F H W A REGION NO.	STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
3	MD			

PROJECT DESCRIPTION

I GENERAL

THIS PROJECT INVOLVES THE RECONSTRUCTION OF AN EXISTING TRAFFIC CONTROL SIGNAL AT MD 150 AT DIAMOND POINT RD./WILLIS AVE., IN BALTIMORE COUNTY. THE RECONSTRUCTION IS REQUIRED DUE TO THE WIDENING OF WILLIS AVE./ENTRANCE TO BACK RIVER WASTE WATER TREATMENT PLANT FROM TWO LANES TO THREE LANES. MD 150 IS ASSUMED TO TRAVEL IN AN EAST-WEST DIRECTION.

II INTERSECTION OPERATION

THIS INTERSECTION OPERATES IN A SIX-PHASE, FULL-TRAFFIC-ACTUATED MODE WITH EXCLUSIVE/PERMISSIVE LEFT TURNS ON MD. 150 . DIAMOND POINT RD. AND WILLIS AVE /ENT. TO TREATMENT PLANT SHALL OPERATE IN A SPLIT PHASE. A PUSHBUTTON ACTUATED PEDESTRIAN MOVEMENT SHALL BE PROVIDED TO CROSS THE WEST LEG OF MD. 150.

III CONTROLLER REQUIREMENTS

THE EXISTING CONTROLLER WILL BE MODIFIED TO ACCOMMODATE PHASE CHANGES, TWO NEMA LOAD SWITCHES AND ONE-FOUR CHANNEL TIME DELAY-OUTPUT LOOP DETECTOR AMPLIFIER SHALL BE INSTALLED INTO THE EXISTING CONTROLLER CABINET. RELOCATION OF THE EXISTING OVERHEAD POWER FEED IS REQUIRED. ALL INTERNAL WIRING TO THE CONTROLLER SHALL BE PERFORMED BY THE SIGNAL SHOP. CONTACT MR. ED RODENHIZER AT (410) 787-7652, SEVENTY-TWO (72) HOURS IN ADVANCE OF THE INTENDED WORK.

IV MAINTENANCE OF TRAFFIC

THE TRAFFIC CONTROL STANDARD NUMBERS SHALL BE REFERENCED FOR THE PROJECT GENERAL NOTES MD.104.00-01 TO MD.104.00-14.

104.00-26	104.40-02
104.37-02	104.41-02
104.38-02	104.42-02
104.39-02	104.43-02
	104.81-01

V PROJECT CONTACTS

THE CONTACT PERSONS FOR THE SIGNAL PORTION OF THIS PROJECT ARE AS FOLLOWS:

DISTRICT #4
2323 W. JOPPA RD.
BROOKLANDVILLE, MD. 21022

DISTRICT ENGINEER (D.E.)
MR. DAVE MALKOWSKI
(401) 321-3461

ASSISTANT D.E.-TRAFFIC
MR. RANDALL SCOTT (ACTING)
(401) 321-3514

ASSISTANT D.E.-UTILITY
MR. JOSEPH D. MCMAHON
(401) 321-3456

ASSISTANT D.E.-MAINTENANCE
MR. RUSSELL YUREK (ACTING)
(401) 321-3468

S.H.A., OFFICE OF TRAFFIC SAFETY
CHIEF, TRAFFIC OPERATIONS DIVISION
MR. RICHARD L. DAFF SR.
(401) 787-7630

POWER COMPANY REPRESENTATIVE
SUPERVISOR
1-(401) -859-9030; FAX 1-(401) 859-9301
INDUSTRIAL/COMMERCIAL SERVICES
NEW BUSINESS CONSTRUCTION
7317 PARKWAY DRIVE SOUTH
HANOVER, MD. 21076

EQUIPMENT LIST

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

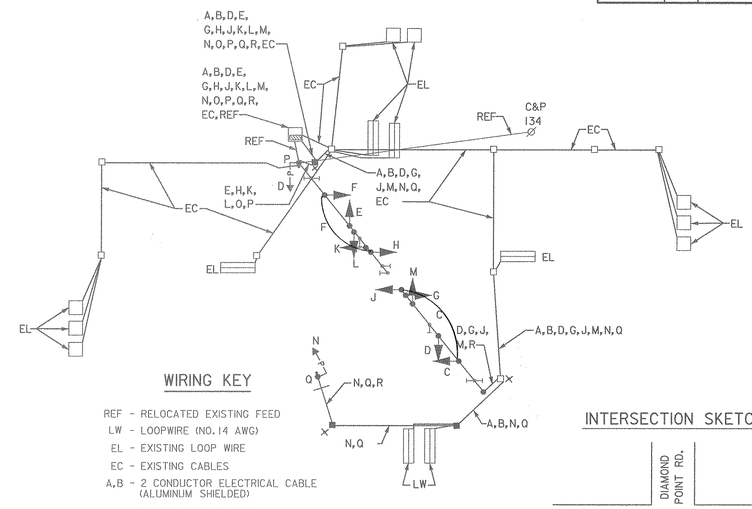
ITEM NO.	QUANTITY	UNIT	DESCRIPTION
1001	100%	L.S.	MAINTENANCE OF TRAFFIC
1002	100%	L.S.	MOBILIZATION
2001	1.5	C.Y.	TEST PIT EXCAVATION
8001	100%	L.S.	REMOVAL AND DISPOSAL OF EXISTING EQUIPMENT
8002	100%	L.S.	SHA ENGINEERING AND INSPECTION
8003	100%	L.S.	SHA OVERHEAD
8004	10	C.Y.	FURNISH & INSTALL CONCRETE FOUNDATION SIGNAL STRUCTURE
8005	2	EA.	FURNISH AND INSTALL 27' POLE WITH 60' MAST ARM (4-2"X90" ANCHOR BOLTS)
8006	1	EA.	FURNISH AND INSTALL 14' PEDESTAL POLE WITH BREAKAWAY BASE SUPPORT (FOUR-1" DIA. X 40" LENGTH ANCHOR BOLTS)
8007	1	EA.	FURNISH AND INSTALL CONTROL AND DISTRIBUTION EQUIPMENT FOR NEW SERVICE
8008	222	L.F.	FURNISH AND INSTALL SAWCUT FOR SIGNAL LOOP DETECTORS
8009	10	L.F.	FURNISH AND INSTALL 1" LIQUID TIGHT FLEXIBLE NON-METALLIC CONDUIT SLEEVE
8010	200	L.F.	FURNISH AND INSTALL 2" SCHEDULE 80 PVC CONDUIT-TRENCHED
8011	100	L.F.	FURNISH AND INSTALL 4" SCHEDULE 80 PVC CONDUIT-TRENCHED
8012	3	EA.	FURNISH AND INSTALL HANDHOLE
8013	4	EA.	FURNISH AND INSTALL GROUND ROD-3/4" DIAMETER X 10' LENGTH
8014	940	L.F.	FURNISH AND INSTALL LOOP WIRE ENCASED IN FLEXIBLE TUBING (NO.14 AWG)
8015	540	L.F.	FURNISH AND INSTALL ELECTRICAL CABLE-2 CONDUCTOR ALUMINUM SHIELDED (NO.14 AWG)
8016	350	L.F.	FURNISH AND INSTALL ELECTRICAL CABLE-2 CONDUCTOR (NO.14 AWG)
8017	360	L.F.	FURNISH AND INSTALL ELECTRICAL CABLE-3 CONDUCTOR (NO.14 AWG)
8018	750	L.F.	FURNISH AND INSTALL ELECTRICAL CABLE-5 CONDUCTOR (NO.14 AWG)
8019	1236	L.F.	FURNISH AND INSTALL ELECTRICAL CABLE-7 CONDUCTOR (NO.14 AWG)
8020	400	L.F.	FURNISH AND INSTALL STRANDED BARE COPPER GROUND WIRE (NO. 6 AWG)
8021	60	L.F.	FURNISH AND INSTALL ELECTRICAL CABLE-1 CONDUCTOR (NO. 4 AWG TYPE THHN/THWN)
8022	20	L.F.	FURNISH AND INSTALL 1 1/4" ELECTRICAL CONDUIT-GALVANIZED RISER
8023	2	EA.	CLEAN OUT AND REBUILD EXISTING HANDHOLE
8024	6	EA.	BLOW OUT EXISTING CONDUIT OPENINGS
8025	25	L.F.	EXTEND EXISTING CONDUIT (IN KIND) CONTINGENT
8026	2	L.F.	F & I 12" ONE WAY THREE-SECTION (R,Y,G) MAST ARM MT.
8027	2	E.A.	F & I 8" ONE WAY ,THREE-SECTION (R,Y,G,) MAST ARM MT.
8028	2	EA.	F & I 12"/ 8" ONE WAY, FIVE-SECTION (12"YA,GA,8"R,Y,G) MAST ARM MT.
8029	2	EA.	F & I 12" ONE WAY ,FIVE-SECTION (YA,GA,R,Y,G,) MAST ARM MT.
8030	2	EA.	F & I 12" ONE WAY, TWO-SECTION PEDESTRIAN SIGNAL HEAD (1-SIDE MT., 1-TOP MT.)

EQUIPMENT LIST CONTINUES

B. EQUIPMENT TO BE FURNISHED AND INSTALLED BY THE CONTRACTOR

ITEM NO.	QUANTITY	UNIT	DESCRIPTION
8031	1	EA.	F&I FOUR CHANNEL, TIME DELAY OUTPUT, LOOP DETECTOR AMPLIFIER
8032	2	EA.	F&I NEMA LOAD SWITCHES
8033	2	EA.	F&I PUSHBUTTON AND SIGNS
8034	60	S.F.	F&I SHEET ALUMINUM SIGNS MAST ARM MOUNTED -2 EA. R10-12 SIGNS (36" X 42") -1 EA. R3-6 MOD SIGN (30" X 36") LT,THRU,RT -1 EA. R3-5L (30"X36") -2 EA. D3-2 SIGNS (16" X VAR.")DOUBLE FACE -"ARROW, DIAMOND PT. RD./ DIAMOND POINT RD. ARROW" -"WILLIS AVE., ARROW/ARROW, WILLIS AVE."
8035	75	S.F.	F&I ASSOCIATED SHEET ASSEMBLY SHEET ALUMINUM SIGNS -1 EA. "EAST, MD. 150, RIGHT ARROW" POLE MOUNTED (30"X51") -1 EA. "EAST, MD. 150, LEFT ARROW" POLE MOUNTED (48"X75") -1 EA. "WEST, MD. 150, RIGHT ARROW" POLE MOUNTED (48"X75") -1 EA. "WEST, MD. 150, LEFT ARROW" POLE MOUNTED (30"X51")
8036	2	EA.	F& I 8"/12" ONE WAY, FOUR-SECTION (8" R,Y,G,12" GA) MAST ARM MOUNTED
8037	1	EA.	AS BUILT TRAFFIC SIGNAL

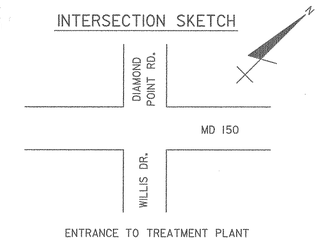
WIRING DIAGRAM



WIRING KEY

REF - RELOCATED EXISTING FEED
LW - LOOPWIRE (NO.14 AWG)
EL - EXISTING LOOP WIRE
EC - EXISTING CABLES
A,B - 2 CONDUCTOR ELECTRICAL CABLE (ALUMINUM SHIELDED)
C, D, E, F - 5 CONDUCTOR ELECTRICAL CABLE (NO.14 AWG)
G, H, J, K, L, M - 7 CONDUCTOR ELECTRICAL CABLE (NO.14 AWG)
N,O - 3 CONDUCTOR ELECTRICAL CABLE (NO.14 AWG)
P,Q - 2 CONDUCTOR ELECTRICAL CABLE (NO.14 AWG)
R - BARE COPPER GROUND WIRE (NO. 6 AWG)
X - GROUND ROD

INTERSECTION SKETCH



PHASE CHART

	1	2	3	4	5	6	7	8	9	10	19	20
PHASES 1+5	G R	G R	R	G R	G R	R	R	R	R	R	DW	DW
1+5 CHANGE	CONTROLLER MAY SKIP TO PHASES 1+6, 2+5 OR 2+6										DW	DW
PHASES 1+6	G G	G G	G	R	R	R	R	R	R	R	DW	DW
1+6 CHANGE	Y G	Y G	G	R	R	R	R	R	R	R	DW	DW
PHASES 2+5	R	R	R	G G	G G	G	R	R	R	R	DW	DW
2+5 CHANGE	R	R	R	Y G	Y G	G	R	R	R	R	DW	DW
PHASES 2+6	G	G	G	G	G	G	R	R	R	R	DW	DW
2+6 CHANGE	Y	Y	Y	Y	Y	Y	R	R	R	R	DW	DW
PHASE 3	R	R	R	R	R	R	R	R	G G	G	DW	DW
3 CHANGE	R	R	R	R	R	R	R	R	Y	Y	DW	DW
PHASE 4	R	R	R	R	R	R	G G	G	R	R	DW	DW
4 CHANGE	R	R	R	R	R	R	Y	Y	R	R	DW	DW
PHASE 4 ALT	R	R	R	R	R	R	G G	G	R	R	WK	WK
PED CLEARANCE	R	R	R	R	R	R	G G	G	R	R	FL/DW	FL/DW
4 ALT CHANGE	R	R	R	R	R	R	Y	Y	R	R	DW	DW
FLASHING OPERATION	FL/Y	FL/Y	FL/Y	FL/Y	FL/Y	FL/Y	FL/R	FL/R	FL/R	FL/R	DARK	DARK

UTILITY LEGEND

T — T	TELEPHONE CABLES
G — G	GAS MAIN
W — W	WATER MAIN
S — S	SEWER MAIN
E — E	ELECTRIC CABLES
A — A	AERIAL CABLES
BC — BC	BURIED CABLE
SD — SD	STORM DRAIN

GEOMETRIC LEGEND

- - - - - - - -	EXISTING GEOMETRICS
————	PROPOSED GEOMETRICS

STATE OF MARYLAND — JOHN WILLIAM PAY HENRICHS — No. 11828 — REGISTERED PROFESSIONAL ENGINEER

PHOENIX ENGINEERING, INC.
CONSULTING ENGINEERS
813 MAIDEN CHOICE LANE, SUITE 300
BALTIMORE, MARYLAND 21228
(410) 247-8833 FAX 247-9397

APPROVALS	REVISIONS
ASST. DIVISION CHIEF, TEDD	
ASST. DISTRICT ENGINEER, TRAFFIC	
CHIEF, TRAFFIC ENGINEERING DESIGN DIVISION	
DIRECTOR, OFFICE OF TRAFFIC & SAFETY	6 RECONSTRUCTION, PHASE CHANGE, PED MOVEMENT EMM

MARYLAND DOT - STATE HIGHWAY ADMINISTRATION
Office of Traffic & Safety
TRAFFIC ENGINEERING DESIGN DIVISION
GENERAL INFORMATION
MD 150 AT DIAMOND POINT RD. / WILLIS AVE.

DRAWN BY: G. PETERSON	F.A.P. NO.	PLAN SHEET NO.: 1053E-GI	SIGNAL SHEET NO. 2 OF 2
CHECK BY: E.M. MILESKY	S.H.A. NO. BCS-94-114		
SCALE: NONE	COUNTY BALTIMORE		

BALTIMORE CITY DWG. NO. TS-2
SHEET 55 OF 55

8/28/98-005/dlmq120 cdw. 7/01 10 1998 11:21:33