PHASING CHART

2 2

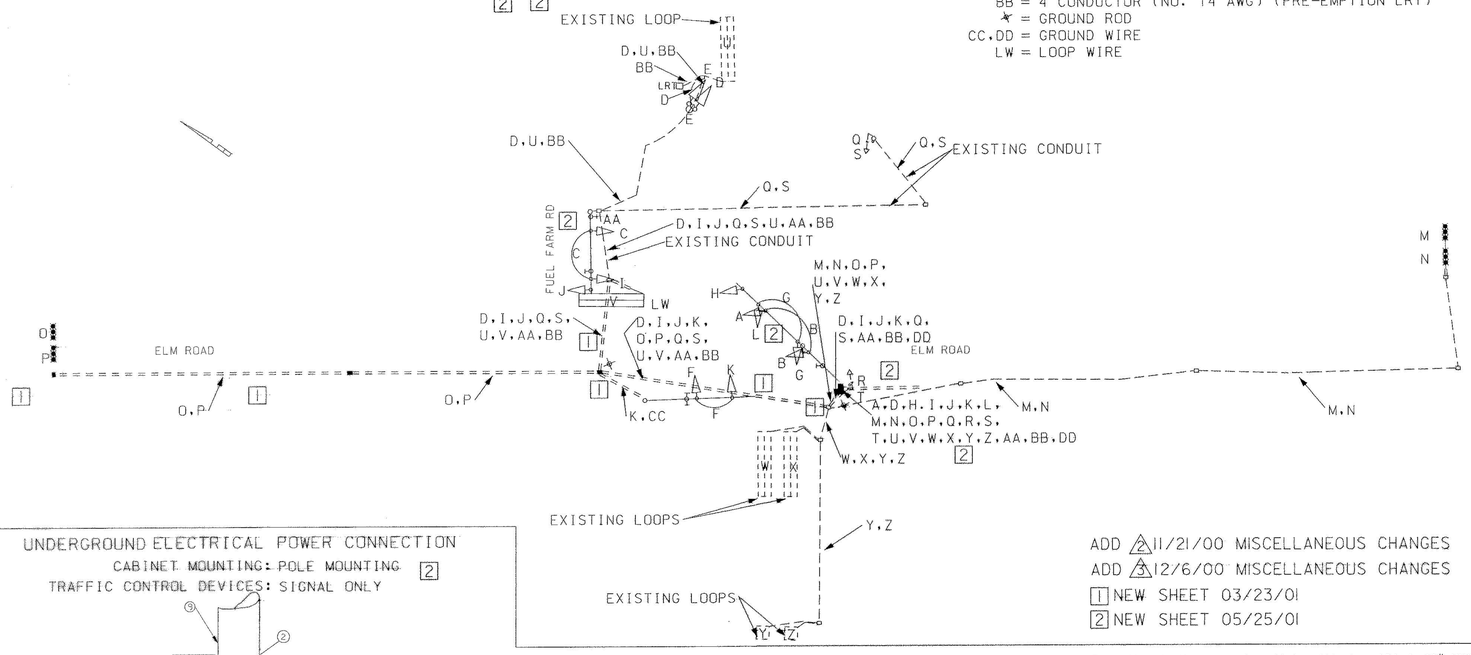
	1	2	3	4	5	6	7	8	11	12	9	10	13	14
PHASE 1 & 6	◄G	◄G	G	G	R	R	R	R	R	R	R	R	DW	DW
1 CHANGE	◄Y	◄Y	G	G	R	R	R	R	R	R	R	R	DW	DW
PHASE 2 & 6	FL/R	FL/R	G	G	G	G	R	R	R	R	R	R	DW	DW
2 & 6 CHANGE	FL/R	FL/R	Y	Y	Y	Y	R	R	R	R	R	R	DW	DW
PHASE 4 & 8	◄R	◄R	R	R	R	R	G	G	G	G	G	G	DW	DW
4 & 8 CHANGE	◄R	◄R	R	R	R	R	Y	Y	Y	Y	Y	Y	DW	DW
ALT. PHASE 8	◄R	◄R	R	R	R	R	G	G	R	R	R	R	WK	WK
ALT. 8 CHANGE	◄R	◄R	R	R	R	R	Y	Y	R	R	R	R	FL/DW	FL/DW
FLASHING OPERATION	FL/R	FL/R	FL/Y	FL/Y	FL/Y	FL/Y	FL/R	FL/R	FL/R	FL/R	FL/R	FL/R	DARK	DARK

PRE-EMPTION - (LIGHT RAIL)

PREEMPTION PHASE 1	◄R	◄R	G	G	G	G	R	R	R	R	R	R	R	R
PREEMPTION CHANGE	◄R	◄R	Y	Y	Y	Y	R	R	R	R	R	R	R	R

2 2

AA,B,C,D,E,F,G,H = 5 CONDUCTOR (NO. 14 AWG)
A,I,J,K,L = 7 CONDUCTOR (NO. 14 AWG)
M,N,O,P = MICROLOOP PROBE CABLE
2 Q,R = 2 CONDUCTOR (NO. 14 AWG)
S,T = 3 CONDUCTOR (NO. 14 AWG)
U,V,W,X,Y,Z = 2 CONDUCTOR ALUMINUM SHIELDED
BB = 4 CONDUCTOR (NO. 14 AWG) (PRE-EMPTION LRT)
★ = GROUND ROD
CC,DD = GROUND WIRE
LW = LOOP WIRE



PROJECT DESCRIPTION

THIS PROJECT INVOLVES THE MODIFICATION OF AN EXISTING TRAFFIC CONTROL SIGNAL AT THE INTERSECTION ELM ROAD AND FUEL FARM (MDOT ENTRANCE) IN ANNE ARUNDEL COUNTY. THIS MODIFICATION IS NECESSARY DUE TO THE REALIGNMENT OF ELM ROAD. FUEL FARM WILL CONTINUE TO FUNCTION AS IS.

EQUIPMENT LIST "A"

EQUIPMENT TO BE FURNISHED BY SHA

CATEGORY CODE	DESCRIPTION	UNIT	QUANTITY
900000	EIGHT PHASE FULLY ACTUATED CONTROLLER HOUSED IN A	EA	1
	POLE MOUNTED CABINET WITH INTERSECTION MONITOR WITH BATTERY BACK UP		
	AND THREE (3) 4-CHANNEL DETECTOR AMPLIFIERS (RACK MOUNT)		

1 2

EQUIPMENT LIST "B" 1

EQUIPMENT TO BE FURNISHED AND/OR INSTALLED BY THE CONTRACTOR

CATEGORY CODE	DESCRIPTION	UNIT	QUANTITY
800000	FURNISH AND INSTALL 2" SCHEDULE 80 RIGID PVC CONDUIT - TRENCHED	LF	325
800000	FURNISH AND INSTALL 3" SCHEDULE 80 RIGID PVC CONDUIT - TRENCHED	LF	70
800000	FURNISH AND INSTALL 5" SCHEDULE 80 RIGID PVC CONDUIT - TRENCHED	LF	50
800000	MICROLOOP TRIPLE PROBE SET WITH 1000' LEAD-IN	EA	4
800000	REMOVE AND DISPOSE OF ALL EXISTING ELECTRICAL CABLE	LS	1
800000	FURNISH AND INSTALL 3" SCHEDULE 80, RIGID PVC CONDUIT - POLE BASE	LF	20
802501	FURNISH AND INSTALL NO. 6 AWG STRANDED BARE COPPER GROUND WIRE	LF	200
805011	FURNISH AND INSTALL 1" ELECTRICAL CONDUIT GALVANIZED SLEEVE	LF	12
805118	FURNISH AND INSTALL 4" SCHEDULE 80, RIGID PVC CONDUIT - BORED	LF	60
805155	FURNISH AND INSTALL 4" SCHEDULE 80, RIGID PVC CONDUIT - SLOTTED	LF	130
805160	FURNISH AND INSTALL 1" LIQUID TIGHT, FLEXIBLE NON-METALLIC	LF	15
	CONDUIT FOR DETECTOR SLEEVE		
807205	FURNISH AND INSTALL CONTROL AND DISTRIBUTION EQUIPMENT	EA	1
811001	FURNISH AND INSTALL ELECTRICAL HANDHOLE	EA	3
837001	FURNISH AND INSTALL GROUND ROD - 3/4" DIAMETER BY 10' LENGTH	EA	2
861104	FURNISH AND INSTALL ELECTRICAL CABLE - 2 CONDUCTOR	LF	510
	(ALUMINUM SHIELDED)		
861107	FURNISH AND INSTALL ELECTRICAL CABLE - 5 CONDUCTOR (NO. 14 AWG)	LF	840
861108	FURNISH AND INSTALL ELECTRICAL CABLE - 7 CONDUCTOR (NO. 14 AWG)	LF	1045
861116	FURNISH AND INSTALL ELECTRICAL CABLE - 2 CONDUCTOR (NO. 14 AWG)	LF	450
861106	FURNISH AND INSTALL ELECTRICAL CABLE - 3 CONDUCTOR (NO. 14 AWG)	LF	450
	FURNISH AND INSTALL ELECTRICAL CABLE - 4 CONDUCTOR (NO. 14 AWG)	LF	320
	(LRT PRE-EMPTION)		
862101	FURNISH AND INSTALL LOOP WIRE ENCASED IN FLEXIBLE TUBING	LF	475
	(NO. 14 AWG)		
862102	FURNISH AND INSTALL SAW CUT FOR SIGNAL (LOOP DETECTOR)	LF	171
871201	INSTALL CONTROLLER AND CABINET - POLE MOUNT	EA	1

2

EQUIPMENT LIST "C" 1

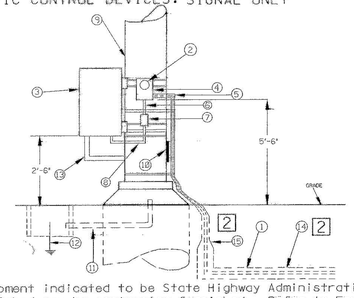
EQUIPMENT TO BE REMOVED AND RETURNED TO SHA

CATEGORY CODE	DESCRIPTION	UNIT	QUANTITY
873001	REMOVE AND SALVAGE EXISTING CONTROLLER EQUIPMENT AND CABINET	LS	1

ADD 2 11/21/00 MISCELLANEOUS CHANGES
ADD 3 12/6/00 MISCELLANEOUS CHANGES
1 NEW SHEET 03/23/01
2 NEW SHEET 05/25/01

UNDERGROUND ELECTRICAL POWER CONNECTION

CABINET MOUNTING: POLE MOUNTING 2
TRAFFIC CONTROL DEVICES: SIGNAL ONLY



NOTES:

A. Equipment indicated to be State Highway Administration furnished may be contractor furnished. Refer to Equipment Lists for each item noted.

B. All exposed galvanized steel rigid conduit ends shall be wire brushed, cleaned of any residue, and an inorganic zinc compound applied.

C. All galvanized steel rigid conduit insulated bonding bushings shall have bonding lugs of "lay-in" type design.

D. All conduit bodies for use with galvanized steel rigid conduit shall be cadmium plated malleable iron with neoprene gaskets, sheet aluminum covers and stainless steel cover bolts.

E. All conduit bodies for use with polyvinyl chloride conduit shall be polyvinyl chloride with neoprene gaskets and polyvinyl chloride covers with stainless steel screws.

CONSTRUCTION DETAILS

POWER COMPANY FURNISHES AND INSTALLS:

1. Underground service lateral.

2. Watthour meter

CONTRACTOR FURNISHES AND/OR INSTALLS:

3. Band State Highway Administration furnished controller cabinet to pole with two (2) - 3/4" width stainless steel bands per furnished bracket.

4. Mount power company furnished, 200 ampere rated size, meter socket with two (2) 1/4" UNC Stainless steel bolts with lock washers drilled and tapped through the meter socket back into the steel pole. The bolt locations shall be centered on the meter socket back at one inch above the bottom and one inch below the top.

2 5. 3" polyvinyl chloride schedule 80 non-metallic conduit for power company furnished and installed service lateral to 18" below grade. Place a bend below the 3" polyvinyl chloride "LB" conduit body, and bends at the pole base plate to allow the riser to be flush and vertical to the pole. Place a polyvinyl chloride "LB" conduit body on one end of the 3" polyvinyl chloride conduit nipple and a male adapter with O-Ring onto the nipple end entering the meter socket's lowest right side opening. Place a lick nut on the male adapter entering the meter socket side followed by a plastic bushing. Place a end-bell fitting on the below grade conduit end. Bend riser to pole with 3/4" stainless steel bands at 12" below the meter socket and, 12" above the pole base plate and at 60" maximum intervals in-between.

6. 1 1/4" by 4" length galvanized steel rigid conduit nipple into an insulated bonding Myers type hub with integral gasket mounted onto the disconnect switch top. The nipple shall enter the meter socket center, then if not available the right-most, bottom opening and shall enter the disconnect switch at equal dimension; and also to the same lateral orientation to the steel pole centerline, as the meter socket nipple opening centerline to steel pole centerline dimension. Place double lock nuts on the nipple end entering the meter socket bottom followed by an insulated bonding bushing. Place three (3) individual #4 AWG copper type THWN wires from the meter socket load side terminals disconnect switch line side terminals. (Colored white for AC neutral, black for one side of the AC+ and red for the remaining AC+ side.)

7. Mount disconnect switch with two (2) 1/4" UNC stainless steel bolts with lock washers drilled and tapped through the disconnect switch back into the steel pole. The bolt locations shall be centered on the disconnect switch back at one inch below the top and one inch above the bottom.

8. Place 1 1/4" galvanized steel rigid conduit nipples on the 1 1/4" "LB" conduit bodies. Center the nipple opening located on the disconnect switch bottom. Place offset bends below the disconnect switch to allow the nipple and "LB" conduit body side to be flush to the pole. Place double lock nuts on both nipple ends entering the disconnect switch and controller cabinet bottoms followed by insulated bonding bushings. Band conduit to pole with 3/4" stainless steel band at a distance midway along the vertical nipple from the disconnect switch bottom. Place two (2) individual #4 AWG copper type THWN wires from the disconnect switch load side terminals to the controller cabinet terminals. (Colored white for AC neutral, black for one side of the AC+)

9. Existing steel pole.

10. Orient electrical service equipment to hand hole as shown.

11. Use conduit from steel pole to nearest hand box for grounding conductor installation.

12. Ground rod with one piece cast bronze ground rod clamp. Bonding shall be by a single continuous #6 AWG bare stranded copper wire run from the insulated bonding bushing lug on the meter socket bottom nipple, to through the Myers hub insulated bonding bushing lug on the disconnect switch top nipple, to the disconnect switch neutral bar, to through the insulated bonding bushing lug on the disconnect switch bottom nipple, to through the 1 1/4" conduit insulated bonding bushing on the controller cabinet bottom, to through the controller cabinet grounding bar, to through 3" conduit insulated bonding bushing on the controller cabinet bottom, to through the steel pole grounding lug to the ground rod clamp.

13. 3" "LB" conduit body mounted onto 3" coupling on steel pole. Place 3" by shouldered length galvanized steel rigid conduit nipples on both "LB" conduit body ends. Place double lock nuts on nipple end entering the controller cabinet bottom followed by an insulated bonding bushing.

2 14. 5" polyvinyl chloride schedule 80 non-metallic conduit for power company service to existing duct under Elm Rd. (Trenched)

2 15. Transition from 5" to 3" polyvinyl chloride schedule 80 conduit.

C-503BSIG

REVISIONS

2 REPLACED GROUND-MOUNTED SIGNAL CABINET WITH POLE MOUNTED CABINET BACKLOOPS WITH MICROLOOPS.
BCP DMG 9-25-97 ASBUILT SHA NO.: BW-801-802-512

MARYLAND DOT - STATE HIGHWAY ADMINISTRATION
Office of Traffic & Safety
TRAFFIC ENGINEERING DESIGN DIVISION
SIGNAL GENERAL INFORMATION
ELM ROAD, MDOT ENTRANCE AND FUEL FARM ROAD

DRAWN BY: CHERNACK/CICCHINI	F.A.P. NO.	TS NO. TS 3631A	SHEET NO. 101B OF 287
CHECKED BY: CHERNACK/CICCHINI	S.H.A. NO.		
SCALE: NONE	COUNTY: ANNE ARUNDEL	T.I.M.S. NO.	
DATE:	LOG MILE:		