PROJECT DESCRIPTION

I. GENERAL

This project involves the installation of a new Traffic Control Signal with street lighting, two Hazard Identification Beacons and interconnect at the intersection of MD 118 (Germantown Rd) and Richter Farm Road in Montgomery County. MD 118 (Germantown Rd) is assumed to run an north-south direction. Video camera detection shall be used in all directions.

Hazard Identification Beacons are being provided for both north and southbound MD 118 due to poor sight distance. The signal heads shall flash yellow during the mainline yellow and all red phases

II. INTERSECTION OPERATION

1. The intersection is to operate in a NEMA seven-phase, semi-actuated mode, with the MD 118 (Germantown Rd) approaches running concurrently. Exclusive/Permissive left turn phases shall be provided for both approaches of MD 118 (Germantown Rd). A pedestrian phase with pushbutton actuation shall be provided across the south leg of MD 118 (Germantown Rd). Both pedestrian phases across Richter Farm Road shall be on recall. An Exclusive/Permissive left turn phase shall be provided for the eastbound approach of Richter Farm Road. The Richter Farm Road approaches shall also run concurrently.

2. A full-traffic-actuated, eight-phase controller with L.A.U. and L.A.U. Panel with associated harnesses housed in a NEMA size "6" base-mounted cabinet shall be installed at this intersection.

III. SPECIAL NOTES

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

2. Disconnecting and splicing of interconnect cable shall be performed by Montgomery County Forces. The contractor shall run the interconnect cable into the base of each cabinet and properly tag the cable. Contact Mr. Bob Gonzales at (240) 777-8761 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.

EQUIPMENT LIST

A. EQUIPMENT TO BE SUPPLIED BY S.H.A..

ITEM NO.	DESCRIPTION	QUANTITY
9001	Eight-phase, full-traffic actuated, solid state digital controller with L.A.U., L.A.U. Panel housed in a NEMA size "6" base-mounted cabinet.	1 EA
9076	Cabinet "G" type - pole mount	2 EA
9089	Sheet aluminum signs to consist of:	203.25 SF
	W3-3 NEW "SIGNAL AHEAD" sign, (48" x 48") pole mounted with hardware.	2 EA
	W3-3(2) "SIGNAL AHEAD - PREPARE TO STOP WHEN FLASHING" (120"X60") mast arm mounted.	2 EA
	GUIDE SHIELD ASSEMBLY (48"x75") pole mounted. M3-1 "NORTH"(30"X15") M1-5 "MD 118"(48"X36") M6-1 "left arrow "(30"X24")	1 EA
	GUIDE SHIELD ASSEMBLY (30"x51") pole mounted. M3-1 "NORTH"(24"X12") M1-5 "MD 118"(30"X24") M6-1 "right arrow "(21"X15")	1 EA
	GUIDE SHIELD ASSEMBLY (48"x75") pole mounted. M3-3 "SOUTH"(30"X15") M1-5 "MD 118"(48"X36") M6-1 "left arrow "(30"X24")	1 EA
	GUIDE SHIELD ASSEMBLY (30"x51") pole mounted. M3-3 "SOUTH"(24"X12") M1-5 "MD 118"(30"X24") M6-1 "right arrow "(21"X15")	1 EA
9090	Sheet aluminum signs to consist of: (Blue or Green)	43 SF
	D3-2 "Richter Farm Rd" dual faced sign (variable x 16") mast arm mounted.	2 EA
	D3-2 "Germantown Rd" dual faced sign (variable x 16") mast arm mounted.	2 EA
9096	Pedestrian pushbutton and R10-3C sign. (Note: Sign to read "PUSHBUTTON TO CROSS MD 118".)	2 EA
9096	Pedestrian education sign (R10-3C) (No road name)	2 EA

EQUIPMENT LIST

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

ITEM NO.	DESCRIPTION	QUANTITY
1001	Maintenance of traffic	3 EA
2001	Test pit excavation.	7 C.Y.
2004	Class 2 Excavation.	1 C.Y.
5003	12" white heat applied permanent preformed thermoplastic pavement marking.	480 L.F.
5004	24" white heat applied permanent preformed thermoplastic pavement marking.	125 L.F.
5007	Remove existing pavement markings - any width.	250 L.F.
6001	4" concrete sidewalk.	185 S.F.
6002	Standard type A combination curb and gutter 12" gutter pan 8" depth.	10 L.F.
6009	Furnish and install depressed curb and gutter.	20 L.F.
8001	Furnish and install concrete for signal foundation.	24 C.Y.
8006	Cut, clean, galvanize and cap traffic signal structure.	2 EA
8009	Furnish and install steel span wire, 3/8" diameter.	175 L.F.
8018	Install pushbutton and sign.	2 EA
8019	Install controller and cabinet pole mount.	2 EA
8020	Install controller and cabinet base mount.	1 EA
8024	Furnish and install 2" schedule 80 rigid polyvinyl chloride - trenched	20 L.F.
8027	Furnish and install 3" schedule 80 rigid polyvinyl chloride conduit - trenched	1170 L.F.
8030	Furnish and install 4" schedule 80 rigid polyvinyl chloride conduit - trenched.	40 L.F.
8032	Furnish and install 4" schedule 80 rigid polyvinyl chloride conduit - bored.	345 L.F.
8033	Furnish and install electrical handhole.	10 EA
8034	Furnish and install ground rod -3/4" x 10'.	7 EA
8039	Furnish and install 12-pair communication cable, jelly-filled, (underground).	4200 L.F.
8042	Furnish and install electrical cable - 2 conductor (No. 14 AWG).	150 L.F.
8043	Furnish and install electrical cable - 3 conductor (No. 14 AWG).	515 L.F.
8044	Furnish and install electrical cable - 5 conductor (No. 14 AWG).	315 L.F.
8045	Furnish and install electrical cable - 7 conductor (No. 14 AWG).	3675 L.F.
8046	Furnish and install tray cable - 2 conductor (No. 12 AWG).	335 L.F.
8048	Furnish and install No. 6 AWG stranded bare copper ground wire.	570 L.F.
8053	Install overhead sign.	246.25 S.F.
8055	Furnish and install 250 watt HPS Luminaire with photocell.	2 EA
8056	Furnish and install 15' lighting bracket arm for traffic signal structure.	4 EA
8063	Furnish and install 3" electrical conduit - polyvinyl chloride riser.	30 L.F.
8066	Furnish and install control and distribution equipment (120/240 V, 1 phase 3 wire system).	3 EA
8076	Furnish and install 27' mast arm pole and 38' mast arm.	1 EA
8077	Furnish and install 27' mast arm pole and 50' mast arm.	3 EA
8078	Furnish and install 27' mast arm pole and 60'(cut to 30') mast arm.	2 EA
8084	Furnish and install 12" vehicular traffic signal head section	49 EA

EQUIPMENT LIST (CONT.)

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

ITEM NO.	DESCRIPTION	QUANTITY
8087	Furnish and install pedestrian signal head section	12 EA
Neg.	Furnish and install video detector camera.	4 EA
Neg.	Furnish and install video detection interface equipment.	1 EA
Neg.	Furnish and install pre-manufactured camera to controller (250' length) cable	3 EA
Neg.	Furnish and install pre-manufactured camera to controller (500' length) cable	1 EA
Neg.	Remove curb and gutter.	30 L.F.
Neg.	Remove concrete sidewalk.	75 L.F.

C. EQUIPMENT TO BE REMOVED BY THE CONTRACTOR AND RETURNED TO SHA

All removed signal materials are to become property of the contractor.

CONTACT LIST

The contact persons for District #3 are as follows:

Mr. Charlie K. Watkins
District Engineer
301-513-7311

Mr. Maj Shakib
Assistant District Engineer - Traffic
301-513-7358

Mr. Augie Rebish
Assistant District Engineer - Utility
301-513-7350

Mr. Raleigh Medley
Assistant District Engineer - Maintenance
301-513-7304

Mr. Richard L. Daff
Chief, Traffic Operations Division
410-787-7630

The Power Company Representative is:
Pepco
Ms Eliza Hemingway
4061 Powder Mill Road
Suite 600, Center Park II
Calverton, MD 20705

SEQUENCE OF OPERATION SHEET

TRAFFIC OPERATIONS SECTION
DIVISION OF TRAFFIC ENGINEERING
MONTGOMERY COUNTY, MARYLAND

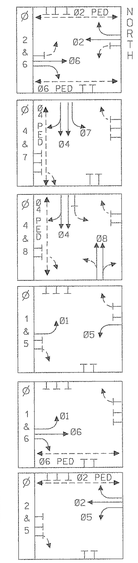
MD 118 RUNS IN AN NORTH-SOUTH DIRECTION

NO. _____

INTERSECTION: MD 118 (GERMANTOWN RD) AND RICHTER FARM RD

SIGNAL HEAD INDICATIONS

SIGNAL NO.	5,10,13,14,15	1,2,6,7	3,4,8,9,11,12			16,17,18,19
TOTAL:	5	4	6			4
LEGEND: □ OPTICALLY LIMITED; R RED; Y YELLOW; G GREEN; ◄ ARROW; F FLASHING	R, Y, G, ◄G; 12"	Y; 12"	R, ◄Y, Y, ◄G, G; 12"	R, Y, G, ◄G; 12"		✋, 🚶; 9"or12" X



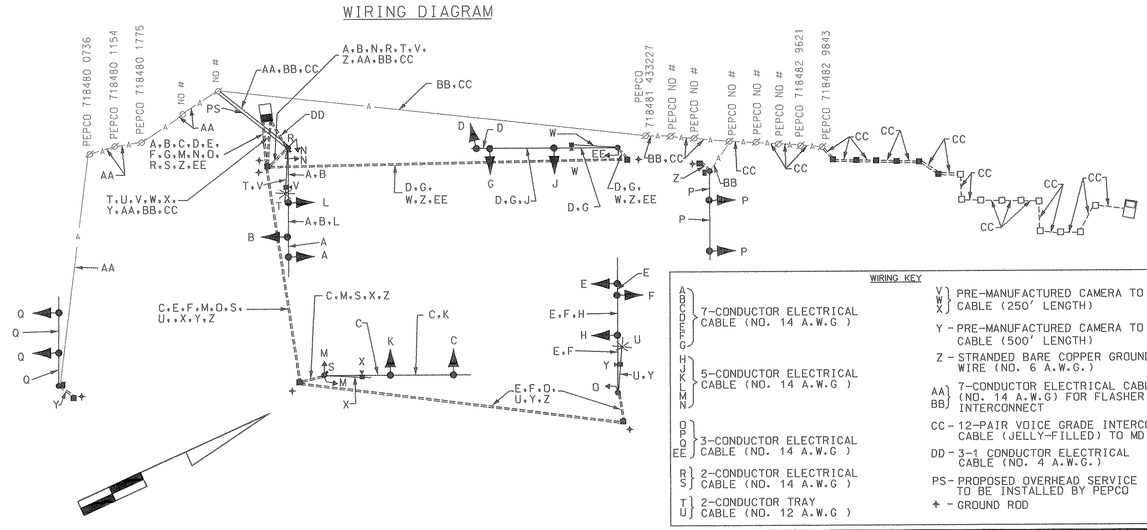
SEQUENCE OF OPERATION

SIGNAL NO.	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	FLASHER
	INTERVAL																					
1	DARK	DARK	FL/Y	FL/Y	FL/Y	FL/Y	FL/Y	FL/Y	FL/Y	FL/Y	FL/Y	FL/Y	FL/Y	FL/Y	FL/Y	DARK	DARK	DARK	FL/Y	FL/Y	FL/Y	FL/Y
2	DARK	DARK	FL/Y	FL/Y	FL/Y	FL/Y	FL/Y	FL/Y	FL/Y	FL/Y	FL/Y	FL/Y	FL/Y	FL/Y	FL/Y	DARK	DARK	DARK	FL/Y	FL/Y	FL/Y	FL/Y
3	G	G	Y	R	R	R	R	R	R	R	R	R	◄G/R	◄Y/R	R	◄G/G	◄Y/G	G	R	R	R	FL/Y
4	G	G	Y	R	R	R	R	R	R	R	R	R	◄G/R	◄Y/R	R	◄G/G	◄Y/G	G	R	R	R	FL/Y
5	G	G	Y	R	R	R	R	R	R	R	R	R	R	R	G	G	G	G	R	R	R	FL/Y
6	DARK	DARK	FL/Y	FL/Y	FL/Y	FL/Y	FL/Y	FL/Y	FL/Y	FL/Y	FL/Y	FL/Y	FL/Y	FL/Y	FL/Y	FL/Y	FL/Y	FL/Y	FL/Y	DARK	DARK	DARK
7	DARK	DARK	FL/Y	FL/Y	FL/Y	FL/Y	FL/Y	FL/Y	FL/Y	FL/Y	FL/Y	FL/Y	FL/Y	FL/Y	FL/Y	FL/Y	FL/Y	FL/Y	FL/Y	DARK	DARK	DARK
8	G	G	Y	R	R	R	R	R	R	R	R	R	◄G/R	◄Y/R	R	R	R	R	R	◄G/G	◄Y/G	G	FL/Y
9	G	G	Y	R	R	R	R	R	R	R	R	R	◄G/R	◄Y/R	R	R	R	R	R	◄G/G	◄Y/G	G	FL/Y
10	G	G	Y	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	G	G	G	FL/Y
11	R	R	R	R	◄G/G	◄Y/G	G	G	G	G	Y	R	R	R	R	R	R	R	R	R	R	FL/R
12	R	R	R	R	◄G/G	◄Y/G	G	G	G	G	Y	R	R	R	R	R	R	R	R	R	R	FL/R
13	R	R	R	R	G	G	G	G	G	G	Y	R	R	R	R	R	R	R	R	R	R	FL/R
14	R	R	R	R	R	R	R	G	G	G	Y	R	R	R	R	R	R	R	R	R	R	FL/R
15	R	R	R	R	R	R	R	G	G	G	Y	R	R	R	R	R	R	R	R	R	R	FL/R
16	WK	FL/DW	DW	DW	DW	DW	DW	DW	DW	DW	DW	DW	DW	DW	DW	DW	DW	DW	DW	WK	WK	DARK
17	WK	FL/DW	DW	DW	DW	DW	DW	DW	DW	DW	DW	DW	DW	DW	DW	WK	WK	WK	DW	DW	DW	DARK
18	WK	FL/DW	DW	DW	DW	DW	DW	DW	DW	DW	DW	DW	DW	DW	DW	WK	WK	WK	DW	DW	DW	DARK
19	WK	FL/DW	DW	DW	DW	DW	DW	DW	DW	DW	DW	DW	DW	DW	DW	DW	DW	DW	WK	WK	WK	DARK
20	DW	DW	DW	DW	WK	WK	WK	WK	FL/DW	DW	DW	DW	DW	DW	DW	DW	DW	DW	DW	DW	DW	DARK
21	DW	DW	DW	DW	WK	WK	WK	WK	FL/DW	DW	DW	DW	DW	DW	DW	DW	DW	DW	DW	DW	DW	DARK
PHASE	2 & 6		ALL RED	4 & 7		ALL RED	4 & 8				ALL RED	1 & 5		ALL RED	1 & 6		ALL RED	2 & 5		ALL RED		

NOTES:

SUBMITTED: _____ CHECKED: _____ APPROVED: _____
IN SERVICE BY: _____ DATE: _____ TIME: _____

WIRING DIAGRAM



WIRING KEY

- A, B, C, D, E, F, G } 7-CONDUCTOR ELECTRICAL CABLE (NO. 14 A.W.G)
- H, J, K, L, M, N } 5-CONDUCTOR ELECTRICAL CABLE (NO. 14 A.W.G)
- O, P, Q, EE } 3-CONDUCTOR ELECTRICAL CABLE (NO. 14 A.W.G)
- R, S } 2-CONDUCTOR ELECTRICAL CABLE (NO. 14 A.W.G)
- T, U } 2-CONDUCTOR TRAY CABLE (NO. 12 A.W.G)
- V, W, X } PRE-MANUFACTURED CAMERA TO CONTROLLER CABLE (250' LENGTH)
- Y - PRE-MANUFACTURED CAMERA TO CONTROLLER CABLE (500' LENGTH)
- Z - STRANDED BARE COPPER GROUND WIRE (NO. 6 A.W.G.)
- AA, BB } 7-CONDUCTOR ELECTRICAL CABLE (NO. 14 A.W.G) FOR FLASHER INTERCONNECT
- CC - 12-PAIR VOICE GRADE INTERCONNECT CABLE (JELLY-FILLED) TO MD 117
- DD - 3-1 CONDUCTOR ELECTRICAL CABLE (NO. 4 A.W.G.)
- PS - PROPOSED OVERHEAD SERVICE TO BE INSTALLED BY PEPCO
- ⏚ - GROUND ROD

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

3982gi.dgn TASK-3

REVISIONS	APPROVALS
	TEAM LEADER, TRAFFIC ENGINEERING DESIGN DIVISION
	ASST. CHIEF, TRAFFIC ENGINEERING DESIGN DIVISION
	CHIEF, TRAFFIC ENGINEERING DESIGN DIVISION
	DIRECTOR, TRAFFIC & SAFETY

MARYLAND DOT - STATE HIGHWAY ADMINISTRATION
Office of Traffic & Safety
TRAFFIC ENGINEERING DESIGN DIVISION

MD 118 (GERMANTOWN ROAD)
AND RICHTER FARM ROAD

DRAWN BY:		F.A.P. NO.		TS NO. 4102	SHEET NO. 3 OF 3
CHECKED BY:	R R ZACHERL	S.H.A. NO.	M0357A/B&K		
SCALE:	1"= 20'	COUNTY:	MONTGOMERY	T.I.M.S. NO. E-596	
DATE:	5-09-01	LOG MILE:	15011804.64		

w:\signal.design\3982\3982gi.dgn Jun. 01, 2001 08:50:15