DRILL HOLES

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BORDER REV: DATE: June 1, 2004

PROJECT DESCRIPTION

I. GENERAL

This project involves the modification of an existing Traffic Control Signal with street lighting at the intersection of MD 108 and MD 216 / Highland Rd in Howard County. Countdown pedestrian signal heads with audible pedestrian pushbuttons shall be installed across Highland Rd and the east leg of MD 108. MD 108 is assumed to run an east-west direction.

II. INTERSECTION OPERATION

1. The intersection shall continue to operate in a NEMA four-phase, fully-actuated mode, with the MD 216 approaches running concurrently. A new Countdown pedestrian phase with audible pushbutton actuation shall be provided across the east leg of MD 108. A new Countdown pedestrian phase with audible pushbutton actuation shall be provided across Highland Road. The Highland Road / MD 216 approaches shall also continue to run concurrently.

2. The existing full-traffic-actuated, eight-phase controller with three (3) two channel, loop detector amplifiers,and all necessary equipment housed in a NEMA size "5" pole-mounted cabinet shall be maintained at this intersection. An Audible Pedesrian Control Unit shall be instaled into the cabinet by the SHA.

III. SPECIAL NOTES

1. The Contractor shall be responsible for terminating all signal cables, to the appropriate terminals and shall properly label each cable.

2. All controller cabinet wiring will be performed by the S.H.A. Signal Shop Contact Mr. Ed Rodenhizer at (410) 787-7650 seventy-two hours in advance of intended work.

3. All underground and overhead utilities shown on these plans are schematic only and may not be complete. The Contractor shall be responsible for notifying Miss Utility prior to construction so that all utilities may be located in the field. If the Contractor perceives that a conflict between the utilities and the traffic signal will occur, the Contractor shall notify the Project Engineer immediately so that the conflict may be resolved.

4. SHA signal shop shall install the APS control unit into the controller cabinet.

The contact persons for District #7 are as follows:

Mr. John Concannon
Assistant District Engineer - Traffic
Phone: (310) 624-8141

Mr. Ray Johnson
Assistant District Engineer - Maintenance
Phone: (310) 624-8106

Ms Andrea Abend
District Engineer - Utility
Phone: (301) 624-8110

Mr. Richard L. Daff, Sr.
Chief, Traffic Operations Division
Phone: (410) 787-7630

Mr. Ed Rodenhizer
Signal Shop
410-787-7652

Mr. Sonny Bailey
Sign Shop
410-787-7670

EQUIPMENT LIST

A. EQUIPMENT TO BE FURNISHED BY THE SHA

THERE IS NO EQUIPMENT TO BE SUPPLIED BY THE SHA.

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

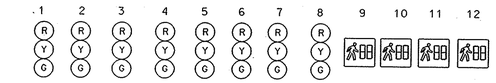
SPEC. NUMBER	DESCRIPTION	QUANTITY	
814	16", one-way, LED (DW, W) symbolic pedestrian signal head with adjustable bracket for pole mouting and cutaway visors. (Countdown Display)	4	EA
205	Test pit excavation.	4	C.Y.
206	Remove asphalt curb & gutter.	10	S.F.
	Depressed asphalt curb & gutter.	10	L.F.
610	4" concrete sidewalk.	60	S.F.
801	Furnish and install concrete for signal foundation.	4	C.Y.
813	Ground mounted sheet aluminum signs to consist of:	10.5	S.F.
	GUIDE SIGN (30"x51") M3-2 "EAST"(24"X12") M1-5 "MD 216"(30"X24") M6-1 "left arrow "(21"X15")	1	EA
556	5" white heat applied permanent preformed thermoplastic pavement marking	1140	L.F.
556	5" yellow heat applied permanent preformed thermoplastic pavement marking	45	L.F.
556	12" white heat applied permanent preformed thermoplastic pavement marking	230	L.F.
556	24" white heat applied permanent preformed thermoplastic pavement marking	55	L.F.
815	Saw cut for signal (loop detector).	20	L.F.

EQUIPMENT LIST

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

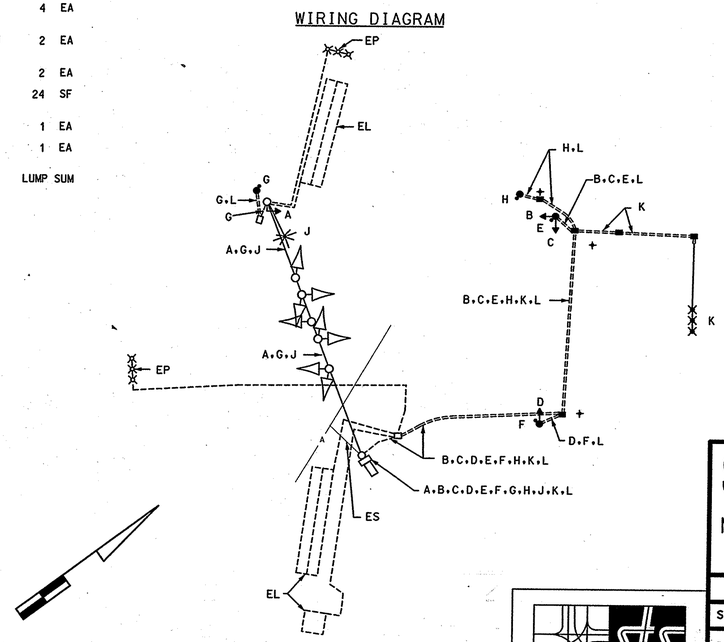
SPEC. NUMBER	DESCRIPTION	QUANTITY	
805	1" liquid tight flexible non-metallic conduit for detector sleeve.	10	L.F.
805	Furnish and install 2" schedule 80 rigid polyvinyl chloride - trenched	60	L.F.
805	Furnish and install 3" schedule 80 rigid polyvinyl chloride conduit - trenched	310	L.F.
805	Furnish and install 4" schedule 80 rigid polyvinyl chloride conduit - bored.	55	L.F.
811	Furnish and install electrical handhole.	5	EA
810	Furnish and install 2-conductor electrical cable (No. 14 A.W.G.).	525	L.F.
810	Furnish and install 5-conductor electrical cable (No. 14 A.W.G.).	520	L.F.
810	Furnish and install ground rod -5/8" x 10'.	3	EA
810	Furnish and install No. 6 AWG stranded bare copper ground wire.	200	L.F.
810	Furnish and install tray cable - 2 conductor (No. 12 AWG)	125	L.F.
806	Furnish and install 250 watt HPS Luminaire with photocell.	1	EA
808	Furnish and install 10' lighting bracket arm for traffic signal structure.	1	EA
812	Furnish and install wood sign supports (4"x6").	16	L.F.
817	Furnish and install pushbutton and pedestrian education sign R10-4(1). (Note: Sign to read "PUSH BUTTON TO CROSS MD 108).	2	EA
817	Furnish and install pushbutton and pedestrian education sign R10-4(1). (Note: Sign to read "PUSH BUTTON TO CROSS HIGHLAND RD).	2	EA
	Class 2 Excavation	1	CY
	Audible/tactile pedestrian pushbutton.	4	EA
	Furnish and install 10' breakaway pedestal pole with transformer base.	2	EA
	Furnish and install 4' pedestal pole.	2	EA
	Detectable warning system (truncated domes).	24	SF
	2 wire Central Control unit	1	EA
	Furnish and install micro-loop with 500' lead-in.	1	EA
	Remove and dispose of existing signal equipment and material.	LUMP SUM	

PHASE CHART



PHASE 2 & 6	G	G	G	G	R	R	R	R	DW	DW	DW	DW	
2 & 6 CHANGE	Y	Y	Y	Y	R	R	R	R	DW	DW	DW	DW	
PHASE 2 & 6 ALT	G	G	G	G	R	R	R	R	WK	WK	DW	DW	
PED CLEAR / COUNTDOWN	G	G	G	G	R	R	R	R	FL/DW	FL/DW	DW	DW	
2 & 6 ALT CHANGE	Y	Y	Y	Y	R	R	R	R	DW	DW	DW	DW	
PHASE 4 & 8	R	R	R	R	G	G	G	G	DW	DW	DW	DW	
4 & 8 CHANGE	R	R	R	R	Y	Y	Y	Y	DW	DW	DW	DW	
PHASE 4 & 8 ALT	R	R	R	R	G	G	G	G	DW	DW	WK	WK	
PED CLEAR / COUNTDOWN	R	R	R	R	G	G	G	G	DW	DW	FL/DW	FL/DW	
4 & 8 ALT CHANGE	R	R	R	R	Y	Y	Y	Y	DW	DW	DW	DW	
FLASHING OPERATION	FL/Y	FL/Y	FL/Y	FL/Y	FL/R	FL/R	FL/R	FL/R	DARK	DARK	DARK	DARK	

WIRING DIAGRAM



WIRING KEY

A, B, C, D } 5-CONDUCTOR ELECTRICAL CABLE (NO. 14 A.W.G)

E, F, G, H } 2-CONDUCTOR ELECTRICAL CABLE (NO. 14 A.W.G)

J - 2-CONDUCTOR TRAY CABLE (NO. 12 A.W.G)

K - MICROLOOP LEAD-IN CABLE (500')

L - STRANDED BARE COPPER GROUND WIRE (NO. 6 A.W.G.)

EP - EXISTING MICROPROBE

EL - EXISTING LOOP

ES - EXISTING OVERHEAD SERVICE TO BE MAINTAINED BY BGE

+ - GROUND ROD

STREET TRAFFIC STUDIES, LTD.
400 Crain Hwy. NW.
Glen Burnie, MD 21061
Ph (410) 590-5500
Fax (410) 590-6637

4884.dgn

STATE OF MARYLAND
DEPARTMENT OF TRANSPORTATION
STATE HIGHWAY ADMINISTRATION

MD 108 AT MD 216/ HIGHLAND RD

SCALE NONE	DATE 12/27/05	CONTRACT NO.	
DESIGNED BY R ZACHERL		COUNTY HOWARD	
DRAWN BY ROB CICCHINI		LOGMILE 13010801.53	
CHECKED BY		TIMS NO. H222	
F.A.P. NO.		TOD NO.	
TS NO. 1436B	DRAWING NO. 2 OF 3	SHEET NO. OF	

PLOTTED: $DATETIME$
FILE: $FILE$

$DATE$ $TIME$ $USER$ $FORM$