GENERAL NOTES

1. All highway marking and signing shall be the responsibility of the Division of Traffic Engineering of the Bureau of Engineering, Department of Public Works, Howard County, Maryland, and is not to be considered a part of this contract.

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 be repaired immediately at the contractor's expense. See Section 4.09 of the General Specifications. Contractor shall notify the following utilities or agencies at least five (5) days before starting work shown on these plans:

   -Miss Utility (Collect) 1-559-0100
   -Baltimore Gas and Electric Company - Underground Electric Distribution Engineering "Damage Control" 234-5691
   -Baltimore Gas and Electric Company - Underground Gas Distribution Engineering "Damage Control" 234-5533
   -Chesapeake and Potomac Telephone Company - 752-9976
   -Traffic Division - 992-2072
   -Howard County Cable TV - 461-1156

3. Construction shall be completed in accordance with Howard County Standard Specifications and Details for Construction Design Manual Volume IV.

4. All disturbed areas shall be properly restored in accordance with Section 4.20 of the "GENERAL SPECIFICATIONS FOR INSTALLATION OF EQUIPMENT FOR TRAFFIC SIGNALS FOR HOWARD COUNTY DEPARTMENT OF PUBLIC WORKS" dated October 7, 1974; revised February 18, 1976.

5. All new signal heads shall be securely wrapped and/or bagged in burlap, prior to signal being placed in service.

6. The Contractor shall comply with OSHA and MOSHA codes.

7. The Contractor shall comply with the following:

   Maintain six (6) inches minimum clearance with all underground utilities and all overhead clearance shall be in accordance with the Maryland High Voltage Act.

UNDERGROUND WIRING

1. Underground wiring 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 shown on the Contract Drawings.

2. The Contractor shall furnish an "as-built" drawing as per "General Specifications 4.02b".

LOOPS AND DETECTORS

1. The following new loops shall be installed:

Phase	Dimensions	No. of Loops Required
A, B, D, E	6' x 30'	4

2. All wiring shall be in accordance with manufacturer's recommendations for correct operation.

3. The proposed loop detectors shall operate in presence mode.

4. Detector amplifiers shall be Sarasota 235-T or equivalent manufactured by Econolite Control Products, Inc., Crouse-Hinds, or approved equal.

5. Powerhead shall be installed for the above detector loop (6' x 3')

REQUIRED CONSTRUCTION

1. Modify mast arm of existing steel poles for proposed signal head installation.
2. ~~Rewire existing signal heads #9, #10, #11.~~
3. Install signal heads on mast arm and steel poles.
4. ~~Install handboxes (frame and cover)~~
5. Install 6' x 30' detector loop. Loop # 1, 2, 3, 4,
6. Loop #5 & 6 will be constructed only if existing loop in pulse mode cannot be reused.
7. Install 1" galvanized steel electrical conduit for detector lead-in.
8. ~~Install 2" PVC electrical conduit (trenched)~~
9. ~~Install 2" galvanized steel electrical conduit (pushed)~~
10. ~~Install 2" galvanized steel electrical conduit (pushed)~~
11. Rewire existing base mounted cabinet for new 8 phase controller and new conduit wiring. Install new upgrade back panel for 8 phase controller.
12. Abandon existing detector loop. (see note #2)
13. Remove Two Lane Use sign in the mast arm and return to Traffic Division.

SIGNAL HEADS

1. The Contractor shall install the following signal heads:

Signal No.	Description
1, 2, 5, 6	12" diameter Red, 8" Amber and Green indicator
8	12" diameter Red, Amber and Green indicator
3,4,12, 13, 14,?	12" diameter Red, Yellow and Green arrow indicators.

2. All signal head locations and aiming shall be field verified with the engineer.

3. The signal heads in the mast arm are to be installed with clevis hanger.

4. The signals are to be picked up at the Traffic Division Shop at the Public Works Annex in Scaggsville.

5. The Contractor is to modify six (6) signal head lens to provide for turn arrow indication.

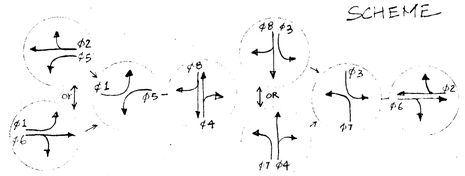
6. Mounting of signal heads shall be in accordance with guidelines provided by MUTCD.

EQUIPMENT TO BE FURNISHED TO CONTRACTOR

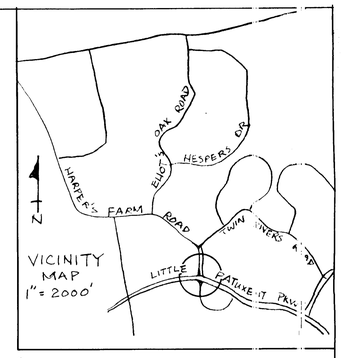
On Site

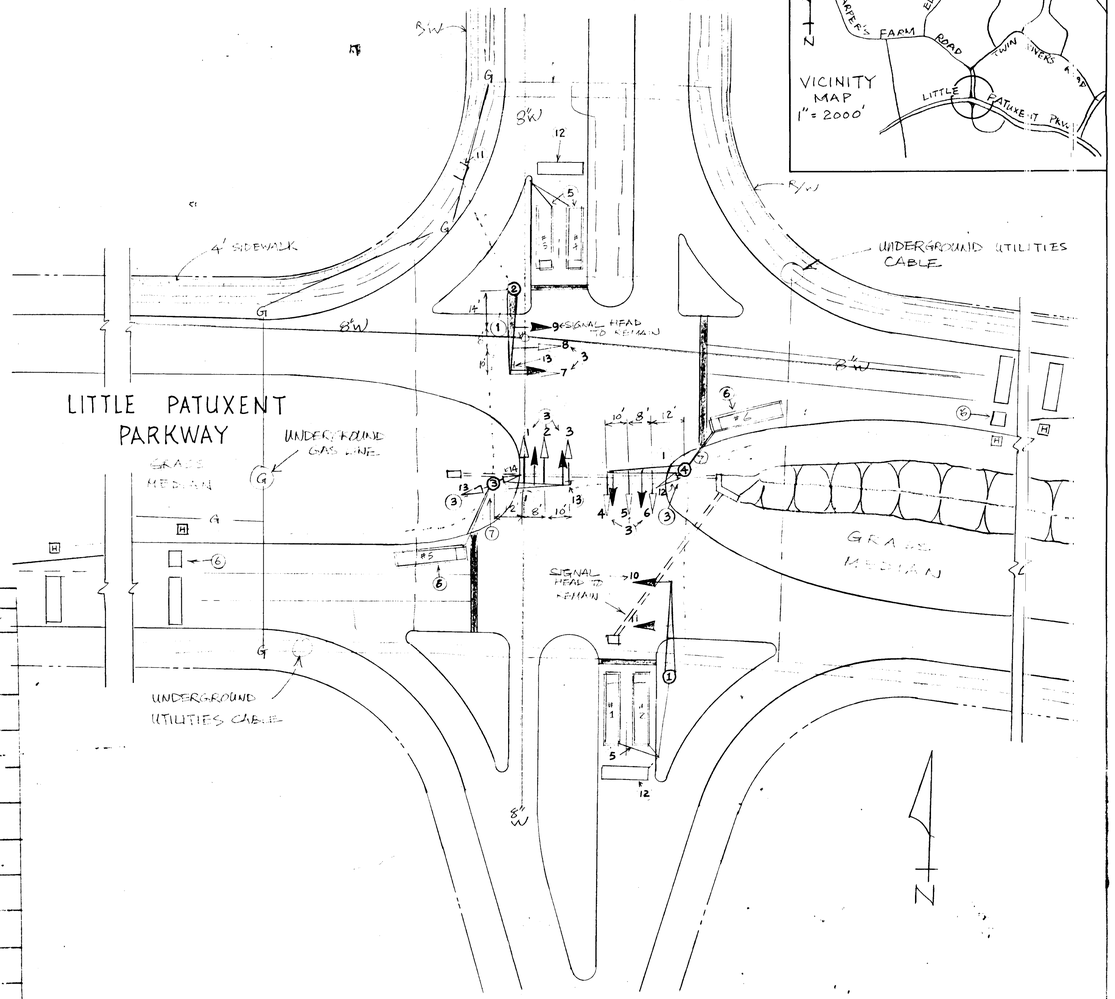
1. 8 phase controller KMC E-8000
2. Conflict monitor - Econolite P/N 3134SC5
3. 8 Detector/Amplifiers - Econolite ED3 P/N 43023G5
4. controller cabinet
5. Flasher & Load switches, solid state (QTY 5)
6. 12 Signal heads - from Traffic Signal Shops.

PHASEING SCHEME



PHASE AND SEQUENCE DIAGRAM	TRAFFIC SIGNAL HEADS 1 2	3	4	5,6	7,14	8,9	10,11	12	13
	○	←	←	○	←	○	○	←	←
	○	←	←	○	←	○	○	←	←
	●	●	●	○	●	○	○	●	●
PHASE A	R	G	G	R	R	R	R	R	R
PHASE A CLEAR	R	G	Y,R	R	R	R	R	R	R
PHASE B	G	G	R	R	R	R	R	R	R
PHASE B CLEAR	G	Y,R	R	R	R	R	R	R	R
PHASE C	G	R	R	G	R	R	R	R	R
PHASE C CLEAR	Y,R	R	R	G	R	R	R	R	R
PHASE D	R	R	G	G	R	R	R	R	R
PHASE D CLEAR	R	R	Y,R	Y,R	R	R	R	R	R
PHASE E	R	R	R	R	G	R	R	G	G
PHASE E CLEAR	R	R	R	R	G	R	R	Y,R	Y,R
PHASE F	R	R	R	R	G	G	R	R	R
PHASE F CLEAR	R	R	R	R	Y,R	G	R	R	R
PHASE G	R	R	R	R	R	G	G	R	R
PHASE G CLEAR	R	R	R	R	R	Y,R	G	R	R
PHASE H	R	R	R	R	R	R	G	G	G
PHASE H CLEAR	R	R	R	R	R	R	Y,R	Y,R	Y,R
FLASH	R	R	R	R	R	Y	Y	R	R





NOTE: 1 SIZE AND LOCATIONS OF EXISTING ELECTRICAL CONDUITS AND WIRING ARE TO BE FIELD VERIFIED BY THE CONTRACTOR.
2 FOR LOOP # 1 THRU #4, UTILIZE EXISTING DETECTOR LEAD IN TO AVOID EXCAVATION NEAR THE SIGNAL POLE FOUNDATION.
3 SIGNAL HEAD #12, 13, 14 TO BE MOUNTED ON THE SIDE OF THE POLE TO PROVIDE MAX. VISIBILITY

EXISTING	LEGEND	PROPOSED
	CONDUIT	
◀	SIGNAL HEADS	◁
④	STEEL POLE W/ MAST ARM	④
H	HANDBOX	
	DETECTOR LOOP	
C	CONTROLLER CABINET	
	GUARD RAIL	
	STORM DRAINAGE PIPE	

C744C201

DEPARTMENT OF PUBLIC WORKS
HOWARD COUNTY, MARYLAND

DIRECTOR OF PUBLIC WORKS — DATE 1-28-85
CHIEF, BUR. OF ENGINEERING — DATE 1/28/85
CHIEF, ROADS, BRIDGES & STORM DRAINAGE DIVISION — DATE 1/18/85

ROADS, BRIDGES AND STORM DRAINAGE DIVISION
BUREAU OF ENGINEERING
DEPARTMENT OF PUBLIC WORKS
HOWARD COUNTY, MARYLAND

Registered Professional Engineer

TRAFFIC SIGNAL CONSTRUCTION PLAN AND EQUIPMENT LIST

SIGNALIZATION MODIFICATION AT
HARPER'S FARM ROAD AND LITTLE PATUXENT PARKWAY
CAPITAL PROJECT T - 7034
ELECTION DISTRICT NO. 5, HOWARD COUNTY, MARYLAND

DRAWING	SCALE	DES.
NO. 1 OF 1	1" = 30'	