

LEFT TURN EQUIPMENT

F SIGNAL HEADS - STD. CAP VISORS
Remove exist signal heads #4 and replace with 5 head combination No. (See Plan)

Traffic Signal #4

Size of Indication

- 12" Red
- 12" Amber, 12" Amber Arrow
- 12" Green, 12" Green Arrow

G. CONTROLLER MODIFICATIONS

Modify existing CROUSE HINES MODEL 200 S/N 82408 to provide Phase and Sequence Diagram as shown below. As much of the existing equipment shall be reused as possible with the unused equipment being returned to Traffic Division stock. (Contact Traffic Engineer for disposition.)

H. LOOPS AND AMPLIFIERS

All loops and amplifiers shall be compatible with CROUSE and HINES Model 200 S/N 82408

GENERAL NOTES

- All highway marking shall be the responsibility of the Division of Traffic Engineering of the Bureau of Engineering, Department of Public Works of Howard County, Maryland, and is not to be considered a part of this contract.
- 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. Any damage incurred by the contractor shall be repaired immediately at the contractor's expense.
- Timing of the signal system shall be furnished by the Traffic Engineer (Ref. 4.03 K of the General Specifications)
- All materials and workmanship employed under this contract shall conform with the "GENERAL SPECIFICATIONS FOR INSTALLATION OF AND EQUIPMENT FOR TRAFFIC SIGNALS FOR HOWARD COUNTY DEPARTMENT OF PUBLIC WORKS" dated Oct. 7, 1978; revised Feb. 18, 1978.
- All wiring to be underground. The conduit shall be sized to accommodate future wiring for left turn detectors, left turn signals on pedestrian, and pedestrian (walk/dont walk) signal heads. An additional 1" conduit elbow shall be provided in central cabinet foundation. An additional conduit band shall be provided in each pole foundation for future left turn detectors and signal heads.

Signal head #9 shall be mounted to provide 10 feet vertical clearance above finished grade.

STANDARD SYMBOLS

- Signal heads
- Proposed steel poles
- Existing Street Lights
- Controller
- Meter (with vandal proof cover)
- Hand box
- Loop Detector
- Most Arm
- Pedestrian Push Button

GENERAL NOTES cont.

7. All heads, both existing and new, shall be painted in accordance with Specification Section 5.09 a.

EXISTING EQUIPMENT LIST

SEE PAGE 9-12 OF SPECIFICATIONS FOR MAKE/MODEL

A. CONTROLLER AND ACCESSORIES

- Two phase modular controller with solid state circuitry and digital timing.
 - Equipped with one (1) each vehicular actuated and non-actuated module.
 - Equipped with actuated pedestrian clearance for Phase B.
 - Memory recall, red clearance dual maximum and pedestrian clearance for actuated phase.
 - Minimum green, yellow, clearance all red clearance and pedestrian clearance for non-actuated phase.
- Conflict monitor and solid state signal landing switches.
- Standard police panel with manual override feature.
- Base mounted control cabinet; large enough to accommodate the above control equipment and the coordination equipment specified on sheet 2 of 2 - "DETAILS OF COORDINATION OF LITTLE PATUXENT PKWY/WEST RUNNING BROOK RD/VANTAGE POINT RD WITH LITTLE PATUXENT PKWY/STREET PLACE TRAFFIC SIGNALS" and shall be finished bronze paint.

C. SIGNAL HEADS (WITH CLEVIS HANGER)

- Signal head description
 - Signal No. Description
 - 1, 2, 7, 8 12" diam. indications
 - 3, 4, 5, 6 12" diam. red indications
 - 9 8" diam. yellow & green indications

D. POLES

- Two (2) twin arm support poles with a 90° angle of separation.
 - Style and appearance equivalent to UNION METAL DESIGN #50300. Finish shall be bronze paint.
- Pole No. Description
 - 1 & 2 40' x 34' span (40' span supports 2-12" heads.)
 - 3 & 4 64' span supports 2-combination heads)

B. LOOPS AND DETECTORS

- Two (2) delayed timer vehicle loop detectors for loops 1 & 4.
- Two (2) delayed timer vehicle loop detectors for loops 2, 3, 5 & 6. Loops 2 & 3 and 5 & 6 are to be wired separately to a common detector as per manufacturers recommendations for correct operation.
- Loop sizes:

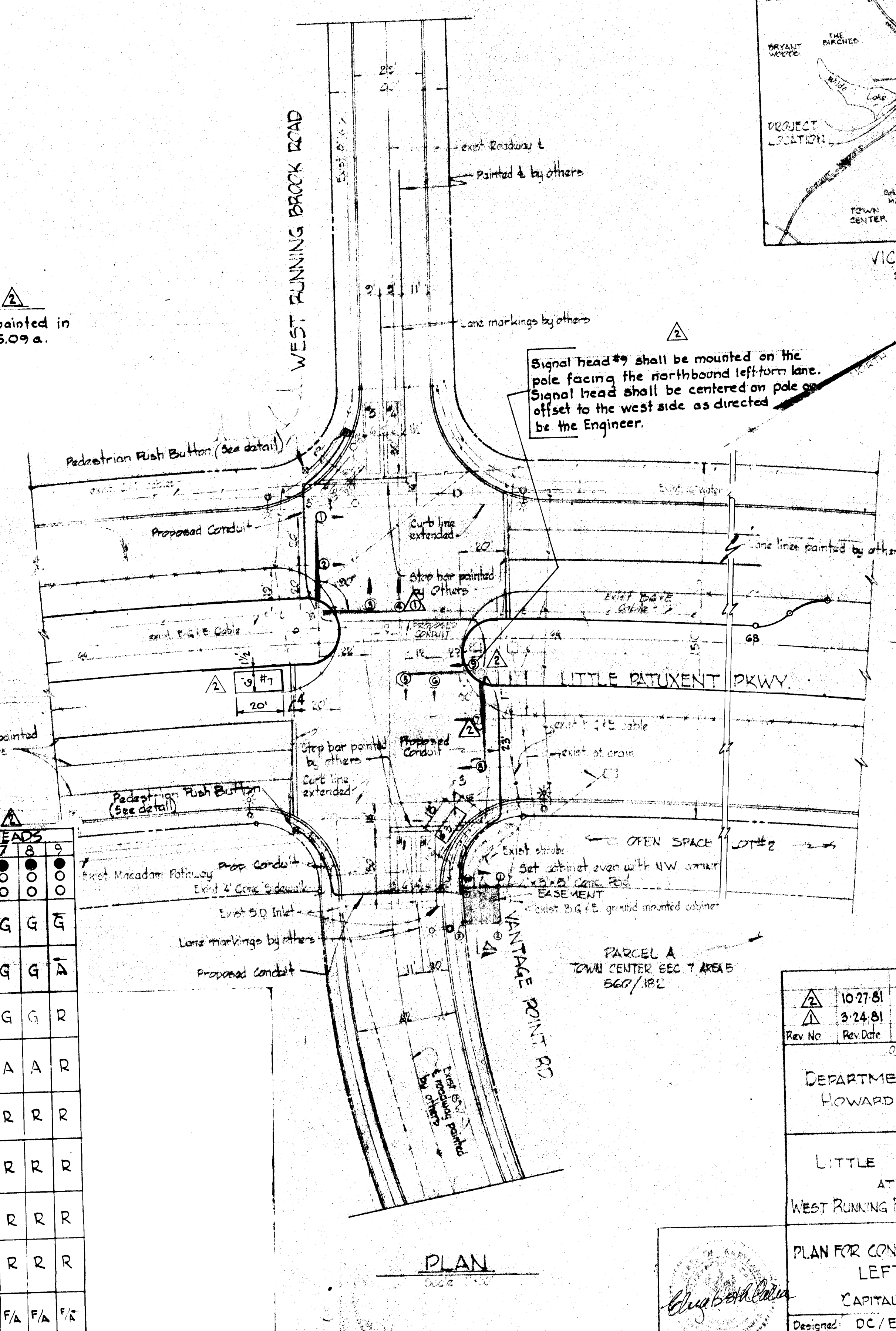
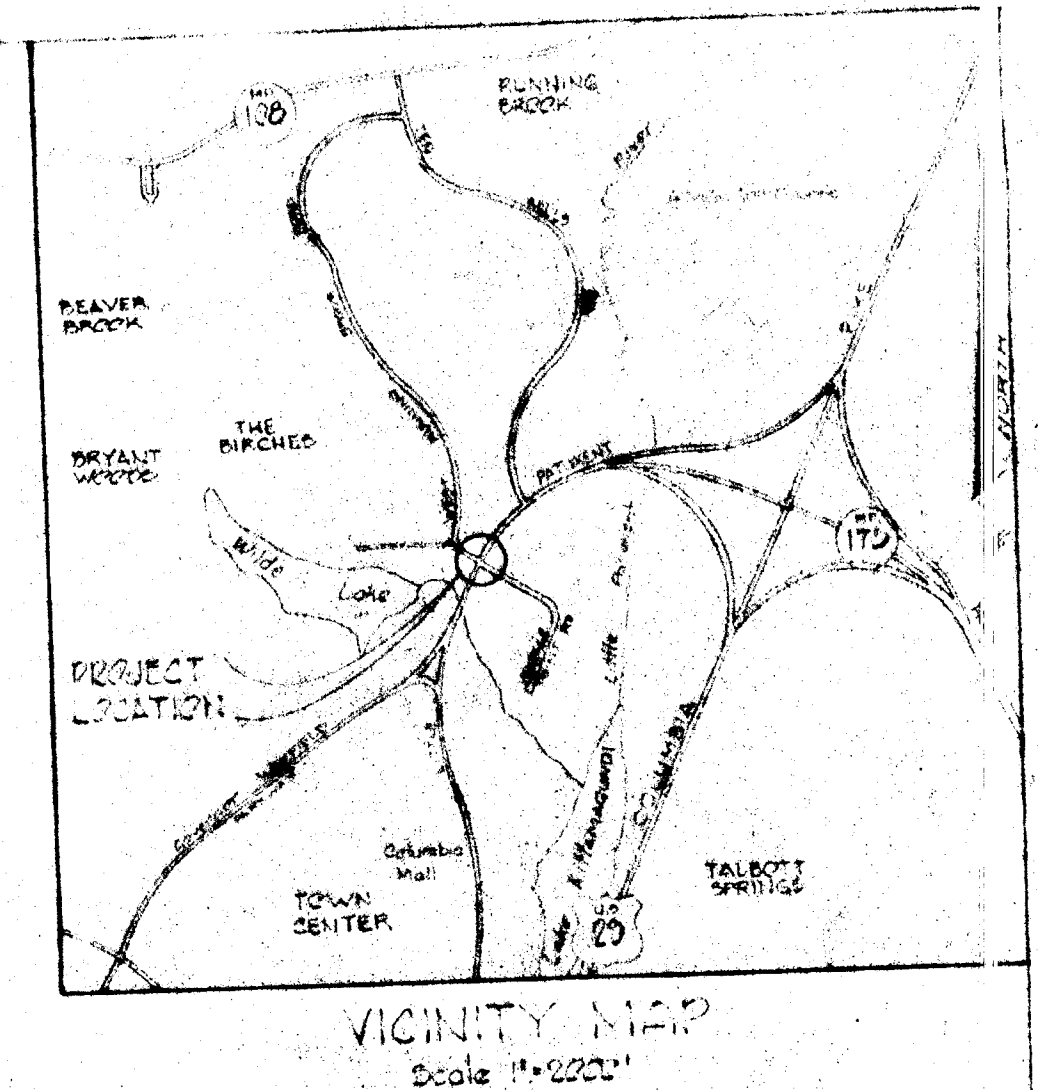
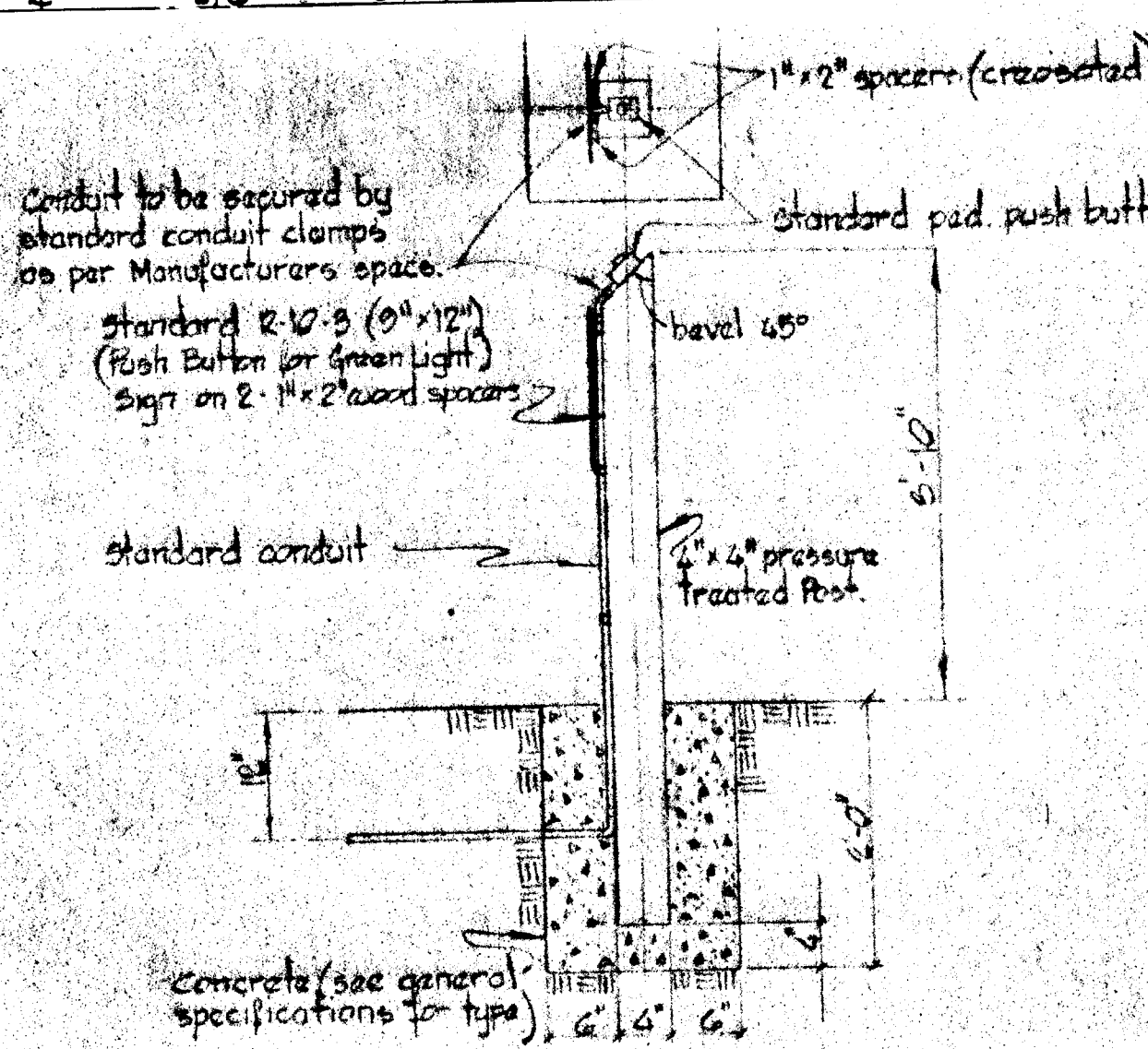
| Phase | Loop No. | Size |
|-------|-------------|----------|
| 1 | 7 | 6' x 20' |
| 3 | 4 & 5 | 6' x 30' |
| 3 | 6 | 6' x 20' |
| 4 | 1, 2, 5 & 6 | 6' x 30' |
| 4 | 3 & 6 | 6' x 20' |

E. PEDESTRIAN PUSH BUTTON

- QUANTITY - 3
- LOCATION - In accordance with plan.
- DESIGN - See detail below
- SIGN - R-10-3 - 8" x 12" (quantity 3)

PHASE & SEQUENCE DIAGRAM

| SYMBOL | TRAFFIC SIGNAL HEADS | | | | | | | | |
|---------------|----------------------|-----|-----|-----|-----|-----|-----|-----|-----|
| | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 |
| ○ = 8" | ● | ● | ● | ● | ● | ● | ● | ● | ● |
| ● = 12" | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ |
| PHASE 1 | R | R | R | R | R | R | G | G | G |
| PHASE 1 CLEAR | R | R | R | R | R | R | G | G | A |
| PHASE 2 | G | G | R | R | R | R | G | G | R |
| PHASE 2 CLEAR | A | A | R | R | R | R | A | A | R |
| PHASE 3 | R | R | G | G | R | R | R | R | R |
| PHASE 3 CLEAR | R | R | G | A | G | R | R | R | R |
| PHASE 4 | R | R | G | G | G | G | R | R | R |
| PHASE 4 CLEAR | R | R | A | A | A | A | R | R | R |
| FLASH | F/A | F/A | F/R | F/R | F/R | F/R | F/A | F/A | F/R |



COORDINATE SCHEDULE

| PT# | N | E | E |
|------|------------|------------|---|
| PT#1 | 506,524.28 | 840,562.14 | |
| PT#2 | 506,537.47 | 840,569.19 | |
| PT#3 | 506,592.69 | 840,583.14 | |
| PT#4 | 506,517.40 | 840,576.78 | |

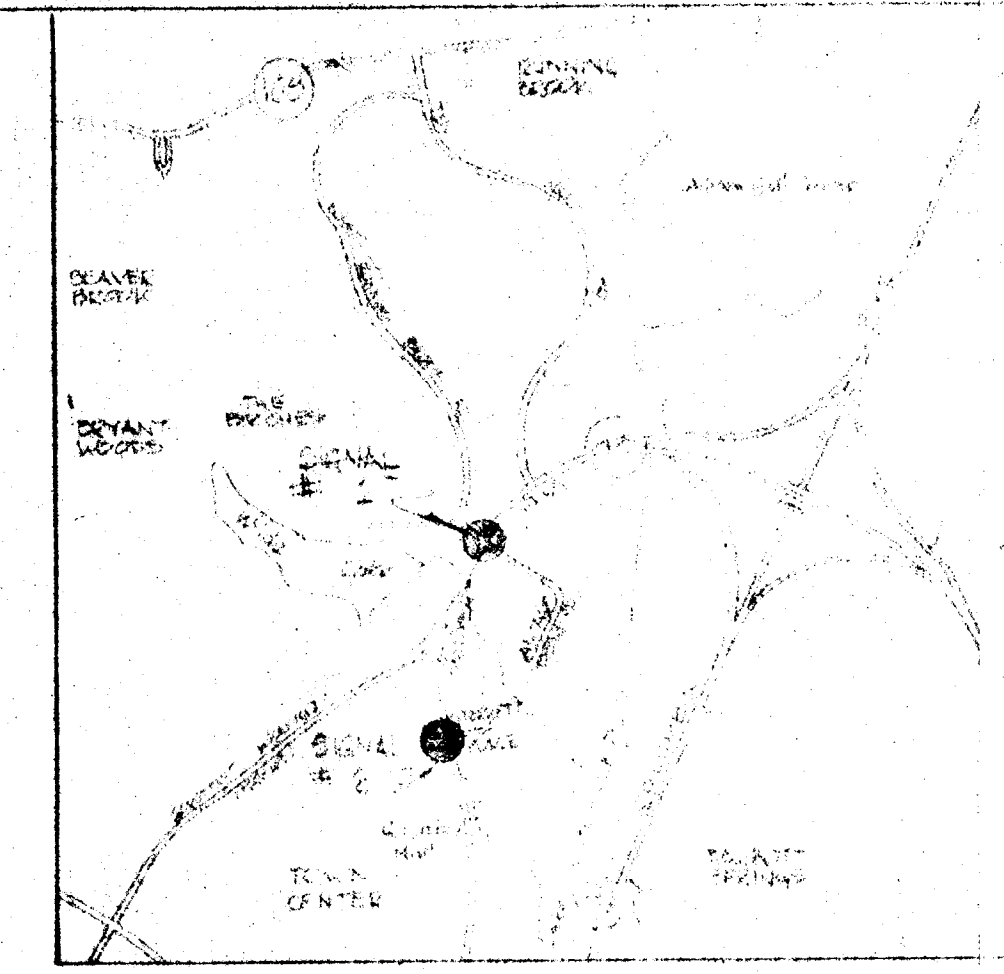
EASEMENT DESCRIPTIONS

| | |
|-----------------|-------------------------------|
| From #362 to #1 | N 28° 27' 46" E - 15.00' |
| From #1 to #2 | ARC = 15.00' RADIUS = 355.00' |
| From #2 to #3 | ARC = 2° 25' 27" TAN = 7.50' |
| From #3 to #4 | ARC = 15.00' RADIUS = 370.00' |
| From #4 to #5 | ARC = 2° 10' 23" TAN = 7.50' |
| From #5 to #6 | ARC = 15.00' RADIUS = 362.00' |

| | | |
|---|------------------|----------------------|
| 10-27-81 | EQUIPMENT CHANGE | |
| 3-24-81 | LEFT TURN PHASES | |
| Rev No | Rev Date | Revision Description |
| Owner and Developer | | |
| DEPARTMENT OF PUBLIC WORKS HOWARD COUNTY, MARYLAND | | |
| Project Area | | |
| LITTLE PATUXENT PARKWAY AT INTERSECTION OF WEST RUNNING BROOK ROAD AND VANTAGE POINT ROAD | | |
| Project Title | | |
| PLAN FOR CONSTRUCTION OF TRAFFIC SIGNAL LEFT TURN PHASE | | |
| CAPITAL PROJECT NO. T-7012-BB | | |
| Designed | DC/EAC | Scale: As Shown |
| Drawn | FAC | Date: 3-24-81 |
| Checked | EAC/JK | Sheet: 1 of 1 |

7/16
 Chief, Traffic Division
 Chief, Bureau of Engineering
 Director of Public Works
 CONTRACT NO.

DETAILS OF CO-ORDINATION



KEY MAP
Scale 1:1000

A. FUNCTIONAL DESCRIPTION

1. The objective is to provide coordination of gaps in traffic flow on Little Patuxent Parkway arriving at Governor Warfield Parkway. This will be accomplished by co-ordinating traffic signals #1 & #2 as shown on the Key Map of right.
2. The coordination shall consist of two (2) cycles and two splits with single offset.
3. There shall be three (3) modes of operation; peak co-ordinated, off peak co-ordinated, and non-co-ordinated.
4. The Bidder shall furnish all equipment, labor and appertenances necessary to accomplish the coordination herein described.

B. MODIFICATION OF TRAFFIC SIGNAL #2

1. Phase C shall be eliminated and the traffic signal head covered with burlap. The detector loops shall not be repaired as a part of this contract.
2. Each Bidder shall arrange with the traffic Engineer to inspect the control cabinet prior to submitting his proposal.

C. EQUIPMENT AND WIRING

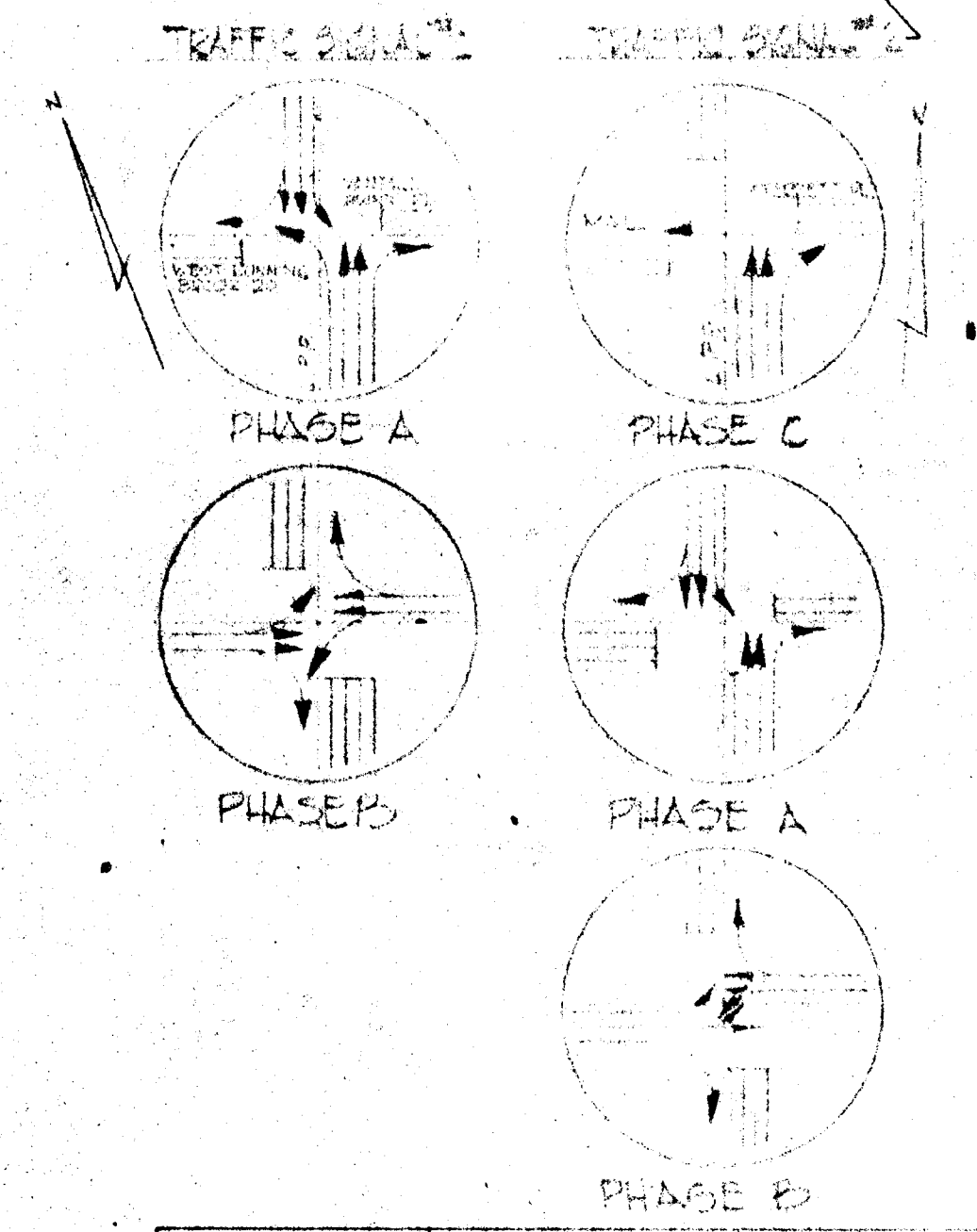
1. The coordination shall be accomplished by utilizing time clocks and standard dial units. Time clocks shall be equipped with reserve spring and dial units shall be equipped with changeable cycle gear.
2. The Bidder shall specify the quantity and manufacturer of all equipment.
3. The interconnect shall be leased telephone cable. All telephone company requirements shall be satisfied. The encoder and decoder shall be capable of six (6) functions.
4. The Bidder shall submit with the proposal a detailed design of the coordination system. Included shall be; location of equipment, schematic wiring diagram, and flow chart.
5. The master controller shall be located at traffic signal #1.

EXISTING EQUIPMENT

TRAFFIC SIGNAL #1
As furnished under Capital Project T-1-7012 as shown on sheet 1 of 2

TRAFFIC SIGNAL #2
As furnished under Capital Project T-1-7012 as shown on sheet 1 of 2

EXISTING PHASES



PROPOSED TIMING SETTINGS

| MODE | TRAFFIC SIGNAL #1 | TRAFFIC SIGNAL #2 | OFFSET | TIME OF OPERATION |
|----------------------|---|---|--------|--|
| NON-COORDINATED | CYCLE - 60 sec. SPLIT 40 sec. main 20 sec. side | CYCLE - 60 sec. SPLIT 20 sec. (50%) 30 sec. (50%) | NONE | 2200 to 0600 hrs. |
| PEAK COORDINATED | CYCLE 80 sec. SPLIT 44 sec. main 36 sec. side | CYCLE - 80 sec. SPLIT 44 sec. (55%) 36 sec. (45%) | 4 sec. | 1500 to 2000 hrs. |
| OFF PEAK COORDINATED | CYCLE 70 sec. SPLIT 40 sec. main 30 sec. side | CYCLE - 70 sec. SPLIT 40 sec. 57% 30 sec. 43% | 4 sec. | 0600 to 1500 hrs. 2000 to 2200 hrs. |

SUPPLEMENTARY
INFORMATION
CAPITAL PROJ. T-1-7012

| | | |
|---|------------|-------------|
| No. | Date | Description |
| | | |
| DEPARTMENT OF PUBLIC WORKS HOWARD COUNTY, MARYLAND | | |
| Project Area LITTLE PATUXENT PARKWAY AT INTERSECTION OF WEST RUNNING BROOK ROAD AND AVENUE POINT ROAD | | |
| Project Title DETAILS OF CO-ORDINATION OF LITTLE PATUXENT PARKWAY AND AVENUE POINT ROAD AT INTERSECTION OF WEST RUNNING BROOK ROAD CAPITAL PROJECT T-1-7012 | | |
| Designed by | K. P. ... | Scale |
| Checked by | M. Wilhelm | Date |
| Approved by | J. K. ... | Sheet |