BORDER REV: DATE: July 1, 2005

DRILL HOLES

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BY: $USERNAME$

PROJECT DESCRIPTION

GENERAL

THIS PROJECT INVOLVES THE MODIFICATION OF THE EXISTING TRAFFIC CONTROL SIGNAL AT THE INTERSECTION OF MD 108 AT TEN OAKS ROAD AND SOUTHBOUND MD 32 RAMP IN HOWARD COUNTY, MARYLAND. MD 108 IS ASSUMED TO RUN IN AN EAST-WEST DIRECTION.

INTERSECTION OPERATION

THE INTERSECTION WILL OPERATE IN A NEMA SIX-PHASE, FULL-TRAFFIC-ACTUATED MODE WITH THE MD 108 APPROACHES OPERATING CONCURRENTLY AND THE TEN OAKS AND MD 32 RAMP OPERATING SPLIT.

AN ALTERNATE PEDESTRIAN PHASE IS PROVIDED ACROSS THE EAST LEG OF MD 108 AT MD 32 RAMP AND PEDESTRIAN INDICATIONS ARE PROVIDED ACROSS THE MD 32 OFF-RAMP.

EXCLUSIVE LEFT-TURN PHASING EXISTS FOR THE WESTBOUND MD 108 APPROACH TO MD 32 RAMP.

EXCLUSIVE/PERMISSIVE LEFT-TURN PHASING IS PROVIDED FOR EASTBOUND MD 108 APPROACH TO TEN OAKS ROAD AND A RIGHT TURN OVERLAP IS PROVIDED ON WESTBOUND MD 108 APPROACH TO TEN OAKS ROAD.

CONTROLLER REQUIREMENTS

THE EXISTING BASE MOUNTED CABINET AND CONTROLLER WILL BE USED. THE CONTROLLER WILL BE RETROFITTED TO OPERATE VIDEO DETECTION EQUIPMENT.

MAINTENANCE OF TRAFFIC

THE FOLLOWING TRAFFIC CONTROL STANDARDS SHALL BE REFERENCED FOR THE PROJECT. ADDITIONAL TRAFFIC CONTROL STANDARDS MAY BE USED AS DIRECTED BY THE ENGINEER.

STANDARD NO. MD-104.03-01 (SHOULDER WORK)
STANDARD NO. MD-104.03-03 (LEFT LANE CLOSURE)
STANDARD NO. MD-104.03-05 (RIGHT LANE CLOSURE)
STANDARD NO. MD-104.02-09 (FLAGGING OPERATION)
STANDARD NO. MD-104.02-13 (INTERSECTION FLAGGING OPERATION)
STANDARD NO. MD-104.03-09 (INTERSECTION FAR LEFT LANE, CLOSURE)
STANDARD NO. MD-104.03-11 (INTERSECTION FAR RIGHT LANE, CLOSURE)

PROJECT CONTACTS

THE CONTACT PERSONS FOR SHA ARE AS FOLLOWS:

MR. JOHN CONCANNON
ASSISTANT DISTRICT ENGINEER - TRAFFIC
PHONE: (301) 624-8140/8141

MR. RAY JOHNSON
ASSISTANT DISTRICT ENGINEER - MAINTENANCE
PHONE: (301) 624-8105

MS. ANDREA ABEND
DISTRICT UTILITY ENGINEER
PHONE: (301) 624-8115/8116

MR. RICHARD L. DAFF, SR.
CHIEF, TRAFFIC OPERATIONS DIVISION
PHONE: (410) 787-7630

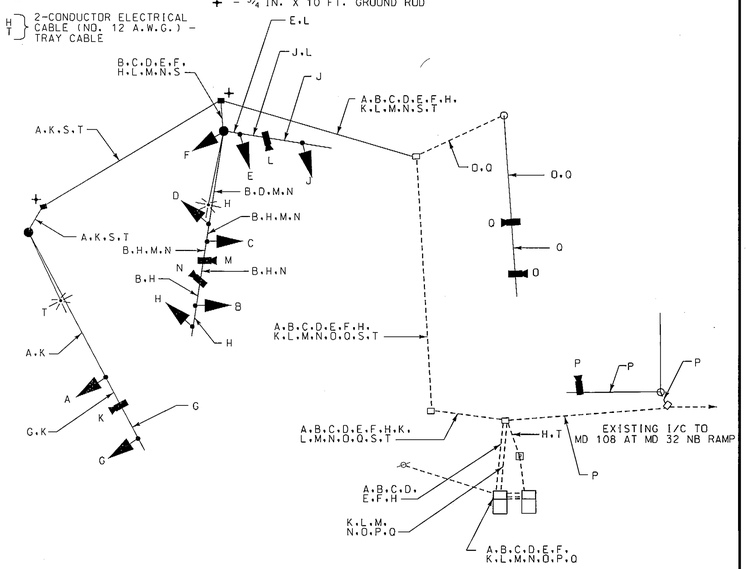
MR. ROBERT SNYDER
ASSISTANT CHIEF - TRAFFIC OPERATIONS DIVISION
PHHONE: (410) 787-7681

MR. EDWARD RODENHIZER
CHIEF - SIGNAL OPERATIONS SECTION
(410) 787-7652

WIRING DIAGRAM

WIRING KEY

A B C D E F — 7-CONDUCTOR ELECTRICAL CABLE (NO. 14 A.W.G.)
K L M N O P Q — VIDEO CAMERA DETECTION LEAD-IN CABLE
G H J — 5-CONDUCTOR ELECTRICAL CABLE (NO. 14 A.W.G.)
S — STRANDED BARE COPPER GROUND WIRE (NO. 6 A.W.G.)
+ - 3/4 IN. X 10 FT. GROUND ROD
H T — 2-CONDUCTOR ELECTRICAL CABLE (NO. 12 A.W.G.) - TRAY CABLE



EQUIPMENT LIST "A"

A. EQUIPMENT TO BE SUPPLIED BY THE SHA

ITEM NO.	QUANTITY	DESCRIPTION
9080	1 EACH	VIDEO INTERFACE EQUIPMENT: 1-8 CAMERAS
9571	53 S.F.	SHEET ALUMINUM SIGNS TO CONSIST OF (POLE MOUNT) :
		- 1 EACH D-3(1) SIGN (VARIABLE x 16 IN.) DUAL FACED - MAST ARM MOUNT
		- 1 EACH M1-5(6) "WEST.MD. RIGHT ARROW" (30 IN. x 48 IN.) - POLE MOUNT
		- 1 EACH R3-5(L) SIGN (30 IN. x 36 IN.) - POLE MOUNT
		- 1 EACH R3-5(R) SIGN (30 IN. x 36 IN.) - POLE MOUNT
		- 1 EACH R3-6(L) SIGN (30 IN. x 36 IN.) - POLE MOUNT
		- 1 EACH R10-12(2) SIGN (40 IN. x 36 IN.) - POLE MOUNT
9570	24 S.F.	SHEET ALUMINUM SIGNS TO CONSIST OF (GROUND MOUNT):
		- 1 EACH M1-5(6) "EAST.MD. LEFT ARROW" (48 IN. x 72 IN.) - GROUND MOUNT

EQUIPMENT LIST "C"

C. EQUIPMENT TO BE REMOVED AND RETURNED TO SHA

VIDEO DETECTION CAMERAS REMOVED SHALL BE DELIVERED TO SHA SIGNAL SHOP.

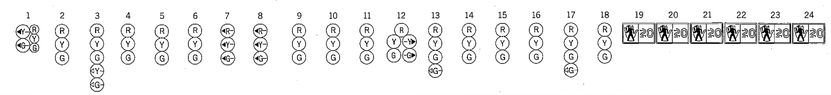
ALL OTHER REMOVED SIGNAL MATERIALS SHALL BECOME PROPERTY OF THE CONTRACTOR

EQUIPMENT LIST "B"

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

ITEM NO.	QUANTITY	DESCRIPTION
1001	2 EACH	MAINTENANCE OF TRAFFIC
2002	1 C.Y.	TEST PIT EXCAVATION
5002	305 L.F.	5 " HEAT APPLIED WHITE OR YELLOW PERMANENT PAVEMENT MARKING
5003	85 L.F.	REMOVAL OF EXISTING PERMANENT PAVEMENT LINE MARKINGS - ANY WIDTH
5005	30 L.F.	24 INCH HEAT APPLIED WHITE PERMANENT PREFORMED THERMOPLASTIC PAVEMENT MARKINGS
5006	1 EACH	WHITE PREFORMED THERMOPLASTIC PAVEMENT MARKING LEGENDS OR SYMBOLS
8001	35 EACH	12 INCH LED SIGNAL HEAD SECTION
8007	2 EACH	ANY SIZE LIGHTING ARM ON SIGNAL POLE WITH 250 WATT HPS LAMP AND LUMINAIRE
8020	1 EACH	MAST ARM POLE & 70' MAST ARM ANY 'T' DIMENSION
8023	1 EACH	REM & DISPOSE MAT & EQUIP PER ASSIGN
8026	1 EACH	TWIN MAST ARM POLE & 50'/70' MAST ARMS ANY 'T' DIMENSION
8028	7 EACH	VIDEO DETECTION CAMERA & CABLE UP TO 500 FT
8034	900 L.F.	ELECTRICAL CABLE - 2 CONDUCTOR (NO. 12 AWG) TC
8036	105 L.F.	UP TO 4 INCH SCHEDULE 80 RIGID PVC CONDUIT - BORED
8038	185 L.F.	UP TO 4 INCH SCHEDULE 80 RIGID PVC CONDUIT - TRENCHED
8039	36 L.F.	WOOD SIGN SUPPORTS UP TO 4" X 6"
8040	77 S.F.	INSTALL OVERHEAD OR GROUND MOUNTED SIGN (INCLUDING ALL HARDWARE)
8042	350 L.F.	NO. 6 AWG STRANDED BARE COPPER GROUND WIRE
8046	2 EACH	FURNISH AND INSTALL ELECTRICAL HANDHOLE
8055	75 L.F.	ELECTRICAL CABLE - 5 CONDUCTOR (NO. 14 AWG)
8056	2480 L.F.	ELECTRICAL CABLE - 7 CONDUCTOR (NO. 14 AWG)

PHASE CHART



	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24
PHASE 1 AND 5	G	R	G	R	R	R	G	G	R	R	R	R	R	R	R	R	R	R	DW	DW	DW	DW	DW	DW
1 AND 5 CHANGE	PHASE 1 + 5 MAY CHANGE TO PHASE 1 + 6, PHASE 2 + 5 OR PHASE 2 + 6																							
PHASE 1 + 6	G	G	G	G	G	G	R	R	R	R	R	R	R	R	R	R	R	R	DW	DW	DW	DW	DW	DW
1 + 6 CHANGE	G	G	G	G	G	G	R	R	R	R	R	R	R	R	R	R	R	R	DW	DW	DW	DW	DW	DW
PHASE 2 + 5	R	R	R	R	R	R	G	G	G	G	G	G	R	R	R	R	R	R	DW	DW	DW	DW	DW	DW
2 + 5 CHANGE	R	R	R	R	R	R	Y	Y	G	G	G	G	R	R	R	R	R	R	DW	DW	DW	DW	DW	DW
PHASE 2 + 6	G	G	G	G	G	G	R	R	G	G	G	G	R	R	R	R	R	R	WK	WK	WK	WK	DW	DW
PED CLEARANCE	G	G	G	G	G	G	R	R	G	G	G	G	R	R	R	R	R	R	FL/DW	FL/DW	FL/DW	FL/DW	DW	DW
2 + 6 CHANGE	Y	Y	Y	Y	Y	Y	R	R	Y	Y	Y	Y	R	R	R	R	R	R	DW	DW	DW	DW	DW	DW
PHASE 3	R	R	R	G	G	G	R	R	R	R	R	G	R	R	R	R	G	G	DW	DW	DW	DW	DW	DW
3 CHANGE	R	R	R	Y	Y	Y	R	R	R	R	R	G	R	R	R	R	Y	Y	DW	DW	DW	DW	DW	DW
PHASE 4	R	R	R	R	R	R	R	R	R	R	R	R	G	G	G	G	R	R	DW	DW	DW	DW	DW	DW
PED CLEARANCE	R	R	R	R	R	R	R	R	R	R	R	R	G	G	G	G	R	R	DW	DW	DW	DW	DW	DW
4 CHANGE	R	R	R	R	R	R	R	R	R	R	R	R	Y	Y	Y	Y	R	R	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/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

TOD NO: XX650-17
SHA NO: HOZ21A58/B58
MD 108 @ Ten Oaks/SB MD 32 off ramp

WR&A
WHITMAN, REQUARDT & ASSOCIATES, LLP
801 South Caroline Street, Baltimore, Maryland 21231

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

MD 108 (Clarksville Pike) at Ten Oaks Road
and Southbound MD 32 Off Ramp/On Ramp
Clarksville, Maryland

GENERAL INFORMATION SHEET

SCALE NONE DATE 4/5/2012 CONTRACT NO. XX6505185

DESIGNED BY B. Donoway
DRAWN BY B. Donoway
CHECKED BY N. Leary
F.A.P. NO.
COUNTY Howard
LOGMILE 13010803.65-03.69
TIMS NO. L206
TOD NO.

TS NO. 3318 F | DRAWING TSP-2 OF 2 | SHEET NO. 2 OF 2

PLOTTED: $DATETIME$
FILE: $FILE$