DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		040579	1	127
				(2)	COLLEGE AVE. - HUNTSVILLE RD. (SEL. SECS.) (FAYETTEVILLE) (S)			

ARKANSAS DEPARTMENT OF TRANSPORTATION
CONSTRUCTION PLANS FOR STATE HIGHWAY

COLLEGE AVE. - HUNTSVILLE RD.
(SEL. SECS.) (FAYETTEVILLE) (S)

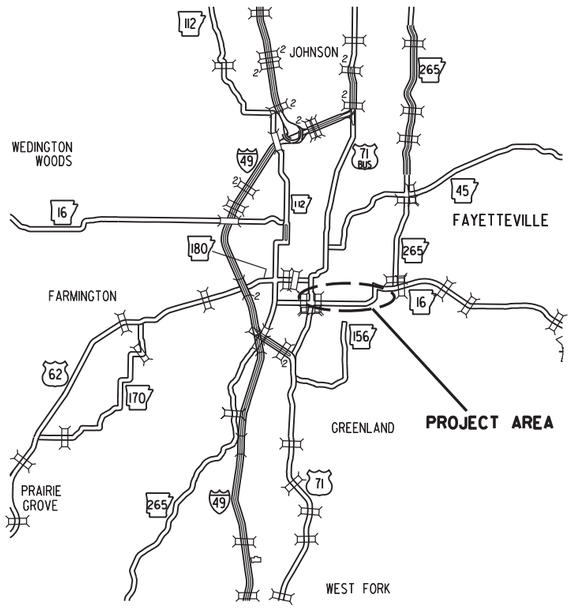
WASHINGTON COUNTY

ROUTE 16 SECTION 3

JOB 040579

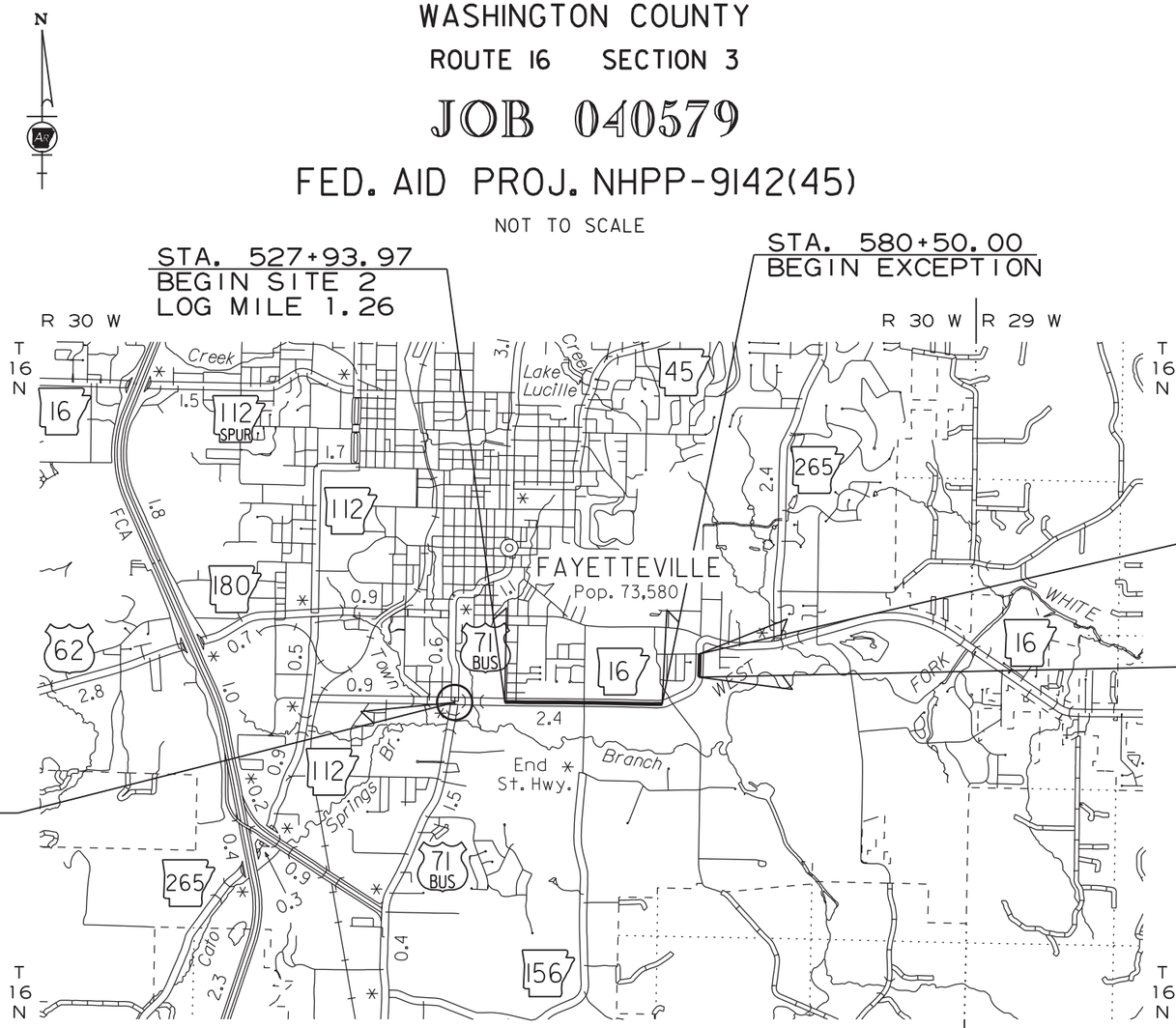
FED. AID PROJ. NHPP-9142(45)

NOT TO SCALE



VICINITY MAP

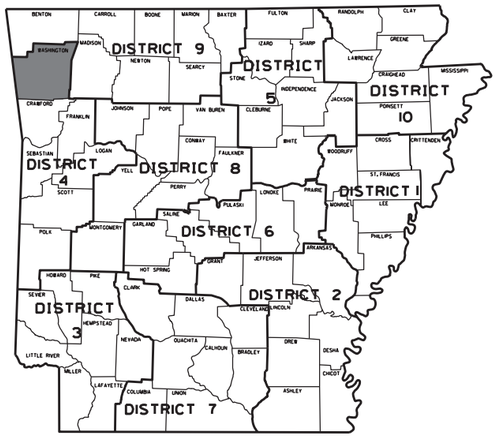
TOTAL LENGTH OF EXCEPTIONS
1750.00' MEASURED ALONG CENTERLINE



STA. 509+80.20
BEGIN JOB 040579
SITE 1
LOG MILE 0.93

STA. 605+52.00
END SITE 2
END JOB 040579

STA. 598+00.00
END EXCEPTION



ARK. HWY. DIST. NO. 4

DESIGN TRAFFIC DATA

DESIGN YEAR	2040
2020 ADT	13,500
2040 ADT	17,500
2040 DHV	1925
DIRECTIONAL DISTRIBUTION	0.60
TRUCKS	8%
DESIGN SPEED	40 MPH

APPROVED

STATE OF ARKANSAS
LICENSED PROFESSIONAL ENGINEER
No. 7836
M.E. BANKS
May 21 2020 2:49 PM

DEPUTY DIRECTOR
AND CHIEF ENGINEER

	BEGIN PROJECT	MID-POINT OF PROJECT	END PROJECT
LATITUDE	N 36°02'53"	N 36°02'53"	N 36°03'09"
LONGITUDE	W 94°09'52"	W 94°08'53"	W 94°08'10"

LENGTH OF PROJECT CALCULATED ALONG C.L.

GROSS LENGTH OF	PROJECT	6008.03	FEET	OR	1.138	MILES
NET	ROADWAY	6008.03			1.138	MILES
NET	BRIDGES	0.00			0.000	MILES
NET	PROJECT	6008.03			1.138	MILES

RD38049 5/18/2020
R040579.DGN

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		040579	2	127

(2) INDEX OF SHEETS AND STANDARD DRAWINGS

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

May 21 2020 2:27 PM
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INDEX OF SHEETS

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

ROADWAY STANDARD DRAWINGS

DRWG.NO.	TITLE	DATE
CG-1	CURBING DETAILS	11-29-07
DR-1	DETAILS OF DRIVEWAYS & ISLANDS	11-07-19
FES-1	FLARED END SECTION	10-18-96
FES-2	FLARED END SECTION	10-18-96
FPC-9	DETAILS OF DROP INLETS & JUNCTION BOXES	11-16-01
FPC-9E	DETAILS OF DROP INLETS (TYPE C)	08-22-02
FPC-9M	DETAILS OF DROP INLET (TYPE MO)	08-22-02
FPC-9S	DETAILS OF DROP INLET & JUNCTION BOX (TYPE ST)	07-26-12
MB-1	MAILBOX DETAILS	11-18-04
PBC-1	PRECAST CONCRETE BOX CULVERTS	01-28-15
PCC-1	CONCRETE PIPE CULVERT FILL HEIGHTS & BEDDING	02-27-14
PCM-1	METAL PIPE CULVERT FILL HEIGHTS & BEDDING	02-27-14
PM-1	PAVEMENT MARKING DETAILS	02-27-20
PU-1	DETAILS OF PIPE UNDERDRAIN	12-08-16
RCB-1	REINFORCED CONCRETE BOX CULVERT DETAILS	07-26-12
RCB-2	EXCAVATION PAY LIMITS, BACKFILL, & SOLID SODDING FOR BOX CULVERTS	11-20-03
RCB-3	METHOD OF EXTENDING EXISTING R.C. BOX CULVERTS	10-12-95
SD-5	CONTROLLER CABINET UTILITY DRAWER	09-12-13
SD-6	HEAVY DUTY PULL BOX	11-16-17
SD-7	SPAN WIRE ASSEMBLY WOOD POLE	11-16-17
SD-8	SIGNAL HEAD PLACEMENT	12-08-16
SD-9	SERVICE POINT	11-07-19
SD-11	STEEL POLE WITH MAST ARM	11-16-17
SE-2	TABLES AND METHOD OF SUPERELEVATION FOR TWO-WAY TRAFFIC	11-07-19
SI-1	DETAILS OF SPECIAL ITEMS	10-25-18
SI-3	CONCRETE WALK (TYPE SPECIAL)	05-14-20
TC-1	STANDARD TRAFFIC CONTROLS FOR HIGHWAY CONSTRUCTION	11-07-19
TC-2	STANDARD TRAFFIC CONTROLS FOR HIGHWAY CONSTRUCTION	11-07-19
TC-3	STANDARD TRAFFIC CONTROLS FOR HIGHWAY CONSTRUCTION	02-27-20
TC-4	STANDARD TRAFFIC CONTROLS FOR HIGHWAY CONSTRUCTION-TEMPORARY PRECAST BARRIER	11-07-19
TC-5	STANDARD TRAFFIC CONTROLS FOR HIGHWAY CONSTRUCTION-TEMPORARY PRECAST BARRIER	11-07-19
TEC-1	TEMPORARY EROSION CONTROL DEVICES	11-16-17
TEC-3	TEMPORARY EROSION CONTROL DEVICES	11-03-94
WF-3	CHAIN LINK FENCE	11-17-10
WF-4	WIRE FENCE TYPE C AND D	08-22-02
WR-1	WHEELCHAIR RAMPS NEW CONSTRUCTION AND ALTERATIONS	11-10-05
W-X003-1	DETAILS OF STANDARD WINGS FOR REINFORCED CONCRETE BOX CULVERTS	05-10-66
R-100X-0	DETAILS OF STANDARD BARREL SECTIONS FOR REINFORCED CONCRETE BOX CULVERTS	02-08-63
R-100X-X2	DETAILS OF STANDARD BARREL SECTIONS FOR REINFORCED CONCRETE BOX CULVERTS	01-14-63

DN42608 4/12/2020
R040579.DGN

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
06-12-2020				6	ARK.			
				JOB NO.		040579	3	127

(2) GOVERNING SPECIFICATIONS AND GENERAL NOTES

GOVERNING SPECIFICATIONS

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

NUMBER	TITLE
ERRATA_____	ERRATA FOR THE BOOK OF STANDARD SPECIFICATIONS
FHWA-1273__	REQUIRED CONTRACT PROVISIONS FEDERAL-AID CONSTRUCTION CONTRACTS
FHWA-1273__	SUPPLEMENT - EQUAL EMPLOYMENT OPPORTUNITY - NOTICE TO CONTRACTORS
FHWA-1273__	SUPPLEMENT - SPECIFIC EQUAL EMPLOYMENT OPPORTUNITY RESPONSIBILITIES (23 U.S.C. 140)
FHWA-1273__	SUPPLEMENT - EQUAL EMPLOYMENT OPPORTUNITY - GOALS AND TIMETABLES
FHWA-1273__	SUPPLEMENT - EQUAL EMPLOYMENT OPPORTUNITY - FEDERAL STANDARDS
FHWA-1273__	SUPPLEMENT - POSTERS AND NOTICES REQUIRED FOR FEDERAL-AID PROJECTS
FHWA-1273__	SUPPLEMENT - WAGE RATE DETERMINATION
100-3_____	CONTRACTOR'S LICENSE
100-4_____	DEPARTMENT NAME CHANGE
102-2_____	ISSUANCE OF PROPOSALS
108-1_____	LIQUIDATED DAMAGES
108-2_____	WORK ALLOWED PRIOR TO ISSUANCE OF WORK ORDER
110-1_____	PROTECTION OF WATER QUALITY AND WETLANDS
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
404-3_____	DESIGN OF ASPHALT MIXTURES
410-1_____	CONSTRUCTION REQUIREMENTS AND ACCEPTANCE OF ASPHALT CONCRETE PLANT MIX COURSES
410-2_____	*DEVICES FOR MEASURING* DENSITY FOR ROLLING PATTERNS
505-1_____	PORTLAND CEMENT CONCRETE DRIVEWAY
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)
606-1_____	PIPE CULVERTS FOR SIDE DRAINS
620-1_____	MULCH COVER
621-1_____	FILTER SOCKS
632-1_____	CONCRETE ISLAND
633-1_____	CONCRETE WALKS, CONCRETE STEPS, AND HAND RAILING
634-1_____	CURBING
700-2_____	TRAFFIC CONTROL FACILITIES
800-1_____	STRUCTURES
802-3_____	CONCRETE FOR STRUCTURES
804-2_____	REINFORCING STEEL FOR STRUCTURES
JOB 040579__	ACTUATED CONTROLLER
JOB 040579__	AIRPORT CLEARANCE REQUIREMENTS
JOB 040579__	ARCHITECTURAL FINISH (CAST-IN PLACE RETAINING WALLS)
JOB 040579__	ASSESSMENT OF WORKING DAYS – MAINTENANCE OF TRAFFIC
JOB 040579__	BIDDING REQUIREMENTS AND CONDITIONS
JOB 040579__	BROADBAND INTERNET SERVICE FOR ASPHALT CONCRETE PLANT
JOB 040579__	BROADBAND INTERNET SERVICE FOR FIELD OFFICE
JOB 040579__	CABINET DRAWER ASSEMBLY
JOB 040579__	CARGO PREFERENCE ACT REQUIREMENTS
JOB 040579__	CONCRETE WALKS (TYPE SPECIAL)
JOB 040579__	CONSTRUCTION IN SPECIAL FLOOD HAZARD AREAS
JOB 040579__	DELAY IN RIGHT OF WAY OCCUPANCY
JOB 040579__	DISADVANTAGED BUSINESS ENTERPRISE BIDDER'S RESPONSIBILITES
JOB 040579__	EDGE CARD VIDEO PROCESSOR
JOB 040579__	EDGE CONNECT CARD FOR COMMUNICATIONS
JOB 040579__	ELECTRICAL CONDUCTORS FOR LUMINAIRES
JOB 040579__	ELECTRICAL CONDUCTORS-IN-CONDUIT
JOB 040579__	EXTENSION FOR PIPE CULVERTS
JOB 040579__	FLEXIBLE BEGINNING OF WORK – CALENDAR DAY CONTRACT
JOB 040579__	GOALS FOR DISADVANTAGED BUSINESS ENTERPRISE PARTICIPATION
JOB 040579__	LED COUNTDOWN PEDESTRIAN SIGNAL HEAD
JOB 040579__	LED LUMINAIRE ASSEMBLY (BUG U0 TYPE)
JOB 040579__	LED TRAFFIC SIGNAL HEAD
JOB 040579__	MAINTENANCE OF TRAFFIC
JOB 040579__	MANDATORY ELECTRONIC CONTRACT
JOB 040579__	MANDATORY ELECTRONIC DOCUMENT SUBMITTAL
JOB 040579__	NESTING SITES OF MIGRATORY BIRDS
JOB 040579__	OFF-SITE RESTRAINING CONDITIONS FOR INDIANA AND NORTHERN LONG-EARED BATS
JOB 040579__	PARTNERING REQUIREMENTS
JOB 040579__	PERCENT WITHIN LIMITS/PAVEMENT SMOOTHNESS (IRI)
JOB 040579__	PRICE ADJUSTMENT FOR ASPHALT BINDER
JOB 040579__	RELOCATION OF TRAFFIC SIGNAL HEAD
JOB 040579__	REMOVAL OF TRAFFIC SIGNAL EQUIPMENT
JOB 040579__	RESTRICTIONS ON THE USE OF RECYCLED ASPHALT PAVEMENT MATERIAL
JOB 040579__	RETROREFLECTIVE BACKPLATES
JOB 040579__	SERVICE POINT ASSEMBLY (TRAFFIC CONTROL DEVICES)
JOB 040579__	SHORING FOR CULVERTS
JOB 040579__	SITE USE (A+C METHOD) – CALENDAR DAY CONTRACT
JOB 040579__	SOIL STABILIZATION
JOB 040579__	STORM WATER POLLUTION PREVENTION PLAN
JOB 040579__	STREET NAME SIGN (MAST ARM MOUNTED)
JOB 040579__	SUBMISSION OF ASPHALT CONCRETE HOT MIX ACCEPTANCE TEST RESULTS
JOB 040579__	SYSTEM LOCAL CONTROLLER
JOB 040579__	TEXTURED COATING FINISH (CAST-IN PLACE RETAINING WALLS)
JOB 040579__	TRAFFIC SIGNAL CONTROLLER (MODIFICATION)
JOB 040579__	UTILITY ADJUSTMENTS
JOB 040579__	VALUE ENGINEERING
JOB 040579__	VIDEO DETECTOR (COLOR)
JOB 040579__	VIDEO DETECTOR ROTATION
JOB 040579__	WARM MIX ASPHALT

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

Trinity Smith

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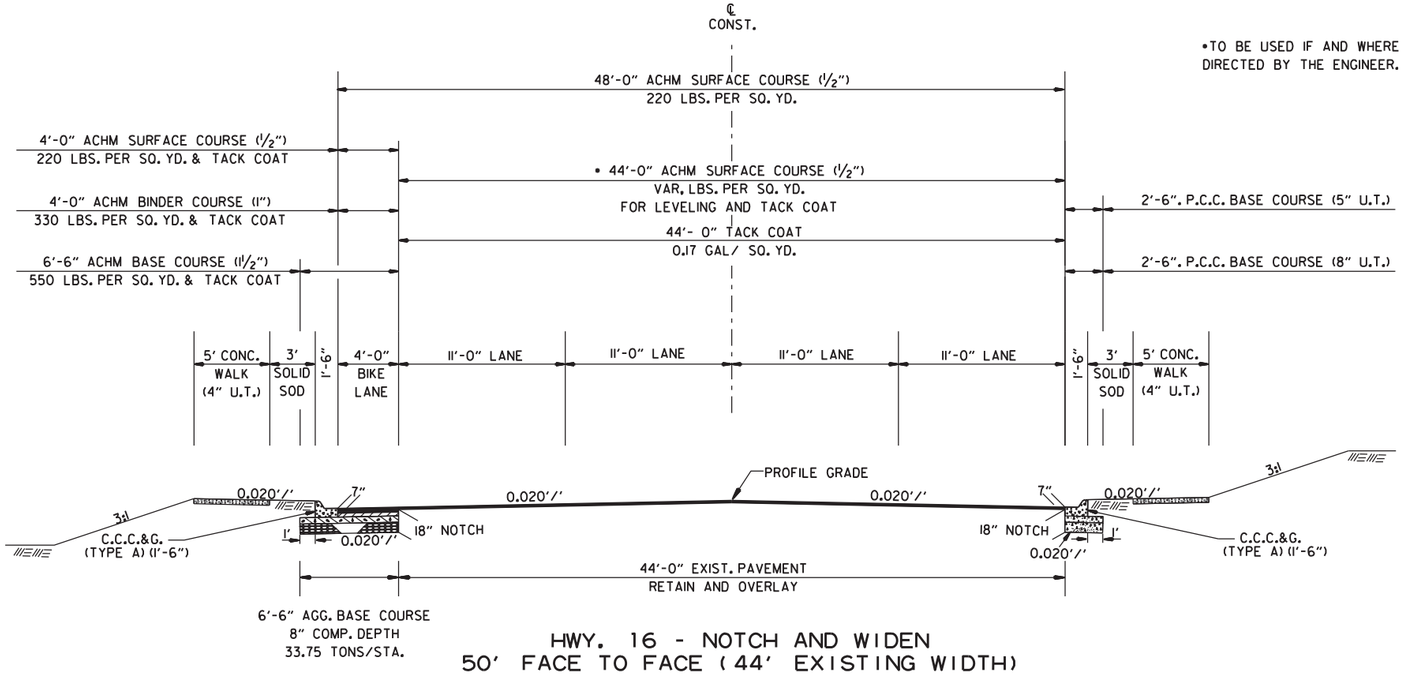
GENERAL NOTES

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.

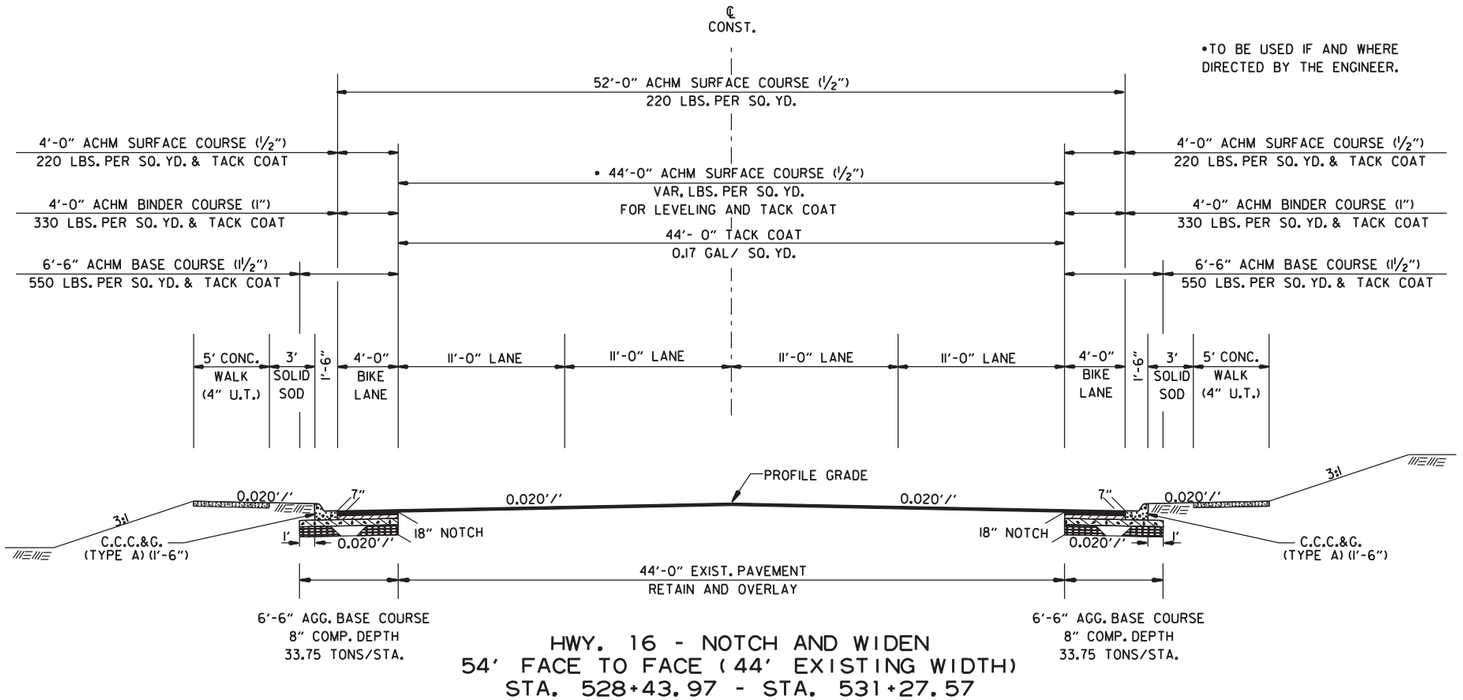
DN42608 4/12/2020
R040579.DGN

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		040579	4	127

(2) TYPICAL SECTIONS OF IMPROVEMENT



HWY. 16 - NOTCH AND WIDEN
50' FACE TO FACE (44' EXISTING WIDTH)
STA. 527+93.97 - STA. 528+43.97



HWY. 16 - NOTCH AND WIDEN
54' FACE TO FACE (44' EXISTING WIDTH)
STA. 528+43.97 - STA. 531+27.57
STA. 598+00.00 - STA. 605+52.00

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

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NOTES:

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

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

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

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

REFER TO PLAN SHEETS FOR SIDEWALK LOCATIONS.

PRIOR TO AND DURING PLACEMENT OF PAVEMENT IN FRONT OF THE CURB OR CURB AND GUTTER, THE CONTRACTOR SHALL PROVIDE POSITIVE DRAINAGE AT ALL TIMES. THE METHOD(S) USED SHALL BE APPROVED BY THE ENGINEER. PAYMENT FOR THIS WORK SHALL BE CONSIDERED INCLUDED IN THE PRICE BID FOR THE VARIOUS CONTRACT ITEMS.

TRANSVERSE EXPANSION JOINTS SHALL BE PLACED IN CONCRETE WALKS AT 45' INTERVALS.

RD38049 5/19/2020
R040579.DGN

TYPICAL SECTIONS OF IMPROVEMENT

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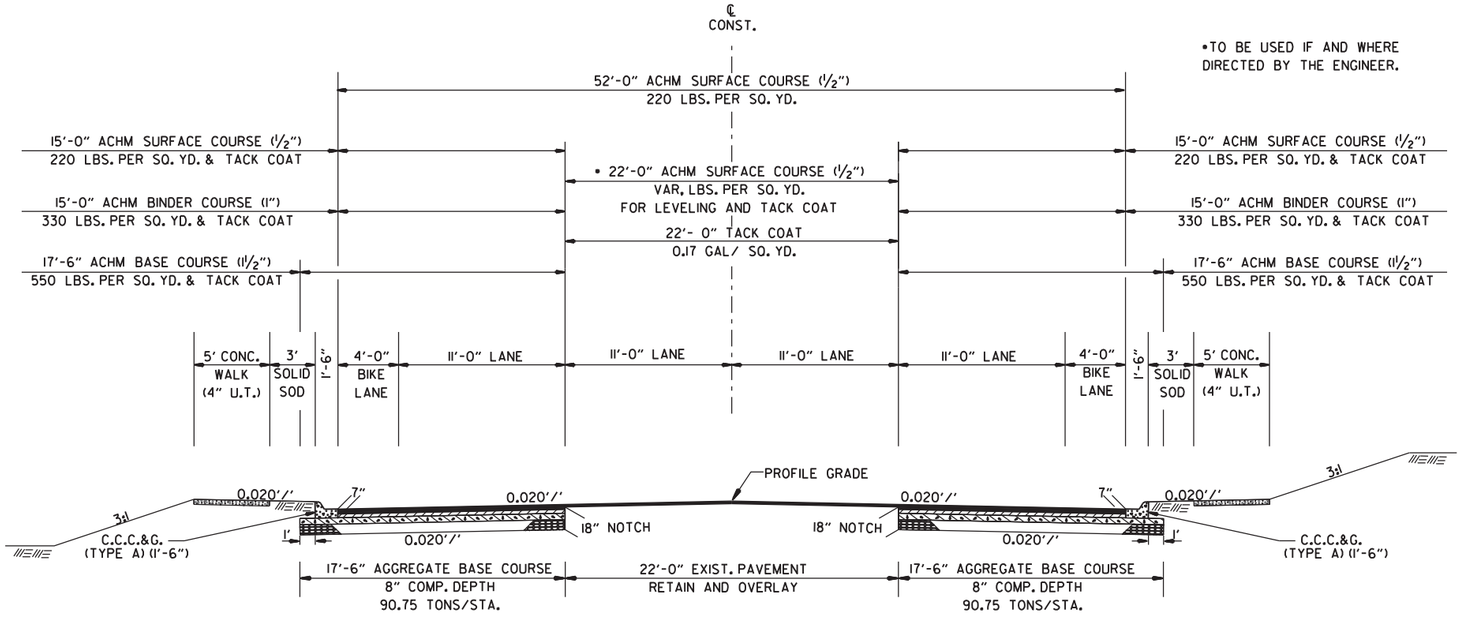
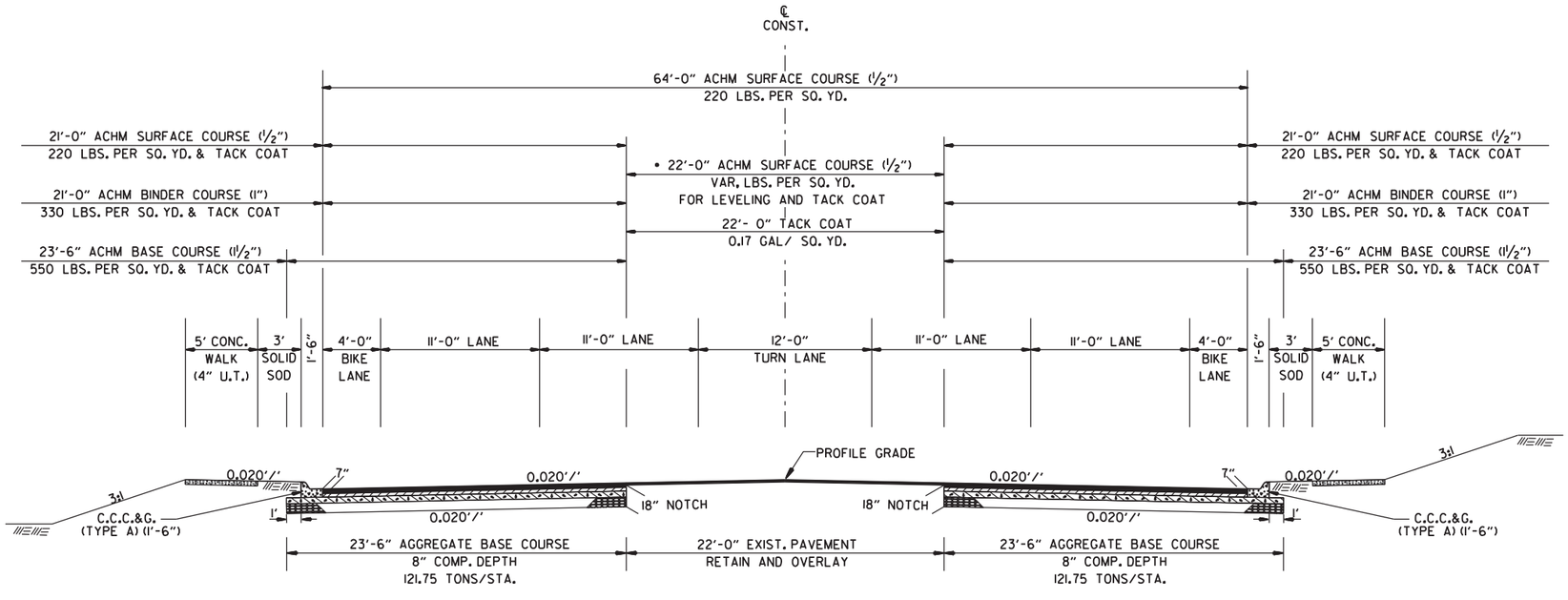


HWY. 16 - NOTCH AND WIDEN
54' FACE TO FACE (22' EXISTING WIDTH)
STA. 531+27.57 - STA. 551+69.00
STA. 556+29.00 - STA. 580+50.00



HWY. 16 - NOTCH AND WIDEN
66' FACE TO FACE (22' EXISTING WIDTH)
STA. 551+69.00 - STA. 556+29.00

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

Trinity Smith

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NOTES:

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PRIOR TO AND DURING PLACEMENT OF PAVEMENT IN FRONT OF THE CURB OR CURB AND GUTTER, THE CONTRACTOR SHALL PROVIDE POSITIVE DRAINAGE AT ALL TIMES. THE METHOD(S) USED SHALL BE APPROVED BY THE ENGINEER. PAYMENT FOR THIS WORK SHALL BE CONSIDERED INCLUDED IN THE PRICE BID FOR THE VARIOUS CONTRACT ITEMS.

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RD38049 5/19/2020
R040579.DGN

TYPICAL SECTIONS OF IMPROVEMENT

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
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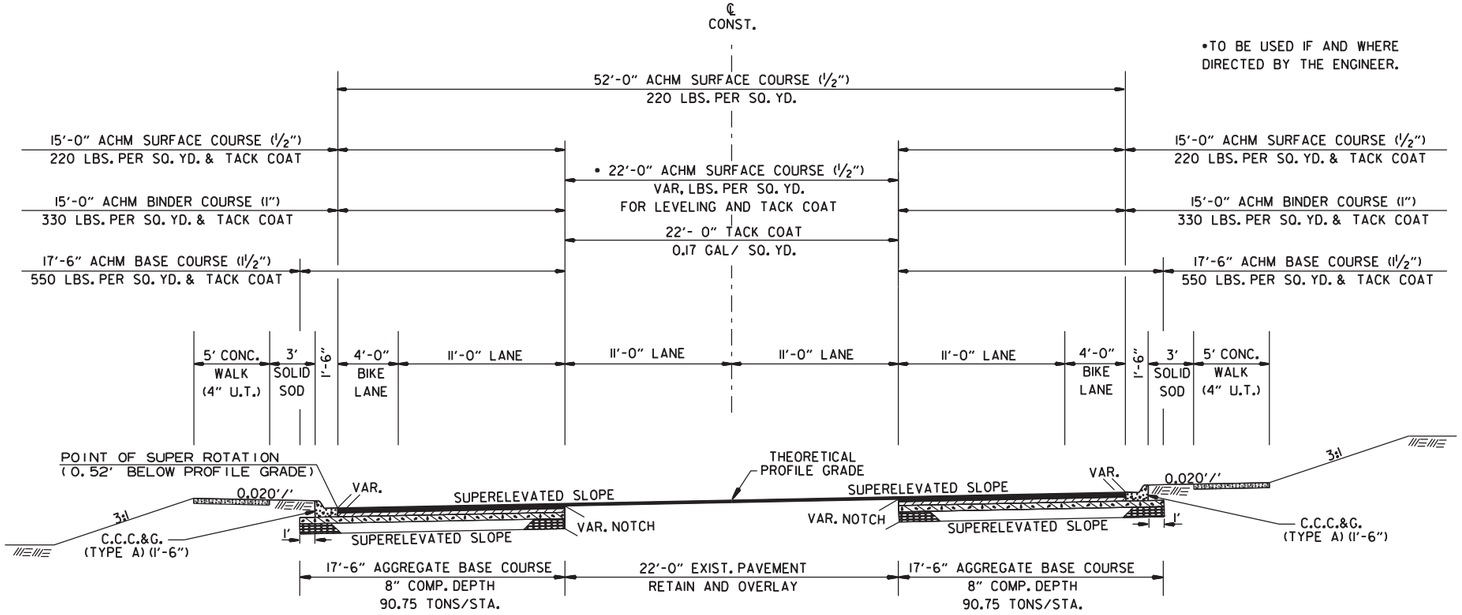
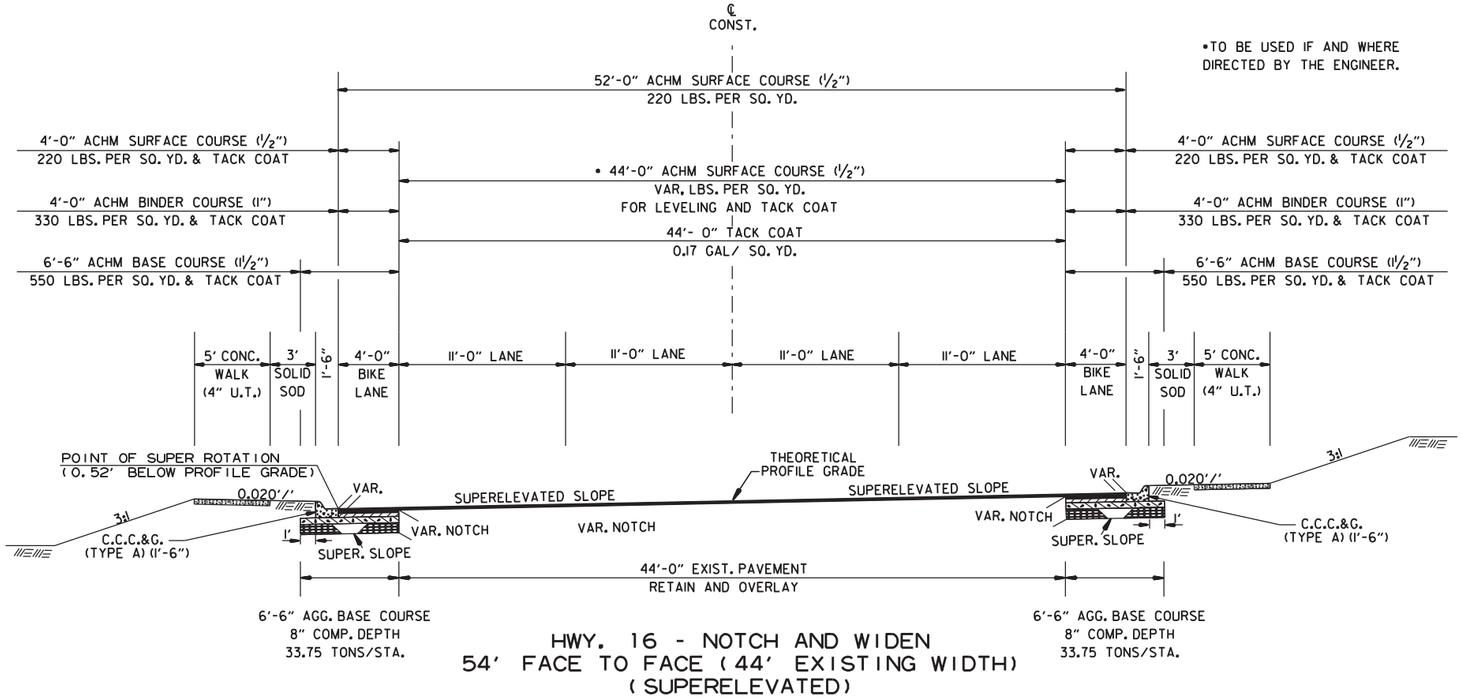
(2) TYPICAL SECTIONS OF IMPROVEMENT



HWY. 16 - NOTCH AND WIDEN
54' FACE TO FACE (22' EXISTING WIDTH)
(SUPERELEVATED)



HWY. 16 - NOTCH AND WIDEN
54' FACE TO FACE (44' EXISTING WIDTH)
(SUPERELEVATED)

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

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NOTES:

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PRIOR TO AND DURING PLACEMENT OF PAVEMENT IN FRONT OF THE CURB OR CURB AND GUTTER, THE CONTRACTOR SHALL PROVIDE POSITIVE DRAINAGE AT ALL TIMES. THE METHOD(S) USED SHALL BE APPROVED BY THE ENGINEER. PAYMENT FOR THIS WORK SHALL BE CONSIDERED INCLUDED IN THE PRICE BID FOR THE VARIOUS CONTRACT ITEMS.

TRANSVERSE EXPANSION JOINTS SHALL BE PLACED IN CONCRETE WALKS AT 45' INTERVALS.

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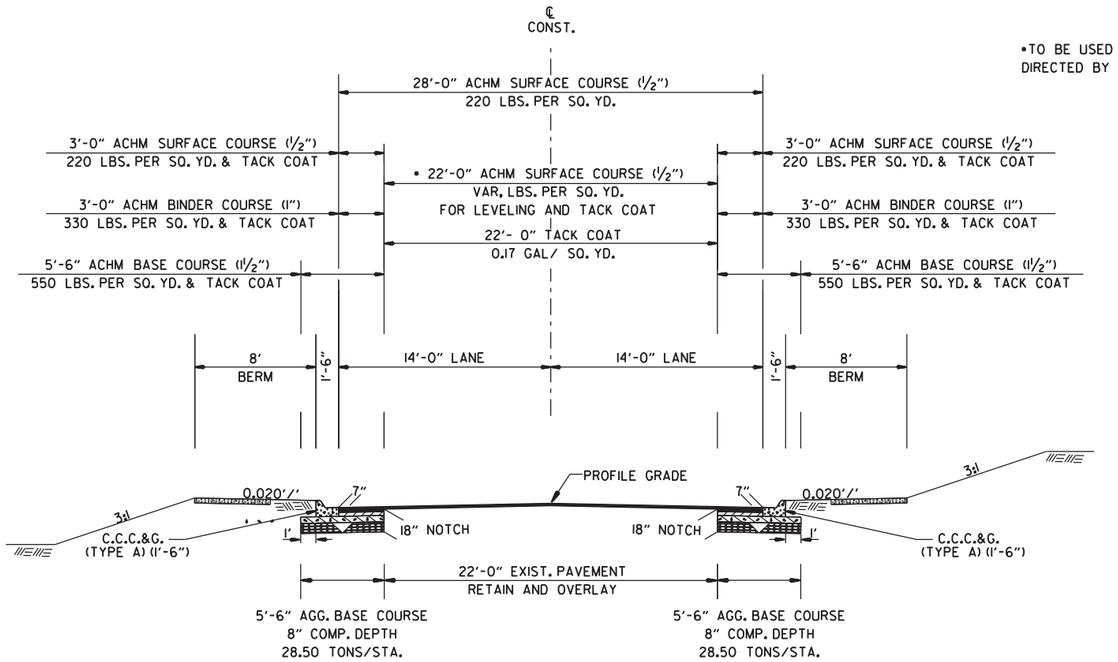
R040579.DGN

TYPICAL SECTIONS OF IMPROVEMENT

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		040579	7	127

(2) TYPICAL SECTIONS OF IMPROVEMENT



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

HWY. 16 - NOTCH AND WIDEN
30' FACE TO FACE (22' EXISTING WIDTH)

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

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NOTES:

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

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

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

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

REFER TO PLAN SHEETS FOR SIDEWALK LOCATIONS.

PRIOR TO AND DURING PLACEMENT OF PAVEMENT IN FRONT OF THE CURB OR CURB AND GUTTER, THE CONTRACTOR SHALL PROVIDE POSITIVE DRAINAGE AT ALL TIMES. THE METHOD(S) USED SHALL BE APPROVED BY THE ENGINEER. PAYMENT FOR THIS WORK SHALL BE CONSIDERED INCLUDED IN THE PRICE BID FOR THE VARIOUS CONTRACT ITEMS.

TRANSVERSE EXPANSION JOINTS SHALL BE PLACED IN CONCRETE WALKS AT 45' INTERVALS.

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TYPICAL SECTIONS OF IMPROVEMENT

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		040579	8	127

(2) SPECIAL DETAILS

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

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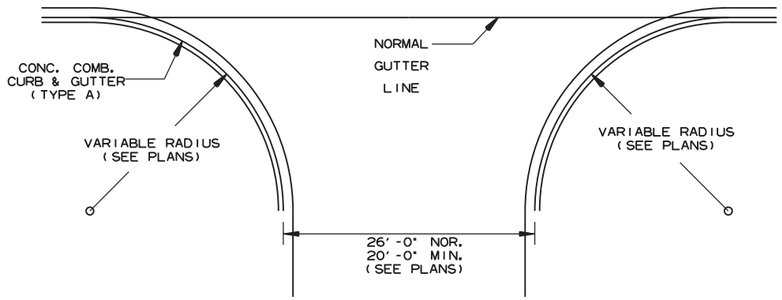
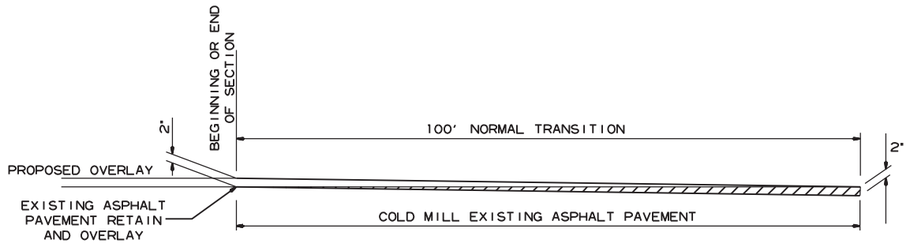
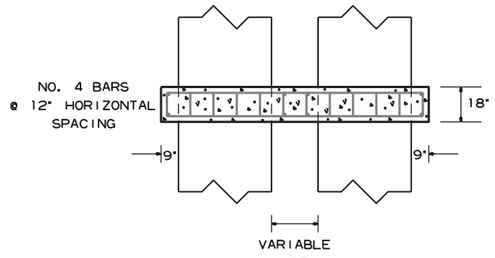


NOTE:
PAVEMENT STRUCTURE FOR STATE HIGHWAYS, CITY STREETS, & COUNTY ROADS TO BE SAME AS MAIN LANES.

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

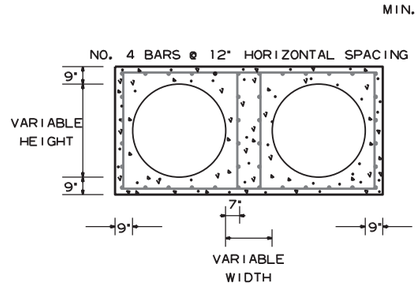


DETAIL FOR TRANSITIONS

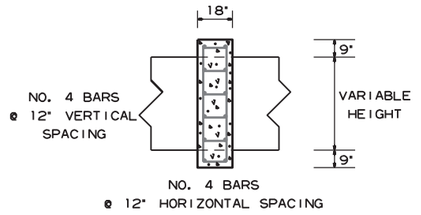


TOP VIEW

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



FRONT VIEW



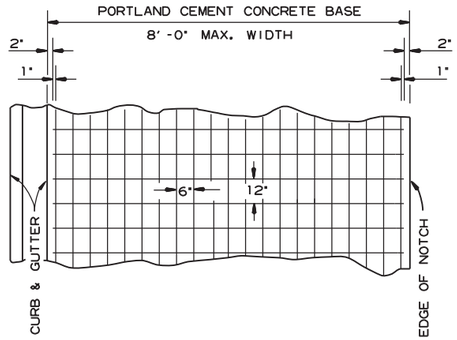
SIDE VIEW

PIPE EXTENSION REINFORCED CONCRETE COLLAR DETAIL

RD38049 5/19/2020
R040579.DGN

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		040579	9	127

(2) SPECIAL DETAILS

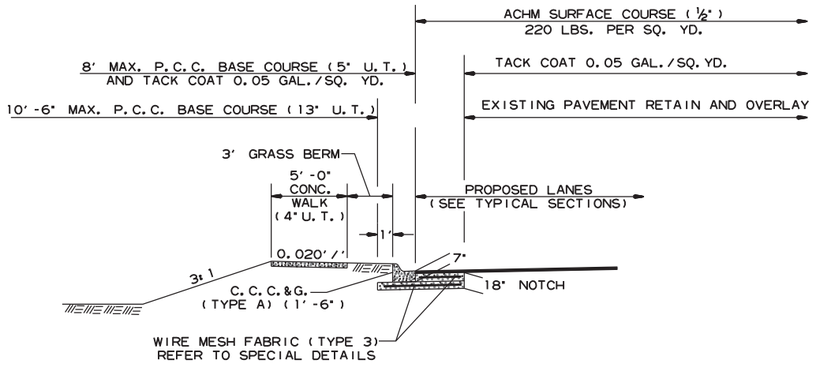


6" X 12" MESH FABRIC (TYPE 3) (W5.5 X W2.9) = 4.26 LBS./SQ.YD.

NOTES:

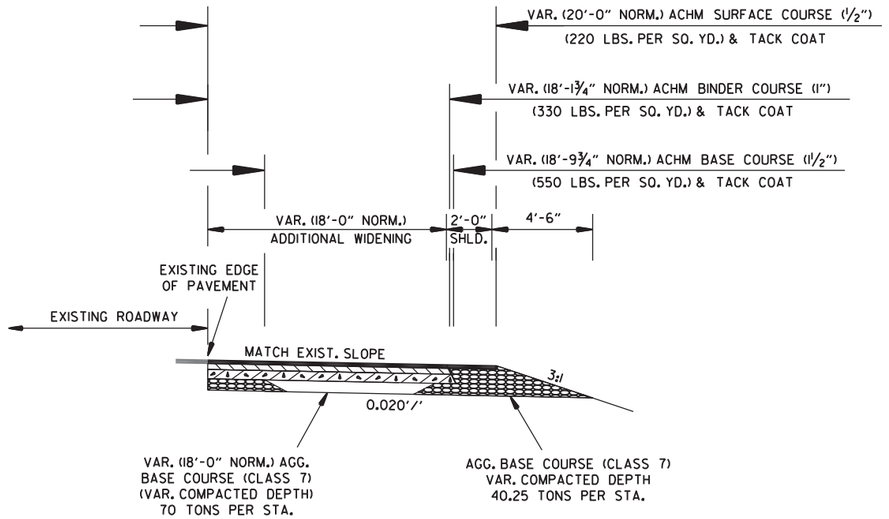
1. LAP MESH FABRIC MIN. 12" LONGITUDINALLY AND MIN. 6" TRANSVERSELY.
2. MESH FABRIC IS NOT REQUIRED WHEN WIDTH OF PORTLAND CEMENT CONCRETE BASE IS LESS THAN 12".
3. MESH FABRIC (TYPE 3) WILL NOT BE PAID FOR DIRECTLY, BUT FULL COMPENSATION THEREFORE WILL BE CONSIDERED INCLUDED IN THE CONTRACT PRICE BID PER SQ. YD. FOR PORTLAND CEMENT CONCRETE BASE (13" U.T. AND 5" U.T.)

DETAIL OF REINFORCING STEEL FOR PAVEMENT (MESH FABRIC TYPE 3)



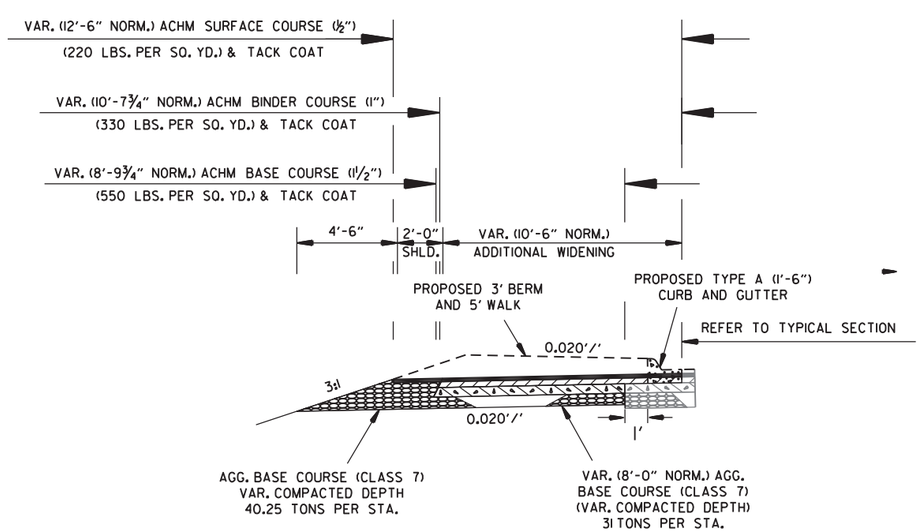
P.C.C. BASE WIDENING DETAIL

P.C.C. BASE WIDENING TO BE USED IF AND WHERE DIRECTED BY THE ENGINEER.



ADDITIONAL WIDENING FOR MAINTENANCE OF TRAFFIC (STAGE I WIDENING ON RT.)

STA. 542+83.64 - STA. 550+18.87
STA. 566+17.28 - STA. 571+91.82



ADDITIONAL WIDENING FOR MAINTENANCE OF TRAFFIC (STAGE 2 WIDENING ON LT.)

STA. 543+33.94 - STA. 548+58.38
STA. 565+83.05 - STA. 571+05.87

STATE OF ARKANSAS
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No. 11425
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DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		040579	10	127

(2) SPECIAL DETAILS

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

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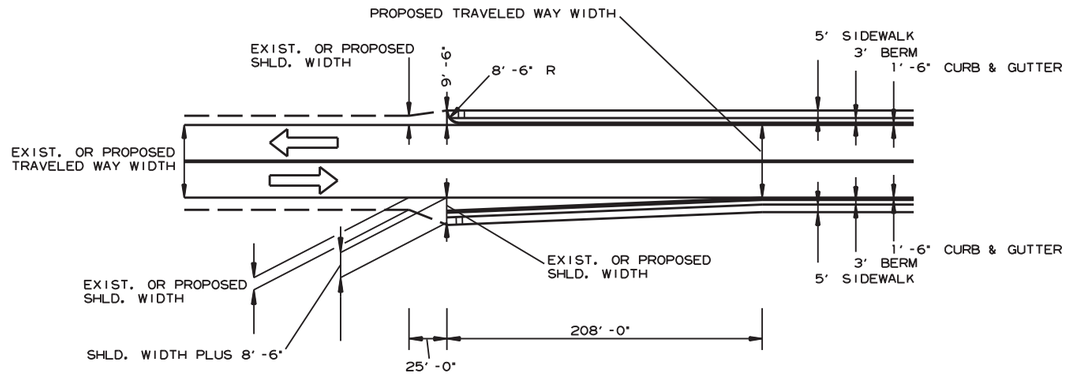
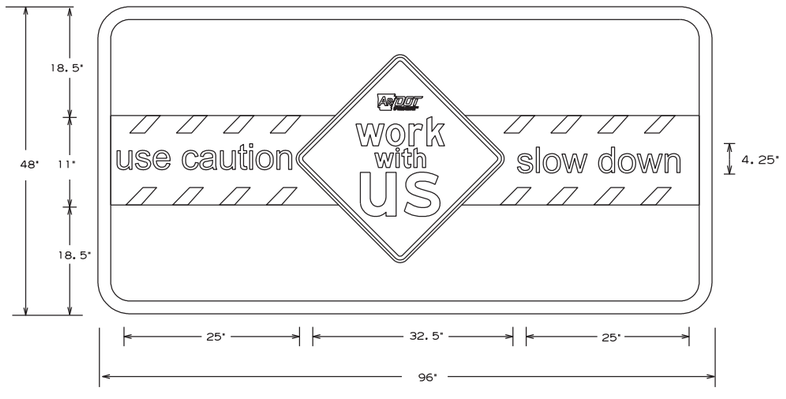


TRANSITION FROM OPEN SHOULDER
TO CURB & GUTTER SECTION



1.5" WHITE BORDER, 1.5" RADII, GREEN BACKGROUND
"use caution/slow down" 4.25" NIVEAU GROTESK, REGULAR FONT
"work with us" FRUTIGER LT 75 BLACK FONT

NOTE: DIGITAL ART WORK FILE AVAILABLE FROM ARDOT MAINTENANCE DIVISION SIGN SHOP 501-569-2665.
THIS SIGN SHALL BE PLACED 500' PRECEDING THE FIRST ADVANCE WARNING SIGN, IN THE DIRECTION OF TRAFFIC.

WORK WITH US SIGN

RD38049 5/21/2020
R040579.DGN

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED
06-12-2020			

FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
6	ARK.			
JOB NO.		040579	11	127

(2) TEMPORARY EROSION CONTROL DETAILS

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

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STA. 527+93.97
BEGIN SITE 2
LOG MILE 1.26

REVISIONS

DATE OF REVISION	REVISION

E-6 = ROCK DITCH CHECKS
E-11 = SILT FENCE
E-13 = FILTER SOCK

50' BUFFER

CLEARING AND GRUBBING
TEMPORARY EROSION CONTROL DETAILS

RD38049 6/11/2020
RD40579.DGN

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED
06-12-2020			

FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
6	ARK.			
JOB NO.		040579	12	127

(2) TEMPORARY EROSION CONTROL DETAILS

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

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REVISIONS

DATE OF REVISION	REVISION

E-6 = ROCK DITCH CHECKS
E-11 = SILT FENCE
E-13 = FILTER SOCK

STA. 580+50.00
BEGIN EXCEPTION

CLEARING AND GRUBBING
TEMPORARY EROSION CONTROL DETAILS

RD38049 6/11/2020
R040579.DGN

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		040579	13	127

(2) TEMPORARY EROSION CONTROL DETAILS

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

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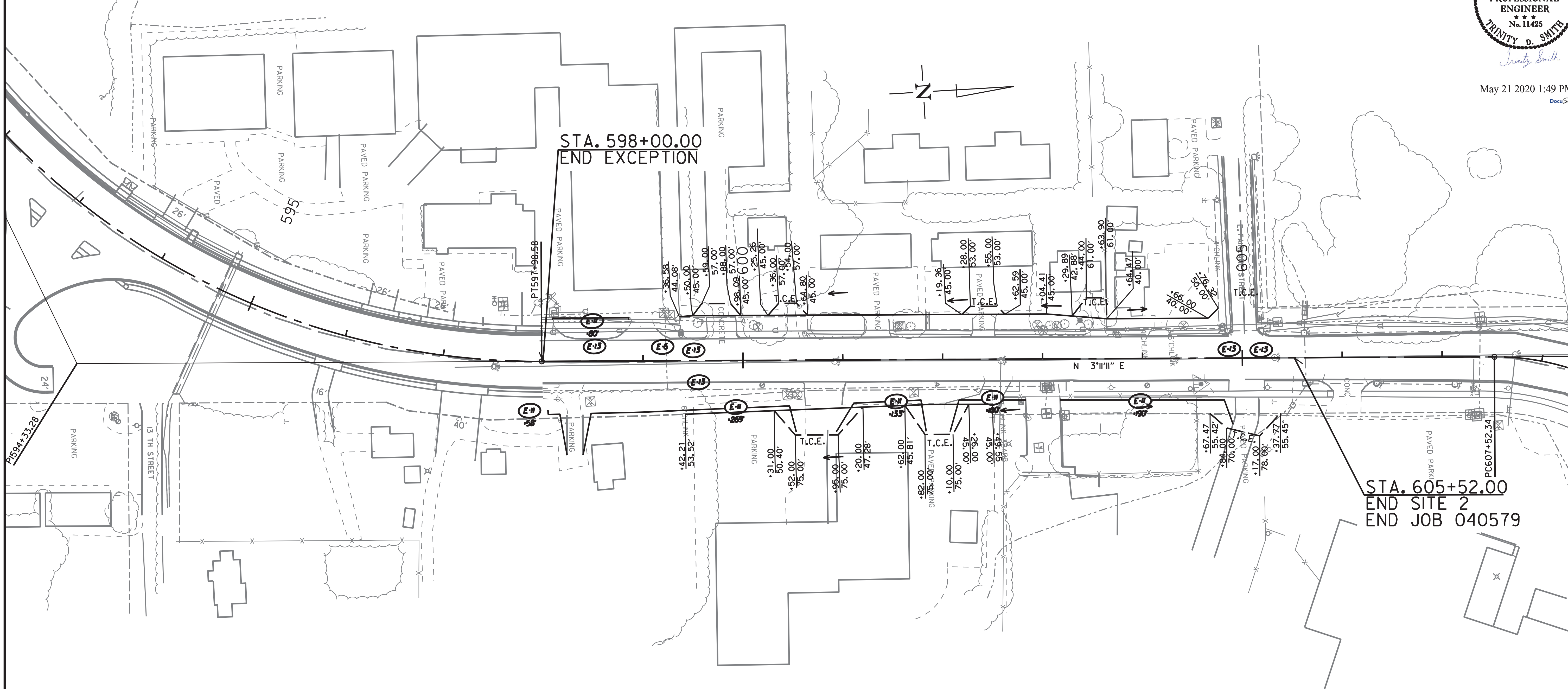

REVISIONS

DATE OF REVISION	REVISION

E-6	= ROCK DITCH CHECKS
E-11	= SILT FENCE
E-13	= FILTER SOCK

CLEARING AND GRUBBING
TEMPORARY EROSION CONTROL DETAILS

R038049 5/18/2020
R040579.DGN

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED
06-12-2020			

FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
6	ARK.			
JOB NO.		040579	14	127

(2) TEMPORARY EROSION CONTROL DETAILS

STATE OF ARKANSAS
LICENSED PROFESSIONAL ENGINEER
TRINITY D. SMITH
No. 11425
Jun 19 2020 11:57 AM
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REVISIONS

DATE OF REVISION	REVISION

E-6 = ROCK DITCH CHECKS
E-11 = SILT FENCE
E-13 = FILTER SOCK

SITE 2 - STAGE I
TEMPORARY EROSION CONTROL DETAILS

RD38049 6/11/2020
R040579.DGN

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED
06-12-2020			

FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
6	ARK.			
JOB NO.		040579	15	127

(2) TEMPORARY EROSION CONTROL DETAILS

STATE OF ARKANSAS
LICENSED PROFESSIONAL ENGINEER
No. 11425
TRINITY D. SMITH
Jun 19 2020 11:57 AM

STA. 527+93.97
BEGIN SITE 2
LOG MILE 1.26

REVISIONS

DATE OF REVISION	REVISION

E-6 = ROCK DITCH CHECKS
E-11 = SILT FENCE
E-13 = FILTER SOCK

RD38049 6/11/2020
RD40579.DGN

SITE 2 - STAGE 2
TEMPORARY EROSION CONTROL DETAILS

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED
06-12-2020			

FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
6	ARK.			
JOB NO.		040579	16	127

(2) TEMPORARY EROSION CONTROL DETAILS

STATE OF ARKANSAS
LICENSED PROFESSIONAL ENGINEER
No. 11425
TRINITY D. SMITH
Jun 19 2020 11:57 AM
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REVISIONS

DATE OF REVISION	REVISION

E-6 = ROCK DITCH CHECKS
E-11 = SILT FENCE
E-13 = FILTER SOCK

STA. 580+50.00
BEGIN EXCEPTION

SITE 2 - STAGE 2
TEMPORARY EROSION CONTROL DETAILS

RD38049 6/11/2020
RD40579.DGN

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED

FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
6	ARK.			
JOB NO.		040579	17	127

(2) TEMPORARY EROSION CONTROL DETAILS

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

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STA. 598+00.00
END EXCEPTION

PT597+98.58

PC607+52.34

STA. 605+52.00
END SITE 2
END JOB 040579

PI594+33.28

N 3°11'11" E

REVISIONS

DATE OF REVISION	REVISION

E-6 = ROCK DITCH CHECKS
E-11 = SILT FENCE
E-13 = FILTER SOCK

R038049 5/18/2020
R040579.DGN

SITE 2 - STAGE 2
TEMPORARY EROSION CONTROL DETAILS

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED
06-12-2020			

FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
6	ARK.			
JOB NO.		040579	18	127

(2) TEMPORARY EROSION CONTROL DETAILS

STATE OF ARKANSAS
LICENSED PROFESSIONAL ENGINEER
No. 11425
TRINITY D. SMITH
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STA. 527+93.97
BEGIN SITE 2
LOG MILE 1.26

S. COLLEGE AVENUE

S. WASHINGTON AVENUE

S 87°12'06" E

S 88°20'53" E

S 88°01'08" E

S 88°01'08" E

S 88°01'08" E

S 87°11'12" E

PC527+42.66

PT528+57.30

PI527+99.99

PI529+99.91

PI550+00.17

PC16+67.40

T.C.E.

PAVED PARKING

PARKING

SIGN

50' BUFFER

N 56°46' E

HOUSE DRIVE

REVISIONS

DATE OF REVISION	REVISION

E-6 = ROCK DITCH CHECKS
E-11 = SILT FENCE
E-13 = FILTER SOCK

SITE 2 - STAGE 3
TEMPORARY EROSION CONTROL DETAILS

RD38049 6/11/2020
R040579.DGN

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED
06-12-2020			

FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
6	ARK.			
JOB NO.		040579	19	127

(2) TEMPORARY EROSION CONTROL DETAILS

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

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REVISIONS

DATE OF REVISION	REVISION

E-6 = ROCK DITCH CHECKS
E-11 = SILT FENCE
E-13 = FILTER SOCK

STA. 580+50.00
BEGIN EXCEPTION

SITE 2 - STAGE 3
TEMPORARY EROSION CONTROL DETAILS

RD38049 6/11/2020
R040579.DGN

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED

FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
6	ARK.			
JOB NO.		040579	20	127

(2) TEMPORARY EROSION CONTROL DETAILS

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

Trinity Smith

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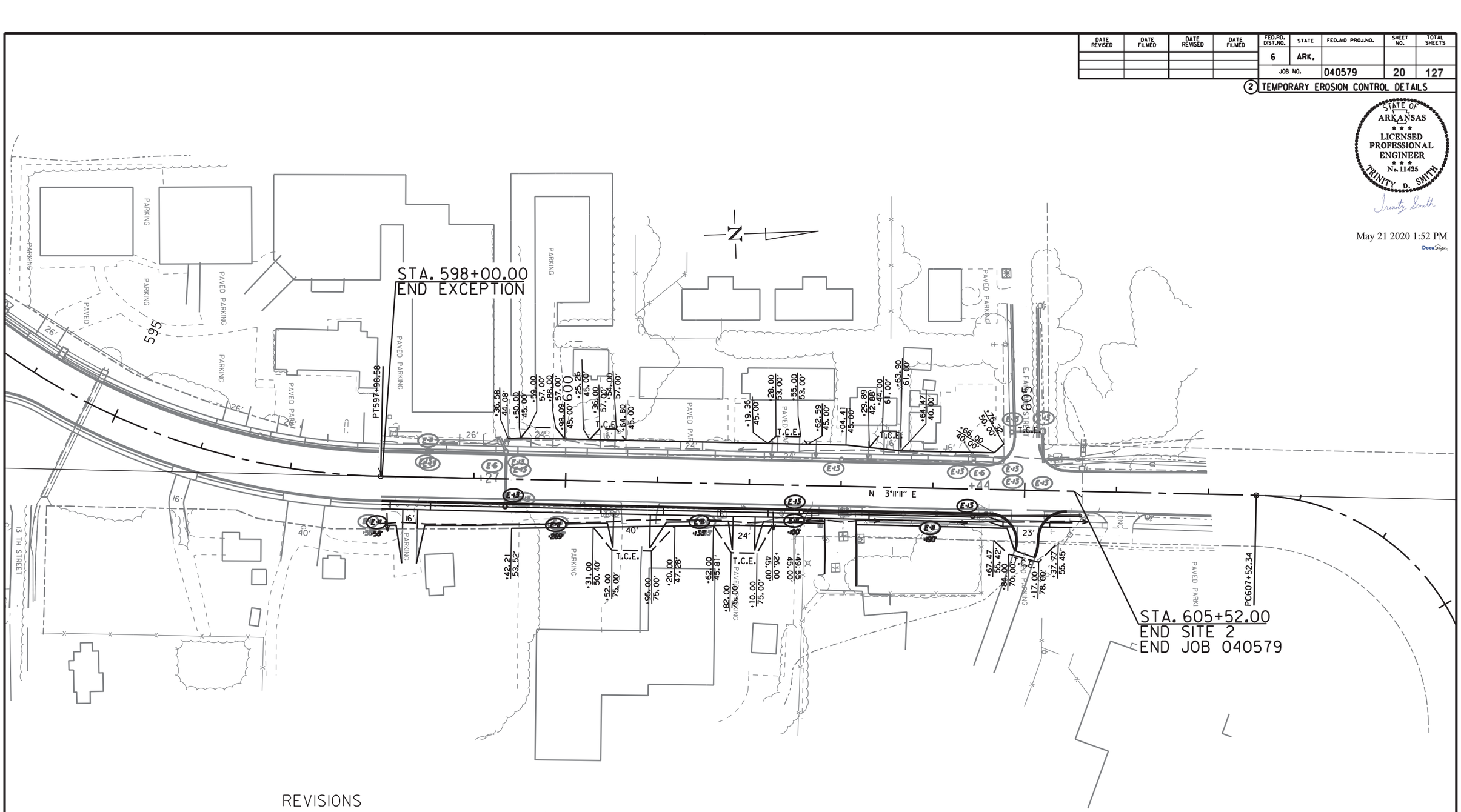

REVISIONS

DATE OF REVISION	REVISION

E-6 = ROCK DITCH CHECKS
E-11 = SILT FENCE
E-13 = FILTER SOCK

SITE 2 - STAGE 3
TEMPORARY EROSION CONTROL DETAILS

RD38049 5/18/2020
R040579.DGN

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED
06-12-2020			

FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
6	ARK.			
JOB NO.		040579	21	127

(2) TEMPORARY EROSION CONTROL DETAILS

STATE OF ARKANSAS
LICENSED PROFESSIONAL ENGINEER
No. 11425
TRINITY D. SMITH
Jun 19 2020 11:58 AM
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REVISIONS

DATE OF REVISION	REVISION

E-6 = ROCK DITCH CHECKS
E-11 = SILT FENCE
E-13 = FILTER SOCK

RD38049 6/11/2020
R040579.DGN

SITE 2 - STAGE 4
TEMPORARY EROSION CONTROL DETAILS

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		040579	22	127

(2) MAINTENANCE OF TRAFFIC DETAILS

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

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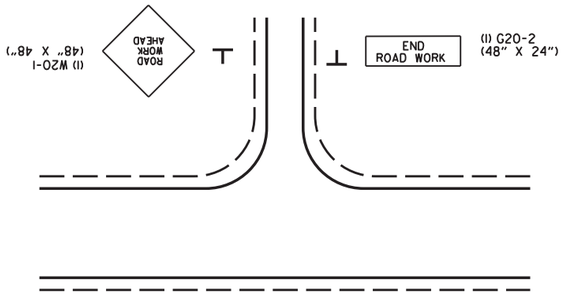
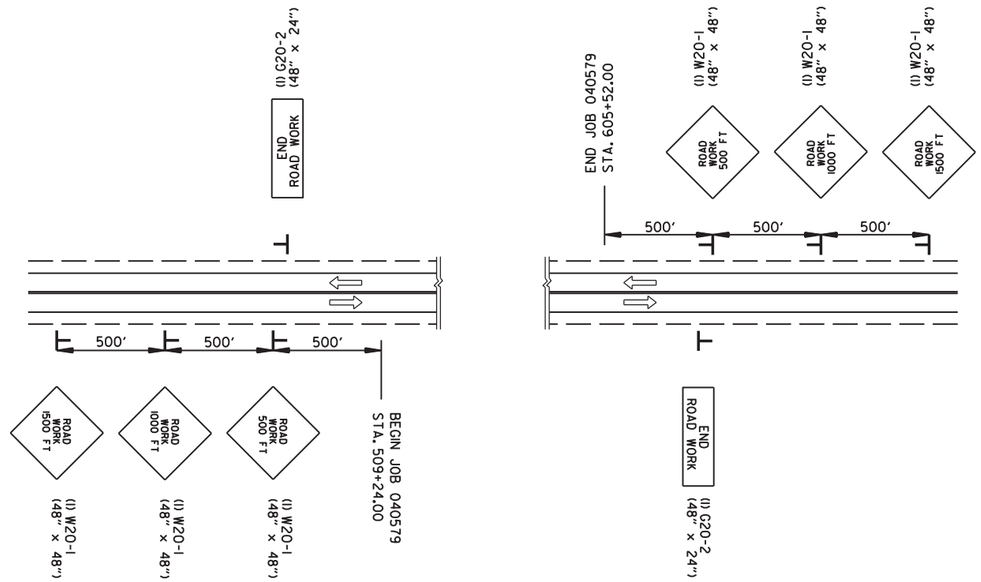
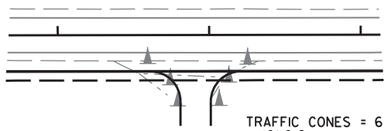


ADVANCE WARNING - SIDE ROADS
(ALL ROADS)

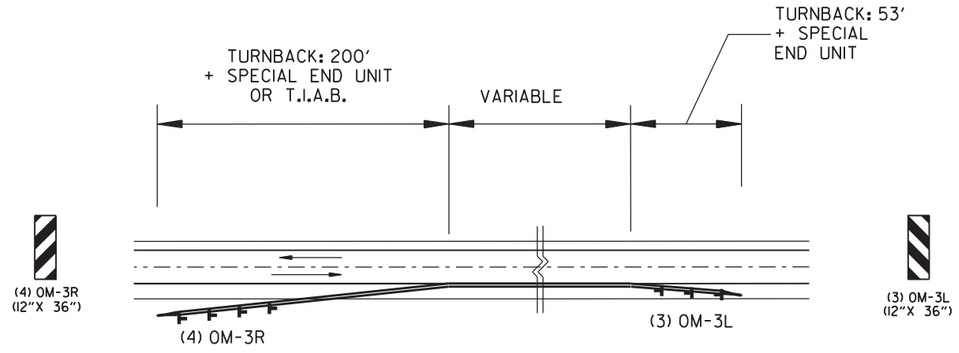


ADVANCE WARNING (ALL STAGES)

RIGHT SHOULDER CLOSED	(8) W21-5a (36" x 36")	ALL STAGES IF AND WHERE DIRECTED BY THE ENGINEER
DO NOT PASS	(8) R4-1 (24" X 30")	ALL STAGES SPACES AT ¼ MILE INTERVALS
BUMP	(4) W8-1 (30" X 30")	IF AND WHERE DIRECTED BY THE ENGINEER



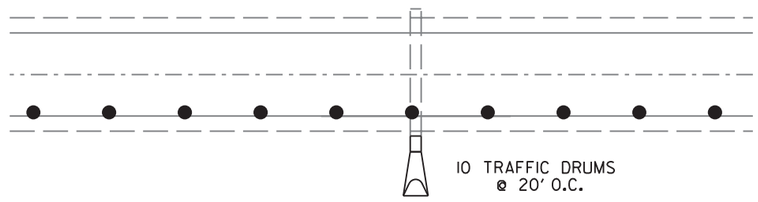
DRIVEWAY/TRAFFIC CONE DETAIL



REFER ALSO TO STANDARD DRAWING TC-5 FOR DETAILS OF PLACEMENT OF PCCB TURNBACKS.

NOTE: OM-3L & OM-3R SIGNS SHALL BE EQUALLY SPACED ALONG PCCB TURNBACK.

DETAIL OF OBJECT MARKERS
AT PRECAST CONCRETE BARRIER TURNBACKS



TRAFFIC DRUMS AND SIGNS ON EXISTING SHOULDER
FOR EXTENDING/CONSTRUCTING PIPE CULVERTS LT. AND RT.

STA. 228+80	STA. 228+80
STA. 231+85	STA. 231+85
STA. 270+38	STA. 270+38
STA. 280+74	STA. 280+74
STA. 288+83	

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R040579.DGN

ADVANCE WARNING
MAINTENANCE OF TRAFFIC DETAILS

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		040579	23	127

(2) MAINTENANCE OF TRAFFIC DETAILS

STAGE 1 CONSTRUCTION SEQUENCE:

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

PERFORM MOT WIDENING ON RT. FROM STA. 542+83.64 - STA. 550+18.87 AND STA. 566+17.28 - STA. 571+91.82 USING VERTICAL PANELS SPACED 40' O.C. USE TRAFFIC CONES TO DELINEATE DRIVEWAYS.

STAGE 2 CONSTRUCTION SEQUENCE:

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

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

FURNISH AND INSTALL P.C.C.B. AS SHOWN IN STAGE 2.

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

NOTCH AND WIDEN ON LEFT FROM STA. 527+94 - STA. 542+84, STA. 550+19 - STA. 566+17, STA. 571+92 - 580+50, AND STA. 598+00 - STA. 605+52 USING TRAFFIC DRUMS SPACED 40' O.C. USE TRAFFIC CONES TO DELINEATE DRIVEWAYS.

PERFORM MOT WIDENING ON LT. FROM STA. 543+34 - STA. 548+58 AND STA. 565+83 - STA. 571+06.

CONSTRUCT BOX CULVERTS LEFT OF CENTERLINE AT STA. 546+23, STA. 556+79, AND STA. 568+78.

STAGE 3 CONSTRUCTION SEQUENCE:

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

RELOCATE EXISTING P.C.C.B. AS SHOWN IN STAGE 2.

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

NOTCH AND WIDEN ON RIGHT USING TRAFFIC DRUMS SPACED 40' O.C. USE TRAFFIC CONES TO DELINEATE DRIVEWAYS.

CONSTRUCT BOX CULVERTS RIGHT OF CENTERLINE AT STA. 546+23, STA. 556+79, AND STA. 568+78.

PERFORM RADIUS IMPROVEMENTS AT SITE 1.

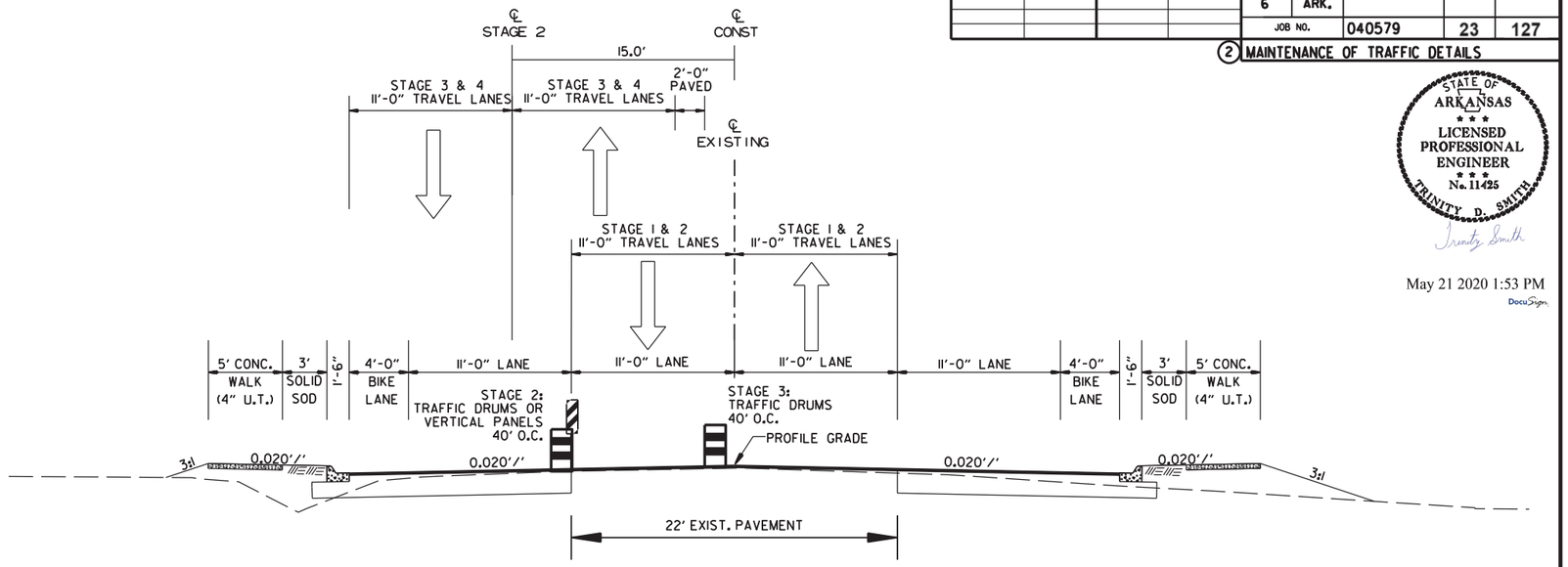
STAGE 4 CONSTRUCTION SEQUENCE:

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

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

CONSTRUCT ROADWAY LEFT OF CENTERLINE FROM STA. 543+34 - STA. 548+58 AND STA. 565+83 - STA. 571+06 USING TRAFFIC DRUMS SPACED 40' O.C. USE TRAFFIC CONES TO DELINEATE DRIVEWAYS.

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



STAGE CONSTRUCTION TYPICAL
STA. 527+93.97 - STA. 580+50.00

STATE OF ARKANSAS
LICENSED PROFESSIONAL ENGINEER
No. 11425
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RD38049 5/19/2020
R040579.DGN

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		040579	24	127

(2) MAINTENANCE OF TRAFFIC DETAILS

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

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N

S 88°01'08" E

S 87°11'12" E

S 86°19'54" E

N 56°46'E

PAVED PARKING

PAVED SHOULDER

PAVED DRAIN

PARKING

SIGN

CURB

T.C.E.

P.C.E.

S. MORNINGSIDE DRIVE

DBL. YELLOW SOLID CONST. PVMT. MARKING

WHITE SOLID CONST. PVMT. MARKING

VERTICAL PANELS AT 40' O.C.

270' TAPER

188' TAPER

P1550+00.17

P1572+00.16

SITE 2 - STAGE I
MAINTENANCE OF TRAFFIC DETAILS

R040579.DGN

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED
06-12-2020			

FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
6	ARK.			
JOB NO.		040579	25	127

(2) MAINTENANCE OF TRAFFIC DETAILS

STATE OF ARKANSAS
LICENSED PROFESSIONAL ENGINEER
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N

● TRAFFIC DRUMS AT 40' O.C.

STA. 527+93.97
BEGIN SITE 2
LOG MILE 1.26

S. COLLEGE AVENUE

WALKING TRAIL

PAVED PARKING

WHITE SOLID CONST. PVMT. MARKING

DBL. YELLOW SOLID CONST. PVMT. MARKING

N

● TRAFFIC DRUMS AT 40' O.C.

CONSTRUCTION PAVEMENT MARKINGS (ARROW)

CONSTRUCTION PAVEMENT MARKINGS (WORD)

158' TAPER

158' TAPER

FURNISH AND INSTALL 80' P.C.C.B. AND (2) SPECIAL END UNITS

WHITE SOLID CONST. PVMT. MARKING

DBL. YELLOW SOLID CONST. PVMT. MARKING

270' TAPER

270' TAPER

PAVED PARKING

S. MORNINGSIDE DRIVE

N 56°46" E

SITE 2 - STAGE 2
MAINTENANCE OF TRAFFIC DETAILS

RD38049 6/11/2020
R040579.DGN

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		040579	26	127

(2) MAINTENANCE OF TRAFFIC DETAILS

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

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- CONSTRUCTION PAVEMENT MARKINGS (ARROW)
- CONSTRUCTION PAVEMENT MARKINGS (WORD)

● TRAFFIC DRUMS AT 40' O.C.

N

+38.26
151.33.00'
P.C.E.
+35.00
42.29
+49.86
73.00
+72.00
50.00
+78.00
44' T.C.E.
+49.00
44.00'
+50.00
40.00'
-50.00
+69.00
76.00'
+05.00
70.00'
+20.00
38.00'
-50.00
T.C.E.
+31.07
38'
+31.05
47.59'
+87.13
46.37'
+87.15
38'
+50.00
45.00'
560
T.C.E.
16'
+73.00
45.00'
+73.00
38.00'
565
+50.00
45.00'
FURNISH AND INSTALL 180' P.C.C.B. AND (2) SPECIAL END UNITS
158' TAPER
+00.00
60.00'
+78.00
75.00'
+50.00
60.00'
570
PROP. ROW
PROP. ROW
PROP. CONST. LIMITS
S 87°11'12" E
+81.45
61.79'
+65.00
61.79'
+42.00
79.00'
+38.72
105'
+25.00
60.00'
+00.00
52.53'
DBL. YELLOW SOLID CONST. PVMT. MARKING
WHITE SOLID CONST. PVMT. MARKING
T.C.E.
+65.42
52.38'
+70.00
60.00'
+00.00
60.00'
+05.00
52.37'
+00.00
52.28'
188' TAPER
+50.00
65.00'
+00.00
65.00'
+00.00
60.00'

158' TAPER
570
+26.44
+32.00
88.00'
+52.00
68.00'
T.C.E.
16'
+72.30
45'
PROP. ROW
+81.00
45.00'
+81.00
81.00'
+05.00
90.00'
+26.00
78.00'
T.C.E.
+64.00
77.00'
+75.00
45.00'
575
● TRAFFIC DRUMS AT 40' O.C.
+95.00
45.00'
+00.00
45.17'
+10.00
80.00'
T.C.E.
PAVED PARKING
40'
+05.00
80.00'
+30.00
45.35'
PC579+20.84
+30.00
45.00'
580
+28.43
46.04'
STA. 580+50.00
BEGIN EXCEPTION
585
40'
SIGN
CONCRETE PARKING
PI582+68.96
40'
40'
N 67°33'33" E
+00.00
60.00'
+50.00
60.00'
PI572+00.16
+01.00
70.00'
188' TAPER
+98.62
65.00'
+25.00
50.19'
WHITE SOLID CONST. PVMT. MARKING
+36.26
53.01'
T.C.E.
+58.00
76.00'
PAVED PARKING
+90.00
76.00'
+97.40
53.82'
DBL. YELLOW SOLID CONST. PVMT. MARKING
+00.00
55.00'
+40.15
52.21'
T.C.E.
CONCRETE PARKING
+70.00
86.00'
+95.00
87.00'
+16.99
52.50'
PI580+97.98

N

SITE 2 - STAGE 2
MAINTENANCE OF TRAFFIC DETAILS

R038049 5/19/2020
R040579.DGN

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		040579	27	127

(2) MAINTENANCE OF TRAFFIC DETAILS

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

Trinity Smith

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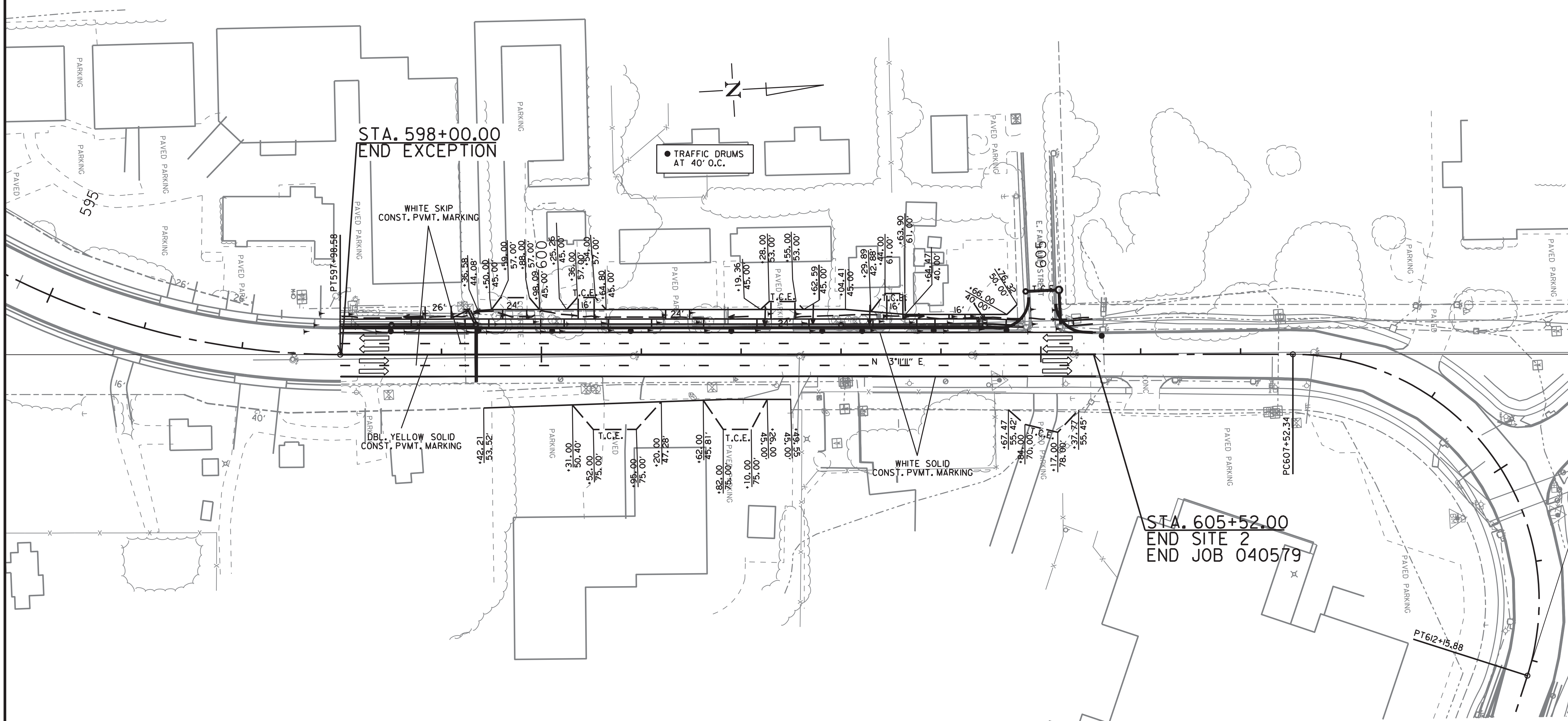

SITE 2 - STAGE 2
MAINTENANCE OF TRAFFIC DETAILS

R038049 5/19/2020
R040579.DGN

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		040579	28	127

(2) MAINTENANCE OF TRAFFIC DETAILS

STATE OF ARKANSAS
LICENSED PROFESSIONAL ENGINEER
No. 11425
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NOTE: THE PROPOSED TRAFFIC SIGNAL SHALL BE INSTALLED AND OPERATIONAL PRIOR TO ANY RADIUS IMPROVEMENTS AT THE INTERSECTION.

TRAFFIC CONES AT 20' O.C.

505 805 510 515

POE805+37.90

S 87°12'06" E

N 3°37'27" E

N 11°13'32" E

PI803+44.25

PROPOSED ROW

STA. 509+80.20
SITE I
LOG MILE 0.93

800 POB800+00.00

RD38049 5/19/2020
R040579.DGN

SITE I - STAGE 3
MAINTENANCE OF TRAFFIC DETAILS

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
06-12-2020				6	ARK.			
				JOB NO.		040579	29	127

(2) MAINTENANCE OF TRAFFIC DETAILS

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

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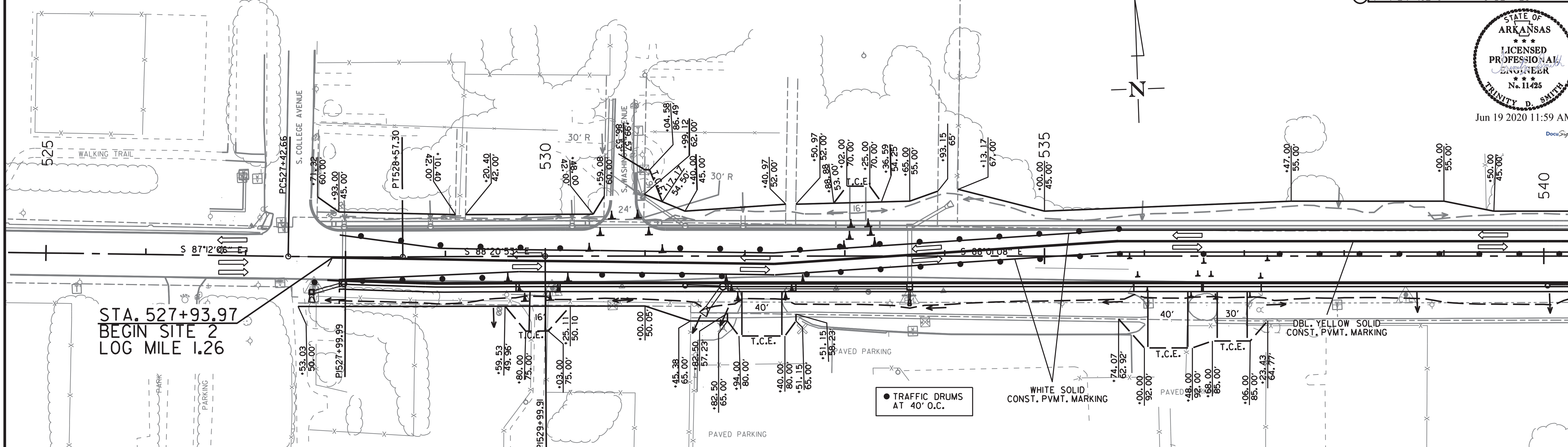

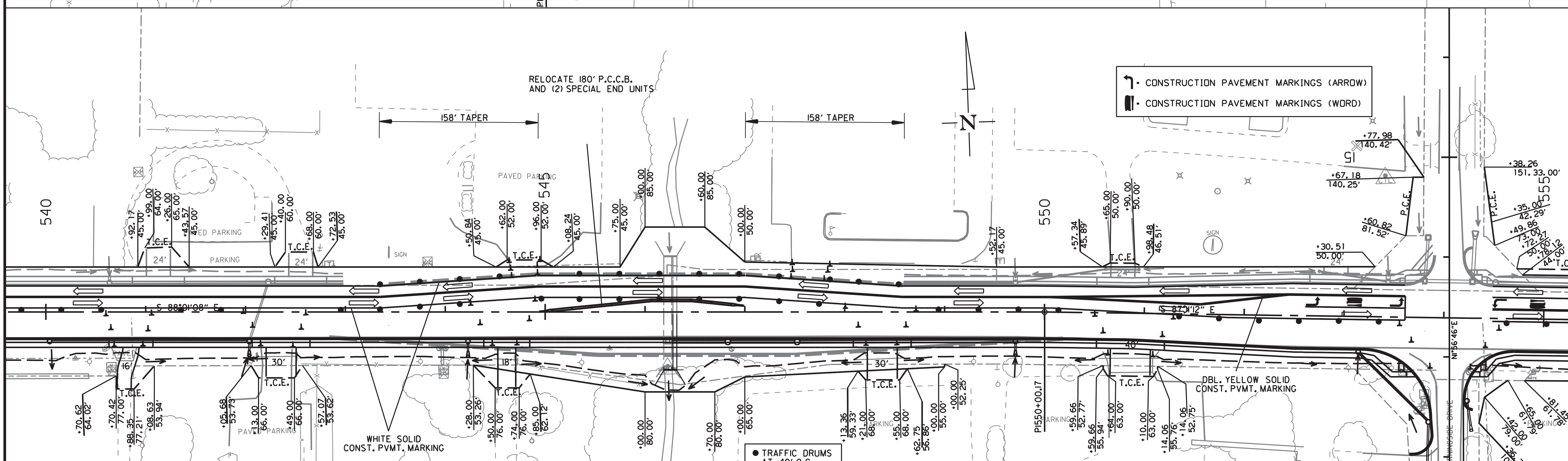

SITE 2 - STAGE 3
MAINTENANCE OF TRAFFIC DETAILS

R038049 6/11/2020
R040579.DGN

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		040579	30	127

(2) MAINTENANCE OF TRAFFIC DETAILS

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

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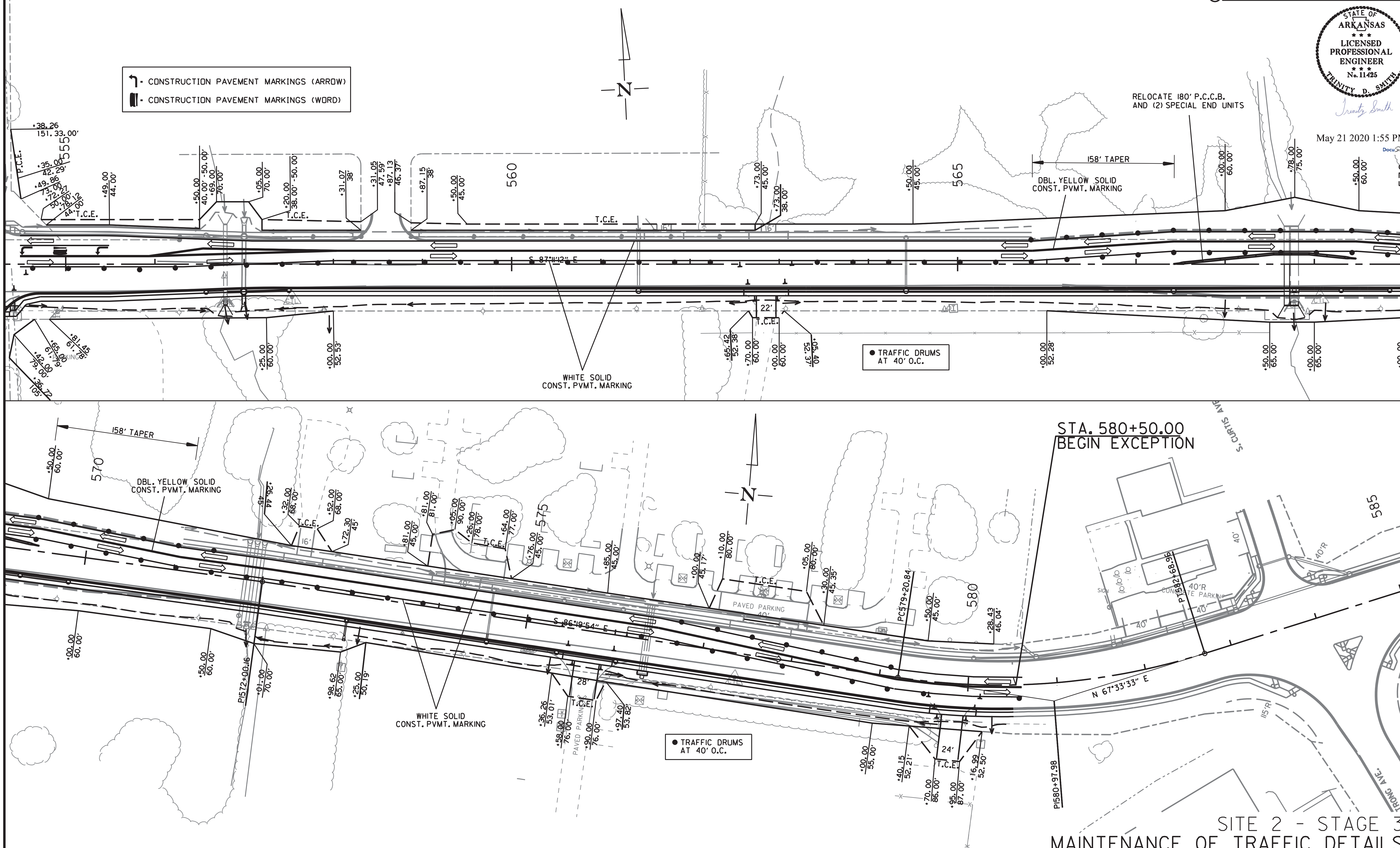

SITE 2 - STAGE 3
MAINTENANCE OF TRAFFIC DETAILS

R038049 5/19/2020
R040579.DGN

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		040579	31	127

(2) MAINTENANCE OF TRAFFIC DETAILS

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

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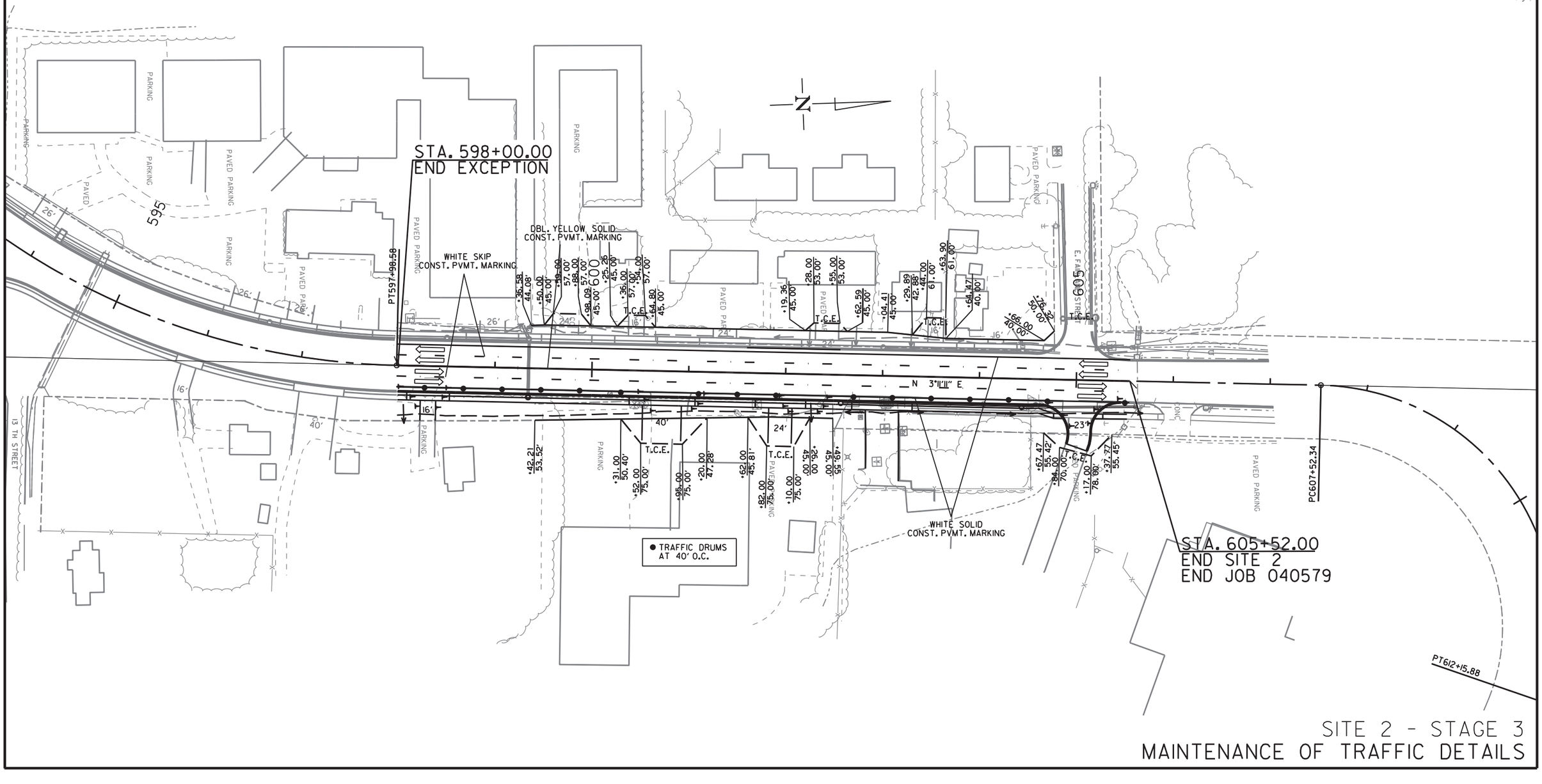

SITE 2 - STAGE 3
MAINTENANCE OF TRAFFIC DETAILS

R038049 5/19/2020
R040579.DGN

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED
06-12-2020			

FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
6	ARK.			
JOB NO.		040579	32	127

(2) MAINTENANCE OF TRAFFIC DETAILS

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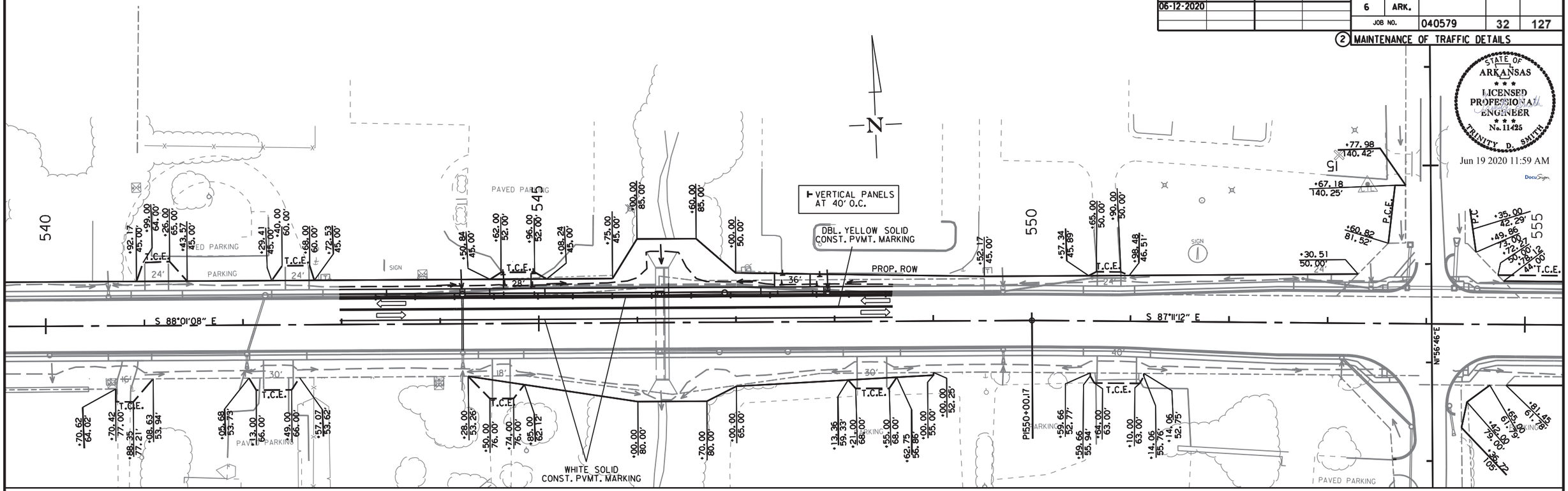

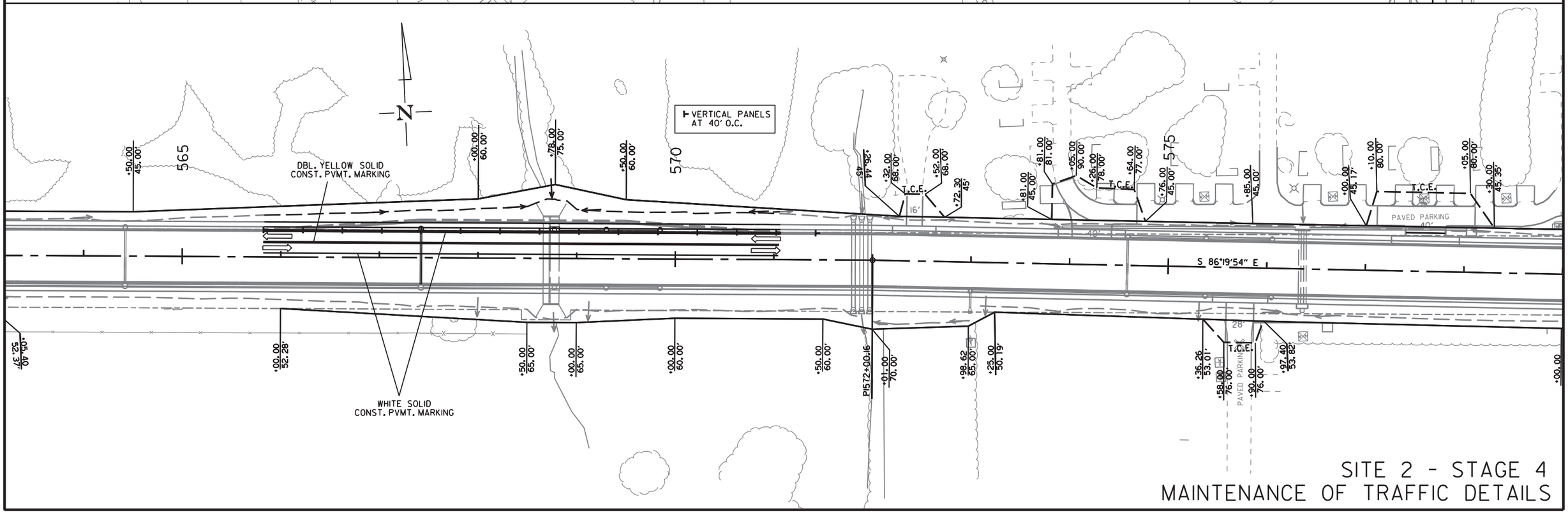

SITE 2 - STAGE 4
MAINTENANCE OF TRAFFIC DETAILS

R040579.DGN

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		040579	33	127

(2) PERMANENT PAVEMENT MARKING DETAILS

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

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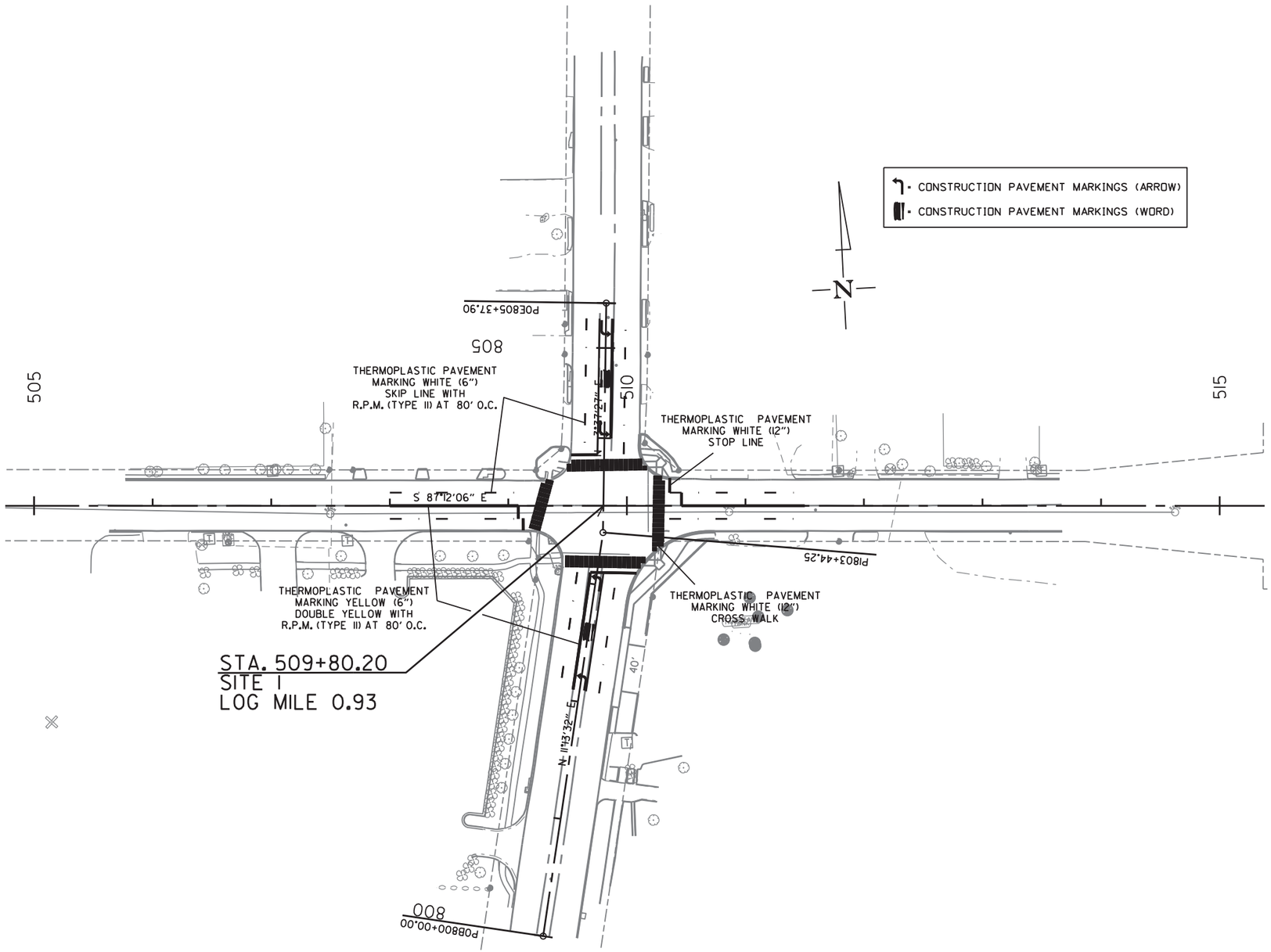

RD38049 5/18/2020
R040579.DGN

SITE I
PERMANENT PAVEMENT MARKING DETAILS

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED
06-12-2020			

FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
6	ARK.			
JOB NO.		040579	34	127

(2) PERMANENT PAVEMENT MARKING DETAILS

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

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- THERMOPLASTIC PAVEMENT MARKING (BIKE EMBLEMS)
- THERMOPLASTIC PAVEMENT MARKING (SHARED LANE MARKING)

525 WALKING TRAIL
PC527+42.66
S. COLLEGE AVENUE
PT528+57.30
530
30' R
S. WASHINGTON AVENUE
535
540
THERMOPLASTIC PAVEMENT MARKING WHITE (6") DOTTED (3' STRIPE, 9' GAP)
THERMOPLASTIC PAVEMENT MARKING WHITE (6") SOLID
50' GAP
S 87°12'06" E
S 88°20'53" E
S 88°01'08" E
STA. 527+93.97
BEGIN SITE 2
LOG MILE 1.26
PI527+99.99
529+99.91
PARKING
PAVED PARKING
THERMOPLASTIC PAVEMENT MARKING WHITE (6") SKIP LINE WITH R.P.M. (TYPE II) AT 80' O.C.
THERMOPLASTIC PAVEMENT MARKING YELLOW (6") DOUBLE YELLOW WITH R.P.M. (TYPE II) AT 80' O.C.

- THERMOPLASTIC PAVEMENT MARKING (ARROWS)
- THERMOPLASTIC PAVEMENT MARKING (WORDS)
- THERMOPLASTIC PAVEMENT MARKING (BIKE EMBLEMS)
- THERMOPLASTIC PAVEMENT MARKING (SHARED LANE MARKING)

540
545
550
555
PAVED PARKING
PARKING
THERMOPLASTIC PAVEMENT MARKING WHITE (6") SOLID
THERMOPLASTIC PAVEMENT MARKING WHITE (6") SKIP LINE WITH R.P.M. (TYPE II) AT 80' O.C.
THERMOPLASTIC PAVEMENT MARKING YELLOW (6") DOUBLE YELLOW WITH R.P.M. (TYPE II) AT 80' O.C.
PI550+00.17
N 56°46" E
THERMOPLASTIC PAVEMENT MARKING WHITE (12") CROSS WALK
THERMOPLASTIC PAVEMENT MARKING WHITE (6") DOTTED (3' STRIPE, 9' GAP)
THERMOPLASTIC PAVEMENT MARKING WHITE (12") STOP LINE

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RD40579.DGN

SITE 2
PERMANENT PAVEMENT MARKING DETAILS

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		040579	35	127

(2) PERMANENT PAVEMENT MARKING DETAILS

- THERMOPLASTIC PAVEMENT MARKING (ARROWS)
- THERMOPLASTIC PAVEMENT MARKING (WORDS)
- THERMOPLASTIC PAVEMENT MARKING (BIKE EMBLEMS)
- THERMOPLASTIC PAVEMENT MARKING (SHARED LANE MARKING)

STATE OF ARKANSAS
LICENSED PROFESSIONAL ENGINEER
No. 11425
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555 560 565 570

THERMOPLASTIC PAVEMENT MARKING WHITE (12") STOP LINE

THERMOPLASTIC PAVEMENT MARKING WHITE (6") DOTTED (3' STRIPE, 9' GAP)

THERMOPLASTIC PAVEMENT MARKING WHITE (6") SOLID

THERMOPLASTIC PAVEMENT MARKING WHITE (12") CROSS WALK

PARKING

50' GAP

S 87°11'12" E

16' 16'

22'

THERMOPLASTIC PAVEMENT MARKING YELLOW (6") DOUBLE YELLOW WITH R.P.M. (TYPE II) AT 80' O.C.

THERMOPLASTIC PAVEMENT MARKING WHITE (6") SKIP LINE WITH R.P.M. (TYPE II) AT 80' O.C.

THERMOPLASTIC PAVEMENT MARKING WHITE (6") SOLID

S. CURTIS AVE.

570 575 580 585

THERMOPLASTIC PAVEMENT MARKING WHITE (6") SOLID

16' 40'

S 86°19'54" E

P1572+00.46

PAVED PARKING 40'

PC 579+20.84

STA. 580+50.00
BEGIN EXCEPTION

THERMOPLASTIC PAVEMENT MARKING WHITE (12") STOP LINE

THERMOPLASTIC PAVEMENT MARKING WHITE (6") DOTTED (3' STRIPE, 9' GAP)

THERMOPLASTIC PAVEMENT MARKING WHITE (12") CROSS WALK

PT 582+69.96

40'R 40' 40' 40' 40'

THERMOPLASTIC PAVEMENT MARKING YELLOW (6") DOUBLE YELLOW WITH R.P.M. (TYPE II) AT 80' O.C.

THERMOPLASTIC PAVEMENT MARKING WHITE (6") SKIP LINE WITH R.P.M. (TYPE II) AT 80' O.C.

28' PAVED PARKING 24'

N 87°33'33" E

P1580+97.98

115'R 100'R

ALONE AVE.

- THERMOPLASTIC PAVEMENT MARKING (ARROWS)
- THERMOPLASTIC PAVEMENT MARKING (WORDS)
- THERMOPLASTIC PAVEMENT MARKING (BIKE EMBLEMS)
- THERMOPLASTIC PAVEMENT MARKING (SHARED LANE MARKING)

SITE 2
PERMANENT PAVEMENT MARKING DETAILS

R040579.DGN

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		040579	36	127

(2) PERMANENT PAVEMENT MARKING DETAILS

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

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▪ THERMOPLASTIC PAVEMENT MARKING (BIKE EMBLEMS)
▪ THERMOPLASTIC PAVEMENT MARKING (SHARED LANE MARKING)

THERMOPLASTIC PAVEMENT MARKING WHITE (12") STOP LINE

THERMOPLASTIC PAVEMENT MARKING WHITE (6") DOTTED (3' STRIPE, 9' GAP)

THERMOPLASTIC PAVEMENT MARKING WHITE (6") SKIP LINE WITH R.P.M. (TYPE II) AT 80' O.C.

THERMOPLASTIC PAVEMENT MARKING WHITE (6") SOLID

THERMOPLASTIC PAVEMENT MARKING WHITE (12") CROSS WALK

585 590 595

PC589+67.97

N 67°33'33" E

40'R 100'R

26' 24' 16' 40'

13 TH STREET

PI594+33.28

STA. 598+00.00
END EXCEPTION

PT597+98.58

600

THERMOPLASTIC PAVEMENT MARKING WHITE (6") SOLID

E. FAIRVIEW STREET

50' GAP

N 3°11'11" E

THERMOPLASTIC PAVEMENT MARKING WHITE (6") SKIP LINE WITH R.P.M. (TYPE II) AT 80' O.C.

THERMOPLASTIC PAVEMENT MARKING YELLOW (6") DOUBLE YELLOW WITH R.P.M. (TYPE II) AT 80' O.C.

THERMOPLASTIC PAVEMENT MARKING WHITE (6") DOTTED (3' STRIPE, 9' GAP)

STA. 605+52.00
END SITE 2
END JOB 040579

R040579.DGN

SITE 2
PERMANENT PAVEMENT MARKING DETAILS

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		040579	37	127

(2) QUANTITIES

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

Trinity Smith

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ADVANCE WARNING SIGNS AND DEVICES

SIGN NUMBER	DESCRIPTION	SIGN SIZE	STAGE 1	STAGE 2	STAGE 3	STAGE 4	MAXIMUM NUMBER REQUIRED	TOTAL SIGNS REQUIRED		VERTICAL PANELS	TRAFFIC DRUMS	TRAFFIC CONE	FURNISHING & INSTALLING PRECAST CONC. BARRIER	RELOCATING PRECAST CONCRETE BARRIER
			LIN. FT. - EACH					NO.	SQ. FT.	EACH			LIN. FT.	
W20-1	ROAD WORK 1500 FT.	48"x48"	2	2	2	2	2	2	32.0					
W20-1	ROAD WORK 1000 FT.	48"x48"	2	2	2	2	2	2	32.0					
W20-1	ROAD WORK 500 FT.	48"x48"	2	2	2	2	2	2	32.0					
W20-1	ROAD WORK AHEAD	48"x48"	13	13	13	13	13	13	208.0					
G20-2	END ROAD WORK	48"x24"	8	8	15	15	15	15	120.0					
OM-3L	OBJECT MARKER	12"x36"		6	6		6	6	18.0					
OM-3R	OBJECT MARKER	12"x36"		8	8		8	8	24.0					
R4-1	DO NOT PASS	24"x30"	8	8	8	8	8	8	40.0					
W21-5a	RIGHT SHOULDER CLOSED	36"x36"	8	8	8	8	8	8	72.0					
W8-1	BUMP	30"x30"	4	4	4	4	4	4	25.0					
SPECIAL	WORK WITH US SIGN (USE CAUTION, SLOW DOWN)	96"x48"	2	2	2	2	2	2	64.0					
	VERTICAL PANELS		38	151	181	29	181			181				
	TRAFFIC DRUMS		38	151	181	29	181				181			
	TRAFFIC CONES		12	162	149	12	162					162		
	FURNISHING AND INSTALLING PRECAST CONCRETE BARR			412			412						412	
	RELOCATING PRECAST CONCRETE BARRIER				412		412							412
TOTALS:									667.0	181	181	162	412	412

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

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

CONSTRUCTION PAVEMENT MARKINGS AND PERMANENT PAVEMENT MARKINGS

DESCRIPTION	STAGE 1	STAGE 2	STAGE 3	STAGE 4	END OF JOB	REMOVAL OF PERMANENT PAVEMENT MARKINGS	REMOVAL OF PERMANENT PAVEMENT MARKINGS (WORDS)	REMOVAL OF PERMANENT PAVEMENT MARKINGS (ARROWS)	CONSTRUCTION PAVEMENT MARKINGS	CONSTRUCTION PAVEMENT MARKINGS		RAISED PAVEMENT MARKERS		THERMOPLASTIC PAVEMENT MARKING					
												TYPE II	TYPE II	6"		12"	WORDS	ARROWS	BIKE EMBLEMS	SHARED LANE MARKING
										WORDS	ARROWS	(WHITE/RED)	(YELLOW/YELLOW)	WHITE	YELLOW	WHITE				
	LIN. FT. - EACH					LIN. FT.				EACH		EACH		LIN. FT.			EACH			
REMOVAL OF PERMANENT PAVEMENT MARKINGS		3073			975	4048														
REMOVAL OF PERMANENT PAVEMENT MARKINGS (WORDS)					5		5													
REMOVAL OF PERMANENT PAVEMENT MARKINGS (ARROWS)					5			5												
CONSTRUCTION PAVEMENT MARKINGS	5980	25431	25431	4332					61174											
CONSTRUCTION PAVEMENT MARKINGS (WORDS)		2	2							4										
CONSTRUCTION PAVEMENT MARKINGS (ARROWS)		4	4								8									
RAISED PAVEMENT MARKERS TYPE II (WHITE/RED)					173							173								
RAISED PAVEMENT MARKERS TYPE II (YELLOW/YELLOW)					85								85							
THERMOPLASTIC PAVEMENT MARKING WHITE (6")					16396									16396						
THERMOPLASTIC PAVEMENT MARKING YELLOW (6")					13608										13608					
THERMOPLASTIC PAVEMENT MARKING WHITE (12")					1832											1832				
THERMOPLASTIC PAVEMENT MARKING (WORDS)					4												4			
THERMOPLASTIC PAVEMENT MARKING (ARROWS)					8													8		
THERMOPLASTIC PAVEMENT MARKING (BIKE EMBLEMS)					49														49	
THERMOPLASTIC PAVEMENT MARKING (SHARED LANE MARKING)					1															1
TOTALS:						4048	5	5	61174	4	8	173	85	16396	13608	1832	4	8	49	1

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

DN42608 4/11/2020
R040579.DGN

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
06-12-2020				6	ARK.			
				JOB NO.		040579	38	127

(2) QUANTITIES

CLEARING AND GRUBBING

STATION	STATION	LOCATION	CLEARING	GRUBBING
			STATION	
527+93	541+00	HWY. 16	14	14
545+00	546+00	HWY. 16	1	1
556+00	558+00	HWY. 16	2	2
561+00	563+00	HWY. 16	2	2
568+00	573+00	HWY. 16	5	5
TOTALS:			24	24

REMOVAL AND DISPOSAL OF FENCE

STATION	STATION	LOCATION	FENCE
			LIN. FT.
527+70	530+20	HWY. 16 LT.	290
527+70	528+72	HWY. 16 RT.	105
528+72	529+87	HWY. 16 RT.	135
530+05	531+45	HWY. 16 RT.	150
534+14	539+43	HWY. 16 LT.	550
539+85	540+50	HWY. 16 RT.	95
544+30	546+15	HWY. 16 LT.	185
554+25	555+85	HWY. 16 RT.	180
557+30	558+32	HWY. 16 RT.	102
558+97	562+32	HWY. 16 RT.	335
603+64	604+76	HWY. 16 LT.	115
TOTAL:			2242

REMOVAL AND DISPOSAL OF CULVERTS

STATION	DESCRIPTION	PIPE CULVERTS
		EACH
530+80	18" C.M. PIPE RT.	1
530+80	18" R.C. PIPE LT.	1
531+57	24" R.C. PIPE RT.	1
532+17	30" R.C. PIPE RT.	1
533+13	18" C.M. PIPE LT.	1
533+67	36" CONCRETE R.C. PIPE (DOUBLE)	2
539+66	18" CM PIPE	1
541+13	18" C.M. PIPE LT.	1
542+31	18" C.M. PIPE RT.	1
544+62	18" C.M. PIPE RT.	1
544+78	24" C.M. PIPE LT.	1
547+57	18" C.M. PIPE LT.	1
548+37	24" C.M. PIPE RT.	1
550+86	18" C.M. PIPE RT.	1
552+91	24" C.M. PIPE LT.	1
554+03	24" CONCRETE R.C. PIPE (DOUBLE)	2
555+51	18" C.M. PIPE LT.	1
561+62	18" C.M. PIPE LT.	1
558+60	16" CONCRETE R.C. PIPE	1
571+89	24" x 65' R.C. PIPE	1
576+41	30" CONCRETE R.C. PIPE (DOUBLE)	2
598+97	18" C.M. PIPE LT.	1
599+73	18" C.M. PIPE LT.	1
TOTAL:		26

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

EARTHWORK

STATION	STATION	LOCATION / DESCRIPTION	UNCLASSIFIED EXCAVATION	COMPACTED EMBANKMENT	* SOIL STABILIZATION
			CU. YD.		TON
ENTIRE	PROJECT	STAGE 1-MAIN LANES	644	142	
ENTIRE	PROJECT	STAGE 2-MAIN LANES	4154	5720	
ENTIRE	PROJECT	STAGE 3-MAIN LANES	1636	4718	
ENTIRE	PROJECT	STAGE 4-MAIN LANES		310	
ENTIRE	PROJECT	APPROACHES	50	1685	
13+71.19	15+01.86	STAGE 2-MORNINGSIDE DRIVE	52	34	
10+90.60	13+07.18	STAGE 3-MORNINGSIDE DRIVE	99	133	
* ENTIRE	PROJECT	TO BE USED IF AND WHERE			250
		DIRECTED BY THE ENGINEER			
TOTALS:			6635	12742	250

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

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

REMOVAL AND DISPOSAL OF ITEMS

STATION	STATION	LOCATION	CURB AND GUTTER	CONCRETE ISLANDS	CONCRETE DRIVEWAYS	WALKS	SIGN FOUNDATIONS	HEADWALLS	SIGNS	COLUMNS	POST
			LIN. FT.	SQ. YD.	SQ. YD.	SQ. YD.	EACH	EACH	EACH	EACH	EACH
509+91	510+74	HWY. 16 RT.	102			40					
510+11	510+34	HWY. 16 LT.	55			31					
531+46	531+92	HWY. 16 RT.				25					
532+16		HWY. 16 RT.			233						
532+33		HWY. 16 LT.									
535+85	536+00	HWY. 16 RT.	38								
536+23		HWY. 16 RT.			283						
536+45	536+75	HWY. 16 RT.		74							
536+87		HWY. 16 RT.			180						
537+00	537+15	HWY. 16 RT.	36								
537+02	540+43	HWY. 16 RT.				182					
540+80		HWY. 16 RT.			34						
542+54		HWY. 16 LT.			52						
542+73	544+65	HWY. 16 LT.				108					
543+69		HWY. 16 RT.							1		
544+45		HWY. 16 RT.									1
544+45		HWY. 16 RT.								1	
544+78		HWY. 16 RT.								1	
544+78		HWY. 16 RT.									1
544+91	545+66	HWY. 16 LT.				33					
546+23	546+23	HWY. 16 LT. & RT.						2			
546+67	547+47	HWY. 16 LT.				53					
546+86		HWY. 16 RT.							1		
547+66		HWY. 16 LT.			181						
547+83	550+67	HWY. 16 LT.				191					
548+37		HWY. 16 RT.			135						
550+62	550+70	HWY. 16 LT.	20								
550+77		HWY. 16 LT.			109						
550+82		HWY. 16 RT.			121						
550+91	553+61	HWY. 16 LT.				178					
550+93	553+60	HWY. 16 LT.	21								
554+44		HWY. 16 RT.							2		
556+79		HWY. 16 LT.						2			
558+90		HWY. 16 LT.					1		1		
568+78		HWY. 16						2			
574+60	574+75	HWY. 16 LT.	57								
575+00		HWY. 16 LT.			322						
575+16	757+38	HWY. 16 LT.	56								
575+71		HWY. 16 RT.			209						
575+87	579+72	HWY. 16 RT.				257					
576+30		HWY. 16 LT.	18								
576+35		HWY. 16 LT.						1			
576+45		HWY. 16 LT.	18								
577+20	577+40	HWY. 16 LT.	49								
577+64		HWY. 16 LT.			321						
577+80	578+05	HWY. 16 LT.	62								
578+82		HWY. 16 RT.					1		1		
579+85		HWY. 16 LT.			184						
598+00	598+41	HWY. 16 RT.				22					
598+00	598+84	HWY. 16 LT.				56					
598+00	599+35	HWY. 16 RT.	231								
598+13	598+49	HWY. 16 LT.	34								
598+58	599+35	HWY. 16 LT.	77								
599+00		HWY. 16 LT.			68						
599+13	599+38	HWY. 16 LT.				17					
599+40	604+80	HWY. 16 LT.	511								
599+40	600+63	HWY. 16 RT.	123								
599+78		HWY. 16 LT.			68						
600+63		HWY. 16 RT.	9								
600+66	601+21	HWY. 16 LT.				22					
600+80		HWY. 16 RT.			254						
601+01		HWY. 16 LT.	24								
601+01	605+18	HWY. 16 RT.	417								
601+34		HWY. 16 LT.			65						
601+50	602+30	HWY. 16 LT.				36					
602+42		HWY. 16 LT.			87						
602+52	603+43	HWY. 16 LT.				40					
602+52		HWY. 16 RT.			79						
602+61	602+82	HWY. 16 RT.				12					
602+81		HWY. 16 LT.	15								
602+97		HWY. 16 RT.			135						
603+13		HWY. 16 LT.	15								
603+32	604+89	HWY. 16 RT.				108					
603+55		HWY. 16 LT.			59						
603+64	604+07	HWY. 16 LT.				18					
604+19		HWY. 16 LT.			30						
604+28	604+83	HWY. 16 LT.				22					
604+89		HWY. 16 LT.	16								
605+05		HWY. 16 RT.			159						
605+10		HWY. 16 LT.	16								
13+75	14+00	MORNINGSIDE DR. LT	25			14					
TOTALS:			2045	74	3368	1465	2	7	6	2	2

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

Jun 19 2020 11:59 AM

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DN42608 4/11/2020
R040579.DGN

QUANTITIES

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
06-12-2020				6	ARK.			
				JOB NO.		040579	39	127

(2) QUANTITIES

STATE OF ARKANSAS
LICENSED PROFESSIONAL ENGINEER
No. 11425
TRINITY D. SMITH
Jun 19 2020 12:00 PM
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SOIL LOG

STATION	LATITUDE			LONGITUDE			LOCATION	DEPTH	LIQUID LIMIT	PLASTICITY INDEX	AASHTO CLASSIFICATION	COLOR
	DEG	MIN	SEC	DEG	MIN	SEC		FEET				
516+00	36	2	53.70	94	9	43.60	15RT	0-5	28	14	A-6(4)	BROWN
524+00	36	2	53.80	94	9	34.40	15LT	0-5	43	29	A-7-6(20)	BROWN
532+00	36	2	53.40	94	9	25.30	5RT	0-5	32	17	A-6(8)	BROWN
532+00	36	2	53.10	94	9	25.30	25RT	0-5	38	21	A-6 (15)	BROWN
540+00	36	2	53.30	94	9	14.60	5LT	0-5	26	11	A-6(4)	BROWN
540+00	36	2	53.40	94	9	14.60	15LT	0-5	28	14	A- 6(7)	BROWN
540+00	36	2	53.50	94	9	14.60	30LT	0-5	26	9	A-4(3)	BROWN
548+00	36	2	53.10	94	9	5.20	15RT	0-5	28	13	A-6(6)	BROWN
548+00	36	2	52.90	94	9	5.20	25RT	0-5	32	15	A-6(8)	BROWN
556+00	36	2	53.00	94	8	55.20	15LT	0-5	26	13	A-6(5)	BROWN
556+00	36	2	53.20	94	8	55.20	25LT	0-5	26	12	A-6(5)	BROWN
556+00	36	2	53.20	94	8	55.20	35LT	0-5	29	12	A-6(5)	BROWN
564+00	36	2	52.70	94	8	46.00	5RT	0-5	39	22	A-6(17)	BROWN
564+00	36	2	52.60	94	8	46.00	15RT	0-5	46	33	A-7-6(22)	BROWN
564+00	36	2	52.40	94	8	46.00	30RT	0-5	38	24	A-6(14)	BROWN
572+00	36	2	52.60	94	8	36.30	5LT	0-5	36	21	A-6(10)	BROWN
572+00	36	2	52.70	94	8	36.30	15LT	0-5	30	15	A-6(7)	BROWN/GREEN
572+00	36	2	52.80	94	8	36.30	25LT	0-5	34	18	A-6(10)	BROWN
580+00	36	2	52.30	94	8	26.20	5RT	0-5	28	15	A-6(7)	GRAY
580+00	36	2	52.20	94	8	26.20	15RT	0-5	29	16	A-6(8)	GRAY
580+00	36	2	52.00	94	8	26.20	30RT	0-5	27	11	A-6(4)	GRAY
588+00	36	2	55.30	94	8	17.00	15LT	0-5	30	15	A-6(8)	BROWN
588+00	36	2	55.30	94	8	17.00	25LT	0-5	25	12	A-6(4)	BROWN
588+00	36	2	55.50	94	8	17.10	35LT	0-5	29	14	A-6(6)	BROWN
597+00	36	3	1.40	94	8	9.80	15RT	0-5	31	16	A-6(7)	GRAY
613+00	36	3	13.40	94	8	4.70	15LT	0-5	35	21	A-6(6)	BROWN/GREEN
620+00	36	3	11.80	94	7	56.40	5LT	0-5	27	12	A-6(3)	BROWN
620+00	36	3	11.70	94	7	56.40	25LT	0-5	25	12	A-6(4)	BROWN
644+00	36	3	14.30	94	7	27.50	5RT	0-5	28	15	A-6(7)	BROWN
644+00	36	3	14.20	94	7	27.40	25RT	0-5	28	12	A-6(2)	BROWN
652+00	36	3	16.40	94	7	19.20	5LT	0-5	33	20	A-6(11)	BROWN
652+00	36	3	16.40	94	7	19.30	15LT	0-5	32	19	A-6(12)	BROWN
652+00	36	3	16.50	94	7	19.30	25LT	0-5	27	13	A-6(6)	BROWN
660+00	36	3	18.50	94	7	8.70	5RT	0-5	36	23	A-6(9)	BROWN
660+00	36	3	18.50	94	7	8.70	15RT	0-5	29	15	A-6(5)	BROWN
660+00	36	3	18.40	94	7	8.60	25RT	0-5	44	28	A-7-6(22)	BROWN
564+00	36	2	52.20	94	8	45.80	50RT	0-5	37	18	A-6(12)	BROWN
660+00	36	3	18.30	94	7	8.60	30RT	0-5	39	23	A-6(15)	BROWN

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

CONCRETE ISLAND

STATION	LOCATION	CURB FACE TYPE	CONCRETE ISLAND SQ.YD.
509+37	HWY. 16 LT.	B	35
510+30	HWY. 16 LT.	B	28
510+35	HWY. 16 RT.	B	92
801+95	HWY. 71B RT.	B	54
TOTAL:			209

CONCRETE COMBINATION CURB AND GUTTER

STATION	STATION	LOCATION	TYPE A (1' 6")
			LIN. FT.
527+65	530+67	HWY. 16 LT.	338
530+92	553+91	HWY. 16 LT.	2379
554+19	558+44	HWY. 16 LT.	475
558+74	580+50	HWY. 16 LT.	2194
598+00	604+89	HWY. 16 LT.	705
509+99	510+74	HWY. 16 RT.	106
510+10	510+45	HWY. 16 LT.	62
527+82	553+91	HWY. 16 RT.	2691
554+21	580+50	HWY. 16 RT.	2674
598+00	604+93	HWY. 16 RT.	721
605+11	605+46	HWY. 16 RT.	70
TOTAL:			12415

CONCRETE WALKS (TYPE SPECIAL)

STATION	STATION	LOCATION	CONCRETE WALKS (TYPE SPECIAL)	HAND RAILING	ARCHITECTURAL FINISH	TEXTURED COATING FINISH
			SQ. YD.	LIN. FT.	SQ. FT.	SQ. YD.
554+55	555+62	HWY. 16 LT.	59	107		13
555+62	556+50	HWY. 16 LT.	49	88	194	25
557+20	558+34	HWY. 16 LT.	63	114	335	41
558+84	558+93	HWY. 16 LT.	5	9	15	2
558+93	561+49	HWY. 16 LT.	142	256		25
561+93	562+66	HWY. 16 LT.	41	73		13
573+85	574+02	HWY. 16 LT.	9	17	68	8
577+95	578+18	HWY. 16 LT.	13	23	71	9
TOTALS:			381	687	683	136

WHEELCHAIR RAMPS

STATION	LOCATION	TYPE 1	TYPE 3
		SQ.YD.	
510+10	HWY. 16 LT.	48.0	
510+26	HWY. 16 RT.	123.0	
527+88	HWY. 16 LT.		5.4
530+42	HWY. 16 LT.		4.8
531+15	HWY. 16 LT.		5.5
553+58	HWY. 16 RT.		4.3
553+61	HWY. 16 LT.		3.3
553+66	HWY. 16 RT.		4.5
553+80	HWY. 16 LT.		4.5
554+29	HWY. 16 LT.		4.3
554+33	HWY. 16 RT.		4.3
554+40	HWY. 16 LT.		4.0
554+40	HWY. 16 RT.		4.5
604+65	HWY. 16 LT.		5.4
604+77	HWY. 16 RT.		4.4
605+20	HWY. 16 RT.		4.3
605+25	HWY. 16 LT.		4.7
TOTALS:		171.0	68.2

CONCRETE WALKS

STATION	STATION	LOCATION	LENGTH	CONCRETE WALKS
			LIN. FT.	SQ.YD.
510+36	510+45	HWY. 16 LT.	9	5
510+52	510+74	HWY. 16 RT.	22	12
527+86	530+44	HWY. 16 LT.	258	143
527+94	529+71	HWY. 16 RT.	177	98
530+15	531+83	HWY. 16 RT.	168	93
531+13	532+91	HWY. 16 LT.	178	99
532+51	535+89	HWY. 16 RT.	338	188
533+35	540+87	HWY. 16 LT.	752	418
536+57	536+59	HWY. 16 RT.	2	1
537+17	540+63	HWY. 16 RT.	346	192
541+07	542+07	HWY. 16 RT.	100	56
541+39	542+29	HWY. 16 LT.	90	50
542+65	544+39	HWY. 16 RT.	174	97
542+81	542+99	HWY. 16 LT.	18	10
543+40	544+50	HWY. 16 LT.	110	61
544+85	548+09	HWY. 16 RT.	324	180
545+06	547+25	HWY. 16 LT.	219	122
547+89	550+52	HWY. 16 LT.	263	146
548+67	550+53	HWY. 16 RT.	186	103
551+04	552+65	HWY. 16 LT.	161	89
551+21	553+63	HWY. 16 RT.	242	134
553+17	553+76	HWY. 16 LT.	59	33
554+33	554+49	HWY. 16 LT.	16	9
554+37	562+60	HWY. 16 RT.	823	457
556+50	557+20	HWY. 16 LT.	70	39
563+10	572+20	HWY. 16 LT.	910	506
566+27	575+46	HWY. 16 RT.	919	511
572+64	573+85	HWY. 16 LT.	121	67
574+56	577+26	HWY. 16 LT.	270	150
576+02	579+60	HWY. 16 RT.	358	199
578+18	580+50	HWY. 16 LT.	232	129
580+10	580+50	HWY. 16 RT.	40	22
598+00	598+70	HWY. 16 LT.	70	39
598+00	598+10	HWY. 16 RT.	10	6
598+54	600+39	HWY. 16 RT.	185	103
599+24	599+47	HWY. 16 LT.	23	13
599+99	600+23	HWY. 16 LT.	24	13
600+67	601+11	HWY. 16 LT.	44	24
601+07	601+69	HWY. 16 RT.	62	34
601+62	602+16	HWY. 16 LT.	54	30
602+21	602+69	HWY. 16 RT.	48	27
602+68	603+32	HWY. 16 LT.	64	36
603+32	604+77	HWY. 16 RT.	145	81
603+76	603+94	HWY. 16 LT.	18	10
604+38	604+65	HWY. 16 LT.	27	15
605+28	605+52	HWY. 16 RT.	24	13
605+33	605+52	HWY. 16 LT.	19	11
801+77	802+96	HWY. 71B RT.	119	66
13+87	14+21	MORNINGSIDE DR. LT.	34	19
TOTAL:				4942

EROSION CONTROL

STATION	STATION	LOCATION	PERMANENT EROSION CONTROL						TEMPORARY EROSION CONTROL						
			SEEDING	LIME	MULCH COVER	WATER	SECOND SEEDING APPLICATION	SOLID SODDING	TEMPORARY SEEDING	MULCH COVER	WATER	ROCK DITCH CHECKS	DROP INLET FILTER SOCKS(12")	SILT FENCE	*SEDIMENT REMOVAL & DISPOSAL
												(E-6)	(E-13	(E-11)	
			ACRE	TON	ACRE	M.GAL.	ACRE	SQ.YD.	ACRE	ACRE	M.GAL.	CU.YD.	LIN. FT.	LIN. FT.	CU. YD.
ENTIRE	PROJECT	CLEARING AND GRUBBING							10.68	10.68	217.9	12	115	4077	155
ENTIRE	PROJECT	STAGE 1	1.84	3.68	1.84	405.9	1.84	17322	6.10	6.10	124.4	81	894	213	35
ENTIRE	PROJECT	STAGE 2	2.90	5.80	2.90	518.7	2.90	17690	4.58	4.58	93.4	12	786	3780	144
ENTIRE	PROJECT	STAGE 3													
ENTIRE	PROJECT	STAGE 4													
*ENTIRE PROJECT TO BE USED IF AND WHERE DIRECTED BYTHE ENGINEER.															
TOTALS:			4.74	9.48	4.74	924.6	4.74	35012	21.36	21.36	435.7	105	1795	8070	334

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
WATER.....12.6 GAL. / SQ. YD. OF SOLID SODDING
ROCK DITCH CHECKS.....3 CU.YD./LOCATION

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

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

DN42608 4/11/2020
R040579.DGN

QUANTITIES

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
06-12-2020				6	ARK.			
				JOB NO.		040579	40	127

(2) QUANTITIES

STATE OF ARKANSAS
LICENSED PROFESSIONAL ENGINEER
No. 11425
TRINITY D. SMITH
Jun 19 2020 12:00 PM
DocuSign

4" PIPE UNDERDRAIN

STATION	STATION	LOCATIONS	4" PIPE UNDERDRAINS	UNDERDRAIN OUTLET PROTECTORS
			LIN. FT.	EACH
* ENTIRE PROJECT TO BE USED IF AND			3000	24
WHERE DIRECTED BY THE ENGINEER				
TOTALS:			3000	24

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

MAILBOXES

LOCATION	MAILBOXES	MAILBOX SUPPORTS (SINGLE)	MAILBOX SUPPORTS (DOUBLE)
	EACH		
ENTIRE PROJECT	17	15	1
TOTALS:	17	15	1

BENCH MARKS

STATION	LOCATION	BENCH MARKS
		EACH
546+22	HWY 16 LT.	1
556+79	HWY 16 LT.	1
568+78	HWY 16 RT.	1
TOTAL:		3

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

FENCING

STATION	STATION	LOCATION	WIRE FENCE (TYPE D-1)	* 4' CHAIN LINK FENCE
			LIN. FT.	
527+70	528+72	HWY. 16 RT.		102
528+72	529+84	HWY. 16 RT.	135	
530+05	531+45	HWY. 16 RT.	146	
534+14	539+43	HWY. 16 LT.	550	
539+85	540+50	HWY. 16 LT.	95	
603+64	604+76	HWY. 16 LT.		115
TOTALS:			926	217

* DENOTES ALTERNATE BID ITEM.

FLOWABLE SELECT MATERIAL

STATION	LOCATION	CU. YD.
527+73	HWY. 16	26
TOTAL:		26

PAVEMENT REPAIR OVER CULVERTS (CONCRETE)

STATION	LOCATION	WIDTH	LENGTH	CU YD.
		FEET		
527+98	HWY 16	9.67	44	17.1
557+00	HWY 16	10.83	22	9.6
571+89	HWY 16	19.50	22	17.2
576+35	HWY 16	15.67	22	13.8
533+65	HWY 16	9.67	22	8.5
542+23	HWY 16	9.08	22	8.0
544+23	HWY 16	7.92	22	7.0
561+42	HWY 16	9.08	22	8.0
564+42	HWY 16	7.92	22	7.0
567+42	HWY 16	7.92	22	7.0
574+59	HWY 16	7.92	22	7.0
599+35	HWY 16	7.92	44	14.0
TOTAL:				107.1

AVG. DEPTH = 13"

DRIVEWAYS & TURNOUTS

STATION	SIDE	LOCATION	WIDTH	**MODIFIED CURB		PORTLAND CEMENT CONCRETE DRIVEWAY	ACHM SURFACE COURSE (1/2") 220 LBS. PER SQ. YD. (PG 64-22)		AGGREGATE BASE COURSE (CLASS 7)	SIDE DRAINS 24"X18"	STANDARD DRAWINGS
			FEET	STATION	STATION	SQ. YD.	SQ. YD.	TON	TON	LIN. FT.	
529+92	RT	MAIN LANES	16	529+70	530+14	39.11	71.11	7.82	29.04		
530+80	LT	MAIN LANES	24	530+54	531+06		120.89	13.30	49.36		
532+17	RT	MAIN LANES	40	531+83	532+51	253.77					
533+13	LT	MAIN LANES	16	532+91	533+35	39.11	59.72	6.57	24.39		
536+23	RT	MAIN LANES	40	535+89	536+57	307.11					
536+88	RT	MAIN LANES	30	536+59	537+17	206.56					
540+85	RT	MAIN LANES	16	540+63	541+07	39.11	75.06	8.26	30.65		
541+13	LT	MAIN LANES	24	540+87	541+39	46.22	73.33	8.07	29.94		
542+31	RT	MAIN LANES	31	542+02	542+61	52.44	101.09	11.12	41.28		
542+55	LT	MAIN LANES	24	542+29	542+81	46.22	62.67	6.89	25.59		
543+20	LT	MAIN LANES - CONST. APRON	24	542+94	543+46	46.22					
544+62	RT	MAIN LANES	18	544+39	544+85	40.89	79.00	8.69	32.26		
544+78	LT	MAIN LANES	28	544+50	545+06	49.78	48.22	5.30	19.69		
547+57	LT	MAIN LANES	36	547+25	547+89	108.49					
548+37	RT	MAIN LANES	30	548+08	548+66	51.56	105.00	11.55	42.88		
550+78	LT	MAIN LANES	24	550+52	551+04	46.22	36.00	3.96	14.70		
550+86	RT	MAIN LANES	40	550+52	551+20	175.28					
552+91	LT	MAIN LANES	24	552+65	553+17	46.22	20.29	2.23	8.29		
558+59	LT	MAIN LANES	16	558+37	558+81		42.67	4.69	17.42		
561+62	LT	MAIN LANES	16	561+40	561+84	39.11	16.89	1.86	6.90		
562+85	RT	MAIN LANES	22	562+60	563+10	44.44	59.89	6.59	24.46		
562+88	LT	MAIN LANES	16	562+66	563+10	39.11	16.89	1.86	6.90		
572+42	LT	MAIN LANES	16	572+20	572+64	39.11	54.22	5.96	22.14		
574+22	LT	MAIN LANES	40	573+88	574+56	282.66				228	PCC-1, PCM-1
575+74	RT	MAIN LANES	28	575+46	576+02	172.67					
577+61	LT	MAIN LANES	40	577+27	577+95	60.44				160	PCC-1, PCM-1
579+86	RT	MAIN LANES	24	579+60	580+12	178.30					
598+32	RT	MAIN LANES	16	598+10	598+54	39.11	37.05	4.08	15.13		
598+97	LT	MAIN LANES	26	598+70	599+24	85.70					
599+73	LT	MAIN LANES	24	599+47	599+99	46.22	25.33	2.79	10.34		
600+45	LT	MAIN LANES	16	600+23	600+67	39.11	36.44	4.01	14.88		
600+72	RT	MAIN LANES	40	600+38	601+06	222.66					
601+36	LT	MAIN LANES	24	601+10	601+62	71.55					
601+95	RT	MAIN LANES	24	601+69	602+21	143.55					
602+42	LT	MAIN LANES	24	602+16	602+68	90.22					
602+98	RT	MAIN LANES	34	602+67	603+29	281.78					
603+54	LT	MAIN LANES	16	603+32	603+76	39.11	41.78	4.60	17.06		
604+19	LT	MAIN LANES	16	603+97	604+41	39.11					
605+00	LT	MAIN LANES	28	604+72	605+28		49.78	5.48	20.33		
605+00	RT	MAIN LANES	23	604+75	605+26		45.33	4.99	18.51		
802+32	RT	HWY. 71B	23	802+07	802+58	45.33	30.67	3.37	12.52		
11+95	RT	MORNINGSIDE DR.	23	11+70	12+21		58.11	6.39	23.73		
ENTIRE PROJECT TEMPORARY DRIVES									100.00		
* ENTIRE PROJECT TEMPORARY DRIVES											
TOTALS:						3593.60	1367.43	150.43	658.39	388.00	

BASIS OF ESTIMATE:
ACHM SURFACE COURSE (1/2").....94.3% MIN. AGGR.....5.7% ASPHALT BN
MAXIMUM NUMBER OF GYRATIONS = 115 FOR PG 64-22

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.

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

** FOR INFORMATION ONLY

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.

SELECTED PIPE BEDDING

LOCATION	SELECTED PIPE BEDDING
	CU.YD.
ENTIRE PROJECT TO BE USED IF	
AND WHERE DIRECTED BY THE	620
ENGINEER	
TOTAL:	620

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

ACHM PATCHING OF EXISTING ROADWAY

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

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

ASPHALT CONCRETE PATCHING FOR MAINTENANCE OF TRAFFIC

LOCATION	TON	TACK COAT
		GALLON
ENTIRE PROJECT - TO BE USED IF AND WHERE	29	58
DIRECTED BY THE ENGINEER		
TOTALS:	29	58

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

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

DN42608 4/11/2020
R040579.DGN

QUANTITIES

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
06-12-2020				6	ARK.			
				JOB NO.		040579	41	127

(2) QUANTITIES

STATE OF ARKANSAS
LICENSED PROFESSIONAL ENGINEER
No. 11425
TRINITY D. SMITH
Jun 19 2020 12:00 PM

STRUCTURES

STATION	DESCRIPTION	REINFORCED CONCRETE PIPE CULVERT (CLASS III) 18"	24"	30"	36"	48"	54"	36"X23"	44"X27" LIN. FT.	SIDE DRAIN 12"	PIPE CULVERT STORM DRAIN ALTERNATES 1 & 2 18"	24"	30"	36"	48"	FLARED END SECTIONS FOR R.C. PIPE CULVERTS 18"	36"	48"	54"	44"X27" EACH	FLARED END SECTION ALTERNATES FOR PIPE CULVERT ALTERNATES 36"	48"	DROP INLETS TYPE C	MO	EXT. 4'	8'	JUNCT. BOXES (TYPE ST)	JUNCT. BOXES (TYPE E) EACH	MODIFYING JUNCT. BOXES	YARD DRAINS	SPAN	HEIGHT LIN. FT.	LENGTH	CLASS S CONCRETE-ROADWAY CU.YD.	REINF. STEEL-ROADWAY (GRADE 60) POUND	UNCL.EXC. FOR STR.-ROADWAY CU.YD.	SOLID SODDING SQ.YD.	WATER M.GAL.	STD. DWG. NOS.
527+66	CONST. JUNCTION BOX RT																1										1											FES-1, FES-2,FPC-9S
527+98	CONST. DROP INLET ON RT													30										1														FPC-9E, FPC-9M, PCM-1, PCC-1
527+98	CONST. DROP INLET ON LT w/ BACK OPENING							52																1														FPC-9E, FPC-9M, PCC=1
528+85	CONST. DROP INLET ON LT. W/ BACK OPENING												82											1														FPC-9E, FPC-9M, PCM-1, PCC-1
530+27	CONST. DROP INLET LT. W/ BACK OPENING												138											1														FPC-9E, FPC-9M, PCM-1, PCC-1
530+99	CONST. JUNCTION BOX												48																1	1							FPC-9, PCM-1, PCC-1
531+40	CONST. DROP INLET LT. W/ EXT.			108									54											1		1												FPC-9E, FPC-9M, PCM-1, PCC-1
531+40	CONST. DROP INLET ON RT										34													1		1												FPC-9E, FPC-9M, PCM-1, PCC-1
531+78	CONST. DROP INLET ON RT						32												1					1														FES-1, FES-2, FPC-9E, FPC-9M, PCC-1
531+98	CONST. DROP INLET ON LT.				162																			1														FPC-9E, FPC-9M, PCC-1
533+65	CONST. DROP INLET LT. W/ EXT.				40	56																1		1		1												FES-1, FES-2, FPC-9E, PCC-1
533+65	CONST. DROP INLET RT. W/ EXT.	10					182									1							1		1													FES-1, FES-2, FPC-9E, PCC-1
540+04	CONST. DROP INLET RT. W/ EXT.										196													1	1													FPC-9E, FPC-9M, PCM-1, PCC-1
540+64	CONST. DROP INLET LT / EXT.		6									156												1		1												FPC-9E, FPC-9M, PCM-1, PCC-1
542+04	CONST. DROP RT. INLET W/ EXT.	66														1								1	1													FES-1, FES-2, FPC-9E, FPC-9M, PCM-1, PCC-1
542+23	CONST. DROP INLET LT.												196											1	1													FPC-9E, FPC-9M, PCM-1, PCC-1
544+23	CONST DROP INLET RT. W/ EXT.	64														1								1	1													FES-1, FES-2, FPC-9E, FPC-9M, PCM-1, PCC-1
544+23	CONST. DROP INLET LT. W/ EXT. AND BACK OPENING												194											1	1													FPC-9E, FPC-9M, PCM-1, PCC-1
546+23	CONST. DROP INLET LT. W/ EXT ON TOP OF BOX																							1	1													FPC-9E, FPC-9M
546+23	EXTEND BOX CULVERT 30' LT & 4' RT.																															8	6	34	45.03	4072	30	21	0.26	R-100X-X2, W-X003-1, RBC-1, RBC-2, RBC-3
546+23	CONST. BOX CULVERT																															4	6	115	68.26	5051	35	15	0.19	R-100X-X2, W-X003-1, RBC-1, RBC-2
546+23	CONST. DROP INLET RT W/ EXT, ON TOP OF BOX																							1	1													FPC-9E, FPC-9M
546+83	CONST. DROP INLET W/ EXT.										58													1		1												FPC-9E, FPC-9M, PCM-1, PCC-1
546+89	CONST. DROP INLET LT. W/ EXT.												60											1		1												FPC-9E, FPC-9M, PCM-1, PCC-1
547+52	CONST. DROP INLET ON RT. W/ EXT.												64											1	1													FPC-9E, FPC-9M, PCM-1, PCC-1
547+93	CONST. DROP INLET ON LT. W/ EXT.											100												1	1													FPC-9E, FPC-9M, PCM-1, PCC-1
549+71	CONST. DROP INLET ON LT. W/ BACK OPENING		174																					1														FPC-9E, FPC-9M, PCM-1, PCC-1
549+71	CONST. DROP INLET ON RT.	8											214			1								1														FES-1, FES-2, FPC-9E, FPC-9M, PCM-1, PCC-1
550+61	INSTALL YARD DRAIN ON LT.									90																				1								FPC-9, PCC-1, PCM-1, PCP-1, PCP-2
550+94	INSTALL YARD DRAIN ON LT.									32																				1								FPC-9, PCC-1, PCM-1, PCP-1, PCP-2
552+75	INSTALL YARD DRAIN ON LT.									67																				1								FPC-9, PCC-1, PCM-1, PCP-1, PCP-2
553+15	CONST. DROP INLET ON. RT. W/ EXT.										96													1	1													FPC-9E, FPC-9M, PCM-1, PCC-1
553+44	CONST. DROP INLET ON LT W/ EXT.		38																					1	1													FPC-9E, FPC-9M, PCM-1, PCC-1
553+81	CONST. JUNCTION BOX ON LT.				44																							1										FES-1, FES-2, FPC-9S, PCC-1
554+28	CONST. JUNCTION BOX ON LT.				62												1					1						1										FES-1, FES-2, FPC-9S, PCC-1
554+52	CONST. DROP INLET ON LT. W/ EXT.													202										1	1													FPC-9E, FPC-9M, PCM-1, PCC-1
556+57	CONST. DROP INLET ON LT. W/ EXT.													18										1	1													FPC-9E, FPC-9M, PCM-1, PCC-1
556+57	CONST. DROP INLET W/ 4' EXTENSION	18																						1	1													FPC-9E, FPC-9M, PCM-1, PCC-1
556+79	EXTEND BOX CULVERT 31'LT & 6' RT.																															4	4	37	23.10	2264	17	7	0.09	R-100X-0, W-X003-1, RBC-1, RBC-2, RBC-3
557+00	CONST. DROP INLET ON LT. W/ EXT. W/ FES.	16				66									10			1						1	2													FES-1, FES-2, FPC-9E, FPC-9M, PCM-1, PCC-1
557+00	CONST. DROP INLET ON RT. W/ EXT. W/ FES.					12					16							1				1		1	2													FES-1, FES-2, FPC-9E, FPC-9M, PCM-1, PCC-1
557+50	CONST. DROP INLET ON LT.										46													1														FPC-9E, FPC-9M, PCM-1, PCC-1
557+50	CONST. DROP INLET ON RT. W/ EXT. W/ FES.										46													1														FPC-9E, FPC-9M, PCM-1, PCC-1
561+42	CONST. DROP INLET W/ BACK OPENING			56																			1														FPC-9E, PCC-1
561+42	CONST. DROP INLET ON LT.													296										1														FPC-9E, FPC-9M, PCM-1, PCC-1
564+42	CONST. DROP INLET ON LT. W/ 4' EXT.	56																						1	1													FPC-9E, FPC-9M, PCM-1, PCC-1
564+42	CONST. DROP INLET ON RT. W/ EXT.													296										1	1													FPC-9E, FPC-9M, PCM-1, PCC-1
567+42	CONST. DROP INLET ON LT. W/ EXT.	56																						1	1													FPC-9E, FPC-9M, PCM-1, PCC-1
567+42	CONST. DROP INLET ON RT. W/ EXT.													122										1	1													FPC-9E, FPC-9M, PCM-1, PCC-1
568+78	EXTEND BOX CULVERT 28' LT. & 5' RT.																															9	5	33	43.91	4879	28	19	0.24	R-100X-0, W-X003-1, RBC-1, RBC-2, RBC-3
568+78	CONST. R.C. BARREL																															6	5	90	57.95	6952	35	17	0.21	R-100X-0, W-X003-1, RBC-1, RBC-2
568+78	CONST. DROP INLET ON LT. ON TOP OF BOX																							1														FPC-9E, FPC-9M
568+78	CONST. DROP INLET ON RT. ON TOP OF BOX																							1														FPC-9E, FPC-9M
569+30	CONST/ DROP INLET ON LT. W/ EXT.										46													1		1												FPC-9E, FPC-9M, PCM-1, PCC-1
569+30	CONST. DROP INLET W/ 8' EXT.										46													1		1												FPC-9E, FPC-9M, PCM-1, PCC-1
569+85	CONST. DROP INLET ON LT.										52													1														FPC-9E, FPC-9M, PCM-1, PCC-1
569+85	CONST. DROP INLET ON RT.										52													1														FPC-9E, FPC-9M, PCM-1, PCC-1
571+89	CONST. TRI R.C. PIPE								264											6																		PCC-1, FES-1, FES-2
573+00	CONST. JUCNTION BOX. ON RT.	16														1													1	1							FPC-9, PCC-1, FES-1, FES-2
574+59	CONST. DROP INLET ON LT.	55																						1														FPC-9E, FPC-9M, PCM-1, PCC-1
574+59	CONST. DROP INLET ON RT.										156													1														FPC-9E, FPC-9M, PCM-1, PCC-1
575+38	CONST. DROP INLET ON LT. W/ EXT.										76													1		1												FPC-9E, FPC-9M, PCM-1, PCC-1
575+38	CONST. DROP INLET W/ EXT.										76													1		1												FPC-9E, FPC-9M, PCM-1, PCC-1
576+05	CONST. DROP INLET ON LT.										64													1														FPC-9E, FPC-9M, PCM-1, PCC-1
576+05	CONST. DROP INLET ON RT.										64													1														FPC-9E, FPC-9M, PCM-1, PCC-1
576+35	EXTEND DBL PIPE CULVERT ON LT. 14' LT.			28																																		RBC-1, RBC-2, RBC-3
576+35	MODIFY JUNCTION BOX ON RT. W/ BACK OPENING																													1								FPC-9
580+05	CONST. DROP INLET ON LT. W/ EXT.										66													1	1													FPC-9E, FPC-9M, PCM-1, PCC-1
599+35	CONST. DROP INLET ON LT W/ BACK OPENING											82												1														FPC-9E, FPC-9M, PCM-1, PCC-1
599+35	CONST. DROP INLET ON RT.	56																						1														FPC-9E, FPC-9M, PCM-1, PCC-1
602+60	CONST. DROP INLET ON RT.										184													1														FPC-9E, FPC-9M, PCM-1, PCC-1
603+00	CONST. DROP INLET W/ EXT.										140													1														FPC-9E, FPC-9M, PCM-1, PCC-1
604+44	CONST. DROP INLET W/ BACK OPENING/ EXT.	38																						1	1													FPC-9E, FPC-9M, PCM-1, PCC-1
604+44	CONST. DROP INLET ON RT.	1' 8																						1														FPC-9E, FPC-9M, PCM-1, PCC-1
604+84	MODIFY JUNCTION BOX ON LT.																													1								FCP-9
604+85	CONST. DROP INLET	28																						1														FPC-9E, FPC-9M, PCM-1, PCC-1
605+18	CONST. DROP INLET	32																						1														FPC-9E, FPC-9M, PCM-1, PCC-1
605+20	MODIFY JUCTION BOX																													1								FPC-9
12+35	CONST DROP INLET ON RT.	64														1								1														FPC-9E, FPC-9M, PCC-1
12+56	CONST. DROP INLET RT	23														1								1														FPC-9E, FPC-9M, PCC-1
14+20	CONST. JUNCTION BOX ON LT.		40																										1									FPC-9, PCC-1
* ENTIRE PROJECT TO BE USED IF & WHERE DIRECTED BY THE ENGINEER										300																					3								
TOTALS:		725	258	192	308	134	214	52	264	489	1514	338	1050	964	10	7	2	2	1	6	2	1	3	59	26	9	3	3	5	6				238.25	23218	145	79	0.99	

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

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

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.

QUANTITIES

DN42608 4/11/2020
R040579.DGN

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		040579	42	127

(2) QUANTITIES

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

May 21 2020 2:09 PM
DocuSign

CONCRETE BASE

STATION	STATION	LOCATION	LENGTH	PORTLAND CEMENT CONCRETE BASE			
				AVG. WID. (5" U.T.)	5" U.T.	AVG. WID. (13" U.T.)	13" U.T.
			FEET	FEET	SQ. YD.	FEET	SQ. YD.
510+00.00	510+63.00	HWY 16 RT (HWY. 71B INTERSECTION)	63.00	VAR.	70.28	VAR.	87.78
527+93.97	528+93.97	HWY 16 RT	100.00	0.80	8.89	3.30	36.67
510+63.00	533+61.17	HWY 16 RT	2298.17	0.60	153.21	3.10	791.59
533+61.17	537+23.84	HWY 16 RT	362.67	2.47	99.53	4.97	200.27
537+23.84	538+81.50	HWY 16 RT	157.66			2.50	43.79
538+81.50	550+89.00	HWY 16 RT	1207.5	1.53	205.28	4.03	540.69
550+89.00	552+49.00	HWY 16 RT	160.00	4.80	85.33	7.30	129.78
552+49.00	555+49.00	HWY 16 RT	300.00	7.72	257.33	10.22	340.67
555+49.00	557+09.00	HWY 16 RT	160.00	5.06	89.96	7.56	134.40
557+09.00	575+78.62	HWY 16 RT	1869.62	3.15	654.37	5.65	1173.71
598+00.00	604+52.00	HWY 16 LT	652.00	4.00	289.78	6.50	470.89
598+00.00	604+52.00	HWY 16 RT	652.00	4.00	289.78	6.50	470.89
604+52.00	605+52.00	HWY 16 LT	100.00	2.00	22.22	4.50	50.00
604+52.00	605+52.00	HWY 16 RT	100.00	2.00	22.22	4.50	50.00
11+90.60	13+07.18	MORNINGSIDE DRIVE LT.	116.58	VAR.	195.08	VAR.	227.46
12+54.72	13+07.18	MORNINGSIDE DRIVE RT.	52.46	VAR.	78.98	VAR.	93.55
13+71.19	14+01.86	MORNINGSIDE DRIVE LT.	30.67	VAR.	32.37	VAR.	40.89
13+71.19	14+01.86	MORNINGSIDE DRIVE RT.	30.67	VAR.	31.01	VAR.	39.53
TOTALS:					2585.62		4922.56

COLD MILLING ASPHALT PAVEMENT

STATION	STATION	LOCATION	AVG. WIDTH	COLD MILLING ASPHALT PAVEMENT
			FEET	SQ. YD.
527+93.97	528+93.47	MAIN LANES	44.00	486.44
580+50.00	581+50.00	MAIN LANES	22.00	244.44
597+00.00	598+00.00	MAIN LANES	44.00	488.89
605+52.00	606+52.00	MAIN LANES	44.00	488.89
TOTAL:				1708.66

NOTE: AVERAGE MILLING DEPTH 1".

BASE AND SURFACING

STATION	STATION	LOCATION	LENGTH	AGGREGATE BASE COURSE (CLASS 7)		TACK COAT							ACHM BASE COURSE (1 1/2")				ACHM BINDER COURSE (1")				ACHM SURFACE COURSE (1/2")							
						(0.05 GAL. PER SQ. YD.)			(0.17 GAL. PER SQ. YC.)																		
				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 76-22	AVG. WID.	SQ.YD.	POUND / SQ.YD.	PG 76-22	TOTAL PG 76-22
			FEET			FEET			FEET				FEET			TON	FEET			TON	FEET			TON	FEET			TON	TON
MAIN LANES																												
510+00.00	510+63.00	HWY. 71B INTERSECTION - P.C.C. BASE	63.00			VAR.	70.28	3.51				3.51													VAR.	70.28	220.00	7.73	7.73
527+93.97	528+93.97	TRANSITION - P.C.C. BASE RT.	100.00	VAR.	41.50	19.86	220.67	11.03				11.03	8.02	89.11	550.00	24.51	5.52	61.33	330.00	10.12	5.52	61.33	220.00	6.75	50.00	555.56	220.00	61.11	67.86
510+63.00	533+61.17	NOTCH TRANSITION - P.C.C. BASE RT.	2298.17	VAR.	448.51	15.25	3894.12	194.71				194.71	5.76	1470.83	550.00	404.48	3.26	832.45	330.00	137.35	3.26	832.45	220.00	91.57	52.00	13278.32	220.00	1460.62	1552.19
533+61.17	537+23.84	54' FTF (22' EXISTING WIDTH) -P.C.C. BASE RT.	362.67	VAR.	564.86	87.56	3528.38	176.42				176.42	30.03	1210.11	550.00	332.78	27.53	1109.37	330.00	183.05	27.53	1109.37	220.00	122.03	52.00	2095.43	220.00	230.50	352.53
537+23.84	538+81.50	54' FTF (22' EXIST. WIDTH) -P.C.C. BASE C&G RT.	157.66	VAR.	265.66	92.50	1620.39	81.02				81.02	32.50	569.33	550.00	156.57	30.00	525.53	330.00	86.71	30.00	525.53	220.00	57.81	52.00	910.92	220.00	100.20	158.01
538+81.50	550+89.00	54' FTF (22' EXISTING WIDTH) -P.C.C. BASE RT.	1207.50	VAR.	1938.04	89.44	11999.87	599.99				599.99	30.97	4155.14	550.00	1142.66	28.47	3819.73	330.00	630.26	28.47	3819.73	220.00	420.17	52.00	6976.67	220.00	767.43	1187.60
550+89.00	552+49.00	54' FTF TO 66' FTF TRANS. - P.C.C. BASE RT.	160.00	VAR.	279.60	100.90	1793.78	89.69				89.69	33.70	599.11	550.00	164.76	31.20	554.67	330.00	91.52	31.20	554.67	220.00	61.01	58.00	1031.11	220.00	113.42	174.43
552+49.00	555+49.00	66' FTF (22' EXISTING WIDTH) -P.C.C. BASE RT	300.00	VAR.	572.25	113.06	3768.67	188.43				188.43	36.78	1226.00	550.00	337.15	34.28	1142.67	330.00	188.54	34.28	1142.67	220.00	125.69	64.00	2133.33	220.00	234.67	360.36
555+49.00	557+09.00	66' FTF TO 54' FTF TRANS. - P.C.C. BASE RT.	160.00	VAR.	277.60	100.38	1784.53	89.23				89.23	33.44	594.49	550.00	163.48	30.94	550.04	330.00	90.76	30.94	550.04	220.00	60.50	58.00	1031.11	220.00	113.42	173.92
557+09.00	575+78.62	54' FTF (22' EXISTING WIDTH) -P.C.C. BASE RT.	1869.62	VAR.	2846.50	86.20	17906.80	895.34				895.34	29.35	6097.04	550.00	1676.69	26.85	5577.70	330.00	920.32	26.85	5577.70	220.00	613.55	52.00	10802.25	220.00	1188.25	1801.80
575+78.62	580+50.00	54' FACE TO FACE (22' EXISTING WIDTH)	471.38	VAR.	855.55	95.00	4975.68	248.78				248.78	35.00	1833.14	550.00	504.11	30.00	1571.27	330.00	259.26	30.00	1571.27	220.00	172.84	52.00	2723.53	220.00	299.59	472.43
598+00.00	604+52.00	54' FACE TO FACE (44' EXISTING WIDTH)	652.00			8.00	579.56	28.98				28.98													52.00	3767.11	220.00	414.38	414.38
604+52.00	605+52.00	TRANSITION	100.00			4.00	44.44	2.22				2.22													52.00	577.78	220.00	63.56	63.56
10+90.60	11+90.60	MORNINGSIDE DR. LT.	100.00	VAR.	11.00	VAR.	79.05	3.95				3.95	VAR.	28.00	550.00	7.70	VAR.	26.10	330.00	4.31	VAR.	24.95	220.00	2.74	VAR.	23.56	220.00	2.59	5.33
10+90.60	12+54.72	MORNINGSIDE DR. RT.	164.12	VAR.	16.41	VAR.	118.35	5.92				5.92	VAR.	42.11	550.00	11.58	VAR.	39.07	330.00	6.45	VAR.	37.17	220.00	4.09	VAR.	34.89	220.00	3.84	7.93
11+90.60	13+07.18	MORNINGSIDE DR. LT. - P.C.C. BASE	116.58			VAR.	195.08	9.75				9.75													VAR.	195.08	220.00	21.46	21.46
12+54.72	13+07.18	MORNINGSIDE DR. RT. - P.C.C. BASE	52.46			VAR.	78.98	3.95				3.95													VAR.	78.98	220.00	8.69	8.69
13+71.19	14+01.86	MORNINGSIDE DR. LT. & RT. - P.C.C. BASE	30.67			VAR.	63.38	3.17				3.17													VAR.	63.38	220.00	6.97	6.97
14+01.86	15+01.86	MORNINGSIDE DR. LT. & RT.	100.00	VAR.	18.50	VAR.	135.23	6.76				6.76	VAR.	48.33	550.00	13.29	VAR.	44.56	330.00	7.35	VAR.	42.34	220.00	4.66	VAR.	39.56	220.00	4.35	9.01
ADDITIONAL FOR LEVELING																													
527+93.97	528+93.97	HWY. 16	100.00			44.00	488.89	24.44	44.00	488.89	83.11	107.55									44.00	488.89	VAR.	35.74					35.74
528+93.97	533+61.17	HWY. 16	467.20			33.00	1713.07	85.65	33.00	1713.07	291.22	376.87									33.00	1713.07	VAR.	304.95					304.95
533+61.17	550+89.00	HWY. 16	1727.83			22.00	4223.58	211.18	22.00	4223.58	718.01	929.19									22.00	4223.58	VAR.	1148.66					1148.66
550+89.00	552+49.00	HWY. 16	160.00			22.00	391.11	19.56	22.00	391.11	66.49	86.05									22.00	391.11	VAR.	96.50					96.50
552+49.00	555+49.00	HWY. 16	300.00			22.00	733.33	36.67	22.00	733.33	124.67	161.34									22.00	733.33	VAR.	279.97					279.97
555+49.00	557+09.00	HWY. 16	160.00			22.00	391.11	19.56	22.00	391.11	66.49	86.05									22.00	391.11	VAR.	103.13					103.13
557+09.00	580+50.00	HWY. 16	2341.00			22.00	5722.44	286.12	22.00	5722.44	972.81	1258.93									22.00	5722.44	VAR.	1470.23					1470.23
598+00.00	604+52.00	HWY. 16	652.00			44.00	3187.56	159.38	44.00	3187.56	541.89	701.27									44.00	3187.56	VAR.	755.70					755.70
604+52.00	605+52.00	HWY. 16	100.00			44.00	488.89	24.44	44.00	488.89	83.11	107.55									44.00	488.89	VAR.	22.83					22.83
ADDITIONAL FOR MAINTENANCE OF TRAFFIC																													
542+83.64	545+53.64	STAGE 1 WIDENING ON RT.	270.00	75.25	203.18	18.49	554.70	27.74				27.74	9.41	282.30	550.00	77.63	9.08	272.40	330.00	44.95					10.00	300.00	220.00	33.00	33.00
545+53.64	547+48.87	STAGE 1 WIDENING ON RT.	195.23	110.25	215.24	36.96	801.74	40.09				40.09	18.81	408.03	550.00	112.21	18.15	393.71	330.00	64.96					20.00	433.84	220.00	47.72	47.72
547+48.87	550+18.87	STAGE 1 WIDENING ON RT.	270.00	75.25	203.18	18.49	554.70	27.74				27.74	9.41	282.30	550.00	77.63	9.08	272.40	330.00	44.95					10.00	300.00	220.00	33.00	33.00
566+17.28	568+05.28	STAGE 1 WIDENING ON RT.	188.00	64.50	121.26	12.99	271.35	13.57				13.57	6.66	139.12	550.00	38.26	6.33	132.23	330.00	21.82					6.75	141.00	220.00	15.51	15.51
568+05.28	570+03.82	STAGE 1 WIDENING ON RT.	198.54	88.75	176.20	25.96	572.68	28.63				28.63	13.31	293.62	550.00	80.75	12.65	279.06	330.00	46.04					13.50	297.81	220.00	32.76	32.76
570+03.82	571+91.82	STAGE 1 WIDENING ON RT.	188.00	64.50	121.26	12.99	271.35	13.57				13.57	6.66	139.12	550.00	38.26	6.33	132.23	330.00	21.82					6.75	141.00	220.00	15.51	15.51
543+33.94	544+91.94	STAGE 2 WIDENING ON LT.	158.00	55.75	88.09	9.73	170.82	8.54				8.54	4.41	77.42	550.00	21.29	5.32	93.40	330.00	15.41					6.25	109.72	220.00	12.07	12.07
544+91.94	547+00.38	STAGE 2 WIDENING ON LT.	208.44	71.25	148.51	19.45	450.46	22.52				22.52	8.81	204.04	550.00	56.11	10.64	246.42	330.00	40.66					12.50	289.50	220.00	31.85	31.85
547+00.38	548+58.38	STAGE 2 WIDENING ON LT.	158.00	55.75	88.09	9.73	170.82	8.54				8.54	4.41	77.42	550.00	21.29	5.32	93.40	330.00	15.41					6.25	109.72	220.00	12.07	12.07
565+83.05	567+41.05	STAGE 2 WIDENING ON LT.	158.00	55.75	88.09	9.73	170.82	8.54				8.54	4.41	77.42	550.00	21.29	5.32	93.40	330.00	15.41					6.25	109.72	220.00	12.07	12.07
567+41.05	569+47.87	STAGE 2 WIDENING ON LT.	206.82	71.25	147.36	19.45	446.96	22.35				22.35	8.81	202.45	550.00	55.67	10.64	244.51	330.00	40.34					12.50	287.25	220.00	31.60	31.60
569+47.87	571+05.87	STAGE 2 WIDENING ON LT.	158.00	55.75	88.09	9.73	170.82	8.54				8.54	4.41	77.42	550.00	21.29	5.32	93.40	330.00	15.41					6.25	109.72	220.00	12.07	12.07
TOTALS:					9824.53		74804.44	3740.22		17339.98	2947.80	6688.02		20223.40		5561.44		18261.05		3003.18		33189.20		5961.20		49018.13		5392.01	11353.21

BASIS OF ESTIMATE:
ACHM SURFACE COURSE (1/2").....94.3% MIN. AGGR.....5.7% ASPHALT BINDER
ACHM BINDER COURSE (1").....95.4% MIN. AGGR.....4.6% ASPHALT BINDER
ACHM BASE COURSE (1 1/2").....96.4% MIN. AGGR.....3.6% ASPHALT BINDER
MAXIMUM NUMBER OF GYRATIONS = 160 FOR PG 70-22
MAXIMUM NUMBER OF GYRATIONS = 205 FOR PG 76-22
TACK COAT QUANTITIES WERE CALCULATED USING THE EMULSIFIED ASPHALT RATES. REFER TO SS-400-1 FOR THE RESIDUAL ASPHALT APPLICATION RATES.

DN42608 R040579.DGN 4/11/2020

QUANTITIES

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED
06-12-2020			

FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
6	ARK.			
JOB NO.		040579	43	127

SUMMARY OF QUANTITIES (BOX 1 OF 2)

ITEM NUMBER	ITEM		QUANTITY	UNIT
201	CLEARING		24	STATION
201	GRUBBING		24	STATION
202	REMOVAL AND DISPOSAL OF CURB AND GUTTER		2045	LIN. FT.
202	REMOVAL AND DISPOSAL OF FENCE		2242	LIN. FT.
202	REMOVAL AND DISPOSAL OF POSTS		2	EACH
202	REMOVAL AND DISPOSAL OF CONCRETE ISLANDS		74	SQ. YD.
202	REMOVAL AND DISPOSAL OF COLUMNS		2	EACH
202	REMOVAL AND DISPOSAL OF CONCRETE DRIVEWAYS		3368	SQ. YD.
202	REMOVAL AND DISPOSAL OF WALKS		1465	SQ. YD.
202	REMOVAL AND DISPOSAL OF SIGN FOUNDATIONS		2	EACH
202	REMOVAL AND DISPOSAL OF PIPE CULVERTS		26	EACH
202	REMOVAL AND DISPOSAL OF HEADWALLS		7	EACH
202	REMOVAL AND DISPOSAL OF SIGNS		6	EACH
206	FLOWABLE SELECT MATERIAL		26	CU. YD.
SS & 210	UNCLASSIFIED EXCAVATION		6635	CU. YD.
210	COMPACTED EMBANKMENT		12742	CU. YD.
SP & 210	SOIL STABILIZATION		250	TON
SS & 303	AGGREGATE BASE COURSE (CLASS 7)		10483	TON
309	PORTLAND CEMENT CONCRETE BASE (5" UNIFORM THICKNESS)		2586	SQ. YD.
309	PORTLAND CEMENT CONCRETE BASE (13" UNIFORM THICKNESS)		4923	SQ. YD.
SS & 401	TACK COAT		6746	GAL.
SP, SS, & 405	MINERAL AGGREGATE IN ACHM BASE COURSE (1 1/2")		5361	TON
SP, SS, & 405	ASPHALT BINDER (PG 70-22) IN ACHM BASE COURSE (1 1/2")		200	TON
SP, SS, & 406	MINERAL AGGREGATE IN ACHM BINDER COURSE (1")		2865	TON
SP, SS, & 406	ASPHALT BINDER (PG 70-22) IN ACHM BINDER COURSE (1")		138	TON
SP, SS, & 407	MINERAL AGGREGATE IN ACHM SURFACE COURSE (1/2")		10848	TON
SP, SS, & 407	ASPHALT BINDER (PG 64-22) IN ACHM SURFACE COURSE (1/2")		9	TON
SP, SS, & 407	ASPHALT BINDER (PG 76-22) IN ACHM SURFACE COURSE (1/2")		647	TON
412	COLD MILLING ASPHALT PAVEMENT		1709	SQ. YD.
SP, SS, & 414	ASPHALT CONCRETE PATCHING FOR MAINTENANCE OF TRAFFIC		29	TON
SP, SS, & 415	ACHM PATCHING OF EXISTING ROADWAY		25	TON
SS & 505	PORTLAND CEMENT CONCRETE DRIVEWAY		3593.60	SQ. YD.
601	MOBILIZATION		1.00	LUMP SUM
SP & 602	FURNISHING FIELD OFFICE		1	EACH
SP, SS, & 603	MAINTENANCE OF TRAFFIC		1.00	LUMP SUM
SS & 604	SIGNS		667	SQ. FT.
SS & 604	TRAFFIC DRUMS		181	EACH
SS & 604	TRAFFIC CONE		162	EACH
SS & 604	FURNISHING AND INSTALLING PRECAST CONCRETE BARRIER		412	LIN. FT.
SS & 604	RELOCATING PRECAST CONCRETE BARRIER		412	LIN. FT.
604	CONSTRUCTION PAVEMENT MARKINGS		61174	LIN. FT.
604	CONSTRUCTION PAVEMENT MARKINGS (WORDS)		4	EACH
604	CONSTRUCTION PAVEMENT MARKINGS (ARROWS)		8	EACH
604	REMOVAL OF PERMANENT PAVEMENT MARKINGS		4048	LIN. FT.
604	REMOVAL OF PERMANENT PAVEMENT MARKINGS (WORDS)		5	EACH
604	REMOVAL OF PERMANENT PAVEMENT MARKINGS (ARROWS)		5	EACH
SS & 604	VERTICAL PANELS		181	EACH
606	18" REINFORCED CONCRETE PIPE CULVERTS (CLASS III)		725	LIN. FT.
* 606	18" REINFORCED CONCRETE PIPE CULVERTS (CLASS III)	(ALTERNATE NO. 1)	1514	LIN. FT.
* 606	18" SMOOTH LINED POLYMER PRECOATED METALLIC COATED CORRUGATED STEEL PIPE	(ALTERNATE NO. 2)	1514	LIN. FT.
606	24" REINFORCED CONCRETE PIPE CULVERTS (CLASS III)		258	LIN. FT.
* 606	24" REINFORCED CONCRETE PIPE CULVERTS (CLASS III)	(ALTERNATE NO. 1)	338	LIN. FT.
* 606	24" SMOOTH LINED POLYMER PRECOATED METALLIC COATED CORRUGATED STEEL PIPE	(ALTERNATE NO. 2)	338	LIN. FT.
606	30" REINFORCED CONCRETE PIPE CULVERTS (CLASS III)		192	LIN. FT.
* 606	30" REINFORCED CONCRETE PIPE CULVERTS (CLASS III)	(ALTERNATE NO. 1)	1050	LIN. FT.
* 606	30" SMOOTH LINED POLYMER PRECOATED METALLIC COATED CORRUGATED STEEL PIPE	(ALTERNATE NO. 2)	1050	LIN. FT.
606	36" REINFORCED CONCRETE PIPE CULVERTS (CLASS III)		308	LIN. FT.
* 606	36" REINFORCED CONCRETE PIPE CULVERTS (CLASS III)	(ALTERNATE NO. 1)	964	LIN. FT.
* 606	36" SMOOTH LINED POLYMER PRECOATED METALLIC COATED CORRUGATED STEEL PIPE	(ALTERNATE NO. 2)	964	LIN. FT.
606	48" REINFORCED CONCRETE PIPE CULVERTS (CLASS III)		134	LIN. FT.
* 606	48" REINFORCED CONCRETE PIPE CULVERTS (CLASS III)	(ALTERNATE NO. 1)	10	LIN. FT.
* 606	48" SMOOTH LINED POLYMER PRECOATED METALLIC COATED CORRUGATED STEEL PIPE	(ALTERNATE NO. 2)	10	LIN. FT.
606	54" REINFORCED CONCRETE PIPE CULVERTS (CLASS III)		214	LIN. FT.
606	36" X 23" REINFORCED CONCRETE ARCH PIPE CULVERTS (CLASS III)		52	LIN. FT.
606	44" X 27" REINFORCED CONCRETE ARCH PIPE CULVERTS (CLASS III)		264	LIN. FT.
SS & 606	12" SIDE DRAIN		489	LIN. FT.
SS & 606	24" X 18" SIDE DRAIN		388	LIN. FT.
606	18" FLARED END SECTIONS FOR REINFORCED CONCRETE PIPE CULVERTS		7	EACH
606	36" FLARED END SECTIONS FOR REINFORCED CONCRETE PIPE CULVERTS		2	EACH
* 606	36" FLARED END SECTIONS FOR REINFORCED CONCRETE PIPE CULVERTS	(ALTERNATE NO. 1)	2	EACH
* 606	36" FLARED END SECTIONS FOR CORRUGATED STEEL PIPE CULVERTS	(ALTERNATE NO. 2)	2	EACH
606	48" FLARED END SECTIONS FOR REINFORCED CONCRETE PIPE CULVERTS		2	EACH
* 606	48" FLARED END SECTIONS FOR REINFORCED CONCRETE PIPE CULVERTS	(ALTERNATE NO. 1)	1	EACH
* 606	48" FLARED END SECTIONS FOR CORRUGATED STEEL PIPE CULVERTS	(ALTERNATE NO. 2)	1	EACH
606	54" FLARED END SECTIONS FOR REINFORCED CONCRETE PIPE CULVERTS		1	EACH
606	44" X 27" FLARED END SECTIONS FOR REINFORCEDCONCRETE ARCH PIPE CULVERTS		6	EACH
606	SELECTED PIPE BEDDING		620	CU. YD.
SS & 609	DROP INLETS (TYPE C)		3	EACH
SS & 609	DROP INLETS (TYPE MO)		59	EACH
SS & 609	JUNCTION BOXES (TYPE E)		3	EACH
SS & 609	JUNCTION BOXES (TYPE ST)		3	EACH
SS & 609	DROP INLET EXTENSIONS (4')		26	EACH
SS & 609	DROP INLET EXTENSIONS (8')		9	EACH
SS & 609	YARD DRAINS		6	EACH
SS & 611	4" PIPE UNDERDRAINS		3000	LIN. FT.
SS & 611	UNDERDRAIN OUTLET PROTECTORS		24	EACH
615	PAVEMENT REPAIR OVER CULVERTS (CONCRETE)		107.1	CU. YD.
619	WIRE FENCE (TYPE D-1)		926	LIN. FT.
* 619	4' STEEL CHAIN LINK FENCE	(ALTERNATE NO. 1)	217	LIN. FT.
* 619	4' ALUMINUM CHAIN LINK FENCE	(ALTERNATE NO. 2)	217	LIN. FT.
620	LIME		9	TON
620	SEEDING		4.74	ACRE
SS & 620	MULCH COVER		26.10	ACRE
620	WATER		1361.3	M. GAL.
621	TEMPORARY SEEDING		21.36	ACRE
621	SILT FENCE		8070	LIN. FT.
621	SEDIMENT REMOVAL AND DISPOSAL		334	CU. YD.
621	ROCK DITCH CHECKS		105	CU. YD.
SS & 621	FILTER SOCK (12")		1795	LIN. FT.
623	SECOND SEEDING APPLICATION		4.74	ACRE
624	SOLID SODDING		35091	SQ. YD.

* DENOTES ALTERNATE BID ITEMS.

SUMMARY OF QUANTITIES (BOX 2 OF 2)

ITEM NUMBER	ITEM	QUANTITY	UNIT
SS & 632	CONCRETE ISLAND	209	SQ. YD.
SS & 633	CONCRETE WALKS	4942	SQ. YD.
SP, SS, & 633	CONCRETE WALKS (TYPE SPECIAL)	381	SQ. YD.
SS & 633	HAND RAILING	687	LIN. FT.
SS & 634	CONCRETE COMBINATION CURB AND GUTTER (TYPE A) (1' 6")	12415	LIN. FT.
635	ROADWAY CONSTRUCTION CONTROL	1.00	LUMP SUM
637	MAILBOXES	17	EACH
637	MAILBOX SUPPORTS (SINGLE)	15	EACH
637	MAILBOX SUPPORTS (DOUBLE)	1	EACH
640	MODIFYING JUNCTION BOXES	5	EACH
641	WHEELCHAIR RAMPS (TYPE 1)	171	SQ. YD.
641	WHEELCHAIR RAMPS (TYPE 3)	68	SQ. YD.
SP & 701	SYSTEM LOCAL CONTROLLER TS2-TYPE 2, E-NET (8 PHASES)	3	EACH
SP	TRAFFIC SIGNAL CONTROLLER (MODIFICATION)	1	EACH
SP	ETHERNET SWITCH, T100 HARDENED (8-PORT)	3	EACH
SP	E-NET CABLE (EXTERIOR CAT 5E)	215	LIN. FT.
SP	LOCAL RADIO (E-NET 5.8) WITH ANTENNA	3	EACH
SP & 706	TRAFFIC SIGNAL HEAD, LED, (3 SECTION, 1 WAY)	24	EACH
SP & 706	TRAFFIC SIGNAL HEAD, LED, (4 SECTION, 1 WAY)	6	EACH
SP	RELOCATION OF TRAFFIC SIGNAL HEAD	6	EACH
SP & 707	COUNTDOWN PEDESTRIAN SIGNAL HEAD, LED	16	EACH
708	TRAFFIC SIGNAL CABLE (5C/14 A.W.G.)	4120	LIN. FT.
708	TRAFFIC SIGNAL CABLE (7C/14 A.W.G.)	752	LIN. FT.
708	TRAFFIC SIGNAL CABLE (20C/14 A.W.G.)	1058	LIN. FT.
SP	ELECTRICAL CONDUCTORS-IN-CONDUIT (1C/8 A.W.G., E.G.C.)	1293	LIN. FT.
SP	ELECTRICAL CONDUCTORS-IN-CONDUIT (1C/12 A.W.G., E.G.C.)	325	LIN. FT.
SP	ELECTRICAL CONDUCTORS-IN-CONDUIT (2C/6 A.W.G.)	144	LIN. FT.
SP	ELECTRICAL CONDUCTORS FOR LUMINAIRES	1017	LIN. FT.
709	GALVANIZED STEEL CONDUIT (2")	60	LIN. FT.
710	NON-METALLIC CONDUIT (2")	85	LIN. FT.
710	NON-METALLIC CONDUIT (3")	935	LIN. FT.
711	CONCRETE PULL BOX (TYPE 1)	1	EACH
711	CONCRETE PULL BOX (TYPE 1 HD)	1	EACH
711	CONCRETE PULL BOX (TYPE 2 HD)	10	EACH
SS & 713	SPAN WIRE ASSEMBLY	1	EACH
SS & 714	TRAFFIC SIGNAL MAST ARM AND POLE WITH FOUNDATION (34')	1	EACH
SS & 714	TRAFFIC SIGNAL MAST ARM AND POLE WITH FOUNDATION (36')	1	EACH
SS & 714	TRAFFIC SIGNAL MAST ARM AND POLE WITH FOUNDATION (38')	1	EACH
SS & 714	TRAFFIC SIGNAL MAST ARM AND POLE WITH FOUNDATION (44')	1	EACH
SS & 714	TRAFFIC SIGNAL MAST ARM AND POLE WITH FOUNDATION (48')	1	EACH
SS & 714	TRAFFIC SIGNAL MAST ARM AND POLE WITH FOUNDATION (50')	2	EACH
SS & 714	TRAFFIC SIGNAL MAST ARM AND POLE WITH FOUNDATION (60')	1	EACH
SP	LED LUMINAIRE ASSEMBLY	6	EACH
SS & 715	TRAFFIC SIGNAL PEDESTAL POLE WITH FOUNDATION	2	EACH
SP	SERVICE POINT ASSEMBLY (2 CIRCUITS)	2	EACH
SP	REMOVAL OF TRAFFIC SIGNAL EQUIPMENT	1.00	LUMP SUM
716	TREATED WOOD POLE (CLASS 2, 45')	4	EACH
719	THERMOPLASTIC PAVEMENT MARKING WHITE (6")	16396	LIN. FT.
719	THERMOPLASTIC PAVEMENT MARKING WHITE (12")	1832	LIN. FT.
719	THERMOPLASTIC PAVEMENT MARKING YELLOW (6")	13608	LIN. FT.
719	THERMOPLASTIC PAVEMENT MARKING (WORDS)	4	EACH
719	THERMOPLASTIC PAVEMENT MARKING (ARROWS)	8	EACH
719	THERMOPLASTIC PAVEMENT MARKING (BIKE EMBLEMS)	49	EACH
719	THERMOPLASTIC PAVEMENT MARKING (SHARED LANE MARKING)	1	EACH
721	RAISED PAVEMENT MARKERS (TYPE II)	258	EACH
SP	18" STREET NAME SIGN	8	EACH
733	VIDEO DETECTOR RELOCATION	3	EACH
SP	VIDEO DETECTOR ROTATION	1	EACH
SP & 733	VIDEO DETECTOR (CLR)	20	EACH
733	VIDEO CABLE	3727	LIN. FT.
733	VIDEO MONITOR (CLR)	3	EACH
SP & 733	VIDEO PROCESSOR, EDGE CARD (1 CAMERA)	14	EACH
SP & 733	EDGE CONNECT CARD FOR COMMUNICATIONS	4	EACH
SP & 733	VIDEO PROCESSOR, EDGE CARD (2 CAMERA)	3	EACH
SP & 733	VEHICLE DETECTOR RACK (16 CHANNEL)	1	EACH
SP & 733	VEHICLE DETECTOR RACK (32 CHANNEL)	2	EACH
801	UNCLASSIFIED EXCAVATION FOR STRUCTURES-ROADWAY	145	CU. YD.
SS & 802	CLASS S CONCRETE-ROADWAY	238.25	CU. YD.
SP	ARCHITECTURAL FINISH	683	SQ. FT.
SP	TEXTURED COATING FINISH	136	SQ. YD.
SS & 804	REINFORCING STEEL-ROADWAY (GRADE 60)	23218	POUND

REVISIONS

DATE	REVISION	SHEET NUMBER
06-12-2020	REVISED SHEETS UPDATE THE NORTHWEST CORNER OF MORNINGSIDE DR. ADDED "AIRPORT CLEARANCE REQUIREMENTS" SPECIAL PROVISION TO GOVERNING SPECIFICATIONS LIST AND PROVIDED SPECIAL PROVISION. CORRECTED NAMES OF "SERVICE POINT ASSEMBLY (TRAFFIC CONTROL DEVICES)' AND "SYSTEM LOCAL CONTROLLER" SPECIAL PROVISIONS IN GOVERNING SPECIFICATIONS LIST. REVISED BUFFER ZONES ON TEMPORARY EROSION CONTROL SHEETS. REPLACED "SITE USE (A+C METHOD) – CALENDAR DAY CONTRACT" SPECIAL PROVISION. PROVIDED SIGNED "STORM WATER POLLUTION PREVENTION PLAN" SPECIAL PROVISION. PROVIDED "REMOVAL OF TRAFFIC SIGNAL EQUIPMENT" SPECIAL PROVISION. REVISED "CONCRETE WALKS" QUANTITY BOX TO REMOVE "& HAND RAILING" FROM TITLE. REVISED "TYPE 2 WHEELCHAIR RAMP" PLAN NOTES TO READ "TYPE 3 WHEELCHAIR RAMP". CHANGED TRAFFIC SIGNAL AT HWY. 71B/HWY. 16 TO SPLIT PHASE. REVISED QUANTITIES FOR "REMOVAL AND DISPOSAL OF CURB AND GUTTER", "REMOVAL AND DISPOSAL OF WALKS", "REMOVAL AND DISPOSAL OF BUILDINGS", "SELECTED PIPE BEDDING", "CONCRETE WALKS", "36" FLARED END SECTIONS FORREINFORCED CONCRETE PIPE CULVERTS", "12" SIDE DRAIN", "JUNCTION BOXES (TYPE E)", AND "YARD DRAINS". REMOVED QUANTITIES FOR "REMOVAL OF CONSTRUCTION PAVEMENT MARKINGS (WORDS)" AND "REMOVAL OF CONSTRUCTION PAVEMENT MARKINGS (ARROWS)". ADDED QUANTITIES FOR "REMOVAL OF PERMANENT PAVEMENT MARKINGS (WORDS)" AND "REMOVAL OF PERMANENT PAVEMENT MARKINGS (ARROWS)".	3, 11, 12, 14, 15, 16, 18, 19, 21, 25, 29, 32, 34, 38 - 41, 43, 53, 67, 68, 70, 72, 73, 76, 77, 79, 80, 127

(2) SUMMARY OF QUANTITIES AND REVISIONS

STATE OF ARKANSAS
LICENSED PROFESSIONAL ENGINEER
No. 11425
TRINITY D. SMITH
Jun 19 2020 12:00 PM
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DN42608 4/11/2020
R040579.DGN

SUMMARY OF QUANTITIES AND REVISIONS

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		040579	44	127

(2) SURVEY CONTROL DETAILS

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

May 21 2020 2:09 PM
DocuSign

MID JOB LAT. 36°03'08"
LON. 94°08'09"
COORDINATES

ARKANSAS STATE PLANE, NORTH ZONE BASED ON GPS CONTROL, PROJECTED TO GROUND.

U.S. FOOT UNITS

POINT	EASTING	NORTHING	ELEVATION	FEATURE	DESCRIPTION
1	671096.7346	631430.449	1225.40	CTL	REBAR & CAP
2	672542.5355	631299.8923	1223.00	CTL	REBAR & CAP
3	673630.8399	631300.0696	1217.02	CTL	REBAR & CAP
4	674631.2569	631196.7397	1223.28	CTL	REBAR & CAP
5	675485.3311	631160.5781	1225.31	CTL	REBAR & CAP
6	676427.9939	631179.2772	1213.69	CTL	REBAR & CAP
7	677375.1148	631086.1128	1211.42	CTL	REBAR & CAP
8	678526.4333	631030.3715	1208.44	CTL	REBAR & CAP
9	679358.3012	630990.3661	1208.62	CTL	REBAR & CAP
10	679937.0211	631118.2673	1208.23	CTL	REBAR & CAP
11	680903.6436	631583.6386	1208.35	CTL	REBAR & CAP
12	681045.9296	632628.6928	1207.65	CTL	REBAR & CAP
13	681211.9236	633179.2185	1214.28	CTL	REBAR & CAP
14	682153.699	632935.237	1222.18	CTL	REBAR & CAP
15	682685.5734	632861.8399	1216.15	CTL	REBAR & CAP
16	683380.2294	632866.3738	1206.78	CTL	REBAR & CAP
17	683750.1918	632915.1025	1195.06	CTL	REBAR & CAP
18	684611.6697	633182.1169	1206.36	CTL	REBAR & CAP
19	685556.9754	633368.7658	1203.10	CTL	REBAR & CAP
20	686595.1575	633678.7636	1193.54	CTL	REBAR & CAP
100	671262.4426	628951.2969	1229.42	GPS	ENES
101	685097.9546	645191.053	1413.74	GPS	AHTD GPS 720042
900	672675.9555	634243.8294	1251.99	BM	SQUARE CUT IN BASE SIGNAL BOX SCHOOL AVE & 6TH ST.
901	671589.7284	631342.7104	1215.10	BM	SQUARE CUT IN HEADWALL
902	672655.9151	631288.2013	1223.02	BM	SQUARE CUT IN BASE SIGNAL POLE WITH ARM AND SCHOOL AVE & HWY 16
903	673213.4243	631259.52	1214.33	BM	COR ENG 97FP.2.7 1997
904	674393.1077	631208.0714	1222.67	BM	SQUARE CUT IN HEADWALL
905	681209.5577	633078.7653	1212.88	BM	SQUARE CUT IN BASE SIGNAL BOX
906	683764.4298	632912.0927	1195.01	BM	SQUARE CUT BASE SIGNAL BOX
907	674988.1086	631176.4563	1222.75	BM	SQUARE CUT IN CENTER HEADWALL
908	676245.1863	631118.5494	1208.33	BM	SQUARE CUT IN CENTER HEADWALL
909	677300.3613	631086.6378	1211.11	BM	SQUARE CUT IN CENTER HEADWALL
910	678497.5001	631026.1232	1207.45	BM	SQUARE CUT IN CENTER HEADWALL
911	679930.7831	631113.5174	1208.80	BM	SQUARE CUT IN BASE OF SIGNAL POLE
912	680866.7046	631668.6557	1206.19	BM	SQUARE CUT IN HEADWALL
913	682461.7692	632917.2938	1224.29	BM	SQUARE CUT IN WEST END RETAINING WALL
914	685356.933	633311.0009	1199.46	BM	ROD&CAP
915	686182.9998	633531.1751	1187.87	BM	SQUARE IN CENTER OF HEADWALL
916	672491.9407	630557.1009	1213.86	BM	AHTD CAP SOUTH EAST BRIDGE CORNER TOWN BRANCH BRHS20 1
917	667771.3232	628881.4155	1241.40	BM	SS ROD Q310 1989
918	667676.6441	630046.3618	1238.13	BM	BRASS DISK IN CONC J-27
1501	631284.3372	676970.0869	1216.265	CTL	CAP/REBAR LT 7' N. OF SAPLING IN CHURCHLAWN, 4' S. PAVED P. LOT LT OF MORNINGSIDE DR.
1502	631576.5634	677009.8321	1217.687	CTL	CAP/REBAR LT 9' N. OF PAVED DW"CHURCH", 18.5' W. OF 18" CMP LT OF MORNINGSIDE DR.
1503	631844.5153	677027.4025	1221.287	CTL	CAP/REBAR LT 10.7' W. OF MH LID, 13.7' SW OF 30" PLAS PIPE, RT SH OF CHESAPEAKE WAY
1504	630808.9697	680113.4229	1203.279	CTL	CAP/REBAR RT, ARMSTRONG AV 6.7' SE OF FH, 23' N. OF 10" REDOAK
1505	630574.9021	680441.9256	1200.738	CTL	CAP/REBAR LT, ARMSTRONG AV 21.7' SE. OF CHAINLINK FE COR., 42' SW END OF CHAINLINK FE.
1506	630312.0925	680500.6066	1200.691	CTL	CAP/REBAR RT, ARMSTRONG AV 15' NW. OF TB, 22.5' NW OF CABLE ROUTE
1507	631403.9998	680912.2331	1202.698	CTL	CAP/REBAR RT, HAPPY HOLLOW 12.7' N. OF PAVED P. LOT 40' E. OF LP
1508	631104.8690	680890.0101	1200.287	CTL	CAP/REBAR RT, HAPPY HOLLOW 2' E. OF PAVED P. LOT 38' NW OF CP W/GY
1509	630368.0548	680963.3726	1198.664	CTL	CAP/REBAR LT, HAPPY HOLLOW 35.5' SW OF SLICKBARK PINE 32' NW OF CON. POST
1510	633621.6487	683751.9646	1193.464	CTL	CAP/REBAR RT, HWY. 265N 26' SW OF GM, 39.6' NW OF TB RT DITCH HWY. 65N
1511	634639.2490	683685.2978	1228.879	CTL	CAP/REBAR LT, HWY. 265N 16.5' SE OF GM, 14' S. OF "E. SIDE CHURCH" SIGN LT HWY. 65N
1512	635877.9943	683956.6698	1262.554	CTL	CAP/REBAR RT, HWY. 265N 12' SE OF TRANS. LINE POLE 14' N. OF GR. DW

HWY 16

POINT NO.	TYPE	STATION	NORTHING	EASTING
8000	POB	500+00.00	631371.4815	671628.8015
8001	PC	527+42.66	631237.5770	674368.1937
8003	PT	528+57.30	631233.1258	674482.7456
8004	PI	529+99.91	631229.0145	674625.2928
8005	PI	550+00.17	631159.8616	676624.3588
8006	PI	572+00.16	631051.8825	678821.6937
8007	PC	579+20.84	631005.7726	679540.9004
8009	PT	582+68.96	631062.0577	679881.3978
8010	PC	589+67.97	631328.8885	680527.4703
8012	PT	597+98.58	631971.1098	680983.4151
8013	PC	607+52.34	632923.3888	681036.4306
8015	PT	612+15.88	633139.8168	681370.6382
8016	PC	614+57.59	633053.3531	681596.3492
8018	PT	622+80.41	632901.7499	682400.5933
8019	PI	630+00.39	632896.8496	683120.5632
8020	PC	632+35.65	632899.3543	683355.8019
8022	PT	636+83.70	632956.3945	683799.1753
8023	POE	666+12.37	633667.4656	686640.2092

HWY. 71B

POINT NO.	TYPE	STATION	NORTHING	EASTING
8500	POB	800+00.00	630963.3823	672539.3824
8501	PI	803+44.25	631301.0461	672606.3981
8502	POE	805+37.90	631494.3099	672618.6390

MORNINGSIDE DR.

POINT NO.	TYPE	STATION	NORTHING	EASTING
9000	POB	10+00.00	630800.9787	677017.7287
9001	POE	16+67.40	631467.9921	677040.3917

*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 0.999912612 HAS BEEN USED TO COMPUTE THE ABOVE COORDINATES.
THIS CAF IS INTENDED FOR USE WITHIN THE PROJECT LIMITS. GRID DISTANCE = GROUND DISTANCE X CAF. GRID COORDINATES ARE STORED UNDER FILE NAME. S040486GI.CTL
HORIZONTAL DATUM: NAD 83 (1997) VERTICAL DATUM: NAVD 88 REFERENCES POINTS (1500 SERIES) ARE TO BE USED TO ESTABLISH CONTROL.
IF THE PRIMARY CONTROL POINTS LISTED ABOVE HAVE BEEN DESTROYED.
REFERENCE POINTS HAVE BEEN ESTABLISHED BY RESECTION.
REFERENCE POINTS ARE NOT TO BE USED FOR VERTICAL CONTROL. BASIS OF BEARINGS: GRID BASED ON GPS CONTROL AT POINT NUMBER 12, ARKANSAS STATE PLANE GRID COORDINATES NORTH ZONE - 0301
NORTHING 632573.4086, EASTING 680986.4144, CONVERGENCE ANGLE 1°14'34.42806" LEFT GRID AZIMUTH = ASTRONOMICAL AZIMUTH - CONVERGENCE ANGLE.

RD38049 5/17/2020
R040579.DGN

SURVEY CONTROL DETAILS

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		040579	45	127

(2) SURVEY CONTROL DETAILS

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

Trinity Smith

May 21 2020 2:09 PM
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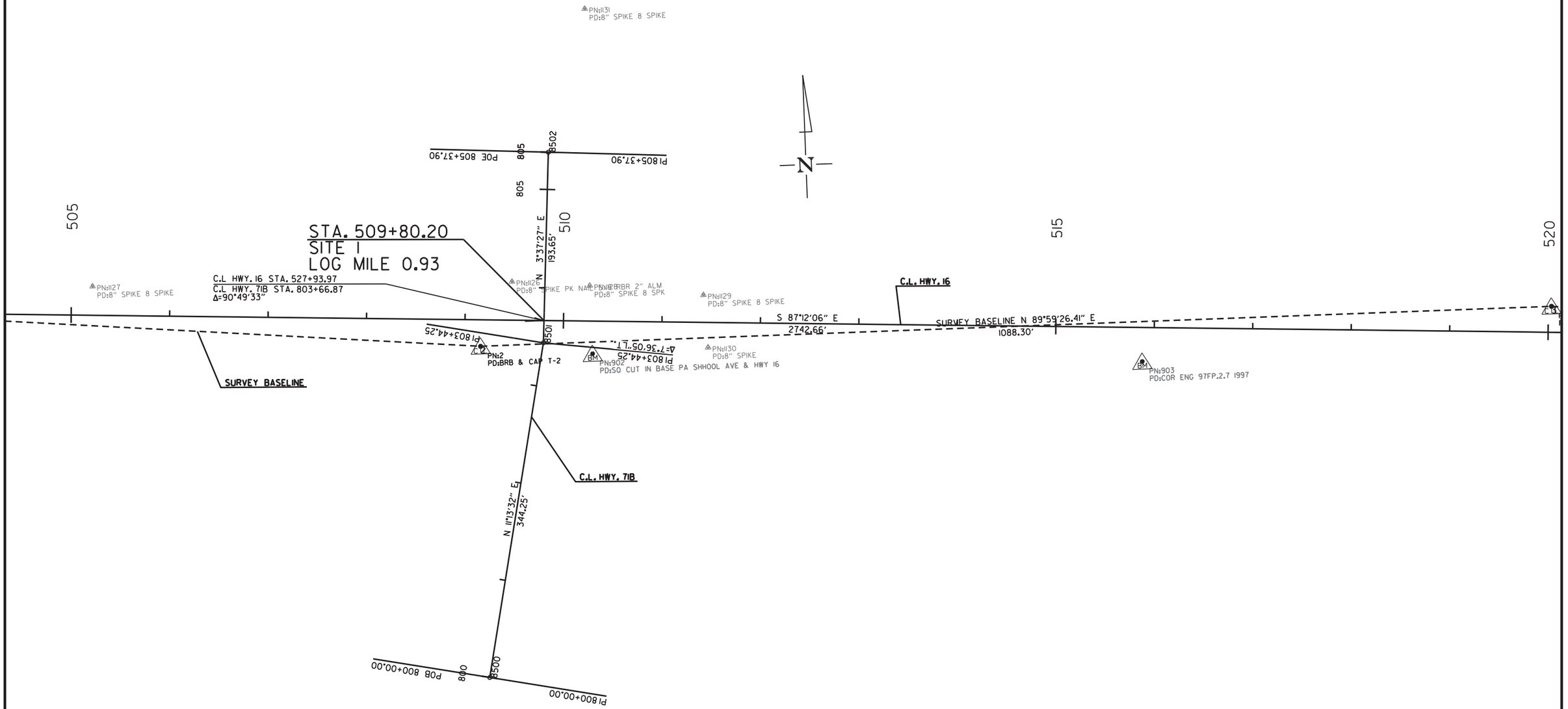

HWY. 16 - SITE I
SURVEY CONTROL DETAILS

RD38049 5/17/2020
R040579.DGN

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		040579	46	127

(2) SURVEY CONTROL DETAILS

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

May 21 2020 2:10 PM

HWY. 16
PI = 527+99.99
Δ = 1°08'47" LT.
D = 1°00'00"
T = 57.33'
L = 114.64'
PC = 527+42.66
PT = 582+57.30
NO SUPER ELEVATION

520 525 530 535

SURVEY BASELINE S 84°06'10.86" E
1005.74'

PN:3
PD:R&C

S 87°12'06" E
2742.66'

PC527+42.66

PN:1100
PD:8"SPIKE

S 87°12'06" E
57.32'

S 88°20'53" E
57.32'

PT528+57.30

8001

8003

S 88°20'53" E
142.61'

8004

C.L. HWY. 16

S 88°01'08" E
2000.26'

SURVEY BASELINE S 87°34'31.92" E
854.84'

PN:4
PD:RBR & CAP T-4

PN:1101
PD:8"SPIKE

PN:1102
PD:8"SPIKE

PN:1103
PD:8"SPIKE

PN:907
PD:SO CUT CENTER HW RT OF CL

SURVEY BASELINE

STA. 527+93.97
BEGIN SITE 2
LOG MILE 1.26

PN:904
PD:SO CUT IN HDWL

PI527+99.99

PI529+99.91
Δ=0°19'45"LT.

535 540 545 550

C.L. HWY. 16

S 88°01'08" E
2000.26'

SURVEY BASELINE S 87°34'31.92" E
854.84'

PN:5
PD:RBR & CAP T-5

SURVEY BASELINE

PN:1104
PD:8"SPIKE

PN:1105
PD:8"SPIKE

SURVEY BASELINE N 88°51'48.96" E
942.85'

PN:1106
PD:8"SPIKE

PN:1107
PD:8"SPIKE

PN:908
PD:SO CUT CENTER HW RT CL

SURVEY BASELINE S 84°22'55.63" E
951.69'

PN:6
PD:RBR & CAP T-6

8005

PI550+00.17

RD38049 5/17/2020
RO40579.DGN

HWY. 16 - SITE 2
SURVEY CONTROL DETAILS

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		040579	47	127

(2) SURVEY CONTROL DETAILS

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

Trinity Smith

May 21 2020 2:10 PM
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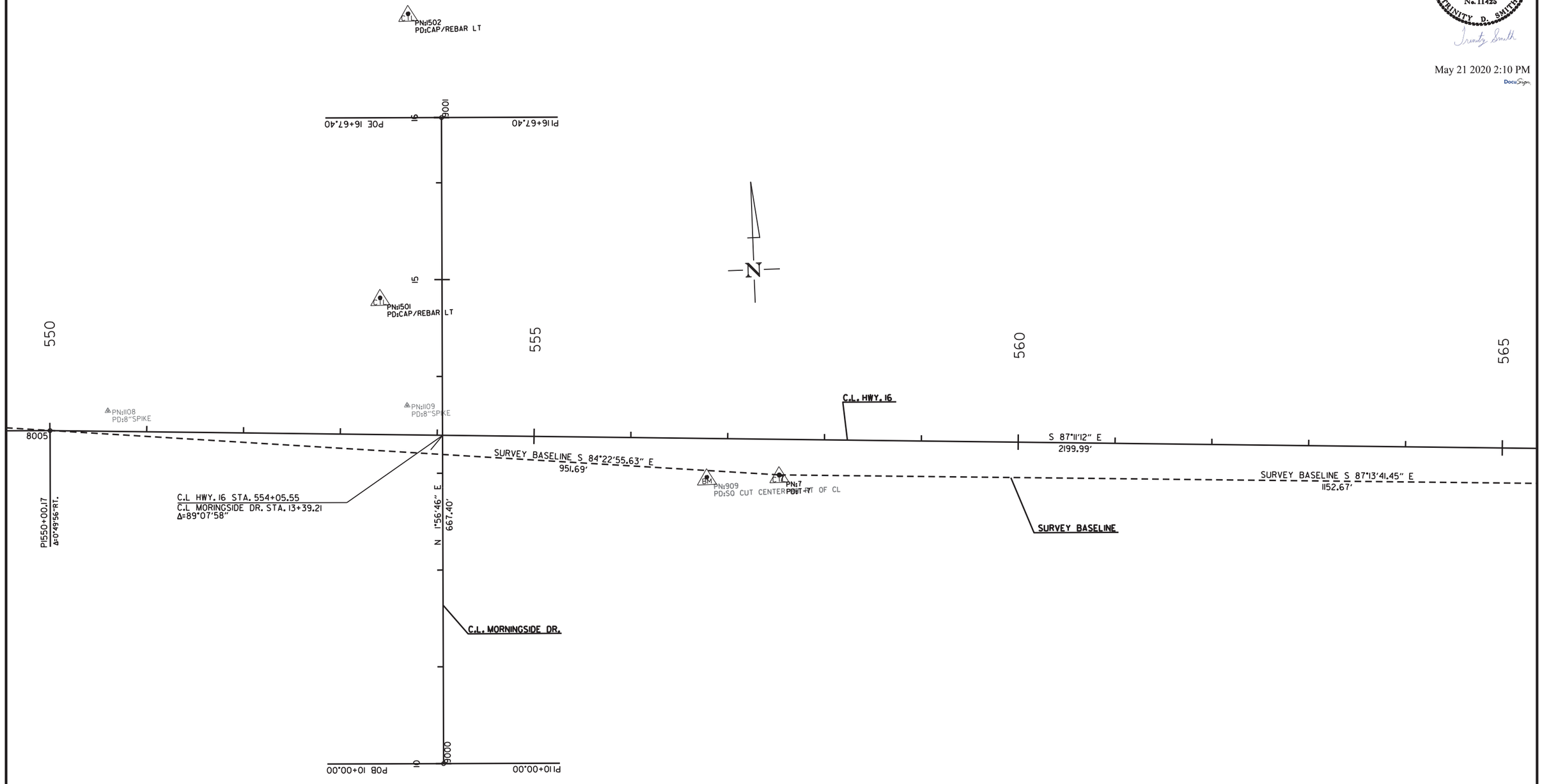

RD38049 5/17/2020
R040579.DGN

HWY. 16 - SITE 2
SURVEY CONTROL DETAILS

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		040579	48	127

(2) SURVEY CONTROL DETAILS

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

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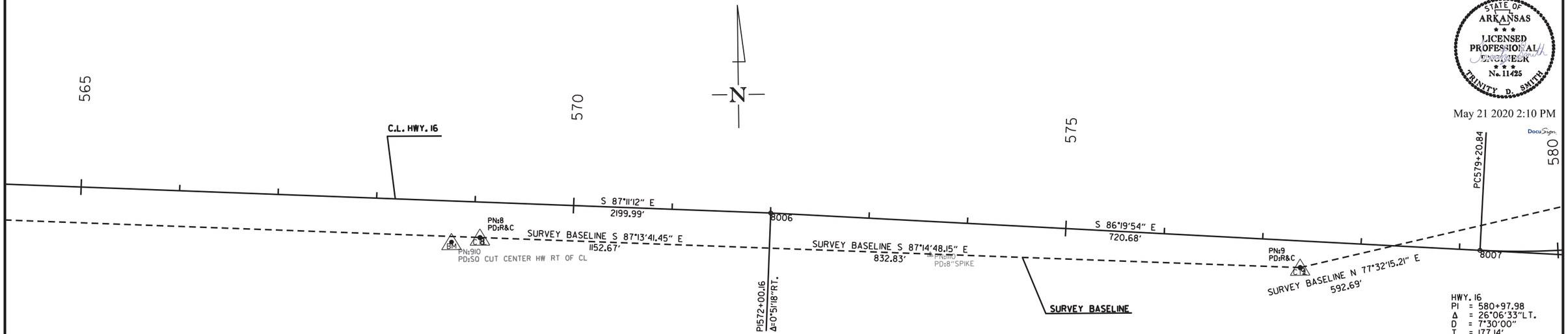

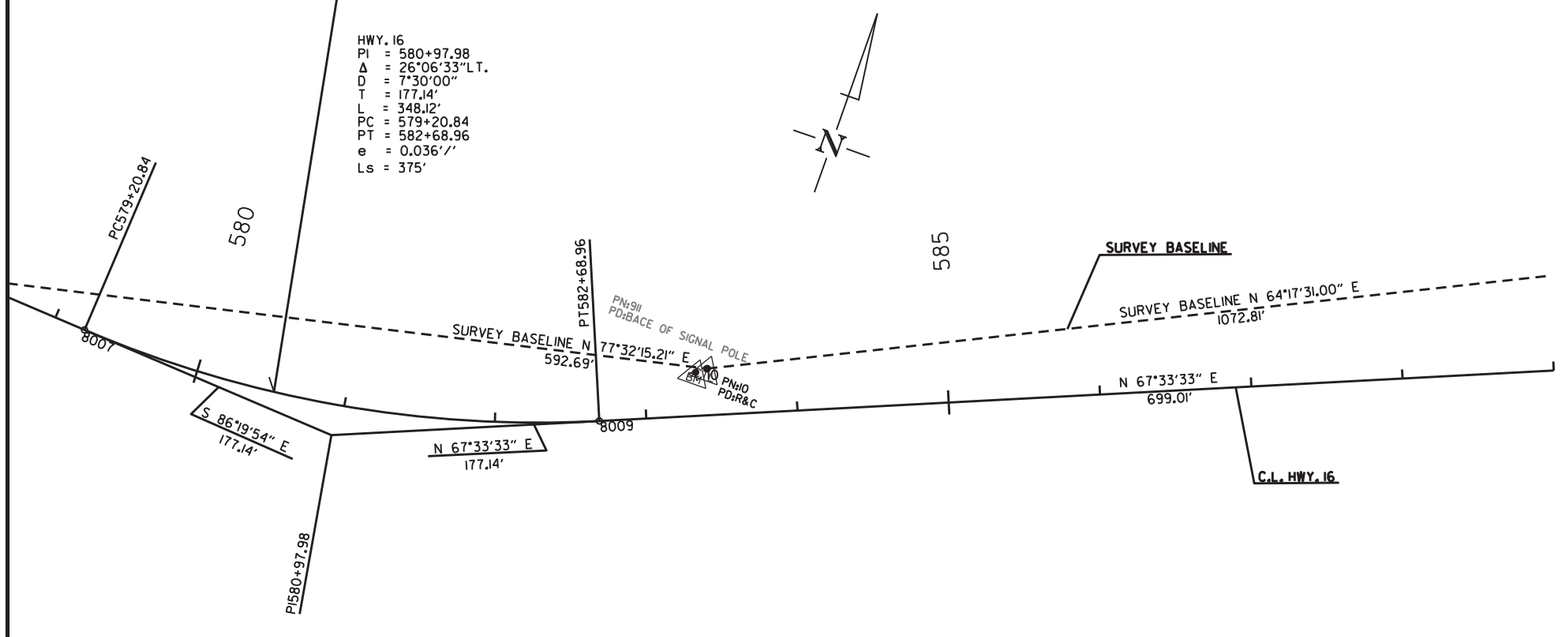

RD38049 5/17/2020
RO40579.DGN

HWY. 16 - SITE 2
SURVEY CONTROL DETAILS

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		040579	49	127

(2) SURVEY CONTROL DETAILS

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

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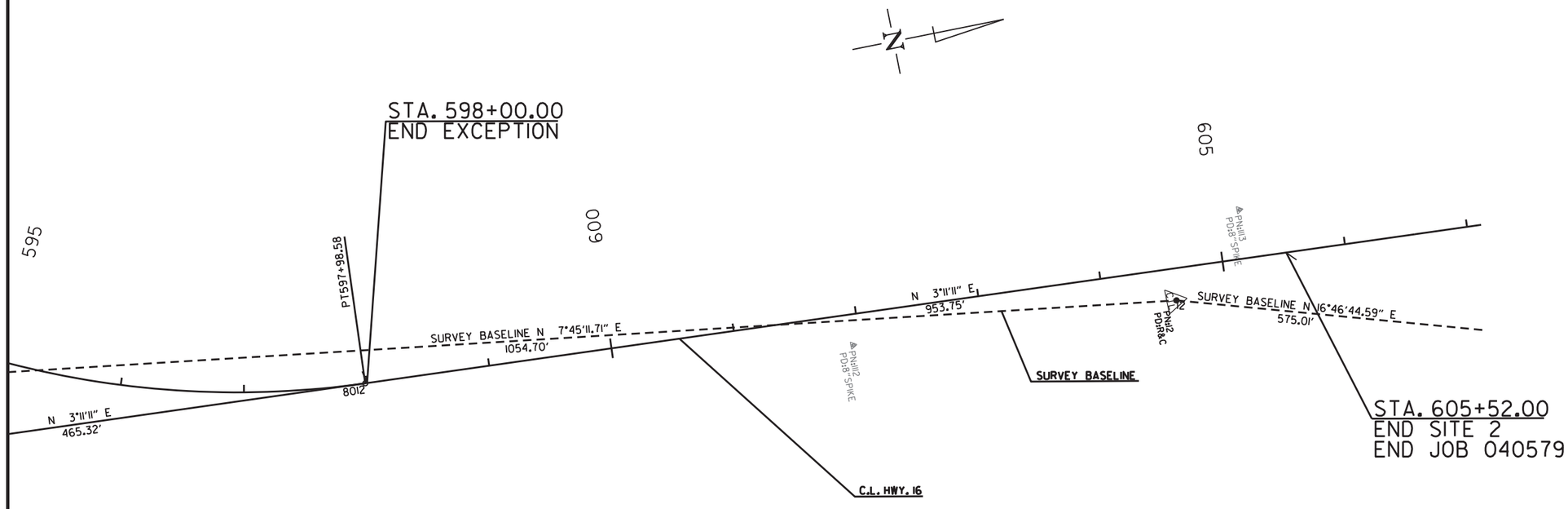

RD38049 5/17/2020
R040579.DGN

HWY. 16 - SITE 2
SURVEY CONTROL DETAILS

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		040579	50	127

(2) PLAN AND PROFILE SHEETS

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

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N

505

805

P0E805+37.90

CURB ISLAND WITH
TYPE B CURB FACE = 35 SQ. YD.

C.L HWY. 16 STA. 527+93.97
C.L HWY. 71B STA. 803+66.87
Δ=90°49'33"

EXISTING ROW.

S 87°12'06" E

N 3°37'27" E

510

CURB ISLAND WITH
TYPE B CURB FACE = 28 SQ. YD.

STA. 510+21 LT. CONSTRUCT
TYPE I WHEELCHAIR RAMP = 48 SQ YDS.

STA. 510+10 TO STA. 510+45 LT.
CURB AND GUTTER (TYPE A) = 62 LIN. FT.

SFHA BOUNDARY

SPECIAL FLOOD HAZARD AREA

515

SFHA BOUNDARY

P1803+44.25
Δ=7°36'05" LT.

EXISTING ROW.

PROPOSED ROW

STA. 509+99 TO STA. 510+74 RT.
CURB AND GUTTER (TYPE A) = 106 LIN. FT.

STA. 510+26 RT. CONSTRUCT
TYPE I WHEELCHAIR RAMP = 123 SQ YDS.

CURB ISLAND WITH
TYPE B CURB FACE = 92 SQ. YD.

STA. 802+32 CONSTRUCT
APPROACH ON RT.= 5 CU. YD. COMP. EMB.

CURB ISLAND WITH
TYPE B CURB FACE = 54 SQ. YD.

STA. 509+80.20
BEGIN JOB 040579
SITE I
LOG MILE 0.93

SFHA BOUNDARY

SPECIAL FLOOD HAZARD AREA

SFHA BOUNDARY

N 11°13'32" E

008

P0B800+00.00

SPECIAL FLOOD HAZARD AREA

SFHA BOUNDARY

SFHA BOUNDARY

DN42608 4/12/2020
R040579.DGN

HWY. 16 - SITE I

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		040579	51	127

(2) PLAN AND PROFILE SHEETS

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

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STA. 527+26 IN PLACE
18" x 58' R.C. PIPE CULVERT
WITH HDWLS. LT. & RT.
RETAIN

STA. 527+73 IN PLACE
24" x 56' R.C. PIPE CULVERT
WITH HDWLS. LT. & RT.
FILL AND ABANDON
FLOWABLE SELECT MATERIAL = 26 CU. YDS.

STA. 527+98 CONSTRUCT
DROP INLET ON LT. H= 4' 4"
WITH BACK OPENING AND
36" x 23" x 52' R.C. ARCH PIPE OUTLET
(CLASS III) (TYPE 3 BEDDING)
TO DROP INLET ON RT.
TYPE MO DROP INLET = 5' DIA.
TYPE C DROP INLET = 4' x 4'

STA. 528+85 CONSTRUCT
DROP INLET ON LT. H= 4' 6" WITH
BACK OPENING AND 30" x 82' PIPE
OUTLET TO DROP INLET ON LT.
TYPE MO DROP INLET = 5' DIA.
TYPE C DROP INLET = 4' x 4'
30" R.C. PIPE (CLASS III)
(TYPE 3 BEDDING) = 82 LIN. FT.
30" SLPPMCCS PIPE
(TYPE 2 BEDDING) = 82 LIN. FT.

STA. 530+27 CONSTRUCT
DROP INLET ON LT. H= 4' 2"
WITH BACK OPENING AND 30" x 137'
PIPE OUTLET TO DROP INLET ON LT.
TYPE MO DROP INLET = 5' DIA.
TYPE C DROP INLET = 4' x 4'
30" R.C. PIPE (CLASS III)
(TYPE 3 BEDDING) = 138 LIN. FT.
30" SLPPMCCS PIPE
(TYPE 2 BEDDING) = 138 LIN. FT.

STA. 530+80 IN PLACE
18'X50' CM PIPE CULVERT
LT. SIDE DRAIN REMOVE AND CONSTRUCT
TURN OUT ON LT. = 5 CU. YDS. COMP. EMB.
= 5 CU. YDS. UNCL. EXC.

STA. 530+99 CONSTRUCT
JUNCTION BOX ON LT. H= 3' 4"
WITH EXISTING PIPE INLET
30" x 48' PIPE OUTLET
TO DROP INLET ON LT.
TYPE E JUNCTION BOX = 2' x 4'
30" R.C. PIPE (CLASS III)
(TYPE 3 BEDDING) = 48 LIN. FT.
30" SLPPMCCS PIPE
(TYPE 2 BEDDING) = 48 LIN. FT.

STA. 531+40 CONSTRUCT
DROP INLET ON LT. H= 3' 8"
WITH 8' EXTENSION AND
30" x 108' R.C. PIPE OUTLET
(CLASS III) (TYPE 3 BEDDING)
TO DROP INLET STA. 530+27 ON LT.
30" x 53' PIPE OUTLET
TO DROP INLET STA. 531+98 ON LT.
TYPE MO DROP INLET = 5' DIA.
TYPE C DROP INLET = 4' x 4'
Q50 = 54 CFS D.A. = 13.31 ACRES
30" R.C. PIPE (CLASS III)
(TYPE 3 BEDDING) = 162 LIN. FT.
30" SLPPMCCS PIPE
(TYPE 2 BEDDING) = 54 LIN. FT.

STA. 531+98 CONSTRUCT
DROP INLET ON LT. H= 5' 9"
36" x 162' R.C. PIPE OUTLET
(CLASS III) (TYPE 3 BEDDING)
TO DROP INLET ON LT.
TYPE MO DROP INLET = 5' DIA.
TYPE C DROP INLET = 4' x 4'

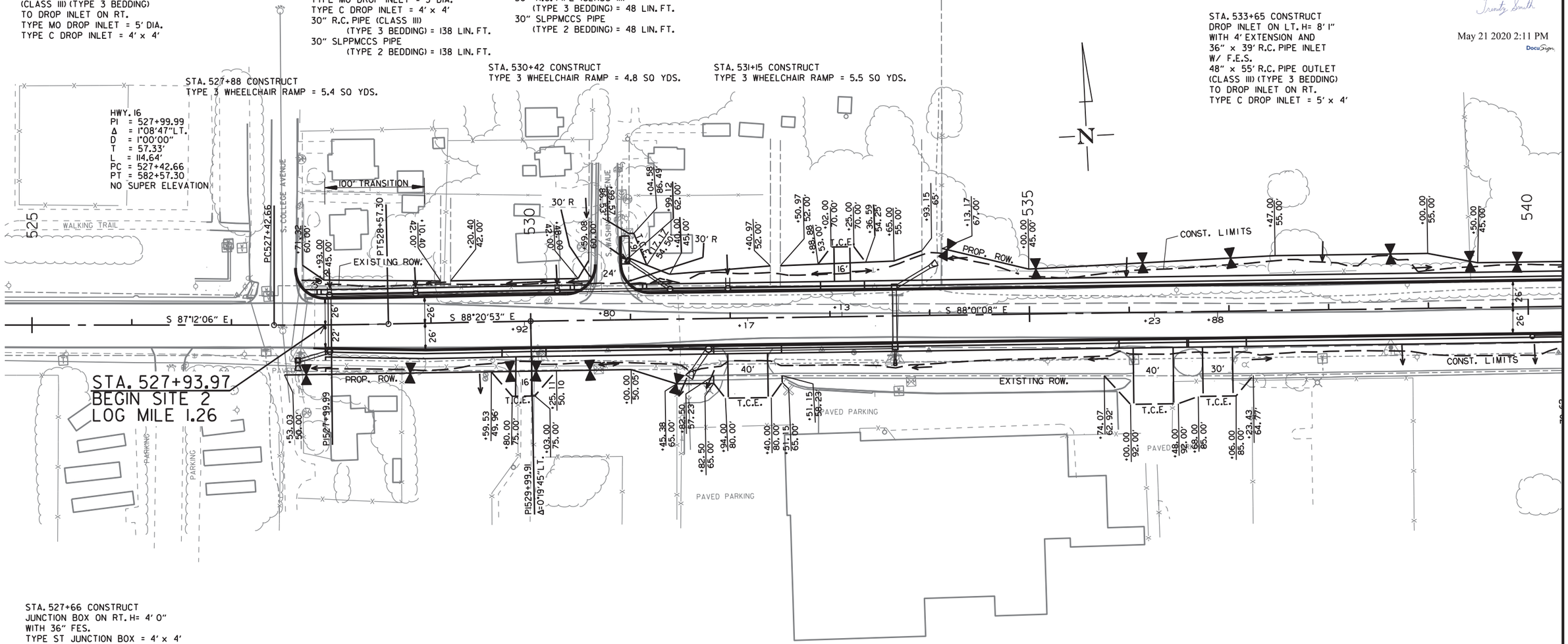
STA. 533+13 IN PLACE
18'X20' CM PIPE CULVERT
LT. SIDE DRAIN REMOVE AND CONSTRUCT
APPROACH = 55 CU. YD. COMP. EMB.

STA. 533+65 CONSTRUCT
DROP INLET ON LT. H= 8' 1"
WITH 4' EXTENSION AND
36" x 39' R.C. PIPE INLET
W/ F.E.S.
48" x 55' R.C. PIPE OUTLET
(CLASS III) (TYPE 3 BEDDING)
TO DROP INLET ON RT.
TYPE C DROP INLET = 5' x 4'

STA. 527+88 CONSTRUCT
TYPE 3 WHEELCHAIR RAMP = 5.4 SQ YDS.

STA. 530+42 CONSTRUCT
TYPE 3 WHEELCHAIR RAMP = 4.8 SQ YDS.

STA. 531+15 CONSTRUCT
TYPE 3 WHEELCHAIR RAMP = 5.5 SQ YDS.



STA. 527+66 CONSTRUCT
JUNCTION BOX ON RT. H= 4' 0"
WITH 36" FES.
TYPE ST JUNCTION BOX = 4' x 4'

STA. 527+98 CONSTRUCT
DROP INLET ON RT. H= 4' 8"
36" x 30' PIPE OUTLET
TO JUNCTION BOX ON RT.
TYPE MO DROP INLET = 5' DIA.
TYPE C DROP INLET = 4' x 4'
36" R.C. PIPE (CLASS III) (TYPE 3 BEDDING) = 30 LIN. FT.
36" SLPPMCCS PIPE (TYPE 2 BEDDING) = 30 LIN. FT.

STA. 529+92 IN PLACE
18" x 38' CM PIPE CULVERT
RT. SIDE DRAIN
REMOVE AND CONSTRUCT
APPROACH = 30 CU. YDS.
COMP. EMB.

STA. 531+40 CONSTRUCT
DROP INLET ON RT. H= 6' 11"
WITH 8' EXTENSION AND
18" x 33' PIPE OUTLET
TO DROP INLET ON RT.
TYPE MO DROP INLET = 4' DIA.
TYPE C DROP INLET = 4' x 4'
18" R.C. PIPE (CLASS III)
(TYPE 3 BEDDING) = 34 LIN. FT.
18" SLPPMCCS PIPE
(TYPE 2 BEDDING) = 34 LIN. FT.

STA. 531+78 CONSTRUCT
DROP INLET ON RT. H= 8' 0"
54" x 32' R.C. PIPE OUTLET
(CLASS III) (TYPE 3 BEDDING)
WITH FES.
TYPE MO DROP INLET = 6' DIA.
TYPE C DROP INLET = 6' x 6'

STA. 532+17 IN PLACE
30" x 54' R.C. PIPE CULVERT
RT. SIDE DRAIN
REMOVE AND CONSTRUCT
APPROACH = 140 CU. YDS.
COMP. EMB.

STA. 533+65 CONSTRUCT
DROP INLET ON RT. H= 8' 11"
WITH 4' EXTENSION AND
18" x 10' R.C. PIPE INLET
(CLASS III) (TYPE 3 BEDDING)
WITH FES. AND
54" x 182' R.C. PIPE OUTLET
TO DROP INLET ON LT.
TYPE C DROP INLET = 5' x 4'

STA. 536+23 CONSTRUCT
APPROACH ON RT. = 115 CU. YDS.
COMP. EMB.

STA. 536+88 CONSTRUCT
APPROACH ON RT. = 80 CU. YDS.
COMP. EMB.

DN42608 4/12/2020
R040579.DGN

HWY. 16 - SITE 2

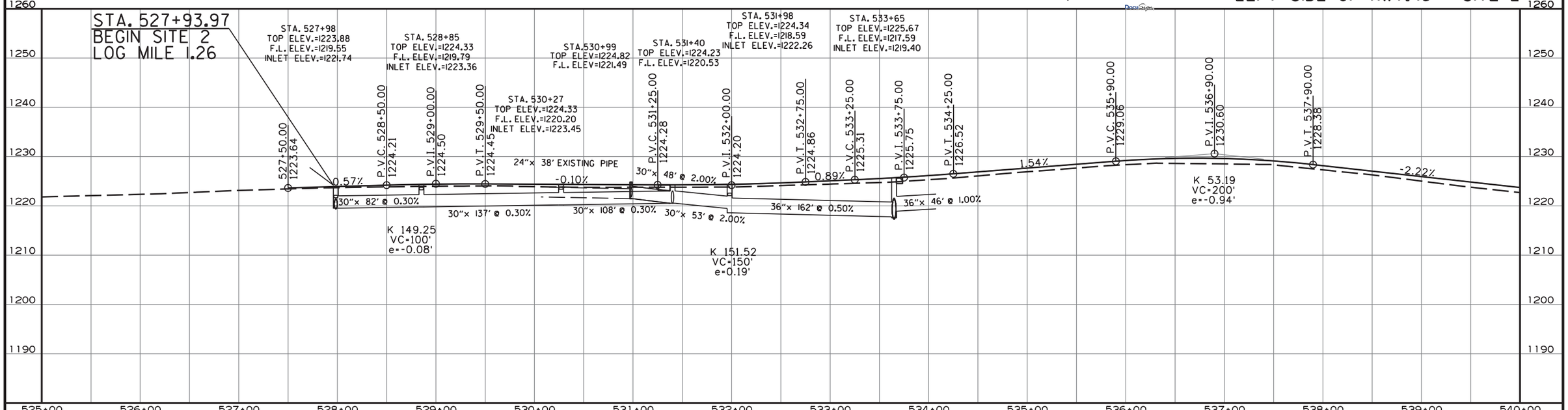
DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		040579	52	127

(2) PLAN AND PROFILE SHEETS

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

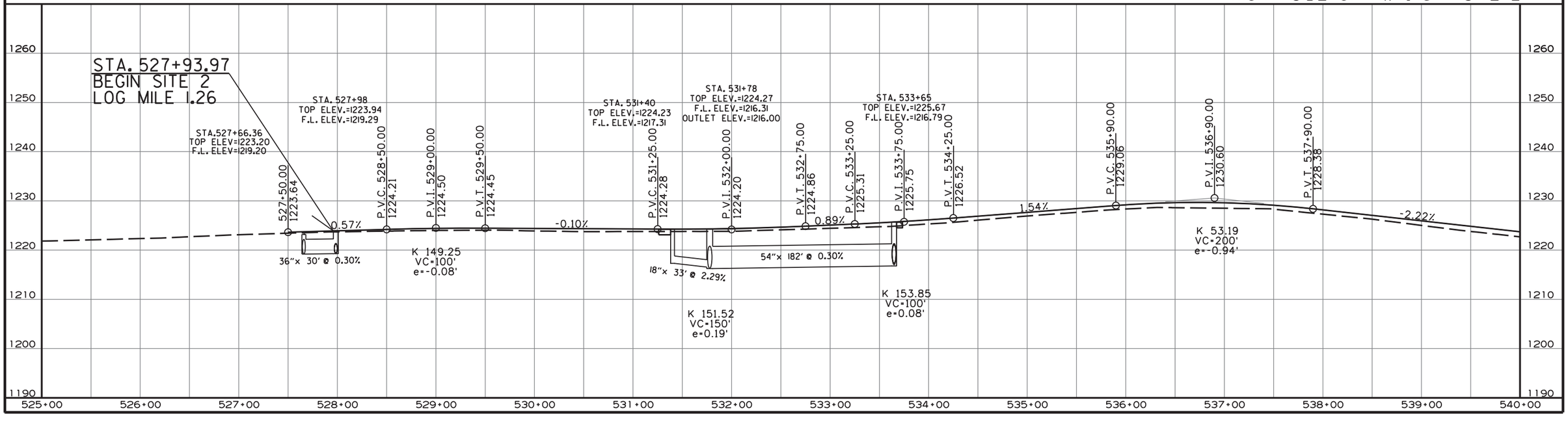
May 21 2020 2:11 PM

LEFT SIDE OF HWY. 16 - SITE 2



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

RIGHT SIDE OF HWY. 16 - SITE 2



4/12/2020

DN42608
R040579.DGN

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
06-12-2020				6	ARK.			
				JOB NO.		040579	53	127

(2) PLAN AND PROFILE SHEETS

STATE OF ARKANSAS
LICENSED PROFESSIONAL ENGINEER
No. 11425
TRINITY D. SMITH
Jun 19 2020 12:00 PM
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STA. 540+64 CONSTRUCT
DROP INLET ON LT. H= 3' 8"
WITH 8' EXTENSION AND
24" x 6' R.C. PIPE INLET
(CLASS III) (TYPE 3 BEDDING) AND
24" x 155' PIPE OUTLET
TO DROP INLET ON LT.
TYPE MO DROP INLET = 4' DIA.
TYPE C DROP INLET = 4' x 4'
24" R.C. PIPE (CLASS III)
(TYPE 3 BEDDING) = 162 LIN. FT.
24" SLPPMCCS PIPE
(TYPE 2 BEDDING) = 156 LIN. FT.

STA. 541+13 IN PLACE
18" x 31' CM PIPE CULVERT
LT. SIDE DRAIN
REMOVE AND CONSTRUCT
APPROACH = 50 CU. YDS.
COMP. EMB.

STA. 542+23 CONSTRUCT
DROP INLET ON LT. H= 4' 5"
WITH 4' EXTENSION AND
30" x 196' PIPE CULVERT
TO DROP INLET ON RT.
TYPE MO DROP INLET = 5' DIA.
TYPE C DROP INLET = 4' x 4'
30" R.C. PIPE (CLASS III)
(TYPE 3 BEDDING) = 196 LIN. FT.
30" SLPPMCCS PIPE
(TYPE 2 BEDDING) = 196 LIN. FT.

STA. 542+55 IN PLACE
18" x 32' RC PIPE CULVERT
LT. SIDE DRAIN
REMOVE AND CONSTRUCT
APPROACH = 30 CU. YDS.
COMP. EMB.

STA. 543+20
CONST. APRON

STA. 544+23 CONSTRUCT
DROP INLET ON LT. H= 4' 11"
WITH 4' EXTENSION AND
BACK OPENING
AND 30" x 194' PIPE CULVERT
TO DROP INLET ON LT.
TYPE MO DROP INLET = 5' DIA.
TYPE C DROP INLET = 4' x 4'
30" R.C. PIPE (CLASS III)
(TYPE 3 BEDDING) = 194 LIN. FT.
30" SLPPMCCS PIPE
(TYPE 2 BEDDING) = 194 LIN. FT.

STA. 544+78 IN PLACE
24" x 40' CM PIPE CULVERT
LT. SIDE DRAIN
REMOVE AND CONSTRUCT
APPROACH = 15 CU. YDS.
COMP. EMB.

STA. 546+23 CONSTRUCT
DROP INLET ON LT. H= 7' 0"
WITH 4' EXTENSION
ON TOP OF 8' x 6' R.C. BOX CULVERT
TYPE C DROP INLET = 4' x 4'
TYPE MO DROP INLET = 5' DIA.

STA. 546+23 IN PLACE
8' x 6' x 81' R.C. BOX CULVERT
WITH 3:1 WINGS LT. & RT.
RETAIN & EXTEND 30' LT. AND 4' RT.
AND CONSTRUCT
4' x 6' x 115' R.C. BOX CULVERT
WITH 3:1 WINGS LT. & RT.
Q50 = 850 CFS D.A. = 240 ACRES

STA. 546+89 CONSTRUCT
DROP INLET ON LT. H= 4' 0"
WITH 8' EXTENSION AND
30" x 60' PIPE OUTLET
TO DROP INLET ON LT.
TYPE MO DROP INLET = 5' DIA.
TYPE C DROP INLET = 4' x 4'
30" R.C. PIPE (CLASS III)
(TYPE 3 BEDDING) = 60 LIN. FT.
30" SLPPMCCS PIPE
(TYPE 2 BEDDING) = 60 LIN. FT.

STA. 547+57 IN PLACE
18" x 80' CM PIPE CULVERT
LT. SIDE DRAIN
REMOVE AND CONSTRUCT
APPROACH = 15 CU. YDS.
COMP. EMB.

STA. 547+93 CONSTRUCT
DROP INLET ON LT. H= 3' 11"
WITH 4' EXTENSION AND
24" x 100' PIPE OUTLET
TO DROP INLET ON LT.
TYPE MO DROP INLET = 4' DIA.
TYPE C DROP INLET = 4' x 4'
24" R.C. PIPE (CLASS III)
(TYPE 3 BEDDING) = 100 LIN. FT.
24" SLPPMCCS PIPE
(TYPE 2 BEDDING) = 100 LIN. FT.

STA. 549+71 CONSTRUCT
DROP INLET ON LT. H= 4' 8"
WITH BACK OPENING AND
24" x 174' R.C. PIPE OUTLET
(CLASS III) (TYPE 3 BEDDING)
TO DROP INLET ON LT.
TYPE MO DROP INLET = 4' DIA.
TYPE C DROP INLET = 4' x 4'

STA. 550+61 INSTALL
YARD DRAIN ON LT.
12" x 89' PIPE CULVERT
LT. SIDE DRAIN
TO DROP INLET ON LT.

STA. 550+78 CONSTRUCT
APPROACH ON LT. = 40 CU. YDS.
COMP. EMB.

STA. 550+94 INSTALL
YARD DRAIN ON LT.
12" x 32' PIPE CULVERT
LT. SIDE DRAIN
TO YARD DRAIN ON LT.

STA. 552+75 INSTALL
YARD DRAIN ON LT.
12" x 67' PIPE CULVERT
LT. SIDE DRAIN
TO DROP INLET ON LT.

STA. 552+91 IN PLACE
18" x 28' RC PIPE CULVERT
LT. SIDE DRAIN REMOVE AND
CONST. APPROCH = 5 C.Y.
COMP. EMB.

STA. 553+44 CONSTRUCT
DROP INLET ON LT. H= 4' 4"
WITH 4' EXTENSION AND
24" x 37' R.C. PIPE OUTLET
(CLASS III) (TYPE 2 BEDDING)
TO DROP INLET ON LT.
TYPE MO DROP INLET = 4' DIA.
TYPE C DROP INLET = 4' x 4'

STA. 553+81 CONSTRUCT
JUNCTION BOX ST ON LT. H= 5' 5"
36" x 44' R.C. PIPE OUTLET
(CLASS III) (TYPE 3 BEDDING)
TO JUNCTION BOX ON LT.
TYPE ST JUNCTION BOX = 4' x 4'

STA. 554+03 IN PLACE
DBL. 24" x 38' RC PIPE CULVERT
LT. SIDE DRAIN
REMOVE

STA. 14+20 CONSTRUCT
JUNCTION BOX ON LT.
24" x 40' R.C. PIPE OUTLET
TO JUNCTION BOX STA. 553+81 LT.
(CLASS III) (TYPE 3 BEDDING)
TYPE E JUNCTION BOX = 4' x 4'
HEIGHT AND LOCATION TO BE
DETERMINED IN THE FIELD

STA. 554+28 CONSTRUCT
JUNCTION BOX ST ON LT. H= 5' 9"
36" x 42' R.C. PIPE INLET WITH FES.
36" x 20' R.C. PIPE OUTLET
(CLASS III) (TYPE 3 BEDDING)
TO DROP INLET ON LT.
TYPE ST JUNCTION BOX = 4' x 4'

STA. 554+52 CONSTRUCT
DROP INLET ON LT. H= 5' 9"
WITH 4' EXTENSION AND
36" x 201' PIPE CULVERT
TO DROP INLET ON LT.
TYPE MO DROP INLET = 5' DIA.
TYPE C DROP INLET = 4' x 4'
36" R.C. PIPE (CLASS III)
(TYPE 3 BEDDING) = 202 LIN. FT.
36" SLPPMCCS PIPE
(TYPE 2 BEDDING) = 202 LIN. FT.

STA. 553+61 CONSTRUCT
TYPE 3 WHEELCHAIR RAMP = 3.3 SQ. YDS.

STA. 553+80 CONSTRUCT
TYPE 3 WHEELCHAIR RAMP = 4.5 SQ. YDS.

CONCRETE WALK (TYPE SPECIAL)
STA. 554+55 - STA. 556+50

STA. 554+29 CONSTRUCT
TYPE 3 WHEELCHAIR RAMP = 4.3 SQ. YDS.

STA. 554+40 CONSTRUCT
TYPE 3 WHEELCHAIR RAMP = 4.0 SQ. YDS.

STA. 555+51 IN PLACE
18" x 24' CM PIPE CULVERT
LT. SIDE DRAIN
REMOVE

P0E16+67.40

C.L HWY. 16 STA. 554+05.55
C.L MORNINGSIDE DR. STA. 13+39.21
Δ=89°07'58"

CONST. LIMITS

PROP. ROW.
EXISTING ROW.

PAVED PARKING

SPECIAL FLOOD HAZARD AREA

SFHA BOUNDARY

T.C.E.

S 88°01'08" E

S 87°11'12" E

N 56°46'E

S. MORNINGSIDE DRIVE

160' TAPER

P0B10+00.00

STA. 540+04 CONSTRUCT
DROP INLET ON RT. H= 3' 8"
WITH 4' EXTENSION AND
18" x 196' PIPE CULVERT
TO DROP INLET ON RT.
TYPE MO DROP INLET = 4' DIA.
TYPE C DROP INLET = 4' x 4'
18" R.C. PIPE (CLASS III)
(TYPE 3 BEDDING) = 196 LIN. FT.
18" SLPPMCCS PIPE
(TYPE 2 BEDDING) = 196 LIN. FT.

STA. 540+85 CONSTRUCT
APPROACH ON RT. = 45 CU. YDS.
COMP. EMB.

STA. 542+04 CONSTRUCT
DROP INLET ON RT. H= 4' 1"
WITH 4' EXTENSION AND
18" x 7' R.C. PIPE INLET
(CLASS III) (TYPE 3 BEDDING)
WITH FES. AND
18" x 58' R.C. PIPE OUTLET
(CLASS III) (TYPE 3 BEDDING)
TO DROP INLET ON LT.
TYPE MO DROP INLET = 4' DIA.
TYPE C DROP INLET = 4' x 4'

STA. 542+31 IN PLACE
18" x 40' CM PIPE CULVERT
RT. SIDE DRAIN
REMOVE AND CONSTRUCT
APPROACH = 55 CU. YDS.
COMP. EMB.

STA. 544+23 CONSTRUCT
DROP INLET ON RT. H= 4' 1"
WITH 4' EXTENSION AND
18" x 8' R.C. PIPE INLET
(CLASS III) (TYPE 3 BEDDING)
WITH FES. AND
18" x 55' R.C. PIPE OUTLET
(CLASS III) (TYPE 3 BEDDING)
TO DROP INLET ON LT.
TYPE MO DROP INLET = 4' DIA.
TYPE C DROP INLET = 4' x 4'

STA. 544+62 IN PLACE
18" x 24' CM PIPE CULVERT
RT. SIDE DRAIN
REMOVE AND CONSTRUCT
APPROACH = 45 CU. YDS.
COMP. EMB.

STA. 546+23 CONSTRUCT
DROP INLET ON RT. H= 7' 5"
WITH 4' EXTENSION
ON TOP OF 8' x 6' R.C. BOX
TYPE C DROP INLET = 4' x 4'
TYPE MO DROP INLET = 5' DIA

STA. 546+83 CONSTRUCT
DROP INLET ON RT. H= 5' 8"
WITH 8' EXTENSION AND
18" X 58' PIPE OUTLET
CONNECTED TO DI 546+23
TYPE MO DROP INLET = 5' DIA.
TYPE C DROP INLET = 4' x 4'

STA. 547+52 CONSTRUCT
DROP INLET ON RT. H= 5' 2"
WITH 4' EXTENSION AND
30" x 64' PIPE OUTLET
TO DROP INLET ON RT.
TYPE MO DROP INLET = 5' DIA.
TYPE C DROP INLET = 4' x 4'
30" R.C. PIPE (CLASS III)
(TYPE 3 BEDDING) = 64 LIN. FT.
30" SLPPMCCS PIPE
(TYPE 2 BEDDING) = 64 LIN. FT.

STA. 548+37 IN PLACE
24" x 48' CM PIPE CULVERT
RT. SIDE DRAIN
REMOVE AND CONSTRUCT
APPROACH = 55 CU. YDS.
COMP. EMB.

STA. 12+35 CONSTRUCT
DROP INLET ON LT. H= 2' 9"
18" x 64' R.C. PIPE OUTLET
(CLASS III) (TYPE 3 BEDDING)
WITH FES
TYPE MO DROP INLET = 4' DIA.
TYPE C DROP INLET = 4' x 4'

STA. 549+71 CONSTRUCT
DROP INLET ON RT. H= 5' 9"
30" x 214' PIPE OUTLET
TO DROP INLET ON RT. AND
18" x 7' R.C. PIPE INLET
(CLASS III) (TYPE 3 BEDDING)
WITH FES.
TYPE MO DROP INLET = 4' DIA.
TYPE C DROP INLET = 4' x 4'
24" R.C. PIPE (CLASS III)
(TYPE 3 BEDDING) = 214 LIN. FT.
24" SLPPMCCS PIPE
(TYPE 2 BEDDING) = 222 LIN. FT.

STA. 550+86 IN PLACE
18" x 60' RC PIPE CULVERT
RT. SIDE DRAIN
REMOVE AND CONSTRUCT
APPROACH = 55 CU. YDS.
COMP. EMB.

STA. 553+58 CONSTRUCT
TYPE 3 WHEELCHAIR RAMP=4.3 SQ. YDS.

STA. 553+66 CONSTRUCT
TYPE 3 WHEELCHAIR RAMP=4.5 SQ. YDS.

STA. 12+56 CONSTRUCT
DROP INLET ON RT. H= 2' 11"
18" x 23' R.C. PIPE CULVERT
(CLASS III) (TYPE 3 BEDDING)
WITH FES.
TYPE MO DROP INLET = 4' DIA.
TYPE C DROP INLET = 4' x 4'

STA. 553+15 CONSTRUCT
DROP INLET ON RT. H= 3' 1"
WITH 4' EXTENSION AND
18" x 96' PIPE OUTLET
TO DROP INLET ON RT.
TYPE MO DROP INLET = 4' DIA.
TYPE C DROP INLET = 4' x 4'
18" R.C. PIPE (CLASS III)
(TYPE 3 BEDDING) = 96 LIN. FT.
18" SLPPMCCS PIPE
(TYPE 2 BEDDING) = 96 LIN. FT.

STA. 11+95 CONSTRUCT
APPROACH ON LT. = 5 CU. YDS.
COMP. EMB.

STA. 554+33 CONSTRUCT
TYPE 3 WHEELCHAIR RAMP=4.3 SQ. YDS.

STA. 554+40 CONSTRUCT
TYPE 3 WHEELCHAIR RAMP = 4.5 SQ. YDS.

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HWY. 16 - SITE 2

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		040579	54	127

(2) PLAN AND PROFILE SHEETS

STATE OF ARKANSAS
LICENSED PROFESSIONAL ENGINEER
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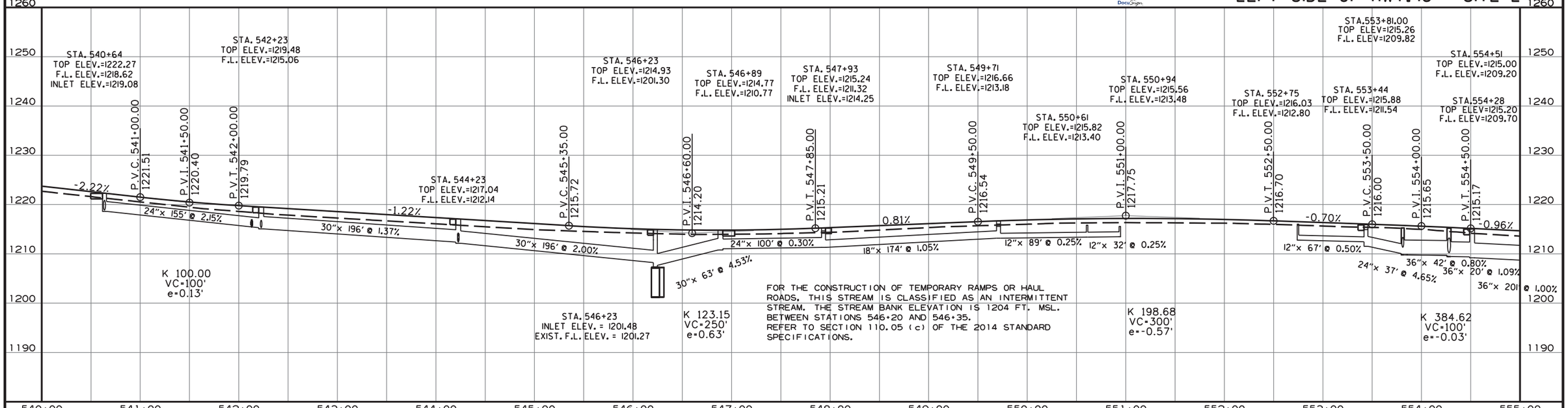
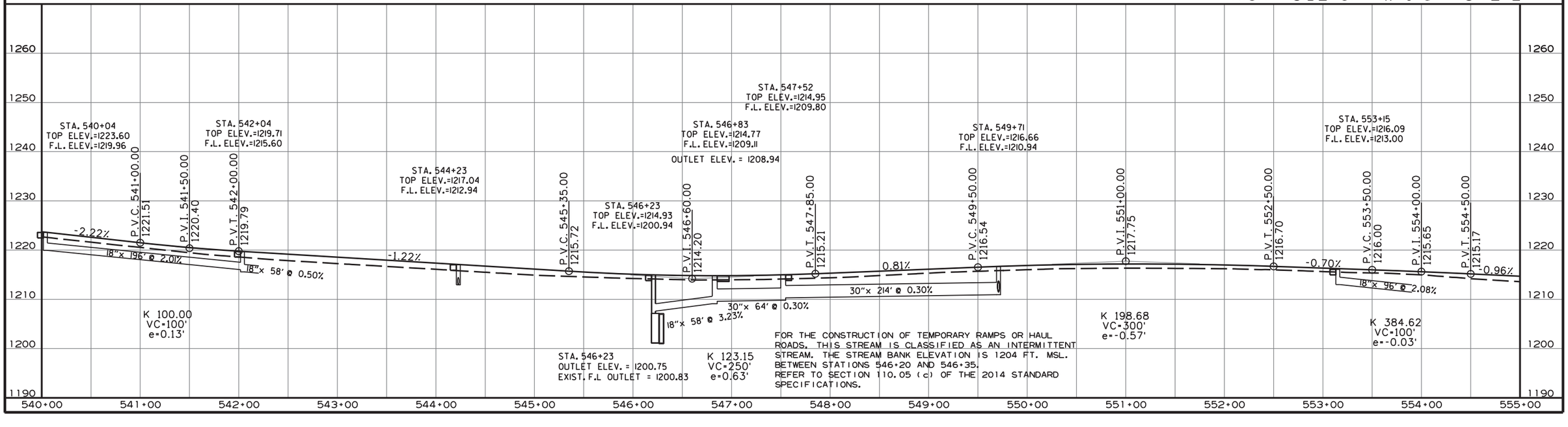
LEFT SIDE OF HWY. 16 - SITE 2



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

RIGHT SIDE OF HWY. 16 - SITE 2



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				JOB NO.		040579	55	127

(2) PLAN AND PROFILE SHEETS

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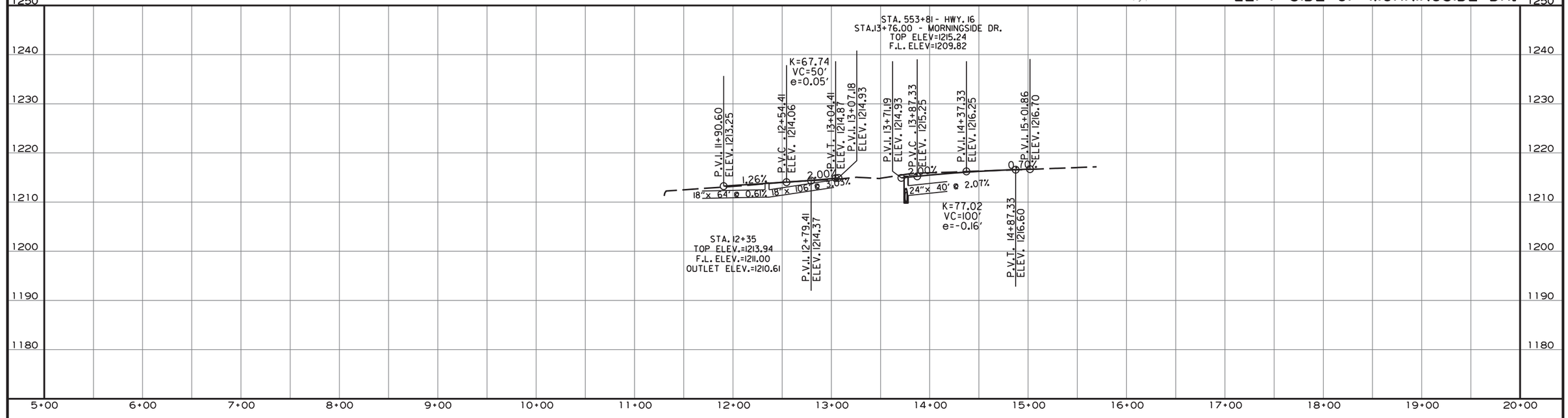
LEFT SIDE OF MORNINGSIDE DR.



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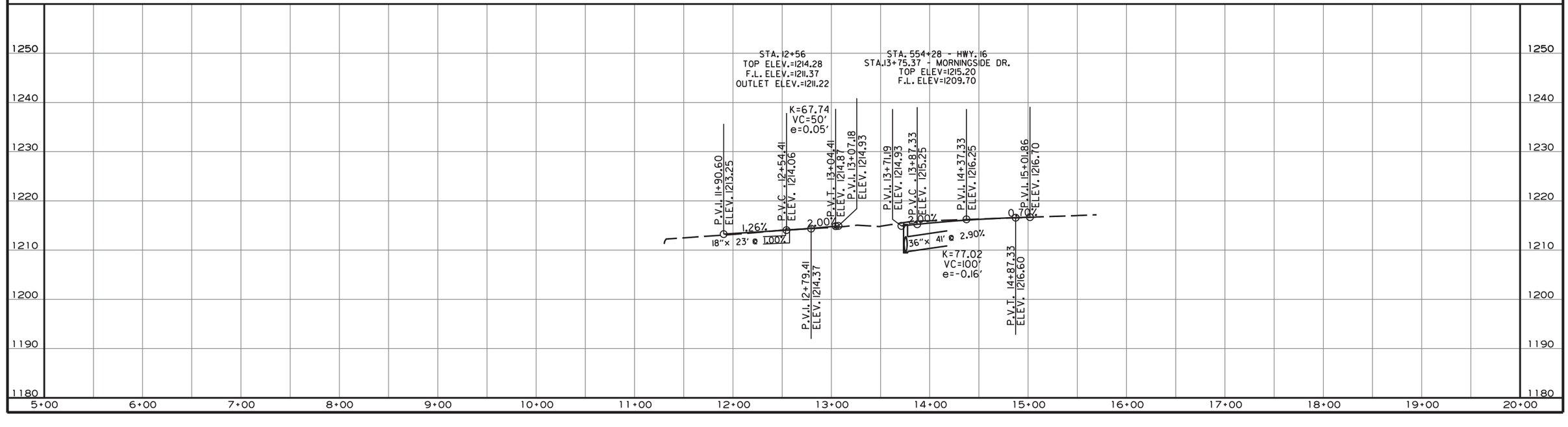

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DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
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(2) PLAN AND PROFILE SHEETS

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STA. 556+57 CONSTRUCT
DROP INLET ON LT. H= 6' 3"
WITH 4' EXTENSION AND
36" x 17' PIPE OUTLET
TO R.C. BOX CULVERT ON LT.
TYPE MO DROP INLET = 5' DIA.
TYPE C DROP INLET = 4' x 4'
36" R.C. PIPE (CLASS III)
(TYPE 3 BEDDING) = 18 LIN. FT.
36" SLPPMCCS PIPE
(TYPE 2 BEDDING) = 18 LIN. FT.

STA. 556+79 IN PLACE
4' x 4' x 54' R.C. BOX CULVERT
WITH 31 WINGS LT. & RT.
RETAIN & EXTEND 31' LT. AND 6' RT.
050 = 190 CFS D.A. = 50 ACRES

STA. 557+00 CONSTRUCT
DROP INLET ON LT. H= 7' 3"
WITH TWO 4' EXTENSIONS AND
48" x 10' R.C. PIPE INLET WITH FES
AND 48" x 56' R.C. PIPE OUTLET
AND 18" x 16' R.C. PIPE OUTLET
TO R.C. BOX CULVERT ON LT.
(CLASS III) (TYPE 3 BEDDING)
TO DROP INLET ON RT.
TYPE MO DROP INLET = 6' DIA.
TYPE C DROP INLET = 5' x 4'
050 = 190 CFS D.A. = 50 ACRES

CONCRETE WALK (TYPE SPECIAL)
STA. 557+20 - STA. 558+34

STA. 558+22 CONSTRUCT
TYPE 3 WHEELCHAIR RAMP = 5.4 SQ. YDS.

STA. 557+50 CONSTRUCT
DROP INLET ON LT. H= 3' 8"
18" x 45' PIPE OUTLET
TO DROP INLET ON LT.
TYPE C DROP INLET = 4' x 3'
18" R.C. PIPE (CLASS III)
(TYPE 3 BEDDING) = 46 LIN. FT.
18" SLPPMCCS PIPE
(TYPE 2 BEDDING) = 46 LIN. FT.

STA 558+59 CONST.
APPROCH ON RT. = 10 CU. YDS.
COMP. EMB.

STA. 561+42 CONSTRUCT
DROP INLET ON LT. H= 5' 0"
WITH BACK OPENING
30" x 55' R.C. PIPE OUTLET
(CLASS III) (TYPE 3 BEDDING)
TO DROP INLET ON RT.
TYPE C DROP INLET = 4' x 3'

CONCRETE WALK (TYPE SPECIAL)
STA. 558+84 - STA. 561+49

STA. 558+96 CONSTRUCT
TYPE 3 WHEELCHAIR RAMP = 5.4 SQ. YDS.

STA. 561+62 IN PLACE
18" x 24' CM PIPE CULVERT
LT. SIDE DRAIN
REMOVE AND CONSTRUCT
APPROACH ON LT. = 5 CY. YDS.
COMP. EMB.

STA. 562+88 CONSTRUCT
APPROACH ON LT. =
15 CU. YDS. CUT
5 CU. YDS COMP. EMB.

STA. 564+42 CONSTRUCT
DROP INLET ON LT. H= 4' 6"
WITH 4' EXTENSION AND
18" x 55' R.C. PIPE OUTLET
(CLASS III) (TYPE 3 BEDDING)
TO DROP INLET ON RT.
TYPE MO DROP INLET = 4' DIA.
TYPE C DROP INLET = 4' x 4'

CONCRETE WALK (TYPE SPECIAL)
STA. 561+93 - STA. 562+66

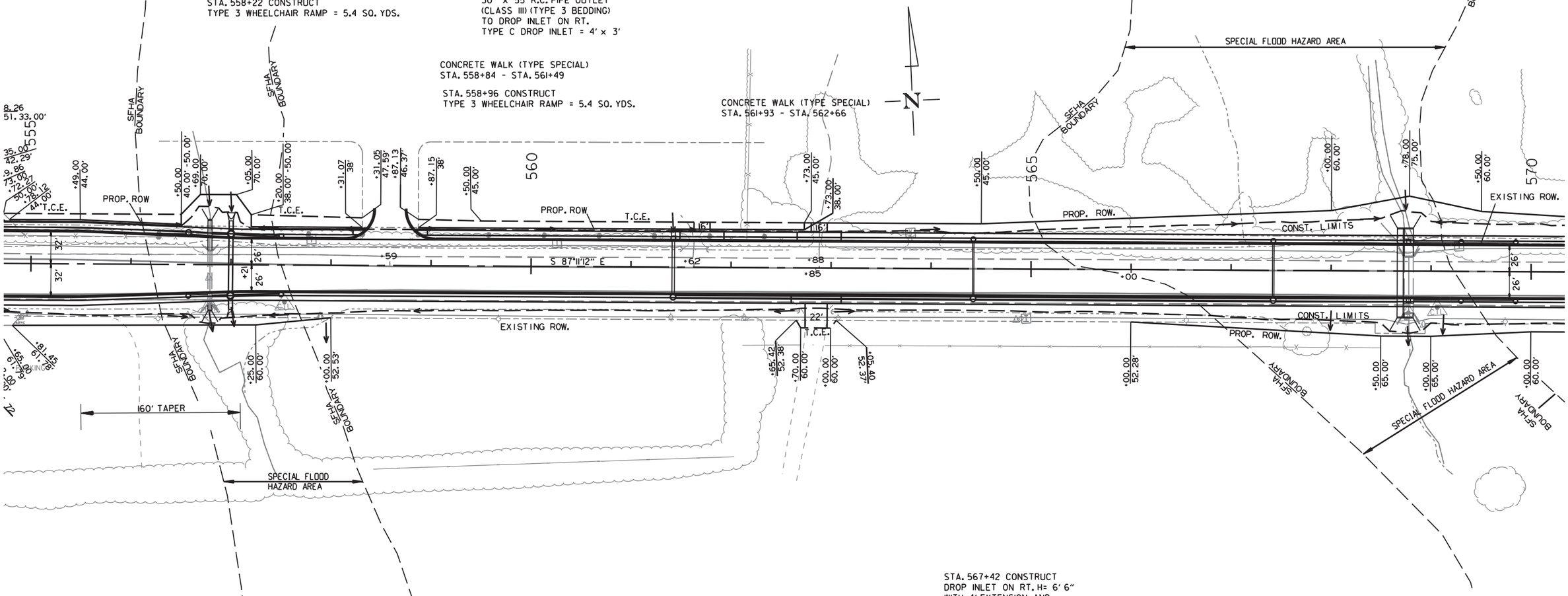
STA. 567+42 CONSTRUCT
DROP INLET ON LT. H= 5' 0"
WITH 4' EXTENSION AND
18" x 55' R.C. PIPE OUTLET
(CLASS III) (TYPE 3 BEDDING)
TO DROP INLET ON RT.
TYPE MO DROP INLET = 4' DIA.
TYPE C DROP INLET = 4' x 4'

STA. 568+78 IN PLACE
9' x 5' x 57' R.C. BOX CULVERT
WITH 31 WINGS LT. & RT.
RETAIN & EXTEND 28' LT. AND 5' RT.
ADD 6' x 5' x 90' R.C. BARREL
050 = 510 CFS D.A. = 144 ACRES

STA. 568+78 CONSTRUCT
DROP INLET ON LT. H= 2' 9"
ON TOP OF R.C. BOX CULVERT
TYPE C DROP INLET = 4' x 4'
TYPE MO DROP INLET = 4 DIA.

STA. 569+30 CONSTRUCT
DROP INLET ON LT. H= 3' 11"
WITH 8' EXTENSION AND
18" x 46' PIPE OUTLET
TO R.C. BOX CULVERT ON LT.
TYPE MO DROP INLET = 4' DIA.
TYPE C DROP INLET = 4' x 4'
18" R.C. PIPE (CLASS III)
(TYPE 3 BEDDING) = 46 LIN. FT.
18" SLPPMCCS PIPE
(TYPE 2 BEDDING) = 46 LIN. FT.

STA. 569+85 CONSTRUCT
DROP INLET ON LT. H= 3' 8"
18" x 51' PIPE CULVERT
TO DROP INLET ON LT.
TYPE MO DROP INLET = 4' DIA.
TYPE C DROP INLET = 4' x 4'
18" R.C. PIPE (CLASS III)
(TYPE 3 BEDDING) = 52 LIN. FT.
18" SLPPMCCS PIPE
(TYPE 2 BEDDING) = 52 LIN. FT.



STA. 556+57 CONSTRUCT
DROP INLET ON RT. H= 4' 2"
WITH 4' EXTENSION AND
18" x 18' PIPE OUTLET
TO 4' x 4' R.C. BOX CULVERT ON RT.
TYPE MO DROP INLET = 4' DIA.
TYPE C DROP INLET = 4' x 4'
18" R.C. PIPE (CLASS III)
(TYPE 3 BEDDING) = 18 LIN. FT.
18" SLPPMCCS PIPE
(TYPE 2 BEDDING) = 18 LIN. FT.

STA. 557+00 CONSTRUCT
DROP INLET ON RT. H= 7' 6"
WITH TWO 4' EXTENSIONS AND
48" x 12' R.C. PIPE OUTLET
(CLASS III) (TYPE 3 BEDDING)
WITH FES.
AND 18" X 16' PIPE INLET
FROM R.C. BOX CULVERT ON RT.
TYPE MO DROP INLET = 6' DIA.
TYPE C DROP INLET = 5' x 4'

STA. 557+50 CONSTRUCT
DROP INLET ON RT. H= 4' 2"
18" x 46' PIPE OUTLET
TO DROP INLET ON RT.
TYPE MO DROP INLET = 4' DIA.
TYPE C DROP INLET = 4' x 4'
18" R.C. PIPE (CLASS III)
(TYPE 3 BEDDING) = 46 LIN. FT.
18" SLPPMCCS PIPE
(TYPE 2 BEDDING) = 46 LIN. FT.

STA. 561+42 CONSTRUCT
DROP INLET ON RT. H= 5' 10"
36" x 295' PIPE OUTLET
TO DROP INLET ON RT.
TYPE MO DROP INLET = 5' DIA.
TYPE C DROP INLET = 4' x 4'
36" R.C. PIPE (CLASS III)
(TYPE 3 BEDDING) = 296 LIN. FT.
36" SLPPMCCS PIPE
(TYPE 2 BEDDING) = 296 LIN. FT.

STA. 562+85 CONSTRUCT
APPROACH ON RT. = 25 CU. YDS.
COMP. EMB.

STA. 564+42 CONSTRUCT
DROP INLET ON RT. H= 6' 0"
WITH 4' EXTENSION AND
36" x 295' PIPE OUTLET
TO DROP INLET ON RT.
TYPE MO DROP INLET = 5' DIA.
TYPE C DROP INLET = 4' x 4'
36" R.C. PIPE (CLASS III)
(TYPE 3 BEDDING) = 296 LIN. FT.
36" SLPPMCCS PIPE
(TYPE 2 BEDDING) = 296 LIN. FT.

STA. 567+42 CONSTRUCT
DROP INLET ON RT. H= 6' 6"
WITH 4' EXTENSION AND
36" x 122' PIPE OUTLET
TO R.C. BOX ON RT.
TYPE MO DROP INLET = 5' DIA.
TYPE C DROP INLET = 4' x 4'
36" R.C. PIPE (CLASS III)
(TYPE 3 BEDDING) = 122 LIN. FT.
36" SLPPMCCS PIPE
(TYPE 2 BEDDING) = 122 LIN. FT.

STA. 568+78 CONSTRUCT
DROP INLET ON LT. H= 3' 6"
ON TOP OF R.C. BOX CULVERT
TYPE C DROP INLET = 4' x 4'
TYPE MO DROP INLET= 4 DIA.

STA. 569+30 CONSTRUCT
DROP INLET ON RT. H= 3' 11"
WITH 8' EXTENSION AND
18" x 46' PIPE OUTLET
TO R.C. BOX CULVERT ON RT.
TYPE MO DROP INLET = 4' DIA.
TYPE C DROP INLET = 4' x 4'
18" R.C. PIPE (CLASS III)
(TYPE 3 BEDDING) = 46 LIN. FT.
18" SLPPMCCS PIPE
(TYPE 2 BEDDING) = 46 LIN. FT.

STA. 569+85 CONSTRUCT
DROP INLET ON RT. H= 3' 8"
18" x 51' PIPE CULVERT
TO DROP INLET ON RT.
TYPE MO DROP INLET = 4' DIA.
TYPE C DROP INLET = 4' x 4'
18" R.C. PIPE (CLASS III)
(TYPE 3 BEDDING) = 52 LIN. FT.
18" SLPPMCCS PIPE
(TYPE 2 BEDDING) = 52 LIN. FT.

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				6	ARK.			
				JOB NO.		040579	57	127

(2) PLAN AND PROFILE SHEETS

STATE OF ARKANSAS
LICENSED PROFESSIONAL ENGINEER
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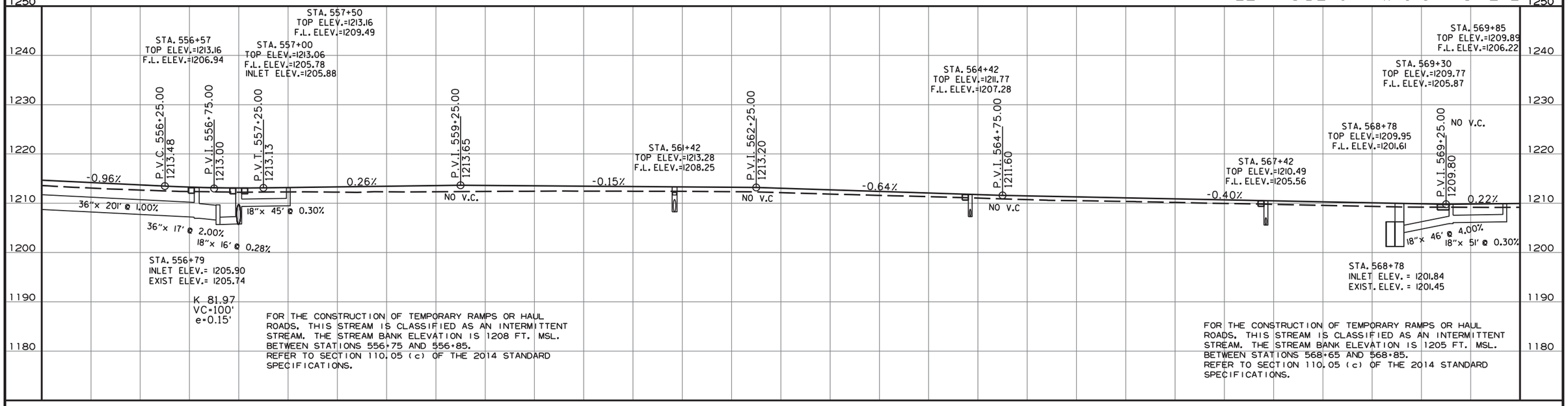
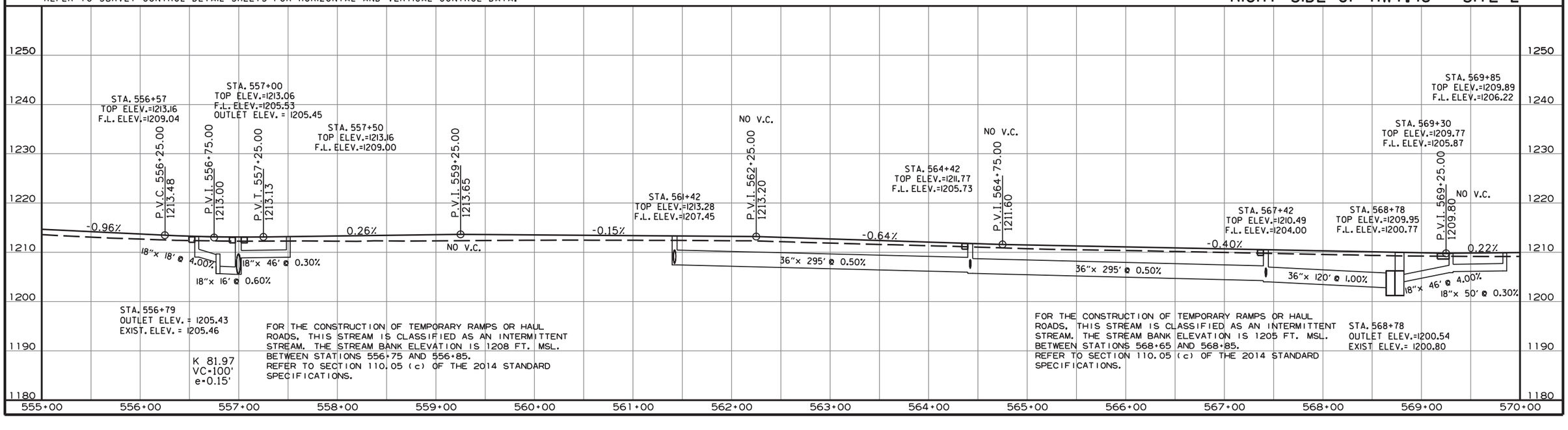
LEFT SIDE OF HWY. 16 - SITE 2



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

RIGHT SIDE OF HWY. 16 - SITE 2



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STA. 571+89 IN PLACE
24" x 65' R.C. PIPE CULVERT
WITH HDWLS. LT. & RT.
REMOVE AND CONSTRUCT
TRI. 44" x 27" x 88' R.C. ARCH PIPE
(CLASS III) (TYPE 3 BEDDING) WITH
FES LT. & RT.
050 = 310 CFS D.A. = 87 ACRES

STA. 572+42 CONSTRUCT
APPROACH ON LT. = 50 CU. YDS.
COMP. EMB.

STA. 574+59 CONSTRUCT
DROP INLET ON LT. H= 4' 2"
18" x 55' R.C. PIPE OUTLET
(CLASS III) (TYPE 3 BEDDING)
TO DROP INLET ON RT.
TYPE MO DROP INLET = 4' DIA.
TYPE C DROP INLET = 4' x 4'

STA. 575+38 CONSTRUCT
DROP INLET ON LT. H= 3' 2"
WITH 8' EXTENSION AND
18" x 76' PIPE OUTLET
TO DROP INLET ON LT.
TYPE MO DROP INLET = 4' DIA.
TYPE C DROP INLET = 4' x 4'
18" R.C. PIPE (CLASS III)
(TYPE 3 BEDDING) = 76 LIN. FT.
18" SLPPMCCS PIPE
(TYPE 2 BEDDING) = 76 LIN. FT.

STA. 574+22 INSTALL
24" x 18" x 228' ARCH PIPE CULVERT
LT. SIDE DRAIN
CONSTRUCT APPROACH LT. = 140 CU. YDs.
COMP. EMB.

STA. 576+05 CONSTRUCT
DROP INLET ON LT. H= 2' 7"
18" x 63' PIPE OUTLET
TO DROP INLET ON LT.
TYPE MO DROP INLET = 4' DIA.
TYPE C DROP INLET = 4' x 4'
18" R.C. PIPE (CLASS III)
(TYPE 3 BEDDING) = 64 LIN. FT.
18" SLPPMCCS PIPE
(TYPE 2 BEDDING) = 64 LIN. FT.

STA. 576+35 IN PLACE
DBL 30" x 61' R.C. PIPE CULVERT
WITH HDWL. ON THE LT.
RETAIN AND EXTEND R.C. PIPE
14' LT. AND CONSTRUCT HEADWALL
(CLASS III) (TYPE 3 BEDDING) WITH
050 = 48 CFS D.A. = 11 ACRES
30" R.C. PIPE = 62 LIN.FT.

STA. 577+61 INSTALL
24" x 18" x 160' ARCH PIPE CULVERT
LT. SIDE DRAIN
CONSTRUCT APPROACH LT. = 80 CU. YDS.
COMP. EMB.

STA. 580+05 CONSTRUCT
DROP INLET ON LT. H= 2' 11"
WITH 4' EXTENSION AND
18" x 65' PIPE OUTLET
TO EXIST. DROP INLET ON LT.
TYPE MO DROP INLET = 4' DIA.
TYPE C DROP INLET = 4' x 4'
18" R.C. PIPE (CLASS III)
(TYPE 3 BEDDING) = 66 LIN. FT.
18" SLPPMCCS PIPE
(TYPE 2 BEDDING) = 66 LIN. FT.

CONCRETE WALK (TYPE SPECIAL)
STA. 573+85 - STA. 574+02

CONCRETE WALK (TYPE SPECIAL)
STA. 577+95 - STA. 578+18

HWY. 16
PI = 580+97.98
Δ = 26°06'33"LT.
D = 7°30'00"
T = 177.14'
L = 348.12'
PC = 579+20.84
PT = 582+68.96
e = 0.036'/'
Ls = 375'

STA. 580+50.00
BEGIN EXCEPTION

STA. 573+00 CONSTRUCT
JUNCTION BOX ON RT. H= 5' 8"
18" x 16' R.C. PIPE CULVERT
(CLASS III) (TYPE 3 BEDDING)
WITH FES.
TYPE E JUNCTION BOX = 4' x 4'

STA. 574+59 CONSTRUCT
DROP INLET ON RT. H= 4' 4"
18" x 155' PIPE OUTLET
TO DROP INLET ON RT.
TYPE MO DROP INLET = 4' DIA.
TYPE C DROP INLET = 4' x 4'
18" R.C. PIPE (CLASS III)
(TYPE 3 BEDDING) = 156 LIN. FT.
18" SLPPMCCS PIPE
(TYPE 2 BEDDING) = 156 LIN. FT.

STA. 575+38 CONSTRUCT
DROP INLET ON RT. H= 3' 7"
WITH 8' EXTENSION AND
18" x 76' PIPE OUTLET
TO DROP INLET ON RT.
TYPE MO DROP INLET = 4' DIA.
TYPE C DROP INLET = 4' x 4'
18" R.C. PIPE (CLASS III)
(TYPE 3 BEDDING) = 76 LIN. FT.
18" SLPPMCCS PIPE
(TYPE 2 BEDDING) = 76 LIN. FT.

STA. 575+74 CONSTRUCT
APPROACH ON RT. = 70 CU. YDS.
COMP. EMB.

STA. 576+05 CONSTRUCT
DROP INLET ON RT. H= 3' 1"
18" x 63" PIPE OUTLET
TO DROP INLET ON RT.
TYPE MO DROP INLET = 4' DIA.
TYPE C DROP INLET = 4' x 4'
18" R.C. PIPE (CLASS III)
(TYPE 3 BEDDING) = 64 LIN. FT.
18" SLPPMCCS PIPE
(TYPE 2 BEDDING) = 64 LIN. FT.

STA. 576+35 IN PLACE
11' x 4' JUNCTION BOX ON RT.
RETAIN AND MODIFY TO
TYPE E JUNCTION BOX = 1EACH
WITH 4' x 4" BACK OPENING

STA. 579+86 CONSTRUCT
APPROACH ON RT. = 80 CU. YDS.
COMP. EMB.

HWY. 16 - SITE 2

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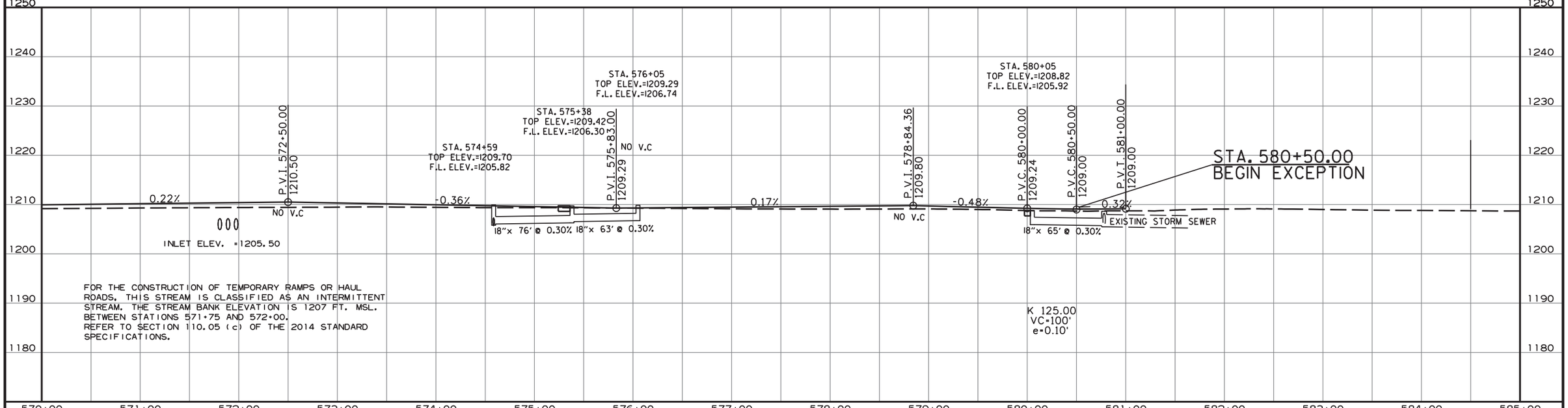
STA. 575+83.34 BEGIN SUPERELEVATION
STA. 580+33.34 MAX. SUPERELEVATION (0.036 FT./FT.)
STA. 580+50.00 MAX. SUPERELEVATION (0.036 FT./FT.)

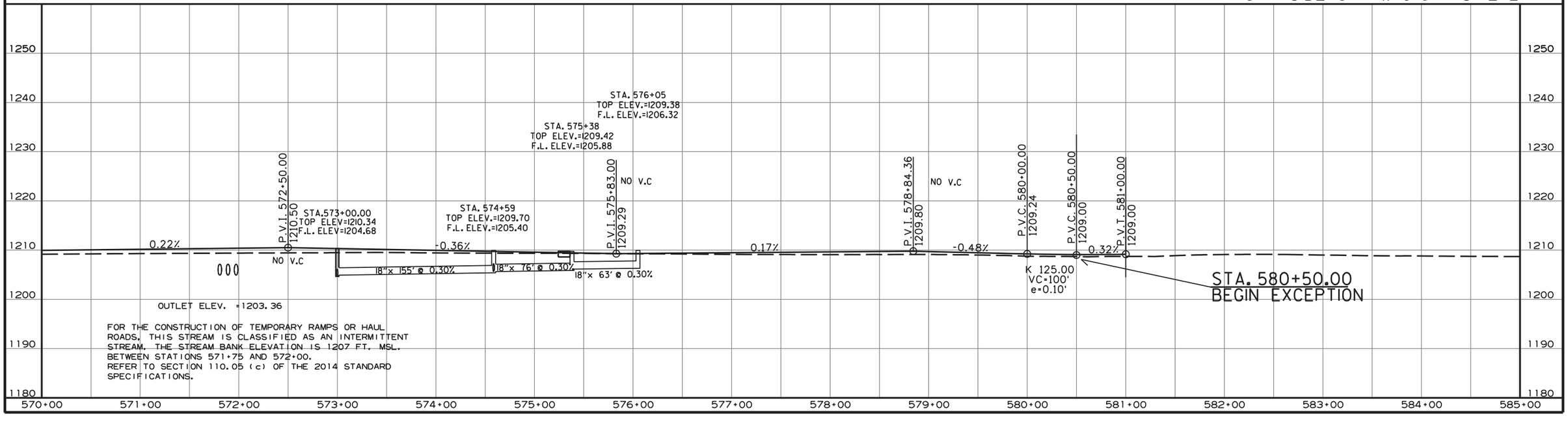
LEFT SIDE OF HWY. 16 - SITE 2



FOR THE CONSTRUCTION OF TEMPORARY RAMPS OR HAUL ROADS, THIS STREAM IS CLASSIFIED AS AN INTERMITTENT STREAM. THE STREAM BANK ELEVATION IS 1207 FT. MSL. BETWEEN STATIONS 571+75 AND 572+00. REFER TO SECTION 110.05 (c) OF THE 2014 STANDARD SPECIFICATIONS.

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

RIGHT SIDE OF HWY. 16 - SITE 2



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DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED

FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
6	ARK.			
JOB NO.		040579	60	127

(2) PLAN AND PROFILE SHEETS

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

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STA. 598+50 IN PLACE
DROP INLET LT. 29.5'
RETAIN

STA. 598+97 IN PLACE
18"X 100' CM PIPE CULVERT ON LT. DRAIN REMOVE AND CONSTRUCT APPROCH = 45 CU. YD.
COMP. EMB.

STA. 599+35 CONSTRUCT
DROP INLET ON LT. H= 4' 2"
WITH OPENING IN BACK
24" x 82' PIPE CULVERT
TO DROP INLET ON LT.
TYPE MO DROP INLET = 4' DIA.
TYPE C DROP INLET = 4' x 4'
24" R.C. PIPE (CLASS III)
(TYPE 3 BEDDING) = 82 LIN. FT.
24" SLPPMCCS PIPE
(TYPE 2 BEDDING) = 82 LIN. FT.

STA. 599+73 IN PLACE
18" x 40' CM PIPE CULVERT
LT. SIDE DRAIN
REMOVE AND CONSTRUCT
APPROACH = 10 CU. YDS.
COMP. EMB.

STA. 600+45 CONSTRUCT
APPROACH ON LT. = 10 CU. YDS.
COMP. EMB.

STA. 601+36 CONSTRUCT
APPROACH ON LT. = 5 CU. YDS.
5 CU. YDS. CUT

STA. 602+42 CONSTRUCT
APPROACH ON LT. = 5 CU. YDS. CUT

STA. 603+00 CONSTRUCT
DROP INLET ON LT. H= 3' 7"
WITH 8' EXTENSION AND
18" x 140' PIPE CULVERT
TO DROP INLET ON LT.
TYPE MO DROP INLET = 4' DIA.
TYPE C DROP INLET = 4' x 4'
18" R.C. PIPE (CLASS III)
(TYPE 3 BEDDING) = 140 LIN. FT.
18" SLPPMCCS PIPE
(TYPE 2 BEDDING) = 140 LIN. FT.

STA. 603+54 CONSTRUCT
APPROACH ON LT. = 15 CU. YDS. CUT

STA. 604+19 CONSTRUCT
APPROACH ON LT. = 5 CU. YD. CUT

STA. 604+44 CONSTRUCT
DROP INLET ON LT. H= 3' 1"
WITH BACK OPENING AND 4' EXTENSION AND 18" x 37' R.C. PIPE CULVERT
(CLASS III) (TYPE 3 BEDDING)
TO EXISTING DROP INLET ON LT.
TYPE MO DROP INLET = 4' DIA.
TYPE C DROP INLET = 4' x 4'

STA. 604+65 CONSTRUCT
TYPE 3 WHEELCHAIR RAMP = 5.4 SQ. YDS.

STA. 604+84 IN PLACE
DROP INLET 27' LT.
MODIFY TO TYPE ST
JUNCTION BOX = 1EACH

STA. 604+85 CONSTRUCT
DROP INLET 64' LT. H= 3' 8"
18" x 28' R.C. PIPE CULVERT
(CLASS III) (TYPE 3 BEDDING)
TO STA. 605+18 DROP INLET 64' LT.
TYPE MO DROP INLET = 4' DIA.
TYPE C DROP INLET = 4' x 4'

STA. 605+00
CONSTRUCT TURN OUT ON LT. = 5 CU. YD.
COMP. EMB.

STA. 605+18 CONSTRUCT
DROP INLET 64' LT. H= 4' 0"
WITH EXISTING 18" CM PIPE INLET AND
18" x 32' R.C. PIPE CULVERT
(CLASS III) (TYPE 3 BEDDING)
TO STA. 605+20 EXISTING DROP INLET 27' LT.
TYPE MO DROP INLET = 6' DIA.
TYPE C DROP INLET = 4' x 4'

STA. 605+20 IN PLACE
DROP INLET 27' LT.
MODIFY TO TYPE ST
JUNCTION BOX = 1EACH

STA. 605+25 CONSTRUCT
TYPE 3 WHEELCHAIR RAMP = 4.7 SQ. YDS.

HWY. 16
PI = 594+33.28
Δ = 64°22'22"LT.
D = 7°45'00"
T = 465.31'
L = 830.61'
PC = 589+67.97
PT = 597+98.58
e = 0.036'/'
Ls = 375'

STA. 598+00.00
END EXCEPTION

STA. 605+52.00
END SITE 2
END JOB 040579

STA. 604+77 CONSTRUCT
TYPE 3 WHEELCHAIR RAMP = 4.4 SQ. YDS.

STA. 605+20 CONSTRUCT
TYPE 3 WHEELCHAIR RAMP = 4.3 SQ. YDS.

HWY. 16
PI = 610+90.12
Δ = 107°46'26.30"RT.
D = 23°15'00.00"
T = 337.78'
L = 463.54'
PC = 607+52.34
PT = 612+15.88
NO SUPERELEVATION

STA. 598+32 CONSTRUCT
APPROACH ON RT. = 140 CU. YDS.
COMP. EMB.

STA. 599+35 CONSTRUCT
DROP INLET ON RT. H= 3' 5"
18" x 56' R.C. PIPE CULVERT
(CLASS III) (TYPE 3 BEDDING)
TO DROP INLET ON LT.
TYPE MO DROP INLET = 4' DIA.
TYPE C DROP INLET = 4' x 4'

STA. 600+72 CONSTRUCT
APPROACH ON RT. = 95 CU. YDS.
COMP. EMB.

STA. 601+95 CONSTRUCT
APPROACH ON RT. = 55 CU. YDS.
COMP. EMB.

STA. 602+60 CONSTRUCT
DROP INLET ON RT. H= 5' 7"
18" x 184' PIPE CULVERT
TO DROP INLET ON RT.
TYPE MO DROP INLET = 4' DIA.
TYPE C DROP INLET = 4' x 4'
18" R.C. PIPE (CLASS III)
(TYPE 3 BEDDING) = 184 LIN. FT.
18" SLPPMCCS PIPE
(TYPE 2 BEDDING) = 184 LIN. FT.

STA. 602+98 CONSTRUCT
APPROACH ON RT. = 5 CU. YDS.
COMP. EMB.

STA. 604+44 CONSTRUCT
DROP INLET ON RT. H= 5' 2"
18" x 117' R.C. PIPE CULVERT
(CLASS III) (TYPE 3 BEDDING)
TO EXISTING DROP INLET ON RT.
TYPE MO DROP INLET = 4' DIA.
TYPE C DROP INLET = 4' x 4'

STA. 605+00
CONSTRUCT TURN OUT ON RT. = 5 CU. YD.
COMP. EMB.

HWY. 16 - SITE 2

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DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		040579	61	127
				(2) PLAN AND PROFILE SHEETS				

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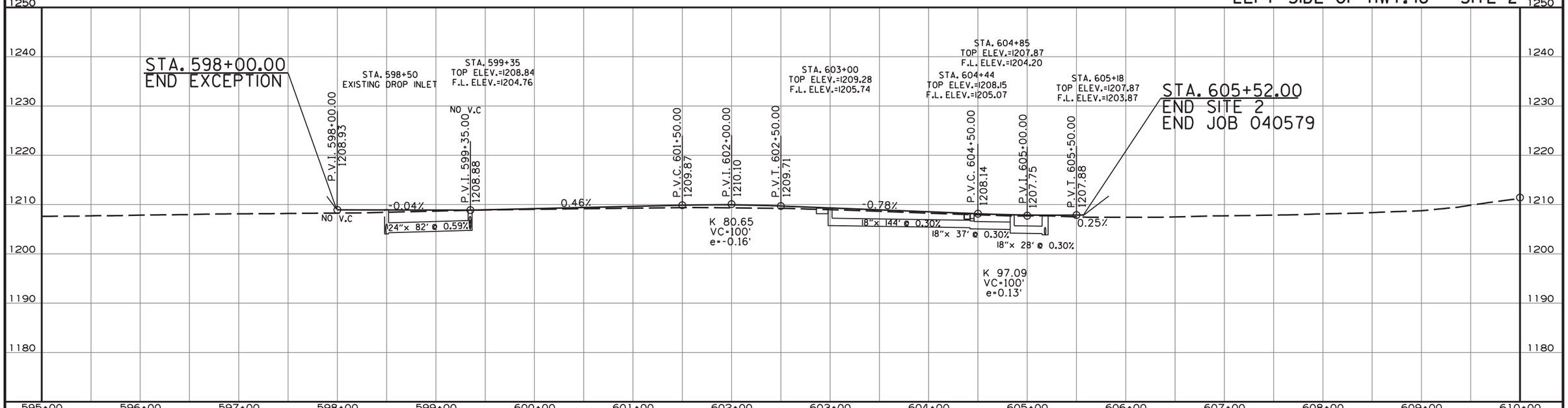
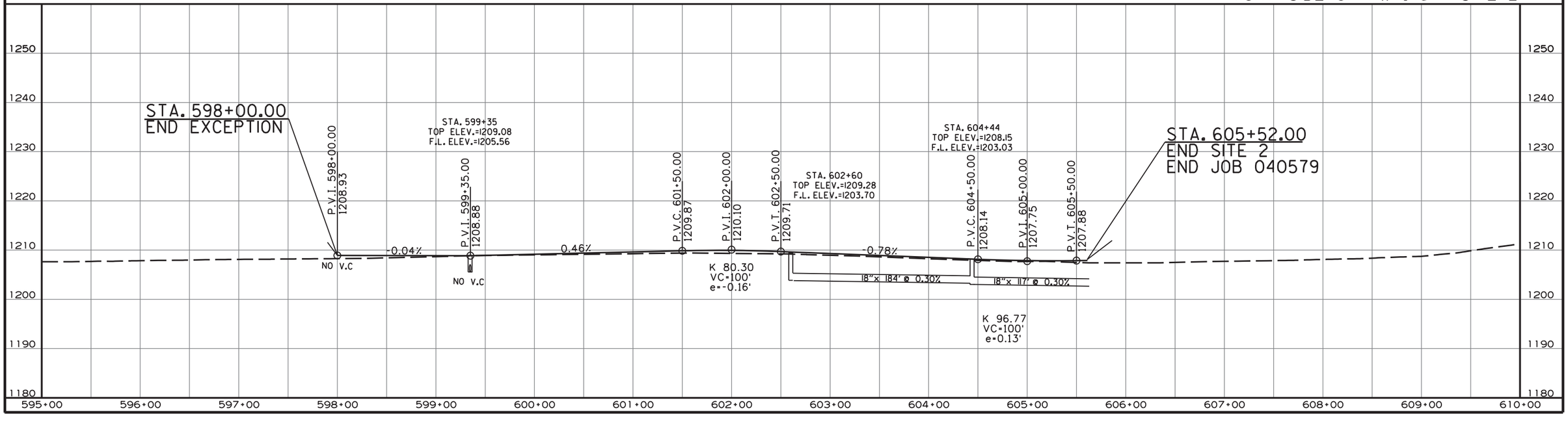
STA. 598+00.00 MATCH EXIST. SUPER. (0.027'/')
STA. 600+79.83 END SUPERELEVATION

LEFT SIDE OF HWY. 16 - SITE 2



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

RIGHT SIDE OF HWY. 16 - SITE 2



4/12/2020

DN42608
R040579.DGN

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		040579	62	127

(2) SUMMARY OF TRAFFIC SIGNAL QUANTITIES

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

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SUMMARY OF TRAFFIC SIGNAL QUANTITIES

	ITEM NUMBER	ITEM	HIGHWAY 71B & HIGHWAY 16	HIGHWAY 16 & MORNINGSIDE DRIVE	QUANTITY	UNIT
	SP & 701	SYSTEM LOCAL CONTROLLER TS2-TYPE 2, E-NET (8 PHASES)	1	2	3	EACH
	SP	TRAFFIC SIGNAL CONTROLLER (MODIFICATION)		1	1	EACH
	SP	ETHERNET SWITCH, T100 HARDENED (8-PORT)	1	2	3	EACH
	SP	E-NET CABLE (EXTERIOR CAT 5E)	100	115	215	LIN. FT.
	SP	LOCAL RADIO (E-NET 5.8) WITH ANTENNA	1	2	3	EACH
	SP & 706	TRAFFIC SIGNAL HEAD, LED, (3 SECTION, 1 WAY)	8	16	24	EACH
	SP & 706	TRAFFIC SIGNAL HEAD, LED, (4 SECTION, 1 WAY)	2	4	6	EACH
	SP	RELOCATION OF TRAFFIC SIGNAL HEAD		6	6	EACH
	SP & 707	COUNTDOWN PEDESTRIAN SIGNAL HEAD, LED	8	8	16	EACH
	708	TRAFFIC SIGNAL CABLE (5C/14 A.W.G.)	1251	2869	4120	LIN. FT.
	708	TRAFFIC SIGNAL CABLE (7C/14 A.W.G.)	144	608	752	LIN. FT.
	708	TRAFFIC SIGNAL CABLE (20C/14 A.W.G.)	530	528	1058	LIN. FT.
	SP	ELECTRICAL CONDUCTORS-IN-CONDUIT (1C/8 A.W.G., E.G.C.)	630	663	1293	LIN. FT.
	SP	ELECTRICAL CONDUCTORS-IN-CONDUIT (1C/12 A.W.G., E.G.C.)	105	220	325	LIN. FT.
	SP	ELECTRICAL CONDUCTORS-IN-CONDUIT (2C/6 A.W.G.)	40	104	144	LIN. FT.
	SP	ELECTRICAL CONDUCTORS FOR LUMINAIRES	269	748	1017	LIN. FT.
	709	GALVANIZED STEEL CONDUIT (2")	20	40	60	LIN. FT.
	710	NON-METALLIC CONDUIT (2")	20	65	85	LIN. FT.
	710	NON-METALLIC CONDUIT (3")	449	486	935	LIN. FT.
	711	CONCRETE PULL BOX (TYPE 1)		1	1	EACH
	711	CONCRETE PULL BOX (TYPE 1 HD)	1		1	EACH
	711	CONCRETE PULL BOX (TYPE 2 HD)	5	5	10	EACH
	SS & 713	SPAN WIRE ASSEMBLY		1	1	EACH
	SS & 714	TRAFFIC SIGNAL MAST ARM AND POLE WITH FOUNDATION (34')	1		1	EACH
	SS & 714	TRAFFIC SIGNAL MAST ARM AND POLE WITH FOUNDATION (36')		1	1	EACH
	SS & 714	TRAFFIC SIGNAL MAST ARM AND POLE WITH FOUNDATION (38')	1		1	EACH
	SS & 714	TRAFFIC SIGNAL MAST ARM AND POLE WITH FOUNDATION (44')	1		1	EACH
	SS & 714	TRAFFIC SIGNAL MAST ARM AND POLE WITH FOUNDATION (48')		1	1	EACH
	SS & 714	TRAFFIC SIGNAL MAST ARM AND POLE WITH FOUNDATION (50')	1	1	2	EACH
	SS & 714	TRAFFIC SIGNAL MAST ARM AND POLE WITH FOUNDATION (60')		1	1	EACH
	SP	LED LUMINAIRE ASSEMBLY	2	4	6	EACH
	SS & 715	TRAFFIC SIGNAL PEDESTAL POLE WITH FOUNDATION	2		2	EACH
	SP	SERVICE POINT ASSEMBLY (2 CIRCUITS)	1	1	2	EACH
	SP	REMOVAL OF TRAFFIC SIGNAL EQUIPMENT	0.34	0.66	1.00	LUMP SUM
	716	TREATED WOOD POLE (CLASS 2, 45')		4	4	EACH
	SP	18" STREET NAME SIGN	4	4	8	EACH
	733	VIDEO DETECTOR RELOCATION		3	3	EACH
	SP	VIDEO DETECTOR ROTATION		1	1	EACH
*	SP & 733	VIDEO DETECTOR (CLR)	7	13	20	EACH
	733	VIDEO CABLE	1176	2551	3727	LIN. FT.
	733	VIDEO MONITOR (CLR)	1	2	3	EACH
*	SP & 733	VIDEO PROCESSOR, EDGE CARD (1 CAMERA)	7	7	14	EACH
	SP & 733	EDGE CONNECT CARD FOR COMMUNICATIONS	2	2	4	EACH
	SP & 733	VIDEO PROCESSOR, EDGE CARD (2 CAMERA)		3	3	EACH
	SP & 733	VEHICLE DETECTOR RACK (16 CHANNEL)		1	1	EACH
	SP & 733	VEHICLE DETECTOR RACK (32 CHANNEL)	1	1	2	EACH

* ONE SPARE VIDEO DETECTOR AND ONE SPARE VIDEO PROCESSOR SHALL BE SUPPLIED FOR EACH INTERSECTION.

DATE: 05-19-2020 FILE NAME: t040579_job.dgn

LOCATION: COLLEGE AVE. - HUNTSVILLE RD.
CITY: FAYETTEVILLE
COUNTY: WASHINGTON
DISTRICT: 4 SCALE: N/A DRAWN BY: GWE

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		040579	63	127

(2) TRAFFIC SIGNAL NOTES

TRAFFIC SIGNAL NOTES:

1. ALL ELECTRICAL WORK SHALL BE PERFORMED IN ACCORDANCE WITH THE CURRENT EDITIONS OF THE NFPA 70 (2017) NATIONAL ELECTRICAL CODE, NFPA 101 (CURRENT EDITION) LIFE SAFETY CODE, STATE ELECTRICAL CODE AND LOCAL ELECTRICAL CODE.

2. EXTEND GREEN EQUIPMENT GROUNDING CONDUCTOR (E.G.C.) FROM GROUND BAR AT MAIN BREAKER TO CONTROL PANEL AND TO FIRST POLE. SOLIDLY BOND E.G.C. TO GROUND LUG OF CONTROL CABINET AND TO POLE GROUND. ENSURE THAT ONLY ONE NEUTRAL-TO-GROUND BOND EXISTS IN THE SYSTEM AND THAT IT IS AT THE MAIN BREAKER.

3. ELECTRICAL SERVICE SHALL BE PROVIDED BY THE CITY/COUNTY TO A SERVICE POLE WITH EXTERNAL RAINTIGHT BREAKER (MAIN BREAKER), GALVANIZED STEEL SERVICE RISER, METER LOOP (IF REQUIRED), AND WEATHERHEAD AT A MUTUALLY ACCEPTABLE POINT WITHIN THE RIGHT-OF-WAY. IF THE SERVICE POINT IS OVER 10 FEET FROM THE CONTROLLER, THE CONTRACTOR SHALL PROVIDE AND INSTALL A SEPARATE TWO CIRCUIT EXTERNAL BREAKER (SECONDARY BREAKER) ON OR NEAR THE TRAFFIC SIGNAL CONTROLLER CABINET AND SHALL INSTALL CONDUIT, ELECTRICAL SERVICE WIRE (2c/#6 A.W.G. USE RATED, WITH GROUND TYPICAL), AND PERFORM WIRING TO TAP INTO THE CITY'S/ COUNTY'S MAIN BREAKER AS PART OF THIS CONTRACT. CONDUIT IS PAID FOR AS A SEPARATE ITEM OF THIS CONTRACT. TWO CIRCUIT BREAKERS, CONSIDERED SUBSIDIARY TO THE CONTROL EQUIPMENT, ARE NEEDED WHERE STREET LIGHTING IS INCLUDED. AS PART OF THE SIGNAL INSTALLATION, STREET LIGHTING CIRCUIT (2c/#12 A.W.G. UF RATED, TYPICAL) SHALL BE KEPT FROM THE CIRCUIT SERVING THE TRAFFIC SIGNAL CONTROL EQUIPMENT FROM THE POINT OF TIE-IN AT THE SECONDARY BREAKER PROVIDED BY THE CONTRACTOR.

4. CONTRACTOR SHALL CONNECT A SEPARATE NEUTRAL FOR EACH LOAD SWITCH REPRESENTED ON EACH SIGNAL POLE.

5. TRAFFIC CONTROLLER CABINET AND LAYOUT SHALL BE SUCH THAT IT IS NOT NECESSARY TO SHUT DOWN POWER OR REMOVE LOAD SWITCHES IN ORDER TO EASILY TEST OR MODIFY DETECTOR INPUTS TO THE CONTROLLER.

6. CONTROLLER CABINET SHALL BE WIRED SUCH THAT DURING FLASH OPERATIONS POWER TO THE LOAD SWITCHES CANNOT BACKFEED TO LOAD SWITCH POWER BUSS.

7. ALL PARTS OF THIS INSTALLATION SHALL BE IN ACCORDANCE WITH THE STANDARD SPECIFICATIONS FOR HIGHWAY CONSTRUCTION, STANDARD DRAWINGS AND WITH THE MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES, CURRENT EDITION.

8. CONDUIT INSTALLED UNDER ROADWAY SURFACES SHALL BE INSTALLED BY PUSHING OR BORING METHODS. IF THE ENGINEER DETERMINES THIS IS NOT FEASIBLE, THEN A TRENCHING METHOD AS SHOWN IN THE STANDARD DRAWINGS MAY BE USED.

9. TRAFFIC SIGNAL POLES SHALL BE GALVANIZED. BACKPLATES SHALL BE SUPPLIED FOR ALL SIGNAL HEADS.

10. PAVEMENT MARKING SHOWN FOR REFERENCE ONLY. SEE PERMANENT PAVEMENT MARKING DETAILS.

11. FOUNDATION FOR ALL POLES SHALL BE EXTENDED IF NECESSARY TO ACCOMMODATE THE REQUIREMENTS FOR SIGNAL HEAD CLEARANCE ABOVE ROADWAY ONLY AT LOCATIONS WHERE THE GROUND ELEVATION AT THE POLE IS BELOW THE ELEVATION OF THE ROADWAY (SEE NOTES ON STANDARD DRAWING). PAYMENT WILL BE INCLUDED IN SECTION 714 TRAFFIC SIGNAL MAST ARM AND POLE WITH FOUNDATION OF THE STANDARD SPECIFICATIONS FOR HIGHWAY CONSTRUCTION, CURRENT EDITION.

12. ALL CONCRETE PULL BOXES SHALL BE (TYPE 2 HD) UNLESS OTHERWISE INDICATED. ALL CONDUIT SHALL BE THREE (3") INCH DIAMETER UNLESS SPECIFIED ON PLANS.

13. CONTRACTOR SHALL NOTIFY ALL EXISTING UTILITY OWNERS BEFORE BEGINNING WORK ON THIS PROJECT.

14. LED LUMINAIRE ASSEMBLIES SHALL HAVE A BUG RATING OF U0.

15. HARDWARE INPUTS MAY BE DETERMINED BY SUPPLIER. EACH DETECTOR OUTPUT SHALL INPUT THE CONTROLLER THROUGH A SEPARATE INPUT UNLESS OTHERWISE NOTED AND BE PROGRAMMED TO ACTUATE THE ASSOCIATED PHASE. COMBINATION (COMB.) DETECTORS SHALL ALSO BE PROGRAMMED TO PROVIDE VEHICLE COUNT/OCCUPANCY DATA.

16. THE LOCAL RADIO WITH ANTENNA SHALL BE COMPATIBLE WITH THE EXISTING CLOSED LOOP COORDINATION SYSTEM IN THE CITY/COUNTY.

17. TO DETERMINE UTILITY CLEARANCES ABOVE THE TRAFFIC SIGNAL POLE, REFER TO THE POLE SCHEDULE FOR VERTICAL SHAFT HEIGHT. WHERE THE POLE SCHEDULE INDICATES THAT A LUMINAIRE ARM WILL BE USED, THIRTY-EIGHT (38') FEET SHOULD BE USED TO DETERMINE UTILITY CLEARANCE ABOVE THE LUMINAIRE ARM. WHERE THE POLE SCHEDULE INDICATES A TRAFFIC SIGNAL POLE WITHOUT A LUMINAIRE ARM, A HEIGHT OF TWENTY-ONE (21') FEET SHOULD BE USED TO DETERMINE UTILITY CLEARANCE ABOVE THE TRAFFIC SIGNAL MAST ARM. AN ADDITIONAL SIX (6') FEET SHOULD BE USED DIRECTLY ABOVE "VIDEO DETECTOR" AT LOCATIONS SHOWN ON THE SIGNAL PLANS.

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18. THE DESIRABLE MINIMUM DISTANCE FROM THE FACE OF ROADWAY CURB OR SHOULDER EDGE TO THE FACE OF NON-BREAKAWAY POLE OR OBSTRUCTION IS SIX (6') FEET. REFER TO TRAFFIC SIGNAL PLANS FOR SPECIFIC LOCATION OF POLES, CONTROLLER AND ANY OTHER NON-BREAKAWAY OBSTRUCTIONS. REFER TO "DESIGN PARAMETERS, MINIMUM CLEAR ZONE DISTANCE" FOR MINIMUM DISTANCE FROM THE EDGE OF TRAVELED WAY TO THE FACE OF A NON-BREAKAWAY POLE OR OBSTRUCTION. TRAFFIC SIGNAL POLES OR ANY OTHER NON-BREAKAWAY OBSTRUCTION SHALL NOT BE INSTALLED WITHIN THE CLEAR ZONE.

19. AS DETERMINED BY THE ENGINEER, FOUNDATION EMBEDMENT MAY BE DECREASED BY A MAXIMUM OF TWO FEET IF COMPETENT ROCK IS ENCOUNTERED PRIOR TO ACHIEVING PLAN EMBEDMENT AND AT LEAST HALF OF THE REMAINING PLAN EMBEDMENT LENGTH IS KEYED INTO COMPETENT ROCK.

20. CONNECTION OF TRAFFIC SIGNAL DISPLAY TO FIELD WIRING SHALL UTILIZE AN APPROVED TERMINAL STRIP BEHIND HAND-HOLE COVER AT BASE OF POLE. TERMINAL STRIP SHALL PROVIDE PROTECTION TO PREVENT EXPOSURE TO THE PUBLIC IN THE EVENT THAT POLE COVER IS MISSING. PAYMENT FOR TERMINAL STRIPS SHALL BE INCLUDED IN ITEM 714 TRAFFIC SIGNAL MAST ARM AND POLE WITH FOUNDATION OF THE STANDARD SPECIFICATIONS FOR HIGHWAY CONSTRUCTION, CURRENT EDITION.

21. CONTROLLER CABINET LAYOUT AND ORIENTATION SHALL CONFORM TO IMSA STANDARDS.

22. ONE VIDEO PROGRAMMNG MODULE SHALL BE PROVIDED FOR AIMING AND SETUP OF DETECTORS IF THE VIDEO SYSTEM CANNOT BE ADJUSTED THROUGH HARDWARE AND SOFTWARE PROVIDED BY ITEMS WITHIN THE JOB.

23. TRAFFIC SIGNAL CONTRACTOR SHALL NOTIFY THE RESIDENT ENGINEER OR ASSIGNED DEPARTMENT PROJECT INSPECTOR EACH DAY PRIOR TO SIGNAL RELATED WORK. NO WORK ON TRAFFIC SIGNALS WILL BE ALLOWED OR APPROVED WITHOUT THIS PRIOR NOTIFICATION.

24. ALL STEEL POLES SHALL BE DESIGNED TO MEET THE AASHTO STANDARD SPECIFICATIONS FOR STRUCTURAL SUPPORTS FOR HIGHWAY SIGNS, LUMINAIRES AND TRAFFIC SIGNALS, 4th EDITION (2001) WITH 2003 AND 2006 INTERIMS.

25. DOOR PANEL TEST PUSH BUTTONS SHALL ACTUATE INDICATED PHASES. DETECTOR ASSIGNMENTS AND/OR SIDE PANEL JUMPERS MAY REQUIRE MODFICATION.

26. ALL SYSTEM DETECTOR RACKS AND ASSOCIATED EQUIPMENT SHALL BE PROTECTED BY THE MAIN CONTROLLER CABINET POWER SURGE PROTECTION.

27. IN PULL BOXES, POLE BASES, JUNCTION BOXES AND CONTROLLER CABINETS, THE DIRECTION OF EACH CABLE RUN SHALL BE INDICATED BY ATTACHING A PERMANENT TAG OF RIGID PLASTIC OR NON-FERROUS METAL TO THE CONDUIT. TAGS SHALL BE EMBOSSED, STAMPED OR ENGRAVED WITH LETTERS 1/4" OR GREATER IN HEIGHT AND SECURED TO THE CONDUIT WITH NYLON OR PLASTIC TIES. IN INSTANCES WHERE THE CONDUIT OR CONDUIT ENTRANCES ARE NOT VISIBLE OR ACCESSIBLE, A DIRECTION TAG SHALL BE ATTACHED TO EACH CABLE.

28. THE CONTRACTOR SHALL PERFORM ALL WORK POSSIBLE THAT WILL MINIMIZE THE TIME THAT THE TRAFFIC SIGNAL IS OUT OF OPERATION. IF, IN THE OPINION OF THE ENGINEER, TRAFFIC CONDITIONS WARRANT THE CONTRACTOR SHALL PROVIDE FLAGMEN TO DIRECT TRAFFIC WHILE THE TRAFFIC SIGNAL IS OUT OF OPERATION.

29. ALL NON-METALLIC CONDUIT RUNS SHALL HAVE BELL RING FITTINGS INSTALLED ON THE TERMINATING ENDS OF THE CONDUIT. THIS INCLUDES PULL BOXES, POLE BASES, AND TRAFFIC SIGNAL CABINETS.

30. ALL CONCRETE PULL BOXES SHALL BE SET ON A GRAVEL OR CRUSHED STONE BEDDING AS SPECIFIED IN SECTION 711, CONCRETE PULL BOX, OF THE STANDARD SPECIFICATIONS FOR HIGHWAY CONSTRUCTION, EDITION OF 2014.

DATE: 05-19-2020 FILE NAME: t040579_job.dgn

LOCATION: COLLEGE AVE. - HUNTSVILLE RD.
CITY: FAYETTEVILLE
COUNTY: WASHINGTON
DISTRICT: 4 SCALE: N/A DRAWN BY: GWE

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
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(2) SYSTEM MAP FAYETTEVILLE

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

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MASTER ANTENNA
LOCATED ON MT. SEQUOYAH

FAYETTEVILLE
Pop. 67,158

ANTENNA ORIENTATION
HWY. 16 (15TH. ST.)/MORNINGSIDE RD.

ANTENNA ORIENTATION
HWY. 71B (SCHOOL AVE.)/HWY. 16 (15TH. ST.)

SCALE IN FEET
0 2000 40000 80000

LOCATION:	COLLEGE AVE. - HUNTSVILLE RD.
CITY:	FAYETTEVILLE
COUNTY:	WASHINGTON
DISTRICT: 4	SCALE: 1" = 40000'
DATE: 05-19-2020	FILE NAME: t040579_JOB.dgn
DRAWN BY:	GWE

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
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(2) TRAFFIC SIGNAL STREET NAME SIGNS

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TRINITY D. SMITH

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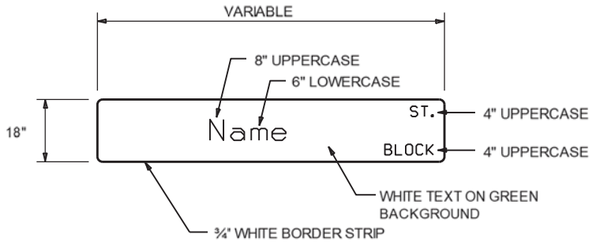
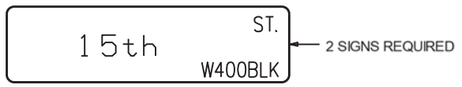
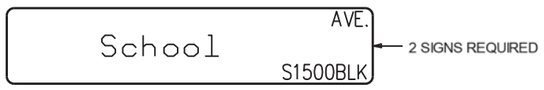
OVERHEAD STREET NAME MARKER STANDARD MAST ARM MOUNTED

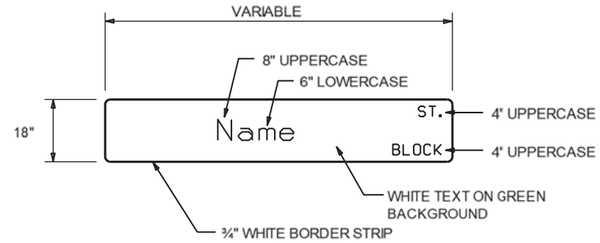
HIGHWAY 71B AND HIGHWAY 16 INTERSECTION

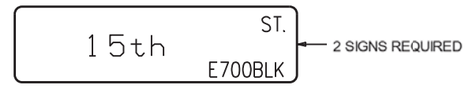






HIGHWAY 16 AND MORNINGSIDE DRIVE INTERSECTION





NOTES:

1. REFLECTIVE SHEETING SHALL COMPLY WITH ASTM 4956 TYPE 8 OR 9 REFLECTIVE SHEETING. SHEETING AND LEGEND SHALL BE APPLIED IN SUCH A MANNER TO PROVIDE WRINKLE AND BUBBLE FREE SURFACES. APPLICATION OF SHEETING IS CAUSE FOR REJECTION OF MATERIALS DUE TO WORKMANSHIP.
2. ALUMINUM SIGN BLANK SHALL BE ALLOY 6061-T6 OR 5052-H38. THE ALUMINUM SIGN SHALL BE ALSO ALODIZED. THE ALUMINUM SHEETING SHALL BE 0.100 INCH NOMINAL THICKNESS AND OF THE SIZE SHOWN WITH 1.5" CORNER RADII. PRIOR TO FABRICATION OF THE SIGNS, THE LAYOUT SHALL FIRST BE APPROVED BY AN AGENT OF THE CITY/ COUNTY.
3. WHEN CROSSROAD HAS TWO NAMES, THE SIGN FOR THE CROSSROAD TO THE LEFT MAY BE INSTALLED ON THE BACKSIDE OF THE MAST ARM ON THE NEARSIDE LEFT POLE. SEE STANDARD DRAWING SHEET FOR MORE INFORMATION FOR MOUNTING ON MAST ARM ASSEMBLY.
4. THE SERIES C 2000 STANDARD ALPHABET SHALL BE USED FOR ALL LETTERS.

DATE: 05-19-2020 FILE NAME: t040579_job.dgn

LOCATION: COLLEGE AVE. - HUNTSVILLE RD.
CITY: FAYETTEVILLE
COUNTY: WASHINGTON
DISTRICT: 4 SCALE: N/A DRAWN BY: GWE

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		040579	66	127

(2) TRAFFIC SIGNAL QUANTITIES - HIGHWAY 71B

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

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TRAFFIC SIGNAL QUANTITIES

	ITEM NUMBER	ITEM	QUANTITY	UNIT
	SP & 701	SYSTEM LOCAL CONTROLLER TS2-TYPE 2, E-NET (8 PHASES)	1	EACH
	SP	ETHERNET SWITCH, T100 HARDENED (8-PORT)	1	EACH
	SP	E-NET CABLE (EXTERIOR CAT 5E)	100	LIN. FT.
	SP	LOCAL RADIO (E-NET 5.8) WITH ANTENNA	1	EACH
	SP & 706	TRAFFIC SIGNAL HEAD, LED, (3 SECTION, 1 WAY)	8	EACH
	SP & 706	TRAFFIC SIGNAL HEAD, LED, (4 SECTION, 1 WAY)	2	EACH
	SP & 707	COUNTDOWN PEDESTRIAN SIGNAL HEAD, LED	8	EACH
	708	TRAFFIC SIGNAL CABLE (5C/14 A.W.G.)	1251	LIN. FT.
	708	TRAFFIC SIGNAL CABLE (7C/14 A.W.G.)	144	LIN. FT.
	708	TRAFFIC SIGNAL CABLE (20C/14 A.W.G.)	530	LIN. FT.
	SP	ELECTRICAL CONDUCTORS-IN-CONDUIT (1C/8 A.W.G., E.G.C.)	630	LIN. FT.
	SP	ELECTRICAL CONDUCTORS-IN-CONDUIT (1C/12 A.W.G., E.G.C.)	105	LIN. FT.
	SP	ELECTRICAL CONDUCTORS-IN-CONDUIT (2C/6 A.W.G.)	40	LIN. FT.
	SP	ELECTRICAL CONDUCTORS FOR LUMINAIRES	269	LIN. FT.
	709	GALVANIZED STEEL CONDUIT (2")	20	LIN. FT.
	710	NON-METALLIC CONDUIT (2")	20	LIN. FT.
	710	NON-METALLIC CONDUIT (3")	449	LIN. FT.
	711	CONCRETE PULL BOX (TYPE 1 HD)	1	EACH
	711	CONCRETE PULL BOX (TYPE 2 HD)	5	EACH
	SS & 714	TRAFFIC SIGNAL MAST ARM AND POLE WITH FOUNDATION (34')	1	EACH
	SS & 714	TRAFFIC SIGNAL MAST ARM AND POLE WITH FOUNDATION (38')	1	EACH
	SS & 714	TRAFFIC SIGNAL MAST ARM AND POLE WITH FOUNDATION (44')	1	EACH
	SS & 714	TRAFFIC SIGNAL MAST ARM AND POLE WITH FOUNDATION (50')	1	EACH
	SP	LED LUMINAIRE ASSEMBLY	2	EACH
	SS & 715	TRAFFIC SIGNAL PEDESTAL POLE WITH FOUNDATION	2	EACH
	SP	SERVICE POINT ASSEMBLY (2 CIRCUITS)	1	EACH
	SP	REMOVAL OF TRAFFIC SIGNAL EQUIPMENT	0.34	LUMP SUM
	SP	18" STREET NAME SIGN	4	EACH
*	SP & 733	VIDEO DETECTOR (CLR)	7	EACH
	733	VIDEO CABLE	1176	LIN. FT.
	733	VIDEO MONITOR (CLR)	1	EACH
*	SP & 733	VIDEO PROCESSOR, EDGE CARD (1 CAMERA)	7	EACH
	SP & 733	EDGE CONNECT CARD FOR COMMUNICATIONS	2	EACH
	SP & 733	VEHICLE DETECTOR RACK (32 CHANNEL)	1	EACH

* ONE SPARE VIDEO DETECTOR AND ONE SPARE VIDEO PROCESSOR SHALL BE SUPPLIED

PERMANENT TRAFFIC SIGNAL:

THE EXISTING TRAFFIC SIGNAL SHALL REMAIN IN OPERATION UNTIL THE PERMANENT TRAFFIC SIGNAL IS COMPLETE AND OPERATIONAL. INSTALL THE PERMANENT TRAFFIC SIGNAL AND REMOVE THE EXISTING ALL EXISTING TRAFFIC SIGNAL COMPONENTS PROIR TO ANY RADIUS IMPROVEMENTS AT THE INTERSECTION.

(REFER TO PERMANENT TRAFFIC SIGNAL PLANS.)

DATE: 05-19-2020 FILE NAME: t040579_01.dgn

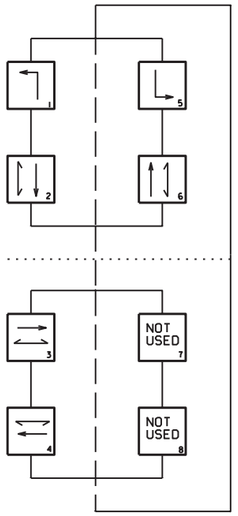
LOCATION: HWY. 71B/HWY. 16
CITY: FAYETTEVILLE
WASHINGTON
DISTRICT: 4 SCALE: N/A DRAWN BY: GWE

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED
06-12-2020			

FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
6	ARK.			
JOB NO.		040579	67	127

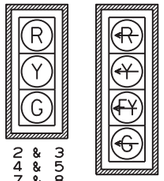
(2) SIGNALIZATION PLAN SHEET

PHASING DIAGRAM



SIGNAL FACES

12" LENSES



ONE SECTION
(SOLID SYMBOL)

11 & 12
13 & 14
15 & 16
17 & 18

NOTES:
1. ALL SIGNAL HEADS SHALL HAVE BACKPLATES.
2. REFER TO SPECIAL PROVISION "RETROREFLECTIVE BACKPLATES" FOR DETAILS ON REQUIREMENTS FOR BACKPLATES.
3. REFER TO SPECIAL PROVISIONS FOR DETAILS ON REQUIREMENTS FOR PEDESTRIAN SIGNAL HEADS.
4. ALL PEDESTRIAN SIGNAL HEADS CAN BE PLACED INTO OPERATION IF THERE ARE BOTH WHEELCHAIR RAMPS AND A CROSSWALK THAT MEETS A.D.A.S. STANDARD.

DETECTOR SPACING CHART

ARDOT HWY. 71B MAIN LANE VIRTUAL LOOPS		
POSTED SPEED	DISTANCE FROM STOP LINE	
	LEAD VDZ	LAG VDZ
35 MPH	200'	85'
ARDOT HWY. 16 MAIN LANE VIRTUAL LOOPS		
POSTED SPEED	DISTANCE FROM STOP LINE	
	LEAD VDZ	LAG VDZ
30 MPH	100'	N/A

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No. 11425
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HWY. 71B/HWY. 16 POLE DIMENSIONS

POLE	MAST ARM	* MAST ARM ANGLE	VERT. SHAFT	LUM. ARM	* LUM. ANGLE
A	38'	270°	35'	10'	270°
B	N/A	N/A	10'	N/A	N/A
C	N/A	N/A	10'	N/A	N/A
D	34'	180°	35'	15'	90°
E	44'	180°	21'	N/A	N/A
F	50'	270°	21'	N/A	N/A

* ANGLE MEASURED CLOCKWISE FROM HAND HOLE.

SCALE IN FEET
0 30 60 120

DATE: 05-19-2020 FILE NAME: t040579_01.dgn

LOCATION: HWY. 71/HWY. 16
CITY: FAYETTEVILLE
COUNTY: WASHINGTON
DISTRICT: 4 SCALE: 1"=60' DRAWN BY: GWE

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED
06-12-2020			

FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
6	ARK.			
JOB NO.		040579	68	127

(2) SIGNALIZATION PLAN SHEET

HWY. 71B/HWY. 16
POLE LOCATIONS

POLE	LOCATION & STATION	OFFSET	X, Y COORDINATES
A	HWY. 16 - STA. 509+36.02	60' RT.	672560.78, 631265.78
B	HWY. 16 - STA. 509+33.02	51' RT.	672558.24, 631275.46
C	HWY. 16 - STA. 509+17.83	30' RT.	672544.05, 631296.26
D	HWY. 16 - STA. 509+34.45	38' LT.	672563.98, 631363.48
E	HWY. 16 - STA. 510+24.62	40' LT.	672654.16, 631361.56
F	HWY. 16 - STA. 510+22.00	53' RT.	672647.01, 631268.92

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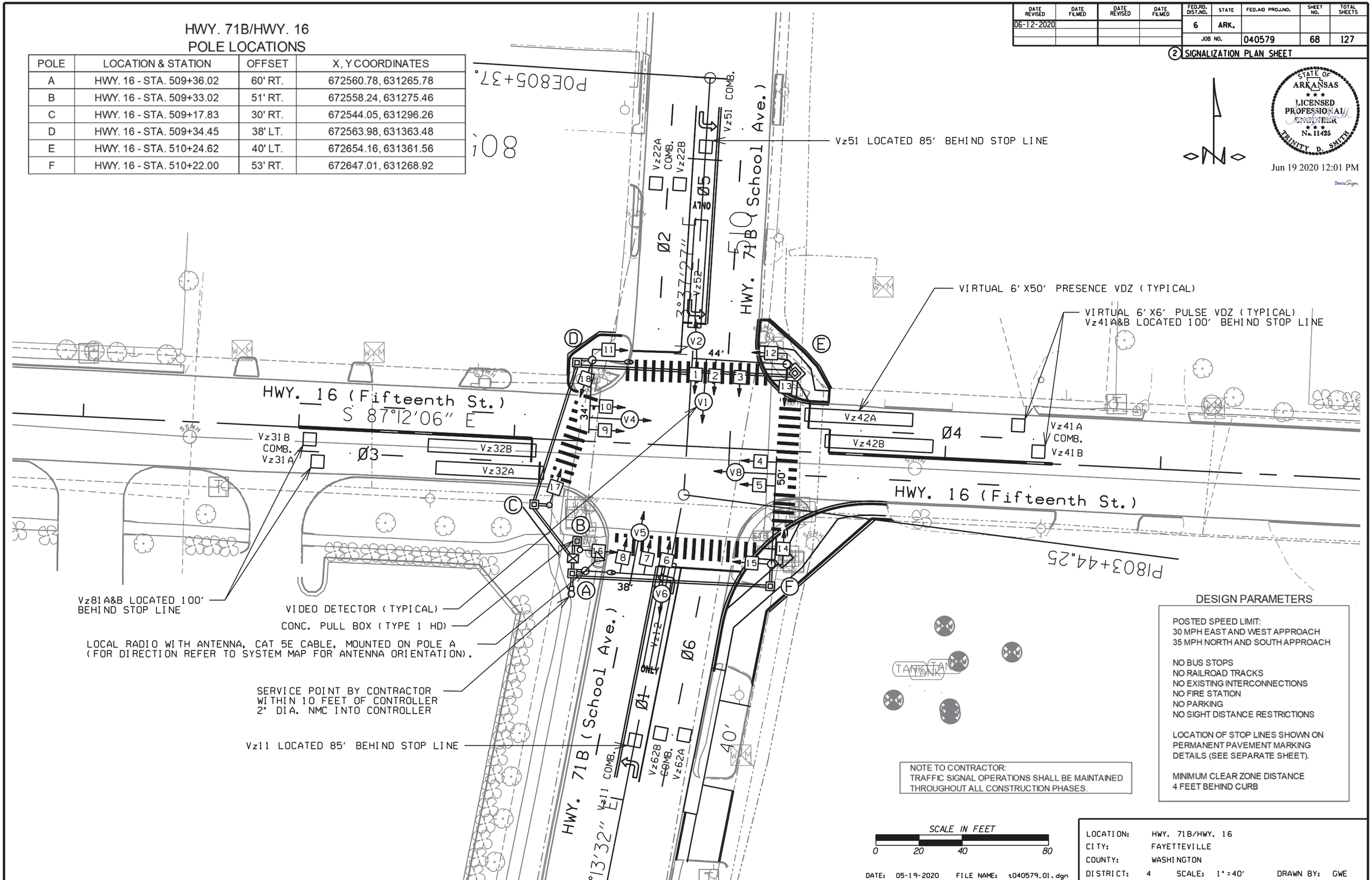

DESIGN PARAMETERS

POSTED SPEED LIMIT:
30 MPH EAST AND WEST APPROACH
35 MPH NORTH AND SOUTH APPROACH

NO BUS STOPS
NO RAILROAD TRACKS
NO EXISTING INTERCONNECTIONS
NO FIRE STATION
NO PARKING
NO SIGHT DISTANCE RESTRICTIONS

LOCATION OF STOP LINES SHOWN ON PERMANENT PAVEMENT MARKING DETAILS (SEE SEPARATE SHEET).

MINIMUM CLEAR ZONE DISTANCE
4 FEET BEHIND CURB

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

SCALE IN FEET
0 20 40 80

DATE: 05-19-2020 FILE NAME: t040579_01.dgn

LOCATION:	HWY. 71B/HWY. 16				
CITY:	FAYETTEVILLE				
COUNTY:	WASHINGTON				
DISTRICT:	4	SCALE:	1" = 40'	DRAWN BY:	GWE

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		040579	69	127

(2) SIGNALIZATION PLAN SHEET

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

Trinity Smith

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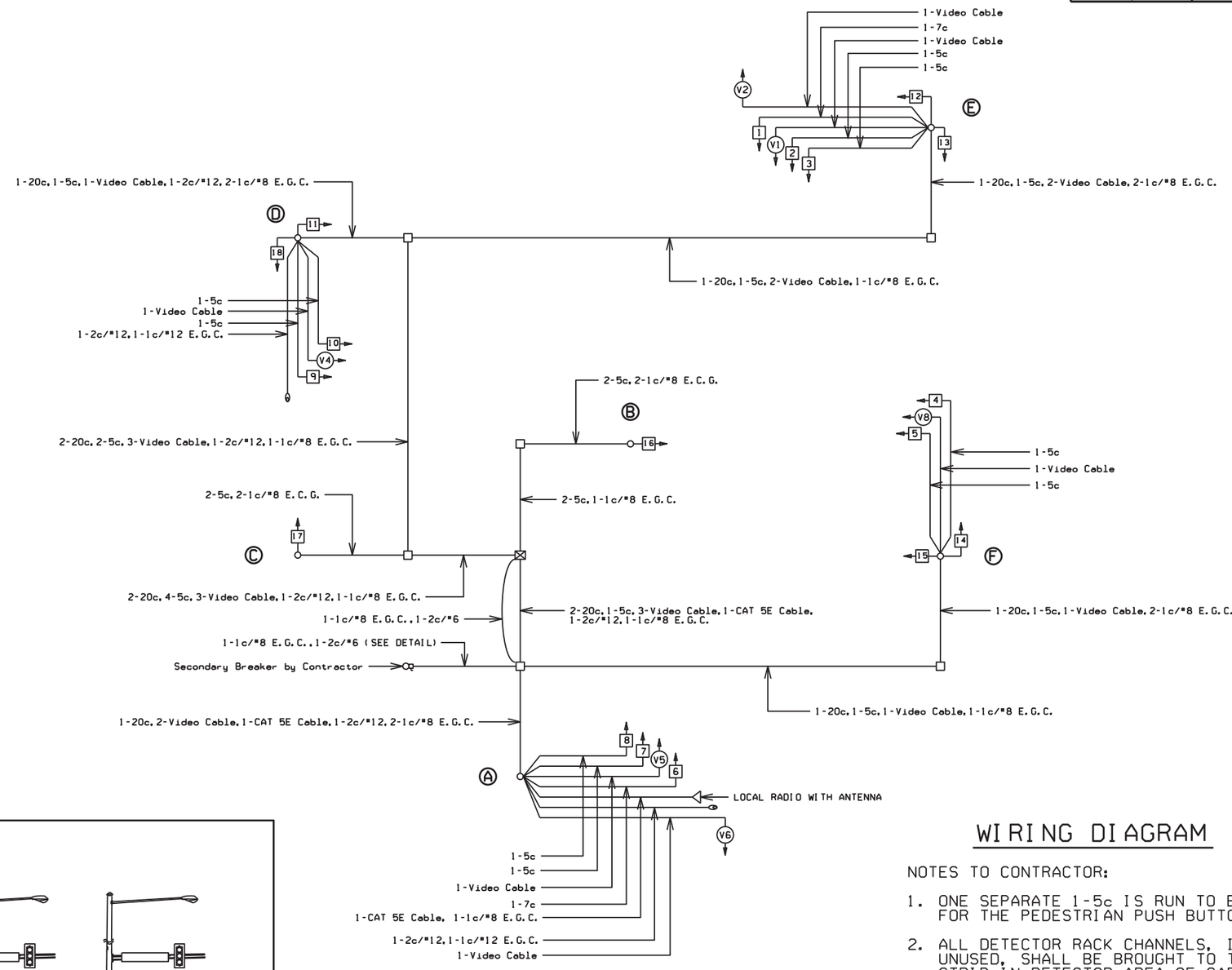
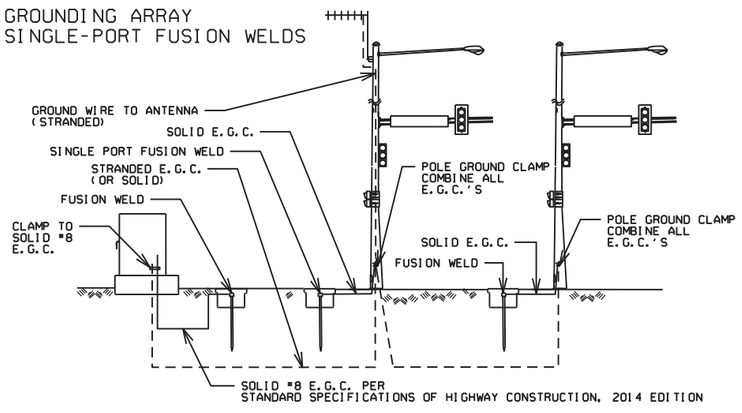


GROUNDING ARRAY
SINGLE-PORT FUSION WELDS



WIRING DIAGRAM

NOTES TO CONTRACTOR:

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

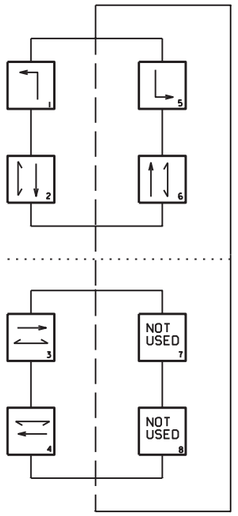
DATE: 05-19-2020 FILE NAME: t040579_01.dgn

LOCATION: hwy. 71b/hwy. 16
CITY: fayetteville
COUNTY: washington
DISTRICT: 4 SCALE: N/A DRAWN BY: gwe

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
06-12-2020				6	ARK.			
				JOB NO.		040579	70	127

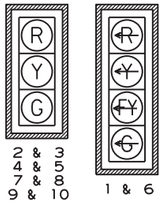
(2) SIGNALIZATION PLAN SHEET

PHASING DIAGRAM



SIGNAL FACES

12" LENSES



2 & 3
4 & 5
7 & 8
9 & 10

1 & 6

ONE SECTION
(SOLID SYMBOL)

11 & 12
13 & 14
15 & 16
17 & 18

NOTES:
1. ALL SIGNAL HEADS SHALL HAVE BACKPLATES.
2. REFER TO SPECIAL PROVISION "RETROREFLECTIVE BACKPLATES" FOR DETAILS ON REQUIREMENTS FOR BACKPLATES.
3. REFER TO SPECIAL PROVISIONS FOR DETAILS ON REQUIREMENTS FOR PEDESTRIAN SIGNAL HEADS.
4. ALL PEDESTRIAN SIGNAL HEADS CAN BE PLACED INTO OPERATION IF THERE ARE BOTH WHEELCHAIR RAMPS AND A CROSSWALK THAT MEETS A.D.A.S. STANDARD.

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

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DETECTOR CHART

DETECTOR SYSTEM DESCRIPTION: JOB 040579											
HIGHWAY 71B/HIGHWAY 16 DETECTOR ASSIGNMENTS				HARDWARE INPUTS BY SUPPLIER			PROGRAM ASSIGNMENTS LOCAL		MASTER SYSTEM DETECTOR NUMBERS	COMMENTS	TUBE LENGTHS
DET. ID #	LOCATION DIRECTION	TYPE	DET. #	CAB. TRM. #	AMP CHN. #	CON. IMP. #	PHS	SYSTEM DET. #			
Vz11	NB LEFT TURN FAR	COMB.			1	V9	1	1		CAMERA V1	37"
Vz12	NB LEFT TURN	LOCAL			2	V1	1			CAMERA V1	37"
Vz21 A&B	SB ADVANCE	LOCAL			9	V2	2			CAMERA V2	37"
Vz22 A&B	SB NEAR	COMB.			13	V10	2	2		CAMERA V5	37"
Vz31 A&B	EB ADVANCE	COMB.			21	V16	8	8		CAMERA V8	37"
Vz32 A&B	EB NEAR	LOCAL			22	V8	8			CAMERA V8	37"
Vz41 A&B	WB ADVANCE	COMB.			17	V12	4	4		CAMERA V4	37"
Vz42 A&B	WB NEAR	LOCAL			18	V4	4			CAMERA V4	37"
Vz51	SB LEFT TURN FAR	COMB.			14	V13	5	5		CAMERA V5	37"
Vz52	SB LEFT TURN	LOCAL			15	V5	5			CAMERA V5	37"
Vz61 A&B	NB ADVANCE	LOCAL			5	V6	6			CAMERA V6	37"
Vz62 A&B	NB NEAR	COMB.			3	V14	6	6		CAMERA V1	37"
PB2 A&B	HWY. 16 W. LEG	PED.				P2	2				
PB3 A&B	HWY.71B S. LEG	PED.				P3	3				
PB4 A&B	HWY.71B N. LEG	PED.				P4	4				
PB6 A&B	HWY. 16 E. LEG	PED.				P6	6				
					SPARE: 4, 8 - 8, 10 - 12, 16, 19 - 20, & 23 - 24						

CONTROLLER INPUT ABBREVIATIONS:
V = VEHICLE INPUT
D = SYSTEM OR AUXILIARY INPUT
P = PEDESTRIAN INPUT

NOTE: "AMP CHN =" REFERS TO THE RACK OUTPUT POSITION.
THIS IS WIRED TO CONTROLLER INPUT DETECTOR NUMBER WHICH IS PROGRAMMED TO ACTUATE THE DESIGNATED PHASE.
EXAMPLE: V9 = SYSTEM DETECTOR 1, V10 = SYSTEM DETECTOR 2

INTERVAL CHART

SIGNAL FACES	HIGHWAY 71B AND HIGHWAY 16												FLASH SEQUENCE
	1+5	CLR.	1+6	CLR.	2+5	CLR.	2+6	CLR.	3	CLR.	4	CLR.	
1	~~←G~~	*	~~←G~~	*	~~←FY~~	***	~~←FY~~	***	~~←R~~	~~←R~~	~~←R~~	~~←R~~	~~←R~~
2 & 3	R	R	G	**	R	R	G	**	R	R	R	R	R
4 & 5	R	R	R	R	R	R	F	R	G	Y	R	R	R
6	~~←R~~	*	~~←FY~~	***	~~←G~~	*	~~←FY~~	***	~~←R~~	~~←R~~	~~←R~~	~~←R~~	~~←R~~
7 & 8	R	R	R	R	G	**	G	**	R	R	R	R	R
9 & 10	R	R	R	R	R	R	F	R	R	R	G	Y	R
11 & 12	DW	DW	DW	DW	DW	DW	DW	DW	DW	DW	W	FDW	BLK
13 & 14	DW	DW	W	FDW	DW	DW	W	FDW	DW	DW	DW	DW	BLK
15 & 16	DW	DW	DW	DW	DW	DW	DW	DW	W	FDW	DW	DW	BLK
17 & 18	DW	DW	DW	DW	W	FDW	W	FDW	DW	DW	DW	DW	BLK

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

DATE: 05-19-2020 FILE NAME: t040579_01.dgn

LOCATION: HWY. 71B/HWY. 16
CITY: FAYETTEVILLE
COUNTY: WASHINGTON
DISTRICT: 4 SCALE: N/A DRAWN BY: GWE

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		040579	71	127

(2) TRAFFIC SIGNAL QUANTITIES-MORNINGSIDE DR.

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

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STAGE 2 TRAFFIC SIGNAL QUANTITIES

ITEM NUMBER	ITEM	QUANTITY	UNIT
SP & 701	SYSTEM LOCAL CONTROLLER TS2-TYPE 2, E-NET (8 PHASES)	1	EACH
SP	ETHERNET SWITCH, T100 HARDENED (8-PORT)	1	EACH
SP	E-NET CABLE (EXTERIOR CAT 5E)	40	LIN. FT.
SP	LOCAL RADIO (E-NET 5.8) WITH ANTENNA	1	EACH
SP & 706	TRAFFIC SIGNAL HEAD, LED, (3 SECTION, 1 WAY)	8	EACH
SP & 706	TRAFFIC SIGNAL HEAD, LED, (4 SECTION, 1 WAY)	2	EACH
708	TRAFFIC SIGNAL CABLE (5C/14 A.W.G.)	1708	LIN. FT.
708	TRAFFIC SIGNAL CABLE (7C/14 A.W.G.)	436	LIN. FT.
SP	ELECTRICAL CONDUCTORS-IN-CONDUIT (1C/8 A.W.G., E.G.C.)	96	LIN. FT.
SP	ELECTRICAL CONDUCTORS-IN-CONDUIT (2C/6 A.W.G.)	54	LIN. FT.
709	GALVANIZED STEEL CONDUIT (2")	20	LIN. FT.
710	NON-METALLIC CONDUIT (2")	35	LIN. FT.
710	NON-METALLIC CONDUIT (3")	70	LIN. FT.
711	CONCRETE PULL BOX (TYPE 1)	1	EACH
SS & 713	SPAN WIRE ASSEMBLY	1	EACH
SP	SERVICE POINT ASSEMBLY (2 CIRCUITS)	1	EACH
SP	REMOVAL OF TRAFFIC SIGNAL EQUIPMENT	0.33	LUMP SUM
716	TREATED WOOD POLE (CLASS 2, 45')	4	EACH
SP & 733	VIDEO DETECTOR (CLR)	6	EACH
733	VIDEO CABLE	1290	LIN. FT.
733	VIDEO MONITOR (CLR)	1	EACH
SP & 733	VIDEO PROCESSOR, EDGE CARD (2 CAMERA)	3	EACH
SP & 733	VEHICLE DETECTOR RACK (16 CHANNEL)	1	EACH

STAGE 2:
INSTALL ALL TEMPORARY TRAFFIC SIGNAL EQUIPMENT, INCLUDING THE PERMANENT SERVICE POINT ASSEMBLY (2 CIRCUITS) WITH ALL ASSOCIATED ITEMS AS SHOWN ON THE STAGE 2 TEMPORARY SIGNAL PLANS. REMOVE ALL EXISTING TRAFFIC SIGNAL EQUIPMENT.
MAINTAIN THIS TRAFFIC SIGNAL CONFIGURATION AS SHOWN ON THE STAGE 2 TRAFFIC SIGNAL PLANS.
(REFER TO MAINTENANCE OF TRAFFIC DETAILS.)

STAGE 3 TRAFFIC SIGNAL QUANTITIES

ITEM NUMBER	ITEM	QUANTITY	UNIT
SP	TRAFFIC SIGNAL CONTROLLER (MODIFICATION)	1	EACH
SP	RELOCATION OF TRAFFIC SIGNAL HEAD	6	EACH
733	VIDEO DETECTOR RELOCATION	3	EACH
SP	VIDEO DETECTOR ROTATION	1	EACH

STAGE 3:
RELOCATE TRAFFIC SIGNAL HEADS 1, 2, 3, 6, 7, AND 8, ROTATE VIDEO DETECTOR V2, AND RELOCATE VIDEO DETECTORS 12, V5, AND V6 TO ACCOMMODATE STAGE 3 MAINTENANCE OF TRAFFIC. UTILIZE THE VIDEO CABLE INSTALLED IN STAGE 2 FOR VIDEO DETECTORS V1, V5, AND V6.
MAINTAIN THIS TRAFFIC SIGNAL CONFIGURATION AS SHOWN ON THE STAGE 3 TRAFFIC SIGNAL PLANS.
(REFER TO MAINTENANCE OF TRAFFIC DETAILS.)

TRAFFIC SIGNAL QUANTITIES

	ITEM NUMBER	ITEM	QUANTITY	UNIT
	SP & 701	SYSTEM LOCAL CONTROLLER TS2-TYPE 2, E-NET (8 PHASES)	1	EACH
	SP	ETHERNET SWITCH, T100 HARDENED (8-PORT)	1	EACH
	SP	E-NET CABLE (EXTERIOR CAT 5E)	75	LIN. FT.
	SP	LCCAL RADIO (E-NET 5.8) WITH ANTENNA	1	EACH
	SP & 706	TRAFFIC SIGNAL HEAD, LED, (3 SECTION, 1 WAY)	8	EACH
	SP & 706	TRAFFIC SIGNAL HEAD, LED, (4 SECTION, 1 WAY)	2	EACH
	SP & 707	COUNTDOWN PEDESTRIAN SIGNAL HEAD, LED	8	EACH
	708	TRAFFIC SIGNAL CABLE (5C/14 A.W.G.)	1161	LIN. FT.
	708	TRAFFIC SIGNAL CABLE (7C/14 A.W.G.)	172	LIN. FT.
	708	TRAFFIC SIGNAL CABLE (20C/14 A.W.G.)	528	LIN. FT.
	SP	ELECTRICAL CONDUCTORS-IN-CONDUIT (1C/8 A.W.G., E.G.C.)	567	LIN. FT.
	SP	ELECTRICAL CONDUCTORS-IN-CONDUIT (1C/12 A.W.G., E.G.C.)	220	LIN. FT.
	SP	ELECTRICAL CONDUCTORS-IN-CONDUIT (2C/6 A.W.G.)	50	LIN. FT.
	SP	ELECTRICAL CONDUCTORS FOR LUMINAIRES	748	LIN. FT.
	709	GALVANIZED STEEL CONDUIT (2")	20	LIN. FT.
	710	NON-METALLIC CONDUIT (2")	30	LIN. FT.
	710	NON-METALLIC CONDUIT (3")	416	LIN. FT.
	711	CONCRETE PULL BOX (TYPE 2 HD)	5	EACH
	SS & 714	TRAFFIC SIGNAL MAST ARM AND POLE WITH FOUNDATION (36')	1	EACH
	SS & 714	TRAFFIC SIGNAL MAST ARM AND POLE WITH FOUNDATION (48')	1	EACH
	SS & 714	TRAFFIC SIGNAL MAST ARM AND POLE WITH FOUNDATION (50')	1	EACH
	SS & 714	TRAFFIC SIGNAL MAST ARM AND POLE WITH FOUNDATION (60')	1	EACH
	SP	LED LUMINAIRE ASSEMBLY	4	EACH
	SP	REMOVAL OF TRAFFIC SIGNAL EQUIPMENT	0.33	LUMP SUM
	SP	18" STREET NAME SIGN	4	EACH
*	SP & 733	VIDEO DETECTOR (CLR)	7	EACH
	733	VIDEO CABLE	1261	LIN. FT.
	733	VIDEO MONITOR (CLR)	1	EACH
*	SP & 733	VIDEO PROCESSOR, EDGE CARD (1 CAMERA)	7	EACH
	SP & 733	EDGE CONNECT CARD FOR COMMUNICATIONS	2	EACH
	SP & 733	VEHICLE DETECTOR RACK (32 CHANNEL)	1	EACH

* ONE SPARE VIDEO DETECTOR AND ONE SPARE VIDEO PROCESSOR SHALL BE SUPPLIED

PERMANENT TRAFFIC SIGNAL:
THE TEMPORARY TRAFFIC SIGNAL INSTALLATION FOR STAGE 3 SHALL REMAIN IN OPERATION UNTIL THE PERMANENT TRAFFIC SIGNAL IS COMPLETED AND OPERATIONAL. INSTALL THE PERMANENT TRAFFIC WITH ALL ASSOCIATED EQUIPMENT, UTILIZE THE SERVICE POINT ASSEMBLY (2 CIRCUITS) INSTALLED IN STAGE 2, AND REMOVE THE TEMPORARY TRAFFIC SIGNAL AND COMPONENTS THAT WERE USE FOR STAGE 2 AND 3 TEMPORARY TRAFFIC CONTROL.
(REFER TO PERMANENT TRAFFIC SIGNAL PLANS.)

DATE: 05-19-2020 FILE NAME: t040579_02.dgn

LOCATION: HWY. 16/MORNINGSIDE DR.
CITY: FAYETTEVILLE
COUNTY: WASHINGTON
DISTRICT: 4 SCALE: N/A DRAWN BY: GWE

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED
06-12-2020			

FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
6	ARK.			
JOB NO.		040579	72	127

(2) SIGNALIZATION PLAN SHEET

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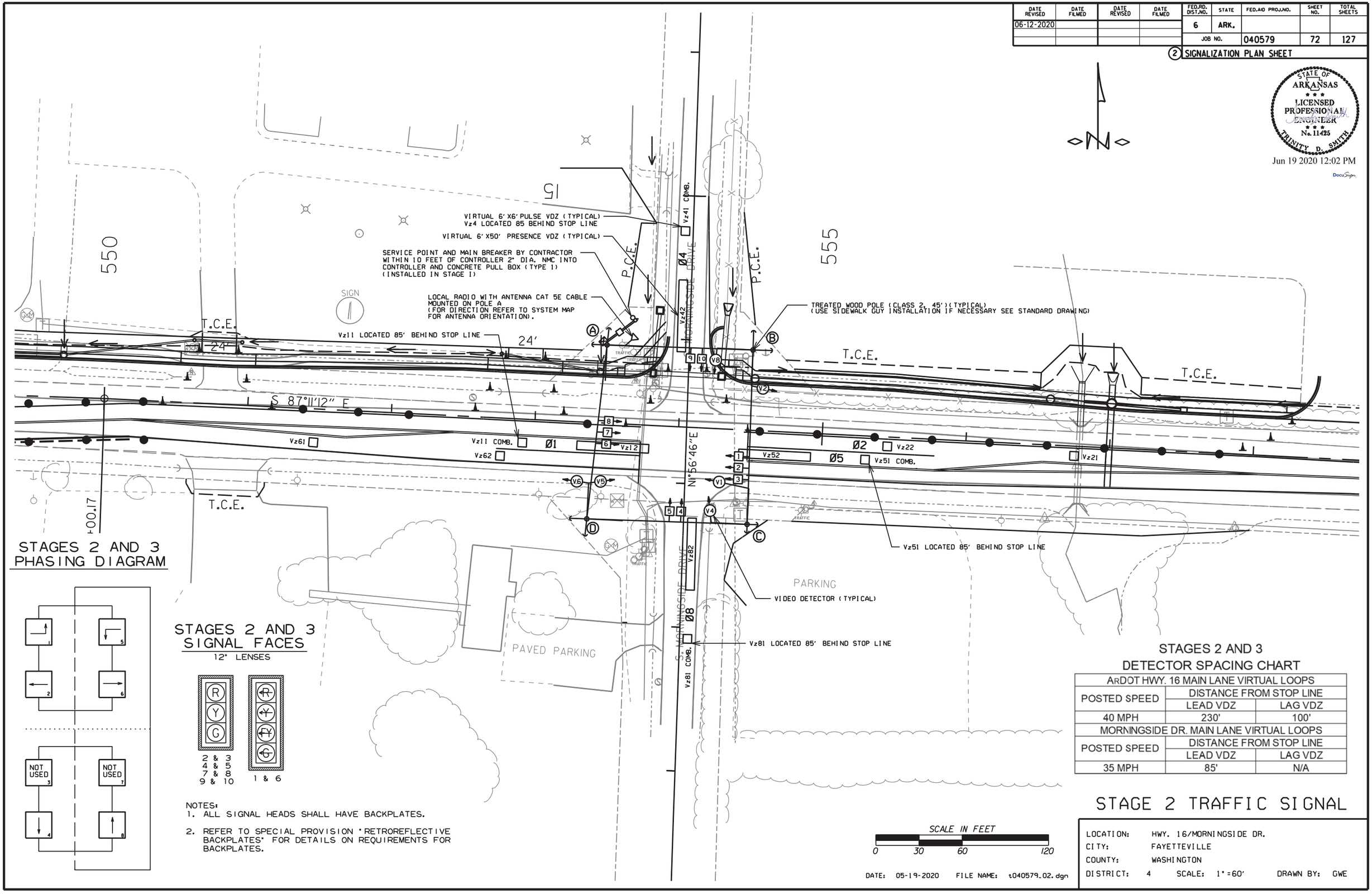

STAGES 2 AND 3 PHASING DIAGRAM

STAGES 2 AND 3 SIGNAL FACES

12" LENSES

NOTES:
1. ALL SIGNAL HEADS SHALL HAVE BACKPLATES.
2. REFER TO SPECIAL PROVISION "RETROREFLECTIVE BACKPLATES" FOR DETAILS ON REQUIREMENTS FOR BACKPLATES.

STAGES 2 AND 3 DETECTOR SPACING CHART

ARDOT HWY. 16 MAIN LANE VIRTUAL LOOPS		
POSTED SPEED	DISTANCE FROM STOP LINE	
	LEAD VDZ	LAG VDZ
40 MPH	230'	100'
MORNINGSIDE DR. MAIN LANE VIRTUAL LOOPS		
POSTED SPEED	DISTANCE FROM STOP LINE	
	LEAD VDZ	LAG VDZ
35 MPH	85'	N/A

SCALE IN FEET
0 30 60 120

DATE: 05-19-2020 FILE NAME: t040579_02.dgn

STAGE 2 TRAFFIC SIGNAL

LOCATION: HWY. 16/MORNINGSIDE DR.
CITY: FAYETTEVILLE
COUNTY: WASHINGTON
DISTRICT: 4 SCALE: 1"=60' DRAWN BY: GWE

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED
06-12-2020			

FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
6	ARK.			
JOB NO.		040579	73	127

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STAGES 2 AND 3 DESIGN PARAMETERS

POSTED SPEED LIMIT:
40 MPH EAST AND WEST APPROACH
35 MPH NORTH AND SOUTH APPROACH

NO BUS STOPS
NO RAILROAD TRACKS
NO EXISTING INTERCONNECTIONS
NO FIRE STATION
NO PARKING
NO SIGHT DISTANCE RESTRICTIONS

LOCATION OF STOP LINES SHOWN ON PERMANENT PAVEMENT MARKING DETAILS (SEE SEPARATE SHEET).

MINIMUM CLEAR ZONE DISTANCE
4 FEET BEHIND CURB

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

VIRTUAL 6' X6' PULSE VDZ (TYPICAL)
Vz4 LOCATED 85 BEHIND STOP LINE

VIRTUAL 6' X50' PRESENCE VDZ (TYPICAL)

SERVICE POINT AND MAIN BREAKER BY CONTRACTOR WITHIN 10 FEET OF CONTROLLER 2" DIA. NMC INTO CONTROLLER AND CONCRETE PULL BOX (TYPE 1) (INSTALLED IN STAGE I)

LOCAL RADIO WITH ANTENNA CAT 5E CABLE MOUNTED ON POLE A (FOR DIRECTION REFER TO SYSTEM MAP FOR ANTENNA ORIENTATION).

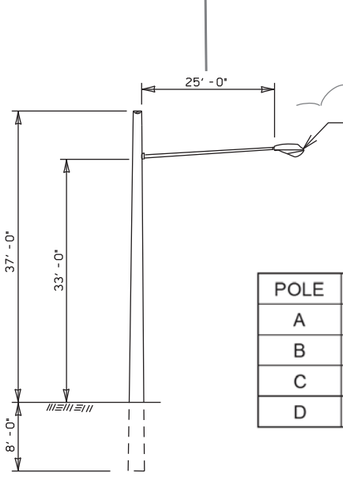
TREATED WOOD POLE (CLASS 2, 45')(TYPICAL)
(USE SIDEWALK GUY INSTALLATION IF NECESSARY SEE STANDARD DRAWING)

Vz11 LOCATED 85' BEHIND STOP LINE

Vz51 LOCATED 85' BEHIND STOP LINE

VIDEO DETECTOR (TYPICAL)

Vz81 LOCATED 85' BEHIND STOP LINE



TYPICAL WOOD POLE WITH LUMINAIRE ARM

NOTE TO CONTRACTOR:
LUMINAIRE ARMS (OR APPROVED MOUNTING HARDWARE) SHALL BE USED TO MOUNT VIDEO DETECTORS. LUMINAIRE ARM SHALL NOT INCLUDE LUMINAIRE ASSEMBLIES. THE COST FOR LUMINAIRE ARMS, MOUNTING, AND ALL HARDWARE IS INCLUDED IN PRICE BID FOR ITEM 716 TREATED WOOD POLE.

STAGES 2 AND 3 HWY. 16/MORNINGSIDE DR. POLE LOCATIONS

POLE	LOCATION & STATION	OFFSET	X, Y COORDINATES
A	HWY. 16 - STA. 553+47.46	54' LT.	676973.90, 631197.12
B	HWY. 16 - STA. 554+49.00	56'. LT.	677075.39, 631193.67
C	HWY. 16 - STA. 554+50.83	65' RT.	677071.27, 631072.39
D	HWY. 16 - STA. 553+39.34	67' RT.	676959.82, 631076.18

STAGE 2 TRAFFIC SIGNAL

SCALE IN FEET
0 20 40 80

DATE: 05-19-2020 FILE NAME: t040579_02.dgn

LOCATION:	HWY. 16/MORNINGSIDE DR.			
CITY:	FAYETTEVILLE			
COUNTY:	WASHINGTON			
DISTRICT:	4	SCALE:	1"=40'	DRAWN BY: GWE

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		040579	74	127

(2) SIGNALIZATION PLAN SHEET

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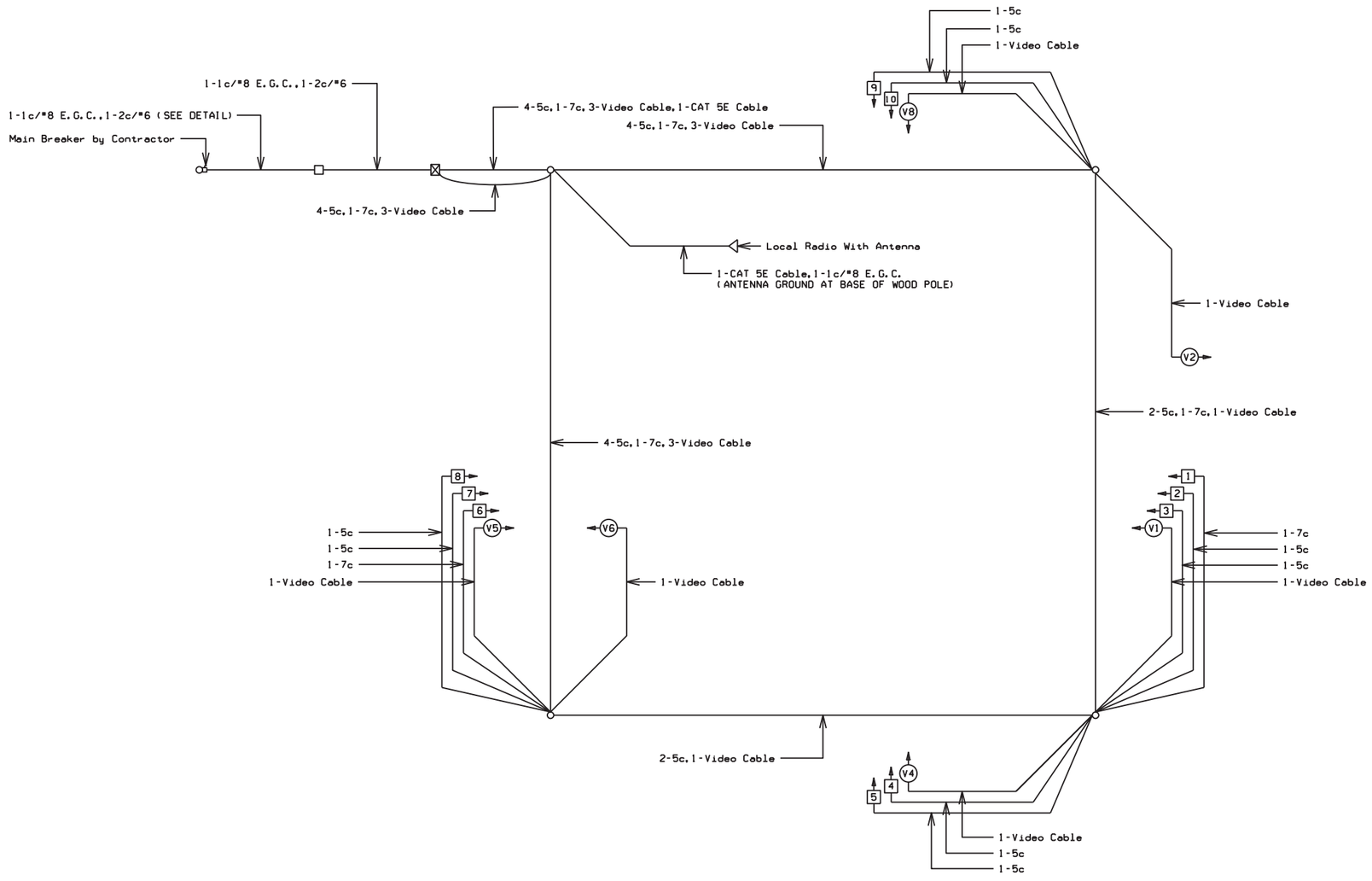


STAGE 2 WIRING DIAGRAM

NOTES TO CONTRACTOR:

1. ALL DETECTOR RACK CHANNELS, INCLUDING UNUSED, SHALL BE BROUGHT TO TERMINAL STRIP IN DETECTOR AREA OF CABINET.
2. THE LOCAL GOVERNMENT SHALL BE RESPONSIBLE FOR PROVIDING POWER TO THE SERVICE POINT.

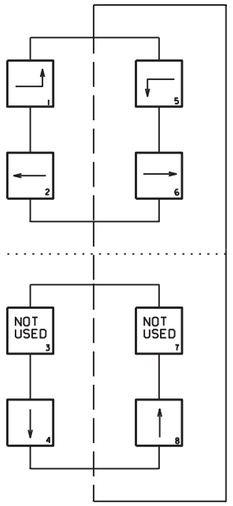
DATE: 05-19-2020 FILE NAME: t040579_02.dgn

LOCATION: HWY. 16/MORNINGSIDE DR.
CITY: FAYETTEVILLE
COUNTY: WASHINGTON
DISTRICT: 4 SCALE: N/A DRAWN BY: GWE

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		040579	75	127

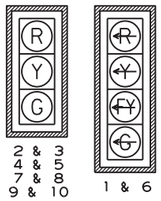
(2) SIGNALIZATION PLAN SHEET

STAGES 2 AND 3 PHASING DIAGRAM



STAGES 2 AND 3 SIGNAL FACES

12" LENSES



2 & 3
4 & 5
7 & 8
9 & 10

1 & 6

NOTES:
1. ALL SIGNAL HEADS SHALL HAVE BACKPLATES.
2. REFER TO SPECIAL PROVISION "RETROREFLECTIVE BACKPLATES" FOR DETAILS ON REQUIREMENTS FOR BACKPLATES.

STAGES 2 AND 3 DETECTOR CHART

DETECTOR SYSTEM DESCRIPTION: JOB 040579											
FAYETTEVILLE - HWY. 16/MORNINGSIDE DR. DETECTOR ASSIGNMENTS				HARDWARE INPUTS BY SUPPLIER			PROGRAM ASSIGNMENTS LOCAL		MASTER SYSTEM DETECTOR NUMBERS	COMMENTS	TUBE LENGTHS
DET. ID #	LOCATION DIRECTION	TPYE	DET. #	CAB. TRM. #	AMP CHN. #	CON. IMP. #	PHS	SYSTEM DET. #			
Vz11	EB LEFT TURN FAR	COMB.			1	V9	1	1		CAMERA V1	23"
Vz12	EB LEFT TURN	LOCAL			2	V1	1			CAMERA V1	23"
Vz21	WB ADVANCE	LOCAL			5	V2	2			CAMERA V2	23"
Vz22	WB NEAR	COMB.			6	V10	2	2		CAMERA V5	23"
Vz41	SB ADVANCE	COMB.			9	V12	4	4		CAMERA V4	23"
Vz42	SB NEAR	LOCAL			10	V4	4			CAMERA V4	23"
Vz51	WB LEFT TURN FAR	COMB.			7	V13	5	5		CAMERA V5	23"
Vz52	WB LEFT TURN	LOCAL			8	V5	5			CAMERA V5	23"
Vz61	EB ADVANCE	LOCAL			3	V6	6			CAMERA V6	23"
Vz62	EB NEAR	COMB.			4	V14	6	6		CAMERA V1	23"
Vz81	NB ADVANCE	COMB.			11	V16	8	8		CAMERA V8	23"
Vz82	NB NEAR	LOCAL			12	V8	8			CAMERA V8	23"
					SPARE 13 - 16						

CONTROLLER INPUT ABBREVIATIONS:
V = VEHICLE INPUT
D = SYSTEM OR AUXILIARY INPUT
P = PEDESTRIAN INPUT

NOTE: "AMP CHN =" REFERS TO THE RACK OUTPUT POSITION.
THIS IS WIRED TO CONTROLLER INPUT DETECTOR NUMBER WHICH IS PROGRAMMED TO ACTUATE THE DESIGNATED PHASE.
EXAMPLE: V9 = SYSTEM DETECTOR 1, V10 = SYSTEM DETECTOR 2

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Trinity Smith

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STAGES 2 AND 3 INTERVAL CHART

SIGNAL FACES	HWY. 16/MORNINGSIDE DR. 1+5	CLR.	1+6	CLR.	2+5	CLR.	2+6	CLR.	4+8	CLR.		FLASH SEQUENCE
1	~~G~~	*	~~G~~	*	~~FY~~	***	~~FY~~	***	~~R~~	~~R~~		~~R~~
2 & 3	R	R	G	**	R	R	G	**	R	R		R
4 & 5	R	R	R	R	R	R	R	R	G	Y		R
6	~~R~~	*	~~FY~~	***	~~G~~	*	~~FY~~	***	~~R~~	~~R~~		~~R~~
7 & 8	R	R	R	R	G	**	G	**	R	R		R
9 & 10	R	R	R	R	R	R	R	R	G	Y		R

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

DATE: 05-19-2020 FILE NAME: t040579_02.dgn

LOCATION: HWY. 16/MORNINGSIDE DR.
CITY: FAYETTEVILLE
COUNTY: WASHINGTON
DISTRICT: 4 SCALE: N/A DRAWN BY: GWE

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED
06-12-2020			

FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
6	ARK.			
JOB NO.		040579	76	127

(2) SIGNALIZATION PLAN SHEET

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550
555
15
SIGN
T.C.E.
24'
P.C.E.
Ø4
Vz41 COMB.
Vz42
Ø1
Vz11 COMB.
Vz12
Vz61
11'12" E
Vz62
Ø2
Vz22
Vz52
Ø5
Vz51 COMB.
Vz21
40'
N1°56'46"E
P1550+00.17
PARKING
PAVED PARKING
S. MORNINGSIDE DRIVE
Vz82
Ø8
Vz81 COMB.
TRAFFIC

STAGE 3 TRAFFIC SIGNAL

SCALE IN FEET
0 30 60 120

DATE: 05-19-2020 FILE NAME: t040579_02.dgn

LOCATION: HWY. 16/MORNINGSIDE DR.
CITY: FAYETTEVILLE
COUNTY: WASHINGTON
DISTRICT: 4 SCALE: 1"=60' DRAWN BY: GWE

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED
06-12-2020			

FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
6	ARK.			
JOB NO.		040579	77	127

(2) SIGNALIZATION PLAN SHEET

STATE OF ARKANSAS
LICENSED PROFESSIONAL ENGINEER
No. 11425
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NOTE TO CONTRACTOR:
TRAFFIC SIGNAL OPERATIONS SHALL BE MAINTAINED THROUGHOUT ALL CONSTRUCTION PHASES.

SIGN

15

555

P.C.E.

P.C.E.

T.C.E.

Vz41 COMB.

Ø4

Vz42

24'

A

B

C

D

V1

V2

V4

V5

V6

V8

1

2

3

4

5

6

7

8

9

10

Vz61 N11°12" E

Vz11 COMB.

Ø1

Vz12

Vz62

Ø2

Vz22

Vz52

Ø5

Vz51 COMB.

Vz21

N1°56'46"E

Vz82

Ø8

Vz81 COMB.

S. MORNINGSIDE DRIVE

TRAFFIC

TRAFFIC

PAVED PARKING

PARKING

SCALE IN FEET
0 20 40 80

DATE: 05-19-2020 FILE NAME: t040579_02.dgn

STAGE 3 TRAFFIC SIGNAL

LOCATION: HWY. 16/MORNINGSIDE DR.
CITY: FAYETTEVILLE
COUNTY: WASHINGTON
DISTRICT: 4 SCALE: 1"=40' DRAWN BY: GWE

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		040579	78	127

(2) SIGNALIZATION PLAN SHEET

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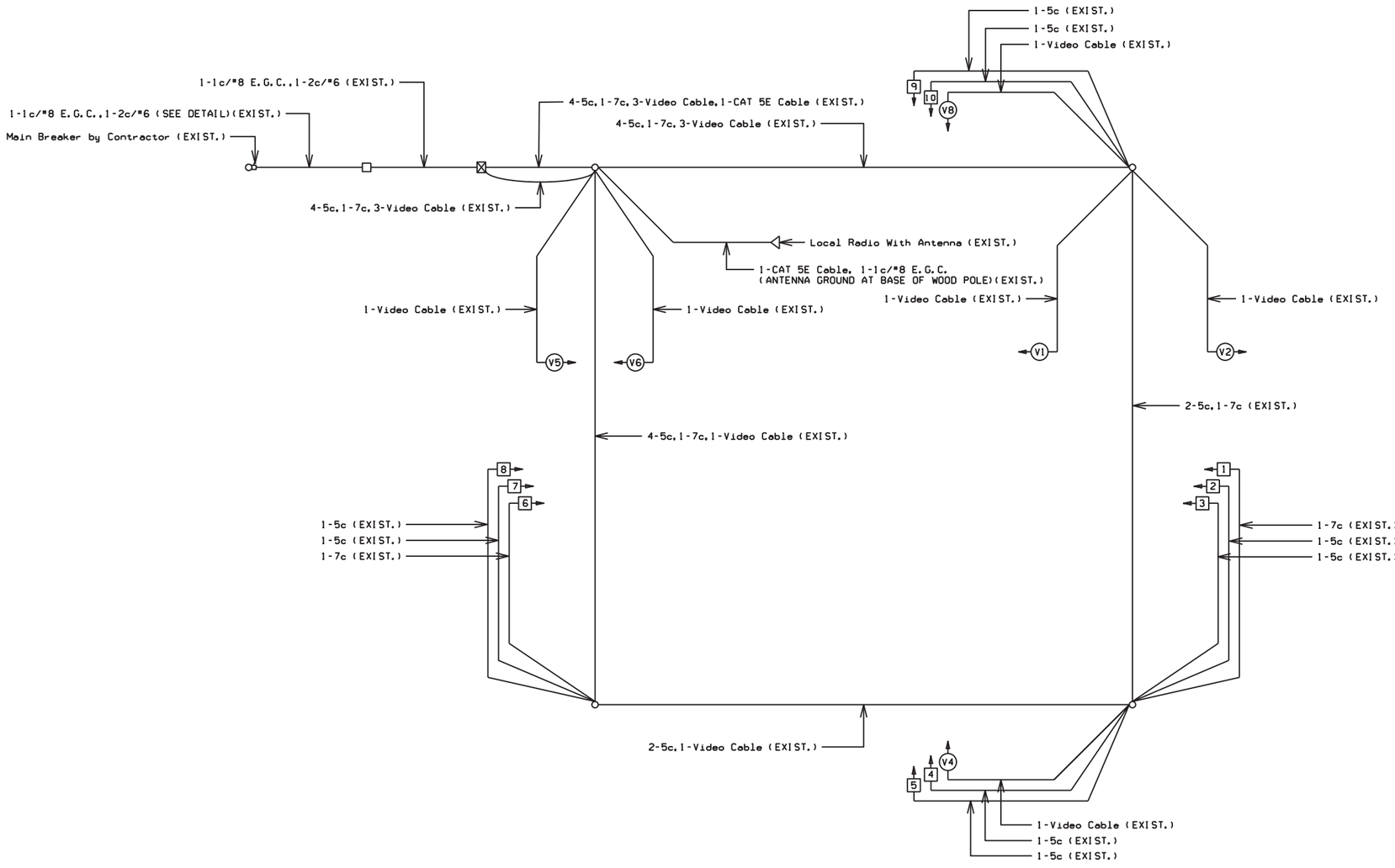

STAGE 3 WIRING DIAGRAM

NOTES TO CONTRACTOR:

1. ALL DETECTOR RACK CHANNELS, INCLUDING UNUSED, SHALL BE BROUGHT TO TERMINAL STRIP IN DETECTOR AREA OF CABINET.
2. THE LOCAL GOVERNMENT SHALL BE RESPONSIBLE FOR PROVIDING POWER TO THE SERVICE POINT.

DATE: 05-19-2020 FILE NAME: t040579_02.dgn

LOCATION: HWY. 16/MORNINGSIDE DR.
CITY: FAYETTEVILLE
COUNTY: WASHINGTON
DISTRICT: 4 SCALE: N/A DRAWN BY: GWE

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED
06-12-2020			

FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
6	ARK.			
JOB NO.		040579	79	127

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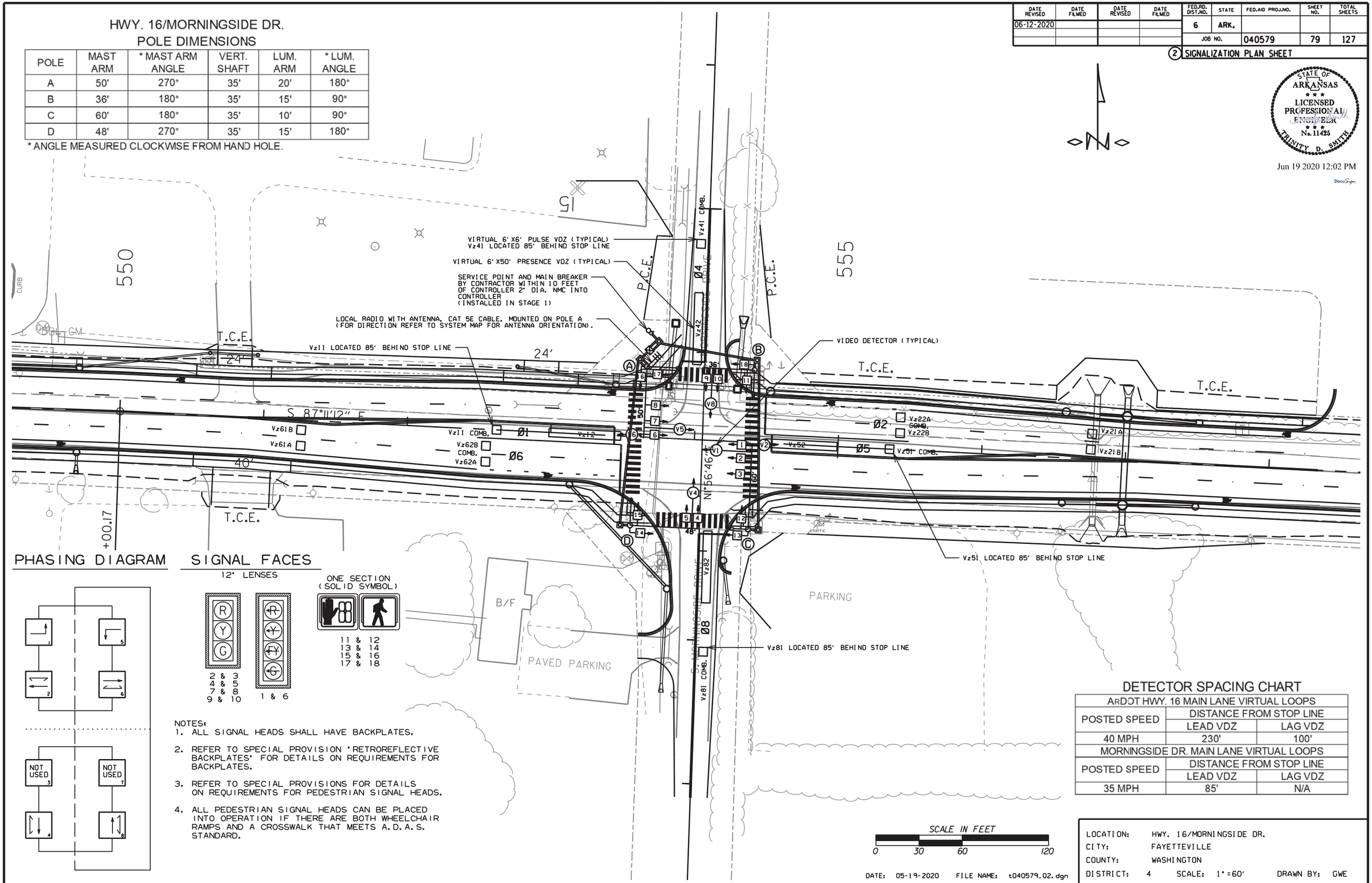
HWY. 16/MORNINGSIDE DR.
POLE DIMENSIONS

POLE	MAST ARM	* MAST ARM ANGLE	VERT. SHAFT	LUM. ARM	* LUM. ANGLE
A	50'	270°	35'	20'	180°
B	36'	180°	35'	15'	90°
C	60'	180°	35'	10'	90°
D	48'	270°	35'	15'	180°

* ANGLE MEASURED CLOCKWISE FROM HAND HOLE.



PHASING DIAGRAM

SIGNAL FACES

12" LENSES

ONE SECTION (SOLID SYMBOL)

11 & 12
13 & 14
15 & 16
17 & 18

NOTES:
1. ALL SIGNAL HEADS SHALL HAVE BACKPLATES.
2. REFER TO SPECIAL PROVISION "RETROREFLECTIVE BACKPLATES" FOR DETAILS ON REQUIREMENTS FOR BACKPLATES.
3. REFER TO SPECIAL PROVISIONS FOR DETAILS ON REQUIREMENTS FOR PEDESTRIAN SIGNAL HEADS.
4. ALL PEDESTRIAN SIGNAL HEADS CAN BE PLACED INTO OPERATION IF THERE ARE BOTH WHEELCHAIR RAMPS AND A CROSSWALK THAT MEETS A.D.A.S. STANDARD.

DETECTOR SPACING CHART

ARDOT HWY. 16 MAIN LANE VIRTUAL LOOPS		
POSTED SPEED	DISTANCE FROM STOP LINE	
	LEAD VDZ	LAG VDZ
40 MPH	230'	100'
MORNINGSIDE DR. MAIN LANE VIRTUAL LOOPS		
POSTED SPEED	DISTANCE FROM STOP LINE	
	LEAD VDZ	LAG VDZ
35 MPH	85'	N/A

SCALE IN FEET
0 30 60 120

DATE: 05-19-2020 FILE NAME: t040579_02.dgn

LOCATION: HWY. 16/MORNINGSIDE DR.
CITY: FAYETTEVILLE
COUNTY: WASHINGTON
DISTRICT: 4 SCALE: 1"=60' DRAWN BY: GWE

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED
06-12-2020			

FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
6	ARK.			
JOB NO.		040579	80	127

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DESIGN PARAMETERS

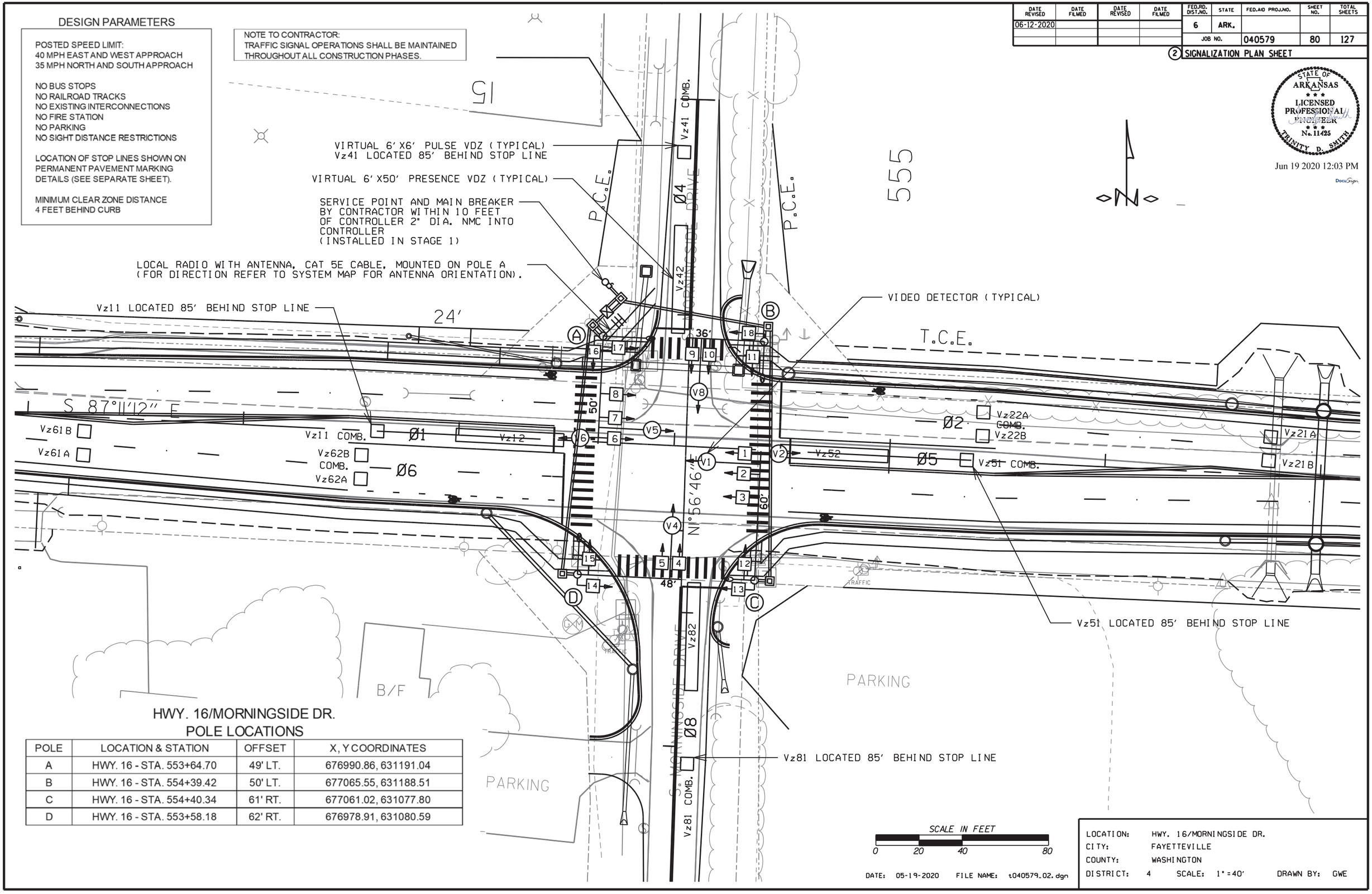
POSTED SPEED LIMIT:
40 MPH EAST AND WEST APPROACH
35 MPH NORTH AND SOUTH APPROACH

NO BUS STOPS
NO RAILROAD TRACKS
NO EXISTING INTERCONNECTIONS
NO FIRE STATION
NO PARKING
NO SIGHT DISTANCE RESTRICTIONS

LOCATION OF STOP LINES SHOWN ON PERMANENT PAVEMENT MARKING DETAILS (SEE SEPARATE SHEET).

MINIMUM CLEAR ZONE DISTANCE
4 FEET BEHIND CURB

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



HWY. 16/MORNINGSIDE DR.
POLE LOCATIONS

POLE	LOCATION & STATION	OFFSET	X, Y COORDINATES
A	HWY. 16 - STA. 553+64.70	49' LT.	676990.86, 631191.04
B	HWY. 16 - STA. 554+39.42	50' LT.	677065.55, 631188.51
C	HWY. 16 - STA. 554+40.34	61' RT.	677061.02, 631077.80
D	HWY. 16 - STA. 553+58.18	62' RT.	676978.91, 631080.59

SCALE IN FEET
0 20 40 80

DATE: 05-19-2020 FILE NAME: t040579_02.dgn

LOCATION: HWY. 16/MORNINGSIDE DR.
CITY: FAYETTEVILLE
COUNTY: WASHINGTON
DISTRICT: 4 SCALE: 1"=40' DRAWN BY: GWE

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		040579	81	127

(2) SIGNALIZATION PLAN SHEET

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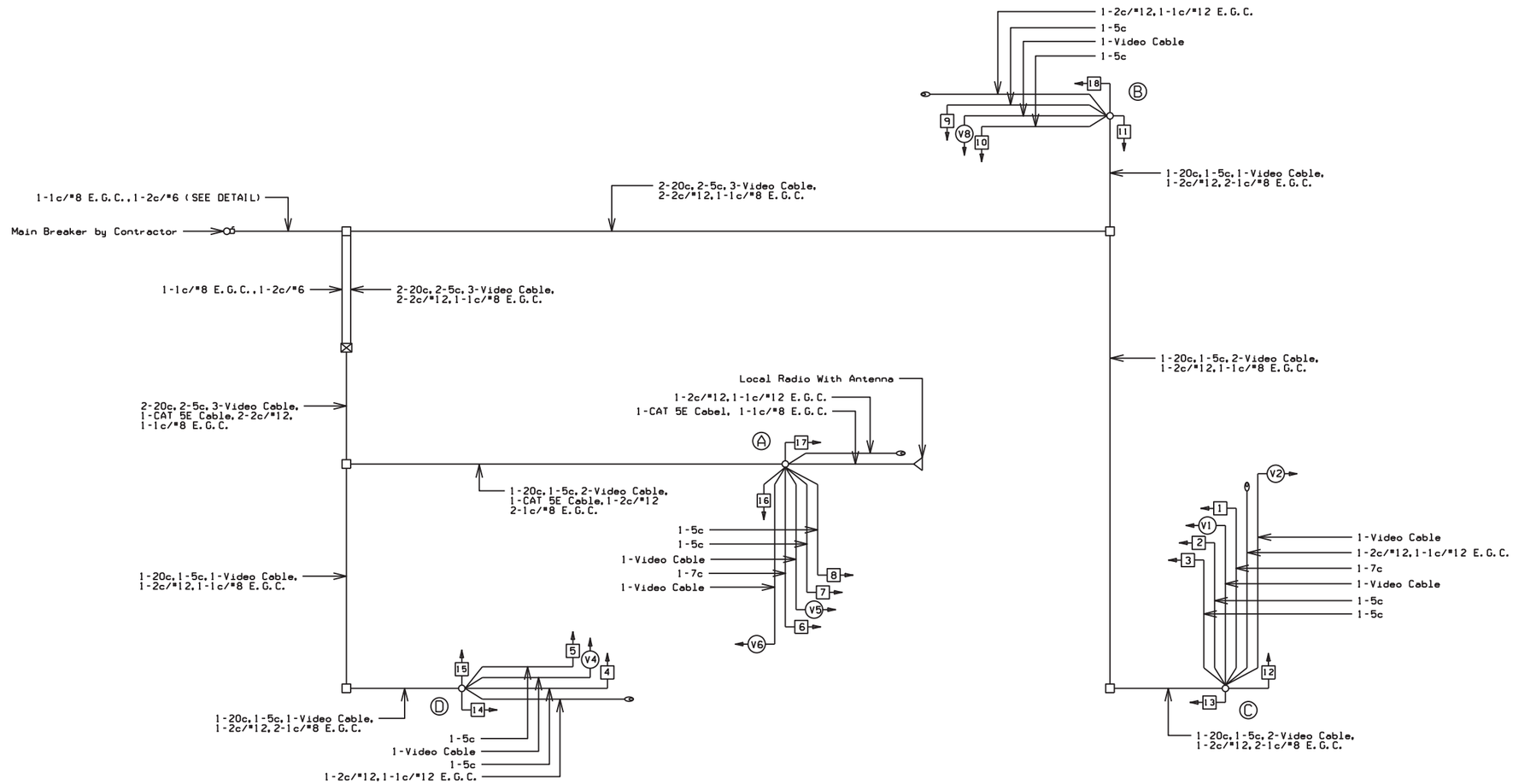
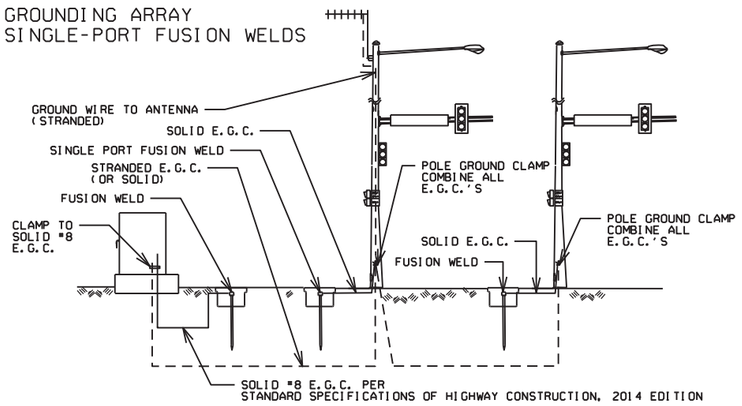


WIRING DIAGRAM

NOTES TO CONTRACTOR:

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



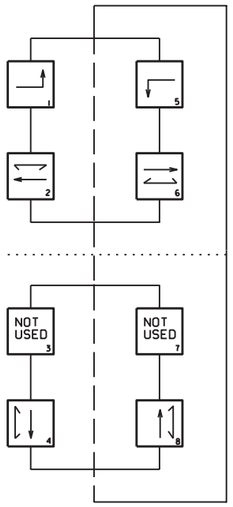
DATE: 05-19-2020 FILE NAME: t040579_02.dgn

LOCATION:	HWY. 16/MORNINGSIDE DR.				
CITY:	FAYETTEVILLE				
COUNTY:	WASHINGTON				
DISTRICT:	4	SCALE:	N/A	DRAWN BY:	GWE

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		040579	82	127

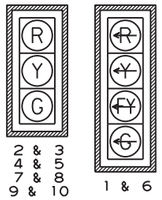
(2) SIGNALIZATION PLAN SHEET

PHASING DIAGRAM



SIGNAL FACES

12" LENSES



2 & 3
4 & 5
7 & 8
9 & 10

1 & 6

ONE SECTION
(SOLID SYMBOL)

11 & 12
13 & 14
15 & 16
17 & 18

NOTES:
1. ALL SIGNAL HEADS SHALL HAVE BACKPLATES.
2. REFER TO SPECIAL PROVISION "RETROREFLECTIVE BACKPLATES" FOR DETAILS ON REQUIREMENTS FOR BACKPLATES.
3. REFER TO SPECIAL PROVISIONS FOR DETAILS ON REQUIREMENTS FOR PEDESTRIAN SIGNAL HEADS.
4. ALL PEDESTRIAN SIGNAL HEADS CAN BE PLACED INTO OPERATION IF THERE ARE BOTH WHEELCHAIR RAMPS AND A CROSSWALK THAT MEETS A.D.A.S. STANDARD.

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

May 21 2020 2:27 PM
DocuSign

DETECTOR CHART

DETECTOR SYSTEM DESCRIPTION: JOB 040579											
FAYETTEVILLE - HWY. 16/MORNINGSIDE DR. DETECTOR ASSIGNMENTS				HARDWARE INPUTS BY SUPPLIER			PROGRAM ASSIGNMENTS			COMMENTS	TUBE LENGTHS
							LOCAL		MASTER SYSTEM		
DET. ID #	LOCATION DIRECTION	TPYE	DET. #	CAB. TRM. #	AMP CHN. #	CON. IMP. #	PHS	SYSTEM DET. #	DETECTOR NUMBERS		
Vz11	EB LEFT TURN FAR	COMB.			1	V9	1	1		CAMERA V1	37"
Vz12	EB LEFT TURN	LOCAL			2	V1	1			CAMERA V1	37"
Vz21 A&B	WB ADVANCE	LOCAL			9	V2	2			CAMERA V2	74"
Vz22 A&B	WB NEAR	COMB.			13	V10	2	2		CAMERA V5	37"
Vz41	SB ADVANCE	COMB.			17	V12	4	4		CAMERA V4	74"
Vz42	SB NEAR	LOCAL			18	V4	4			CAMERA V4	74"
Vz51	WB LEFT TURN FAR	COMB.			14	V13	5	5		CAMERA V5	37"
Vz52	WB LEFT TURN	LOCAL			15	V5	5			CAMERA V5	37"
Vz61 A&B	EB ADVANCE	LOCAL			5	V6	6			CAMERA V6	74"
Vz62 A&B	EB NEAR	COMB.			3	V14	6	6		CAMERA V1	37"
Vz81	NB ADVANCE	COMB.			21	V16	8	8		CAMERA V8	74"
Vz82	NB NEAR	LOCAL			22	V8	8			CAMERA V8	74"
PB2 A&B	MORNINGSIDE DR. N. LEG	PED.				P2	2				
PB4 A&B	HWY. 16 W. LEG	PED.				P4	4				
PB6 A&B	MORNINGSIDE DR. S. LEG	PED.				P6	6				
PB8 A&B	HWY. 16 E. LEG	PED.				P8	8				
					SPARE 4, 6 - 8, 10 - 12, 16, 19 - 20, & 23 - 24						

CONTROLLER INPUT ABBREVIATIONS:
V = VEHICLE INPUT
D = SYSTEM OR AUXILIARY INPUT
P = PEDESTRIAN INPUT

NOTE: "AMP CHN =" REFERS TO THE RACK OUTPUT POSITION.
THIS IS WIRED TO CONTROLLER INPUT DETECTOR NUMBER WHICH IS PROGRAMMED TO ACTUATE THE DESIGNATED PHASE.
EXAMPLE: V9 = SYSTEM DETECTOR 1, V10 = SYSTEM DETECTOR 2

INTERVAL CHART

SIGNAL FACES	HWY. 16/MORNINGSIDE DR. 1+5	CLR.	1+6	CLR.	2+5	CLR.	2+6	CLR.	4+8	CLR.	FLASH SEQUENCE
1	~~G~~	*	~~G~~	*	~~FY~~	***	~~FY~~	***	~~R~~	~~R~~	~~R~~
2 & 3	R	R	G	**	R	R	G	**	R	R	R
4 & 5	R	R	R	R	R	R	R	R	G	Y	R
6	~~R~~	*	~~FY~~	***	~~G~~	*	~~FY~~	***	~~R~~	~~R~~	~~R~~
7 & 8	R	R	R	R	G	**	G	**	R	R	R
9 & 10	R	R	R	R	R	R	R	R	G	Y	R
11 & 12	DW	DW	DW	DW	DW	DW	DW	DW	W	FDW	BLK
13 & 14	DW	DW	W	FDW	DW	DW	W	FDW	DW	DW	BLK
15 & 16	DW	DW	DW	DW	DW	DW	DW	DW	W	FDW	BLK
17 & 18	DW	DW	DW	DW	W	FDW	W	FDW	DW	DW	BLK

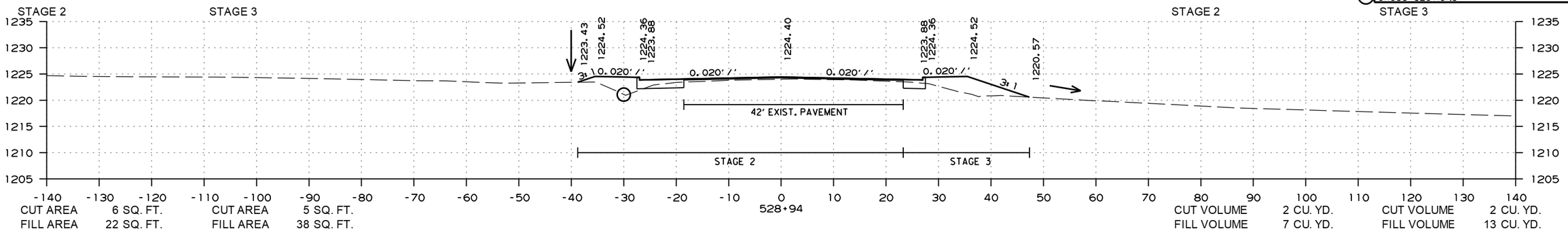
* DENOTES GREEN OR YELLOW ARROW DEPENDING ON NEXT PHASE
** DENOTES GREEN OR YELLOW BALL DEPENDING ON NEXT PHASE
*** DENOTES FLASHING YELLOW ARROW OR YELLOW ARROW DEPENDING ON NEXT PHASE

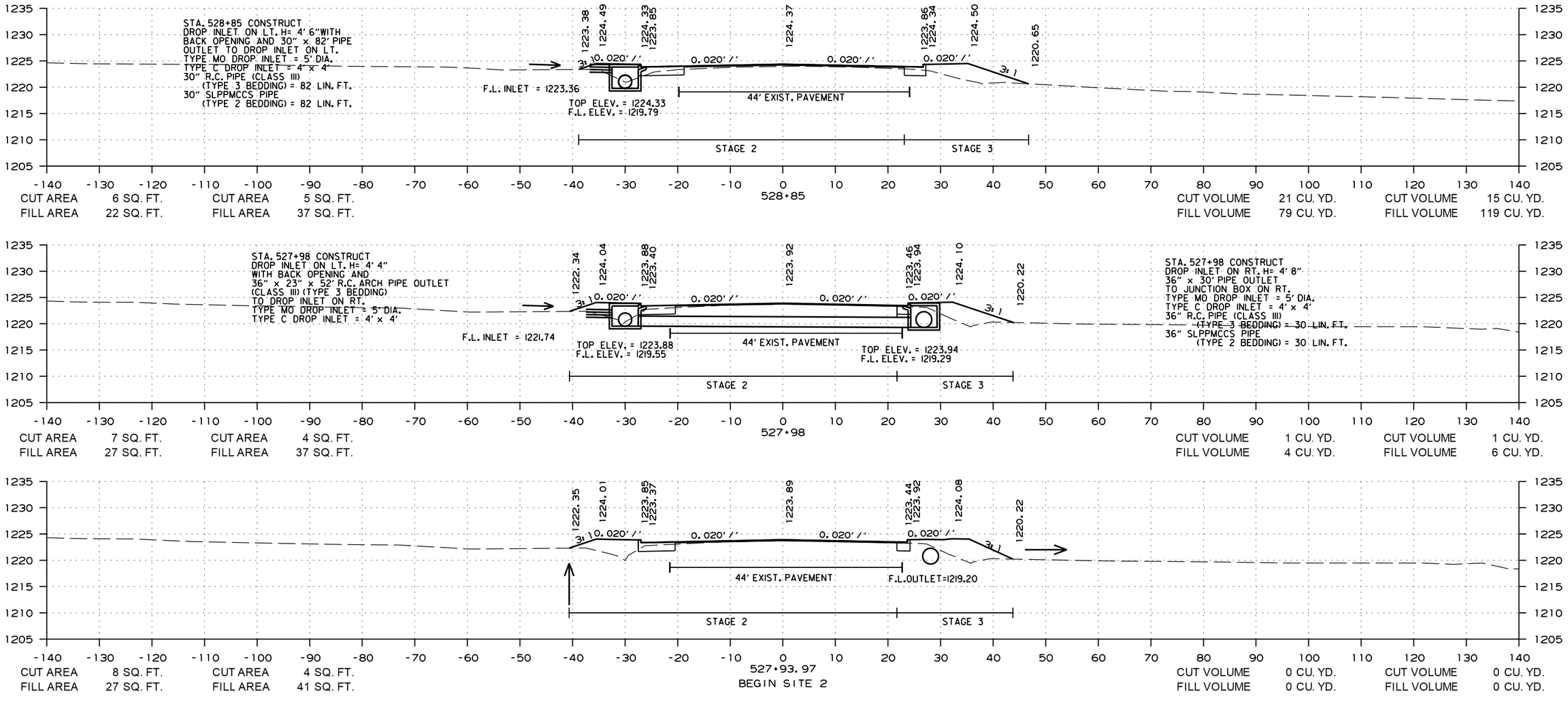
DATE: 05-19-2020 FILE NAME: t040579_02.dgn

LOCATION: HWY. 16/MORNINGSIDE DR.
CITY: FAYETTEVILLE
COUNTY: WASHINGTON
DISTRICT: 4 SCALE: N/A DRAWN BY: GWE

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		040579	83	127

(2) CROSS SECTIONS



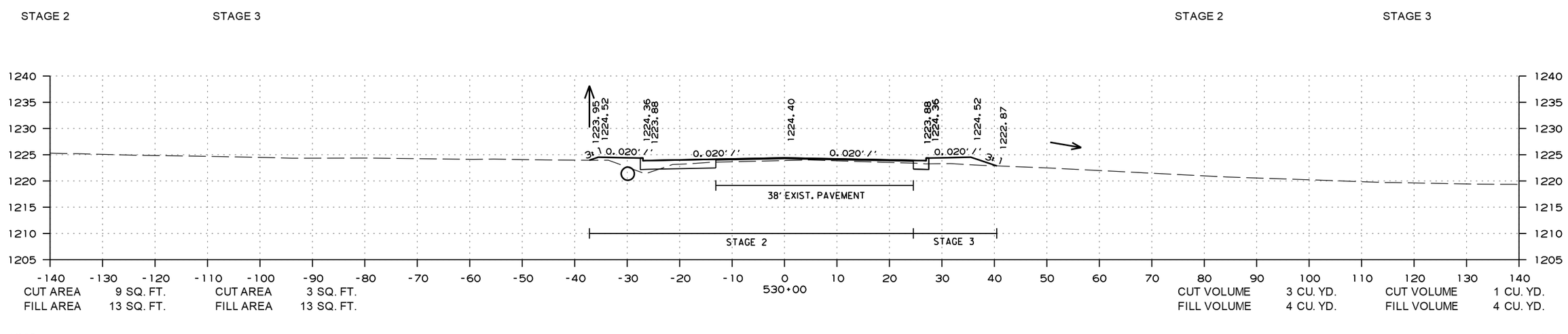


HWY. 16 - SITE 2
STA. 527+94 TO STA. 528+94

RD38049 5/19/2020
R040579.DGN

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		040579	84	127

(2) CROSS SECTIONS

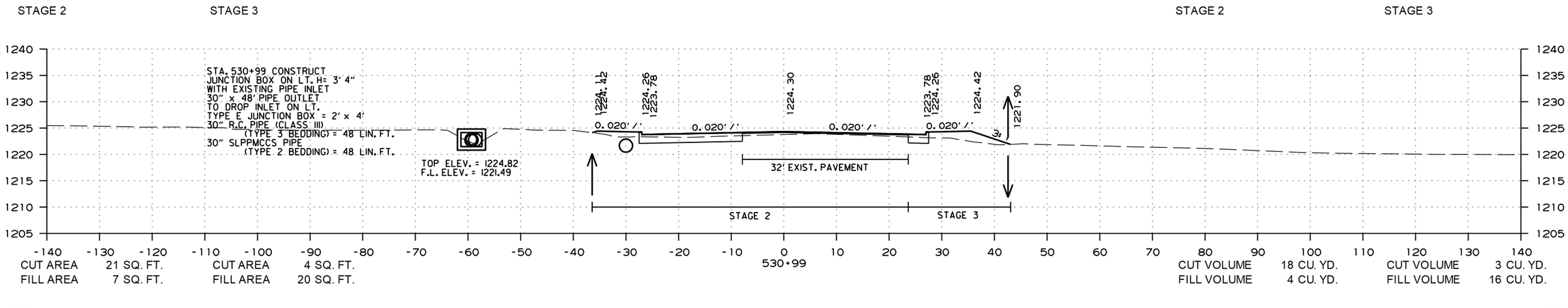


RD38049 5/19/2020
R040579.DGN

HWY. 16 - SITE 2
STA. 529+00 TO STA. 530+00

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		040579	85	127

(2) CROSS SECTIONS

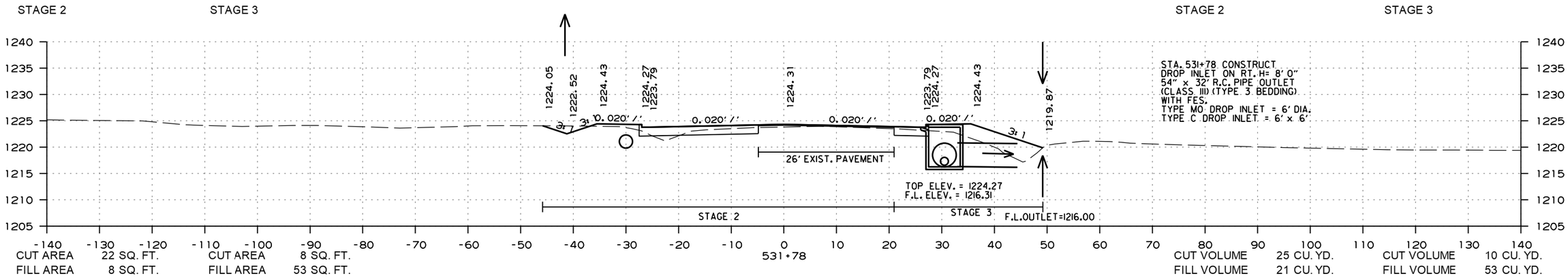


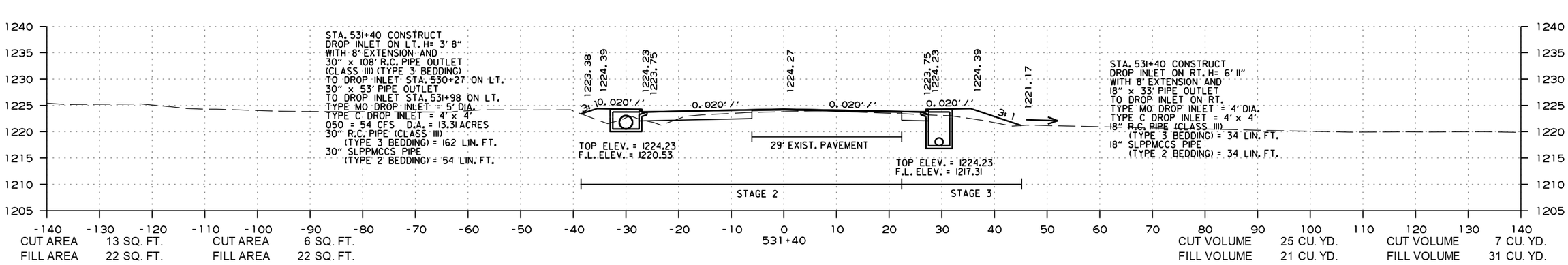
RD38049 5/19/2020
R040579.DGN

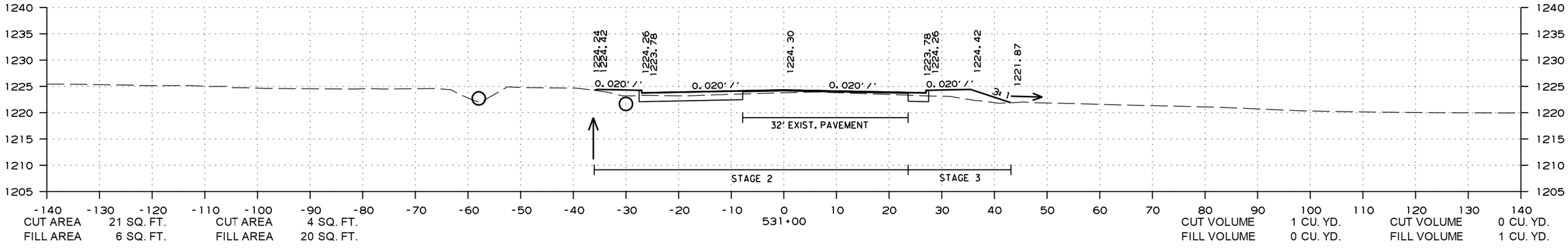
HWY. 16 - SITE 2
STA. 530+27 TO STA. 530+99

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		040579	86	127

(2) CROSS SECTIONS





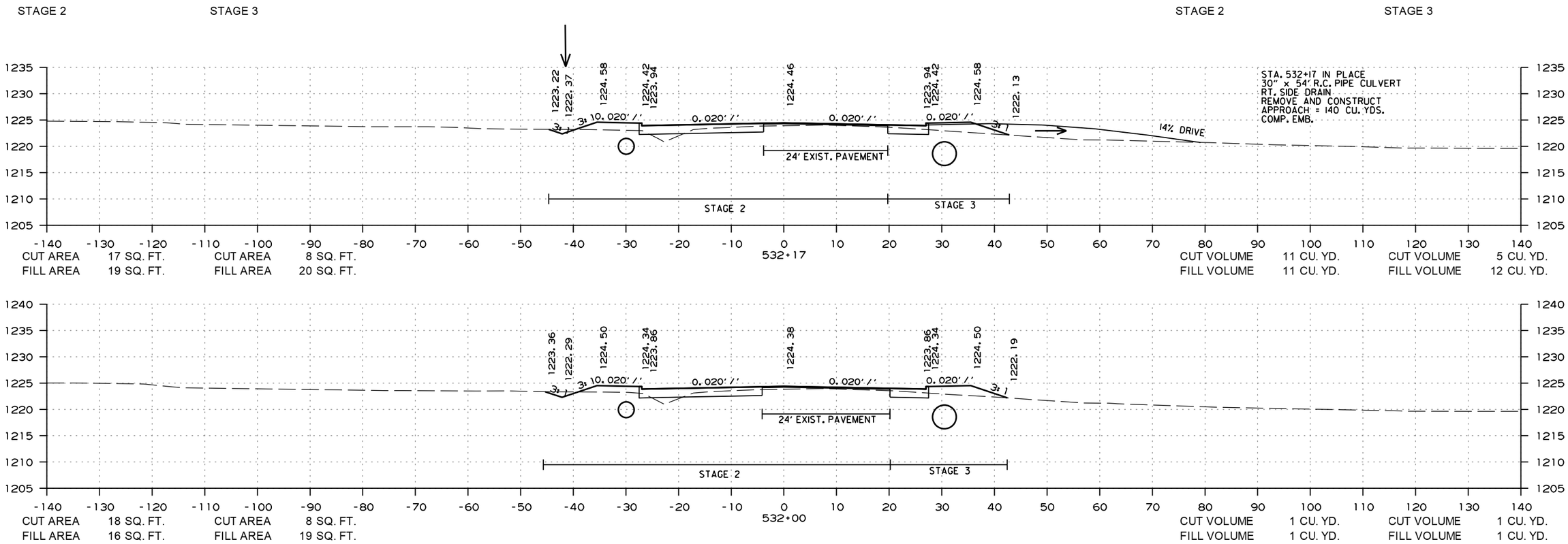


HWY. 16 - SITE 2
STA. 531+00 TO STA. 531+78

RD38049 5/19/2020
R040579.DGN

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		040579	87	127

(2) CROSS SECTIONS



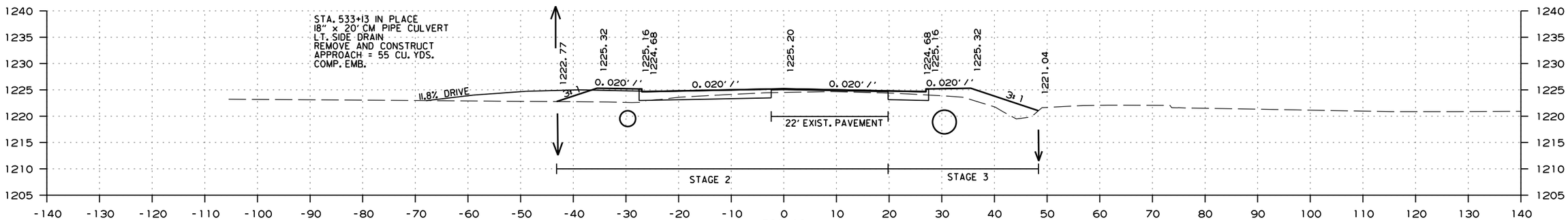
RD38049 5/19/2020
R040579.DGN

HWY. 16 - SITE 2
STA. 531+98 TO STA. 532+17

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		040579	88	127

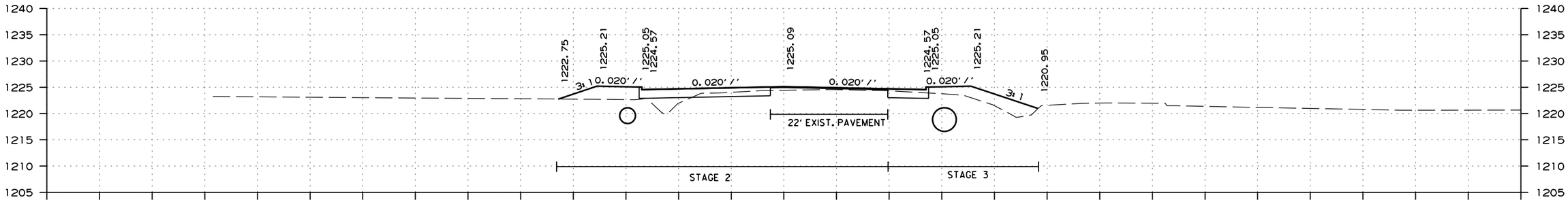
(2) CROSS SECTIONS

STAGE 2 STAGE 3 STAGE 2 STAGE 3



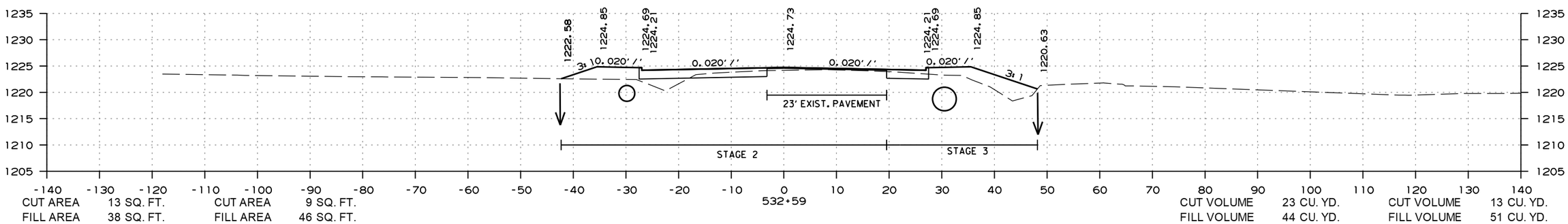
CUT AREA 14 SQ. FT. CUT AREA 9 SQ. FT.
FILL AREA 28 SQ. FT. FILL AREA 40 SQ. FT.

CUT VOLUME 6 CU. YD. CUT VOLUME 4 CU. YD.
FILL VOLUME 17 CU. YD. FILL VOLUME 19 CU. YD.



CUT AREA 12 SQ. FT. CUT AREA 9 SQ. FT.
FILL AREA 42 SQ. FT. FILL AREA 40 SQ. FT.

CUT VOLUME 19 CU. YD. CUT VOLUME 14 CU. YD.
FILL VOLUME 61 CU. YD. FILL VOLUME 65 CU. YD.



CUT AREA 13 SQ. FT. CUT AREA 9 SQ. FT.
FILL AREA 38 SQ. FT. FILL AREA 46 SQ. FT.

CUT VOLUME 23 CU. YD. CUT VOLUME 13 CU. YD.
FILL VOLUME 44 CU. YD. FILL VOLUME 51 CU. YD.

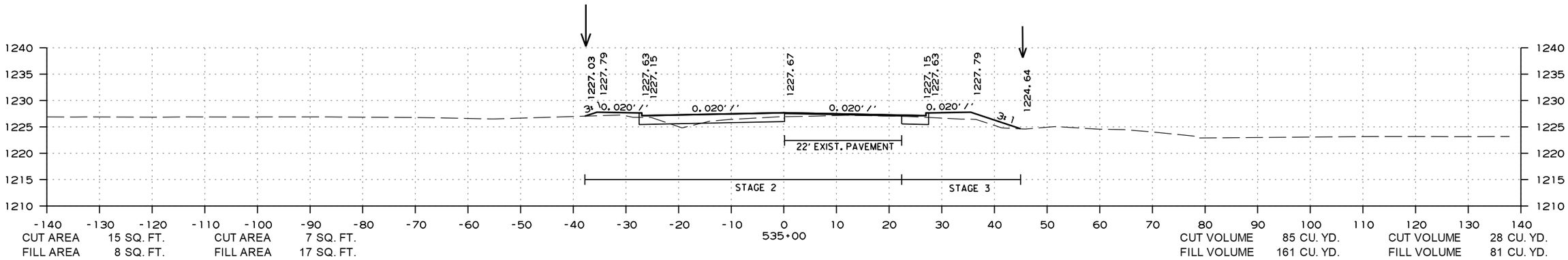
HWY. 16 - SITE 2
STA. 532+59 TO STA. 533+13

RD38049 5/19/2020
R040579.DGN

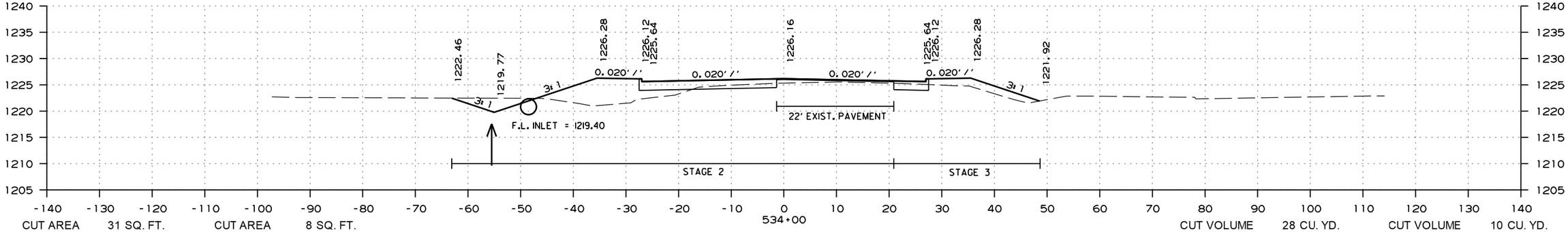
DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		040579	89	127

(2) CROSS SECTIONS

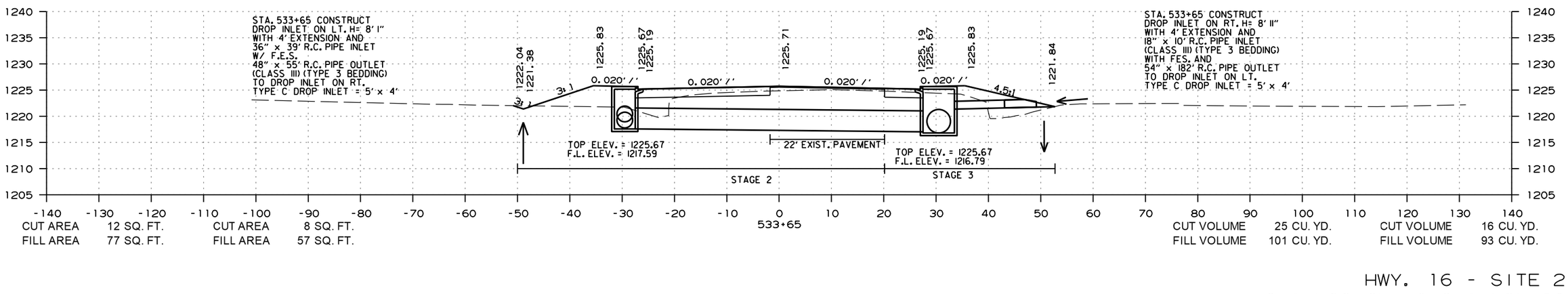
STAGE 2 STAGE 3 STAGE 2 STAGE 3



CUT AREA 15 SQ. FT. CUT AREA 7 SQ. FT. CUT VOLUME 85 CU. YD. CUT VOLUME 28 CU. YD.
FILL AREA 8 SQ. FT. FILL AREA 17 SQ. FT. FILL VOLUME 161 CU. YD. FILL VOLUME 81 CU. YD.



CUT AREA 31 SQ. FT. CUT AREA 8 SQ. FT. CUT VOLUME 28 CU. YD. CUT VOLUME 10 CU. YD.
FILL AREA 79 SQ. FT. FILL AREA 27 SQ. FT. FILL VOLUME 101 CU. YD. FILL VOLUME 54 CU. YD.



CUT AREA 12 SQ. FT. CUT AREA 8 SQ. FT. CUT VOLUME 25 CU. YD. CUT VOLUME 16 CU. YD.
FILL AREA 77 SQ. FT. FILL AREA 57 SQ. FT. FILL VOLUME 101 CU. YD. FILL VOLUME 93 CU. YD.

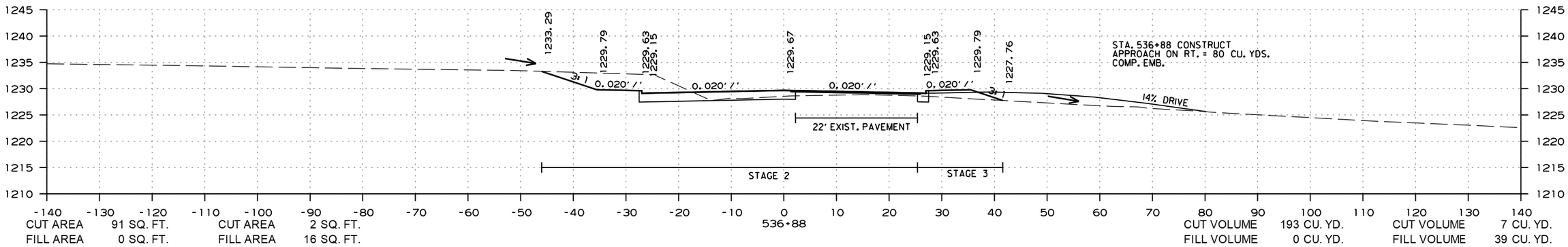
HWY. 16 - SITE 2
STA. 533+65 TO STA. 535+00

RD38049 5/19/2020
R040579.DGN

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		040579	90	127

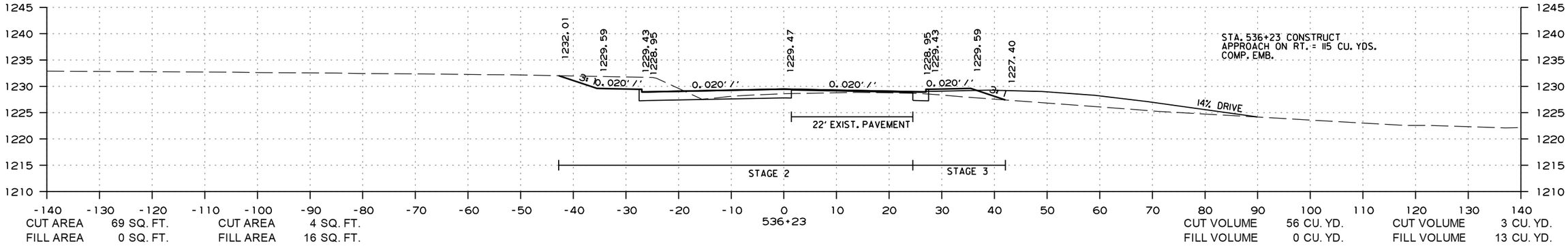
(2) CROSS SECTIONS

STAGE 2 STAGE 3 STAGE 2 STAGE 3



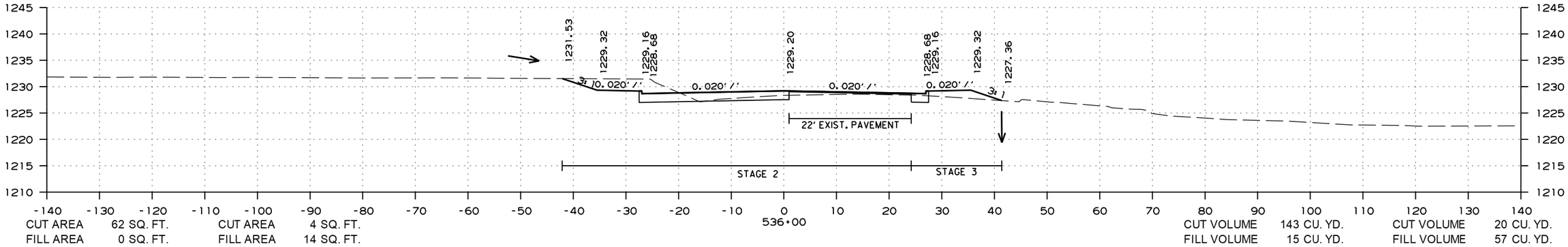
CUT AREA 91 SQ. FT. CUT AREA 2 SQ. FT.
FILL AREA 0 SQ. FT. FILL AREA 16 SQ. FT.

CUT VOLUME 193 CU. YD. CUT VOLUME 7 CU. YD.
FILL VOLUME 0 CU. YD. FILL VOLUME 39 CU. YD.



CUT AREA 69 SQ. FT. CUT AREA 4 SQ. FT.
FILL AREA 0 SQ. FT. FILL AREA 16 SQ. FT.

CUT VOLUME 56 CU. YD. CUT VOLUME 3 CU. YD.
FILL VOLUME 0 CU. YD. FILL VOLUME 13 CU. YD.



CUT AREA 62 SQ. FT. CUT AREA 4 SQ. FT.
FILL AREA 0 SQ. FT. FILL AREA 14 SQ. FT.

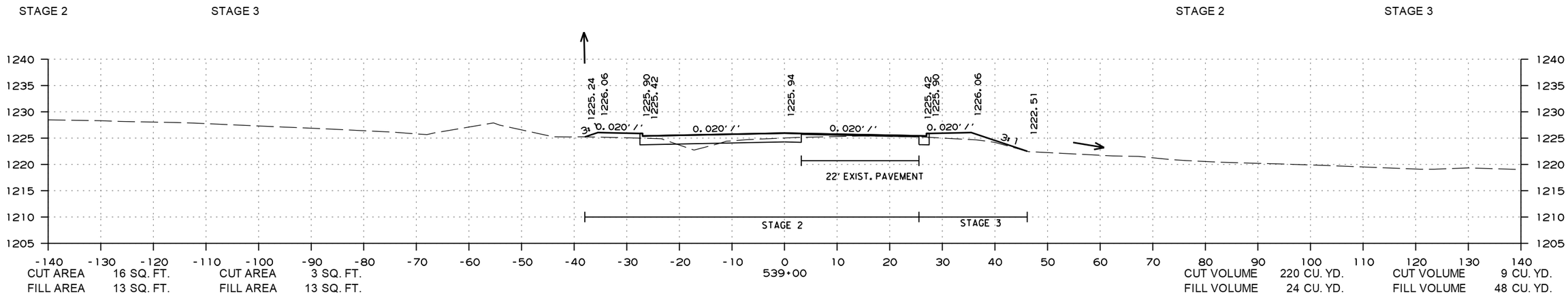
CUT VOLUME 143 CU. YD. CUT VOLUME 20 CU. YD.
FILL VOLUME 15 CU. YD. FILL VOLUME 57 CU. YD.

HWY. 16 - SITE 2
STA. 536+00 TO STA. 536+88

RD38049 5/19/2020
R040579.DGN

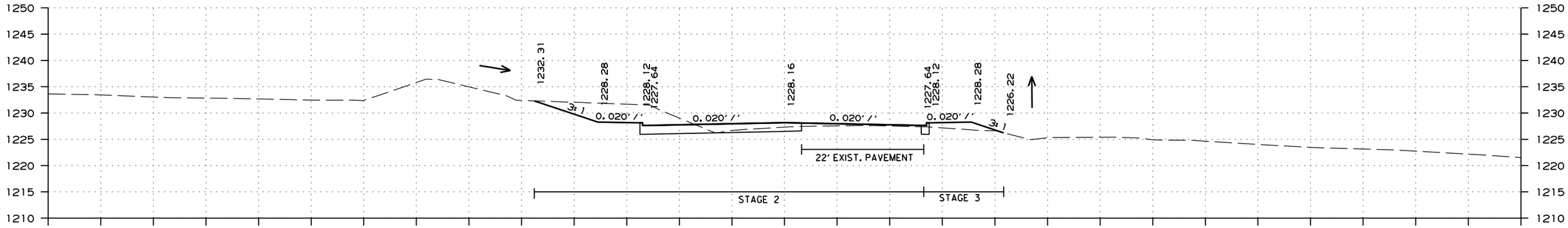
DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		040579	91	127

(2) CROSS SECTIONS



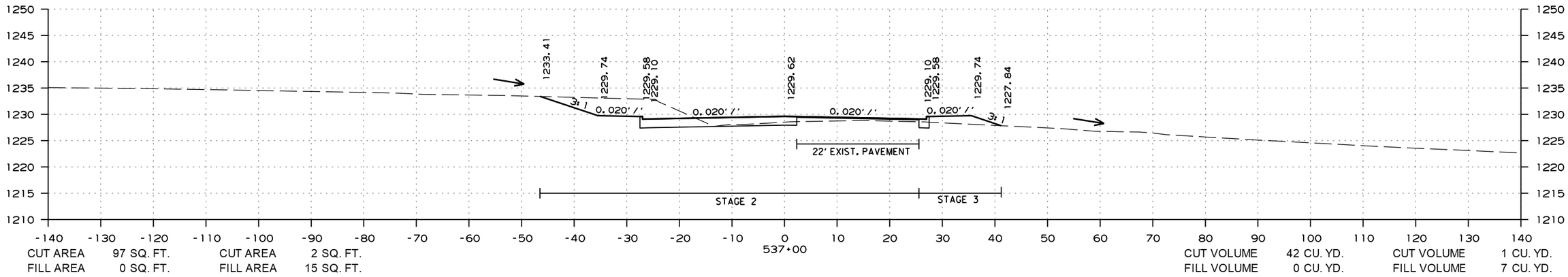
CUT AREA 16 SQ. FT. CUT AREA 3 SQ. FT.
FILL AREA 13 SQ. FT. FILL AREA 13 SQ. FT.

CUT VOLUME 220 CU. YD. CUT VOLUME 9 CU. YD.
FILL VOLUME 24 CU. YD. FILL VOLUME 48 CU. YD.



CUT AREA 103 SQ. FT. CUT AREA 2 SQ. FT.
FILL AREA 0 SQ. FT. FILL AREA 13 SQ. FT.

CUT VOLUME 370 CU. YD. CUT VOLUME 7 CU. YD.
FILL VOLUME 0 CU. YD. FILL VOLUME 52 CU. YD.



CUT AREA 97 SQ. FT. CUT AREA 2 SQ. FT.
FILL AREA 0 SQ. FT. FILL AREA 15 SQ. FT.

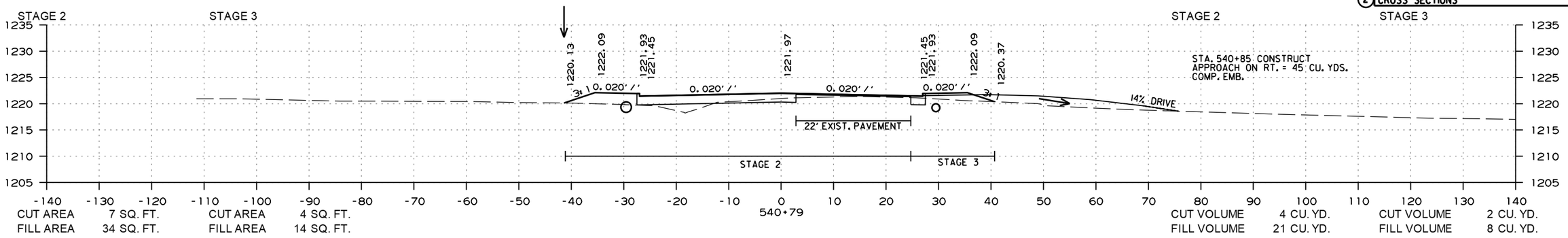
CUT VOLUME 42 CU. YD. CUT VOLUME 1 CU. YD.
FILL VOLUME 0 CU. YD. FILL VOLUME 7 CU. YD.

HWY. 16 - SITE 2
STA. 537+00 TO STA. 539+00

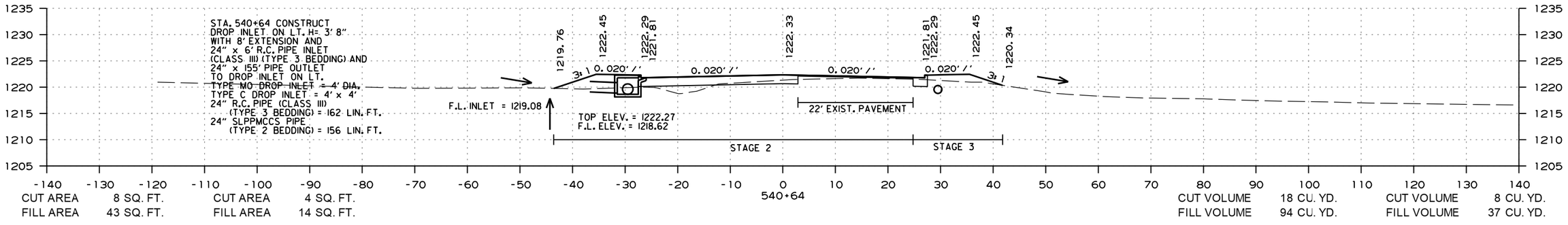
RD38049 5/19/2020
R040579.DGN

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		040579	92	127

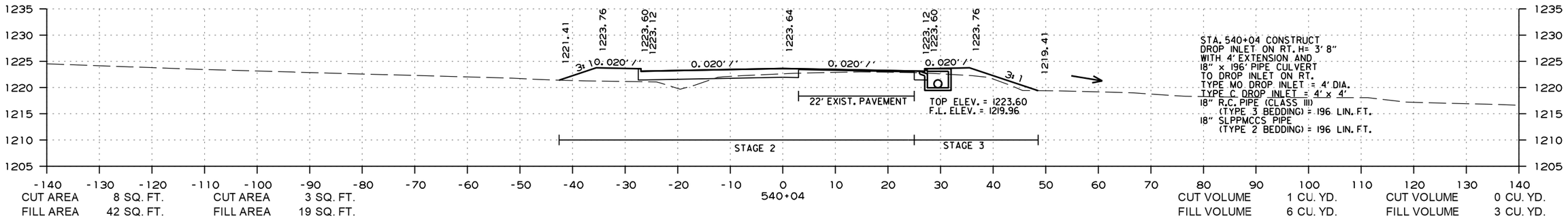
(2) CROSS SECTIONS



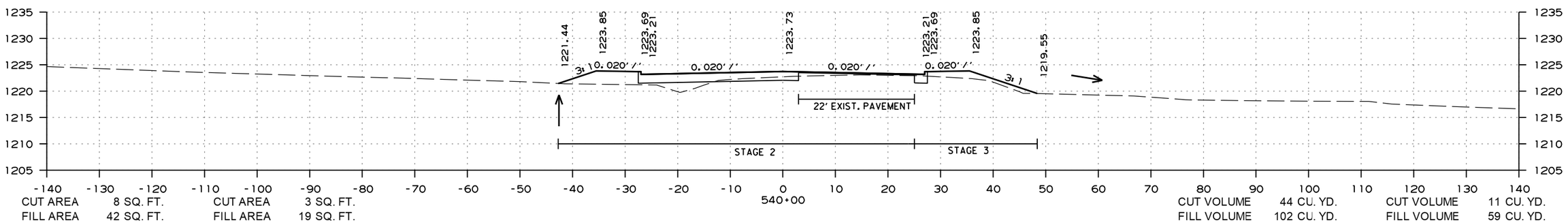
CUT AREA	7 SQ. FT.	CUT AREA	4 SQ. FT.
FILL AREA	34 SQ. FT.	FILL AREA	14 SQ. FT.
CUT VOLUME	4 CU. YD.	CUT VOLUME	2 CU. YD.
FILL VOLUME	21 CU. YD.	FILL VOLUME	8 CU. YD.



CUT AREA	8 SQ. FT.	CUT AREA	4 SQ. FT.
FILL AREA	43 SQ. FT.	FILL AREA	14 SQ. FT.
CUT VOLUME	18 CU. YD.	CUT VOLUME	8 CU. YD.
FILL VOLUME	94 CU. YD.	FILL VOLUME	37 CU. YD.



CUT AREA	8 SQ. FT.	CUT AREA	3 SQ. FT.
FILL AREA	42 SQ. FT.	FILL AREA	19 SQ. FT.
CUT VOLUME	1 CU. YD.	CUT VOLUME	0 CU. YD.
FILL VOLUME	6 CU. YD.	FILL VOLUME	3 CU. YD.



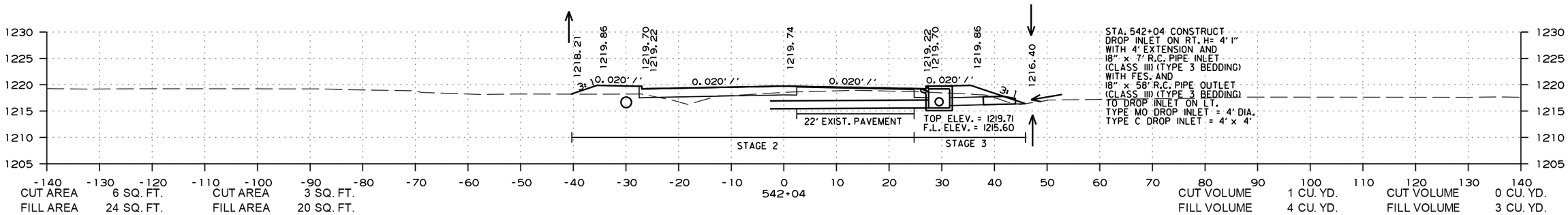
CUT AREA	8 SQ. FT.	CUT AREA	3 SQ. FT.
FILL AREA	42 SQ. FT.	FILL AREA	19 SQ. FT.
CUT VOLUME	44 CU. YD.	CUT VOLUME	11 CU. YD.
FILL VOLUME	102 CU. YD.	FILL VOLUME	59 CU. YD.

HWY. 16 - SITE 2
STA. 540+00 TO STA. 540+79

RD38049 5/19/2020
R040579.DGN

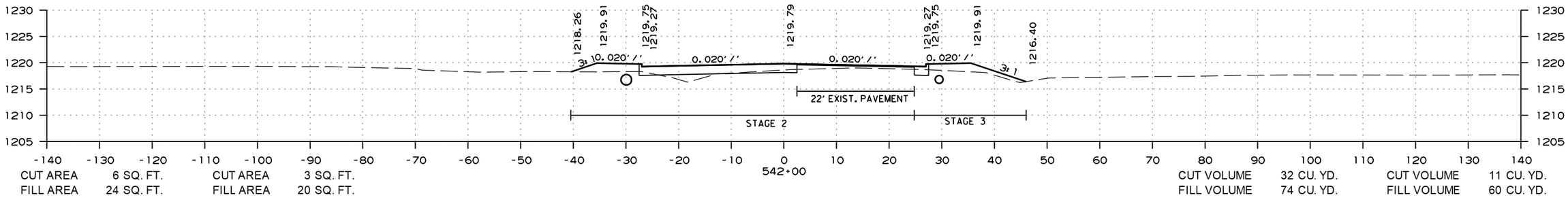
DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		040579	93	127

(2) CROSS SECTIONS



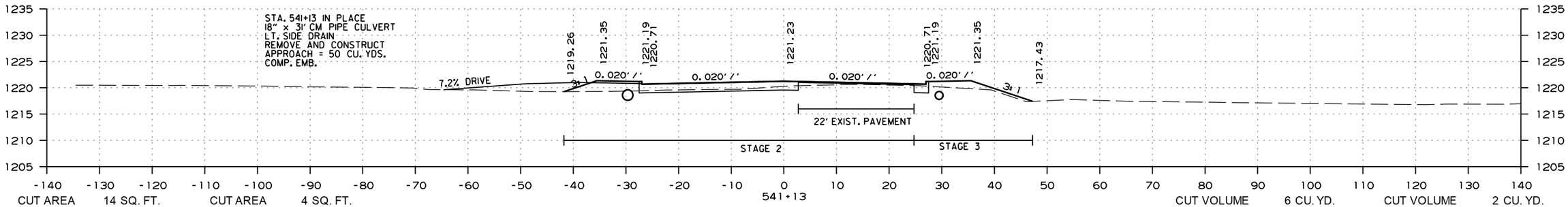
CUT AREA 6 SQ. FT. CUT AREA 3 SQ. FT.
FILL AREA 24 SQ. FT. FILL AREA 20 SQ. FT.

CUT VOLUME 1 CU. YD. CUT VOLUME 0 CU. YD.
FILL VOLUME 4 CU. YD. FILL VOLUME 3 CU. YD.



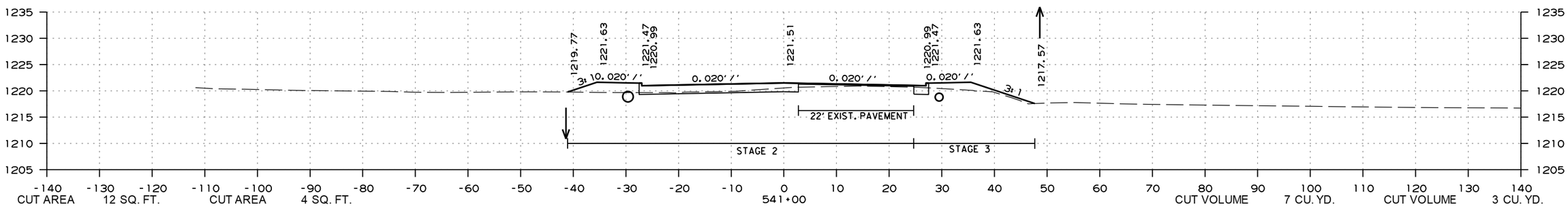
CUT AREA 6 SQ. FT. CUT AREA 3 SQ. FT.
FILL AREA 24 SQ. FT. FILL AREA 20 SQ. FT.

CUT VOLUME 32 CU. YD. CUT VOLUME 11 CU. YD.
FILL VOLUME 74 CU. YD. FILL VOLUME 60 CU. YD.



CUT AREA 14 SQ. FT. CUT AREA 4 SQ. FT.
FILL AREA 22 SQ. FT. FILL AREA 17 SQ. FT.

CUT VOLUME 6 CU. YD. CUT VOLUME 2 CU. YD.
FILL VOLUME 10 CU. YD. FILL VOLUME 8 CU. YD.



CUT AREA 12 SQ. FT. CUT AREA 4 SQ. FT.
FILL AREA 20 SQ. FT. FILL AREA 17 SQ. FT.

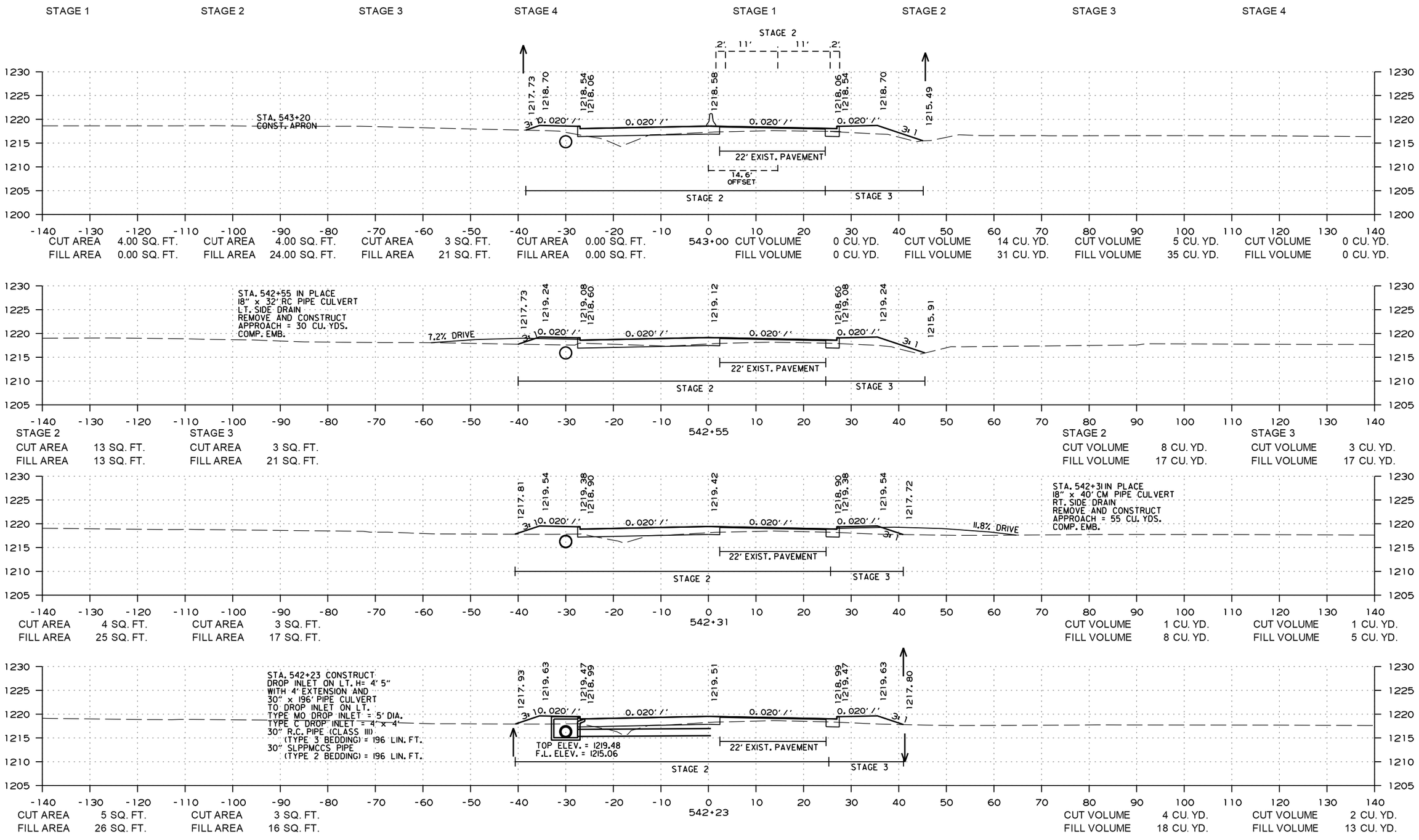
CUT VOLUME 7 CU. YD. CUT VOLUME 3 CU. YD.
FILL VOLUME 21 CU. YD. FILL VOLUME 12 CU. YD.

HWY. 16 - SITE 2
STA. 541+00 TO STA. 542+04

RD38049 5/19/2020
R040579.DGN

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		040579	94	127

(2) CROSS SECTIONS

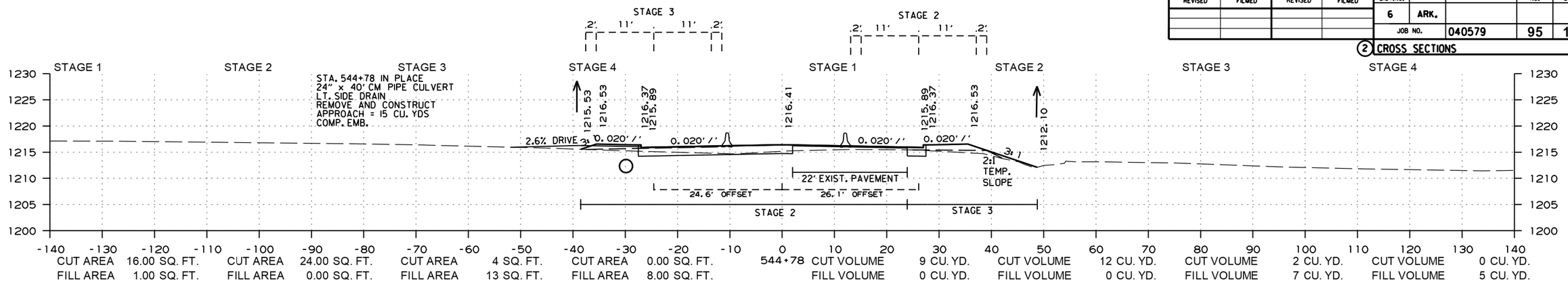


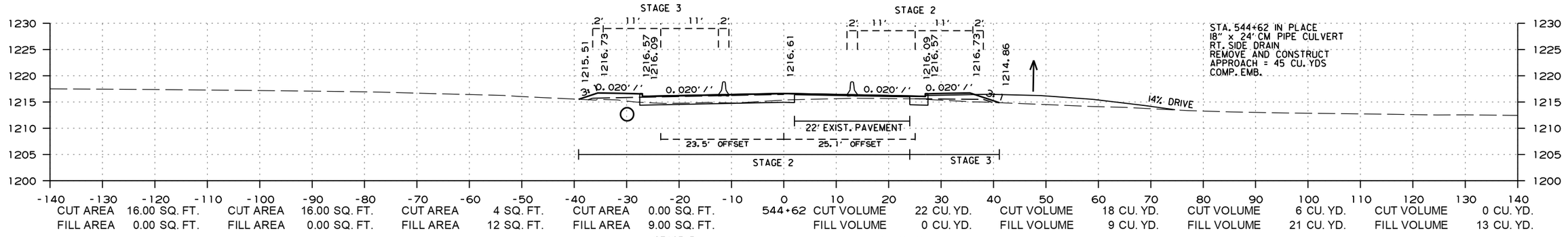
HWY. 16 - SITE 2
STA. 542+23 TO STA. 543+00

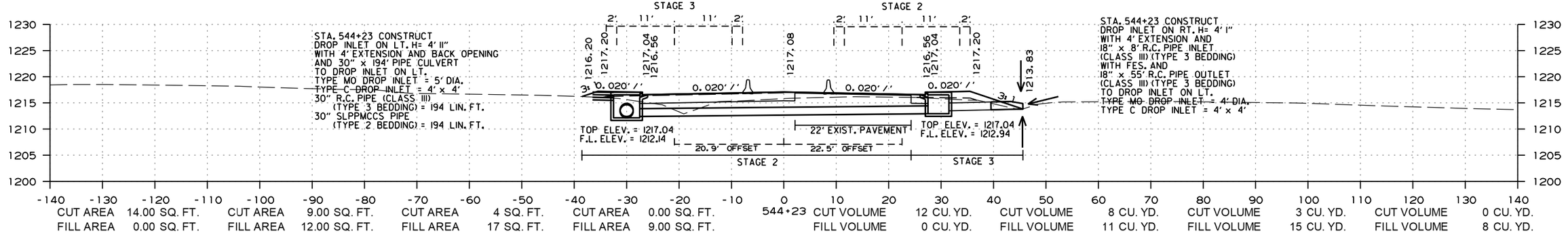
RD38049 5/19/2020
R040579.DGN

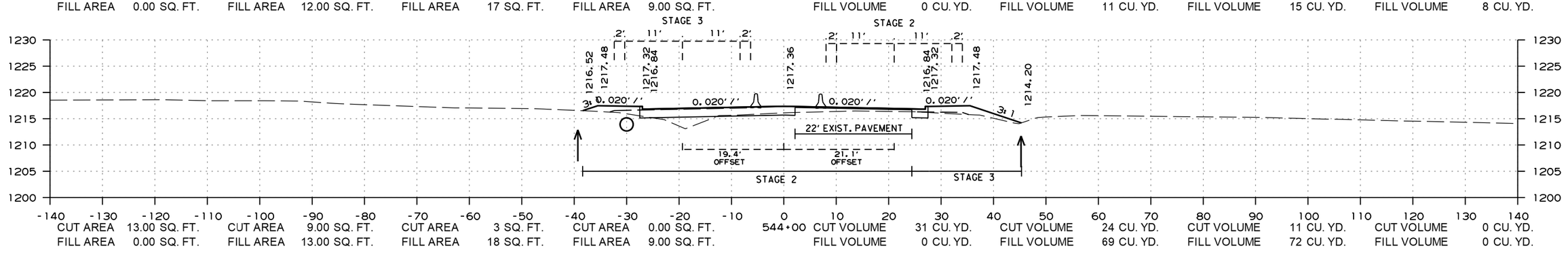
DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		040579	95	127

(2) CROSS SECTIONS







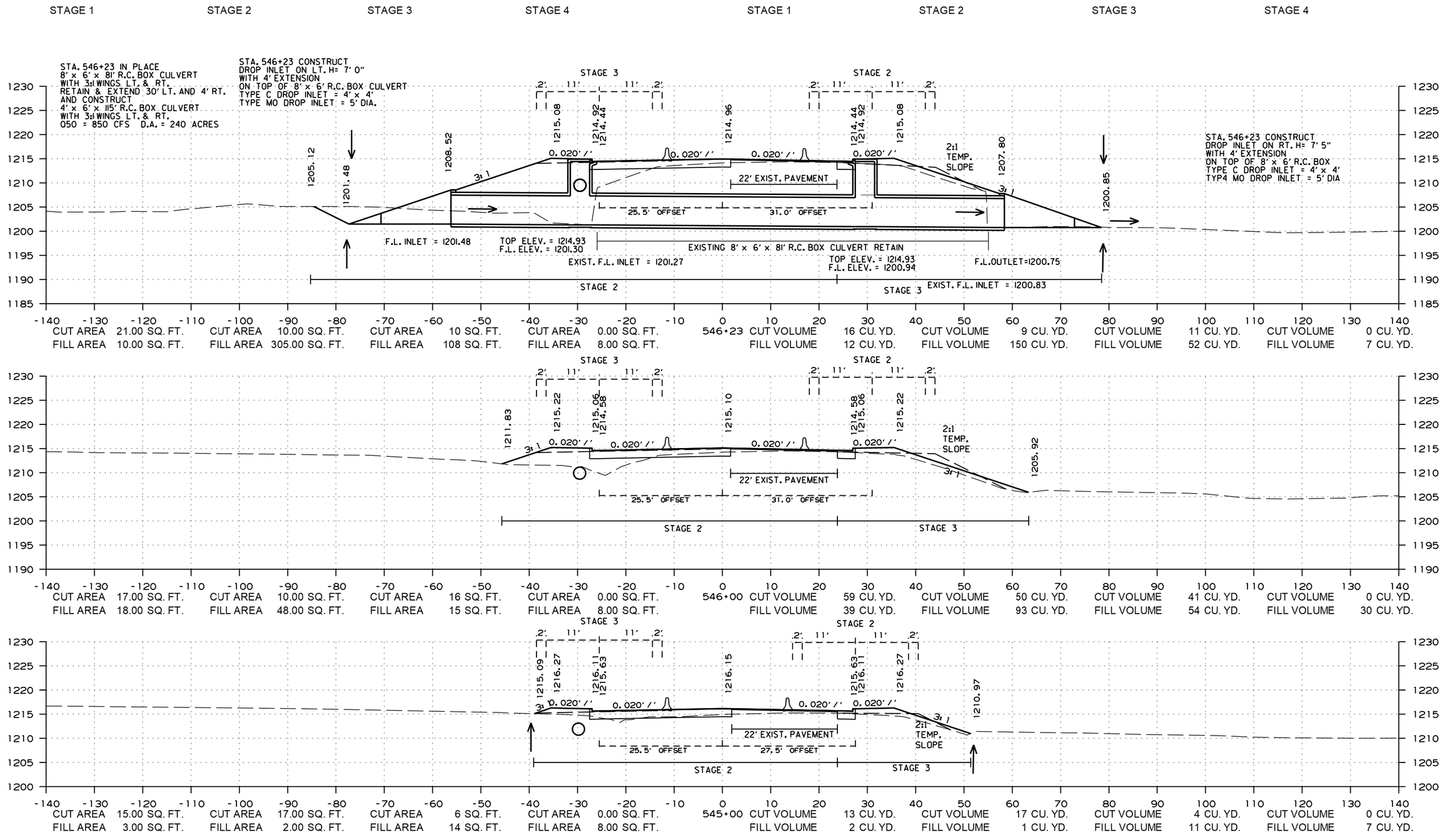


HWY. 16 - SITE 2
STA. 544+00 TO STA. 544+78

R038049 5/19/2020
R040579.DGN

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		040579	96	127

(2) CROSS SECTIONS

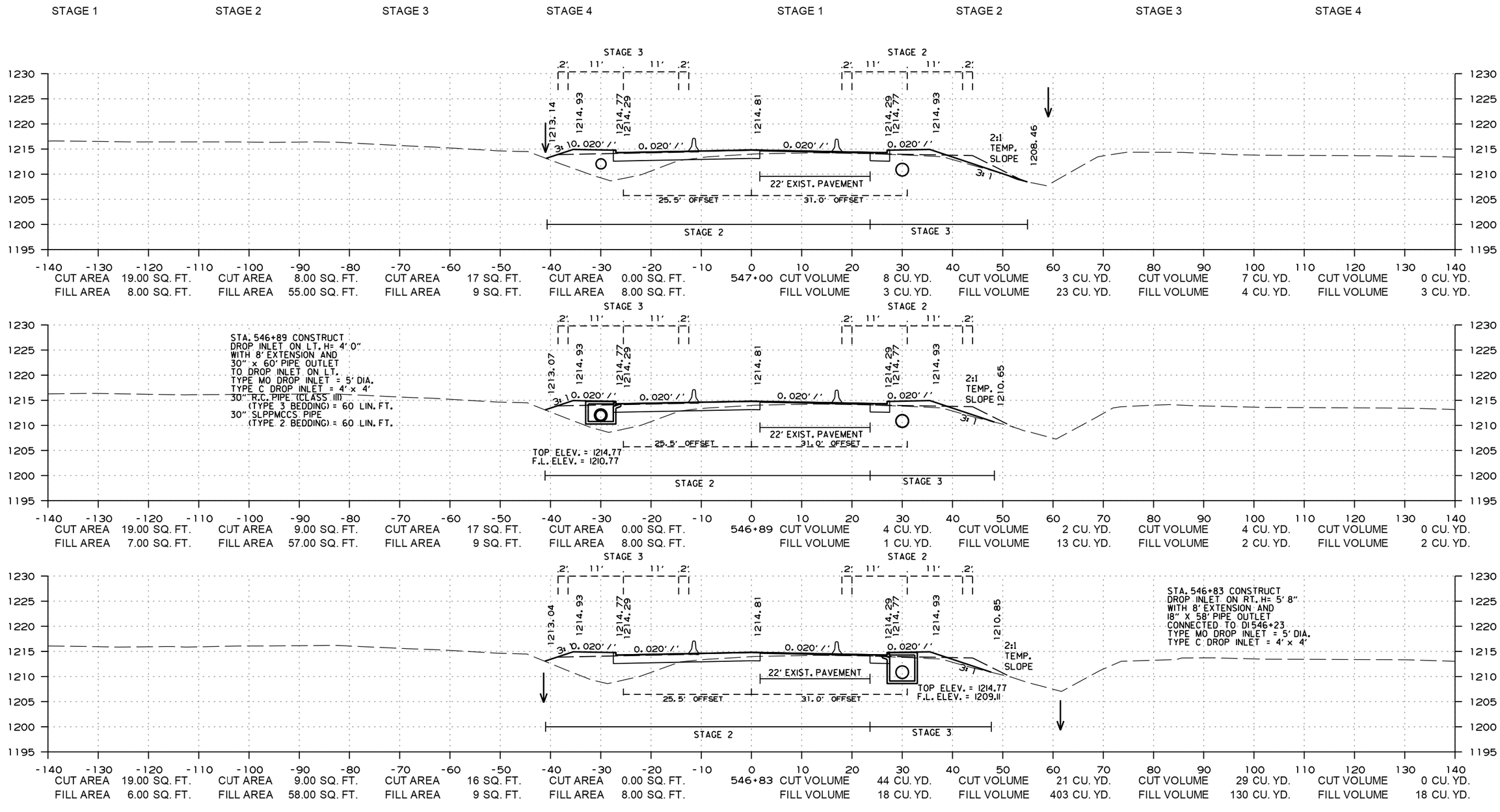


RD38049 5/19/2020
R040579.DGN

HWY. 16 - SITE 2
STA. 545+00 TO STA. 546+23

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		040579	97	127

(2) CROSS SECTIONS

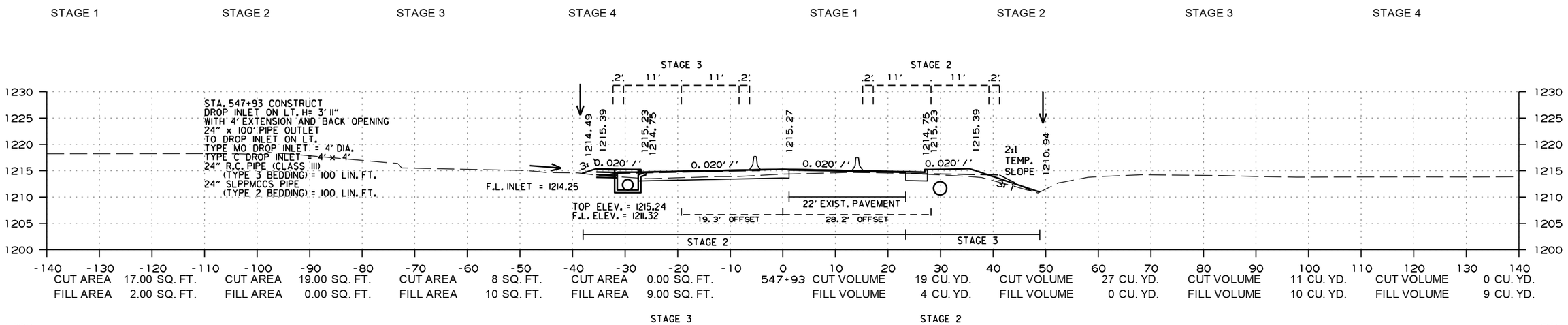


HWY. 16 - SITE 2
STA. 546+83 TO STA. 547+00

RD38049 5/19/2020
R040579.DGN

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		040579	98	127

(2) CROSS SECTIONS

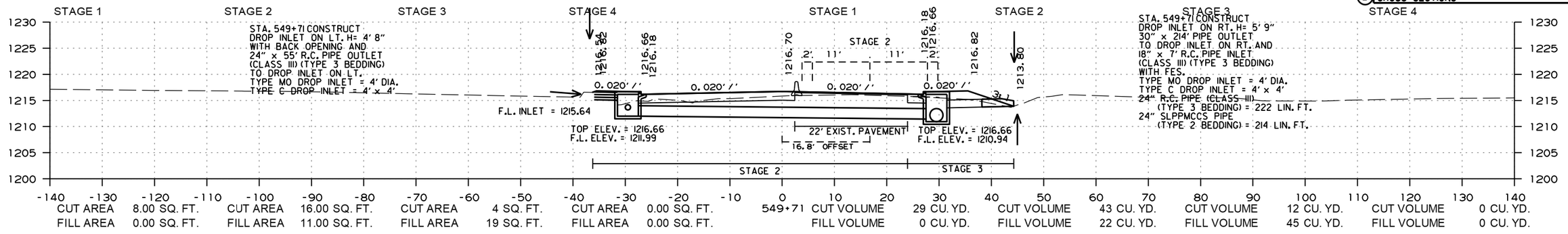


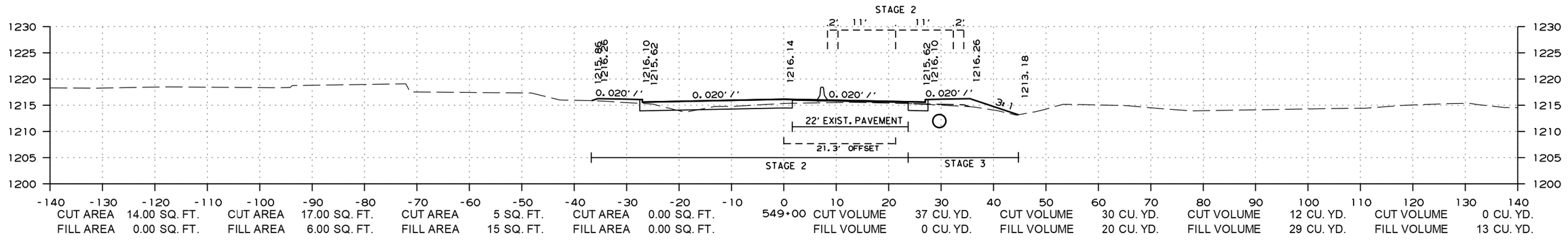
RD38049 5/19/2020
R040579.DGN

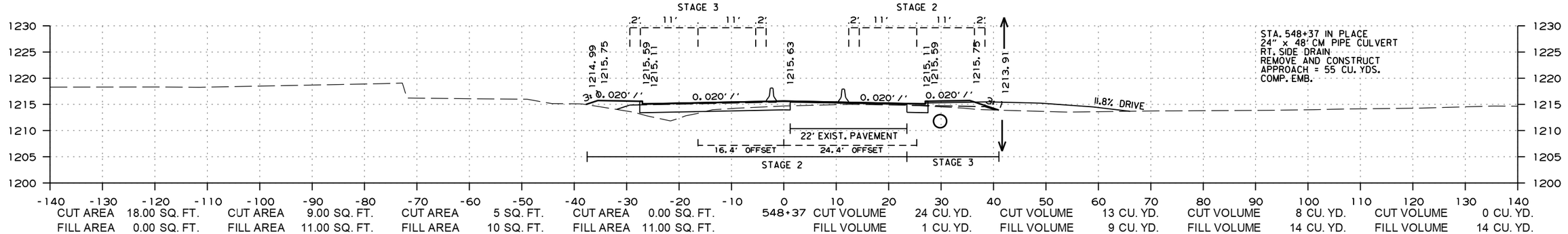
HWY. 16 - SITE 2
STA. 547+52 TO STA. 547+93

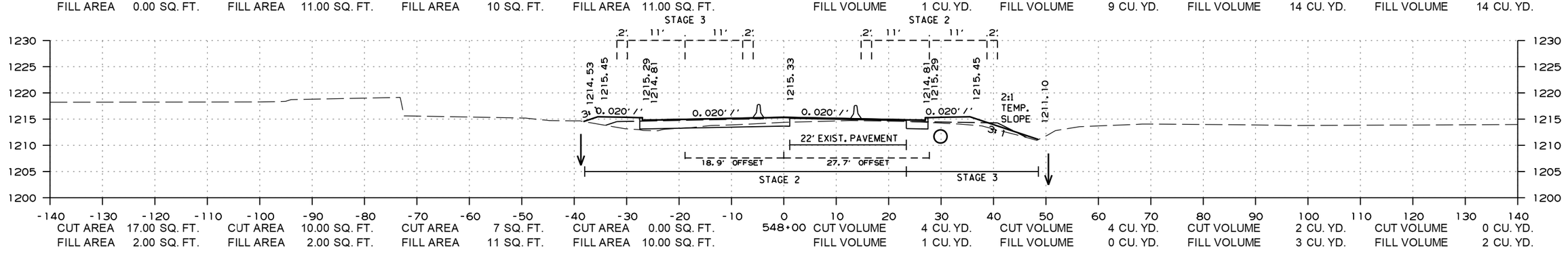
DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		040579	99	127

(2) CROSS SECTIONS







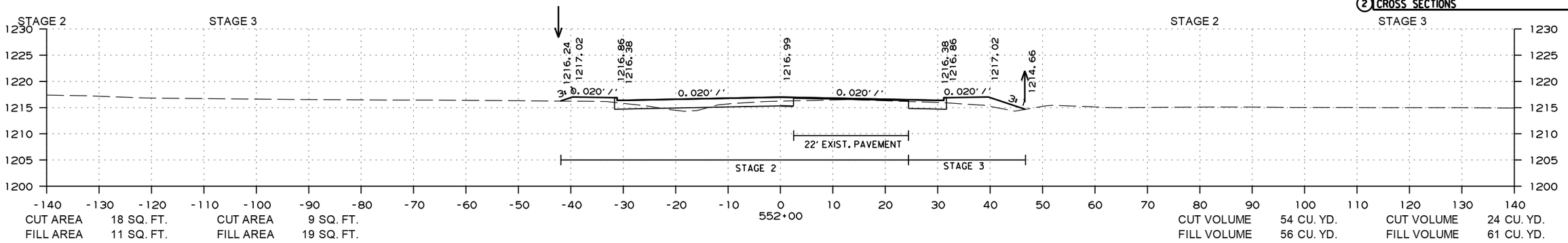


HWY. 16 - SITE 2
STA. 548+00 TO STA. 549+71

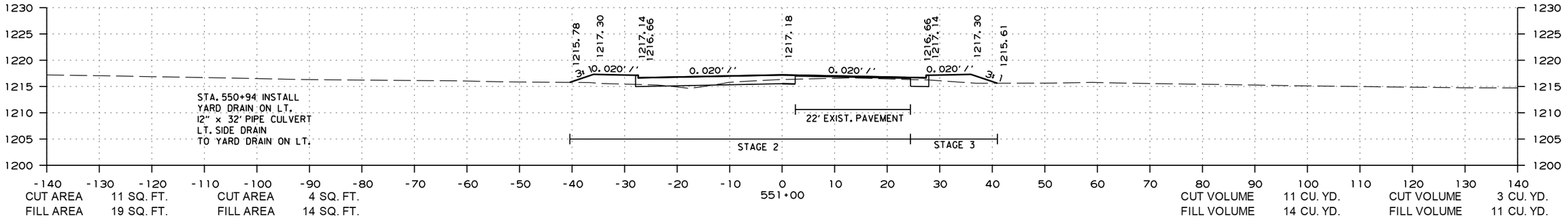
R038049 5/19/2020
R040579.DGN

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		040579	100	127

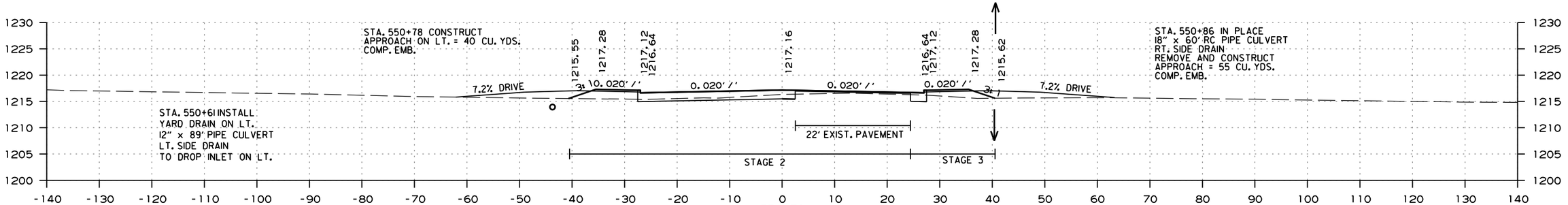
(2) CROSS SECTIONS



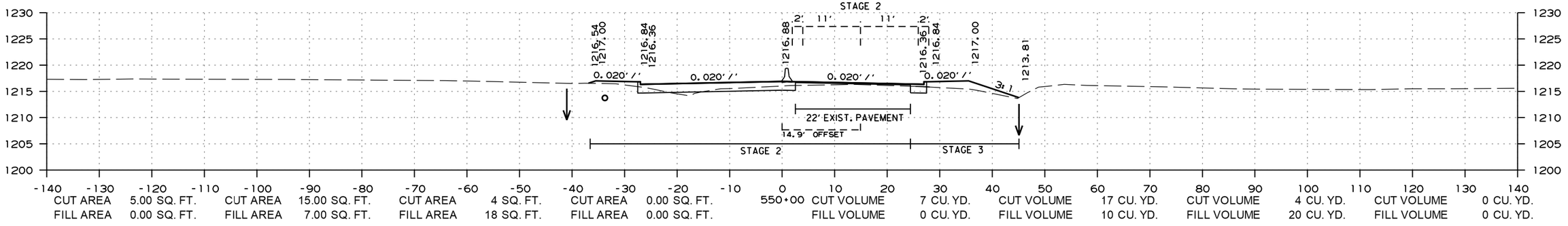
CUT AREA	18 SQ. FT.	CUT AREA	9 SQ. FT.	CUT VOLUME	54 CU. YD.	CUT VOLUME	24 CU. YD.
FILL AREA	11 SQ. FT.	FILL AREA	19 SQ. FT.	FILL VOLUME	56 CU. YD.	FILL VOLUME	61 CU. YD.



CUT AREA	11 SQ. FT.	CUT AREA	4 SQ. FT.	CUT VOLUME	11 CU. YD.	CUT VOLUME	3 CU. YD.
FILL AREA	19 SQ. FT.	FILL AREA	14 SQ. FT.	FILL VOLUME	14 CU. YD.	FILL VOLUME	11 CU. YD.



STAGE 1		STAGE 2		STAGE 3		STAGE 4		CUT VOLUME	7 CU. YD.	CUT VOLUME	45 CU. YD.	CUT VOLUME	12 CU. YD.	CUT VOLUME	0 CU. YD.
CUT AREA	0.00 SQ. FT.	CUT AREA	16.00 SQ. FT.	CUT AREA	4 SQ. FT.	CUT AREA	0.00 SQ. FT.								
FILL AREA	0.00 SQ. FT.	FILL AREA	16.00 SQ. FT.	FILL AREA	14 SQ. FT.	FILL AREA	0.00 SQ. FT.	FILL VOLUME	0 CU. YD.	FILL VOLUME	33 CU. YD.	FILL VOLUME	46 CU. YD.	FILL VOLUME	0 CU. YD.



CUT AREA	5.00 SQ. FT.	CUT AREA	15.00 SQ. FT.	CUT AREA	4 SQ. FT.	CUT AREA	0.00 SQ. FT.	CUT VOLUME	7 CU. YD.	CUT VOLUME	17 CU. YD.	CUT VOLUME	4 CU. YD.	CUT VOLUME	0 CU. YD.
FILL AREA	0.00 SQ. FT.	FILL AREA	7.00 SQ. FT.	FILL AREA	18 SQ. FT.	FILL AREA	0.00 SQ. FT.	FILL VOLUME	0 CU. YD.	FILL VOLUME	10 CU. YD.	FILL VOLUME	20 CU. YD.	FILL VOLUME	0 CU. YD.

HWY. 16 - SITE 2
STA. 550+00 TO STA. 552+00

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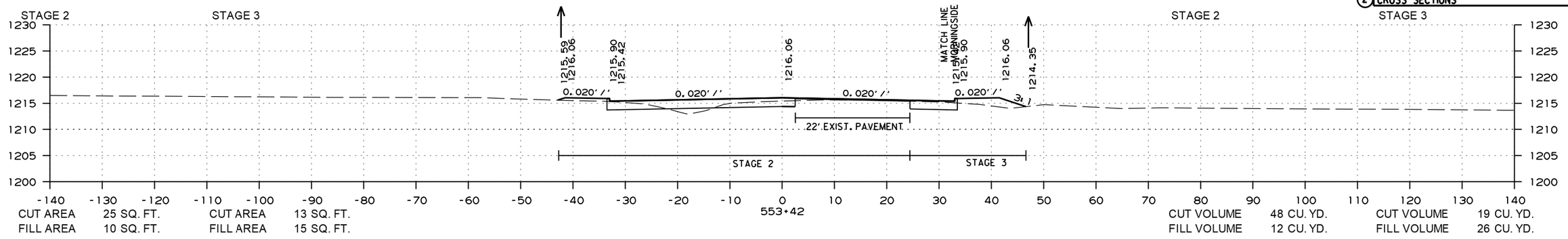
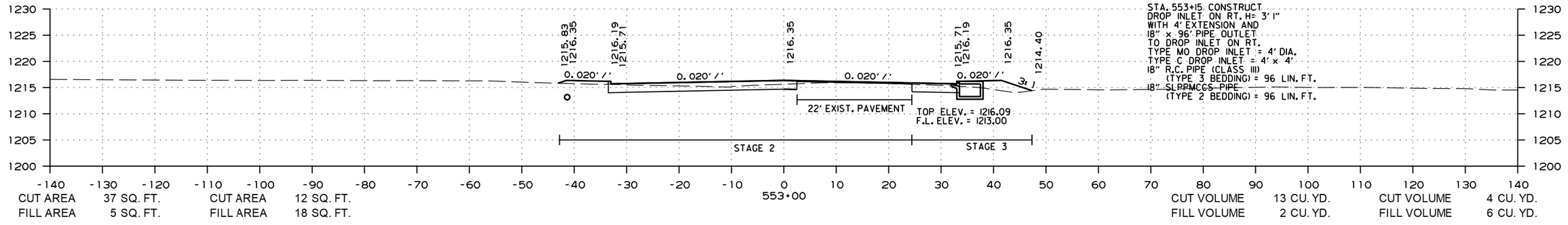
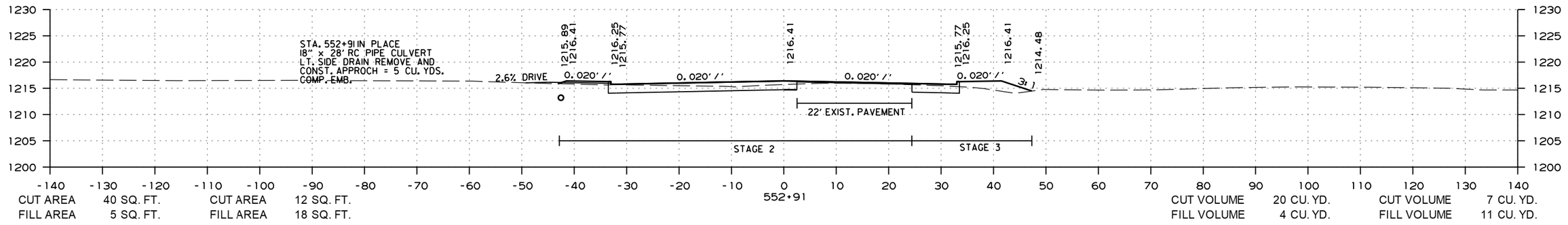
R040579.DGN

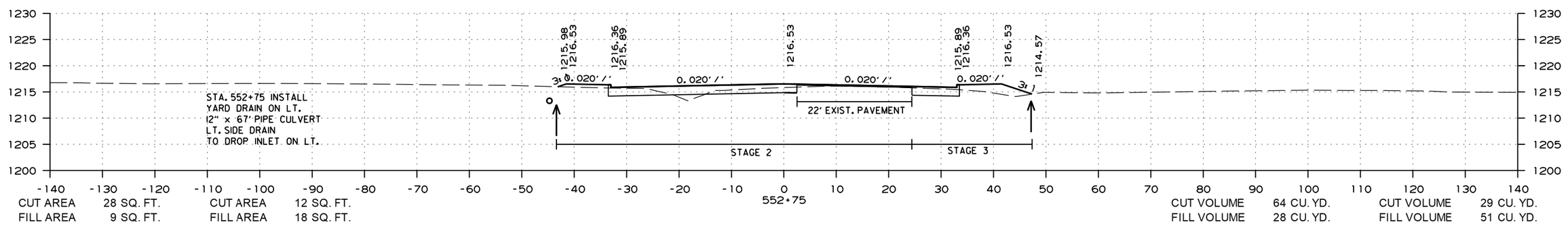
DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		040579	101	127

(2) CROSS SECTIONS







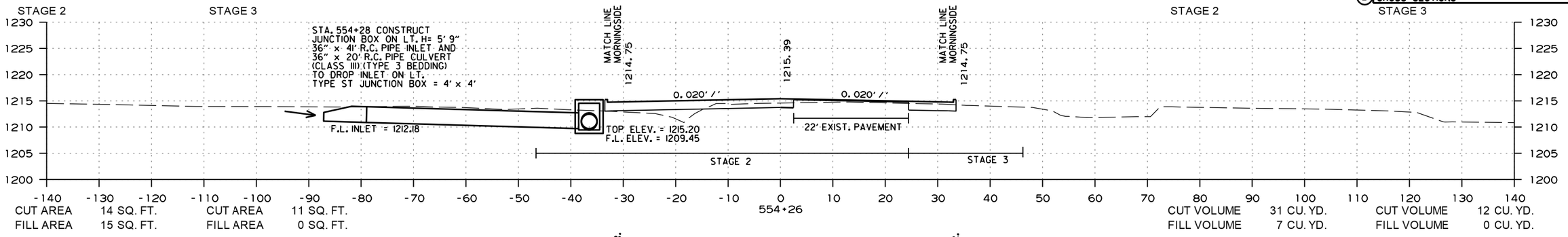


HWY. 16 - SITE 2
STA. 552+75 TO STA. 553+42

RD38049 5/19/2020
R040579.DGN

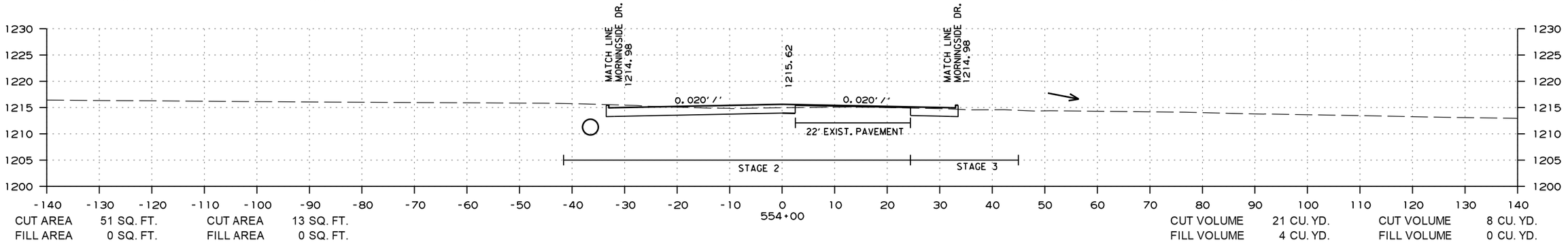
DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		040579	102	127

(2) CROSS SECTIONS



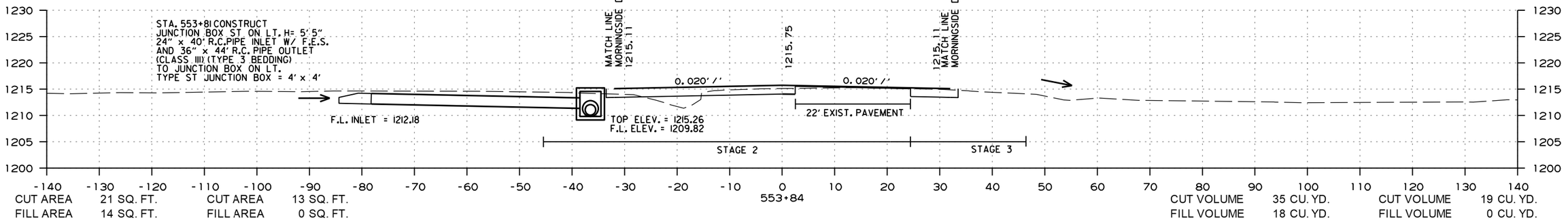
CUT AREA 14 SQ. FT. CUT AREA 11 SQ. FT.
FILL AREA 15 SQ. FT. FILL AREA 0 SQ. FT.

CUT VOLUME 31 CU. YD. CUT VOLUME 12 CU. YD.
FILL VOLUME 7 CU. YD. FILL VOLUME 0 CU. YD.



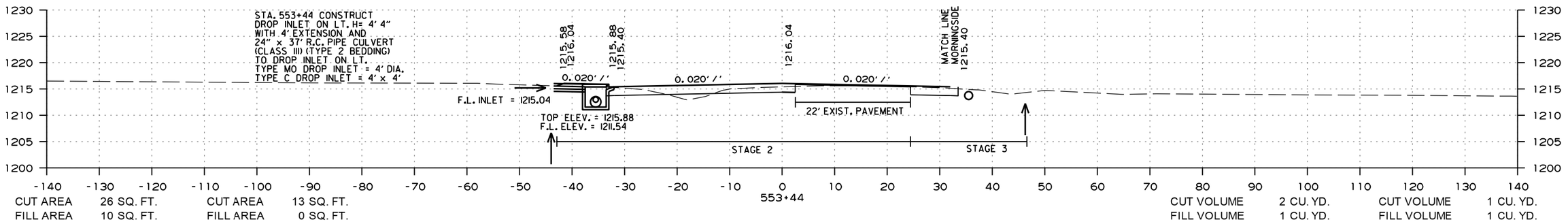
CUT AREA 51 SQ. FT. CUT AREA 13 SQ. FT.
FILL AREA 0 SQ. FT. FILL AREA 0 SQ. FT.

CUT VOLUME 21 CU. YD. CUT VOLUME 8 CU. YD.
FILL VOLUME 4 CU. YD. FILL VOLUME 0 CU. YD.



CUT AREA 21 SQ. FT. CUT AREA 13 SQ. FT.
FILL AREA 14 SQ. FT. FILL AREA 0 SQ. FT.

CUT VOLUME 35 CU. YD. CUT VOLUME 19 CU. YD.
FILL VOLUME 18 CU. YD. FILL VOLUME 0 CU. YD.



CUT AREA 26 SQ. FT. CUT AREA 13 SQ. FT.
FILL AREA 10 SQ. FT. FILL AREA 0 SQ. FT.

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

HWY. 16 - SITE 2
STA. 553+44 TO STA. 554+26

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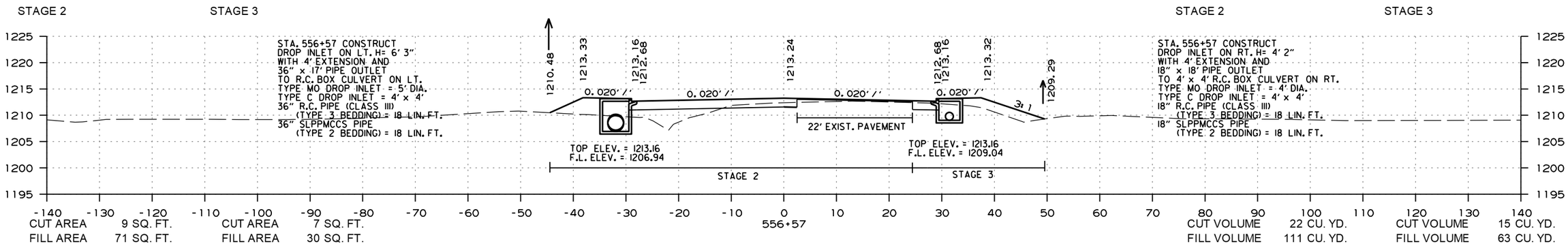
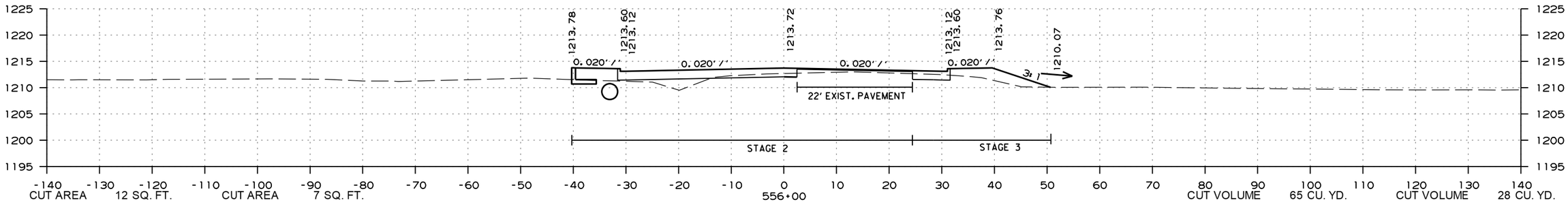
R040579.DGN

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		040579	103	127

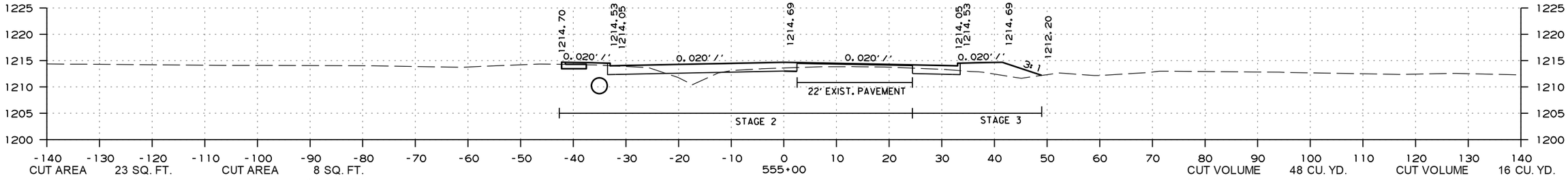
(2) CROSS SECTIONS



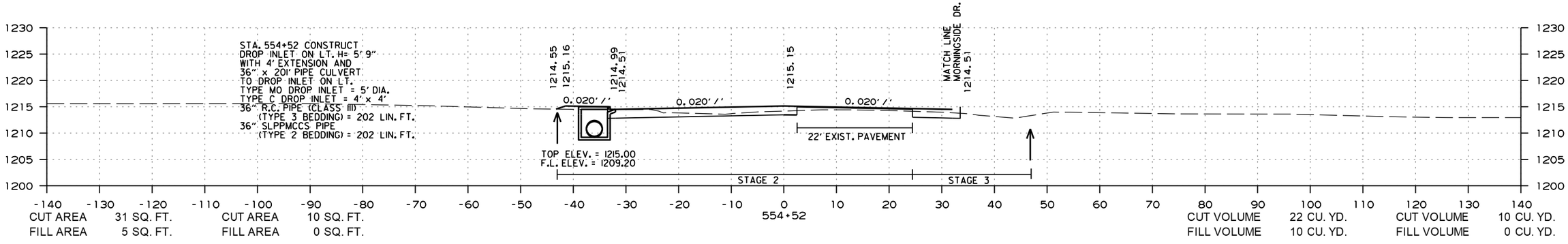
CUT AREA 9 SQ. FT. CUT AREA 7 SQ. FT. CUT VOLUME 22 CU. YD. CUT VOLUME 15 CU. YD.
FILL AREA 71 SQ. FT. FILL AREA 30 SQ. FT. FILL VOLUME 111 CU. YD. FILL VOLUME 63 CU. YD.



CUT AREA 12 SQ. FT. CUT AREA 7 SQ. FT. CUT VOLUME 65 CU. YD. CUT VOLUME 28 CU. YD.
FILL AREA 34 SQ. FT. FILL AREA 30 SQ. FT. FILL VOLUME 89 CU. YD. FILL VOLUME 104 CU. YD.



CUT AREA 23 SQ. FT. CUT AREA 8 SQ. FT. CUT VOLUME 48 CU. YD. CUT VOLUME 16 CU. YD.
FILL AREA 14 SQ. FT. FILL AREA 26 SQ. FT. FILL VOLUME 17 CU. YD. FILL VOLUME 23 CU. YD.



CUT AREA 31 SQ. FT. CUT AREA 10 SQ. FT. CUT VOLUME 22 CU. YD. CUT VOLUME 10 CU. YD.
FILL AREA 5 SQ. FT. FILL AREA 0 SQ. FT. FILL VOLUME 10 CU. YD. FILL VOLUME 0 CU. YD.

HWY. 16 - SITE 2
STA. 554+52 TO STA. 556+57

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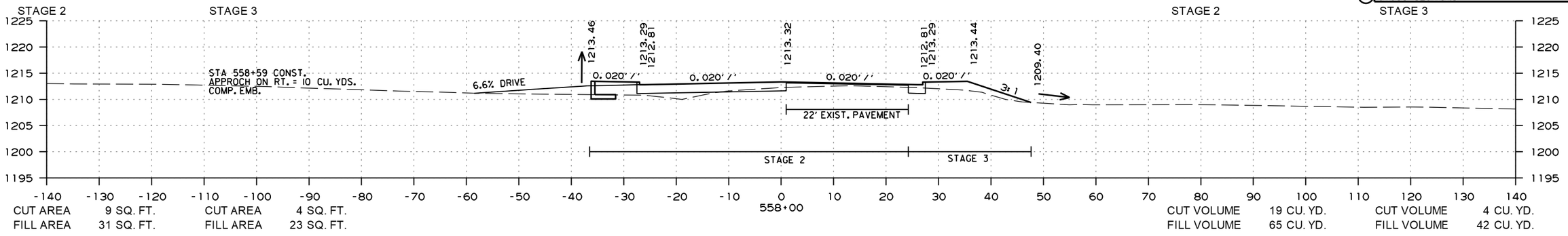
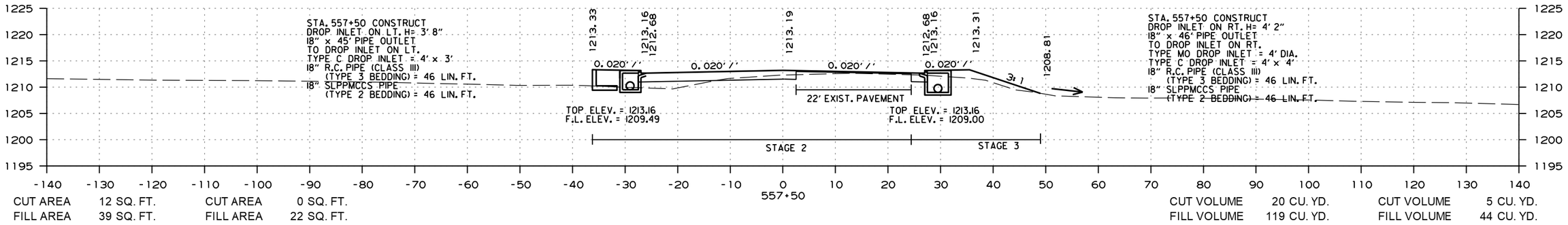
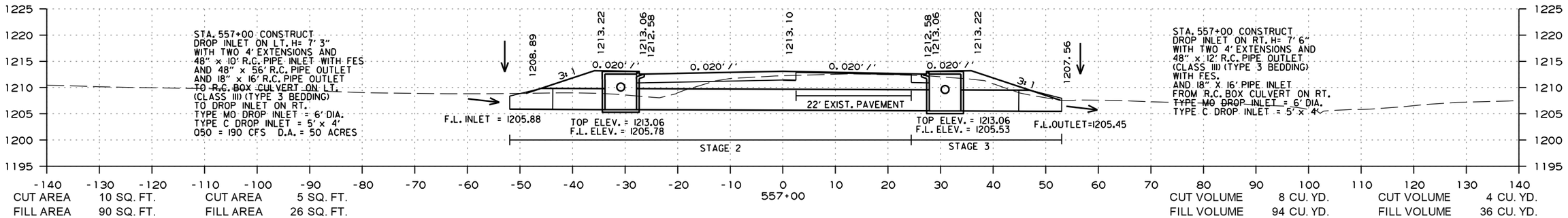
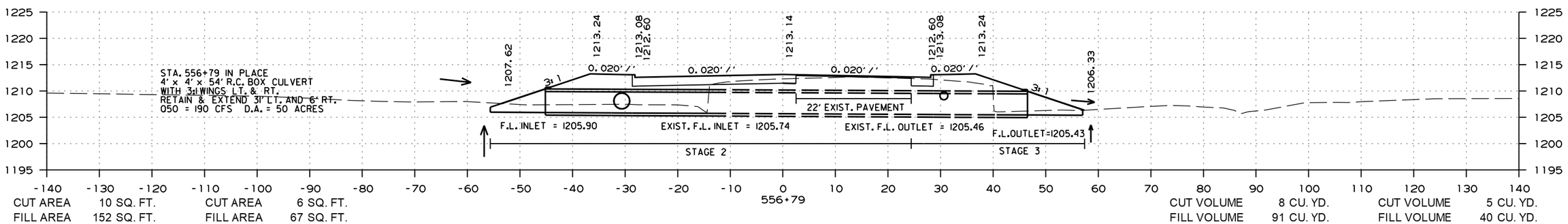
DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		040579	104	127

(2) CROSS SECTIONS









HWY. 16 - SITE 2
STA. 556+79 TO STA. 558+00

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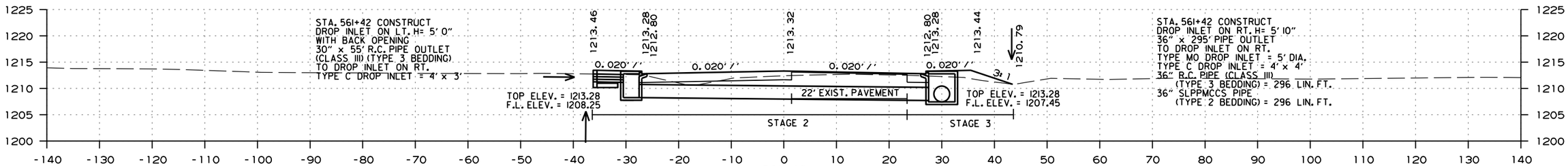
R040579.DGN

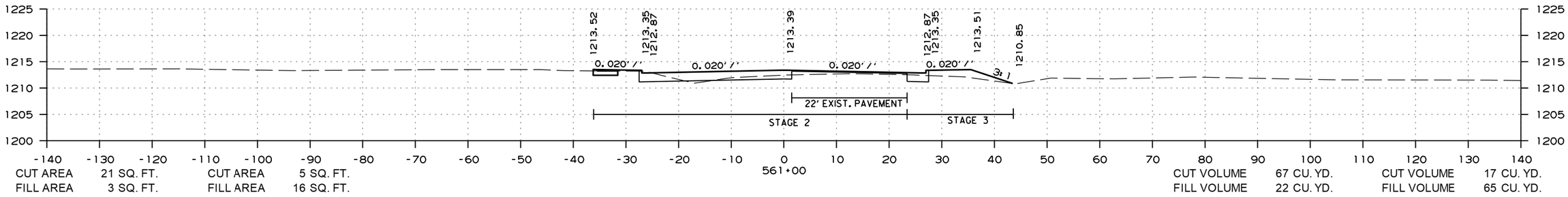
DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		040579	105	127

(2) CROSS SECTIONS



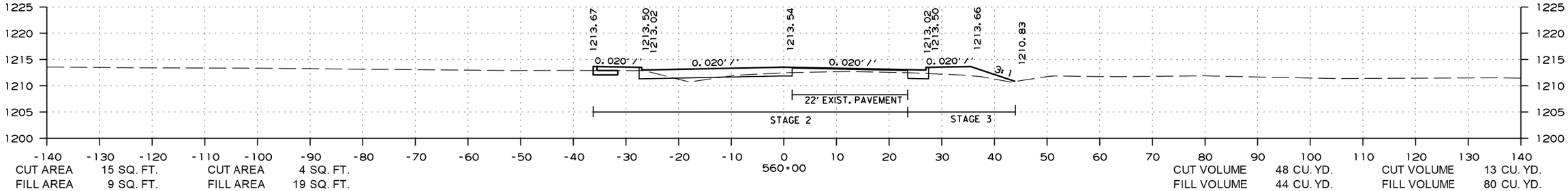
CUT AREA 12 SQ. FT. CUT AREA 5 SQ. FT.
FILL AREA 16 SQ. FT. FILL AREA 16 SQ. FT.

CUT VOLUME 26 CU. YD. CUT VOLUME 8 CU. YD.
FILL VOLUME 15 CU. YD. FILL VOLUME 25 CU. YD.



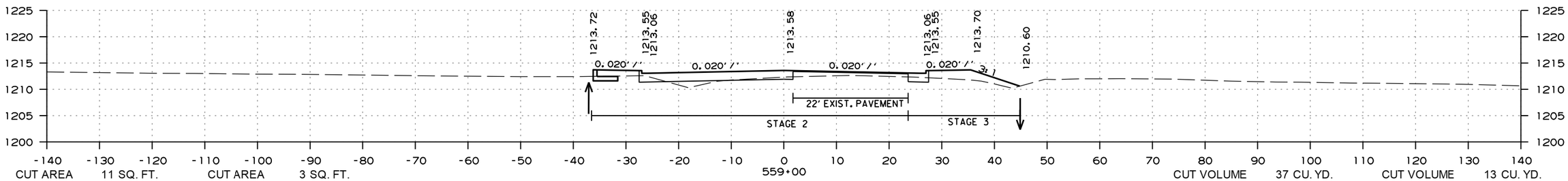
CUT AREA 21 SQ. FT. CUT AREA 5 SQ. FT.
FILL AREA 3 SQ. FT. FILL AREA 16 SQ. FT.

CUT VOLUME 67 CU. YD. CUT VOLUME 17 CU. YD.
FILL VOLUME 22 CU. YD. FILL VOLUME 65 CU. YD.



CUT AREA 15 SQ. FT. CUT AREA 4 SQ. FT.
FILL AREA 9 SQ. FT. FILL AREA 19 SQ. FT.

CUT VOLUME 48 CU. YD. CUT VOLUME 13 CU. YD.
FILL VOLUME 44 CU. YD. FILL VOLUME 80 CU. YD.



CUT AREA 11 SQ. FT. CUT AREA 3 SQ. FT.
FILL AREA 15 SQ. FT. FILL AREA 24 SQ. FT.

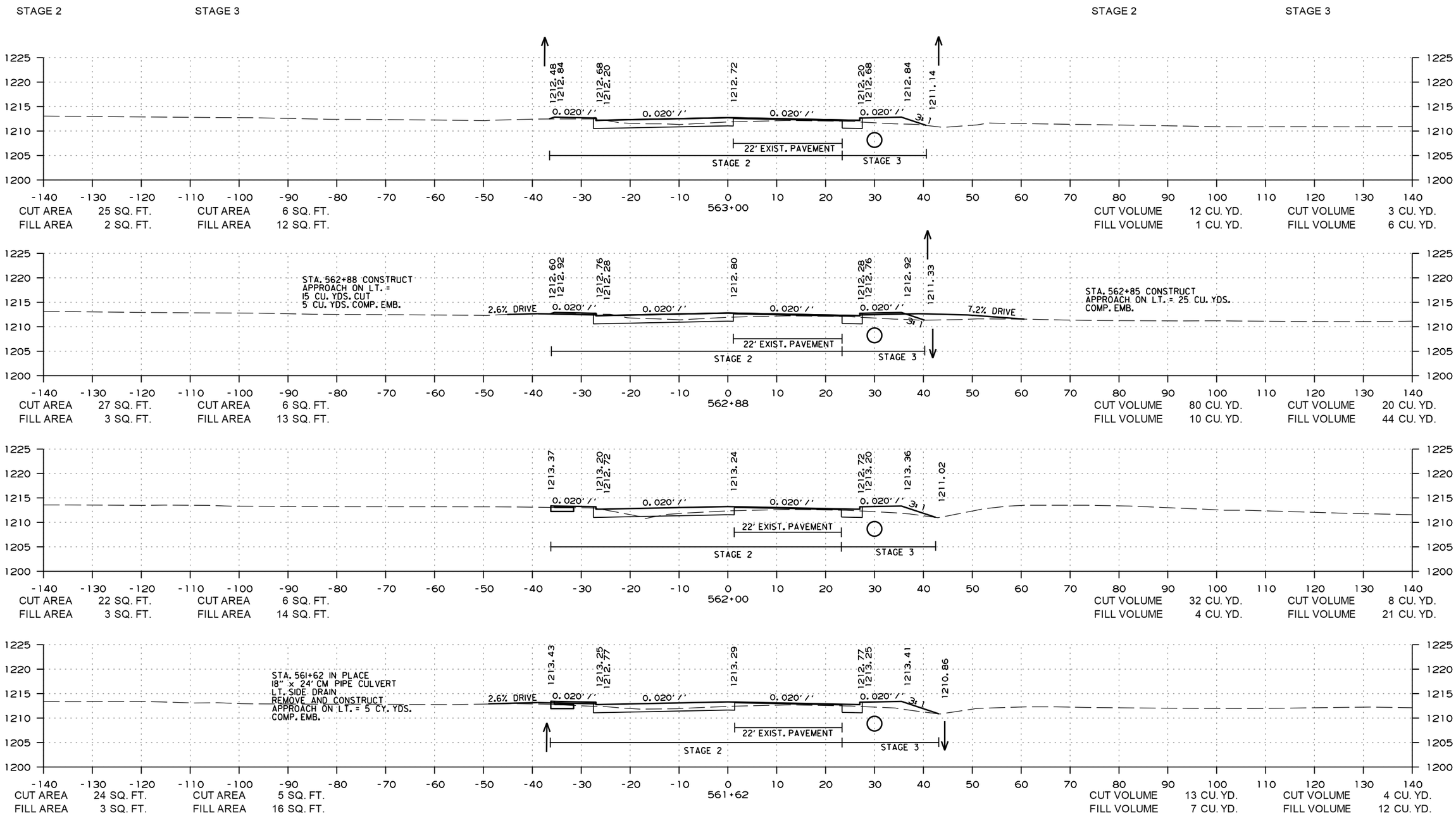
CUT VOLUME 37 CU. YD. CUT VOLUME 13 CU. YD.
FILL VOLUME 85 CU. YD. FILL VOLUME 87 CU. YD.

HWY. 16 - SITE 2
STA. 559+00 TO STA. 561+42

RD38049 5/19/2020
R040579.DGN

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		040579	106	127

(2) CROSS SECTIONS

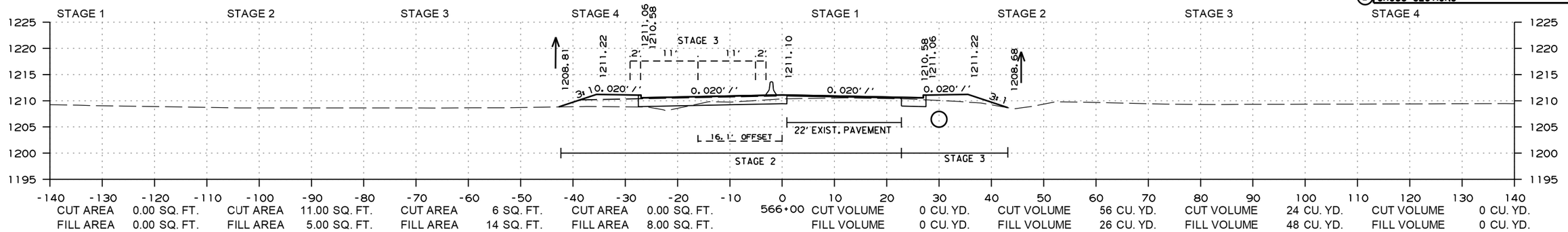


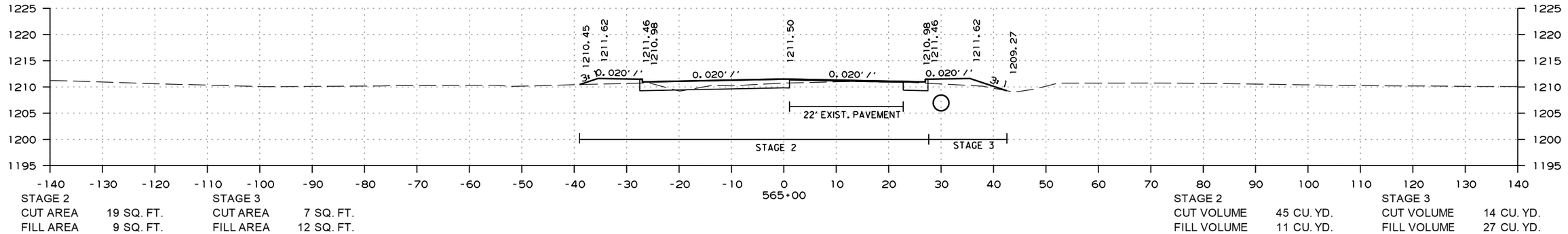
HWY. 16 - SITE 2
STA. 561+62 TO STA. 563+00

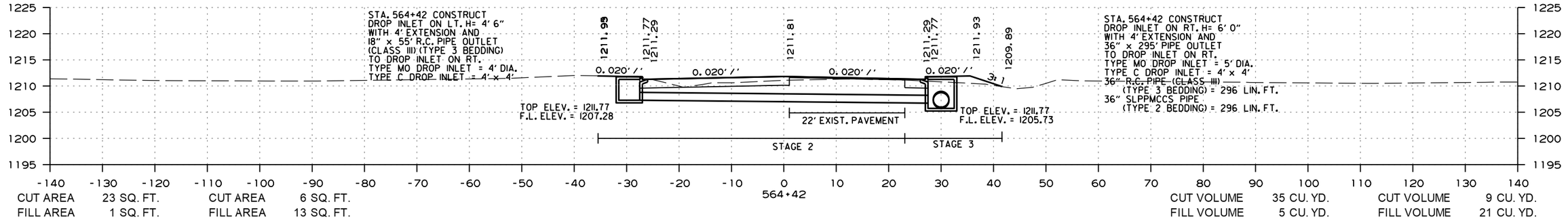
RD38049 5/19/2020
R040579.DGN

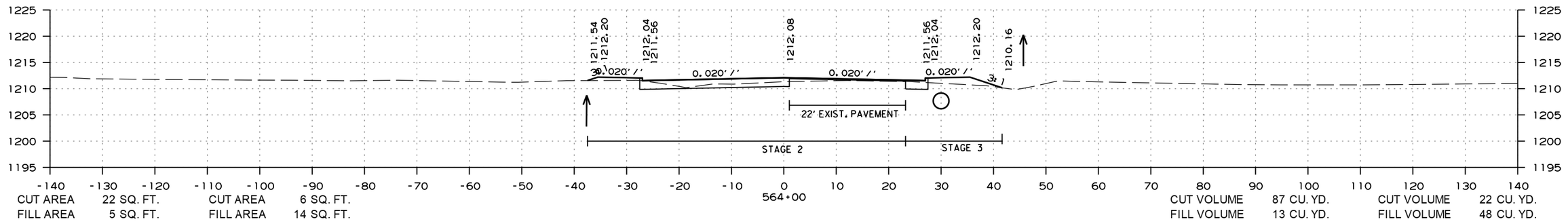
DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		040579	107	127

(2) CROSS SECTIONS







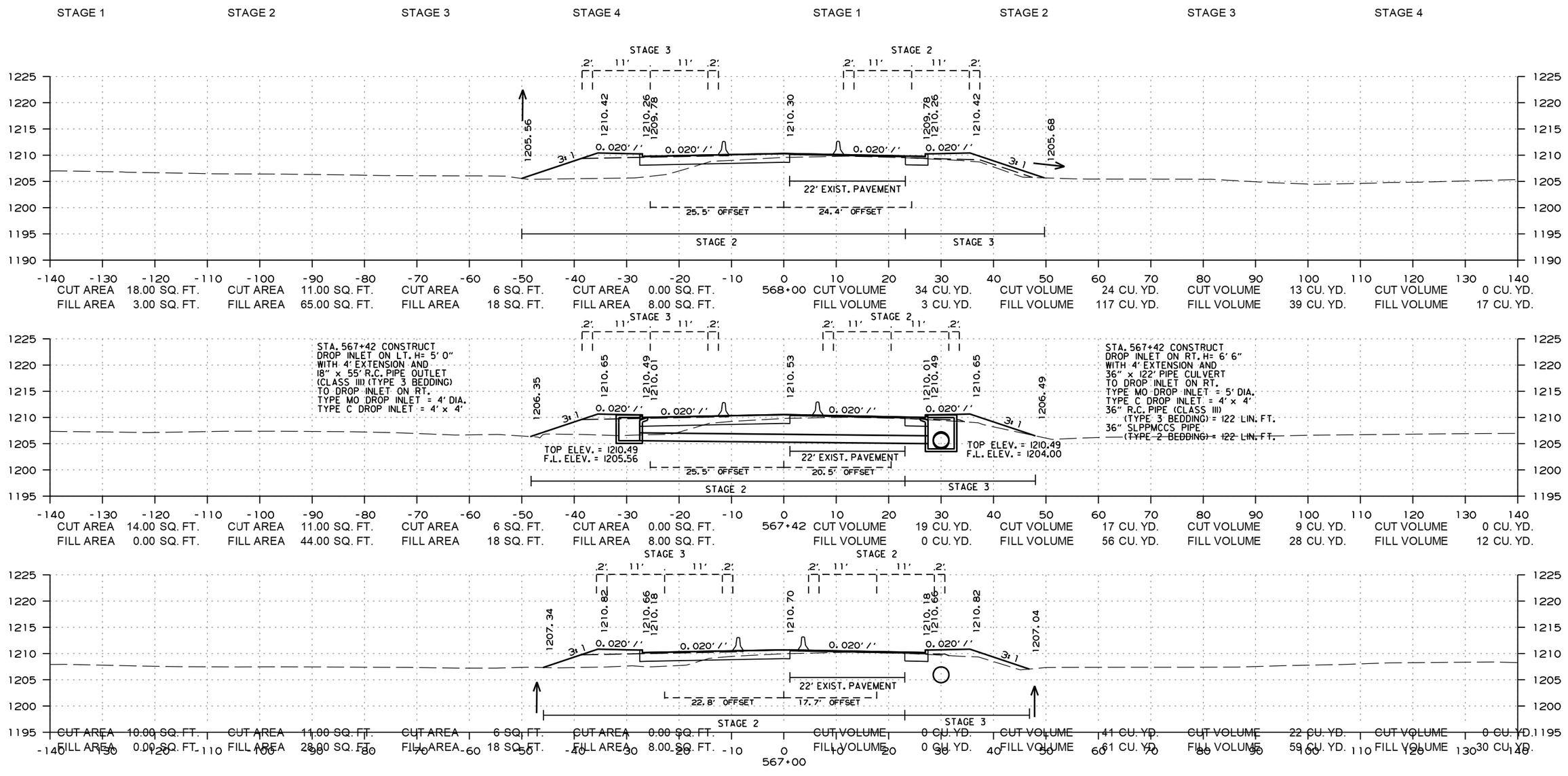


HWY. 16 - SITE 2
STA. 564+00 TO STA. 566+00

RD38049 5/19/2020
R040579.DGN

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		040579	108	127

(2) CROSS SECTIONS



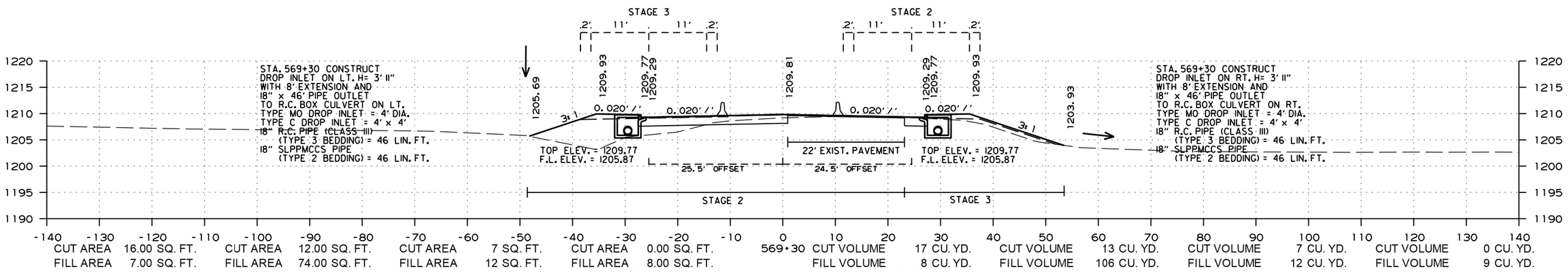
HWY. 16 - SITE 2
STA. 567+00 TO STA. 568+00

RD38049 5/19/2020
RD40579.DGN

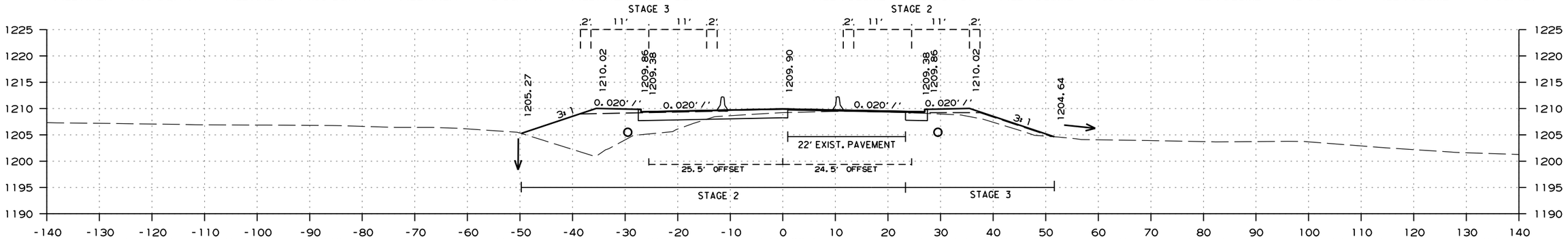
DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		040579	109	127

(2) CROSS SECTIONS

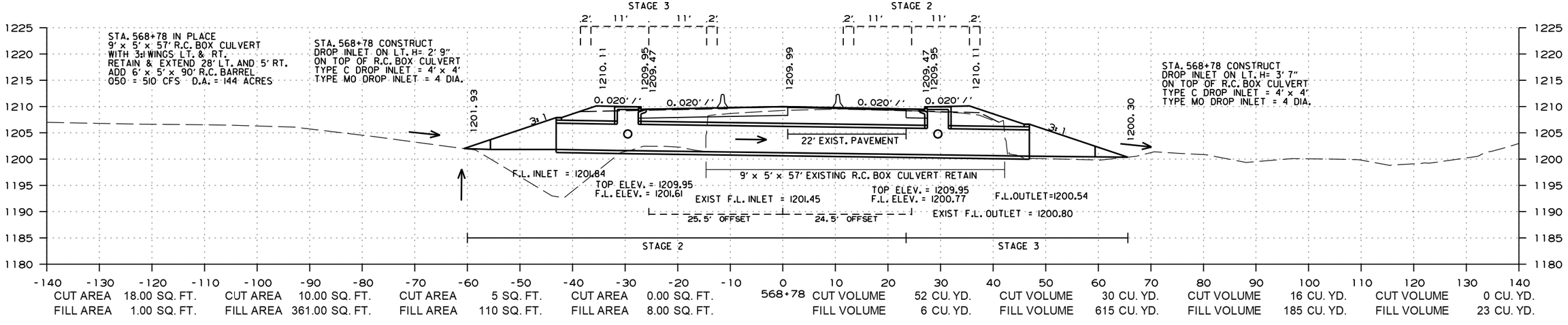
STAGE 1 STAGE 2 STAGE 3 STAGE 4 STAGE 1 STAGE 2 STAGE 3 STAGE 4



CUT AREA	16.00 SQ. FT.	CUT AREA	12.00 SQ. FT.	CUT AREA	7 SQ. FT.	CUT AREA	0.00 SQ. FT.	569+30	CUT VOLUME	17 CU. YD.	CUT VOLUME	13 CU. YD.	CUT VOLUME	7 CU. YD.	CUT VOLUME	0 CU. YD.			
FILL AREA	7.00 SQ. FT.	FILL AREA	74.00 SQ. FT.	FILL AREA	12 SQ. FT.	FILL AREA	8.00 SQ. FT.		FILL VOLUME	8 CU. YD.	FILL VOLUME	106 CU. YD.	FILL VOLUME	12 CU. YD.	FILL VOLUME	9 CU. YD.			



CUT AREA	14.00 SQ. FT.	CUT AREA	11.00 SQ. FT.	CUT AREA	6 SQ. FT.	CUT AREA	0.00 SQ. FT.	569+00	CUT VOLUME	13 CU. YD.	CUT VOLUME	9 CU. YD.	CUT VOLUME	4 CU. YD.	CUT VOLUME	0 CU. YD.			
FILL AREA	8.00 SQ. FT.	FILL AREA	116.00 SQ. FT.	FILL AREA	9 SQ. FT.	FILL AREA	8.00 SQ. FT.		FILL VOLUME	4 CU. YD.	FILL VOLUME	194 CU. YD.	FILL VOLUME	48 CU. YD.	FILL VOLUME	7 CU. YD.			



CUT AREA	18.00 SQ. FT.	CUT AREA	10.00 SQ. FT.	CUT AREA	5 SQ. FT.	CUT AREA	0.00 SQ. FT.	568+78	CUT VOLUME	52 CU. YD.	CUT VOLUME	30 CU. YD.	CUT VOLUME	16 CU. YD.	CUT VOLUME	0 CU. YD.			
FILL AREA	1.00 SQ. FT.	FILL AREA	361.00 SQ. FT.	FILL AREA	110 SQ. FT.	FILL AREA	8.00 SQ. FT.		FILL VOLUME	6 CU. YD.	FILL VOLUME	615 CU. YD.	FILL VOLUME	185 CU. YD.	FILL VOLUME	23 CU. YD.			

HWY. 16 - SITE 2
STA. 568+78 TO STA. 569+30

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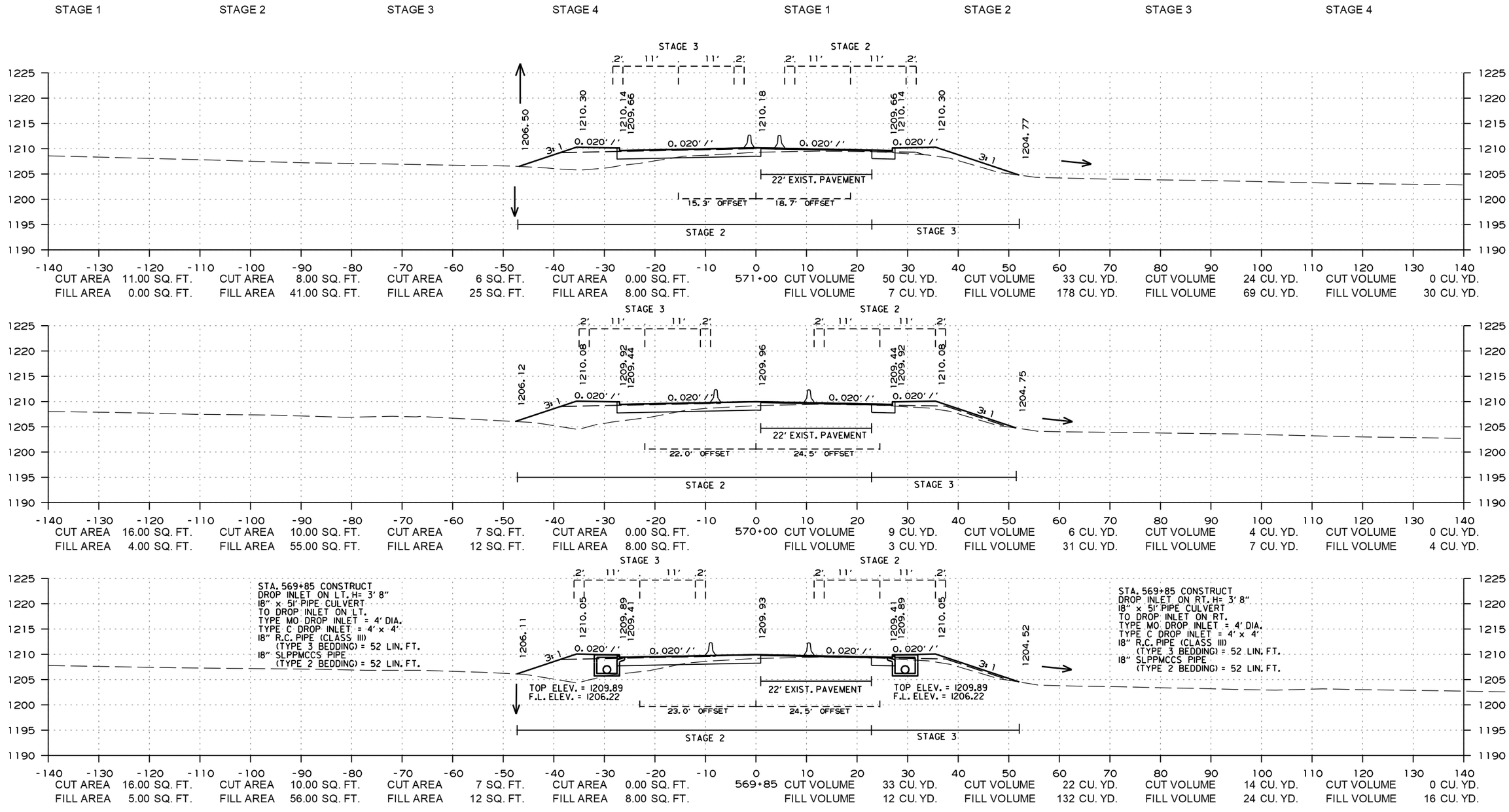
R040579.DGN

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		040579	110	127

(2) CROSS SECTIONS

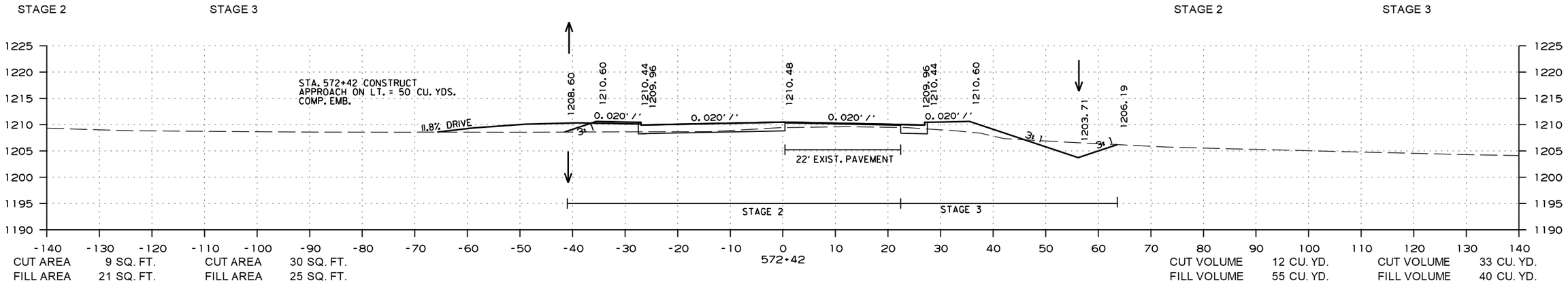


HWY. 16 - SITE 2
STA. 569+85 TO STA. 571+00

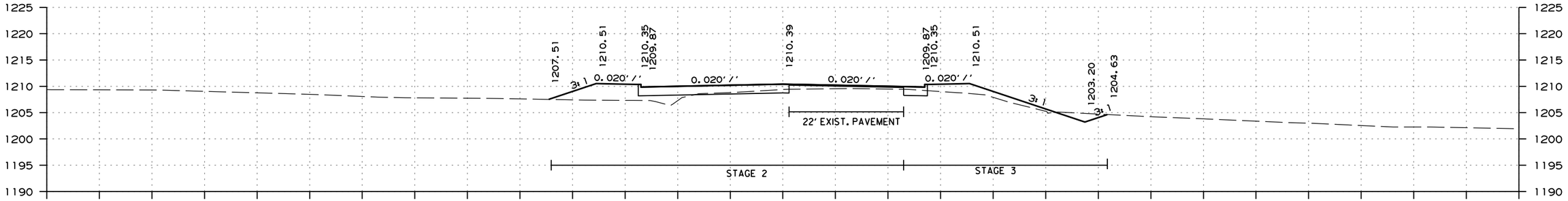
R038049 5/19/2020
R040579.DGN

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		040579	111	127

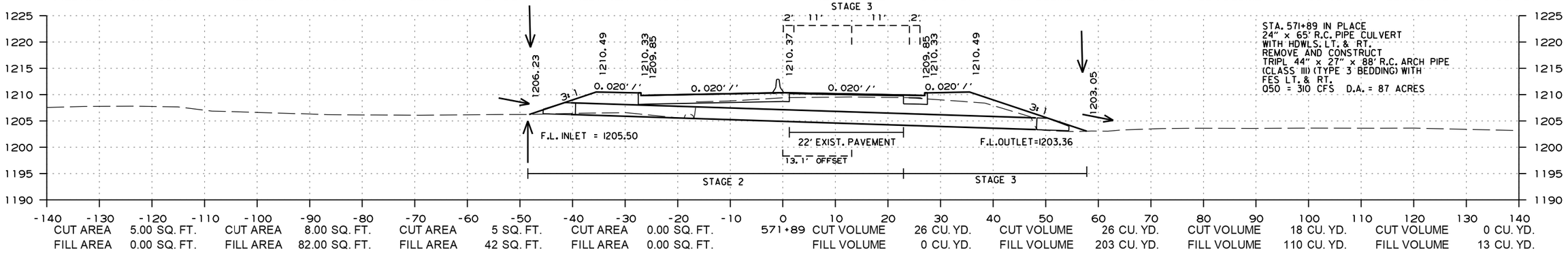
(2) CROSS SECTIONS



CUT AREA	9 SQ. FT.	CUT AREA	30 SQ. FT.					CUT VOLUME	12 CU. YD.			CUT VOLUME	33 CU. YD.		
FILL AREA	21 SQ. FT.	FILL AREA	25 SQ. FT.					FILL VOLUME	55 CU. YD.			FILL VOLUME	40 CU. YD.		



STAGE 1		STAGE 2		STAGE 3		STAGE 4		STAGE 1		STAGE 2		STAGE 3		STAGE 4	
CUT AREA	0.00 SQ. FT.	CUT AREA	7.00 SQ. FT.	CUT AREA	13 SQ. FT.	CUT AREA	0.00 SQ. FT.	CUT VOLUME	1 CU. YD.	CUT VOLUME	3 CU. YD.	CUT VOLUME	4 CU. YD.	CUT VOLUME	0 CU. YD.
FILL AREA	0.00 SQ. FT.	FILL AREA	50.00 SQ. FT.	FILL AREA	27 SQ. FT.	FILL AREA	0.00 SQ. FT.	FILL VOLUME	0 CU. YD.	FILL VOLUME	27 CU. YD.	FILL VOLUME	14 CU. YD.	FILL VOLUME	0 CU. YD.



CUT AREA	5.00 SQ. FT.	CUT AREA	8.00 SQ. FT.	CUT AREA	5 SQ. FT.	CUT AREA	0.00 SQ. FT.	CUT VOLUME	26 CU. YD.	CUT VOLUME	26 CU. YD.	CUT VOLUME	18 CU. YD.	CUT VOLUME	0 CU. YD.
FILL AREA	0.00 SQ. FT.	FILL AREA	82.00 SQ. FT.	FILL AREA	42 SQ. FT.	FILL AREA	0.00 SQ. FT.	FILL VOLUME	0 CU. YD.	FILL VOLUME	203 CU. YD.	FILL VOLUME	110 CU. YD.	FILL VOLUME	13 CU. YD.

HWY. 16 - SITE 2
STA. 571+89 TO STA. 572+42

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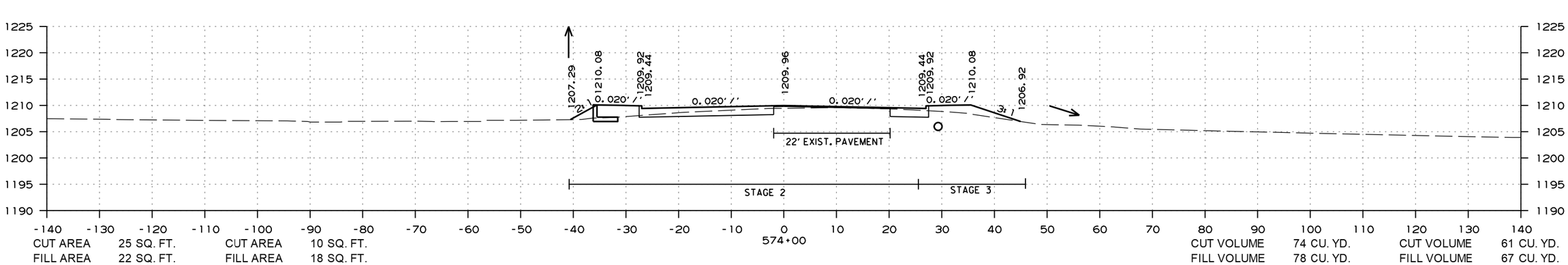
DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		040579	112	127

(2) CROSS SECTIONS

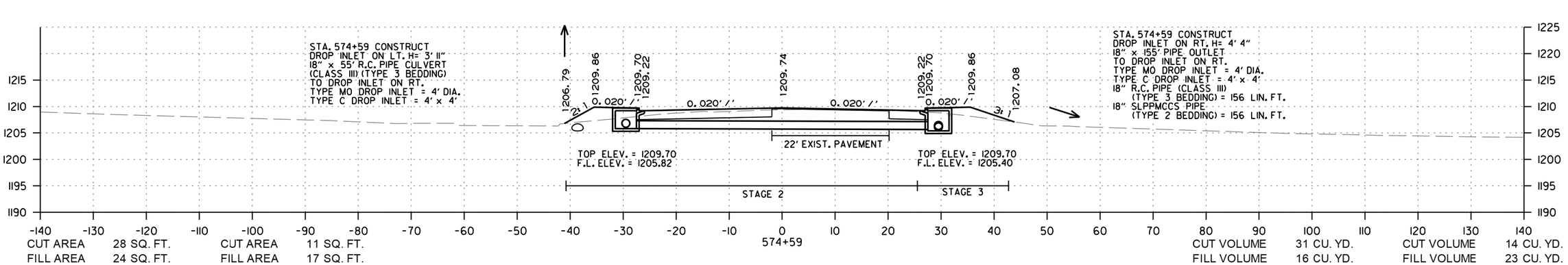


HWY. 16 - SITE 2
STA. 573+00 TO STA. 574+59

RD38049 5/19/2020
R040579.DGN

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		040579	113	127

(2) CROSS SECTIONS



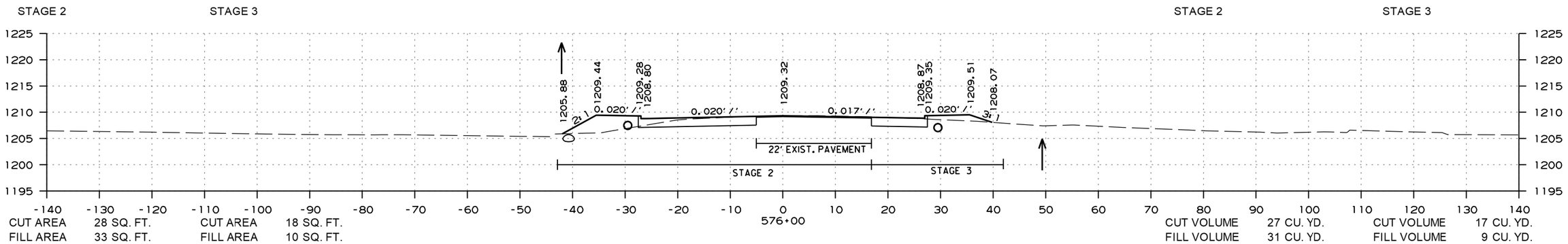
HWY. 16 - SITE 2

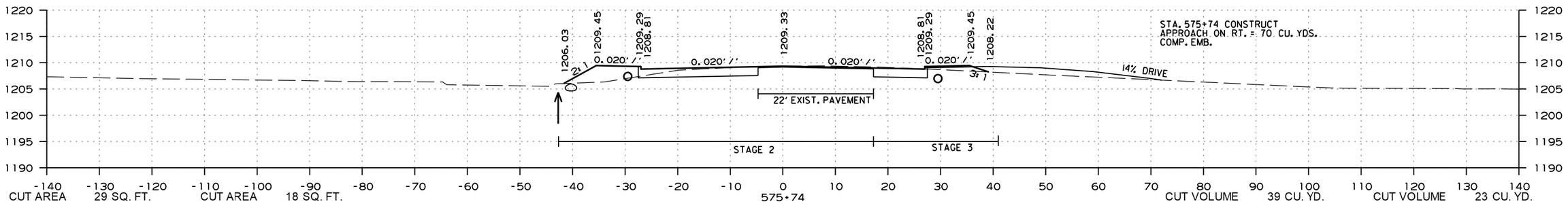
CROSS SECTION STA. 574+22 TO STA. 574+59

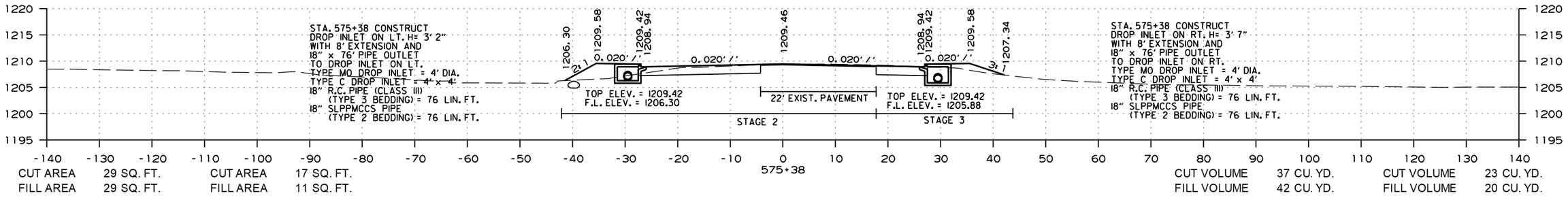
RD38049 5/19/2020
R040579.DGN

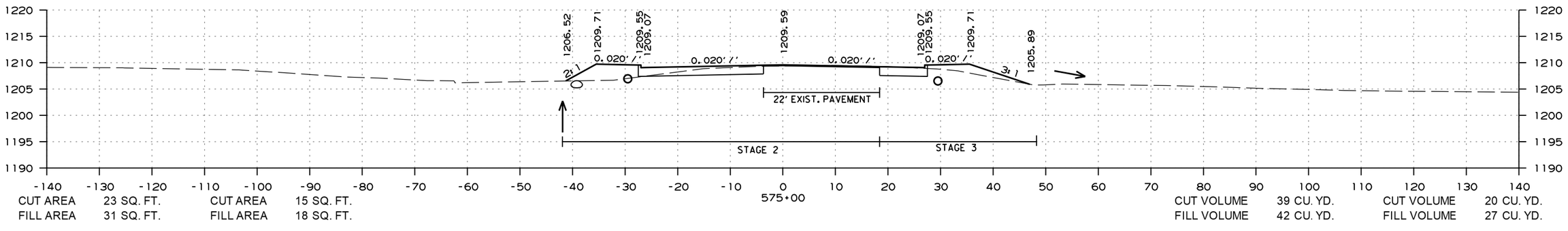
DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		040579	114	127

(2) CROSS SECTIONS









HWY. 16 - SITE 2
STA. 575+00 TO STA. 576+00

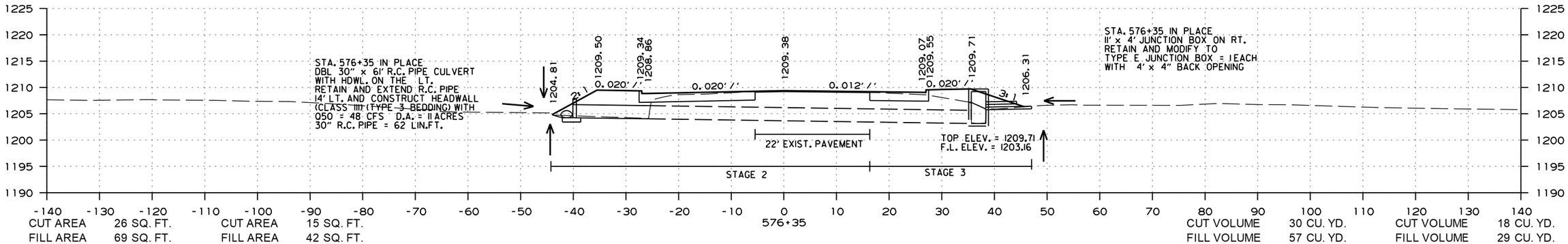
RD38049 5/19/2020
R040579.DGN

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		040579	115	127

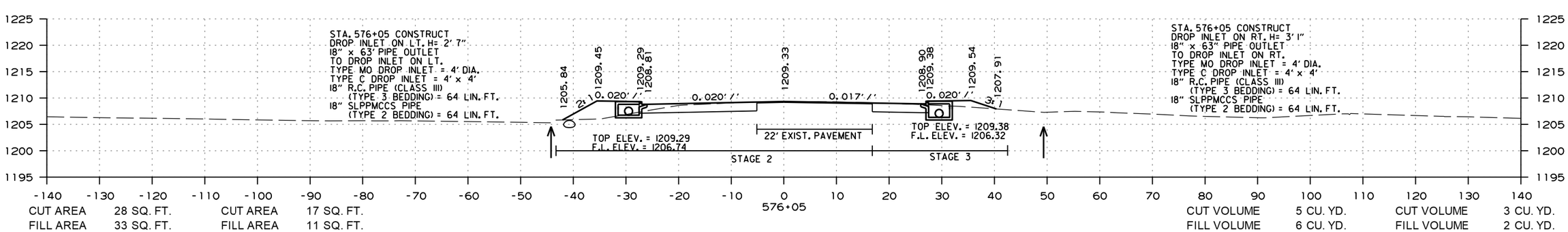
(2) CROSS SECTIONS

STAGE 2 STAGE 3 STAGE 2 STAGE 3

CUT AREA 24 SQ. FT. CUT AREA 11 SQ. FT. CUT VOLUME 60 CU. YD. CUT VOLUME 31 CU. YD.
FILL AREA 27 SQ. FT. FILL AREA 26 SQ. FT. FILL VOLUME 116 CU. YD. FILL VOLUME 82 CU. YD.



CUT AREA 26 SQ. FT. CUT AREA 15 SQ. FT. CUT VOLUME 30 CU. YD. CUT VOLUME 18 CU. YD.
FILL AREA 69 SQ. FT. FILL AREA 42 SQ. FT. FILL VOLUME 57 CU. YD. FILL VOLUME 29 CU. YD.



CUT AREA 28 SQ. FT. CUT AREA 17 SQ. FT. CUT VOLUME 5 CU. YD. CUT VOLUME 3 CU. YD.
FILL AREA 33 SQ. FT. FILL AREA 11 SQ. FT. FILL VOLUME 6 CU. YD. FILL VOLUME 2 CU. YD.

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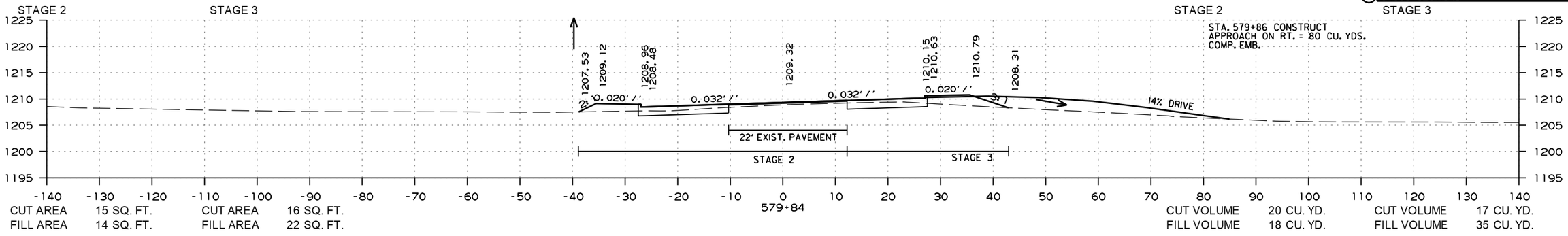
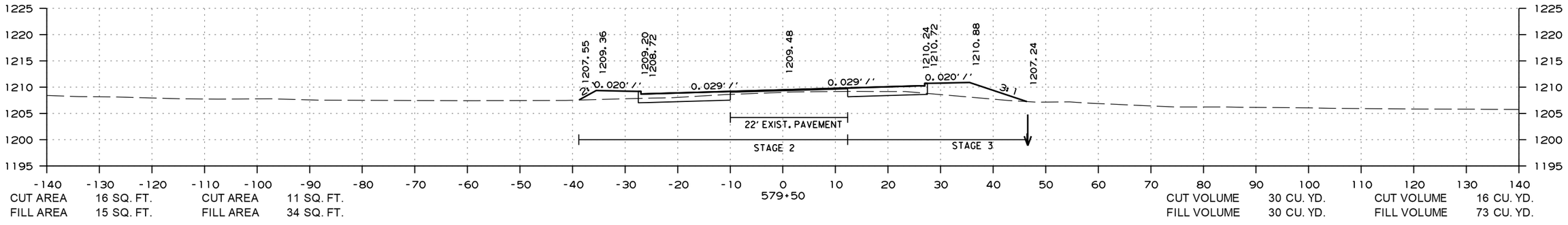
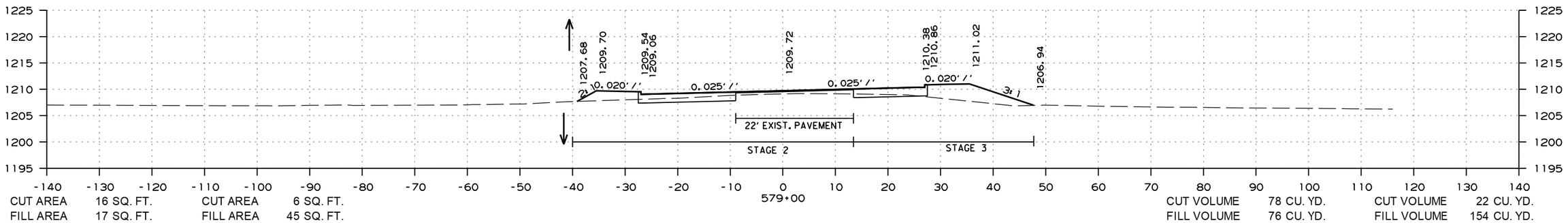
HWY. 16 - SITE 2
STA. 576+05 TO STA. 577+00

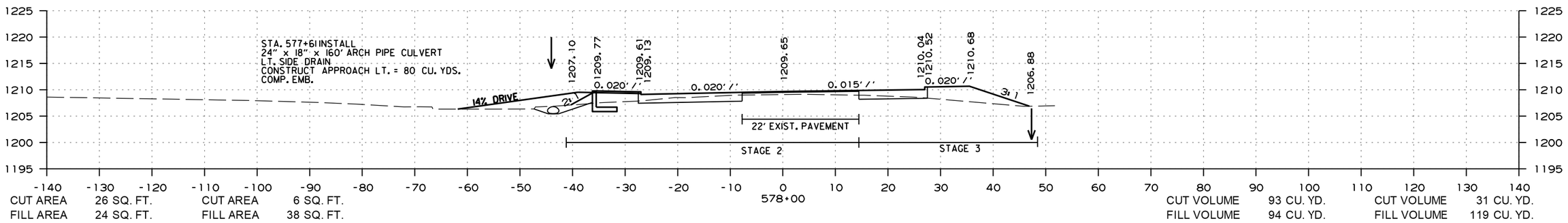
DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		040579	116	127

(2) CROSS SECTIONS







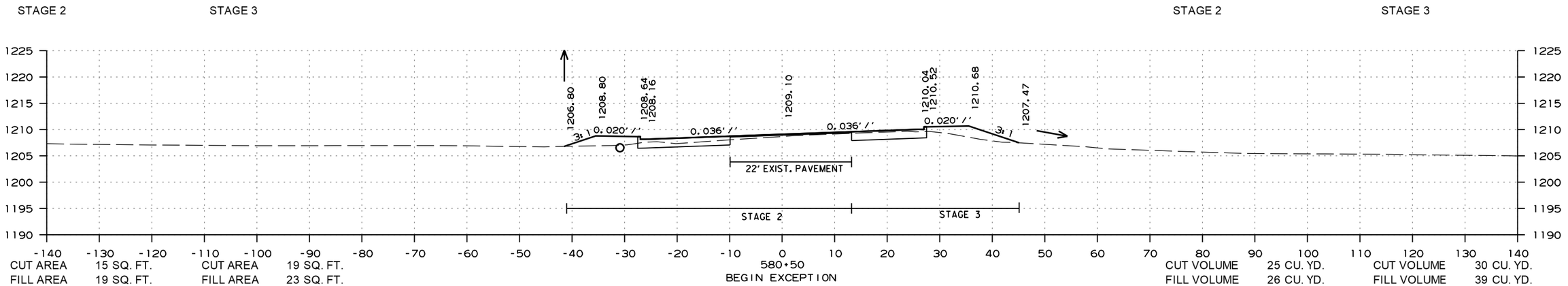


HWY. 16 - SITE 2
STA. 578+00 TO STA. 579+84

RD38049 5/19/2020
R040579.DGN

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		040579	117	127

(2) CROSS SECTIONS

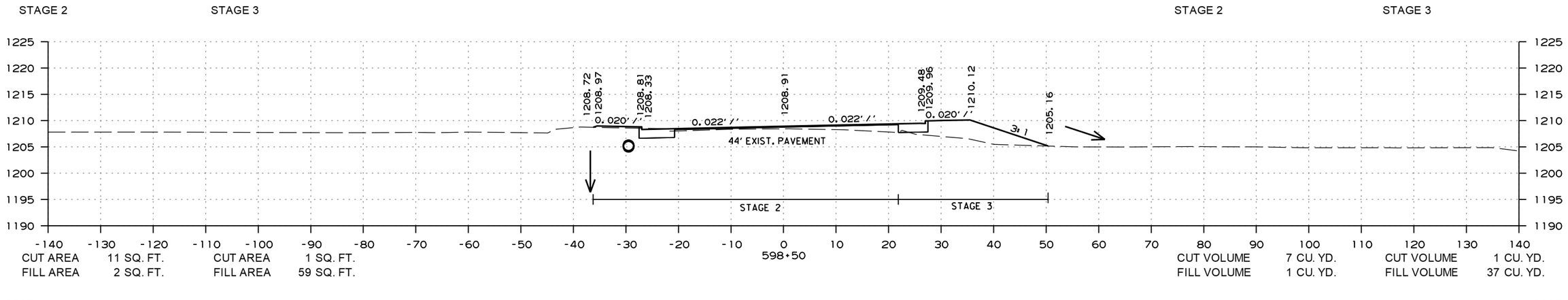


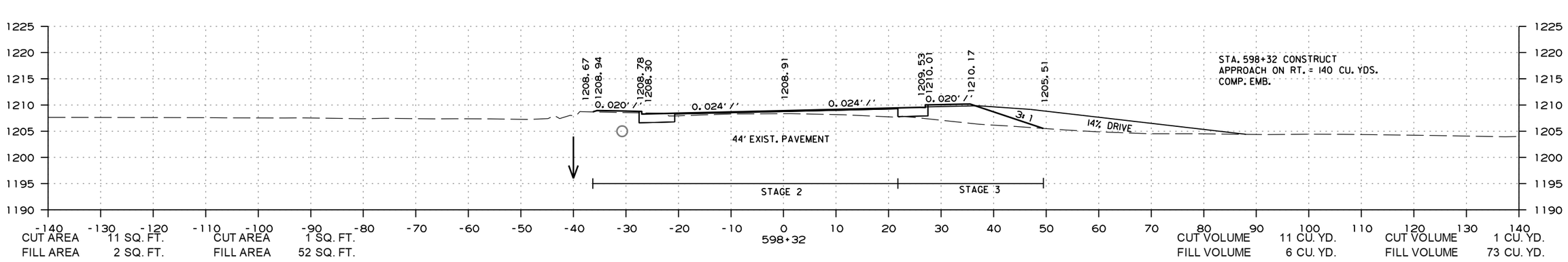
RD38049 5/19/2020
R040579.DGN

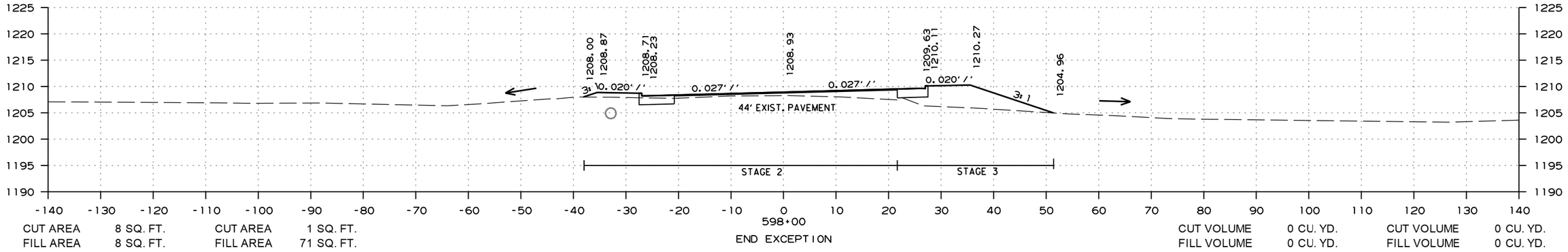
HWY. 16 - SITE 2
STA. 580+05 TO STA. 580+50

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		040579	118	127

(2) CROSS SECTIONS





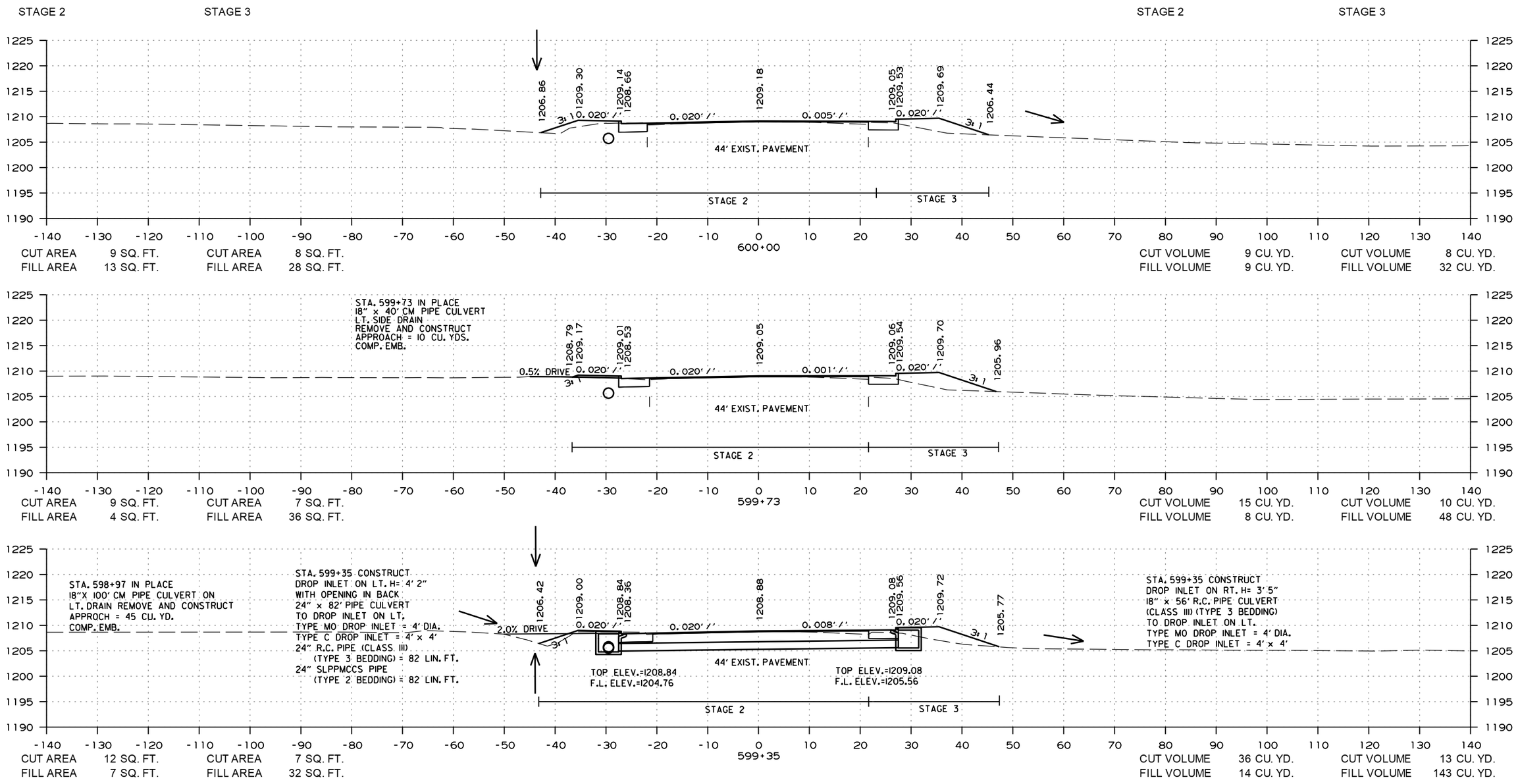


HWY. 16 - SITE 2
STA. 598+00 TO STA. 598+50

RD38049 5/19/2020
R040579.DGN

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		040579	119	127

(2) CROSS SECTIONS

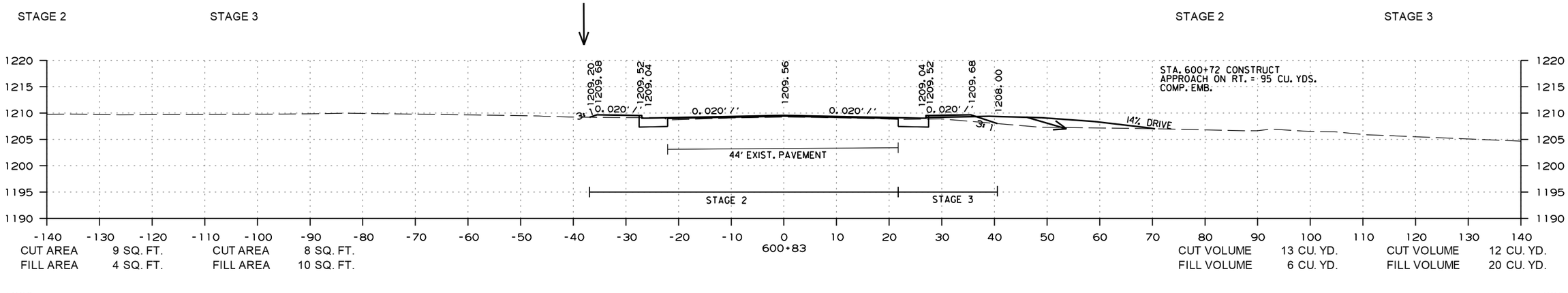


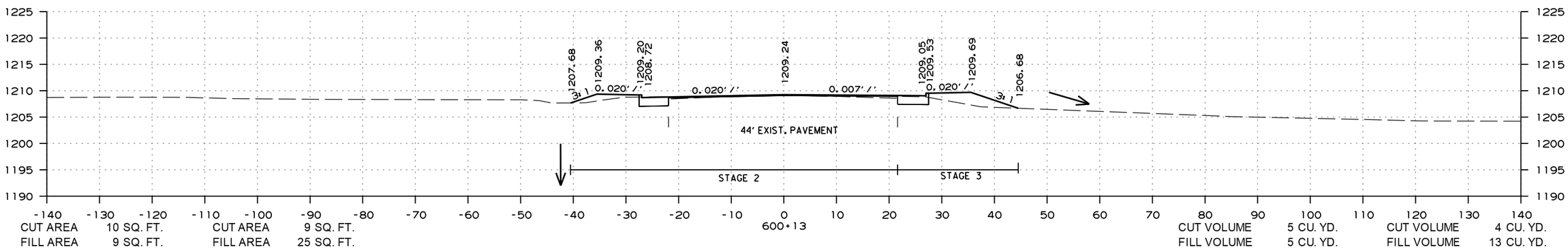
HWY. 16 - SITE 2
STA. 599+35 TO STA. 600+00

RD38049 5/19/2020
R040579.DGN

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		040579	120	127

(2) CROSS SECTIONS



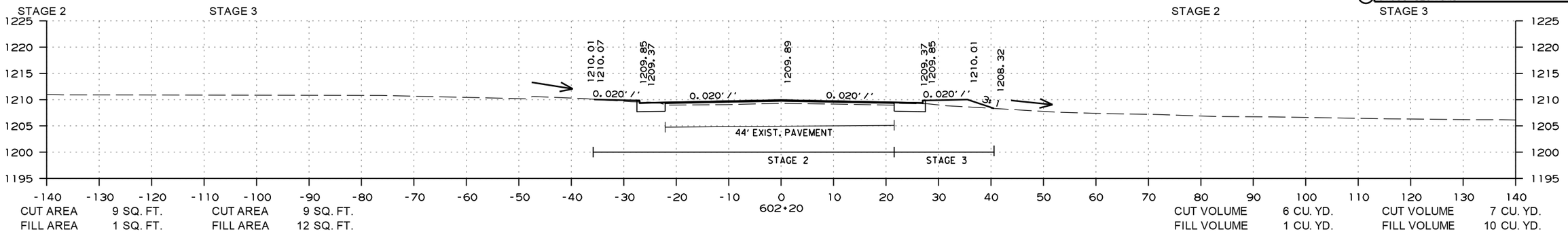


HWY. 16 - SITE 2
STA. 600+13 TO STA. 600+83

RD38049 5/19/2020
R040579.DGN

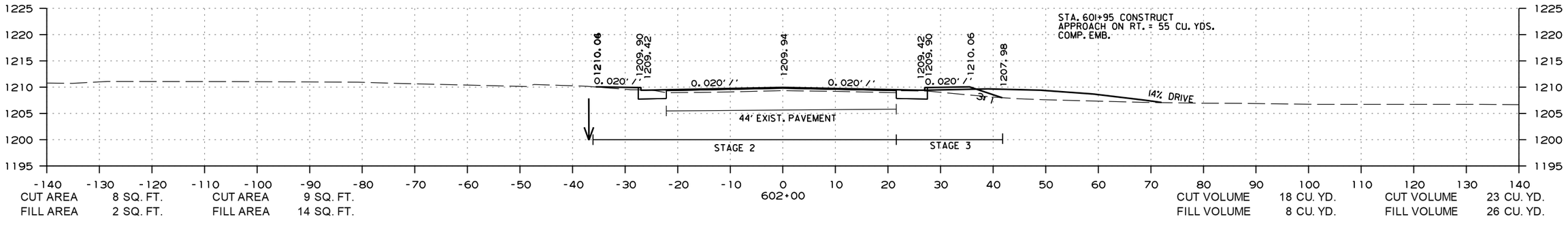
DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		040579	121	127

(2) CROSS SECTIONS



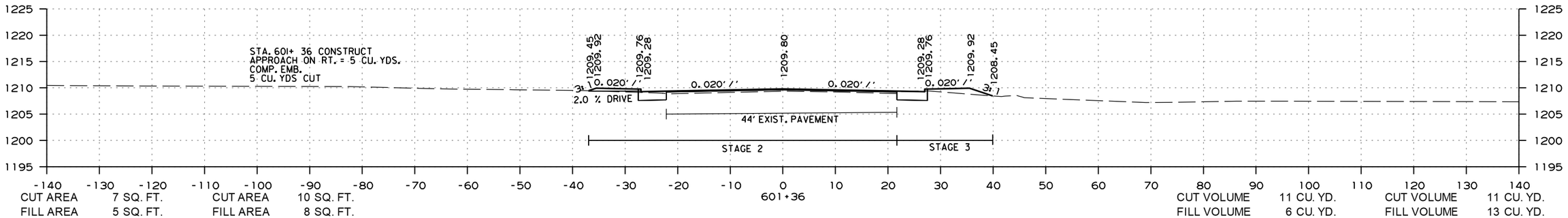
CUT AREA	9 SQ. FT.	CUT AREA	9 SQ. FT.	CUT VOLUME	6 CU. YD.
FILL AREA	1 SQ. FT.	FILL AREA	12 SQ. FT.	FILL VOLUME	1 CU. YD.

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



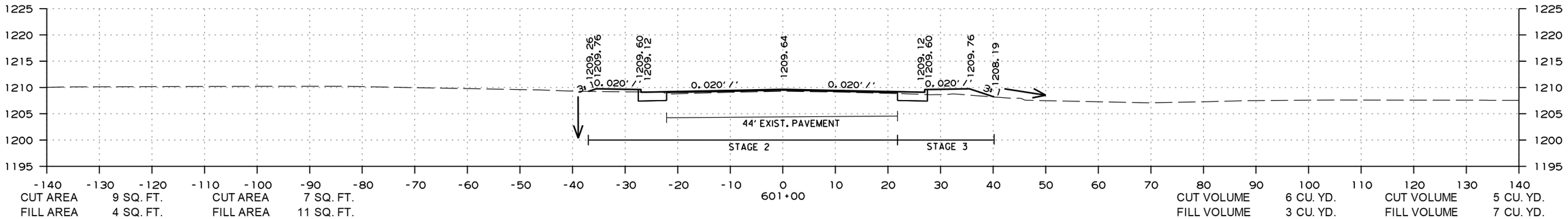
CUT AREA	8 SQ. FT.	CUT AREA	9 SQ. FT.	CUT VOLUME	18 CU. YD.
FILL AREA	2 SQ. FT.	FILL AREA	14 SQ. FT.	FILL VOLUME	8 CU. YD.

CUT VOLUME	23 CU. YD.
FILL VOLUME	26 CU. YD.



CUT AREA	7 SQ. FT.	CUT AREA	10 SQ. FT.	CUT VOLUME	11 CU. YD.
FILL AREA	5 SQ. FT.	FILL AREA	8 SQ. FT.	FILL VOLUME	6 CU. YD.

CUT VOLUME	11 CU. YD.
FILL VOLUME	13 CU. YD.



CUT AREA	9 SQ. FT.	CUT AREA	7 SQ. FT.	CUT VOLUME	6 CU. YD.
FILL AREA	4 SQ. FT.	FILL AREA	11 SQ. FT.	FILL VOLUME	3 CU. YD.

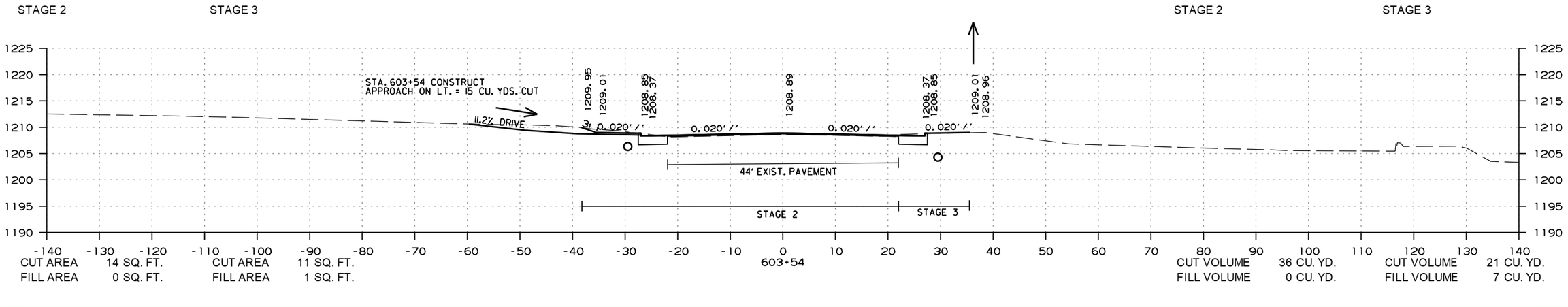
CUT VOLUME	5 CU. YD.
FILL VOLUME	7 CU. YD.

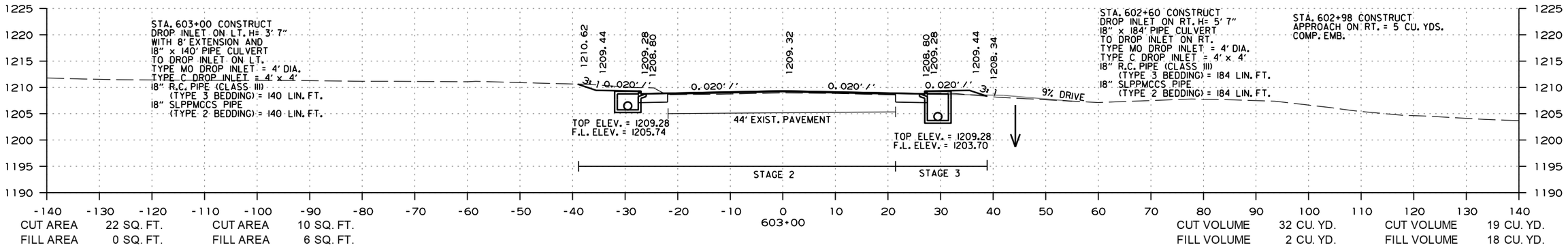
HWY. 16 - SITE 2
STA. 601+00 TO STA. 602+20

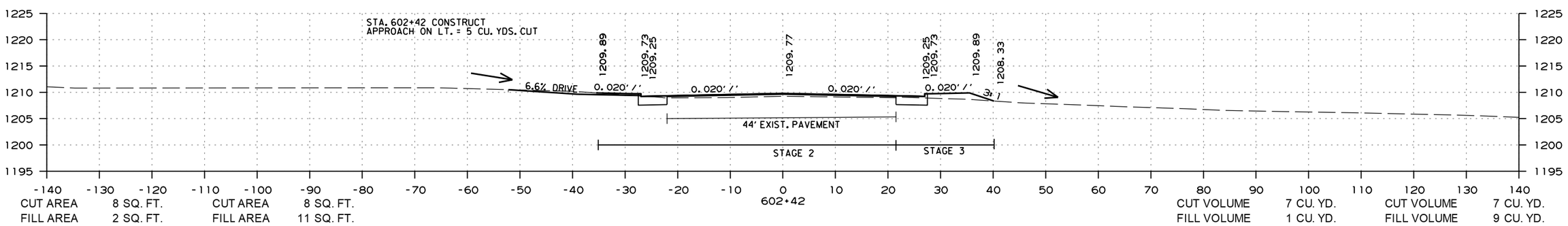
RD38049 5/19/2020
R040579.DGN

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		040579	122	127

(2) CROSS SECTIONS





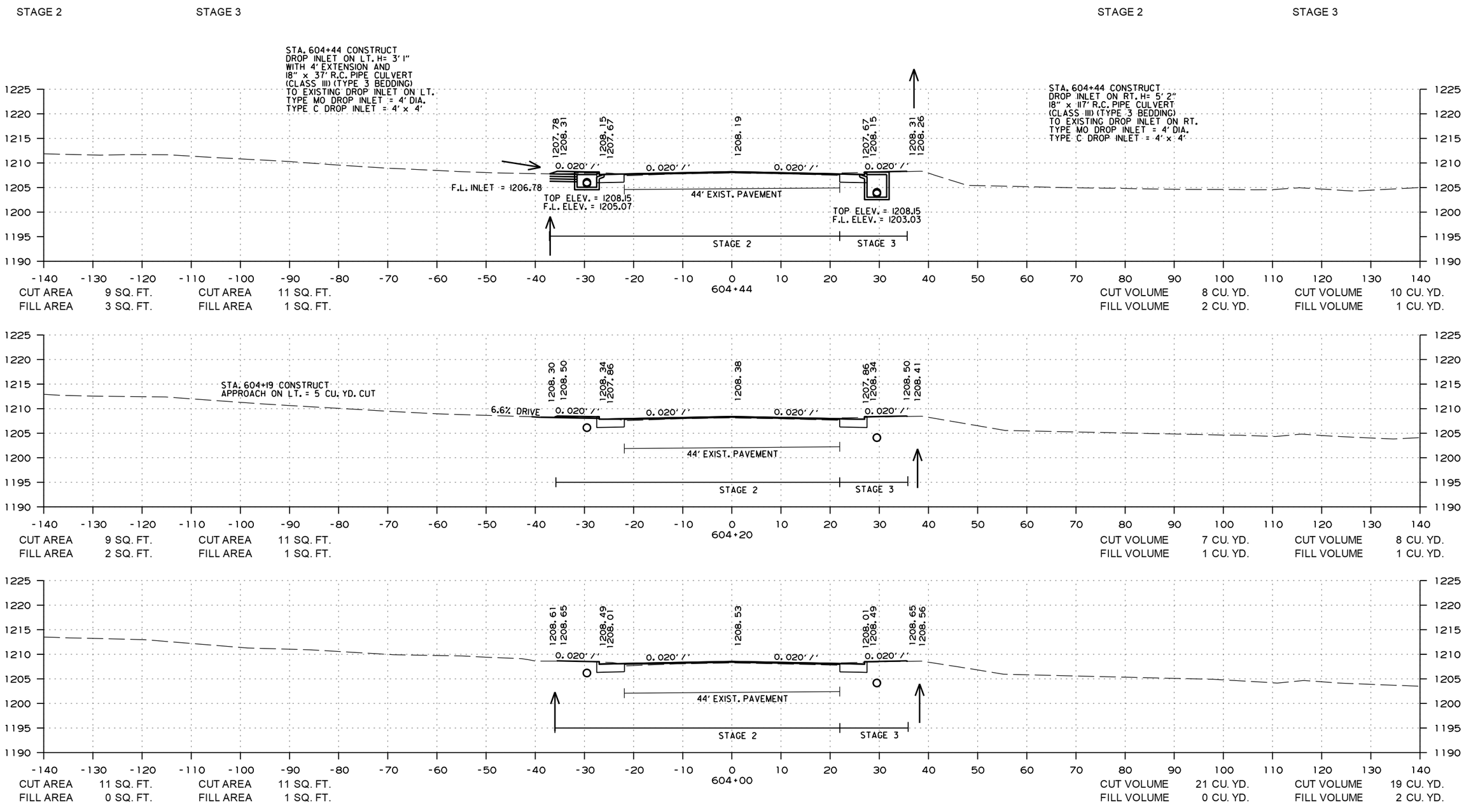


RD38049 5/19/2020
R040579.DGN

HWY. 16 - SITE 2
STA. 602+42 TO STA. 603+54

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		040579	123	127

(2) CROSS SECTIONS



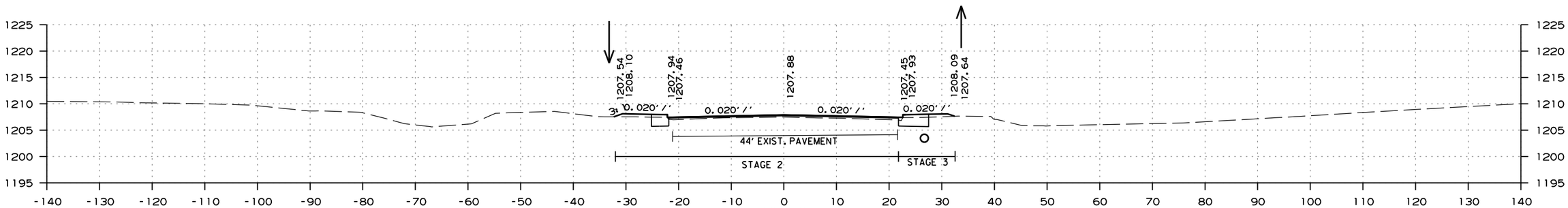
HWY. 16 - SITE 2
STA. 604+00 TO STA. 604+44

RD38049 5/19/2020
R040579.DGN

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		040579	124	127

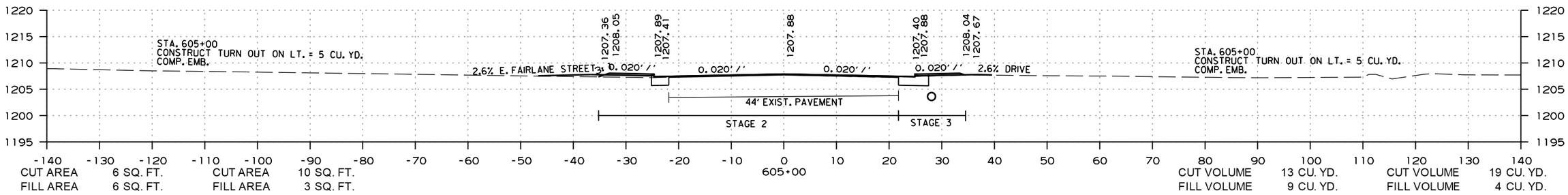
(2) CROSS SECTIONS

STAGE 2 STAGE 3 STAGE 2 STAGE 3



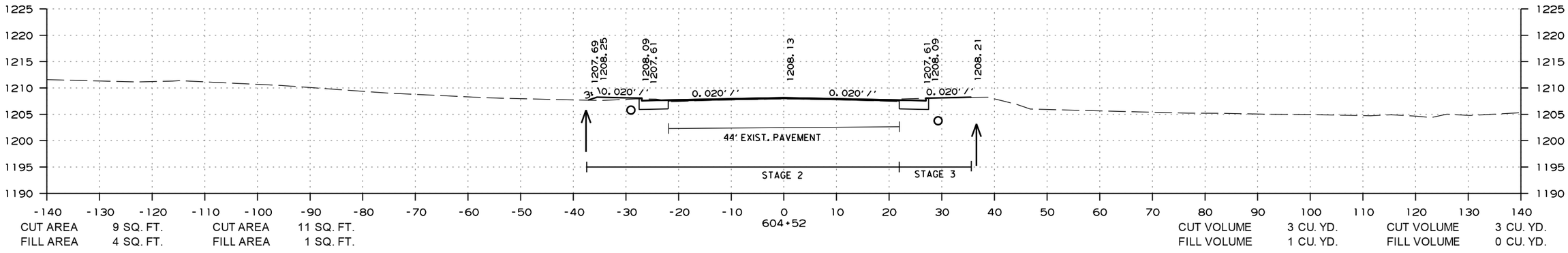
CUT AREA 6 SQ. FT. CUT AREA 9 SQ. FT.
FILL AREA 3 SQ. FT. FILL AREA 2 SQ. FT.

CUT VOLUME 12 CU. YD. CUT VOLUME 18 CU. YD.
FILL VOLUME 9 CU. YD. FILL VOLUME 5 CU. YD.



CUT AREA 6 SQ. FT. CUT AREA 10 SQ. FT.
FILL AREA 6 SQ. FT. FILL AREA 3 SQ. FT.

CUT VOLUME 13 CU. YD. CUT VOLUME 19 CU. YD.
FILL VOLUME 9 CU. YD. FILL VOLUME 4 CU. YD.



CUT AREA 9 SQ. FT. CUT AREA 11 SQ. FT.
FILL AREA 4 SQ. FT. FILL AREA 1 SQ. FT.

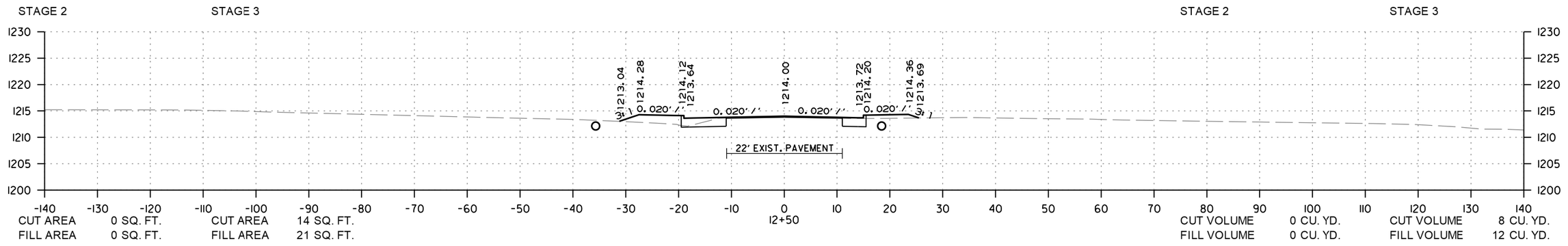
CUT VOLUME 3 CU. YD. CUT VOLUME 3 CU. YD.
FILL VOLUME 1 CU. YD. FILL VOLUME 0 CU. YD.

HWY. 16 - SITE 2
STA. 604+52 TO STA. 605+52

RD38049 5/19/2020
R040579.DGN

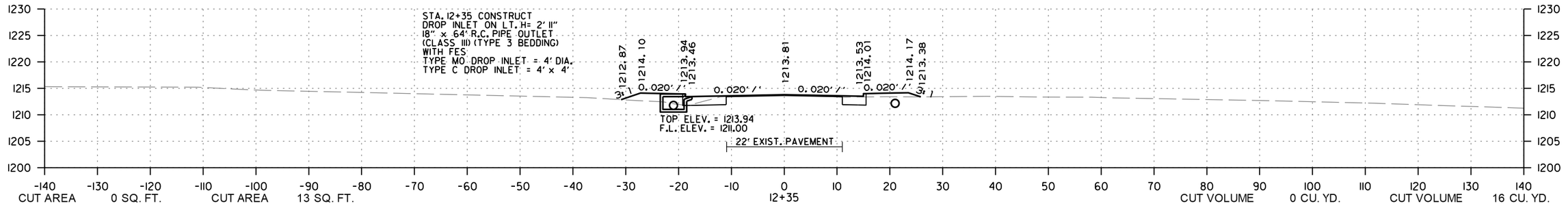
DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		040579	125	127

(2) CROSS SECTIONS



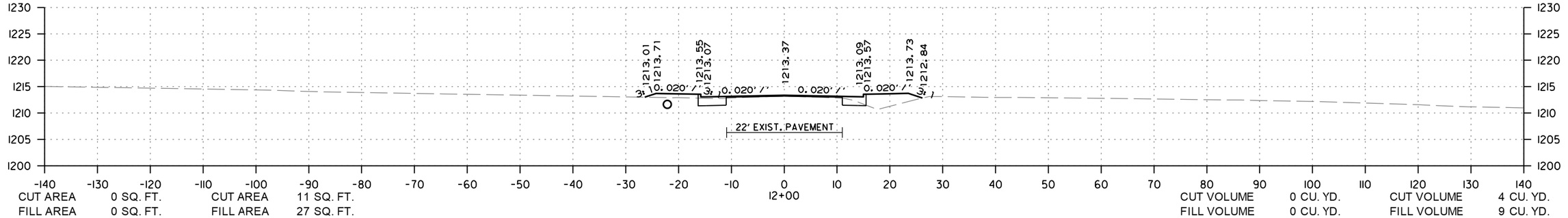
CUT AREA 0 SQ. FT. CUT AREA 14 SQ. FT.
FILL AREA 0 SQ. FT. FILL AREA 21 SQ. FT.

CUT VOLUME 0 CU. YD. CUT VOLUME 8 CU. YD.
FILL VOLUME 0 CU. YD. FILL VOLUME 12 CU. YD.



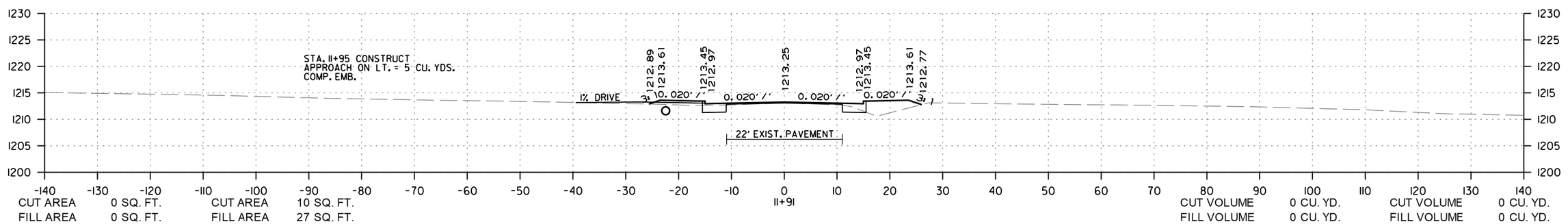
CUT AREA 0 SQ. FT. CUT AREA 13 SQ. FT.
FILL AREA 0 SQ. FT. FILL AREA 22 SQ. FT.

CUT VOLUME 0 CU. YD. CUT VOLUME 16 CU. YD.
FILL VOLUME 0 CU. YD. FILL VOLUME 32 CU. YD.



CUT AREA 0 SQ. FT. CUT AREA 11 SQ. FT.
FILL AREA 0 SQ. FT. FILL AREA 27 SQ. FT.

CUT VOLUME 0 CU. YD. CUT VOLUME 4 CU. YD.
FILL VOLUME 0 CU. YD. FILL VOLUME 9 CU. YD.



CUT AREA 0 SQ. FT. CUT AREA 10 SQ. FT.
FILL AREA 0 SQ. FT. FILL AREA 27 SQ. FT.

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

MORNINGSIDE DR.

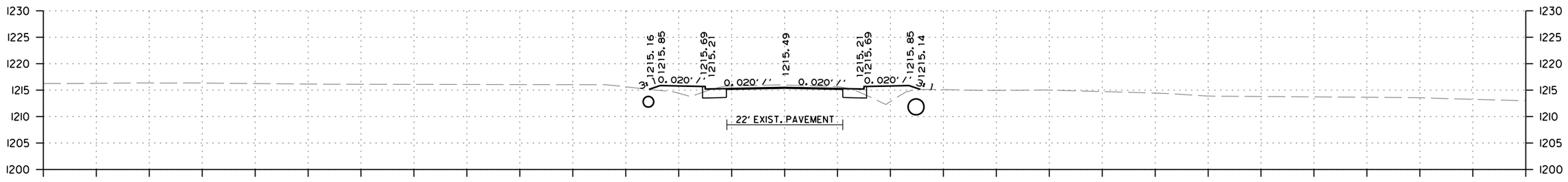
STA. 11+91 TO STA. 12+50

RD38049 5/19/2020
R040579.DGN

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		040579	126	127

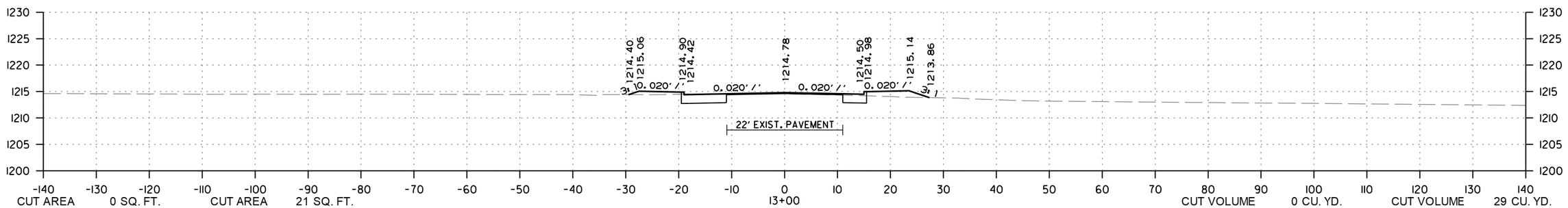
(2) CROSS SECTIONS

STAGE 2 STAGE 3 STAGE 2 STAGE 3



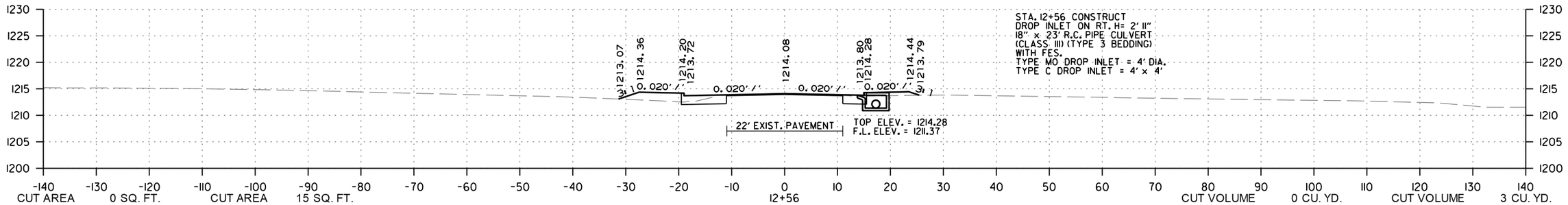
CUT AREA	16 SQ. FT.	CUT AREA	0 SQ. FT.	CUT VOLUME	0 CU. YD.
FILL AREA	32 SQ. FT.	FILL AREA	0 SQ. FT.	FILL VOLUME	0 CU. YD.

CUT VOLUME	39 CU. YD.		
FILL VOLUME	28 CU. YD.		



CUT AREA	0 SQ. FT.	CUT AREA	21 SQ. FT.	CUT VOLUME	0 CU. YD.
FILL AREA	0 SQ. FT.	FILL AREA	15 SQ. FT.	FILL VOLUME	0 CU. YD.

CUT VOLUME	29 CU. YD.		
FILL VOLUME	29 CU. YD.		



CUT AREA	0 SQ. FT.	CUT AREA	15 SQ. FT.	CUT VOLUME	0 CU. YD.
FILL AREA	0 SQ. FT.	FILL AREA	21 SQ. FT.	FILL VOLUME	0 CU. YD.

CUT VOLUME	3 CU. YD.		
FILL VOLUME	5 CU. YD.		

MORNINGSIDE DR.

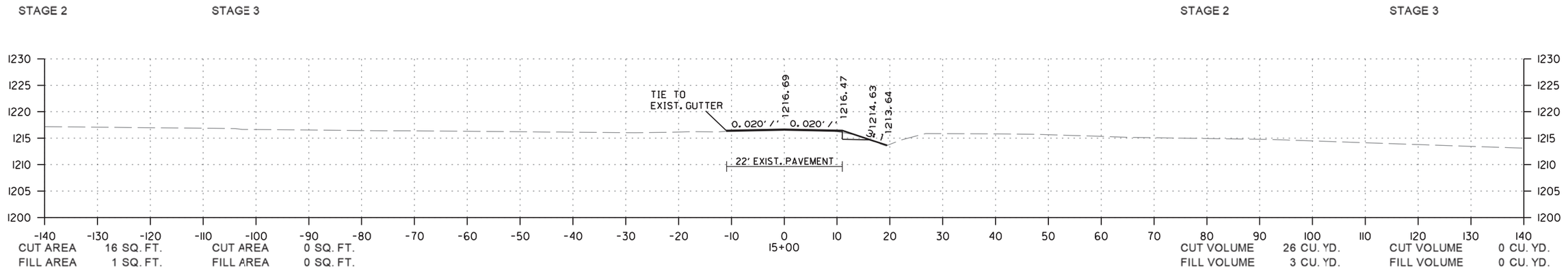
STA. 12+56 TO STA. 14+00

RD38049 5/19/2020
R040579.DGN

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED
06-12-2020			

FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
6	ARK.			
JOB NO.		040579	127	127

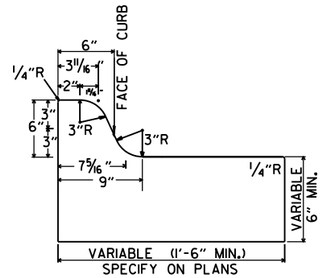
(2) CROSS SECTIONS



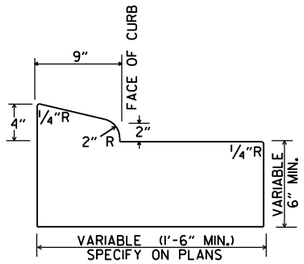
MORNINGSIDE DR.

STA. 14+50 TO STA. 15+00

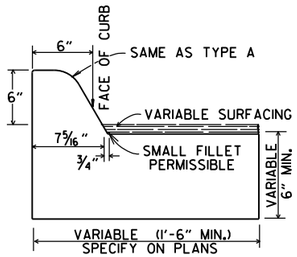
RD38049 6/11/2020
R040579.DGN



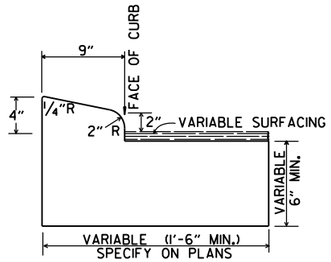
TYPE A



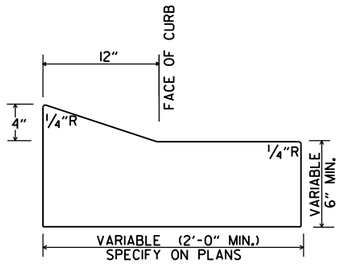
TYPE B-I



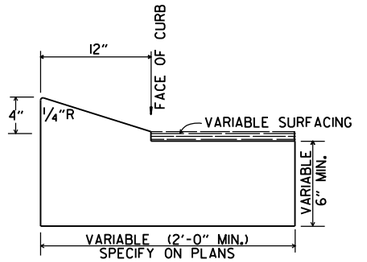
TYPE C



TYPE B-2

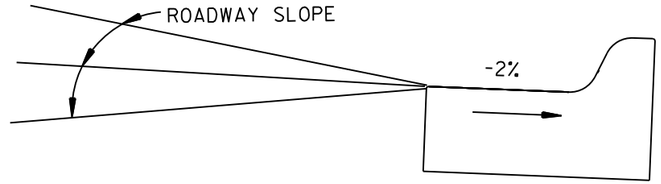


TYPE E-I



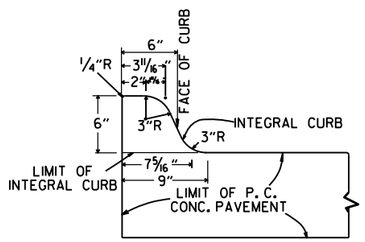
TYPE E-2

CONCRETE COMBINATION CURB AND GUTTER

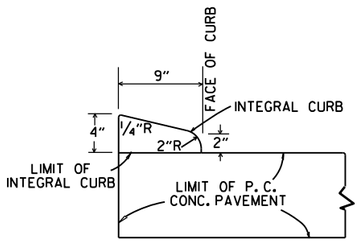


DETAIL OF GUTTER SLOPE

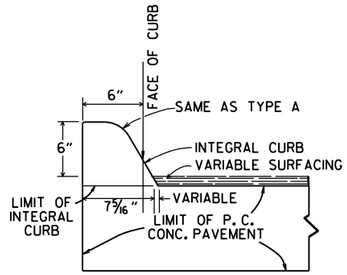
GUTTER SHALL BE CONSTRUCTED ON 2% SLOPE AWAY FROM ROADWAY, REGARDLESS OF ROADWAY SLOPE.



TYPE A

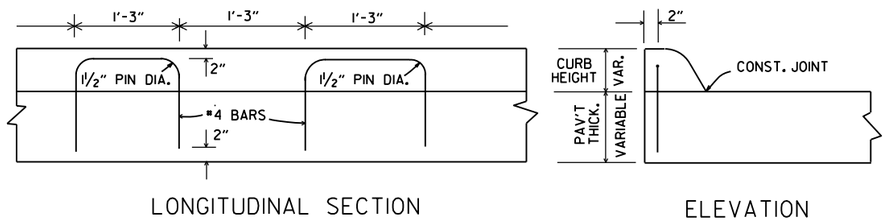


TYPE B



TYPE C

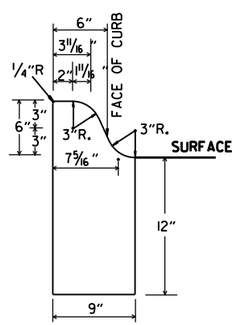
INTEGRAL CURB



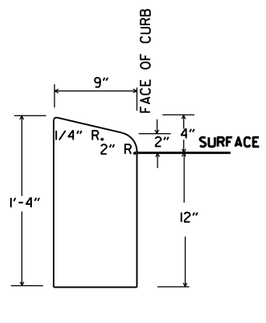
LONGITUDINAL SECTION

ELEVATION

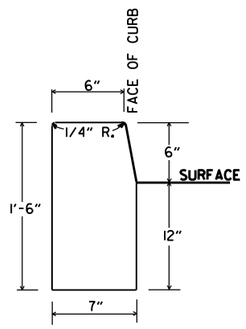
ALTERNATE CONSTRUCTION METHOD FOR INTEGRAL CURB



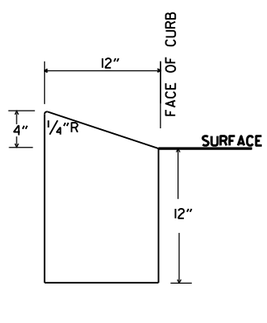
TYPE A



TYPE B

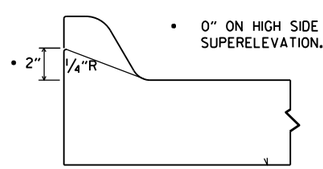


TYPE D



TYPE E

CONCRETE CURB



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

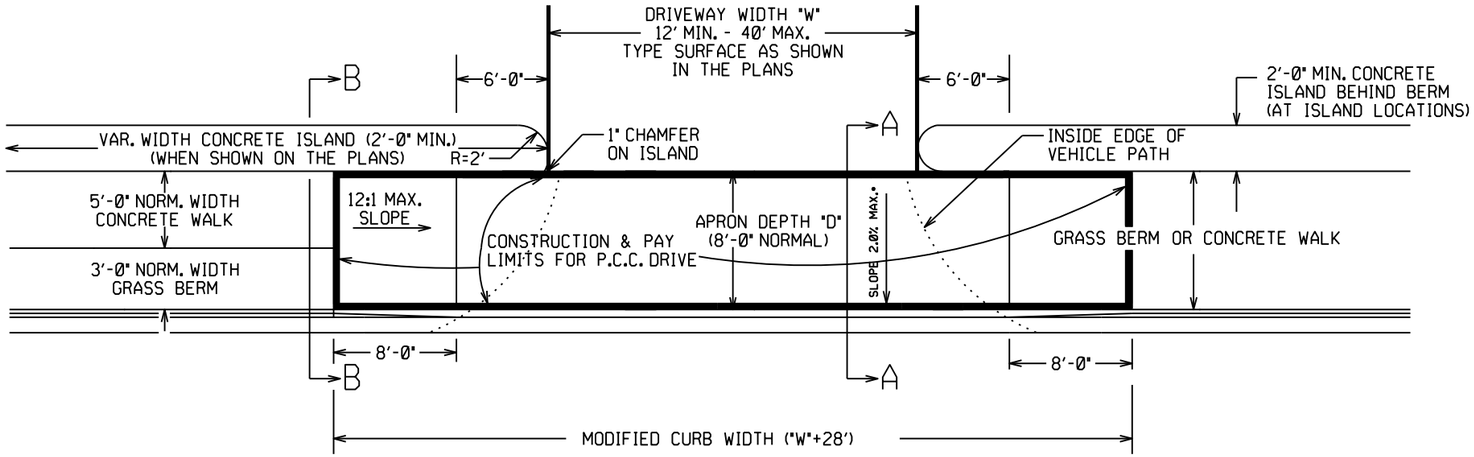
DETAILS OF MODIFIED CURB

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

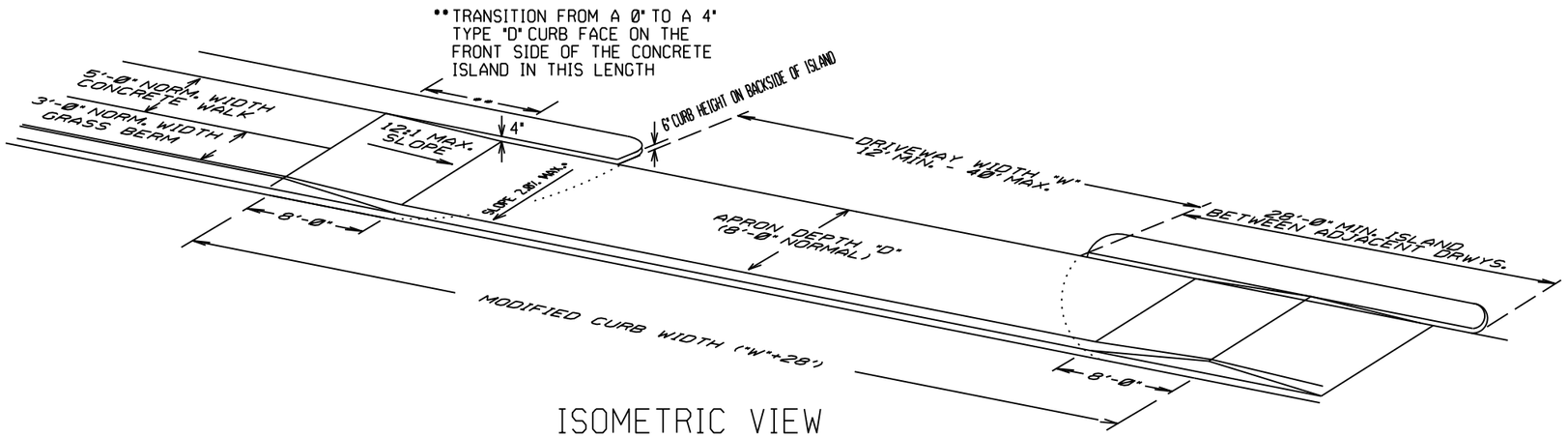
ARKANSAS STATE HIGHWAY COMMISSION

CURBING DETAILS

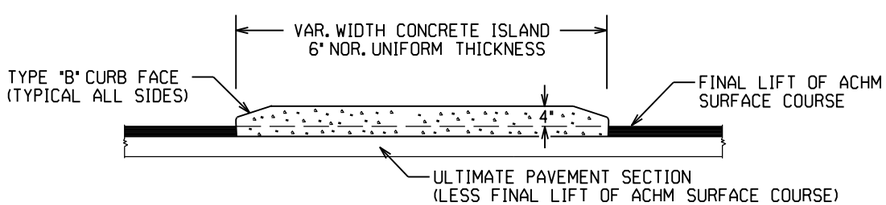
STANDARD DRAWING CG-1



PLAN VIEW

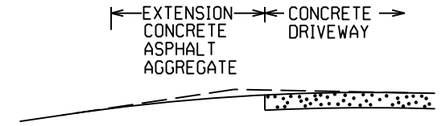


ISOMETRIC VIEW



CURBED ISLANDS FOR CHANNELIZATION

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



EXTENSION TYPICAL SECTIONS

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

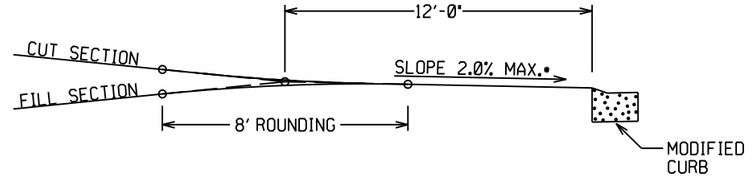
2: ASPHALT - 2" ACHM SURFACE COURSE (1/2")
4" ACHM BINDER COURSE (1") OR
4" ACHM BASE COURSE (1-1/2")

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

4: AGGREGATE - 6" AGGREGATE BASE COURSE

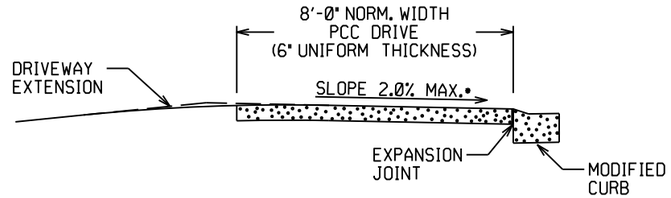
THE TYPE OF EXTENSION SHALL BE AS SHOWN IN THE PLANS. THE CONTRACTOR MAY, WITH THE APPROVAL OF THE ENGINEER, SUBSTITUTE A LOWER NUMBERED TYPE OF EXTENSION IN LIEU OF THE TYPE SPECIFIED IN THE PLANS, BUT AT NO ADDITIONAL COST TO THE DEPARTMENT.

DRIVEWAY EXTENSION DETAILS

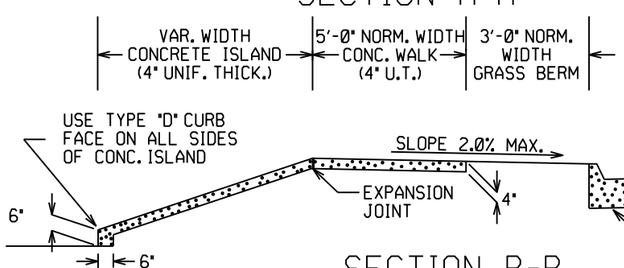


DRIVEWAY VERTICAL ALIGNMENT DETAILS

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



SECTION A-A



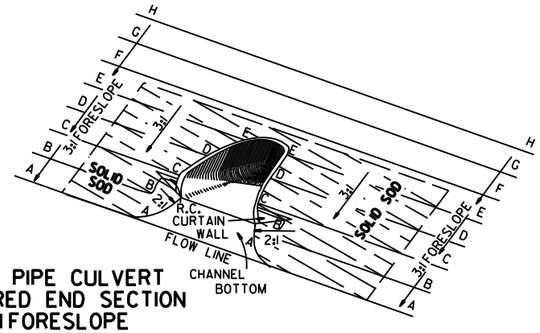
SECTION B-B
CURBED ISLAND BEHIND WALK

DATE REV	DATE FILMED	DESCRIPTION
11-07-19		REVISED WALK DETAILS
2-27-14		REVISED PLAN & ISOMETRIC VIEW
11-29-07		ADDED CHANNELIZATION ISLAND WITH TYPE C CURB FACE & REVISED DRIVEWAY SLOPE NOTE & VERTICAL ALIGNMENT DETAIL
11-10-05		REV. APRON SLOPE & DEPTH OF AGG. BASE.
8-22-02		ADDED ISLAND DETAILS & NOTES
3-30-00		REV. MOD. CURB WIDTH & TRANS. NOTE
11-19-98		REVISED NOTES
11-18-98		REDRAWN AND REISSUED

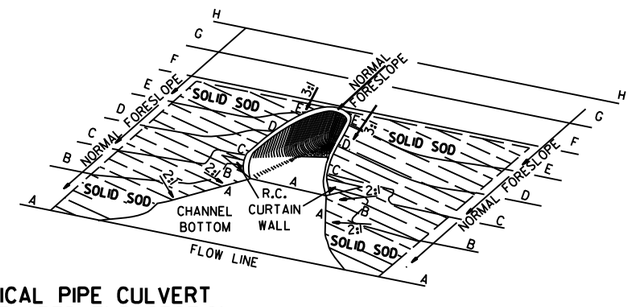
ARKANSAS STATE HIGHWAY COMMISSION

DETAILS OF DRIVEWAYS & ISLANDS

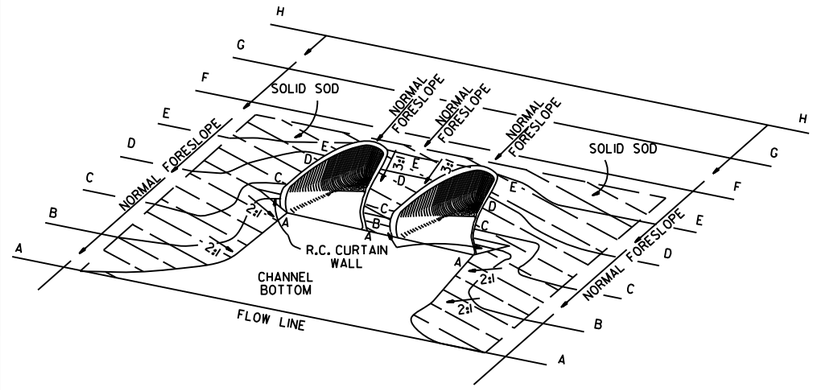
STANDARD DRAWING DR-1



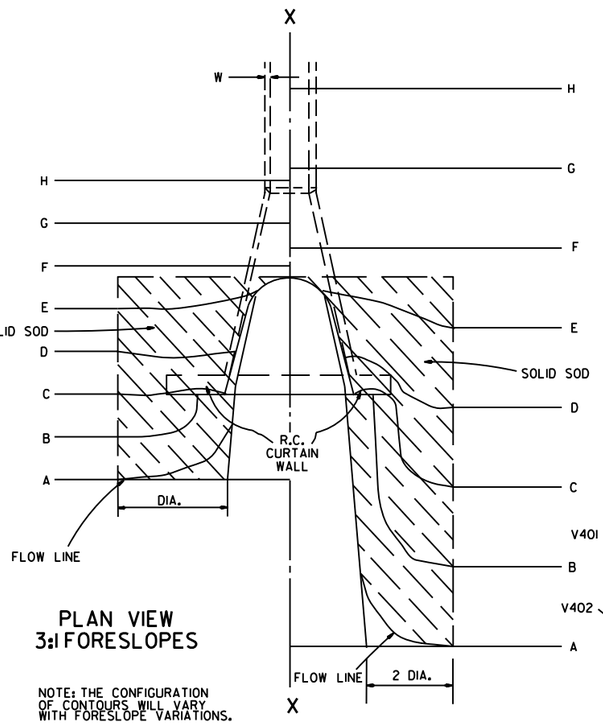
TYPICAL PIPE CULVERT
WITH FLARED END SECTION
& 3:1 FORESLOPE



TYPICAL PIPE CULVERT
WITH FLARED END SECTION
& FLATTENED ADJACENT SLOPES



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



PLAN VIEW
3:1 FORESLOPES

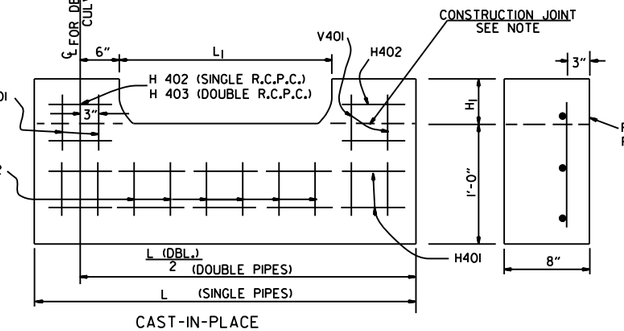
NOTE: THE CONFIGURATION OF CONTOURS WILL VARY WITH FORESLOPE VARIATIONS.

PLAN VIEW
FLATTENED FORESLOPES

R.C. CURTAIN WALL
DIMENSIONS & QUANTITIES

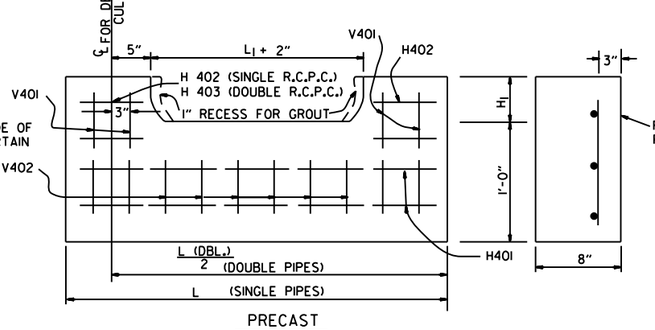
PIPE DIA.	H_1	L_1	L	L (DBL.)/2	SINGLE R.C.P.C. CONC. CU. YDS.	SINGLE R.C.P.C. REINF. STEEL LBS.	DOUBLE R.C.P.C. CONC. CU. YDS.	DOUBLE R.C.P.C. REINF. STEEL LBS.
18"	1'-11½"	3'-5"	8'-0"	6'-3"	0.31	27.7	0.45	39.5
24"	1'-0½"	4'-6"	9'-6"	7'-6"	0.37	33.4	0.53	48.0
30"	1'-3½"	5'-7"	11'-0"	9'-0"	0.45	39.0	0.67	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

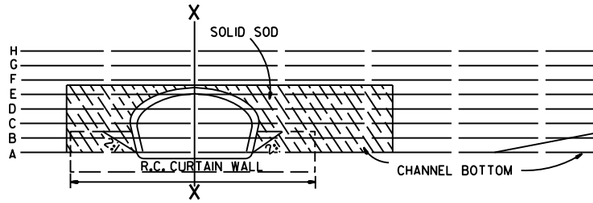
NOTE: THE PORTION OF THE R.C. CURTAIN WALL BENEATH THE FLARED END SECTION (LOWER 1'-0") SHALL BE PLACED MONOLITHICALLY. THE FLARED END SECTION SHALL THEN BE SET IN PLACE & THE REMAINING PORTIONS OF THE R.C. CURTAIN WALL PLACED.



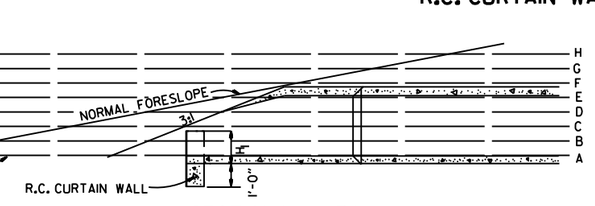
PRECAST

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

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

SOLID SODDING

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

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

GENERAL NOTES

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

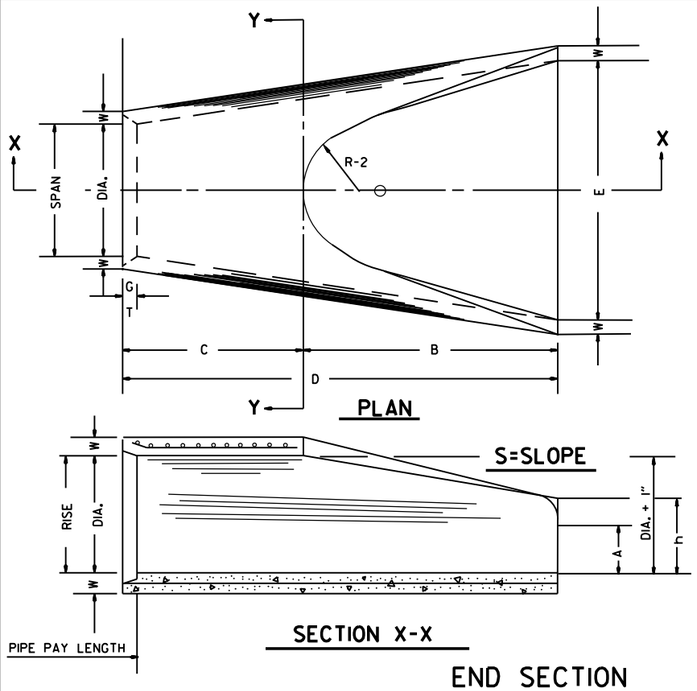
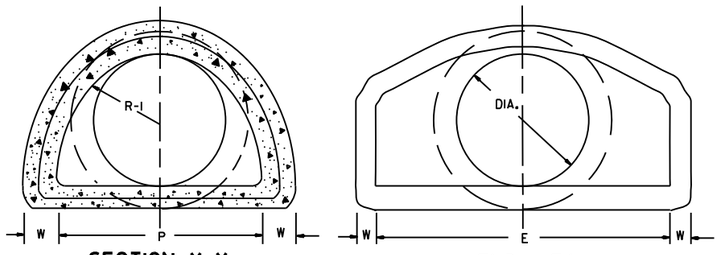


TABLE OF DIMENSIONS

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 3/16"	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"

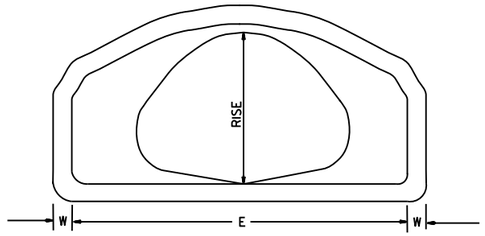


NOTE: TONGUE END ON UPSTREAM SECTION
GROOVE END ON DOWNSTREAM SECTION

ARCH PIPE

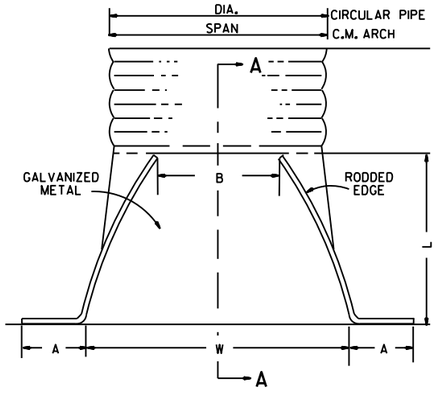
EQUIV. DIA.	• SPAN AASHTO M 206	• SPAN AHD NOMINAL	• RISE AASHTO M 206	• RISE AHD NOMINAL	W	A	B	C	D	E	P	R2	G-T	S
	INCHES													
15	18	18	11	11	2"	4"	2'-0"	4'-0"	6'-0"	3'-0"	29"	12"	1½"	2½:1
18	22	22	13½	14	2½"	5"	2'-0"	4'-1"	6'-1"	3'-6"	32⅛"	13"	2½"	2½:1
21	26	26	15½	16	2¾"	7"	2'-3"	3'-10"	6'-1"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

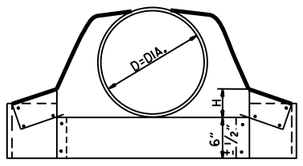
• THE MEASURED SPAN AND RISE SHALL NOT VARY MORE THAN ± 2 PER CENT FROM THE VALUES SPECIFIED BY AASHTO M 206.

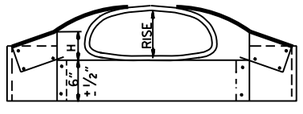


END VIEW
CONCRETE ARCH PIPE

END SECTION FOR REINFORCED CONCRETE PIPE CULVERTS







CIRCULAR PIPE

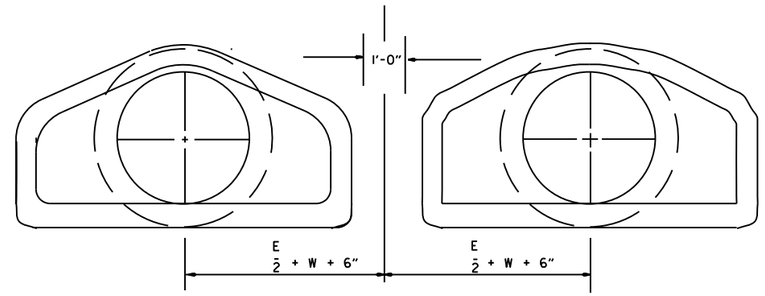
D. DIA.	GAUGE	A 1" ±	B. MAX.	H 1" ±	L 1½" ±	W 2" ±	S
		INCHES					
12	16	6	6	6	21	24	2½:1
15	16	7	8	6	26	30	2½:1
18	16	8	10	6	31	36	2½:1
21	16	9	12	6	36	42	2½:1
24	16	10	13	6	41	48	2½:1
30	14	12	16	8	51	60	2½:1
36	14	14	19	9	60	72	2½:1
42	12	16	22	11	69	84	2½:1
48	12	18	27	12	78	90	2½:1
54	12	18	30	12	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

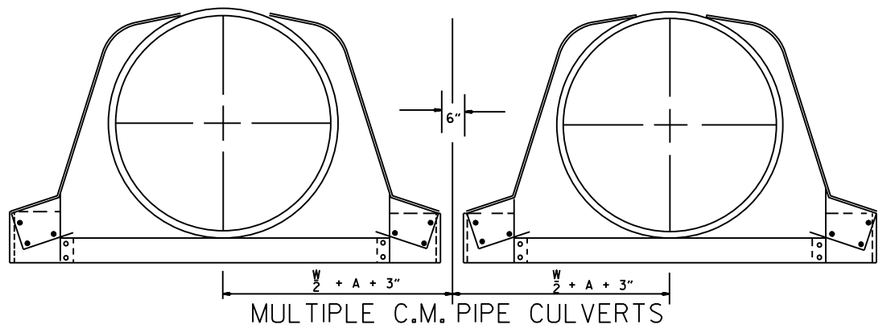
EQUIV. DIA.	SPAN	RISE	A 1" ±	B MAX.	H 1" ±	L 1½" ±	W 2" ±	S	GAUGE
	INCHES								
15"	17	13	7	9	6	19	30	2½:1	16
18"	21	15	7	10	6	23	36	2½:1	16
21"	24	18	8	12	6	28	42	2½:1	16
24"	28	20	9	14	6	32	48	2½:1	16
30"	35	24	10	16	6	39	60	2½:1	14
36"	42	29	12	18	8	46	75	2½:1	14
42"	49	33	13	21	9	53	85	2½:1	12
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



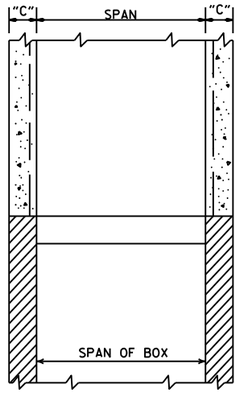
MULTIPLE C.M. PIPE CULVERTS

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

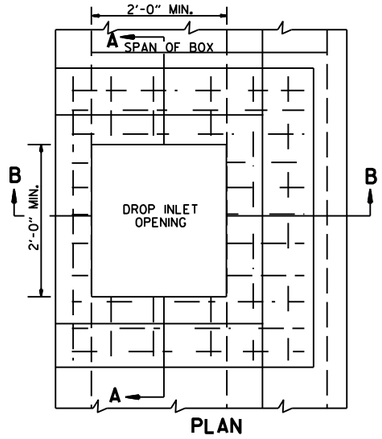
ARKANSAS STATE HIGHWAY COMMISSION

FLARED END SECTION

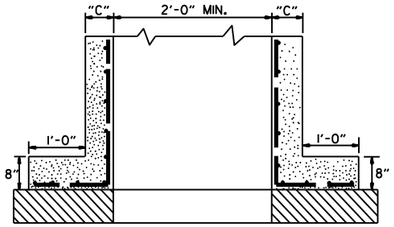
STANDARD DRAWING FES-2



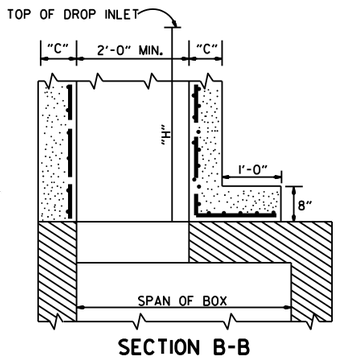
SECTION B-B



PLAN

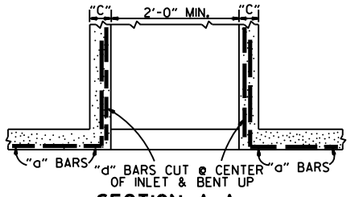


SECTION A-A

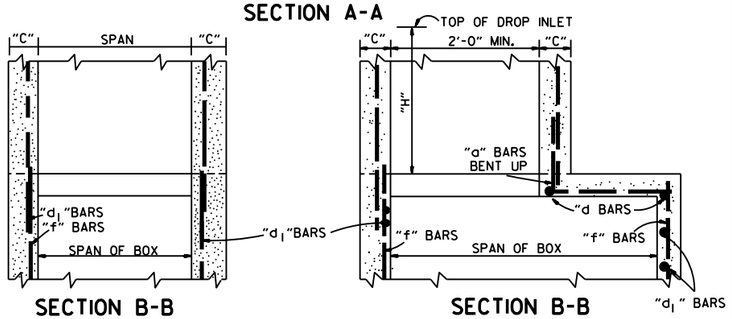


SECTION B-B

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



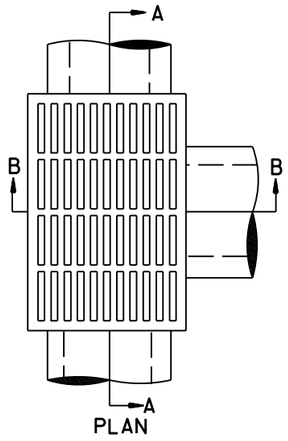
SECTION A-A



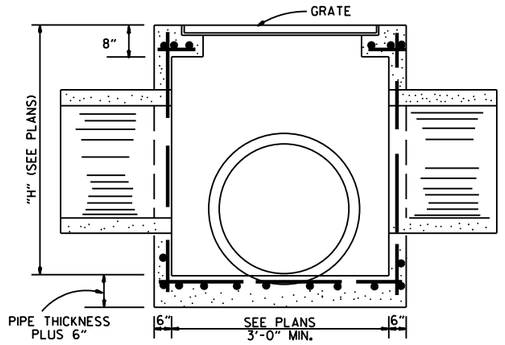
SECTION B-B SECTION B-B

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

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

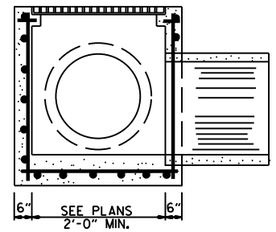


PLAN



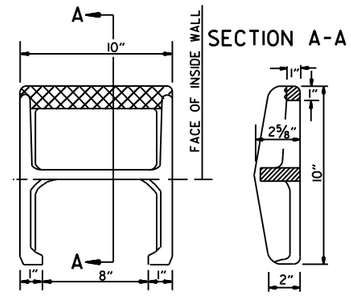
SECTION A-A

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



SECTION B-B

DROP INLET (TYPE E)

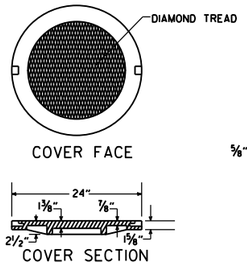


APPROX. WEIGHT = 11 LBS. (CAST IRON)

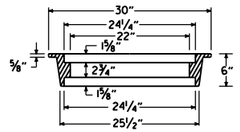
PLAN

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

DETAIL OF STEP FOR DROP INLET



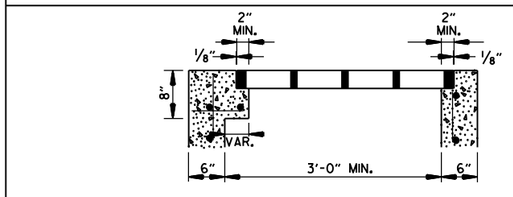
COVER SECTION



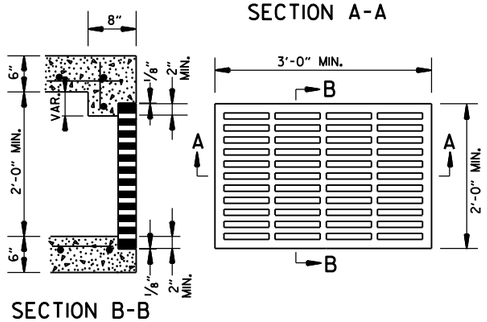
RING SECTION

APPROXIMATE TOTAL WEIGHT = 333 LBS.

HEAVY DUTY RING & COVER



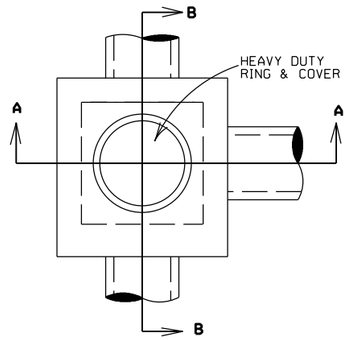
SECTION A-A



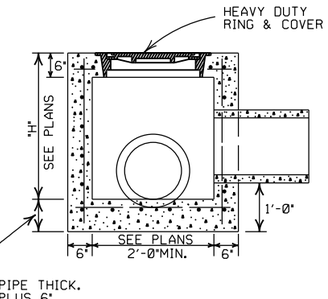
SECTION B-B

APPROXIMATE MINIMUM WATERWAY OPENING = 260 SQ. IN.

GRATE FOR TYPE E DROP INLET

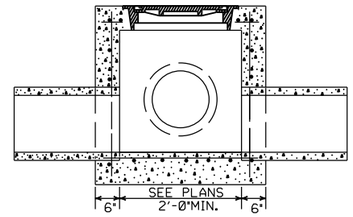


PLAN



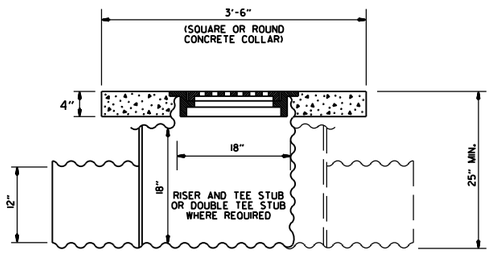
SECTION A-A

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

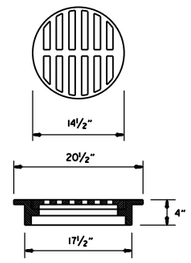


SECTION B-B

JUNCTION BOX (TYPE E)



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



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

DETAIL OF YARD DRAIN

GENERAL NOTES:

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

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

ARKANSAS STATE HIGHWAY COMMISSION

DETAILS OF DROP INLETS & JUNCTION BOXES

STANDARD DRAWING FPC-9

4'-0" LENGTH DROP INLET

PIPE SIZE	MIN. WIDTH	HEIGHT 5'-0" CLASS A CONC. CU. YDS.	HEIGHT 5'-0" REINF. STEEL POUNDS	PLUS OR MINUS PER LIN. FT. OF HEIGHT CLASS A CONC. CU. YDS.	PLUS OR MINUS PER LIN. FT. OF HEIGHT REINF. STEEL POUNDS
18"	2'-6"	1.77	156	0.28	22
24"	2'-6"	1.79	156	0.28	22
30"	3'-2"	2.39	205	0.30	26
36"	3'-8"	2.63	236	0.32	28
42"	4'-4"	2.95	250	0.34	30
48"	4'-10"	3.21	265	0.36	32

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

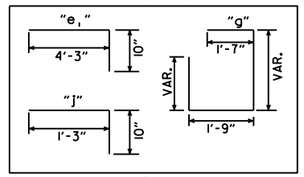
DROP INLET EXTENSION

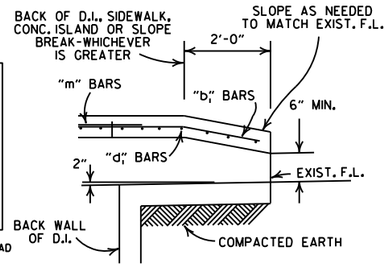
4'-0" CLASS A CONC. CU. YDS.	4'-0" REINF. STEEL POUNDS	8'-0" CLASS A CONC. CU. YDS.	8'-0" REINF. STEEL POUNDS
0.58	38	0.87	72
DEDUCT FROM QUANTITY COMPUTED FOR EACH EXTENSION ADDED.			
0.04	3		

DEDUCT FROM QUANTITY COMPUTED FOR EACH PIPE ENTERING INLET

INSIDE DIA. PIPE	CLASS A CONC.	REINF. STEEL
INCHES	CU. YDS.	POUNDS
18	0.05	2
24	0.09	3
30	0.13	4
42	0.24	8

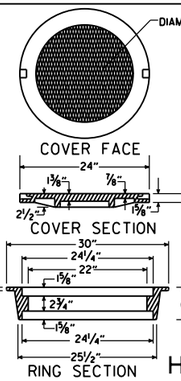
BAR DIAMETER





BACK OPENING

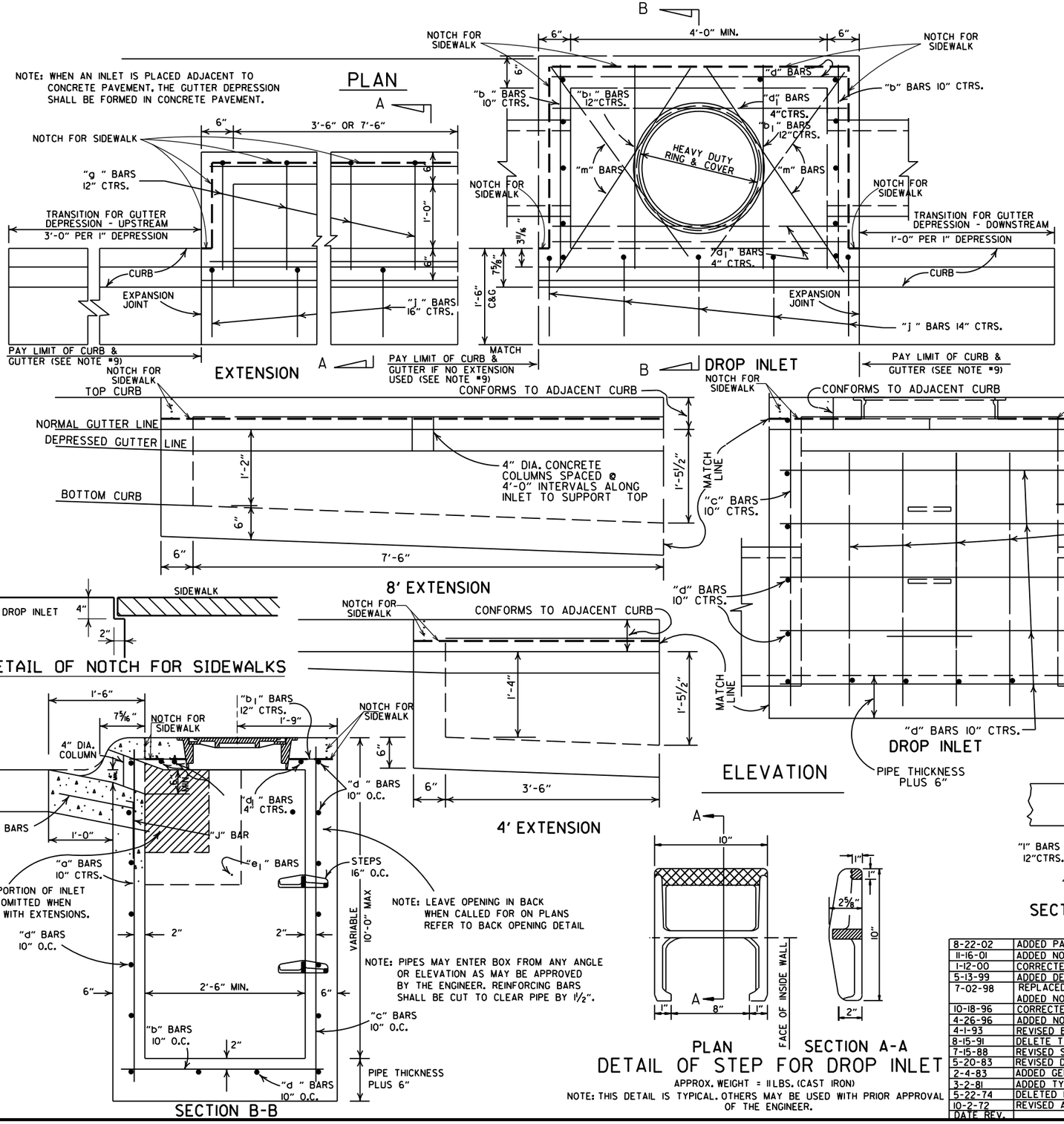
WHEN OPENING IN BACK IS CALLED FOR ON PLANS EXTEND OPENING AS SHOWN IN DETAIL. PAYMENT TO BE INCLUDED IN PRICE BID FOR DROP INLET (TYPE C).



APPROXIMATE TOTAL WEIGHT = 333 LBS.

HEAVY DUTY RING & COVER

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



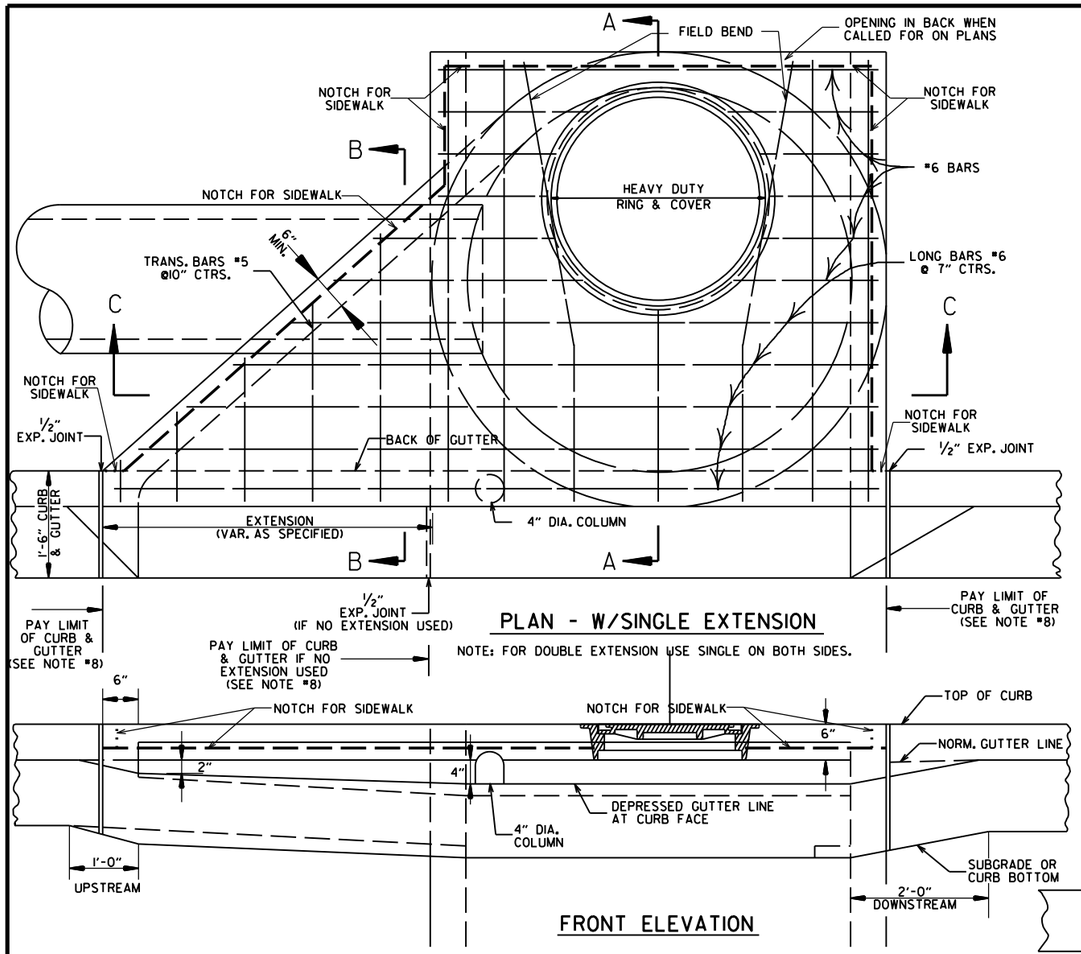
DATE REV.	REVISION	DATE FILMED
8-22-02	ADDED PAY LIMIT CURB NOTES TO SECTIONS A-A & B-B	
11-16-01	ADDED NOTE 13; REVISED SECTION B-B	
1-12-00	CORRECTED DIMENSION ON SECTION B-B & REVISED RING & COVER	
5-13-99	ADDED DETAIL OF NOTCH FOR SIDEWALKS	
7-02-98	REPLACED RING & COVER W/HEAVY DUTY RING & COVER ADDED NOTES 9,10,&11	
10-18-96	CORRECTED SPELLING	
4-26-96	ADDED NOTE 8 & REVISED (4')(8') EXTENSION TITLES	10-18-96
4-1-93	REVISED BACK OPENING & NOTE	
8-15-91	DELETE TYPE IV GRATE	
7-15-88	REVISED STEP DETAIL	
5-20-83	REVISED DETAILS OF GRATES (TYPE IV & IV-A)	
2-4-83	ADDED GENERAL NOTE NO. 4	
3-2-81	ADDED TYPE IV-A GRATE	
5-22-74	DELETED INLET (TYPE F) & GRATE (TYPE III)	
10-2-72	REVISED AND REDRAWN	

ARKANSAS STATE HIGHWAY COMMISSION

DETAILS OF DROP INLETS

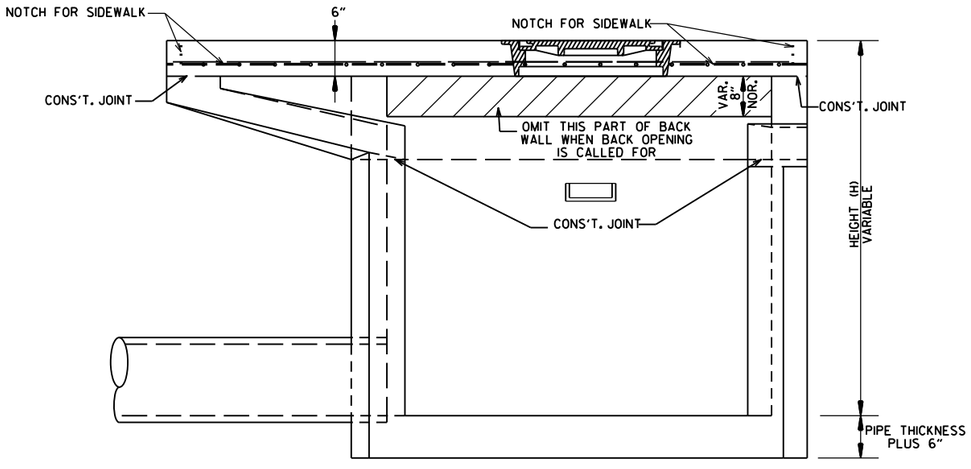
(TYPE C)

STANDARD DRAWING FPC-9E

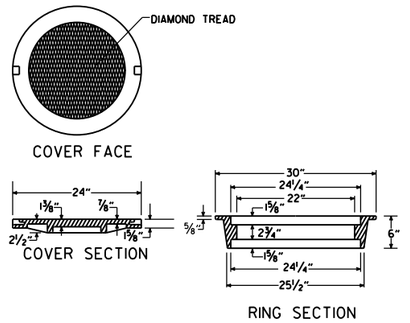


PLAN - W/SINGLE EXTENSION

FRONT ELEVATION



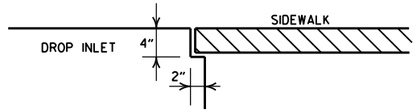
SECTION C-C



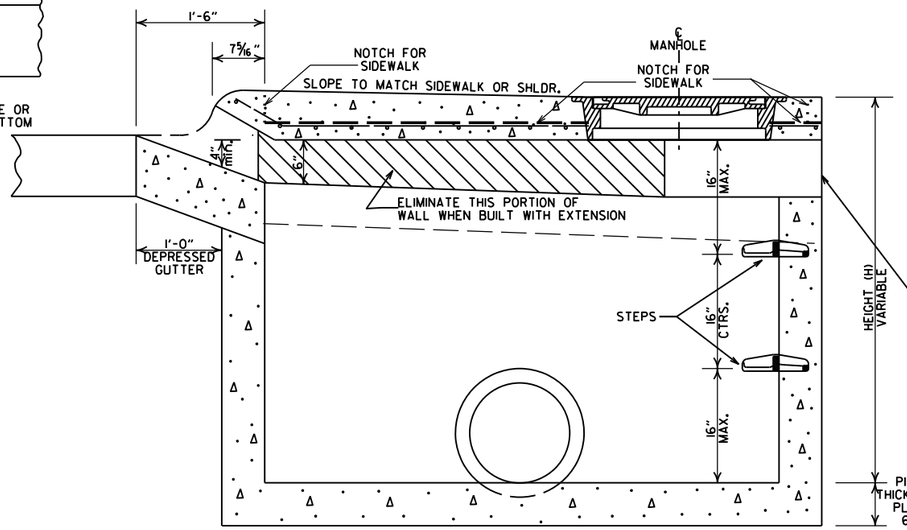
APPROXIMATE TOTAL WEIGHT = 333 LBS.

HEAVY DUTY RING & COVER

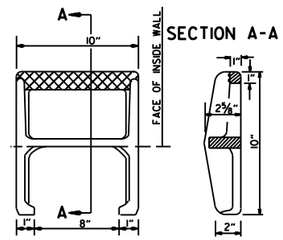
1. HEAVY DUTY RING AND COVER SHALL BE CONSTRUCTED OF CAST IRON AND SHALL CONFORM TO THE REQUIREMENTS OF THE STANDARD SPECIFICATIONS FOR GRAY IRON CASTINGS AASHTO M105 CLASS 35B & AASHTO M306.
2. HEAVY DUTY RING AND COVER SHALL NOT BE PAINTED.
3. HEAVY DUTY RING SHALL ALWAYS BE INSTALLED WITH FLANGE ON TOP.



DETAIL OF NOTCH FOR SIDEWALKS



SECTION A-A



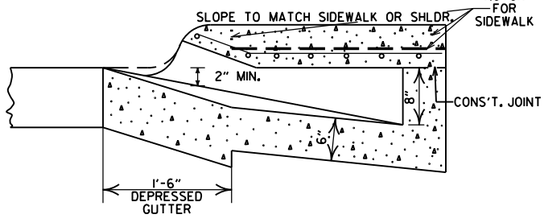
SECTION A-A

APPROX. WEIGHT = 11LBS. (CAST IRON)

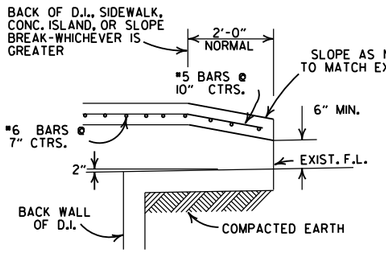
PLAN

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

DETAIL OF STEP FOR DROP INLET



SECTION B-B



BACK OPENING

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

GENERAL NOTES:

1. ALL EXPOSED CORNERS TO HAVE ¾" CHAMFER.
2. STEPS SHALL BE INSTALLED IN ALL INLETS 4'-0" HIGH AND OVER OR AS DIRECTED BY THE ENGINEER.
3. ALL REINFORCING BARS SHALL BE GRADE 60 AND HAVE MIN. 1½" COVER.
4. DROP INLETS AND EXTENSION ON CURVED SECTIONS SHALL CONFORM TO THE CURVATURE OF THE CURB.
5. 4" DIA. COLUMNS SPACED AT MAX. 4'-0" INTERVALS SHALL BE INSTALLED ALONG INLET AND EXTENSION TO SUPPORT TOP.
6. BASE AND INLET WALLS SHALL BE CAST MONOLITHICALLY.
7. THE THROAT SHALL BE CAST INTEGRALLY WITH THE GUTTER.
8. PAYMENT FOR CURB AND/OR CURB AND GUTTER WITHIN THE LIMITS OF DROP INLETS AND DROP INLET EXTENSIONS SHALL BE CONSIDERED INCLUDED IN PAYMENT MADE FOR DROP INLETS AND/OR DROP INLET EXTENSIONS.
9. PIPES MAY ENTER DROP INLET FROM ANY ANGLE OR ELEVATION AS MAY BE APPROVED BY THE ENGINEER.
10. APPROPRIATE SIZE TYPE C DROP INLETS MAY BE SUBSTITUTED FOR TYPE MO DROP INLETS AS APPROVED BY THE ENGINEER. PAYMENT TO BE AS DROP INLET (TYPE MO).
11. DURING CONSTRUCTION OF THE ROADWAY THE CONTRACTOR SHALL MAINTAIN DRAINAGE INTO OR AROUND THE DROP INLET AS APPROVED BY THE ENGINEER.
12. 4"x2" NOTCH SHALL BE FORMED IN ALL DROP INLETS TO SUPPORT SIDEWALK CONSTRUCTION. REFER TO DETAIL OF NOTCH FOR SIDEWALKS.
13. DIMENSIONS SHOWN FOR RING AND COVER ARE TYPICAL. THE CONTRACTOR MAY SUBSTITUTE SIMILAR CASTINGS WITH THE APPROVAL OF THE ENGINEER. REQUESTING APPROVAL FOR CASTING DESIGNS MAY BE MADE BY REFERRING TO PREVIOUSLY APPROVED DRAWINGS.

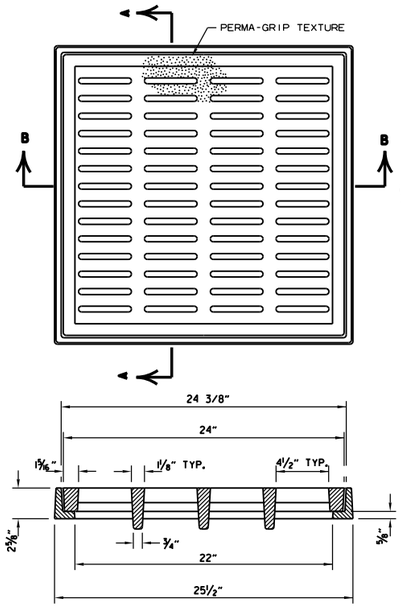
DIA. OF D.I.	DIA. OF OUTLET PIPE	MINIMUM WALL THICKNESS	
		CAST IN PLACE	PRECAST
4' I.D.	12" THRU 27"	6"	5"
5' I.D.	30" THRU 42"	8"	6"
6' I.D.	48" THRU 54"	8"	7"

DATE	REVISIONS	DATE FILMED
8-22-02	ADDED PAY LIMIT CURB NOTES TO SECTIONS A-A & B-B	
11-16-01	ADDED NOTE 13	
1-12-00	REVISED HEAVY DUTY RING & COVER	
5-13-99	ADDED NOTCH DETAIL FOR SIDEWALKS	
7-02-98	REP. NOTE 8, REM. PLAN DET., REV. PICTURE FOR NEW RING & COVER, ADDED HEAVY DUTY RING & COVER AND DETAIL OF STEP FOR DROP INLET	
4-26-96	ADDED NOTE 11, ADJ. OPENING DIMENSION	
10-12-95	CORRECTED #6 BAR SPACING	
7-20-95	CORRECTED DIAMETER OF D.I. IN BOX	
4-27-95	TYPE C TO MO (OPEN, BACK DETAIL)	
11-3-94	REVISED GENERAL NOTES	11-3-94
4-1-93	REV. BACK OPEN. DETAIL & NOTE	4-1-93
8-16-91	REVISED NOTES 11,12 & ADDED BK.OPEN DETAIL	8-15-91
11-30-89	ADDED NOTE NO. 12	11-30-89
5-23-89	ADDED NOTE & MINIMUM WALL THICKNESS	513-5-23-89
7-15-88	ADDED EXTEND NOTE TO SECTION A-A	629-7-15-88
1-14-87	MODIFIED WALL THICKNESS	783-1-14-87
6-12-87	ISSUED	4-6-12-87

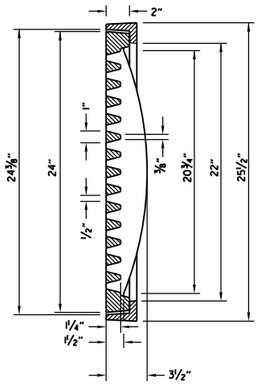
ARKANSAS STATE HIGHWAY COMMISSION

DETAILS OF DROP INLET (TYPE MO)

STANDARD DRAWING FPC-9M



SECTION B-B

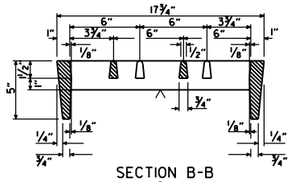


SECTION A-A

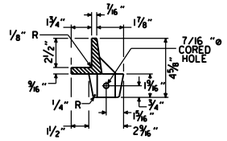
DETAILS OF PEDESTRIAN GRATE AND FRAME

GENERAL NOTES (PEDESTRIAN GRATE & FRAME)

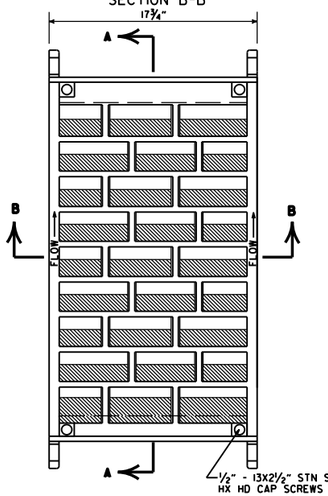
1. THE PEDESTRIAN GRATE SHALL BE ORIENTED IN THE TOP OF THE DROP INLET SO THAT THE ½" OPENINGS ARE PERPENDICULAR TO THE PATH OF PEDESTRIAN TRAVEL.
2. THE PEDESTRIAN GRATE AND FRAME SHALL BE CONSTRUCTED OF CAST IRON AND SHALL CONFORM TO THE REQUIREMENTS OF THE STANDARD SPECIFICATIONS FOR GRAY IRON CASTINGS AASHTO M 105, CLASS 35B, & AASHTO M 306.
3. THE GRATE AND FRAME SHALL NOT BE PAINTED.
4. THE GRATE AND FRAME SHALL BE INSTALLED IN THE DROP INLET IN THE ASSEMBLED POSITION.
5. THE APPROXIMATE WEIGHT OF THE GRATE AND FRAME SHALL BE 218 LBS.
6. THE MINIMUM WATERWAY OPENING SHALL BE 122 SQ. IN.

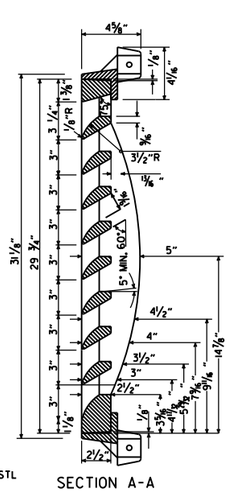


SECTION B-B



SECTION THRU FRAME



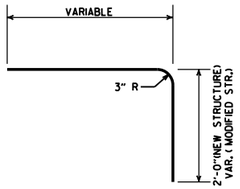


SECTION A-A

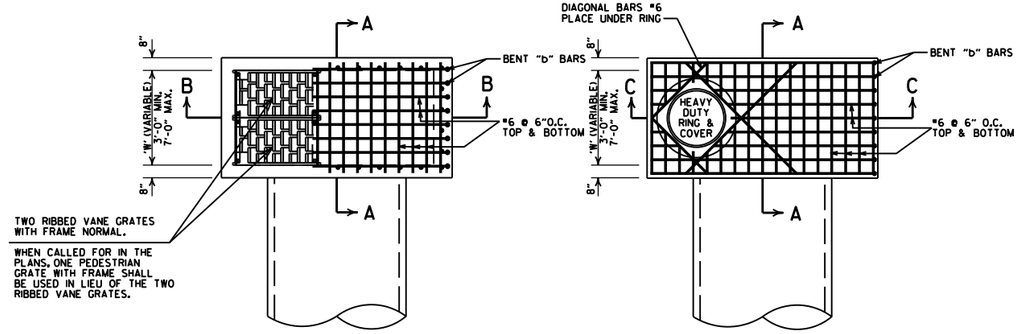
DETAILS OF RIBBED VANE GRATE AND FRAME

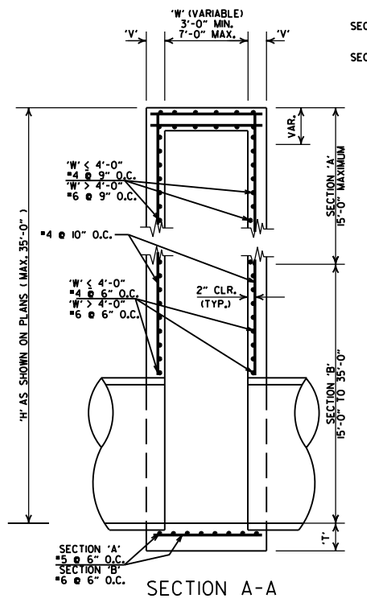
GENERAL NOTES (RIBBED VANE GRATE & FRAME)

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



DETAIL OF BENT "b" BAR





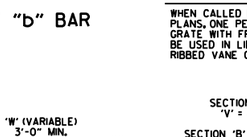
SECTION 'A'
'V' = 8"

SECTION 'B' (W≤4'-0")
'V' = 8"

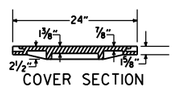
SECTION 'B' (W>4'-0")
'V' = 10"

SECTION A-A

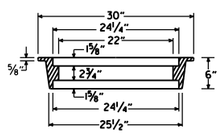
DETAILS OF DROP INLET (TYPE ST)



COVER FACE



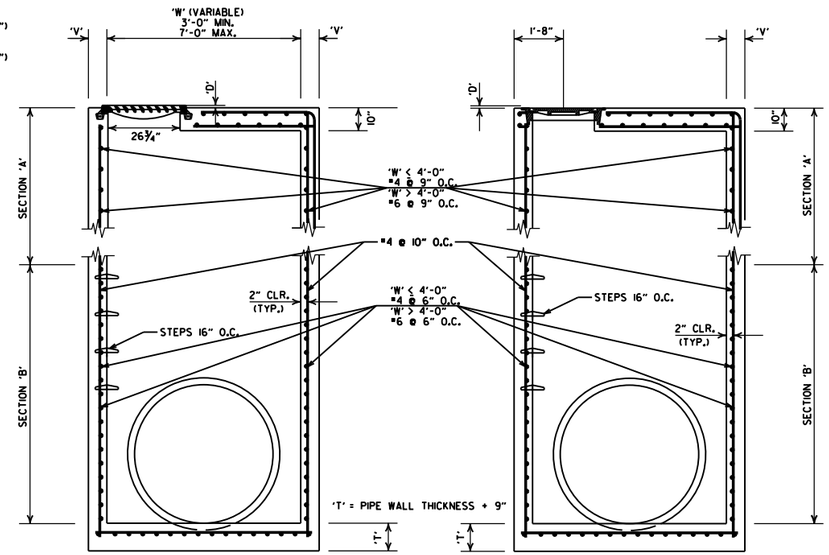
COVER SECTION



RING SECTION

HEAVY DUTY RING & COVER

APPROXIMATE TOTAL WEIGHT = 333 LBS.



SECTION B-B

SECTION C-C

DETAILS OF JUNCTION BOX (TYPE ST)

GENERAL NOTES (TYPE ST DROP INLET & JUNCTION BOX)

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

GENERAL NOTES (HEAVY DUTY RING & COVER):

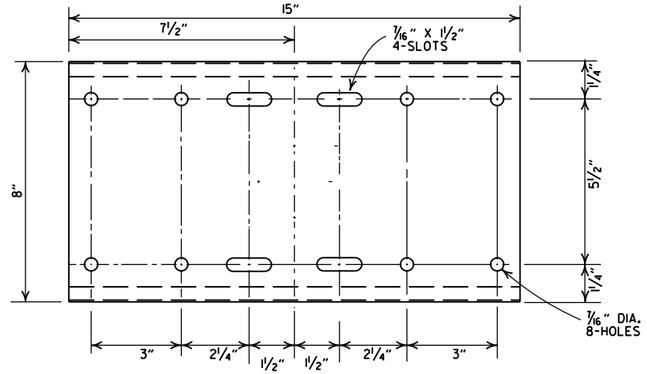
1. HEAVY DUTY RING AND COVER SHALL BE CONSTRUCTED OF CAST IRON AND SHALL CONFORM TO THE REQUIREMENTS OF THE STANDARD SPECIFICATIONS FOR GRAY IRON CASTINGS AASHTO M 105, CLASS 35B, & AASHTO M 306.
2. HEAVY DUTY RING AND COVER SHALL NOT BE PAINTED.
3. HEAVY DUTY RING SHALL ALWAYS BE INSTALLED WITH FLANGE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

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

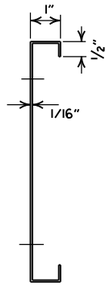
ARKANSAS STATE HIGHWAY COMMISSION

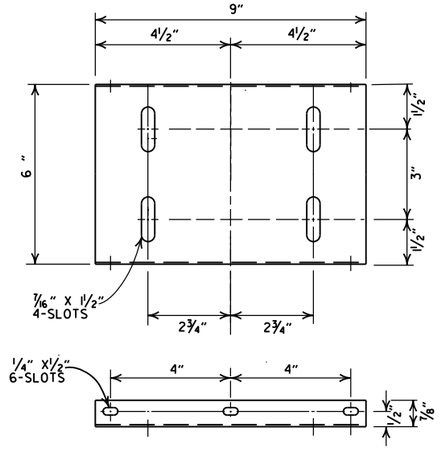
DETAILS OF DROP INLET & JUNCTION BOX (TYPE ST)

STANDARD DRAWING FPC-9S

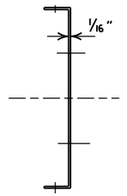


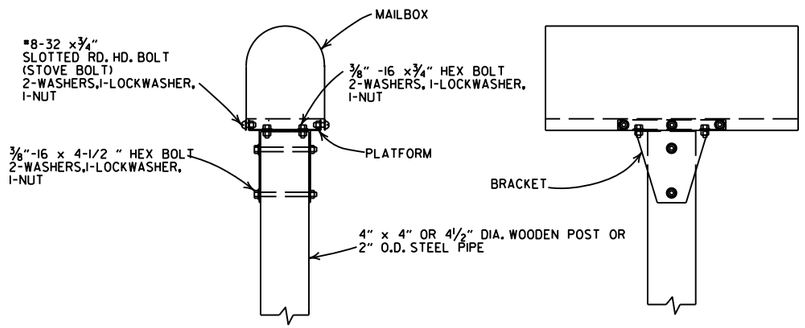
SHELF



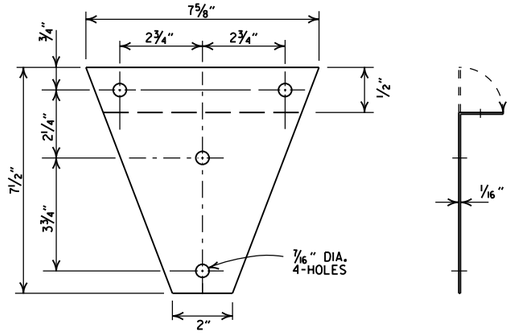


PLATFORM





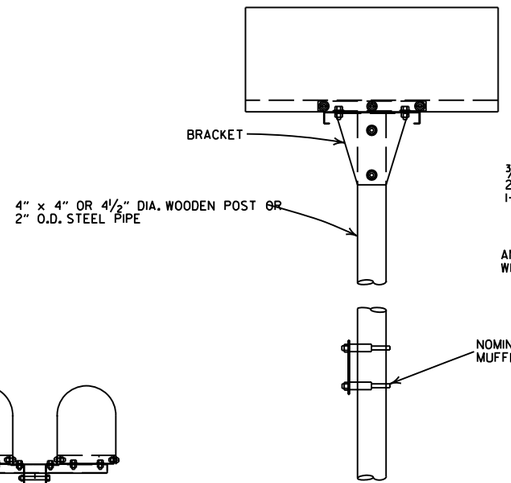
SINGLE INSTALLATION



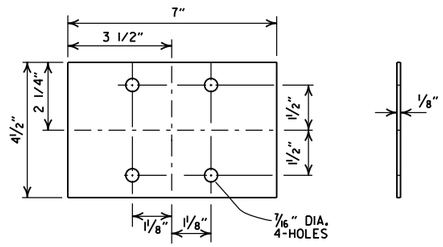
BRACKET

GENERAL NOTES

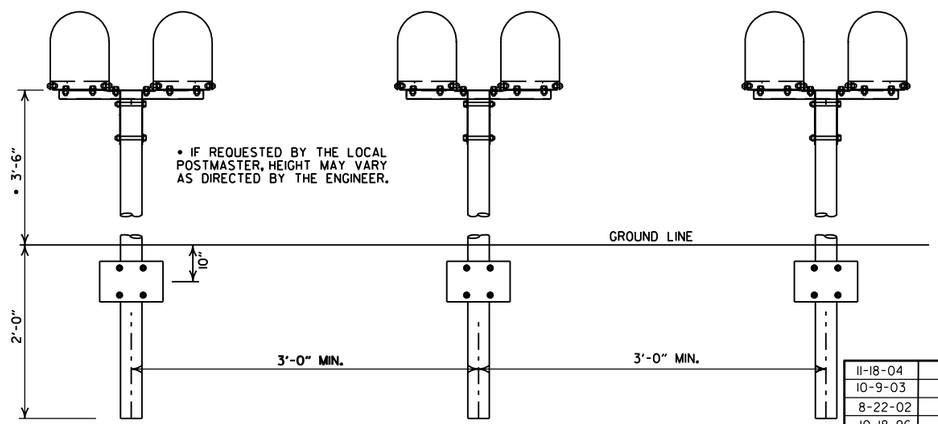
1. MAILBOX POSTS MAY BE WOOD OR METAL. WOOD POSTS SHALL BE PRESSURE TREATED FOR GROUND CONTACT IN ACCORDANCE WITH SECTION 637.02 OF THE STANDARD SPECIFICATIONS.
2. ANTI-TWIST PLATES SHALL BE USED ONLY ON METAL POSTS.
3. MAILBOX SHELF, BRACKET & PLATFORM SHALL BE GALVANIZED OR PAINTED STEEL, HOWEVER TREATED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



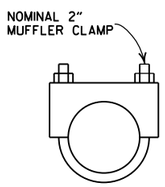
DOUBLE INSTALLATION



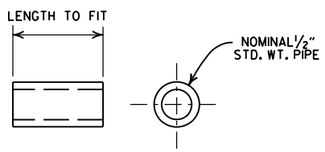
ANTI-TWIST PLATE



SPACING FOR MULTIPLE POST INSTALLATION



CLAMP



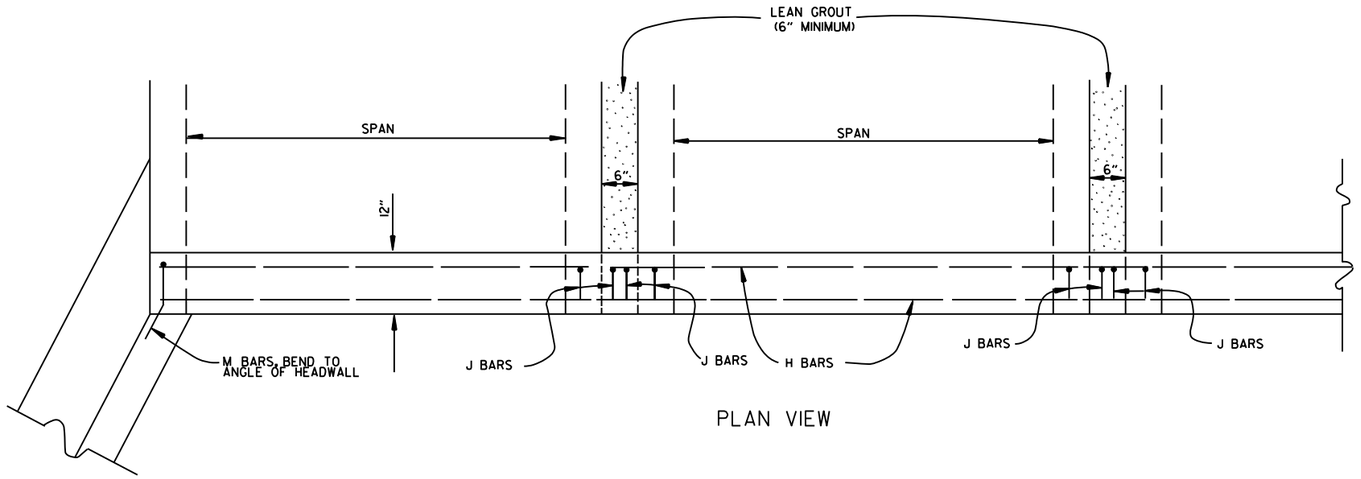
SPACER

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

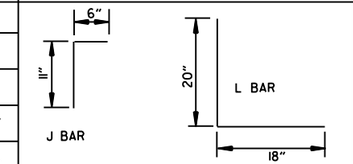
STANDARD DRAWING MB-1



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.

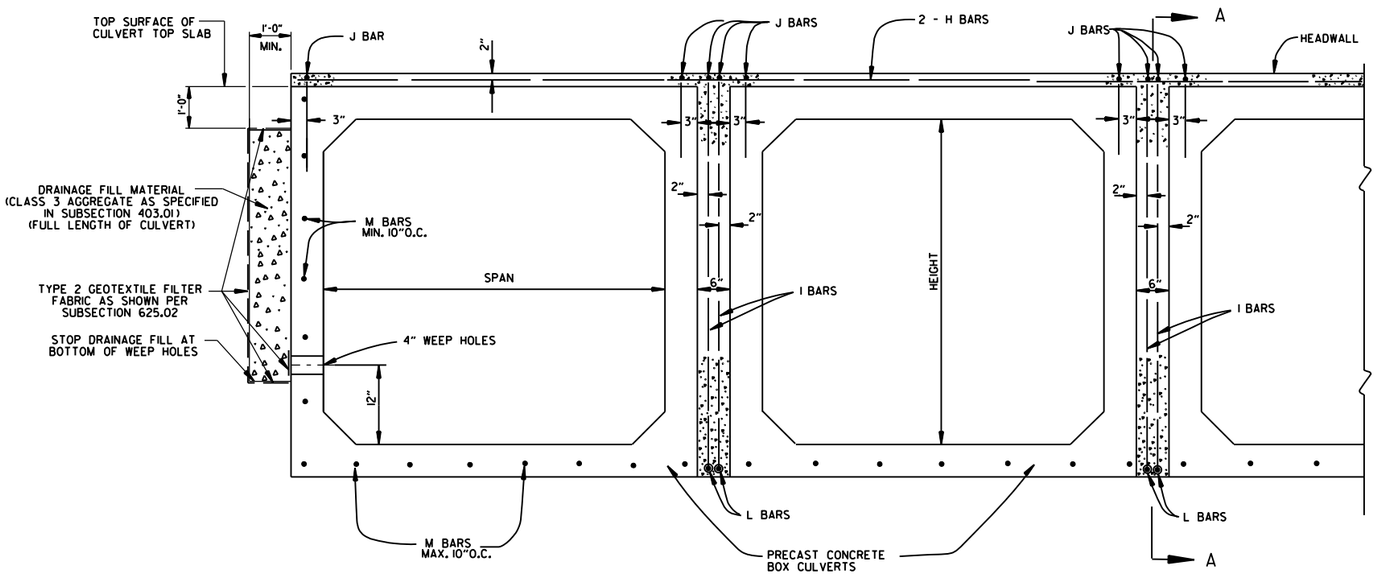
THE MEMBRANE WATERPROOFING WILL BE REQUIRED ON THE TOP EXTERNAL JOINT AND SHALL EXTEND 1 FOOT DOWN THE SIDES OF THE CULVERT.

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.

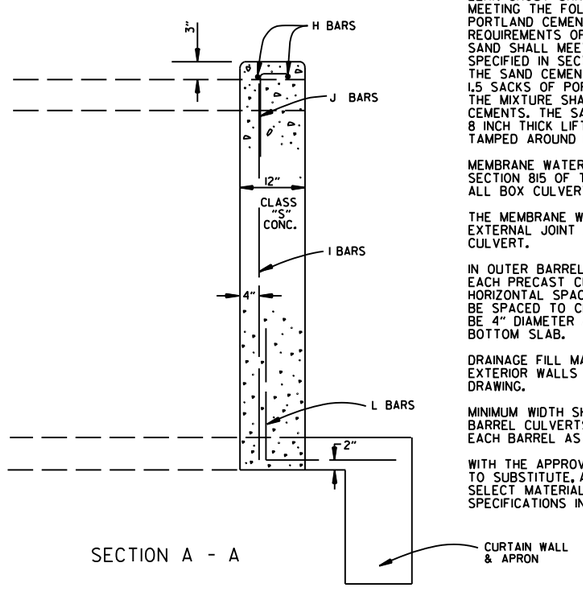
DRAINAGE FILL MATERIAL WITH GEOTEXTILE FABRIC IS REQUIRED AT THE EXTERIOR WALLS OF THE ASSEMBLED CULVERT, SEE DETAILS ON THIS DRAWING.

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.

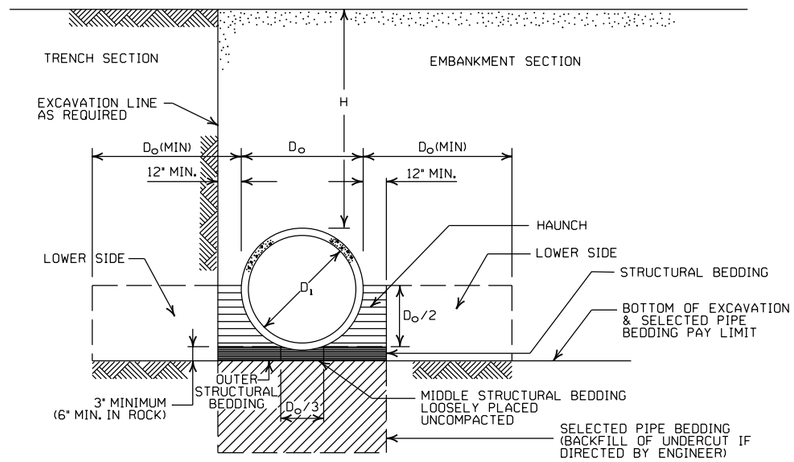
- LEGEND -

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

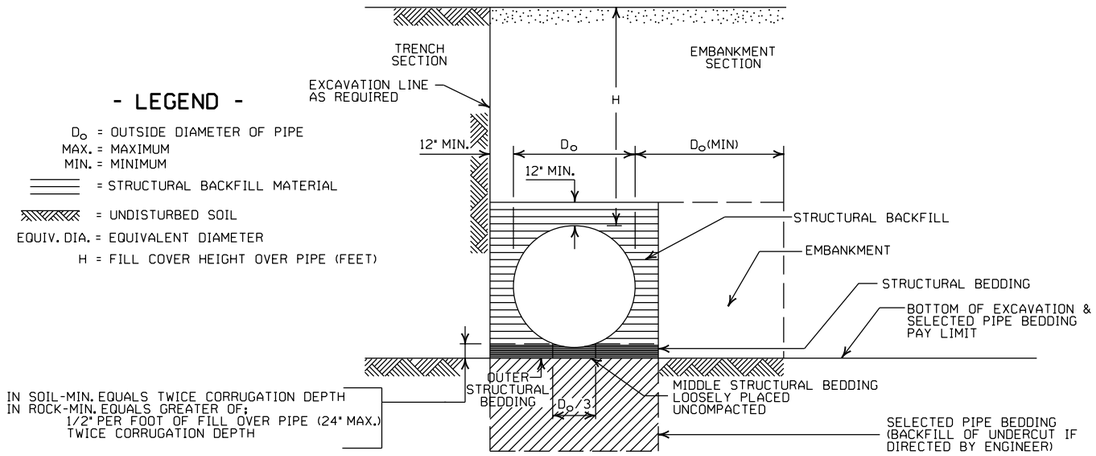
EQUIV. DIA. (INCHES)	PIPE DIMENSION SPAN X RISE (INCHES)	MINUMUM CORNER RADIUS (INCHES)	STEEL				ALUMINUM			
			MIN. THICKNESS REQUIRED INCHES	① MIN. HEIGHT OF FILL, "H" (FT.)	MAX. HEIGHT OF FILL, "H" (FT.)		MIN. THICKNESS REQUIRED INCHES	① MIN. HEIGHT OF FILL, "H" (FT.)	MAX. HEIGHT OF FILL, "H" (FT.)	
				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

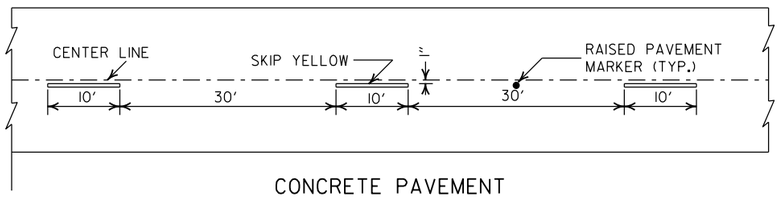
1. METAL PIPE CULVERT CONSTRUCTION SHALL CONFORM TO ARKANSAS DEPARTMENT OF TRANSPORTATION STANDARD SPECIFICATIONS FOR HIGHWAY CONSTRUCTION (CURRENT EDITION), WITH APPLICABLE SUPPLEMENTAL SPECIFICATIONS AND SPECIAL PROVISIONS. UNLESS OTHERWISE NOTED IN THE PLANS, SECTION AND SUBSECTION REFER TO THE STANDARD 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	

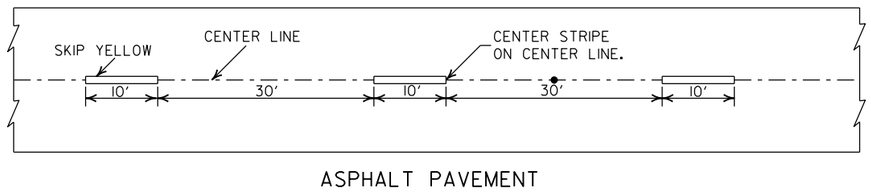
ARKANSAS STATE HIGHWAY COMMISSION

METAL PIPE CULVERT FILL HEIGHTS & BEDDING

STANDARD DRAWING PCM-1

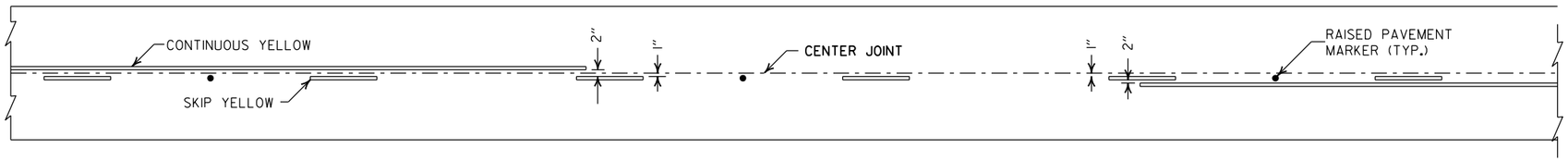


CONCRETE PAVEMENT

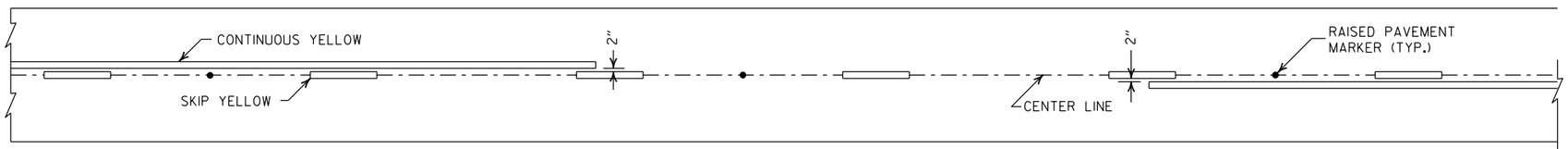


ASPHALT PAVEMENT

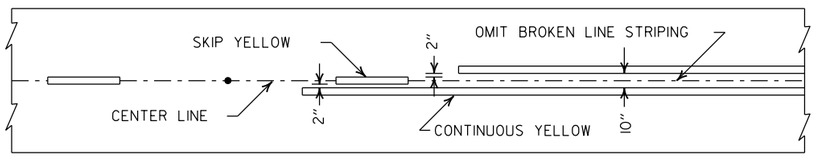
BROKEN LINE STRIPING



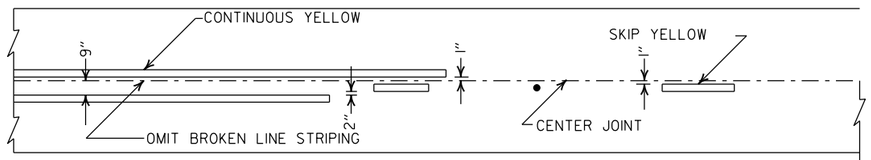
SOLID LINE STRIPING ON CONCRETE PAVEMENT



SOLID LINE STRIPING ON ASPHALT PAVEMENT

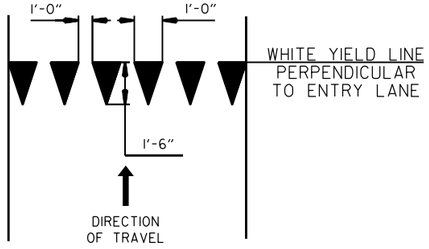


ASPHALT PAVEMENT

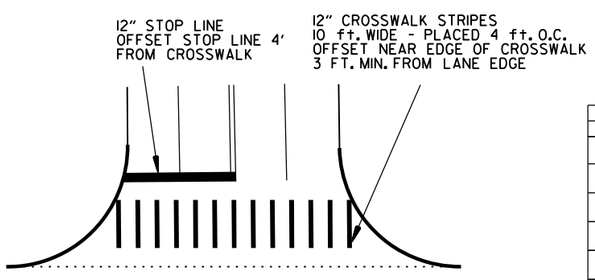


CONCRETE PAVEMENT

STRIPING AT ADJACENT NO PASSING LANES

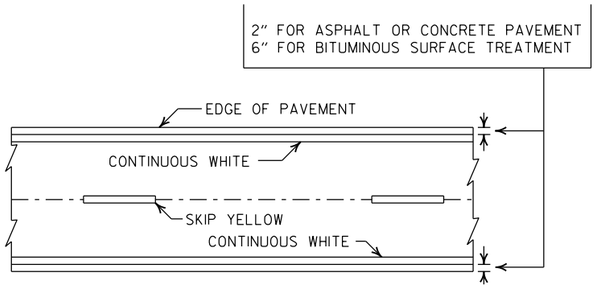


YIELD LINE DETAIL



CROSSWALK AND STOP LINE DETAILS

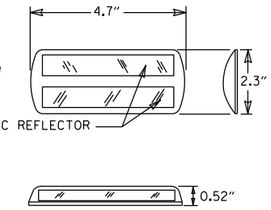
NOTES:
1. REFER TO THE STRIPING DETAILS FOR PAVEMENT MARKING LINE WIDTHS.
2. THIS DRAWING SHALL BE USED IN CONJUNCTION WITH THE LATEST REVISED ADDITION OF THE "MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES."
3. RAISED PAVEMENT MARKERS SHALL BE PLACED ON AN 80 FEET SPACING UNLESS OTHERWISE SHOWN IN THE PLANS.



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

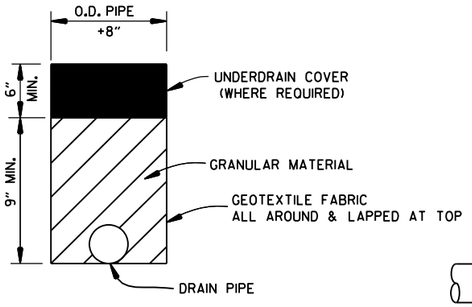
PAVEMENT MARKING DETAILS

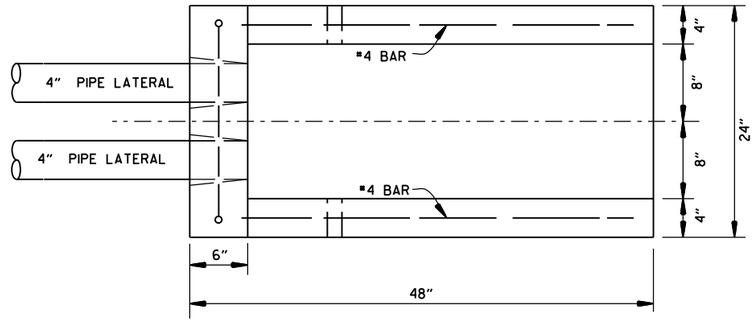
STANDARD DRAWING PM-1

NOTE:

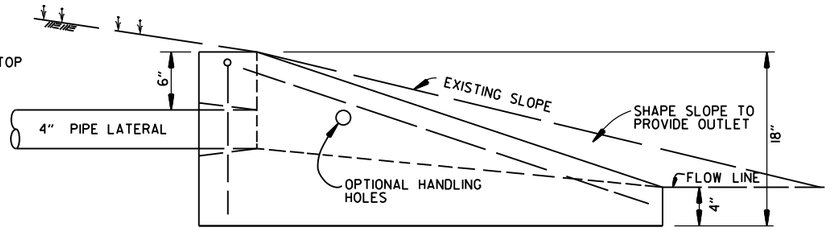
1. UNLESS OTHERWISE SPECIFIED ON THE PLANS, THE UNDERDRAIN COVER SHALL BE THOROUGHLY COMPACTED EARTH AND SHALL BE SUBSIDIARY TO PIPE UNDERDRAIN.

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

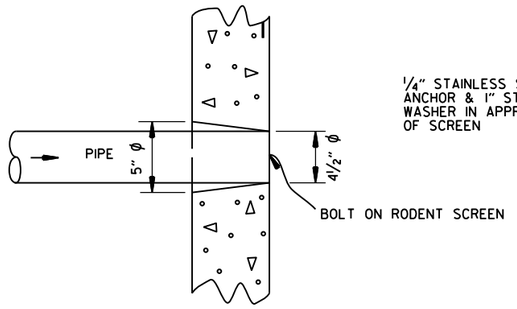




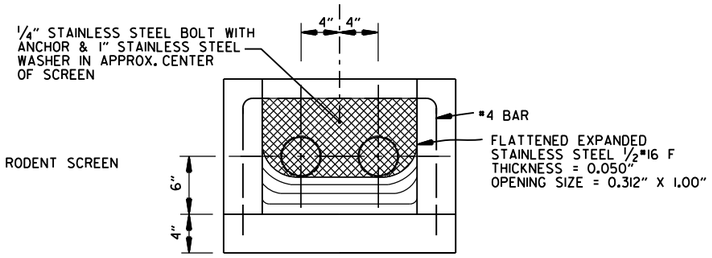
PLAN VIEW



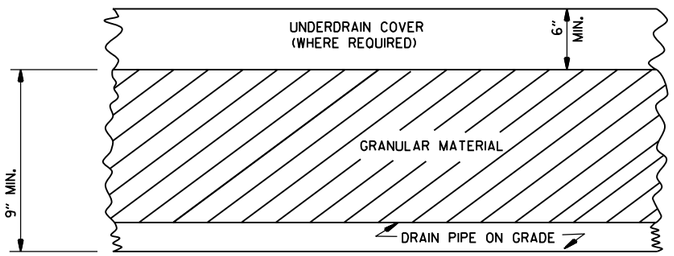
SIDE VIEW



DETAIL OF HOLE
FOR 4" PIPE

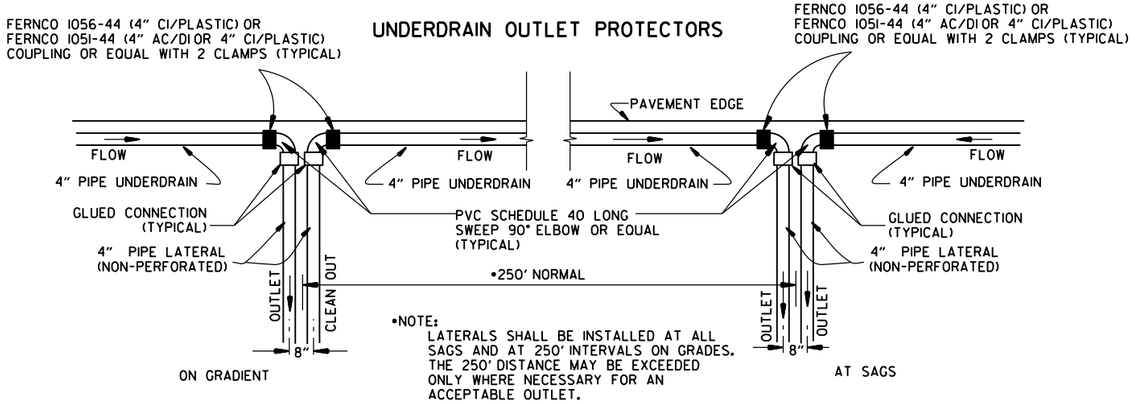


FRONT VIEW
(DETAIL OF RODENT SCREEN)



DETAILS OF PIPE UNDERDRAIN

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.

NOTES FOR PIPE UNDERDRAINS

1. GEOTEXTILE FABRIC SHALL MEET THE REQUIREMENTS OF SECTION 625 FOR TYPE I. PAYMENT FOR GEOTEXTILE FABRIC AND GRANULAR FILTER MATERIAL SHALL BE INCLUDED IN THE PRICE BID PER LIN. FT. FOR "4" PIPE UNDERDRAINS" IN ACCORDANCE WITH SECTION 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.

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

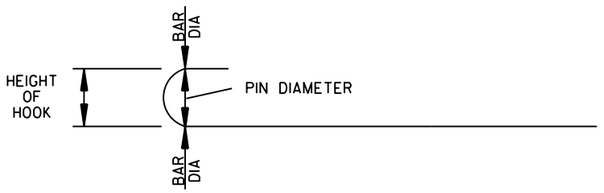
DETAILS OF PIPE UNDERDRAIN

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

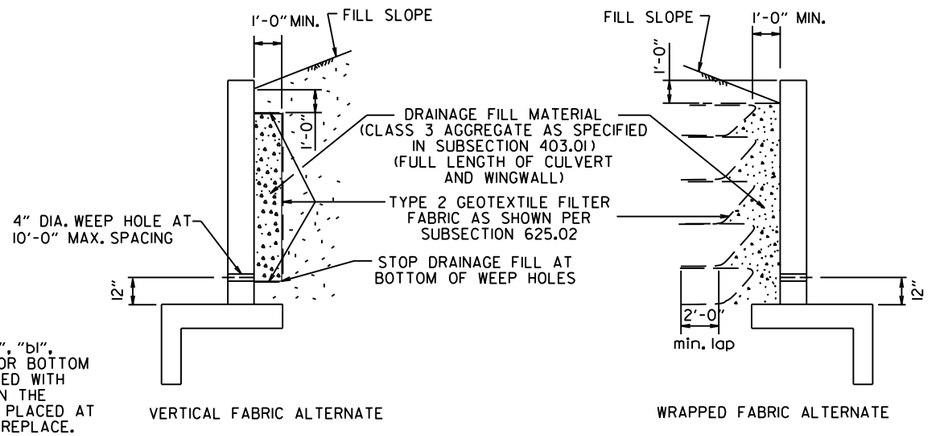
THE HOOKED BARS SHALL BE PLACED IN THE BOTTOM OF THE TOP SLAB AND THE TOP OF THE BOTTOM SLAB. THE STRAIGHT BARS SHALL BE PLACED IN THE TOP OF THE TOP SLAB AND THE BOTTOM OF THE BOTTOM SLAB. SEE TABLE BELOW FOR LENGTHS OF REPLACEMENT HOOKED AND STRAIGHT BARS.

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.

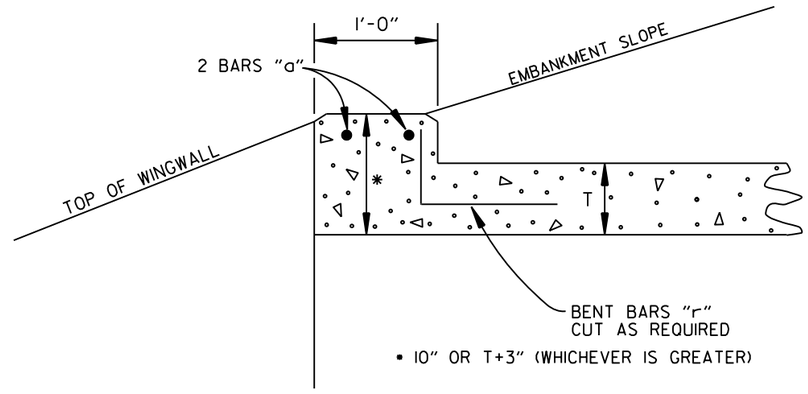
MEMBRANE WATERPROOFING SHALL BE APPLIED TO ALL CONSTRUCTION JOINTS IN THE TOP SLAB AND THE SIDEWALLS OF R.C. BOX CULVERTS AS DIRECTED BY THE ENGINEER. NO PAYMENT SHALL BE MADE FOR THIS ITEM, BUT PAYMENT WILL BE CONSIDERED TO BE INCLUDED IN THE VARIOUS ITEMS BID FOR THE R.C. BOX CULVERT.

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.

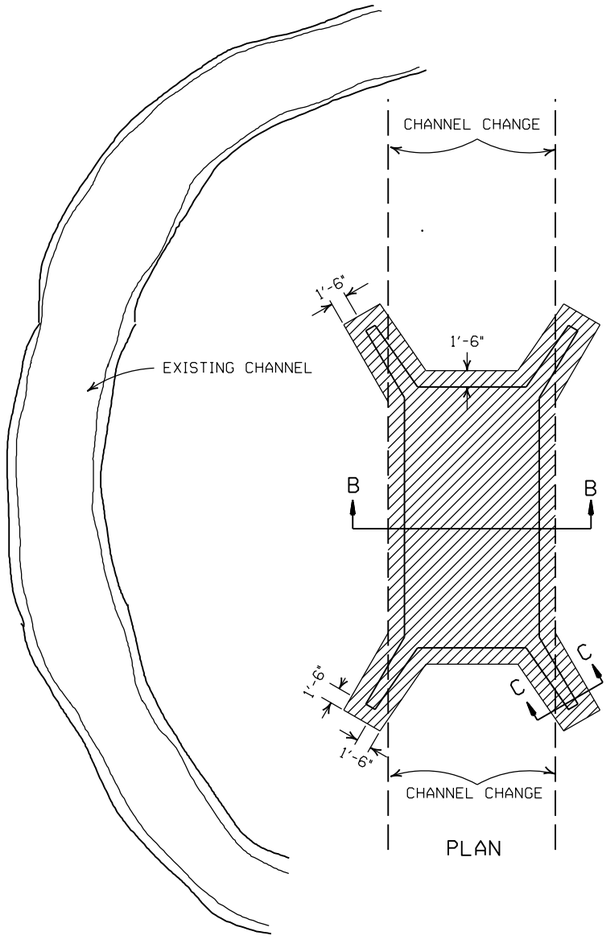
R.C. BOX CULVERT HEADWALL MODIFICATIONS

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

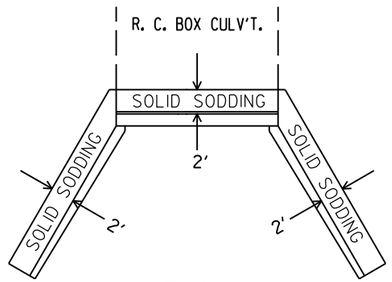
REINFORCED CONCRETE BOX CULVERT DETAILS

STANDARD DRAWING RCB-1



PLAN

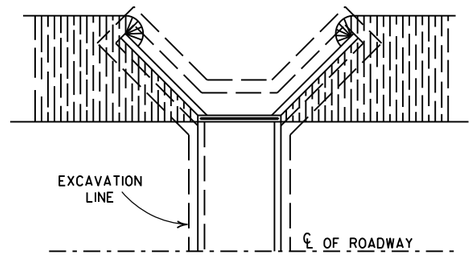
SOLID SODDING



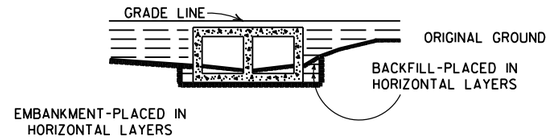
PLAN

PARTIAL SECTION SHOWING SOLID SODDING AT HEADWALLS AND WING WALLS

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

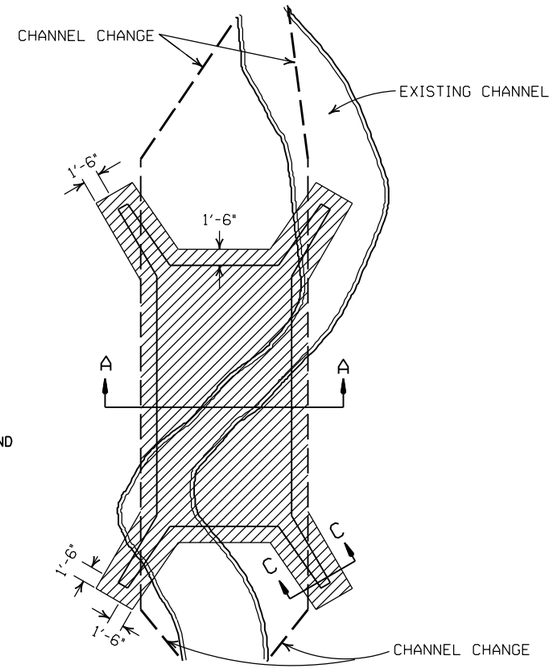


PLAN

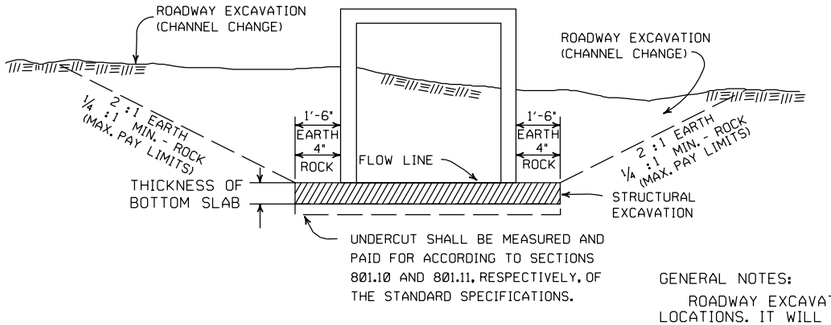


LONGITUDINAL SECTION

BACKFILL DETAILS FOR BOX CULVERT

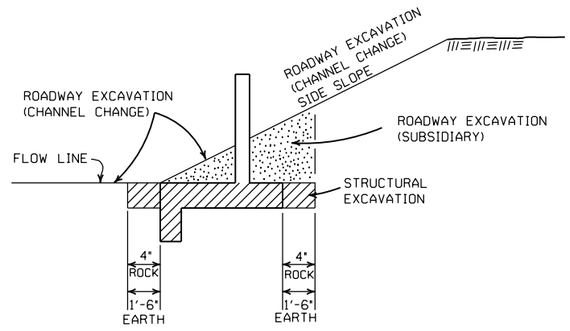


PLAN

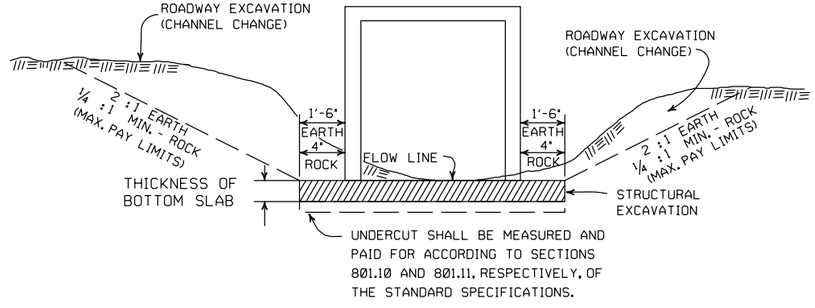


SECTION B-B

DETAILS FOR NEW CHANNELS



SECTION C-C



SECTION A-A

DETAILS THROUGH EXISTING CHANNELS

GENERAL NOTES:

ROADWAY EXCAVATION (CHANNEL CHANGE) WILL BE PAID FOR AT R.C. BOX CULVERT LOCATIONS. IT WILL BE PAID TO THE LIMITS ACTUALLY CUT AND WILL BE CONFINED TO THAT PORTION OF THE INDICATED AREA THAT IS ABOVE THE FLOW LINE. ROADWAY EXCAVATION (CHANNEL CHANGE) SHALL BE MEASURED BY CROSS SECTIONS AND VOLUMES COMPUTED BY AVERAGE END AREA METHOD. ALL CHANNEL CHANGES SHALL BE BROUGHT TO GRADE PRIOR TO MAKING ANY EXCAVATION FOR STRUCTURES.

EXCAVATION FOR STRUCTURES WILL BE PAID FOR AT ALL R.C. BOX CULVERT LOCATIONS. IT WILL BE PAID TO THE LIMITS SHOWN AND SHALL BE CONFINED TO THAT PORTION OF THE INDICATED AREA THAT IS BELOW THE CHANNEL FLOW LINE.

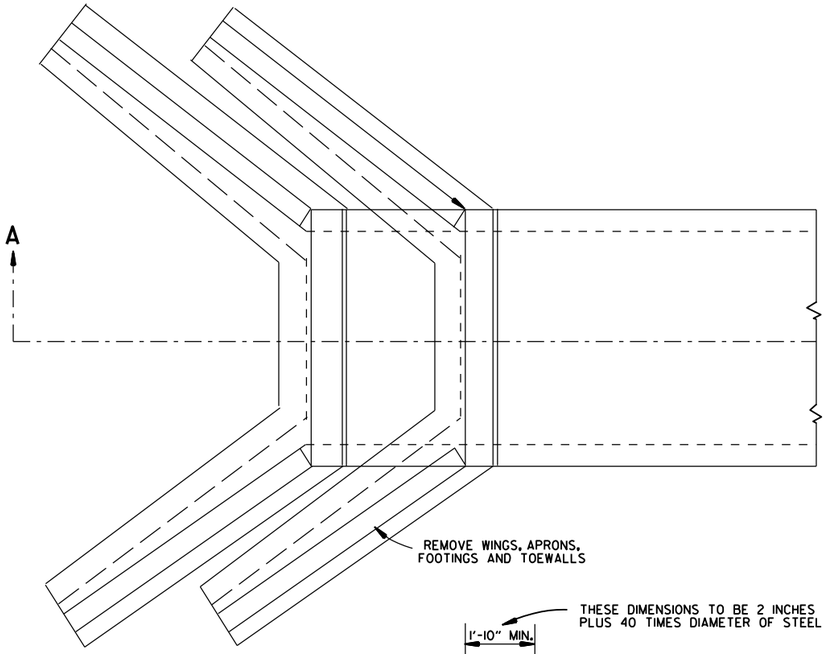
ROADWAY EXCAVATION SHOWN IN SECTION C-C ABOVE AS SUBSIDIARY WILL NOT BE MEASURED OR PAID FOR DIRECTLY, BUT PAYMENT WILL BE CONSIDERED TO BE INCLUDED IN THE VARIOUS ITEMS OF EXCAVATION.

DATE	REVISION	FILMED
11-20-03	REVISED SECTION A-A NOTE	
8-22-02	REVISED SECTION B-B NOTE	
10-12-95	COMBINED 1891B AND 1888A	
1-4-83	REVISED GENERAL NOTES	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

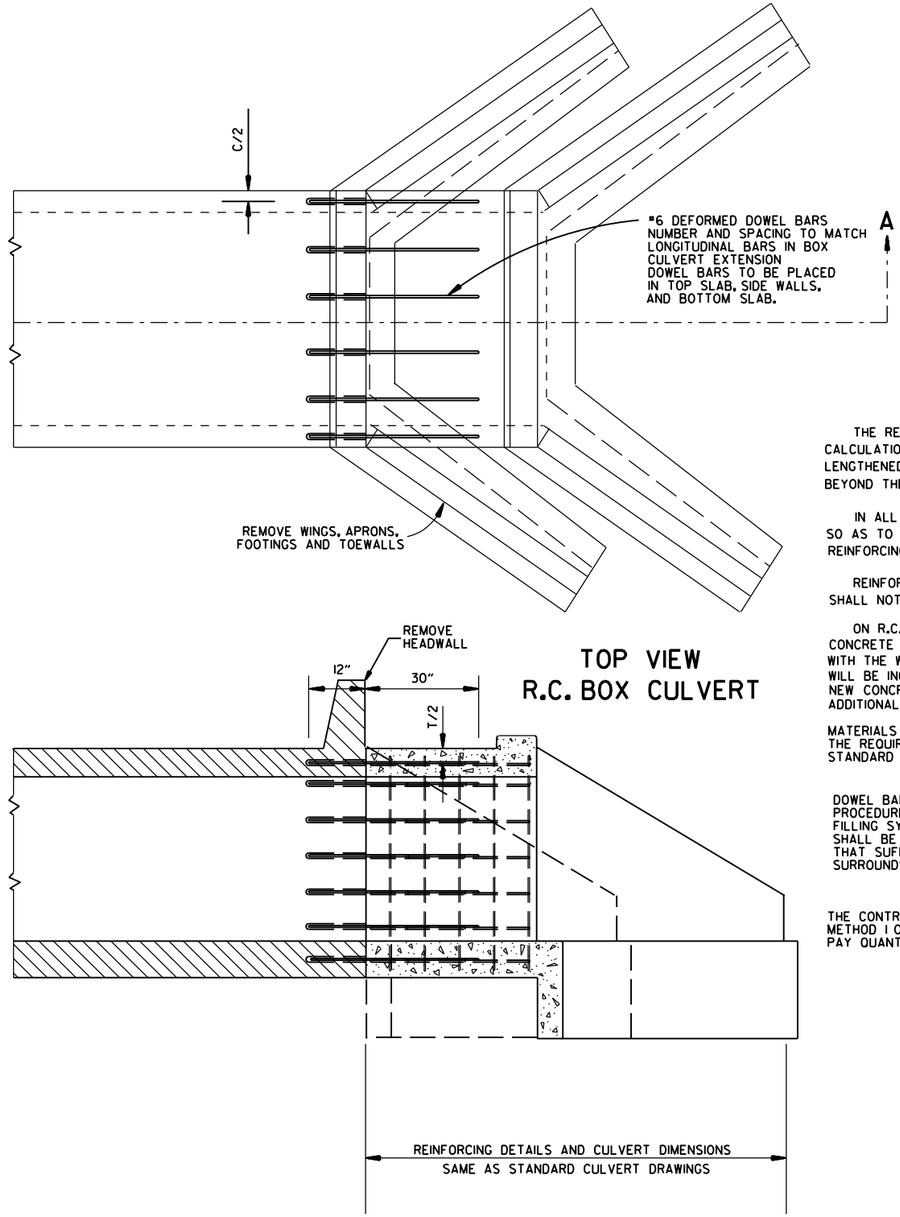
STANDARD DRAWING RCB-2



TOP VIEW
R.C. BOX CULVERT

SECTION A-A

METHOD 1



TOP VIEW
R.C. BOX CULVERT

SECTION A-A

METHOD 2

GENERAL NOTES

	USE FOR METHOD
THE RESIDENT ENGINEER WILL MAKE INDIVIDUAL CALCULATIONS OF QUANTITIES FOR EACH STRUCTURE LENGTHENED, MAKING NO ALLOWANCE FOR OVERBREAKAGE BEYOND THE LINES INDICATED.	1
IN ALL INSTANCES CONCRETE SHALL BE REMOVED SO AS TO PERMIT FULL 40 DIAMETER SPLICE OF REINFORCING STEEL.	1
REINFORCING STEEL REMOVED FROM EXISTING STRUCTURE SHALL NOT BE REUSED IN CONSTRUCTING EXTENSION.	1&2
ON R.C. BOX CULVERTS THAT HAVE AN EXISTING CONCRETE APRON; THE CONCRETE APRON SHALL BE REMOVED WITH THE WINGS. THE COST OF REMOVING ALL OLD CONCRETE WILL BE INCLUDED IN THE PRICE BID PER CUBIC YARD FOR NEW CONCRETE OF THE CLASS SPECIFIED AND NO ADDITIONAL COMPENSATION WILL BE ALLOWED.	1&2
MATERIALS FOR SECURING DOWEL BARS SHALL MEET THE REQUIREMENTS OF SECTION 507.02 OF THE STANDARD SPECIFICATIONS.	2
DOWEL BARS SHALL BE INSTALLED AS FOLLOWS: THE DRILLING PROCEDURE SHALL BE APPROVED BY THE ENGINEER. THE FILLING SYSTEM SHALL BE APPROVED BY THE ENGINEER. AND SHALL BE AN INJECTION-TYPE SYSTEM WHICH WILL INSURE THAT SUFFICIENT MATERIAL IS INJECTED SO IT COMPLETELY SURROUNDS THE BARS AND FILLS THE HOLES.	2
THE CONTRACTOR SHALL HAVE THE OPTION OF USING EITHER METHOD 1 OR METHOD 2. REGARDLESS OF WHICH METHOD IS USED, PAY QUANTITIES WILL BE CALCULATED BASED ON METHOD 1.	1&2

NOTE:
NO PART OF THIS STANDARD IS TO BE USED FOR ANY DETAILS RELATIVE TO NEW CONSTRUCTION.

SEE STANDARD DRAWING LISTED IN TABULATION OF STRUCTURES FOR ALL NEW CONSTRUCTION DETAILS.

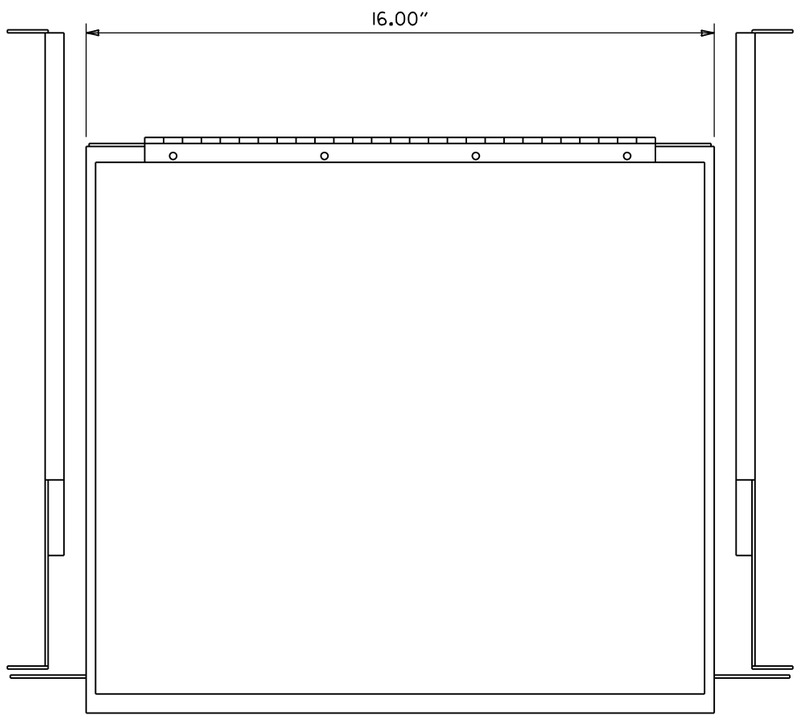
DATE	REVISION	DATE FILM
10-12-95	CHANGED DRAWING # FROM 144-A	
4-1-93	ADDED GENERAL NOTE	
10-1-92	ADDED ALT. METHOD OF EXTENSION	
11-30-89	REDRAWN	
1-4-83	ELIMINATED CONCRETE CLASS	
12-20-56	RETRACED	

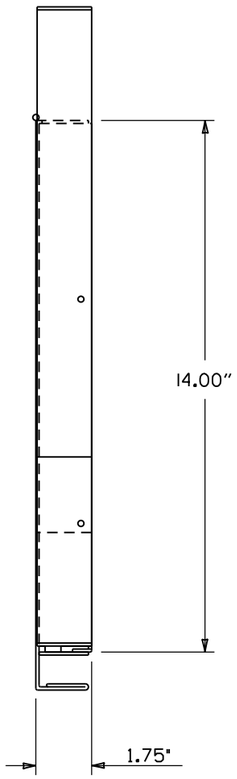
ARKANSAS STATE HIGHWAY COMMISSION

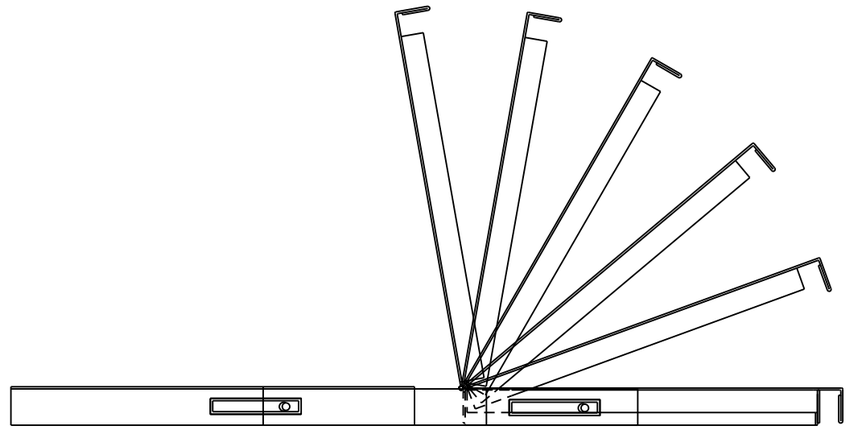
METHOD OF EXTENDING EXISTING R.C. BOX CULVERTS

STANDARD DRAWING RCB-3

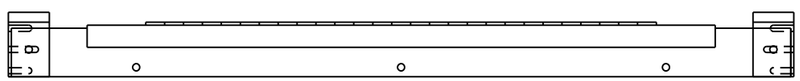
DRAWER PLAN VIEW



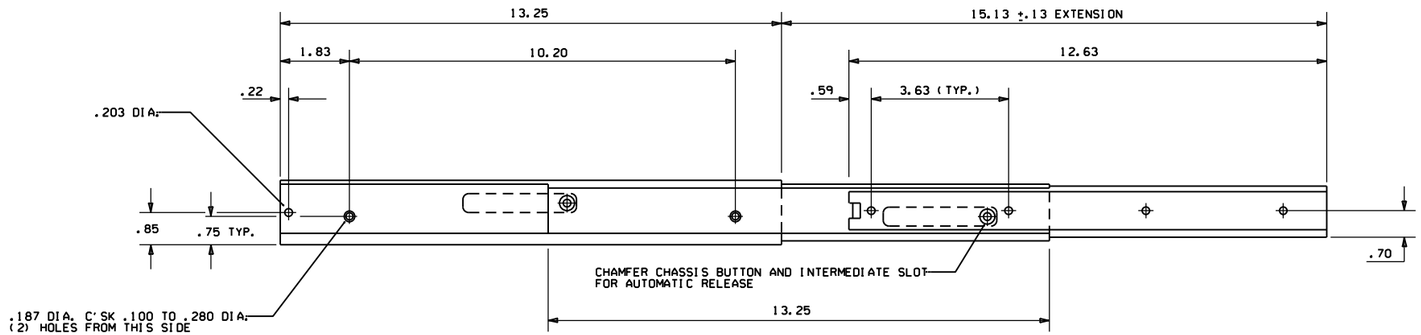




NOTES:
1. RIGHT HAND SLIDE SHOWN, LEFT SLIDE OPPOSITE.
2. GENERAL DEVICES (CC3002-99-0102) OR EQUAL AND CONTAINS (1) RIGHT HAND SLIDE ASSEMBLY, (1) LEFT HAND SLIDE ASSEMBLY.
3. ALL HARDWARE NECESSARY TO FASTEN SLIDE ASSEMBLY TO UNDERSIDE OF CONTROLLER SHELF SHALL BE INCLUDED.



FRONT VIEW



RIGHT SIDE ASSEMBLY

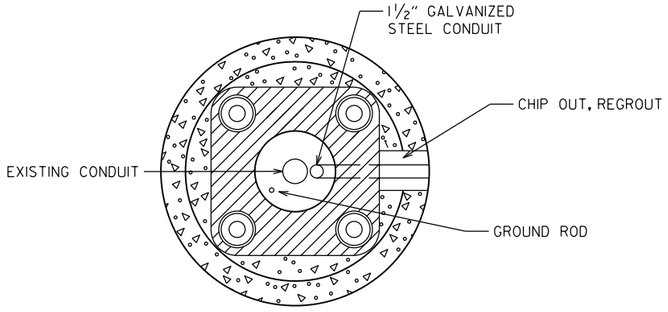
DATE	REVISION	DATE FILM
9-12-13	ISSUED AS STANDARD DRAWING	
6-15-05	ISSUED	

ARKANSAS STATE HIGHWAY COMMISSION

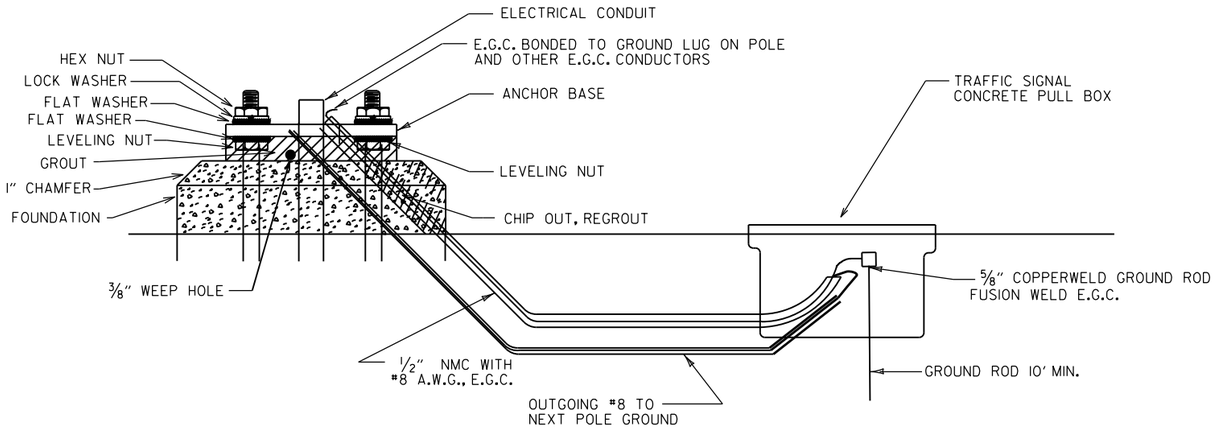
CONTROLLER CABINET UTILITY DRAWER

STANDARD DRAWING SD-5

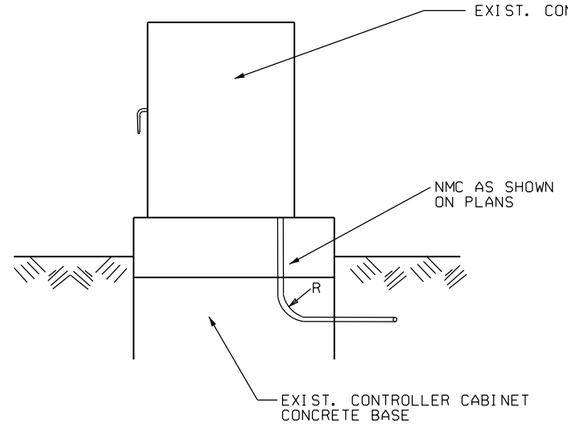
CONDUIT ENTRY TO EXISTING POLE BASE



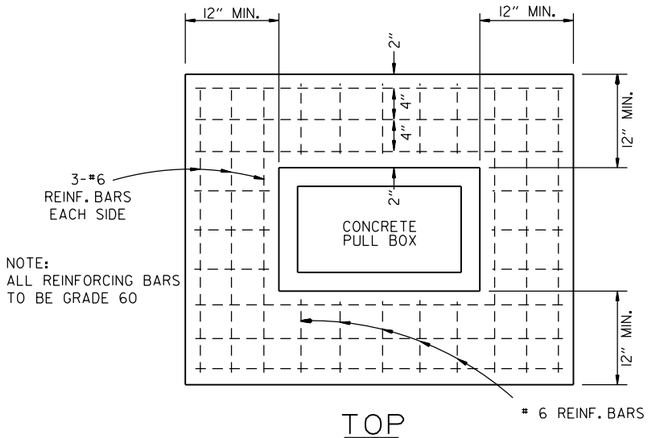
ANCHOR BASE



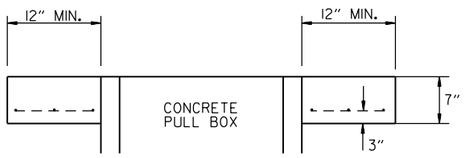
CONDUIT ENTRY TO EXISTING CONTROLLER CABINET



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



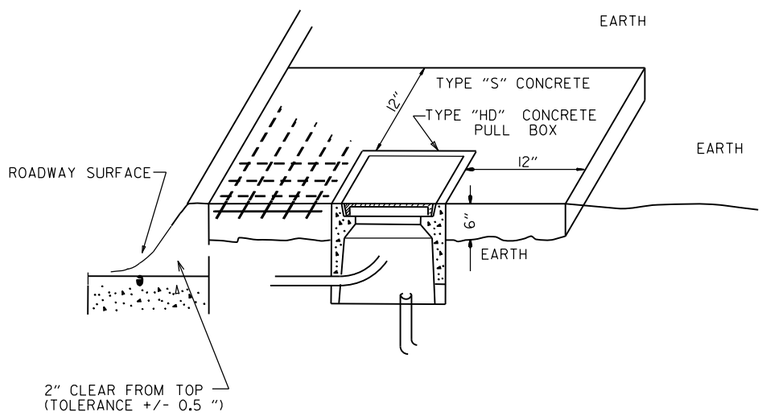
TOP



ELEVATION

NOTE:
ALL REINFORCING BARS TO BE GRADE 60

TYPE "HD" CONCRETE PULL BOX DETAIL



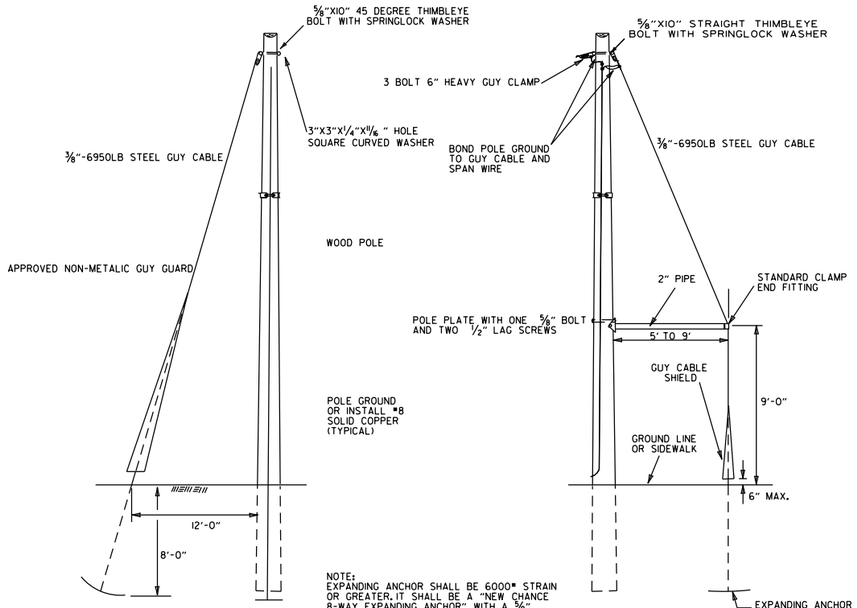
NOTE:
ALL TYPE 1 AND TYPE 2 HD CONCRETE PULL BOXES ARE INSTALLED WITH AN APRON OF CONCRETE 12" WIDE AND 7" IN DEPTH. ALL PAYMENT SHALL BE INCLUDED IN THE PRICE OF THE TYPE HD CONCRETE PULL BOX. THE CONCRETE PULL BOX SHALL BE INSTALLED FLUSH TO SURROUNDING GRADE UNLESS OTHERWISE INSTRUCTED BY THE ENGINEER. THE CONCRETE SHALL BE CLASS "S". THREE #6 REINFORCING BARS IN THE APRON ON ALL SIDES OF THE CONCRETE PULL BOX IS REQUIRED IN CONCRETE.

DATE	REVISION	FILMED
11-16-17	REVISED NOTES	
09-02-15	REVISED PULL BOX DEPTH	
09-12-13	ISSUED AS STANDARD DRAWING	
05-21-09	REVISED GROUNDING	
07-31-08	ADDED & REVISED CONDUIT ENTRY	
06-23-04	REVISED CLEARANCE AT CURB ENTRY	
01-04-02	ADDED REINFORCING TO BOX APRON	
07-02-01	REVISED	
12-27-99	REVISED NOTES	
11-18-98	ISSUED	

ARKANSAS STATE HIGHWAY COMMISSION

HEAVY DUTY PULL BOX

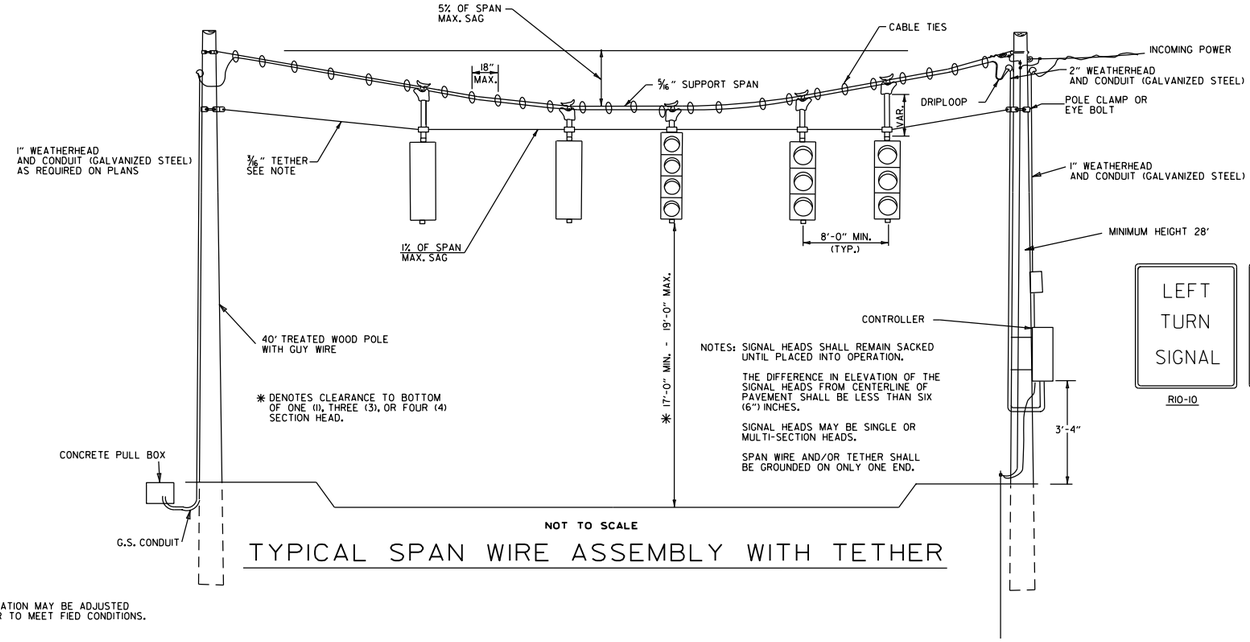
STANDARD DRAWING SD-6



STANDARD GUY INSTALLATION

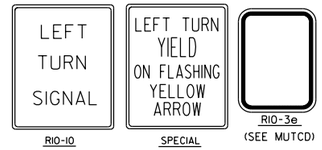
SIDEWALK GUY INSTALLATION

NOTE: CONDUIT INSTALLATION MAY BE ADJUSTED BY THE ENGINEER TO MEET FIED CONDITIONS.



NOT TO SCALE

TYPICAL SPAN WIRE ASSEMBLY WITH TETHER

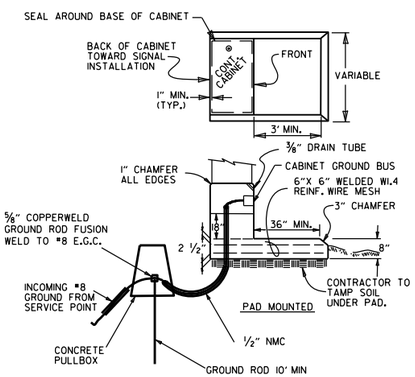


NOTES:
SPAN WIRE POLES SHALL BE MOUNTED A MINIMUM OF FOUR (4') FEET BEHIND CURB OR SHOULDER.

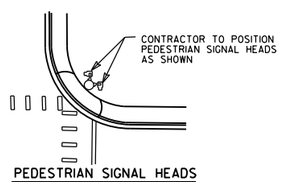
SPAN WIRE ASSEMBLIES WILL REQUIRE TETHER UNLESS OTHERWISE NOTED ON PLAN SHEETS.

CABLE TIES SHALL BE SUITABLE FOR OUTSIDE USE (BLACK).

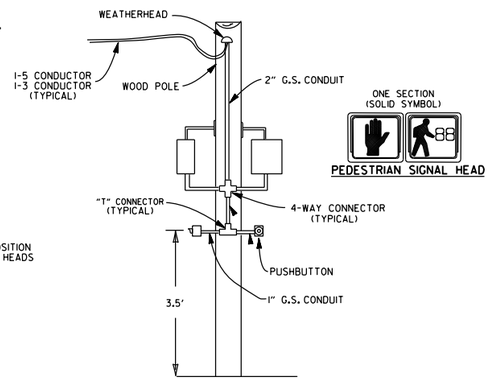
THE CONTROLLER POWER SUPPLY GROUND BUSS SHALL BE BONDED TO THE FOUNDATION GROUND ROD WITH A #8 A.W.G. SOLID COPPER WIRE. ON EXISTING FOUNDATIONS WITH NO GROUND ROD, CONTRACTOR SHALL INSTALL A 10' X ⅝" COPPERWELD GROUND ROD.



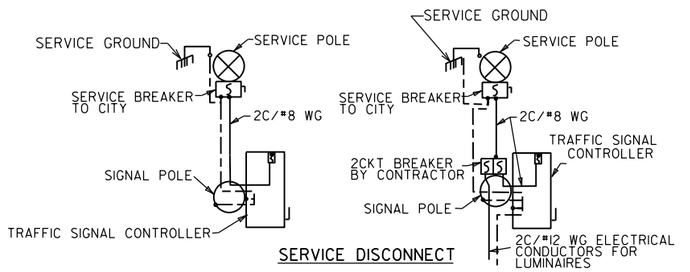
CONCRETE BASE MOUNTED CABINET DETAILS



PEDESTRIAN SIGNAL HEADS



WOODEN POLE INSTALLATION OF PED HEADS



SERVICE DISCONNECT

NO LUMINAIRE WITH LUMINAIRE

NOTE: ELECTRICAL GROUND CONDUCTOR IS BONDED TO ALL METAL ENCLOSURES

NOTES:

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

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

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

ALL SIGN FACE SHALL BE CONSTRUCTED OF HIGH INTENSITY SHEETING (TYPE III) WITH SILKSCREEN LEGEND AND BORDER.

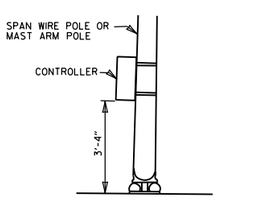
SIGNAL OPERATION NOTES:

FLASHING OPERATION - PRIOR TO NORMAL OPERATION, SIGNAL SHALL BE FLASHED FOR A PERIOD OF 3 TO 5 WORK DAYS. SIGNAL SHALL BE PLACED IN OPERATION ONLY ON A REGULAR WORK DAY, EXCEPT FRIDAY.

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

CABINET NOTE:

UNLESS OTHERWISE DIRECTED BY THE ENGINEER, CABINET ORIENTATION SHALL BE SUCH THAT THE BACK OF THE CABINET IS PARALLEL TO THE STREET AND POSITIONED TO ALLOW VISIBILITY OF THE SIGNAL DISPLAY WHILE OBSERVING THE CONTROLLER FRONT PANEL.



SPAN WIRE SUPPORT POLE AND MAST ARM POLE MOUNTED

MINIMUM STRUCTURAL REQUIREMENTS:

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

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

BASE WIND SPEED: 90 MPH

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

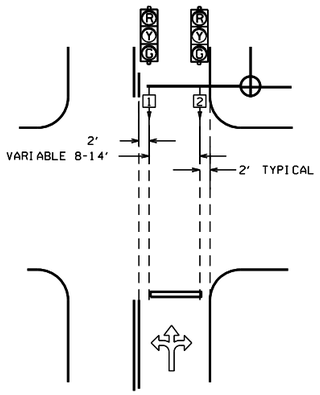
DATE	REVISION	FILMED
11-16-17	REVISED NOTES, ADDED SPAN WIRE SUPPORT POLE DETAIL, ADDED PEDESTRIAN SIGNAL HEAD DETAIL	
02-27-14	REVISED NOTES.	
09-12-13	ISSUED AS STANDARD DRAWING	
07-21-11	REVISED PEDESTRIAN SIGN & GROUNDING	
04-17-08	REVISED TO 2001 AASHTO STANDARDS	
10-12-04	REV. CABINET ORIENTATION & SIGNAL OPERATION	
05-22-02	REV. TYP. SPAN WIRE ASSEMBLY	
12-27-99	REVISED	
11-18-98	REVISION TO NOTES	
11-21-95	ISSUED	

ARKANSAS STATE HIGHWAY COMMISSION

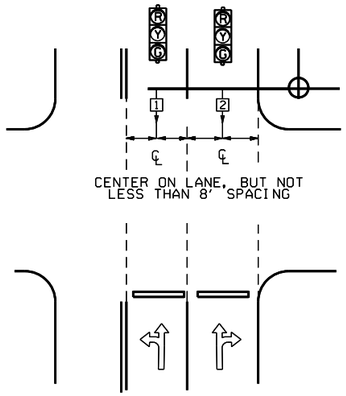
SPAN WIRE ASSEMBLY WOOD POLE

STANDARD DRAWING SD-7

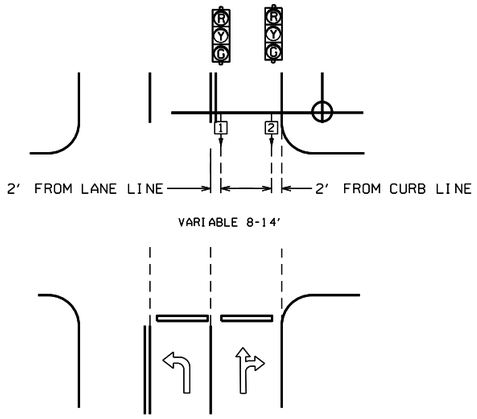
(A)



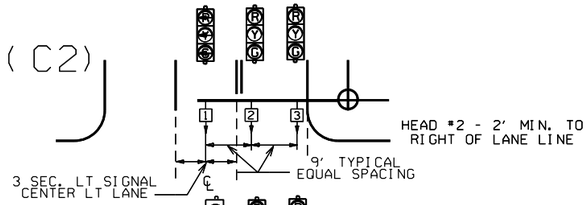
(B)



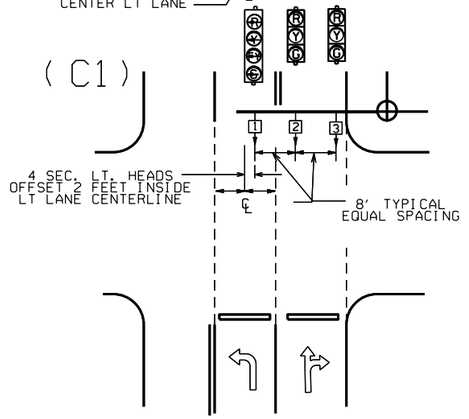
(C)



(C2)



(C1)



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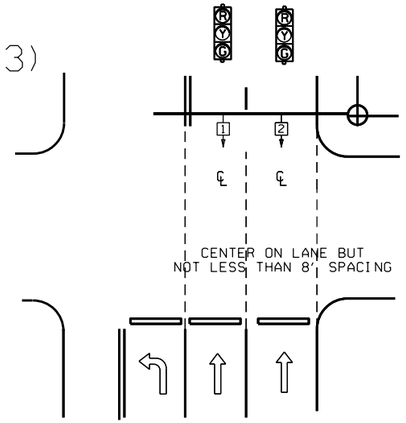
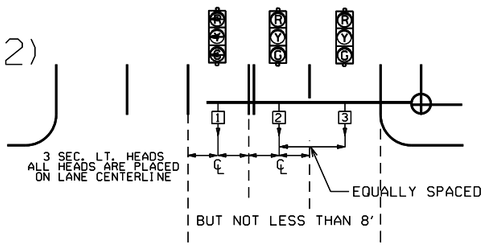
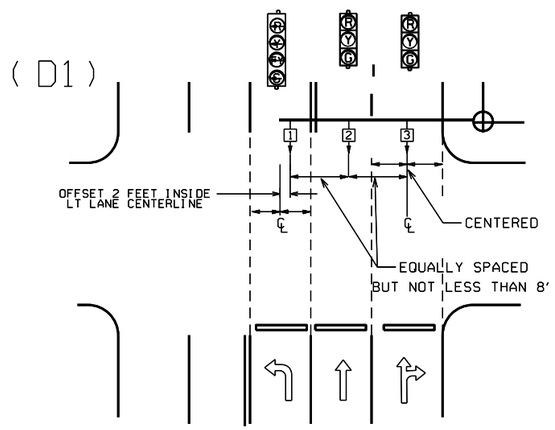


(D2)

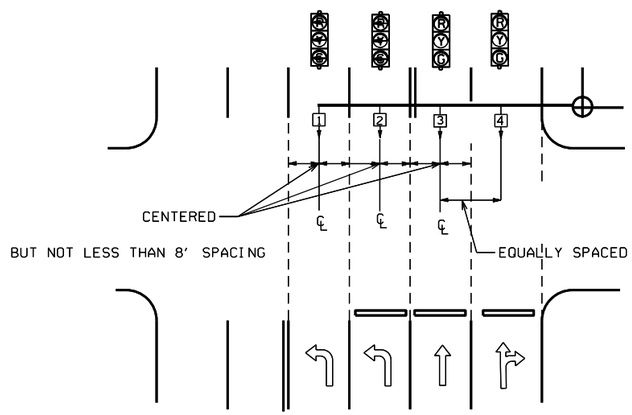


(D1)



NOTE: WHERE LEFT TURN HEAD (HEAD 1 ON D1 AND D2) IS NOT CALLED FOR ON PLANS, MAST ARM LENGTH MAY STILL BE ALLOWED FOR FUTURE INSTALLATION. HEADS FOR THROUGH MOVEMENTS SHALL STILL BE ALIGNED WITH THROUGH LANES AS SHOWN ON DETAILS.

(E)



℄ = CENTER OF LANE FROM APPROACH SIDE

GENERAL NOTES:

1. FOUR SECTION "PROTECTED/PERMISSIVE" LEFT TURN HEADS SHOULD BE PLACED A MINIMUM OF TWO (2') FEET TO THE RIGHT OF THE CENTERLINE OF THE APPROACHING LEFT TURN LANE.

2. THREE SECTION "PROTECTED" LEFT TURN HEADS SHOULD BE PLACED ON THE CENTERLINE OF THE APPROACHING LEFT TURN LANE.

3. WHEN IT IS NECESSARY TO PLACE POLES OTHER THAN AS SHOWN ON PLAN SHEET(S) RESULTING IN MAST ARM EXTENDING MORE THAN TWO FEET PAST (TO THE LEFT OF) THE CENTERLINE OF THE APPROACHING LEFT TURN LANE, MAST ARM SHALL BE CUT TO APPROPRIATE LENGTH AS DETERMINED BY THE ENGINEER, AND A NEW END CAP PROVIDED. THE CONTRACTOR SHALL BE RESPONSIBLE FOR DETERMINING THIS PRIOR TO INSTALLING THE MAST ARM IF ADDITIONAL COMPENSATION IS REQUIRED.

4. SIGNAL HEAD SPACING SHALL, IN NO CASE, BE LESS THAN EIGHT (8') FEET BETWEEN HEADS ON CENTER, MEASURED HORIZONTALLY PERPENDICULAR TO THE APPROACH.

5. ALL SIGNAL HEADS SHOWN ON THIS DETAIL SHEET SHALL BE LOCATED ACCORDING TO THE DIMENSIONS SHOWN IN RELATION TO THE APPROACH SIDE OF THE INTERSECTION.

6. MAXIMUM MOUNTING HEIGHT OF SIGNAL FACES LOCATED BETWEEN 40 FEET AND 53 FEET FROM STOP BAR SHALL BE IN ACCORDANCE WITH FIGURE 4D-5 OF 2009 MUTCD.

12-8-16	REVISED NOTE 6	
9-12-13	ISSUED AS STANDARD DRAWING	
3-11-10	2009 MUTCD	
12-9-99	ISSUED	
DATE	REVISION	DATE FILM

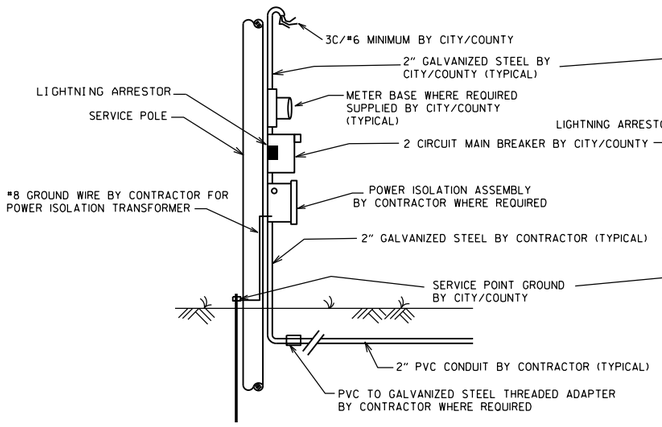
ARKANSAS STATE HIGHWAY COMMISSION

SIGNAL HEAD PLACEMENT

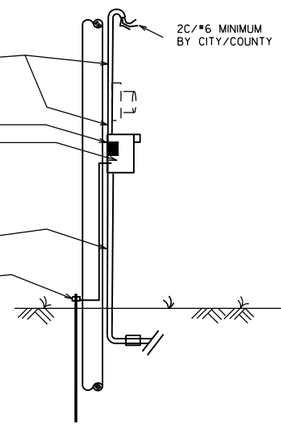
STANDARD DRAWING SD-8

MAIN BREAKER NOT NEAR CONTROLLER CABINET SECONDARY REQUIRED

WITH POWER ISOLATION ASSEMBLY



WITHOUT POWER ISOLATION ASSEMBLY



NOTES TO CONTRACTOR AND AGENCY RESPONSIBLE FOR MAINTENANCE OF THE INTERSECTION (CITY/COUNTY):

ELECTRICAL SERVICE TYPICALLY FALLS INTO TWO CATEGORIES:
MAIN BREAKER NEAR CONTROLLER CABINET; AND MAIN BREAKER NOT NEAR CONTROLLER CABINET. THE CONTRACTOR'S AND THE CITY'S/COUNTY'S RESPONSIBILITY VARIES ACCORDINGLY AS INDICATED ON THESE DETAILS.

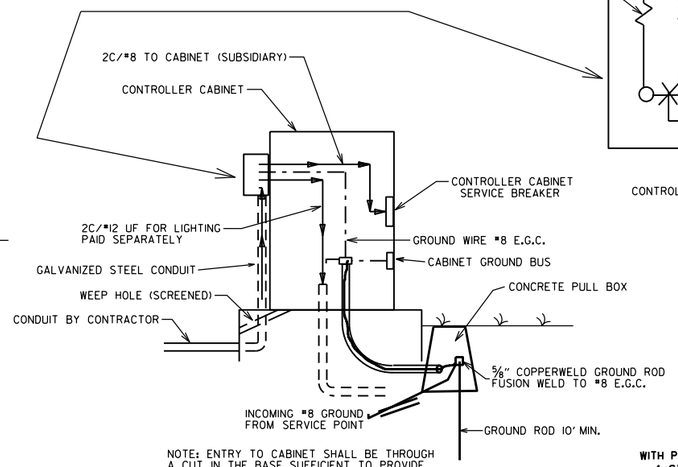
ALL SITUATIONS:
ELECTRICAL SERVICE SHALL BE PROVIDED BY THE CITY/COUNTY TO A SERVICE POLE WITH EXTERNAL RAINTIGHT BREAKER (MAIN BREAKER) AT A MUTUALLY ACCEPTABLE POINT WITHIN THE RIGHT-OF-WAY. SERVICE POINT INCLUDES GALVANIZED STEEL CONDUIT TO A POINT 18" BELOW GROUND LINE, TWO CIRCUIT MAIN BREAKER, LIGHTNING ARRESTOR, POWER ISOLATION ASSEMBLY WHERE REQUIRED, METER LOOP IF REQUIRED BY LOCAL UTILITY COMPANY, ELECTRICAL CONDUCTORS AND WEATHERHEAD. WHERE STREET LIGHTING IS INCLUDED AS PART OF SIGNAL INSTALLATION STREET LIGHTING CIRCUIT (2C/#12 A.W.G. UF RATED, TYPICAL) SHALL BE KEPT SEPARATE FROM THE CIRCUIT SERVING TRAFFIC SIGNAL. SERVICE WIRE AND WIRING FROM THE CONTROLLER TO MAIN BREAKER IS PROVIDED BY THE CONTRACTOR AS A PART OF THIS CONTRACT. WIRE AND WIRING FROM MAIN BREAKER, AND CONNECTION TO THE UTILITY IS THE RESPONSIBILITY OF THE CITY/COUNTY.

MAIN BREAKER NOT NEAR CONTROLLER CABINET:
THE MAIN BREAKER ASSEMBLY, GALVANIZED STEEL CONDUIT. WEATHERHEAD AND WIRE ABOVE MAIN BREAKER AND CONNECTION TO THE UTILITY SHALL BE PROVIDED BY CITY/COUNTY. CONTRACTOR SHALL PROVIDE AS PART OF CONTRACT SECONDARY BREAKER, CONDUIT, WIRE AND WIRING TO THE MAIN BREAKER.

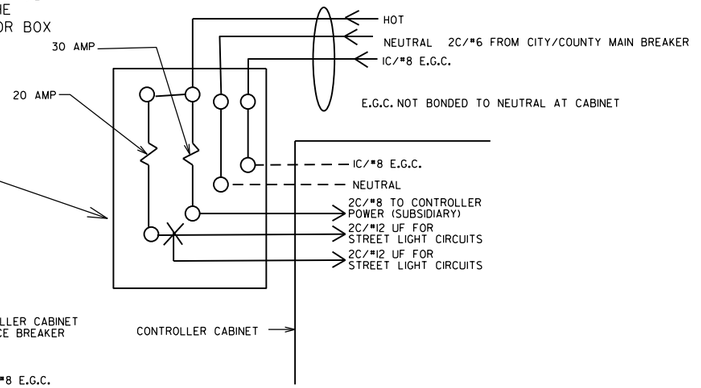
MAIN BREAKER NEAR CONTROLLER CABINET:
ALL COMPONENTS OF THE SERVICE POINT WITH THE EXCEPTION OF THE WIRE AND WIRING ABOVE THE MAIN BREAKER IS FURNISHED AND INSTALLED BY THE CONTRACTOR. WIRING FROM MAIN BREAKER INCLUDING CONNECTION TO THE UTILITY, IS THE RESPONSIBILITY OF THE CITY/COUNTY. IF METER LOOP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

GROUND ROD - A 10' X 5/8" GROUND ROD SHALL BE INSTALLED IN THE CONCRETE PULL BOX FOR EACH POLE AND THE CONTROLLER. PAYMENT FOR THE GROUND ROD AND 1/2" NMC SHALL BE INCLUDED IN ITEM 701. THE CONCRETE PULL BOX AND CONDUCTOR BOX SHALL BE PAID FOR SEPARATELY.

SECONDARY BREAKER BY CONTRACTOR (SUBSIDIARY)



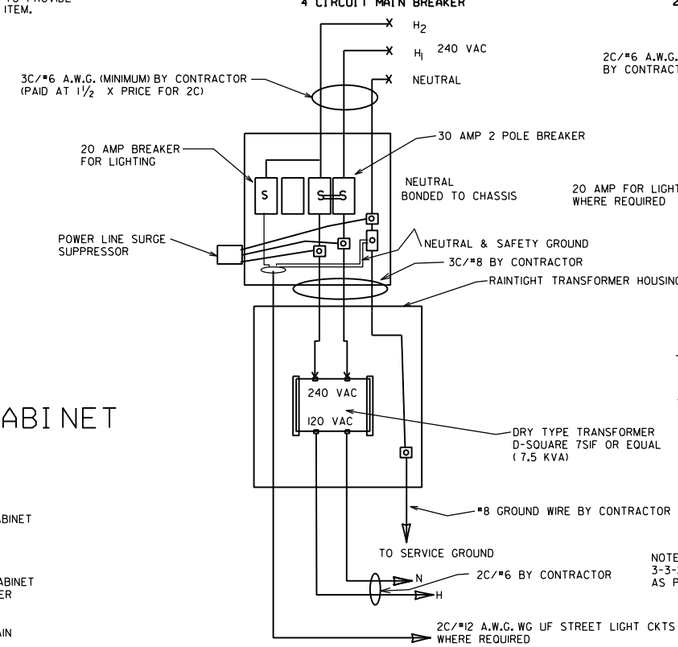
NOTE: ENTRY TO CABINET SHALL BE THROUGH A CUT IN THE BASE SUFFICIENT TO PROVIDE ADEQUATE CONDUIT RADIUS FOR ITEM.



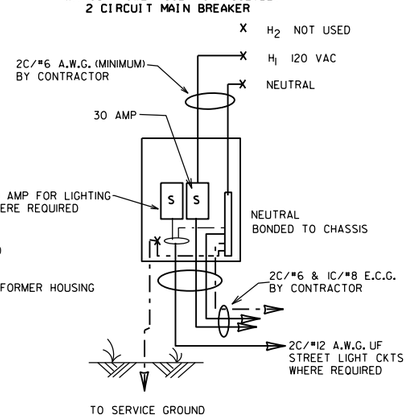
MAIN BREAKER WIRING (TYPICAL)

SERVICE GROUND IS TYPICALLY TIED TO NEUTRAL AT THE MAIN BREAKER. AS SUCH, CONTROLLER GROUND IS NOT TIED TO NEUTRAL AT SECONDARY BREAKER OR IN CONTROLLER CABINET.

WITH POWER ISOLATION ASSEMBLY
4 CIRCUIT MAIN BREAKER

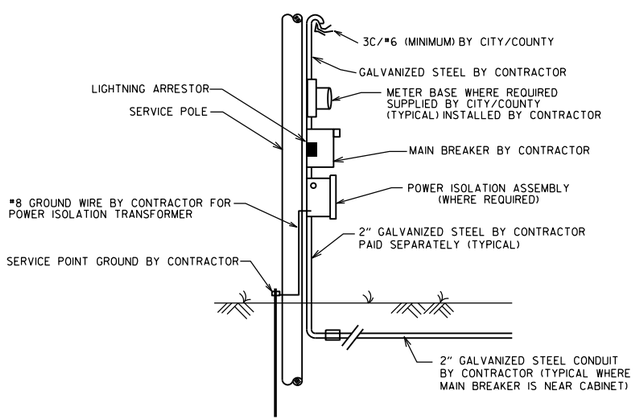


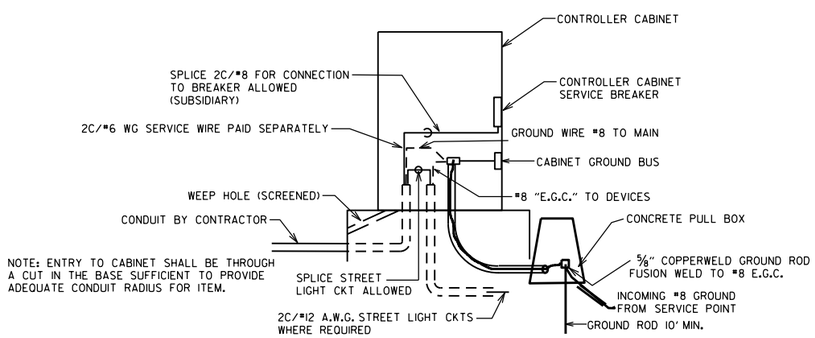
WITHOUT POWER ISOLATION ASSEMBLY
2 CIRCUIT MAIN BREAKER



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

MAIN BREAKER NEAR CONTROLLER CABINET SECONDARY NOT REQUIRED





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

DATE	REVISION	FILMED
11-07-19	REVISED	
11-16-17	REVISED NOTES	
09-12-13	ISSUED AS STANDARD DRAWING	
04-18-13	ADDED LIGHTNING ARRESTOR	
05-21-09	REVISED GROUNDING	
07-31-08	REVISED GROUNDING	
03-03-03	ADDED EGC NOTE	
09-26-01	REVISED	
12-27-99	REVISED	
07-28-99	REVISED	
02-05-99	ISSUED	

ARKANSAS STATE HIGHWAY COMMISSION

SERVICE POINT

STANDARD DRAWING SD-9

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

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

EACH PEDESTRIAN PUSHBUTTON SHALL HAVE ONE R10-3E SIGN ATTACHED TO THE POLE ABOVE THE BUTTON. ALL SIGNS SHALL BE MANUFACTURED IN ACCORDANCE WITH SECTION 723 OF THE STANDARD SPECIFICATIONS FOR HIGHWAY CONSTRUCTION.

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

GENERAL NOTES:
1. MAST ARM POLES SHALL BE MOUNTED A MINIMUM OF FOUR (4') FEET BEHIND CURB OR SHOULDER.

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

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

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

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

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

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

BASE WIND SPEED: 90 MPH.

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

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

ALL SIGNAL HEADS TO BE ONE WAY, TWELVE (12") INCH AND HAVE FIVE (5") INCH BACK PLATES:

SIGNAL HEADS AT THE END OF MAST ARM - ONE 4 SEC., 85 LB., 14.5 SQ. FT., ONE SIGN MOUNTED 3 FEET FROM SIGNAL HEAD (2'-0" X 2'-6"; 20 LB.) REMAINING SIGNAL HEADS SPACED AT 8 FT. (3 SEC., 56 LB., 8.3 SQ. FT.):
DESIGN TO ACCOMMODATE:
2 SIGNAL HEADS FOR MAST ARMS 10 FT. TO 16 FT.
3 SIGNAL HEADS FOR MAST ARMS 18 FT. TO 24 FT.
4 SIGNAL HEADS FOR MAST ARMS OVER 26 FT.

STREET NAME SIGN - 72" X 18", 36 LB., MOUNTED SUCH THAT OUTSIDE EDGE IS NOT GREATER THAT 12 FT. FROM POLE. DEPENDING UPON POSITION OF SIGNAL HEAD ADJACENT TO POLE, SIGN MAY OVERLAP POLE SHAFT.
ROADWAY LUMINAIRES (WHERE REQUIRED ON PLAN SHEET) - VARIABLE ARM LENGTH (MAX. WT. 75 LB., 3.3 SQ. FT.)
PEDESTRIAN SIGNALS - TWO 1 SEC., 12 INCH MOUNTED 8 FT. FROM BASE OF POLE. POST MOUNTED 3 SEC. SIGNAL HEAD AT 10 FT. ON SIDE OF POLE.

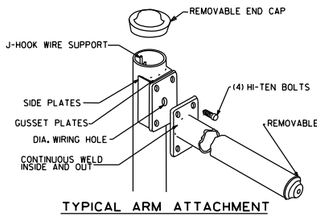
4. POLE/MAST ARM CAP - POLE AND MAST ARM CAPS SHALL BE PROVIDED, FABRICATED OF EITHER STEEL OR CAST ALUMINUM.

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

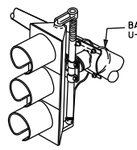
6. POLE/MAST ARM TAPER SLOPE - AVERAGE TAPER OF SIGNAL MAST ARMS AND POLE SHAFT SHALL BE 0.125 TO 0.15 INCHES PER FOOT.

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

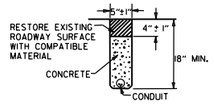
7. NUT COVERS - EACH POLE SHALL INCLUDE A BOLT DOWN NUT COVER FOR EACH ANCHOR BOLT.



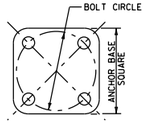
TYPICAL ARM ATTACHMENT



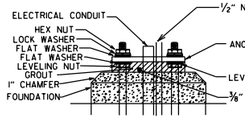
NOTE: THE SIGNAL SHALL BE CONNECTED TO THE MAST ARM BY BRACKETING AS DIRECTED BY THE ENGINEER.

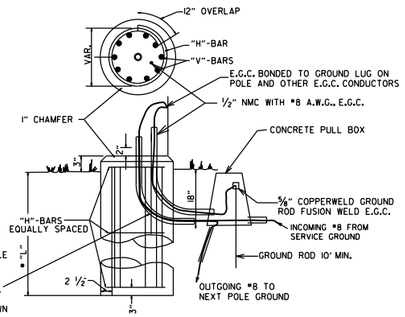


TRENCHING DETAIL
(FOR SAW CUT TRENCH IN ROADWAY)



ANCHOR BASE





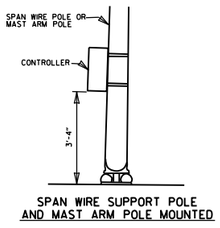
THE SWEEPING "L" IN THE FOUNDATION SHALL BE THE SAME SIZE AS THE CONDUIT FROM THE FOUNDATION TO THE PULL BOX AS SHOWN ON THE PLANS.

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

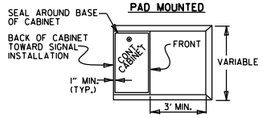
TYPICAL FOUNDATION DETAILS

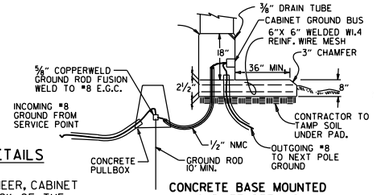
POLE FOUNDATION MINIMUM DIMENSIONS AND STEEL REINFORCING. ALL REINFORCING STEEL SHALL BE GRADE 40 MIN.

ARM LENGTH	FOUNDATION DIAMETER	DEPTH "L"*	STEEL		
			VERTICAL	HORIZONTAL	O.C.
PED	30"	7'-0"	12-#7 (6'-6")	10-#4	8.44"
2' TO 12'	30"	10'-6"	12-#7 (10'-0")	15-#4	8.42"
OVER 12' TO 20'	30"	11'-6"	12-#7 (11'-0")	16-#4	8.66"
OVER 20' TO 35'	36"	12'-6"	13-#8 (12'-0")	17-#4	8.88"
OVER 35' TO 50'	36"	13'-6"	13-#8 (13'-0")	19-#4	8.56"
OVER 50' TO 72'	42"	14'-6"	18-#8 (14'-0")	20-#4	8.74"
TWINS TO 20'	30"	16'-0"	12-#6 (15'-6")	22-#4	8.76"
TWINS OVER 20' TO 44'	36"	16'-0"	13-#8 (15'-6")	22-#4	8.76"
TWINS OVER 44' TO 50'	42"	16'-0"	18-#8 (15'-6")	22-#4	8.76"
TWINS OVER 50' TO 72'	42"	16'-6"	18-#8 (16'-0")	23-#4	8.64"



SPAN WIRE SUPPORT POLE AND MAST ARM POLE MOUNTED





CONCRETE BASE MOUNTED CABINET DETAILS

CONTROLLER CABINET MOUNTING DETAILS

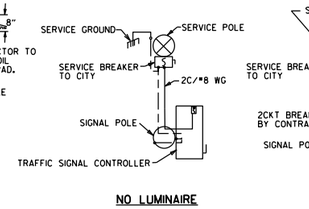
NOTE:
UNLESS OTHERWISE DIRECTED BY THE ENGINEER, CABINET ORIENTATION SHALL BE SUCH THAT THE BACK OF THE CABINET IS PARALLEL TO THE STREET AND POSITIONED TO ALLOW VISIBILITY OF THE SIGNAL DISPLAY WHILE OBSERVING THE CONTROLLER FRONT PANEL.

8. GROUND ROD - A 10' X ⅝" GROUND ROD SHALL BE INSTALLED IN THE CONCRETE PULL BOX FOR EACH POLE AND THE CONTROLLER. PAYMENT FOR THE GROUND ROD AND ½" NMC SHALL BE INCLUDED IN ITEM 714 FOR SIGNAL POLES AND ITEM 701 FOR THE CONTROLLER. THE CONCRETE PULL BOX AND CONDUCTOR BOX SHALL BE PAID SEPERATELY.

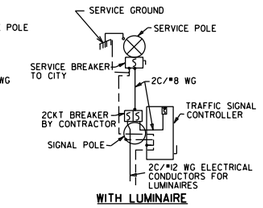
9. POLE BASE/FOUNDATION - ANCHOR BOLTS SHALL INCLUDE AS A MINIMUM, ONE LEVELING NUT, TWO FLAT WASHERS, ONE LOCK WASHER, AND ONE HEX NUT. PERIMETER OF ANCHOR BASE SHALL BE GROUTED WITH A ¼" WEEP HOLE. ALL CONCRETE SHALL BE CLASS "S" OR GREATER.

10. CONCRETE - ALL CONCRETE FOR CONTROLLER CABINET AND POLE FOUNDATIONS SHALL BE CLASS "S" OR GREATER.

11. PEDESTRIAN PHASES - PEDESTRIAN MOVEMENTS SHALL BE PUSH BUTTON ACTUATED AND CONCURRENTLY TIMED, UNLESS OTHERWISE INDICATED ON THE PLAN SHEET(S). FURNISHING AND INSTALLING PEDESTRIAN PUSH SWITCH SHALL BE CONSIDERED SUBSIDIARY TO THE ITEM 707 PEDESTRIAN SIGNAL HEAD.



NO LUMINAIRE



WITH LUMINAIRE

SERVICE DISCONNECT
NOTE: ELECTRICAL GROUND CONDUCTOR IS BONDED TO ALL METAL ENCLOSURES

* WHEN THE GROUND ELEVATION AT THE POLE IS LOWER THAN THE ROADWAY ELEVATION, THE LENGTH OF FOUNDATION ABOVE THE GROUND MAY BE INCREASED TO PROVIDE THE REQUIRED SIGNAL HEAD CLEARANCE ABOVE THE ROADWAY. WHEN THE REQUIRED LENGTH OF FOUNDATION ABOVE THE GROUND IS 18" OR LESS, NO INCREASE IN DEPTH "L" WILL BE REQUIRED. WHEN THE REQUIRED LENGTH OF FOUNDATION ABOVE THE GROUND IS 5'-6" OR LESS, INCREASE DEPTH "L" BY 1'-0". FOR LENGTHS GREATER THAN 5'-6", DEPTH "L" SHALL BE ADJUSTED AS DIRECTED BY THE ENGINEER. LONGITUDINAL REINFORCING, AS SHOWN IN THE TABLE, SHALL BE PROVIDED FOR THE LENGTH OF THE EXTENDED SHAFT AND #4 TIES SHALL BE PROVIDED AT A SPACING NOT TO EXCEED 9" ON CENTERS. PAYMENT WILL BE IN ACCORDANCE WITH SECTION 714 TRAFFIC SIGNAL MAST ARM AND POLE WITH FOUNDATION OF THE STANDARD SPECIFICATIONS.

** IN LIEU OF DESIGNING THE STRUCTURE TO RESIST PERIODIC GALLOPING, A VIBRATORY MITIGATION DEVICE MAY BE PROVIDED BY THE POLE MANUFACTURER. THE VIBRATORY MITIGATION DEVICE SHALL BE AN ANTI-GALLOPING PANEL CONSISTING OF A 60" X 16" X 0.125" SIGN BLANK MOUNTED NEAR THE END OF THE MAST ARM NOT TO EXCEED ONE QUARTER OF THE LENGTH OF THE MAST ARM FROM THE END OF THE MAST ARM WITH THE LONG AXIS OF THE PANEL COLLINEAR WITH THE LONG AXIS OF THE MAST ARM. THE PANEL SHOULD BE MOUNTED AT SUCH THE HEIGHT AS TO PROVIDE AT LEAST 6" CLEAR FROM THE TOP OF ANY SIGNAL ASSEMBLY OF SIGN PANEL LOCATED ON THE MAST ARM WITHIN THE LENGTH OF THE ANTI-GALLOPING PANEL.

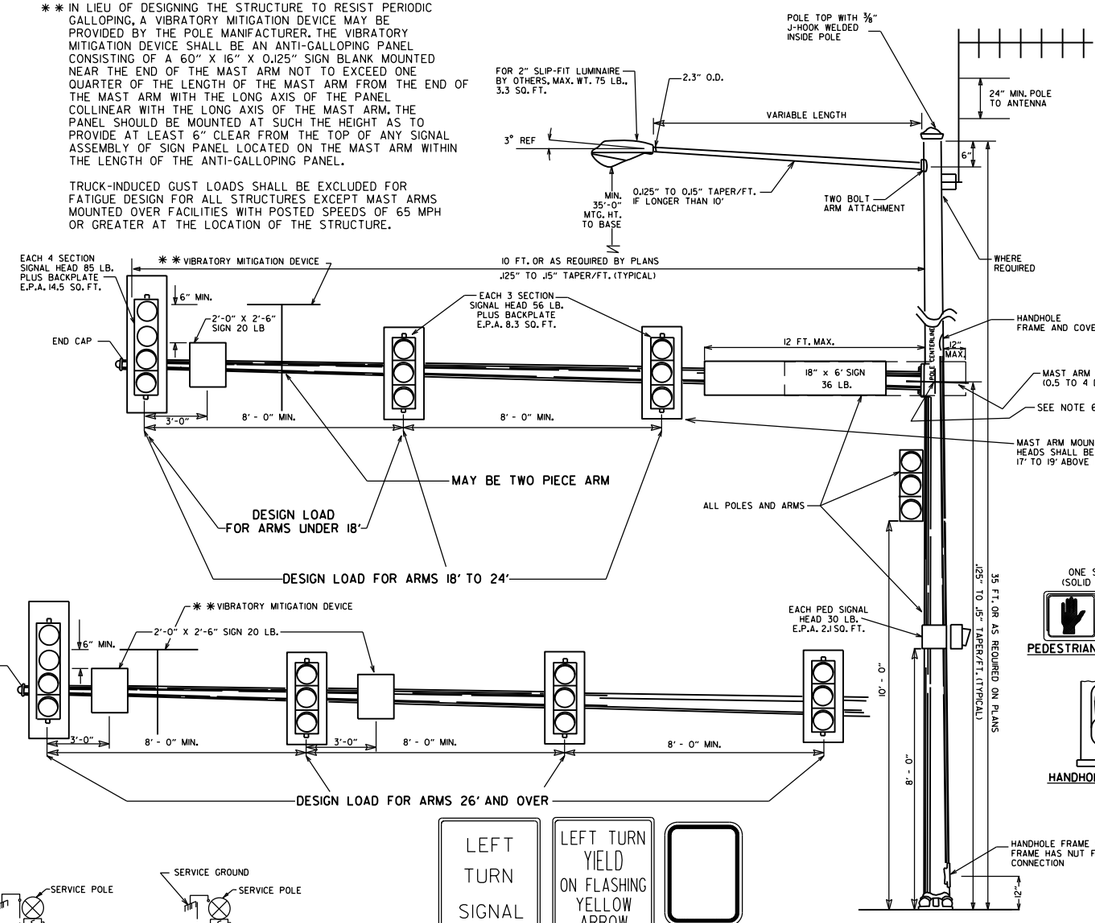
TRUCK-INDUCED GUST LOADS SHALL BE EXCLUDED FOR FATIGUE DESIGN FOR ALL STRUCTURES EXCEPT MAST ARMS MOUNTED OVER FACILITIES WITH POSTED SPEEDS OF 65 MPH OR GREATER AT THE LOCATION OF THE STRUCTURE.

SIGNAL OPERATION NOTES:

FLASHING OPERATION - PRIOR TO NORMAL OPERATION, SIGNAL SHALL BE FLASHED FOR A PERIOD OF 3 TO 5 WORK DAYS OR AS DIRECTED BY THE ENGINEER. SIGNAL SHALL BE PLACED IN OPERATION ONLY ON A REGULAR WORK DAY, EXCEPT FRIDAY.

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

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



R10-10 SPECIAL R10-3e (SEE MUTCD)

DATE	REVISION	FILMED
11-16-17	REVISED NOTES, ADDED PEDESTRIAN SIGNAL HEAD DETAIL, ADDED HANDHOLE TERMINAL DETAIL, ADDED TRENCHING DETAIL	
02-27-14	REVISED NOTES.	
09-12-13	ISSUED AS STANDARD DRAWING	
12-08-16	REVISED NOTES	
02-27-14	REVISED NOTES	
09-12-13	ISSUED AS STANDARD DRAWING	
07-21-11	REVISED VMD, SIGNAL HEADS	
05-21-09	REVISED GROUNDING	
07-31-08	REVISED GROUNDING	
04-25-08	ADDED VIBRATORY MITIGATION DEVICE & NOTES	
04-18-08	REVISED AASHTO NOTES	
04-17-08	REVISED TO 2001 AASHTO STANDARDS	
10-12-04	REVISED CABINET ORIENTATION	
06-23-04	REVISED	
05-11-04	REV. NOTE 3/AASHTO REQUIREMENTS	
06-11-01	REV. NOTES & POLE MAST ARM SLOPE	
04-11-01	REVISED POLE TAPERS	
04-25-00	REV. NOTES & SIGNAL HEAD PLACEMENT	
11-22-99	REVISED FOUNDATION DETAILS	
11-17-98	REVISED DETAILS AND NOTES	
11-21-95	ISSUED	

ARKANSAS STATE HIGHWAY COMMISSION

STEEL POLE WITH MAST ARM

STANDARD DRAWING SD-11

SUPERELEVATION TABLE FOR TWO - WAY TRAFFIC

DEGREE OF CURVE	30 MPH			35 MPH			40 MPH			45 MPH			50 MPH			55 MPH			60 MPH			65 MPH			70 MPH			75 MPH		
	e	Ls (FT)		e	Ls (FT)		e	Ls (FT)		e	Ls (FT)		e	Ls (FT)		e	Ls (FT)		e	Ls (FT)		e	Ls (FT)		e	Ls (FT)		e	Ls (FT)	
		MINIMUM	DESIRABLE		MINIMUM	DESIRABLE		MINIMUM	DESIRABLE		MINIMUM	DESIRABLE		MINIMUM	DESIRABLE		MINIMUM	DESIRABLE		MINIMUM	DESIRABLE		MINIMUM	DESIRABLE		MINIMUM	DESIRABLE		MINIMUM	DESIRABLE
0° 15'	NC			NC			NC			NC			NC			NC			NC			NC			NC			NC		
0° 30'	NC			NC			NC			NC			NC			NC			RC	96		RC	96		RC	96		0.022	101	
0° 45'	NC			NC			NC			NC			RC	96		RC	96		0.024	106		0.026	110		0.030	120		0.032	125	
1° 00'	NC			NC			NC			RC	90		0.022	101		0.026	110		0.030	120		0.034	130		0.038	139	300	0.042	149	300
1° 15'	NC			NC			RC	84		0.022	95		0.028	115		0.032	125		0.038	139		0.042	149		0.046	158		0.052	173	
1° 30'	NC			RC	78		0.022	88		0.028	108		0.032	125		0.038	139		0.044	154		0.050	168	300	0.056	182		0.062	197	
1° 45'	RC	72		RC	78		0.026	97		0.030	113		0.036	134		0.044	154		0.050	168	300	0.056	182		0.064	202		0.070	216	
2° 00'	RC	72		0.024	86		0.028	101		0.034	122		0.042	149		0.048	163		0.056	182		0.064	202		0.070	216		0.080	240	
2° 15'	RC	72		0.026	90		0.032	109		0.038	131		0.046	158		0.054	178	300	0.062	197		0.070	216		0.078	235	350	0.088	259	350
2° 30'	0.022	75		0.028	94		0.034	113		0.042	140		0.050	168		0.058	187		0.068	211		0.076	230		0.086	254		0.096	278	
2° 45'	0.024	79		0.030	98		0.038	122		0.046	149	200	0.054	178		0.064	202		0.072	221		0.082	245		0.092	269		0.100	288	400
3° 00'	0.026	83		0.034	105		0.040	126		0.050	158		0.058	187	250	0.068	211		0.078	235		0.088	259		0.098	283	400	D MAX = 2° 45'		
3° 15'	0.028	86		0.036	109		0.044	134		0.052	162		0.062	197		0.072	221		0.082	245		0.092	269		0.100	288				
3° 30'	0.030	90		0.038	113		0.046	139	200	0.056	171		0.066	206		0.076	230		0.086	254		0.096	278	350	D MAX = 3° 30'					
3° 45'	0.032	93		0.040	117		0.050	147		0.058	176		0.070	216		0.080	240		0.090	264		0.098	283							
4° 00'	0.034	97		0.042	121	200	0.052	151		0.062	185		0.072	221		0.084	250		0.094	274	350	0.100	288							
4° 15'	0.036	100		0.044	125		0.054	155		0.064	189		0.076	230		0.086	254	350	0.096	278		D MAX = 4° 15'								
4° 30'	0.036	100		0.046	129		0.056	160		0.068	198		0.078	235		0.090	264		0.098	283										
4° 45'	0.038	104	200	0.048	133		0.060	168		0.070	203		0.082	245		0.092	269		0.100	288										
5° 00'	0.040	108		0.050	137		0.062	172		0.072	207		0.084	250		0.094	274		D MAX = 5° 15'										
5° 30'	0.044	115		0.054	144		0.066	181		0.078	221	250	0.088	259		0.098	283												
6° 00'	0.046	119		0.058	152		0.070	189		0.082	230		0.092	269		0.100	288												
6° 30'	0.050	126		0.062	160		0.074	198		0.086	239		0.096	278	300	D MAX = 6° 30'													
7° 00'	0.052	130		0.064	164		0.078	206		0.090	248		0.098	283															
7° 30'	0.054	133		0.068	172		0.080	210		0.092	252		0.100	288															
8° 00'	0.058	140		0.070	176		0.084	219		0.094	257	300	D MAX = 8° 25'																
8° 30'	0.060	144		0.072	179		0.086	223	250	0.096	261																		
9° 00'	0.062	148		0.076	187		0.088	227		0.098	266																		
9° 30'	0.064	151		0.078	191		0.092	235		0.100	270																		
10° 00'	0.066	155		0.080	195		0.094	240		D MAX = 10° 30'																			
11° 00'	0.070	162		0.084	203		0.096	244																					
12° 00'	0.074	169		0.088	211	250	0.098	248																					
13° 00'	0.076	173		0.090	215		0.100	252	300	D MAX = 13° 45'																			
14° 00'	0.080	180		0.094	222																								
15° 00'	0.082	184		0.096	226																								
16° 00'	0.086	191		0.098	230																								
17° 00'	0.088	194		0.100	234																								
18° 00'	0.090	198	250	D MAX = 19° 30'																									
19° 00'	0.092	202																											
20° 00'	0.094	205																											
21° 00'	0.096	209																											
22° 00'	0.096	209																											
23° 00'	0.098	212																											
24° 00'	0.098	212																											
25° 00'	0.100	216																											
D MAX = 28° 30'																													

ABBREVIATIONS

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

GENERAL NOTES

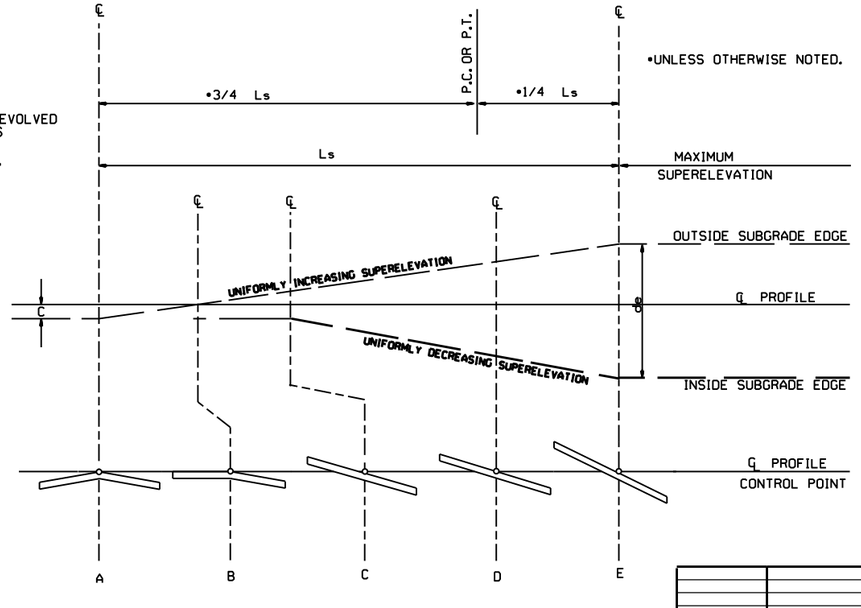
1. ON PAVEMENT WITH TWO-WAY TRAFFIC, THE SUPERELEVATION SHALL BE REVOLVED ON THE INSIDE PAVEMENT EDGE UNLESS OTHERWISE NOTED ON THE PLANS
2. SUPERELEVATION VALUES SHOWN ON THE CROSS SECTIONS ARE VALUES (+) OR (-) TO BE ADDED TO OR SUBTRACTED FROM THE POINT OF CONTROL.
3. LENGTHS FOR L MAY BE ROUNDED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

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

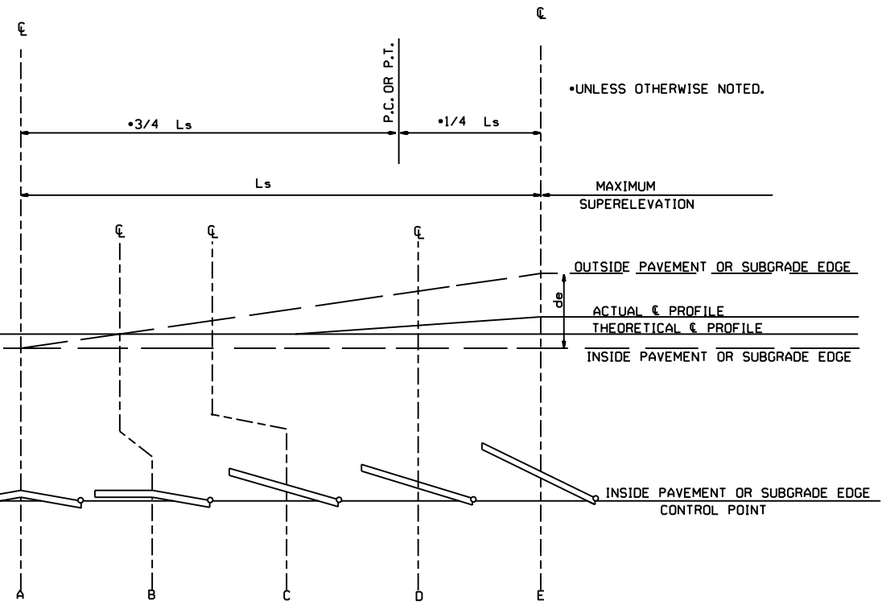
NOTE: MAINTAIN NORMAL CROWN ON INSIDE UNTIL SUPERELEVATION EXCEEDS 2C.

RATE OF SUPERELEVATION SHALL BE COMPUTED ON STRAIGHT LINE METHOD USING APPLICABLE Ls.

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



STANDARD METHOD WHEN SUPERELEVATION REVOLVES AROUND CENTER LINE



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

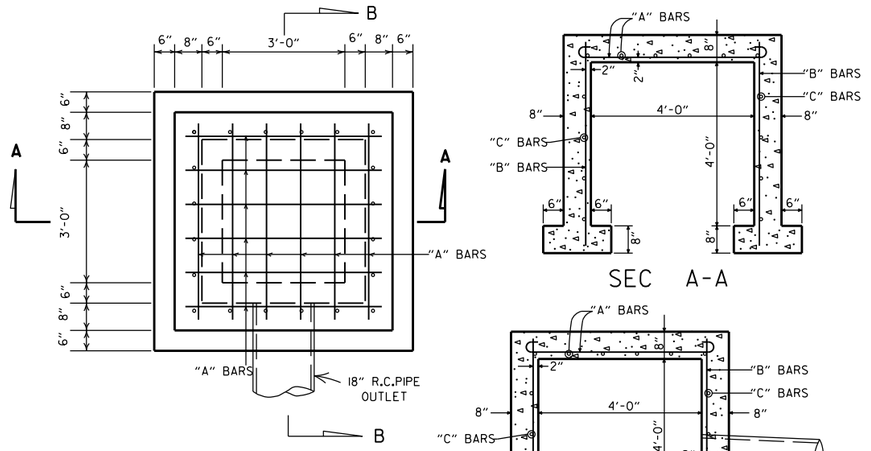
NOTE: MAINTAIN NORMAL CROWN ON INSIDE UNTIL SUPERELEVATION EXCEEDS 2C.

DATE	REVISION	DATE FILLMED
11-07-19	REVISED SUPERELEVATION TABLE	
10-18-96	ADDED FORMULA	
01-09-87	ISSUED	534-1-9-87

ARKANSAS STATE HIGHWAY COMMISSION

TABLES AND METHOD OF SUPERELEVATION FOR TWO-WAY TRAFFIC

STANDARD DRAWING SE-2



SEC A-A

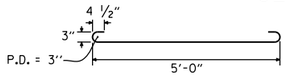
SEC B-B

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

STEEL SCHEDULE

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

ALL STEEL TO BE #4 BARS



"A" BARS

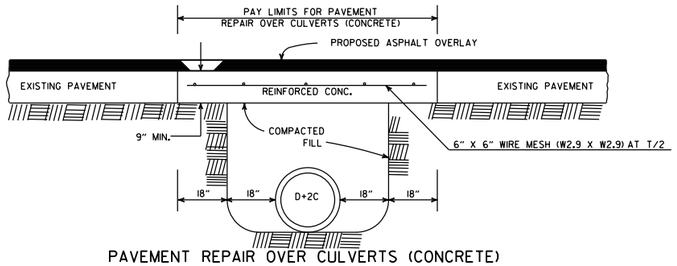
QUANTITIES

CONCRETE 3.31 CU. YDS.
REINFORCING STEEL 168 LB.

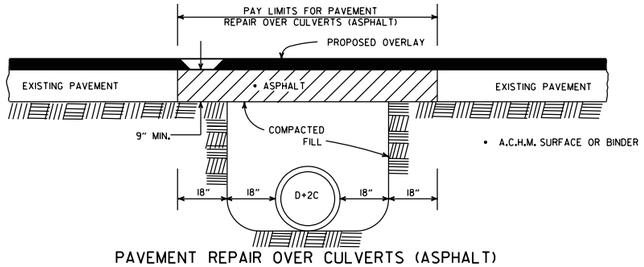
GENERAL NOTE:

THE PAY ITEMS FOR REINFORCED CONCRETE SPRING BOXES SHALL BE FOR THE QUANTITIES OF CONCRETE OF THE CLASS SPECIFIED, REINFORCING STEEL, EXCAVATION FOR STRUCTURES AND 18" R.C. PIPE CULVERT.

REINFORCED CONCRETE SPRING BOX



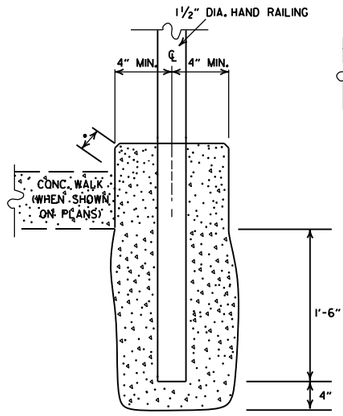
PAVEMENT REPAIR OVER CULVERTS (CONCRETE)



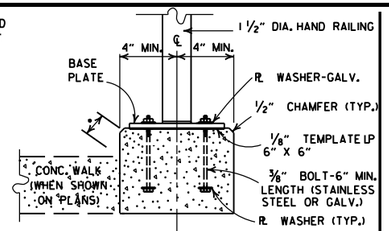
PAVEMENT REPAIR OVER CULVERTS (ASPHALT)

DETAIL SHOWING REPAIR OF EXISTING PAVEMENT AT CULVERT INSTALLATIONS

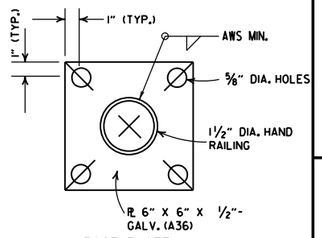
• A 2" MIN. HIGH CURB IS REQUIRED WHEN CONCRETE WALK IS ADJACENT TO THE HAND RAILING. PAYMENT FOR CURB SHALL BE CONSIDERED INCLUDED IN THE PRICE BID FOR CONCRETE WALKS.



DETAIL OF HAND RAILING SET IN CONCRETE

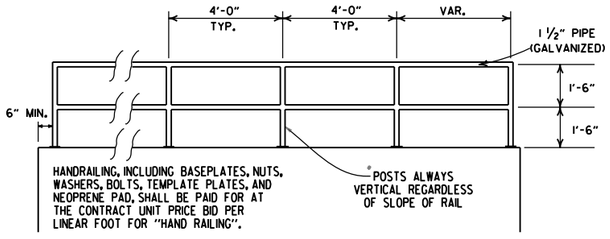


POST CONNECTION TO WALL

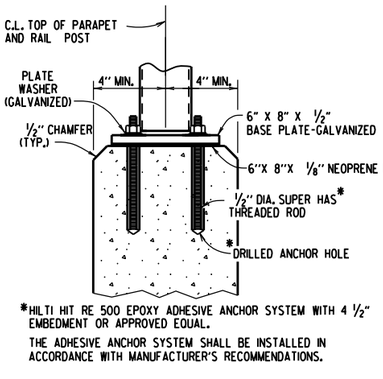


BASE PLATE

POST CONNECTION DETAILS



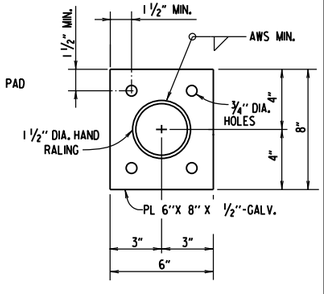
HAND RAILING SHALL CONFORM TO SECTION 633.



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

THE ADHESIVE ANCHOR SYSTEM SHALL BE INSTALLED IN ACCORDANCE WITH MANUFACTURER'S RECOMMENDATIONS.

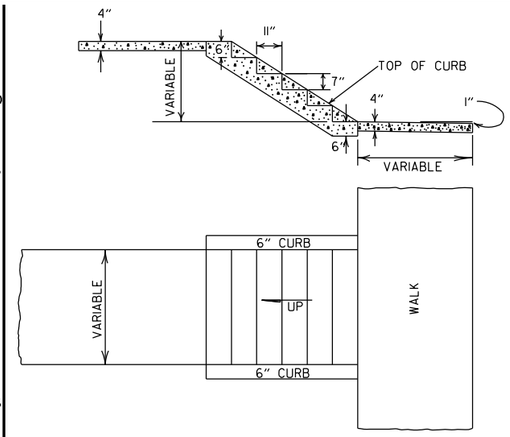
POST CONNECTION TO WALL



BASE PLATE

DETAILS OF ALTERNATE POST ANCHOR SYSTEM (EPOXY ADHESIVE ANCHORS)

HAND RAILING DETAILS



GENERAL NOTES

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

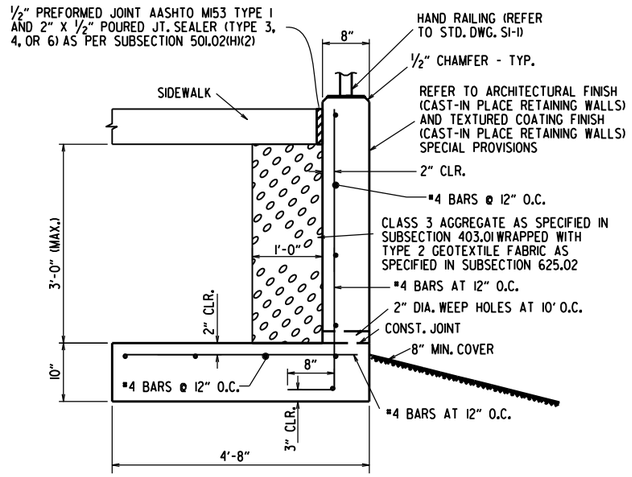
DETAILS OF CONCRETE STEPS & WALKS

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

ARKANSAS STATE HIGHWAY COMMISSION

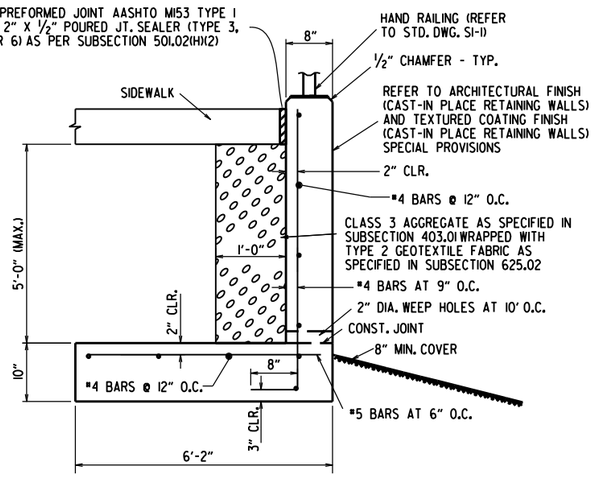
DETAILS OF SPECIAL ITEMS

STANDARD DRAWING SI - 1



CONCRETE WALK (TYPE SPECIAL) DETAIL MAX HEIGHT 3'-0"

N.T.S.



CONCRETE WALK (TYPE SPECIAL) DETAIL MAX HEIGHT 5'-0"

N.T.S.

GENERAL NOTES

CONSTRUCTION SPECIFICATIONS: 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.

DESIGN SPECIFICATIONS: AASHTO LRFD BRIDGE DESIGN SPECIFICATIONS, SIXTH EDITION (2012).

LIVE LOAD: LIVE LOAD SURCHARGE IS NOT INCLUDED IN THE DESIGN OF THESE WALLS. VEHICULAR LIVE LOAD SHALL NOT BE ALLOWED WITHIN A DISTANCE EQUAL TO ONE-HALF THE HEIGHT OF THE WALL.

CONCRETE: CONCRETE SHALL BE POURED IN THE DRY AND ALL EXPOSED CORNERS TO BE CHAMFERED ½". ALL CONCRETE SHALL BE CLASS S WITH A MINIMUM 28 DAY COMPRESSIVE STRENGTH F'C = 3,500 PSI. A CLASS 2 SURFACE FINISH SHALL BE USED ON ALL SURFACES OF THE CONCRETE UNLESS OTHERWISE NOTED. REFER TO ARCHITECTURAL FINISH (CAST-IN PLACE RETAINING WALLS) AND TEXTURED COATING FINISH (CAST-IN PLACE RETAINING WALLS) SPECIAL PROVISIONS.

REINFORCING STEEL: ALL REINFORCING STEEL SHALL CONFORM TO AASHTO M31 OR M53, GRADE 60.

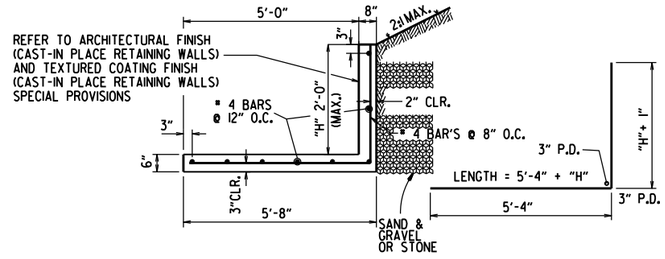
FOUNDATIONS FOR FOOTINGS SHALL BE PREPARED IN ACCORDANCE WITH SUBSECTION 801.04. BACKFILL FOR RETAINING WALLS SHALL BE IN ACCORDANCE WITH SUBSECTION 801.08.

WATERPROOF MEMBRANE (TYPE C), WATERSTOPS, PREFORMED JOINTS, WEEP HOLES & GEOTEXTILE FABRIC SHALL NOT BE PAID FOR DIRECTLY, BUT SHALL BE CONSIDERED SUBSIDIARY TO CLASS S CONCRETE.

JOINTS IN THE WALL SHALL MATCH TYPE AND SPACING OF THE JOINTS IN THE WALK.

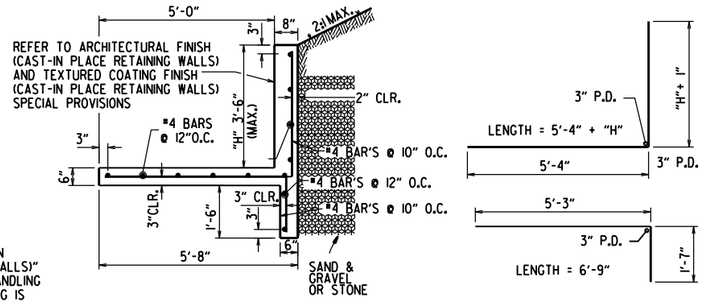
DRAINAGE FILL MATERIAL (CLASS 3) AND SELECT BACKFILL SHALL BE MEASURED AND PAID FOR AS COMPACTED EMBANKMENT.

THESE DETAILS ARE NOT INTENDED FOR USE ALONG STREAMS OR DITCHES WITHOUT CONSIDERATION FOR SCOUR.



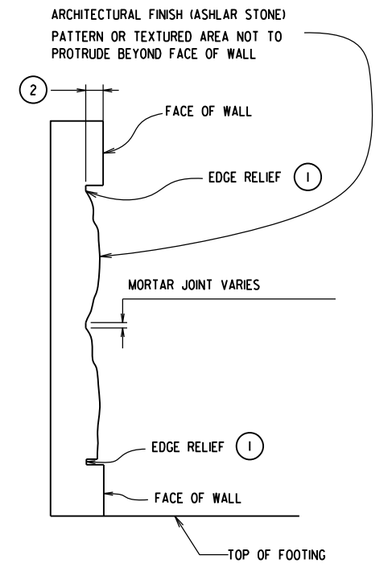
CONCRETE WALK (TYPE SPECIAL) DETAILS MAX HEIGHT 2'-0"

N.T.S.



CONCRETE WALK (TYPE SPECIAL) DETAILS MAX HEIGHT 3'-6"

N.T.S.

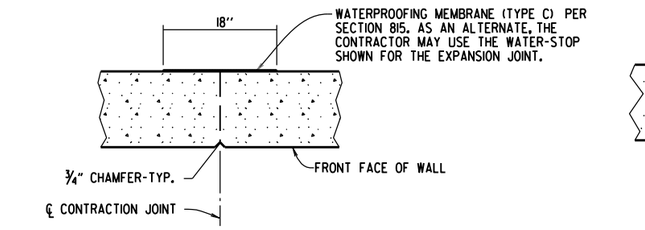


ARCHITECTURAL FINISH DETAILS

N.T.S.

(1) PROVIDE EDGE RELIEF AROUND PERIMETER OF TEXTURE. EDGE RELIEF DIMENSIONS SHALL MATCH MANUFACTURERS EDGE DISTANCE.

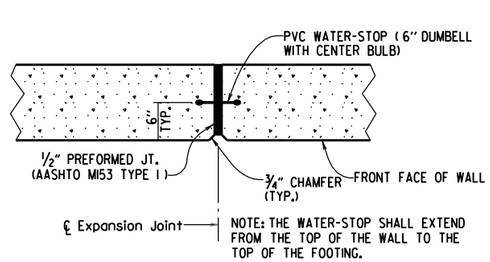
(2) DEPTH OF ASHLAR STONE PATTERN APPROX. 1⅝". SEE SP "ARCHITECTURAL FINISH (CAST-IN PLACE RETAINING WALLS)".



TYPICAL CONTRACTION JOINT DETAIL

N.T.S.

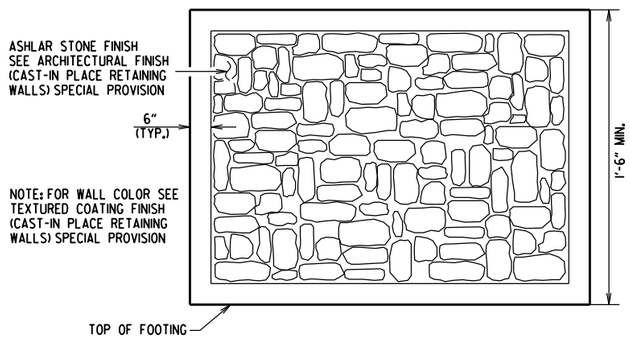
NOTE: 20'-0" MAX. SPACING BETWEEN CONTRACTION JOINTS. HORIZONTAL REINFORCEMENT SHALL BE CONTINUOUS THROUGH CONTRACTION JOINTS.



TYPICAL EXPANSION JOINT DETAIL

N.T.S.

NOTE: 60'-0" MAX. SPACING BETWEEN EXPANSION JOINTS. HORIZONTAL REINFORCING SHALL STOP 2" FROM ℄ EXPANSION JOINT.



ASHLAR STONE FINISH DETAIL

NOTES:

WALL PATTERN SHALL BE APPLIED TO THE EXPOSED SURFACES OF WALL IN ACCORDANCE WITH SP "ARCHITECTURAL FINISH (CAST-IN PLACE RETAINING WALLS)" AND AS SHOWN IN THE PLANS. CARE SHALL BE TAKEN WITH FORM LINER HANDLING AND INSTALLATION TO ENSURE AESTHETIC QUALITY OF THE WALL TEXTURING IS MAINTAINED. WHERE FORM LINER PANELS REQUIRE MODIFICATION TO CONFORM TO THE LOCATION, DIMENSIONS AND LINES SHOWN IN THE PLANS, THE CONTRACTOR SHALL PROVIDE EDGE RELIEF MATCHING THAT OF THE UNALTERED FORM LINER. PAYMENT FOR WALL TEXTURING SHALL BE IN ACCORDANCE WITH SP "ARCHITECTURAL FINISH (CAST-IN PLACE RETAINING WALLS)".

NO ADJUSTMENTS WILL BE MADE IN CONCRETE VOLUME DUE TO THE USE OF "ARCHITECTURAL FINISH". CLASS "S" CONCRETE SHALL BE MEASURED IN ACCORDANCE WITH SUBSECTION 802.24(A). CARE SHALL BE TAKEN IN PLACING CONCRETE TO AVOID SEGREGATION AND TO ELIMINATE FLOW LINES.

CLASS 3 TEXTURED COATING FINISH SHALL BE APPLIED TO WALL SURFACES AS SPECIFIED IN SP "TEXTURED COATING FINISH (CAST-IN PLACE RETAINING WALLS)" AND IN ACCORDANCE WITH SUBSECTION 802.19(B)(3).

DATE	REVISION	DATE FILMED
5-14-20	DRAWING ISSUED	

ARKANSAS STATE HIGHWAY COMMISSION

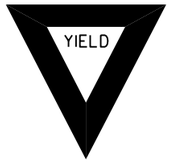
CONCRETE WALK (TYPE SPECIAL)

STANDARD DRAWING SI - 3

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"

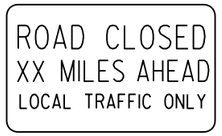
R5-1

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"

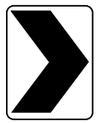
W1-4

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"

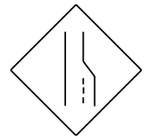
W3-1

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.

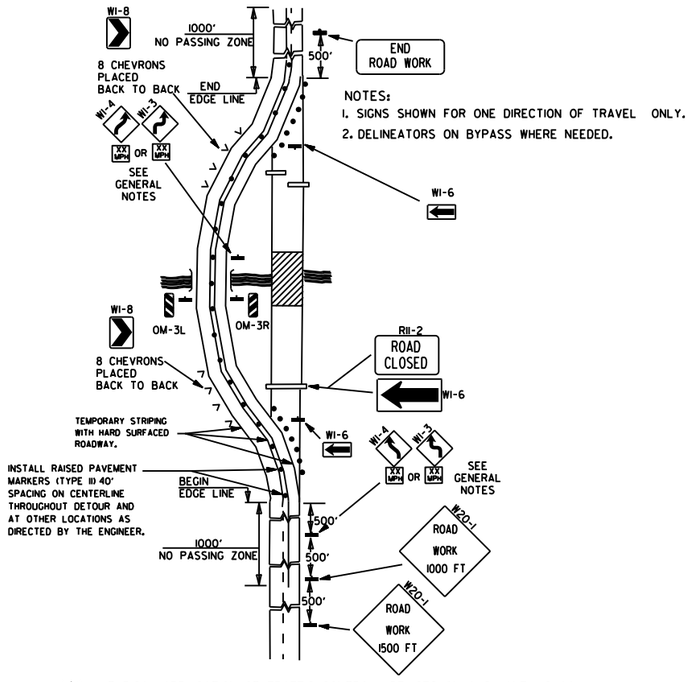
- NOTE: SUPPORTS FOR SIGNS, BARRICADES, AND VERTICAL PANELS THAT ARE DIFFERENT FROM THE REQUIREMENTS SHOWN IN NOTES 4 & 5, BUT MEET THE REQUIREMENTS OF MANUAL FOR ASSESSING SAFETY HARDWARE (MASH), WILL BE ACCEPTED. COMPLIANCE WITH THE REQUIREMENTS OF MANUAL FOR ASSESSING SAFETY HARDWARE (MASH) IS REQUIRED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

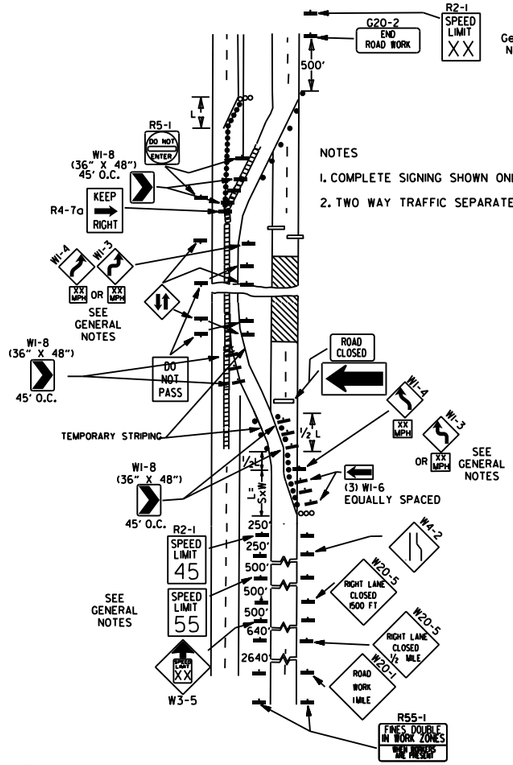
STANDARD TRAFFIC CONTROLS FOR HIGHWAY CONSTRUCTION

STANDARD DRAWING TC-1



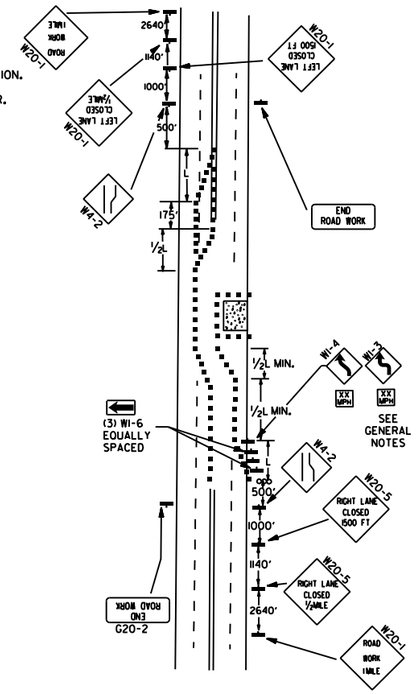
NOTES:
1. SIGNS SHOWN FOR ONE DIRECTION OF TRAVEL ONLY.
2. DELINEATORS ON BYPASS WHERE NEEDED.

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

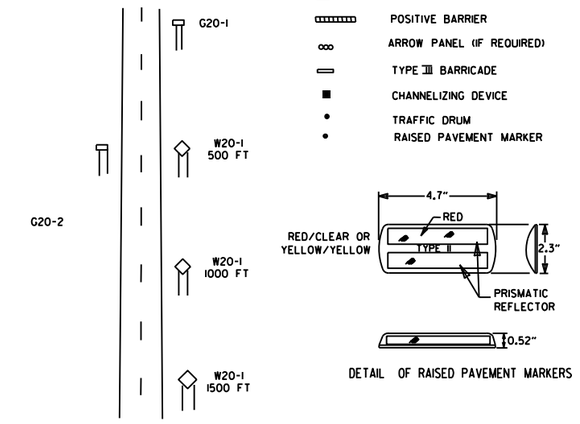


NOTES
1. COMPLETE SIGNING SHOWN ONLY IN CROSSOVER DIRECTION.
2. TWO WAY TRAFFIC SEPARATED WITH POSITIVE BARRIER.

(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.



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:

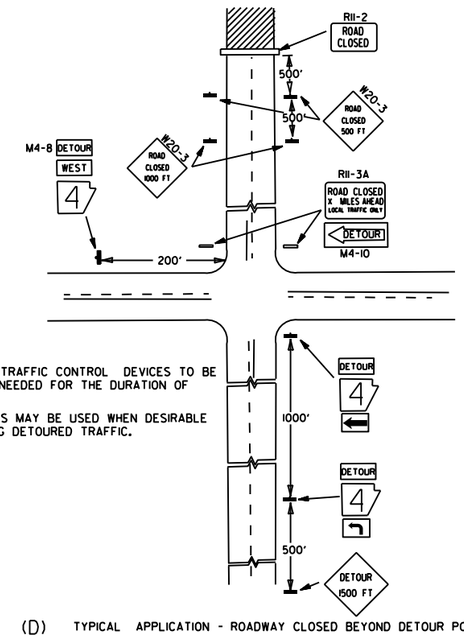
L= MINIMUM LENGTH OF TAPER.

S= NUMERICAL VALUE OF POSTED SPEED LIMIT PRIOR TO WORK OR 85TH PERCENTILE SPEED.

W= WIDTH OF OFFSET.

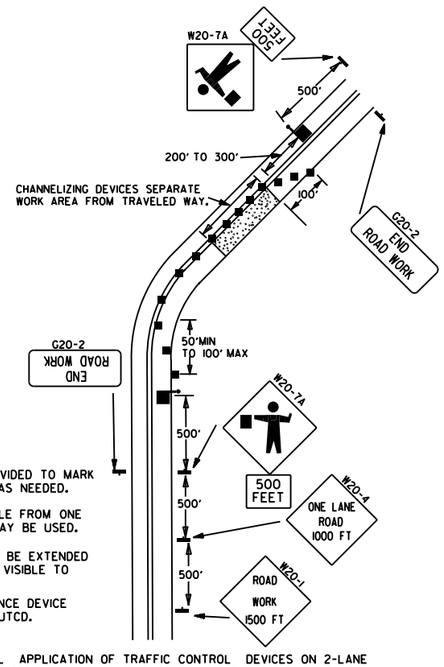
GENERAL NOTES:

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 W1-3 OR W1-4 CURVE WARNING SIGNS. USE W1-4 WHEN SPEED IS GREATER THAN 30MPH AND W1-3 WHEN 30MPH OR LESS
2. WHEN THE EXISTING SPEED LIMIT IS 55MPH AND THE PLANS REQUIRE A SPEED LIMIT OF 45MPH, THE R2-1(55) SHALL BE OMITTED AND THE 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.
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).



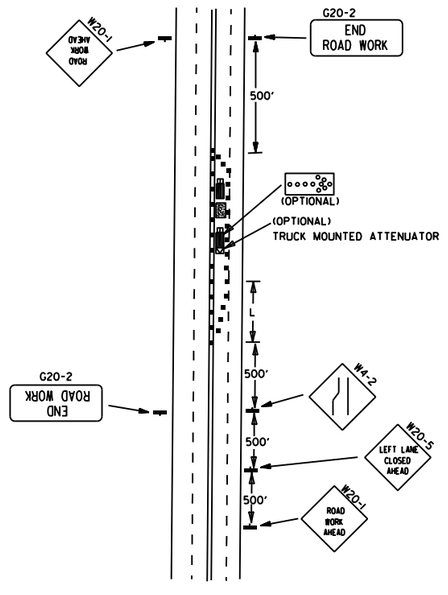
NOTES:
1. REGULATORY TRAFFIC CONTROL DEVICES TO BE MODIFIED AS NEEDED FOR THE DURATION OF THE DETOUR.
2. STREET NAMES MAY BE USED WHEN DESIRABLE FOR DIRECTING DETOURED TRAFFIC.

(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.



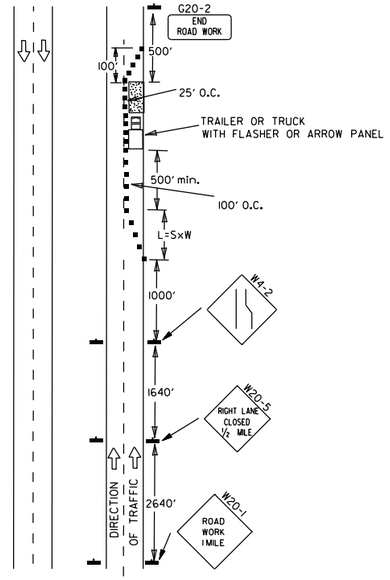
(F) TYPICAL APPLICATION - 4-LANE UNDIVIDED ROADWAY WITH INSIDE LANE CLOSED.

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	
DATE	REVISION	FILMED

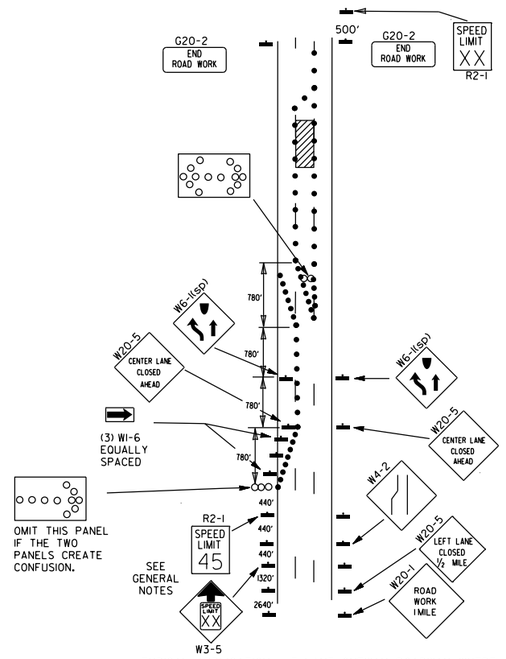
ARKANSAS STATE HIGHWAY COMMISSION

STANDARD TRAFFIC CONTROLS FOR HIGHWAY CONSTRUCTION

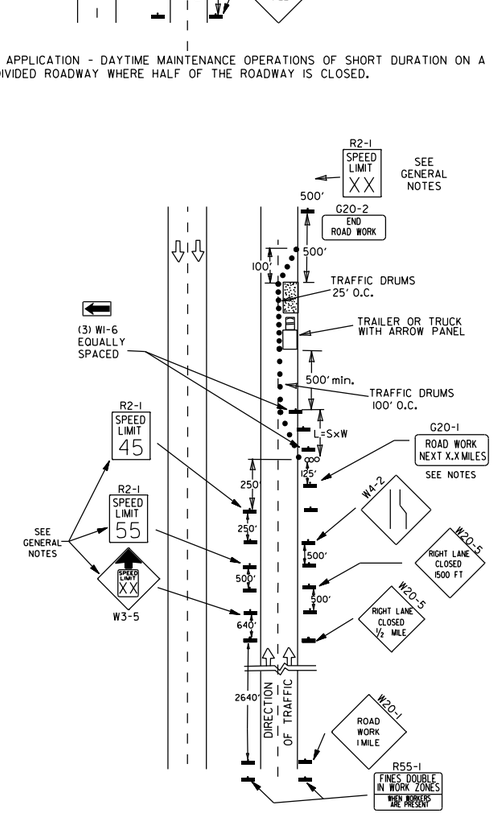
STANDARD DRAWING TC-2



(A) TYPICAL APPLICATION - DAYTIME MAINTENANCE OPERATIONS OF SHORT DURATION ON A 4-LANE DIVIDED ROADWAY WHERE HALF OF THE ROADWAY IS CLOSED.



(B) TYPICAL APPLICATION - 3-LANE ONEWAY ROADWAY WHERE CENTER LANE IS CLOSED.



(C) TYPICAL APPLICATION - CONSTRUCTION OPERATIONS OF INTERMEDIATE TO LONG TERM DURATION ON A 4-LANE DIVIDED ROADWAY WHERE HALF OF THE ROADWAY IS CLOSED.

KEY:

ooo ARROW PANEL (IF REQUIRED)

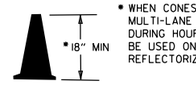
■ CHANNELIZING DEVICE

● TRAFFIC DRUM

GENERAL NOTES:

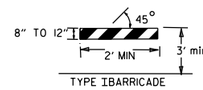
1. A SPEED LIMIT REDUCTION MAY BE IMPLEMENTED ONLY WHEN DESIGNATED IN THE PLAN OR WHEN RECOMMENDED BY THE ROADWAY DESIGN DIVISION.
2. WHEN THE EXISTING SPEED LIMIT IS 55MPH AND THE PLANS REQUIRE A SPEED LIMIT OF 45MPH, THE R2-1(55) SHALL BE OMITTED AND THE W3-5 SHALL BE INSTALLED AT THAT LOCATION. ADDITIONAL 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. 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.
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).

CHANNELIZING DEVICES

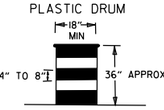


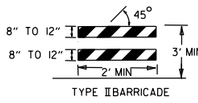
* WHEN CONES ARE USED ON FREEWAYS AND MULTI-LANE HIGHWAYS, THEY SHALL BE 28" MIN. DURING HOURS OF DARKNESS, 28" CONES SHALL BE USED ON ALL ROADWAYS, AND SHALL BE REFLECTORIZED IN ACCORDANCE WITH THE M.U.T.C.D.

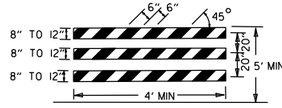
CONES



PLASTIC DRUM

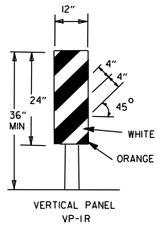




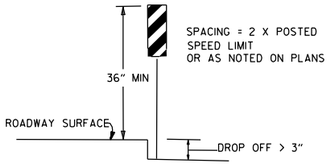


TYPE III BARRICADE

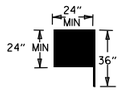
NOTE:
FOR ALL ROAD CLOSURES, THE TYPE III BARRICADES SHALL BE OF SUFFICIENT LENGTH TO EXTEND ACROSS ENTIRE ROADWAY.



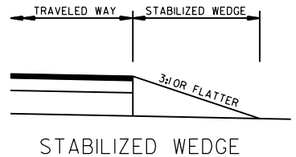
VERTICAL PANEL PLACEMENT



FLAG

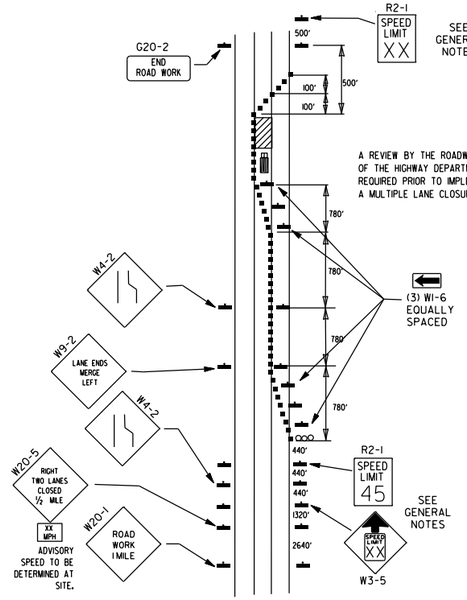


FLAG SHALL BE OF GOOD GRADE RED MATERIAL



STABILIZED WEDGE

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



(D) TYPICAL APPLICATION - CLOSING MULTIPLE LANES OF A MULTILANE HIGHWAY.

TRAFFIC CONTROL DEVICES

NON-INTERSTATE

VERTICAL DIFFERENTIAL	LOCATION	TRAFFIC CONTROL ≤ 45 MPH	TRAFFIC CONTROL > 45 MPH
≤ 2"	CENTERLINE	W8-11 AND LANE STRIPING	W8-11 AND LANE STRIPING
> 2"	CENTERLINE	STANDARD LANE CLOSURE	STANDARD LANE CLOSURE
≤ 3"	EDGE OF TRAVELED LANE OR EDGE OF SHOULDER	W8-9, EDGE LINE STRIPING, AND VERTICAL PANELS	W8-9, EDGE LINE STRIPING, AND VERTICAL PANELS
> 3" ≤ 6"	EDGE OF TRAVELED LANE OR EDGE OF SHOULDER	W8-17, EDGE LINE STRIPING, AND VERTICAL PANELS	W8-17, EDGE LINE STRIPING, AND VERTICAL PANELS
> 6" ≤ 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
≤ 2"	CENTERLINE	W8-11 AND LANE STRIPING
≤ 2"	EDGE OF TRAVELED LANE OR EDGE OF SHOULDER	W8-9, EDGE LINE STRIPING, AND TRAFFIC DRUMS(2)
> 2" ≤ 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

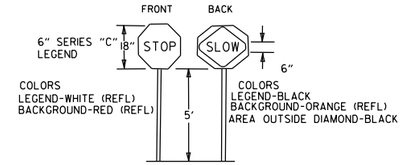
INTERSTATE AND NON-INTERSTATE

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

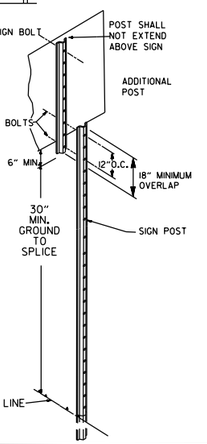
GENERAL NOTES:

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.

STOP SLOW PADDLE



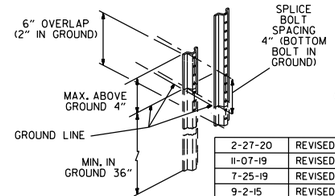
DETAIL OF SPLICES



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.



DATE	REVISION	FILMED
2-27-20	REVISED TRAFFIC CONTROL DEVICES DETAILS	
11-07-19	REVISED NOTE 9, ADDED NOTE 11	
7-25-19	REVISED TRAFFIC CONTROL DEVICES DETAILS	
9-2-15	REVISED NOTE 2 & REPLACED R2-5A WITH W3-5	
10-15-09	ADDED REFERENCE TO MASH	
11-20-08	REVISED SIGN DESIGNATIONS	
11-18-04	ADDED NOTE	
10-1-98	ADDED NOTE	
4-03-97	ADDED (SP) TO W6-1& REVISED TRAFFIC CONTROL DEVICES NOTE	
10-18-96	ADDED R55-1	
10-12-95	MOVED UPPER SPLICE	
6-8-95	REVISED SPLICE DETAIL, TEXT	6-8-95
2-2-95	REVISED PER PART VI, MUTCD, SEPT. 3, 1993	
8-15-91	DRAWN AND PLACED IN USE	

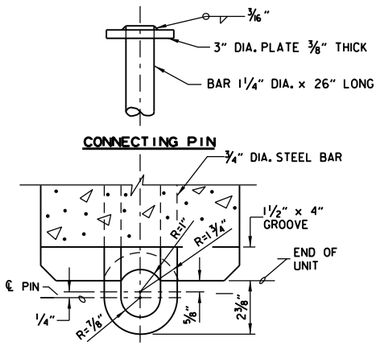
ARKANSAS STATE HIGHWAY COMMISSION

STANDARD TRAFFIC CONTROLS FOR HIGHWAY CONSTRUCTION

STANDARD DRAWING TC-3

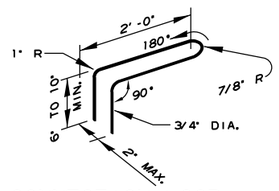
REINFORCING BAR TABLE PER BARRIER UNIT

MARK	LOCATION	BAR SIZE	(NO. BARS)	SKETCH
H-1	HORIZONTAL IN BARRIER TIED INSIDE V-1 BARS	#5	(6)	19'-3"
H-2	CENTERED ABOVE DRAIN SLOTS LONG. & TRANSVERSELY	#5	(6)	6'-6"
H-3	TIED ABOVE H-1 BARS TO SUPPORT H-2, TIED TO V-1	#4	(2)	1'-6"
S-1	OVER LIFT HOLES	#4	(2)	2'-5", LIFTING HOLE, 90°, 3 3/8" R
S-2	HORIZ. AROUND SLOTS BETWEEN V-1'S @ DRAIN SLOTS	#4	(2)	1 1/2" R, SLOTS, 7", 1'-6", 1" MIN. CLEAR TO BAR; 5'-1" BAR W/(4) 1 1/2" R BENDS & MIN. 1'-0" OVERLAP
V-1	VERTICAL IN BARRIER(3) EACH END & (2) AT EACH DRAIN SLOTS	#5	(16)	TOTAL LENGTH 4'-9"; 2 3/16" R; 12°; 1 1/2"; 9"; 2'-1 3/8"; 4 3/8"

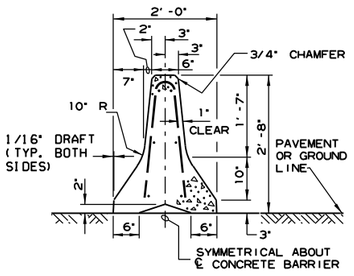


SECTION E-E

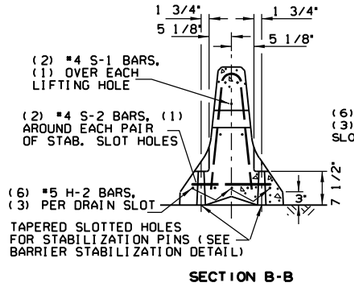
CONNECTION DETAILS



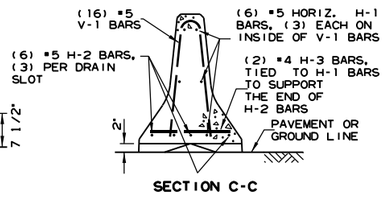
CONNECTION LOOP



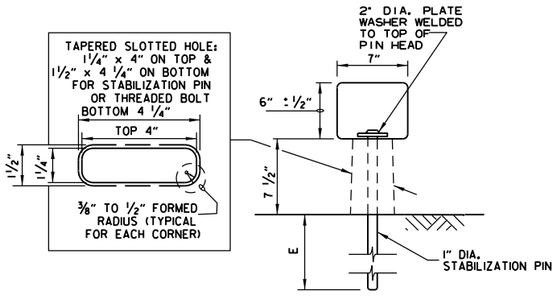
SECTION A-A



SECTION B-B



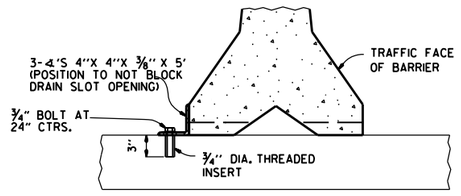
SECTION C-C



BARRIER STABILIZATION DETAIL

ROADWAY SECTION

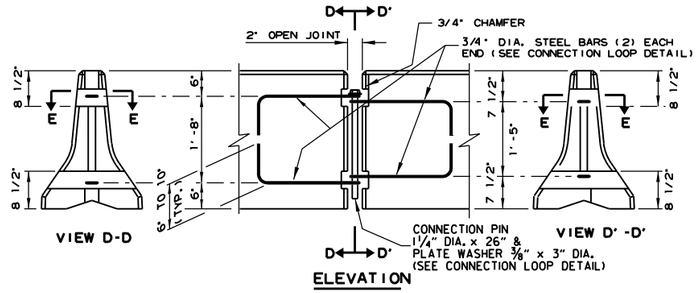
(E) 4" - CONCRETE PAVEMENT
8" - ASPHALT PAVEMENT
12" - SHOULDER AREAS



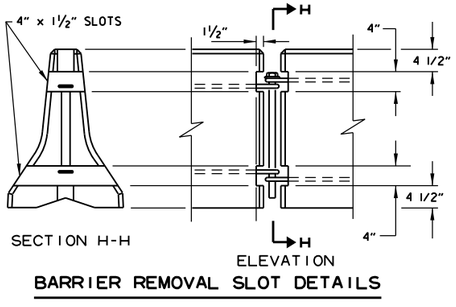
NOTE: " THREADED INSERTS SHALL BE CAST IN PLACE FOR ALL NEW BRIDGE DECKS AND DRILLED AND GROUTED FOR EXISTING BRIDGE DECKS. INSERTS SHALL HAVE A MINIMUM ULTIMATE LOAD CAPACITY OF 8000 LBS. IN TENSION. AFTER REMOVAL OF BARRIER, BOLTS, AND ANGLES, THE INSERTS SHALL BE FILLED WITH APPROVED NON-SHRINK EPOXY.

BARRIER STABILIZATION DETAIL

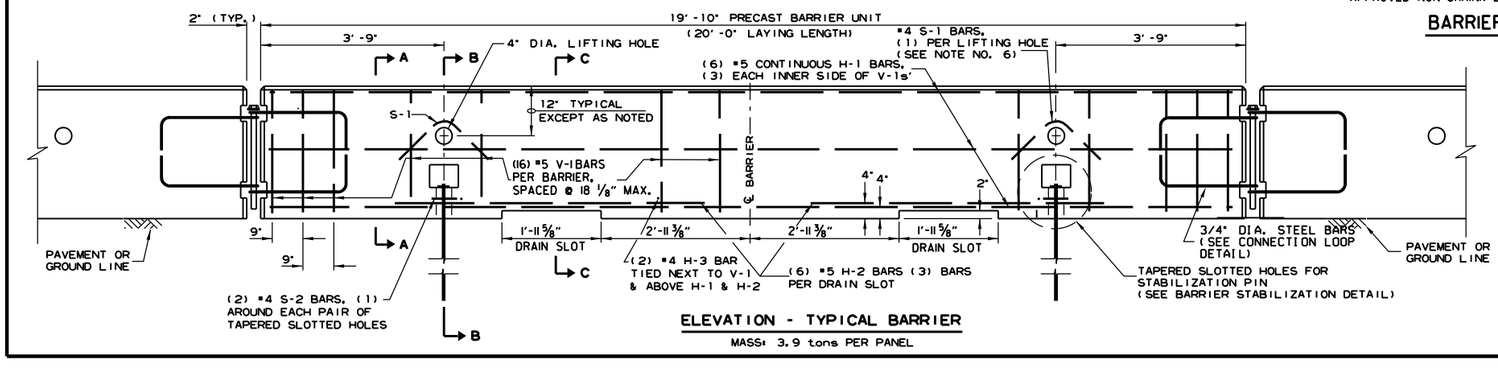
BRIDGE DECKS



ELEVATION



BARRIER REMOVAL SLOT DETAILS



ELEVATION - TYPICAL BARRIER

MASS: 3.9 tons PER PANEL

GENERAL NOTES

(1) THE CONTRACTOR SHALL FURNISH THE PRECAST CONCRETE BARRIER UNITS AND SHALL BE RESPONSIBLE FOR THE MANUFACTURE, SHIPMENT, STORAGE, PLACEMENT AND REMOVAL. AT THE COMPLETION OF THE PROJECT, THE PRECAST UNITS WILL REMAIN THE PROPERTY OF THE CONTRACTOR.

(2) MATERIALS SHALL MEET THE FOLLOWING MINIMUM REQUIREMENTS:
CONCRETE: 2500 PSI COMPRESSIVE STRENGTH AT 28 DAYS.
REINFORCING STEEL: AASHTO M 31 OR M 53, GRADE 60
STRUCTURAL STEEL: AASHTO-M270 GRADE 36 SHALL BE USED FOR THE CONNECTION PIN, CONNECTION LOOPS, AND STABILIZATION PINS. A ONE PIECE PIN WITH A 3" ROUNDED TOP MAY BE USED IN PLACE OF THE DETAILED CONNECTION PIN.
DELINEATORS: DELINEATORS SHALL BE MOUNTED AT 10' SPACING ON TOP OF PRECAST BARRIER.

IN APPLICATIONS WHERE BARRIER WALL IS WITHIN 6 FEET OF A TRAFFIC LANE, ADDITIONAL DELINEATORS SHALL BE PLACED ON THE BARRIER AT 10' SPACING APPROXIMATELY ONE (1) FOOT FROM THE TOP OF THE BARRIER. DELINEATORS SHALL BE ON THE ARDOT QUALIFIED PRODUCTS LIST FOR CONSTRUCTION CONCRETE BARRIER MARKERS.
DELINEATOR COLOR SHALL BE IN ACCORDANCE WITH THE MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES.
PAYMENT FOR DELINEATORS SHALL BE CONSIDERED INCLUDED IN THE PRICE BID PER LIN. FT. FOR "FURNISHING AND INSTALLING PRECAST CONCRETE BARRIER". THE CONTRACTOR SHALL CERTIFY TO THE ENGINEER THAT THE MATERIAL AND THE DESIGN USED IN THE PRECAST BARRIER UNITS MEETS THE REQUIREMENTS AS SHOWN ON THIS STANDARD DRAWING.

(3) OTHER PRECAST CONCRETE BARRIERS THAT HAVE BEEN CRASH TESTED AND APPROVED BY THE FEDERAL HIGHWAY ADMINISTRATION TO MEET THE REQUIREMENTS OF MANUAL FOR ASSESSING SAFETY HARDWARE (MASH) WILL BE ACCEPTED IN LIEU OF THE BARRIER SHOWN. DRAIN SLOTS SHALL BE PROVIDED AS NEEDED OR AS DIRECTED BY THE ENGINEER. THE CONTRACTOR SHALL FURNISH A CERTIFICATION OF MANUAL FOR ASSESSING SAFETY HARDWARE (MASH) COMPLIANCE FOR ANY OTHER TYPES OF PRECAST BARRIER TO BE USED. THE CERTIFICATION SHALL STATE THAT THE PRECAST CONCRETE BARRIER MEETS THE REQUIREMENTS OF MANUAL FOR ASSESSING SAFETY HARDWARE (MASH). MIXING OF SHAPES WILL NOT BE ALLOWED IN A CONTINUOUS LINE OF UNITS.

(4) DOWEL HOLES IN PAVEMENT OR BRIDGE SLABS THAT ARE TO REMAIN IN PLACE SHALL BE FILLED. HOLES IN CONCRETE PAVEMENT AND BRIDGE SLABS SHALL BE FILLED WITH AN APPROVED NON-SHRINK EPOXY GROUT. HOLES IN ASPHALT PAVEMENT SHALL BE FILLED WITH AN APPROVED ASPHALT JOINT FILLER. PAYMENT FOR DRILLING AND FILLING HOLES TO BE INCLUDED IN THE PRICE FOR VARIOUS BARRIER ITEMS.

(5) ATTACH UNITS TO ROADWAY SURFACE WITH STABILIZATION PINS AND TO DECK SLABS USING BOLTS WHEN REQUIRED.

(6) A 4" WHITE PVC SLEEVE MAY BE USED TO FORM THE LIFTING HOLE AND IF USED THE SLEEVE IS TO BE LEFT IN PLACE.

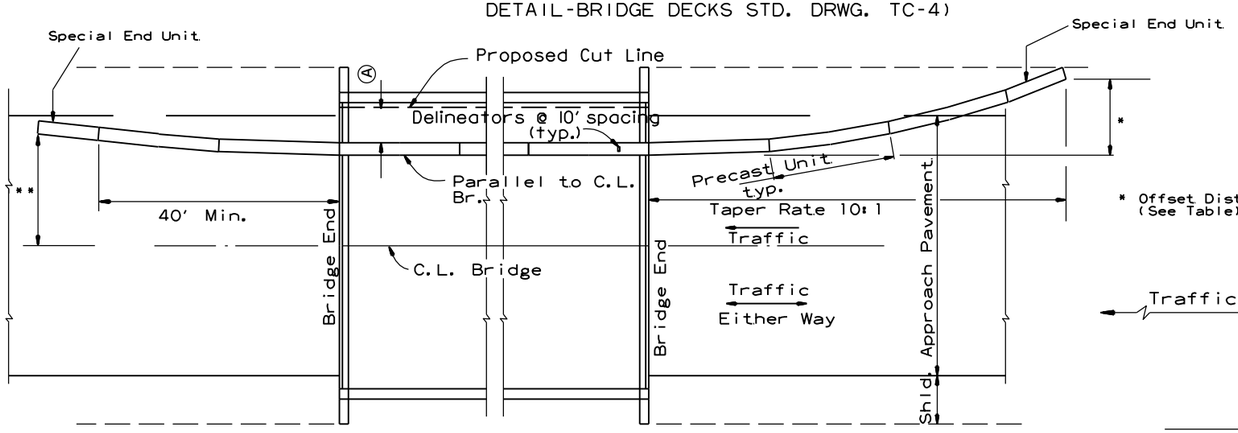
DATE	REVISION	FILMED
11-07-19	REVISED NOTE 3	
2-27-14	REVISED BARRIER STABILIZATION DETAIL	
10-15-09	ADDED REFERENCE TO WASH	
8-5-09	REV. NOTE 3 CONCERNING DRAIN SLOTS	
11-29-07	REVISED NOTE 3	
5-25-06	DELETED GENERAL NOTE 7	
11-18-04	REVISED BARRIER STABILIZATION DETAIL BRIDGE DECKS	
4-10-03	REVISED GENERAL NOTE 2	
8-22-02	ISSUED NEW DRAWING	

ARKANSAS STATE HIGHWAY COMMISSION

STANDARD TRAFFIC CONTROLS FOR HIGHWAY CONSTRUCTION - TEMPORARY PRECAST BARRIER

STANDARD DRAWING TC-4

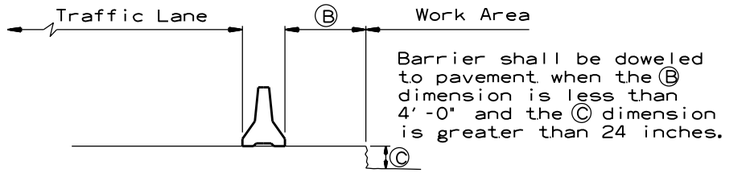
Ⓐ 4 feet or greater preferred. If less than 4 feet, Precast Units shall be connected to slab (SEE BARRIER STABILIZATION DETAIL-BRIDGE DECKS STD. DRWG. TC-4)



* Offset Distance (See Table)

BARRIER PLACEMENT ALONG BRIDGE WITH OFFSET

No Scale

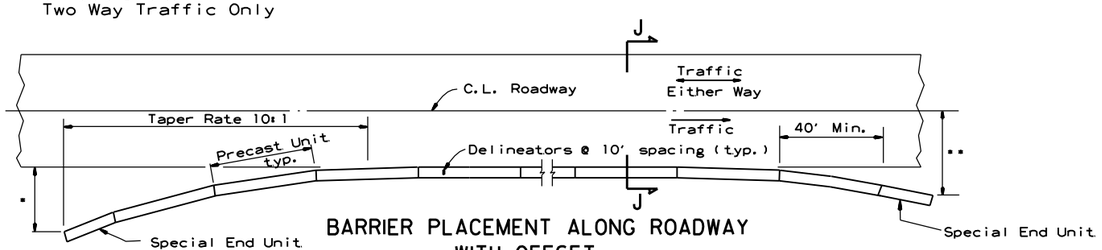


Barrier shall be doweled to pavement when the Ⓑ dimension is less than 4'-0" and the Ⓒ dimension is greater than 24 inches.

SECTION J-J

No Scale

** Offset Distance for Two Way Traffic Only



BARRIER PLACEMENT ALONG ROADWAY WITH OFFSET

No Scale

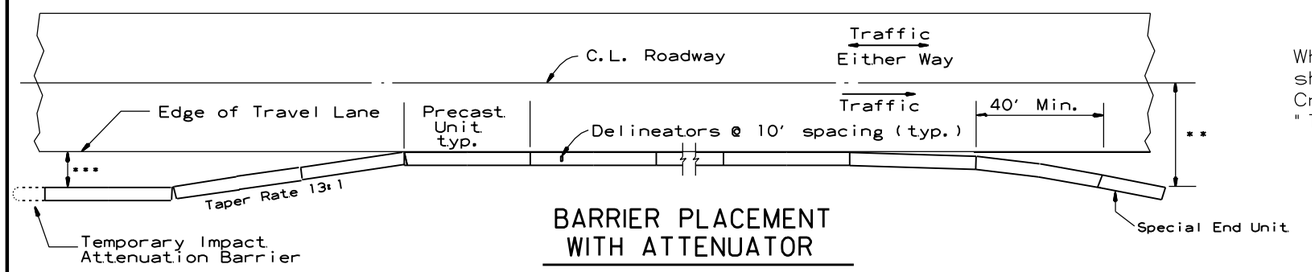
* Offset Distance (See Table)

** Offset Distance For Two Way Traffic Only

Offset Distance Table

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

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

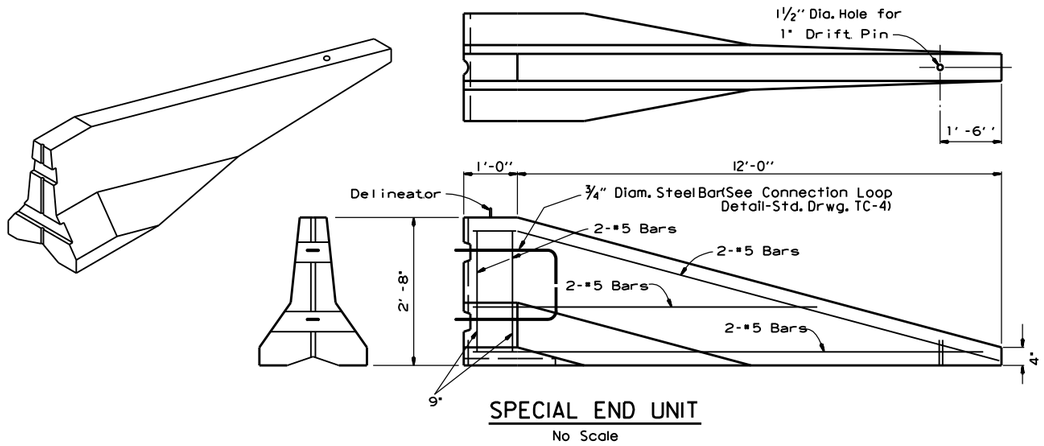


BARRIER PLACEMENT WITH ATTENUATOR

No Scale

** Offset Distance For Two Way Traffic Only

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



SPECIAL END UNIT

No Scale

General Notes

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

DATE	REVISION	FILMED
11-07-19	REVISED NOTE	
10-15-09	ADDED REFERENCE TO MASH	
5-25-06	REVISED BARRIER PLACEMENT	
8-22-02	ISSUED NEW DRAWING	

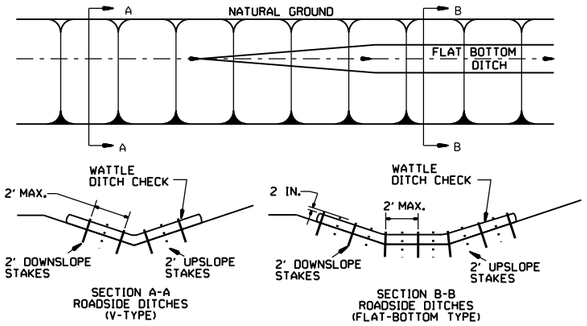
ARKANSAS STATE HIGHWAY COMMISSION

STANDARD TRAFFIC CONTROLS FOR HIGHWAY CONSTRUCTION - TEMPORARY PRECAST BARRIER

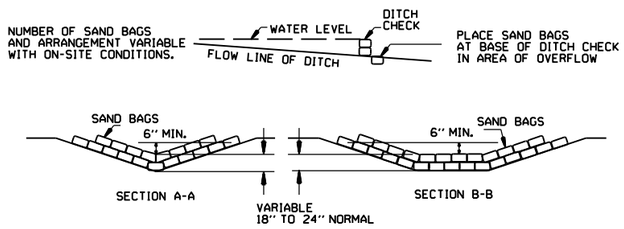
STANDARD DRAWING TC-5

GENERAL NOTES

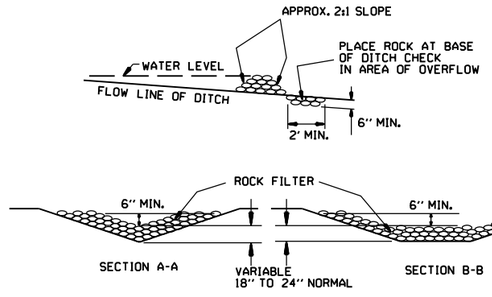
INSTALL A MINIMUM OF 2 UPSLOPE STAKES AND 4 DOWNSLOPE STAKES AT AN ANGLE TO WEDGE WATTLE TO BOTTOM OF DITCH.



WATTLE DITCH CHECK (E-1)



SAND BAG DITCH CHECK (E-5)

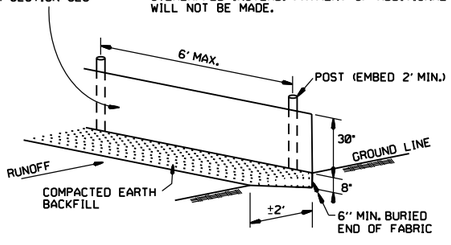


ROCK DITCH CHECK (E-6)

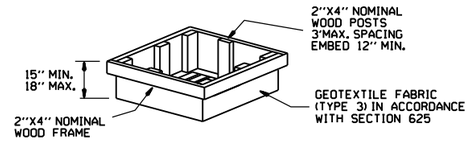
GENERAL NOTES

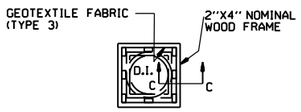
GEOTEXTILE FABRIC (TYPE 4) IN ACCORDANCE WITH SECTION 625

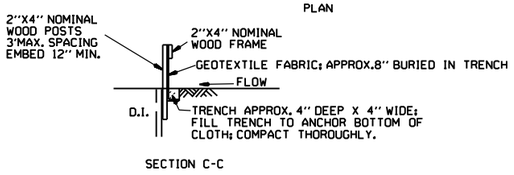
GEOTEXTILE FABRIC SHALL BE SPLICED TOGETHER WITH A SEWN SEAM ONLY AT A SUPPORT POST OR TWO SECTIONS OF FENCE MAY BE OVERLAPPED INSTEAD. PAYMENT OF ADDITIONAL MATERIAL FOR OVERLAP WILL NOT BE MADE.



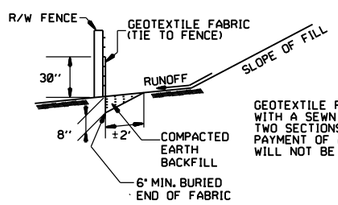
SILT FENCE (E-11)





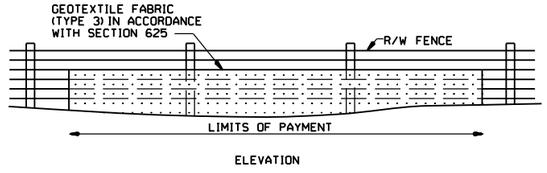


DROP INLET SILT FENCE (E-7)



GENERAL NOTES

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



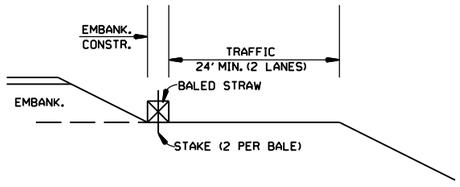
SILT FENCE ON R/W FENCE (E-4)

GENERAL NOTES

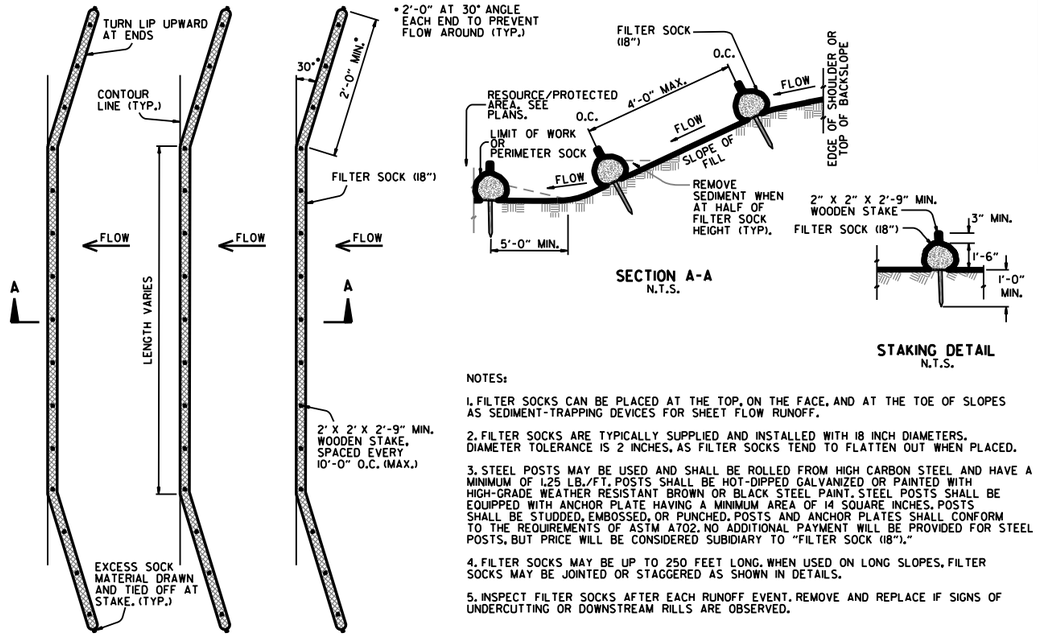
1. STRAW BALES SHALL BE INSTALLED SO THAT THE BINDINGS ARE ORIENTED AROUND THE SIDES RATHER THAN ALONG THE TOPS AND BOTTOMS OF THE BALES. THE BALES SHALL BE A MINIMUM OF 30 INCHES IN LENGTH.

2. NO GAPS SHALL BE LEFT BETWEEN BALES.

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



BALED STRAW FILTER BARRIER (E-2)



NOTES:

1. FILTER SOCKS CAN BE PLACED AT THE TOP, ON THE FACE, AND AT THE TOE OF SLOPES AS SEDIMENT-TRAPPING DEVICES FOR SHEET FLOW RUNOFF.

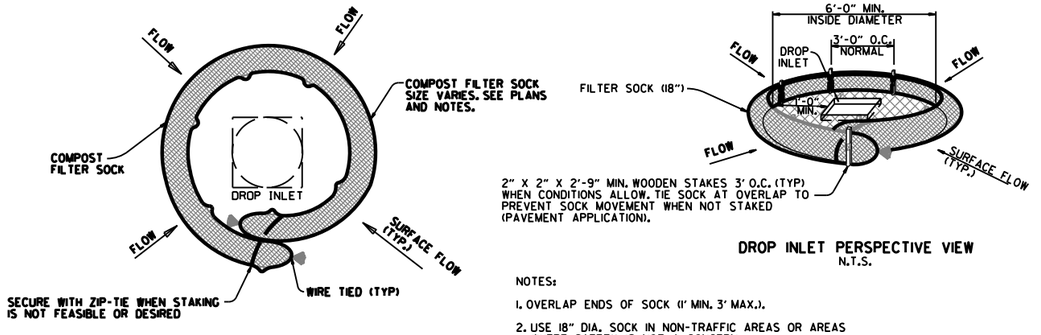
2. FILTER SOCKS ARE TYPICALLY SUPPLIED AND INSTALLED WITH 18 INCH DIAMETERS. DIAMETER TOLERANCE IS 2 INCHES, AS FILTER SOCKS TEND TO FLATTEN OUT WHEN PLACED.

3. STEEL POSTS MAY BE USED AND SHALL BE ROLLED FROM HIGH CARBON STEEL AND HAVE A MINIMUM OF 1.25 LB./FT. POSTS SHALL BE HOT-DIPPED GALVANIZED OR PAINTED WITH HIGH-GRADE WEATHER RESISTANT BROWN OR BLACK STEEL PAINT. STEEL POSTS SHALL BE EQUIPPED WITH ANCHOR PLATE HAVING A MINIMUM AREA OF 14 SQUARE INCHES. POSTS SHALL BE STUDDED, EMBOSSED, OR PUNCHED. POSTS AND ANCHOR PLATES SHALL CONFORM TO THE REQUIREMENTS OF ASTM A702. NO ADDITIONAL PAYMENT WILL BE PROVIDED FOR STEEL POSTS, BUT PRICE WILL BE CONSIDERED SUBIDIARY TO "FILTER SOCK (18")."

4. FILTER SOCKS MAY BE UP TO 250 FEET LONG. WHEN USED ON LONG SLOPES, FILTER SOCKS MAY BE JOINTED OR STAGGERED AS SHOWN IN DETAILS.

5. INSPECT FILTER SOCKS AFTER EACH RUNOFF EVENT. REMOVE AND REPLACE IF SIGNS OF UNDERCUTTING OR DOWNSTREAM RILLS ARE OBSERVED.

FILTER SOCK ALONG SLOPE (E-3)



NOTES:

1. OVERLAP ENDS OF SOCK (1' MIN. 3' MAX.).

2. USE 18" DIA. SOCK IN NON-TRAFFIC AREAS OR AREAS WHERE SAFETY IS NOT A CONCERN.

COMPOST FILTER SOCK DROP INLET PROTECTION (E-13)

DATE	REVISION	FILMED
11-16-17	ADDED FILTER SOCK E-3 AND E-13	
12-15-11	DELETED BALED STRAW DITCH CHECK & ADDED WATTLE DITCH CHECK	
11-18-98	ADDED NOTES	
07-02-98	ADDED BALED STRAW FILTER BARRIER (E-2)	
07-20-95	REVISED SILT FENCE E-4 AND E-11	7-20-95
07-15-94	REV. E-4 & E-11 MIN. 13" BURIED END OF FABRIC	
06-02-94	REVISED E-1,4,7 & 11; DELETED E-2 & 3	6-2-94
04-01-93	REDRAWN	
10-01-92	REDRAWN	
08-02-76	ISSUED R.D.M.	298-7-28-76

ARKANSAS STATE HIGHWAY COMMISSION

TEMPORARY EROSION CONTROL DEVICES

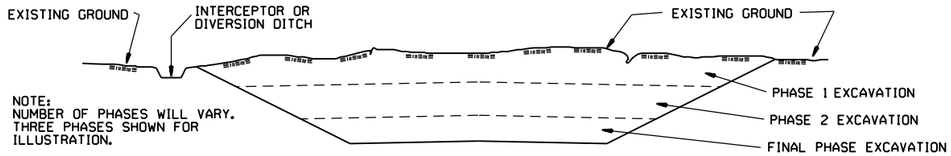
STANDARD DRAWING TEC-1

CLEARING AND GRUBBING

CONSTRUCTION SEQUENCE

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

EXCAVATION



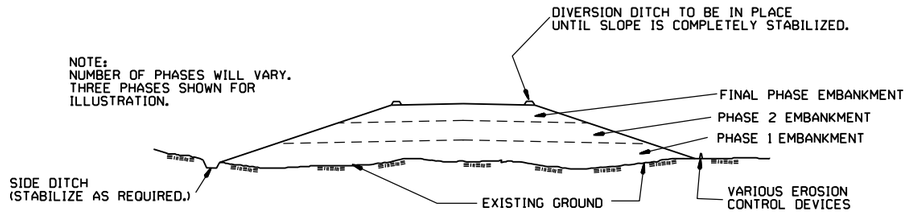
GENERAL NOTE

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

CONSTRUCTION SEQUENCE

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

EMBANKMENT



GENERAL NOTE

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

CONSTRUCTION SEQUENCE

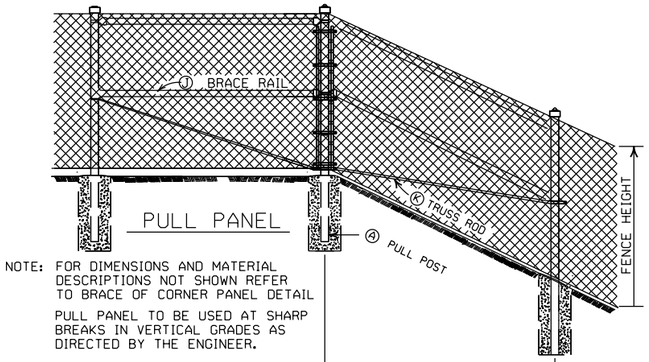
1. CONSTRUCT DIVERSION DITCHES, DITCH CHECKS, SEDIMENT BASINS, SILT FENCES, OR OTHER EROSION CONTROL DEVICES AS SPECIFIED.
2. PLACE PHASE 1 EMBANKMENT WITH PERMANENT OR TEMPORARY SEEDING. PROVIDE DIVERSION DITCHES AND SLOPE DRAINS IF EMBANKMENT CONSTRUCTION IS TO BE TEMPORARILY ABANDONED FOR A PERIOD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

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

ARKANSAS STATE HIGHWAY COMMISSION

TEMPORARY EROSION CONTROL DEVICES

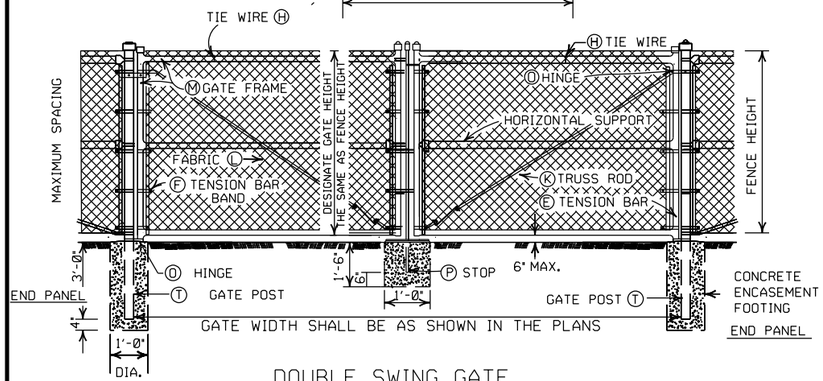
STANDARD DRAWING TEC-3



PULL PANEL

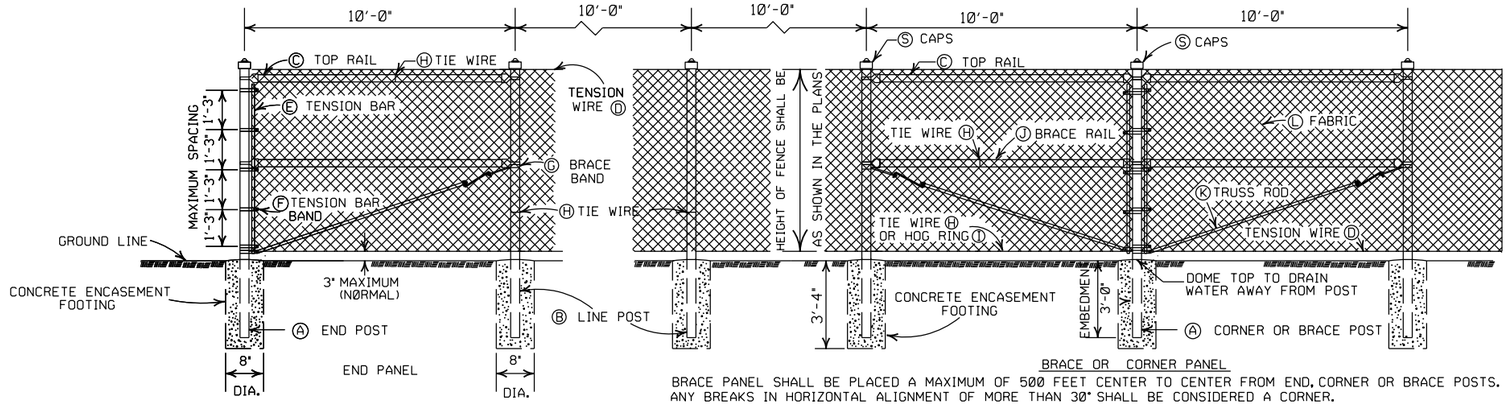
NOTE: FOR DIMENSIONS AND MATERIAL DESCRIPTIONS NOT SHOWN REFER TO BRACE OF CORNER PANEL DETAIL

PULL PANEL TO BE USED AT SHARP BREAKS IN VERTICAL GRADES AS DIRECTED BY THE ENGINEER.



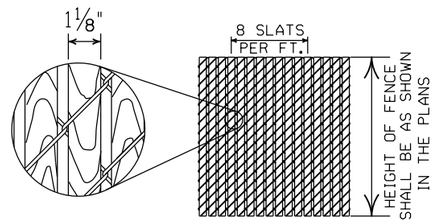
DOUBLE SWING GATE

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.

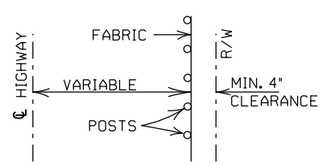
HEIGHT OF FENCE FABRIC	Ⓐ END, PULL, CORNER OR BRACE POST	Ⓑ LINE POSTS		Ⓒ TOP RAIL			Ⓓ TENSION WIRE		Ⓔ TENSION BAR		Ⓕ TENSION BAR BAND			Ⓖ BRACE BAND	
		SIZE	TIE SPACING	SIZE	TIE SPACING	MIN. LENGTH	SIZE	TIE SPACING	SIZE	LENGTH	SIZE	BOLT SIZE	SPACING	SIZE	BOLT SIZE
6' AND LESS	2½" O.D.	2" O.D.	1 TIE EVERY 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	Ⓗ TIE WIRE	Ⓘ HOG RING	Ⓙ BRACE RAIL		Ⓚ TRUSS ROD	Ⓛ FABRIC			Ⓜ GATE FRAME		Ⓝ HORIZONTAL SUPPORT		Ⓞ HINGE TYPE	Ⓣ GATE POST	
			SIZE	TIE SPACING		SIZE	MESH	SELVAGE	SIZE	TIE SPACING	SIZE	TIE SPACING	180° SWING	GATE WIDTH 12' AND LESS	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				GRADE 2		
	O.D. INCHES	WALL THICKNESS	LBS. PER LINEAR FT. STEEL	LBS. PER LINEAR FT. ALUMINUM	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

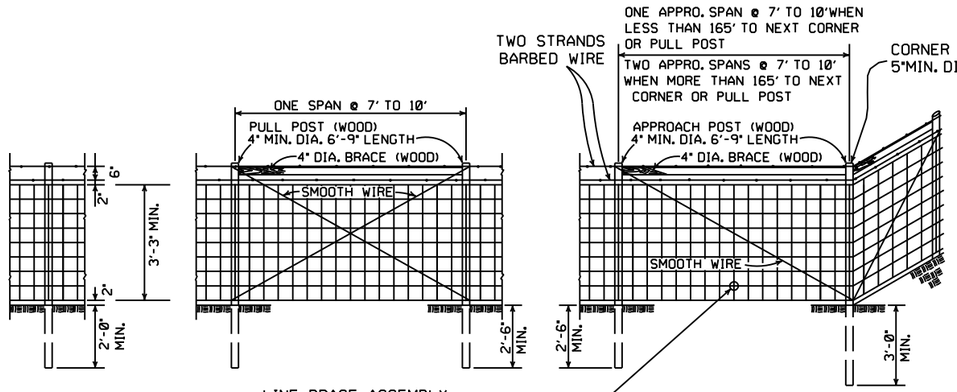
TOLERANCES ON DIMENSIONS AND WEIGHTS ACCORDING TO AASHTO M 181

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

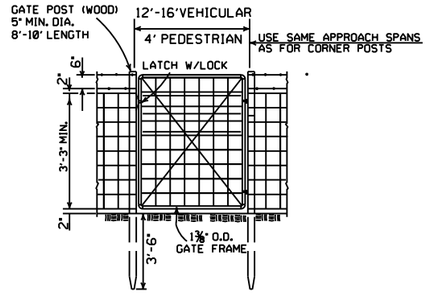
ARKANSAS STATE HIGHWAY COMMISSION

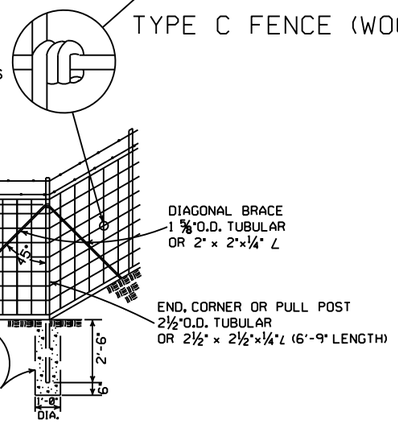
CHAIN LINK FENCE

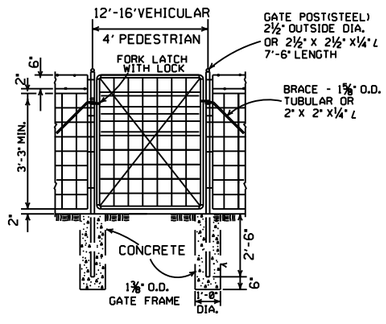
STANDARD DRAWING WF-3



TYPE C FENCE (WOOD POSTS)

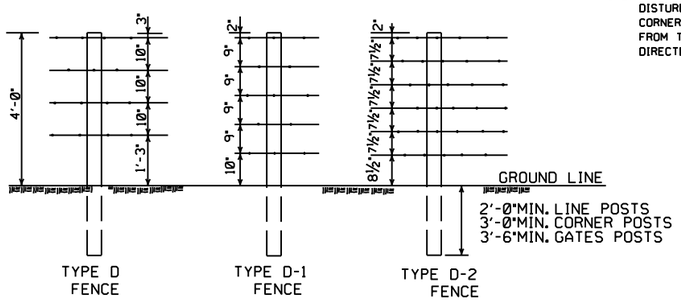




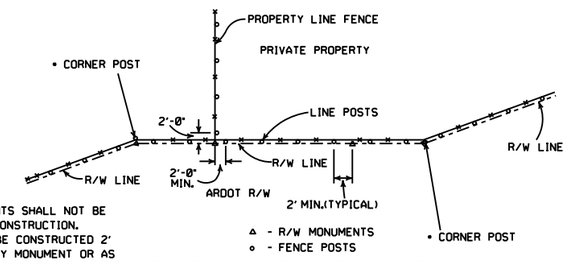


NOTE: STEEL LINE POSTS SHALL BE 6'-6" MINIMUM LENGTH.

TYPE C FENCE (STEEL POSTS)

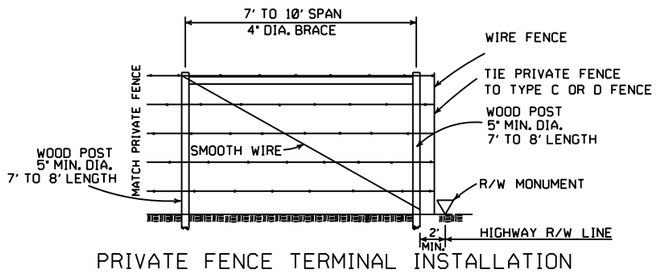


NOTE: SPACING AND SIZE (EXCEPT LENGTH) OF POSTS, APPROACH SPANS, PULL POST ASSEMBLIES, AND CORNER BRACING FOR TYPE D FENCE SHALL CONFORM TO TYPE C FENCE. USE GALVANIZED STAPLES ON WOOD POSTS AND APPROVED FASTENERS ON STEEL POSTS.



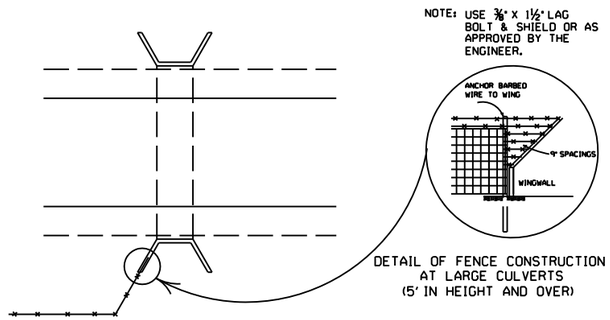
• NOTE: RIGHT-OF-WAY MONUMENTS SHALL NOT BE DISTURBED BY FENCE CONSTRUCTION. CORNER POSTS SHALL BE CONSTRUCTED 2' FROM THE RIGHT-OF-WAY MONUMENT OR AS DIRECTED BY THE ENGINEER.

RIGHT-OF-WAY FENCE LOCATION

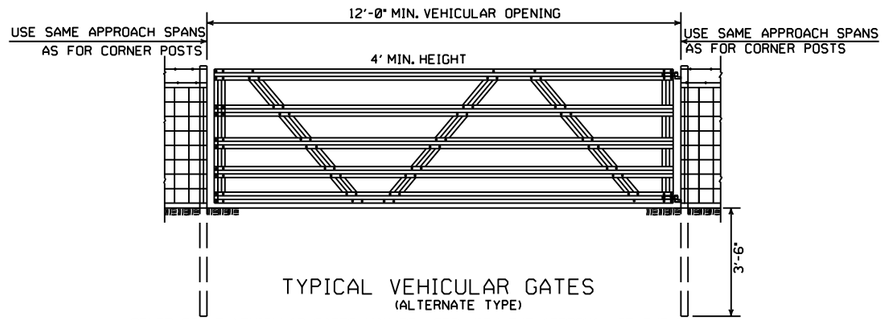


PRIVATE FENCE TERMINAL INSTALLATION

WHERE EXISTING FENCE CONSISTS OF STEEL POSTS, USE END POST ASSEMBLY AS SHOWN IN TYPE C FENCE OR OTHER END POST ASSEMBLY AS APPROVED BY THE ENGINEER.



DETAIL OF FENCE CONSTRUCTION AT LARGE CULVERTS (5' IN HEIGHT AND OVER)



TYPICAL VEHICULAR GATES

(ALTERNATE TYPE)

OTHER STYLE VEHICULAR GATES MAY BE USED WITH THE APPROVAL OF THE ENGINEER. THE METHOD OF SECURING GATE (LATCH AND/OR LOCK)SHALL MEET THE APPROVAL OF THE ENGINEER.

GENERAL NOTES:

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

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

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

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

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

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

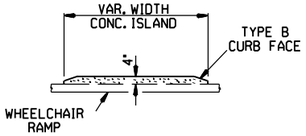
STAPLE AT LEAST TOP, BOTTOM AND ALTERNATE WIRES OF WOVEN FABRIC FOR WOOD LINE POSTS.

DATE	REVISION	FILMED
8-22-02	REVISED GENERAL NOTES	
10-18-96	REVISED AASHTO	
11-22-95	REVISED R-O-W LOCATION DETAIL	
6-2-94	REVISED BARB WIRE AND ADDED CORNER POST NOTES	6-2-94
8-5-93	REVISED R/W INSTALLATION FENCE	8-5-93
10-1-92	ADDED STAPLE NOTE	10-1-92
8-15-91	ADDED TYPE D-2 FENCE	8-15-91
11-30-89	DELETED CLASS CONCRETE	11-30-89
7-15-88	ADDED SPLICE NOTE	700-7-15-88
10-30-87	GENERAL REVISIONS	549-10-30-87
11-1-84	MAX. POST SPACING MIN. WIRE GAUGE	507-11-1-84
1-4-83	MIN. DIA. LINE POST	648-1-4-83
3-2-81	TOLERANCE FOR POST LENGTH	722-3-2-81
12-1-72	ADDED D-1 & FENCE INSTALLATION	564-12-1-72
10-2-72	REVISED AND REDRAWN	540-10-2-72

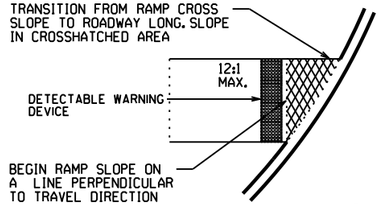
ARKANSAS STATE HIGHWAY COMMISSION

WIRE FENCE TYPE C AND D

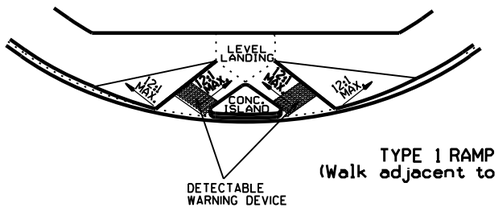
STANDARD DRAWING WF-4



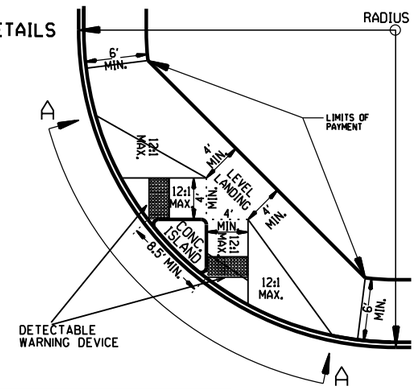
CONCRETE ISLAND DETAIL

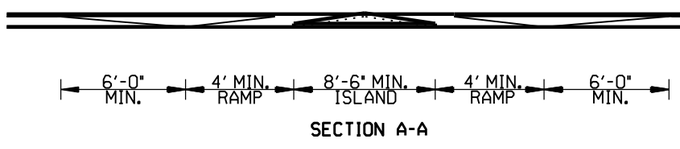


SLOPE TRANSITION DETAILS



TYPE 1 RAMP
(Walk adjacent to curb)

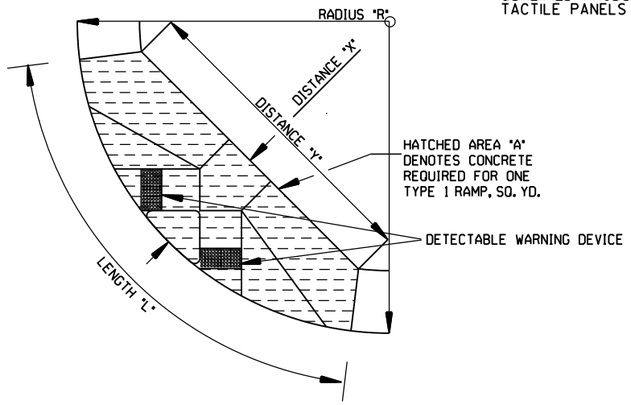




SECTION A-A

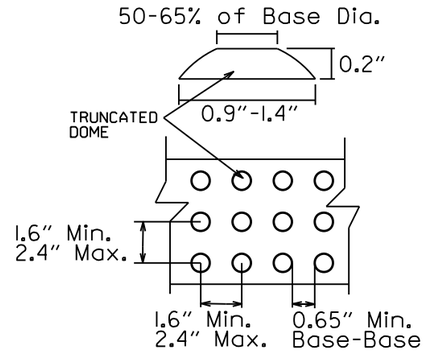
TYPE 1 RAMP DIMENSIONS AND QUANTITIES

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



GENERAL NOTES FOR DETECTABLE WARNING DEVICES

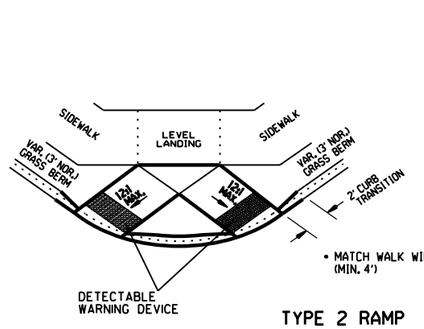
THE DETECTABLE WARNING DEVICE SHALL BE LOCATED SO THAT THE NEAREST EDGE OF THE DEVICE IS 6 TO 8 INCHES FROM THE FACE OF THE CURB.
TRUNCATED DOMES IN THE DETECTABLE WARNING SURFACE SHALL MEET THE REQUIREMENTS OF THE GEOMETRIC CONFIGURATION SHOWN.
DOMES SHALL BE ALIGNED ON A SQUARE GRID IN THE PREDOMINANT DIRECTION OF TRAVEL TO PERMIT WHEELS TO ROLL BETWEEN DOMES.
DETECTABLE WARNING DEVICE SHALL BE 24 INCHES IN THE DIRECTION OF TRAVEL AND EXTEND THE FULL WIDTH OF THE CURB RAMP OR FLUSH SURFACE.
DETECTABLE WARNING DEVICE SHALL BE ON THE ARDOT QUALIFIED PRODUCTS LIST FOR CAST-IN-PLACE TACTILE PANELS (ADA DETECTABLE WARNING).



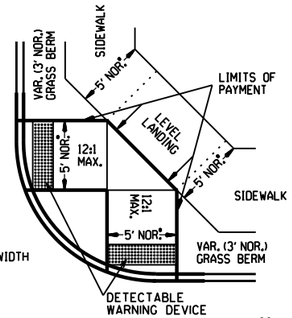
DETECTABLE WARNING DEVICE DETAIL

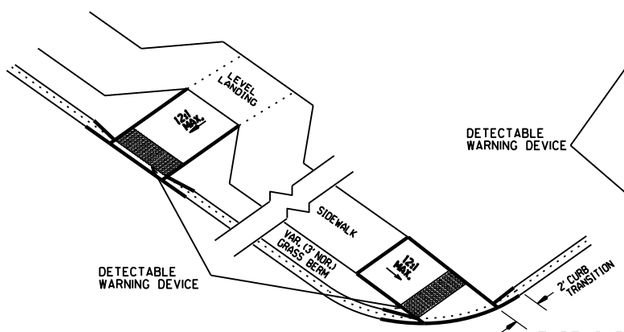
GENERAL NOTES:

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

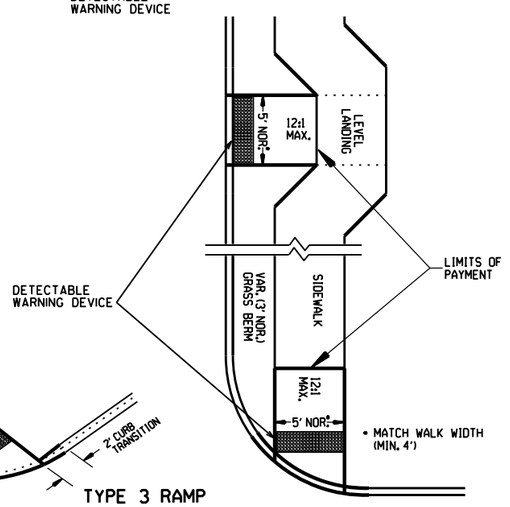


TYPE 2 RAMP

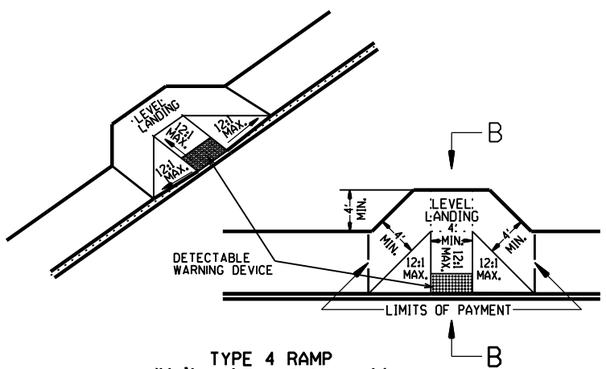




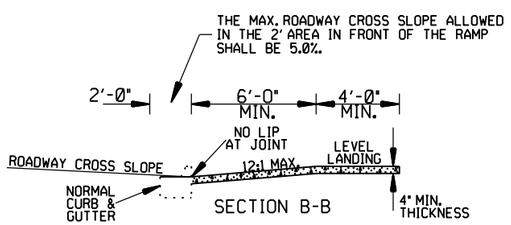
TYPE 3 RAMP



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



TYPE 4 RAMP
(Walk adjacent to curb)



SECTION B-B

RAMP SELECTION CRITERIA

FIRST CHOICE	TYPE 1	CORNER LOCATIONS WITH THE WALK ADJACENT TO THE CURB (BOTH NEW CONSTRUCTION AND ALTERATIONS).
	TYPE 2	CORNER LOCATIONS WITH THE WALK OFFSET FROM THE CURB A DISTANCE INSUFFICIENT TO ALLOW THE REQUIRED RAMP SLOPE (BOTH NEW CONSTRUCTION AND ALTERATIONS).
	TYPE 3	CORNER LOCATIONS WITH THE WALK OFFSET FROM THE CURB A DISTANCE SUFFICIENT TO ALLOW THE REQUIRED RAMP SLOPE (BOTH NEW CONSTRUCTION AND ALTERATIONS).
	TYPE 4	TANGENT LOCATIONS (BOTH NEW CONSTRUCTION AND ALTERATIONS).
SECOND CHOICE	TYPE 5	TANGENT LOCATIONS (ALTERATIONS ONLY).
THIRD CHOICE	TYPE 6	CORNER LOCATIONS (ALTERATIONS ONLY). THIS RAMP MAY BE USED ONLY IF THE TYPE 5 RAMPS CANNOT BE PLACED AT THE ENDS OF THE RADIUS.
FOURTH CHOICE		IF SITE CONSTRAINTS PREVENT THE CONSTRUCTION OF ANY OF THE TYPES LISTED, THEN AND ONLY THEN CAN THE 12:1 MAX. SLOPE ON THE RAMP BE EXCEEDED TO PROVIDE ACCESS TO THE STREET LEVEL (ALTERATIONS ONLY). THE SLOPE CAN BE STEEPENED TO A 10:1 MAX. FOR A MAX. LENGTH OF 5' OR A 8:1 MAX. FOR A MAX. LENGTH OF 2'. SLOPES STEEPER THAN 8:1 ARE NOT ALLOWED UNDER ANY CIRCUMSTANCES.

NOTE: IN ALTERATIONS, THE SELECTION OF THE TYPE OF WHEELCHAIR RAMP TO BE CONSTRUCTED SHALL BE BASED ON THE AMOUNT OF RIGHT-OF-WAY AVAILABLE, AND ON THE PRESENCE OF OTHER SITE CONSTRAINTS (UTILITIES, BUILDINGS, ETC.). THE TABLE ABOVE LISTS THE ORDER IN WHICH THE RAMPS ARE TO BE CONSIDERED.

AN ALTERATION IS DEFINED AS A PROJECT THAT CHANGES OR AFFECTS THE USE OF A PEDESTRIAN PATHWAY (OVERLAYS, SIGNALIZATION PROJECTS, ETC.) BUT DOES NOT REQUIRE THE PURCHASE OF ADDITIONAL RIGHT-OF-WAY. ALL PROJECTS THAT REQUIRE THE PURCHASE OF ADDITIONAL RIGHT-OF-WAY WILL USUALLY BE CONSIDERED NEW CONSTRUCTION FOR THE PURPOSES OF THE CHART ABOVE.

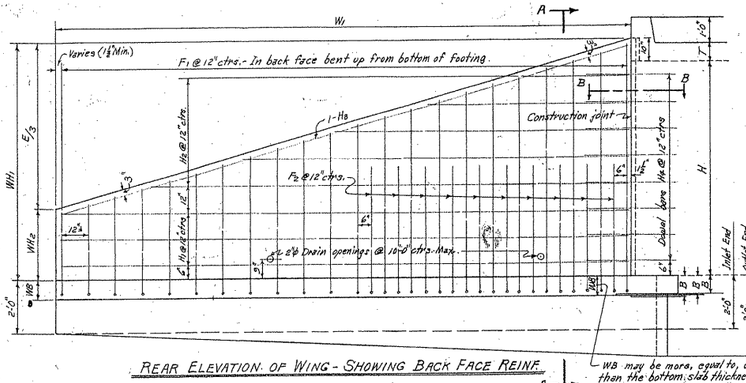
DATE	REVISION	DATE FILM
11-10-05	REVISED TO NEW SIDEWALK POLICY	
10-9-03	REVISED GEN. NOTES & ADDED NOTE	
4-10-03	REV. DETECTABLE WARNING DEVICES	
8-22-02	ADD DETECTABLE WARNING DEVICES	
3-30-00	ADD.SLOPE TRANS. & REV. ISL. DIMS.	
11-18-98	REVISED NOTES	
8-12-98	REVISED TEXTURE	
7-02-98	REDRAWN & REISSUED	
10-18-96	CORRECTED DIMENSIONS	10-18-96
5-24-90	FROM8#TO12#MAX.SLOPES	5-24-90
7-15-88	ADJUSTED MAX. SLOPE	652-7-15-88
7-14-88	INCLUD."CONC. ISLD."IN PAY ITEM	------
6-02-76	ISSUED-P.H.D.	299-7-28-76

ARKANSAS STATE HIGHWAY COMMISSION

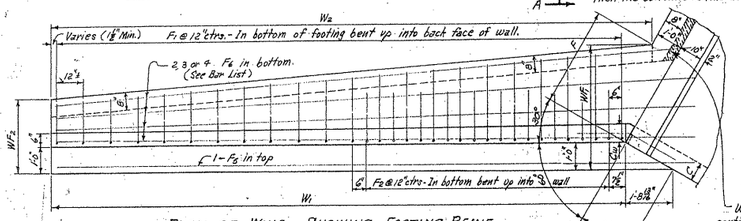
WHEELCHAIR RAMPS NEW CONSTRUCTION AND ALTERATIONS

STANDARD DRAWING WR-1

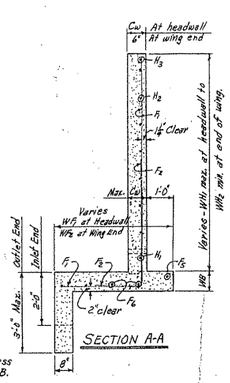
FED. ROAD No.	STATE	FED. AID PROJECT	FISCAL YEAR	SHEET No.	TOTAL SHEETS
6	ARK.				
JOB No.					



REAR ELEVATION OF WING - SHOWING BACK FACE REINF.

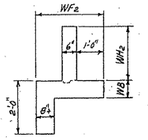


PLAN OF WING - SHOWING FOOTING REINF.



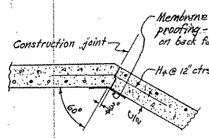
SECTION A-A

WB may be more, equal to, or less than the bottom slab thickness B.

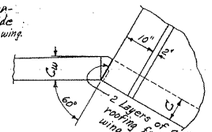


END VIEW OF WING

When B is more than WB, the shaded portion of the apron shall be made the same thickness as the barrel base B.



SECTION B-B THRU CONSTRUCTION JOINT



DETAIL AT TOP OF WING

NOTE:- Payment for membrane waterproofing and roofing felt to be included in the price bid for Class S Concrete.

WING DIMENSIONS

CLEAR HEIGHT OF BOX	THICKNESS OF WING FOOTING	THICKNESS OF WING AT HEADWALL = C	WINGWALL HEIGHTS		WIDTHS OF WING FOOTINGS		PERPENDICULAR FOOTING DIMENSION	PERPENDICULAR DIST. FROM HDWL. TO END OF WING	LENGTH OF WING WALLS	INSIDE FOOTING DIMENSION	* QUANTITY PER WING CLASS S CONCRETE	
			AT HEADWALL	AT END OF WING	AT HEADWALL	AT END OF WING					INLET END	OUTLET END
H	WB	Cw	WH1	WH2	WF1	WF2	F	E	W1	W2	Cu.Yd.	Cu.Yd.
2'	7"	6"	2'-10"	0'-8"	2'-4"	2'-0"	0'-11⅞"	6'-6"	7'-6"	7'-1½"	0.889	0.986
3'	7"	6"	3'-10"	1'-0"	2'-8"	2'-1⅛"	1'-1⅜"	8'-6"	9'-3⅜"	9'-2⅝"	1.338	1.466
4'	7"	6"	4'-10"	1'-2"	3'-0"	2'-3"	1'-3"	10'-6"	12'-1⅝"	12'-1⅝"	1.868	2.027
5'	7"	6"	5'-10"	1'-8"	3'-4"	2'-9⅜"	2'-1⅞"	12'-6"	14'-5⅝"	14'-7⅛"	2.478	2.668
		7"	5'-10"	1'-8"	3'-4"	2'-4⅞"	2'-1⅞"	12'-6"	14'-5⅝"	14'-7⅛"	2.582	2.772
6'	8"	7"	6'-10"	2'-0"	3'-8"	2'-6"	2'-2⅝"	14'-6"	16'-5"	16'-7⅛"	3.440	3.661
		7⅞"	6'-10"	2'-0"	3'-8"	2'-6"	2'-2⅝"	14'-6"	16'-5"	17'-1⅝"	3.511	3.732
		8"	6'-10"	2'-0"	3'-8"	2'-6"	2'-2⅝"	14'-6"	16'-5"	17'-1⅝"	3.582	3.803
7'	8⅝"	7⅞"	7'-10"	2'-4"	4'-2"	2'-7⅞"	3'-1⅜"	16'-6"	19'-0⅝"	19'-8⅜"	4.505	4.758
		8"	7'-10"	2'-4"	4'-2"	2'-7⅝"	3'-1⅜"	16'-6"	19'-0⅝"	19'-8⅜"	4.597	4.851
8'	9"	8"	8'-10"	2'-8"	4'-8"	2'-9"	3'-8"	18'-6"	21'-4⅝"	22'-0⅛"	5.761	6.047

* Quantity per wing does not include headwall or that portion of apron or toewall for the length W3.

APRON DIMENSION W3

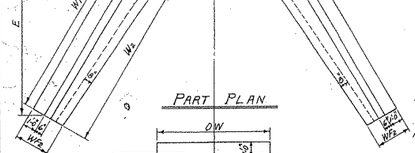
W3 = (OW - 2F)

CLEAR SPAN	CLEAR HEIGHT	2 x FOOTING DIMENSION	SINGLE BARREL CULVERT		DOUBLE BARREL CULVERT		TRIPLE BARREL CULVERT		QUADRUPLE BARREL CULVERT		QUINTUPLE BARREL CULVERT	
S	H	2F	OW	W3	OW	W3	OW	W3	OW	W3	OW	W3
4'	2'	1'-11⅞"	5'-0"	3'-0⅛"	9'-8"	7'-8⅛"	14'-4"	12'-4⅛"	19'-0"	17'-0⅛"	23'-8"	21'-8⅛"
	3'	2'-8⅛"	5'-0"	2'-3⅜"	9'-8"	6'-11⅛"	14'-4"	11'-7⅛"	19'-0"	16'-3⅛"	23'-8"	20'-11⅛"
	4'	3'-6"	5'-0"	1'-6"	9'-8"	6'-2"	14'-4"	10'-10"	19'-0"	15'-6"	23'-8"	20'-2"
	5'	4'-3⅜"	5'-0"	0'-8⅝"	9'-8"	5'-4⅜"	14'-4"	10'-0⅜"	19'-0"	14'-8⅜"	23'-8"	19'-8⅜"
	6'	5'-0⅝"	5'-2"	0'-1⅛"	9'-11"	4'-10⅛"	14'-8"	9'-7⅛"	19'-5"	14'-4⅛"	24'-2"	19'-1⅛"
5'	3'	2'-8⅛"	6'-0"	3'-3⅜"	11'-8"	8'-11⅛"	17'-4"	14'-7⅛"	23'-0"	20'-3⅛"	28'-8"	25'-11⅛"
	4'	3'-6"	6'-0"	2'-6"	11'-8"	8'-2"	17'-4"	13'-10"	23'-0"	19'-6"	28'-8"	25'-2"
	5'	4'-3⅜"	6'-0"	1'-8⅝"	11'-8"	7'-5⅜"	17'-4"	13'-0⅜"	23'-0"	18'-8⅜"	28'-8"	24'-8⅜"
	6'	5'-0⅝"	6'-2"	1'-1⅛"	11'-11"	6'-10⅛"	17'-8"	12'-7⅛"	23'-5"	18'-4⅛"	29'-2"	24'-1⅛"
	7'	6'-2⅛"	6'-5"	0'-0⅝"	12'-1"	5'-10⅝"	17'-11"	11'-8⅝"	23'-9"	17'-8⅝"	29'-7"	23'-6⅝"
6'	3'	2'-8⅛"	7'-0"	4'-3⅜"	13'-8"	10'-11⅛"	20'-4"	17'-7⅛"	27'-0"	24'-3⅛"	33'-8"	30'-11⅛"
	4'	3'-6"	7'-0"	3'-6"	13'-8"	10'-2"	20'-4"	16'-10"	27'-0"	23'-6"	33'-8"	30'-2"
	5'	4'-3⅜"	7'-0"	2'-8⅝"	13'-8"	9'-5⅜"	20'-4"	16'-0⅜"	27'-0"	22'-8⅜"	33'-8"	29'-8⅜"
	6'	5'-0⅝"	7'-2"	2'-1⅛"	13'-11"	8'-10⅛"	20'-8"	15'-7⅛"	27'-5"	22'-2⅛"	34'-2"	29'-1⅛"
	7'	6'-2⅛"	7'-5"	1'-6"	14'-1"	7'-10⅝"	20'-11"	14'-8⅝"	27'-9"	21'-6⅝"	34'-7"	28'-6⅝"
	8'	7'-1⅝"	7'-8"	0'-10⅝"	14'-5"	6'-10⅛"	21'-0"	13'-8⅛"	27'-10"	20'-6⅛"	34'-8"	27'-10⅛"
8'	4'	3'-6"	9'-0"	5'-6"	17'-6"	14'-2"	26'-1"	22'-10"	35'-0"	31'-6"	43'-8"	40'-2"
	5'	4'-3⅜"	9'-2"	4'-10⅜"	17'-11"	13'-7⅜"	26'-8"	21'-11⅜"	35'-5"	31'-1⅜"	44'-2"	39'-10⅜"
	6'	5'-0⅝"	9'-2"	4'-1⅛"	17'-11"	12'-10⅛"	26'-8"	21'-1⅛"	35'-5"	30'-3⅛"	44'-2"	39'-1⅛"
	7'	6'-2⅛"	9'-5"	3'-0⅝"	18'-1"	11'-10⅝"	26'-11"	20'-0⅝"	35'-9"	29'-4⅝"	44'-7"	38'-0⅝"
	8'	7'-1⅝"	9'-9"	2'-0"	18'-2"	10'-11"	27'-0"	19'-0"	35'-10"	28'-6"	44'-8"	37'-11"
9'	5'	4'-3⅜"	10'-2"	5'-10⅜"	19'-11"	15'-7⅜"	29'-8"	25'-4⅜"	39'-5"	35'-1⅜"	49'-2"	44'-10⅜"
	6'	5'-0⅝"	10'-3"	5'-2⅛"	20'-1"	15'-0⅛"	29'-11"	24'-6⅛"	39'-9"	34'-3⅛"	49'-7"	44'-1⅛"
	7'	6'-2⅛"	10'-5"	4'-0⅝"	20'-1"	13'-10⅝"	29'-11"	23'-5⅝"	39'-9"	33'-4⅝"	49'-7"	43'-1⅝"
	8'	7'-1⅝"	10'-9"	3'-0"	20'-2"	12'-11"	29'-10"	22'-3"	39'-10"	32'-6"	49'-8"	42'-3"
10'	5'	4'-3⅜"	11'-2"	6'-10⅜"	21'-11"	17'-7⅜"	32'-8"	28'-4⅜"	43'-5"	39'-1⅜"	54'-2"	49'-10⅜"
	6'	5'-0⅝"	11'-3"	6'-2⅛"	22'-1"	17'-0⅛"	32'-11"	27'-10⅛"	43'-9"	38'-3⅛"	54'-7"	49'-1⅛"
	7'	6'-2⅛"	11'-5"	5'-0⅝"	22'-1"	15'-10⅝"	32'-11"	26'-5⅝"	43'-9"	37'-4⅝"	54'-7"	48'-1⅝"
	8'	7'-1⅝"	11'-9"	4'-0"	22'-2"	14'-11"	33'-0"	25'-3"	43'-10"	36'-6"	54'-8"	47'-4"
11'	6'	5'-0⅝"	12'-3"	7'-3⅛"	24'-2"	19'-1⅛"	36'-0"	30'-11⅛"	47'-10"	42'-3⅛"		
	7'	6'-2⅛"	12'-5"	6'-1⅝"	24'-2"	17'-11⅝"	36'-0"	29'-5⅝"	47'-10"	41'-1⅝"		
	8'	7'-1⅝"	12'-9"	5'-0"	24'-2"	16'-10"	36'-0"	28'-3"	47'-10"	40'-6"		
12'	6'	5'-0⅝"	13'-3"	8'-3⅛"	26'-2"	21'-1⅛"	39'-0"	33'-11⅛"	51'-10"	46'-3⅛"		
	7'	6'-2⅛"	13'-5"	7'-1⅝"	26'-2"	19'-11⅝"	39'-0"	32'-5⅝"	51'-10"	45'-1⅝"		
	8'	7'-1⅝"	13'-8"	6'-0"	26'-2"	18'-10"	39'-0"	31'-3"	51'-10"	44'-6"		

QUANTITIES

CLEAR SPAN	CLEAR HEIGHT	THICKNESS OF WING AT HEADWALL	THICKNESS OF WING FOOTING	REINFORCING STEEL - FOR 4 WINGS @	CLASS S CONCRETE - 4 WINGS HEADWALLS, WINGWALLS, FOOTINGS, TOEWALLS AND APRONS				
					SINGLE BARREL CULVERT	DOUBLE BARREL CULVERT	TRIPLE BARREL CULVERT	QUADRUPLE BARREL CULVERT	QUINTUPLE BARREL CULVERT
S	H	Cw	WB	LB.	CU.YD.	CU.YD.	CU.YD.	CU.YD.	CU.YD.
4'	2'	6"	7"	108.0	4.50	5.96	6.42	7.38	8.34
	3'	6"	7"	169.4	6.26	7.21	8.17	9.13	10.09
	4'	6"	7"	259.6	8.33	9.28	10.24	11.20	12.16
	5'	6"	7"	357.8	10.72	11.68	12.64	13.60	14.56
	6'	7"	8"	583.1	14.55	15.53	16.52	17.51	18.49
5'	3'	6"	7"	169.4	6.97	7.68	8.79	9.96	11.12
	4'	6"	7"	259.6	8.54	9.70	10.87	10.03	12.20
	5'	6"	7"	357.8	10.94	12.10	13.26	14.43	15.59
	6'	7"	8"	583.1	14.77	15.96	17.15	18.34	19.54
	7'	7⅞"	8⅝"	1139.6	18.94	20.15	21.37	22.59	23.80
6'	3'	6"	7"	169.4	6.68	8.06	9.42	10.80	12.18
	4'	6"	7"	259.6	8.75	10.12	11.49	12.87	14.25
	5'	7"	7"	357.8	11.15	12.53	13.89	15.27	16.65
	6'	7"	8"	583.1	14.98	16.39	17.78	19.18	20.59
	7'	7⅞"	8⅝"	1139.6	19.15	20.58	22.00	23.43	24.86
	8'	8"	9"	1925.6	25.09	25.53	26.96	28.39	29.83
7'	4'	6"	7"	259.6	8.97	10.58	12.15	13.76	15.35
	5'	6"	7"	357.8	11.36	12.97	14.58	16.15	17.75
	6'	7"	8"	583.1	15.20	16.82	18.42	20.04	21.66
	7'	7⅞"	8⅝"	1139.6	19.38	21.02	22.68	24.28	25.92
	8'	8"	9"	1925.6	24.32	25.97	27.60	29.25	30.89
8'	4'	6"	7"	259.6	9.19	11.03	12.82	14.65	16.45
	5'	7"	7"	357.8	12.03	13.89	15.70	17.55	19.34
	6'	7"	8"	583.1	15.92	17.27	19.09	20.93	22.75
	7'	7⅞"	8⅝"	1139.6	19.59	21.46	23.30	25.16	26.99
	8'	8"	9"	1925.6	24.54	26.41	28.28	30.11	31.96
9'	5'	7"	7"	357.8	12.26	14.39	16.87	18.95	20.97
	6'	7⅞"	8"	583.1	15.94	18.09	20.09	22.19	24.23
	7'	7⅞"	8⅝"	1139.6	19.81	21.91	23.96	26.06	28.10
	8'	8"	9"	1925.6	24.76	26.86	28.91	31.00	33.05
10'	5'	7"	7"	357.8	12.49	14.80	17.05	19.24	21.52
	6'	7⅞"	8"	583.1	16.17	18.50	20.77	22.99	25.28
	7'	7⅞"	8⅝"	1139.6	20.04	22.37	24.64	26.87	29.15
	8'	8"	9"	1925.6	24.98	27.31	29.58	31.81	34.10
11'	6'	8"	8"	583.1	16.69	19.27	21.76	24.23	
	7'	8"	8⅝"	1139.6	20.64	23.22	25.71	28.18	
	8'	8"	9"	1925.6	25.19	27.77	30.27	32.74	
12'	6'	8"	8"	583.1	16.92	19.75	22.45	25.18	
	7'	8"	8⅝"	1139.6	20.87	23.69	26.40	29.18	
	8'	8"	9"	1925.6	25.42	28.25	30.96	33.69	

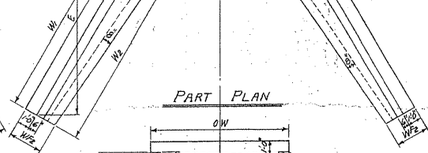
* For reinforcing steel in Headwalls and Aprons, See Details of Standard Barrel Sections for R.C. Box Culverts for the desired Span and Height.



PART PLAN

END ELEVATION

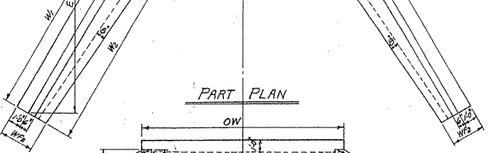
SINGLE BARREL CULVERT



PART PLAN

END ELEVATION

DOUBLE BARREL CULVERT

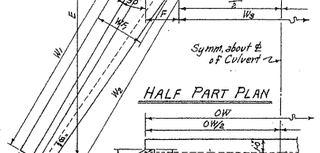


PART PLAN

END ELEVATION

TRIPLE BARREL CULVERT

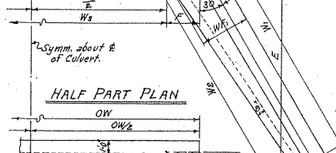
NOTE:- Plans and Elevations are not to scale.



HALF PART PLAN

HALF END ELEVATION

QUADRUPLE BARREL CULVERT



HALF PART PLAN

HALF END ELEVATION

QUINTUPLE BARREL CULVERT

MEMBRANE:- A membrane waterproofing 12" wide, consisting of three mopings of waterproofing asphalt and two alternate layers of treated cotton fabric shall be applied to the back face of wing to cover the construction joints in wings.

BAR LIST FOR ONE WING - 4 REQUIRED

CLEAR HEIGHT	F1 Bent: In bottom of footing, bent up into back face of wing. One bar of each length.								F2 Bent: In bottom of footing, bent up into back face of wing. Alt. with F1 bars.						F5 Straight: Longitudinal in top of wing footing heel.			F6 Straight: Longitudinal in bottom of wing footing toe.			H1 Straight: Horizontal in back face of wing.			H2 Straight: Horizontal in back face of wing. One bar of each length.					H3 Straight: In back face of wing at top - on slope.			H4 Bent: Dowels thru construction joint at headwall.				QUANTITY REINFORCING STEEL PER WING	BAR BENDING DIAGRAMS
				LENGTHS VARY																					LENGTHS VARY												
H	SIZE	SPACING	NO. REQD	MIN.	MAX.	X MIN.	X MAX.	Y MIN.	Y MAX.	SIZE	SPACING	NO. REQD	LENGTH	X	Y	SIZE	NO. REQD	LENGTH	SIZE	NO. REQD	LENGTH	SIZE	SPACING	NO. REQD	LENGTH	MAX.	MIN.	SIZE	NO. REQD	LENGTH	SIZE	SPACING	NO. REQD	LENGTH	X	LB.	
2'	#3	12"	8	1'-6"	3'-10"	0'-8"	1'-0"	0'-11"	2'-11"	—	—	—	—	—	—	#3	1	9'-8"	#3	2	8'-6"	#3	12"	1	7'-2"	—	—	#3	1	9'-6"	#3	12"	2	2'-8"	1'-9"	27.0	
3'	#3	12"	10	2'-2"	5'-2"	0'-10"	1'-3"	1'-5"	4'-0"	—	—	—	—	—	—	#3	1	12'-0"	#3	2	11'-0"	#3	12"	1	9'-6"	#3	12"	#3	1	7'-6"	#3	12"	3	2'-8"	1'-9"	41.1	
4'	#3	12"	13	2'-9"	6'-6"	0'-11"	1'-7"	1'-8"	5'-0"	—	—	—	—	—	—	#3	1	14'-9"	#3	3	13'-6"	#3	12"	1	11'-10"	#3	12"	#3	1	10'-11"	#3	12"	4	2'-8"	1'-9"	63.7	
5'	#3	12"	15	2'-11"	7'-10"	1'-1"	1'-11"	1'-11"	6'-0"	#3	12"	4	3'-6"	1'-1"	2'-6"	#3	1	16'-8"	#3	3	16'-0"	#3	12"	2	14'-2"	#3	12"	#3	1	14'-1"	#3	12"	5	2'-8"	1'-9"	89.5	
6'	#4	12"	17	3'-6"	9'-3"	1'-2"	2'-3"	2'-5"	7'-1"	#3	12"	4	4'-6"	1'-4"	3'-3"	#3	1	19'-0"	#3	3	18'-6"	#3	12"	2	16'-6"	#3	12"	#4	1	19'-5"	#3	12"	6	2'-8"	1'-9"	145.8	
7'	#4	12"	20	3'-9"	10'-9"	1'-3"	2'-9"	2'-7"	8'-1"	#4	12"	7	5'-6"	1'-7"	4'-0"	#4	1	21'-4"	#4	4	21'-0"	#4	12"	2	18'-9"	#4	12"	#5	1	17'-9"	#4	12"	7	3'-6"	1'-9"	283.7	
8'	#4	12"	22	4'-4"	12'-3"	1'-5"	3'-2"	3'-0"	9'-2"	#4	12"	10	6'-6"	1'-10"	4'-9"	#4	1	23'-8"	#4	4	23'-6"	#4	12"	3	21'-1"	#4	12"	#5	1	17'-9"	#4	12"	8	3'-6"	1'-9"	356.4	

NOTE:- Dimensions are to bar centers.

REVISIONS:- Membrane added. 5-10-66 W.C.H.

Designed By:- W.C.H. 8-20-62. Checked By:-
Drawn By:- W.C.H. 12-4-62. Checked By:- RMS. 1-31-63
Quantities By:- W.C.H. 12-14-62. Checked By:- RMS. 3-29-63
Rechecked By:-

ARKANSAS STATE HIGHWAY COMMISSION

DETAILS OF STANDARD WINGS FOR REINFORCED CONCRETE BOX CULVERTS

4', 5', 6', 7', 8', 9', 10', 11' & 12' SPANS — 3:1 SLOPES

SINGLES, DOUBLES, TRIPLES, QUADRUPLES & QUINTUPLES. — ALL DEPTHS OF COVER FOR H = 8'-0" OR LESS

STANDARD DRAWING NO. W-X003-1

GENERAL NOTES:-

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

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

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

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

UNIT STRESSES:-

Class S Concrete (n=10) 1200 #/□"

Reinforcing Steel 20,000 #/□"

NOTE:- This drawing to be used in conjunction with Standard Barrel Sections, Drawing Nos. as listed below.

SINGLES	DOUBLES	TRIPLES	QUADRUPLES	QUINTUPLES
R-100X-0	R-200X-0	R-300X-0	R-400X-0	R-500X-0
R-100X-X1	R-200X-X1	R-300X-X1	R-400X-X1	R-500X-X1
R-100X-X2	R-200X-X2	R-300X-X2	R-400X-X2	
	R-200X-X3	R-300X-X3		

CLASS S CONCRETE

Mylar

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

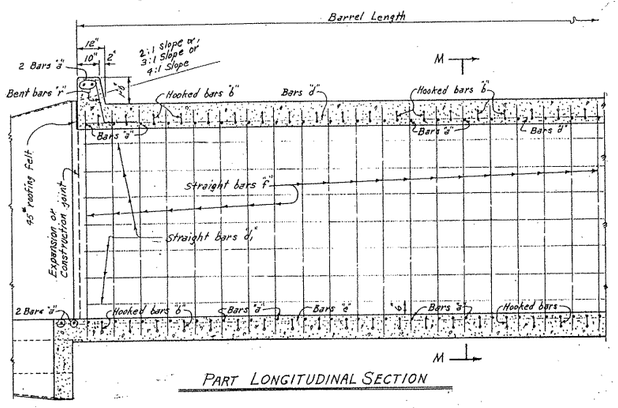
BAR LIST FOR BARREL SECTION 60'-0" IN LENGTH

DEPTH OF COVER	CLEAR SPAN	CLEAR HEIGHT	"a" bars STRAIGHT — In Top and Bottom Slabs of Barrel. 2 Add'l in Apron and Headwall- Each.					"b" bars BENT - See Diagram below. — In Top and Bottom Slabs of Barrel. Alternate with "a" bars.						"d" bars STRAIGHT — Longitudinal in Top Slab of Barrel				"d1" bars STRAIGHT — Longitudinal in Sidewalls				"e" bars. STRAIGHT — Longitudinal in Bottom Slab of Barrel				"f" bars STRAIGHT — Verticals in Sidewalls			
			SIZE	SPACING	NUMBER REQ'D 3:1	NUMBER REQ'D 4:1	LENGTH	SIZE	SPACING	NUMBER REQ'D 3:1	NUMBER REQ'D 4:1	LENGTH	X	SIZE	SPACING	NO. REQ'D	LENGTH	SIZE	SPACING	NO. REQ'D	LENGTH	SIZE	SPACING	NO. REQ'D	LENGTH	SIZE	SPACING	NUMBER REQ'D 3:1	NUMBER REQ'D 4:1	LENGTH
D	S	H																											
0'-0" TO 5'-0" MAXIMUM	1 @ 4'	2'			120	120	4'-9"			110	110	5'-10"	4'-8"	#5	10½"	6		#4	16"	4		#4	12"	5		#4	12"	120	120	2'-11"	
		3'			120	120	4'-9"			110	110	5'-10"	4'-8"			6				6				5				120	120	3'-11"	
		4'			120	120	4'-9"			110	110	5'-10"	4'-8"			8				8				5				120	120	4'-11"	
		5'			120	120	4'-9"			110	110	5'-10"	4'-8"			10				10				5				120	120	6'-11"	
		6'			120	120	4'-11"			110	110	6'-0"	4'-10"			12				12				5				120	120	7'-11"	
	1 @ 5'	3'			120	120	5'-9"			110	110	6'-10"	5'-8"			7				7				6				120	120	5'-0"	
		4'			120	120	5'-9"			110	110	6'-10"	5'-8"			8				8				6				120	120	6'-0"	
		5'	#6	13"	120	120	5'-9"	#6	13"	110	110	6'-10"	5'-8"	#5	10½"	10		#4	12"	10		#4	12"	6		#4	12"	120	120	7'-0"	
		6'			120	120	5'-11"			110	110	7'-0"	5'-10"			12				12				6				120	120	8'-0"	
		7'			120	120	6'-0"			110	110	7'-1"	5'-11"			14				14				6				120	120	9'-0"	
	1 @ 6'	3'			128	128	6'-9"			118	118	7'-10"	6'-8"			8				8				7				120	120	4'-1"	
		4'			128	128	6'-9"			118	118	7'-10"	6'-8"			8				8				7				120	120	5'-1"	
		5'			128	128	6'-9"			118	118	7'-10"	6'-8"			10				10				7				120	120	6'-1"	
		6'	#6	12"	128	128	6'-11"	#6	12"	118	118	8'-1"	6'-10"	#5	10½"	12		#4	12"	12		#4	12"	7		#4	12"	120	120	7'-1"	
		7'			128	128	7'-0"			118	118	8'-1"	6'-11"			14				14				7				120	120	8'-1"	
		8'			128	128	7'-1"			118	118	8'-2"	7'-0"			16				16				7				120	120	9'-1"	
		4'			140	140	7'-9"			130	130	8'-10"	7'-8"			9				9				8				120	120	5'-2"	
		5'			140	140	7'-9"			130	130	8'-10"	7'-8"			9				9				8				120	120	6'-2"	
	1 @ 7'	6'	#6	11"	140	140	7'-11"	#6	11"	130	130	9'-1"	7'-10"	#5	10½"	9		#4	12"	9		#4	12"	8		#4	12"	120	120	7'-2"	
		7'			140	140	8'-0"			130	130	9'-2"	8'-0"			11				11				8				120	120	8'-2"	
		8'			140	140	8'-1"			130	130	9'-3"	8'-1"			14				14				8				120	120	9'-2"	
		9'			140	140	8'-3"			130	130	9'-4"	8'-2"			16				16				8				120	120	10'-2"	
		4'			128	128	8'-9"			118	118	9'-10"	8'-8"			8				8				9				120	120	5'-6"	
		5'			128	128	8'-11"			118	118	10'-0"	8'-10"			10				10				9				120	120	6'-6"	
	1 @ 8'	6'			128	128	8'-11"			118	118	10'-0"	8'-10"			12				12				9				120	120	7'-6"	
		7'	#7	12"	128	128	9'-0"	#6	12"	118	118	10'-1"	8'-11"	#5	10"	14		#4	12"	14		#4	12"	9		#4	12"	120	120	8'-6"	
		8'			128	128	9'-1"			118	118	10'-2"	9'-0"			16				16				9				120	120	9'-6"	
		9'			128	128	9'-3"			118	118	10'-4"	9'-2"			18				18				9				120	120	10'-6"	
		10'			128	128	9'-5"			118	118	10'-5"	9'-3"			20				20				9				120	120	11'-6"	
		5'			140	140	9'-11"			130	130	11'-0"	9'-10"			12				12				10				120	120	6'-6"	
		6'			140	140	10'-0"			130	130	11'-1"	9'-11"			12				12				10				120	120	7'-5"	
	1 @ 9'	7'			140	140	10'-0"			130	130	11'-1"	9'-11"			12				12				10				120	120	8'-5"	
		8'	#7	11"	140	140	10'-1"	#6	11"	130	130	11'-2"	10'-0"	#5	10"	12		#4	12"	12		#4	12"	10		#4	12"	144	144	9'-5"	
		9'			140	140	10'-3"			130	130	11'-4"	10'-2"			12				12				10				144	144	10'-4"	
		10'			140	140	10'-5"			130	130	11'-6"	10'-4"			12				12				10				144	144	11'-4"	
		11'			140	140	10'-7"			130	130	11'-8"	10'-6"			12				12				10				144	144	12'-4"	
		5'			128	128	10'-11"			118	118	12'-2"	10'-10"			13				10				11				120	120	6'-6"	
		6'			128	128	11'-0"			118	118	12'-3"	10'-11"			13				12				11				120	120	7'-6"	
	1 @ 10'	7'			128	128	11'-0"			118	118	12'-3"	10'-11"			13				14				11				120	120	8'-6"	
		8'	#7	12"	128	128	11'-1"	#7	12"	118	118	12'-4"	11'-0"	#5	10"	13		#4	12"	16		#4	12"	11		#4	12"	144	144	9'-6"	
		9'			128	128	11'-3"			118	118	12'-6"	11'-2"			13				18				11				144	144	10'-6"	
		10'			128	128	11'-5"			118	118	12'-8"	11'-4"			13				20				11				144	144	11'-6"	
		11'			128	128	11'-7"			118	118	12'-10"	11'-6"			13				22				11				144	144	12'-6"	
		12'			128	128	11'-9"			118	118	13'-0"	11'-8"			13				24				11				144	144	13'-6"	
		6'			140	140	12'-1"			130	130	13'-4"	12'-0"			15				12				12				120	120	7'-7"	
		7'			140	140	12'-1"			130	130	13'-4"	12'-0"			15				14				12				120	120	8'-7"	
	1 @ 11'	8'			140	140	12'-1"			130	130	13'-4"	12'-0"			15				16				12				144	144	9'-7"	
		9'	#7	11"	140	140	12'-3"	#7	11"	130	130	13'-6"	12'-2"	#5	9½"	15		#4	12"	18		#4	12"	12		#5	12"	144	144	10'-7"	
		10'			140	140	12'-5"			130	130	13'-8"	12'-4"			15				20				12				144	144	11'-7"	
		11'			140	140	12'-7"			130	130	13'-10"	12'-6"			15				22				12				144	144	12'-7"	
		12'			140	140	12'-9"			130	130	14'-0"	12'-8"			15				24				12				144	144	13'-7"	
		6'			128	128	13'-1"			118	118	14'-4"	13'-0"			16				12				13				120	120	7'-9"	
		7'			128	128	13'-1"			118	118	14'-4"	13'-0"			16				14				13				120	120	8'-9"	
	1 @ 12'	8'			128	128	13'-1"			118	118	14'-4"	13'-0"			16				16				13				144	144	9'-9"	
		9'	#8	12"	128	128	13'-3"	#7	12"	118	118	14'-6"	13'-2"	#5	9½"	16		#4	12"	18		#4	12"	13		#5	12"	144	144	10'-9"	
		10'			128	128	13'-5"			118	118	14'-8"	13'-4"			16				20				13				144	144	11'-9"	
		11'			128	128	13'-7"			118	118	14'-10"	13'-6"			16				22				13				144	144	12'-9"	
		12'			128	128	13'-9"			118	118	15'-0"	13'-8"			16				24				13				144	144	13'-9"	

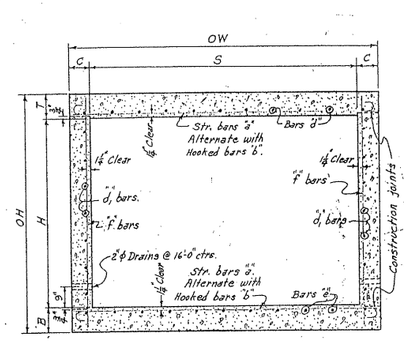
Note:- For details of wings and bar lists, see Drawing Nos. W-X002-1, W-X002-2, W-X003-1 or W-X003-2, and W-X004-1 or W-X004-2.

DIMENSIONS AND QUANTITIES

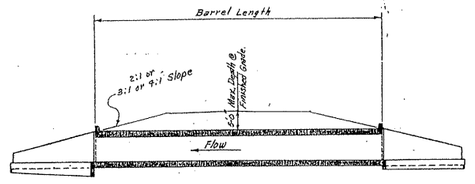
MAX. DESIGN DEPTH OF COVER	BARREL DIMENSIONS: CLEAR SPAN	CLEAR HEIGHT	SQ. FT. OPENING	OVERALL WIDTH	THICKNESS OF TOP SLAB	THICKNESS OF SIDEWALLS	THICKNESS OF BOTTOM SLAB	OVERALL HEIGHT	UNIT QUANTITIES: CLASS S CONC. PER LIN. FT. OF BARREL	REINFORCING STEEL PER LIN. FT. OF BARREL	ADDITIONAL PER LAP	ADDITIONAL TWO HEADWALLS & APRONS
D	S	H	A	OW	T	C	B	OH	CU.YD.	LB.	LB.	LB.
5'-0"	1 @ 4'	2'	8	5'-0"	7"	6"	6½"	3'-1½"	0.282	41.99	17.95	66.35
		3'	12	5'-0"		6"		4'-1⅝"	0.319	44.16	19.62	66.35
		4'	16	5'-0"		6"		5'-1⅞"	0.356	46.83	21.29	66.35
		5'	20	5'-0"		6"		6'-1⅞"	0.394	49.50	22.96	66.35
		6'	24	5'-2"		7"		7'-1⅞"	0.474	52.96	24.63	67.75
	1 @ 5'	3'	15	6'-0"	7"	6"	6½"	4'-2⅝"	0.380	55.55	22.19	101.27
		4'	20	6'-0"		6"		5'-2⅝"	0.417	58.23	23.86	101.27
		5'	25	6'-0"		6"		6'-2⅝"	0.454	60.90	25.53	101.27
		6'	30	6'-2"		7"		7'-2⅝"	0.535	64.99	27.20	103.27
		7'	35	6'-3"		7½"		8'-2⅝"	0.609	67.63	28.87	104.27
	1 @ 6'	3'	18	7'-0"	8"	6"	7½"	4'-3½"	0.496	66.29	29.76	118.96
		4'	24	7'-0"		6"		5'-3½"	0.483	68.96	26.93	118.96
		5'	30	7'-0"		6"		6'-3½"	0.520	71.64	28.10	118.96
		6'	36	7'-2"		7"		7'-3½"	0.602	75.31	29.77	120.96
		7'	42	7'-3"		7½"		8'-3½"	0.671	78.98	31.44	121.97
		8'	48	7'-4"		8"		9'-3½"	0.746	88.47	33.11	122.97
	1 @ 7'	4'	28	8'-0"	8½"	6"	8½"	5'-5"	0.568	81.32	29.01	136.88
		5'	35	8'-0"		6"		6'-5"	0.605	84.00	30.68	136.88
		6'	42	8'-2"		7"		7'-5"	0.688	87.76	32.35	138.88
		7'	49	8'-3"		7½"		8'-5"	0.757	90.98	34.02	139.88
		8'	56	8'-4"		8"		9'-5"	0.832	96.65	35.69	140.88
		9'	63	8'-6"		9"		10'-5"	0.996	105.59	37.36	142.89
	1 @ 8'	4'	32	9'-0"	9½"	7"	9½"	5'-7"	0.676	95.26	33.32	198.07
		5'	40	9'-2"		7"		6'-7"	0.758	99.12	34.99	196.80
		6'	48	9'-2"		7"		7'-7"	0.797	101.79	36.66	196.80
		7'	56	9'-3"		7½"		8'-7"	0.867	105.05	38.33	198.16
		8'	64	9'-4"		8"		9'-7"	0.942	110.81	40.00	199.52
		9'	72	9'-6"		9"		10'-7"	1.057	119.92	41.67	202.25
		10'	80	9'-8"		10"		11'-7"	1.186	126.67	43.34	204.97
	1 @ 9'	5'	45	10'-2"	10"	7"	10"	6'-8"	0.849	119.72	37.56	213.61
		6'	54	10'-3"		7½"		7'-8"	0.910	118.04	39.23	220.97
		7'	63	10'-3"		7½"		8'-8"	0.957	120.71	40.90	220.97
		8'	72	10'-4"		8"		9'-8"	1.033	126.54	42.57	222.33
		9'	81	10'-6"		9"		10'-8"	1.148	135.80	44.24	225.06
		10'	90	10'-8"		10"		11'-8"	1.276	142.68	45.91	227.78
		11'	99	10'-10"		11"		12'-8"	1.416	150.90	47.58	230.51
	1 @ 10'	5'	50	11'-2"	10½"	7"	11"	6'-9½"	0.957	130.64	40.13	242.64
		6'	60	11'-3"		7½"		7'-9½"	1.024	133.99	41.80	244.00
		7'	70	11'-3"		7½"		8'-9½"	1.071	136.66	43.47	244.00
		8'	80	11'-4"		8"		9'-9½"	1.147	142.55	45.14	245.36
		9'	90	11'-6"		9"		10'-9½"	1.263	151.92	96.81	248.09
		10'	100	11'-8"		10"		11'-9½"	1.391	158.89	98.98	250.81
		11'	110	11'-10"		11"		12'-9½"	1.532	166.71	50.15	253.54
		12'	120	12'-0"		12"		13'-9½"	1.685	178.67	51.82	256.26
	1 @ 11'	6'	66	12'-3"	11"	8"	11½"	7'-10½"	1.153	155.16	96.12	268.62
		7'	77	12'-3"		8"		8'-10½"	1.202	157.83	97.79	268.62
		8'	88	12'-4"		8"		9'-10½"	1.252	163.06	99.46	268.62
		9'	99	12'-6"		9"		10'-10½"	1.368	172.60	51.13	271.34
		10'	110	12'-8"		10"		11'-10½"	1.497	179.70	52.80	274.07
		11'	121	12'-10"		11"		12'-10½"	1.638	187.67	54.97	276.79
		12'	132	13'-0"		12"		13'-10½"	1.792	199.79	56.14	279.52
	1 @ 12'	6'	72	13'-3"	12"	8"	12½"	8'-0"	1.284	172.20	98.69	357.62
		7'	84	13'-3"		8"		9'-0"	1.333	174.87	50.36	357.62
		8'	96	13'-4"		8"		10'-0"	1.383	180.15	52.03	357.62
		9'	108	13'-6"		9"		11'-0"	1.500	189.85	58.70	361.18
		10'	120	13'-8"		10"		12'-0"	1.630	197.07	55.37	364.74
		11'	132	13'-10"		11"		13'-0"	1.772	205.16	57.04	368.30
		12'	144	14'-0"		12"		14'-0"	1.926	217.95	58.71	371.86



PART LONGITUDINAL SECTION



TYPICAL SECTION M-M



LONGITUDINAL SECTION

GENERAL NOTES:-

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

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

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

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

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

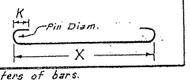
DESIGN LIVE LOAD

H20-S16 LOADING A.A.S.H.O. 1961
AND
SPECIAL MILITARY LOADING
Two 24,000 Lb. Axles @ 4'-0" ctrs.

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

BAR SIZE	PIN DIAM.	K	ADD FOR 2 HOOKS
#6	3"	5"	1'-2"
#7	3½"	5⅝"	1'-4"

BENDING DIAGRAM Bars "b"

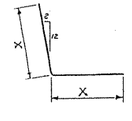


NOTE:- Dimensions are to centers of bars.

DOWEL BARS FOR TWO HEADWALLS

SPAN	SIZE	SPACING	NO. REQ'D	LENGTH	X
4'	#4	11"±	12	2'-6"	1'-3"
5'	#4	11"±	14	2'-7"	1'-3⅛"
6'	#4	11"±	16	2'-8"	1'-4"
7'	#4	11"±	18	2'-9"	1'-4⅛"
8'	#4	11⅛"±	20	2'-11"	1'-5⅛"
9'	#4	11⅛"±	22	3'-0"	1'-6"
10'	#4	11⅛"±	24	3'-1"	1'-6⅛"
11'	#4	12"±	26	3'-2"	1'-7"
12'	#4	12"±	28	3'-3"	1'-7⅛"

Bars "i" Dowel bars in Headwalls.



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

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

CLASS S CONCRETE

ARKANSAS STATE HIGHWAY COMMISSION

DETAILS OF STANDARD BARREL SECTIONS FOR REINFORCED CONCRETE BOX CULVERTS

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

STANDARD DRAWING NO. R-100X-0

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

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

BAR LIST FOR VARIOUS SECTIONS OF BARREL

"a" bars – STRAIGHT – In Top and Bottom Slabs of Barrel. 2 Add'l in Apron and Headwall - Each.
"b" bars – BENT - See Diagram at Right. In Top and Bottom Slabs of Barrel. Alternate with "a" bars.
"d" bars – STRAIGHT – Longitudinal in Top Slab of Barrel.
"d1" bars – STRAIGHT – Longitudinal in Sidewalls.
"e" bars – STRAIGHT – Longitudinal in Bottom Slab of Barrel.
"f" bars – STRAIGHT – Verticals in Sidewalls.

Section & Bar Group	Length of Sections	Depth of Cover D	Clear Span S	Clear Height H	"a" Size	"a" Spacing	"a" No. Req'd 3:1	"a" No. Req'd 4:1	"a" Length	"b" Size	"b" Spacing	"b" No. Req'd 3:1	"b" No. Req'd 4:1	"b" Length	"b" X	"d" Size	"d" Spacing	"d" No. Req'd	"d" Length	"d1" Size	"d1" Spacing	"d1" No. Req'd	"d1" Length	"e" Size	"e" Spacing	"e" No. Req'd	"e" Length	"f" Size	"f" Spacing	"f" No. Req'd 3:1	"f" No. Req'd 4:1	"f" Length
SECTION "A" & BAR GROUP "A"	3:1 = 22'-0"; 4:1 = 32'-0"	0' TO 10'-0"	1 @ 7'	5'	#5	12"	48	68	7'-9"	#6	12"	44	64	8'-10"	7'-8"	#4	12"	8	33'-3" for 32'-0" Section	#4	12"	10	33'-3" for 32'-0" Section	#4	12"	8	34'-3" for 32'-0" Section	#4	12"	44	64	6'-1"
				6'			48	68	7'-11"			44	64	9'-0"	7'-10"			8				12				8				44	64	7'-1"
				7'			48	68	8'-0"			44	64	9'-1"	7'-11"			8				14				8			11"	48	70	8'-1"
				8'			48	68	8'-1"			44	64	9'-2"	8'-0"			8				16				8		#5	12"	44	64	9'-1"
				9'			48	68	8'-3"			44	64	9'-4"	8'-2"			8				18				8			11"	48	70	10'-1"
			1 @ 8'	6'	#6	12"	48	68	8'-11"	#6	12"	44	64	10'-0"	8'-10"	#4	12"	9		#4	12"	12		#4	12"	9		#4	12"	44	64	7'-3"
				7'			48	68	9'-0"			44	64	10'-1"	8'-11"			9				14				9				44	64	8'-3"
				8'			48	68	9'-1"			44	64	10'-2"	9'-0"			9				16				9		#5	12"	44	64	9'-3"
				9'			48	68	9'-3"			44	64	10'-4"	9'-2"			9				18				9			11"	48	70	10'-3"
				10'			48	68	9'-5"			44	64	10'-6"	9'-4"			9				20				9			10"	54	78	11'-8"
			1 @ 9'	7'	#6	11"	52	74	10'-0"	#7	11"	48	70	11'-3"	9'-11"	#4	12"	10		#4	12"	14		#4	12"	10		#4	12"	44	64	8'-5"
				8'			52	74	10'-1"			48	70	11'-4"	10'-0"			10				16				10		#5	12"	44	64	9'-5"
				9'			52	74	10'-3"			48	70	11'-6"	10'-2"			10				18				10			11"	48	70	10'-5"
				10'			52	74	10'-5"			48	70	11'-8"	10'-4"			10				20				10			10"	54	78	11'-5"
				11'			52	74	10'-7"			48	70	11'-10"	10'-6"			10				22				10		#6	12"	44	64	12'-5"
			1 @ 10'	8'	#7	12"	48	68	11'-1"	#7	12"	44	64	12'-4"	11'-0"	#4	12"	11		#4	12"	16		#4	12"	11		#5	12"	44	64	9'-7"
				9'			48	68	11'-3"			44	64	12'-6"	11'-2"			11				18				11				44	64	10'-7"
				10'			48	68	11'-5"			44	64	12'-8"	11'-4"			11				20				11			10"	54	78	11'-7"
				11'			48	68	11'-7"			44	64	12'-10"	11'-6"			11				22				11		#6	12"	44	64	12'-7"
				12'			48	68	11'-9"			44	64	13'-0"	11'-8"			11				24				11			11"	48	70	13'-7"
SECTION "B" & BAR GROUP "B"	3:1 = 11'-0"; 4:1 = 16'-0"	10'-0" TO 15'-0"	1 @ 7'	5'	#6	11"	24	36	7'-9"	#6	11"	24	34	8'-10"	7'-8"	#4	12"	8	34'-3" for 33'-0" Length Section	#4	12"	10	34'-3" for 33'-0" Length Section	#4	12"	8	34'-3" for 33'-0" Length Section	#4	12"	22	32	6'-3"
				6'			24	36	7'-11"			24	34	9'-0"	7'-10"			8				12				8				22	32	7'-3"
				7'			24	36	8'-0"			24	34	9'-1"	7'-11"			8				14				8		#5	12"	22	32	8'-3"
				8'			24	36	8'-1"			24	34	9'-2"	8'-0"			8				16				8		#6	12"	22	32	9'-3"
				9'			24	36	8'-3"			24	34	9'-4"	8'-2"			8				18				8				22	32	10'-3"
			1 @ 8'	6'	#7	12"	22	32	8'-11"	#6	12"	22	32	10'-0"	8'-10"	#4	12"	9		#4	12"	12		#4	12"	9		#4	12"	22	32	7'-5"
				7'			22	32	9'-0"			22	32	10'-1"	8'-11"			9				14				9		#5	12"	22	32	8'-5"
				8'			22	32	9'-1"			22	32	10'-2"	9'-0"			9				16				9			10"	28	40	9'-5"
				9'			22	32	9'-3"			22	32	10'-4"	9'-2"			9				18				9		#6	12"	22	32	10'-5"
				10'			22	32	9'-5"			22	32	10'-6"	9'-4"			9				20				9			10"	26	38	11'-5"
			1 @ 9'	7'	#7	12"	22	32	10'-0"	#7	12"	22	32	11'-3"	9'-11"	#4	12"	10		#4	12"	14		#4	12"	10		#5	12"	22	32	8'-7"
				8'			22	32	10'-1"			22	32	11'-4"	10'-0"			10				16				10			10"	28	40	9'-7"
				9'			22	32	10'-3"			22	32	11'-6"	10'-2"			10				18				10		#6	12"	22	32	10'-7"
				10'			22	32	10'-5"			22	32	11'-8"	10'-4"			10				20				10			10"	28	38	11'-7"
				11'			22	32	10'-7"			22	32	11'-10"	10'-6"			10				22				10		#7	12"	22	32	12'-7"
			1 @ 10'	8'	#8	12"	22	32	11'-1"	#7	12"	22	32	12'-4"	11'-0"	#4	11"	12		#4	12"	16		#4	11"	12		#5	10"	28	40	9'-9"
				9'			22	32	11'-3"			22	32	12'-6"	11'-2"			12				18				12		#6	12"	22	32	10'-9"
				10'			22	32	11'-5"			22	32	12'-8"	11'-4"			12				20				12			11"	24	34	11'-9"
				11'			22	32	11'-7"			22	32	12'-10"	11'-6"			12				22				12		#7	12"	22	32	12'-9"
				12'			22	32	11'-9"			22	32	13'-0"	11'-8"			12				24				12			11"	24	36	13'-9"
SECTION "C" & BAR GROUP "C"	3:1 = 11'-0"; 4:1 = 16'-0"	15'-0" TO 20'-0"	1 @ 7'	5'	#7	13"	20	30	7'-9"	#7	13"	20	30	9'-0"	7'-8"	#4	12"	8		#4	12"	10		#4	12"	8		#4	12"	22	32	6'-5"
				6'			20	30	7'-11"			20	30	9'-2"	7'-10"			8				12				8		#5	12"	22	32	7'-5"
				7'			20	30	8'-0"			20	30	9'-3"	7'-11"			8				14				8			10"	28	38	8'-5"
				8'			20	30	8'-1"			20	30	9'-4"	8'-0"			8				16				8		#6	11"	24	36	9'-5"
				9'			20	30	8'-3"			20	30	9'-6"	8'-2"			8				18				8		#7	12"	22	32	10'-5"
			1 @ 8'	6'	#7	12"	22	32	8'-11"	#7	12"	22	32	10'-2"	8'-10"	#4	11"	10		#4	12"	12		#4	11"	10		#4	10"	28	40	7'-7"
				7'			22	32	9'-0"			22	32	10'-3"	8'-11"			10				14				10		#5	10"	28	40	8'-7"
				8'			22	32	9'-2"			22	32	10'-5"	9'-1"			10				16				10		#6	12"	22	32	9'-7"
				9'			22	32	9'-3"			22	32	10'-6"	9'-2"			10				18				10			10"	28	38	10'-7"
				10'			22	32	9'-5"			22	32	10'-8"	9'-4"			10				20				10		#7	12"	22	32	11'-7"
			1 @ 9'	7'	#8	12"	22	32	10'-1"	#7	12"	22	32	11'-4"	10'-0"	#4	11"	11		#4	12"	14		#4	11"	11		#5	12"	22	32	8'-10"
				8'			22	32	10'-2"			22	32	11'-5"	10'-1"			11				16				11		#6	12"	22	32	9'-10"
				9'			22	32	10'-3"			22	32	11'-6"	10'-2"			11				18				11			10"	28	38	10'-10"
				10'			22	32	10'-5"			22	32	11'-8"	10'-4"			11				20				11		#7	12"	22	32	11'-10"
				11'			22	32	10'-7"			22	32	11'-10"	10'-6"			11				22				11			10"	28	40	12'-10"
			1 @ 10'	8'	#8	12"	22	32	11'-2"	#8	12"	22	32	12'-7"	11'-1"	#4	10"	13		#4	12"	16		#4	10"	13		#5	10"	26	38	10'-0"
				9'			22	32	11'-4"			22	32	12'-9"	11'-3"			13				18				13		#6	11"	24	36	11'-0"
				10'			22	32	11'-5"			22	32	12'-10"	11'-4"			13				20				13		#7	12"	22	32	12'-0"
				11'			22	32	11'-7"			22	32	13'-0"	11'-6"			13				22				13			11"	24	36	13'-0"
				12'			22	32	11'-9"			22	32	13'-2"	11'-8"			13				24				13		#8	12"	22	32	14'-0"
SECTION "D" & BAR GROUP "D"	3:1 = 11'-0"; 4:1 = 16'-0"	20'-0" TO 25'-0"	1 @ 7'	5'	#7	12"	22	32	7'-10"	#7	12"	22	32	9'-1"	7'-9"	#4	11"	9	Varies with Length of Barrel	#4	12"	10	Varies with Length of Barrel	#4	11"	9	Varies with Length of Barrel	#4	12"	22	32	6'-7"
				6'			22	32	8'-0"			22	32	9'-3"	7'-11"			9				12				9		#5	12"	22	32	7'-7"
				7'			22	32	8'-1"			22	32	9'-4"	8'-0"			9				14				9			10"	26	40	8'-7"
				8'			22	32	8'-3"			22	32	9'-6"	8'-2"			9				16				9		#6	11"	24	34	9'-7"
				9'			22	32	8'-5"			22	32	9'-8"	8'-4"			9				18				9		#7	12"	22	32	10'-7"
			1 @ 8'	6'	#8	12"	22	32	9'-0"	#7	12"	22	32	10'-3"	8'-11"	#4	10"	11		#4	12"	12		#4	10"	11		#5	12"	22	32	7'-9"
				7'			22	32	9'-1"			22	32	10'-4"	9'-0"			11				14				11			10"	26	38	8'-9"
				8'			22	32	9'-3"			22	32	10'-6"	9'-2"			11				16				11		#6	12"	22	32	9'-9"
				9'			22	32	9'-5"			22	32	10'-8"	9'-4"			11				18				11			10"	26	40	10'-9"
				10'			22	32	9'-7"			22	32	10'-10"	9'-6"			11				20				11		#7	11"	24	34	11'-9"
			1 @ 9'	7'	#8	12"	22	32	10'-2"	#8	12"	22	32	11'-7"	10'-1"	#4	10"	12		#4	12"	14		#4	10"	12		#5	12"	22	32	9'-0"
				8'			22	32	10'-4"			22	32	11'-9"	10'-3"			12				16				12		#6	12"	22	32	10'-0"
				9'			22	32	10'-5"			22	32	11'-10"	10'-4"			12				18				12			10"	26	40	11'-0"
				10'			22	32	10'-7"			22	32	12'-0"	10'-6"			12				20				12		#7	12"	22	32	12'-0"
				11'			22	32	10'-9"			22	32	12'-2"	10'-8"			12				22				12			10"	26	38	13'-0"
	Varies with Length of Barrel	25'-0" TO 30'-0"	1 @ 10'	8'	#9	12"	Varies with Length of Barrel	Varies with Length of Barrel	11'-4"	#8	12"	Varies with Length of Barrel	Varies with Length of Barrel	12'-9"	11'-3"	#4	9½"	14		#4	12"	16		#4	9½"	14		#5	10"	Varies with Length of Barrel	Varies with Length of Barrel	10'-3"
				9'					11'-6"					12'-11"	11'-5"			14				18				14		#6	11"			11'-3"
				10'					11'-7"					13'-0"	11'-6"			14				20				14		#7	12"			12'-3"
				11'					11'-9"					13'-2"	11'-8"			14				22				14			10"			13'-3"
				12'					11'-11"					13'-4"	11'-10"			14				24				14		#8	12"			14'-3"
SECTION "E" & BAR GROUP "E"			1 @ 7'	5'	#7	11"			7'-11"	#7	11"			9'-2"	7'-10"	#4	11"	9		#4	12"	10		#4	11"	9		#4	12"			6'-8"
				6'					8'-1"					9'-4"	8'-0"			9				12				9		#5	12"			7'-8"
				7'					8'-3"					9'-6"	8'-2"			9				14				9			10"			8'-8"
				8'					8'-4"					9'-7"	8'-3"			9				16				9		#6	11"			9'-8"
				9'					8'-6"					9'-9"	8'-5"			9				18				9		#7	12"			10'-8"
			1 @ 8'	6'	#8	11"			9'-1"	#7	11"			10'-4"	9'-0"	#4	10"	11		#4	12"	12		#4	10"	11		#5	12"			7'-11"
				7'					9'-3"					10'-6"	9'-2"			11				14				11			10"			8'-11"
				8'					9'-5"					10'-8"	9'-4"			11				16				11		#6	12"			9'-11"
				9'					9'-7"					10'-10"	9'-6"			11				18				11			10"			10'-11"
				10'					9'-9"					11'-0"	9'-8"			11				20				11		#7	11"			11'-11"
			1 @ 9'	7'	#8	11"			10'-3"	#8	11"			11'-8"	10'-2"	#4	9"	13		#4	12"	14		#4	9"	13		#5	12"			9'-2"
				8'					10'-5"					11'-10"	10'-4"			13				16				13		#6	12"			10'-2"
				9'					10'-7"					12'-0"	10'-6"			13				18				13			10"			11'-2"
				10'					10'-9"					12'-2"	10'-8"			13				20				13		#7	11"			12'-2"
				11'					10'-11"					12'-4"	10'-10"			13				22				13			10"			13'-2"

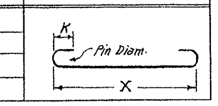
NOTE:- Bars for each Section to be marked with the Section letter, thus for Section B, the bars should be marked Ba, Bb, Bd, Bd1, Be and Bf.

Designed By: W.C.H. 7-18-62. Checked By:- RHS 7-25-62
Drawn By: W.C.H. 8-3-62. Checked By:- RHS 8-10-62
Quantities By: W.C.H. 8-1-62. Checked By:- RHS 8-10-62

DIMENSIONS / QUANTITIES

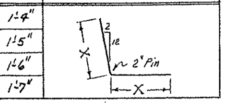
Max. Design Depth of Cover D	Clear Span S	Clear Height H	Sq. Ft. Opening A	Overall Width OW	Thickness of Top Slab T	Thickness of Sidewalls C	Thickness of Bottom Slab B	Overall Height OH	Class S Conc. per Lin. Ft. of Barrel CU. YD.	Reinforcing Steel per Lin. Ft. of Barrel LB.	Additional per Lap LB.	Additional Two Headwalls & Aprons LB.
SECTION "A" - 10'-0"	1 @ 7'	5'	35	8'-0"	8"	6"	8½"	6'-4½"	0.593	68.20	21.71	107.42
		6'	42	8'-2"		7"		7'-4½"	0.675	71.72	23.38	108.81
		7'	49	8'-3"		7½"		8'-4½"	0.744	75.80	25.05	109.50
		8'	56	8'-4"		8"		9'-4½"	0.819	84.72	26.72	110.20
		9'	63	8'-6"		9"		10'-4½"	0.933	90.91	28.39	111.59
	1 @ 8'	6'	48	9'-2"	8½"	7"	9½"	7'-6"	0.769	86.55	25.05	157.02
		7'	56	9'-3"		7½"		8'-6"	0.838	89.72	26.72	158.02
		8'	64	9'-4"		8"		9'-6"	0.914	99.84	28.39	159.02
		9'	72	9'-6"		9"		10'-6"	1.028	106.20	30.06	161.03
		10'	80	9'-8"		10"		11'-6"	1.154	113.38	31.73	163.03
	1 @ 9'	7'	63	10'-3"	9½"	7½"	10½"	8'-8"	0.957	116.90	28.39	177.61
		8'	72	10'-4"		8"		9'-8"	1.033	127.28	30.06	178.61
		9'	81	10'-6"		9"		10'-8"	1.148	133.97	31.73	180.61
		10'	90	10'-8"		10"		11'-8"	1.276	141.46	33.40	182.62
		11'	99	10'-10"		11"		12'-8"	1.416	152.81	35.07	184.62
	1 @ 10'	8'	80	11'-4"	10½"	8"	11½"	9'-10"	1.165	141.10	31.73	249.37
		9'	90	11'-6"		9"		10'-10"	1.281	145.89	33.40	252.10
		10'	100	11'-8"		10"		11'-10"	1.409	155.50	35.07	254.82
		11'	110	11'-10"		11"		12'-10"	1.550	167.01	36.74	257.55
		12'	120	12'-0"		12"		13'-10"	1.704	176.42	38.41	260.27
SECTION "B" - 15'-0"	1 @ 7'	5'	35	8'-0"	8¾"	6"	9¼"	6'-6"	0.630	80.06	21.71	
		6'	42	8'-2"		7"		7'-6"	0.713	83.83	23.38	
		7'	49	8'-3"		7½"		8'-6"	0.782	93.23	25.05	
		8'	56	8'-4"		8"		9'-6"	0.858	105.69	26.72	
		9'	63	8'-6"		9"		10'-6"	0.972	111.13	28.39	
	1 @ 8'	6'	48	9'-2"	9¾"	7"	10¾"	7'-8½"	0.839	96.94	25.05	
		7'	56	9'-3"		7½"		8'-8½"	0.909	106.02	26.72	
		8'	64	9'-4"		8"		9'-8½"	0.986	113.96	28.39	
		9'	72	9'-6"		9"		10'-8½"	1.101	124.20	30.06	
		10'	80	9'-8"		10"		11'-8½"	1.229	136.58	31.73	
	1 @ 9'	7'	63	10'-3"	10¾"	7½"	11¾"	8'-10½"	1.036	127.49	28.39	
		8'	72	10'-4"		8"		9'-10½"	1.113	135.59	30.06	
		9'	81	10'-6"		9"		10'-10½"	1.229	146.09	31.73	
		10'	90	10'-8"		10"		11'-10½"	1.358	158.75	33.40	
		11'	99	10'-10"		11"		12'-10½"	1.499	171.14	35.07	
	1 @ 10'	8'	80	11'-4"	11¾"	8"	12¾"	10'-0½"	1.252	160.73	33.40	
		9'	90	11'-6"		9"		11'-0½"	1.370	171.52	35.07	
		10'	100	11'-8"		10"		12'-0½"	1.499	180.64	36.74	
		11'	110	11'-10"		11"		13'-0½"	1.642	197.17	38.41	
		12'	120	12'-0"		12"		14'-0½"	1.796	209.27	40.08	
SECTION "C" - 20'-0"	1 @ 7'	5'	35	8'-0"	9¾"	6"	10¼"	6'-8"	0.679	89.15	21.71	
		6'	42	8'-2"		7"		7'-8"	0.763	98.64	23.38	
		7'	49	8'-3"		7½"		8'-8"	0.833	106.20	25.05	
		8'	56	8'-4½"		8¼"		9'-8"	0.924	117.96	26.72	
		9'	63	8'-6½"		9¼"		10'-8"	1.041	132.28	28.39	
	1 @ 8'	6'	48	9'-2"	11"	7"	11½"	7'-10½"	0.896	111.55	26.72	
		7'	56	9'-3"		7½"		8'-10½"	0.966	122.89	28.39	
		8'	64	9'-5"		8½"		9'-10½"	1.074	132.89	30.06	
		9'	72	9'-6½"		9¼"		10'-10½"	1.177	144.27	31.73	
		10'	80	9'-8½"		10¼"		11'-10½"	1.307	156.17	33.40	
	1 @ 9'	7'	63	10'-4"	12"	8"	13"	9'-1"	1.143	142.65	30.06	
		8'	72	10'-5"		8½"		10'-1"	1.224	155.88	31.73	
		9'	81	10'-6½"		9¼"		11'-1"	1.327	167.52	33.40	
		10'	90	10'-8½"		10¼"		12'-1"	1.459	179.75	35.07	
		11'	99	10'-10½"		11¼"		13'-1"	1.603	197.24	36.74	
	1 @ 10'	8'	80	11'-5½"	13¾"	8¾"	14¾"	10'-3½"	1.405	179.91	35.07	
		9'	90	11'-7"		9½"		11'-3½"	1.511	194.05	36.74	
		10'	100	11'-8½"		10¼"		12'-3½"	1.626	209.28	38.41	
		11'	110	11'-10½"		11¼"		13'-3½"	1.772	221.31	40.08	
		12'	120	12'-0½"		12¼"		14'-3½"	1.929	241.22	41.75	
SECTION "D" - 25'-0"	1 @ 7'	5'	35	8'-1"	10¾"	6½"	11¼"	6'-10"	0.749	96.65	23.38	
		6'	42	8'-3"		7½"		7'-10"	0.838	106.38	25.05	
		7'	49	8'-4½"		8¼"		8'-10"	0.925	114.06	26.72	
		8'	56	8'-6"		9"		9'-10"	1.022	126.68	28.39	
		9'	63	8'-8"		10"		10'-10"	1.144	141.24	30.06	
	1 @ 8'	6'	48	9'-3"	12"	7½"	12½"	8'-0½"	0.977	128.84	28.39	
		7'	56	9'-4½"		8¼"		9'-0½"	1.065	136.70	30.06	
		8'	64	9'-6½"		9¼"		10'-0½"	1.178	146.99	31.73	
		9'	72	9'-8½"		10¼"		11'-0½"	1.304	159.36	33.40	
		10'	80	9'-10½"		11¼"		12'-0½"	1.441	175.92	35.07	
	1 @ 9'	7'	63	10'-5"	13¼"	8½"	14¼"	9'-3½"	1.251	160.30	31.73	
		8'	72	10'-7"		9½"		10'-3½"	1.367	174.69	33.40	
		9'	81	10'-8½"		10¼"		11'-3½"	1.478	186.52	35.07	
		10'	90	10'-10½"		11¼"		12'-3½"	1.617	199.04	36.74	
		11'	99	11'-0½"		12¼"		13'-3½"	1.769	216.88	38.41	
	1 @ 10'	8'	80	11'-7"	14½"	9½"	15½"	10'-6"	1.542	200.20	36.74	
		9'	90	11'-9"		10½"		11'-6"	1.671	214.77	38.41	
		10'	100	11'-10½"		11¼"		12'-6"	1.794	230.33	40.08	
		11'	110	12'-0½"		12¼"		13'-6"	1.947	248.61	41.75	
		12'	120	12'-2½"		13¼"		14'-6"	2.112	263.06	43.42	
SECTION "E" - 30'-0"	1 @ 7'	5'	35	8'-2"	11½"	7"	12"	6'-11½"	0.808	103.80	23.38	
		6'	42	8'-4"		8"		7'-11½"	0.901	113.71	25.05	
		7'	49	8'-6"		9"		8'-11½"	1.005	122.23	26.72	
		8'	56	8'-7½"		9¾"		9'-11½"	1.107	134.29	28.39	
		9'	63	8'-9½"		10¾"		10'-11½"	1.235	149.04	30.06	
	1 @ 8'	6'	48	9'-4"	13"	8"	13½"	8'-2½"	1.060	138.22	28.39	
		7'	56	9'-6"		9"		9'-2½"	1.166	147.08	30.06	
		8'	64	9'-8"		10"		10'-2½"	1.284	157.60	31.73	
		9'	72	9'-10"		11"		11'-2½"	1.415	170.21	33.40	
		10'	80	10'-0"		12"		12'-2½"	1.559	187.05	35.07	
	1 @ 9'	7'	63	10'-6½"	14½"	9½"	15½"	9'-5½"	1.360	173.52	33.40	
		8'	72	10'-8½"		10¼"		10'-5½"	1.481	188.21	35.07	
		9'	81	10'-10"		11"		11'-5½"	1.597	201.20	36.74	
		10'	90	11'-0"		12"		12'-5½"	1.742	218.49	38.41	
		11'	99	11'-2"		13"		13'-5½"	1.899	232.10	40.08	

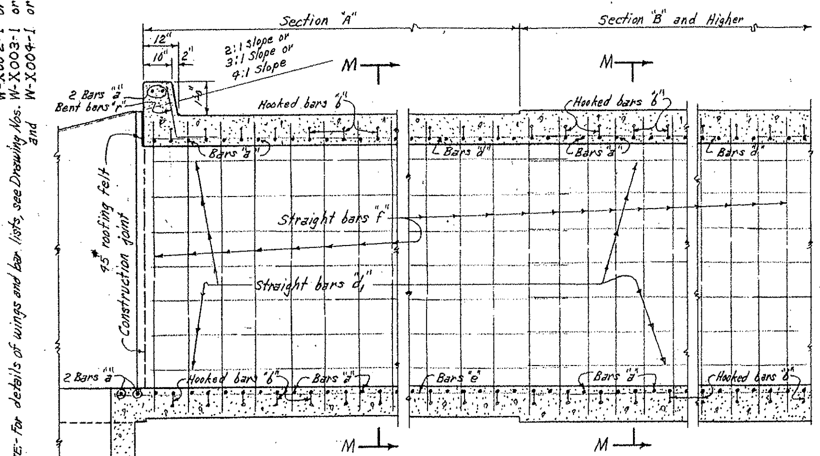
NOTE:- For details of wings and bar lists, see Drawing Nos. W-X002-1 or W-X002-2, W-X003-1 or W-X003-2 and W-X004-1 or W-X004-2.

Bar Size	Pin Diam.	K	Add for 2 Hooks	Bars "b"
#6	3"	5"	1'-2"	
#7	3½"	5¾"	1'-4"	
#8	4"	6½"	1'-6"	

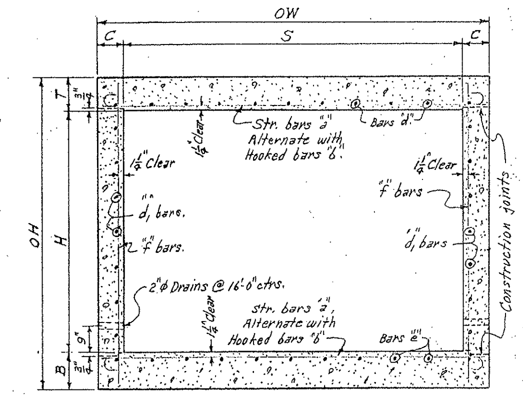
NOTE:- Dimensions are to centers of bars.

DOWEL BARS FOR TWO HEADWALLS

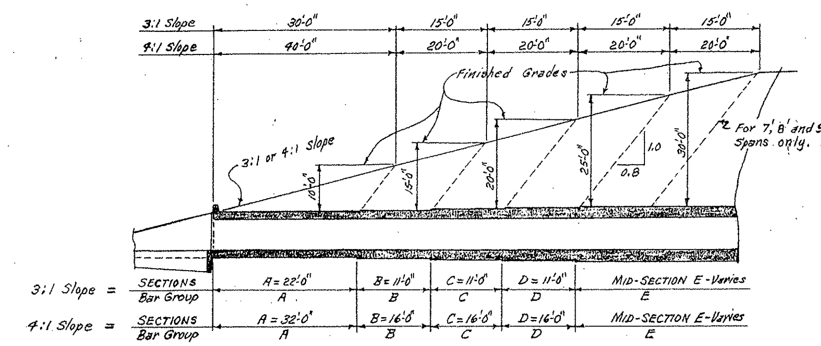
Span	Size	Spacing	No. Req'd	Length	X	Bars "r" Dowel bars in Headwalls
7'	#4	11"	18	2'-8"	1'-4"	
8'	#4	12"	20	2'-10"	1'-5"	
9'	#4	12"	22	3'-0"	1'-6"	
10'	#4	12"	24	3'-4"	1'-7"	



PART LONGITUDINAL SECTION



TYPICAL SECTION M-M



TYPICAL LONGITUDINAL SECTION-SHOWING SECTIONS AND BAR GROUPS FOR VARIOUS DEPTHS OF COVER

NOTE:- Lengths of Sections, with Bar Groups to be shown on Cross Section Sheets.

SECTIONS AND BAR GROUPS TO BE USED FOR VARIOUS DEPTHS OF COVER

Depths of Cover	Sections & Bar Groups for End Sections A	B	C	D	Mid-Section and Bar Group
5.0' to 9.5'	✓				A
10.0' to 14.5'	✓				B
15.0' to 19.5'	✓	✓			C
20.0' to 24.5'	✓	✓	✓		D
25.0' to 30.0'	✓	✓	✓	✓	E

LENGTH OF SECTIONS FOR SKEWED CULVERTS

Skew Angle	Sec. of Skew Angle	3:1 Slopes Sections A	3:1 Slopes Sections B, C or D	4:1 Slopes Sections A	4:1 Slopes Sections B, C or D
0°	1.0	22.0'	11.0'	32.0'	16.0'
15°	1.0353	22.776'	11.388'	33.129'	16.564'
30°	1.1547	25.403'	12.702'	36.950	18.475'
45°	1.4142	31.113'	15.556'	45.255'	22.627'

GENERAL NOTES:-

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

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

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

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

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

DESIGN LIVE LOAD

H20-S16 LOADING A.A.S.H.O. 1961
AND
SPECIAL MILITARY LOADING
Two 24,000 Lb. Axles @ 4'-0" ctrs.

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

REVISIONS:-
Wing Drwg. Nos.- W.C.H. 1-14-63.

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

CLASS S CONCRETE

ARKANSAS STATE HIGHWAY COMMISSION

DETAILS OF STANDARD BARREL SECTIONS FOR REINFORCED CONCRETE BOX CULVERTS

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

STANDARD DRAWING NO. R-100X-X2