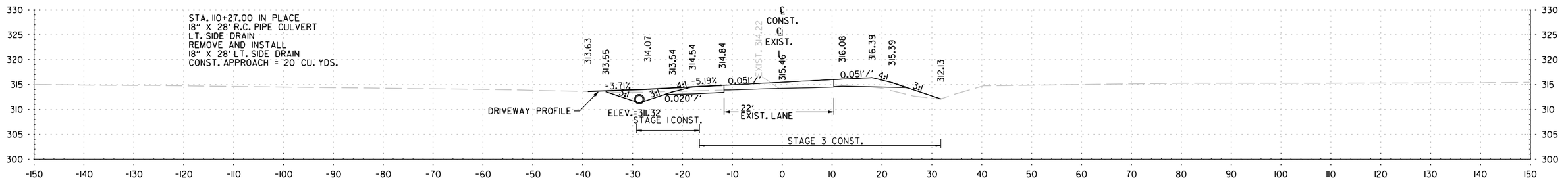
STA. 111+01.00
END SP.DT.LT. 0.60%
BEGIN SP.DT.LT. -0.33%
ELEV. =312.35



CUT AREA 4 SQ. FT.
FILL AREA 0 SQ. FT.
CUT AREA 2 SQ. FT.
FILL AREA 32 SQ. FT.

111+00.00

CUT VOLUME 30 CU. YD.
FILL VOLUME 0 CU. YD.
CUT VOLUME 7 CU. YD.
FILL VOLUME 58 CU. YD.



CUT AREA 18 SQ. FT.
FILL AREA 0 SQ. FT.
CUT AREA 3 SQ. FT.
FILL AREA 10 SQ. FT.

110+27.00

CUT VOLUME 10 CU. YD.
FILL VOLUME 4 CU. YD.
CUT VOLUME 3 CU. YD.
FILL VOLUME 7 CU. YD.

STA. 110+27 TO STA. 112+00

Rajyan.Chowdhury3//2024 2:53:15 PM
WORKSPACE: ARDOT
Y:\Projects\ARDOT_19643_080711_Highway 113 Relocation\Design\CIVIL\Drawings\R080711_CX.dgn
REVISED DATE: $$REVDATE$$

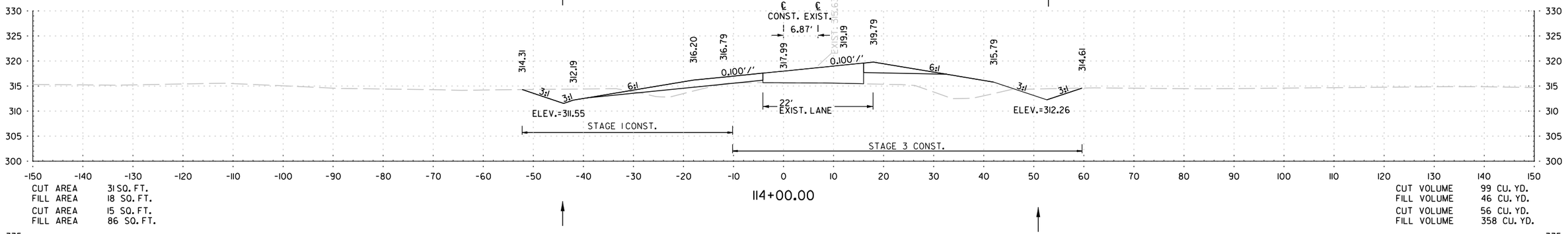
DATE REVISED	DATE REVISED	FED.RD. DIST.NO.	STATE	JOB NO.	SHEET NO.	TOTAL SHEETS
		6	ARK.	080711	75	123
		CROSS SECTIONS				

STAGE 1
STAGE 3

STAGE 1
STAGE 3

STA. 114+26.00
END SP.DT.LT. -0.48%
ELEV. =311.42

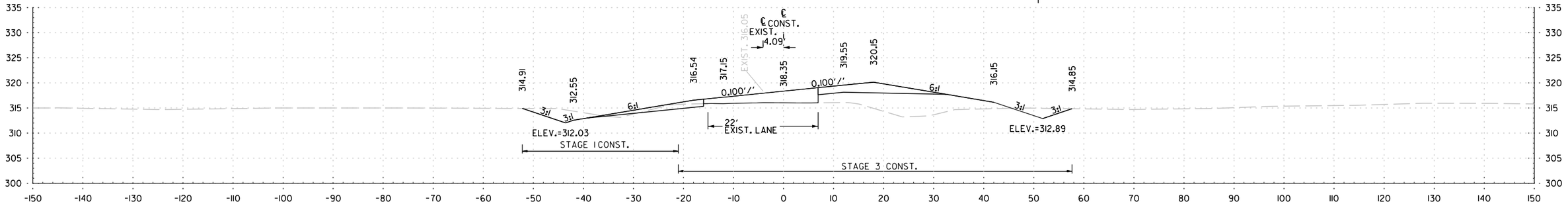
STA. 114+87.00
END SP.DT.RT. -0.63%
BEGIN SP.DT.RT. -0.90%
ELEV. =311.71



CUT AREA 31 SQ. FT.
FILL AREA 18 SQ. FT.
CUT AREA 15 SQ. FT.
FILL AREA 86 SQ. FT.

114+00.00

CUT VOLUME 99 CU. YD.
FILL VOLUME 46 CU. YD.
CUT VOLUME 56 CU. YD.
FILL VOLUME 358 CU. YD.



CUT AREA 22 SQ. FT.
FILL AREA 6 SQ. FT.
CUT AREA 16 SQ. FT.
FILL AREA 107 SQ. FT.

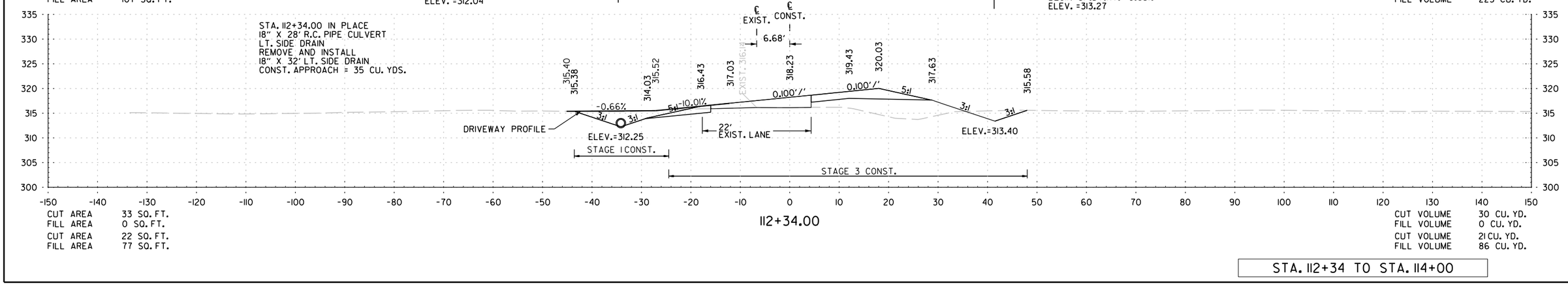
113+00.00

CUT VOLUME 67 CU. YD.
FILL VOLUME 8 CU. YD.
CUT VOLUME 46 CU. YD.
FILL VOLUME 225 CU. YD.

STA. 112+96.00
END SP.DT.LT. -0.33%
BEGIN SP.DT.LT. -0.48%
ELEV. =312.04

STA. 112+39.00
END SP.DT.RT. -2.58%
BEGIN SP.DT.RT. -0.63%
ELEV. =313.27

STA. 112+34.00 IN PLACE
18" X 28' R.C. PIPE CULVERT
LT. SIDE DRAIN
REMOVE AND INSTALL
18" X 32' LT. SIDE DRAIN
CONST. APPROACH = 35 CU. YDS.



CUT AREA 33 SQ. FT.
FILL AREA 0 SQ. FT.
CUT AREA 22 SQ. FT.
FILL AREA 77 SQ. FT.

112+34.00

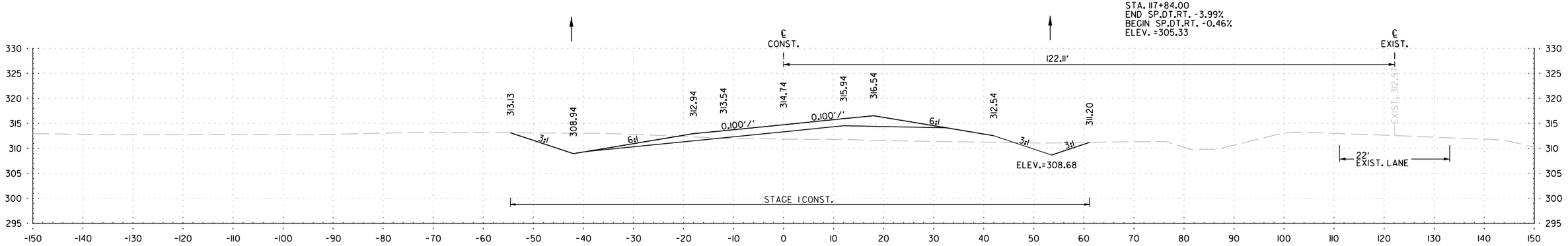
CUT VOLUME 30 CU. YD.
FILL VOLUME 0 CU. YD.
CUT VOLUME 21 CU. YD.
FILL VOLUME 86 CU. YD.

STA. 112+34 TO STA. 114+00

DATE REVISED	DATE REVISED	FED.RD. DIST.NO.	STATE	JOB NO.	SHEET NO.	TOTAL SHEETS
		6	ARK.	080711	76	123
		CROSS SECTIONS				

STAGE 1
STAGE 3

STAGE 1
STAGE 3

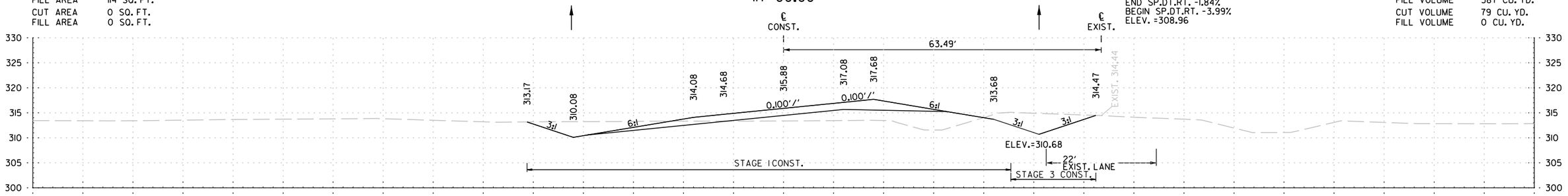


CUT AREA 97 SQ. FT.
FILL AREA 114 SQ. FT.
CUT AREA 0 SQ. FT.
FILL AREA 0 SQ. FT.

117+00.00

STA. 116+93.00
END SP.DT.RT. -1.84%
BEGIN SP.DT.RT. -3.99%
ELEV. =308.96

CUT VOLUME 288 CU. YD.
FILL VOLUME 387 CU. YD.
CUT VOLUME 79 CU. YD.
FILL VOLUME 0 CU. YD.

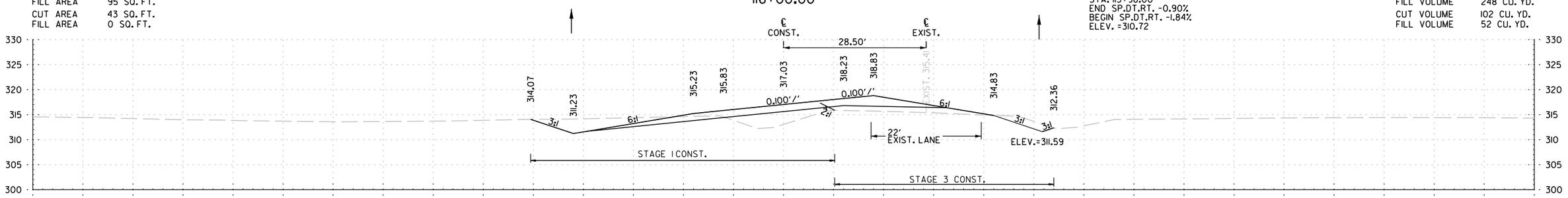


CUT AREA 59 SQ. FT.
FILL AREA 95 SQ. FT.
CUT AREA 43 SQ. FT.
FILL AREA 0 SQ. FT.

116+00.00

STA. 115+98.00
END SP.DT.RT. -0.90%
BEGIN SP.DT.RT. -1.84%
ELEV. =310.72

CUT VOLUME 203 CU. YD.
FILL VOLUME 248 CU. YD.
CUT VOLUME 102 CU. YD.
FILL VOLUME 52 CU. YD.



CUT AREA 51 SQ. FT.
FILL AREA 39 SQ. FT.
CUT AREA 13 SQ. FT.
FILL AREA 28 SQ. FT.

115+00.00

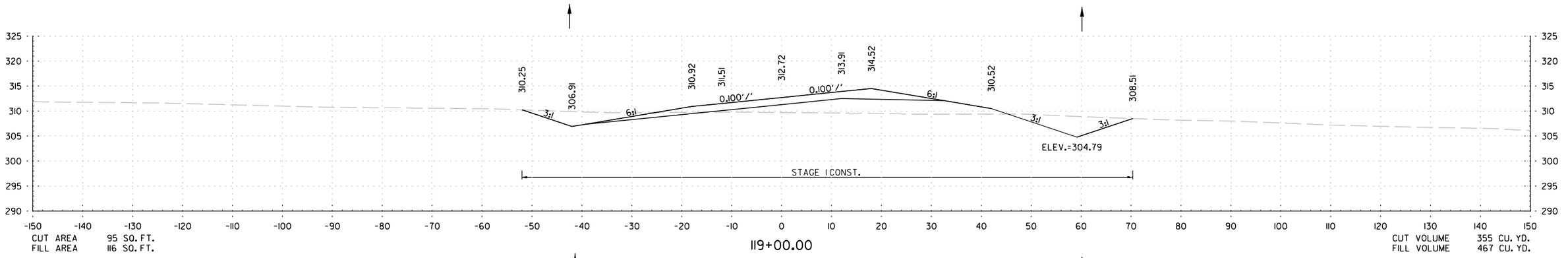
CUT VOLUME 152 CU. YD.
FILL VOLUME 106 CU. YD.
CUT VOLUME 50 CU. YD.
FILL VOLUME 213 CU. YD.

STA. 115+00 TO STA. 117+00

DATE REVISED	DATE REVISED	FED.RD. DIST.NO.	STATE	JOB NO.	SHEET NO.	TOTAL SHEETS
		6	ARK.	080711	77	123
		CROSS SECTIONS				

STAGE I

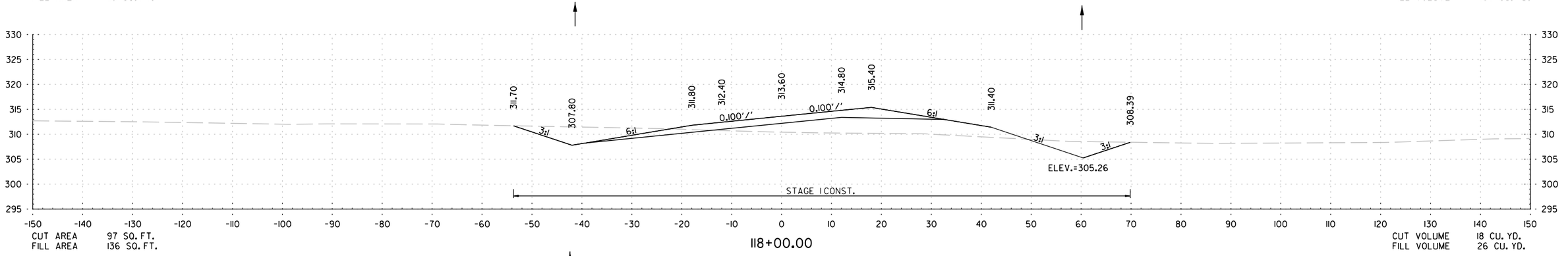
STAGE I



CUT AREA 95 SQ. FT.
FILL AREA 116 SQ. FT.

119+00.00

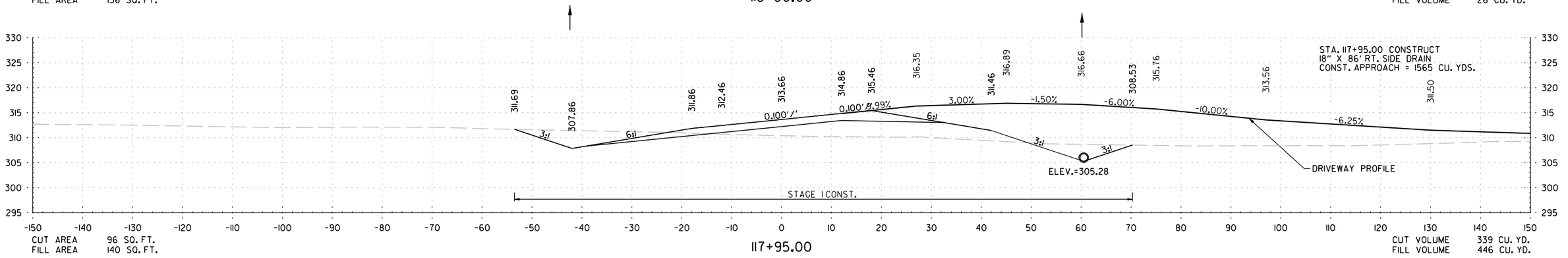
CUT VOLUME 355 CU. YD.
FILL VOLUME 467 CU. YD.



CUT AREA 97 SQ. FT.
FILL AREA 136 SQ. FT.

118+00.00

CUT VOLUME 18 CU. YD.
FILL VOLUME 26 CU. YD.



CUT AREA 96 SQ. FT.
FILL AREA 140 SQ. FT.

117+95.00

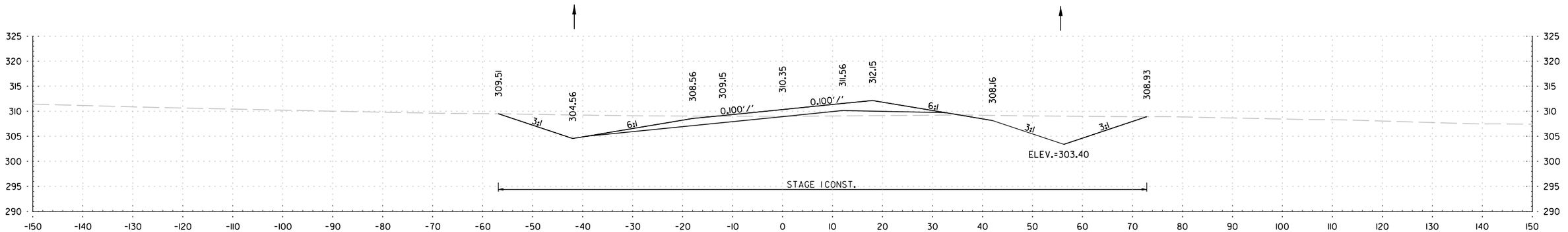
CUT VOLUME 339 CU. YD.
FILL VOLUME 446 CU. YD.

STA. 117+95 TO STA. 119+00

DATE REVISED	DATE REVISED	FED.RD. DIST.NO.	STATE	JOB NO.	SHEET NO.	TOTAL SHEETS
		6	ARK.	080711	78	123
		CROSS SECTIONS				

STAGE I

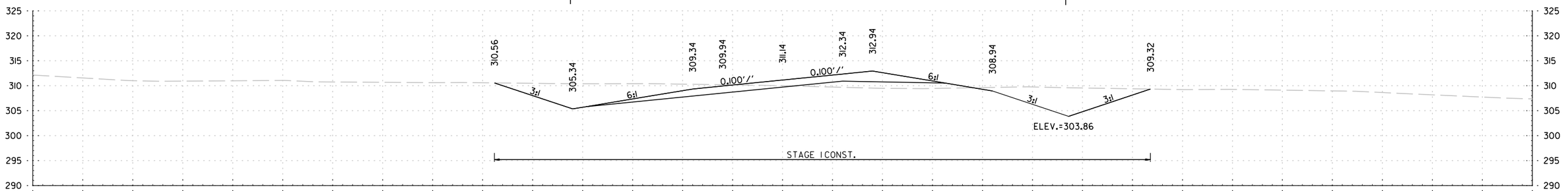
STAGE I



CUT AREA 218 SQ. FT.
FILL AREA 23 SQ. FT.

122+00.00

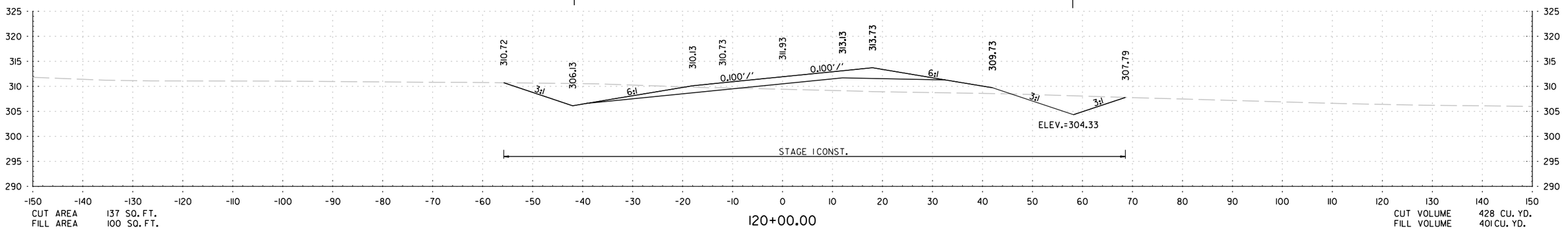
CUT VOLUME 852 CU. YD.
FILL VOLUME 106 CU. YD.



CUT AREA 241 SQ. FT.
FILL AREA 34 SQ. FT.

121+00.00

CUT VOLUME 700 CU. YD.
FILL VOLUME 249 CU. YD.



CUT AREA 137 SQ. FT.
FILL AREA 100 SQ. FT.

120+00.00

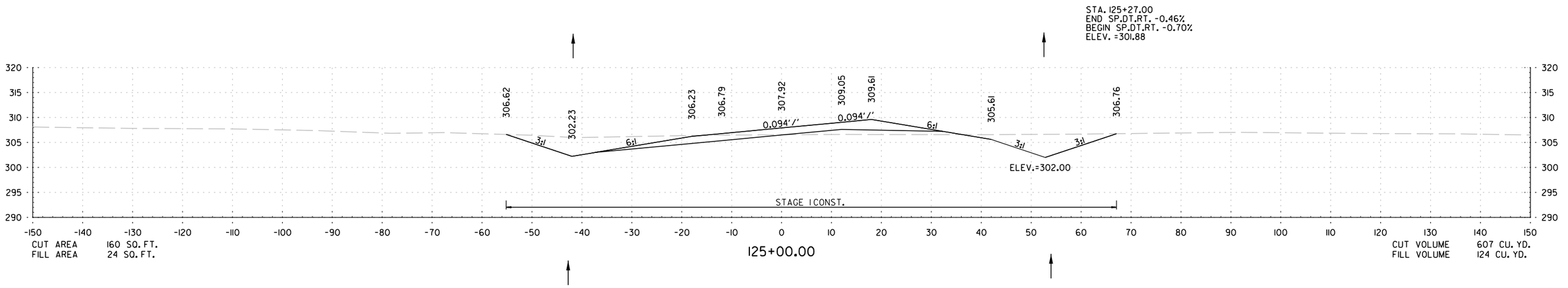
CUT VOLUME 428 CU. YD.
FILL VOLUME 401 CU. YD.

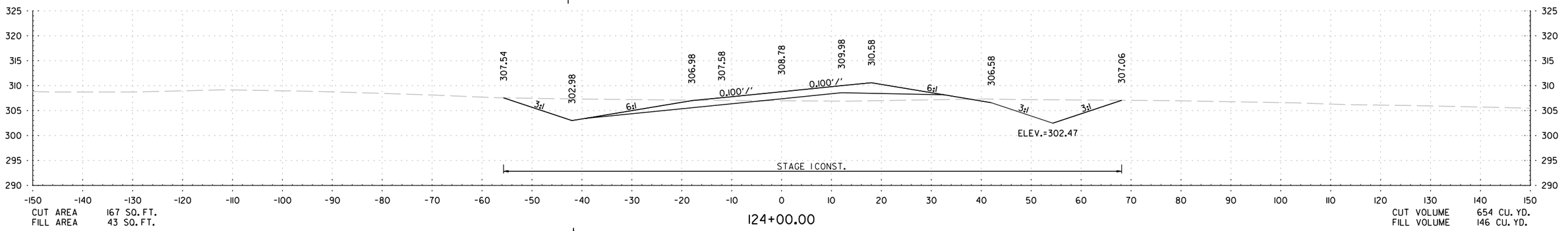
STA. 120+00 TO STA. 122+00

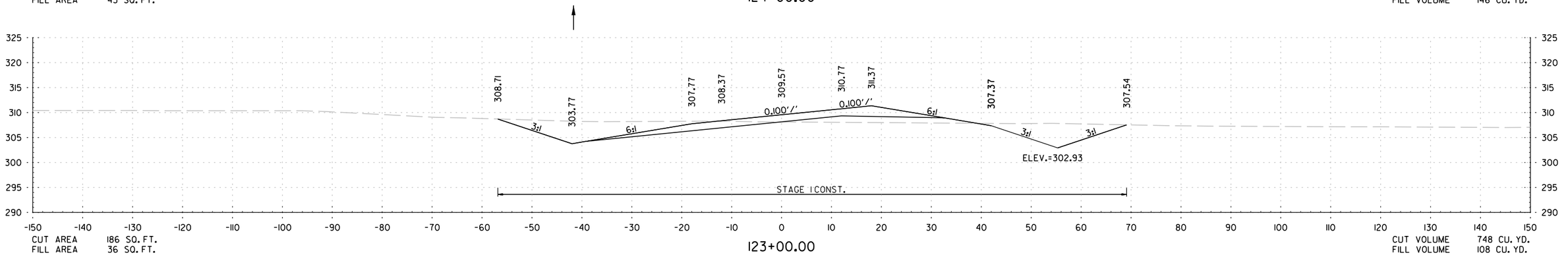
DATE REVISED	DATE REVISED	FED.RD. DIST.NO.	STATE	JOB NO.	SHEET NO.	TOTAL SHEETS
		6	ARK.	080711	79	123
		CROSS SECTIONS				

STAGE I

STAGE I





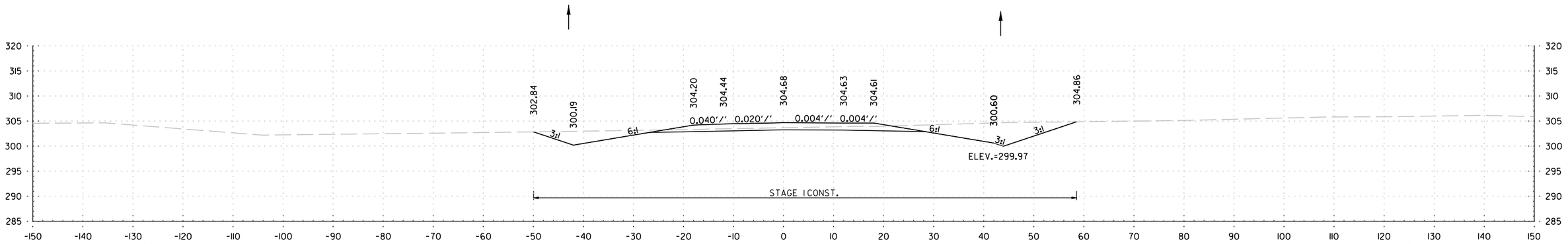


STA. 123+00 TO STA. 125+00

DATE REVISED	DATE REVISED	FED.RD. DIST.NO.	STATE	JOB NO.	SHEET NO.	TOTAL SHEETS
		6	ARK.	080711	80	123
		CROSS SECTIONS				

STAGE I

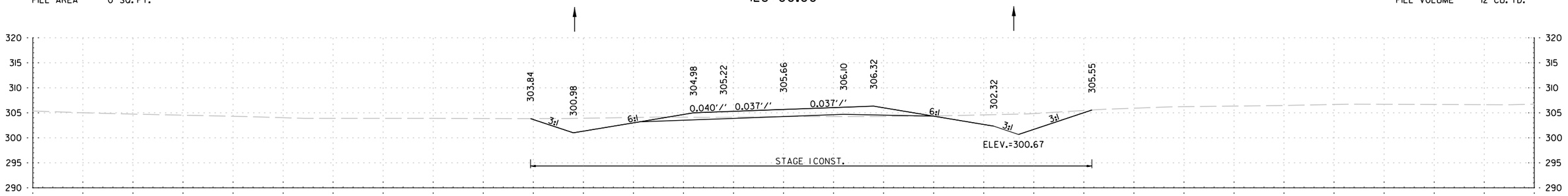
STAGE I



CUT AREA 149 SQ. FT.
FILL AREA 0 SQ. FT.

128+00.00

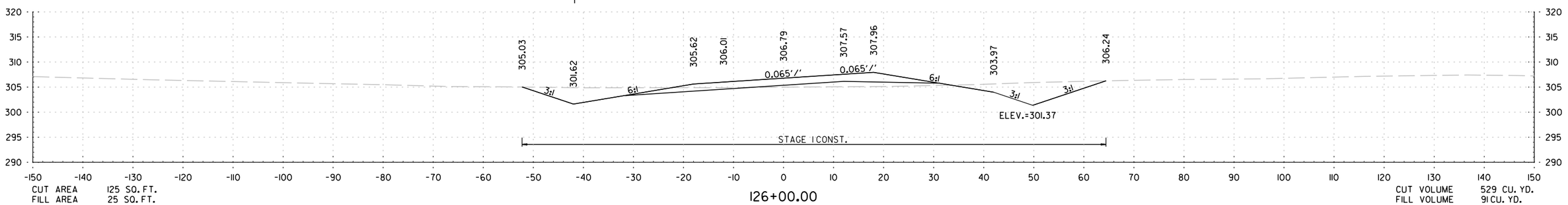
CUT VOLUME 476 CU. YD.
FILL VOLUME 12 CU. YD.



CUT AREA 108 SQ. FT.
FILL AREA 7 SQ. FT.

127+00.00

CUT VOLUME 432 CU. YD.
FILL VOLUME 60 CU. YD.



CUT AREA 125 SQ. FT.
FILL AREA 25 SQ. FT.

126+00.00

CUT VOLUME 529 CU. YD.
FILL VOLUME 91 CU. YD.

STA. 126+00 TO STA. 128+00

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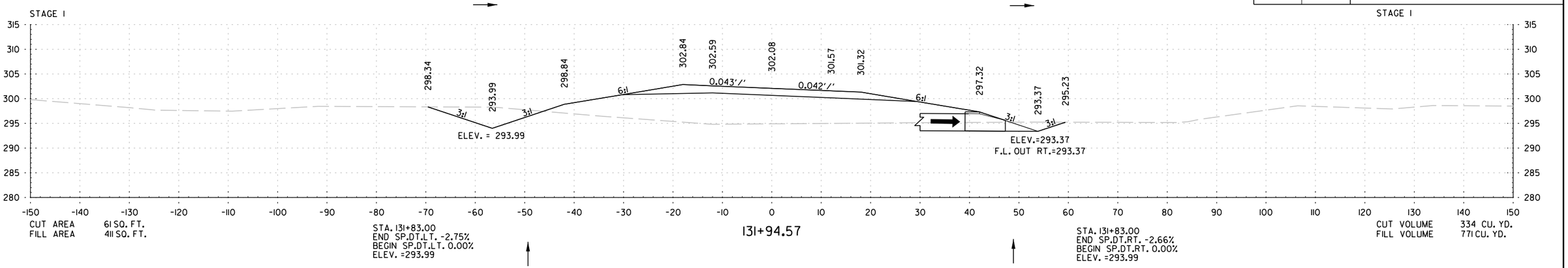
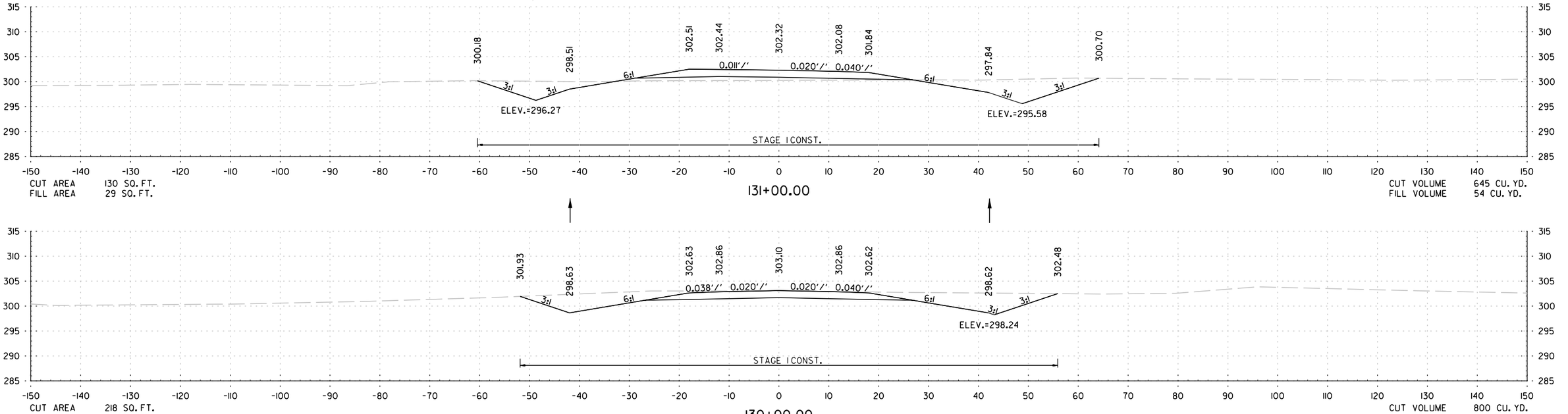
WORKSPACE: ARDOT
Y:\Projects\ARDOT_19643_080711_Highway 113 Relocation\Design\CIVIL\Drawings\R080711_CX.dgn
REVISED DATE: $$REVDATE$$

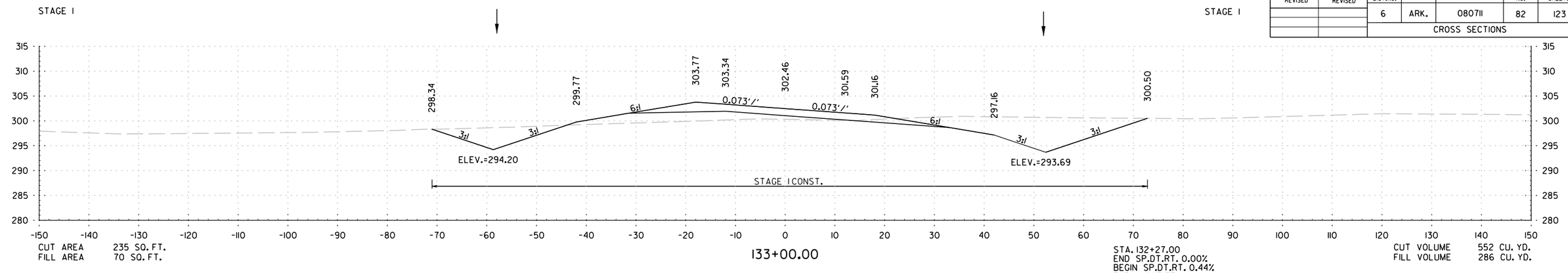
DATE REVISED	DATE REVISED	FED.RD. DIST.NO.	STATE	JOB NO.	SHEET NO.	TOTAL SHEETS
		6	ARK.	080711	81	123
		CROSS SECTIONS				





STA. 129+00 TO STA. 131+00

DATE REVISED	DATE REVISED	FED.RD. DIST.NO.	STATE	JOB NO.	SHEET NO.	TOTAL SHEETS
		6	ARK.	080711	82	123
		CROSS SECTIONS				

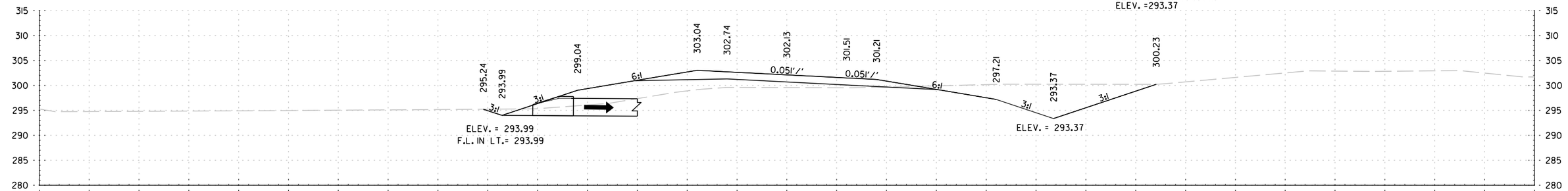


CUT AREA 235 SQ. FT.
FILL AREA 70 SQ. FT.

133+00.00

STA. 132+27.00
END SP.DT.RT. 0.00%
BEGIN SP.DT.RT. 0.44%
ELEV. =293.37

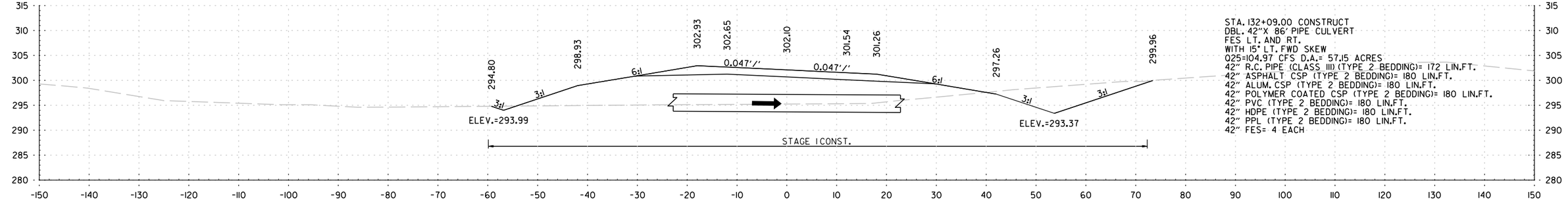
CUT VOLUME 552 CU. YD.
FILL VOLUME 286 CU. YD.



CUT AREA 159 SQ. FT.
FILL AREA 134 SQ. FT.

132+24.31

CUT VOLUME 71 CU. YD.
FILL VOLUME 153 CU. YD.



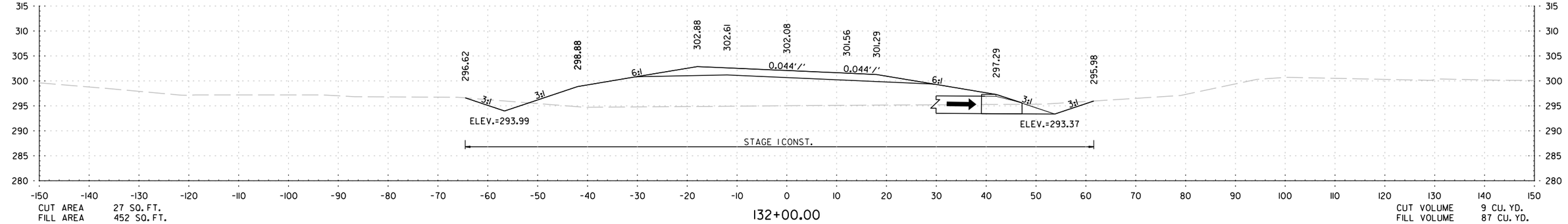
CUT AREA 92 SQ. FT.
FILL AREA 404 SQ. FT.

132+09.00

STA. 132+09.00 CONSTRUCT
DBL. 42"X 86' PIPE CULVERT
FES LT. AND RT.
WITH 15° LT. FWD SKEW
Q25=104.97 CFS D.A.= 57.15 ACRES
42" R.C. PIPE (CLASS III) (TYPE 2 BEDDING)= 172 LIN.FT.
42" ASPHALT CSP (TYPE 2 BEDDING)= 180 LIN.FT.
42" ALUM. CSP (TYPE 2 BEDDING)= 180 LIN.FT.
42" POLYMER COATED CSP (TYPE 2 BEDDING)= 180 LIN.FT.
42" PVC (TYPE 2 BEDDING)= 180 LIN.FT.
42" HDPE (TYPE 2 BEDDING)= 180 LIN.FT.
42" PPL (TYPE 2 BEDDING)= 180 LIN.FT.
42" FES= 4 EACH

CUT VOLUME 20 CU. YD.
FILL VOLUME 143 CU. YD.

STA. 132+27.00
END SP.DT.LT. 0.00%
BEGIN SP.DT.LT. 0.31%
ELEV. =293.99



CUT AREA 27 SQ. FT.
FILL AREA 452 SQ. FT.

132+00.00

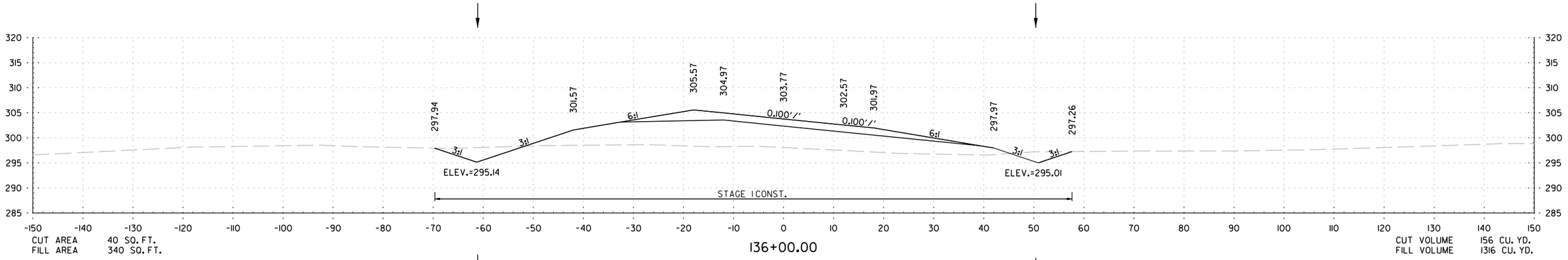
CUT VOLUME 9 CU. YD.
FILL VOLUME 87 CU. YD.

STA. 132+00 TO STA. 133+00

DATE REVISED	DATE REVISED	FED.RD. DIST.NO.	STATE	JOB NO.	SHEET NO.	TOTAL SHEETS
		6	ARK.	080711	83	123
		CROSS SECTIONS				

STAGE I

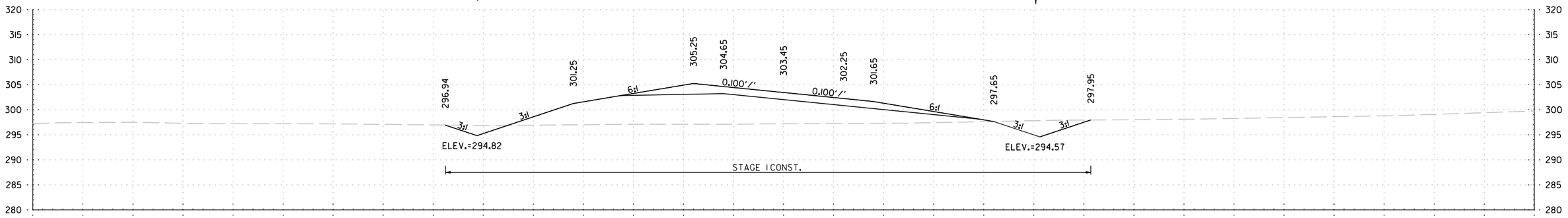
STAGE I



CUT AREA 40 SQ. FT.
FILL AREA 340 SQ. FT.

136+00.00

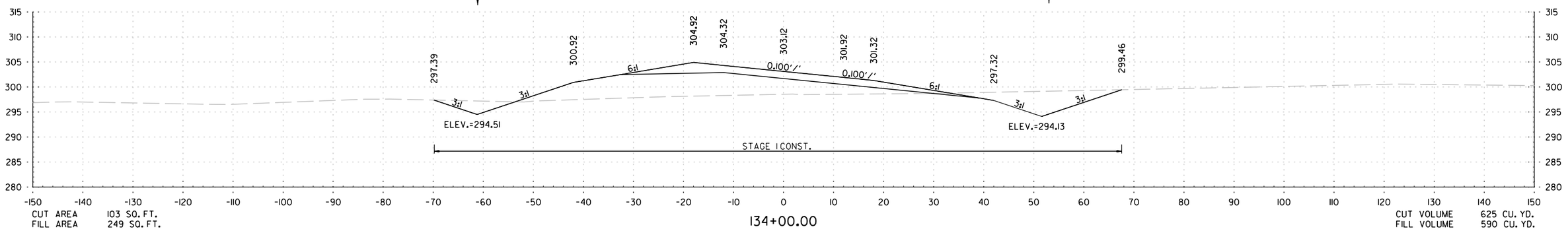
CUT VOLUME 156 CU. YD.
FILL VOLUME 1316 CU. YD.



CUT AREA 45 SQ. FT.
FILL AREA 371 SQ. FT.

135+00.00

CUT VOLUME 273 CU. YD.
FILL VOLUME 1148 CU. YD.



CUT AREA 103 SQ. FT.
FILL AREA 249 SQ. FT.

134+00.00

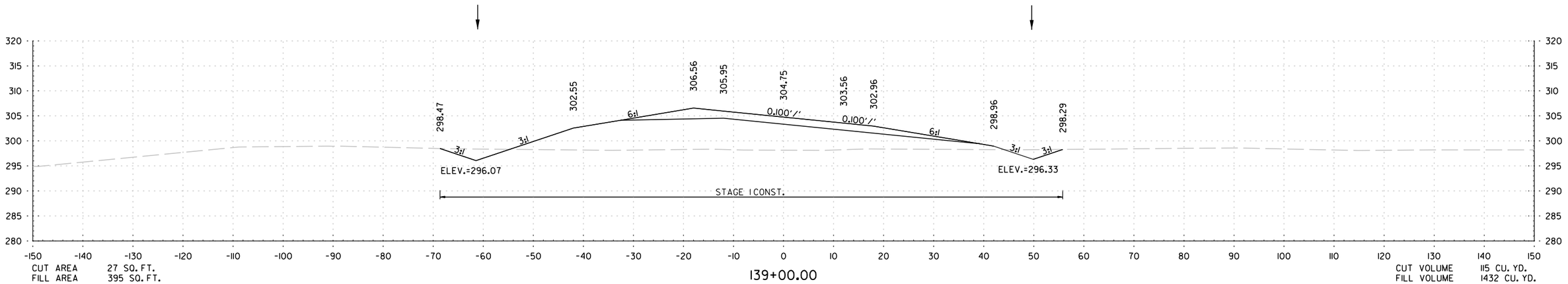
CUT VOLUME 625 CU. YD.
FILL VOLUME 590 CU. YD.

STA. 134+00 TO STA. 136+00

DATE REVISED	DATE REVISED	FED.RD. DIST.NO.	STATE	JOB NO.	SHEET NO.	TOTAL SHEETS
		6	ARK.	080711	84	123
		CROSS SECTIONS				

STAGE I

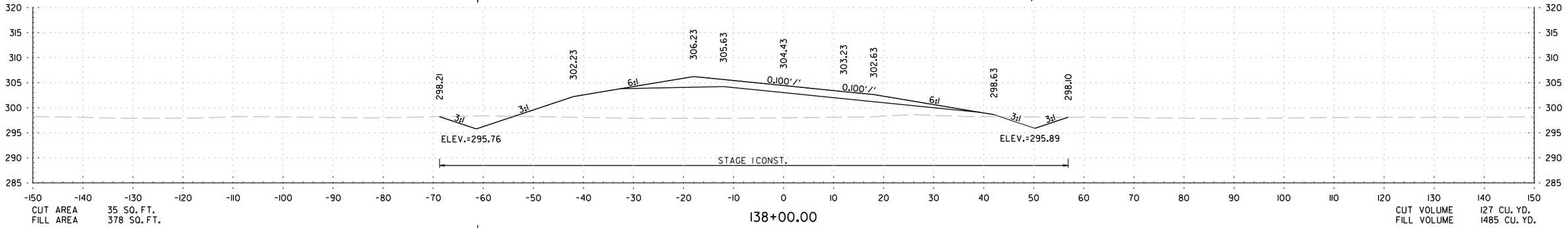
STAGE I



CUT AREA 27 SQ. FT.
FILL AREA 395 SQ. FT.

139+00.00

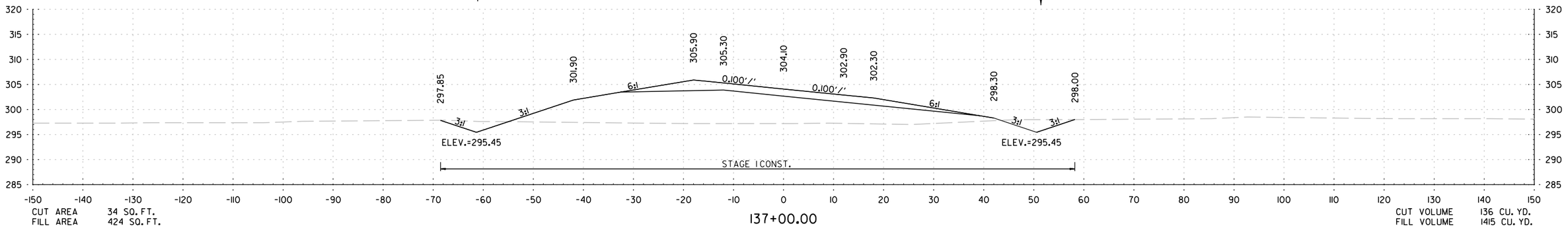
CUT VOLUME 115 CU. YD.
FILL VOLUME 1432 CU. YD.



CUT AREA 35 SQ. FT.
FILL AREA 378 SQ. FT.

138+00.00

CUT VOLUME 127 CU. YD.
FILL VOLUME 1485 CU. YD.



CUT AREA 34 SQ. FT.
FILL AREA 424 SQ. FT.

137+00.00

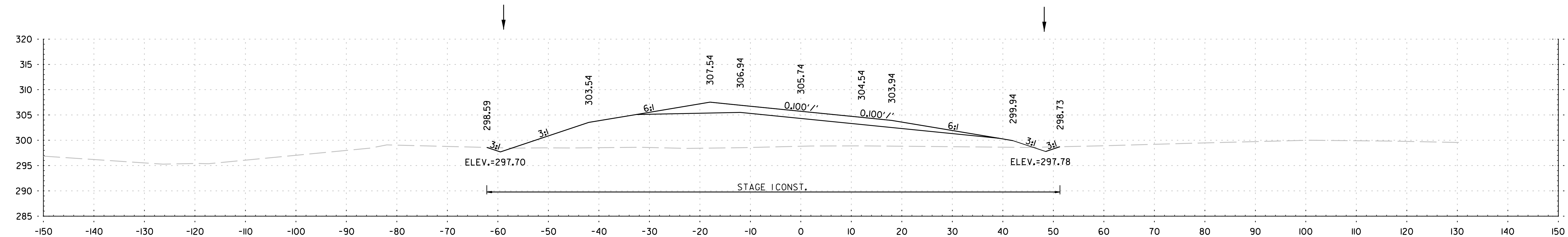
CUT VOLUME 136 CU. YD.
FILL VOLUME 1415 CU. YD.

STA. 137+00 TO STA. 139+00

DATE REVISED	DATE REVISED	FED.RD. DIST.NO.	STATE	JOB NO.	SHEET NO.	TOTAL SHEETS
		6	ARK.	080711	85	123
		CROSS SECTIONS				

STAGE I

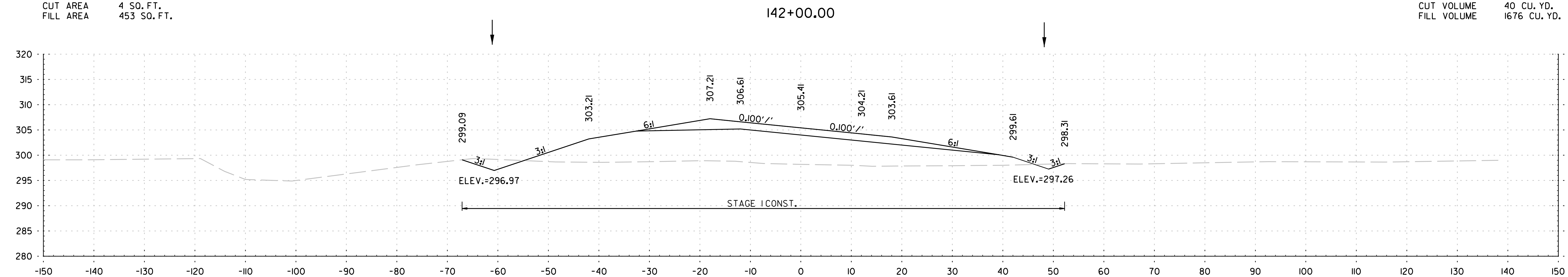
STAGE I



CUT AREA 4 SQ.FT.
FILL AREA 453 SQ.FT.

142+00.00

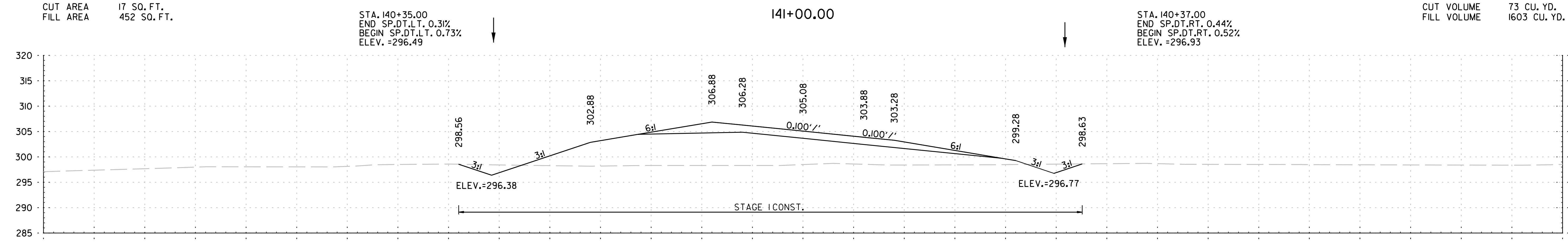
CUT VOLUME 40 CU.YD.
FILL VOLUME 1676 CU.YD.



CUT AREA 17 SQ.FT.
FILL AREA 452 SQ.FT.

141+00.00

CUT VOLUME 73 CU.YD.
FILL VOLUME 1603 CU.YD.



CUT AREA 23 SQ.FT.
FILL AREA 414 SQ.FT.

140+00.00

CUT VOLUME 92 CU.YD.
FILL VOLUME 1499 CU.YD.

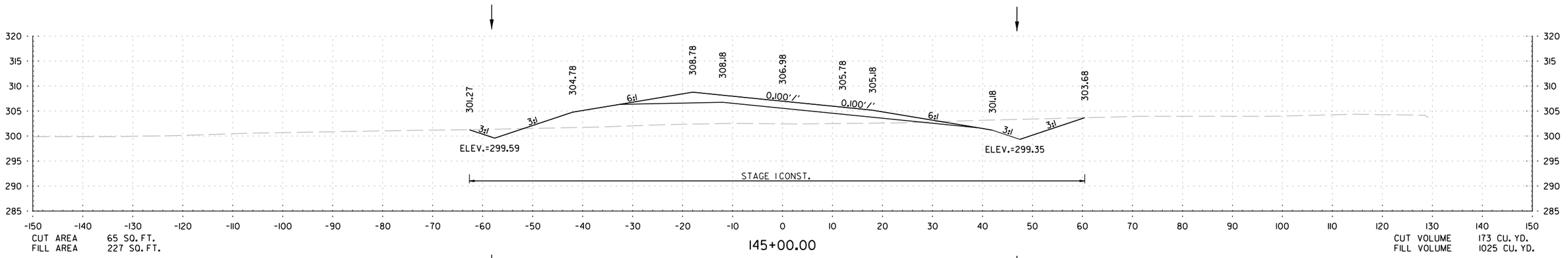
STA. 140+00 TO STA. 142+00

Raiyan.Chowdhury 3/1/2024 2:53:23 PM
WORKSPACE: ARDOT
Y:\Projects\ARDOT_19643_080711_Highway 113 Relocation\Design\CIVIL\Drawings\R080711_CX.dgn
REVISED DATE: $$REVDATE$$

DATE REVISED	DATE REVISED	FED.RD. DIST.NO.	STATE	JOB NO.	SHEET NO.	TOTAL SHEETS
		6	ARK.	080711	86	123
		CROSS SECTIONS				

STAGE I

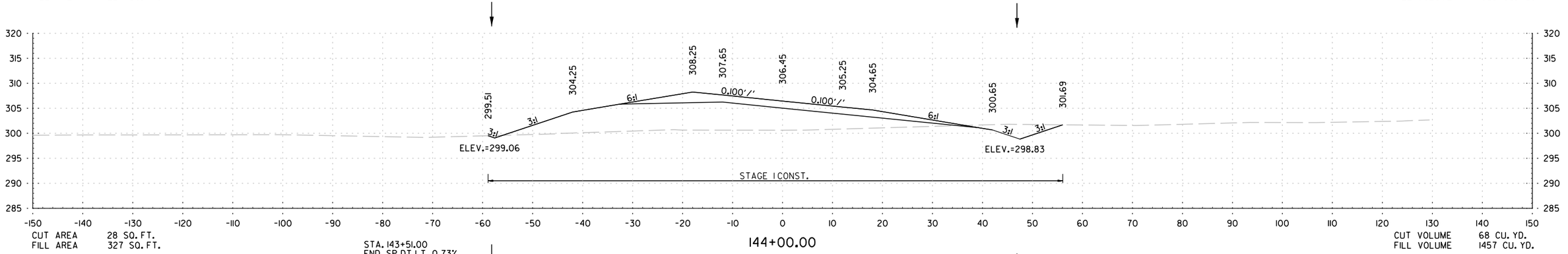
STAGE I



CUT AREA 65 SQ. FT.
FILL AREA 227 SQ. FT.

145+00.00

CUT VOLUME 173 CU. YD.
FILL VOLUME 1025 CU. YD.

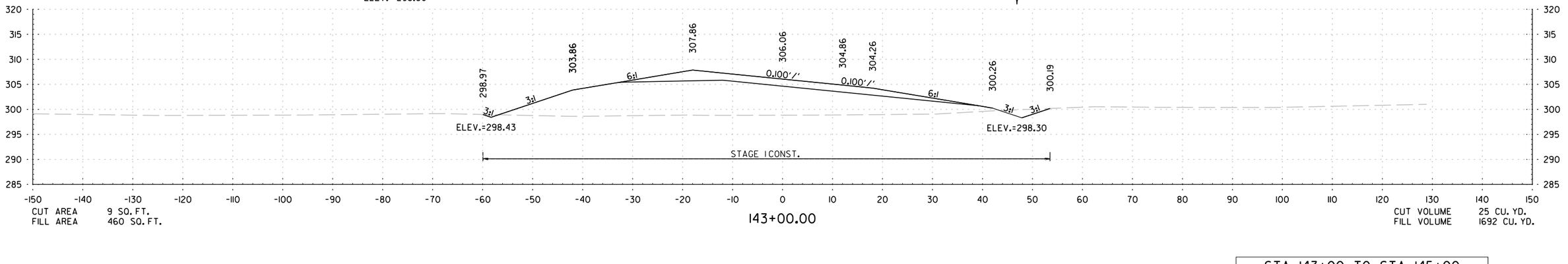


CUT AREA 28 SQ. FT.
FILL AREA 327 SQ. FT.

144+00.00

CUT VOLUME 68 CU. YD.
FILL VOLUME 1457 CU. YD.

STA. 143+51.00
END SP.DT.LT. 0.73%
BEGIN SP.DT.LT. 0.53%
ELEV. =298.80



CUT AREA 9 SQ. FT.
FILL AREA 460 SQ. FT.

143+00.00

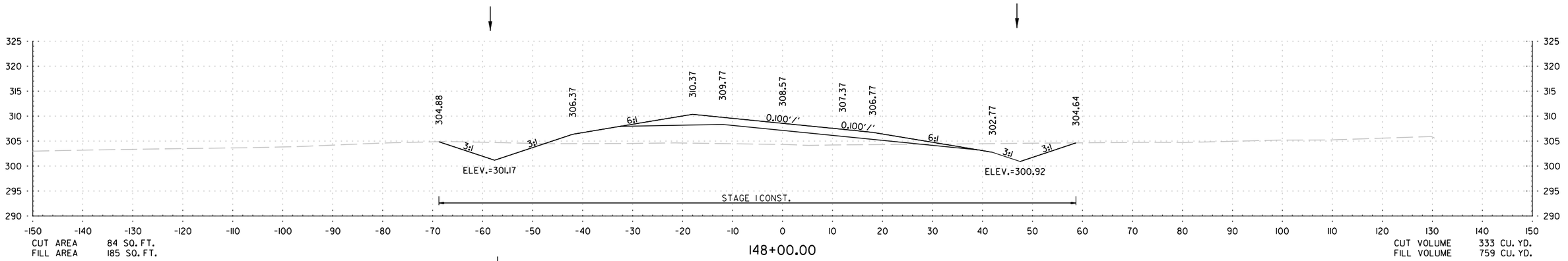
CUT VOLUME 25 CU. YD.
FILL VOLUME 1692 CU. YD.

STA. 143+00 TO STA. 145+00

DATE REVISED	DATE REVISED	FED.RD. DIST.NO.	STATE	JOB NO.	SHEET NO.	TOTAL SHEETS
		6	ARK.	080711	87	123
		CROSS SECTIONS				

STAGE I

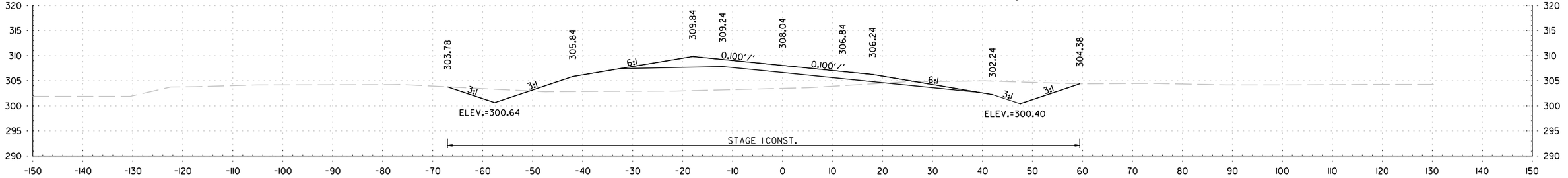
STAGE I



CUT AREA 84 SQ. FT.
FILL AREA 185 SQ. FT.

148+00.00

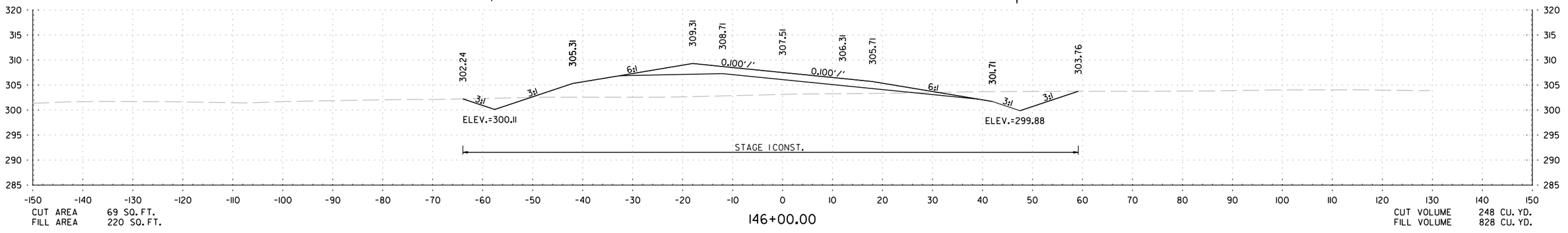
CUT VOLUME 333 CU. YD.
FILL VOLUME 759 CU. YD.



CUT AREA 96 SQ. FT.
FILL AREA 225 SQ. FT.

147+00.00

CUT VOLUME 305 CU. YD.
FILL VOLUME 823 CU. YD.



CUT AREA 69 SQ. FT.
FILL AREA 220 SQ. FT.

146+00.00

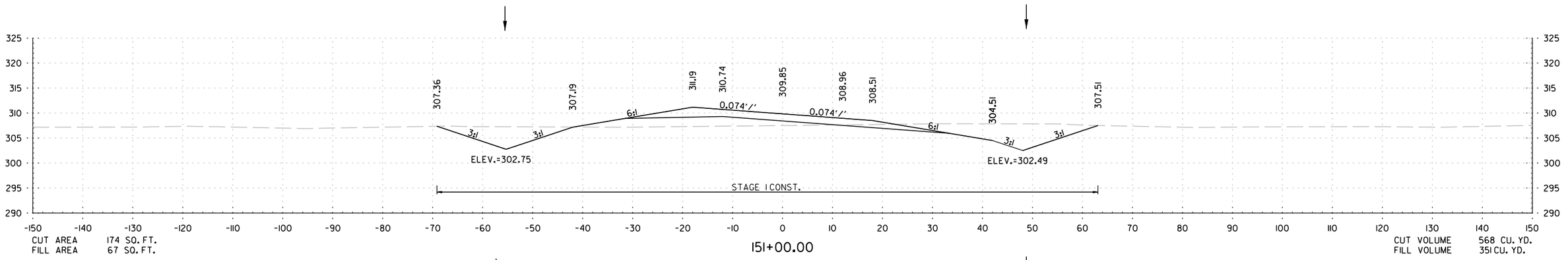
CUT VOLUME 248 CU. YD.
FILL VOLUME 828 CU. YD.

STA. 146+00 TO STA. 148+00

DATE REVISED	DATE REVISED	FED.RD. DIST.NO.	STATE	JOB NO.	SHEET NO.	TOTAL SHEETS
		6	ARK.	080711	88	123
		CROSS SECTIONS				

STAGE I

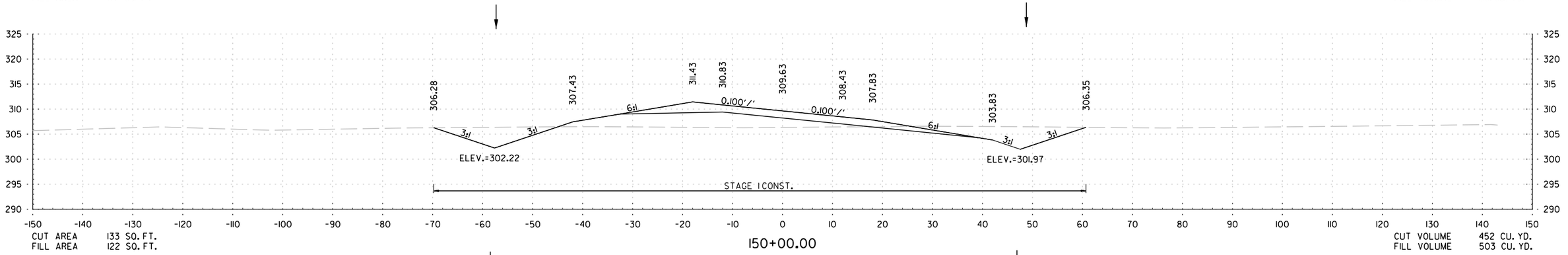
STAGE I



CUT AREA 174 SQ. FT.
FILL AREA 67 SQ. FT.

151+00.00

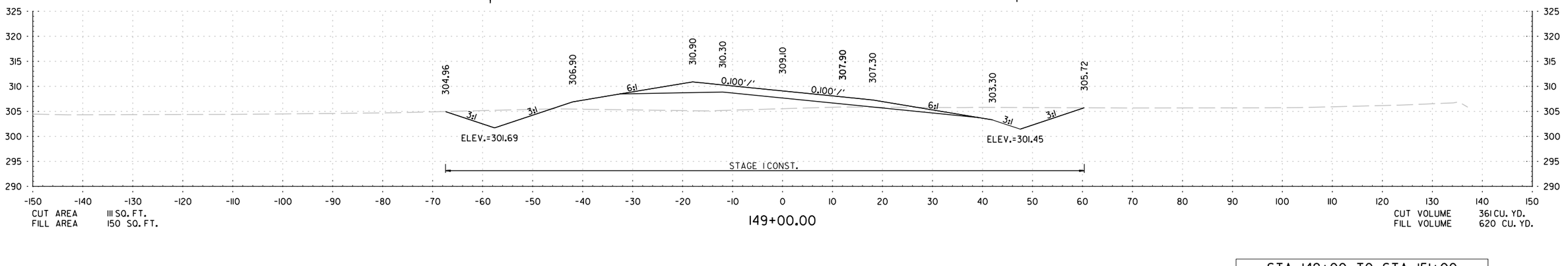
CUT VOLUME 568 CU. YD.
FILL VOLUME 351 CU. YD.



CUT AREA 133 SQ. FT.
FILL AREA 122 SQ. FT.

150+00.00

CUT VOLUME 452 CU. YD.
FILL VOLUME 503 CU. YD.



CUT AREA 111 SQ. FT.
FILL AREA 150 SQ. FT.

149+00.00

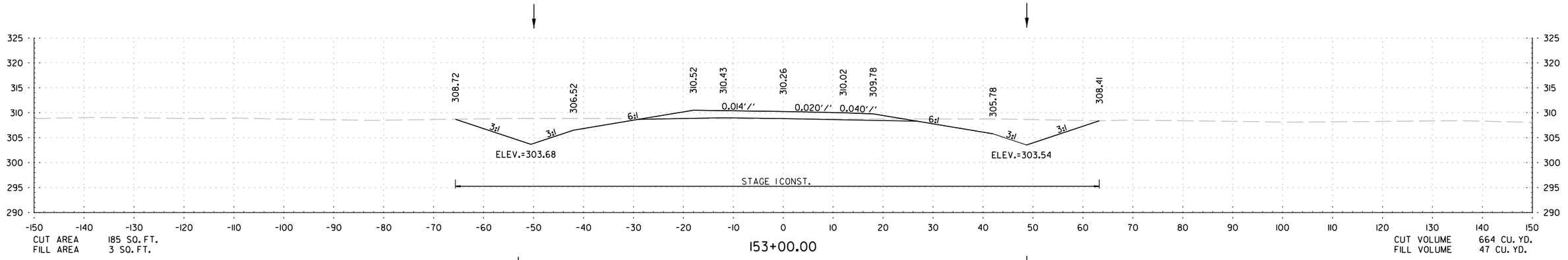
CUT VOLUME 361 CU. YD.
FILL VOLUME 620 CU. YD.

STA. 149+00 TO STA. 151+00

DATE REVISED	DATE REVISED	FED.RD. DIST.NO.	STATE	JOB NO.	SHEET NO.	TOTAL SHEETS
		6	ARK.	080711	89	123
		CROSS SECTIONS				

STAGE I

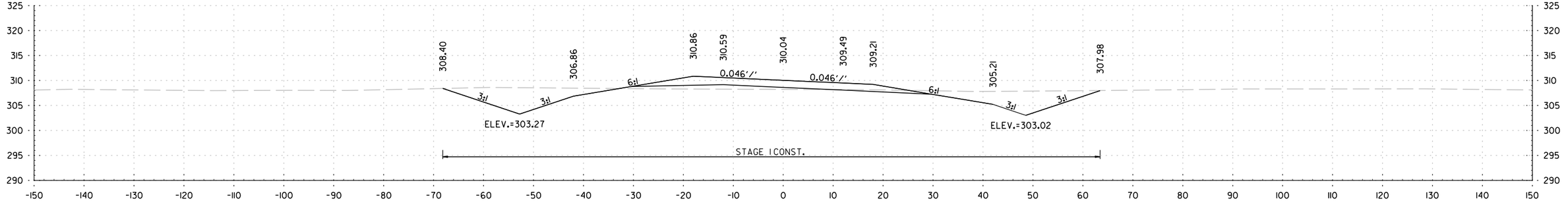
STAGE I



CUT AREA 185 SQ. FT.
FILL AREA 3 SQ. FT.

153+00.00

CUT VOLUME 664 CU. YD.
FILL VOLUME 47 CU. YD.

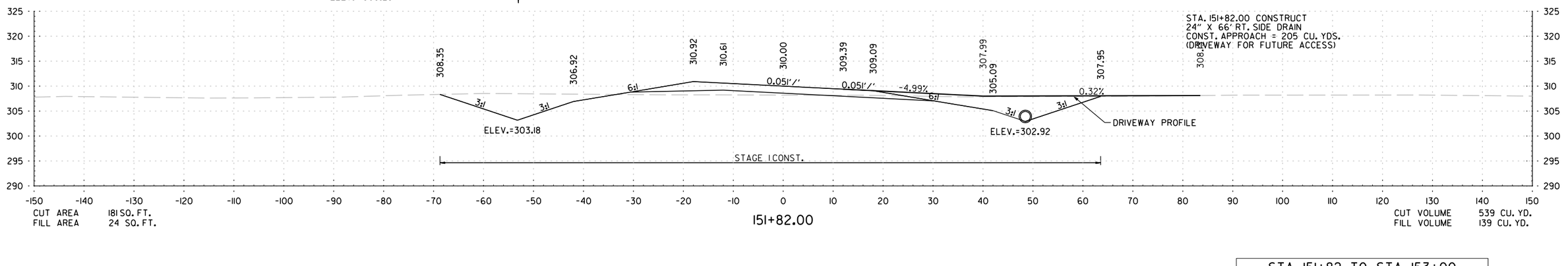


CUT AREA 174 SQ. FT.
FILL AREA 23 SQ. FT.

STA. 151+95.00
END SP.DT.LT. 0.53%
BEGIN SP.DT.LT. 0.41%
ELEV. =303.25

152+00.00

CUT VOLUME 118 CU. YD.
FILL VOLUME 16 CU. YD.



STA. 151+82.00 CONSTRUCT
24" X 66' RT. SIDE DRAIN
CONST. APPROACH = 205 CU. YDS.
(DRIVEWAY FOR FUTURE ACCESS)

CUT AREA 181 SQ. FT.
FILL AREA 24 SQ. FT.

151+82.00

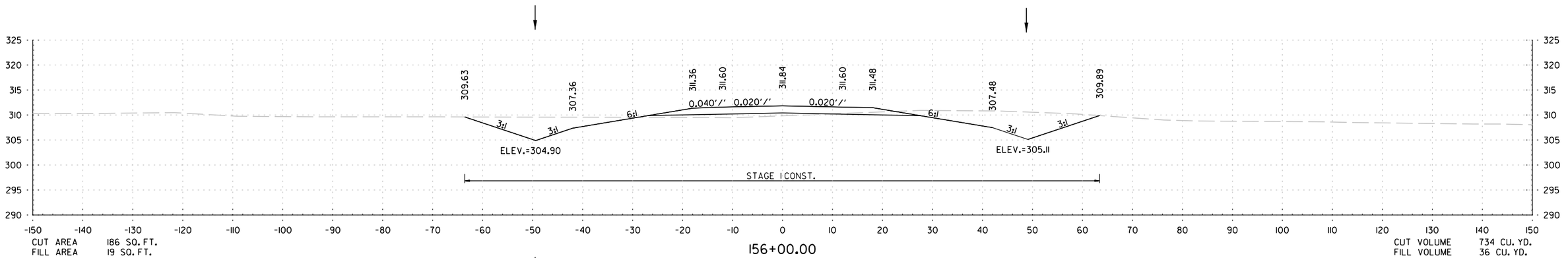
CUT VOLUME 539 CU. YD.
FILL VOLUME 139 CU. YD.

STA. 151+82 TO STA. 153+00

DATE REVISED	DATE REVISED	FED.RD. DIST.NO.	STATE	JOB NO.	SHEET NO.	TOTAL SHEETS
		6	ARK.	080711	90	123
		CROSS SECTIONS				

STAGE I

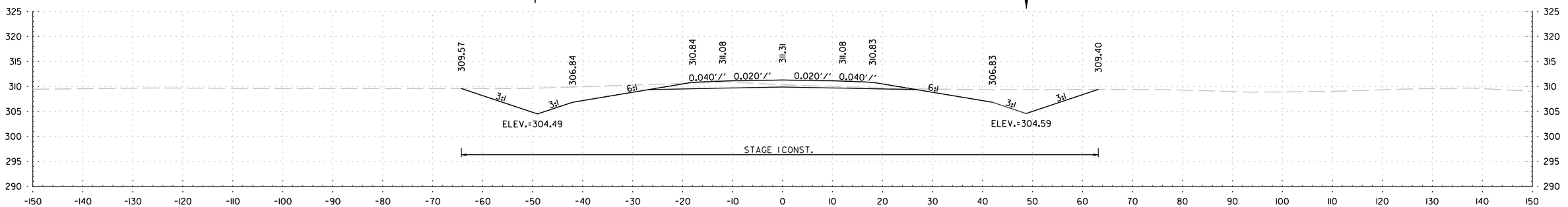
STAGE I



CUT AREA 186 SQ. FT.
FILL AREA 19 SQ. FT.

156+00.00

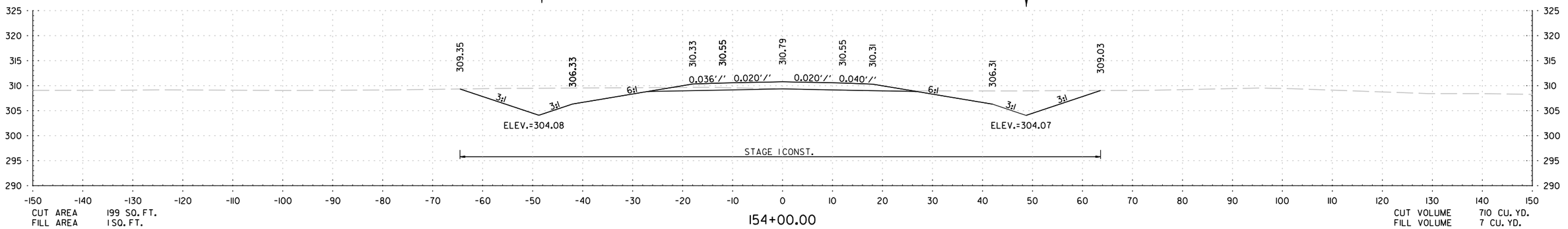
CUT VOLUME 734 CU. YD.
FILL VOLUME 36 CU. YD.



CUT AREA 211 SQ. FT.
FILL AREA 0 SQ. FT.

155+00.00

CUT VOLUME 758 CU. YD.
FILL VOLUME 1 CU. YD.



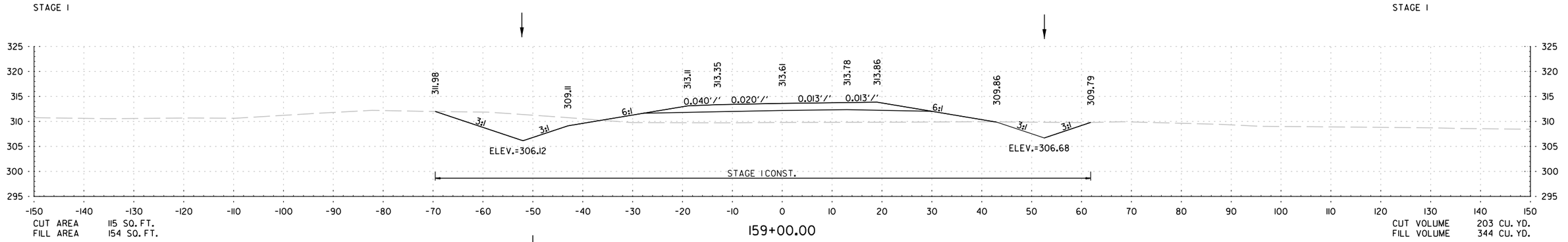
CUT AREA 199 SQ. FT.
FILL AREA 1 SQ. FT.

154+00.00

CUT VOLUME 710 CU. YD.
FILL VOLUME 7 CU. YD.

STA. 154+00 TO STA. 156+00

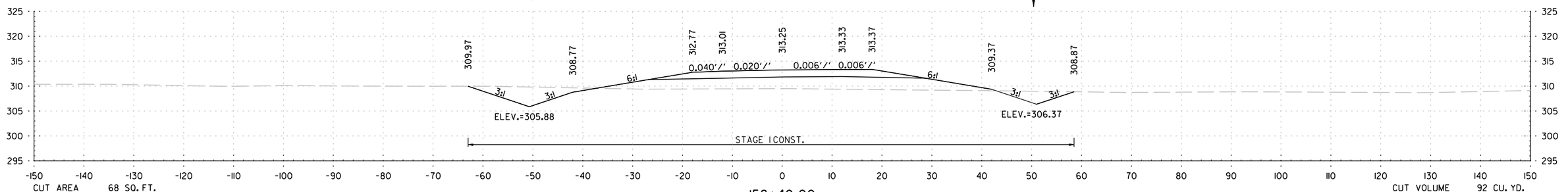
DATE REVISED	DATE REVISED	FED.RD. DIST.NO.	STATE	JOB NO.	SHEET NO.	TOTAL SHEETS
		6	ARK.	080711	91	123
		CROSS SECTIONS				



CUT AREA 115 SQ. FT.
FILL AREA 154 SQ. FT.

159+00.00

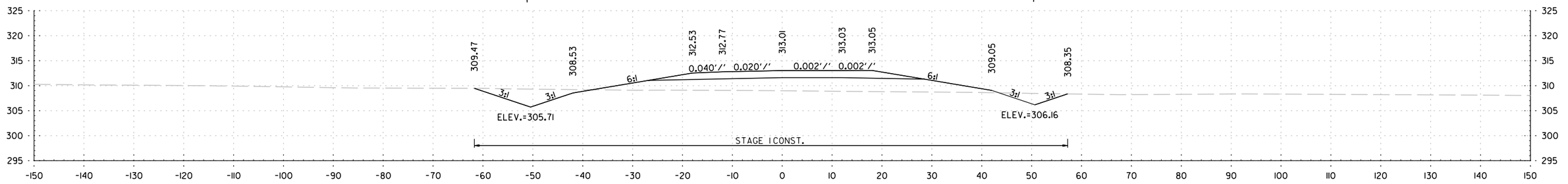
CUT VOLUME 203 CU. YD.
FILL VOLUME 344 CU. YD.



CUT AREA 68 SQ. FT.
FILL AREA 155 SQ. FT.

158+40.00

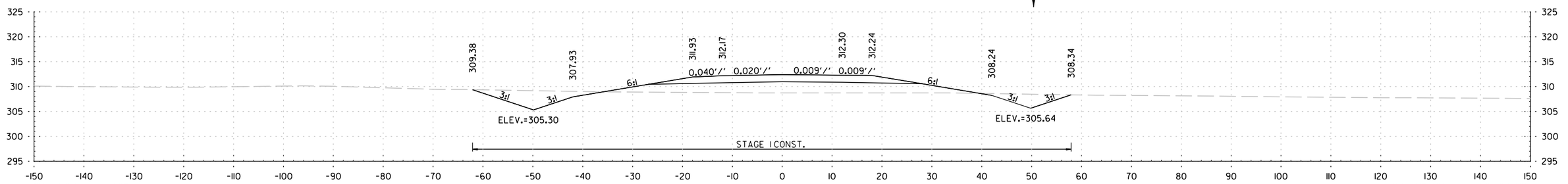
CUT VOLUME 92 CU. YD.
FILL VOLUME 240 CU. YD.



CUT AREA 56 SQ. FT.
FILL AREA 169 SQ. FT.

158+00.00

CUT VOLUME 234 CU. YD.
FILL VOLUME 550 CU. YD.



CUT AREA 71 SQ. FT.
FILL AREA 128 SQ. FT.

157+00.00

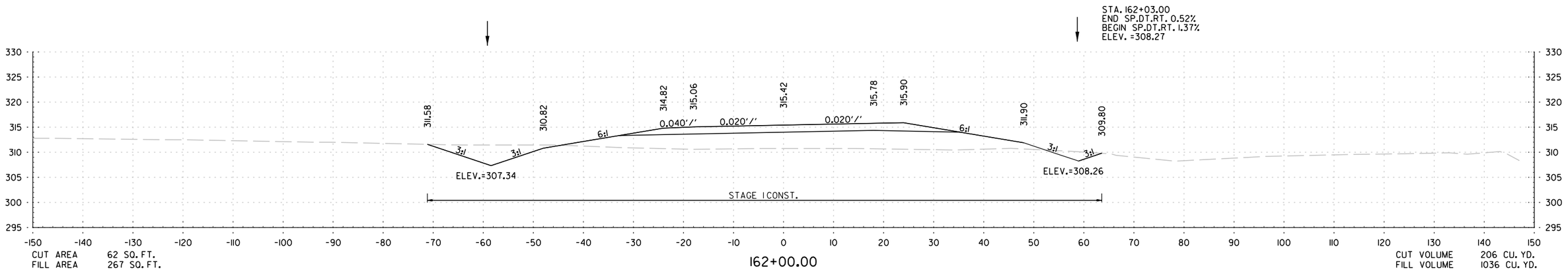
CUT VOLUME 475 CU. YD.
FILL VOLUME 273 CU. YD.

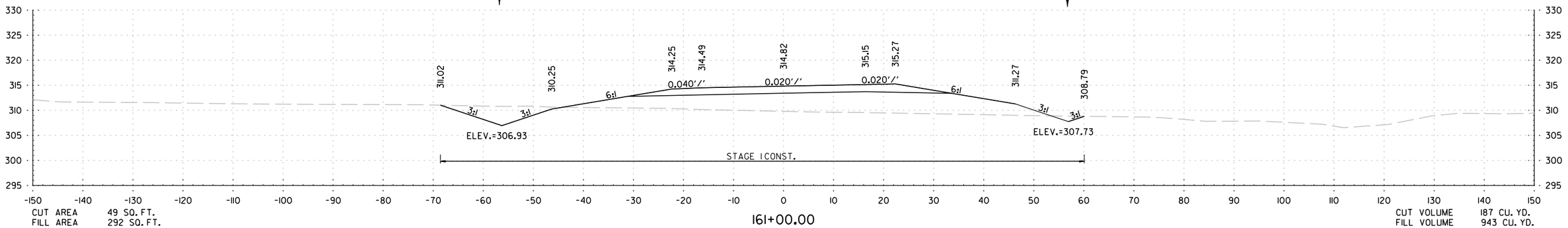
STA. 157+00 TO STA. 159+00

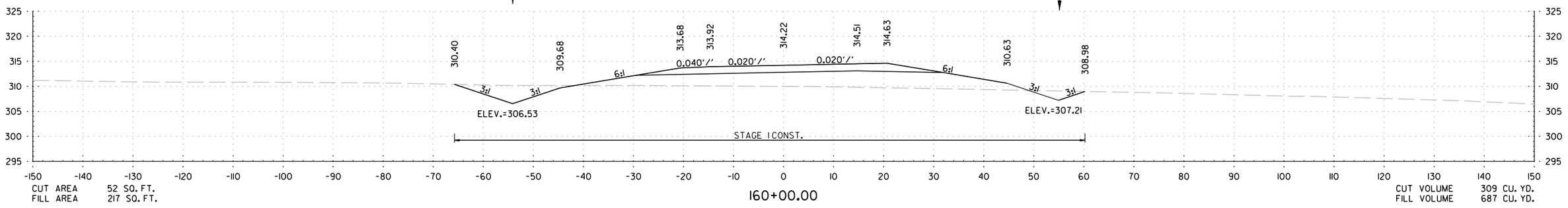
DATE REVISED	DATE REVISED	FED.RD. DIST.NO.	STATE	JOB NO.	SHEET NO.	TOTAL SHEETS
		6	ARK.	080711	92	123
		CROSS SECTIONS				

STAGE I

STAGE I





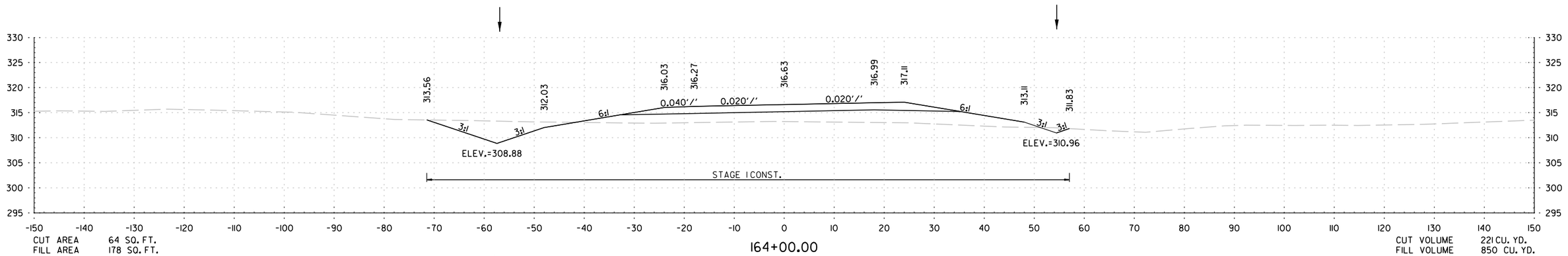


STA. 160+00 TO STA. 162+00

DATE REVISED	DATE REVISED	FED.RD. DIST.NO.	STATE	JOB NO.	SHEET NO.	TOTAL SHEETS
		6	ARK.	080711	93	123
		CROSS SECTIONS				

STAGE I

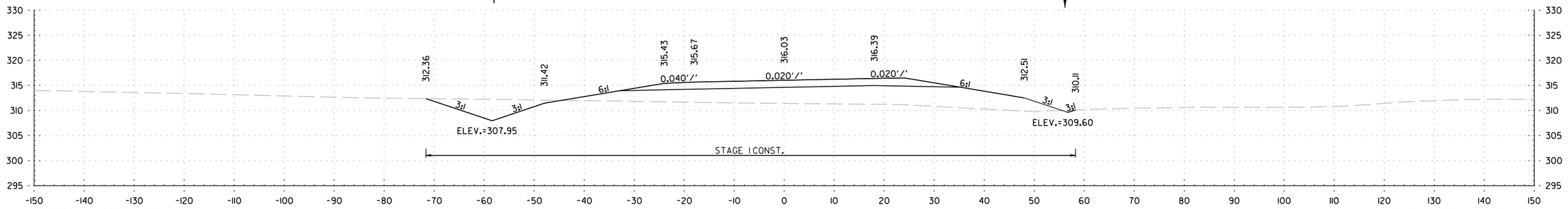
STAGE I



CUT AREA 64 SQ. FT.
FILL AREA 178 SQ. FT.

164+00.00

CUT VOLUME 221 CU. YD.
FILL VOLUME 850 CU. YD.

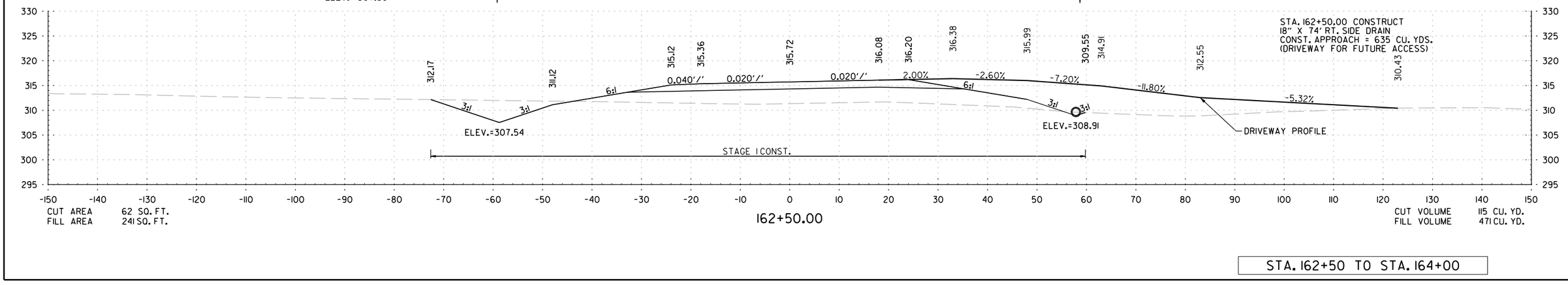


CUT AREA 56 SQ. FT.
FILL AREA 282 SQ. FT.

163+00.00

CUT VOLUME 109 CU. YD.
FILL VOLUME 484 CU. YD.

STA. 162+61.00
END SP.DT.LT. 0.41%
BEGIN SP.DT.LT. 0.93%
ELEV. =307.59



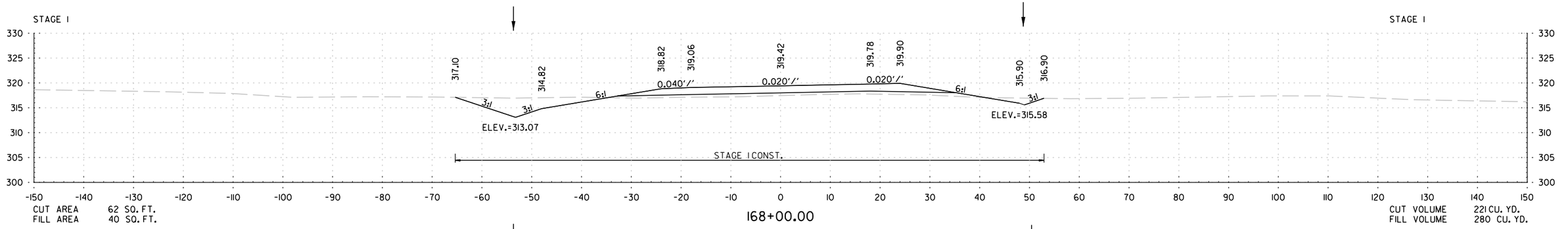
CUT AREA 62 SQ. FT.
FILL AREA 241 SQ. FT.

162+50.00

CUT VOLUME 115 CU. YD.
FILL VOLUME 471 CU. YD.

STA. 162+50 TO STA. 164+00

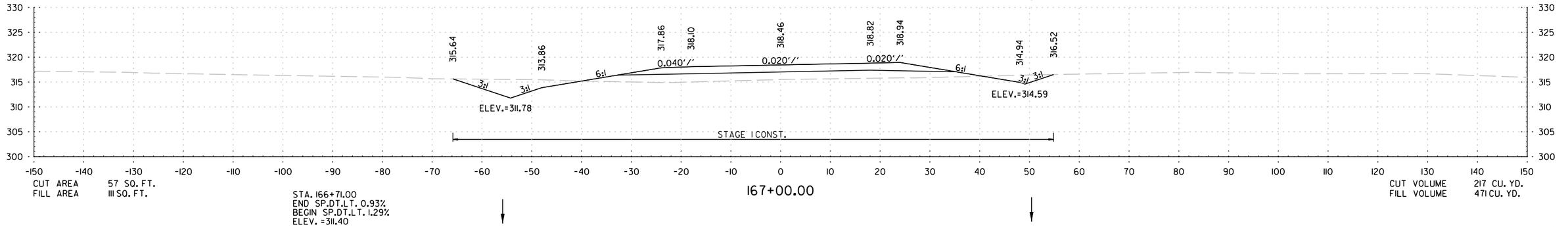
DATE REVISED	DATE REVISED	FED.RD. DIST.NO.	STATE	JOB NO.	SHEET NO.	TOTAL SHEETS
		6	ARK.	080711	94	123
		CROSS SECTIONS				



CUT AREA 62 SQ. FT.
FILL AREA 40 SQ. FT.

168+00.00

CUT VOLUME 221 CU. YD.
FILL VOLUME 280 CU. YD.

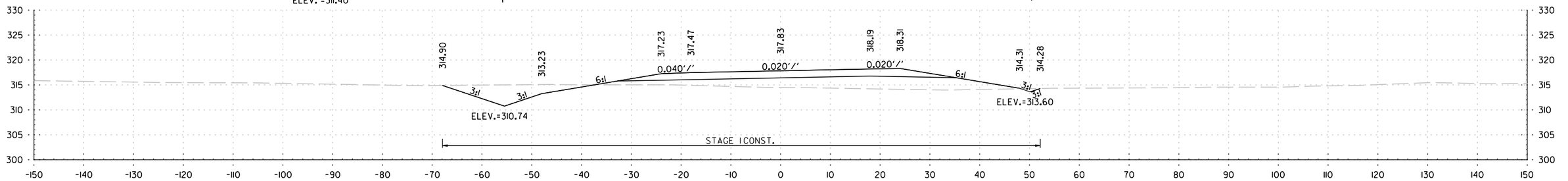


CUT AREA 57 SQ. FT.
FILL AREA 111 SQ. FT.

STA. 166+71.00
END SP.DT.LT. 0.93%
BEGIN SP.DT.LT. 1.29%
ELEV. =311.40

167+00.00

CUT VOLUME 217 CU. YD.
FILL VOLUME 471 CU. YD.

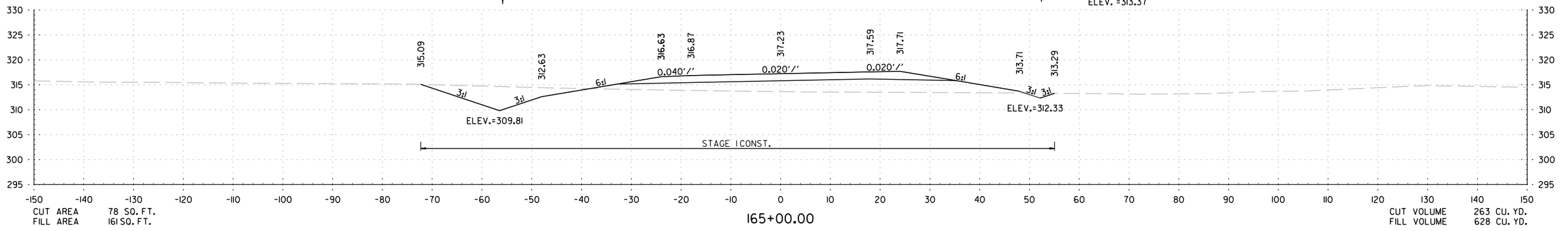


CUT AREA 60 SQ. FT.
FILL AREA 143 SQ. FT.

166+00.00

CUT VOLUME 256 CU. YD.
FILL VOLUME 564 CU. YD.

STA. 165+76.00
END SP.DT.RT. 1.37%
BEGIN SP.DT.RT. 0.99%
ELEV. =313.37



CUT AREA 78 SQ. FT.
FILL AREA 161 SQ. FT.

165+00.00

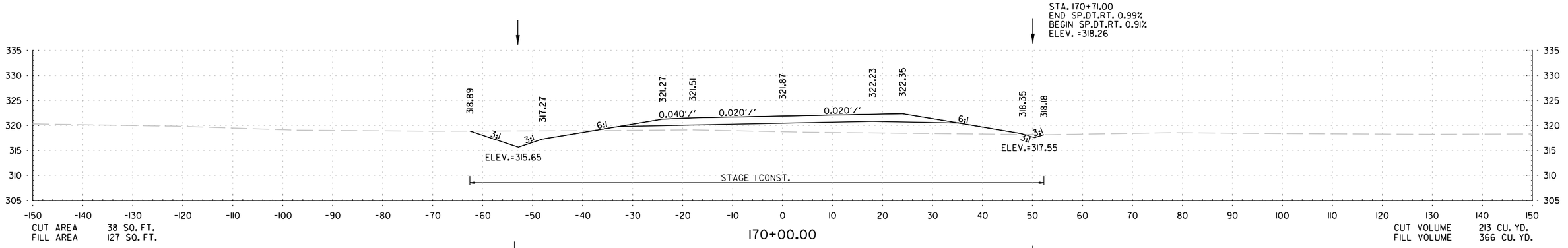
CUT VOLUME 263 CU. YD.
FILL VOLUME 628 CU. YD.

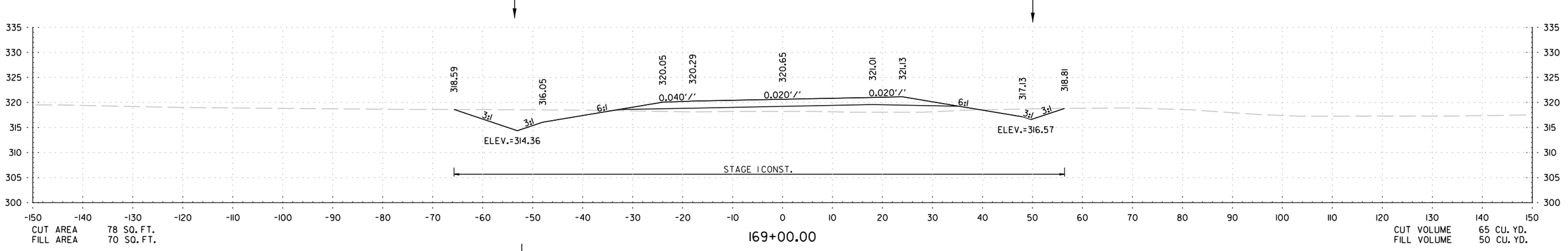
STA. 165+00 TO STA. 168+00

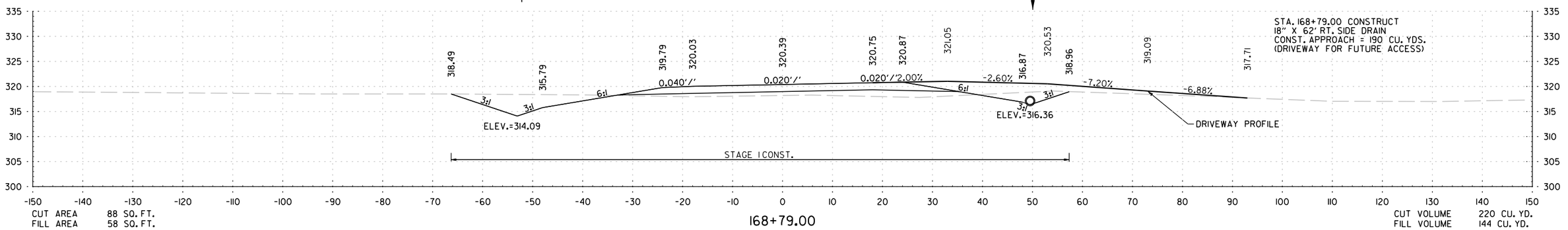
DATE REVISED	DATE REVISED	FED.RD. DIST.NO.	STATE	JOB NO.	SHEET NO.	TOTAL SHEETS
		6	ARK.	080711	95	123
		CROSS SECTIONS				

STAGE I

STAGE I

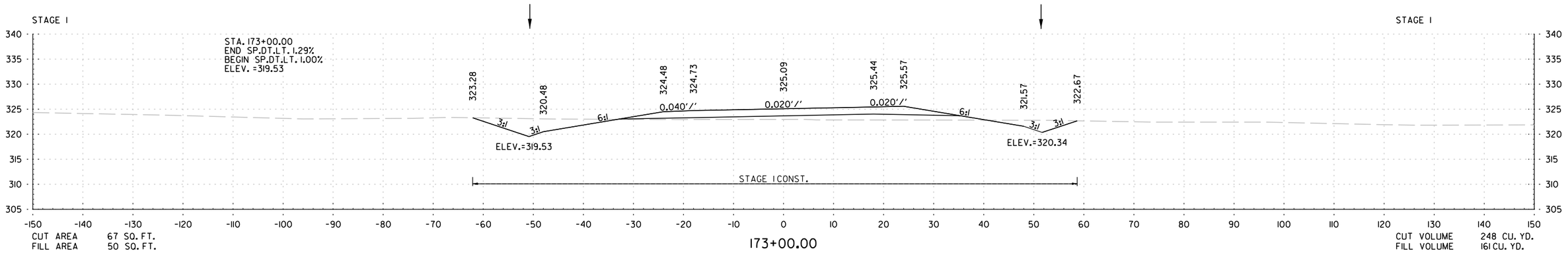


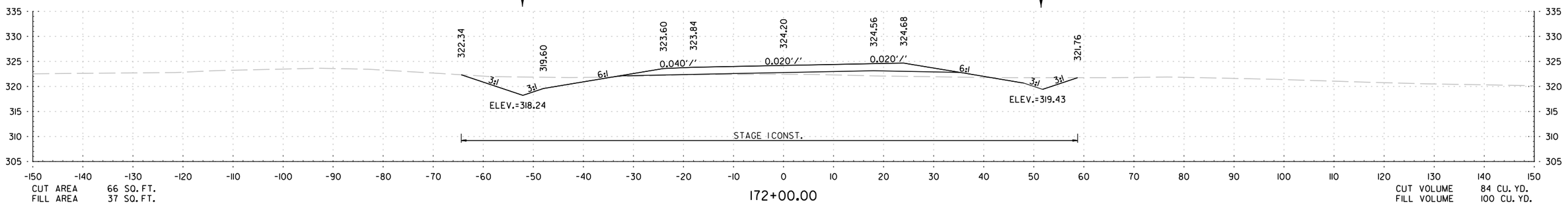


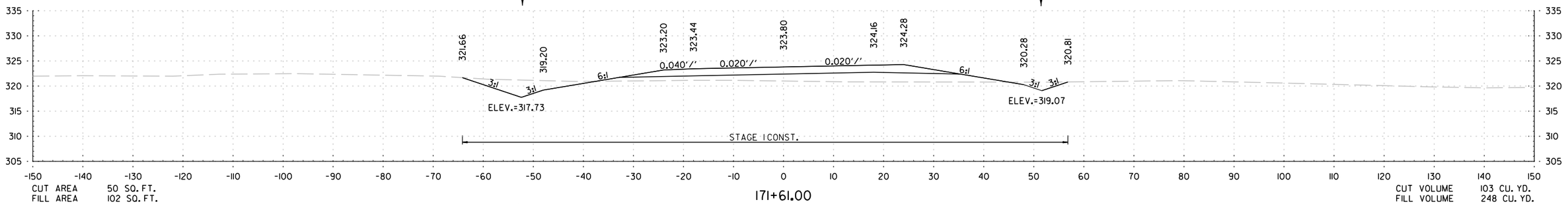


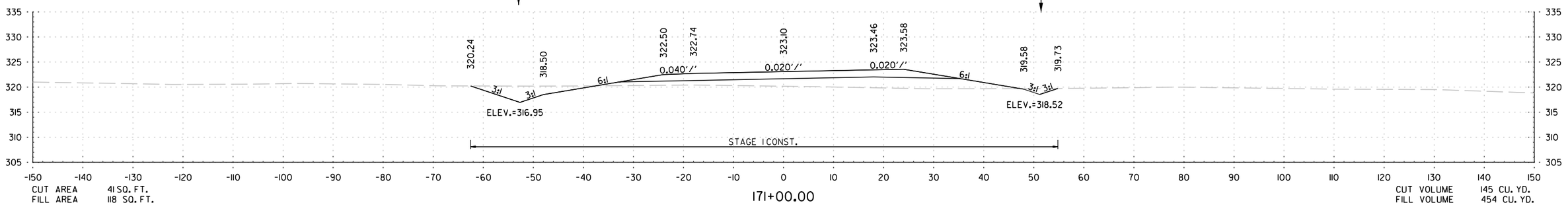
STA. 168+79 TO STA. 170+00

DATE REVISED	DATE REVISED	FED.RD. DIST.NO.	STATE	JOB NO.	SHEET NO.	TOTAL SHEETS
		6	ARK.	080711	96	123
		CROSS SECTIONS				



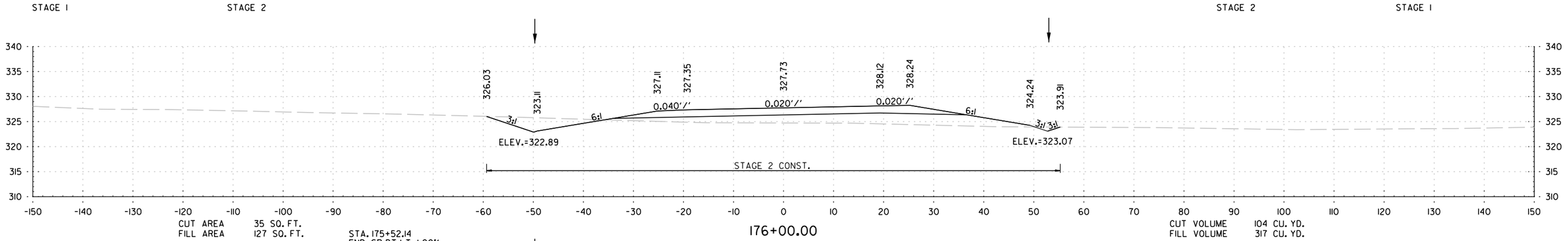


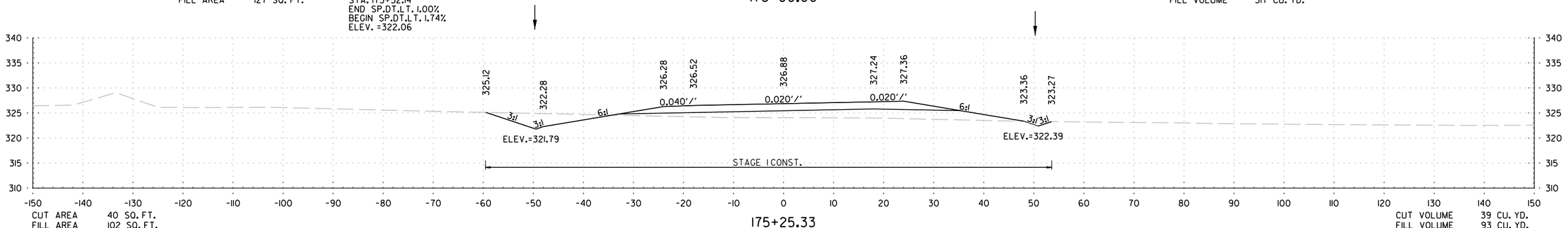


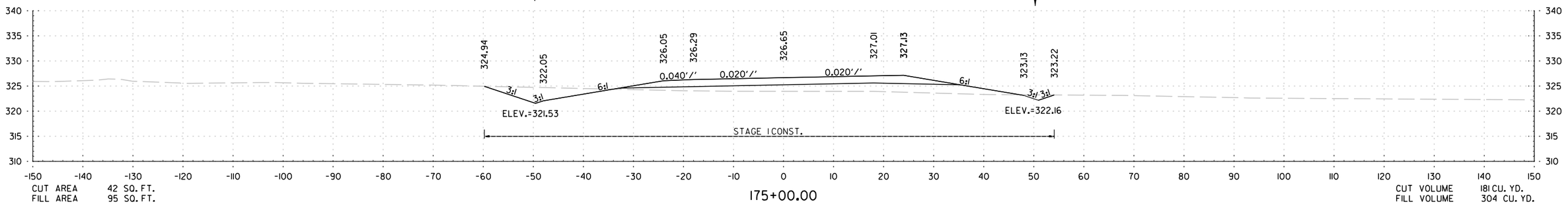


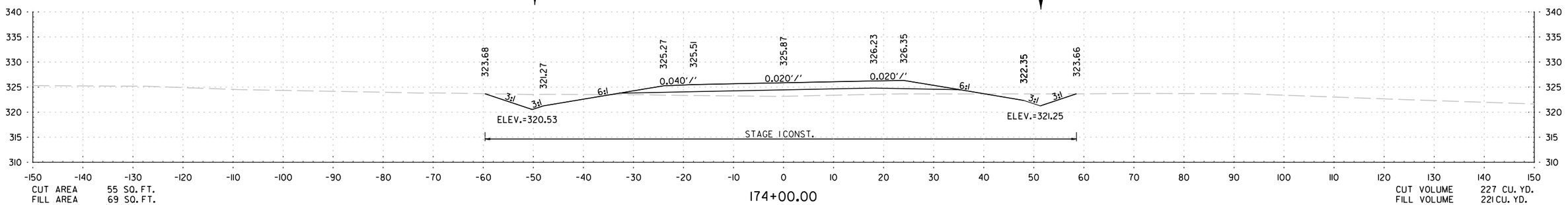
STA. 171+00 TO STA. 173+00

DATE REVISED	DATE REVISED	FED.RD. DIST.NO.	STATE	JOB NO.	SHEET NO.	TOTAL SHEETS
		6	ARK.	080711	97	123
		CROSS SECTIONS				



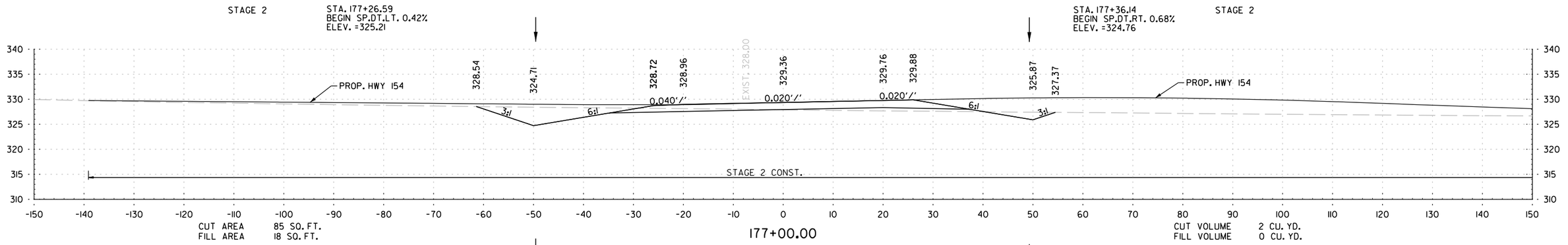


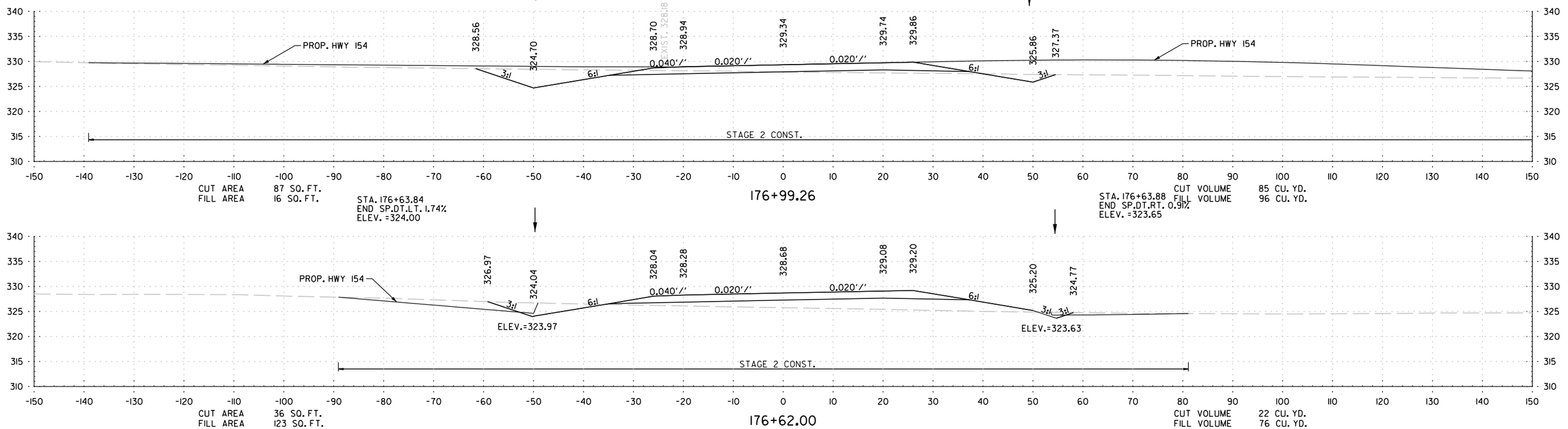




STA. 174+00 TO STA. 176+00

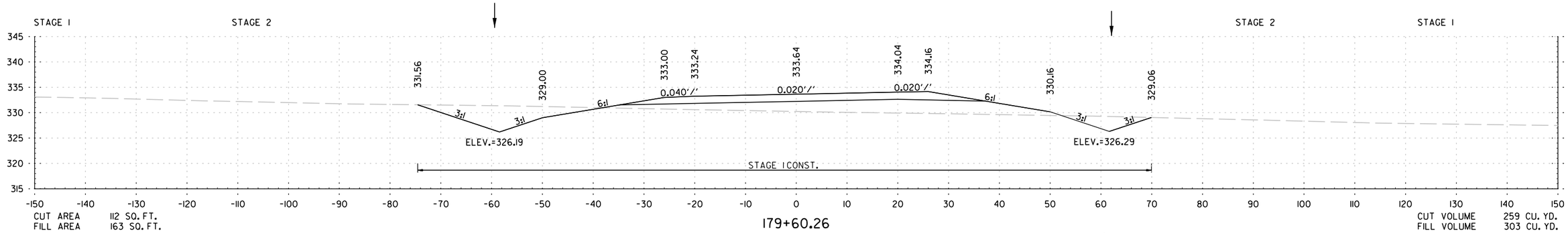
DATE REVISED	DATE REVISED	FED.RD. DIST.NO.	STATE	JOB NO.	SHEET NO.	TOTAL SHEETS
		6	ARK.	080711	98	123
		CROSS SECTIONS				

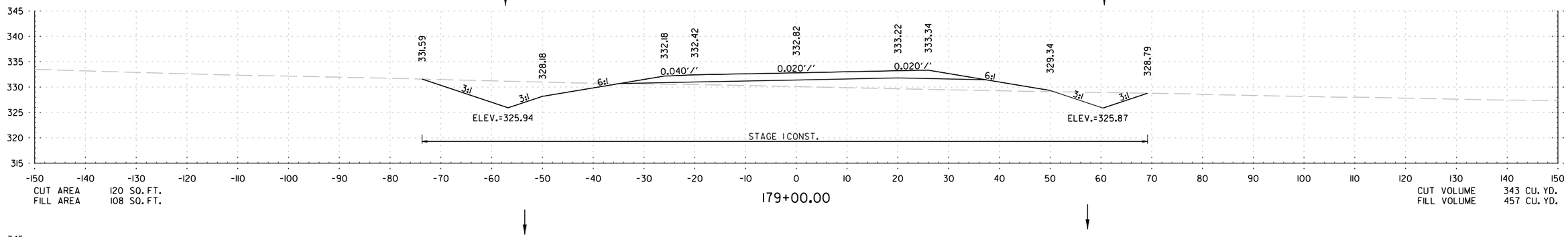


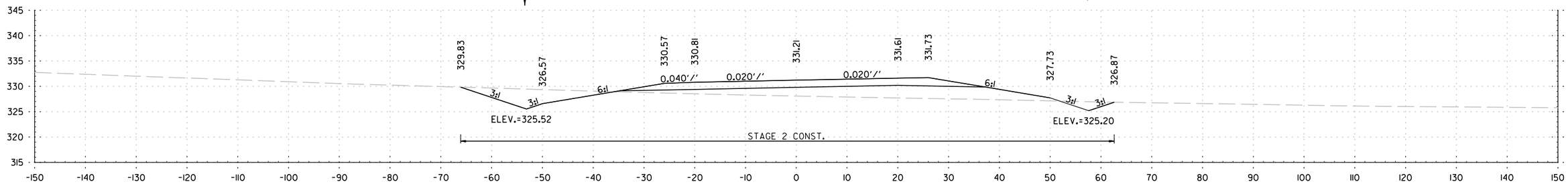


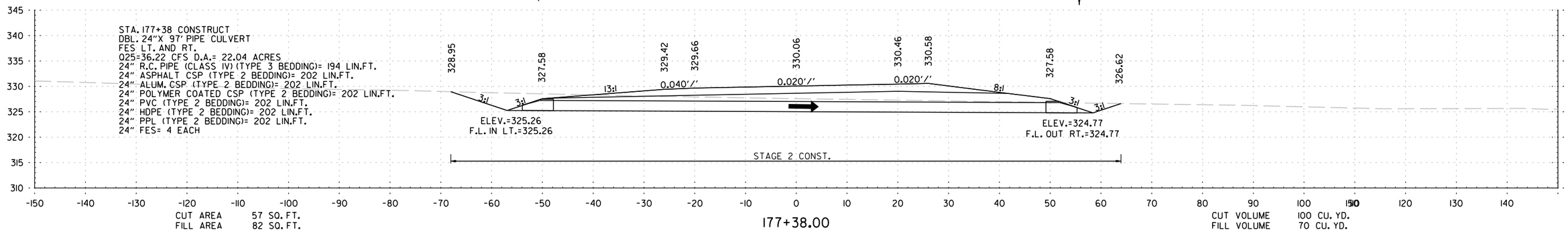
STA. 176+45 TO STA. 177+00

DATE REVISED	DATE REVISED	FED.RD. DIST.NO.	STATE	JOB NO.	SHEET NO.	TOTAL SHEETS
03-25-24		6	ARK.	080711	99	123
		CROSS SECTIONS				







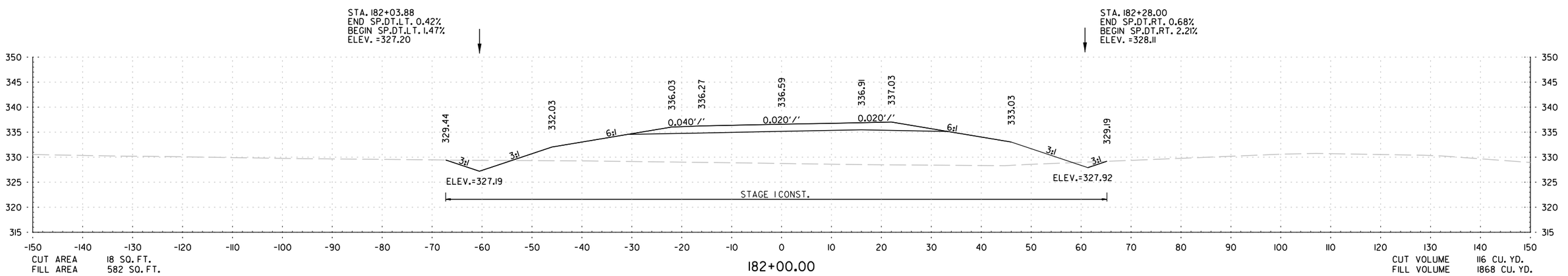


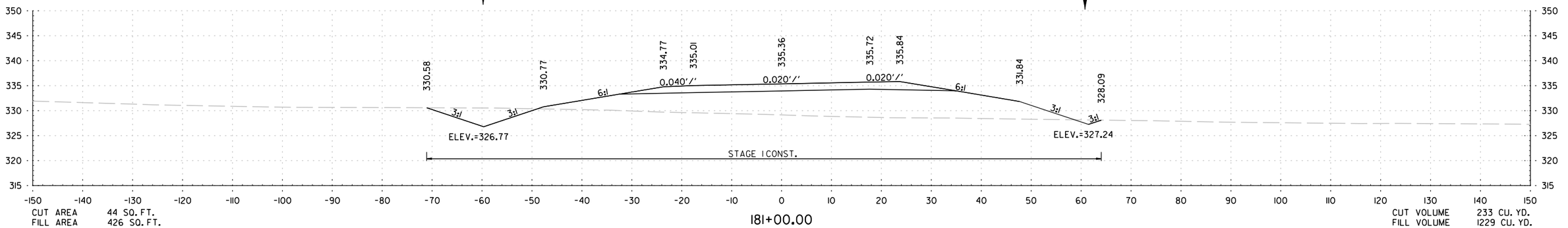
STA. 177+38 TO STA. 179+60

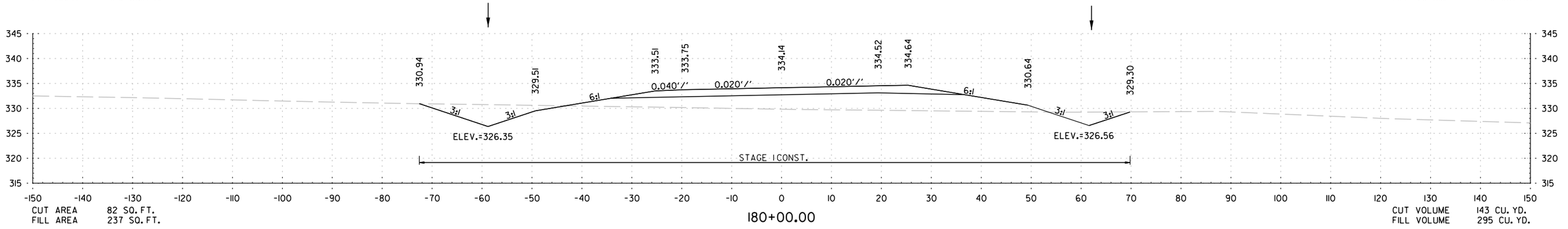
DATE REVISED	DATE REVISED	FED.RD. DIST.NO.	STATE	JOB NO.	SHEET NO.	TOTAL SHEETS
		6	ARK.	080711	100	123
		CROSS SECTIONS				

STAGE I

STAGE I



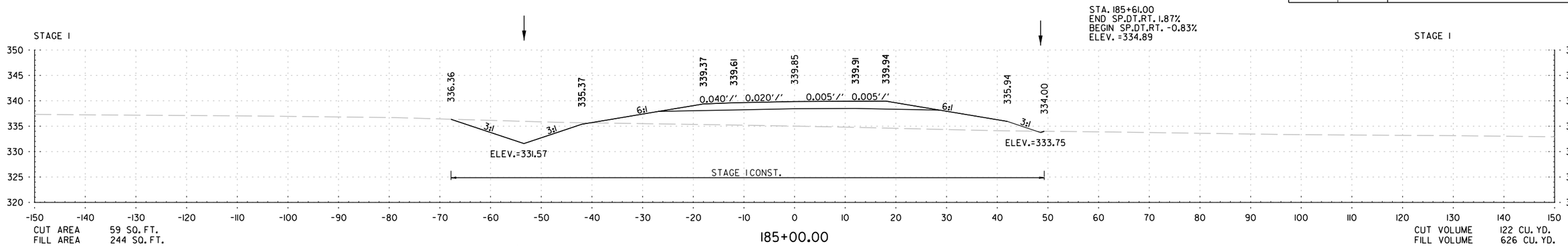


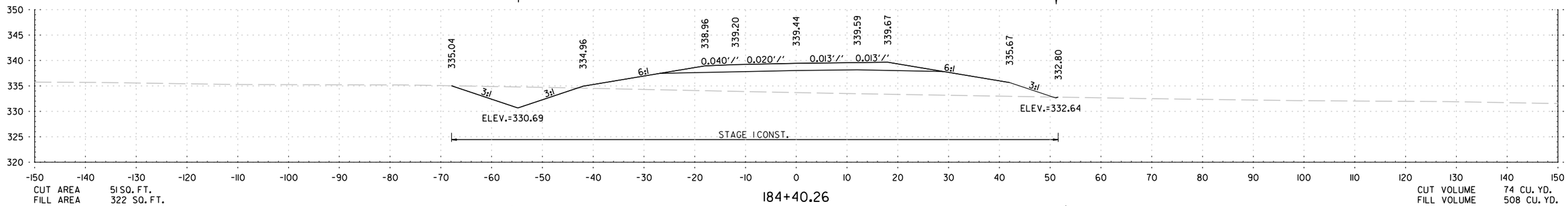


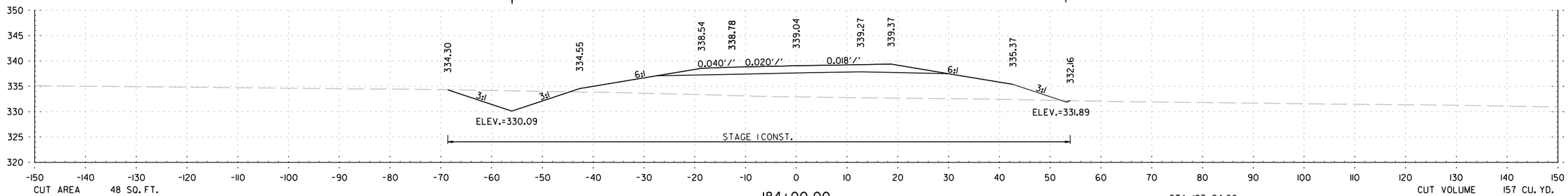
STA. 180+00 TO STA. 182+00

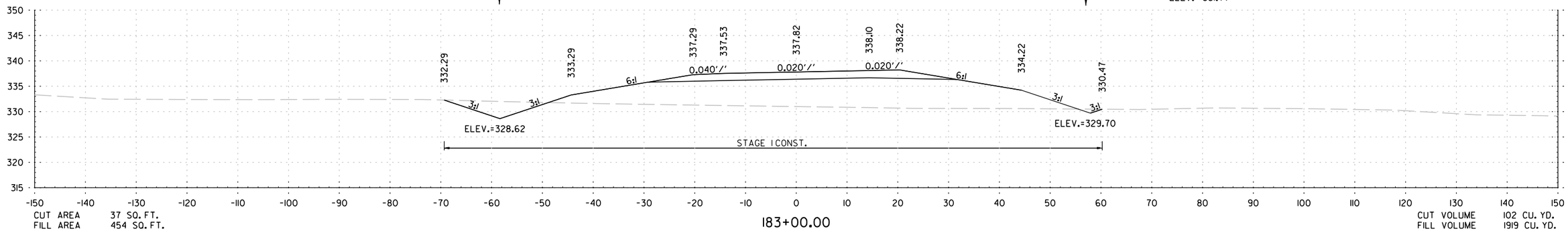
RajyanChowdhury3/1/2024 2:53:50 PM
WORKSPACE: ARDOT
Y:\Projects\ARDOT_196431_080711_Highway 113 Relocation\Design\CIVIL\Drawings\R080711_CX.dgn
REVISED DATE: $$REVDATE$$

DATE REVISED	DATE REVISED	FED.RD. DIST.NO.	STATE	JOB NO.	SHEET NO.	TOTAL SHEETS
		6	ARK.	080711	101	123
		CROSS SECTIONS				







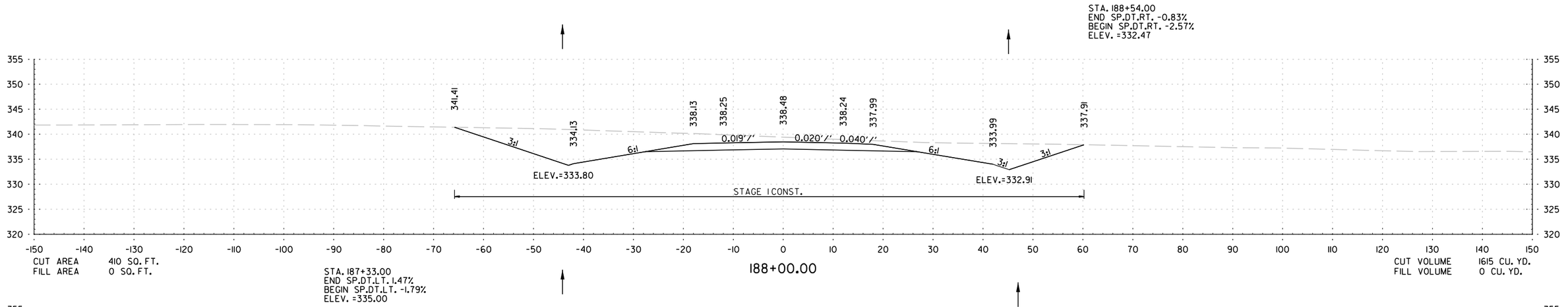


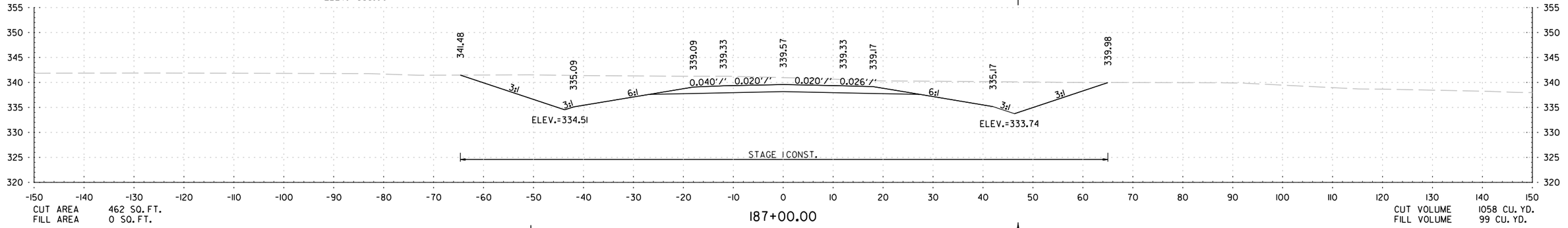
STA. 183+00 TO STA. 185+00

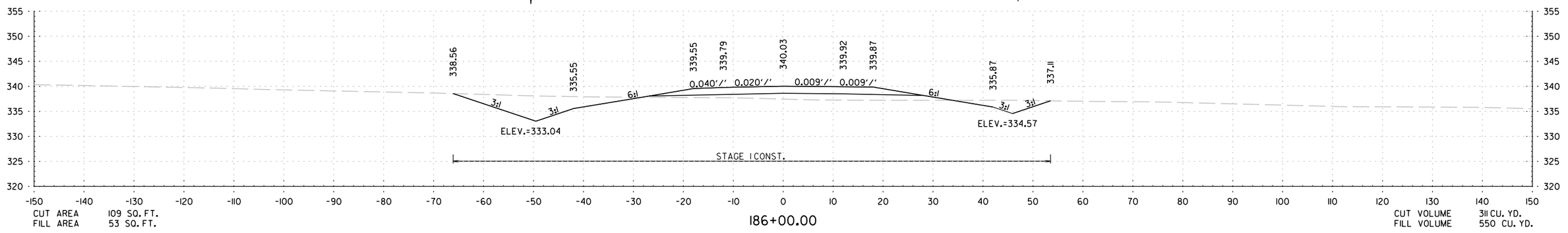
DATE REVISED	DATE REVISED	FED.RD. DIST.NO.	STATE	JOB NO.	SHEET NO.	TOTAL SHEETS
		6	ARK.	080711	102	123
		CROSS SECTIONS				

STAGE I

STAGE I







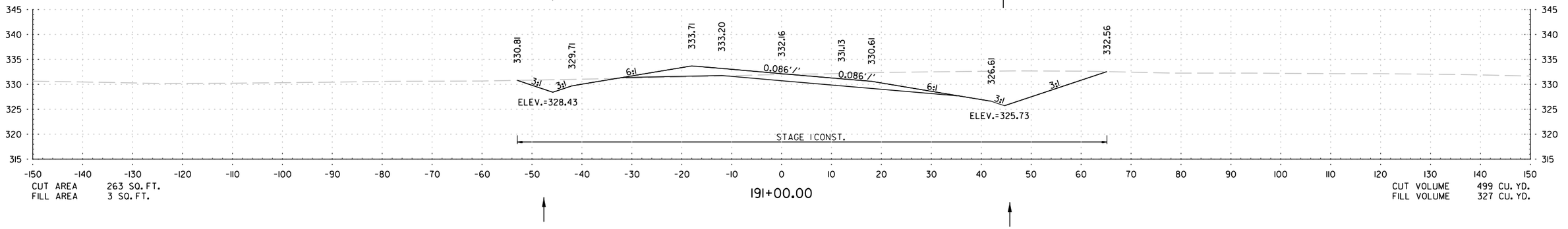
STA. 186+00 TO STA. 188+00

DATE REVISED	DATE REVISED	FED.RD. DIST.NO.	STATE	JOB NO.	SHEET NO.	TOTAL SHEETS
		6	ARK.	080711	103	123
		CROSS SECTIONS				

STAGE I

STAGE I

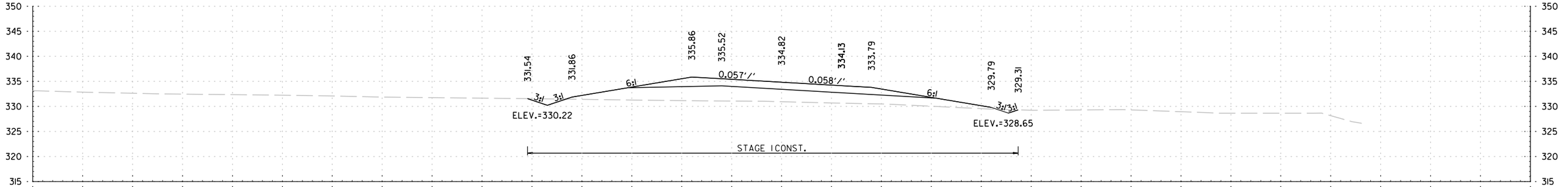
STA. 191+84.00
END SP.DT.LT. -1.79%
BEGIN SP.DT.LT. -4.77%
ELEV. =326.93



CUT AREA 263 SQ. FT.
FILL AREA 3 SQ. FT.

191+00.00

CUT VOLUME 499 CU. YD.
FILL VOLUME 327 CU. YD.

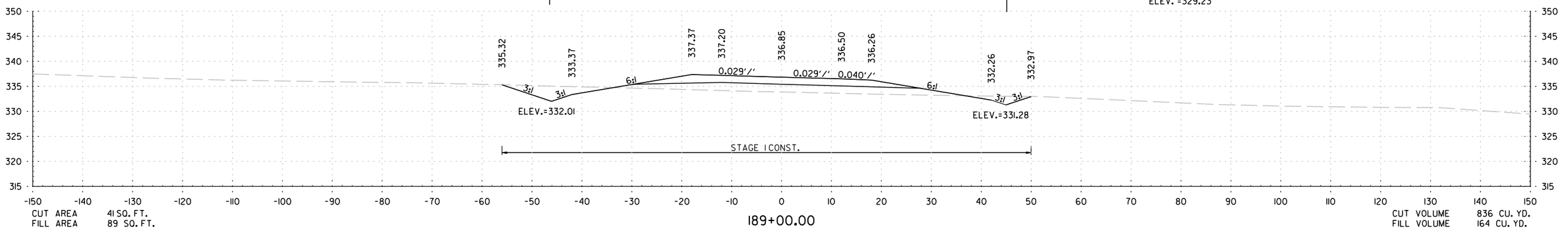


CUT AREA 6 SQ. FT.
FILL AREA 173 SQ. FT.

190+00.00

CUT VOLUME 88 CU. YD.
FILL VOLUME 485 CU. YD.

STA. 189+80.00
END SP.DT.RT. -2.57%
BEGIN SP.DT.RT. -2.92%
ELEV. =329.23



CUT AREA 41 SQ. FT.
FILL AREA 89 SQ. FT.

189+00.00

CUT VOLUME 836 CU. YD.
FILL VOLUME 164 CU. YD.

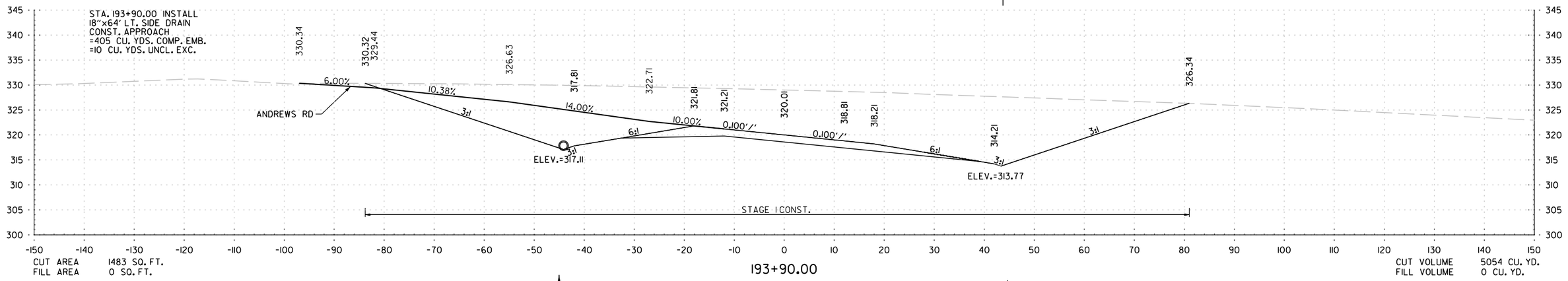
STA. 189+00 TO STA. 191+00

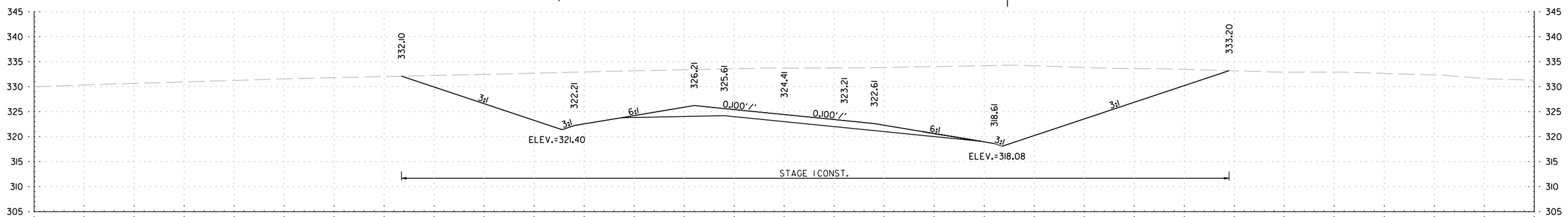
Rolyan.Chowdhury3 1/2024 2:53:53 PM
WORKSPACE: ARDOT
Y:\Projects\ARDOT_18643_080711_Highway 113 Relocation\Design\CIVIL\Drawings\R080711_CX.dgn
REVISED DATE: $$REVDATE$$

DATE REVISED	DATE REVISED	FED.RD. DIST.NO.	STATE	JOB NO.	SHEET NO.	TOTAL SHEETS
		6	ARK.	080711	104	123
		CROSS SECTIONS				

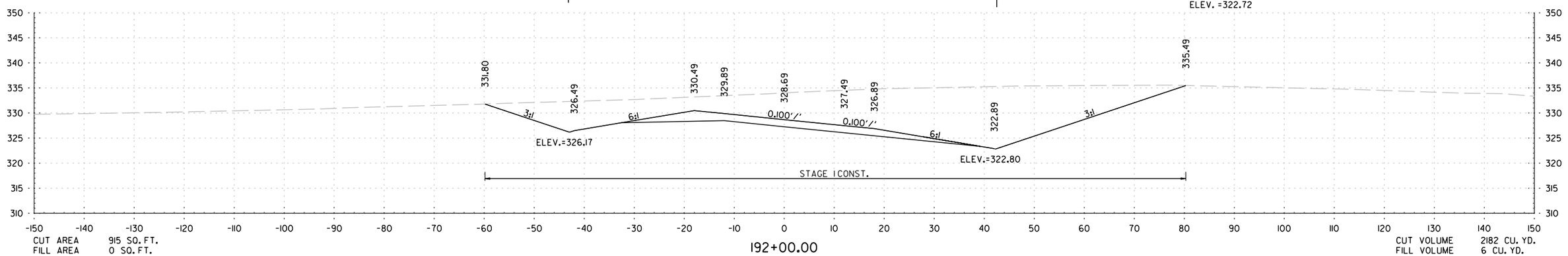
STAGE I

STAGE I





STA. 192+03.00
END SP.DT.RT. -2.92%
BEGIN SP.DT.RT. -4.78%
ELEV. =322.72

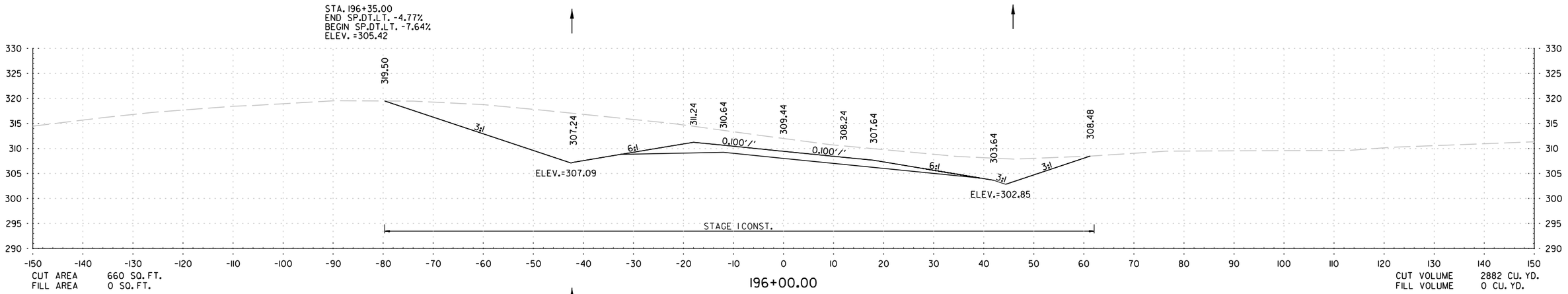


STA. 192+00 TO STA. 193+90

DATE REVISED	DATE REVISED	FED.RD. DIST.NO.	STATE	JOB NO.	SHEET NO.	TOTAL SHEETS
		6	ARK.	080711	105	123
		CROSS SECTIONS				

STAGE I

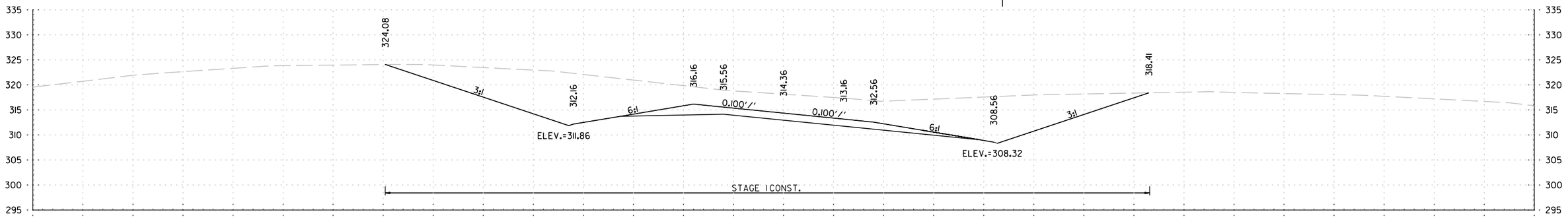
STAGE I



CUT AREA 660 SQ. FT.
FILL AREA 0 SQ. FT.

196+00.00

CUT VOLUME 2882 CU. YD.
FILL VOLUME 0 CU. YD.

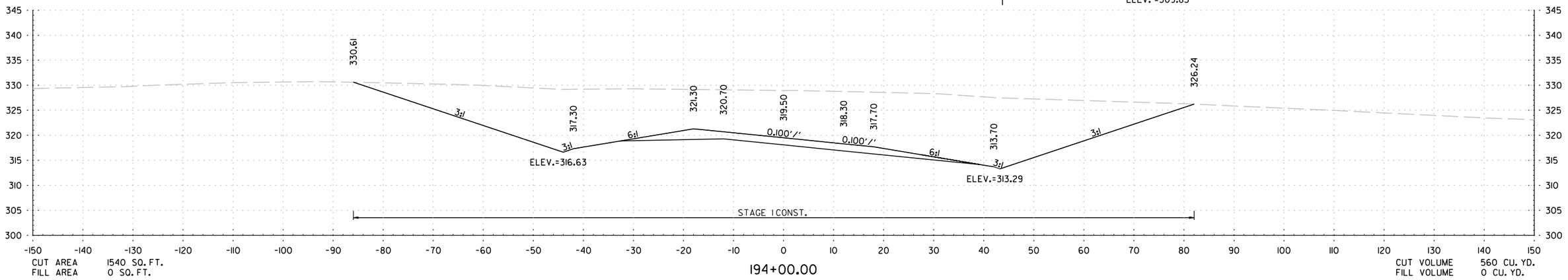


CUT AREA 896 SQ. FT.
FILL AREA 0 SQ. FT.

195+00.00

CUT VOLUME 4512 CU. YD.
FILL VOLUME 0 CU. YD.

STA. 194+72.00
END SP.DT.RT. -4.78%
BEGIN SP.DT.RT. -5.56%
ELEV. =309.85



CUT AREA 1540 SQ. FT.
FILL AREA 0 SQ. FT.

194+00.00

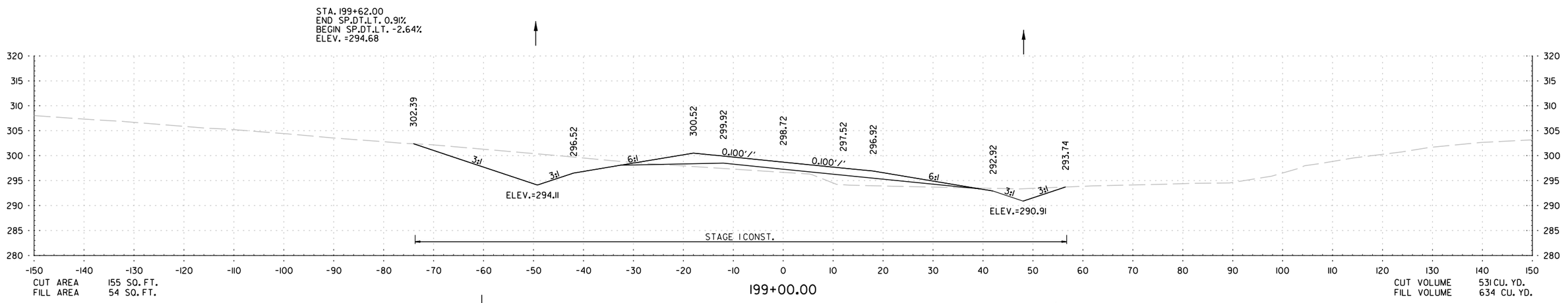
CUT VOLUME 560 CU. YD.
FILL VOLUME 0 CU. YD.

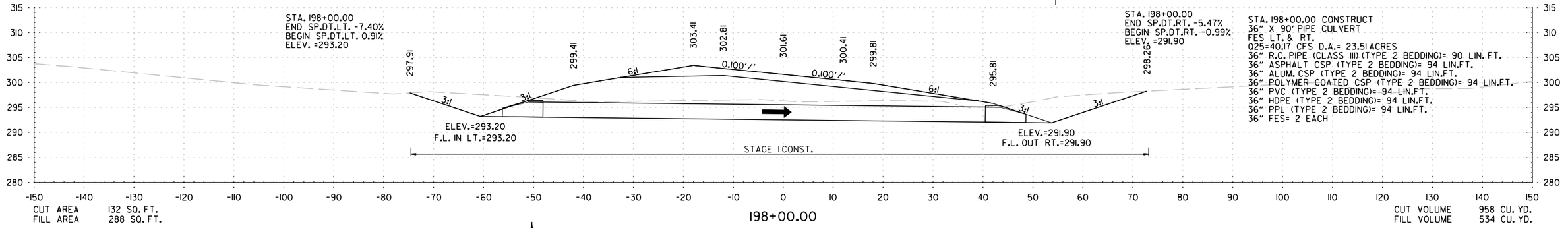
STA. 194+00 TO STA. 196+00

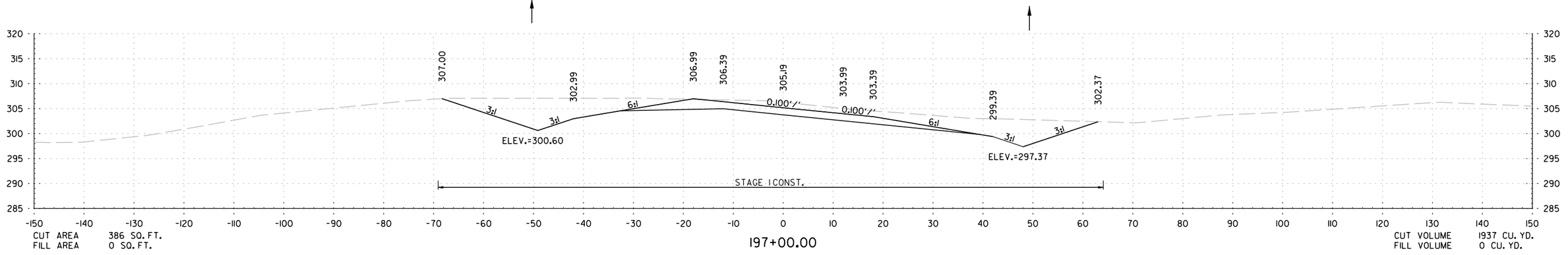
DATE REVISED	DATE REVISED	FED.RD. DIST.NO.	STATE	JOB NO.	SHEET NO.	TOTAL SHEETS
		6	ARK.	080711	106	123
		CROSS SECTIONS				

STAGE I

STAGE I





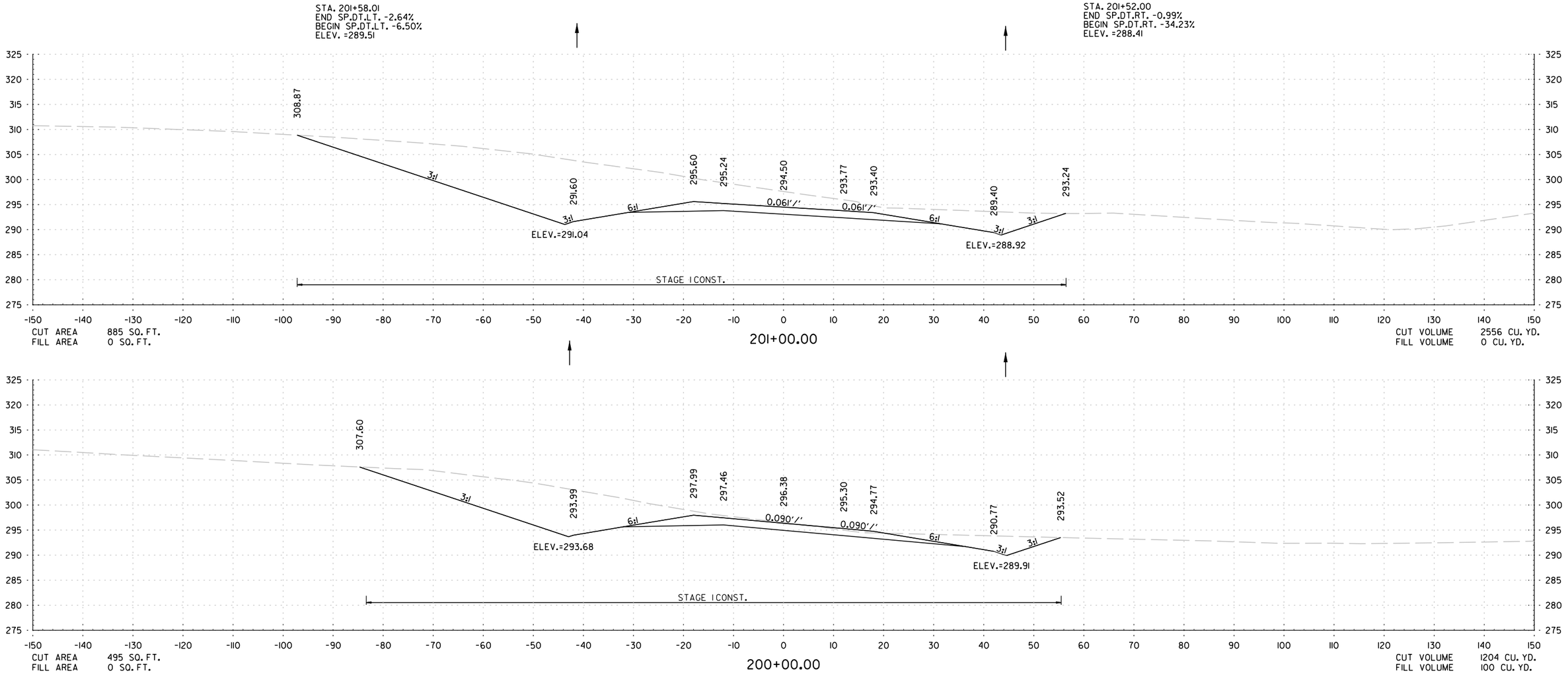


STA. 197+00 TO STA. 199+00

DATE REVISED	DATE REVISED	FED.RD. DIST.NO.	STATE	JOB NO.	SHEET NO.	TOTAL SHEETS
		6	ARK.	080711	107	123
		CROSS SECTIONS				

STAGE I

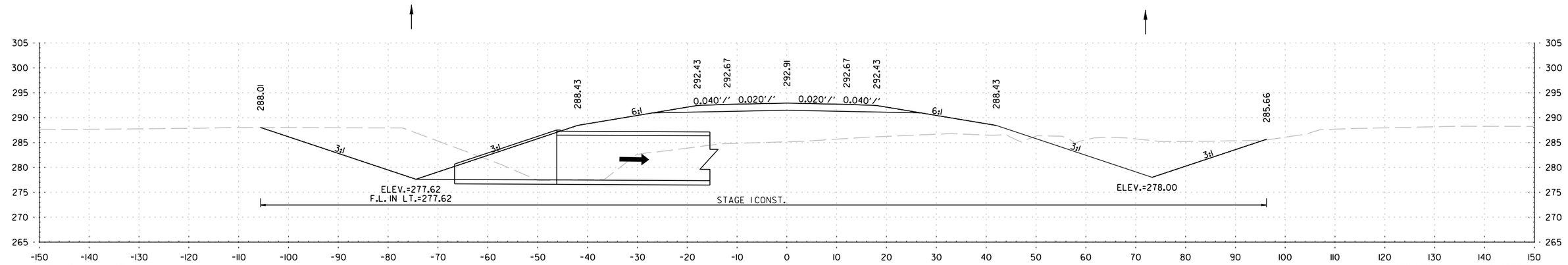
STAGE I



STA. 200+00 TO STA. 201+00

DATE REVISED	DATE REVISED	FED.RD. DIST.NO.	STATE	JOB NO.	SHEET NO.	TOTAL SHEETS
		6	ARK.	080711	108	123
		CROSS SECTIONS				

STAGE I



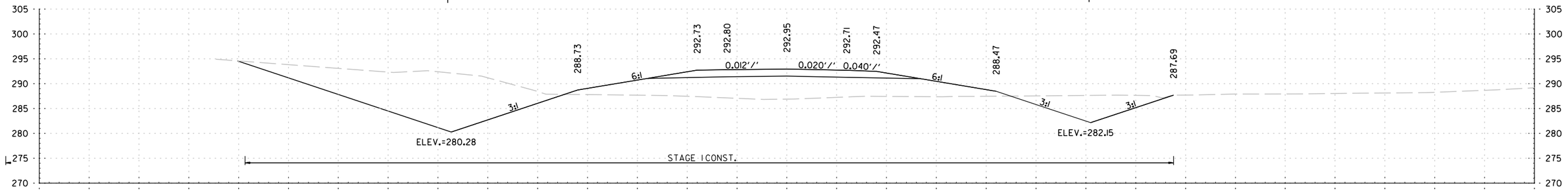
CUT AREA 393 SQ. FT.
FILL AREA 656 SQ. FT.

STA. 203+41.00
END SP.DT.LT. -6.50%
BEGIN SP.DT.LT. 0.00%
ELEV. =277.62

203+98.12

CUT VOLUME 1120 CU. YD.
FILL VOLUME 1717 CU. YD.

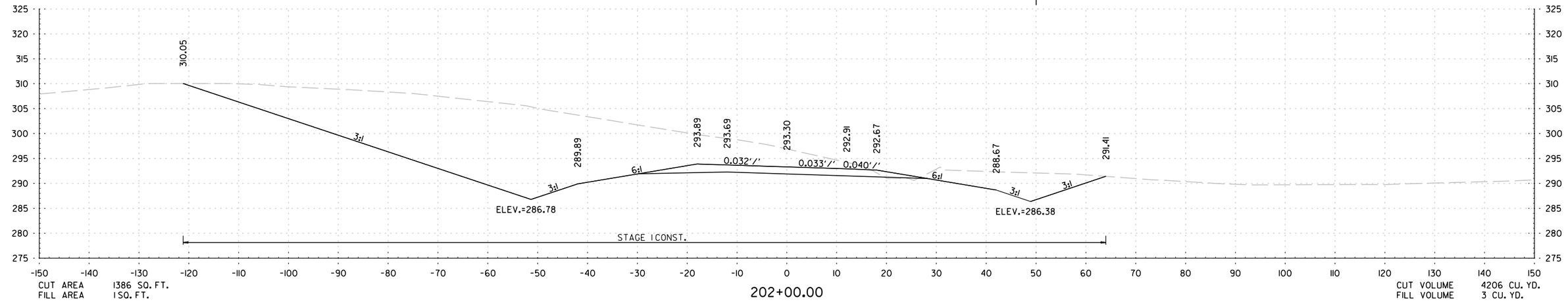
STAGE I



CUT AREA 223 SQ. FT.
FILL AREA 289 SQ. FT.

203+00.00

CUT VOLUME 2980 CU. YD.
FILL VOLUME 538 CU. YD.



CUT AREA 1386 SQ. FT.
FILL AREA 1 SQ. FT.

202+00.00

CUT VOLUME 4206 CU. YD.
FILL VOLUME 3 CU. YD.

STA. 202+00 TO STA. 203+98

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WORKSPACE: ARDOT
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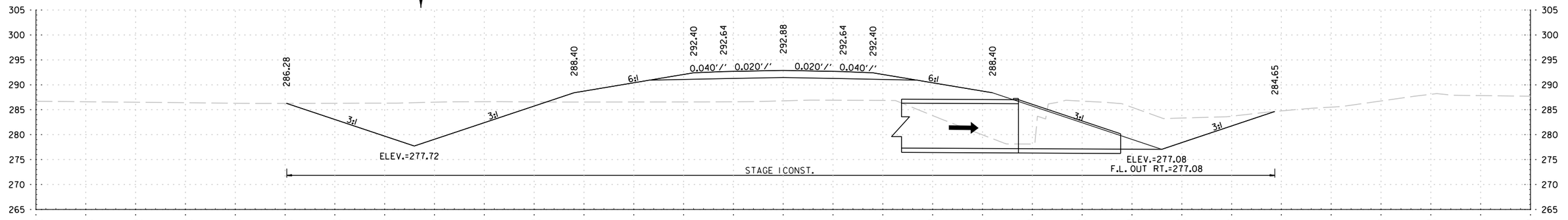
REVISED DATE: $$REVDATE$$

DATE REVISED	DATE REVISED	FED.RD. DIST.NO.	STATE	JOB NO.	SHEET NO.	TOTAL SHEETS
		6	ARK.	080711	109	123
		CROSS SECTIONS				

STAGE I



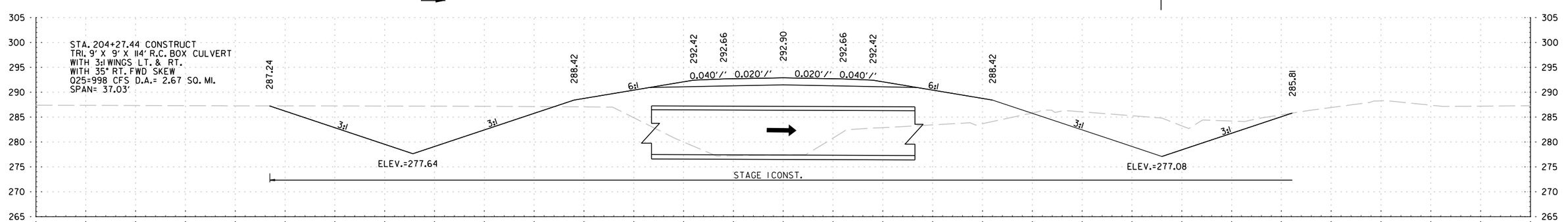
CUT AREA 409 SQ. FT.
FILL AREA 489 SQ. FT.

204+62.58

CUT VOLUME 567 CU. YD.
FILL VOLUME 822 CU. YD.

STAGE I

STA. 204+27.44 CONSTRUCT
TRI. 9' X 9' X 114' R.C. BOX CULVERT
WITH 3:1 WINGS LT. & RT.
WITH 35° RT. FWD SKEW
Q25=998 CFS D.A.= 2.67 SQ. MI.
SPAN= 37.03'



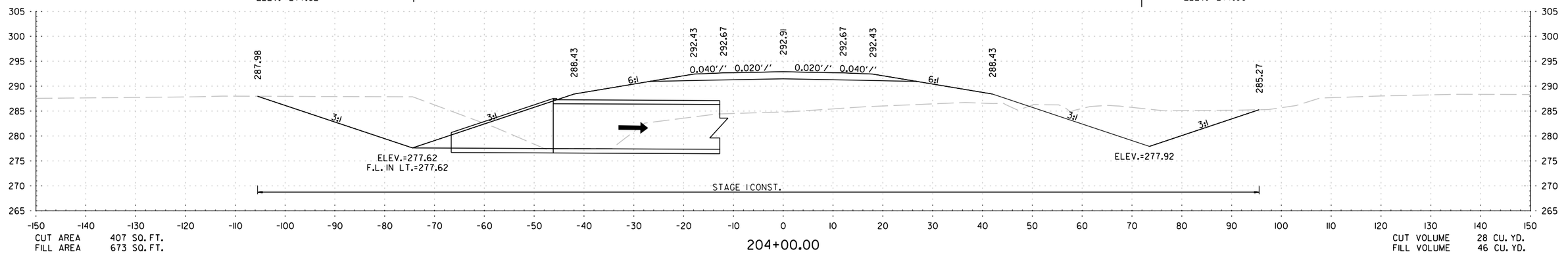
CUT AREA 462 SQ. FT.
FILL AREA 774 SQ. FT.

STA. 204+19.00
END SP.DT.LT. 0.00%
BEGIN SP.DT.LT. 0.23%
ELEV. =277.62

204+27.44

STA. 204+20.00
END SP.DT.RT. -4.23%
BEGIN SP.DT.RT. 0.00%
ELEV. =277.08

CUT VOLUME 442 CU. YD.
FILL VOLUME 736 CU. YD.



CUT AREA 407 SQ. FT.
FILL AREA 673 SQ. FT.

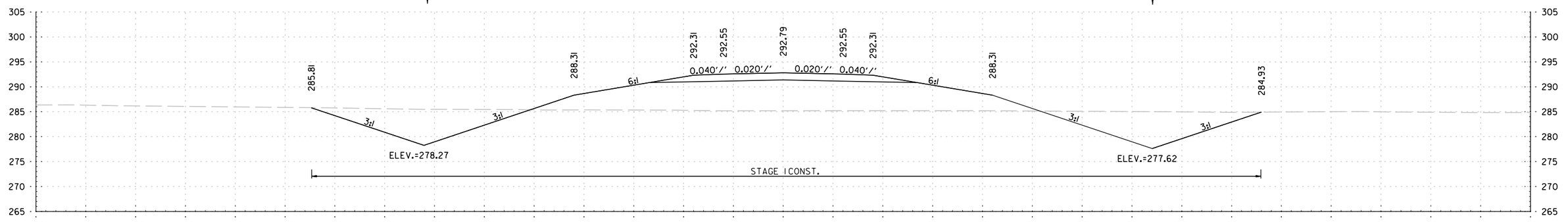
204+00.00

CUT VOLUME 28 CU. YD.
FILL VOLUME 46 CU. YD.

STA. 204+00 TO STA. 204+63

DATE REVISED	DATE REVISED	FED.RD. DIST.NO.	STATE	JOB NO.	SHEET NO.	TOTAL SHEETS
		6	ARK.	080711	110	123
		CROSS SECTIONS				

STAGE I

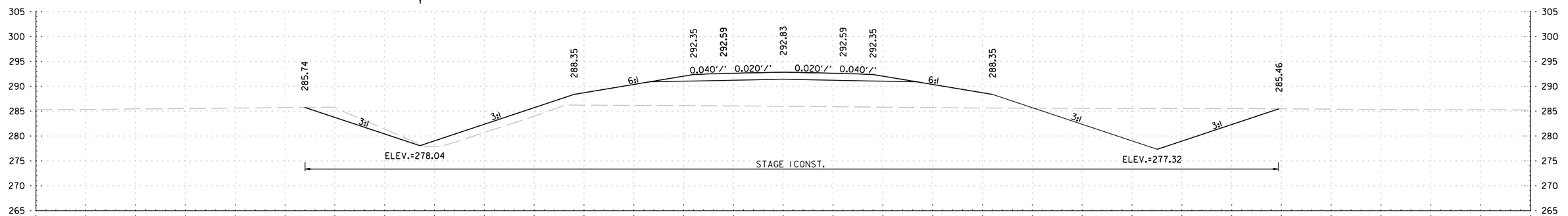


CUT AREA 323 SQ. FT.
FILL AREA 474 SQ. FT.

207+00.00

CUT VOLUME 1020 CU. YD.
FILL VOLUME 1711 CU. YD.

STAGE I

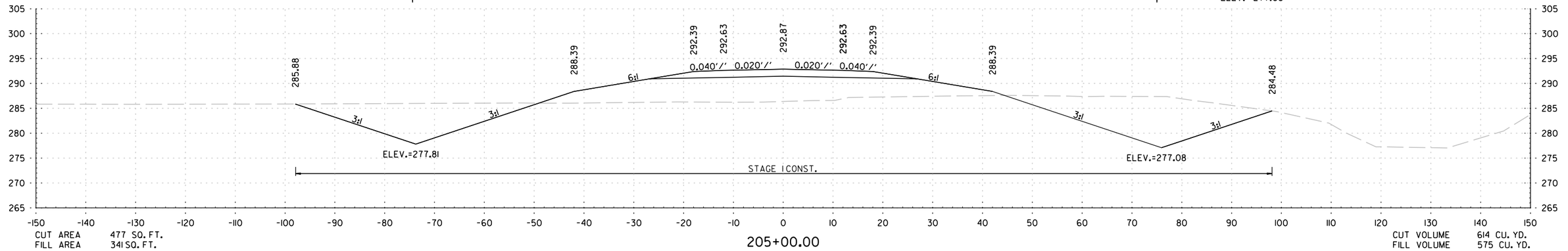


CUT AREA 228 SQ. FT.
FILL AREA 449 SQ. FT.

206+00.00

CUT VOLUME 1306 CU. YD.
FILL VOLUME 1464 CU. YD.

STA. 205+18.00
END SP.DT.RT. 0.00%
BEGIN SP.DT.RT. 0.30%
ELEV. =277.08



CUT AREA 477 SQ. FT.
FILL AREA 341 SQ. FT.

205+00.00

CUT VOLUME 614 CU. YD.
FILL VOLUME 575 CU. YD.

STA. 205+00 TO STA. 207+00

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WORKSPACE: ARDOT
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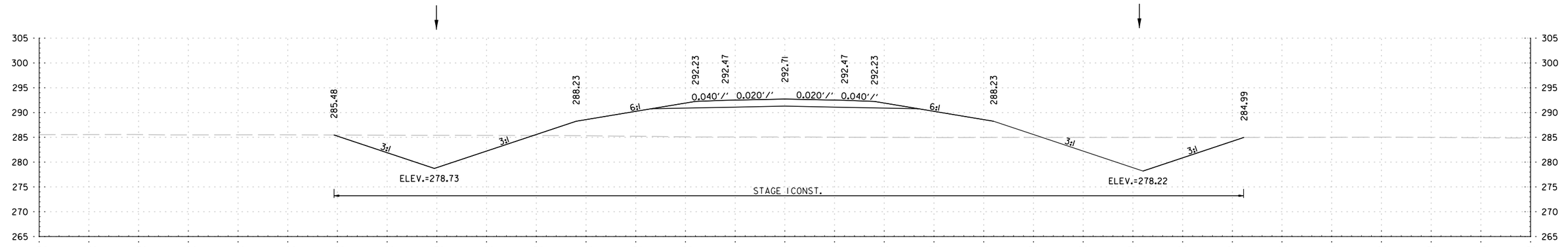
REVISED DATE: $$REVDATE$$

DATE REVISED	DATE REVISED	FED.RD. DIST.NO.	STATE	JOB NO.	SHEET NO.	TOTAL SHEETS
		6	ARK.	080711	111	123
		CROSS SECTIONS				

STAGE I

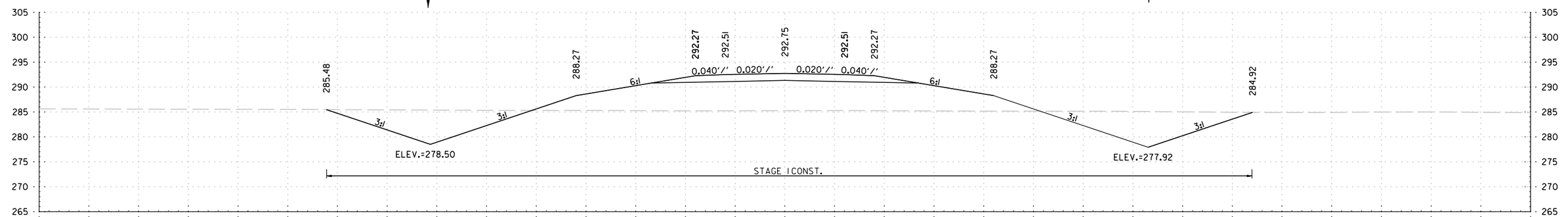


CUT AREA 271 SQ. FT.
FILL AREA 481 SQ. FT.

209+00.00

CUT VOLUME 1050 CU. YD.
FILL VOLUME 1763 CU. YD.

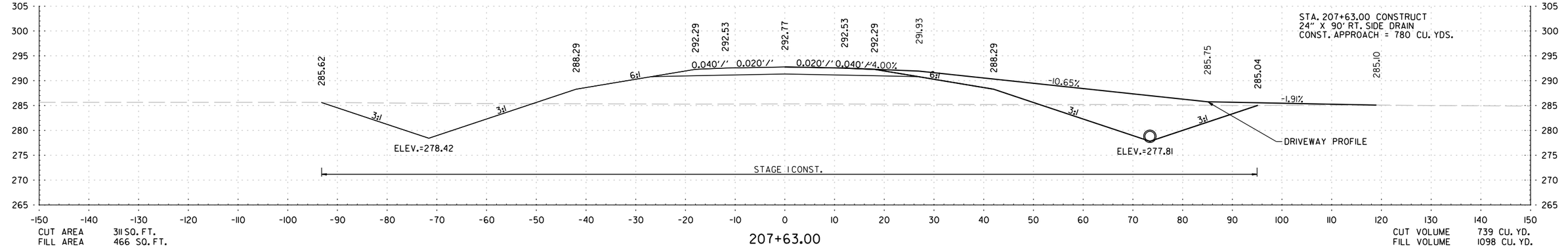
STAGE I



CUT AREA 296 SQ. FT.
FILL AREA 470 SQ. FT.

208+00.00

CUT VOLUME 416 CU. YD.
FILL VOLUME 642 CU. YD.



STA. 207+63.00 CONSTRUCT
24" X 90' RT. SIDE DRAIN
CONST. APPROACH = 780 CU. YDS.

CUT AREA 311 SQ. FT.
FILL AREA 466 SQ. FT.

207+63.00

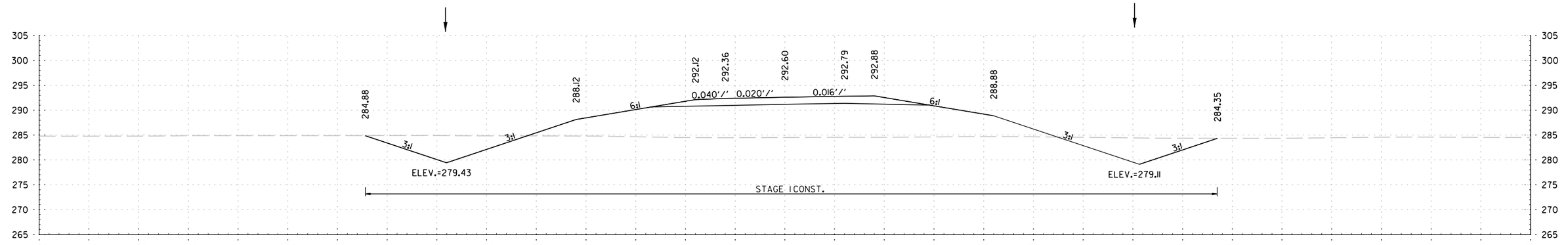
CUT VOLUME 739 CU. YD.
FILL VOLUME 1098 CU. YD.

STA. 207+63 TO STA. 209+00

DATE REVISED	DATE REVISED	FED.RD. DIST.NO.	STATE	JOB NO.	SHEET NO.	TOTAL SHEETS
		6	ARK.	080711	112	123
		CROSS SECTIONS				

STAGE I

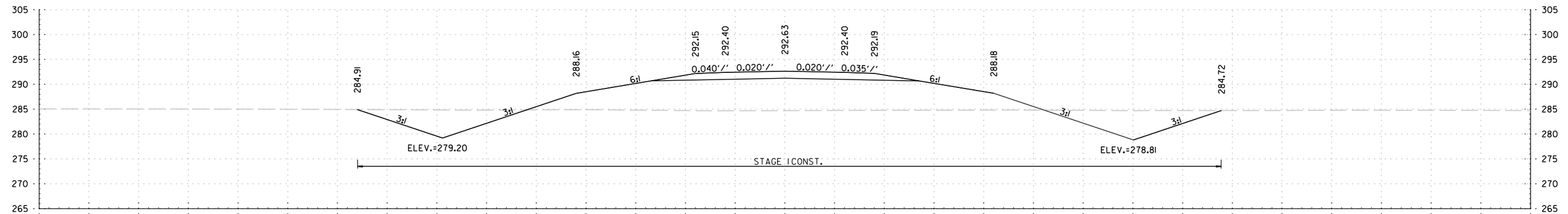
STAGE I



CUT AREA 174 SQ. FT.
FILL AREA 548 SQ. FT.

212+00.00

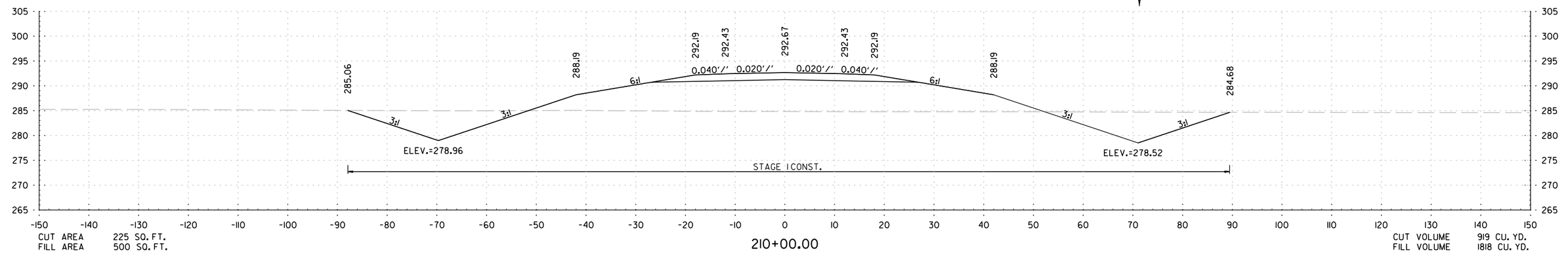
CUT VOLUME 693 CU. YD.
FILL VOLUME 1956 CU. YD.



CUT AREA 200 SQ. FT.
FILL AREA 508 SQ. FT.

211+00.00

CUT VOLUME 788 CU. YD.
FILL VOLUME 1868 CU. YD.



CUT AREA 225 SQ. FT.
FILL AREA 500 SQ. FT.

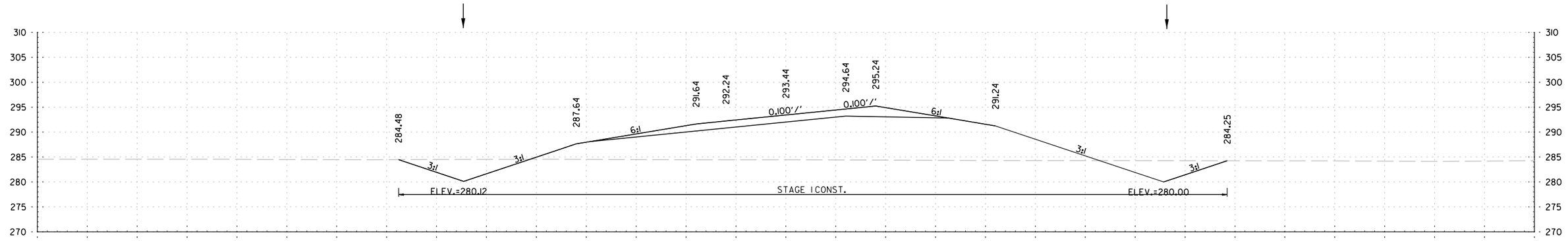
210+00.00

CUT VOLUME 919 CU. YD.
FILL VOLUME 1818 CU. YD.

STA. 210+00 TO STA. 212+00

DATE REVISED	DATE REVISED	FED.RD. DIST.NO.	STATE	JOB NO.	SHEET NO.	TOTAL SHEETS
		6	ARK.	080711	113	123
		CROSS SECTIONS				

STAGE I

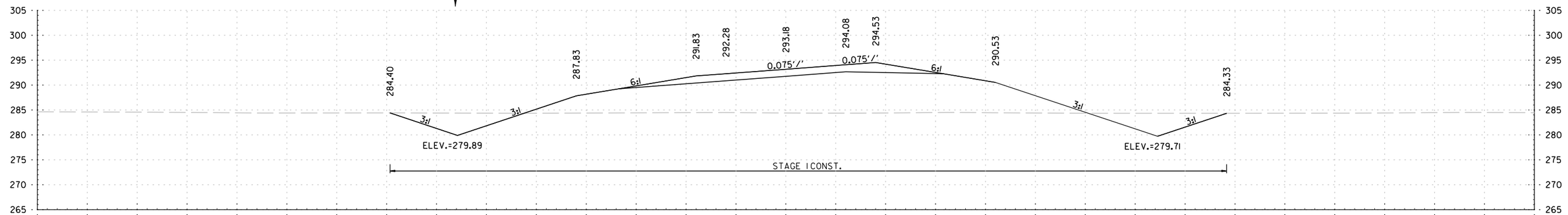


CUT AREA 113 SQ. FT.
FILL AREA 663 SQ. FT.

215+00.00

CUT VOLUME 439 CU. YD.
FILL VOLUME 2409 CU. YD.

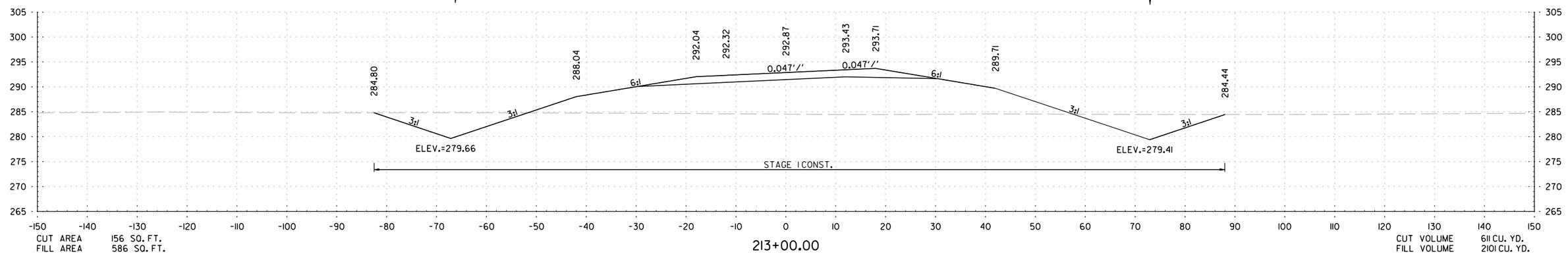
STAGE I



CUT AREA 124 SQ. FT.
FILL AREA 637 SQ. FT.

214+00.00

CUT VOLUME 519 CU. YD.
FILL VOLUME 2266 CU. YD.



CUT AREA 156 SQ. FT.
FILL AREA 586 SQ. FT.

213+00.00

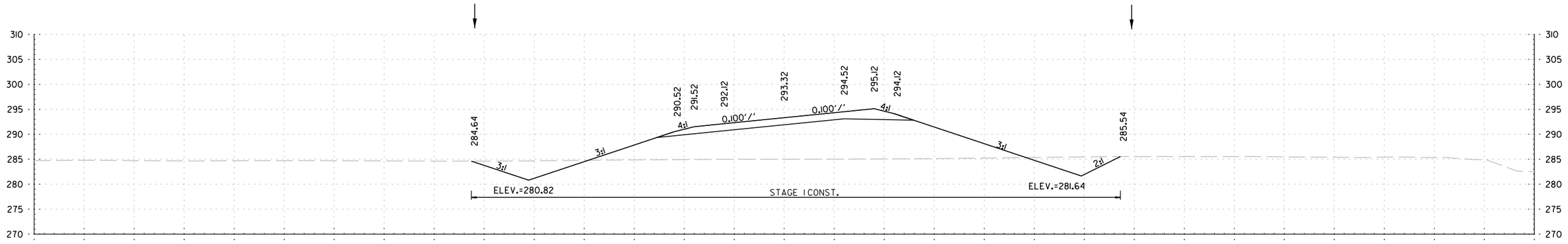
CUT VOLUME 611 CU. YD.
FILL VOLUME 2101 CU. YD.

STA. 213+00 TO STA. 215+00

RajyanChowdhury3/1/2024 2:54:00 PM
WORKSPACE: ARDOT
Y:\Projects\ARDOT_196431_080711_Highway 113 Relocation\Design\CIVIL\Drawings\R080711_CX.dgn
REVISED DATE: $$REVDATE$$

DATE REVISED	DATE REVISED	FED.RD. DIST.NO.	STATE	JOB NO.	SHEET NO.	TOTAL SHEETS
03-25-24		6	ARK.	080711	114	123
		CROSS SECTIONS				

STAGE I

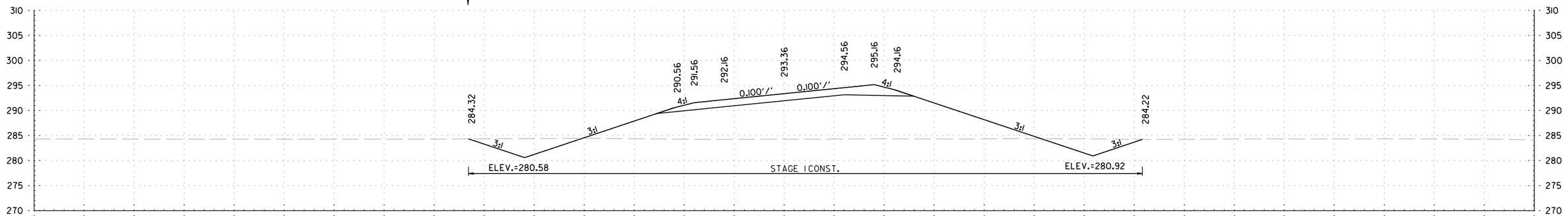


CUT AREA 81 SQ. FT.
FILL AREA 461 SQ. FT.

218+00.00

CUT VOLUME 294 CU. YD.
FILL VOLUME 1836 CU. YD.

STAGE I

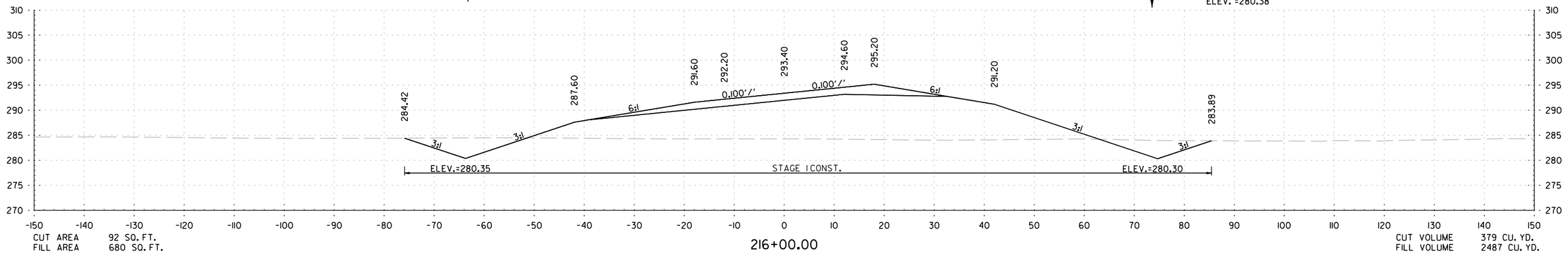


CUT AREA 78 SQ. FT.
FILL AREA 530 SQ. FT.

217+00.00

CUT VOLUME 314 CU. YD.
FILL VOLUME 2240 CU. YD.

STA. 216+27.00
END SP.DT.RT. 0.30%
BEGIN SP.DT.RT. 0.73%
ELEV. =280.38



CUT AREA 92 SQ. FT.
FILL AREA 680 SQ. FT.

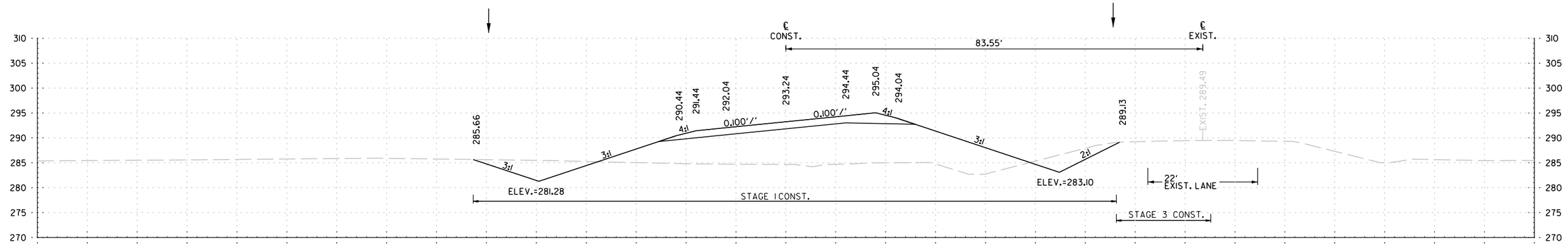
216+00.00

CUT VOLUME 379 CU. YD.
FILL VOLUME 2487 CU. YD.

STA. 216+00 TO STA. 218+00

DATE REVISED	DATE REVISED	FED.RD. DIST.NO.	STATE	JOB NO.	SHEET NO.	TOTAL SHEETS
03-25-24		6	ARK.	080711	115	123
		CROSS SECTIONS				

STAGE 1
STAGE 3



CUT AREA 86 SQ. FT.
FILL AREA 494 SQ. FT.

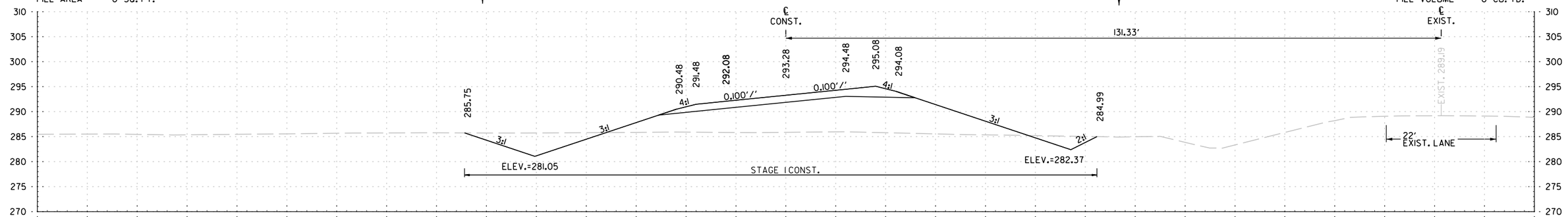
CUT AREA 56 SQ. FT.
FILL AREA 0 SQ. FT.

220+00.00

CUT VOLUME 316 CU. YD.
FILL VOLUME 1652 CU. YD.

CUT VOLUME 0 CU. YD.
FILL VOLUME 0 CU. YD.

STAGE 1
STAGE 3



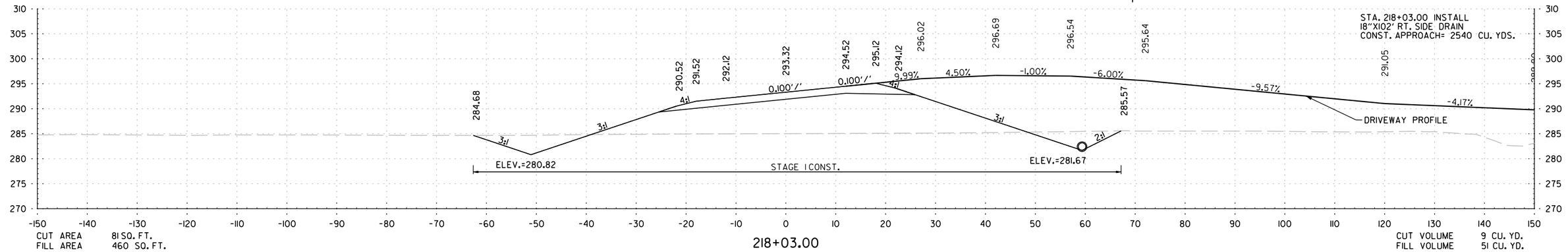
CUT AREA 85 SQ. FT.
FILL AREA 398 SQ. FT.

CUT AREA 0 SQ. FT.
FILL AREA 0 SQ. FT.

219+00.00

CUT VOLUME 298 CU. YD.
FILL VOLUME 1541 CU. YD.

CUT VOLUME 0 CU. YD.
FILL VOLUME 0 CU. YD.



CUT AREA 81 SQ. FT.
FILL AREA 460 SQ. FT.

CUT AREA 0 SQ. FT.
FILL AREA 0 SQ. FT.

218+03.00

CUT VOLUME 9 CU. YD.
FILL VOLUME 51 CU. YD.

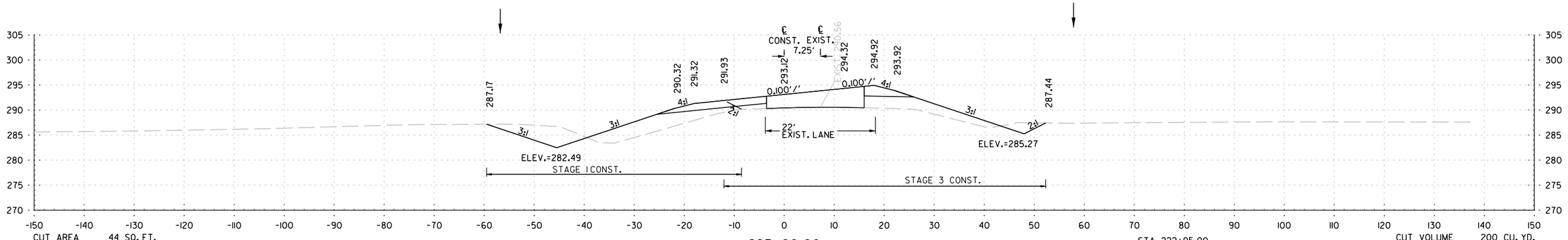
CUT VOLUME 0 CU. YD.
FILL VOLUME 0 CU. YD.

STA. 218+03 TO STA. 220+00

DATE REVISED	DATE REVISED	FED.RD. DIST.NO.	STATE	JOB NO.	SHEET NO.	TOTAL SHEETS
03-25-24		6	ARK.	080711	116	123
		CROSS SECTIONS				

STAGE 1
STAGE 3

STAGE 1
STAGE 3



CUT AREA 44 SQ. FT.
FILL AREA 67 SQ. FT.

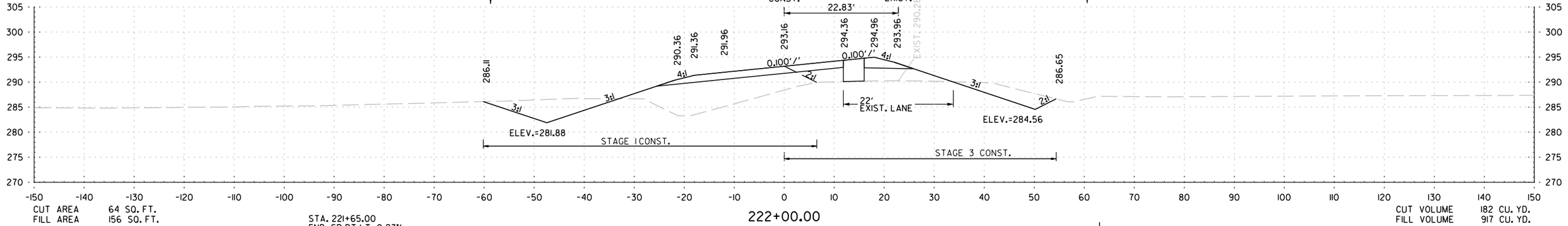
CUT AREA 10 SQ. FT.
FILL AREA 120 SQ. FT.

223+00.00

STA. 222+95.00
END SP.DT.RT. 0.73%
BEGIN SP.DT.RT. 0.30%
ELEV. =285.26

CUT VOLUME 200 CU. YD.
FILL VOLUME 413 CU. YD.

CUT VOLUME 93 CU. YD.
FILL VOLUME 356 CU. YD.



CUT AREA 64 SQ. FT.
FILL AREA 156 SQ. FT.

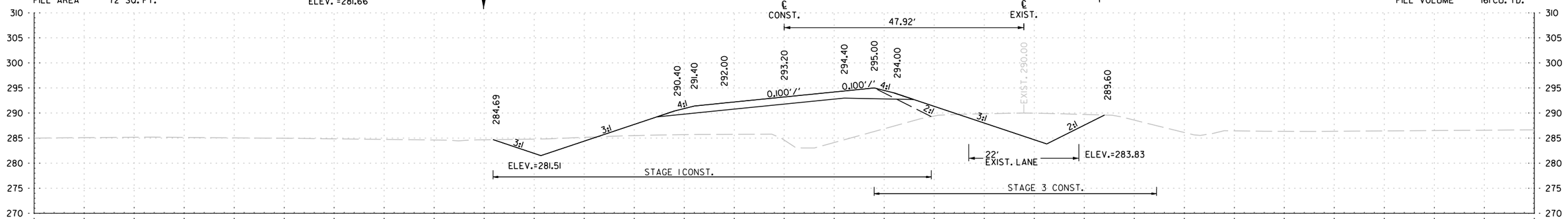
CUT AREA 40 SQ. FT.
FILL AREA 72 SQ. FT.

STA. 221+65.00
END SP.DT.LT. 0.23%
BEGIN SP.DT.LT. 0.62%
ELEV. =281.66

222+00.00

CUT VOLUME 182 CU. YD.
FILL VOLUME 917 CU. YD.

CUT VOLUME 241 CU. YD.
FILL VOLUME 161 CU. YD.



CUT AREA 34 SQ. FT.
FILL AREA 339 SQ. FT.

CUT AREA 90 SQ. FT.
FILL AREA 15 SQ. FT.

221+00.00

CUT VOLUME 223 CU. YD.
FILL VOLUME 1543 CU. YD.

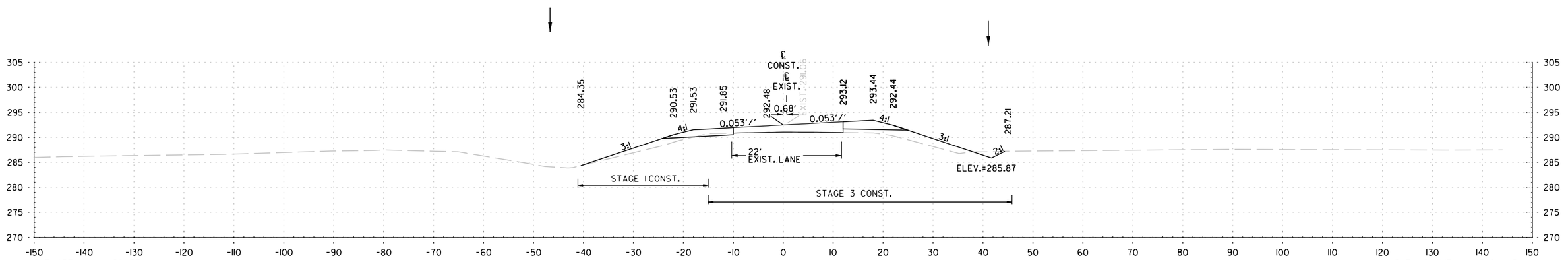
CUT VOLUME 167 CU. YD.
FILL VOLUME 28 CU. YD.

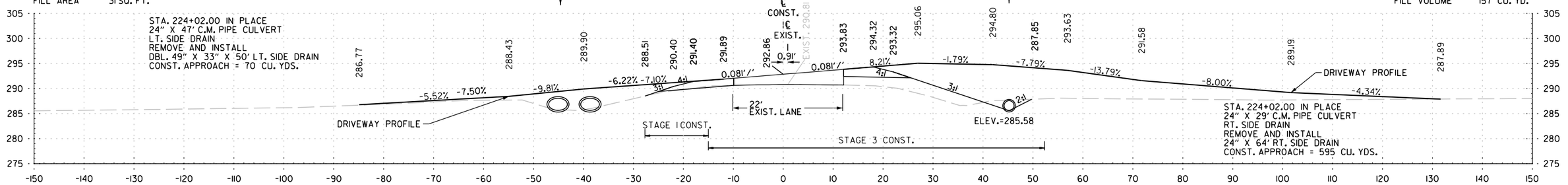
STA. 221+00 TO STA. 223+00

DATE REVISED	DATE REVISED	FED.RD. DIST.NO.	STATE	JOB NO.	SHEET NO.	TOTAL SHEETS
03-25-24		6	ARK.	080711	117	123
		CROSS SECTIONS				

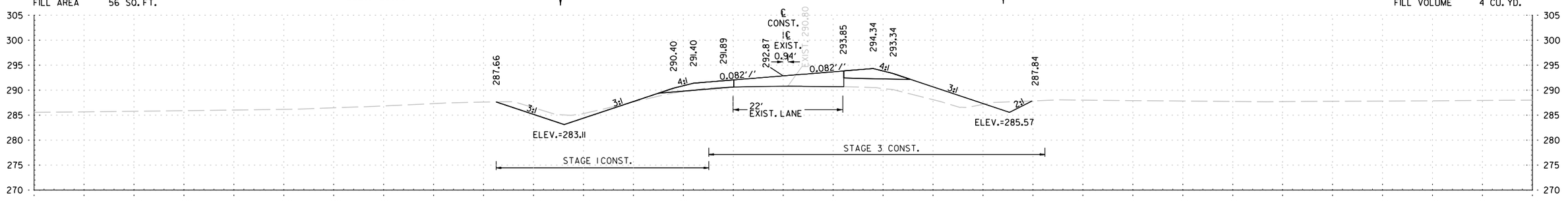
STAGE 1
STAGE 3

STAGE 1
STAGE 3





STA. 224+01.00
END SP.DT.LT. 0.62%
ELEV. =283.12

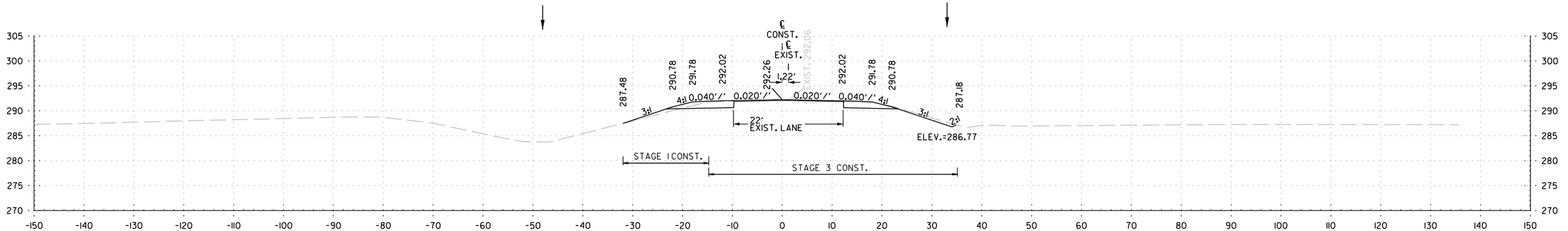


STA. 224+00 TO STA. 225+00

DATE REVISED	DATE REVISED	FED.RD. DIST.NO.	STATE	JOB NO.	SHEET NO.	TOTAL SHEETS
03-25-24		6	ARK.	080711	118	123
		CROSS SECTIONS				

STAGE 1
STAGE 3

STAGE 1
STAGE 3



CUT AREA 4 SQ. FT.
FILL AREA 4 SQ. FT.

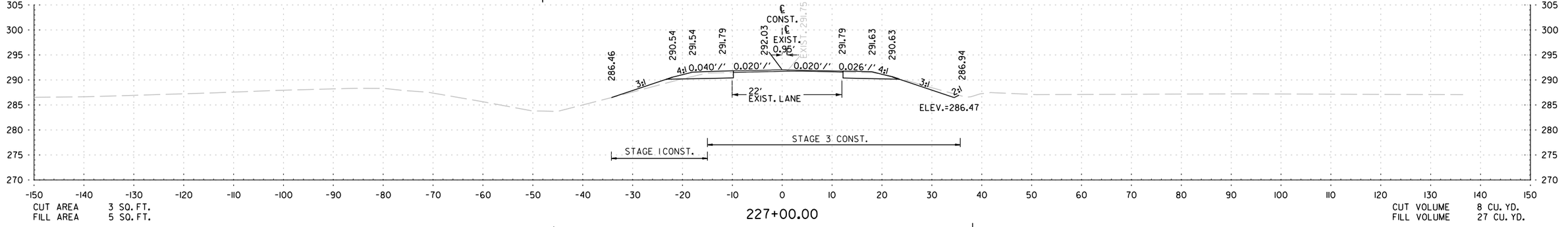
CUT AREA 22 SQ. FT.
FILL AREA 0 SQ. FT.

228+00.00

STA. 227+96.00
END SP.DT.RT. 0.30%
BEGIN SP.DT.RT. 0.16%
ELEV. =286.76

CUT VOLUME 12 CU. YD.
FILL VOLUME 17 CU. YD.

CUT VOLUME 82 CU. YD.
FILL VOLUME 0 CU. YD.



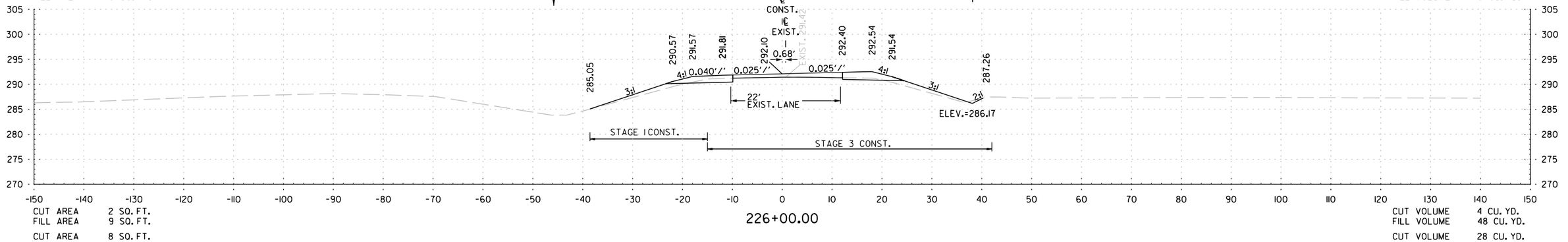
CUT AREA 3 SQ. FT.
FILL AREA 5 SQ. FT.

CUT AREA 22 SQ. FT.
FILL AREA 0 SQ. FT.

227+00.00

CUT VOLUME 8 CU. YD.
FILL VOLUME 27 CU. YD.

CUT VOLUME 56 CU. YD.
FILL VOLUME 0 CU. YD.



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

CUT AREA 8 SQ. FT.
FILL AREA 10 SQ. FT.

226+00.00

CUT VOLUME 4 CU. YD.
FILL VOLUME 48 CU. YD.

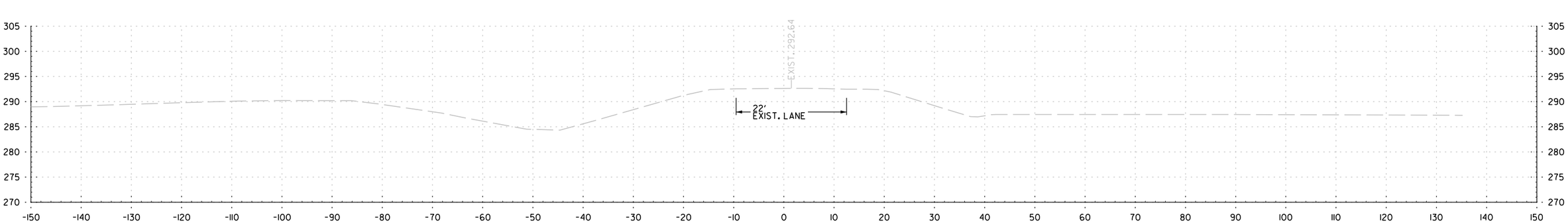
CUT VOLUME 28 CU. YD.
FILL VOLUME 75 CU. YD.

STA. 226+00 TO STA. 228+00

DATE REVISED	DATE REVISED	FED.RD. DIST.NO.	STATE	JOB NO.	SHEET NO.	TOTAL SHEETS
		6	ARK.	080711	119	123
		CROSS SECTIONS				

STAGE 1
STAGE 3

STAGE 1
STAGE 3



CUT AREA 0 SQ. FT.
FILL AREA 0 SQ. FT.

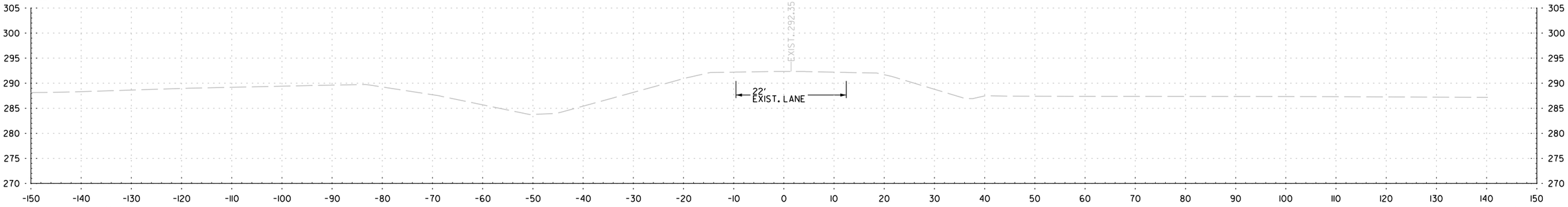
CUT AREA 0 SQ. FT.
FILL AREA 0 SQ. FT.

229+95.00
END 100' TRANSITION

STA. 228+96.00
END SP.DT.RT. 0.16%
ELEV. =286.92

CUT VOLUME 0 CU. YD.
FILL VOLUME 0 CU. YD.

CUT VOLUME 0 CU. YD.
FILL VOLUME 0 CU. YD.



CUT AREA 0 SQ. FT.
FILL AREA 0 SQ. FT.

CUT AREA 0 SQ. FT.
FILL AREA 0 SQ. FT.

228+95.00
END JOB. 080711
BEGIN 100' TRANSITION

CUT VOLUME 6 CU. YD.
FILL VOLUME 7 CU. YD.

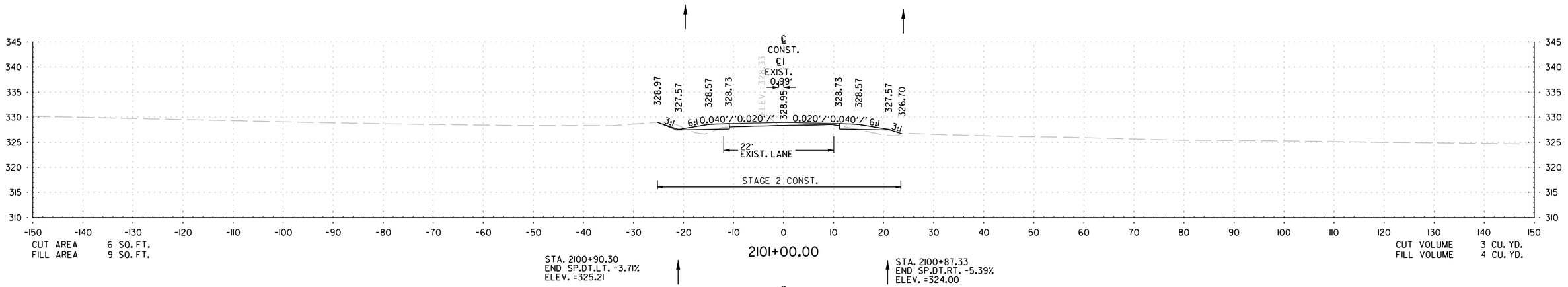
CUT VOLUME 39 CU. YD.
FILL VOLUME 0 CU. YD.

STA. 228+95 TO STA. 229+00

DATE REVISED	DATE REVISED	FED.RD. DIST.NO.	STATE	JOB NO.	SHEET NO.	TOTAL SHEETS
		6	ARK.	080711	120	123
		CROSS SECTIONS				

STAGE 2

STAGE 2



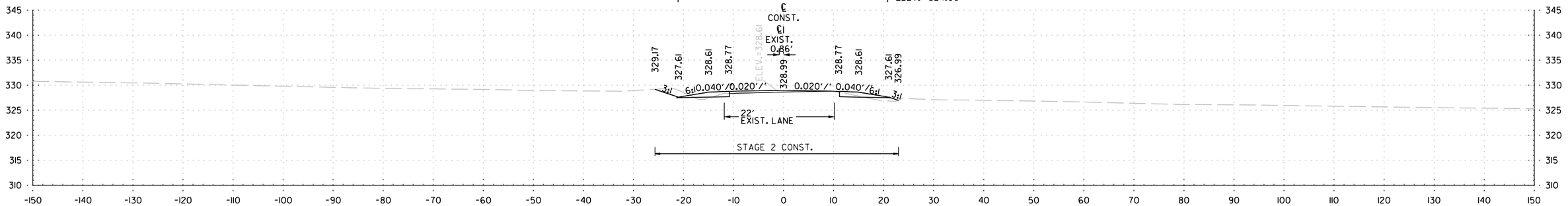
CUT AREA 6 SQ. FT.
FILL AREA 9 SQ. FT.

2101+00.00

CUT VOLUME 3 CU. YD.
FILL VOLUME 4 CU. YD.

STA. 2100+90.30
END SP.DT.LT. -3.71%
ELEV. =325.21

STA. 2100+87.33
END SP.DT.RT. -5.39%
ELEV. =324.00



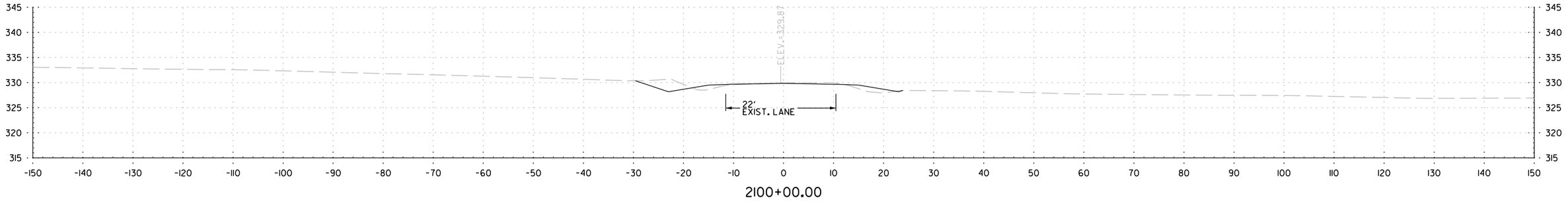
CUT AREA 0 SQ. FT.
FILL AREA 0 SQ. FT.

2100+76.00

CUT VOLUME 0 CU. YD.
FILL VOLUME 0 CU. YD.

STA. 2100+14.94
BEGIN SP.DT.LT. -3.71%
ELEV. =328

STA. 2100+14.94
BEGIN SP.DT.RT. -5.39%
ELEV. =327.90



2100+00.00

HWY. 154

STA. 2100+00 TO STA. 2101+00

DATE REVISED	DATE REVISED	FED.RD. DIST.NO.	STATE	JOB NO.	SHEET NO.	TOTAL SHEETS
		6	ARK.	080711	121	123
		CROSS SECTIONS				

STAGE 2

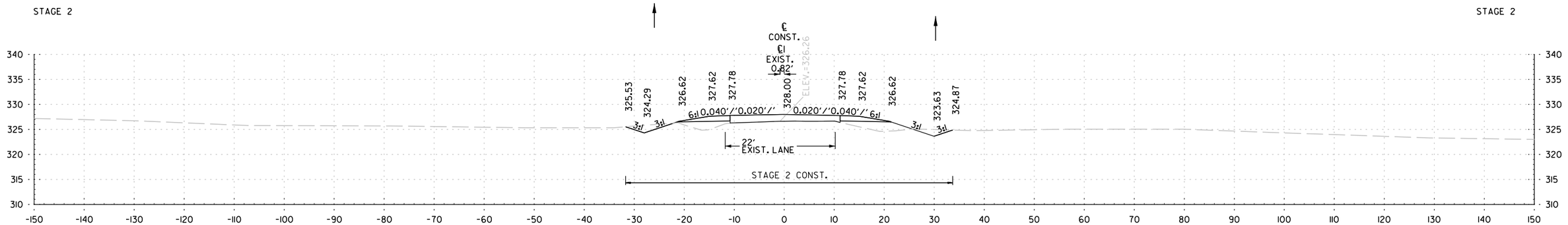
STAGE 2

HWY. 154

STA. 2101+39 TO STA. 2101+89

DATE REVISED	DATE REVISED	FED.RD. DIST.NO.	STATE	JOB NO.	SHEET NO.	TOTAL SHEETS
		6	ARK.	080711	122	123
		CROSS SECTIONS				

STAGE 2

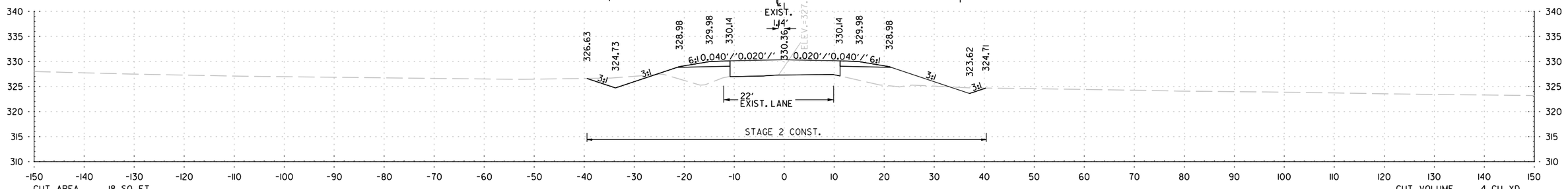


CUT AREA 15 SQ. FT.
FILL AREA 27 SQ. FT.

2102+95.64

CUT VOLUME 61 CU. YD.
FILL VOLUME 229 CU. YD.

STAGE 2

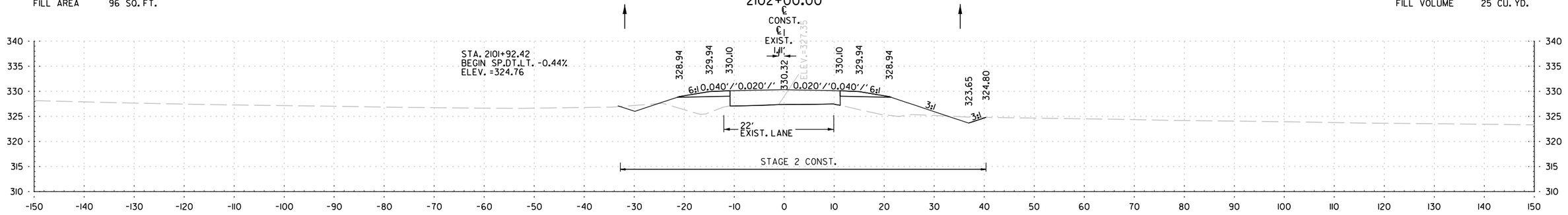


CUT AREA 18 SQ. FT.
FILL AREA 96 SQ. FT.

2102+00.00

CUT VOLUME 4 CU. YD.
FILL VOLUME 25 CU. YD.

STAGE 2

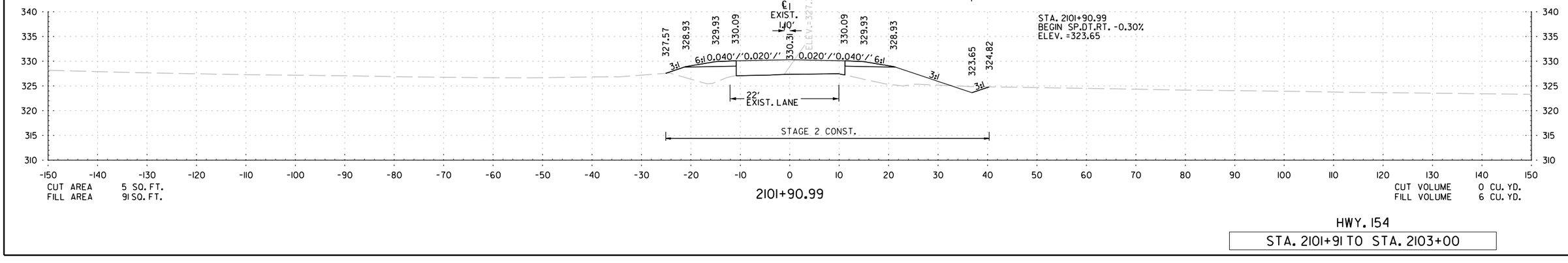


CUT AREA 9 SQ. FT.
FILL AREA 83 SQ. FT.

2101+92.42

CUT VOLUME 0 CU. YD.
FILL VOLUME 5 CU. YD.

STAGE 2



CUT AREA 5 SQ. FT.
FILL AREA 91 SQ. FT.

2101+90.99

CUT VOLUME 0 CU. YD.
FILL VOLUME 6 CU. YD.

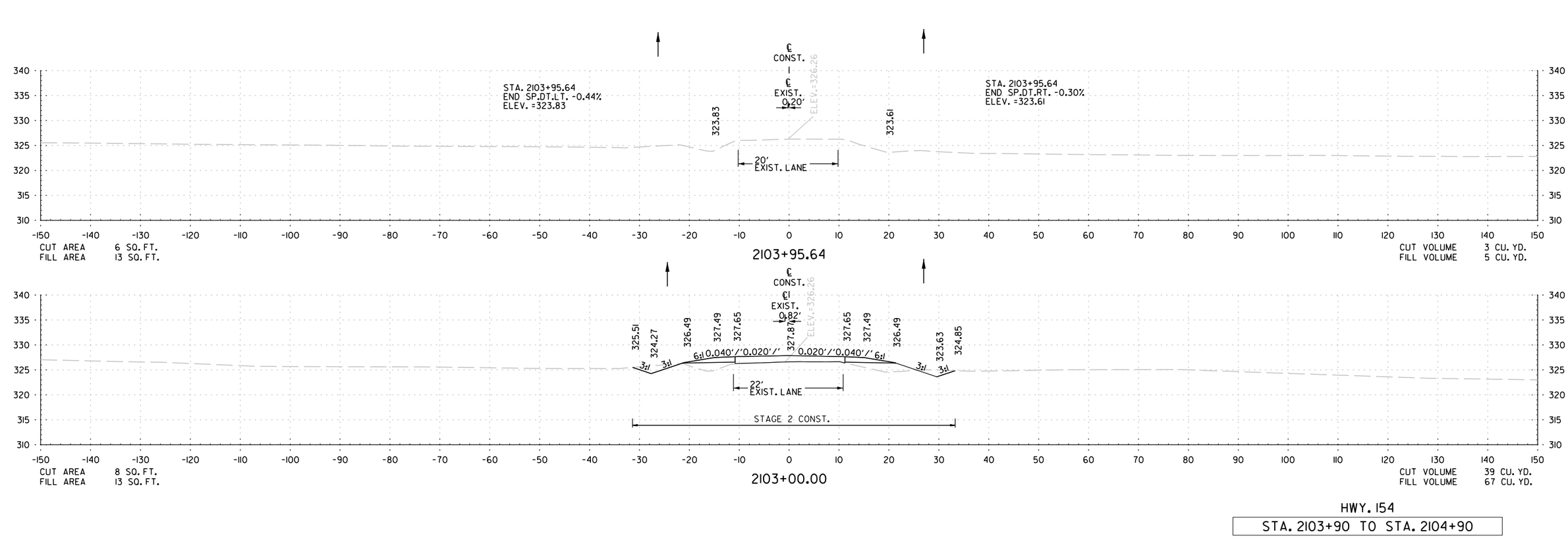
HWY. 154

STA. 2101+91 TO STA. 2103+00

DATE REVISED	DATE REVISED	FED.RD. DIST.NO.	STATE	JOB NO.	SHEET NO.	TOTAL SHEETS
03-25-24		6	ARK.	080711	123	123
		CROSS SECTIONS				

STAGE 2

STAGE 2



HWY. 154

STA. 2103+90 TO STA. 2104+90

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WORKSPACE: ARDOT
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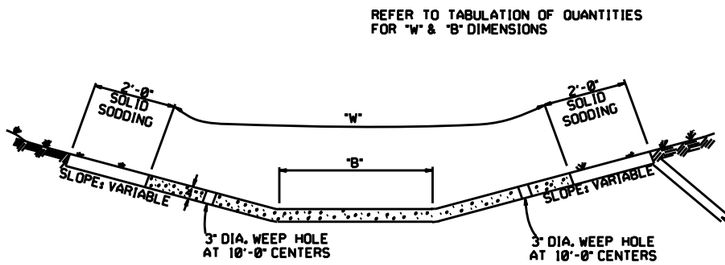
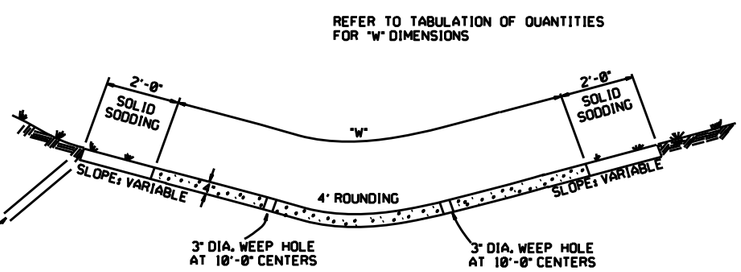
REVISED DATE: $$REVDATE$$



TYPE A

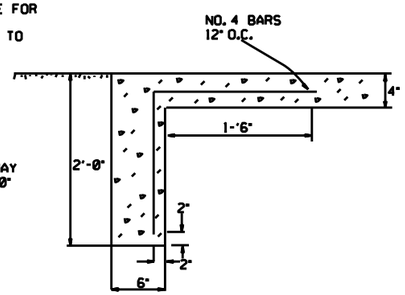
EXCAVATE TO NEAT LINES TO CONSTRUCT DITCH PAVING AND SOLID SODDING.



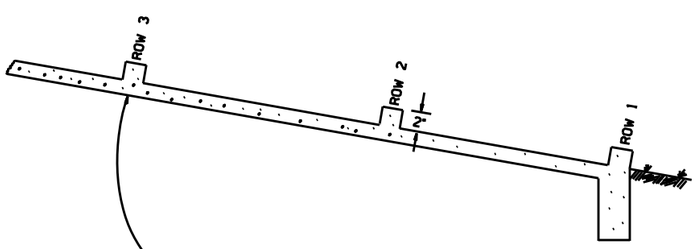
TYPE B

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

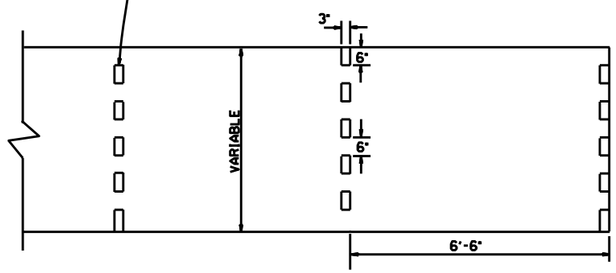


TOE WALL DETAIL FOR CONCRETE DITCH PAVING



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.

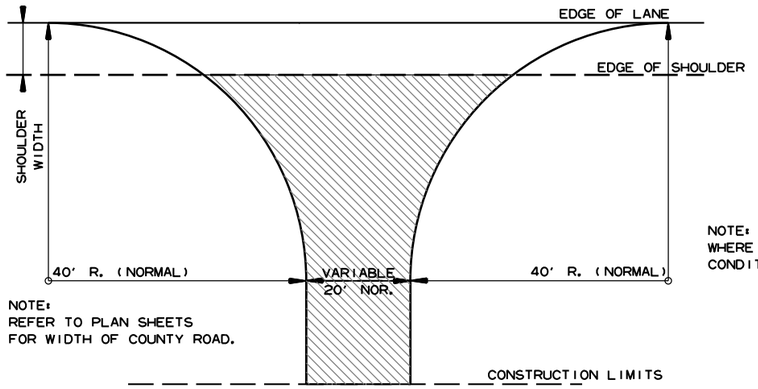
1" WIDE TRANSVERSE EXPANSION JOINTS SHALL BE PLACED IN CONCRETE DITCH PAVING AT 45° INTERVALS. THE SPACE SHALL BE FILLED WITH APPROVED JOINT FILLER COMPLYING WITH AASHTO M213.

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

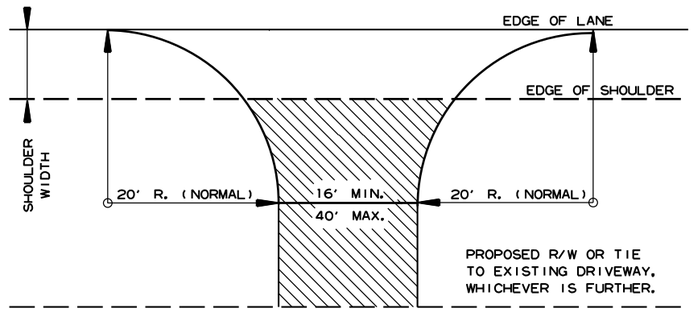


NOTE:
REFER TO PLAN SHEETS
FOR WIDTH OF COUNTY ROAD.

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.

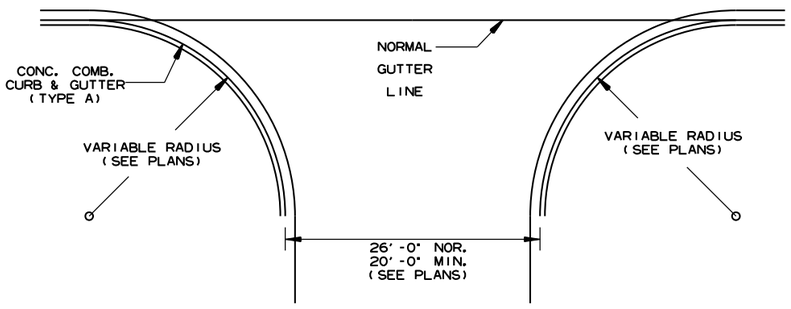
DETAIL FOR COUNTY ROAD TURNOUTS OPEN SHOULDER SECTION



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

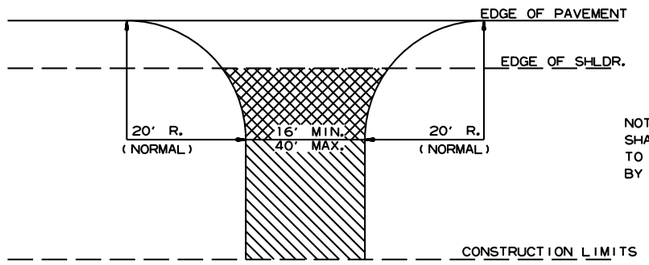
ACHM SURFACE COURSE (1/2")
(220 LBS. PER SQ. YD.) AND
AGGREGATE BASE COURSE (CLASS 7)
7" COMP. DEPTH IF ASPHALT OR
GRAVEL DRIVE EXISTING; OR 6"
CONCRETE IF CONCRETE DRIVE
EXISTING.

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

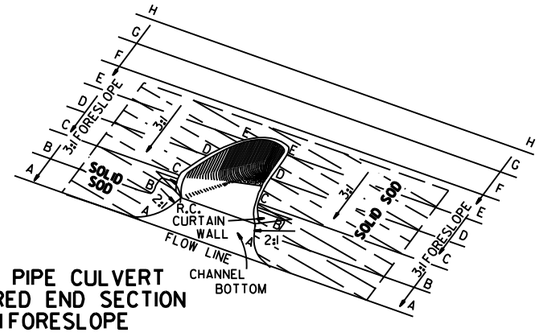
DETAIL FOR DRIVEWAY TURNOUTS (COLLECTORS)

DATE REV	DATE FILMED	DESCRIPTION
5-19-22		ISSUED

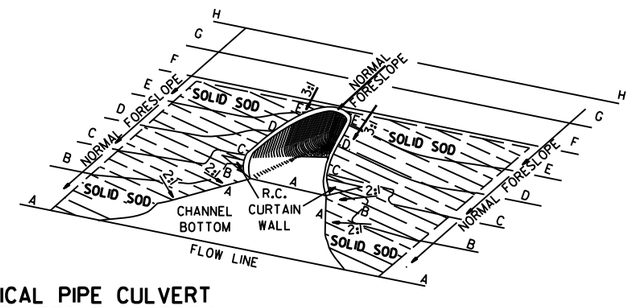
ARKANSAS STATE HIGHWAY COMMISSION

DETAILS OF DRIVEWAYS & STREET TURNOUTS

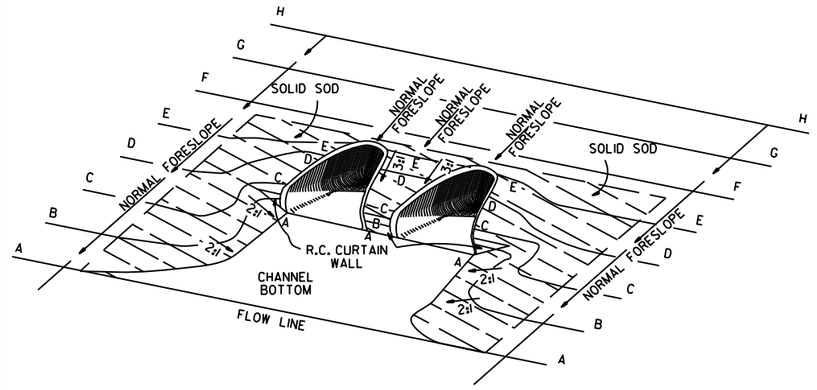
STANDARD DRAWING DR-2



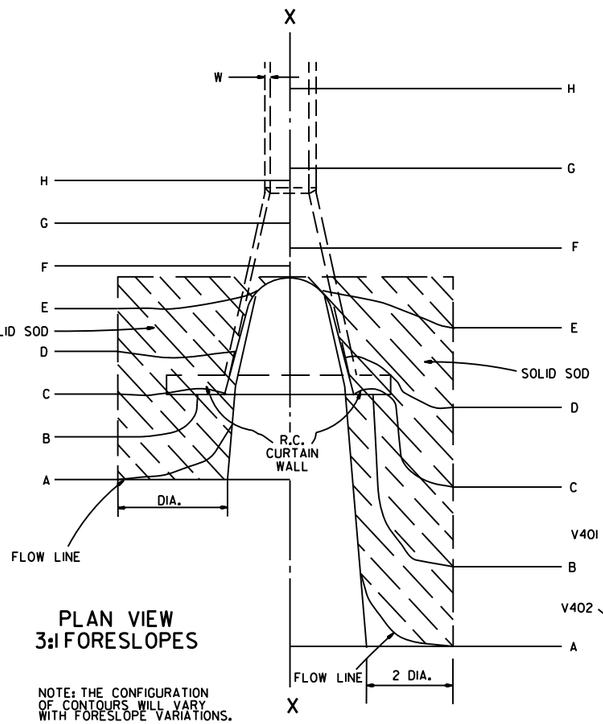
TYPICAL PIPE CULVERT
WITH FLARED END SECTION
& 3:1 FORESLOPE



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

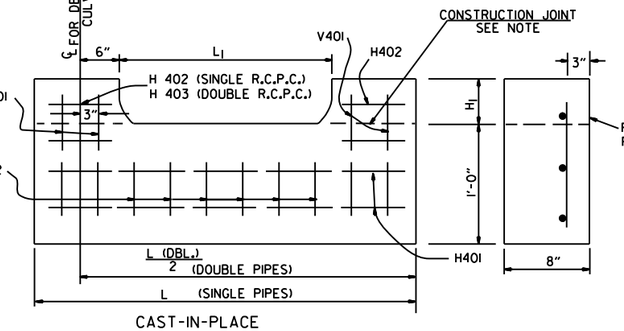
NOTE: THE CONFIGURATION OF CONTOURS WILL VARY WITH FORESLOPE VARIATIONS.

PLAN VIEW
FLATTENED FORESLOPES

R.C. CURTAIN WALL
DIMENSIONS & QUANTITIES

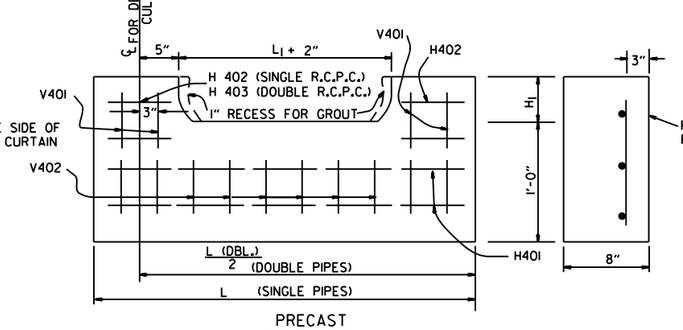
PIPE DIA.	H_1	L_1	L	L (DBL.) / 2	SINGLE R.C.P.C. CONC.	SINGLE R.C.P.C. REINF. STEEL	DOUBLE R.C.P.C. CONC.	DOUBLE R.C.P.C. REINF. STEEL
					CU. YDS.	LBS.	CU. YDS.	LBS.
18"	1'-11½"	3'-5"	8'-0"	6'-3"	0.31	27.7	0.45	39.5
24"	1'-0½"	4'-6"	9'-6"	7'-6"	0.37	33.4	0.53	48.0
30"	1'-3½"	5'-7"	11'-0"	9'-0"	0.45	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

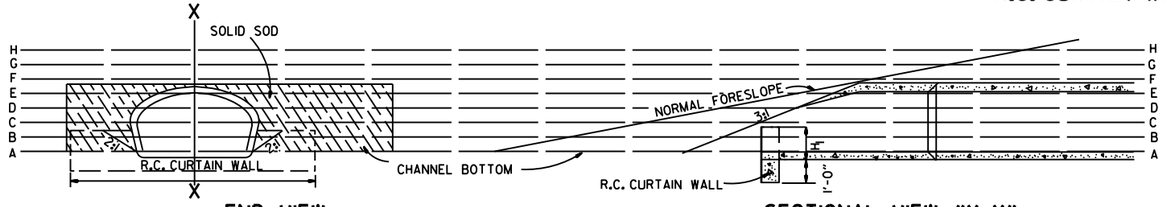
NOTE: THE PORTION OF THE R.C. CURTAIN WALL BENEATH THE FLARED END SECTION (LOWER 1'-0") SHALL BE PLACED MONOLITHICALLY. THE FLARED END SECTION SHALL THEN BE SET IN PLACE & THE REMAINING PORTIONS OF THE R.C. CURTAIN WALL PLACED.



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

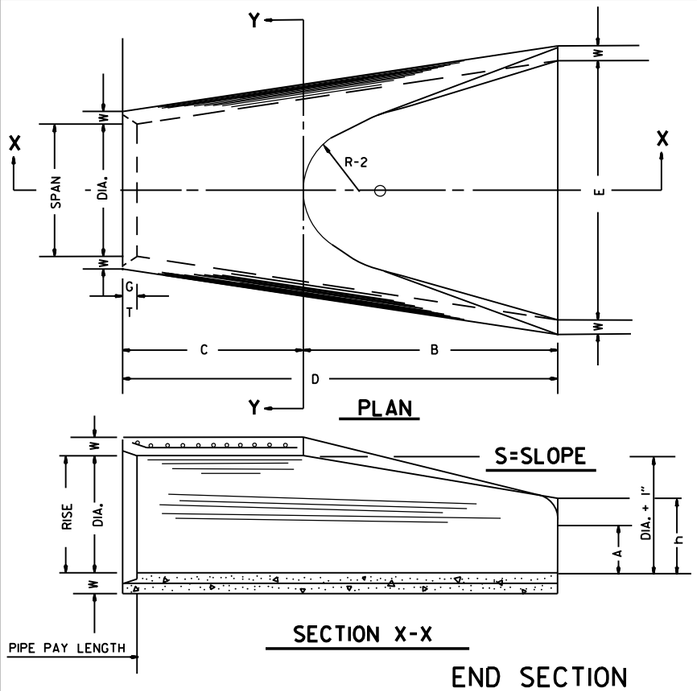
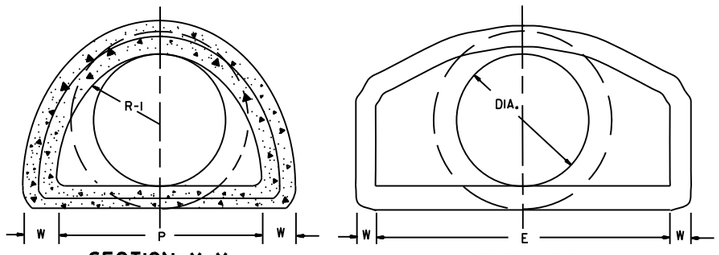


TABLE OF DIMENSIONS

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"

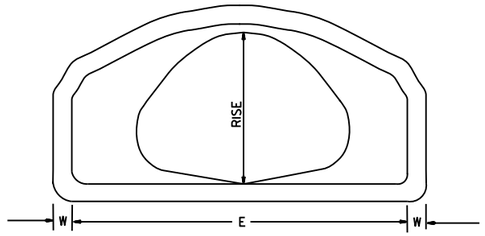


NOTE: TONGUE END ON UPSTREAM SECTION
GROOVE END ON DOWNSTREAM SECTION

ARCH PIPE

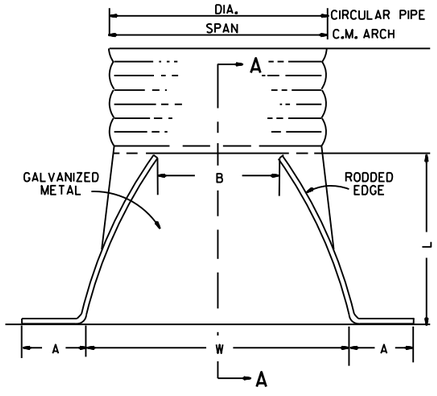
EQUIV. DIA.	• SPAN AASHTO M 206	• SPAN AHD NOMINAL	• RISE AASHTO M 206	• RISE AHD NOMINAL	W	A	B	C	D	E	P	R2	G-T	S
	INCHES													
15	18	18	11	11	2"	4"	2'-0"	4'-0"	6'-0"	3'-0"	29"	12"	1½"	2½:1
18	22	22	13½	14	2½"	5"	2'-0"	4'-1"	6'-1"	3'-6"	32⅛"	13"	2½"	2½:1
21	26	26	15½	16	2¾"	7"	2'-3"	3'-10"	6'-1"	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

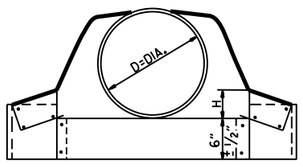
• THE MEASURED SPAN AND RISE SHALL NOT VARY MORE THAN ± 2 PER CENT FROM THE VALUES SPECIFIED BY AASHTO M 206.



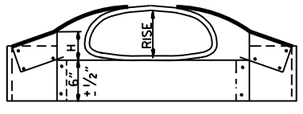
END VIEW
CONCRETE ARCH PIPE

END SECTION FOR REINFORCED CONCRETE PIPE CULVERTS





CIRCULAR PIPE



C.M. ARCH PIPE

CIRCULAR PIPE

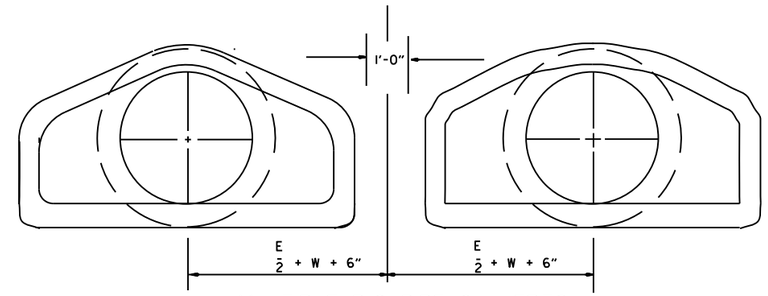
D. DIA.	GAUGE	A 1" ±	B. MAX.	H 1" ±	L 1½" ±	W 2" ±	S
		INCHES					
12	16	6	6	6	21	24	2½:1
15	16	7	8	6	26	30	2½:1
18	16	8	10	6	31	36	2½:1
21	16	9	12	6	36	42	2½:1
24	16	10	13	6	41	48	2½:1
30	14	12	16	8	51	60	2½:1
36	14	14	19	9	60	72	2½:1
42	12	16	22	11	69	84	2½:1
48	12	18	27	12	78	90	2½:1
54	12	18	30	12	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

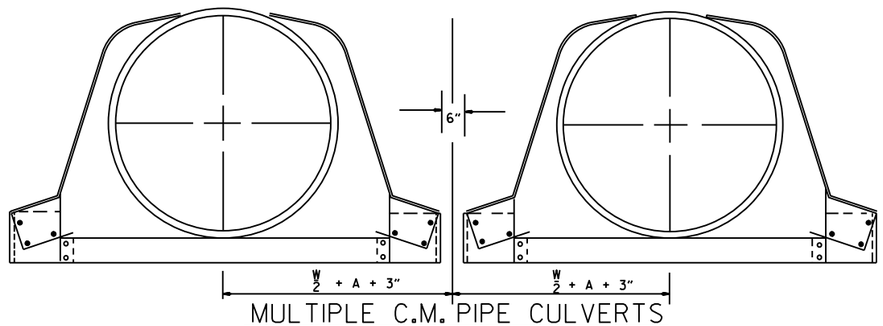
EQUIV. DIA.	SPAN	RISE	A 1" ±	B MAX.	H 1" ±	L 1½" ±	W 2" ±	S	GAUGE
	INCHES								
15"	17	13	7	9	6	19	30	2½:1	16
18"	21	15	7	10	6	23	36	2½:1	16
21"	24	18	8	12	6	28	42	2½:1	16
24"	28	20	9	14	6	32	48	2½:1	16
30"	35	24	10	16	6	39	60	2½:1	14
36"	42	29	12	18	8	46	75	2½:1	14
42"	49	33	13	21	9	53	85	2½:1	12
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



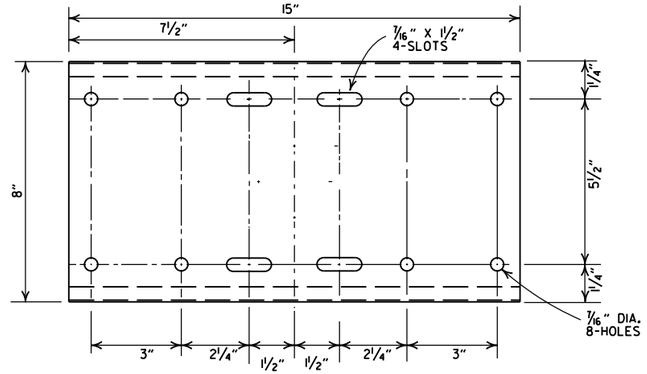
MULTIPLE C.M. PIPE CULVERTS

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

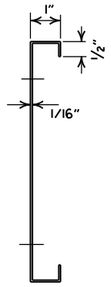
ARKANSAS STATE HIGHWAY COMMISSION

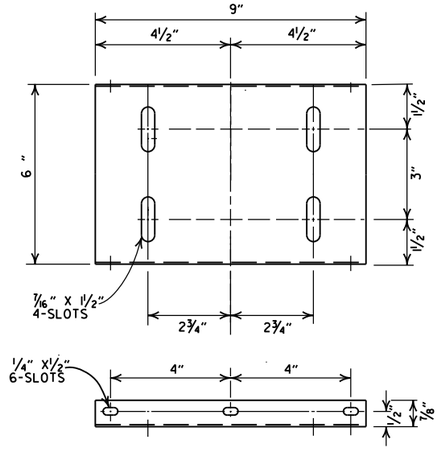
FLARED END SECTION

STANDARD DRAWING FES-2

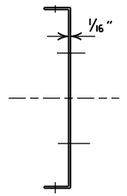


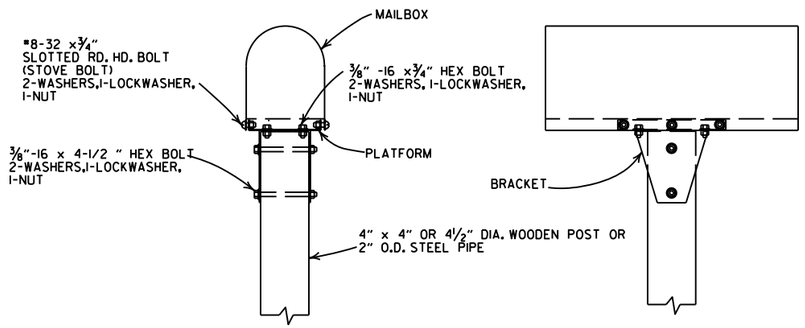
SHELF



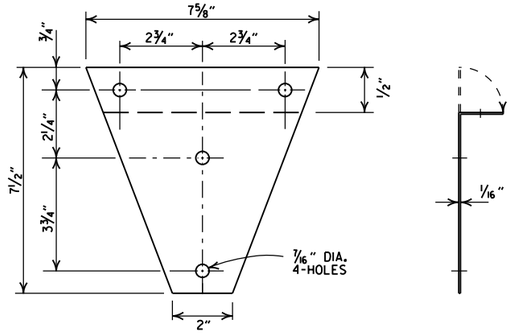


PLATFORM





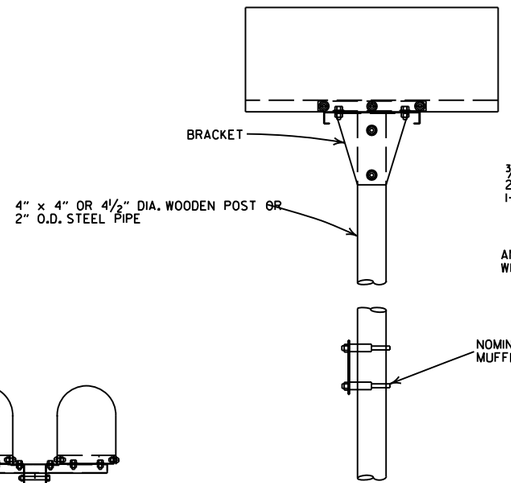
SINGLE INSTALLATION



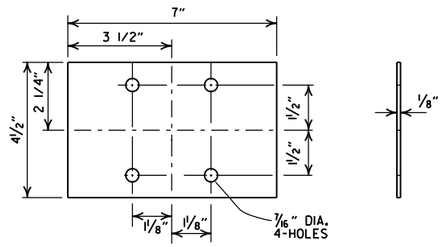
BRACKET

GENERAL NOTES

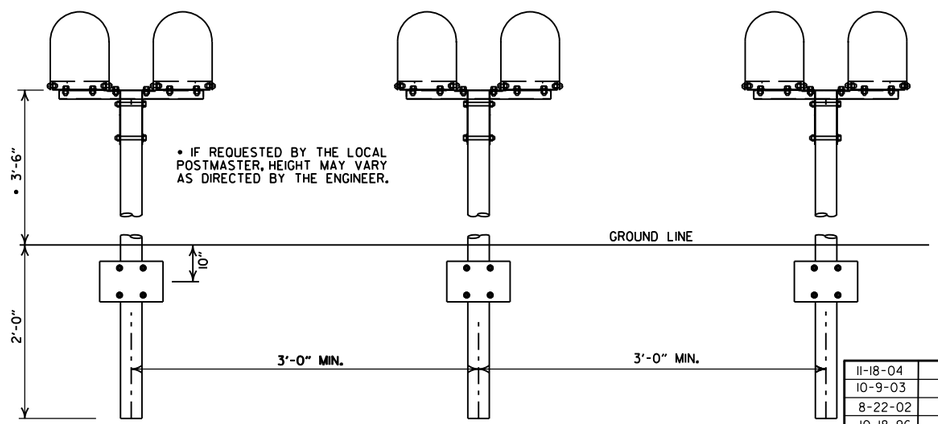
1. MAILBOX POSTS MAY BE WOOD OR METAL. WOOD POSTS SHALL BE PRESSURE TREATED FOR GROUND CONTACT IN ACCORDANCE WITH SECTION 637.02 OF THE STANDARD SPECIFICATIONS.
2. ANTI-TWIST PLATES SHALL BE USED ONLY ON METAL POSTS.
3. MAILBOX SHELF, BRACKET & PLATFORM SHALL BE GALVANIZED OR PAINTED STEEL, HOWEVER TREATED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



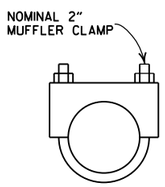
DOUBLE INSTALLATION



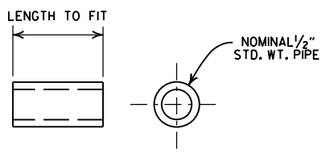
ANTI-TWIST PLATE



SPACING FOR MULTIPLE POST INSTALLATION



CLAMP



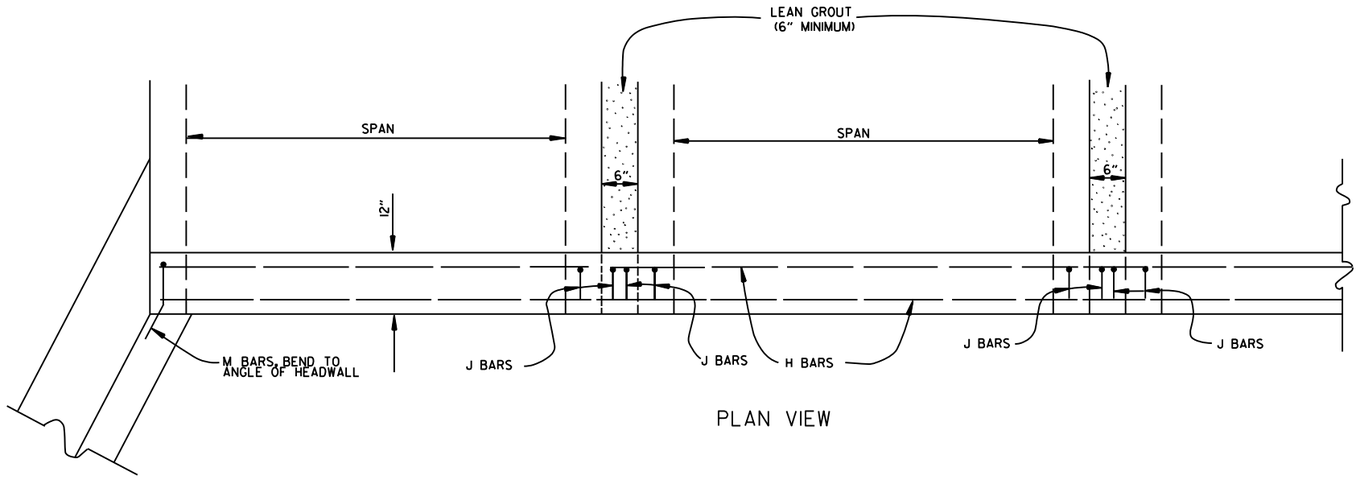
SPACER

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

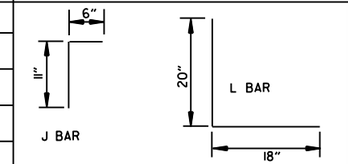
STANDARD DRAWING MB-1



PLAN VIEW

BAR LIST

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



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

GENERAL NOTES

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

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

ALL EXPOSED CORNERS TO HAVE ¾" CHAMFERS.

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

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

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

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

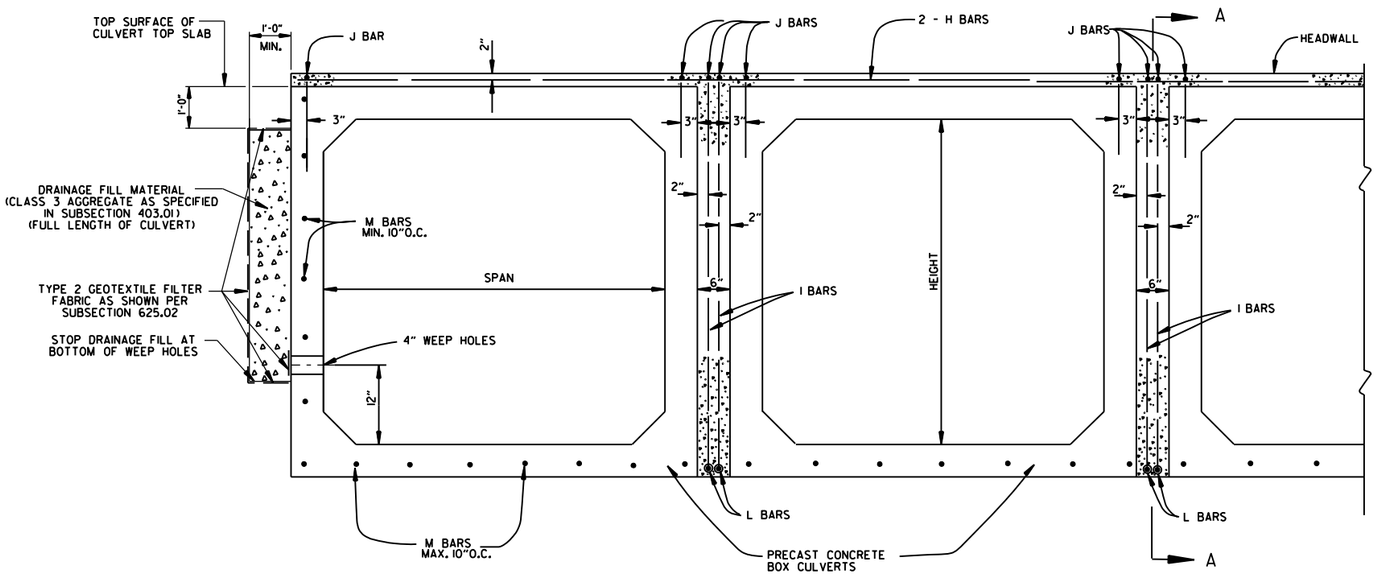
THE MEMBRANE WATERPROOFING WILL BE REQUIRED ON THE TOP EXTERNAL JOINT AND SHALL EXTEND 1 FOOT DOWN THE SIDES OF THE CULVERT.

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

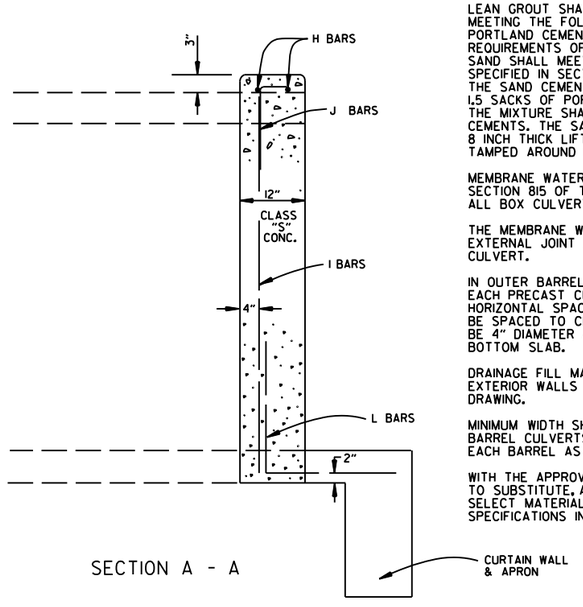
DRAINAGE FILL MATERIAL WITH GEOTEXTILE FABRIC IS REQUIRED AT THE EXTERIOR WALLS OF THE ASSEMBLED CULVERT, SEE DETAILS ON THIS DRAWING.

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

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



END VIEW



SECTION A - A

DATE	REVISION	DATE FILMED
1-28-15	REVISED GEOTEXTILE FABRIC PLACEMENT	
12-15-11	ADDED NOTE & DTLS FOR WEEP HOLE AND DRAINAGE FILL	
10-15-09	ADDED GENERAL NOTE	
11-10-05	REVISED SPACING OF "M" BARS	
4-10-03	REVISED GENERAL NOTES	
10-18-96	CORRECTED AASHTO REF.	
10-1-92	ADDED NOTE FOR MEMBRANE WATERPROOFING	
8-15-91	ADDED NOTE FOR LEAN GROUT	
11- 8-90	REVISED FOR 1991 SPECS	
11-30-89	ISSUED; JABE	

ARKANSAS STATE HIGHWAY COMMISSION

PRECAST CONCRETE BOX CULVERTS

STANDARD DRAWING PBC-1

REINFORCED CONCRETE ARCH PIPE DIMENSIONS

EQUIV. DIA.	SPAN		RISE	
	AASHTO M 206	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.

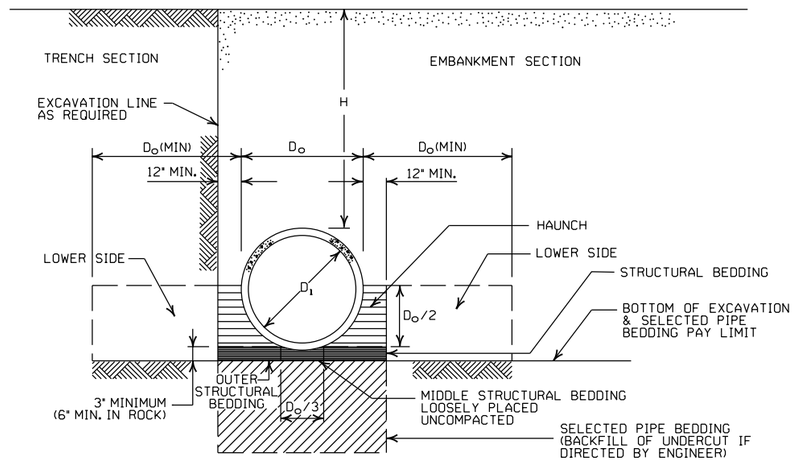
- LEGEND -

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

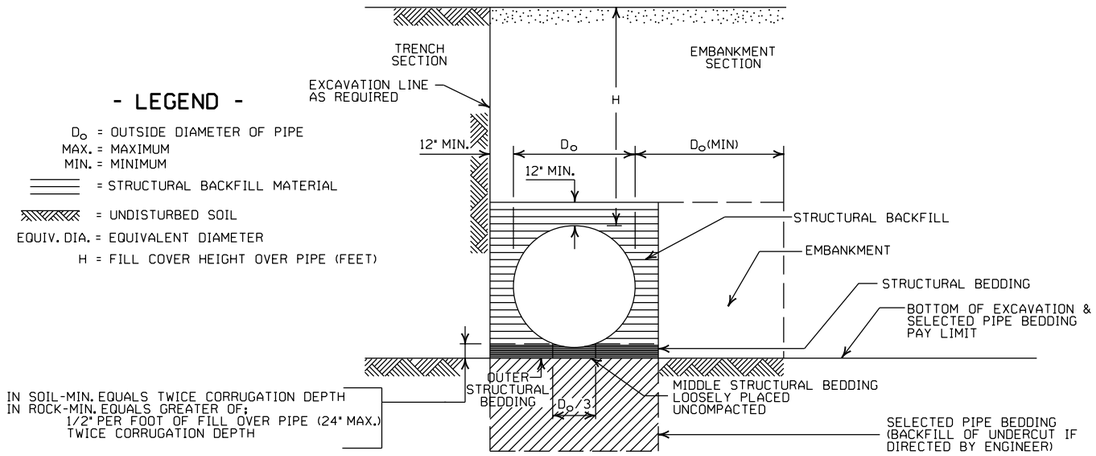
EQUIV. DIA. (INCHES)	PIPE DIMENSION SPAN X RISE (INCHES)	MINUMUM CORNER RADIUS (INCHES)	STEEL				ALUMINUM			
			MIN. THICKNESS REQUIRED INCHES	① MIN. HEIGHT OF FILL, "H" (FT.)	MAX. HEIGHT OF FILL, "H" (FT.)		MIN. THICKNESS REQUIRED INCHES	① MIN. HEIGHT OF FILL, "H" (FT.)	MAX. HEIGHT OF FILL, "H" (FT.)	
				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"

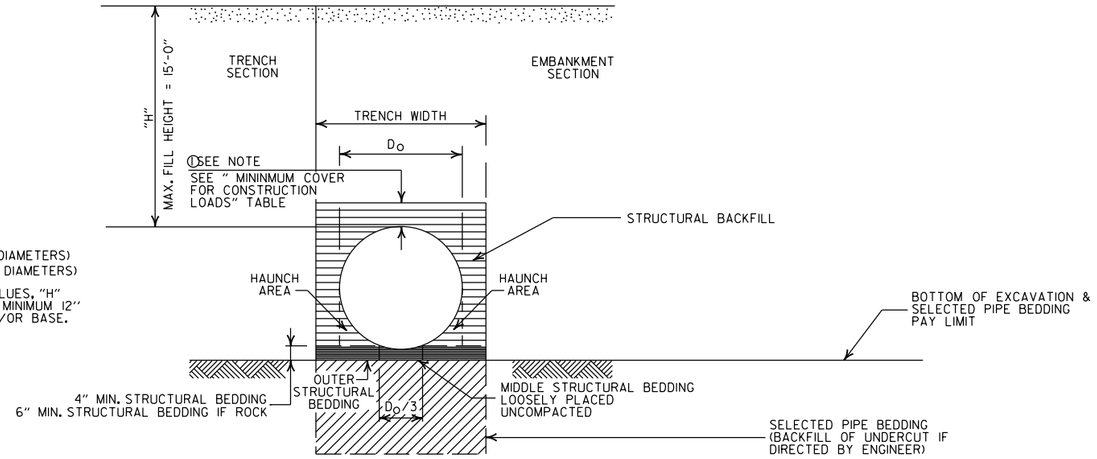
①NOTE:
18" MIN. (18" - 30" DIAMETERS)
24" MIN. (36" - 48" DIAMETERS)

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

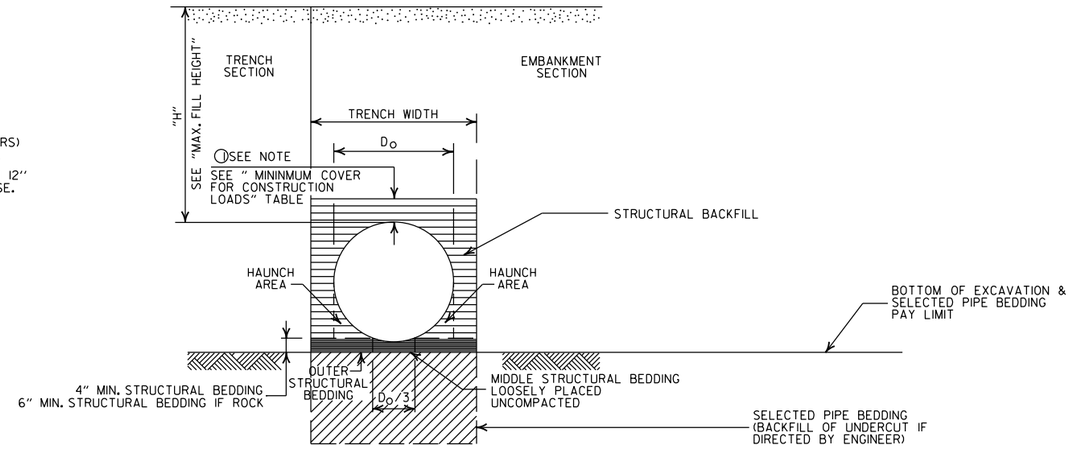
PIPE DIAMETER	"H"
18"	45'-0"
24"	45'-0"
30"	40'-0"
36"	40'-0"

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"

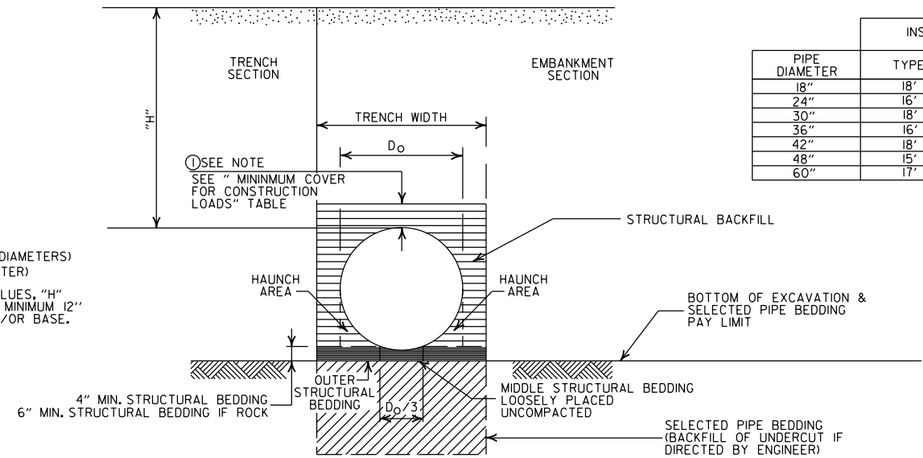
PIPE DIAMETER	TRENCH WIDTH (FEET)	
	"H" < 10'-0"	"H" >OR= 10'-0"
18"	4'-6"	4'-6"
24"	5'-0"	6'-0"
30"	5'-6"	7'-6"
36"	6'-0"	9'-0"
42"	7'-0"	10'-6"
48"	8'-0"	12'-0"
60"	10'-0"	15'-0"

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

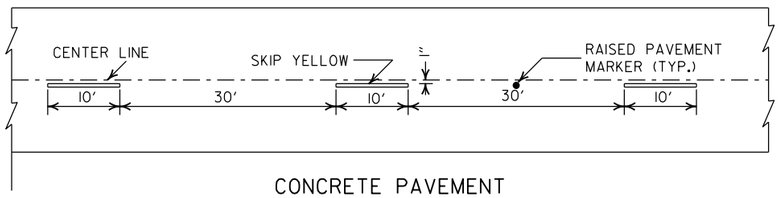
= UNDISTURBED SOIL

DATE	REVISION	DATE FILMED
02-27-20	REVISED	
11-07-19	ISSUED	

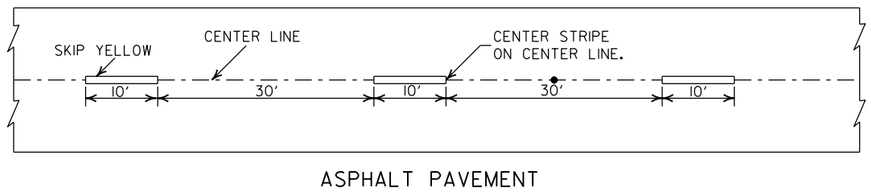
ARKANSAS STATE HIGHWAY COMMISSION

PLASTIC PIPE CULVERT (POLYPROPYLENE)

STANDARD DRAWING PCP-3

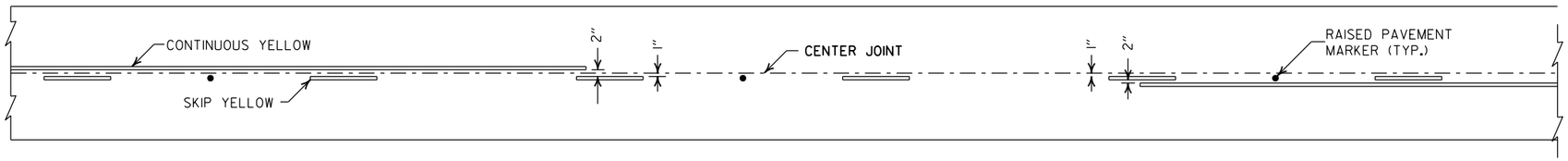


CONCRETE PAVEMENT

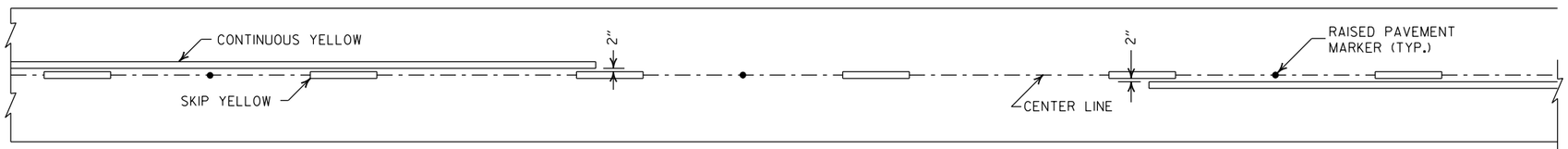


ASPHALT PAVEMENT

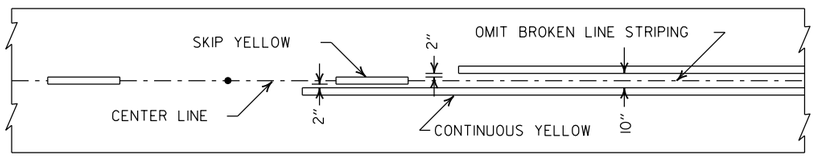
BROKEN LINE STRIPING



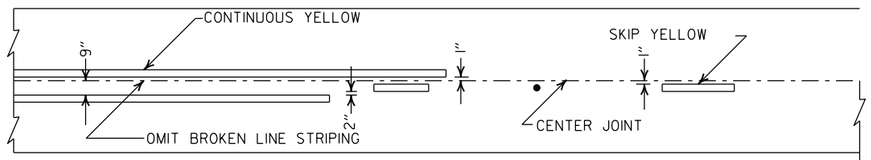
SOLID LINE STRIPING ON CONCRETE PAVEMENT



SOLID LINE STRIPING ON ASPHALT PAVEMENT

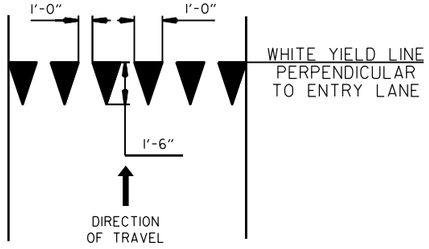


ASPHALT PAVEMENT

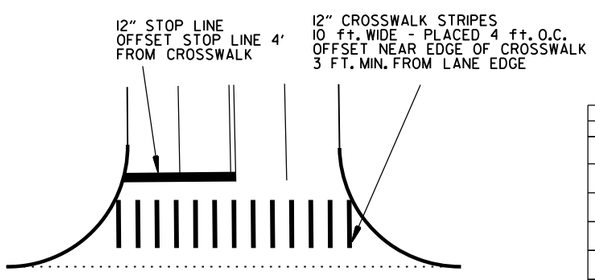


CONCRETE PAVEMENT

STRIPING AT ADJACENT NO PASSING LANES

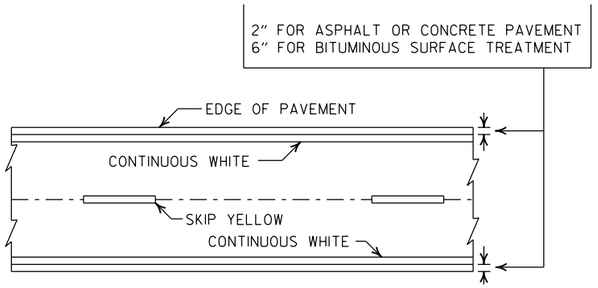


YIELD LINE DETAIL



CROSSWALK AND STOP LINE DETAILS

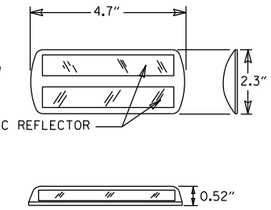
NOTES:
1. REFER TO THE STRIPING DETAILS FOR PAVEMENT MARKING LINE WIDTHS.
2. THIS DRAWING SHALL BE USED IN CONJUNCTION WITH THE LATEST REVISED ADDITION OF THE "MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES."
3. RAISED PAVEMENT MARKERS SHALL BE PLACED ON AN 80 FEET SPACING UNLESS OTHERWISE SHOWN IN THE PLANS.



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

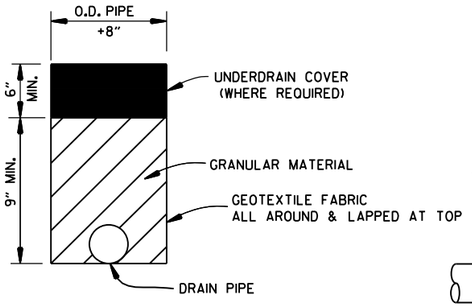
PAVEMENT MARKING DETAILS

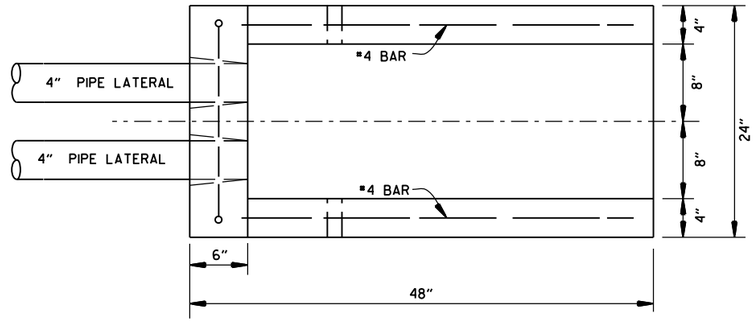
STANDARD DRAWING PM-1

NOTE:

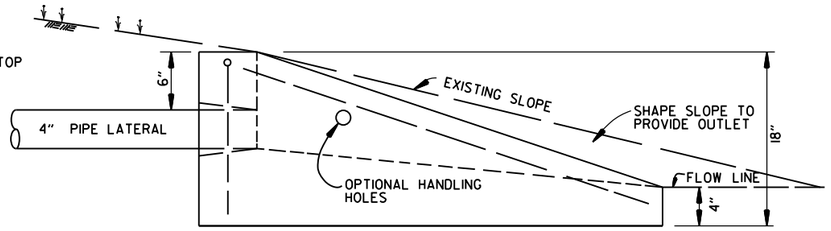
1. UNLESS OTHERWISE SPECIFIED ON THE PLANS, THE UNDERDRAIN COVER SHALL BE THOROUGHLY COMPACTED EARTH AND SHALL BE SUBSIDIARY TO PIPE UNDERDRAIN.

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

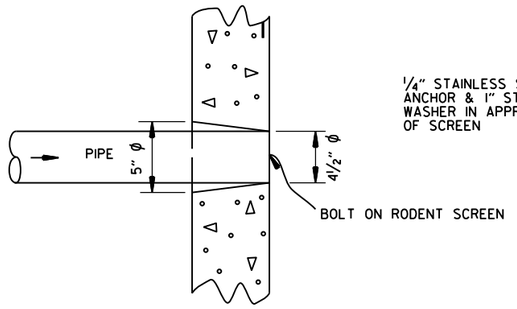




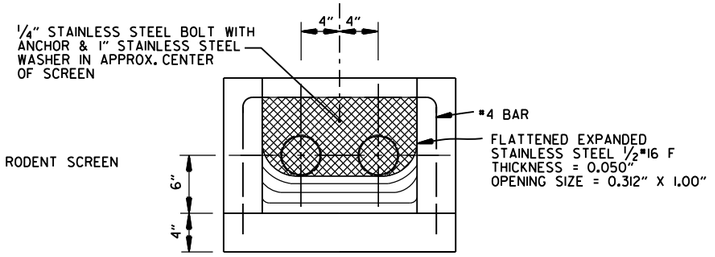
PLAN VIEW



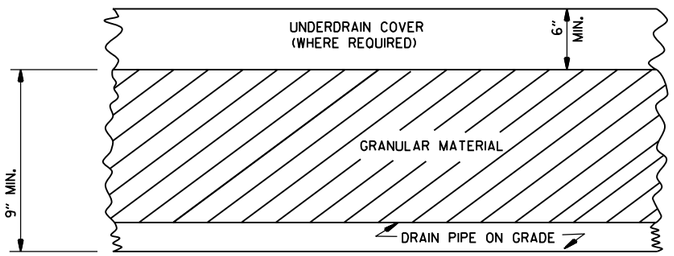
SIDE VIEW



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."

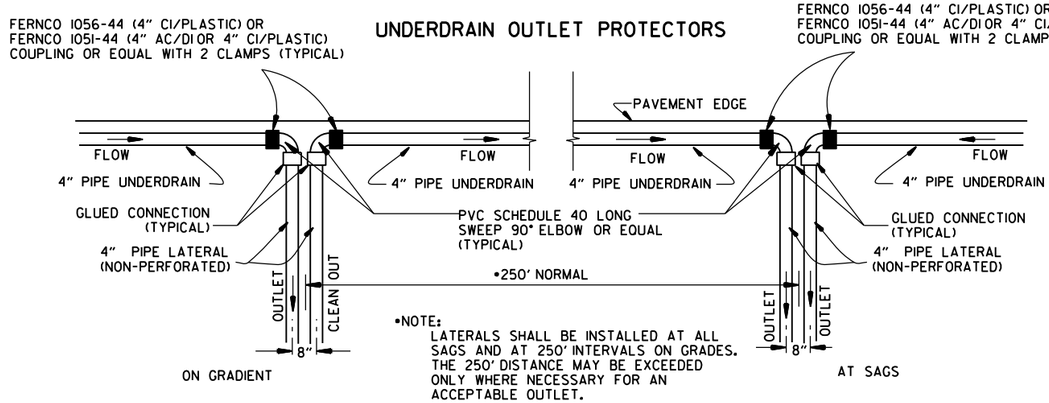
4. THE LOCATION OF ALL LATERALS SHALL BE MARKED WITH 4" X 12" PERMANENT PAVEMENT MARKING TAPE (TYPE III WHITE) AT THE OUTSIDE EDGE OF THE SHOULDER, PLACED TRANSVERSE TO TRAFFIC. PAYMENT FOR THIS WORK SHALL BE INCLUDED IN THE PRICE BID FOR THE VARIOUS CONTRACT ITEMS.

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

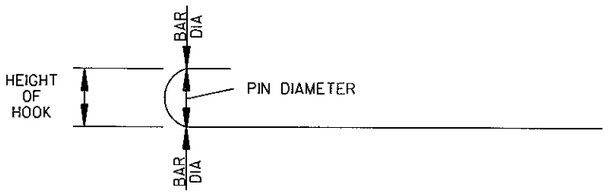
DETAILS OF PIPE UNDERDRAIN

STANDARD DRAWING PU-1

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

BAR SIZE	PIN DIAMETER	HOOK EXTENSION "K"
3	2¼"	4"
4	3 "	4½"
5	3¾"	5"
6	4½"	6"
7	5¼"	7"
8	6"	8"

IF THE OVERALL HEIGHT OF THE HOOK (SEE DIAGRAM BELOW) FOR A "b", "b1", "b2" or "b3" BENT BAR IS GREATER THAN THE CORRESPONDING TOP OR BOTTOM SLAB THICKNESS, LESS 2¾ INCHES, EACH BENT BAR SHALL BE REPLACED WITH ONE HOOKED BAR AND ONE STRAIGHT BAR, USING LENGTHS AS SHOWN IN THE TABLE BELOW. THE TWO BARS SHALL BE THE SAME DIAMETER AS, AND PLACED AT THE SAME SPACING AS, THE "b", "b1", "b2" OR "b3" BENT BARS THEY REPLACE.



NOTE: DIMENSIONS OF BARS ARE MEASURED OUT TO OUT OF BARS.

OVERALL HEIGHT OF HOOKED BAR DIAGRAM

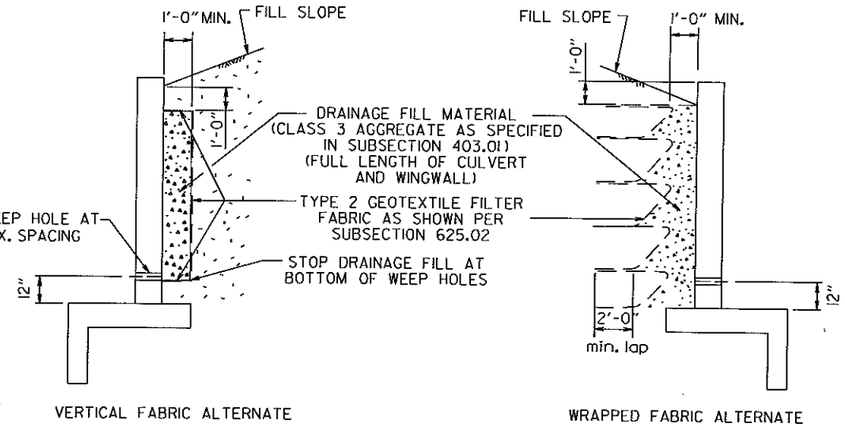
THE HOOKED BARS SHALL BE PLACED IN THE BOTTOM OF THE TOP SLAB AND THE TOP OF THE BOTTOM SLAB. THE STRAIGHT BARS SHALL BE PLACED IN THE TOP OF THE TOP SLAB AND THE BOTTOM OF THE BOTTOM SLAB. SEE TABLE BELOW FOR LENGTHS OF REPLACEMENT HOOKED AND STRAIGHT BARS.

FOR SKEWED CULVERTS, THE REPLACEMENT STRAIGHT BAR MAY HAVE TO BE CUT IN FIELD TO FIT.

REPLACEMENT BAR LENGTHS TABLE

BAR SIZE: "b", "b1", "b2" OR "b3"	LENGTH OF HOOKED BAR	LENGTH OF STRAIGHT BAR
#4	L + 1' - 0"	SEE "c" BAR LENGTH
#5	L + 1' - 2"	SEE "c" BAR LENGTH
#6	L + 1' - 4"	SEE "c" BAR LENGTH
#7	L + 1' - 8"	SEE "c" BAR LENGTH
#8	L + 1' - 10"	SEE "c" BAR LENGTH
#9	L + 2' - 6"	SEE "c" BAR LENGTH

L = "OW" - 3 INCHES



WINGWALL & CULVERT DRAINAGE DETAIL

REINFORCED CONCRETE BOX CULVERT GENERAL NOTES

CONCRETE SHALL BE CLASS S WITH A MINIMUM 28 DAY COMPRESSIVE STRENGTH OF 3500 PSI.

REINFORCING STEEL SHALL BE AASHTO M 31 OR M 53, GRADE 60.

CONSTRUCTION AND MATERIALS FOR WINGWALL & CULVERT DRAINAGE, INCLUDING WEEP HOLES AND GRANULAR MATERIAL, SHALL BE SUBSIDIARY TO THE BID ITEM, "CLASS S CONCRETE".

MEMBRANE WATERPROOFING SHALL CONFORM TO THE REQUIREMENTS OF SECTION 815 OF THE STANDARD SPECIFICATIONS.

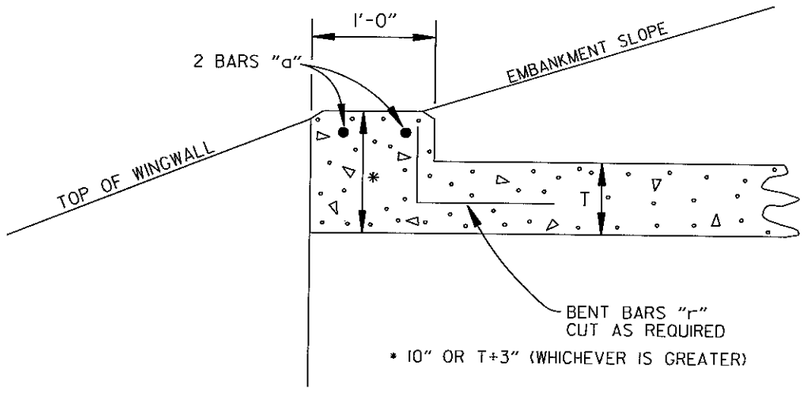
MEMBRANE WATERPROOFING SHALL BE APPLIED TO ALL CONSTRUCTION JOINTS IN THE TOP SLAB AND THE SIDEWALLS OF R.C. BOX CULVERTS AS DIRECTED BY THE ENGINEER. NO PAYMENT SHALL BE MADE FOR THIS ITEM, BUT PAYMENT WILL BE CONSIDERED TO BE INCLUDED IN THE VARIOUS ITEMS BID FOR THE R.C. BOX CULVERT.

REINFORCING STEEL TOLERANCES: THE TOLERANCES FOR REINFORCING STEEL SHALL MEET THOSE LISTED IN "MANUAL OF STANDARD PRACTICE" PUBLISHED BY CONCRETE REINFORCING STEEL INSTITUTE (CRSI) EXCEPT THAT THE TOLERANCE FOR TRUSS BARS SUCH AS FIGURE 3 ON PAGE 7-4 OF THE CRSI MANUAL SHALL BE MINUS ZERO TO PLUS ½ INCH.

WEEP HOLES IN BOX CULVERT WALLS SHALL HAVE A MAXIMUM HORIZONTAL SPACING OF 10'-0" AND SHALL BE SPACED TO CLEAR ALL REINFORCING STEEL. THE DRAIN OPENING SHALL BE 4" DIAMETER AND SHALL BE PLACED 12" ABOVE THE TOP OF THE BOTTOM SLAB.

WEEP HOLES IN WINGWALLS SHALL HAVE A MAXIMUM HORIZONTAL SPACING OF 10'-0" AND SHALL BE SPACED TO CLEAR ALL REINFORCING STEEL. THERE SHALL BE A MINIMUM OF TWO (2) WEEP HOLES IN EACH WINGWALL. THE DRAIN OPENING SHALL BE 4" DIAMETER AND SHALL BE PLACED 12" ABOVE THE TOP OF THE WINGWALL FOOTING.

THE REQUIREMENTS SHOWN ON THIS DRAWING SHALL SUPERCEDE THE CORRESPONDING REQUIREMENTS ON ALL REINFORCED CONCRETE BOX CULVERT STANDARD DRAWINGS.



NOTE: FOR ALL SKEWED R.C. BOX CULVERTS THE LENGTH "K" OF THE MODIFIED HEADWALL SHALL BE EQUAL TO THE ROADWAY LENGTH "RL". THE ENDS OF THE HEADWALL SHALL BE CONSTRUCTED PARALLEL TO THE SKEW ANGLE OF THE BOX CULVERT.

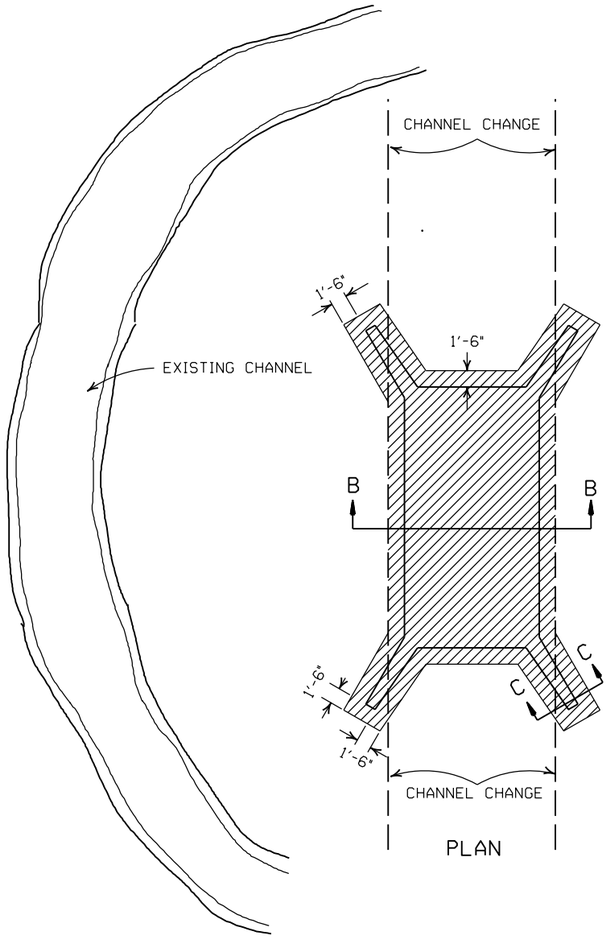
R.C. BOX CULVERT HEADWALL MODIFICATIONS

DATE	REVISION	DATE FILMED
7/26/12	REV. DRAINAGE FILL MATERIAL & DETAIL	
12/15/11	REQUIRE WEEP HOLES IN BOX CULVERT WALLS	
5-25-06	REV. GEN. NOTES AND DETAILS FOR WEEP HOLES; BAR DIAGRAM	
11-16-01	ADDED WINGWALL DRAINAGE DETAIL/EDITED GEN. NOTES	
10-18-96	REV. ASTM REF. TO AASHTO & ADDED BAR DIAGRAM	
10-12-95	MOVED SOLID SODDING DETAIL TO RCB-2	
6-2-94	ADDED SOLID SODDING PLAN DETAIL	
8-5-93	REVISED PIN DIAMETER TO SPECS.	
8-15-91	DRAWN AND ISSUED	

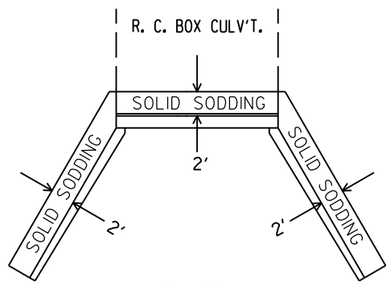
ARKANSAS STATE HIGHWAY COMMISSION

REINFORCED CONCRETE BOX CULVERT DETAILS

STANDARD DRAWING RCB-1



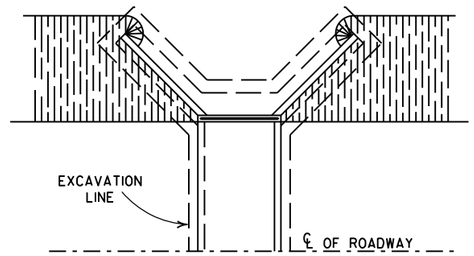
PLAN



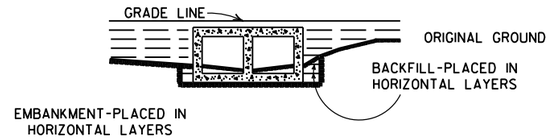
PLAN

PARTIAL SECTION SHOWING SOLID SODDING AT HEADWALLS AND WING WALLS

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

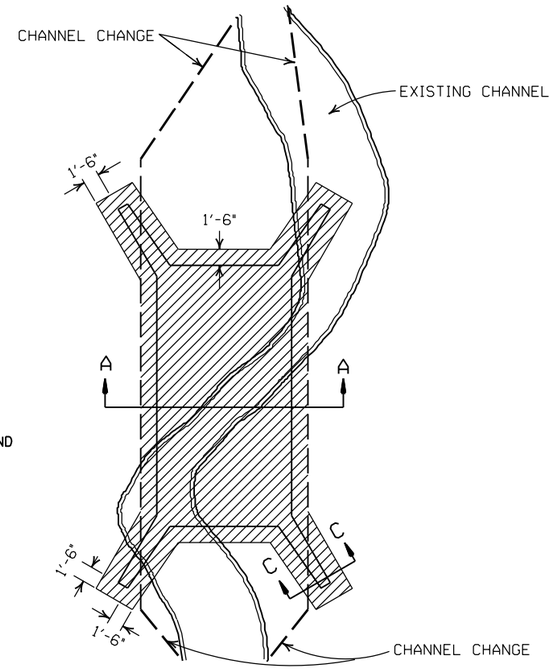


PLAN

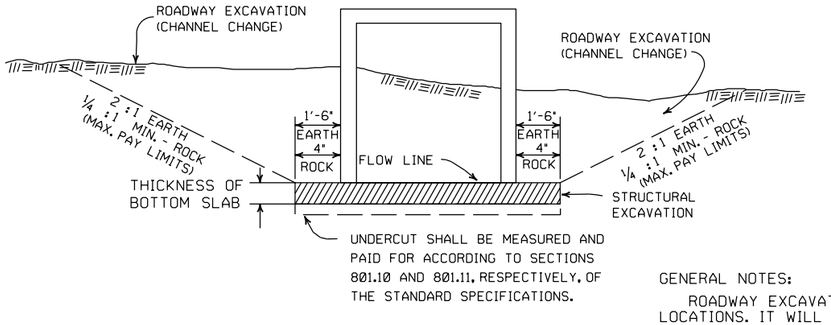


LONGITUDINAL SECTION

BACKFILL DETAILS FOR BOX CULVERT

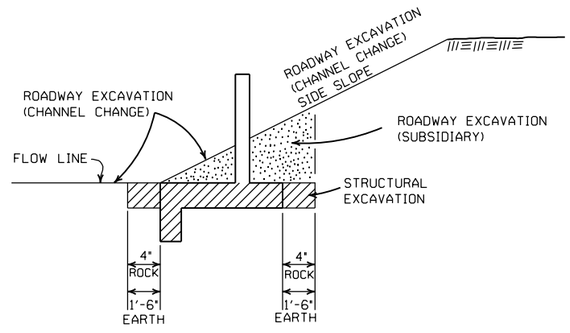


PLAN

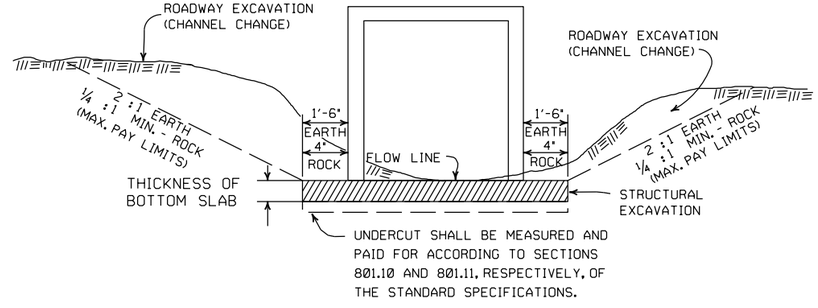


SECTION B-B

DETAILS FOR NEW CHANNELS



SECTION C-C



SECTION A-A

DETAILS THROUGH EXISTING CHANNELS

GENERAL NOTES:

ROADWAY EXCAVATION (CHANNEL CHANGE) WILL BE PAID FOR AT R.C. BOX CULVERT LOCATIONS. IT WILL BE PAID TO THE LIMITS ACTUALLY CUT AND WILL BE CONFINED TO THAT PORTION OF THE INDICATED AREA THAT IS ABOVE THE FLOW LINE. ROADWAY EXCAVATION (CHANNEL CHANGE) SHALL BE MEASURED BY CROSS SECTIONS AND VOLUMES COMPUTED BY AVERAGE END AREA METHOD. ALL CHANNEL CHANGES SHALL BE BROUGHT TO GRADE PRIOR TO MAKING ANY EXCAVATION FOR STRUCTURES.

EXCAVATION FOR STRUCTURES WILL BE PAID FOR AT ALL R.C. BOX CULVERT LOCATIONS. IT WILL BE PAID TO THE LIMITS SHOWN AND SHALL BE CONFINED TO THAT PORTION OF THE INDICATED AREA THAT IS BELOW THE CHANNEL FLOW LINE.

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

DATE	REVISION	FILMED
11-20-03	REVISED SECTION A-A NOTE	
8-22-02	REVISED SECTION B-B NOTE	
10-12-95	COMBINED 1891B AND 1888A	
1-4-83	REVISED GENERAL NOTES	674-1-4-83
	AND ADDED MAXIMUM PAY	
	LIMIT NOTES.	
2-2-76	EXCAV. PAY LIMITS	917-2-2-76
10-2-72	REVISED AND REDRAWN	564-10-16-72

ARKANSAS STATE HIGHWAY COMMISSION

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

STANDARD DRAWING RCB-2

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

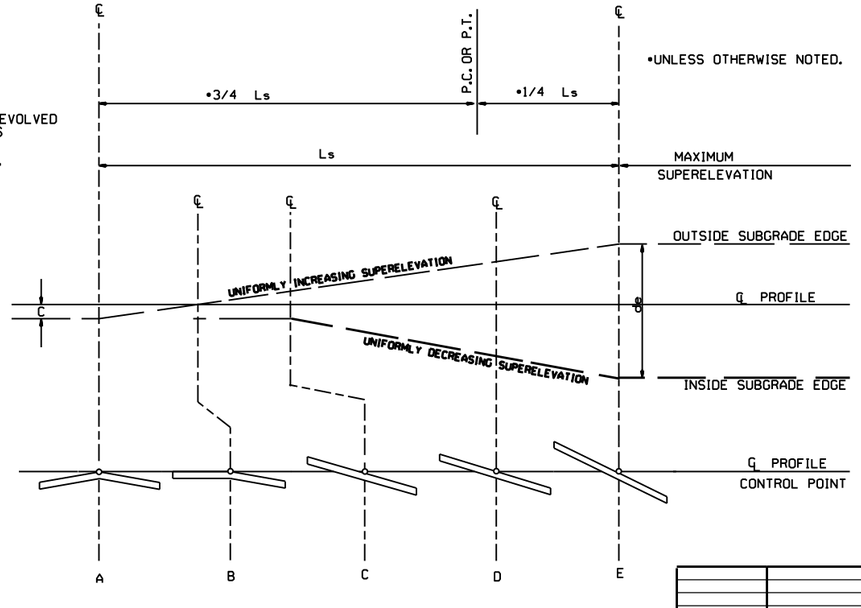
1. ON PAVEMENT WITH TWO-WAY TRAFFIC, THE SUPERELEVATION SHALL BE REVOLVED ON THE INSIDE PAVEMENT EDGE UNLESS OTHERWISE NOTED ON THE PLANS
2. SUPERELEVATION VALUES SHOWN ON THE CROSS SECTIONS ARE VALUES (+) OR (-) TO BE ADDED TO OR SUBTRACTED FROM THE POINT OF CONTROL.
3. LENGTHS FOR L MAY BE ROUNDED 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%

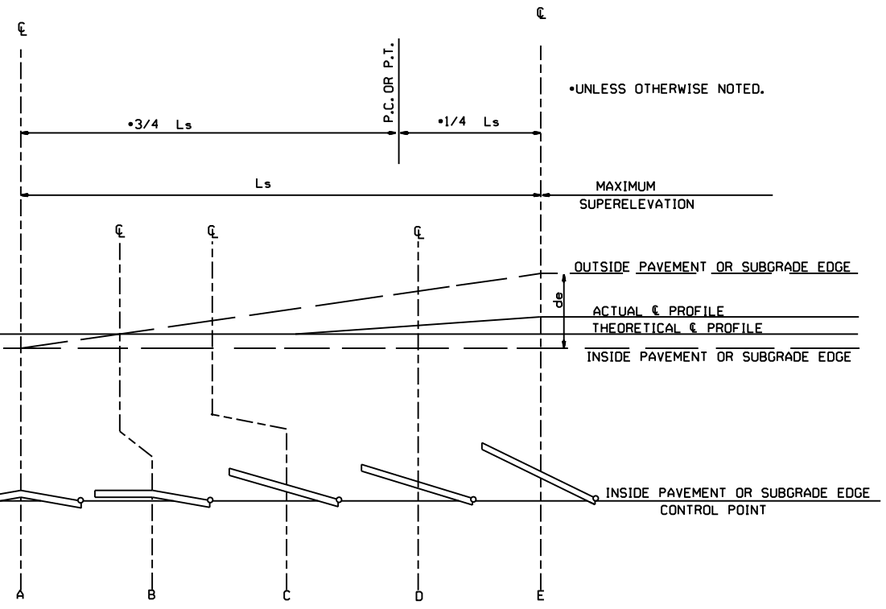
NOTE: MAINTAIN NORMAL CROWN ON INSIDE UNTIL SUPERELEVATION EXCEEDS 2C.

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

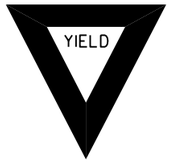
TABLES AND METHOD OF SUPERELEVATION FOR TWO-WAY TRAFFIC

STANDARD DRAWING SE-2

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"

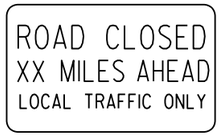
R5-1

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"

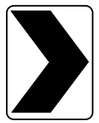
W1-4

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"

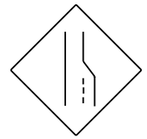
W3-1

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"

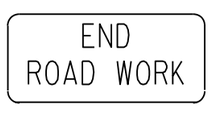
W8-9

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

G20-1

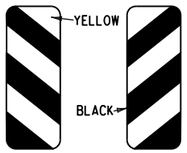
60"X24"

G20-2



48"X24"

OM-3L OM-3R



12"X36"

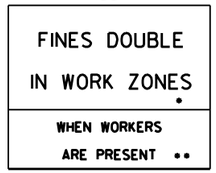
M4-9

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.

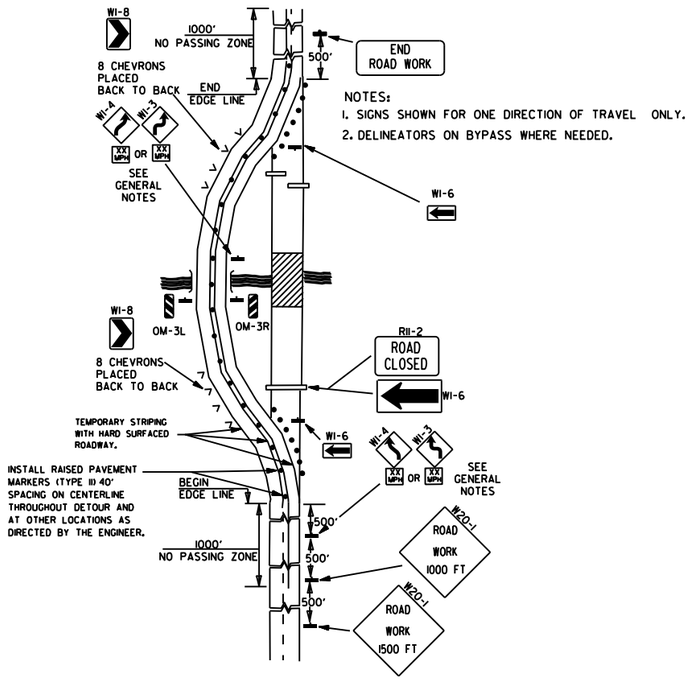
- NOTE: SUPPORTS FOR SIGNS, BARRICADES, AND VERTICAL PANELS THAT ARE DIFFERENT FROM THE REQUIREMENTS SHOWN IN NOTES 4 & 5, BUT MEET THE REQUIREMENTS OF MANUAL FOR ASSESSING SAFETY HARDWARE (MASH), WILL BE ACCEPTED. COMPLIANCE WITH THE REQUIREMENTS OF MANUAL FOR ASSESSING SAFETY HARDWARE (MASH) IS REQUIRED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

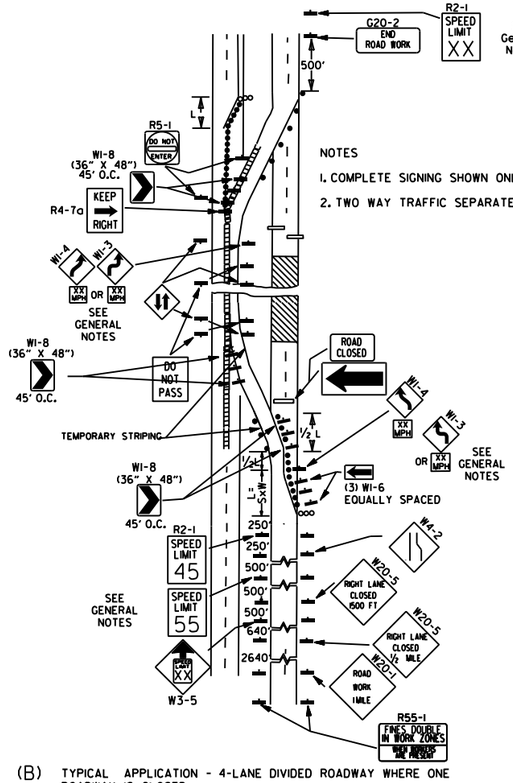
STANDARD TRAFFIC CONTROLS FOR HIGHWAY CONSTRUCTION

STANDARD DRAWING TC-1



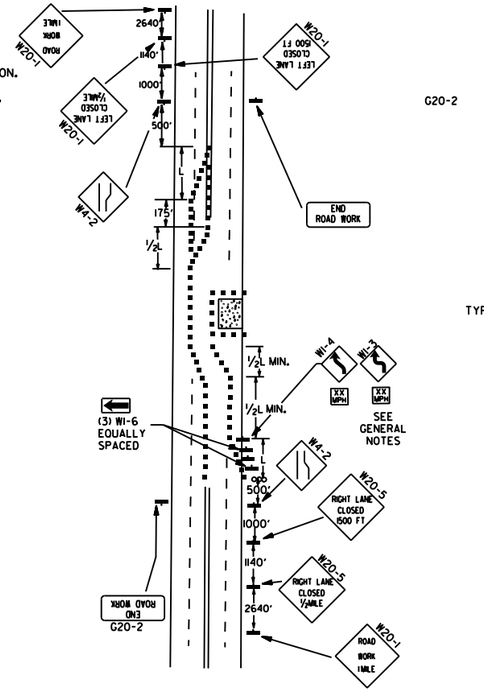
NOTES:
1. SIGNS SHOWN FOR ONE DIRECTION OF TRAVEL ONLY.
2. DELINEATORS ON BYPASS WHERE NEEDED.

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

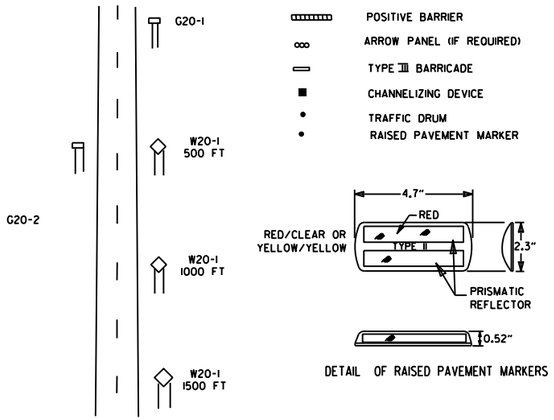


NOTES
1. COMPLETE SIGNING SHOWN ONLY IN CROSSOVER DIRECTION.
2. TWO WAY TRAFFIC SEPARATED WITH POSITIVE BARRIER.

(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:

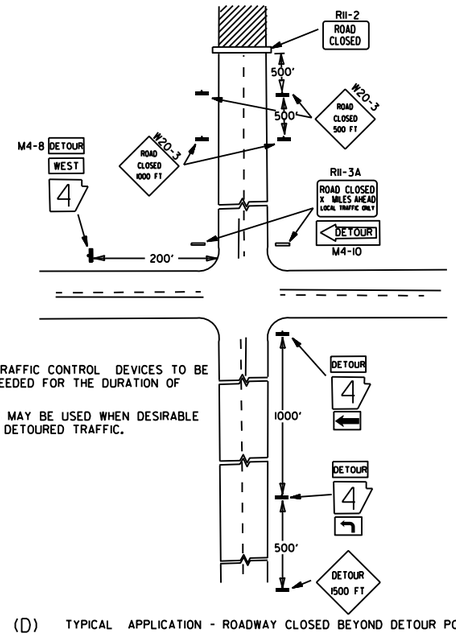
L= MINIMUM LENGTH OF TAPER.

S= NUMERICAL VALUE OF POSTED SPEED LIMIT PRIOR TO WORK OR 85TH PERCENTILE SPEED.

W= WIDTH OF OFFSET.

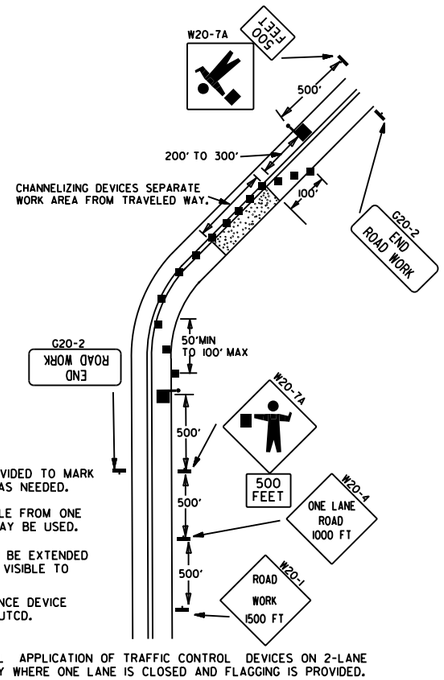
GENERAL NOTES:

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).



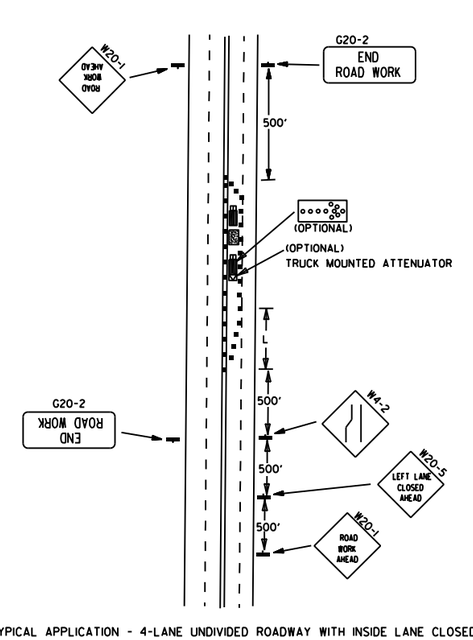
NOTES:
1. REGULATORY TRAFFIC CONTROL DEVICES TO BE MODIFIED AS NEEDED FOR THE DURATION OF THE DETOUR.
2. STREET NAMES MAY BE USED WHEN DESIRABLE FOR DIRECTING DETOURED TRAFFIC.

(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.



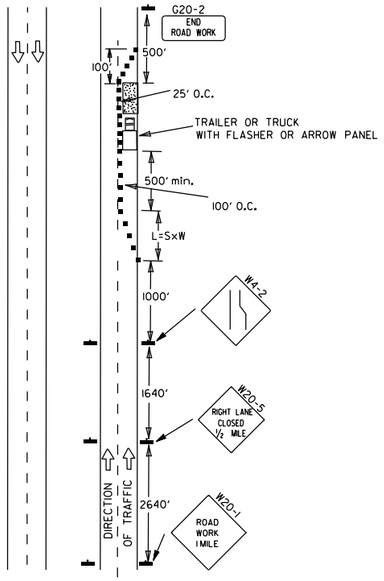
(F) TYPICAL APPLICATION - 4-LANE UNDIVIDED ROADWAY WITH INSIDE LANE CLOSED.

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	

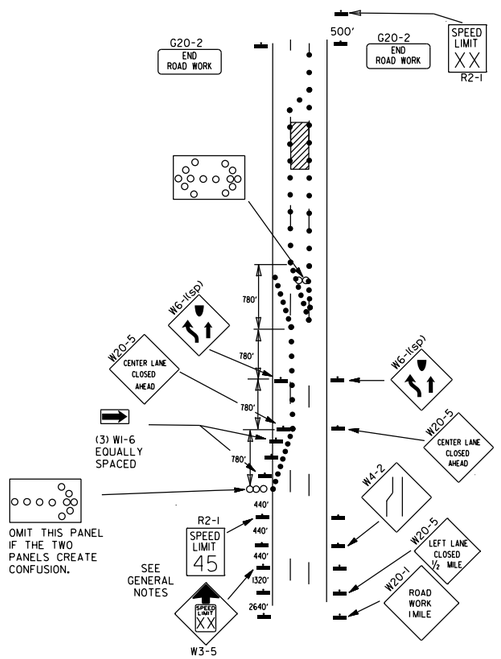
ARKANSAS STATE HIGHWAY COMMISSION

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:

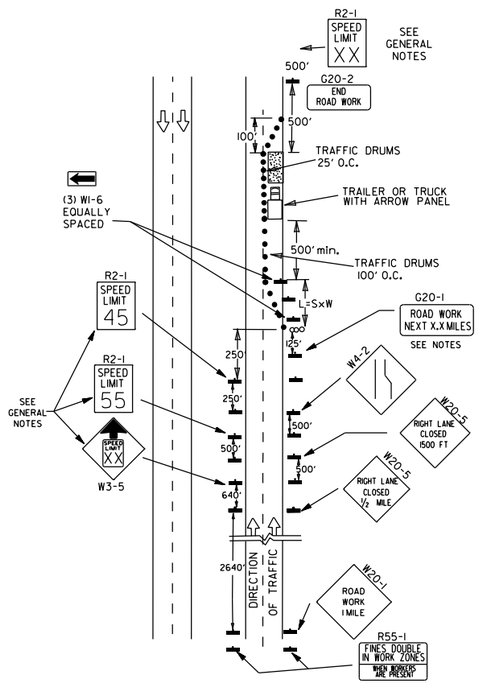
ARROW PANEL (IF REQUIRED)

■ CHANNELIZING DEVICE

● TRAFFIC DRUM

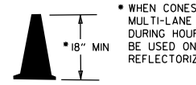
GENERAL NOTES:

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.

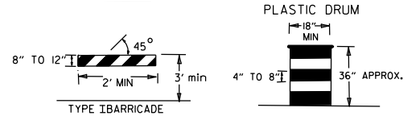
CHANNELIZING DEVICES



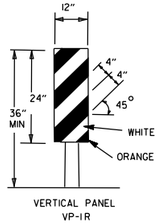
* WHEN CONES ARE USED ON FREEWAYS AND MULTI-LANE HIGHWAYS, THEY SHALL BE 28" MIN. DURING HOURS OF DARKNESS, 28" CONES SHALL BE USED ON ALL ROADWAYS, AND SHALL BE REFLECTORIZED IN ACCORDANCE WITH THE M.U.T.C.D.

CONES

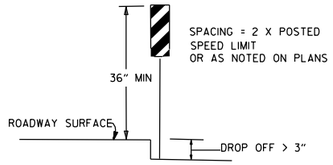
PLASTIC DRUM



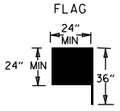
NOTE:
FOR ALL ROAD CLOSURES, THE TYPE III BARRICADES SHALL BE OF SUFFICIENT LENGTH TO EXTEND ACROSS ENTIRE ROADWAY.



VERTICAL PANEL PLACEMENT



FLAG



FLAG SHALL BE OF GOOD GRADE RED MATERIAL

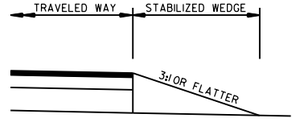
TRAFFIC CONTROL DEVICES			
NON-INTERSTATE			
VERTICAL DIFFERENTIAL	LOCATION	TRAFFIC CONTROL	
		≤ 45 MPH	> 45 MPH
≤ 1"	CENTERLINE	W8-11	W8-11
> 1" ≤ 3"	CENTERLINE	W8-11 AND CENTERLINE LANE STRIPING	W8-11 AND CENTERLINE LANE STRIPING
> 3"	CENTERLINE	STANDARD LANE CLOSURE[6]	STANDARD LANE CLOSURE[6]
≤ 3"	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:

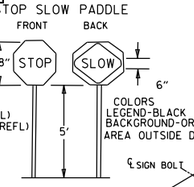
1. WHEN THE SHOULDER AREA IS USED AS PART OF THE TRAVELED LANE AND THERE IS INSUFFICIENT WIDTH TO PLACE TRAFFIC DRUMS ON THE REMAINING SHOULDER WIDTH, THEN VERTICAL PANELS SHALL BE USED.
2. WHEN THERE IS INSUFFICIENT WIDTH TO PLACE TRAFFIC DRUMS ON THE REMAINING SHOULDER WIDTH, A STABILIZED WEDGE SHALL 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).

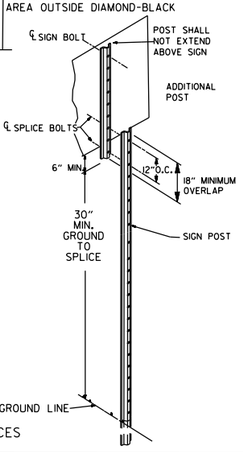


STABILIZED WEDGE

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

STOP SLOW PADDLE

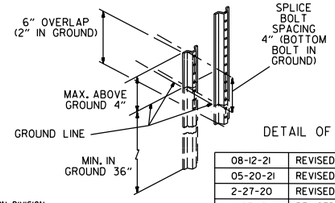




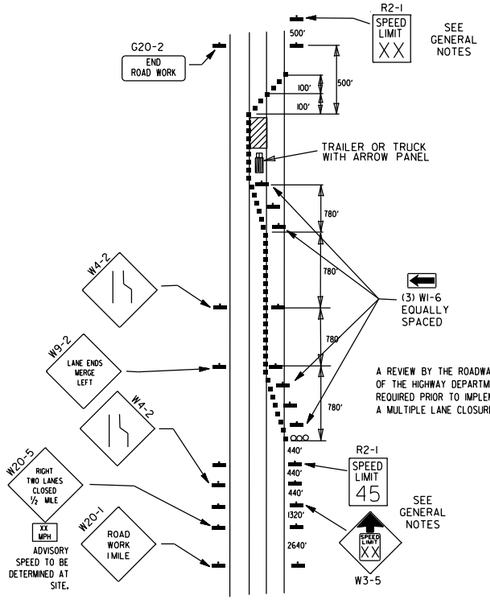
NOTES: USE SPLICES ONLY WHEN NECESSARY FOR INSTALLATION. TYPICAL INSTALLATION SHOULD HAVE NO SPLICES (SEE STD. DRAWING NO. SHS-21)

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	

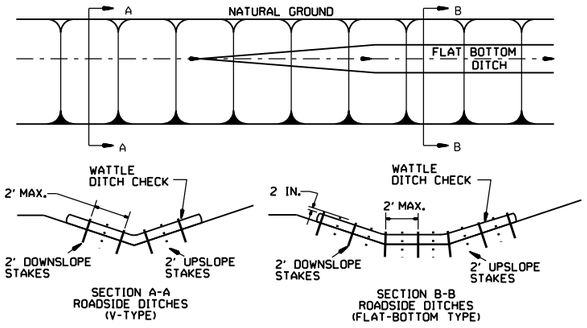
ARKANSAS STATE HIGHWAY COMMISSION

STANDARD TRAFFIC CONTROLS FOR HIGHWAY CONSTRUCTION

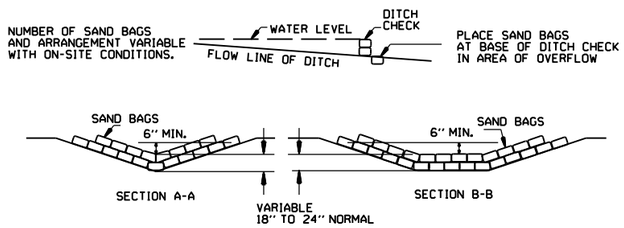
STANDARD DRAWING TC-3

GENERAL NOTES

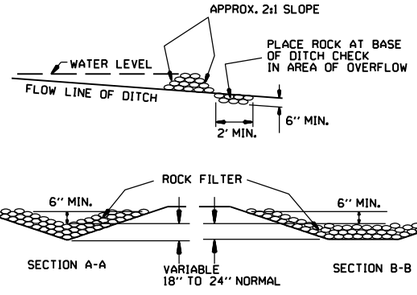
INSTALL A MINIMUM OF 2 UPSLOPE STAKES AND 4 DOWNSLOPE STAKES AT AN ANGLE TO WEDGE WATTLE TO BOTTOM OF DITCH.



WATTLE DITCH CHECK (E-1)



SAND BAG DITCH CHECK (E-5)

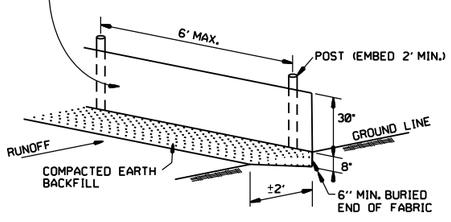


ROCK DITCH CHECK (E-6)

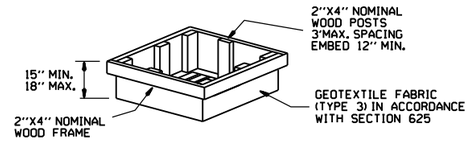
GENERAL NOTES

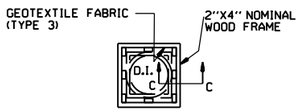
GEOTEXTILE FABRIC (TYPE 4) IN ACCORDANCE WITH SECTION 625

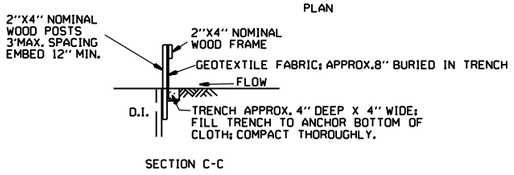
GEOTEXTILE FABRIC SHALL BE SPLICED TOGETHER WITH A SEWN SEAM ONLY AT A SUPPORT POST OR TWO SECTIONS OF FENCE MAY BE OVERLAPPED INSTEAD. PAYMENT OF ADDITIONAL MATERIAL FOR OVERLAP WILL NOT BE MADE.



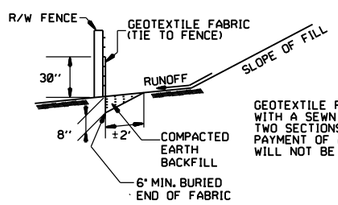
SILT FENCE (E-11)





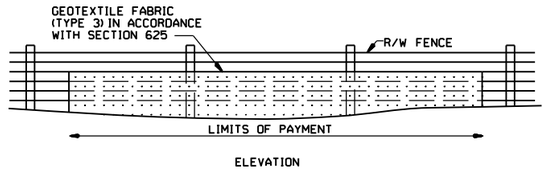


DROP INLET SILT FENCE (E-7)



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.



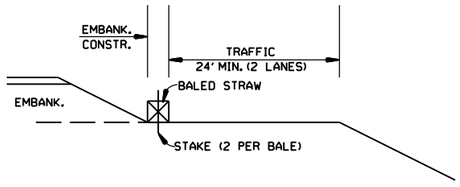
SILT FENCE ON R/W FENCE (E-4)

GENERAL NOTES

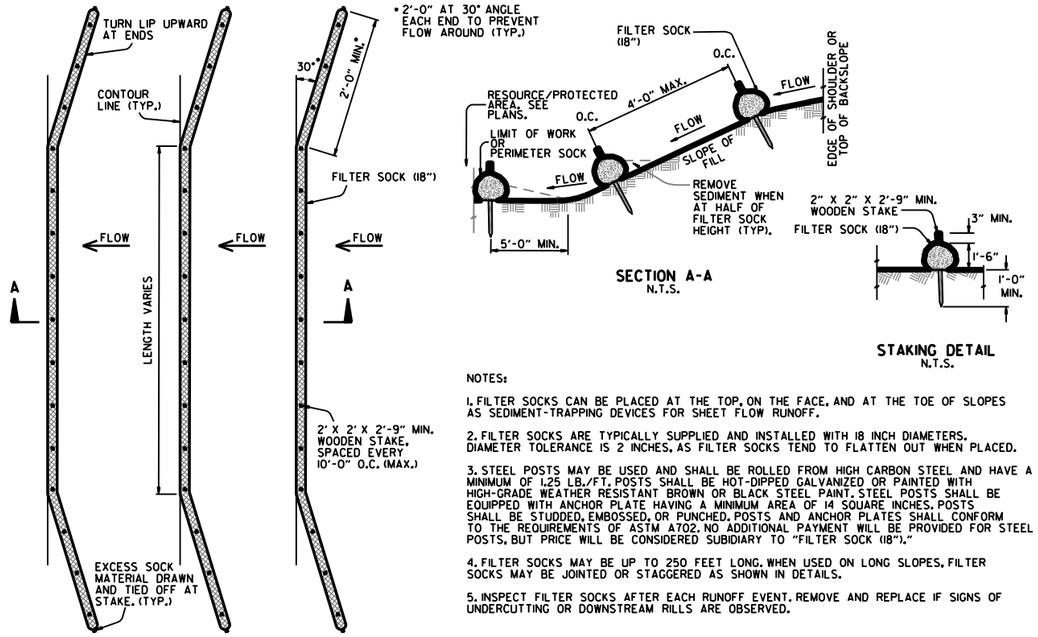
1. STRAW BALES SHALL BE INSTALLED SO THAT THE BINDINGS ARE ORIENTED AROUND THE SIDES RATHER THAN ALONG THE TOPS AND BOTTOMS OF THE BALES. THE BALES SHALL BE A MINIMUM OF 30 INCHES IN LENGTH.

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.

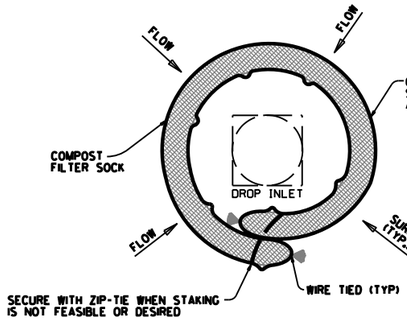
2. FILTER SOCKS ARE TYPICALLY SUPPLIED AND INSTALLED WITH 18 INCH DIAMETERS. DIAMETER TOLERANCE IS 2 INCHES, AS FILTER SOCKS TEND TO FLATTEN OUT WHEN PLACED.

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")."

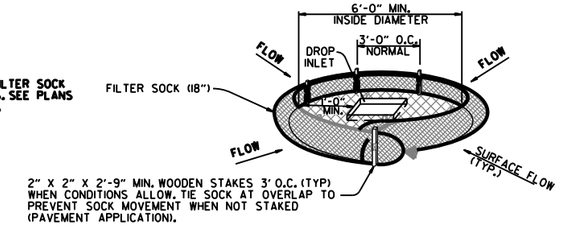
4. FILTER SOCKS MAY BE UP TO 250 FEET LONG. WHEN USED ON LONG SLOPES, FILTER SOCKS MAY BE JOINTED OR STAGGERED AS SHOWN IN DETAILS.

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.

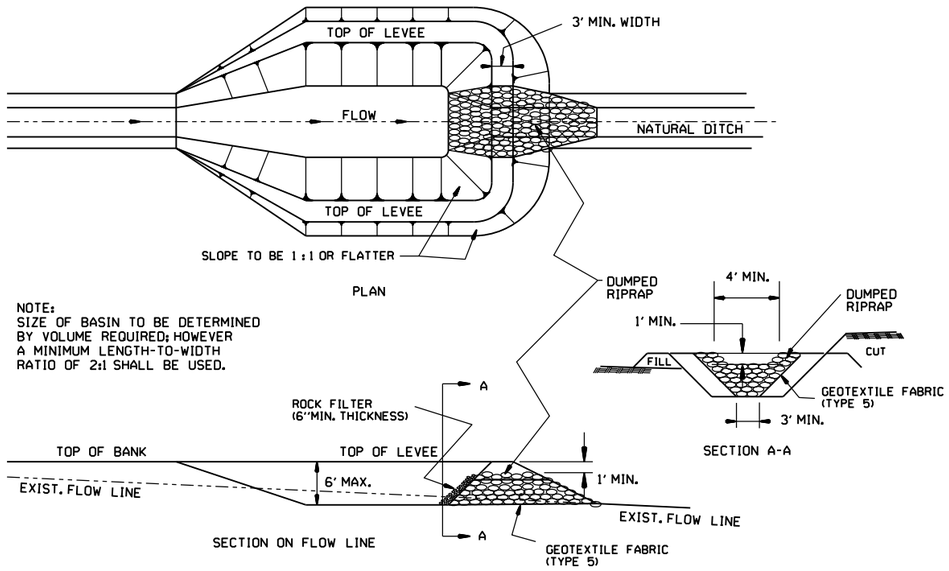
COMPOST FILTER SOCK DROP INLET PROTECTION (E-13)

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

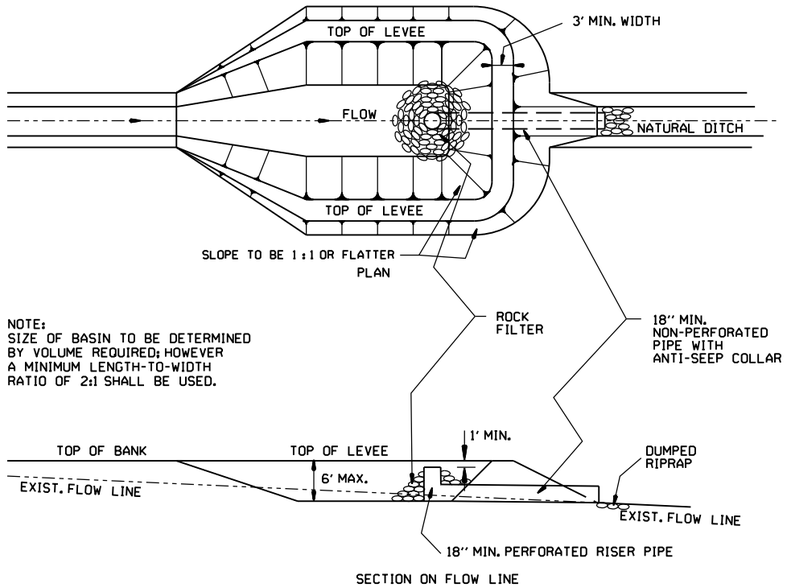
ARKANSAS STATE HIGHWAY COMMISSION

TEMPORARY EROSION CONTROL DEVICES

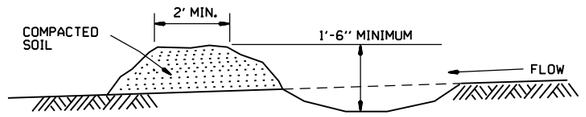
STANDARD DRAWING TEC-1



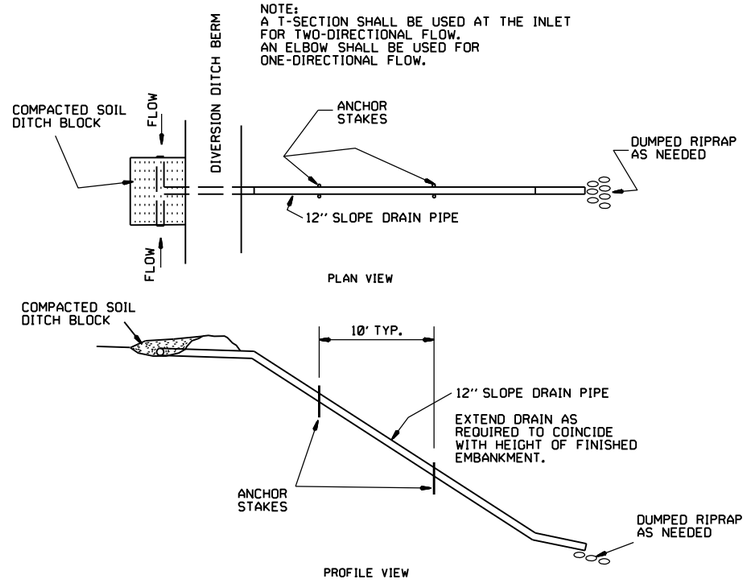
SEDIMENT BASIN WITH RIPRAP OUTLET (E-9)



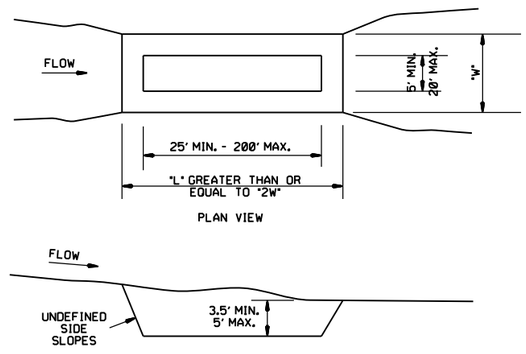
SEDIMENT BASIN WITH PIPE OUTLET (E-10)



DIVERSION DITCH (E-8)



SLOPE DRAIN (E-12)



SEDIMENT BASIN (E-14)

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

ARKANSAS STATE HIGHWAY COMMISSION

TEMPORARY EROSION CONTROL DEVICES

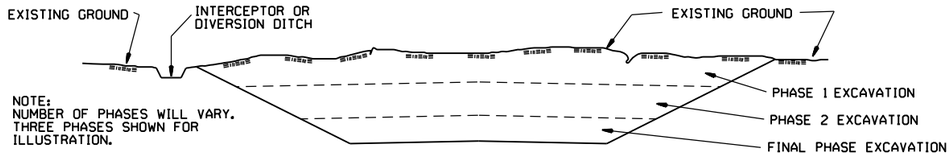
STANDARD DRAWING TEC-2

CLEARING AND GRUBBING

CONSTRUCTION SEQUENCE

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

EXCAVATION



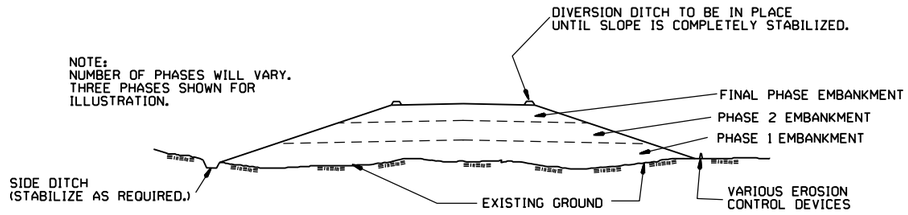
GENERAL NOTE

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

CONSTRUCTION SEQUENCE

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

EMBANKMENT



GENERAL NOTE

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

CONSTRUCTION SEQUENCE

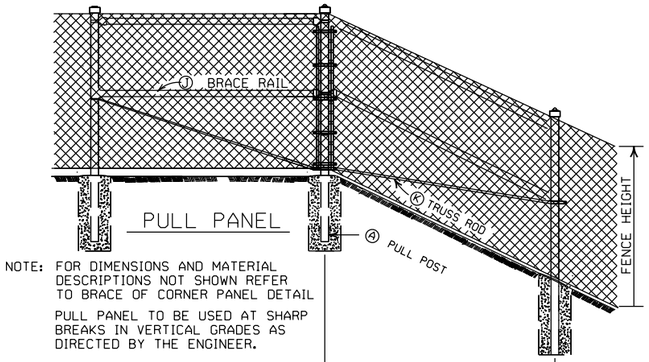
1. CONSTRUCT DIVERSION DITCHES, DITCH CHECKS, SEDIMENT BASINS, SILT FENCES, OR OTHER EROSION CONTROL DEVICES AS SPECIFIED.
2. PLACE PHASE 1 EMBANKMENT WITH PERMANENT OR TEMPORARY SEEDING. PROVIDE DIVERSION DITCHES AND SLOPE DRAINS IF EMBANKMENT CONSTRUCTION IS TO BE TEMPORARILY ABANDONED FOR A PERIOD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

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

ARKANSAS STATE HIGHWAY COMMISSION

TEMPORARY EROSION CONTROL DEVICES

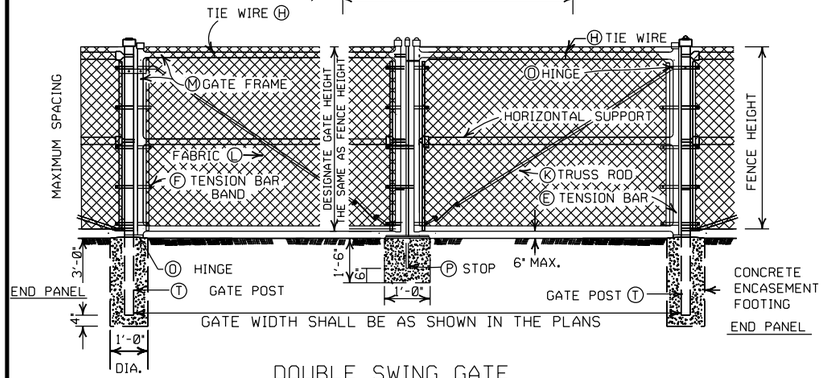
STANDARD DRAWING TEC-3



PULL PANEL

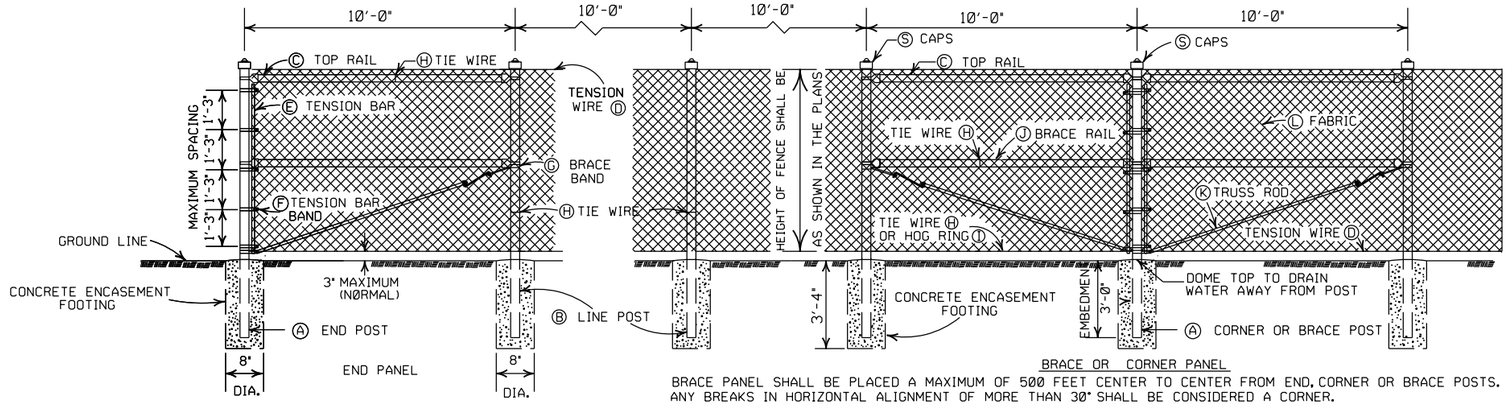
NOTE: FOR DIMENSIONS AND MATERIAL DESCRIPTIONS NOT SHOWN REFER TO BRACE OF CORNER PANEL DETAIL

PULL PANEL TO BE USED AT SHARP BREAKS IN VERTICAL GRADES AS DIRECTED BY THE ENGINEER.



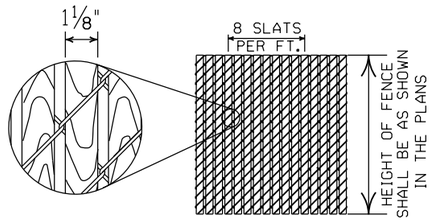
DOUBLE SWING GATE

POST SPACING DETAIL



BRACE OR CORNER PANEL

BRACE PANEL SHALL BE PLACED A MAXIMUM OF 500 FEET CENTER TO CENTER FROM END, CORNER OR BRACE POSTS. ANY BREAKS IN HORIZONTAL ALIGNMENT OF MORE THAN 30° SHALL BE CONSIDERED A CORNER.



1⅛" X ¼" REDWOOD SLATS(LENGTH TO MATCH HEIGHT OF FENCE)

DETAIL OF REDWOOD SLAT INSTALLATION

(WHERE APPLICABLE)

GENERAL NOTES:

(C) CHAIN LINK FENCE BEING PLACED ON PRIVATE PROPERTY SHALL INCLUDE A TOP RAIL. ALL LABOR, MATERIALS, EQUIPMENT, TOOLS, AND INCIDENTALS NECESSARY TO COMPLETE THE WORK WILL BE PAID FOR AT THE CONTRACT UNIT PRICE BID PER LIN. FT. OF CHAIN LINK FENCE.

(D) TENSION WIRE: SHALL BE SECURED TO ALL TERMINAL, PULL, BRACE OR CORNER POSTS WITH TENSION BAR BANDS.

(J) BRACE RAIL: BRACE RAILS SHALL BE PROVIDED AT ALL TERMINAL, PULL, BRACE OR CORNER POSTS HALFWAY BETWEEN THE TOP RAIL AND GROUND LEVEL WHEN TOPRAIL IS SPECIFIED AND TWELVE INCHES (12") DOWN FROM TOP OF FABRIC WHEN TOP TENSION WIRE IS SPECIFIED. BRACE RAIL SHALL EXTEND FROM SUCH POST TO THE FIRST ADJACENT LINE POST.

(L) FABRIC: SHALL CONFORM TO THE SPECIFICATIONS.

(M) GATE FRAMES: SHALL BE CONSTRUCTED OF TUBULAR MEMBERS ASSEMBLED BY USE OF HEAVY PRESSED STEEL, MALLEABLE FITTINGS OR BY WELDING. ALL GATES SHALL HAVE ONE HORIZONTAL SUPPORT EXTENDING THE WIDTH OF THE GATE AT THE MIDPOINTS OF VERTICAL FRAME MEMBERS. THE COMPLETE FRAME SHALL BE RIGID AND HAVE AMPLE STRENGTH TO BE FREE FROM SAG AND TWIST.

(O) HINGES: SHALL BE OF HEAVY PATTERN, OF ADEQUATE STRENGTH FOR GATE, AND WITH LARGE BEARING SURFACES FOR CLAMPING IN POSITION. THE HINGE SHALL BE OF THE PROPER TYPE TO ALLOW FOR THE DESIGNATED DEGREE OF SWING. THE HINGE SHALL NOT TWIST OR TURN UNDER THE ACTION OF THE GATE. THE GATES SHALL BE CAPABLE OF BEING OPENED AND CLOSED EASILY BY ONE PERSON.

(P) LATCHES AND STOPS: SHALL BE PROVIDED FOR ALL GATES. GATES SHALL HAVE A DROP BAR LATCH. LATCHES SHALL BE ARRANGED FOR LOCKING. THE STOP FOR DROP BAR LATCHES SHALL BE SET IN CONCRETE AND ENGAGE THE PLUNGER OF THE BAR LATCH.

(S) CAPS: ALL POSTS, EXCEPT ROLL FORMED POSTS AND "T" POSTS SHALL BE CAPPED OVER THE EXTERIOR OF THE POST, AND SHALL CONFORM TO ASTM F626.

CONCRETE REQUIRED FOR THE EMBEDMENT OF ALL POSTS SHALL NOT BE PAID FOR DIRECTLY BUT SHALL BE INCLUDED IN THE CONTRACT UNIT PRICE BID FOR CHAIN LINK FENCE.

POSTS SHALL BE SPACED EQUIDISTANT ON A MAXIMUM OF 10' CENTERS.

EXCAVATION FOR POSTS: IN OTHER THAN ROCK SHALL BE OF THE DIMENSIONS INDICATED. IF ROCK IS ENCOUNTERED BEFORE REACHING THE REQUIRED DEPTH, THE EXCAVATION SHALL BE CONTINUED TO THE DEPTH INDICATED OR 1'-6" INTO THE ROCK, WHICHEVER IS LESS, AND SHALL BE A MINIMUM OF 8 INCHES IN DIAMETER.

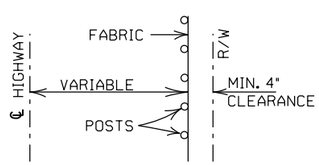
HEIGHT OF FENCE FABRIC	(A) END, PULL, CORNER OR BRACE POST	(B) LINE POSTS SIZE	(B) LINE POSTS TIE SPACING	(C) TOP RAIL SIZE	(C) TOP RAIL TIE SPACING	(C) TOP RAIL MIN. LENGTH	(D) TENSION WIRE SIZE	(D) TENSION WIRE TIE SPACING	(E) TENSION BAR SIZE	(E) TENSION BAR LENGTH	(F) TENSION BAR BAND SIZE	(F) TENSION BAR BAND BOLT SIZE	(F) TENSION BAR BAND SPACING	(G) BRACE BAND SIZE	(G) BRACE BAND BOLT SIZE
6' AND LESS	2½" O.D.	2" O.D.	1 TIE EVERY 1'-2" OF FABRIC HEIGHT	1⅝" O.D.	1 TIE EVERY 2'-0"	10'-0"	7 GAUGE COIL SPRING WIRE	1 TIE EVERY 1'-0"	MIN. OF ⅜" X ¾"	MIN. OF 2" LESS THAN FABRIC HEIGHT	MIN. OF ¾" X 0.074	⅝" X 1¼"	1 BAND AT TOP AND BOTTOM 15" MAX. INTERVAL BETWEEN BANDS	MIN. OF ¾" X 0.105	⅝" X 1¼"
OVER 6' TO 12' INCL.	3 " O.D.	2½" O.D.													

HEIGHT OF FENCE FABRIC	(H) TIE WIRE	(I) HOG RING	(J) BRACE RAIL SIZE	(J) BRACE RAIL TIE SPACING	(K) TRUSS ROD	(L) FABRIC SIZE	(L) FABRIC MESH	(L) FABRIC SELVAGE	(M) GATE FRAME SIZE	(M) GATE FRAME TIE SPACING	(N) HORIZONTAL SUPPORT SIZE	(N) HORIZONTAL SUPPORT TIE SPACING	(O) HINGE TYPE 180° SWING	(T) GATE POST GATE WIDTH 12' AND LESS	(T) GATE POST GATE WIDTH OVER 12' TO 24' INCL.
6' AND LESS	MIN. OF 12 GA. STEEL OR 9 GA. ALUM.	SAME GAUGE AS FABRIC	1⅝" O.D.	1 TIE EVERY 2'-0"	MIN. OF ⅝" ROUND WITH TIGHTNERS AND FITTINGS	9 GA.	2"	KNUCK -ING AND/OR TWIST -ING	2" O.D.	1 TIE EVERY 1'-0"	2" O.D.	1 TIE EVERY 1'-0"	OFFSET	3" O.D.	4" O.D.
OVER 6' TO 12' INCL.														4" O.D.	

NOTE: POST SIZES SHOWN ARE FOR STEEL. WHERE ALUMINUM IS PROVIDED, LINE POSTS SHALL HAVE AN OUT SIDE DIAMETER OF 2½" FOR FENCE HEIGHT OF 6' AND LESS, AN OUTSIDE DIAMETER OF 3" FOR FENCE HEIGHT OF 6' TO 12'. END, PULL, CORNER OR BRACE POSTS SHALL HAVE AN OUTSIDE DIAMETER OF 3" FOR FENCE HEIGHT OF 6' AND LESS; AN OUTSIDE DIAMETER OF 3½" FOR FENCE HEIGHTS OF 6' TO 12'. GATE POSTS WHERE GATE WIDTH IS 12' AND LESS SHALL HAVE AN OUTSIDE DIAMETER OF 3½" FOR FENCE HEIGHT OF 6' AND LESS. ALUMINUM TENSION WIRE SHALL BE 0.192" IN DIAMETER. MINIMUM THICKNESS OF MATERIAL FROM WHICH EXPANSION SLEEVES SHALL BE MADE WILL BE 0.078". POSTS AND RAILS MAY HAVE ANY CROSS-SECTIONAL SHAPE THAT WILL MEET THE SPECIFICATIONS.

OTHER DETAILS APPLY TO BOTH STEEL AND ALUMINUM FENCE.

ALL MISCELLANEOUS FITTINGS AND HARDWARE SHALL MEET THE REQUIREMENTS AND PRODUCTION TOLERANCES AS SET FORTH IN THE SPECIFICATIONS. 9 GAUGE ALUMINUM WIRE SHALL BE ACCEPTABLE FOR TIEING FABRIC TO TUBULAR AND ROLL FORMED MEMBERS OF STEEL FENCE.



INSTALLATION MAY BE MODIFIED AS SHOWN IN THE PLANS

TYPICAL INSTALLATION DIAGRAM

POSTS AND RAILS

SIZE O.D.	GRADE 1 AND ALUMINUM ALLOY O.D. INCHES	WALL THICKNESS	LBS. PER LINEAR FT. STEEL	LBS. PER LINEAR FT. ALUMINUM	GRADE 2 O.D. INCHES	WALL THICKNESS	LBS. PER LINEAR FT.
1⅝	1.660	0.140	2.27	0.786	1.660	0.111	1.84
2	1.900	0.145	2.72	0.940	1.900	0.120	2.28
2½	2.375	0.154	3.65	1.264	2.375	0.130	3.11
3	2.875	0.203	5.79	2.004	2.875	0.160	4.64
3½	3.500	0.216	7.58	2.621	3.500	0.160	5.71
4	4.000	0.226	9.11	3.151	4.000	0.160	6.56

TOLERANCES ON DIMENSIONS AND WEIGHTS ACCORDING TO AASHTO M 181

DATE	REVISION	FILMED
11-17-10	REVISED TRUSS ROD	
12-10-09	REVISED POSTS & RAILS TABLE	
5-21-09	ADDED TABLE & GEN. NOTE (C)	
8-22-02	REVISED NOTES, REMOVED TABLE, & REMOVED FENCE ALTERNATE	
4-3-97	REVISED BRACE RAIL NOTE	
10-18-96	REVISED AASHTO & ASTM REF.	
11-3-94	REVISED NOTE (L)	
10-1-92	DELETED ALTERNATE POST	10-1-92
8-15-91	DELETED ROLL FORMED POST DETAIL & ADDED NOTE	8-15-91 8-15-91
11-30-89	DELETED CLASS CONCRETE	11-30-89
11-17-88	REVISED O.D. SIZES	668-11-17-88
10-30-87	GENERAL REVISIONS	548-10-30-87
4-20-79	REVISED TOP RAIL & TENSION WIRE	695-4-20-79
10-2-72	REVISED AND REDRAWN	530-10-2-72

ARKANSAS STATE HIGHWAY COMMISSION

CHAIN LINK FENCE

STANDARD DRAWING WF-3