DRILL HOLES

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BORDER REV: DATE: June 1, 2004

BY: $USERNAME$

PROJECT DESCRIPTION

I. GENERAL

THIS PROJECT INVOLVES RECONSTRUCTION OF THE EXISTING TRAFFIC SIGNAL AT THE INTERSECTION OF MD 450 (ANNAPOLIS ROAD) AND FINNS LANE/HARKINS ROAD IN PRINCE GEORGE'S COUNTY.

MD 450 IS ASSUMED TO RUN IN AN EAST-WEST DIRECTION.

II. INTERSECTION OPERATION

THE INTERSECTION SHALL OPERATE IN A NEMA 5-PHASE, FULLY-ACTUATED MODE. THE MD 450 APPROACHES SHALL OPERATE CONCURRENTLY WITH EXCLUSIVE/PERMISSIVE LEFT-TURN PHASES FOR THE EASTBOUND AND WESTBOUND APPROACHES. THE FINNS LANE/HARKINS ROAD APPROACHES SHALL OPERATE CONCURRENTLY WITH A RIGHT-TURN OVERLAP PHASE FOR THE SOUTHBOUND FINNS LANE APPROACH. EXISTING PEDESTRIAN MOVEMENTS SHALL BE UPGRADED TO AUDIBLE PEDESTRIAN PUSHBUTTON OPERATIONS, WITH LED COUNTDOWN PEDESTRIAN SIGNALS ON THE ALL LEGS OF THE INTERSECTION. TRAFFIC DETECTION SHALL BE ACHIEVED USING VIDEO DETECTION CAMERAS FOR INTERSECTION PRESENCE DETECTION, AND NON-INVASIVE PROBES FOR MD 450 MAINLINE PASSAGE DETECTION.

THE AUDIBLE PUSHBUTTONS WILL FUNCTION AS FOLLOWS:

1. WHEN A PEDESTRIAN LOCATES AND PRESSES THE PUSHBUTTON FOR AN EXTENDED TIME, THE PUSHBUTTON UNIT MESSAGE WILL ANNOUNCE THE FOLLOWING MESSAGE:

   NORTH LEG (15p,16p): "Wait to cross Finns at Annapolis, Wait."
   SOUTH LEG (13p,14p): "Wait to cross Harkins at Annapolis, Wait."
   EAST LEG (19p,20p): "Wait to cross Annapolis at Finns/Harkins, Wait."
   WEST LEG (17p,18p): "Wait to cross Annapolis at Finns/Harkins, Wait."

2. WHEN THE "WALK" PHASE BEGINS, THE MESSAGE WILL BE A RAPID TICK, WHICH WILL LAST FOR THE DURATION OF THE "WALK" PHASE.

III. SPECIAL NOTES

1. THE CONTRACTOR SHALL PURCHASE AND DELIVER THE AUDIO PUSHBUTTONS AND 2-WIRE CENTRAL CONTROL UNIT FOR THE CONTROLLER CABINET TO THE SHA SIGNAL SHOP FOR INSTALLATION AND PROGRAMMING. THE CONTRACTOR SHALL CONTACT MR. EDWARD RODENHIZER, CHIEF, SIGNAL SHOP, AT 410-787-7652 THREE (3) DAYS PRIOR TO THE DELIVERY OF THE EQUIPMENT.
2. MAINTENANCE OF TRAFFIC WILL BE PERFORMED BY THE CONTRACTOR UTILIZING THE STANDARD PLATES FOR TRAFFIC CONTROL FROM SECTION MD 104.00 OF THE SHA BOOK OF STANDARDS FOR HIGHWAYS AND INCIDENTAL STRUCTURES.
3. THE CONTRACTOR SHALL MAINTAIN PEDESTRIAN ACCESS AT ALL TIMES.

PROJECT CONTACTS

1. THE FOLLOWING ARE THE CONTACT PERSONS FOR THE PROJECT:

MR. VENU NEMANI , ASSISTANT DISTRICT ENGINEER - TRAFFIC
PHONE: (301) 513-7370

MR. DUANE BERNARD, ASSISTANT DISTRICT ENGINEER - CONSTRUCTION
PHONE: (301) 513-7385

MR. TOM FOUNTAIN, ASSISTANT DISTRICT ENGINEER - MAINTENANCE
PHONE: (301) 513-7304

MR. VICTOR GRAFTON, UTILITY ENGINEER
PHONE: (301) 513-7350

MS. CORREN JOHNSON, DIVISION CHIEF - TRAFFIC OPERATIONS, OOTS
PHONE: (410) 787-7630

MR. EDWARD RODENHIZER, CHIEF - SIGNAL SHOP
PHONE: (410) 787-7652

MR. EUGENE BAILEY, CHIEF - SIGN SHOP
PHONE: (410) 787-7676

POWER COMPANY REPRESENTATIVE:
POTOMAC ELECTRIC POWER COMPANY (PEPCO)
8300 OLD MARLBORO PIKE
UPPER MARLBORO, MARYLAND 20772
(310) 961-5325

EQUIPMENT LIST 'C'

C. SHA FORCES SHALL REMOVE THE CONTROLLER AND ALL AUXILIARY EQUIPMENT FROM THE CONTROLLER CABINET. THE CABINET AND ALL OTHER MATERIALS TO BE REMOVED BY THE CONTRACTOR SHALL BECOME THE PROPERTY OF THE CONTRACTOR.

EQUIPMENT LIST 'A'

A. EQUIPMENT TO BE SUPPLIED BY SHA AND INSTALLED BY THE CONTRACTOR.

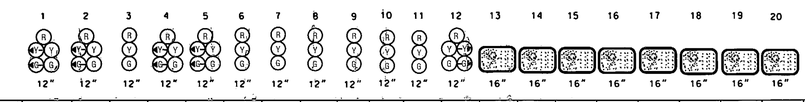
ITEM CODE	QUANTITY	DESCRIPTION
9000	1 EA	CONTROLLER CABINET, SIZE "S" W/ CTRL, VIDEO INT. 1-8 CAMERAS
9571	167 SF	FLAT SHEET ALUMINUM SIGNS CONSISTING OF:
		MAST ARM/POLE-MOUNTED:
	2 EA	D-3(1) " ANNAPOLIS RD" DUAL-FACED (VAR. X 16") MAST ARM MOUNT
	1 EA	D-3(1) " FINNS LA", RIGHT ARROW (VAR. X 16") MAST ARM MOUNT
	1 EA	D-3(1) LEFT ARROW, " FINNS LA" (VAR. X 16") MAST ARM MOUNT
	1 EA	D-3(1) " HARKINS RD", RIGHT ARROW (VAR. X 16") MAST ARM MOUNT
	1 EA	D-3(1) LEFT ARROW, " HARKINS RD" (VAR. X 16") MAST ARM MOUNT
	3 EA	R3-5L (30" X 36") MAST ARM MOUNT
	1 EA	R3-5R (30" X 36") MAST ARM MOUNT
	1 EA	R3-6L (30" X 36") MAST ARM MOUNT
	1 EA	R10-11b "NO TURN ON RED" (30"X30") MAST ARM MOUNT
	4 EA	R10-3(1) COUNTDOWN PEDESTRIAN PUSHBUTTON SIGN "TO CROSS ANNAPOLIS ROAD" (9" X 15") POLE MOUNT
	2 EA	R10-3(1) COUNTDOWN PEDESTRIAN PUSHBUTTON SIGN "TO CROSS FINNS LANE" (9" X 15") POLE MOUNT
	2 EA	R10-3(1) COUNTDOWN PEDESTRIAN PUSHBUTTON SIGN "TO CROSS HARKINS ROAD" (9" X 15") POLE MOUNT
	1 EA	M1-5(6) "EAST, MARYLAND 450 LEFT ARROW" (48" X 72")
	1 EA	M1-5(6) "WEST, MARYLAND 450 LEFT ARROW" (48" X 72")
	1 EA	M1-5(6) "EAST, MARYLAND 450, RIGHT ARROW" (30" X 48")
	1 EA	M1-5(6) "WEST, MARYLAND 450, RIGHT ARROW" (30" X 48")

EQUIPMENT LIST 'B'

B. EQUIPMENT TO BE FURNISHED AND/OR INSTALLED BY THE CONTRACTOR

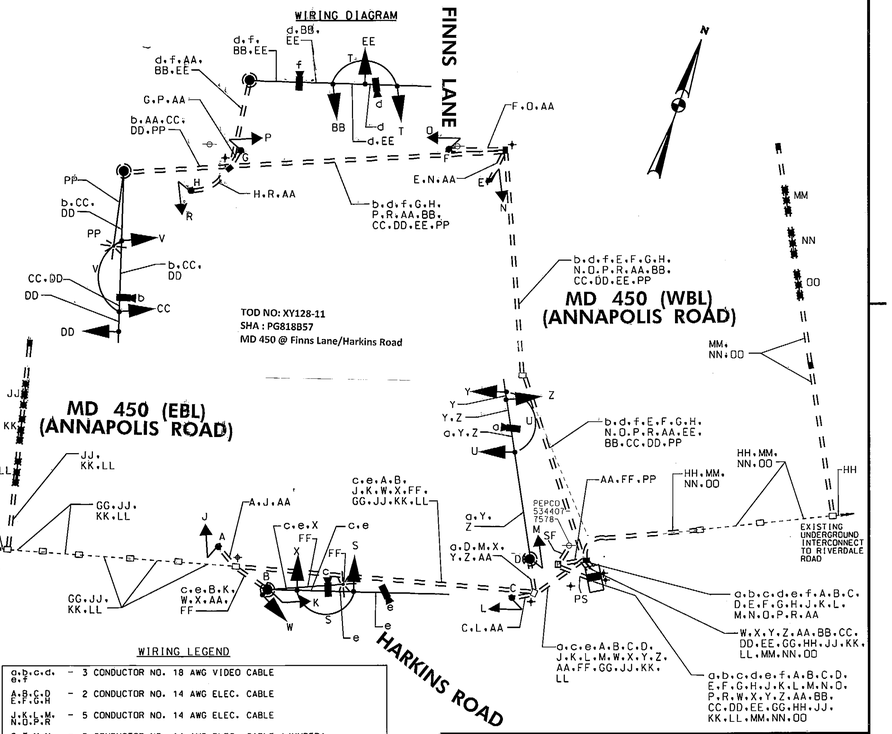
ITEM	QUANTITY	DESCRIPTION
1001	1 EA	MAINTENANCE OF TRAFFIC
2001	3 CY	CLASS 2 EXCAVATION
2002	2 CY	TEST PIT EXCAVATION
5004	580 LF	12" HEAT APPLIED WHITE PERMANENT PREFORMED THERMOPLASTIC PAVEMENT MARKINGS LINES
5005	135 LF	24" HEAT APPLIED WHITE PERMANENT PREFORMED THERMOPLASTIC PAVEMENT MARKINGS LINES
5006	16 SF	WHITE PREFORMED THERMOPLASTIC PAVEMENT MARKING LEGENDS AND SYMBOLS
6002	1730 SF	5" CONCRETE SIDEWALK
6003	97 SF	DETECTABLE WARNING SURFACE FOR CURB RAMPS
8001	46 EA	12" LED SIGNAL HEAD SECTION
8002	1 EA	2-WIRE CENTRAL CONTROL UNIT
8008	8 EA	AUDIBLE/TACTILE PEDESTRIAN PUSHBUTTON STATION AND SIGNS
8009	7 EA	BREAKAWAY PEDESTAL POLE (ANY SIZE)
8012	1 EA	100 AMP EMBEDDED METERED SERVICE PEDESTAL WITH BYPASS SWITCH
8014	1 EA	INSTALL CONTROLLER AND CABINET, BASE-MOUNTED (ANY SIZE)
8016	8 EA	16" LED COUNTDOWN PEDESTRIAN SIGNAL HEAD
8019	4 EA	MAST ARM POLE AND 50' MAST ARM ANY "T" DIMENSION
8023	6 EA	NON-INVASIVE DETECTOR LEAD IN CABLE UP TO 1000'
8024	1 EA	REMOVE AND DISPOSE OF EQUIPMENT (PER ASSIGNMENT)
8029	6 EA	VIDEO DETECTION CAMERA AND CABLE UP ANY LENGTH
8031	150 LF	1-CONDUCTOR ELECTRICAL CABLE NO. 2/O AWG/THHN
8034	180 LF	DISCONNECT, PULL BACK AND RE-ROUTE EXISTING CABLES
8035	540 LF	ELECTRICAL CABLE, 3-CONDUCTOR (NO. 12 AWG) TYPE T/C
8039	350 LF	SCHEDULE 80 RIGID PVC CONDUIT UP TO 4" - SLOTTED
8040	300 LF	SCHEDULE 80 RIGID PVC CONDUIT UP TO 4" - TRENCHED
8041	34 LF	WOOD SIGN SUPPORTS UP TO 4" X 6"
8042	178 SF	INSTALL OVERHEAD OR GROUND-MOUNTED SIGNS (INCLUDING ALL HARDWARE)
8044	630 LF	NO. 6 AWG STRANDED BARE COPPER GROUND WIRE
8047	30 LF	ELECTRICAL CABLE, 1-CONDUTOR NO. 8 AWG - THHN/THWN
8048	5 EA	FURNISH AND INSTALL ELECTRICAL HANDHOLE
8055	1470 LF	ELECTRICAL CABLE, 2-CONDUCTOR NO. 14 AWG
8057	1620 LF	ELECTRICAL CABLE, 5-CONDUCTOR NO. 14 AWG
8058	2120 LF	ELECTRICAL CABLE, 7-CONDUCTOR NO. 14 AWG
8069	2 EA	ANY SIZE LIGHTING ARM ON SIGNAL POLE WITH LED COBRAHEAD

PHASE CHART



	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
Phase 1 & 5	G/R	G/R	R	G/R	G/R	R	R	R	R	R	R	R/G	DW	DW	DW	DW	DW	DW	DW	DW
1 & 5 Change	THE CONTROLLER MAY SKIP TO PHASES 1 & 6 OR 2 & 5 OR 2 & 6																			
Phase 1 & 6	G/G	G/G	G	R	R	R	R	R	R	R	R	R/G	DW	DW	DW	DW	DW	DW	DW	DW
1 & 6 Change	Y/G	Y/G	G	R	R	R	R	R	R	R	R	R/Y	DW	DW	DW	DW	DW	DW	DW	DW
Phase 2 & 5	R	R	R	G/G	G/G	G	R	R	R	R	R	R	DW	DW	DW	DW	DW	DW	DW	DW
2 & 5 Change	R	R	R	Y/G	Y/G	G	R	R	R	R	R	R	DW	DW	DW	DW	DW	DW	DW	DW
Phase 2 & 6	G	G	G	G	G	G	R	R	R	R	R	R	WK	WK	WK	WK	DW	DW	DW	DW
Ped. Clear	G	G	G	G	G	G	R	R	R	R	R	R	FL/DW	FL/DW	FL/DW	FL/DW	DW	DW	DW	DW
2 & 6 Change	Y	Y	Y	Y	Y	Y	R	R	R	R	R	R	DW	DW	DW	DW	DW	DW	DW	DW
Phase 4 & 8	R	R	R	R	R	R	G	G	G	G	G	G	DW	DW	DW	DW	DW	DW	DW	DW
4 & 8 Change	R	R	R	R	R	R	Y	Y	Y	Y	Y	Y	DW	DW	DW	DW	DW	DW	DW	DW
Phase 4 & 8 ALT	R	R	R	R	R	R	G	G	G	G	G	G	DW	DW	DW	DW	WK	WK	WK	WK
Ped. Clear	R	R	R	R	R	R	G	G	G	G	G	G	DW	DW	DW	DW	FL/DW	FL/DW	FL/DW	FL/DW
4 & 8 ALT Change	R	R	R	R	R	R	Y	Y	Y	Y	Y	Y	DW	DW	DW	DW	DW	DW	DW	DW
Flashing Operation	FL/Y	FL/Y	FL/Y	FL/Y	FL/Y	FL/Y	FL/R	FL/R	FL/R	FL/R	FL/R	FL/R	DARK	DARK	DARK	DARK	DARK	DARK	DARK	DARK

WIRING DIAGRAM



WIRING LEGEND

o,b,c,d, e,f	- 3 CONDUCTOR NO. 18 AWG VIDEO CABLE
A,B,C,D E,F,G,H	- 2 CONDUCTOR NO. 14 AWG ELEC. CABLE
J,K,L,M, N,O,P,R	- 5 CONDUCTOR NO. 14 AWG ELEC. CABLE
S,T,U,V	- 5 CONDUCTOR NO. 14 AWG ELEC. CABLE (JUMPER)
W,X,Y,Z, BB,CC,DD, EE	- 7 CONDUCTOR NO. 14 AWG ELEC. CABLE
AA	- NO. 6 AWG STRANDED BARE COPPER GROUND WIRE
GG,HH	- EXISTING INTERCONNECT CABLE (TO BE PULLED BACK AND RE-ROUTED TO NEW CONTROLLER
JJ,KK,LL MM,NN,OO	- NON-INVASIVE MICRO-LOOP PROBES W/ LEAD-IN CABLE
FF,PP	- 3 CONDUCTOR (NO. 12 AWG) ELEC. CABLE TYPE T/C
PS	- 1 CONDUCTOR NO. 8 AWG-THHN/THWN ELEC. CABLE (METERED SERVICE)
SF	- 1 CONDUCTOR ELECTRICAL CABLE NO. 2/O AWG/THHN (SERVICE FEED)
+	- PROPOSED GROUND ROD (3/4" DIA. X 10' LENGTH)
+	- EXISTING GROUND ROD

CENTURY ENGINEERING
CONSULTING ENGINEERS - PLANNERS
10710 GILROY ROAD
HUNT VALLEY, MD 21031

REVISION 'D' CEI PROJECT NO. 101195.17

SHA
STATE OF MARYLAND
DEPARTMENT OF TRANSPORTATION
STATE HIGHWAY ADMINISTRATION
OFFICE OF TRAFFIC & SAFETY
TRAFFIC ENGINEERING DESIGN DIVISION

GENERAL INFORMATION SHEET

SCALE NONE ADVERTISED DATE JUNE 10, 2013 CONTRACT NO. XY1285185

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TIMS NO. L395
TOD NO.

TS NO. | DRAWING 02 OF 2 | SHEET NO. 2 OF 2

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