

# MINNESOTA DEPARTMENT OF TRANSPORTATION

## ANOKA COUNTY

### CONSTRUCTION PLAN FOR TRAFFIC CONTROL SIGNAL SYSTEM

LOCATED ON **HANSON BOULEVARD (CSAH 78)** AT **111th AVENUE NORTHWEST IN COON RAPIDS**

|  |  |
|--|--|
| STATE AID PROJ. NO. 02-678-10            | STATE AID PROJ. NO.                      |
| GROSS LENGTH _____ FEET _____ MILES      | GROSS LENGTH _____ FEET _____ MILES      |
| BRIDGES LENGTH _____ FEET _____ MILES    | BRIDGES LENGTH _____ FEET _____ MILES    |
| EXCEPTIONS LENGTH _____ FEET _____ MILES | EXCEPTIONS LENGTH _____ FEET _____ MILES |
| NET LENGTH _____ FEET _____ MILES        | NET LENGTH _____ FEET _____ MILES        |

#### GOVERNING SPECIFICATIONS

THE 1988 EDITION OF THE MINNESOTA DEPARTMENT OF TRANSPORTATION STANDARD SPECIFICATIONS FOR CONSTRUCTION (AS AMENDED BY THE MAY 2, 1994 SUPPLEMENTAL SPECIFICATIONS) SHALL GOVERN.

#### INDEX

|     |  |
|-----|--|
| 1   | TITLE SHEET                                  |
| 2-4 | INTERSECTION LAYOUT AND FIELD WIRING DIAGRAM |
| 5-7 | DETAILS                                      |
| 8   | UTILITIES                                    |

THIS PLAN CONTAINS 8 SHEETS

#### DESIGN DESIGNATION

|                                    | HANSON BLVD   | 111th AVE NW   |
|------------------------------------|---------------|----------------|
| PRESENT ADT (1994)                 | 15,000        | 2,500          |
| PROJECTED ADT (2014)               | 22,500        | 3,800          |
| NUMBER OF TRAVEL LANES             | 2             | 2              |
| NUMBER OF PARKING/BIKE LANES       | 2             | 2              |
| DESIGN SPEED-MPH                   | 40            | 40             |
| POSTED SPEED-MPH                   | 40            | 40             |
| ROADWAY CLASSIFICATION AND DENSITY | ARTERIAL HIGH | COLLECTOR HIGH |

Design Speed 40 MPH  
 Based on STOPPING Sight Distance  
 Height of eye 3.5' Height of object 0.5'  
 Design Speed not achieved at:  
 STA. \_\_\_\_\_ TO STA. \_\_\_\_\_ MPH \_\_\_\_\_  
 STA. \_\_\_\_\_ TO STA. \_\_\_\_\_ MPH \_\_\_\_\_  
 STA. \_\_\_\_\_ TO STA. \_\_\_\_\_ MPH \_\_\_\_\_

I HEREBY CERTIFY THAT THIS PLAN WAS PREPARED BY ME OR UNDER MY DIRECT SUPERVISION AND THAT I AM A DULY REGISTERED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MINNESOTA

DATE 8/12/94 REG. NO. 22457 ENGR. John M. Gray

DESIGN SQUAD \_\_\_\_\_

Recommended for Approval William R. Ottensmeyer 9/21 1994  
City of Coon Rapids Engineer

Recommended for Approval James Olson 9/22 1994  
Anoka County Engineer

Recommended for Approval \_\_\_\_\_ 19\_\_\_\_\_  
Metro-Assistant Division Engineer State Aid

Recommended for Approval \_\_\_\_\_ 19\_\_\_\_\_  
State Aid Plans/Specs Engineer

Approved \_\_\_\_\_ 19\_\_\_\_\_  
State Aid Engineer

#### PLANS SYMBOLS

|                                    |       |
|------------------------------------|-------|
| STATE LINE                         | ----- |
| COUNTY LINE                        | ----- |
| TOWNSHIP OR RANGE LINE             | ----- |
| SECTION LINE                       | ----- |
| QUARTER LINE                       | ----- |
| SIXTEENTH LINE                     | ----- |
| RIGHT OF WAY LINE                  | ----- |
| PRESENT RIGHT OF WAY LINE          | ----- |
| CONTROL OF ACCESS LINE             | ----- |
| PROPERTY LINE (EXCEPT LINES)       | ----- |
| VACATED PLATTED PROPERTY           | ----- |
| CORPORATE OR CITY LIMITS           | ----- |
| TRUNK HIGHWAY CENTER LINE          | ----- |
| RETAINING WALL                     | ----- |
| RAILROAD                           | ----- |
| RAILROAD RIGHT OF WAY LINE         | ----- |
| E-LEER OR CREEK                    | ----- |
| DRY RUN                            | ----- |
| DRAINAGE DITCH                     | ----- |
| DRAIN TILE                         | ----- |
| CONCRETE                           | ----- |
| WOOD                               | ----- |
| SHED                               | ----- |
| BARBED WIRE FENCE                  | ----- |
| ADZEN WIRE FENCE                   | ----- |
| CHAIN LINK FENCE                   | ----- |
| RAILROAD SHOW FENCE                | ----- |
| 3" X 3" WOOD OR FENCE              | ----- |
| LEDGE                              | ----- |
| RAILROAD CROSSING SIGN             | ----- |
| RAILROAD CROSSING BELL             | ----- |
| ELECTRIC WARNING SIGN              | ----- |
| CROSSING GATE                      | ----- |
| HYDRAULIC TONES                    | ----- |
| SPRINGS                            | ----- |
| WADSWORTH                          | ----- |
| TIMBER                             | ----- |
| ORCHARD                            | ----- |
| BRUSH                              | ----- |
| MURDER                             | ----- |
| CATCH BASIN                        | ----- |
| PIPE SHED                          | ----- |
| CATTLE GUARD                       | ----- |
| OVERPASS (HIGHWAY OVER)            | ----- |
| UNDERPASS (HIGHWAY UNDER)          | ----- |
| BRIDGE                             | ----- |
| BUILDING (ONE STORY FRAME)         | ----- |
| F. FRAME C. CONCRETE               | ----- |
| S. STONE T. TILE                   | ----- |
| B. BRICK ST. STUCCO                | ----- |
| IRON PIPE OR ROD                   | ----- |
| MONUMENT (STONE CONCRETE OR METAL) | ----- |
| WOODEN HUB                         | ----- |
| GRAVEL PIT                         | ----- |
| SAND PIT                           | ----- |
| BODDING PIT                        | ----- |
| ROCK QUARRY                        | ----- |
| ROCK QUARRY                        | ----- |
| ROCK QUARRY                        | ----- |
| ROCK QUARRY                        | ----- |
| ROCK QUARRY                        | ----- |

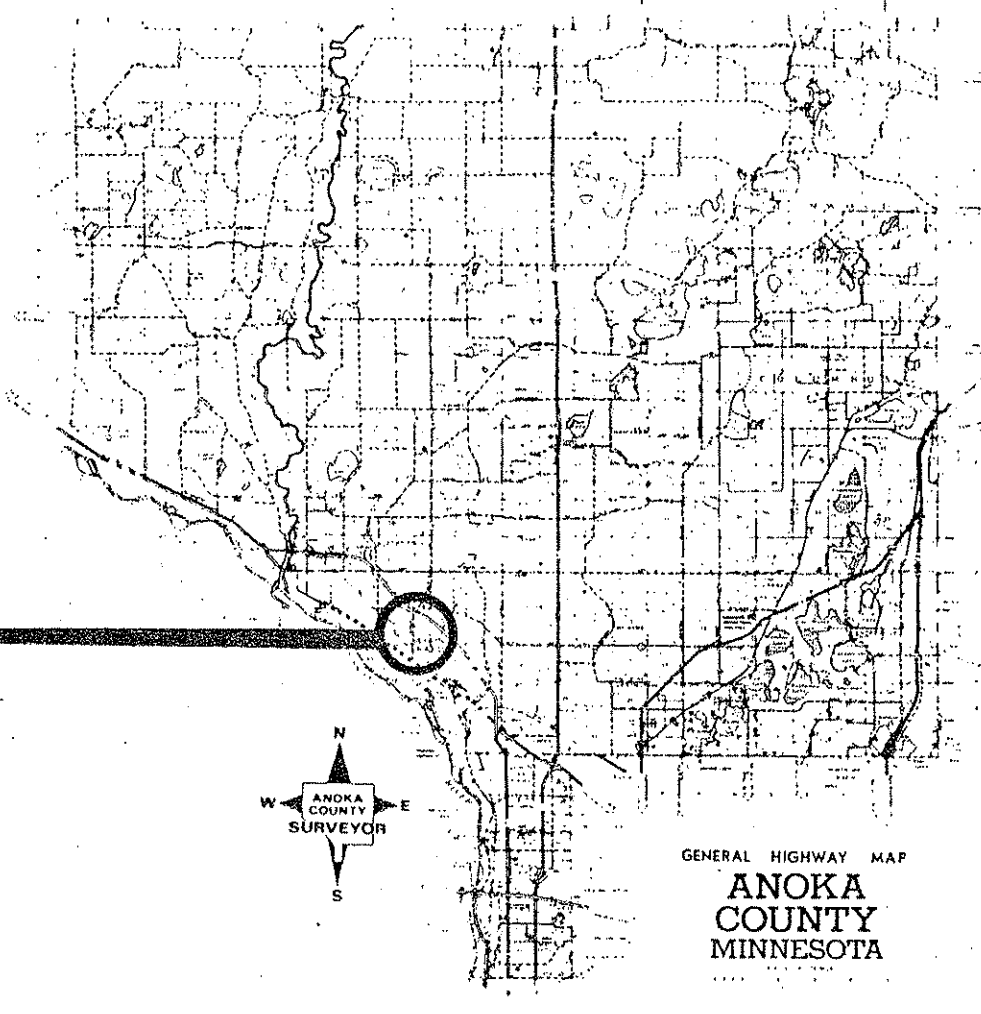
#### UTILITIES SYMBOLS

|  |       |
|--|-------|
| POWER POLE LINE                          | ----- |
| TELEPHONE OR TELEGRAPH POLE LINE         | ----- |
| JOINT TELEPHONE AND POWER ON COMMON POLE | ----- |
| ON TELEPHONE POLES                       | ----- |
| ANCHOR                                   | ----- |
| STEEL TOWER                              | ----- |
| STREET LIGHT                             | ----- |
| RUSSIAN TELEPHONE CABLE TERMINAL         | ----- |
| CAN MAN                                  | ----- |
| WATER MAIN                               | ----- |
| CONDUIT                                  | ----- |
| TELEPHONE CABLE IN CONDUIT               | ----- |
| ELECTRIC CABLE IN CONDUIT                | ----- |
| TELEPHONE MANHOLE                        | ----- |
| ELECTRIC MANHOLE                         | ----- |
| BURIED TELEPHONE CABLE                   | ----- |
| BURIED ELECTRIC CABLE                    | ----- |
| ARMED TELEPHONE CABLE                    | ----- |
| SEWER, ISOLATED OR STONY                 | ----- |
| SEWER MANHOLE                            | ----- |

#### SCALES

|                |         |
|----------------|---------|
| PLAN           | N.A.    |
| PROFILE        | N.A.    |
| INDEX MAP      | 2.66 MI |
| GENERAL LAYOUT | 20 FEET |

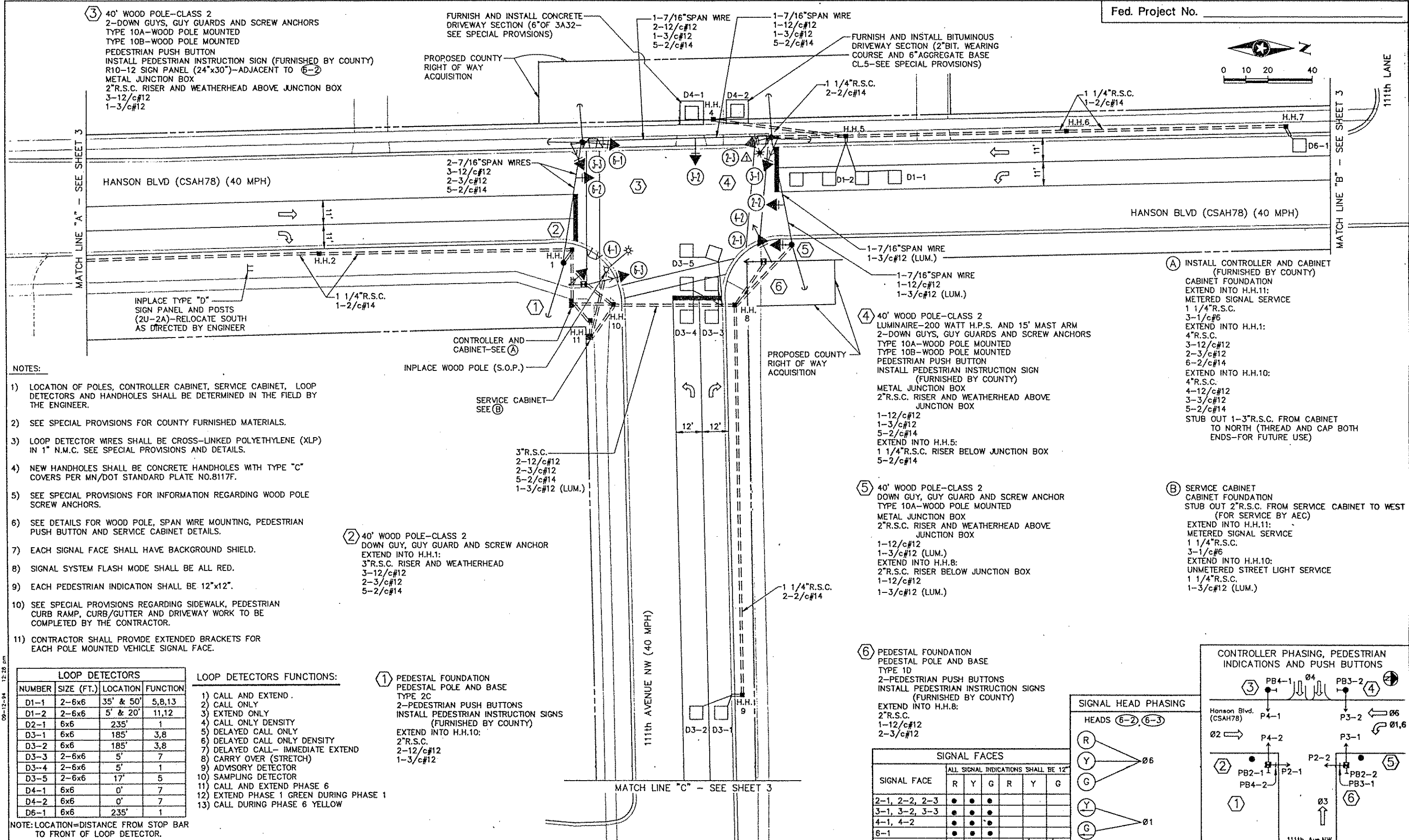
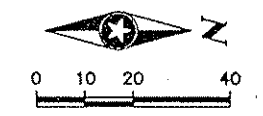
PROJECT LOCATION  
**HANSON BOULEVARD (CSAH 78)**  
 AT  
**111th AVENUE NORTHWEST**



NOTE: ALL TRAFFIC CONTROL DEVICES AND SIGNING SHALL CONFORM TO THE MMUTCD, INCLUDING APPENDIX B (DATED NOV. 1992).

| ESTIMATED QUANTITIES |          |                                 |          |                            |                  |
|----------------------|----------|---------------------------------|----------|----------------------------|------------------|
| C.P.                 | ITEM NO. | ITEM                            | UNIT     | TOTAL ESTIMATED QUANTITIES | FINAL QUANTITIES |
| B4-42-78             | 0565.601 | TEMPORARY TRAFFIC SIGNAL SYSTEM | LUMP SUM | 1                          |                  |
|                      |          |                                 |          |                            |                  |
|                      |          |                                 |          |                            |                  |

| PLAN REVISIONS |           |             |
|----------------|-----------|-------------|
| DATE           | SHEET NO. | APPROVED BY |
|                |           |             |
|                |           |             |
|                |           |             |
|                |           |             |



- NOTES:**
- 1) LOCATION OF POLES, CONTROLLER CABINET, SERVICE CABINET, LOOP DETECTORS AND HANDHOLES SHALL BE DETERMINED IN THE FIELD BY THE ENGINEER.
  - 2) SEE SPECIAL PROVISIONS FOR COUNTY FURNISHED MATERIALS.
  - 3) LOOP DETECTOR WIRES SHALL BE CROSS-LINKED POLYETHYLENE (XLP) IN 1" N.M.C. SEE SPECIAL PROVISIONS AND DETAILS.
  - 4) NEW HANDHOLES SHALL BE CONCRETE HANDHOLES WITH TYPE "C" COVERS PER MN/DOT STANDARD PLATE NO.8117F.
  - 5) SEE SPECIAL PROVISIONS FOR INFORMATION REGARDING WOOD POLE SCREW ANCHORS.
  - 6) SEE DETAILS FOR WOOD POLE, SPAN WIRE MOUNTING, PEDESTRIAN PUSH BUTTON AND SERVICE CABINET DETAILS.
  - 7) EACH SIGNAL FACE SHALL HAVE BACKGROUND SHIELD.
  - 8) SIGNAL SYSTEM FLASH MODE SHALL BE ALL RED.
  - 9) EACH PEDESTRIAN INDICATION SHALL BE 12"x12".
  - 10) SEE SPECIAL PROVISIONS REGARDING SIDEWALK, PEDESTRIAN CURB RAMP, CURB/GUTTER AND DRIVEWAY WORK TO BE COMPLETED BY THE CONTRACTOR.
  - 11) CONTRACTOR SHALL PROVIDE EXTENDED BRACKETS FOR EACH POLE MOUNTED VEHICLE SIGNAL FACE.

| LOOP DETECTORS |            |           |          |
|----------------|------------|-----------|----------|
| NUMBER         | SIZE (FT.) | LOCATION  | FUNCTION |
| D1-1           | 2-6x6      | 35' & 50' | 5,8,13   |
| D1-2           | 2-6x6      | 5' & 20'  | 11,12    |
| D2-1           | 6x6        | 235'      | 1        |
| D3-1           | 6x6        | 185'      | 3,8      |
| D3-2           | 6x6        | 185'      | 3,8      |
| D3-3           | 2-6x6      | 5'        | 7        |
| D3-4           | 2-6x6      | 5'        | 1        |
| D3-5           | 2-6x6      | 17'       | 5        |
| D4-1           | 6x6        | 0'        | 7        |
| D4-2           | 6x6        | 0'        | 7        |
| D6-1           | 6x6        | 235'      | 1        |

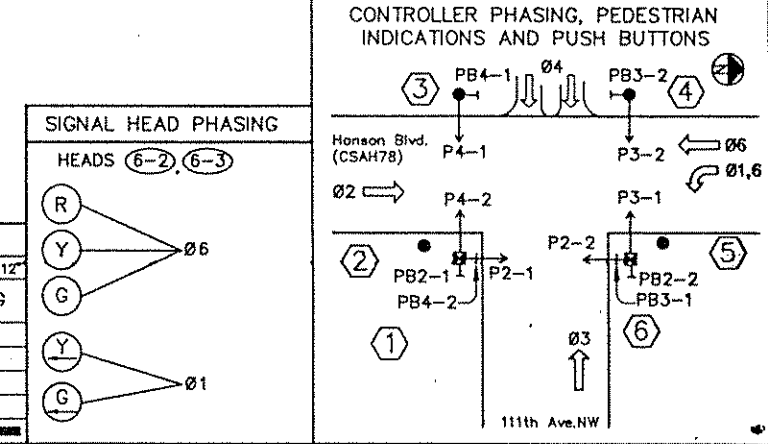
- LOOP DETECTORS FUNCTIONS:**
- 1) CALL AND EXTEND.
  - 2) CALL ONLY
  - 3) EXTEND ONLY
  - 4) CALL ONLY DENSITY
  - 5) DELAYED CALL ONLY
  - 6) DELAYED CALL ONLY DENSITY
  - 7) DELAYED CALL- IMMEDIATE EXTEND
  - 8) CARRY OVER (STRETCH)
  - 9) ADVISORY DETECTOR
  - 10) SAMPLING DETECTOR
  - 11) CALL AND EXTEND PHASE 6
  - 12) EXTEND PHASE 1 GREEN DURING PHASE 1
  - 13) CALL DURING PHASE 6 YELLOW

- 1) PEDESTAL FOUNDATION**  
PEDESTAL POLE AND BASE  
TYPE 2C  
2-PEDESTRIAN PUSH BUTTONS  
INSTALL PEDESTRIAN INSTRUCTION SIGNS  
(FURNISHED BY COUNTY)  
EXTEND INTO H.H.10:  
2"R.S.C.  
2-12/c#12  
1-3/c#12

NOTE: LOCATION=DISTANCE FROM STOP BAR TO FRONT OF LOOP DETECTOR.

**SIGNAL FACES**

| SIGNAL FACE   | ALL SIGNAL INDICATIONS SHALL BE 12" |   |   |   |   |   |
|---------------|-------------------------------------|---|---|---|---|---|
|               | R                                   | Y | G | R | Y | G |
| 2-1, 2-2, 2-3 | •                                   | • | • |   |   |   |
| 3-1, 3-2, 3-3 | •                                   | • | • |   |   |   |
| 4-1, 4-2      | •                                   | • | • |   |   |   |
| 6-1           | •                                   | • | • |   |   |   |
| 6-2, 6-3      | •                                   | • | • |   |   |   |



| NO. | BY | DATE | REVISIONS |
|-----|----|------|-----------|
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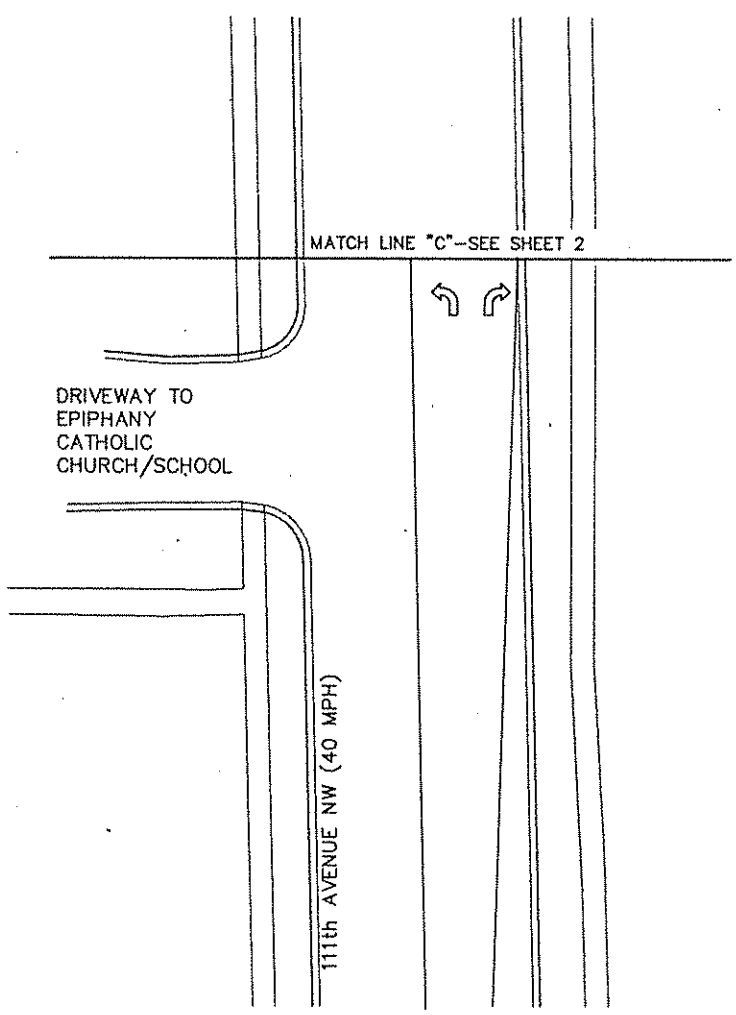
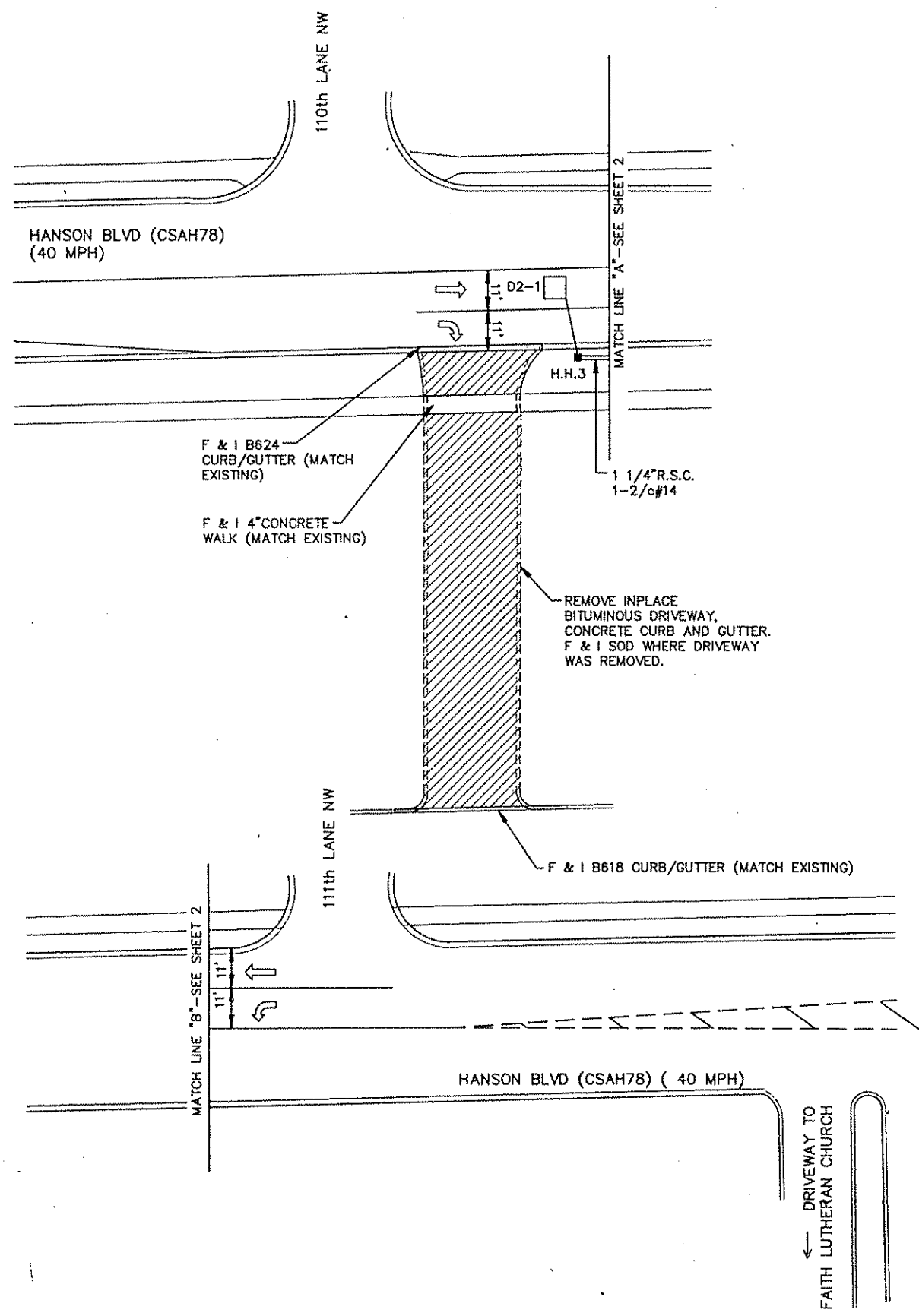
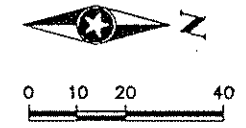
**"ELECTRICAL ENGINEER CERTIFICATION"**  
I hereby certify that this plan was prepared by me or under my direct supervision and that I am a duly Registered Professional Engineer under the laws of the state of Minnesota.  
*Robert A. Ellen*  
Date: 8/12/94 Reg. No. 5859

I hereby certify that this plan was prepared by me or under my direct supervision and that I am a duly Registered Professional Engineer under the laws of the state of Minnesota.  
*John M. Jones*  
Date: 8/12/94 Reg. No. 22457



ANOKA COUNTY, MINNESOTA  
CITY OF COON RAPIDS

TRAFFIC SIGNAL SYSTEM  
INTERSECTION LAYOUT  
HANSON BLVD. (CSAH78) AT 111th AVENUE NW



D:\GRADES\ANOKA2A 09-08-94 6:29 am

| NO. | BY | DATE | REVISIONS |
|-----|----|------|-----------|
|     |    |      |           |
|     |    |      |           |
|     |    |      |           |

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 Date: 8/12/94 Reg. No. 22457

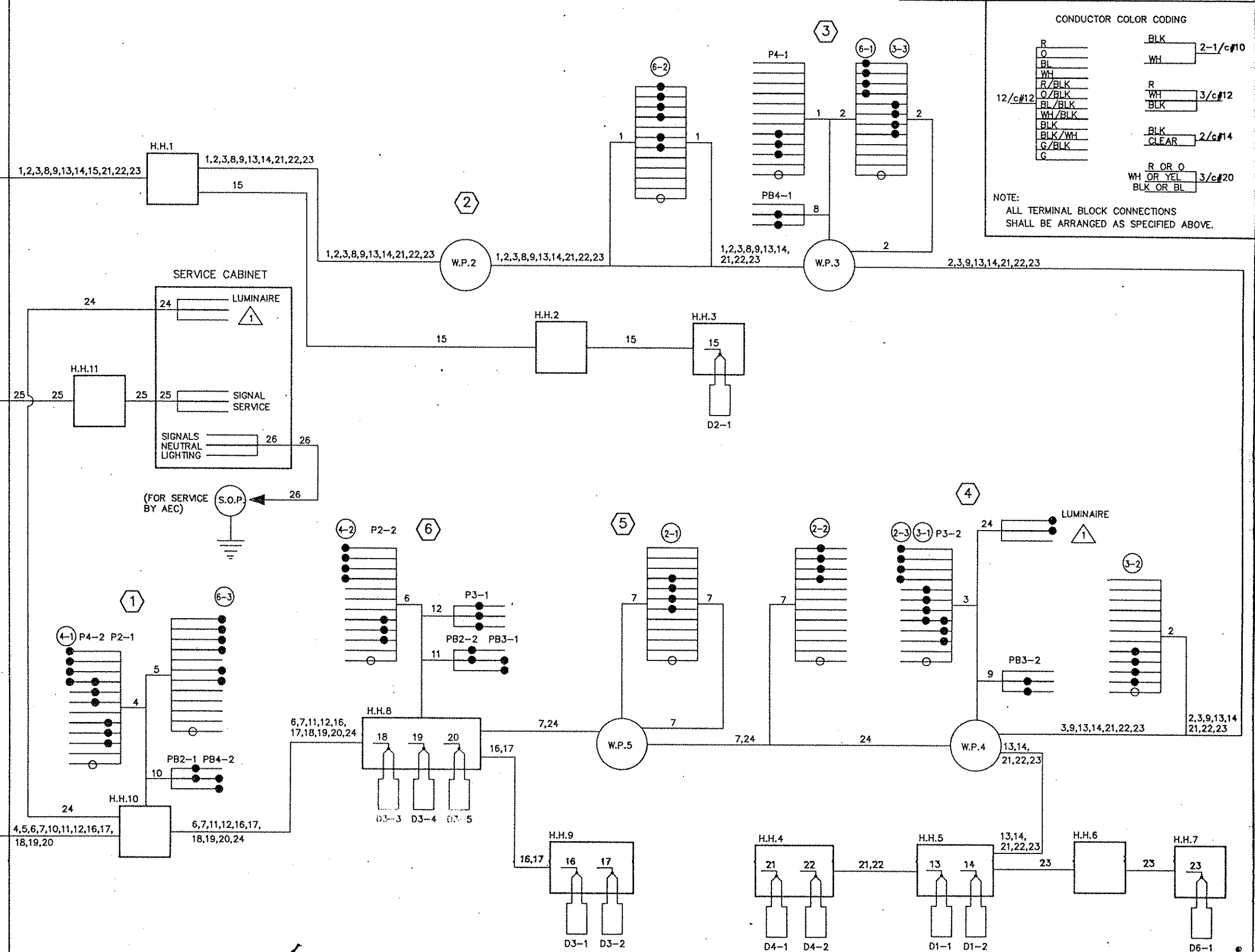
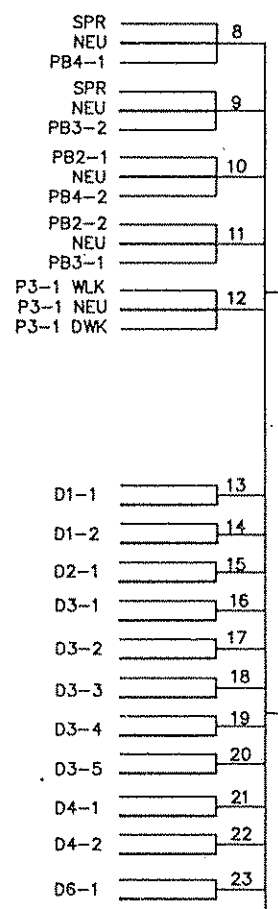
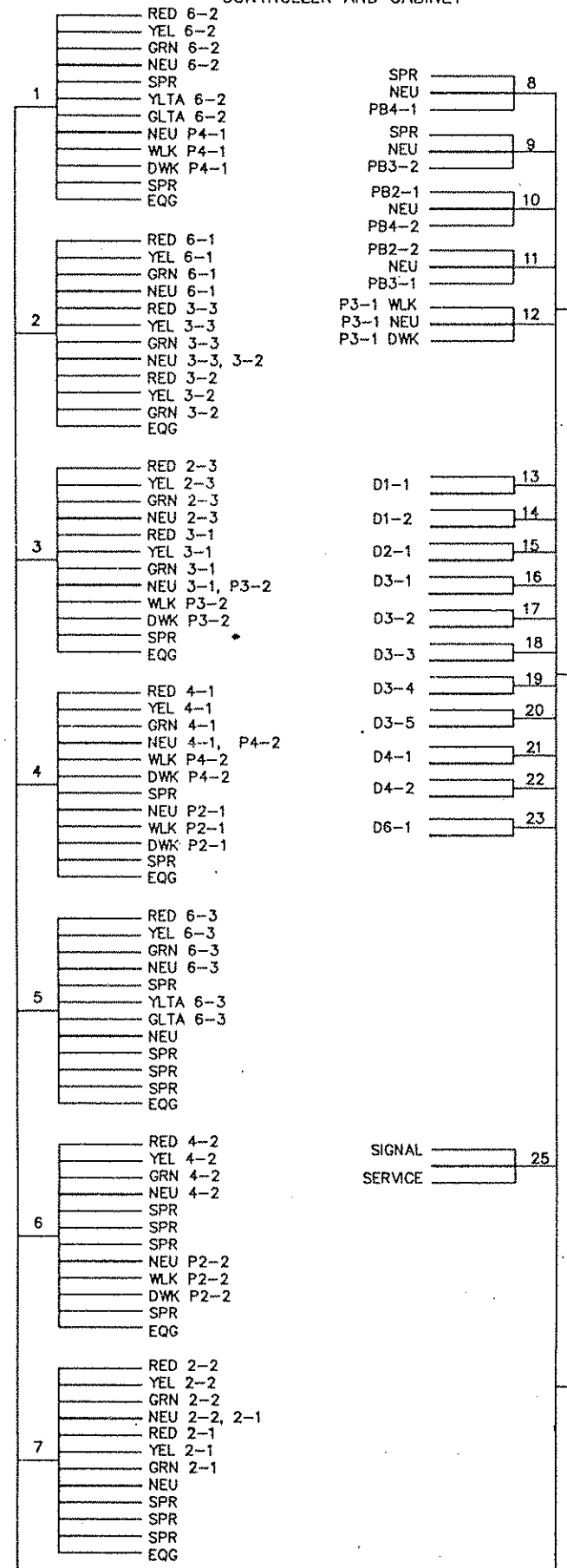


ANOKA COUNTY, MINNESOTA  
 CITY OF COON RAPIDS

TRAFFIC SIGNAL SYSTEM  
 INTERSECTION LAYOUT  
 HANSON BLVD. (CSAH78) AT 111th AVENUE NW

FILE NO.  
 ANOKC9501  
 DATE  
 8/12/94

CONTROLLER AND CABINET



CONDUCTOR COLOR CODING

|        |           |          |
|--------|-----------|----------|
| R      | BLK       | 2-1/c#10 |
| O      | WH        |          |
| BL     |           |          |
| WH     |           |          |
| R/BLK  | R         |          |
| O/BLK  | WH        | 3/c#12   |
| BL/BLK | BLK       |          |
| WH/BLK |           |          |
| BLK    | BLK       | 2/c#14   |
| BLK/WH | CLEAR     |          |
| G/BLK  |           |          |
| G      |           |          |
|        | R OR O    |          |
|        | WH OR YEL | 3/c#20   |
|        | BLK OR BL |          |

NOTE: ALL TERMINAL BLOCK CONNECTIONS SHALL BE ARRANGED AS SPECIFIED ABOVE.

09-12-94 11:59 am

| NO. | BY | DATE | REVISIONS |
|-----|----|------|-----------|
|     |    |      |           |

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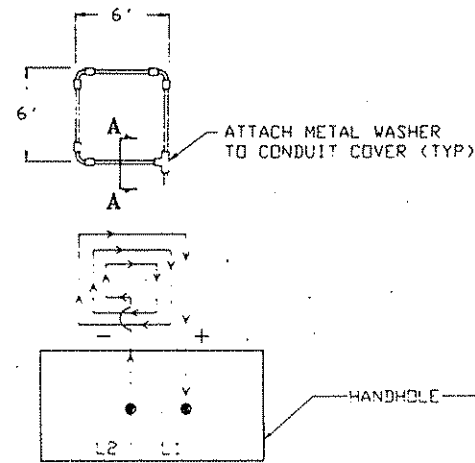


ANOKA COUNTY, MINNESOTA  
 CITY OF COON RAPIDS

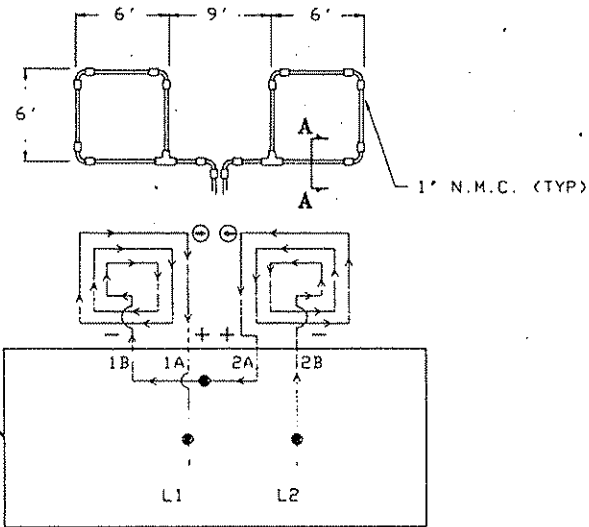
TRAFFIC SIGNAL SYSTEM  
 FIELD WIRING DIAGRAM  
 HANSON BLVD. (CSAH78) AT 111th AVENUE NW

FILE NO. ANOKC9501  
 DATE 8/12/94

**LOOP DETECTOR DETAIL 'A'**  
 PLAN VIEW (NOT TO SCALE)  
 (LOOP PHASING FOR SINGLE CONNECTION)

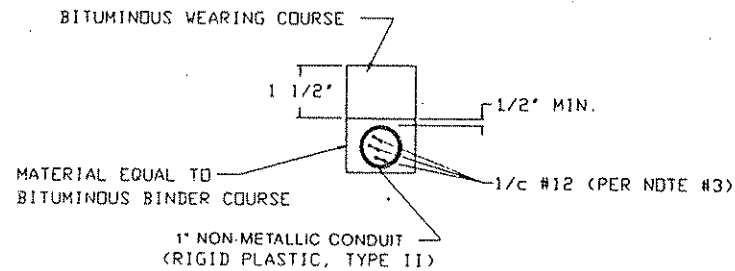


**LOOP DETECTOR DETAIL 'B'**  
 PLAN VIEW (NOT TO SCALE)  
 (LOOP PHASING FOR SERIES CONNECTION)

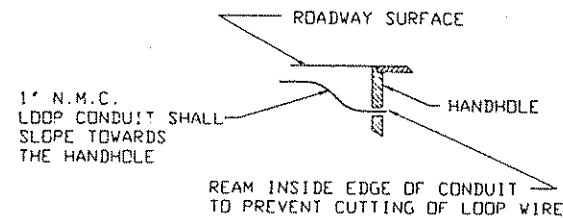


LOOP CONNECTIONS SHALL BE LABELED AND SPLICED IN THE HANDHOLE AS FOLLOWS:  
 L1 TO 1A, 1B TO 2A, AND 2B TO L2.

**CROSS SECTION A-A**



**DRAINAGE DETAIL**



**LOOP DETECTOR WIRING**

**NOTES:**

- 1) ALL CORNERS SHALL BE 90° CONDUIT BENDS
- 2) CONNECT WIRES IN HANDHOLES USING SPLICE KIT METHOD DESCRIBED IN THE SPECIAL PROVISIONS.
- 3) LOOP DETECTOR WIRES SHALL BE # 12 AVG CROSSED LINKED POLYETHYLENE (XLP). SEE SPECIAL PROVISIONS.
- 4) LOOP LEAD IN WIRES SHALL BE TWISTED A MIN. OF (5) TURNS PER FOOT THROUGH THE CONDUIT TO THE HANDHOLE.
- 5) N.M.C. DESIGNATES NON-METALLIC CONDUIT (SPEC. 3803)
- 6) LOOPS 6'x6' THRU 6'x10' SHALL HAVE (4) TURNS.
- 7) LOOPS 6'x10' THRU 6'x14' SHALL HAVE (3) TURNS.
- 8) LOOPS 6'x15' AND LARGER SHALL HAVE (2) TURNS.
- 9) A 1/2" CLOSED CELL FOAM BACKER ROD SHALL BE FURNISHED AND INSTALLED WITH THE LAST TURN OF WIRE IN THE 1" N.M.C. ASSEMBLY.

| PLATE NO. | DESCRIPTION                                  |
|-----------|--|
| * 8110 C  | TRAFFIC SIGNAL BRACKETING - POLE MOUNTED     |
| * 8111 B  | TRAFFIC SIGNAL BRACKETING - PEDESTAL MOUNTED |
| * 8112 C  | PEDESTAL FOUNDATION                          |
| 8113 C    | MAGNETIC VEHICLE DETECTOR INSTALLATION       |
| 8115 C    | PEDESTRIAN PUSH BUTTON INSTALLATION          |
| * 8117 F  | PRECAST CONCRETE HAND HOLE                   |
| 8118 C    | SERVICE EQUIPMENT AND POLE-TRAFFIC SIGNALS   |
| * 8119 C  | GROUND MOUNTED CABINET FOUNDATION            |
| 8120 J    | PA85 AND PA90 POLE FOUNDATION                |
| 8121 C    | TRANSFORMER BASE AND POLE BASE PLATE         |
| * 8122 C  | PEDESTAL AND PEDESTAL BASE                   |
| 8123 C    | POLE AND MAST ARM                            |
| 8124 D    | MAST ARM SIGNAL HEAD MOUNTS                  |
| 8126 E    | PA100 POLE FOUNDATION                        |
| 8130 D    | SAV CUT LOOP DETECTORS                       |
| * 0005 A  | SPECIFICATION REFERENCE TO STANDARD PLATES   |
| 3124 B    | METAL APRON CONNECTION                       |
| 3221 C    | CORRUGATED STEEL PIPE COUPLING BAND          |
| * 7035 J  | CONCRETE WALK AND CURB RETURNS AT ENTRANCES  |
| * 7036 D  | PEDESTRIAN CURB RAMP                         |
| * 7100 F  | CONCRETE CURB AND GUTTERS                    |

\* THESE STANDARD PLATES, AS APPROVED BY THE FHWA, SHALL APPLY TO THIS PROJECT.

**ABBREVIATIONS**

- EQUIPMENT AND INDICATIONS**
- RED - RED
  - YEL - YELLOW
  - GRN - GREEN
  - VLK - WALK
  - NEU - NEUTRAL
  - DVK - DON'T WALK
  - LUM - LUMINAIRE
  - DNL - DOWNLIGHT
  - H.H. - HANDHOLE
  - EQG - EQUIPMENT GROUND
  - R.S.C. - RIGID STEEL CONDUIT
  - GLTA - GREEN LEFT TURN ARROW
  - YRTA - YELLOW RIGHT TURN ARROW
  - D2-1(eg) - DETECTOR-PHASE '2'
  - GR.R - GROUND ROD
  - SER. - SERVICE
  - P2 - 2 PEDESTRIAN INDICATIONS
  - 2-1(eg) - SIGNAL HEADS-PHASE '2'
  - SPR. - SPARE CONNECTORS
  - N.M.C. - NON METALLIC CONDUIT
  - E.V.P. - EMERGENCY VEHICLE PRE-EMPTION
  - J.B. - JUNCTION BOX
  - V.P. - WOOD POLE
  - P.E.C. - PHOTOELECTRIC CELL

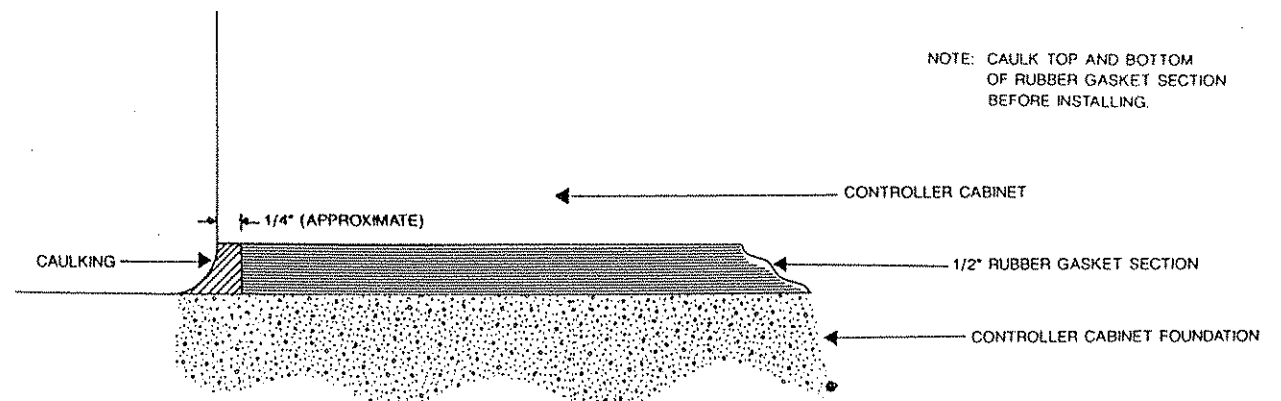
**LEGEND OF SYMBOLS**

- CONTROLLER AND SERVICE EQPT NOS. \_\_\_\_\_
- SIGNAL BASE NO. \_\_\_\_\_
- SIGNAL FACE NO. \_\_\_\_\_
- LUMINAIRE NO. \_\_\_\_\_
- CONTROLLER AND CABINET \_\_\_\_\_
- CONTROLLER AND CABINET IN PLACE \_\_\_\_\_
- HANDHOLE \_\_\_\_\_
- HANDHOLE IN PLACE \_\_\_\_\_
- RIGID STEEL CONDUIT (R.S.C.) \_\_\_\_\_
- RIGID STEEL CONDUIT (R.S.C.) IN PLACE \_\_\_\_\_
- SIGNAL FACE WITH BACKGROUND SHIELD \_\_\_\_\_
- SIGNAL FACE W/D BACKGROUND SHIELD \_\_\_\_\_
- SIGNAL FACE IN PLACE \_\_\_\_\_
- PEDESTRIAN INDICATORS \_\_\_\_\_
- PEDESTRIAN INDICATORS IN PLACE \_\_\_\_\_
- PEDESTRIAN PUSH BUTTONS ON PEDESTAL OR POLE \_\_\_\_\_
- PEDESTRIAN PUSH BUTTON STATION \_\_\_\_\_
- TRAFFIC SIGNAL PEDESTAL \_\_\_\_\_
- TRAFFIC SIGNAL PEDESTAL IN PLACE \_\_\_\_\_
- TRAFFIC SIGNAL POLE AND MAST ARM \_\_\_\_\_
- TRAFFIC SIGNAL POLE AND MAST ARM IN PLACE \_\_\_\_\_
- STREET LIGHT POLE AND LUMINAIRE \_\_\_\_\_
- STREET LIGHT POLE AND LUMINAIRE IN PLACE \_\_\_\_\_
- MAST ARM AND LUMINAIRE \_\_\_\_\_
- MAST ARM AND LUMINAIRE IN PLACE \_\_\_\_\_
- WOOD POLE \_\_\_\_\_
- WOOD POLE IN PLACE \_\_\_\_\_
- SOURCE OF POWER \_\_\_\_\_
- RAILROAD SIGNAL IN PLACE \_\_\_\_\_
- RIGHT OF WAY LINE \_\_\_\_\_
- CENTERLINE \_\_\_\_\_
- EDGE OF ROADWAY \_\_\_\_\_
- SHOULDERLINE \_\_\_\_\_
- CURB LINE \_\_\_\_\_
- STOP BAR \_\_\_\_\_

**CONDUCTOR COLOR CODE**

- R - RED
- O - ORANGE
- BL - BLUE
- WH - WHITE
- R/BLK - RED WITH BLACK TRACER
- O/BLK - ORANGE WITH BLACK TRACER
- BL/BLK - BLUE WITH BLACK TRACER
- WH/BLK - WHITE WITH BLACK TRACER
- BLK - BLACK
- BLK/WH - BLACK WITH WHITE TRACER
- G/BLK - GREEN WITH BLACK TRACER
- G - GREEN

**CONTROLLER CABINET CAULKING DETAIL**



NOTE: CAULK TOP AND BOTTOM OF RUBBER GASKET SECTION BEFORE INSTALLING.

| NO. | BY | DATE | REVISIONS |
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"ELECTRICAL ENGINEER CERTIFICATION"  
 I hereby certify that this plan was prepared by me or under my direct supervision and that I am a duly Registered Professional Engineer under the laws of the state of Minnesota.  
*Robert A. Ellen*  
 Date: 8/12/94 Reg. No. 5859

I hereby certify that this plan was prepared by me or under my direct supervision and that I am a duly Registered Professional Engineer under the laws of the state of Minnesota.  
*John M. Hayes*  
 Date: 8/12/94 Reg. No. 22457

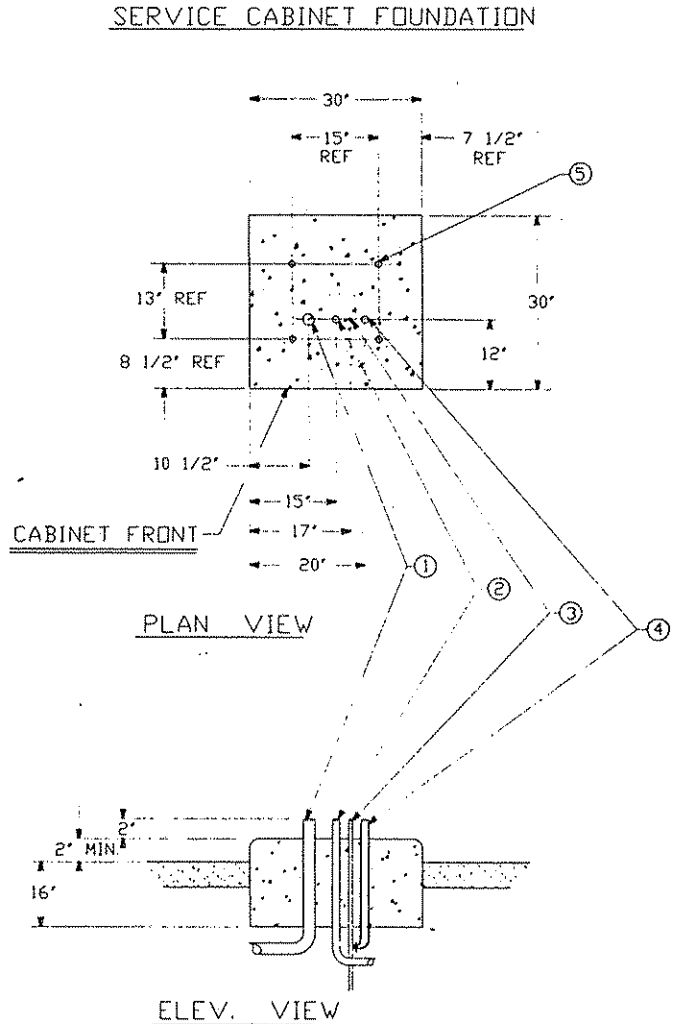
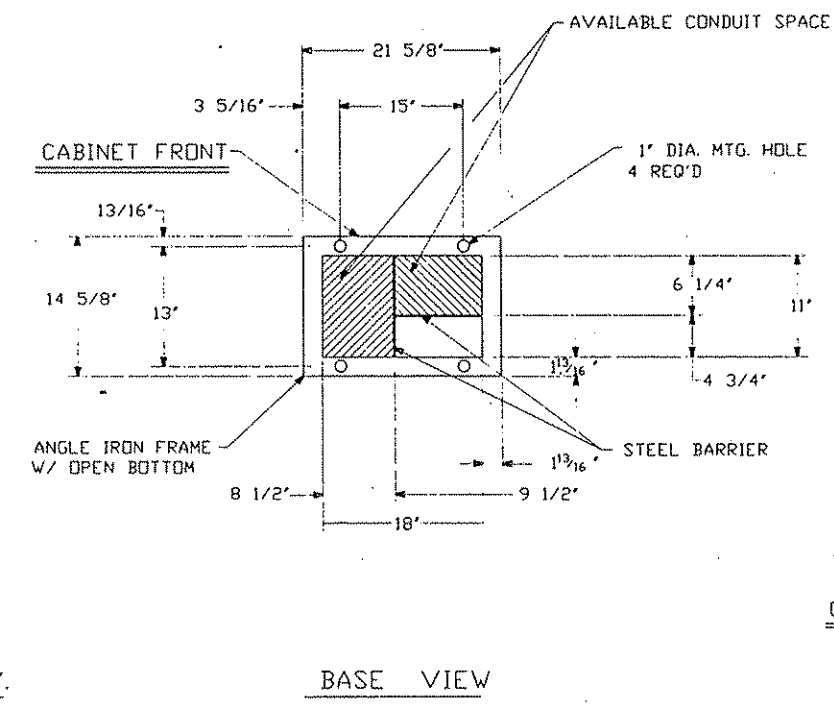
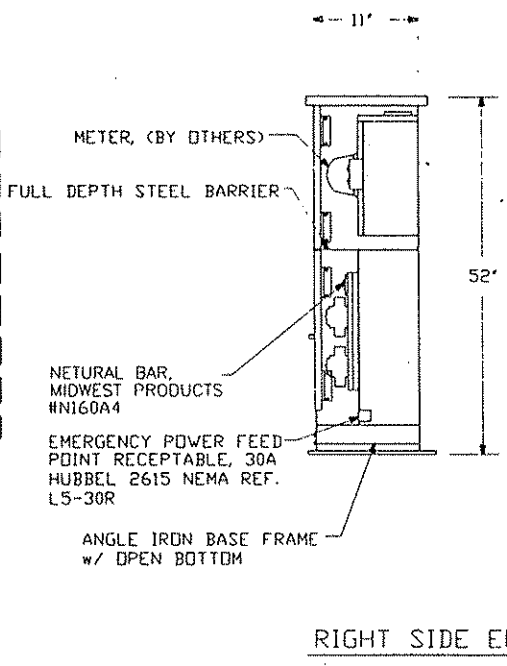
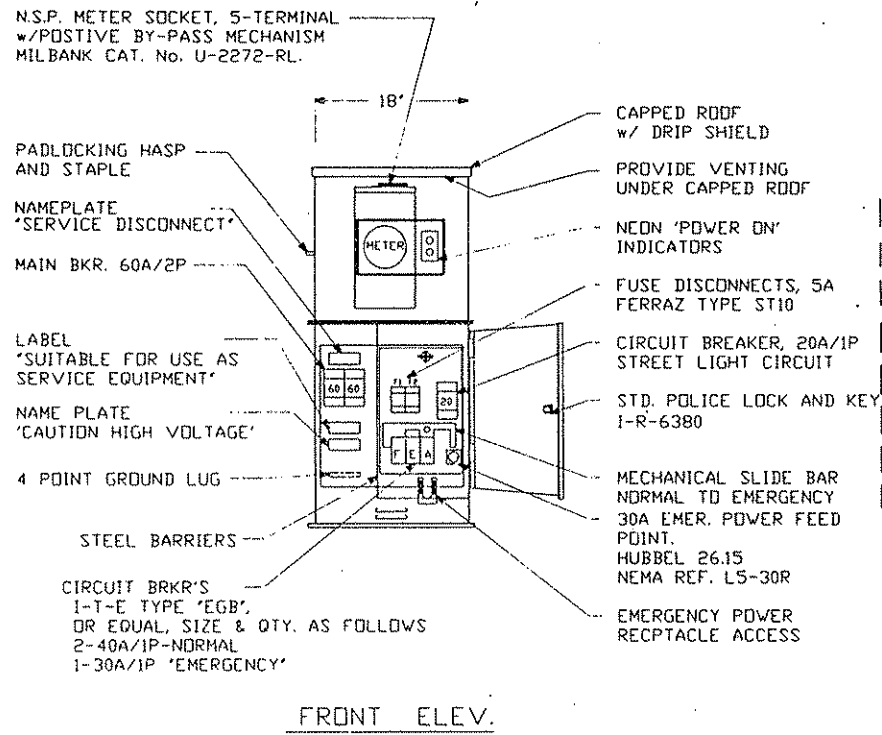
**SEH**  
 ENGINEERS ARCHITECTS PLANNERS

ANOKA COUNTY, MINNESOTA  
 CITY OF COON RAPIDS

TRAFFIC SIGNAL SYSTEM  
 DETAILS  
 HANSON BLVD. (CSA#78) AT 111th AVENUE NW

FILE NO.  
 ANOKC0501  
 DATE  
 8/12/94

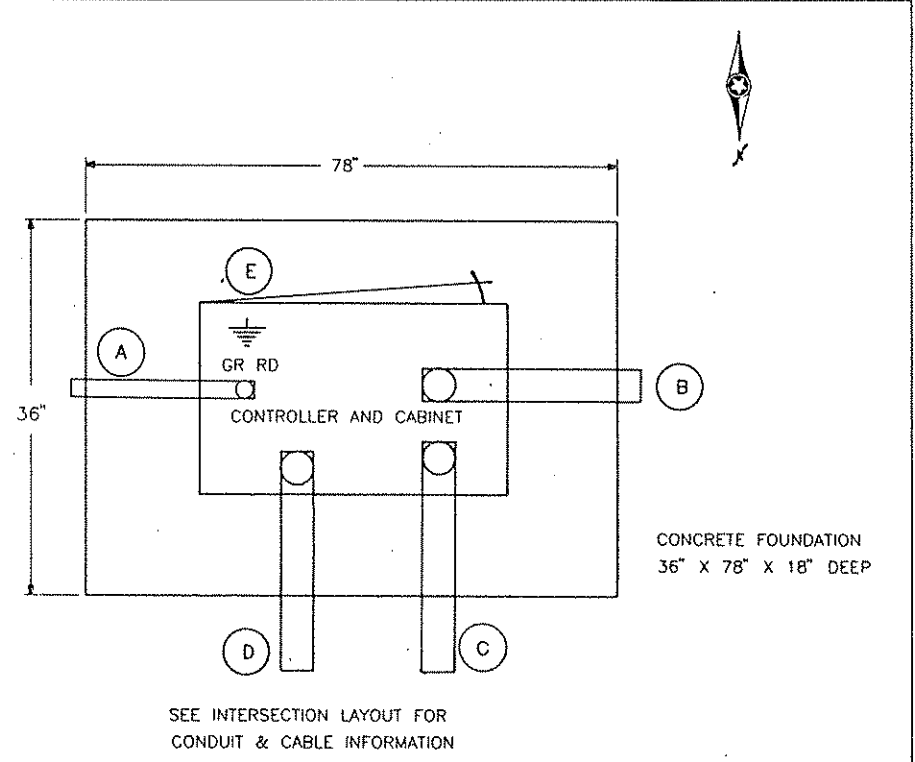
**SIGNAL SERVICE CABINET**



**CONSTRUCTION NOTES**

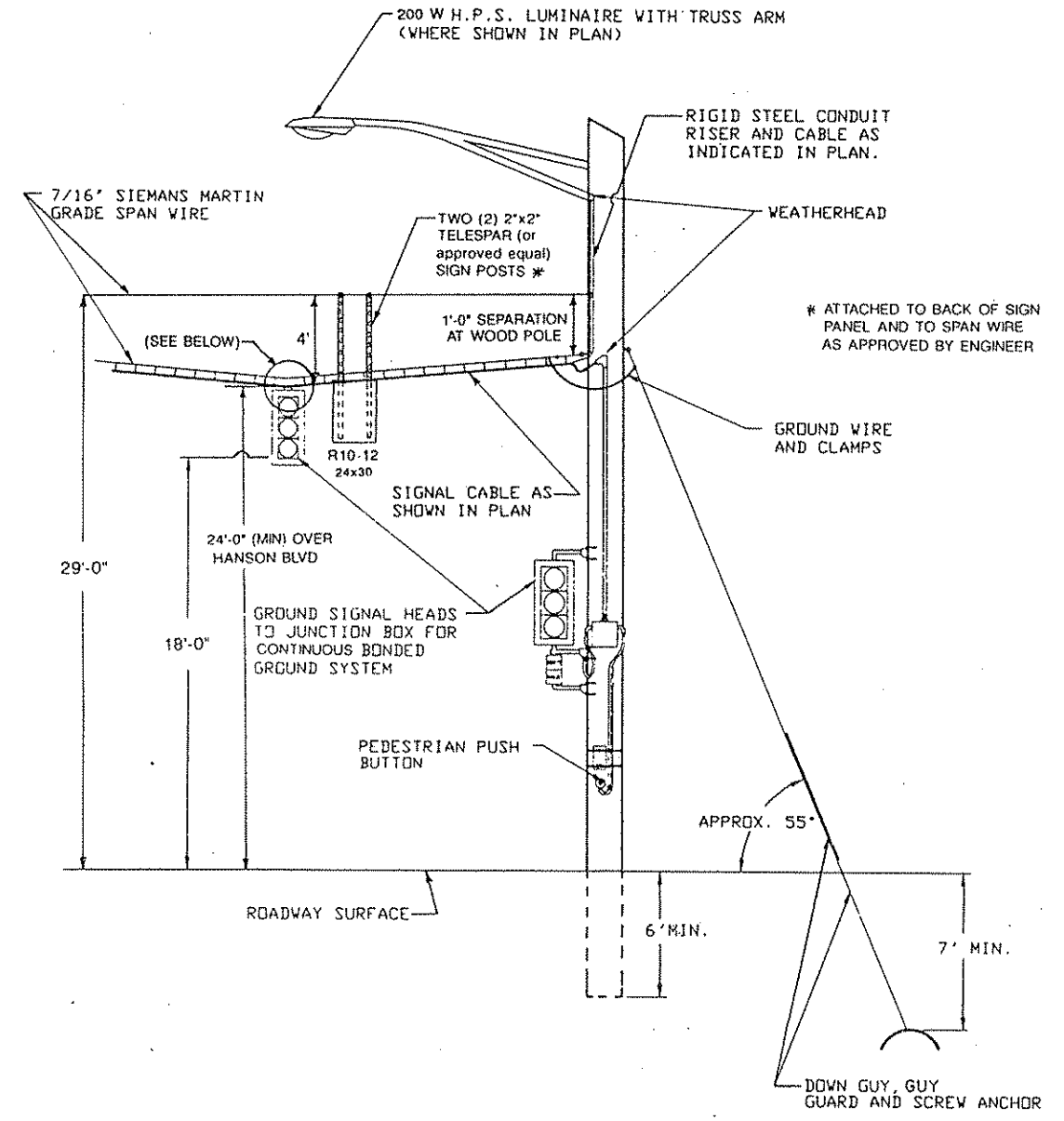
ENCLOSURE SHALL BE FABRICATED FROM #12 GA. ALL WELDED COLD ROLLED STEEL FOR OUTDOOR WEATHER PROOF SERVICE. DOORS TO BE GASKETED, ALL HINGES, PINS AND LOCKS TO BE OF NON CORRODING CONSTRUCTION. CABINET TO BE PRIMED INSIDE AND OUT WITH RUST INHIBITTING PRIMER. FINISH PER MN/DOT #3527

- (A) 1 1/4" R.S.C. FOR SERVICE CONNECTION TO HH 11
- (B) 4" R.S.C. TO HH 1
- (C) 4" R.S.C. TO HH 10
- (D) 3" R.S.C. STUBOUT, THREAD & CAP BOTH ENDS. (FOR FUTURE USE).
- (E) 5/8" DIA X 15' GROUND ROD

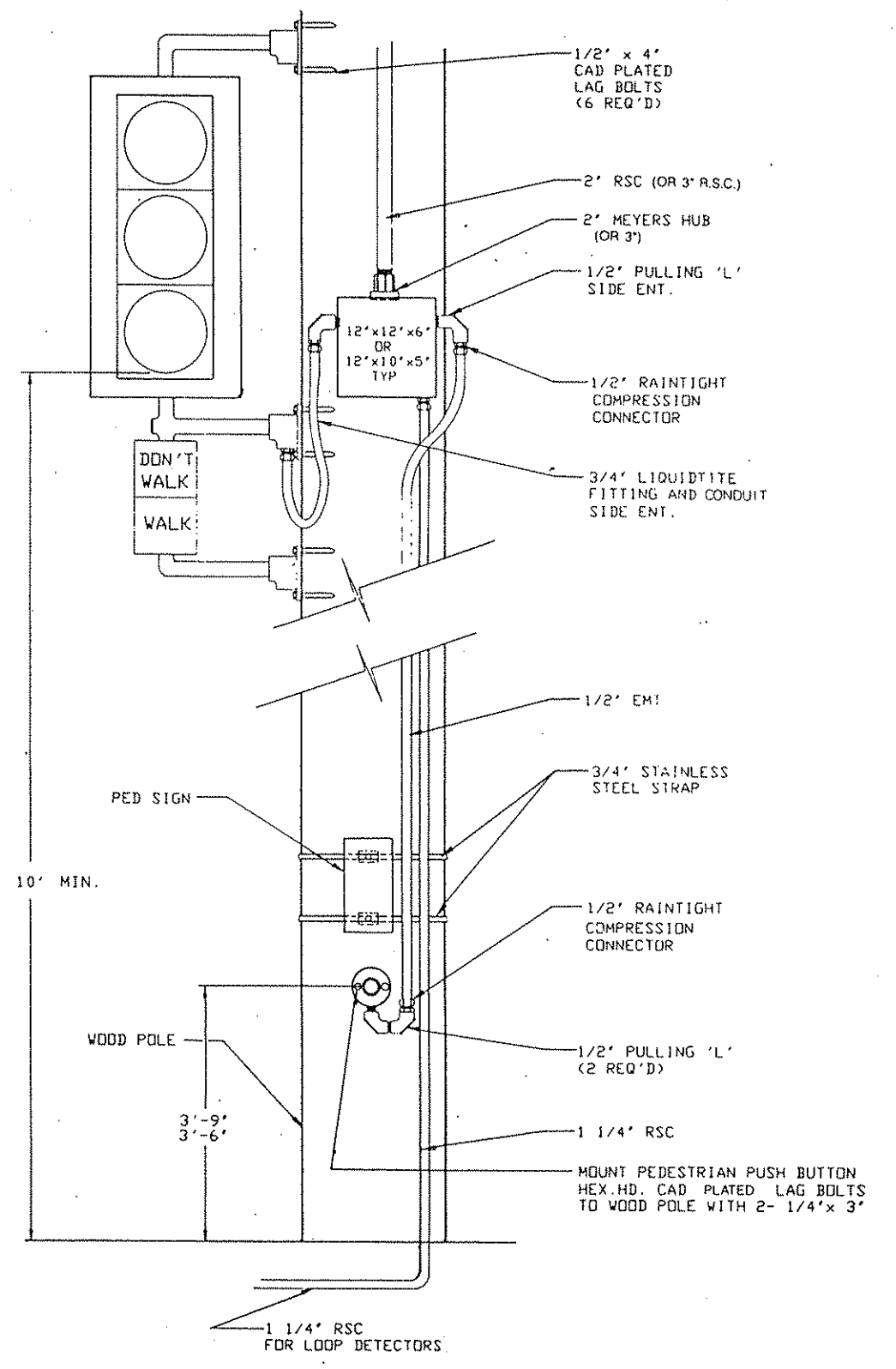


- ① 2" RSC FROM SOURCE OF POWER
- ② 1 1/4" RSC TO CONTROLLER CABINET (VIA HANDHOLE 11)
- ③ GROUNDING ROD
- ④ 1 1/4" RSC TO HANDHOLE 10 (STREET LIGHTING)
- ⑤ 1/2" ANCHOR BOLT LOCATIONS (4 REQUIRED)

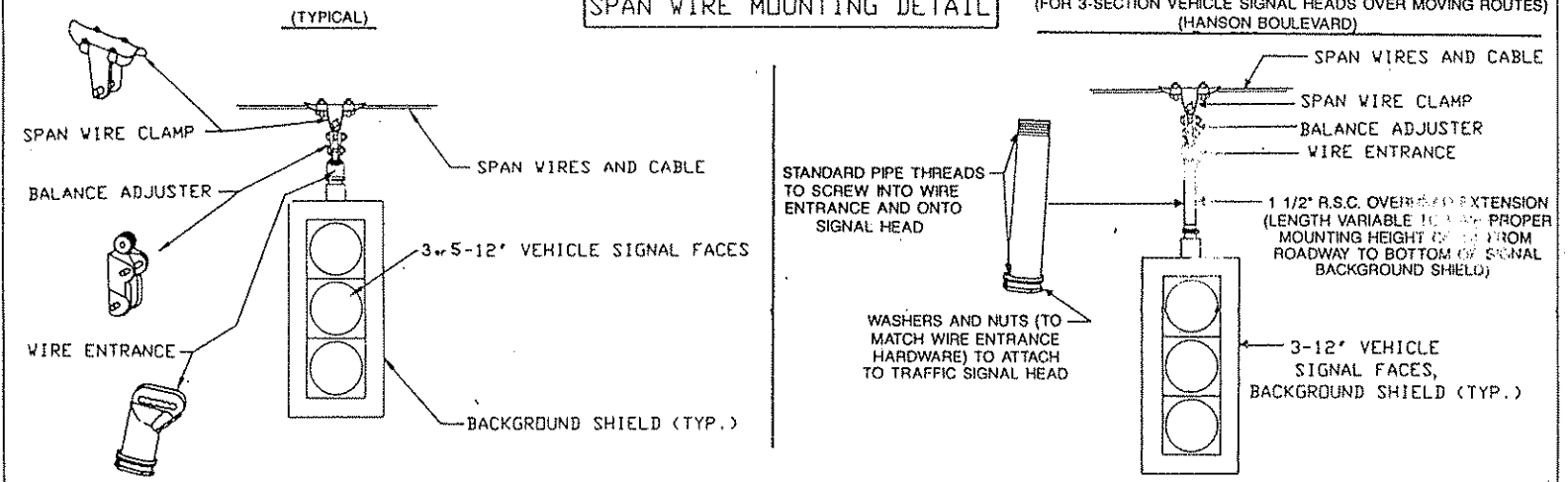
**TEMPORARY POLE DETAIL**



**PED BUTTON WIRING DETAIL**



**SPAN WIRE MOUNTING DETAIL**



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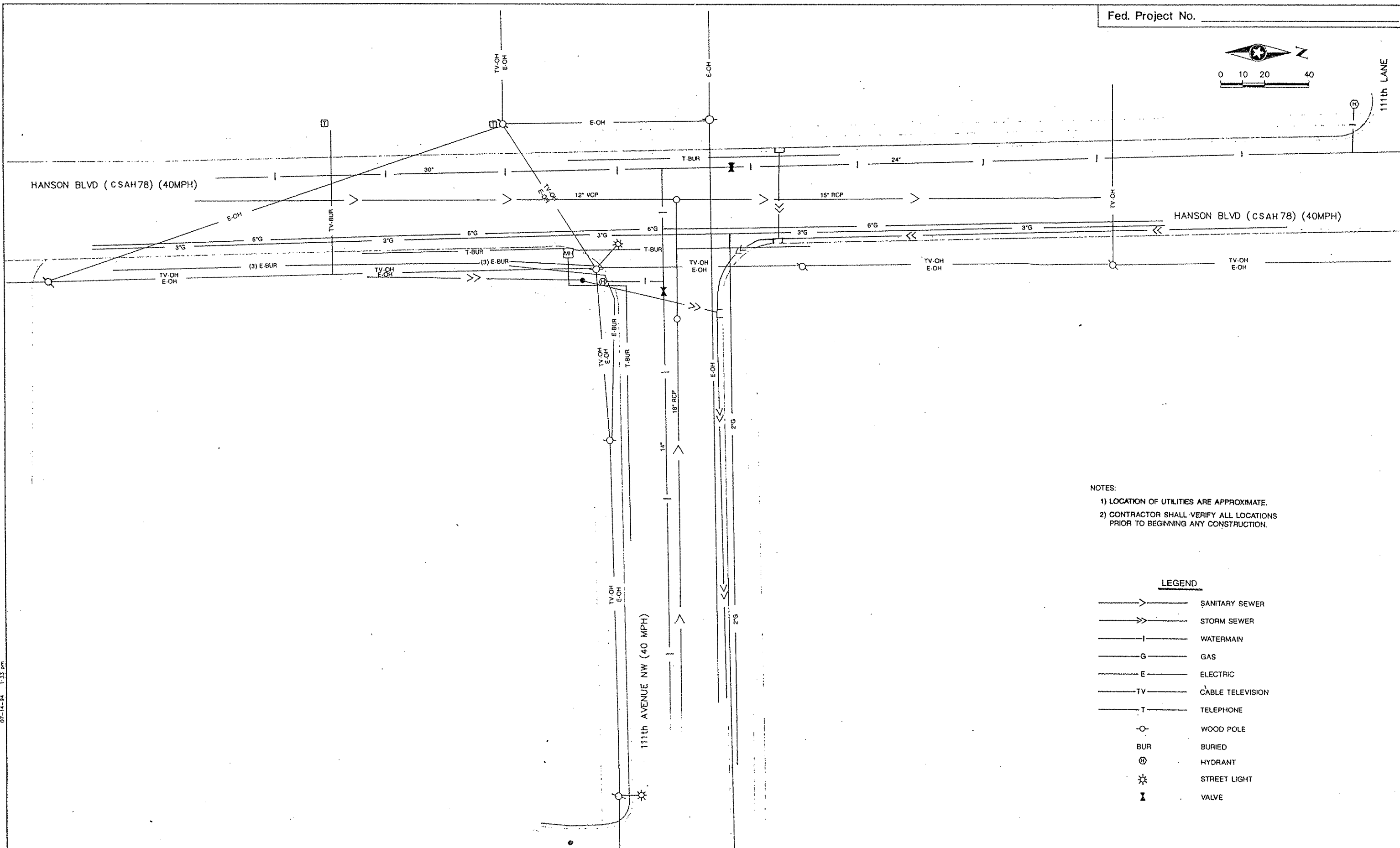
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*John M. Hayes*  
 Date: 8/12/94 Reg. No. 22457

**ESEH**  
 ENGINEERS ARCHITECTS PLANNERS

ANOKA COUNTY, MINNESOTA  
 CITY OF COON RAPIDS

TRAFFIC SIGNAL SYSTEM  
 DETAILS  
 HANSON BLVD. (CSAH 78) AT 111th AVENUE NW

FRE NO  
 ANOKC9501  
 DATE  
 8/12/94



NOTES:  
 1) LOCATION OF UTILITIES ARE APPROXIMATE.  
 2) CONTRACTOR SHALL VERIFY ALL LOCATIONS PRIOR TO BEGINNING ANY CONSTRUCTION.

**LEGEND**

|  |                  |
|--|------------------|
|  | SANITARY SEWER   |
|  | STORM SEWER      |
|  | WATERMAIN        |
|  | GAS              |
|  | ELECTRIC         |
|  | CABLE TELEVISION |
|  | TELEPHONE        |
|  | WOOD POLE        |
|  | BURIED           |
|  | HYDRANT          |
|  | STREET LIGHT     |
|  | VALVE            |

07-14-94 1:33 PM

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 Date: 8-12-94 Reg. No. 5859

I hereby certify that this plan was prepared by me or under my direct supervision and that I am a duly Registered Professional Engineer under the laws of the state of Minnesota.  
*John M. Gray*  
 Date: 8/12/94 Reg. No. 22457



ANOKA COUNTY, MINNESOTA  
 CITY OF COON RAPIDS

TRAFFIC SIGNAL SYSTEM UTILITIES  
 HANSON BLVD. (CSAH 78) AT 111th AVENUE NW  
 FILE NO. ANOKC9501  
 DATE 8/12/94  
 S.A.P. 02-678-10 S.P. \_\_\_\_\_ C.P. 94-42-78  
 Sheet No. 8 of 8 Sheets