

CONSTRUCTION DETAILS

1. INSTALL POLE MOUNTED SIGNAL HEAD.
2. INSTALL 6' X 30' LOOP DETECTOR (QUADRUPOLE).
3. INSTALL 1" GAL. STEEL SLEEVE.
4. INSTALL 2" GAL. STEEL SUBSTRICAL CONDUIT (TRENCHED). OMIT
5. INSTALL 5 CONDUCTOR CABLE FOR SIGNAL HEAD 10.
6. REMOVE EXISTING CONTROLLER, CABINET AND FOUNDATION.
7. INSTALL CONTROLLER, CABINET AND FOUNDATION AND RELOCATE EXISTING CABLES AND POWER FEED TO NEW CABINET.
8. INSTALL 2" PVC CONDUIT (TRENCHED).
9. INSTALL 6' X 30' LOOP DETECTOR
10. INSTALL HANDBOX
11. INSTALL TWO 4" P.V.C. CONDUITS (TRENCHED).

GENERAL NOTES

1. THE HIGHWAY MARKING AND SIGNING SHALL BE THE RESPONSIBILITY OF OTHERS, EXCEPT AS NOTED.
2. THE UTILITIES SHOWN ON THE CONSTRUCTION PLAN ARE SCHEMATIC ONLY AND ARE NOT TO BE CONSIDERED COMPLETE. THE CONTRACTOR SHALL BE RESPONSIBLE FOR NOTIFYING ALL UTILITY COMPANIES PRIOR TO CONSTRUCTION SO THAT ALL UTILITIES CAN BE LOCATED IN THE FIELD. THE CONTRACTOR SHALL LOCATE EXISTING UTILITIES A MINIMUM OF TWO (2) WEEKS IN ADVANCE OF THE CONSTRUCTION OPERATIONS IN THE VICINITY OF THE UTILITIES. ANY DAMAGE INCURRED BY THE CONTRACTOR SHALL BE REPAIRED IMMEDIATELY AT THE CONTRACTOR'S EXPENSE. THE CONTRACTOR SHALL NOTIFY THE FOLLOWING UTILITIES OR AGENCIES AT LEAST FIVE (5) DAYS BEFORE STARTING WORK SHOWN ON THESE PLANS:
 - MISS UTILITY (COLLECT) 1-509-0100
 - BALTIMORE GAS & ELECTRIC COMPANY - UNDERGROUND ELECTRIC DISTRIBUTION ENGINEERING "DAMAGE CONTROL" 234-5591
 - BALTIMORE GAS & ELECTRIC COMPANY - UNDERGROUND GAS DISTRIBUTION ENGINEERING "DAMAGE CONTROL" 234-5533
 - GEORGIA TELEPHONE COMPANY 752-9976
 - TRAFFIC DIVISION 992-2072
 - HOWARD COUNTY CABLE T.V. 461-1156
 - BUREAU OF UTILITIES - HOWARD COUNTY 992-2366

3. CONSTRUCTION SHALL BE COMPLETED IN ACCORDANCE WITH HOWARD COUNTY STANDARD SPECIFICATIONS AND DETAILS FOR CONSTRUCTION DESIGN MANUAL VOLUME IV.
4. ALL NEW SIGNAL HEADS SHALL BE SECURELY WRAPPED AND/OR BAGGED IN BURDAP, PRIOR TO SIGNAL BEING PLACED IN SERVICE.
5. THE CONTRACTOR SHALL COMPLY WITH OSHA AND MSHA GOODES.
6. THE CONTRACTOR SHALL COMPLY WITH THE FOLLOWING:
 - MAINTAIN SIX (6) INCHES MINIMUM CLEARANCE WITH ALL UNDERGROUND UTILITIES AND ALL OVERHEAD CLEARANCES SHALL BE IN ACCORDANCE WITH THE MARYLAND HIGH VOLTAGE ACT.
7. THE CONTRACTOR WILL SUPPLY ALL OTHER HARDWARE AND AUXILIARY EQUIPMENT REQUIRED FOR THE COMPLETION OF THE PROJECT AND ASSURE PROPER SIGNAL OPERATION AS DESIGNED AND SHOWN ON THE PLANS.
8. THE ELECTRICAL FEED AND SOURCE FOR THE TRAFFIC SIGNALS SHOULD BE SEPARATE FROM POWER FEED FOR THE LUMINAIRES.

CONTROLLER AND ACCESSORIES

1. NEMA SIGHT PHASE MODULAR CONTROLLER WITH SOLID STATE CIRCUITRY AND DIGITAL TIMING, SIMILAR TO SCONOLITE RMC 8-0000 SERIES DIGITAL CONTROLLER UNIT, EQUIVALENT MANUFACTURED BY CROSS-HINDS, SINGLE SIGNAL CORPORATION OR APPROVED EQUAL SHALL BE INSTALLED WITH THE FOLLOWING:
 - A. TIME BASE COORDINATION UNIT (NON-INTERCONNECT TYPE, MODULAR UNIT).
 - B. VEHICULAR ACTUATED MODULES WITH VOLUME DENSITY CONTROLS FOR TWO APPROACHES.
 - C. VEHICULAR ACTUATED MODULES (CAPABLE OF CONTROLLING SIX TRAFFIC MOVEMENTS).
 - D. VEHICULAR ACTUATED PHASE MODULES SHALL BE CAPABLE OF THE FOLLOWING FUNCTIONS: MINIMUM GREEN, PASSAGE TIME, YELLOW, ALL RED CLEARANCE, DUAL MAXIMUM, PEDESTRIAN TIMING, RECALL AND MEMORY.
 - E. VEHICULAR PHASE MODULES WITH VOLUME DENSITY CONTROLS SHALL BE CAPABLE OF THE FOLLOWING FUNCTIONS: MINIMUM GREEN, PASSAGE TIME, YELLOW, ALL RED CLEARANCE, DUAL MAXIMUM, PEDESTRIAN TIMING, SECONDS PER ACTUATION, TIME TO REDUCE, TIME FOR REDUCTION, MINIMUM GAP, RECALL AND MEMORY.
 - F. FOUR PHASE SIGNAL OVERLAP CAPABILITY.
2. A CONFLICT MONITOR FOR ALL PHASES AND SOLID STATE LOAD SWITCHES SHALL BE FULLY WIRED IN THE CABINET.
3. A BRIND MOUNTED TRAFFIC CONTROLLER CABINET LARGE ENOUGH TO ACCOMMODATE THE ABOVE CONTROL EQUIPMENT AND DETECTORS SHALL BE INSTALLED. THE CABINET SHALL BE FURNISHED WITH A THERMOSTATICALLY CONTROLLED CABINET VENT FAN.
4. THE FINISH OF THE CABINET SHALL BE ALL-WEATHER BRONZE PAINT.
5. THE CONTROLLER SHALL BE WIRED WITH FIVE (5) CHANNEL LOOP DETECTOR AMPLIFIERS (DELAY OUTPUT TYPE) AND HARDWARES.
6. A METER BOX SHALL BE INSTALLED IN A VANDAL PROOF ENCLOSURE PROVIDED BY THE CONTRACTOR. THE FINISH OF THE METER BOX, HOUSING AND CONDUITS SHALL BE ALL-WEATHER BRONZE PAINT.
7. ALL PHASES SHALL BE SKIPPABLE.

UNDERGROUND WIRING

1. UNDERGROUND WIRING UNDER ROAD SURFACES SHALL BE PLACED IN NEW GALVANIZED CONDUITS PUSHED UNDER THE ROAD SURFACE. P.V.C. ELECTRICAL CONDUIT IN GRASS MEDIAN SHALL BE TRENCHED AS SPECIFIED AND AS SHOWN ON THE CONTRACT DRAWINGS.

LOOPS AND DETECTORS

1. THE FOLLOWING NEW LOOPS SHALL BE INSTALLED:

PHASE	DIMENSIONS	NO. OF LOOPS REQUIRED
2	6' X 30'	1
5	6' X 30'	1
6	6' X 30'	1

2. ALL WIRING AND BAR CUTS SHALL BE IN ACCORDANCE WITH MANUFACTURER'S RECOMMENDATIONS FOR CORRECT OPERATION.
3. PHASES 1, 4, 5, 7, 8 SHALL OPERATE IN THE PASSAGE MODE.
4. PHASES 2 AND 6 SHALL OPERATE BY EXTENSION PHASE DETECTION.
5. DETECTOR AMPLIFIERS SHALL BE SARABOTA 235-T OR EQUIVALENT MANUFACTURED BY SCONOLITE CONTROL PRODUCTS, INC.; CROSS-HINDS, OR APPROVED EQUAL.
6. EXISTING VOLUME DENSITY LOOPS ON LITTLE PATUXENT PARKWAY FOR THIS TRAFFIC SIGNAL SHALL BE DISCONNECTED AND ABANDONED.

SIGNAL HEADS

1. THE CONTRACTOR SHALL PROVIDE THE FOLLOWING SIGNAL HEAD: SIGNAL HEAD NO. 1 DESCRIPTION: ONE WAY, THREE SECTION 12" SIGNAL HEAD HAVING RED, YELLOW ARROW AND GREEN ARROW INDICATIONS WITH TUNNEL VISION INCLUDING PROPER ADJUSTABLE RIGID MOUNTING BRACKETS FOR POLE MOUNTED INSTALLATION.
2. ALL SIGNALS SHALL BE PAINTED BRONZE WITH M.A. BRONZER AND BOND, INC. BRONZER GLOSS TRIM 2772; DURANODIC BRONZE - CODE 7357301 OR EQUAL.
3. SIGNAL HEAD LOCATIONS AND AIMING TO BE DETERMINED IN THE FIELD WITH THE ENGINEER.

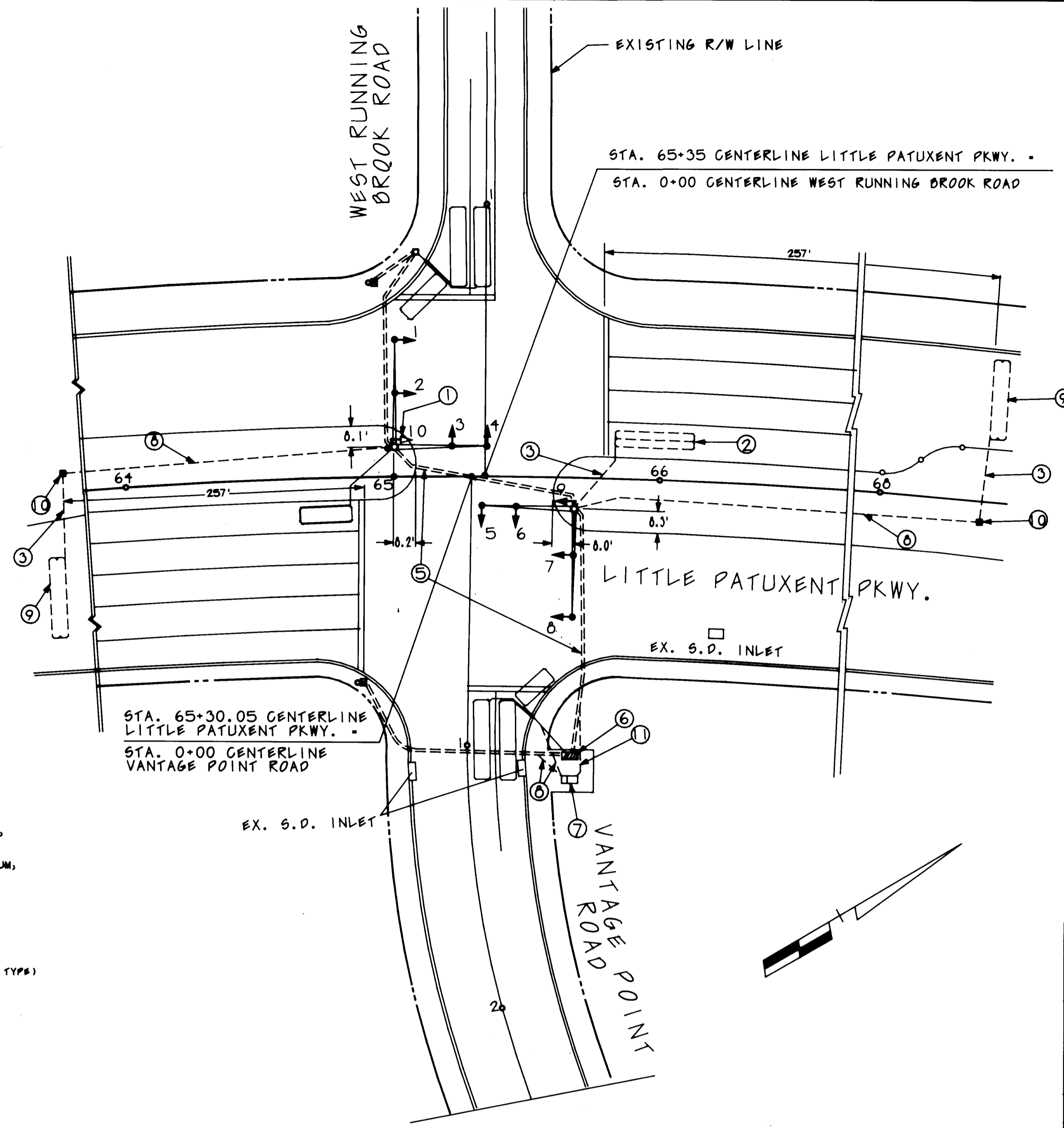
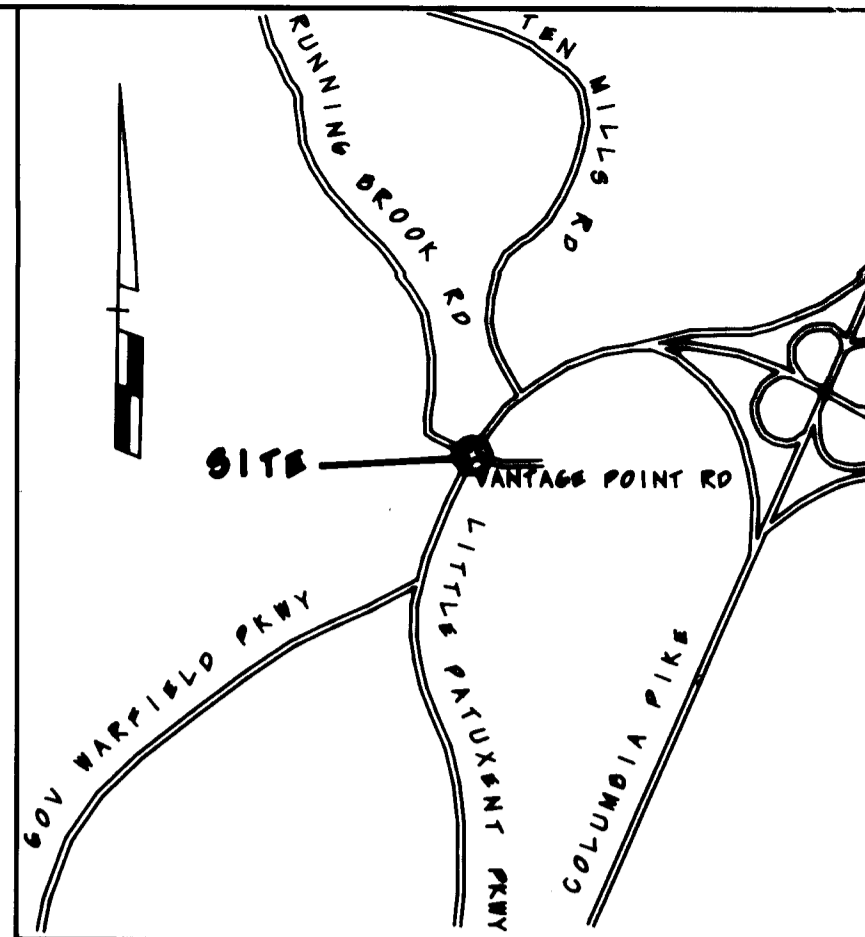
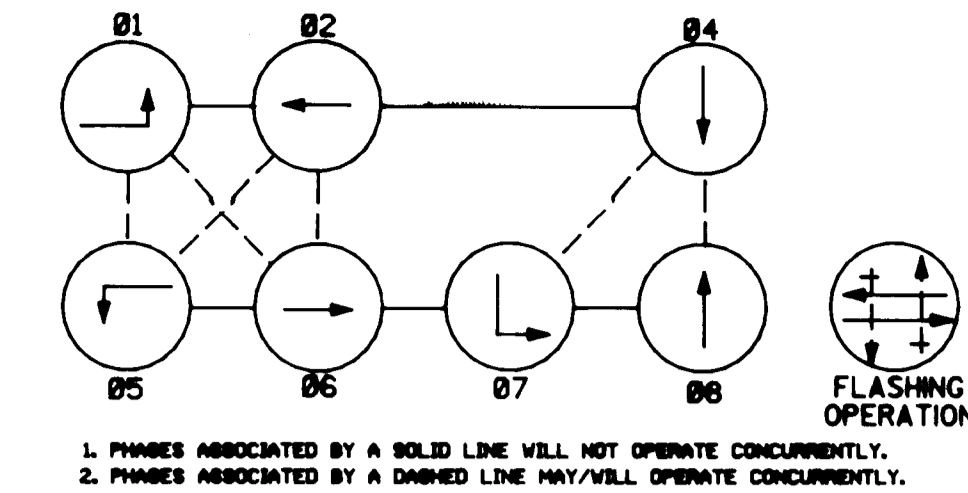
COORDINATION

1. COORDINATION WITH SIGNAL AT LITTLE PATUXENT PARKWAY AND TEN MILLS RD SHALL BE IMPLEMENTED BY THE CONTRACTOR AS SPECIFIED.

CONSTRUCTION SEQUENCE

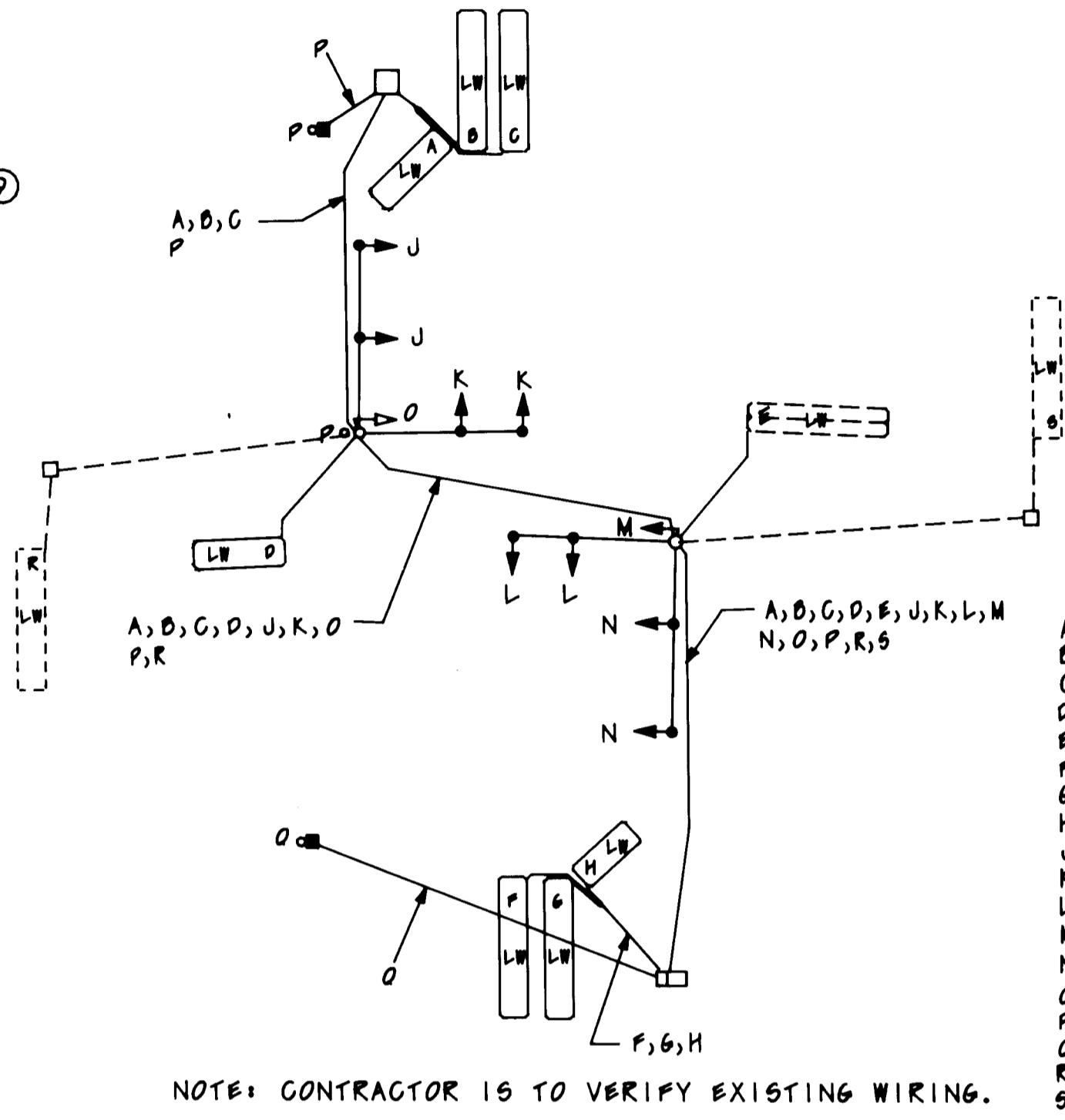
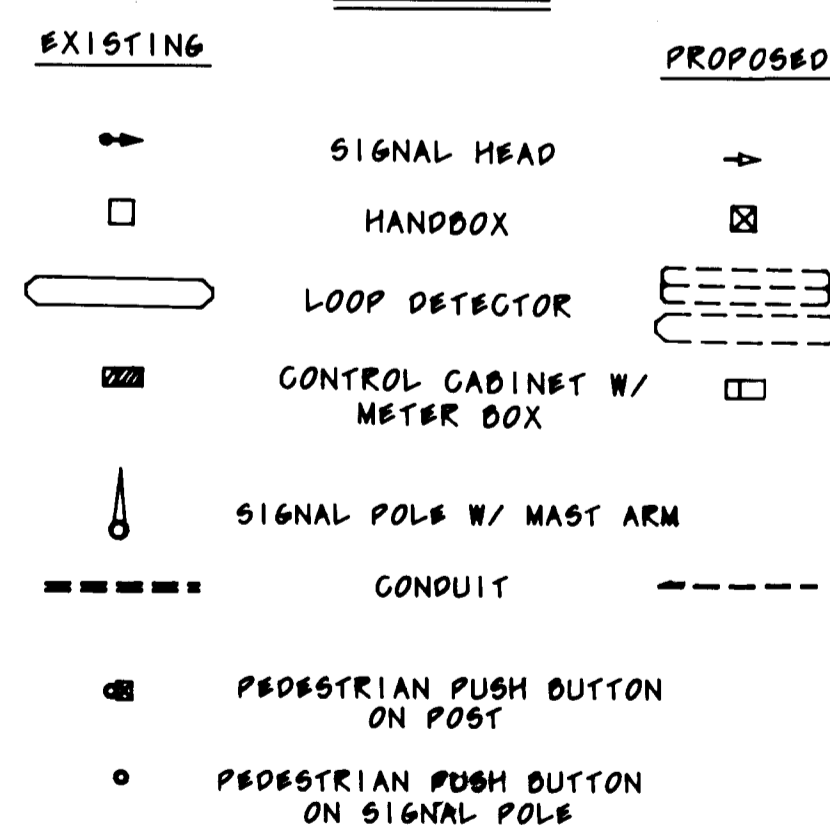
1. INSTALL NEW SIGNAL HEAD, CONDUIT, LOOP DETECTORS, CONTROLLER, CABINET, FOUNDATION, AND HANDBOX. NEW SIGNAL HEAD SHALL BE SECURELY WRAPPED OR BAGGED IN BURDAP.
2. TURN OFF EXISTING SIGNAL AT THE DISCRETION OF THE ENGINEER. THE CONTRACTOR SHALL ARRANGE FOR POLICE ASSISTANCE FOR TRAFFIC CONTROL WHEN THE SIGNAL IS NOT IN OPERATION.
3. RELOCATE EXISTING CABLES AND POWER FEED TO NEW CONTROLLER.
4. UNCOVER NEW SIGNAL HEAD.
5. SENSITIZE SIGNALS.
6. REPAIR EXISTING CONTROLLER, CABINET AND FOUNDATION.

NEMA PHASING



SCALE: 1" = 30'

LEGEND



WIRING DIAGRAM

Letter	Conductor Description	Status
A	2-CONDUCTOR CABLE (ALUMINUM SHIELDED)	EXISTING
B	2-CONDUCTOR CABLE (ALUMINUM SHIELDED)	EXISTING
C	2-CONDUCTOR CABLE (ALUMINUM SHIELDED)	EXISTING
D	2-CONDUCTOR CABLE (ALUMINUM SHIELDED)	EXISTING
E	2-CONDUCTOR CABLE (ALUMINUM SHIELDED)	PROPOSED
F	2-CONDUCTOR CABLE (ALUMINUM SHIELDED)	EXISTING
G	2-CONDUCTOR CABLE (ALUMINUM SHIELDED)	EXISTING
H	5-CONDUCTOR CABLE (NO. 14 AWG)	EXISTING
J	7-CONDUCTOR CABLE (NO. 14 AWG)	EXISTING
L	5-CONDUCTOR CABLE (NO. 14 AWG)	EXISTING
M	5-CONDUCTOR CABLE (NO. 14 AWG)	EXISTING
N	5-CONDUCTOR CABLE (NO. 14 AWG)	EXISTING
O	5-CONDUCTOR CABLE (NO. 14 AWG)	PROPOSED
P	5-CONDUCTOR CABLE (NO. 14 AWG)	EXISTING
R	5-CONDUCTOR CABLE (NO. 14 AWG)	EXISTING
S	2-CONDUCTOR CABLE (ALUMINUM SHIELDED)	PROPOSED
T	2-CONDUCTOR CABLE (ALUMINUM SHIELDED)	PROPOSED

NOTE: CONTRACTOR IS TO VERIFY EXISTING WIRING.

PHASE, SOURCE AND TIMING DIAGRAM	TRAFFIC SIGNAL HEADS										MIN. GREEN	PASSAGE	YELLOW	RED CLEAR	MAX. I	MAX. II	RECALL PER ACTUATION	TIME TO REDUCTION	TIME BEFORE REDUCTION	MIN. GAP	RECALL	MEMORY	
	1	2	3	4	5	6	7	8	9	10													
PHASE A	R	R	R	R	R	R	R	R	R	R	3	3.5			10	10						OFF	NON LOCK
	R	R	R	R	R	R	R	R	R	R	4	5											
PHASE B	G	G	R	R	R	R	R	R	R	R	3	3			10	10							
	G	G	R	R	R	R	R	R	R	R	4	5											
PHASE C	R	R	R	R	R	R	R	R	R	R	3	3			10	10						OFF	NON LOCK
	R	R	R	R	R	R	R	R	R	R	4	5											
PHASE D	R	R	R	R	R	R	R	R	R	R	25	6.5			60	30	1.5	15	20	3.0	ON	LOCK	
	R	R	R	R	R	R	R	R	R	R	3	3			10	10						OFF	NON LOCK
PHASE E	R	R	G	G	R	R	R	R	R	R	3	3			10	10						OFF	NON LOCK
	R	R	G	G	R	R	R	R	R	R	4	5											
PHASE F	R	R	G	G	R	R	R	R	R	R	5	3			15	10						OFF	NON LOCK
	R	R	Y	Y	Y	Y	R	R	R	R	5	5											
FLASH OPER.	FL/Y	FL/Y	FL/R	FL/R	FL/R	FL/R	FL/Y	FL/Y	FL/R	FL/R													

DEPARTMENT OF PUBLIC WORKS
HOWARD COUNTY, MARYLAND

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(301) 982-2888

TRAFFIC SIGNAL PLAN
TF 218

600' SCALE MAP NO. _____ BLOCK NO. _____

LITTLE PATUXENT PARKWAY AND WEST RUNNING BROOK/VANTAGE POINT ROADS
CAPITAL PROJECT T-7037
HOWARD COUNTY, MARYLAND

SCALE AS SHOWN
SHEET 1 OF 1

LPPVANT4