

ARKANSAS STATE HIGHWAY AND TRANSPORTATION DEPARTMENT  
CONSTRUCTION PLANS

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.	100800		1	20

② HWY. 49/VALLEY VIEW DR./DARR HILL RD. SIGNAL (JONESBORO) (S)

HWY. 49 / VALLEY VIEW DR. / DARR HILL RD. SIGNAL

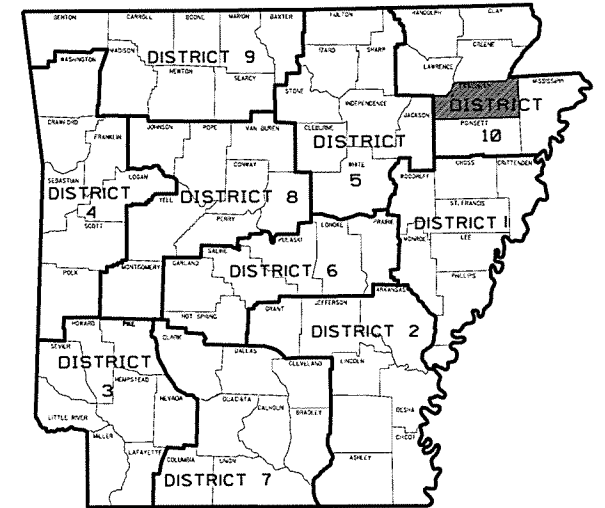
(JONESBORO) (S)

CRAIGHEAD COUNTY

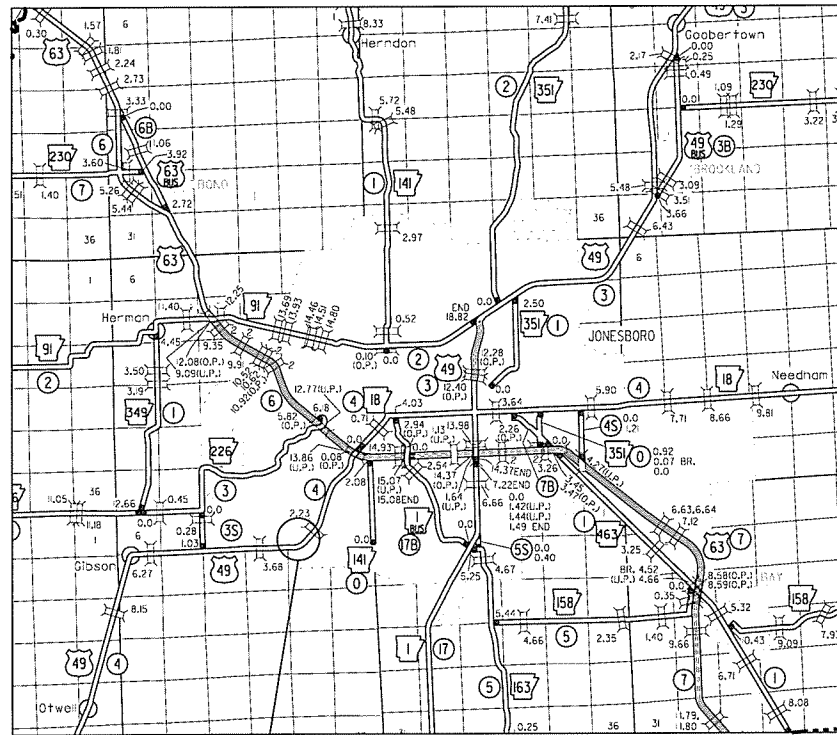
ROUTE 49, SECTION 4

FAP NO. STP-9227(47)

JOB 100800

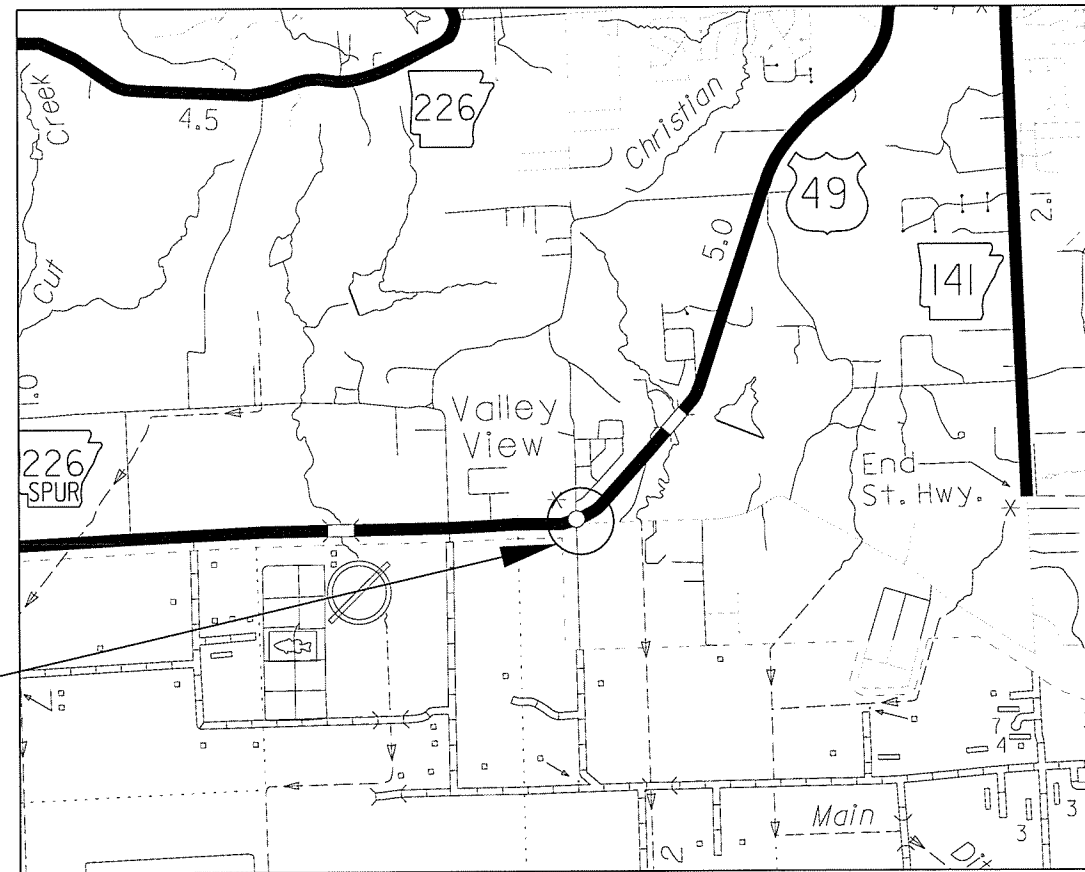


ARKANSAS HIGHWAY DISTRICT 10



VICINITY MAP

PROJECT LOCATION

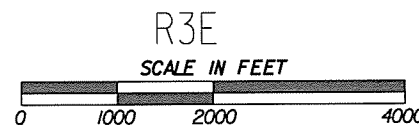


HWY. 49/DARR HILL RD.

MID POINT OF PROJECT

Long. 90°44'44" W

Lat. 35°46'41" N



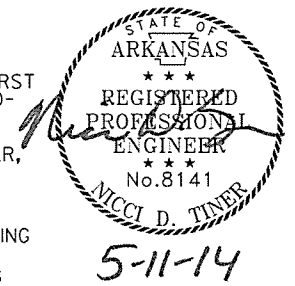
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JOB 100800

5/9/2014 8:56:58 AM  
WORKSPACE: AHTD  
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REVISED DATE:

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.		100800	2	20

INDEX OF SHEETS, GOVERNING SPECS., & NOTES



SHEET NO.	TITLE	DRAWING NO.	DATE
1	TITLE SHEET		
2	INDEX OF SHEETS, GOVERNING SPECIFICATIONS, AND NOTES		
3	SUMMARY OF QUANTITIES AND REVISIONS		
4	SYSTEM MAP		
5	CONTROL DETAIL SHEET		
6	PERMANENT PAVEMENT MARKINGS		
7-9	SIGNALIZATION PLANS		
10	PAVEMENT MARKING DETAILS	PM-1	9-12-13
11	LOOP DETECTOR INSTALLATION	SD-4	9-12-13
12	CONTROLLER CABINET UTILITY DRAWER	SD-5	9-12-13
13	HEAVY DUTY PULL BOX	SD-6	9-12-13
14	SIGNAL HEAD PLACEMENT	SD-8	9-12-13
15	SERVICE POINT	SD-9	9-12-13
16	STEEL POLE WITH MAST ARM	SD-11	2-27-14
17	FLASHING BEACON INSTALLATION FOR HAZARDOUS CONDITIONS	SD-13	2-27-14
18	STANDARD TRAFFIC CONTROL FOR HIGHWAY CONSTRUCTION	TC-1	12-15-11
19	STANDARD TRAFFIC CONTROL FOR HIGHWAY CONSTRUCTION	TC-2	9-12-13
20	STANDARD TRAFFIC CONTROL FOR HIGHWAY CONSTRUCTION	TC-3	10-15-09

## TRAFFIC SIGNAL NOTES

- PERFORM ELECTRICAL WORK IN ACCORDANCE WITH THE CURRENT EDITIONS OF THE NFPA 70 (2014) NATIONAL ELECTRICAL CODE, NFPA 101 (2012) LIFE SAFETY CODE, STATE ELECTRICAL CODE AND LOCAL ELECTRICAL CODE.
- EXTEND GREEN EQUIPMENT GROUNDING CONDUCTOR (EGC) FROM GROUND BAR AT MAIN BREAKER TO CONTROL PANEL AND TO FIRST POLE. SOLIDLY BOND EGC 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.
- ELECTRICAL SERVICE SHALL BE PROVIDED BY THE CITY TO A SERVICE POLE WITH EXTERNAL RAIN-TIGHT 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 USE RATED, WITH GROUND TYPICAL), AND PERFORM WIRING TO TAP INTO THE CITY'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 AWG 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.
- CONTRACTOR SHALL CONNECT A SEPARATE NEUTRAL FOR EACH LOAD SWITCH REPRESENTED ON EACH SIGNAL POLE.
- 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.
- CONTROLLER CABINET SHALL BE WIRED SUCH THAT DURING FLASH OPERATIONS POWER TO THE LOAD SWITCHES CANNOT BACKFEED TO LOAD SWITCH POWER BUSS.
- ALL PARTS OF THIS INSTALLATION SHALL BE IN ACCORDANCE WITH THE ARKANSAS HIGHWAY AND TRANSPORTATION DEPARTMENT STANDARDS AND DETAILS AND WITH THE MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES, CURRENT EDITIONS.
- 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 DETAILS MAY BE USED.
- TRAFFIC SIGNAL POLES SHALL BE GALVANIZED. BACKPLATES SHALL BE SUPPLIED FOR ALL SIGNAL HEADS.
- 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 SPECIAL DETAILS). PAYMENT WILL BE INCLUDED IN SECTION 714, AHTD STANDARD SPECIFICATIONS FOR HIGHWAY CONSTRUCTION.
- ALL BOXES SHALL BE (TYPE 2 HD) UNLESS OTHERWISE INDICATED. ALL CONDUIT SHALL BE 3" DIAMETER UNLESS SPECIFIED ON PLANS.
- CONTRACTOR SHALL NOTIFY ALL EXISTING UTILITY OWNERS BEFORE BEGINNING WORK ON THIS PROJECT.
- LUMINAIRE ASSEMBLIES SHALL BE OF THE FULL CUTOFF TYPE.
- 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.
- THE LOCAL RADIO WITH ANTENNA SHALL BE A PROXIM TSUNAMIMP-8150-SUR WHICH IS COMPATIBLE WITH THE EXISTING CLOSED LOOP COORDINATION SYSTEM IN THE CITY.
- 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, 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 21 FEET SHOULD BE USED TO DETERMINE UTILITY CLEARANCE ABOVE THE TRAFFIC SIGNAL MAST ARM. AN ADDITIONAL 6 FEET SHOULD BE USED DIRECTLY ABOVE "VIDEO DETECTOR" AT LOCATIONS SHOWN ON THE SIGNAL PLANS.
- THE DESIRABLE MINIMUM DISTANCE FROM THE FACE OF ROADWAY CURB OR SHOULDER EDGE TO THE FACE OF NON-BREAKAWAY POLE OR OBSTRUCTION IS 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.
- 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 IS KEYED INTO COMPETENT ROCK.
- CONNECTION OF TRAFFIC SIGNAL DISPLAY TO FIELD WIRING SHALL UTILIZE AN APPROVED TERMINAL STRIP BEHIND HANDHOLE 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 POLE WITH FOUNDATION.
- CONTROLLER CABINET LAYOUT AND ORIENTATION SHALL CONFORM TO IMSA STANDARDS.
- ONE VIDEO PROGRAMMING 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.
- TRAFFIC SIGNAL CONTRACTOR MUST NOTIFY 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.
- 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.
- TRAFFIC SIGNAL CONTROLLER SHALL BE COMPATIBLE WITH THE CITY'S EXISTING EAGLE MARC MASTER CLOSED LOOP SYSTEM.

## GENERAL NOTES

- GRADE LINE DENOTES FINISHED GRADE WHERE SHOWN ON THE PLANS.
- ALL PIPE LINES, POWER, TELEPHONE, AND TELEGRAPH LINES TO BE MOVED OR LOWERED BY THE RESPECTIVE OWNERS AS PER AGREEMENT WITH SUCH OWNERS.
- ANY EQUIPMENT OR APPURTENANCE THAT INTERFERES WITH THE PROPOSED CONSTRUCTION AND WHICH MAY BE THE PROPERTY OF UTILITY SERVICE ORGANIZATIONS SHALL BE MOVED BY THE OWNERS UNLESS OTHERWISE PROVIDED.
- 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.
- ALL LAND MONUMENTS LOCATED WITHIN THE CONSTRUCTION AREA SHALL BE PROTECTED IN ACCORDANCE WITH SECTION 107.12 OF THE STANDARD SPECIFICATIONS.
- ALL TREES THAT DO NOT DIRECTLY INTERFERE WITH THE PROPOSED CONSTRUCTION SHALL BE SPARED AS DIRECTED BY THE ENGINEER. CARE AND DISCRETION SHALL BE USED TO INSURE THAT ALL TREES NOT TO BE REMOVED SHALL BE HARMED AS LITTLE AS POSSIBLE DURING THE CONSTRUCTION OPERATIONS.

## 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
108-1	LIQUIDATED DAMAGES
JOB 100800	CABINET DRAWER ASSEMBLY
JOB 100800	DOCUMENTATION OF PAYMENTS MADE TO DISADVANTAGED BUSINESS ENTERPRISES
JOB 100800	EDGE CARD VIDEO PROCESSOR (ETHERNET ENABLED MULTI PORT EDGE CARD SWITCH)
JOB 100800	ELECTRICAL CONDUCTORS-IN-CONDUIT
JOB 100800	ELECTRICAL CONDUCTORS FOR LUMINAIRES
JOB 100800	INTERNET BIDDING
JOB 100800	LED TRAFFIC SIGNAL HEAD
JOB 100800	LUMINAIRE ASSEMBLY (CUTOFF TYPE)
JOB 100800	SERVICE POINT ASSEMBLY (TRAFFIC CONTROL DEVICES)
JOB 100800	SERVICE POINT ASSEMBLY (UNDERGROUND SECONDARY SERVICE)
JOB 100800	STREET NAME SIGN (MAST ARM MOUNTED)
JOB 100800	SYSTEM LOCAL CONTROLLER
JOB 100800	UTILITY ADJUSTMENTS
JOB 100800	VIDEO DETECTOR (COLOR)

LOCATION: HWY. 49/VALLEY VIEW DR/DARR HILL RD.  
 CITY: JONESBORO  
 COUNTY: CRAIGHEAD  
 DISTRICT: 10 SCALE: 1"=40' DRAWN BY: AMP

5/11/2014 8:46:07 AM  
 WORKSPACE: AHTD  
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 REVISION DATE:

**SUMMARY OF QUANTITIES**

ITEM NO.	ITEM	QUANTITY	UNIT
601	MOBILIZATION	1.00	L.S.
603	MAINTENANCE OF TRAFFIC	1.00	L.S.
604	REMOVAL OF PERMANENT PAVEMENT MARKINGS	1661	LIN. FT.
604	REMOVAL OF PERMANENT PAVEMENT MARKINGS (ARROWS)	3	EACH
604	REMOVAL OF PERMANENT PAVEMENT MARKINGS (WORDS)	3	EACH
SP & 701	SYSTEM LOCAL CONTROLLER TS2-TYPE 2 (8 PHASES)	1	EACH
703	FLASHING BEACON CONTROLLER	1	EACH
SP & 706	TRAFFIC SIGNAL HEAD, LED, (1 SECTION, 1 WAY)	2	EACH
SP & 706	TRAFFIC SIGNAL HEAD, LED, (3 SECTION, 1 WAY)	13	EACH
SP & 706	TRAFFIC SIGNAL HEAD, LED, (4 SECTION, 1 WAY)	2	EACH
708	TRAFFIC SIGNAL CABLE (5c/14 A.W.G.)	539	LIN. FT.
708	TRAFFIC SIGNAL CABLE (7c/14 A.W.G.)	197	LIN. FT.
708	TRAFFIC SIGNAL CABLE (20c/14 A.W.G.)	493	LIN. FT.
709	GALVANIZED STEEL CONDUIT (1.25")	15	LIN. FT.
710	NON-METALLIC CONDUIT (1.25")	29	LIN. FT.
710	NON-METALLIC CONDUIT (2")	10	LIN. FT.
710	NON-METALLIC CONDUIT (3")	366	LIN. FT.
711	CONCRETE PULL BOX (TYPE 1 HD)	1	EACH
711	CONCRETE PULL BOX (TYPE 2 HD)	5	EACH
714	TRAFFIC SIGNAL MAST ARM AND POLE WITH FOUNDATION (34')	1	EACH
714	TRAFFIC SIGNAL MAST ARM AND POLE WITH FOUNDATION (44')	1	EACH
714	TRAFFIC SIGNAL MAST ARM AND POLE WITH FOUNDATION (46')	1	EACH
714	TRAFFIC SIGNAL MAST ARM AND POLE WITH FOUNDATION (50')	1	EACH
719	THERMOPLASTIC PAVEMENT MARKING (ARROWS)	3	EACH
719	THERMOPLASTIC PAVEMENT MARKING (WORDS)	3	EACH
719	THERMOPLASTIC PAVEMENT MARKING WHITE (4")	450	LIN. FT.
719	THERMOPLASTIC PAVEMENT MARKING WHITE (6")	50	LIN. FT.
719	THERMOPLASTIC PAVEMENT MARKING WHITE (12")	71	LIN. FT.
719	THERMOPLASTIC PAVEMENT MARKING WHITE (24")	66	LIN. FT.
719	THERMOPLASTIC PAVEMENT MARKING YELLOW (4")	1140	LIN. FT.
721	RAISED PAVEMENT MARKERS (TYPE II)	39	EACH
SP & 733	MULTI PORT EDGE CARD SWITCH (E-NET)	1	EACH
SP & 733	VEHICLE DETECTOR RACK (24 CHANNEL)	1	EACH
733	VIDEO CABLE	974	LIN. FT.
SP & 733	VIDEO DETECTOR (CLR)	7	EACH *
SP & 733	VIDEO EDGE CARD EXTENDER	3	EACH
733	VIDEO MONITOR (CLR)	1	EACH
SP & 733	VIDEO PROCESSOR, EDGE CARD (2 CAMERA)	4	EACH *
SP	ANTENNA CABLE (TYPE 6)	190	LIN. FT. **
SP	ELECTRICAL CONDUCTORS-IN-CONDUIT (2C/6 A.W.G.)	59	LIN. FT.
SP	ELECTRICAL CONDUCTORS-IN-CONDUIT (1C/8 A.W.G, EGC)	431	LIN. FT.
SP	ELECTRICAL CONDUCTORS-IN-CONDUIT (1C/12 A.W.G, EGC)	180	LIN. FT.
SP	ELECTRICAL CONDUCTORS FOR LUMINAIRES	442	LIN. FT.
SP	LOCAL RADIO WITH ANTENNA	3	EACH **
SP	LUMINAIRE ASSEMBLY	3	EACH
SP	SERVICE POINT ASSEMBLY (2 CIRCUITS)	2	EACH
SP	18" STREET NAME SIGN	4	EACH

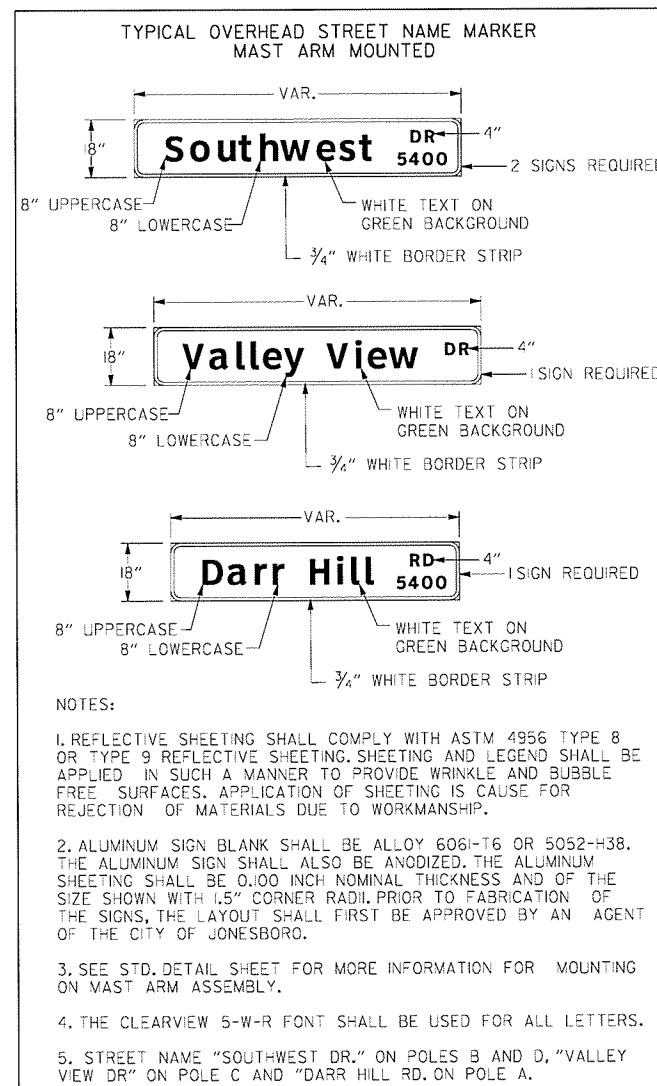
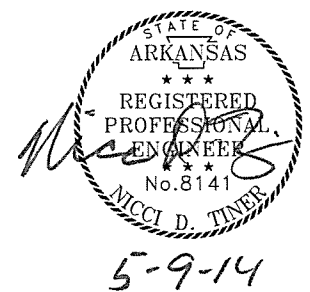
\* ONE ADDITIONAL VIDEO DETECTOR AND ONE ADDITIONAL VIDEO PROCESSOR, EDGE CARD SHALL BE PROVIDED FOR FUTURE USE.

\*\* INCLUDES RADIO EQUIPMENT AT THE INTERSECTION OF HIGHWAY 49 AND KELLERS CHAPEL.

**REVISIONS**

DATE	REVISION	SHEET NUMBER

② SUMMARY OF QUANTITIES AND REVISIONS

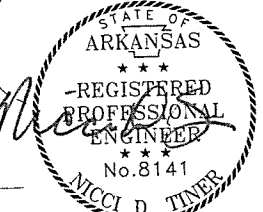


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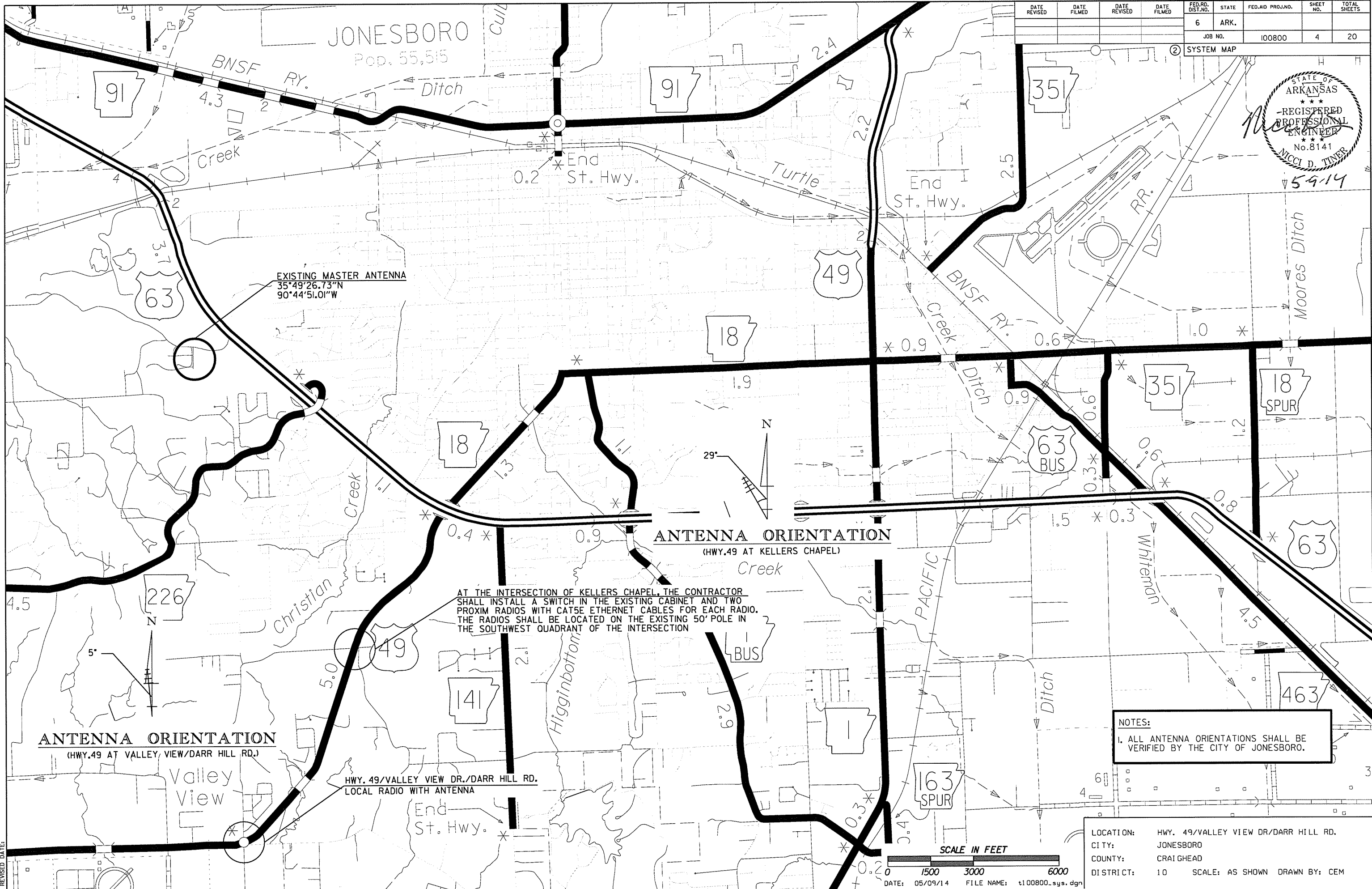
LOCATION: HWY. 49/VALLEY VIEW DR./DARR HILL RD.  
 CITY: JONESBORO  
 COUNTY: CRAIGHEAD  
 DISTRICT: 10 SCALE: 1" = 80' DRAWN BY: AMP

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED. RD. DIST. NO.	STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.		4	20

② SYSTEM MAP



5-9-14



EXISTING MASTER ANTENNA  
35°49'26.73"N  
90°44'51.01"W

**ANTENNA ORIENTATION**  
(HWY. 49 AT KELLERS CHAPEL)

AT THE INTERSECTION OF KELLERS CHAPEL, THE CONTRACTOR SHALL INSTALL A SWITCH IN THE EXISTING CABINET AND TWO PROXIM RADIOS WITH CAT5 ETHERNET CABLES FOR EACH RADIO. THE RADIOS SHALL BE LOCATED ON THE EXISTING 50' POLE IN THE SOUTHWEST QUADRANT OF THE INTERSECTION

**ANTENNA ORIENTATION**  
(HWY. 49 AT VALLEY VIEW/DARR HILL RD.)

HWY. 49/VALLEY VIEW DR./DARR HILL RD.  
LOCAL RADIO WITH ANTENNA

**NOTES:**  
1. ALL ANTENNA ORIENTATIONS SHALL BE VERIFIED BY THE CITY OF JONESBORO.

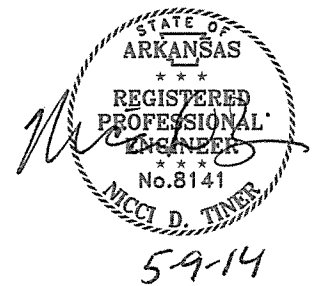


LOCATION: HWY. 49/VALLEY VIEW DR/DARR HILL RD.  
CITY: JONESBORO  
COUNTY: CRAIGHEAD  
DISTRICT: 10 SCALE: AS SHOWN DRAWN BY: CEM

cem@kinney 5/9/2014 9:37:35 AM  
 WORKSPACE: AHTD  
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 REVISED DATE:

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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CONTROL DETAIL SHEET

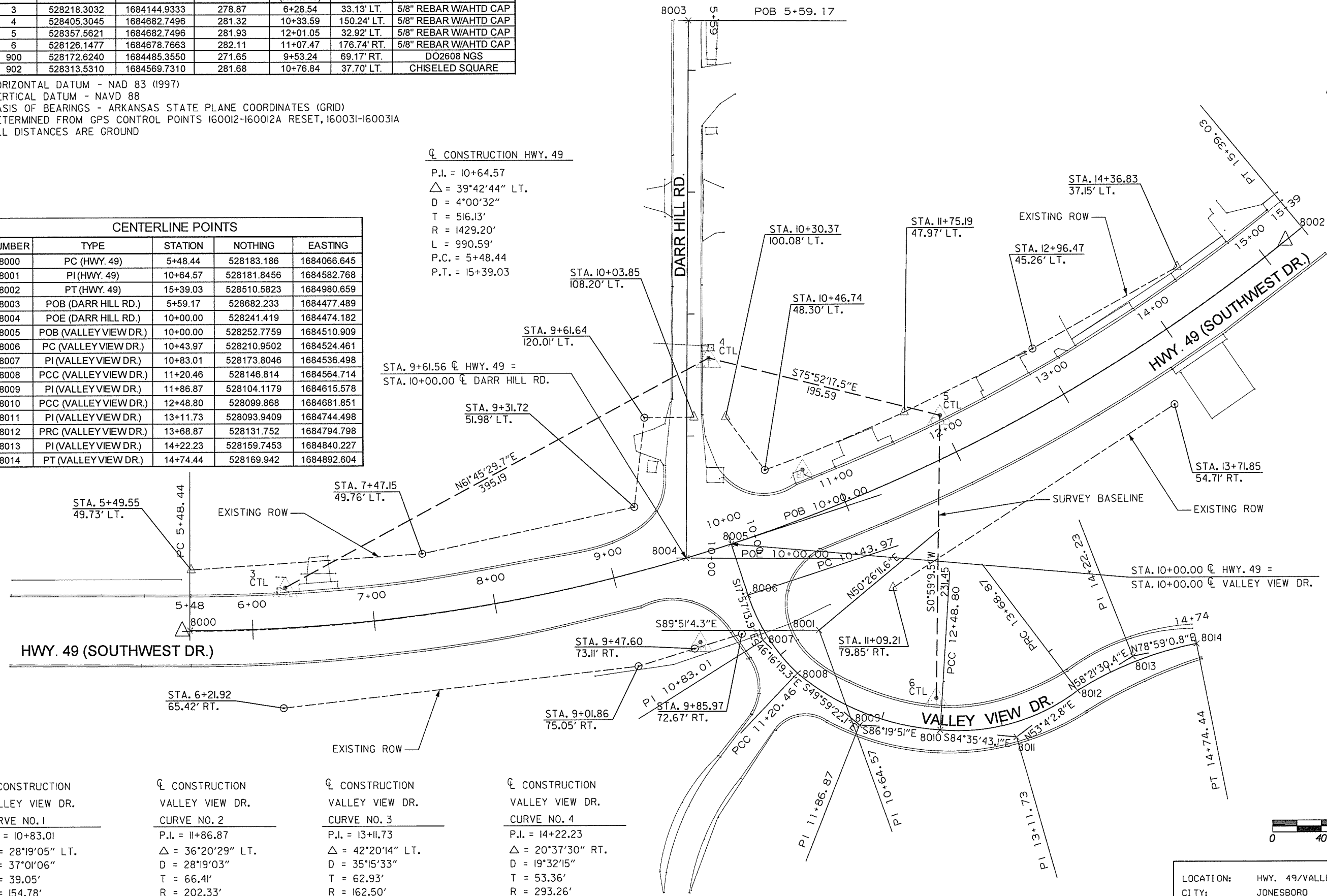


COORDINATES						
POINT	NORTHING	EASTING	ELEVATION	STATION (HWY. 49)	OFFSET	DESCRIPTION
3	528218.3032	1684144.9333	278.87	6+28.54	33.13' LT.	5/8" REBAR W/AHTD CAP
4	528405.3045	1684682.7496	281.32	10+33.59	150.24' LT.	5/8" REBAR W/AHTD CAP
5	528357.5621	1684682.7496	281.93	12+01.05	32.92' LT.	5/8" REBAR W/AHTD CAP
6	528126.1477	1684678.7663	282.11	11+07.47	176.74' RT.	5/8" REBAR W/AHTD CAP
900	528172.6240	1684485.3550	271.65	9+53.24	69.17' RT.	DO2608 NGS
902	528313.5310	1684569.7310	281.68	10+76.84	37.70' LT.	CHISELED SQUARE

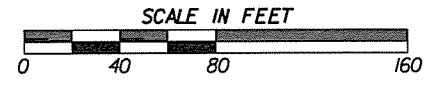
HORIZONTAL DATUM - NAD 83 (1997)  
 VERTICAL DATUM - NAVD 88  
 BASIS OF BEARINGS - ARKANSAS STATE PLANE COORDINATES (GRID)  
 DETERMINED FROM GPS CONTROL POINTS I60012-I60012A RESET, I60031-I60031A  
 ALL DISTANCES ARE GROUND

CENTERLINE POINTS				
NUMBER	TYPE	STATION	NORTHING	EASTING
8000	PC (HWY. 49)	5+48.44	528183.186	1684066.645
8001	PI (HWY. 49)	10+64.57	528181.8456	1684582.768
8002	PT (HWY. 49)	15+39.03	528510.5823	1684980.659
8003	POB (DARR HILL RD.)	5+59.17	528682.233	1684477.489
8004	POE (DARR HILL RD.)	10+00.00	528241.419	1684474.182
8005	POB (VALLEY VIEW DR.)	10+00.00	528252.7759	1684510.909
8006	PC (VALLEY VIEW DR.)	10+43.97	528210.9502	1684524.461
8007	PI (VALLEY VIEW DR.)	10+83.01	528173.8046	1684536.498
8008	PCC (VALLEY VIEW DR.)	11+20.46	528146.814	1684564.714
8009	PI (VALLEY VIEW DR.)	11+86.87	528104.1179	1684615.578
8010	PCC (VALLEY VIEW DR.)	12+48.80	528099.868	1684681.851
8011	PI (VALLEY VIEW DR.)	13+11.73	528093.9409	1684744.498
8012	PRC (VALLEY VIEW DR.)	13+68.87	528131.752	1684794.798
8013	PI (VALLEY VIEW DR.)	14+22.23	528159.7453	1684840.227
8014	PT (VALLEY VIEW DR.)	14+74.44	528169.942	1684892.604

CONSTRUCTION HWY. 49  
 P.I. = 10+64.57  
 $\Delta = 39^{\circ}42'44''$  LT.  
 D = 4'00'32"  
 T = 516.13'  
 R = 1429.20'  
 L = 990.59'  
 P.C. = 5+48.44  
 P.T. = 15+39.03



CONSTRUCTION VALLEY VIEW DR. CURVE NO. 1	CONSTRUCTION VALLEY VIEW DR. CURVE NO. 2	CONSTRUCTION VALLEY VIEW DR. CURVE NO. 3	CONSTRUCTION VALLEY VIEW DR. CURVE NO. 4
P.I. = 10+83.01	P.I. = 11+86.87	P.I. = 13+11.73	P.I. = 14+22.23
$\Delta = 28^{\circ}19'05''$ LT.	$\Delta = 36^{\circ}20'29''$ LT.	$\Delta = 42^{\circ}20'14''$ LT.	$\Delta = 20^{\circ}37'30''$ RT.
D = 37'01'06"	D = 28'19'03"	D = 35'15'33"	D = 19'32'15"
T = 39.05'	T = 66.41'	T = 62.93'	T = 53.36'
R = 154.78'	R = 202.33'	R = 162.50'	R = 293.26'
L = 76.50'	L = 128.33'	L = 105.57'	L = 105.57'
P.C. = 10+43.97	P.C.C. = 11+20.46	P.C.C. = 12+48.80	P.R.C. = 13+68.87
P.C.C. = 11+20.46	P.C.C. = 12+48.80	P.R.C. = 13+68.87	P.T. = 14+74.44



LOCATION: HWY. 49/VALLEY VIEW RD./DARR HILL RD.  
 CITY: JONESBORO  
 COUNTY: CRAIGHHEAD  
 DISTRICT: 10  
 SCALE: AS SHOWN  
 DRAWN BY: CEM

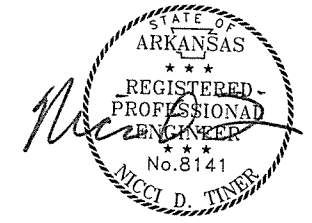
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DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED. RD. DIST. NO.	STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.		6	20

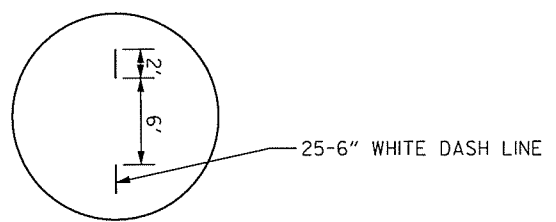
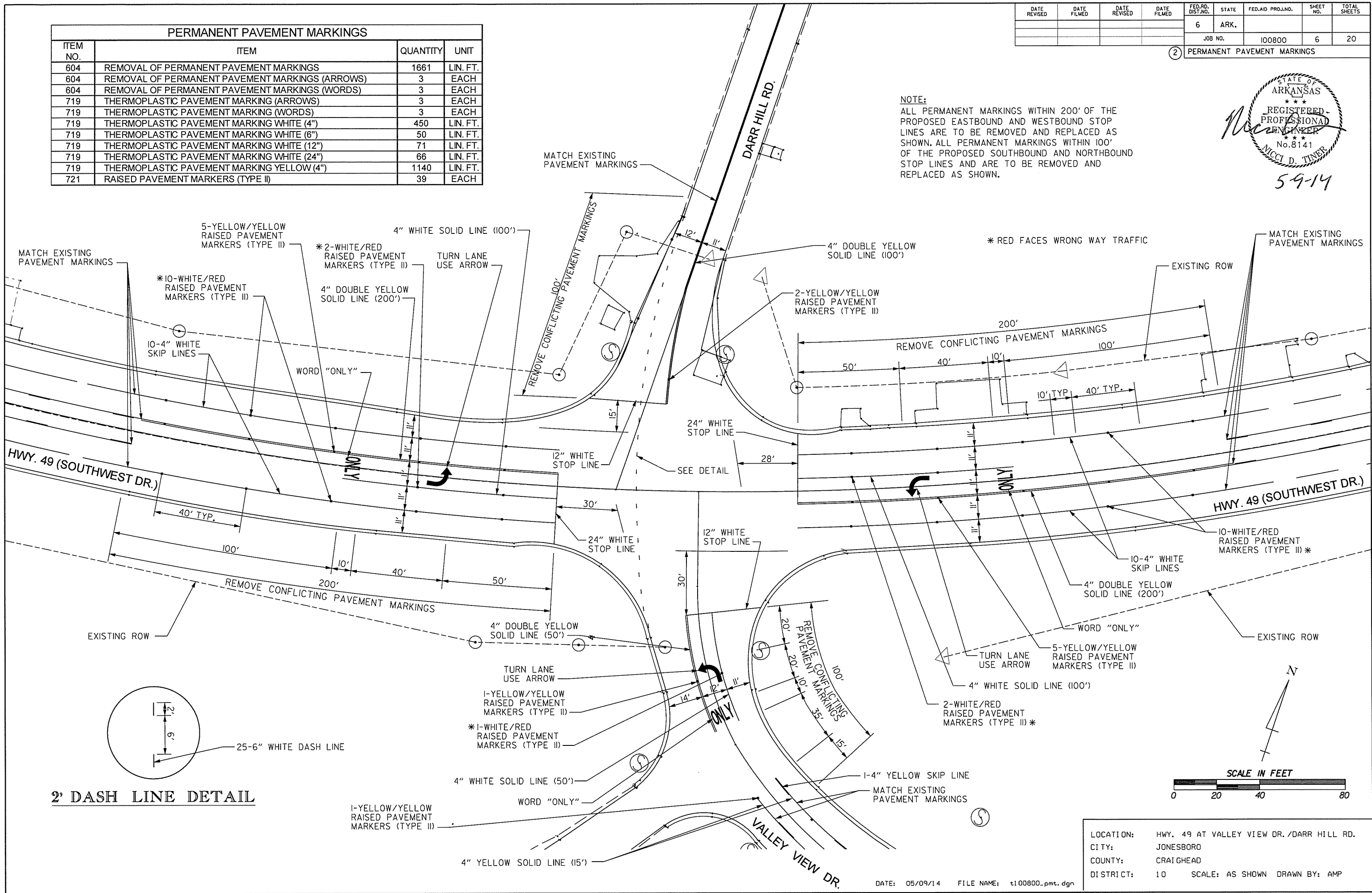
PERMANENT PAVEMENT MARKINGS

PERMANENT PAVEMENT MARKINGS			
ITEM NO.	ITEM	QUANTITY	UNIT
604	REMOVAL OF PERMANENT PAVEMENT MARKINGS	1661	LIN. FT.
604	REMOVAL OF PERMANENT PAVEMENT MARKINGS (ARROWS)	3	EACH
604	REMOVAL OF PERMANENT PAVEMENT MARKINGS (WORDS)	3	EACH
719	THERMOPLASTIC PAVEMENT MARKING (ARROWS)	3	EACH
719	THERMOPLASTIC PAVEMENT MARKING (WORDS)	3	EACH
719	THERMOPLASTIC PAVEMENT MARKING WHITE (4")	450	LIN. FT.
719	THERMOPLASTIC PAVEMENT MARKING WHITE (6")	50	LIN. FT.
719	THERMOPLASTIC PAVEMENT MARKING WHITE (12")	71	LIN. FT.
719	THERMOPLASTIC PAVEMENT MARKING WHITE (24")	66	LIN. FT.
719	THERMOPLASTIC PAVEMENT MARKING YELLOW (4")	1140	LIN. FT.
721	RAISED PAVEMENT MARKERS (TYPE II)	39	EACH

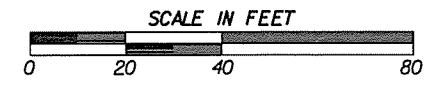


59-14

**NOTE:**  
ALL PERMANENT MARKINGS WITHIN 200' OF THE PROPOSED EASTBOUND AND WESTBOUND STOP LINES ARE TO BE REMOVED AND REPLACED AS SHOWN. ALL PERMANENT MARKINGS WITHIN 100' OF THE PROPOSED SOUTHBOUND AND NORTHBOUND STOP LINES AND ARE TO BE REMOVED AND REPLACED AS SHOWN.



2' DASH LINE DETAIL

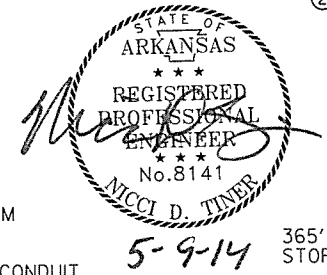


LOCATION: HWY. 49 AT VALLEY VIEW DR. /DARR HILL RD.  
 CITY: JONESBORO  
 COUNTY: CRAIGHEAD  
 DISTRICT: 10 SCALE: AS SHOWN DRAWN BY: AMP

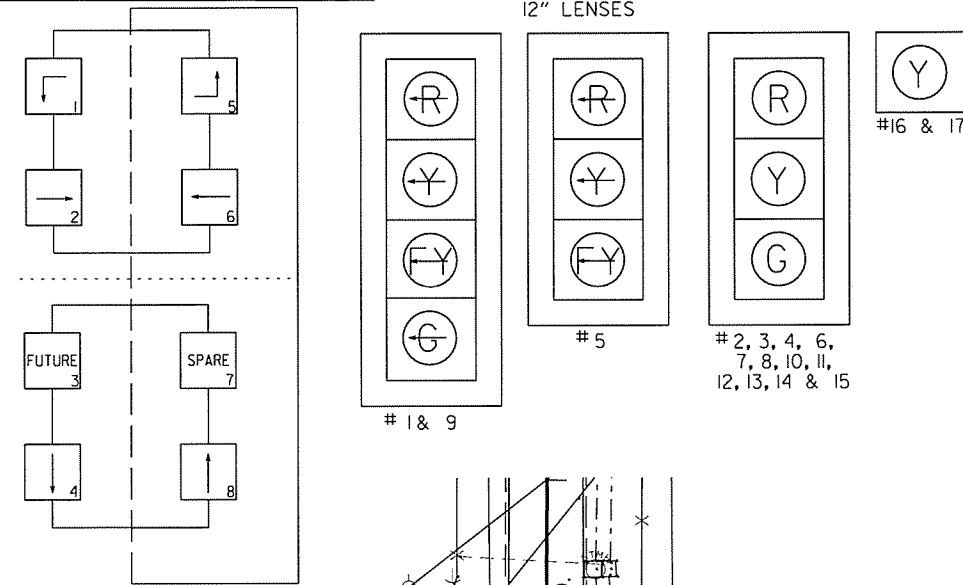
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 REVISED DATE:

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED. RD. DIST. NO.	STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.		7	20
				JOB NO.		100800		

② SIGNALIZATION PLANS

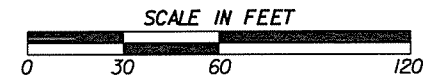
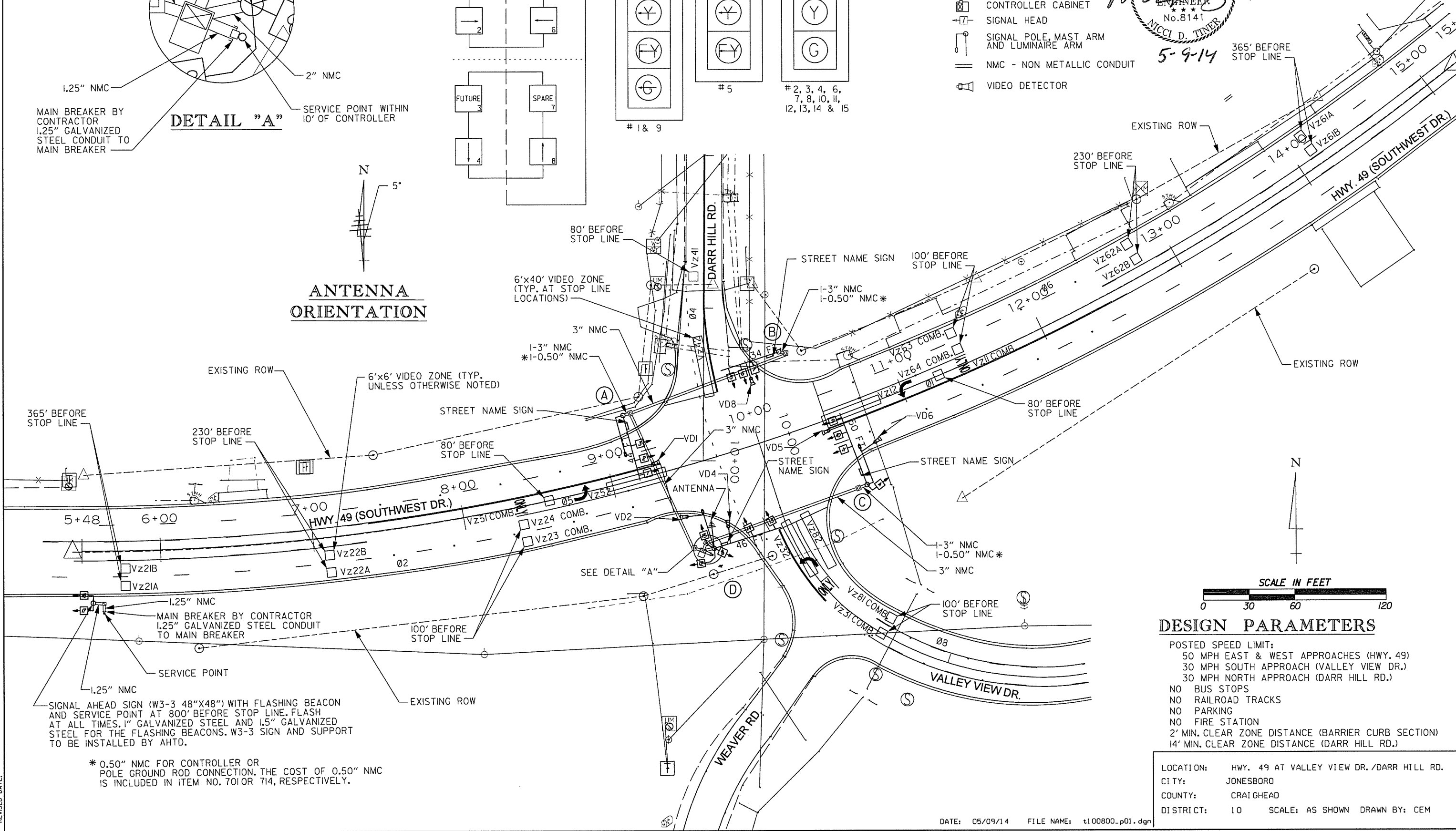
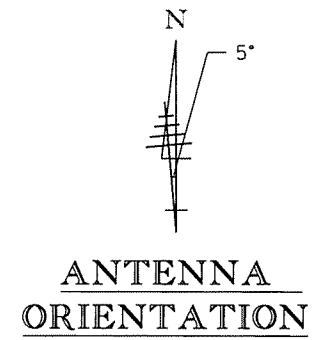
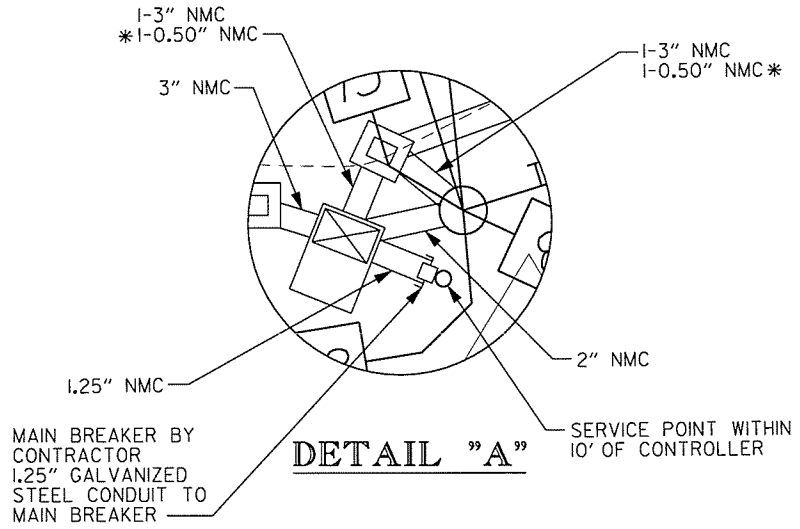


**PHASING DIAGRAM SIGNAL FACES**



**LEGEND**

- ☐ TYPE 2 PULL BOX
- ☐ TYPE 1 PULL BOX
- ☐ CONTROLLER CABINET
- ⊕ SIGNAL HEAD
- ⊕ SIGNAL POLE, MAST ARM AND LUMINAIRE ARM
- NMC - NON METALLIC CONDUIT
- ⊕ VIDEO DETECTOR



**DESIGN PARAMETERS**

- POSTED SPEED LIMIT:
  - 50 MPH EAST & WEST APPROACHES (HWY. 49)
  - 30 MPH SOUTH APPROACH (VALLEY VIEW DR.)
  - 30 MPH NORTH APPROACH (DARR HILL RD.)
- NO BUS STOPS
- NO RAILROAD TRACKS
- NO PARKING
- NO FIRE STATION
- 2' MIN. CLEAR ZONE DISTANCE (BARRIER CURB SECTION)
- 14' MIN. CLEAR ZONE DISTANCE (DARR HILL RD.)

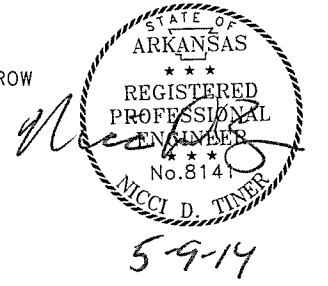
LOCATION: HWY. 49 AT VALLEY VIEW DR. /DARR HILL RD.  
 CITY: JONESBORO  
 COUNTY: CRAIGHEAD  
 DISTRICT: 10 SCALE: AS SHOWN DRAWN BY: CEM

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 REVISION DATE:

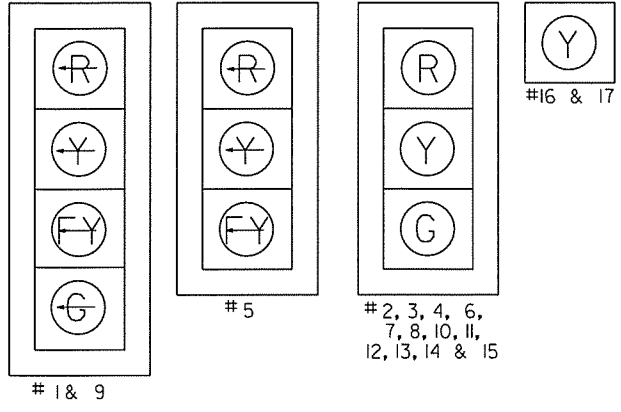
\* 0.50" NMC FOR CONTROLLER OR POLE GROUND ROD CONNECTION. THE COST OF 0.50" NMC IS INCLUDED IN ITEM NO. 701 OR 714, RESPECTIVELY.

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. 100800							8	20

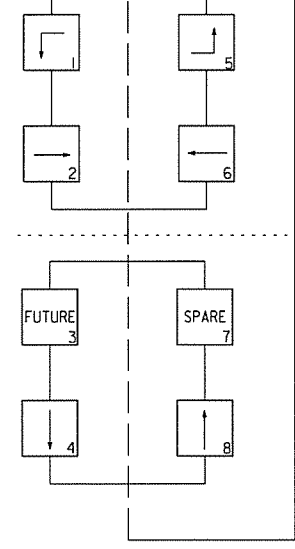
② SIGNALIZATION PLANS



**SIGNAL FACES**  
12" LENSES

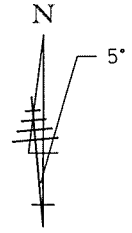


**PHASING DIAGRAM**

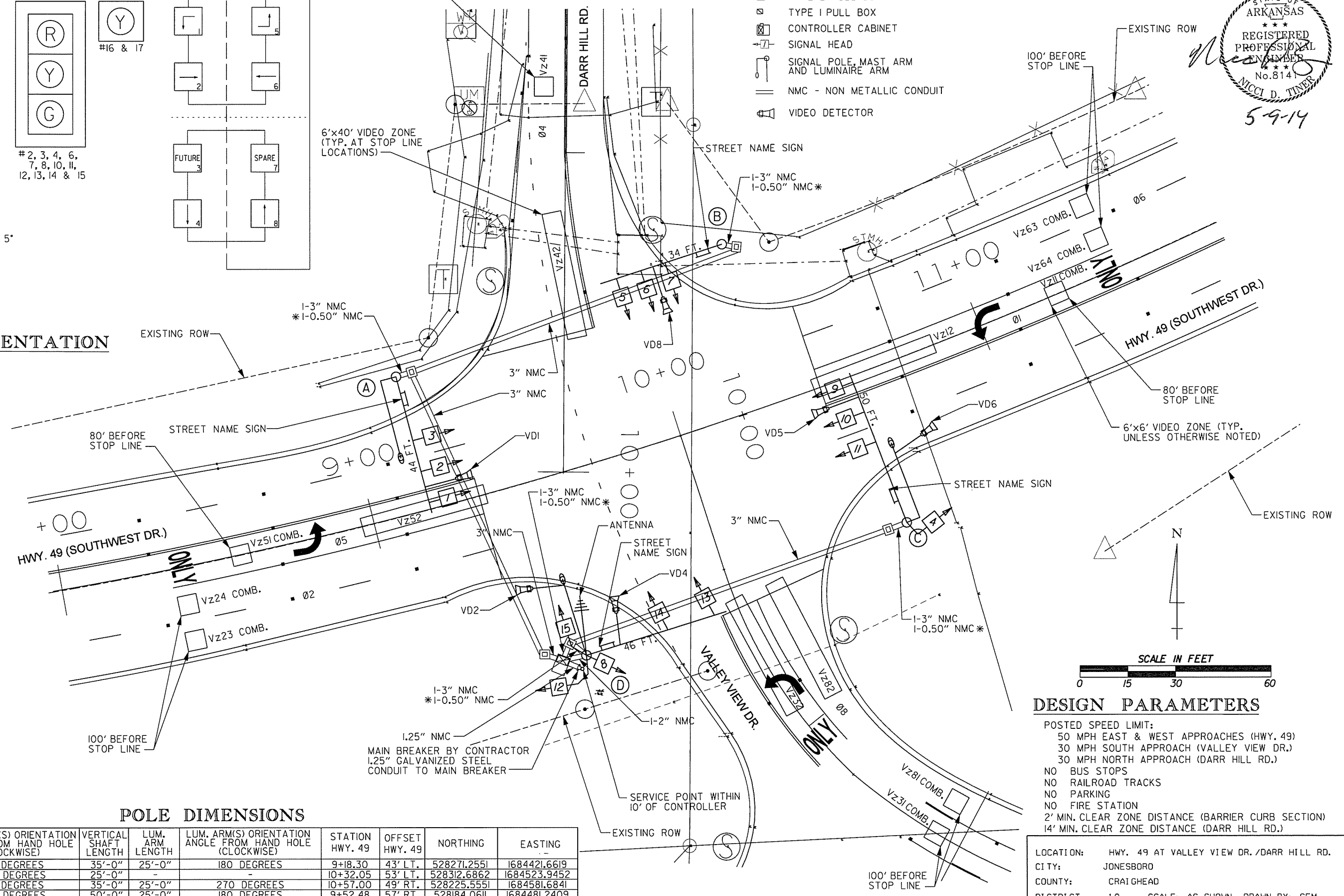


**LEGEND**

- TYPE 2 PULL BOX
- TYPE 1 PULL BOX
- CONTROLLER CABINET
- T- SIGNAL HEAD
- SIGNAL POLE, MAST ARM AND LUMINAIRE ARM
- NMC - NON METALLIC CONDUIT
- ⊲ VIDEO DETECTOR



**ANTENNA ORIENTATION**



**POLE DIMENSIONS**

POLE	MAST ARM(S) LENGTH	MAST ARM(S) ORIENTATION ANGLE FROM HAND HOLE (CLOCKWISE)	VERTICAL SHAFT LENGTH	LUM. ARM LENGTH	LUM. ARM(S) ORIENTATION ANGLE FROM HAND HOLE (CLOCKWISE)	STATION HWY. 49	OFFSET HWY. 49	NORTHING	EASTING
A	44'	180 DEGREES	35'-0"	25'-0"	180 DEGREES	9+18.30	43' LT.	528271.2551	1684421.6619
B	34'	270 DEGREES	25'-0"	-	-	10+32.05	53' LT.	528312.6862	1684523.9452
C	50'	180 DEGREES	35'-0"	25'-0"	270 DEGREES	10+57.00	49' RT.	528225.5551	1684581.6841
D	46'	270 DEGREES	50'-0"	25'-0"	180 DEGREES	9+52.48	57' RT.	528184.0611	1684481.2409

\* MAST ARM LENGTH ALLOWS FOR FUTURE LEFT TURN SIGNAL HEAD

**DESIGN PARAMETERS**

- POSTED SPEED LIMIT:
  - 50 MPH EAST & WEST APPROACHES (HWY. 49)
  - 30 MPH SOUTH APPROACH (VALLEY VIEW DR.)
  - 30 MPH NORTH APPROACH (DARR HILL RD.)
- NO BUS STOPS
- NO RAILROAD TRACKS
- NO PARKING
- NO FIRE STATION
- 2' MIN. CLEAR ZONE DISTANCE (BARRIER CURB SECTION)
- 14' MIN. CLEAR ZONE DISTANCE (DARR HILL RD.)

LOCATION: HWY. 49 AT VALLEY VIEW DR. /DARR HILL RD.  
 CITY: JONESBORO  
 COUNTY: CRAIGHEAD  
 DISTRICT: 10 SCALE: AS SHOWN DRAWN BY: CEM

DATE: 05/09/14 FILE NAME: t100800\_p02.dgn

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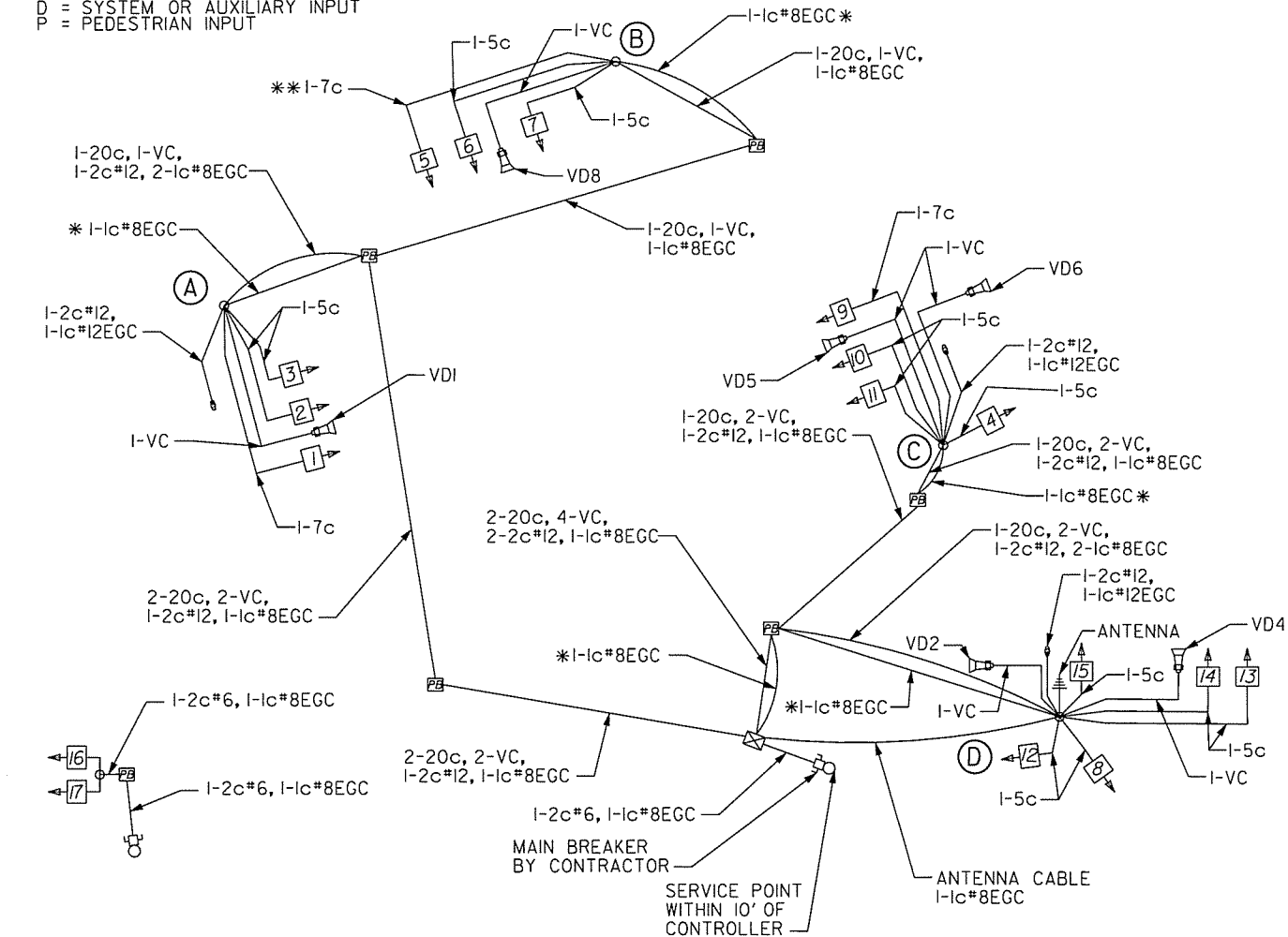


# DETECTOR CHART

DETECTOR I.D. #	DIRECTION & LOCATION	TYPE	DET. #	HARDWARE INPUTS BY SUPPLIER			PROGRAM ASSIGNMENTS			VIDEO DET. TUBE LENGTH	COMMENT
				CAB. TRM. #	AMP CHN. #	CON. INP. #	LOCAL		MSTR. SYS. DET. #		
							PHS.	SYS. DET. #			
Vz11	WB LEFT FAR	COMB.		1	V9	1	1		23"	VD1	
Vz12	WB LEFT NEAR	LOCAL		2	V1	1			23"	VD1	
Vz21A&B	EB FAR	LOCAL		9	V2	2			74"	VD2	
Vz22A&B	EB MID	LOCAL		10	V3	2			74"	VD2	
Vz23	EB NEAR	COMB.		11	V10	2	2		23"	VD5	
Vz24	EB NEAR	COMB.		12	V12	2	4		23"	VD5	
Vz31	NB LEFT FAR	COMB.		17	V11	3	3		23"	VD8	
Vz32	NB LEFT NEAR	LOCAL		18	V3	3			23"	VD8	
Vz41	SB FAR	LOCAL		21	P1	4			23"	VD4	
Vz42	SB NEAR	LOCAL		22	V4	4			23"	VD4	
Vz51	EB LEFT FAR	COMB.		13	V13	5	5		23"	VD5	
Vz52	EB LEFT NEAR	LOCAL		14	V5	5			23"	VD5	
Vz61A&B	WB FAR	LOCAL		5	V6	6			74"	VD6	
Vz62A&B	WB MID	LOCAL		6	V7	6			74"	VD6	
Vz63	WB NEAR	COMB.		7	V14	6	6		23"	VD1	
Vz64	WB NEAR	COMB.		8	V15	6	7		23"	VD1	
Vz81	NB FAR	COMB.		19	V16	8	8		23"	VD8	
Vz82	NB NEAR	LOCAL		20	V8	8			23"	VD8	

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

SPARE AMP CHN. #=3, 4, 15, 16, 23 & 24



## WIRING DIAGRAM

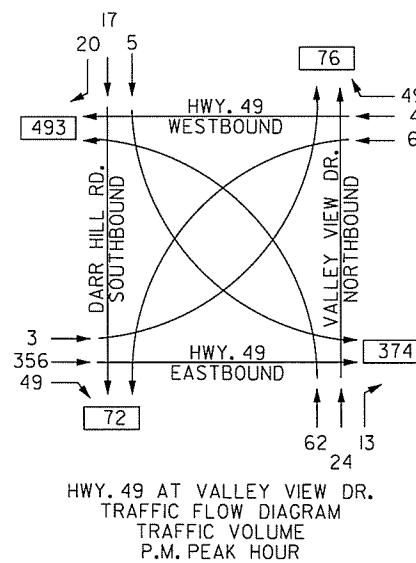
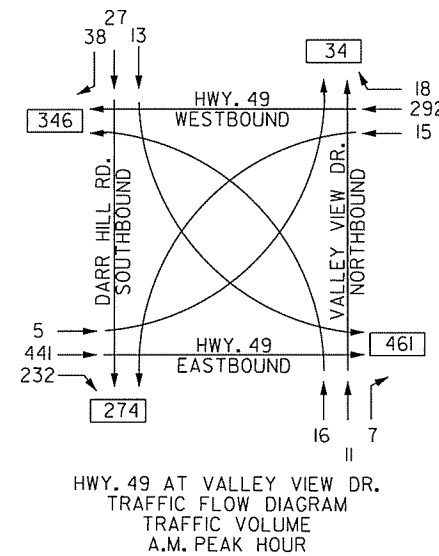
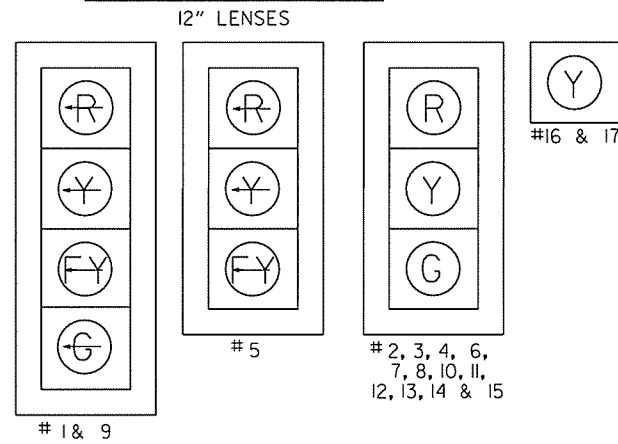
TYPICAL WIRING INCLUDES:

1. SEPARATE 5c/\*14 AWG FROM EACH 3 SEC SIGNAL HEAD TO BASE OF POLE.
2. SEPARATE 7c/\*14 AWG FROM EACH 4 SEC SIGNAL HEAD TO BASE OF POLE.
3. PROVIDE SEPARATE CONDUIT FOR ANTENNA.
4. ALL DETECTOR RACK CHANNELS, INCLUDING UNUSED, SHALL BE BROUGHT TO TERMINAL STRIP IN DETECTOR AREA ON CABINET.
5. THE LOCAL GOVERNMENT SHALL BE RESPONSIBLE FOR PROVIDING POWER TO THE SERVICE POINT.

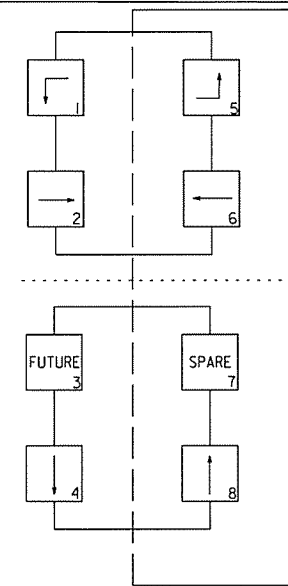
\*I-1c\*8EGC SHOWN SEPARATELY FROM CONTROLLER OR POLE TO NEAREST PULL BOX IS INCLUDED IN ITEM NO. 701 OR 714, RESPECTIVELY.

\*\*I-7c SHOWN FOR PERMISSIVE LEFT TURN TO ALLOW FOR FUTURE PROTECTED/PERMISSIVE LEFT TURN.

## SIGNAL FACES



## PHASING DIAGRAM



59-14

## INTERVAL CHART

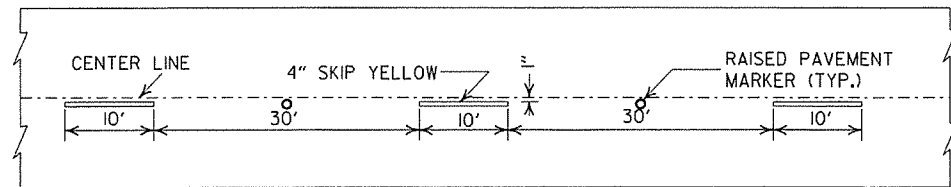
SIGNAL FACES	INTERSECTION INTERVALS										FLASH SEQ.
	I+5	CLR.	I+6	CLR.	2+5	CLR.	2+6	CLR.	4+8	CLR.	
1	←	**	←	**	←	**	←	**	←	←	←
2, 3 & 4	R	R	G	*	R	R	G	*	R	R	Y
5	R	R	R	R	R	R	R	R	←	←	←
6, 7 & 8	R	R	R	R	R	R	R	R	G	Y	R
9	←	**	←	**	←	**	←	**	←	←	←
10, 11 & 12	R	R	R	R	G	*	G	*	R	R	Y
13, 14 & 15	R	R	R	R	R	R	R	R	G	Y	R
16 & 17	FY	FY	FY	FY	FY	FY	FY	FY	FY	FY	B

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

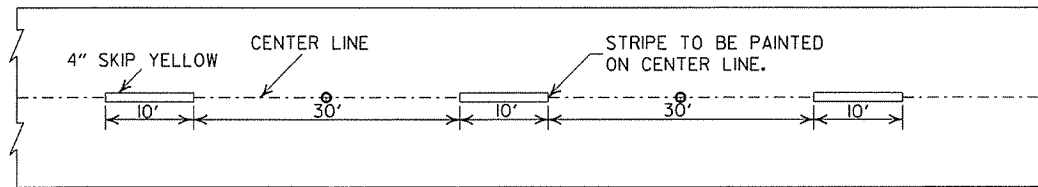
LOCATION: HWY. 49 AT VALLEY VIEW DR. /DARR HILL RD.  
 CITY: JONESBORO  
 COUNTY: CRAIGHEAD  
 DISTRICT: 10 SCALE: 1"=100' DRAWN BY: CEM

NOTE:  
2012 TRAFFIC VOLUMES

DATE: 05/09/14 FILE NAME: t100800\_p01.dgn

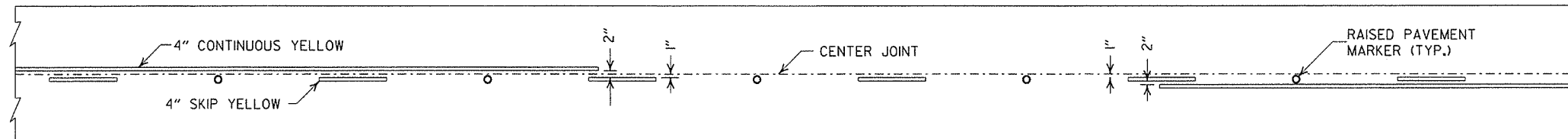


CONCRETE PAVEMENT

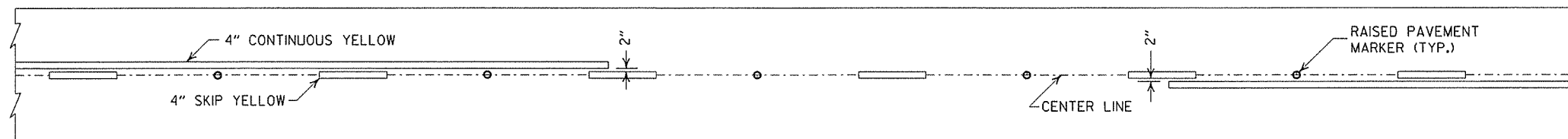


ASPHALT PAVEMENT

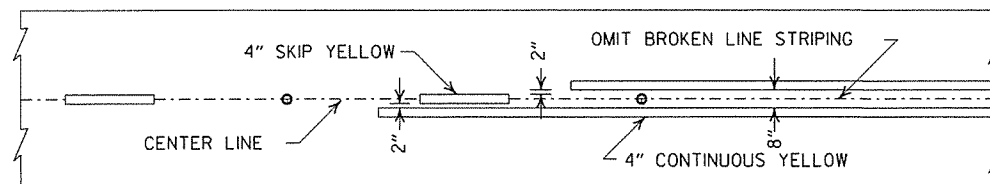
BROKEN LINE STRIPING



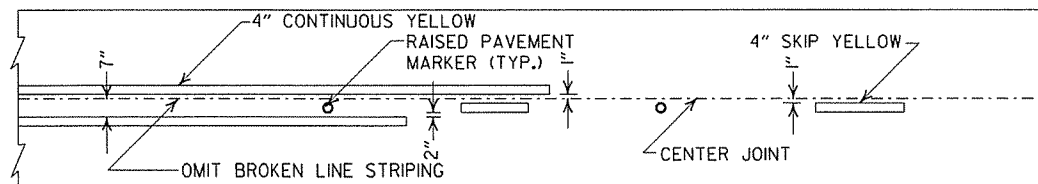
SOLID LINE STRIPING ON CONCRETE PAVEMENT



SOLID LINE STRIPING ON ASPHALT PAVEMENT

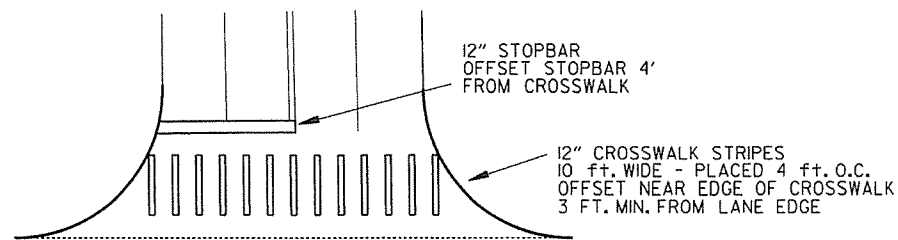


ASPHALT PAVEMENT



CONCRETE PAVEMENT

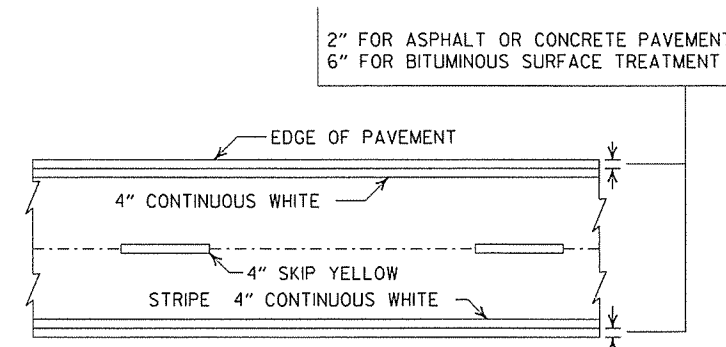
STRIPING AT ADJACENT NO PASSING LANES



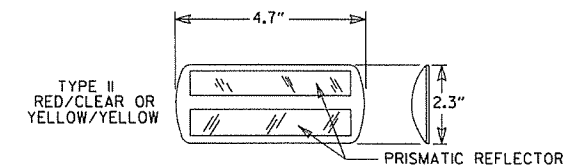
CROSSWALK AND STOPBAR DETAILS

NOTES:

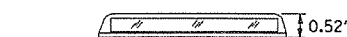
1. ALL LINES SHALL HAVE A WIDTH OF 4 INCHES.
2. THE THICKNESS AND RATE OF PAINT APPLICATION SHALL BE AS SPECIFIED IN SECTION 718 OF THE STANDARD SPECIFICATIONS.
3. THIS DRAWING SHALL BE USED IN CONJUNCTION WITH THE LATEST REVISED ADDITION OF THE "MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES."
4. RAISED PAVEMENT MARKERS SHALL BE CENTERED BETWEEN SKIP LINES ON 40 FEET SPACING UNLESS OTHERWISE SHOWN ON THE PLANS.



PAVEMENT EDGE LINE MARKING



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



DETAIL OF STANDARD RAISED PAVEMENT MARKERS

GENERAL NOTES:

THIS DRAWING SHOULD BE CONSIDERED AS TYPICAL ONLY AND THE FINAL LOCATION OF THE STRIPING AND RAISED PAVEMENT MARKERS SHALL BE DETERMINED BY THE ENGINEER.

THIS DRAWING SHOULD BE USED IN CONJUNCTION WITH THE "MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES", LATEST REVISION.

NOTE:  
DIMENSIONS SHOWN FOR RAISED PAVEMENT MARKERS ARE TYPICAL. THE CONTRACTOR MAY SUBSTITUTE SIMILAR MARKERS WITH THE APPROVAL OF THE ENGINEER. REQUESTING APPROVAL FOR SIMILAR MARKERS MAY BE MADE BY REFERRING TO THE AHTD QUALIFIED PRODUCTS LIST.

DATE	REVISION	FILMED
9-12-13	REVISED DETAIL OF STANDARD RAISED PAVEMENT MARKERS	
11-17-10	REVISED GENERAL NOTES & REMOVED PLOWABLE PAVT MRKRS	
11-18-04	REVISED NOTE 2 & GENERAL NOTES	
8-22-02	ADDED CROSSWALK & STOPBAR DTLS.	
7-02-98	ADDED DETAILS OF STD. RAISED PAVT. 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

# LOOP DETECTOR INSTALLATION AND TESTING

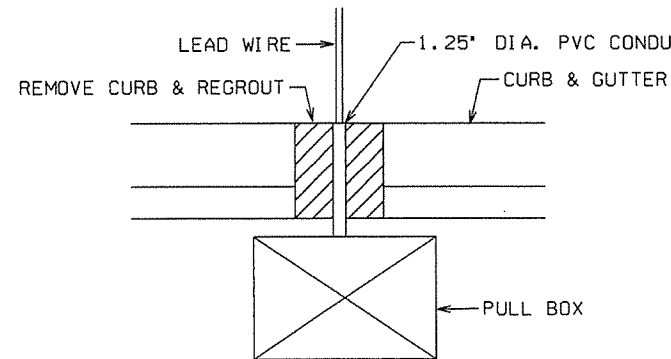
**NOTES:**

1. LOOPS WITH A PERIMETER GREATER THAN 40' SHALL HAVE TWO TURNS. LOOPS WITH A PERIMETER LESS THAN OR EQUAL TO 40' SHALL HAVE THREE TURNS, UNLESS OTHERWISE NOTED ON THE PLANS. QUADRUPOLE LOOPS SHALL BE TWO TURNS (2-4-2 CONFIGURATION) UNLESS OTHERWISE NOTED.
2. LOOP AND FEEDER WIRE SHALL BE CONTINUOUS WITHOUT SPLICES EXCEPT AT THE LOOP/FEEDER WIRE SPlice AS SHOWN. SPlice SHALL BE ROSIN SOLDERED AND WATERPROOFED WITH AN ACCEPTED SPlice KIT. DRAIN WIRE SHALL BE GROUNDED IN CABINET AND INSULATED AT LOOP TO FEEDER SPlice.
3. THE LOOP TO FEEDER SPlice, FEEDER JACKET AND JACKET OF LOOP WIRE IN DUCT SHALL BE COMPLETELY SEALED AND WATERPROOFED.
4. CONTRACTOR MAY MAKE CONNECTIONS TO SIGNAL CABLE AND LOOP TO FEEDER CONNECTION AT TERMINAL STRIPS MOUNTED TO POLE INSIDE HAND HOLD COVER AS SHOWN IN DETAIL. TERMINALS MUST BE EASILY ACCESSIBLE, BUT PROTECTED AGAINST ACCIDENTAL CONTACT. CONNECTION OF POWER CARRYING CIRCUITS MUST BE SEPARATED FROM LOOP OR LOGIC CIRCUITS. ALL CONNECTIONS TO TERMINAL STRIPS SHALL UTILIZE SPADE LUGS OR AS APPROVED BY THE ENGINEER.
5. EACH LOOP SHALL HAVE A SEPARATE "FEEDER WIRE" UNLESS OTHERWISE NOTED. ALL FEEDER WIRES SHALL BE LABELED AS TO LOOP NUMBER AS DESIGNATED ON THE PLANS.
6. ALL LOOP WIRE ENTERING PULL BOXES SHALL BE ENCLOSED IN CONDUIT. EACH LOOP WIRE SHALL ENTER PULL BOX OR POLE BASE THROUGH A SEPARATE PIECE OF ONE INCH (1") CONDUIT.
7. LOOP WIRE FROM LOOP TO CONDUIT IS NOT TWISTED. LOOP WIRE IN THE CONDUIT MUST BE TWISTED TWO TO FIVE TURNS PER FOOT.
8. WARRANTY PERIOD FOR LOOPS SHALL NOT COMMENCE UNTIL TESTED BY THE CONTRACTOR AND ACCEPTED BY THE ENGINEER. CONTRACTOR SHALL PERFORM TEST AND PROVIDE A RECORD TO THE ENGINEER AS LISTED IN THE DETECTOR LOOP TESTING PROCEDURE.
9. UNLESS OTHERWISE APPROVED BY THE ENGINEER, BACKER ROD SHALL BE INSTALLED IN SHORT SECTIONS SPACED NOT MORE THAN 18" APART AND WEDGED INTO SLOT TO HOLD CABLE IN PLACE. CABLE SHALL BE TOTALLY ENCAPSULATED IN SEALER.
10. "HOT POUR" SEALER SHALL NOT BE ALLOWED WITH 705-LOOP WIRING IN DUCT.
11. WHERE UNDERGROUND SPLICES OF SIGNAL CABLE ARE REQUIRED, CONNECTIONS SHALL BE SOLDERED AND COMPLETELY WATERPROOFED TO THE SATISFACTION OF THE ENGINEER. WATERPROOFING SHALL EXTEND A MINIMUM OF TWO INCHES PAST THE SIGNAL CABLE JACKET AND SHALL COMPLETELY COVER ALL INDIVIDUAL CONDUCTORS OF THE SIGNAL CABLE. WATERPROOFING DOES NOT APPLY TO CONNECTIONS MADE IN POLE BASES.
12. CONTRACTOR SHALL CONNECT A SEPARATE NEUTRAL FOR EACH LOAD SWITCH REPRESENTED ON EACH SIGNAL POLE. ONLY ONE NEUTRAL IS REQUIRED FOR PEDESTRIAN SIGNALS. A SEPARATE 5C (TYPICAL) IS PROVIDED FOR PEDESTRIAN PUSH BUTTONS.
13. 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 CONTROLLER. CONTROLLER CABINET SHALL BE WIRED SUCH POWER TO LOAD SWITCHES CANNOT BACKFEED TO LOAD SWITCH POWER BUSS DURING FLASH OPERATION.

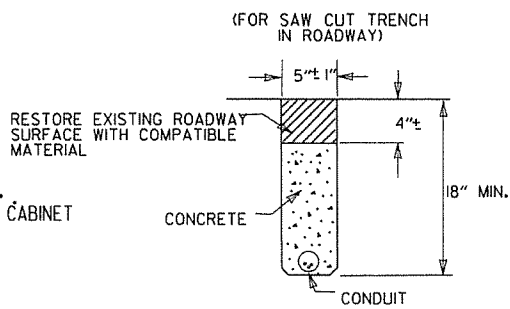
**TYPICAL PROCEDURE FOR DETECTOR LOOP TESTING**

- 1 DISCONNECT AND TEST CONTINUITY (< 10 OHMS) IF CONTINUITY IS BAD, GO TO TEST 3
- 2 TEST INSULATION (@ 500 VOLT TEST > 10 MEG-OHM) IF TESTS 1 & 2 ARE GOOD, NO FURTHER TESTING IS NECESSARY. RECORDED RESULTS CONSIST OF TESTS 1 & 2 FROM CONTROL CABINET WITH FEEDER WIRE CONNECTED TO LOOP.
- 3 OPEN SPlice (DO NOT BREAK CONNECTION) REPEAT TEST 1 & 2 IF TEST 3 IS BAD, GO TO TEST 4
- 4 BREAK SPlice, INSTALL JUMPER IN CABINET, REPEAT TESTS 1 & 2 SEPARATELY FOR FEEDER AND FOR LOOP

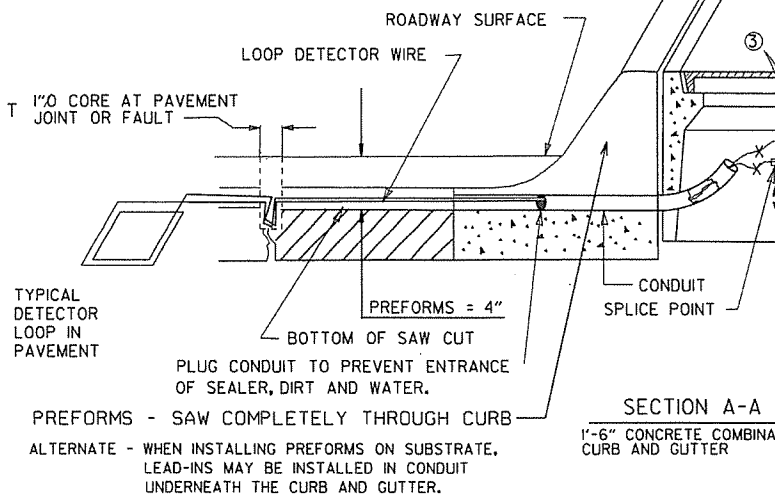
FAILURES TYPICALLY RESULT FROM BROKEN WIRE IN PAVEMENT, FAULTY INSULATION OF LOOP OR FEEDER WIRE, OR POORLY INSULATED SPlice CONNECTION.



**TRENCHING DETAIL**

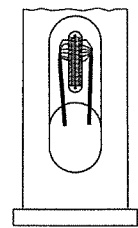


NOTE: CONDUIT SHALL BE INSTALLED IN CURB AS SHOWN OR AS DIRECTED BY THE ENGINEER. END OF CONDUIT SHALL BE WATER-TIGHT.

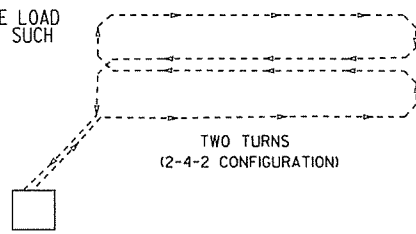


PREFORMS - SAW COMPLETELY THROUGH CURB  
ALTERNATE - WHEN INSTALLING PREFORMS ON SUBSTRATE, LEAD-INS MAY BE INSTALLED IN CONDUIT UNDERNEATH THE CURB AND GUTTER.

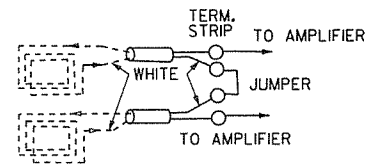
**HANDHOLE TERMINAL**



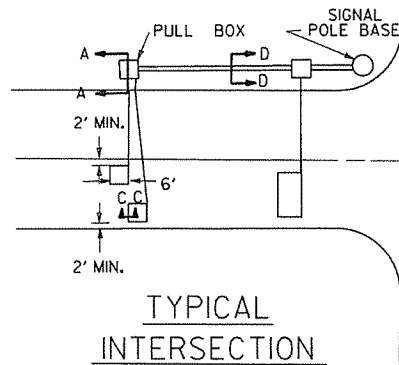
**QUADRUPOLE LOOP**



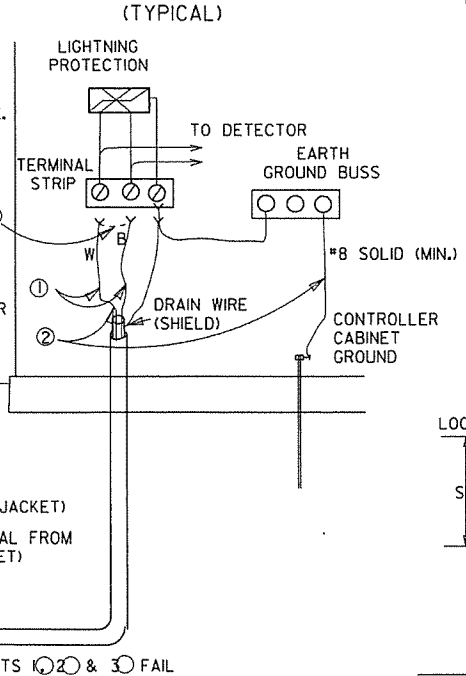
**SERIES CONNECTED LOOPS**



WIND LOOPS COUNTERCLOCKWISE; TAG WIRE EXITING SLOT AND TIE TO WHITE LEAD OF FEEDER WIRE; WHEN LOOPS ARE TIED TO SAME VEHICLE DETECTOR, SERIES CONNECT IN CABINET AS SHOWN.



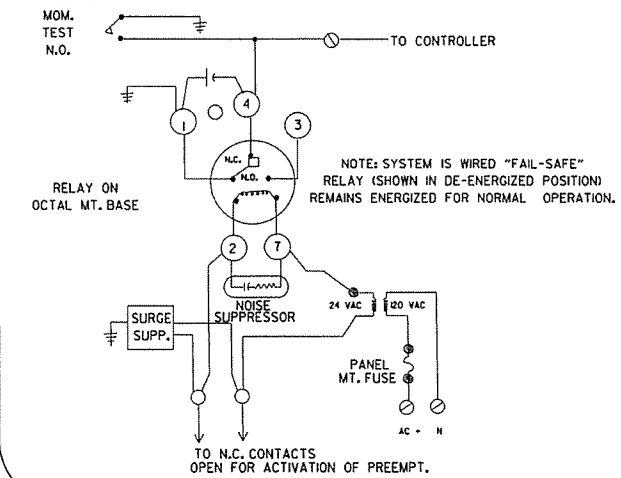
**TYPICAL INTERSECTION**



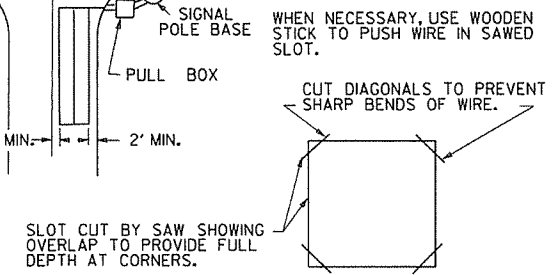
X - DISCONNECT IF TESTS 1 & 2 & 3 FAIL

**SPECIAL NOTE**  
IF FEEDER WIRE JACKET IS LEFT UNSEALED AND WATER IS ALLOWED TO ENTER JACKET, CONTRACTOR WILL BE REQUIRED TO REPLACE FEEDER AT NO COST TO THE DEPARTMENT.

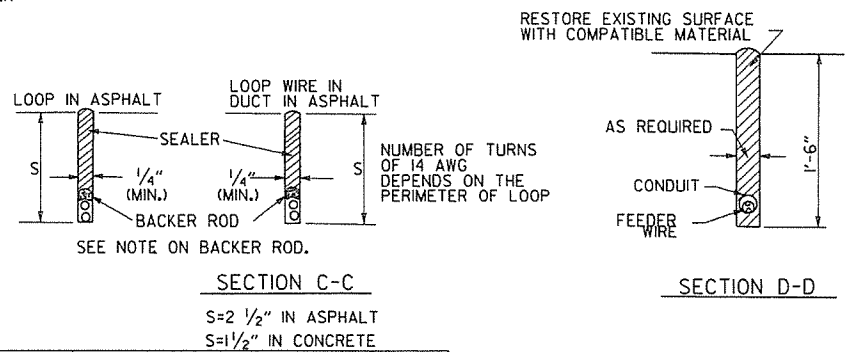
**TRAFFIC SIGNAL PRE-EMPTION INTERFACE WIRING DIAGRAM**



NOTE: SYSTEM IS WIRED "FAIL-SAFE" RELAY (SHOWN IN DE-ENERGIZED POSITION) REMAINS ENERGIZED FOR NORMAL OPERATION.



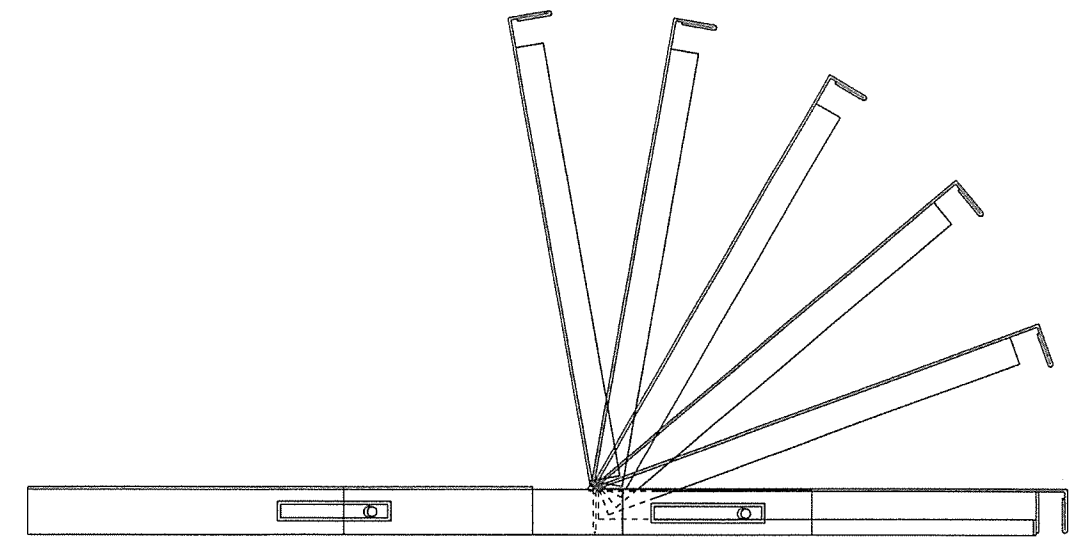
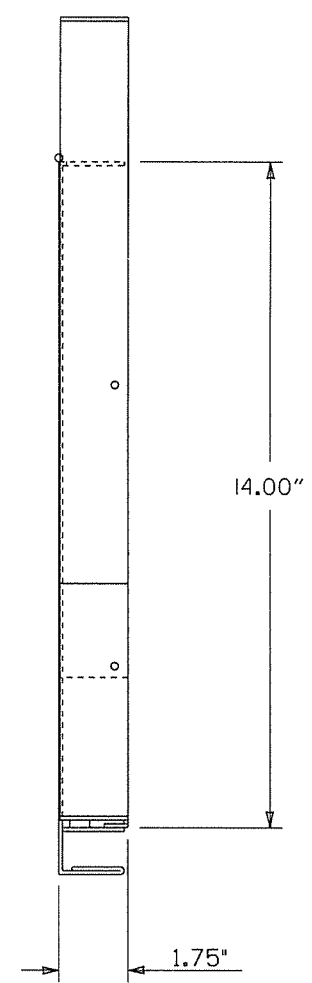
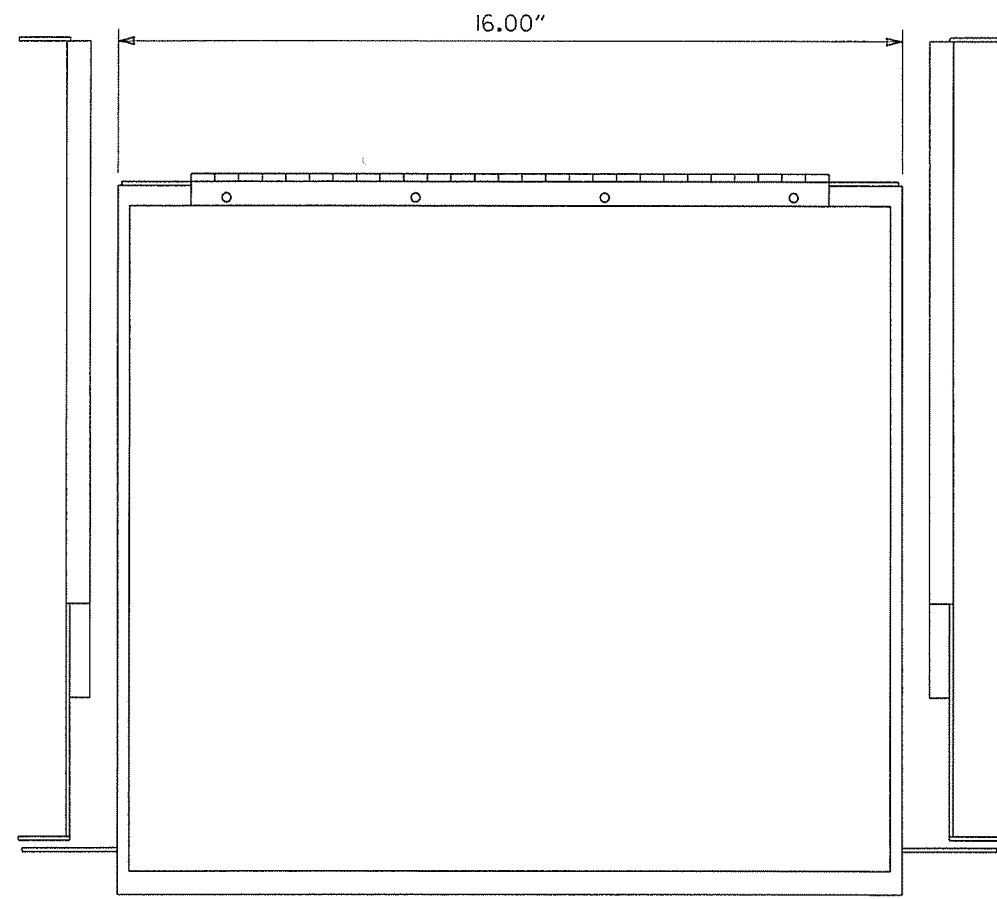
**TYPICAL SECTIONS FOR PULSE AND PRESENCE LOOP DETECTORS**



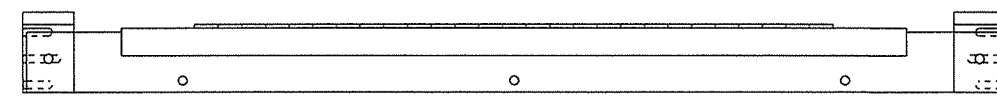
9-12-13	ISSUED AS STANDARD DRAWING	
5-17-01	REVISED	
4-11-01	REVISED	
2-4-00	REVISED PRE-EMPTION TEST SWITCH	
11-18-98	REVISED NOTES	
11-21-95	ISSUED	
DATE	REVISION	DATE FILM

ARKANSAS STATE HIGHWAY COMMISSION  
**LOOP DETECTOR INSTALLATION**  
STANDARD DRAWING SD-4

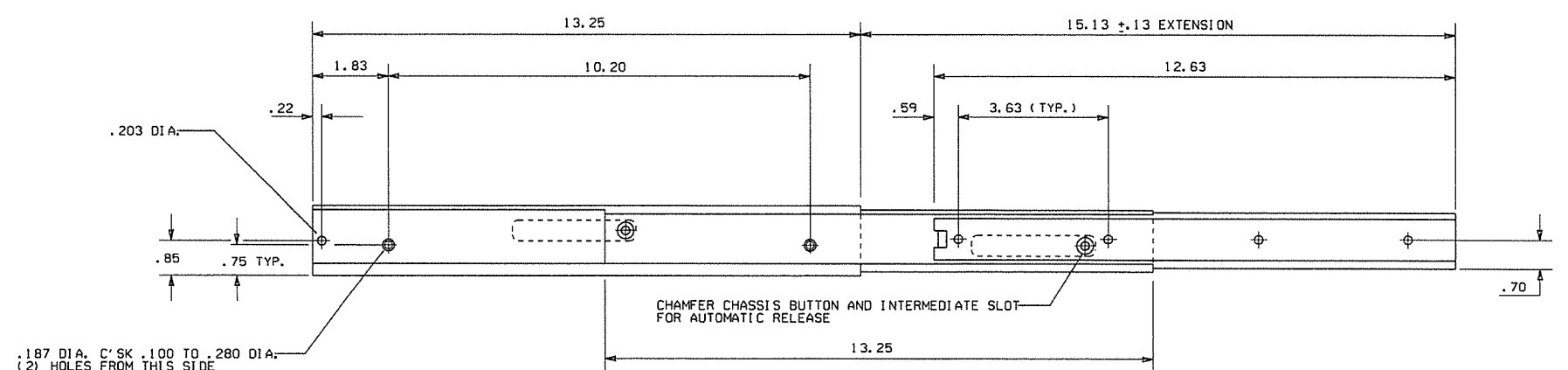
DRAWER PLAN VIEW



- 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

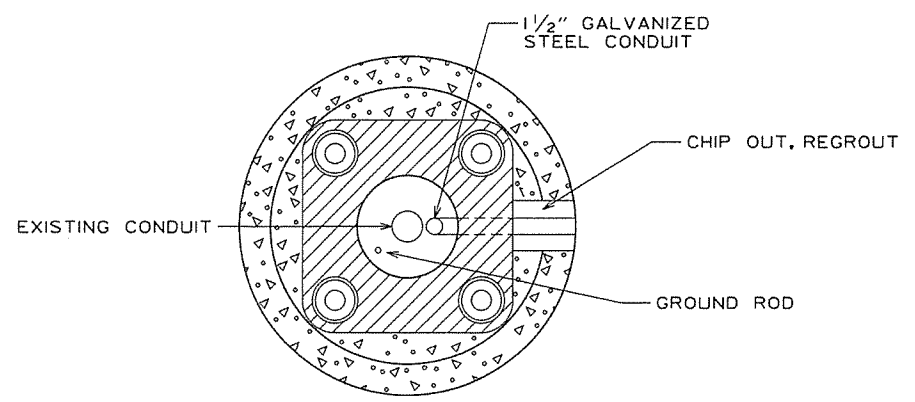


RIGHT SIDE ASSEMBLY

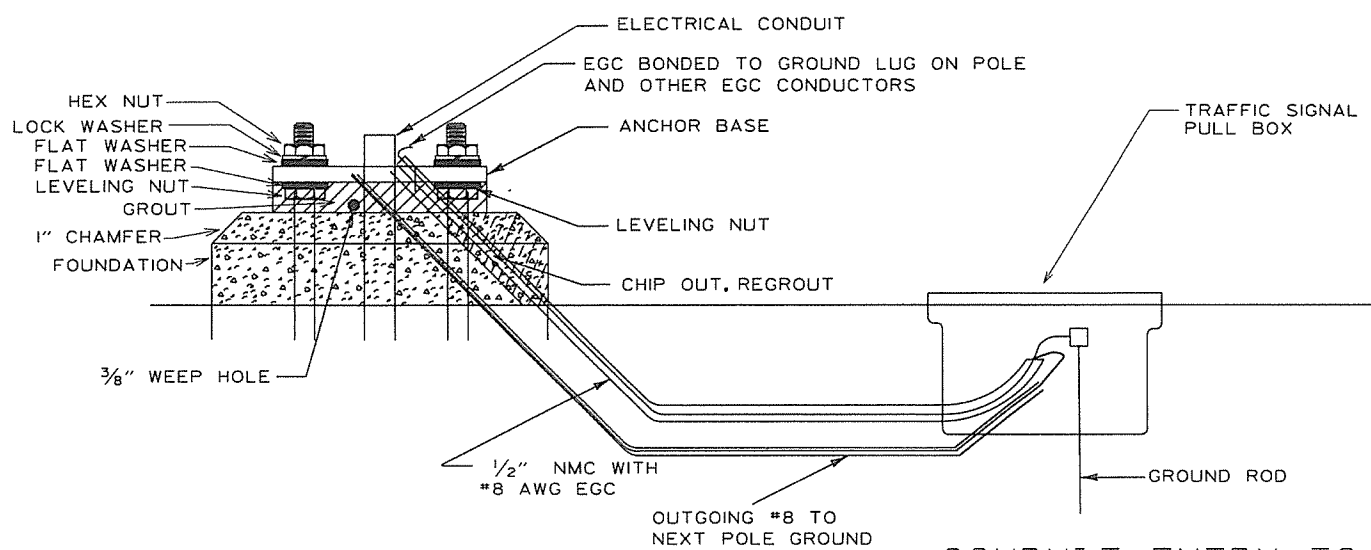
.187 DIA. C'SK .100 TO .280 DIA.  
 (2) HOLES FROM THIS SIDE

			ARKANSAS STATE HIGHWAY COMMISSION
			CONTROLLER CABINET UTILITY DRAWER
9-12-13	ISSUED AS STANDARD DRAWING		
6-15-05	ISSUED		
DATE	REVISION	DATE FILM	STANDARD DRAWING SD-5

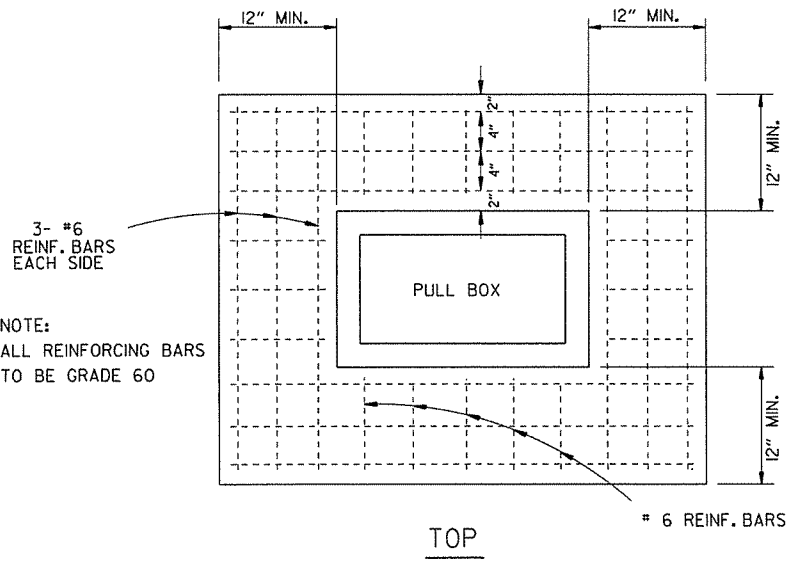
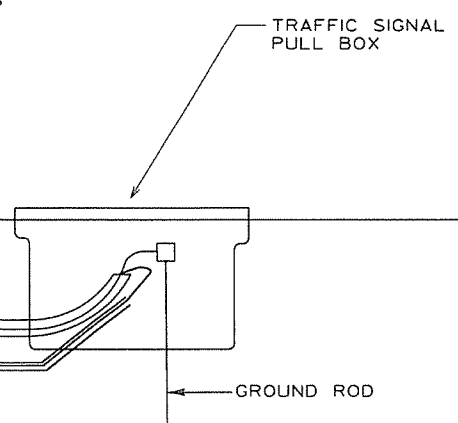
CONDUIT ENTRY TO EXISTING POLE BASE



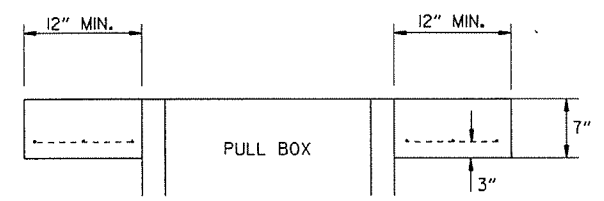
ANCHOR BASE



CONDUIT ENTRY TO EXISTING CONTROLLER CABINET

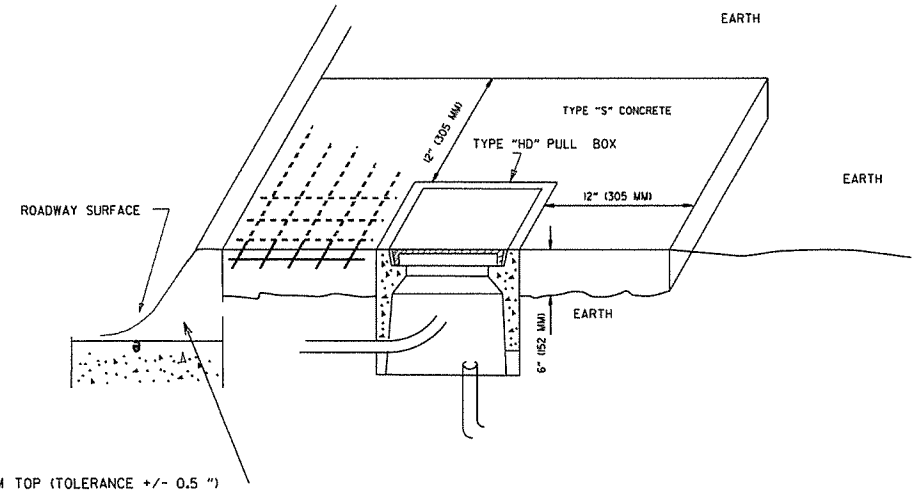


NOTE:  
ALL REINFORCING BARS TO BE GRADE 60



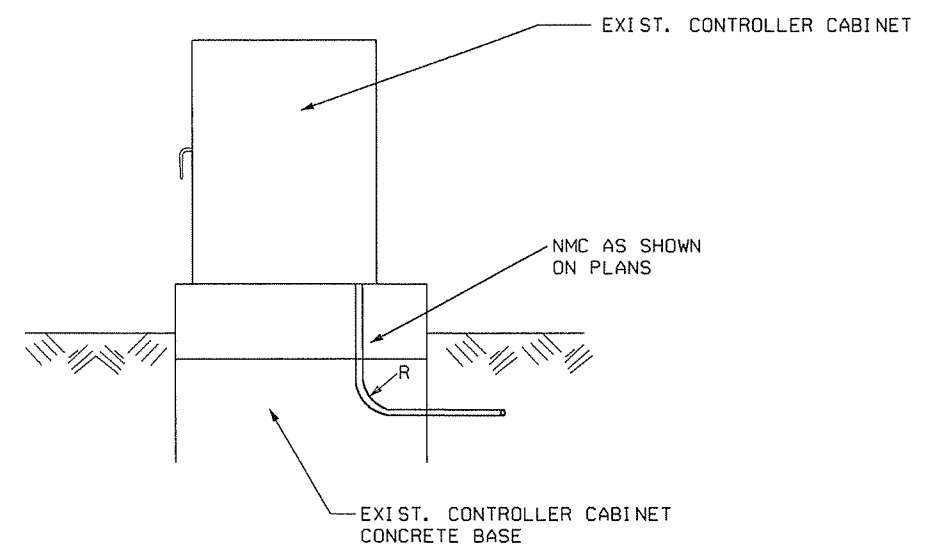
ELEVATION

TYPE "HD" CONCRETE PULL BOX DETAIL



2" CLEAR FROM TOP (TOLERANCE +/- 0.5 ")

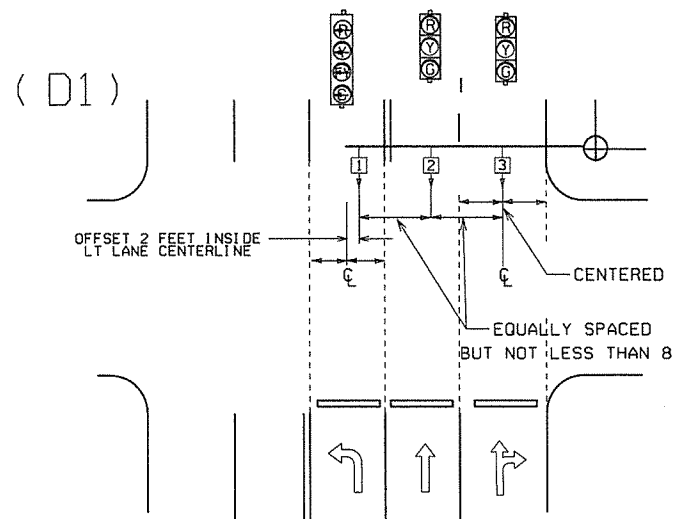
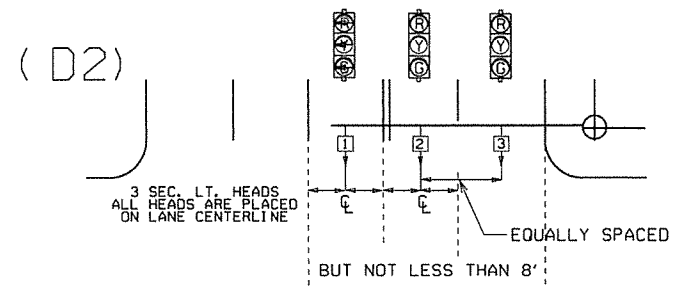
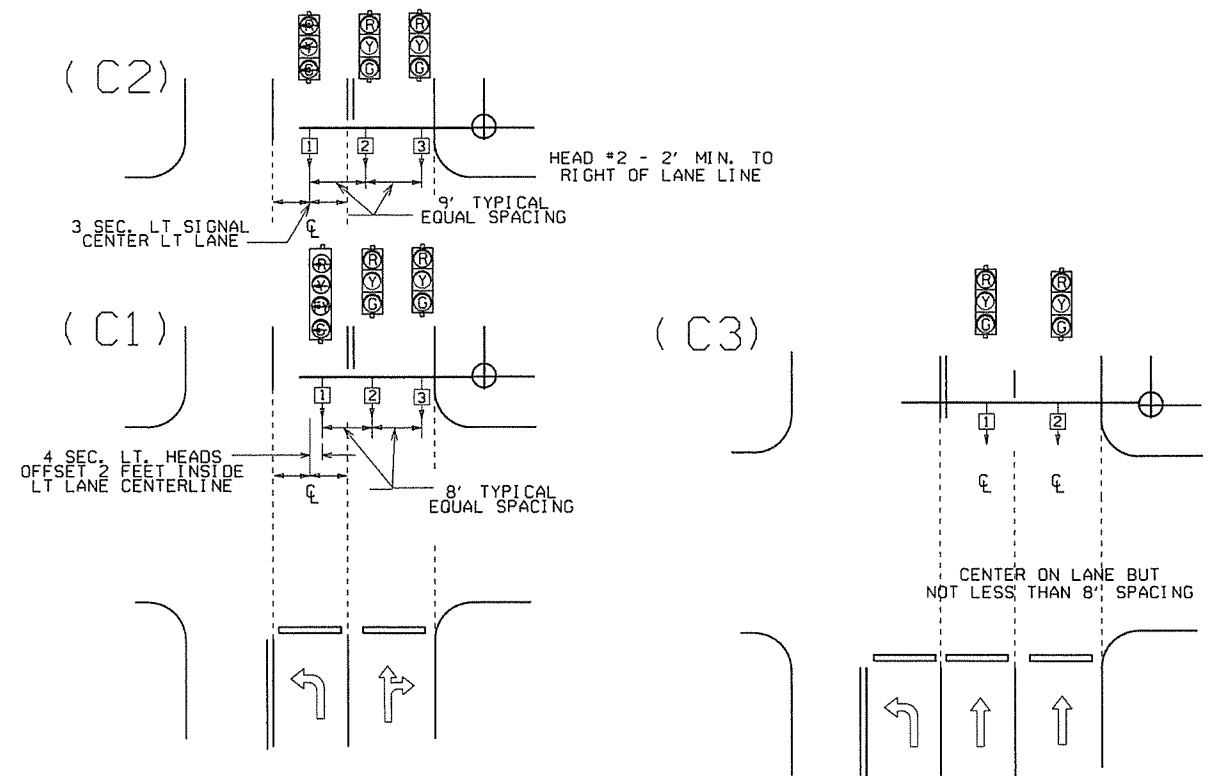
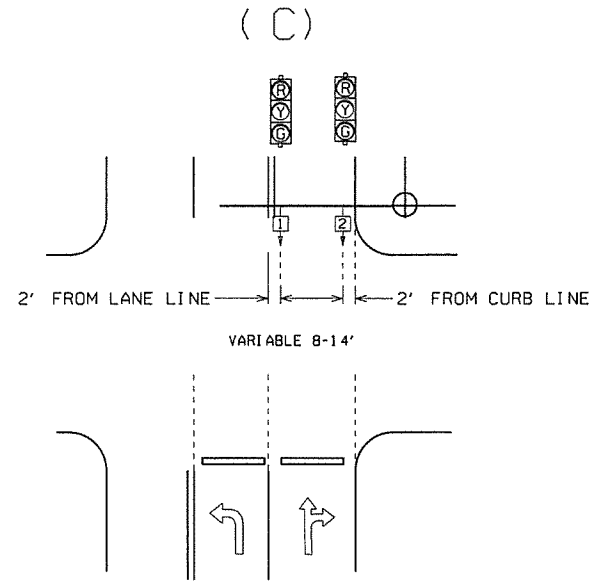
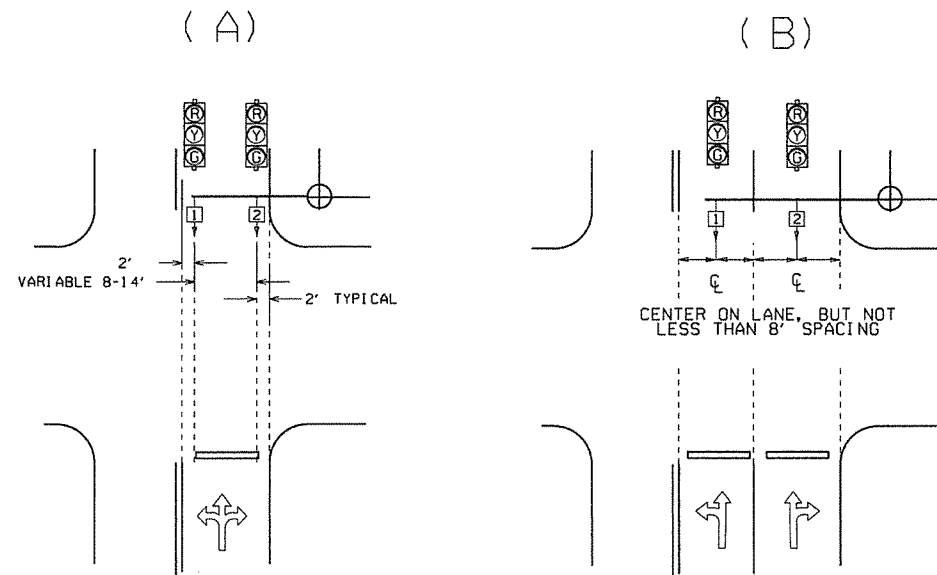
NOTE: ALL TYPE 1 AND TYPE 2 HD PULL BOXES ARE INSTALLED WITH AN APRON OF CONCRETE 12" (305 MM) WIDE AND 6" (152 MM) IN DEPTH. ALL PAYMENT SHALL BE INCLUDED IN THE PRICE OF THE TYPE HD PULL BOX. PULL BOX SHALL BE INSTALLED FLUSH TO SURROUNDING GRADE UNLESS OTHERWISE INSTRUCTED BY THE ENGINEER. THE CONCRETE SHALL BE CLASS "S" THREE #6 REINFORCING BARS IN THE APRON ON ALL SIDES OF THE PULL BOX IS REQUIRED IN CONCRETE.



NOTE: ENTRY TO CABINET SHALL BE THROUGH A CUT IN THE BASE SUFFICIENT TO PROVIDE ADEQUATE CONDUIT RADIUS FOR ITEM.

9-12-13	ISSUED AS STANDARD DRAWING	
5-21-09	REVISED GROUNDING	
7-31-08	ADDED & REVISED CONDUIT ENTRY	
6-23-04	REVISED CLEARANCE AT CURB ENTRY	
1-4-02	ADDED REINFORCING TO BOX APRON	
7-2-01	REVISED	
12-27-99	REVISED NOTES	
11-18-98	ISSUED	
DATE	REVISION	DATE FILM

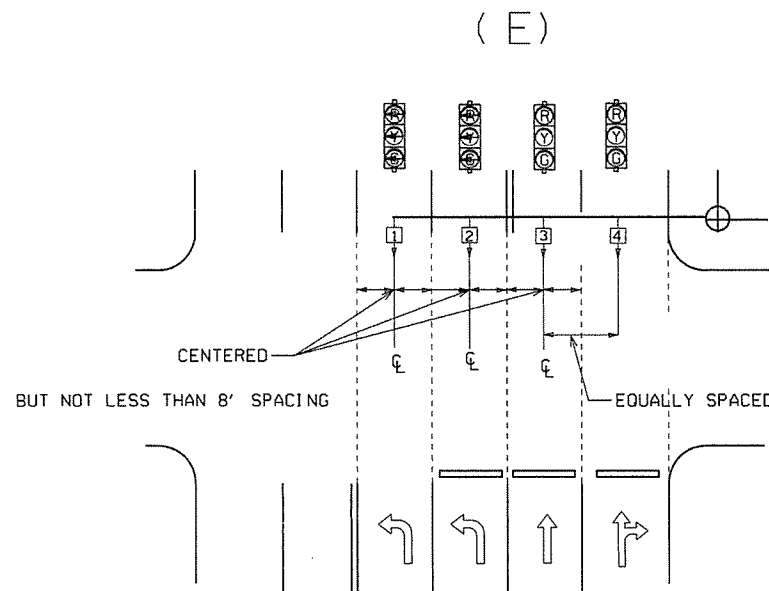
ARKANSAS STATE HIGHWAY COMMISSION  
HEAVY DUTY PULL BOX  
STANDARD DRAWING SD-6



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.

GENERAL NOTES:

- 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.
- THREE SECTION "PROTECTED" LEFT TURN HEADS SHOULD BE PLACED ON THE CENTERLINE OF THE APPROACHING LEFT TURN LANE.
- 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.
- SIGNAL HEAD SPACING SHALL, IN NO CASE, BE LESS THAN EIGHT (8') FEET BETWEEN HEADS ON CENTER, MEASURED HORIZONTALLY PERPENDICULAR TO THE APPROACH.
- 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.
- MAXIMUM MOUNTING HEIGHT OF SIGNAL FACES LOCATED BETWEEN 40 FEET AND 53 FEET FROM STOP BAR SHALL BE IN ACCORDANCE WITH FIGURE 4D-1 OF 2009 MUTCD.



℄ = CENTER OF LANE FROM APPROACH SIDE

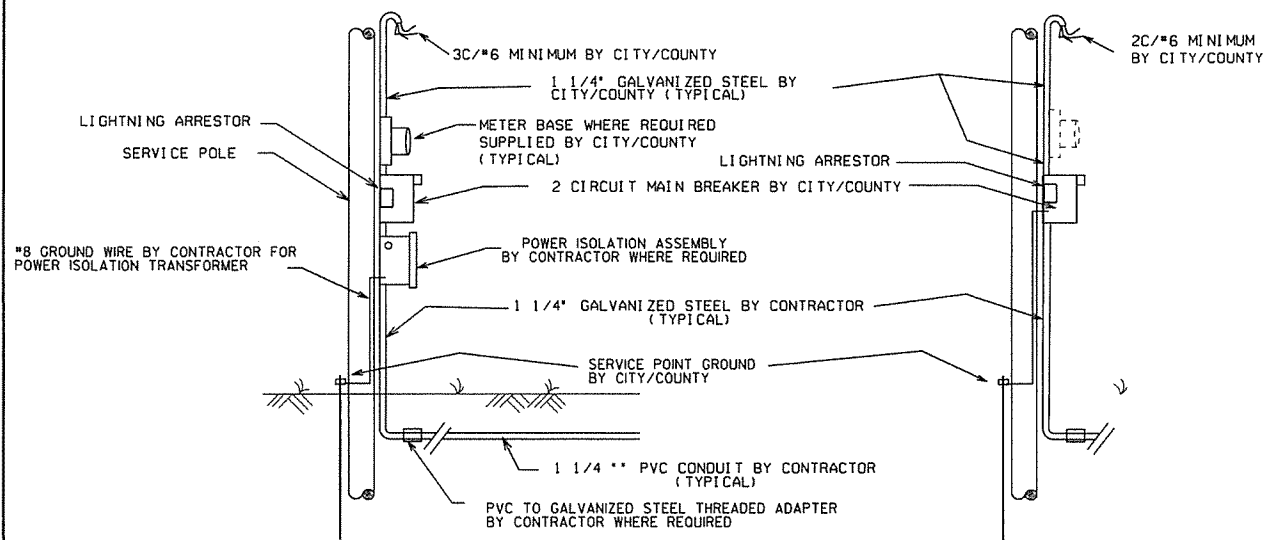
			ARKANSAS STATE HIGHWAY COMMISSION
9-12-13	ISSUED AS STANDARD DRAWING		SIGNAL HEAD PLACEMENT
3-11-10	2009 MUTCD		
12-9-99	ISSUED		STANDARD DRAWING SD-8
DATE	REVISION	DATE FILM	

# MAIN BREAKER NOT NEAR CONTROLLER CABINET SECONDARY REQUIRED

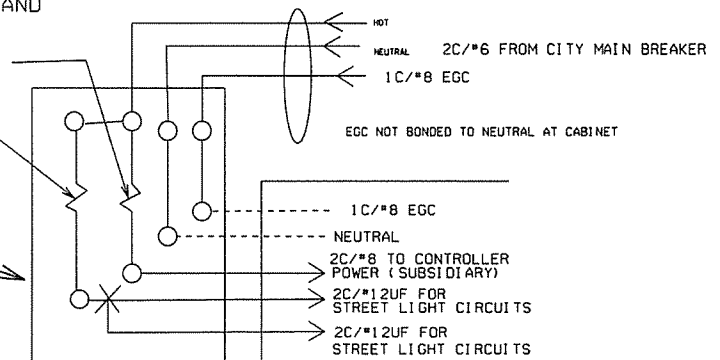
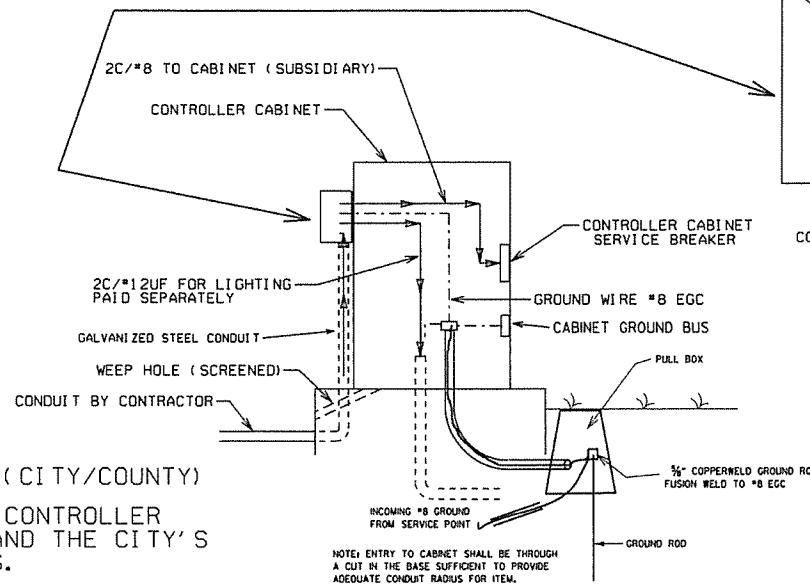
GROUND ROD-A 10' X 3/8" GROUND ROD SHALL BE INSTALLED IN THE PULL BOX FOR EACH POLE AND THE CONTROLLER. PAYMENT FOR THE GROUND ROD AND 1/2" NMC SHALL BE INCLUDED IN ITEM 701. THE PULL BOX AND CONDUCTOR BOX SHALL BE PAID FOR SEPARATELY.

WITH POWER ISOLATION ASSEMBLY

WITHOUT POWER ISOLATION ASSEMBLY



## SECONDARY BREAKER BY CONTRACTOR (SUBSIDIARY)



## MAIN BREAKER WIRING (TYPICAL)

### 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 OR COUNTY'S RESPONSIBILITY VARIES ACCORDINGLY AS INDICATED ON THESE DETAILS.

1. ALL SITUATIONS: ELECTRICAL SERVICE SHALL BE PROVIDED BY THE CITY/COUNTY TO A SERVICE POLE WITH EXTERNAL RAINLIGHT 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, ELECTRICAL CONDUCTORS AND WEATHERHEAD. WHERE STREET LIGHTING IS INCLUDED AS PART OF SIGNAL INSTALLATION, STREET LIGHTING CIRCUIT (2C/#12 AWG 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.

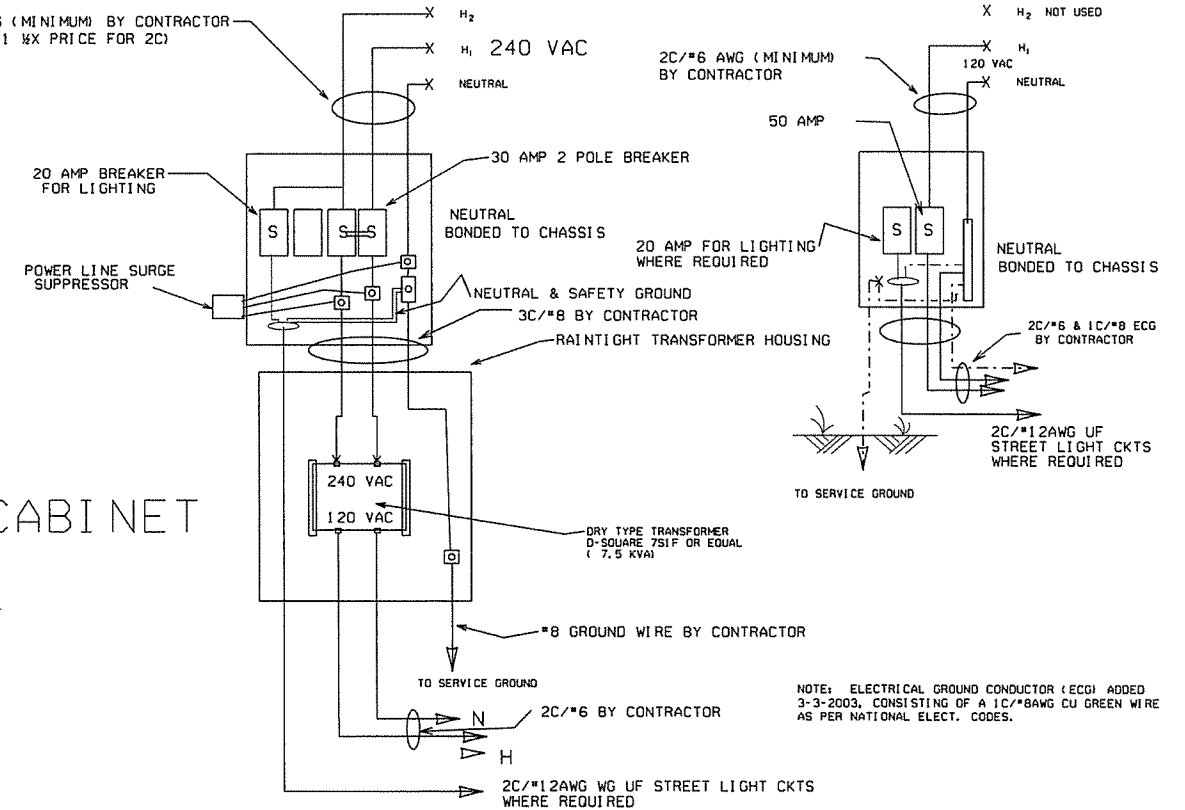
2. MAIN BREAKER NOT NEAR CONTROLLER CABINET: THE MAIN BREAKER ASSEMBLY, GALVANIZED STEEL CONDUIT, WEATHERHEAD AND WIRE ABOVE MAIN BREAKER AND CONNECTION TO THE UTILITY SHALL BE PROVIDED BY CITY/COUNTY. CONTRACTOR SHALL PROVIDE AS PART OF CONTRACT SECONDARY BREAKER, CONDUIT, WIRE AND WIRING TO THE MAIN BREAKER.

3. 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.

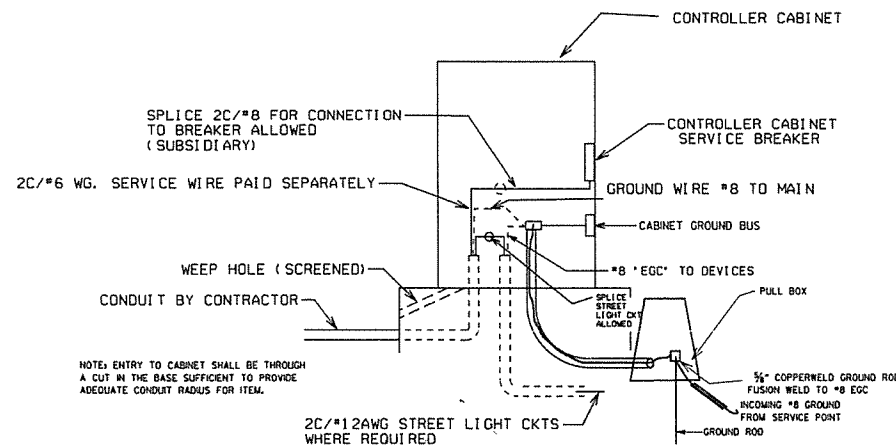
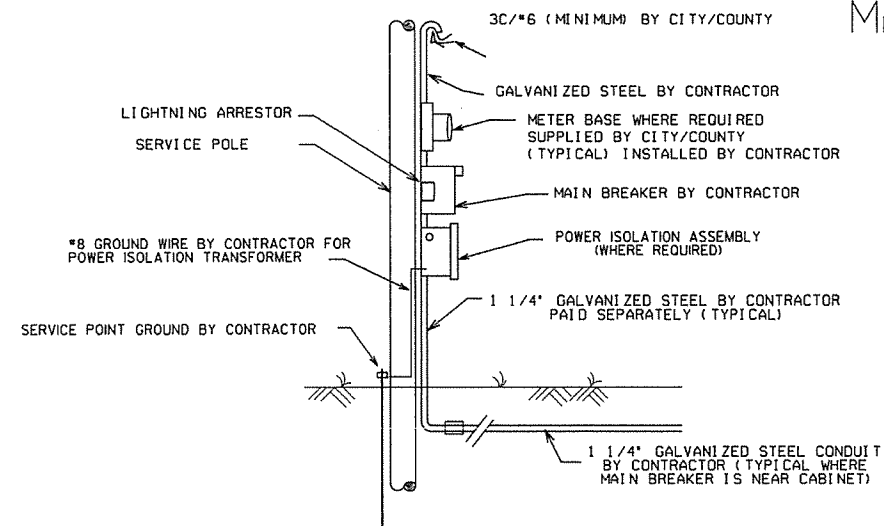
WITH POWER ISOLATION ASSEMBLY  
4 CIRCUIT MAIN BREAKER

WITHOUT POWER ISOLATION ASSEMBLY  
2 CIRCUIT MAIN BREAKER

3C/#6 AWG (MINIMUM BY CONTRACTOR)  
(PAID AT 1 1/2 X PRICE FOR 2C)



# MAIN BREAKER NEAR CONTROLLER CABINET SECONDARY NOT REQUIRED



DATE	REVISION	DATE FILM
9-12-13	ISSUED AS STANDARD DRAWING	
4-18-13	ADDED LIGHTNING ARRESTOR	
5-21-09	REVISED GROUNDING	
7-31-08	REVISED GROUNDING	
3-3-03	ADDED EGC NOTE	
9-26-01	REVISED	
12-27-99	REVISED	
7-28-99	REVISED	
2-5-99	ISSUED	

NOTE: ELECTRICAL GROUND CONDUCTOR (EGC) ADDED 3-3-2003, CONSISTING OF A 1C/#8AWG CU GREEN WIRE AS PER NATIONAL ELECT. CODES.

ARKANSAS STATE HIGHWAY COMMISSION

SERVICE POINT

STANDARD DRAWING SD-9

NOTES, PED 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 SIGN FACES SHALL BE CONSTRUCTED OF HIGH INTENSITY SHEETING (TYPE 111) WITH SILKSCREEN LEGEND AND BORDER.

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 4 FT. BEHIND CURB OR SHOULDER.

2. OCTAGONAL POLES AND ARMS MEETING THE REQUIREMENTS OF THE PLANS AND 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 SPEED LIMIT IS GREATER THAN 45 MPH WITH AN ARM 60' OR LONGER.

USE FATIGUE CATEGORY II FOR STRUCTURES ON ROUTES WITH A SPEED LIMIT LESS THAN 65 MPH AND GREATER THAN 45 MPH WITH ARMS LESS THAN 60' AND ROUTES WITH SPEED LIMITS OF 45 MPH AND LESS WITH AN ARM 60' OR LONGER.

USE FATIGUE CATEGORY III FOR ALL STRUCTURES WHERE SPEED LIMIT IS 45 MPH AND LESS AND ARMS LESS THAN 60'.

CONSTRUCTION SPECIFICATIONS: ARKANSAS STATE HIGHWAY AND TRANSPORTATION DEPARTMENT 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 1/2" SHALL MEET THE LONGITUDINAL CHIPPY 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, 12 INCH, AND HAVE 5 IN. BACK PLATES.

HEADS AT END OF ARM - ONE 4 SEC., 85 LB., 16.0 SQ. FT. ONE SIGN MOUNTED 3 FT. FROM SIGNAL \* 2' X 0' X 2' \* 6'; 20 LB. REMAINING HEADS SPACED 8 FT. \* 3 SEC., 56 LB., TWO 5 SEC.;

14.4 SQ. FT. DESIGN TO ACCOMMODATE (INCLUDING 2 HEADS FOR ARMS 10 TO 16 FT. 2 HEADS FOR ARMS 10 TO 16 FT.; INCLUDING LB. 3 HEADS FOR 18 TO 24 FT. ARMS; 4 HEADS FOR OVER 26 FT. ARMS.

STREET NAME SIGN -- 72" X 18", 36 LB., MOUNTED SUCH THAT OUTSIDE EDGE IS NOT GREATER THAN 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.), 3.3 SQ. FT., 75 LB. PED SIGNALS -- TWO 2 SEC. 12 INCH MOUNTED 8 FT. FROM BASE OF POLE. POST MOUNTED 3 SEC. SIGNAL HEAD AT 10 FT. ON SIDE OF POLE.

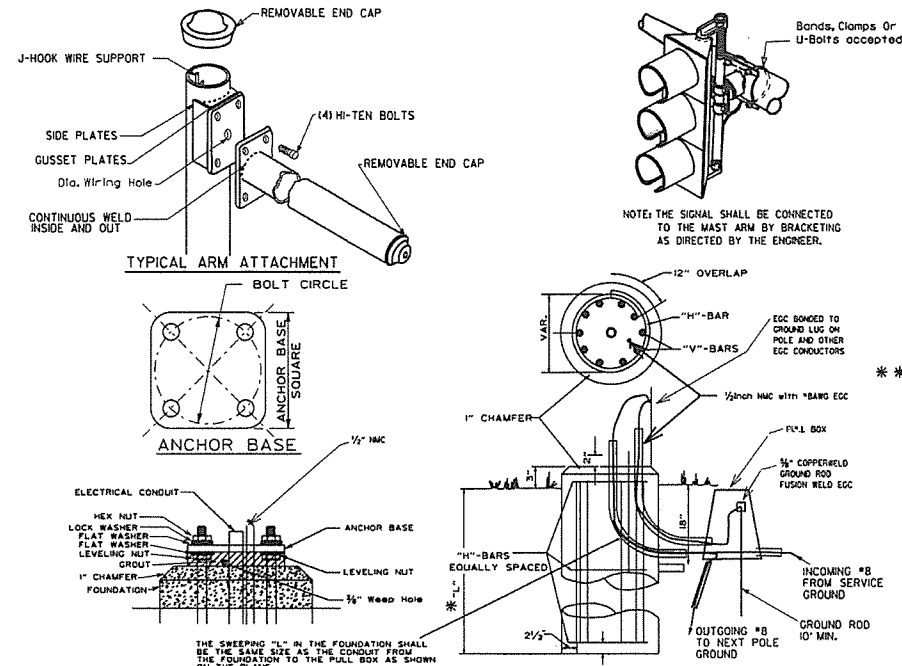
4. POLE/MAST ARM CAP -- POLE AND MAST ARMS CAPS SHALL BE PROVIDED, FABRICATED OF EITHER STEEL OR CAST ALUMINUM.

5. HAND HOLE -- HAND HOLES SHALL BE 4 X 6 INCHES FOR STANDARD, AND 3 X 5 INCHES FOR PED POLES. MINIMUM PLACED APPROXIMATELY 12 INCHES FROM BASE, AND SHALL BE FIXED WITH A BOLT DOWN COVER. A VACUUM FORMED ABS COVER IS AN ACCEPTABLE ALTERNATE TO STEEL. POLES GREATER THAN 21 FT. IN HEIGHT (FOR ROADWAY LUMINAIRE ATTACHMENT) SHALL INCLUDE A HAND HOLE WITHIN 12 INCHES OF MAST ARM(S) ATTACHMENT(S).

6. POLE/MAST ARM TAPER AND SLOPE - AVERAGE TAPER OF SIGNAL ARMS AND POLE SHALL BE 0.125 TO 0.15 INCHES PER FT.

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 ARM SHALL MAINTAIN A POSITIVE AFTER IT IS PLACED UNDER LOAD.

7. NUT COVERS - EACH POLE SHALL INCLUDE A BOLT DOWN NUT COVER FOR EACH ANCHOR BOLT.

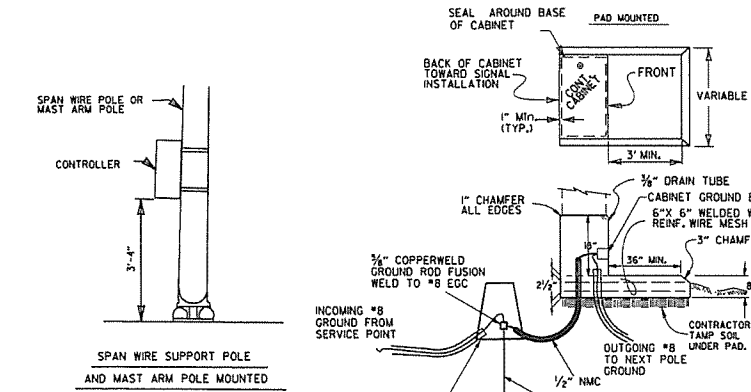


THE GROUND ROD SHALL BE FUSION WELDED TO A 1/2" X 1/4" A.W.G. SOLID COPPER GROUND WIRE. ATTACHMENT TO THE PRIMARY GROUND MAY BE BY AN APPROVED CLAMP. THE ROD IS TO BE LOCATED IN THE CONCRETE PULL BOX.

TYPICAL FOUNDATION DETAILS

POLE FOUNDATION MINIMUM DIMENSIONS AND STEEL REINFORCING, ALL REINFORCING STEEL SHALL BE GRADE 40 MIN.

Table with columns for ARM LENGTH, FDN. DIAMETER, DEPTH, and STEEL (VERT., HORZ., O/C). Rows include PED, 2' to 12', over 12' to 20', over 20' to 35', over 35' to 50', over 50' to 72', and various twin configurations.



CONTROLLER CABINET MOUNTING DETAILS

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 5/8" GROUND ROD SHALL BE INSTALLED IN THE PULL BOX FOR EACH POLE AND THE CONTROLLER. PAYMENT FOR THE GROUND ROD AND 1/2" NMC SHALL BE INCLUDED IN ITEM 714 FOR SIGNAL POLES AND ITEM 701 FOR THE CONTROLLER. THE PULL BOX AND CONDUCTOR BOX SHALL BE PAID FOR SEPARATELY.

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 GROUDED WITH A 1/4" 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 PED PUSH SWITCH SHALL BE CONSIDERED SUBSIDIARY TO THE ITEM PEDESTRIAN SIGNAL HEAD.

SIGNAL OPERATION NOTES:

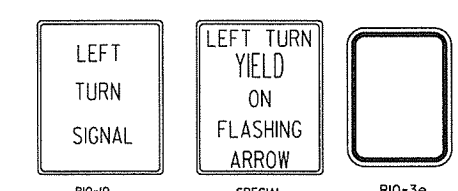
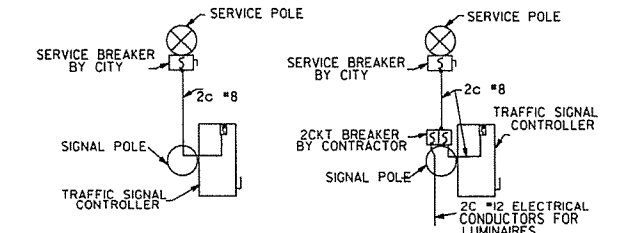
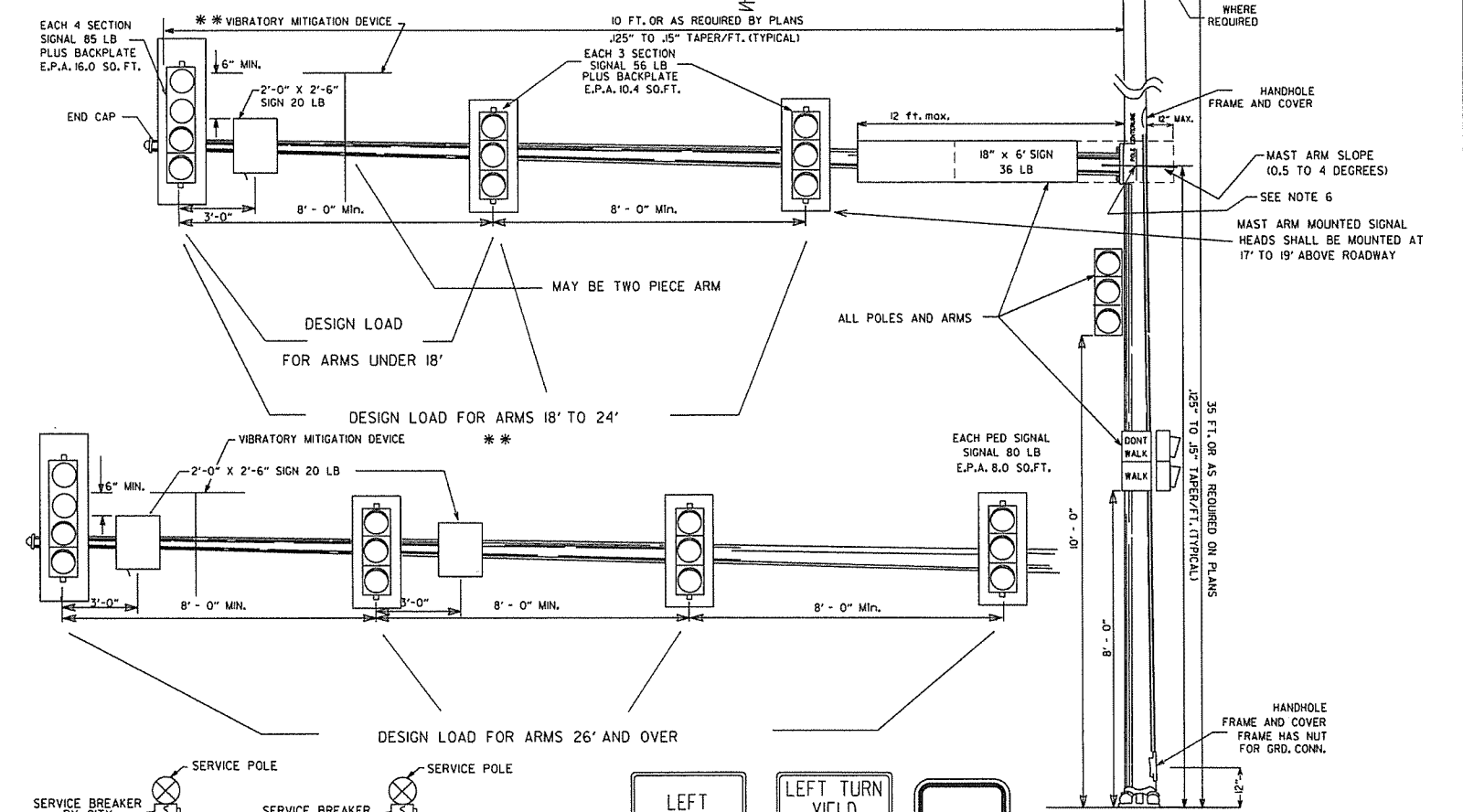
FLASHING OPERATION - PRIOR TO NORMAL OPERATION, SIGNAL SHALL BE FLASHED FOR A PERIOD OF 3 TO 5 WORK DAYS OR AS DIRECTED BY THE ENGINEER. SIGNAL SHALL BE PLACED IN OPERATION ONLY ON A REGULAR WORK DAY, EXCEPT FRIDAY. THE CONTRACTOR MAY BE REQUIRED TO ALTER THE FLASHING DISPLAY DURING THE TEMPORARY FLASH PERIOD, AT THE TIME 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.

SPECIAL NOTE: 90 MPH WIND ZONE DESIGN, SEE NOTE 3. MINIMUM STRUCTURAL REQUIREMENTS.

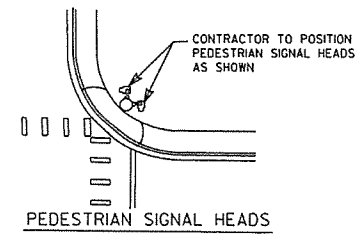
\* WHEN THE GROUND ELEVATION AT THE POLE IS LOWER THAN THE ROADWAY ELEVATION, THE LENGTH OF FOUNDATION ABOVE THE GROUND MAY BE INCREASED TO PROVIDE THE REQUIRED SIGNAL HEAD CLEARANCE ABOVE THE ROADWAY. WHEN THE REQUIRED LENGTH OF FOUNDATION ABOVE THE GROUND IS 5'-6" OR LESS, NO INCREASE IN DEPTH "L" 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 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"X16"X0.25" 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 A HEIGHT AS TO PROVIDE AT LEAST 6" CLEAR FROM THE TOP OF ANY SIGNAL ASSEMBLY OR 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.

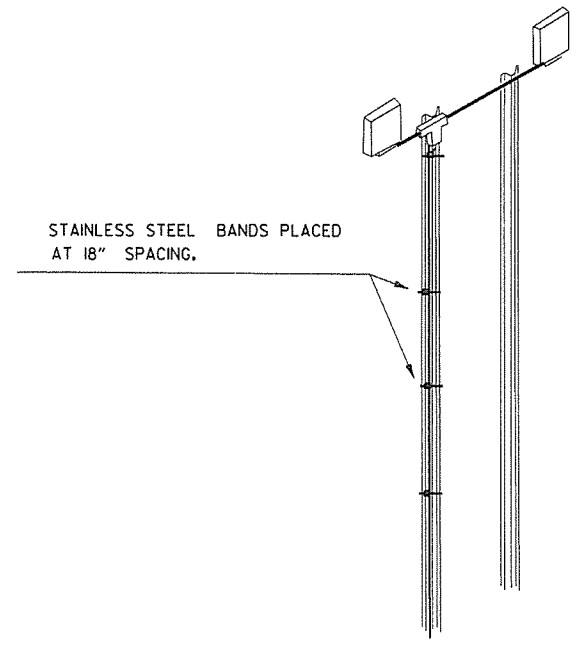
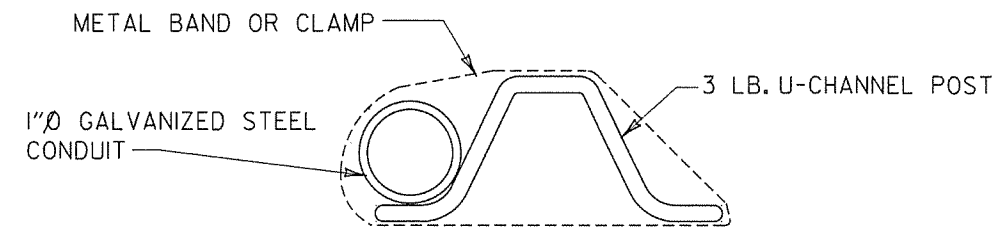


Revision table with columns for DATE, REVISION, and DATE BY. Includes entries for revised notes, standard drawings, VMD signal heads, and various other updates.

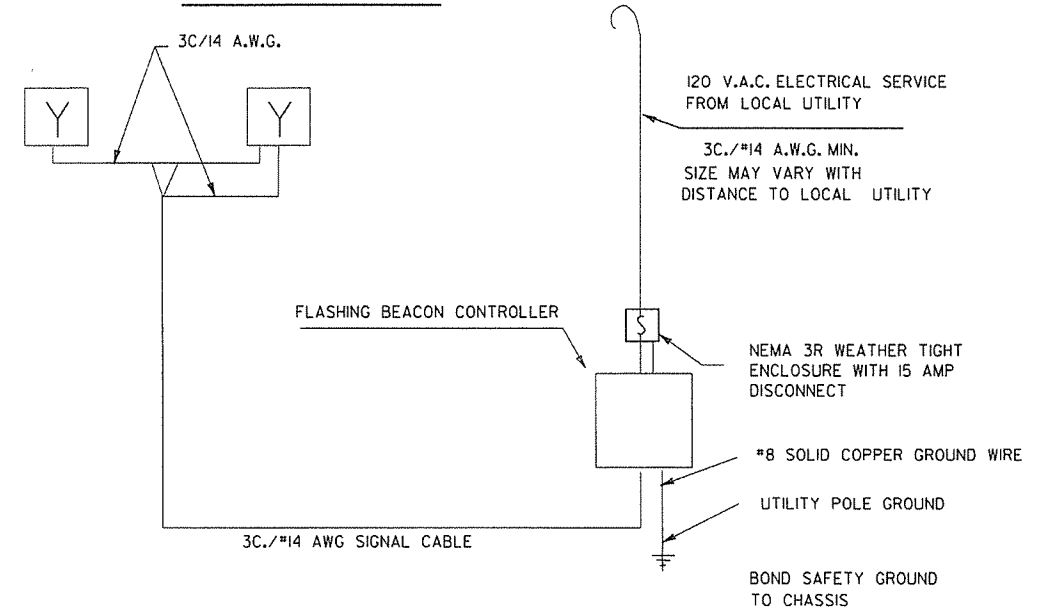




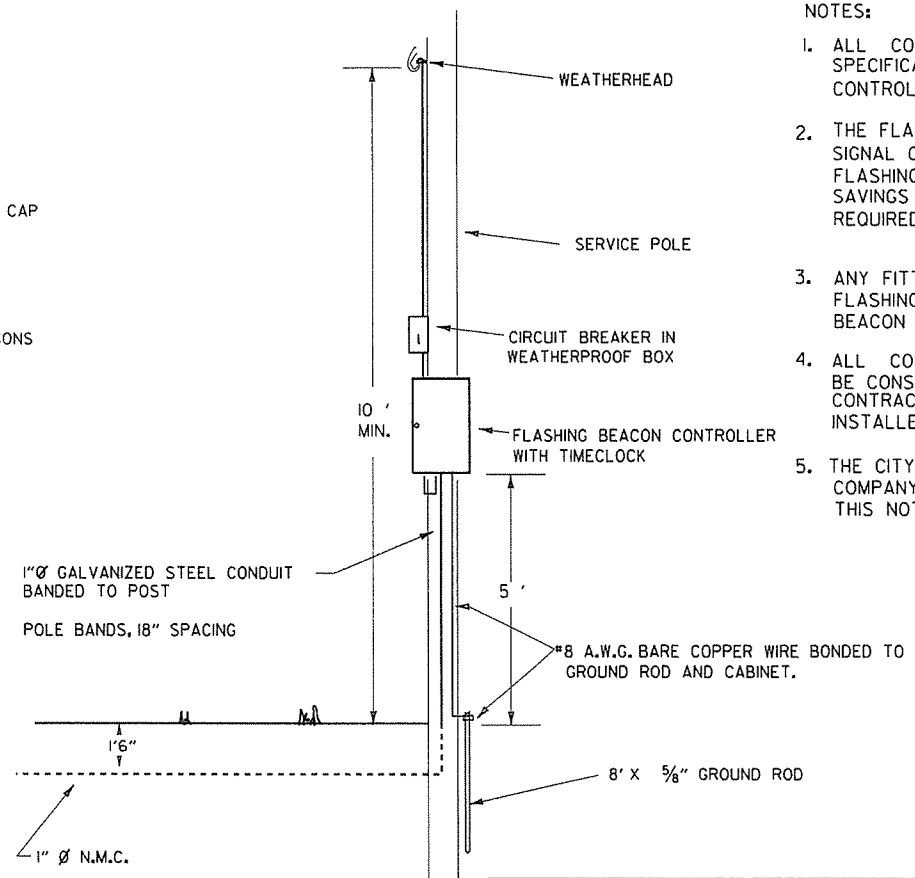
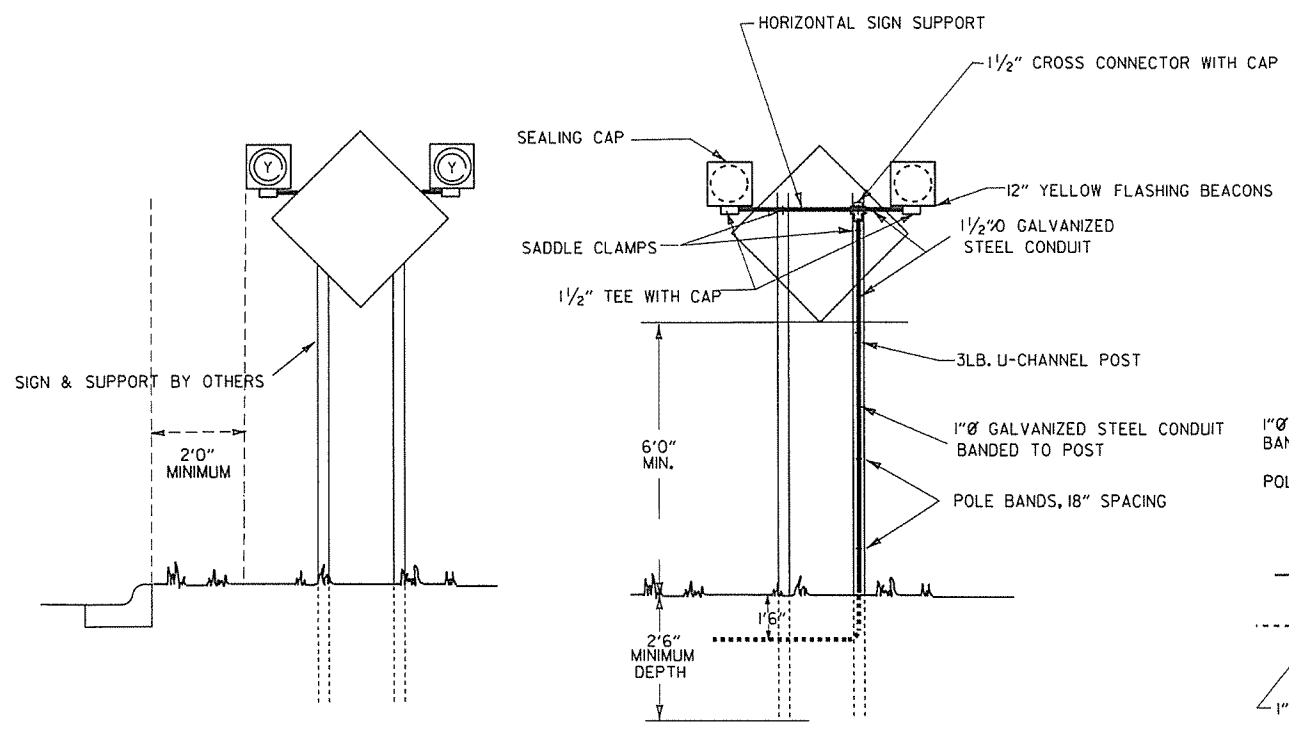
DETAIL OF  
SIGN SUPPORT ASSEMBLY



WIRING DIAGRAM



TYPICAL INSTALLATION


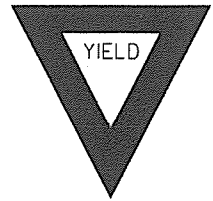
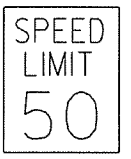
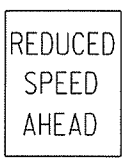



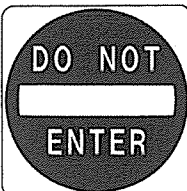
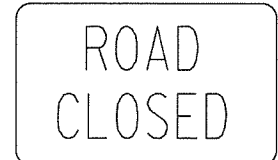
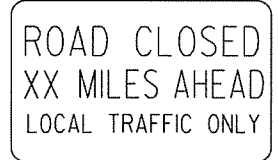
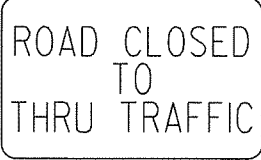

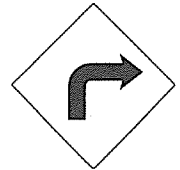
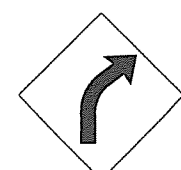
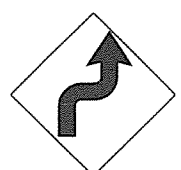
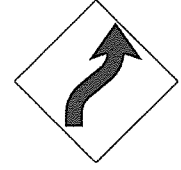
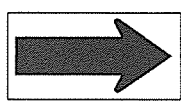
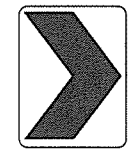
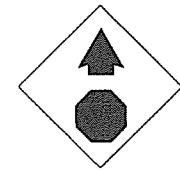
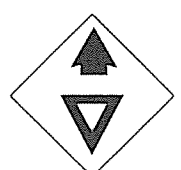
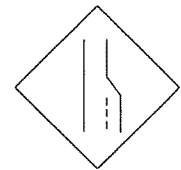

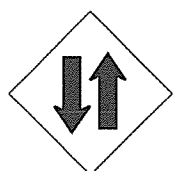

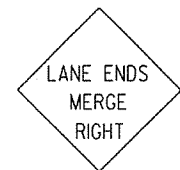

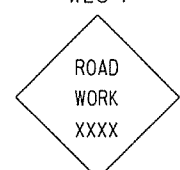

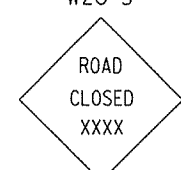

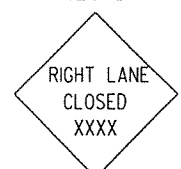
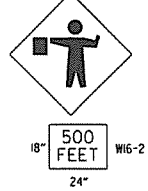


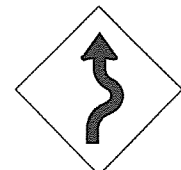
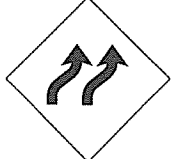

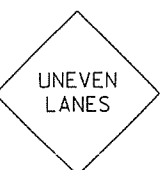
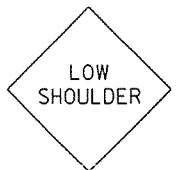
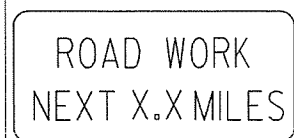
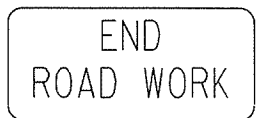
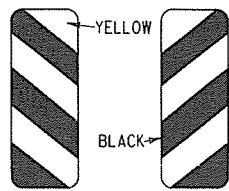
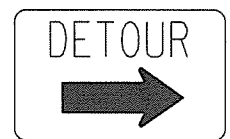

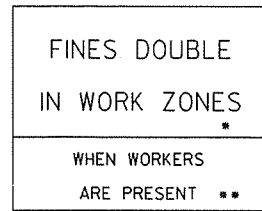


NOTES:

1. ALL CONSTRUCTION SHALL CONFORM TO ARKANSAS STATE HIGHWAY COMMISSION STANDARD SPECIFICATIONS FOR HIGHWAY CONSTRUCTION (CURRENT EDITION) DIVISION 700, TRAFFIC CONTROL FACILITIES.
2. THE FLASHING BEACON ASSEMBLY SHALL INCLUDE LIGHTNING SUPPRESSORS, TRAFFIC SIGNAL CABLE, TWO 12" TRAFFIC SIGNAL HEADS (1 SEC., 1 WAY) WITH YELLOW LENSES, FLASHING BEACON CONTROLLER AND A SOLID STATE CALENDAR DATE TIME CLOCK WITH DAYLIGHT SAVINGS TIME PROGRAMMING AND 48 HOUR POWER FAIL PROTECTION. DATE TIME CLOCK REQUIRED ONLY FOR SCHOOL ZONES. SIGNAL HEADS SHALL BE WIRED TO FLASH ALTERNATELY.
3. ANY FITTINGS, BANDS, GROUND ROD OR ACCESSORIES NECESSARY TO MOUNT CONDUIT AND FLASHING BEACON CONTROLLER SHALL BE CONSIDERED SUBSIDIARY TO THE ITEM FOR FLASHING BEACON CONTROLLER.
4. ALL COUPLINGS, TEES, CLAMPS AND HARDWARE NECESSARY TO MOUNT SIGNAL HEADS SHALL BE CONSIDERED SUBSIDIARY TO THE ITEM FOR TRAFFIC SIGNAL HEAD (1 SEC., 1 WAY). CONTRACTOR SHALL REMOVE SIGNS AND RE-INSTALL THEM AFTER FLASHING BEACONS ARE INSTALLED.
5. THE CITY OR COUNTY SHALL BE RESPONSIBLE FOR PROVIDING, THROUGH A LOCAL UTILITY COMPANY A SERVICE POINT AND POWER TO THE FLASHING BEACON CONTROLLER. THIS NOTE APPLIES ONLY WHEN USED AT A SCHOOL LOCATION.

2-27-14	REVISED NOTE 1.	
9-12-13	ISSUED AS STANDARD DRAWING	
4-17-08	MINOR REVISIONS	
11-3-97	ISSUED	
DATE	REVISION	DATE FILM

ARKANSAS STATE HIGHWAY COMMISSION  
FLASHING BEACON INSTALLATION FOR HAZARDOUS CONDITIONS  
STANDARD DRAWING SD-13

<p>RI-1</p>  <p>STANDARD 30"x30" EXPRESSWAY 36"x36" SPECIAL 48"x48"</p>	<p>RI-2</p>  <p>STD. 36"x36"x36" EXPWY. 48"x48"x48" FWY. 60"x60"x60"</p>	<p>R2-1</p>  <p>STD. 24"x30" EXPWY. 36"x48" FWY. 48"x60"</p>	<p>R2-5A</p>  <p>STD. 24"x30" EXPWY. 36"x48" FWY. 48"x60"</p>	<p>R2-5C</p>  <p>STD. 24"x30" EXPWY. 36"x48" FWY. 48"x60"</p>	<p>R4-1</p>  <p>STD. 24"x30" EXPWY. 36"x48" FWY. 48"x60"</p>	<p>R4-2</p>  <p>STD. 24"x30" EXPWY. 36"x48" FWY. 48"x60"</p>	
<p>R5-1</p>  <p>STD. 30"x30" EXPWY. 36"x36" SPECIAL 48"x48"</p>	<p>R11-2</p>  <p>48"x30"</p>	<p>R11-3A</p>  <p>60"x30"</p>	<p>R11-4</p>  <p>60"x30"</p>	<p>RSP-1</p>  <p>48"x30"</p>	<p>WI-1</p>  <p>STD. 36"x36" FWY. 48"x48"</p>	<p>WI-2</p>  <p>STD. 36"x36" FWY. 48"x48"</p>	
<p>WI-3</p>  <p>STD. 48"x48"</p>	<p>WI-4</p>  <p>STD. 48"x48"</p>	<p>WI-6</p>  <p>STD. 48"x24" SPECIAL 60"x30"</p>	<p>WI-8</p>  <p>STD. 18"x24" SPECIAL 24"x30" EXPWY. 30"x36" FWY. 36"x48"</p>	<p>W3-1</p>  <p>STD. 36"x36" SPECIAL 48"x48"</p>	<p>W3-2</p>  <p>STD. 36"x36" SPECIAL 48"x48"</p>	<p>W4-2</p>  <p>STD. 36"x36" FWY. 48"x48"</p>	
<p>W5-1</p>  <p>STD. 36"x36" SPECIAL 48"x48"</p>	<p>W6-3</p>  <p>EXPWY. 36"x36" SPECIAL 48"x48"</p>	<p>W8-7</p>  <p>EXPWY. 36"x36" FWY. 48"x48"</p>	<p>W9-2</p>  <p>STD. 36"x36" FWY. 48"x48"</p>	<p>W13-1</p>  <p>STD. 24"x24"</p>	<p>W20-1</p>  <p>STD. 48"x48"</p>	<p>W20-2</p>  <p>STD. 48"x48"</p>	<p>W20-3</p>  <p>STD. 48"x48"</p>
<p>W20-4</p>  <p>STD. 48"x48"</p>	<p>W20-5</p>  <p>STD. 48"x48"</p>	<p>W20-7a</p>  <p>STD. 36"x36" FWY. 48"x48"</p>	<p>W21-2</p>  <p>STD. 30"x30" SPECIAL 36"x36"</p>	<p>W21-5</p>  <p>STD. 30"x30" SPECIAL 36"x36"</p>	<p>W24-1</p>  <p>STD. 36"x36"</p>	<p>WI-4b</p>  <p>STD. 48"x48"</p>	<p>R56-1</p>  <p>STD. 18"x18"</p>
<p>W8-11</p>  <p>STD. 36"x36" FWY. 48"x48"</p>	<p>W8-9</p>  <p>STD. 36"x36" FWY. 48"x48"</p>	<p>G20-1</p>  <p>60"x24"</p>	<p>G20-2</p>  <p>48"x24"</p>	<p>OM-3L OM-3R</p>  <p>12"x36"</p>	<p>M4-9</p>  <p>STD. 30"x24" SPECIAL 48"x36" SPECIAL 60"x48"</p>	<p>M4-10</p>  <p>48"x18"</p>	<p>R55-1</p>  <p>36"x60"</p> <p>* USE 6" C LETTERS ** USE 4" D LETTERS</p>

ADVANCE DISTANCES (XXXX)

500 FT	1/2 MILE
1000 FT	3/4 MILE
1500 FT	1 MILE AHEAD

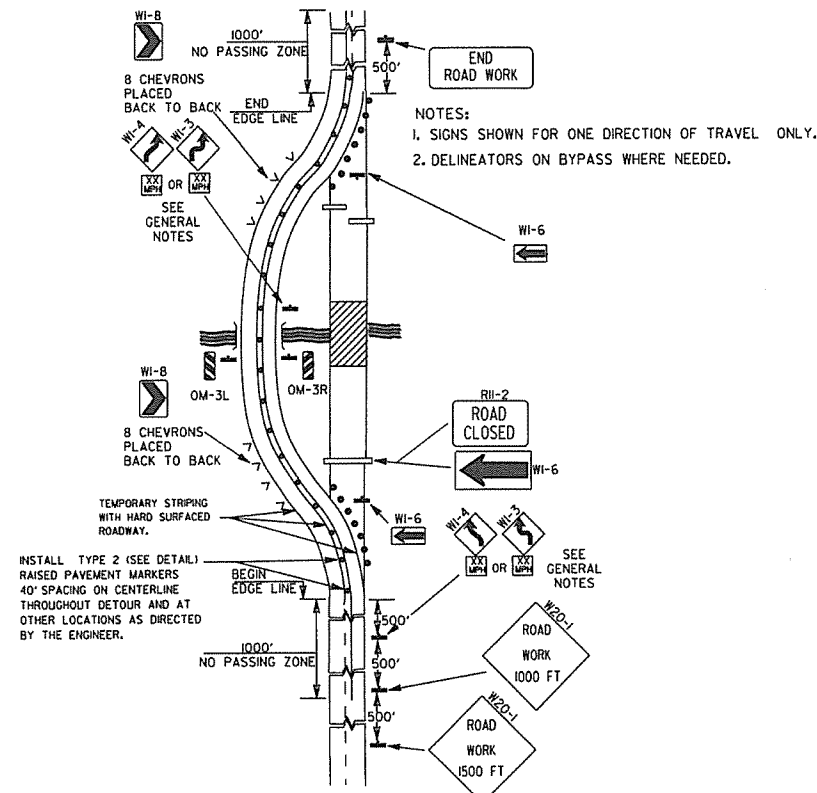
GENERAL NOTES:

- ALL TRAFFIC CONTROL DEVICES USED ON ROAD CONSTRUCTION SHALL CONFORM TO THE MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES, LATEST EDITION, AND TO THE STANDARD HIGHWAY SIGNS, LATEST EDITION, OR AS APPROVED BY THE FEDERAL HIGHWAY ADMINISTRATION.
- TRAFFIC CONTROL DEVICES SHALL BE SET UP JUST BEFORE THE START OF CONSTRUCTION OPERATIONS AND SHALL BE PROPERLY MAINTAINED DURING THE TIME SUCH CONDITIONS EXIST. THEY SHALL REMAIN IN PLACE ONLY AS LONG AS NEEDED AND REMOVED THEREAFTER.
- EXISTING SIGNS AND CONSTRUCTION SIGNS SHALL BE KEPT IN PROPER POSITION, AND BE CLEAN AND LEGIBLE AT ALL TIMES. SIGNS THAT DO NOT APPLY TO EXISTING CONDITIONS SHALL BE REMOVED. SIGNS THAT ARE DAMAGED, DEFACED, OR THAT ACCUMULATE DIRT DURING CONSTRUCTION SHALL BE CLEANED, REPAIRED, OR REPLACED.
- SIGNS ARE USUALLY MOUNTED ON A SINGLE POST, ALTHOUGH THOSE WIDER THAN 36" OR LARGER THAN 10 SQ. FT. SHALL BE MOUNTED ON TWO POSTS OR ABOVE A TYPE III BARRICADE.
- SIGN POSTS DIRECT BURIED IN SOIL SHALL BE 2 LB. MINIMUM CHANNEL POST OR 4"x4" WOOD POSTS. CHANNEL POSTS SHALL BE PAINTED GREEN. WOOD POSTS SHALL BE PAINTED WHITE. ALL POSTS SHALL BE NEATLY CONSTRUCTED, AND SHALL BE REPLUMBED, CLEANED, OR REPAIRED AS NEEDED FOR THE DURATION OF THE JOB. THERE SHALL NOT BE MORE THAN 2 POSTS IN A 7' PATH FOR WOOD OR CHANNEL POSTS. ANY CHANNEL POST SPLICE SHALL BE IN ACCORDANCE WITH STANDARD DRAWING TC-3.
- POST MOUNTED SIGNS IN RURAL AREAS SHALL BE CONSTRUCTED WITH THE NEAR EDGE OF THE SIGN FROM 6 TO 12 FEET FROM THE PAVEMENT EDGE. SIGNS IN URBAN AREAS AND BARRICADE MOUNTED SIGNS SHALL BE MOUNTED A MINIMUM OF 2 FEET FROM THE PAVEMENT EDGE.
- ALL POST AND BARRICADE MOUNTED SIGNS MOUNTED IN URBAN AREAS SHALL BE MOUNTED A MINIMUM DISTANCE OF 7' FROM THE BOTTOM OF THE SIGN TO THE ROADWAY SURFACE. ALL POST AND BARRICADE MOUNTED SIGNS MOUNTED IN RURAL AREAS SHALL BE MOUNTED A MINIMUM DISTANCE OF 7' FROM THE BOTTOM OF THE SIGN TO THE ROADWAY SURFACE, EXCEPT A MINIMUM OF 6' SHALL BE USED WHEN MOUNTING AN ADVISORY SIGN BELOW A WARNING SIGN. TEMPORARY SIGNS MAY BE MOUNTED ON PORTABLE SUPPORTS FOR INTERMEDIATE TERM STATIONARY WORK CONDITIONS. THE SIGNS MINIMUM MOUNTING HEIGHT SHALL BE 5'. RETROREFLECTIVE DEVICES SHALL BE USED. TEMPORARY SIGNS MAY BE MOUNTED ON PORTABLE SUPPORTS FOR SHORT-TERM, SHORT DURATION, AND MOBILE CONDITIONS. THEY SHALL BE NO LESS THAN ONE (1) FOOT ABOVE THE TRAVELED WAY. LONG-TERM STATIONARY SIGNS SHALL BE DIRECT BURIED IN SOIL, UNLESS CONDITIONS NECESSITATE THE USE OF PORTABLE SIGNS, OR AS APPROVED BY THE ENGINEER. CONCRETE PADS, CONCRETE OR ROCK BALLAST, OR OTHER SOLID MATERIALS SHALL NOT BE UTILIZED WITH PORTABLE SIGN SUPPORTS.
- FLAGGERS SHALL USE REFLECTORIZED STOP-SLOW PADDLES. FLAGS MAY BE USED ONLY FOR EMERGENCY SITUATIONS.
- MOST OF THE SIGNS SHOWN ARE ORIENTED TO THE RIGHT. HOWEVER, THIS DOES NOT PRECLUDE THE USE OF MIRROR IMAGES OF THESE SIGNS WHERE THE REVERSE ORIENTATION MIGHT BETTER CONVEY TO MOTORISTS THE PROPER DIRECTION OF MOVEMENT.
- R55-1 SIGNS SHALL BE PLACED AT LEAST 1500' BUT NOT MORE THAN 1 MILE IN ADVANCE OF THE WORK ZONE. IF A SPEED LIMIT REDUCTION IS IN EFFECT, THE SIGN SHALL BE PLACED A MINIMUM OF 500' IN ADVANCE OF THE "REDUCED SPEED AHEAD" SIGN.

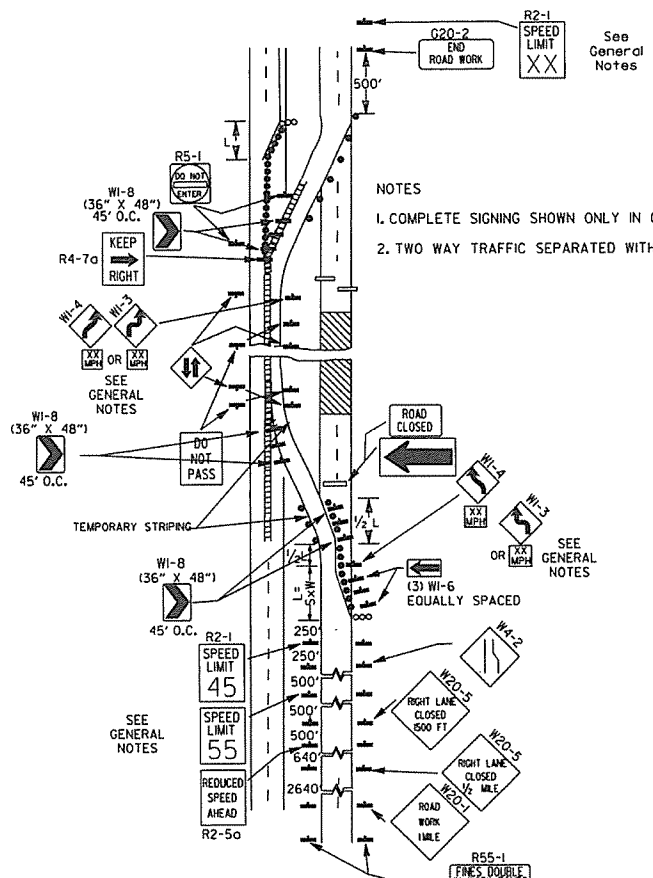
\* NOTE: SUPPORTS FOR SIGNS, BARRICADES, AND VERTICAL PANELS THAT ARE DIFFERENT FROM THE REQUIREMENTS SHOWN IN NOTES 4 & 5, BUT MEET THE REQUIREMENTS OF NCHRP-350 OR MANUAL FOR ASSESSING SAFETY HARDWARE (MASH), WILL BE ACCEPTED. COMPLIANCE WITH THE REQUIREMENTS OF NCHRP-350 OR MANUAL FOR ASSESSING SAFETY HARDWARE (MASH) IS REQUIRED FOR ALL PROJECTS.

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	
DATE	REVISION	FILMED

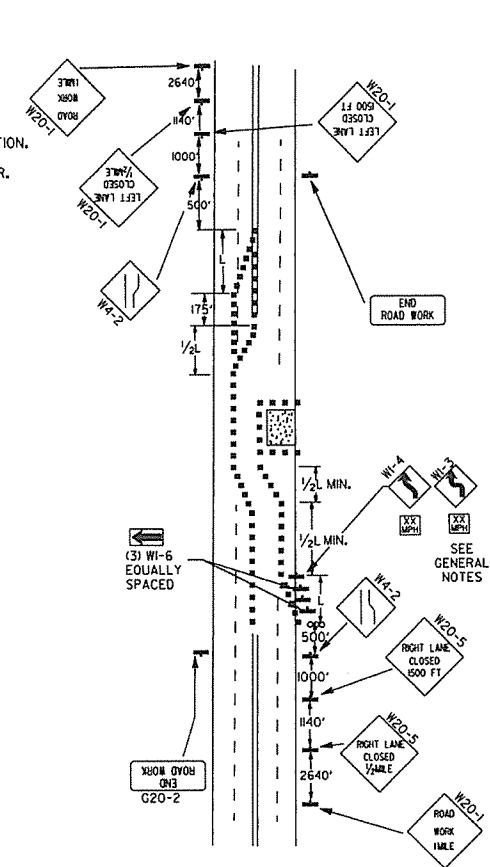
ARKANSAS STATE HIGHWAY COMMISSION  
STANDARD TRAFFIC CONTROLS  
FOR HIGHWAY CONSTRUCTION  
STANDARD DRAWING TC-1



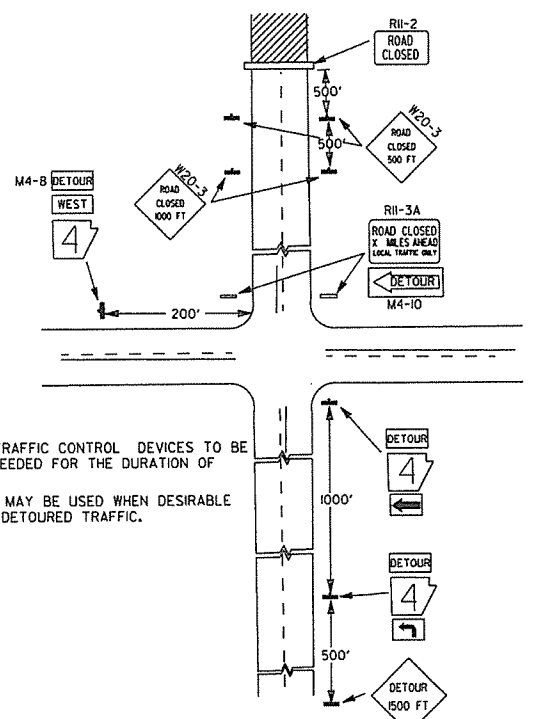
(A) TYPICAL APPLICATION OF TRAFFIC CONTROL DEVICES ON A 2-LANE HIGHWAY WHERE THE ENTIRE ROADWAY IS CLOSED AND A BYPASS DETOUR IS PROVIDED.



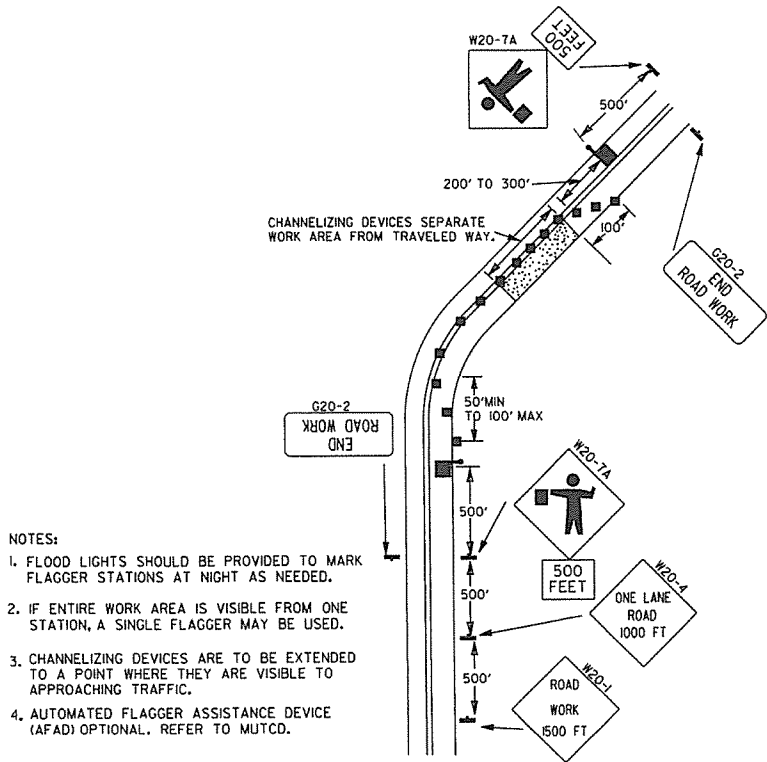
(B) TYPICAL APPLICATION - 4-LANE DIVIDED ROADWAY WHERE ONE ROADWAY IS CLOSED.



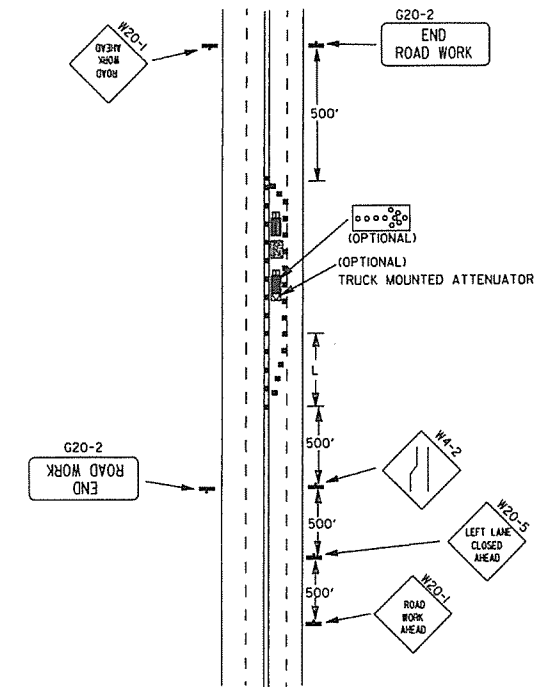
(C) TYPICAL APPLICATION - 4-LANE UNDIVIDED ROADWAY WHERE HALF OF THE ROADWAY IS CLOSED.



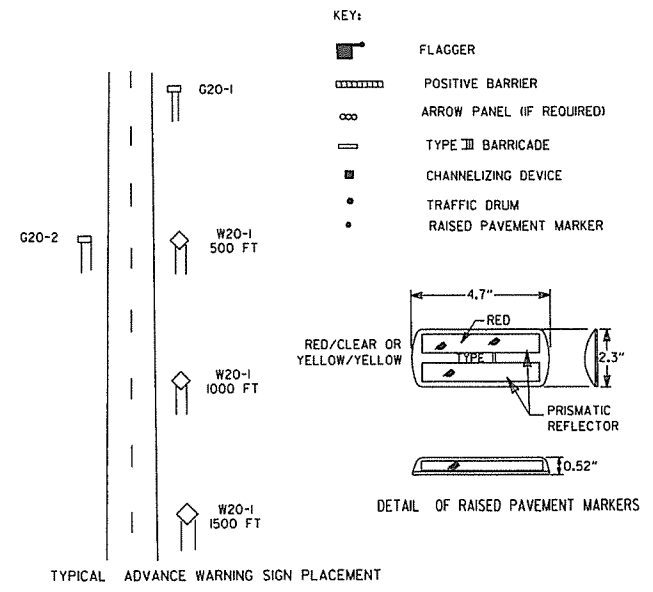
(D) TYPICAL APPLICATION - ROADWAY CLOSED BEYOND DETOUR POINT.



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



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

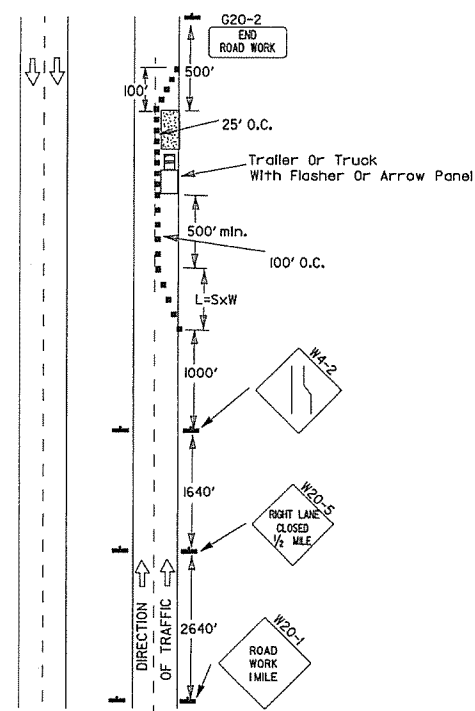


TAPER FORMULAE:  
 $L = SXW$  FOR SPEEDS OF 45MPH OR MORE.  
 $L = \frac{WS^2}{60}$  FOR SPEEDS OF 40MPH OR LESS.  
 WHERE:  
 L = MINIMUM LENGTH OF TAPER.  
 S = NUMERICAL VALUE OF POSTED SPEED LIMIT PRIOR TO WORK OR 85TH PERCENTILE SPEED.  
 W = WIDTH OF OFFSET.

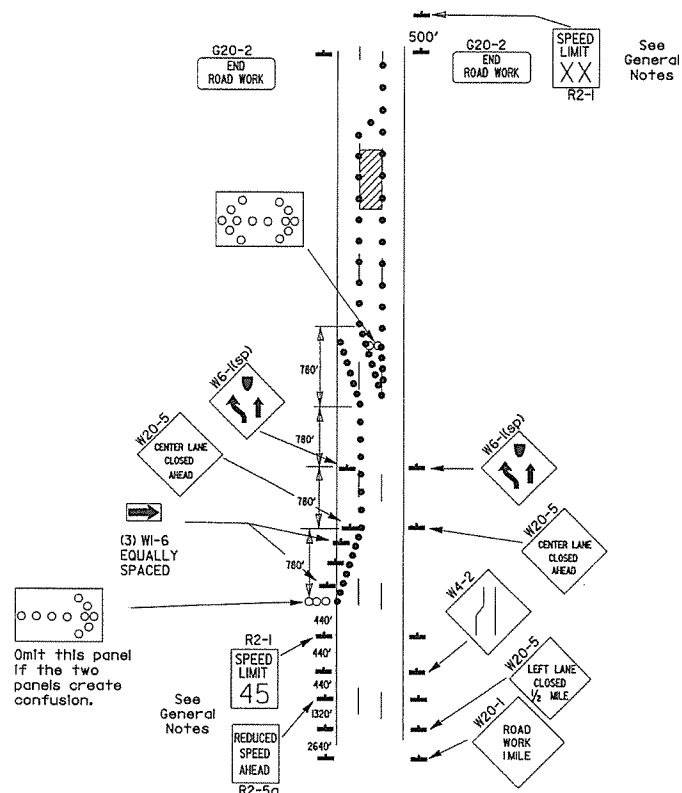
- GENERAL NOTES:  
 1. ADVISORY SPEED POSTED ON W1-3 OR W1-4 CURVE WARNING SIGNS TO BE DETERMINED AT SITE. USE W1-4 WHEN SPEED IS GREATER THAN 30MPH AND W1-3 WHEN 30MPH OR LESS.  
 2. WHEN THE EXISTING SPEED LIMIT IS 55MPH AND THE PLANS REQUIRE A SPEED LIMIT OF 45MPH, THE R2-1(55) SHALL BE OMITTED AND THE R2-5A SHALL BE INSTALLED AT THAT LOCATION. ADDITIONAL R2-1(45)MPH SPEED LIMIT SIGNS SHALL BE INSTALLED AT A MAXIMUM OF 1/2 MILE INTERVALS. AT THE END OF THE WORK AREA A R2-1(XX) SHALL BE INSTALLED TO MATCH ORIGINAL SPEED LIMIT.  
 3. WHEN THE EXISTING SPEED LIMIT IS 65MPH AND THE PLANS REQUIRE A SPEED LIMIT OF 55MPH, THE R2-1(65) SHALL BE OMITTED. ADDITIONAL R2-1(55)MPH SPEED LIMIT SIGNS SHALL BE INSTALLED AT A MAXIMUM OF 1/2 MILE INTERVALS. AT THE END OF THE WORK AREA A R2-1(XX) SHALL BE INSTALLED TO MATCH ORIGINAL SPEED LIMIT.  
 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.

DATE	REVISION	FILED
9-12-13	REVISED DETAIL OF RAISED PAVEMENT MARKERS	
3-1-10	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	

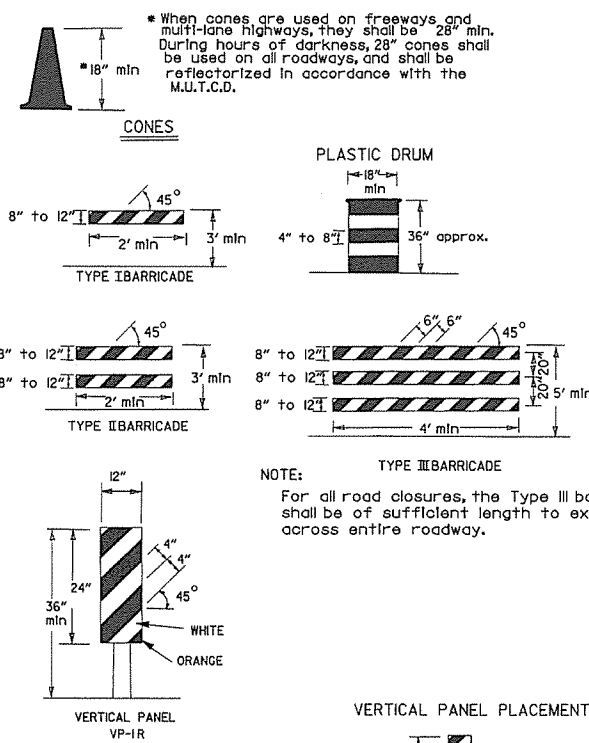
Channelizing devices



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

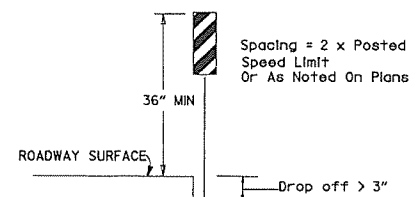


(B) Typical application - 3-lane one-way roadway where center lane is closed.



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

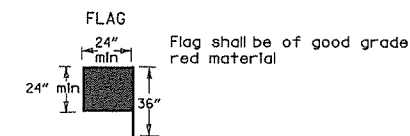
VERTICAL PANEL PLACEMENT



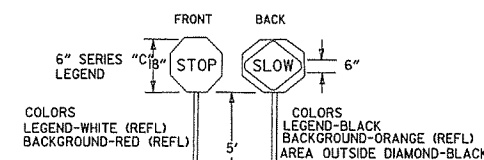
TRAFFIC CONTROL DEVICES FOR VERTICAL PAVEMENT DIFFERENTIALS

VERTICAL DIFFERENTIAL	LOCATIONS	TRAFFIC CONTROL
1" to 3"	Centerline, lane lines	W8-11
1" to 3"	Edge of shoulder	W8-9
Greater than 3"	Lane lines	Standard lane closure required
Greater than 3"	Edge of traveled lane	*RSP-1 and vertical panels, drums or concrete barrier
Greater than 3"	Edge of shoulder	*Vertical panels, drums or concrete barrier

\* When shown on the plans concrete barrier will be used.  
When the shoulder area is used as part of the traveled lane and there is insufficient width to place drums on the remaining shoulder width, then vertical panels shall be used.

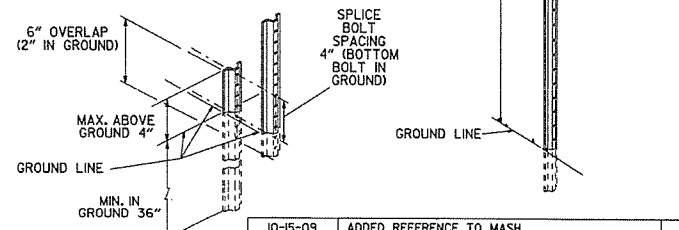


STOP SLOW PADDLE



DETAIL OF SPLICES

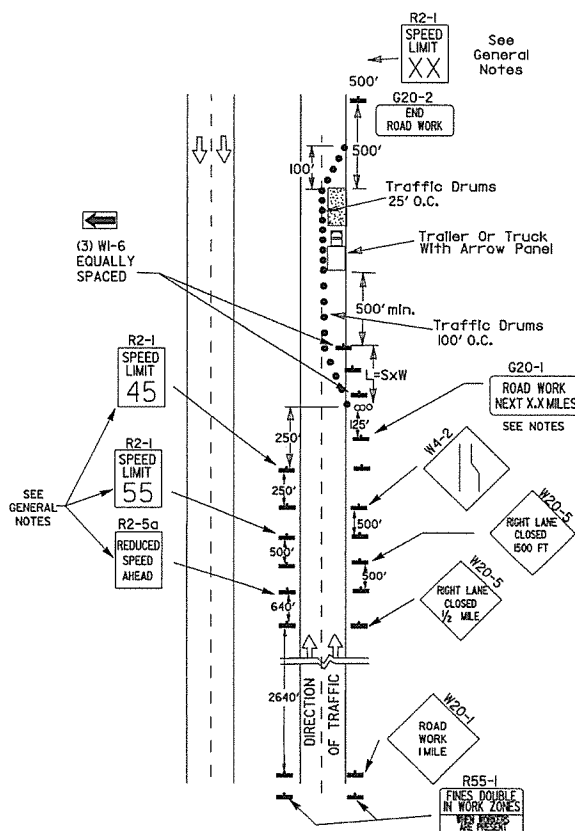
NOTES:  
USE SPLICES ONLY WHEN NECESSARY FOR INSTALLATION. TYPICAL INSTALLATION SHOULD HAVE NO SPLICES (SEE STD. DRAWING NO. SHS-2)  
NORMAL INSTALLATIONS WILL REQUIRE 1/4" DIA. BOLTS TO MOUNT SIGNS TO POST AND 5/16" DIA. BOLTS TO ASSEMBLE THE VARIOUS POST SUPPORTS. EACH OF THESE BOLTS SHALL BE CARRIAGE BOLTS.  
SIGN POSTS SHALL BE PAINTED GREEN; SIGNS SHALL NOT BE PAINTED, AND ALL SIGN POSTS SHALL BE PLUMB.  
POST SHALL NOT EXTEND ABOVE SIGN  
ADDITIONAL POST  
6" MIN. SPACING  
12" O.C.  
18" MINIMUM OVERLAP  
SIGN POST  
30" MIN. GROUND TO SPLICE  
GROUND LINE



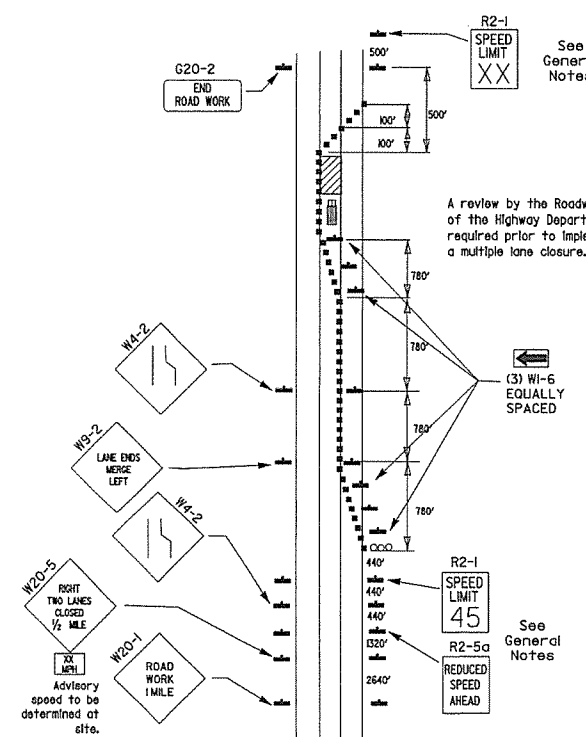
- KEY:
- Arrow Panel (if Required)
  - Channelizing Device
  - Traffic drum

GENERAL NOTES:

- A speed limit reduction may be implemented ONLY when designated in the plan or when recommended by the Roadway Design Division.
- When the existing speed limit is 55mph and the plans require a speed limit of 45mph, the R2-1(55) shall be omitted and the R2-5A shall be installed at that location. Additional R2-1(45) speed limit signs shall be installed at a maximum of 1 mile intervals. At the end of the work area a R2-1(XX) shall be installed to match original speed limit.
- When the existing speed limit is 65mph and the plans require a speed limit of 55mph, the R2-1(45) shall be omitted. Additional R2-1(55) speed limit signs shall be installed at a maximum of 1 mile intervals. At the end of the work area a R2-1(XX) shall be installed to match original speed limit.
- The maximum spacing between channelizing devices in a taper should be approximately equal in feet to the speed limit. Beyond the taper, maximum spacing shall be two times the speed limit or as directed by the Engineer.
- Warning lights and/or flags may be mounted to signs or channelizing devices at night as needed.
- Pavement markings no longer applicable which might create confusion in the minds of vehicle operators shall be removed or obliterated as soon as practicable.
- The G20-1 sign will be required on jobs of over two miles in length. When the lane closure is not at the beginning of the project, the G20-1 sign shall be erected 125' in advance of the job limit. Additional W20-1 (1 MILE) signs are not required in advance of lane closures that begin inside the project limits.
- Flaggers shall use STOP/SLOW paddles for controlling traffic through work zones. Flags may be used only for emergency situations.
- All plastic drums and cones shall meet the requirements of NCHRP-350 or Manual For Assessing Safety Hardware (MASH).
- Trailer mounted devices such as arrow panels and portable changeable message signs shall be delineated by affixing conspicuity material in a continuous line on the face of the trailer. When placed on or adjacent to the shoulder and not behind a positive barrier, these devices shall be delineated by placing five (5) traffic drums, equally spaced along the traffic side of the device.



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



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

DATE	REVISION	FILED
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	