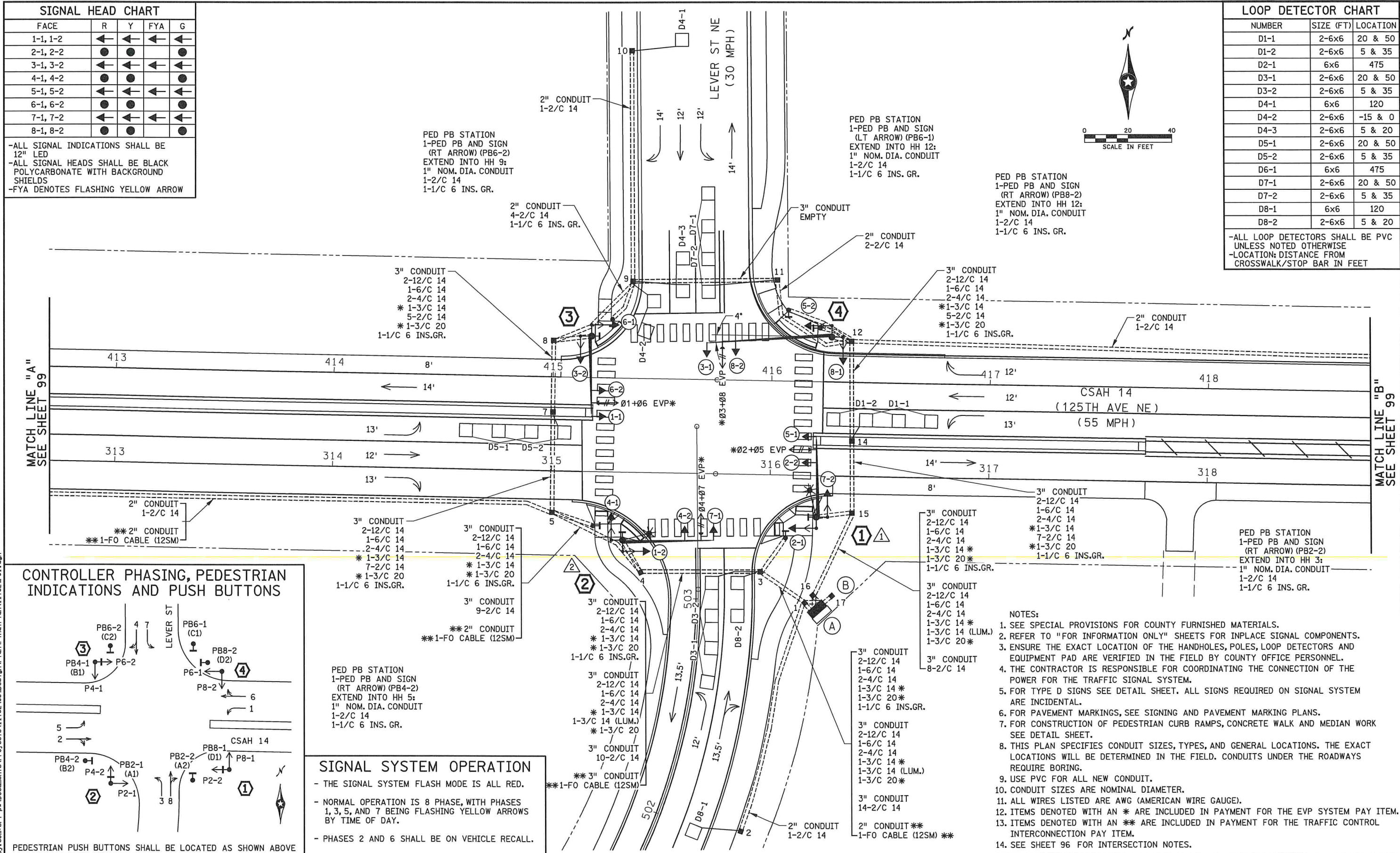


| SIGNAL HEAD CHART | | | | |
|-------------------|---|---|-----|---|
| FACE | R | Y | FYA | G |
| 1-1, 1-2 | ← | ← | ← | ← |
| 2-1, 2-2 | ● | ● | ● | ● |
| 3-1, 3-2 | ← | ← | ← | ← |
| 4-1, 4-2 | ● | ● | ● | ● |
| 5-1, 5-2 | ← | ← | ← | ← |
| 6-1, 6-2 | ● | ● | ● | ● |
| 7-1, 7-2 | ← | ← | ← | ← |
| 8-1, 8-2 | ● | ● | ● | ● |

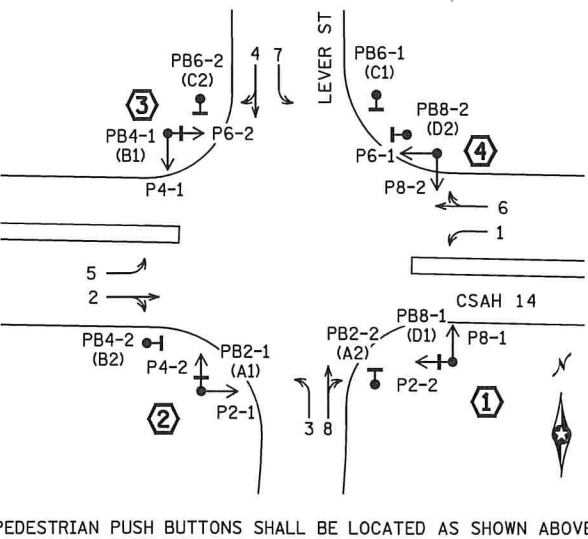
-ALL SIGNAL INDICATIONS SHALL BE 12" LED
 -ALL SIGNAL HEADS SHALL BE BLACK POLYCARBONATE WITH BACKGROUND SHIELDS
 -FYA DENOTES FLASHING YELLOW ARROW

| LOOP DETECTOR CHART | | |
|---------------------|-----------|----------|
| NUMBER | SIZE (FT) | LOCATION |
| D1-1 | 2-6x6 | 20 & 50 |
| D1-2 | 2-6x6 | 5 & 35 |
| D2-1 | 6x6 | 475 |
| D3-1 | 2-6x6 | 20 & 50 |
| D3-2 | 2-6x6 | 5 & 35 |
| D4-1 | 6x6 | 120 |
| D4-2 | 2-6x6 | -15 & 0 |
| D4-3 | 2-6x6 | 5 & 20 |
| D5-1 | 2-6x6 | 20 & 50 |
| D5-2 | 2-6x6 | 5 & 35 |
| D6-1 | 6x6 | 475 |
| D7-1 | 2-6x6 | 20 & 50 |
| D7-2 | 2-6x6 | 5 & 35 |
| D8-1 | 6x6 | 120 |
| D8-2 | 2-6x6 | 5 & 20 |

-ALL LOOP DETECTORS SHALL BE PVC UNLESS NOTED OTHERWISE
 -LOCATION: DISTANCE FROM CROSSWALK/STOP BAR IN FEET



CONTROLLER PHASING, PEDESTRIAN INDICATIONS AND PUSH BUTTONS



SIGNAL SYSTEM OPERATION

- THE SIGNAL SYSTEM FLASH MODE IS ALL RED.
- NORMAL OPERATION IS 8 PHASE, WITH PHASES 1, 3, 5, AND 7 BEING FLASHING YELLOW ARROWS BY TIME OF DAY.
- PHASES 2 AND 6 SHALL BE ON VEHICLE RECALL.

- NOTES:**
- SEE SPECIAL PROVISIONS FOR COUNTY FURNISHED MATERIALS.
 - REFER TO "FOR INFORMATION ONLY" SHEETS FOR INPLACE SIGNAL COMPONENTS.
 - ENSURE THE EXACT LOCATION OF THE HANDHOLES, POLES, LOOP DETECTORS AND EQUIPMENT PAD ARE VERIFIED IN THE FIELD BY COUNTY OFFICE PERSONNEL.
 - THE CONTRACTOR IS RESPONSIBLE FOR COORDINATING THE CONNECTION OF THE POWER FOR THE TRAFFIC SIGNAL SYSTEM.
 - FOR TYPE D SIGNS SEE DETAIL SHEET. ALL SIGNS REQUIRED ON SIGNAL SYSTEM ARE INCIDENTAL.
 - FOR PAVEMENT MARKINGS, SEE SIGNING AND PAVEMENT MARKING PLANS.
 - FOR CONSTRUCTION OF PEDESTRIAN CURB RAMPS, CONCRETE WALK AND MEDIAN WORK SEE DETAIL SHEET.
 - THIS PLAN SPECIFIES CONDUIT SIZES, TYPES, AND GENERAL LOCATIONS. THE EXACT LOCATIONS WILL BE DETERMINED IN THE FIELD. CONDUITS UNDER THE ROADWAYS REQUIRE BORING.
 - USE PVC FOR ALL NEW CONDUIT.
 - CONDUIT SIZES ARE NOMINAL DIAMETER.
 - ALL WIRES LISTED ARE AWG (AMERICAN WIRE GAUGE).
 - ITEMS DENOTED WITH AN * ARE INCLUDED IN PAYMENT FOR THE EVP SYSTEM PAY ITEM.
 - ITEMS DENOTED WITH AN ** ARE INCLUDED IN PAYMENT FOR THE TRAFFIC CONTROL INTERCONNECTION PAY ITEM.
 - SEE SHEET 96 FOR INTERSECTION NOTES.

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| NO | DATE | BY | CHKD | APPR | REVISION |
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| | | | | | |

I hereby certify that this plan, specification, or report was prepared by me or under my direct supervision and that I am a duly Licensed Professional Engineer under the laws of the State of Minnesota.

Pr Int Name: **NATHAN A. POOLE**

Date: **03/22/19** License #: **56071**

STATE PROJECT NO. 002-614-045
 106-142-001

CITY OF BLAINE PROJECT NO. 18-09

DRAWN BY M. BRESSLER
 DESIGNED BY M. BRESSLER
 CHECKED BY N. POOLE
 COMM. NO. 1811762

ANOKA COUNTY

TRAFFIC SIGNAL PLANS
CSAH 14 RECONSTRUCTION
 INTERSECTION LAYOUT

SHEET

95
 OF
 106

INTERSECTION NOTES

1 PA90 POLE FOUNDATION
 INSTALL—TYPE PA90-A-35-D30-9 (DAVIT AT 350 DEG)
 1-ANGLE MOUNT SIGNAL OVERHEAD AT 0'
 1-STRAIGHT MOUNT SIGNAL OVERHEAD AT 11'
 2-ANGLE MOUNT SIGNALS AT 90 AND 180 DEG
 2-ANGLE MOUNT C. D. PED HEADS
 AT 90 AND 180 DEG
 * 1-ONE WAY EVP DETECTOR AND
 CONFIRMATORY LIGHT (PHASES 2+5)
 LUMINAIRE-LED (FOR 30' MOUNTING HEIGHT)
 1-PED PB AND SIGN (LT ARROW) (PB8-1)
 1-R10-X12 SIGN ADJACENT TO HEAD (5-1)
 1-TYPE D SIGN (D-2) (SEE SIGN DETAILS)
 2-R6-1 SIGNS POLE MOUNTED
 3" CONDUIT TO HH 15:
 2-12/C 14
 1-6/C 14
 2-4/C 14
 * 1-3/C 14
 1-3/C 14 (LUM)
 1-2/C 14
 * 1-3/C 20
 1-1/C 6 INS. GR.

2 PA100 POLE FOUNDATION
 INSTALL—TYPE PA100-A-40-D30-9 (DAVIT AT 350 DEG)
 1-ANGLE MOUNT SIGNAL OVERHEAD AT 0'
 1-STRAIGHT MOUNT SIGNAL OVERHEAD AT 12'
 2-ANGLE MOUNT SIGNALS AT 90 AND 180 DEG
 2-ANGLE MOUNT C. D. PED HEADS
 AT 90 AND 180 DEG
 * 1-ONE WAY EVP DETECTOR AND
 CONFIRMATORY LIGHT (PHASES 4+7)
 LUMINAIRE-LED (FOR 30' MOUNTING HEIGHT)
 1-PED PB AND SIGN (LT ARROW) (PB2-1)
 1-R10-X12 SIGN ADJACENT TO HEAD (7-1)
 1-TYPE D SIGN (D-1) (SEE SIGN DETAILS)
 3" CONDUIT TO HH 4:
 2-12/C 14
 1-6/C 14
 2-4/C 14
 * 1-3/C 14
 1-3/C 14 (LUM)
 1-2/C 14
 * 1-3/C 20
 1-1/C 6 INS. GR.

3 PA90 POLE FOUNDATION
 INSTALL—TYPE PA90-A-35
 1-ANGLE MOUNT SIGNAL OVERHEAD AT 0'
 1-STRAIGHT MOUNT SIGNAL OVERHEAD AT 11'
 2-ANGLE MOUNT SIGNALS AT 90 AND 180 DEG
 2-ANGLE MOUNT C. D. PED HEADS
 AT 90 AND 180 DEG
 * 1-ONE WAY EVP DETECTOR AND
 CONFIRMATORY LIGHT (PHASES 1+6)
 1-PED PB AND SIGN (LT ARROW) (PB4-1)
 1-R10-X12 SIGN ADJACENT TO HEAD (1-1)
 1-TYPE D SIGN (D-2) (SEE SIGN DETAILS)
 2-R6-1 SIGNS POLE MOUNTED
 3" CONDUIT TO HH 8:
 2-12/C 14
 1-6/C 14
 2-4/C 14
 * 1-3/C 14
 1-2/C 14
 * 1-3/C 20
 1-1/C 6 INS. GR.

4 PA100 POLE FOUNDATION
 INSTALL—TYPE PA100-A-55
 1-ANGLE MOUNT SIGNAL OVERHEAD AT 0'
 1-STRAIGHT MOUNT SIGNAL OVERHEAD AT 12'
 2-ANGLE MOUNT SIGNALS AT 90 AND 180 DEG
 2-ANGLE MOUNT C. D. PED HEADS
 AT 90 AND 180 DEG
 * 1-ONE WAY EVP DETECTOR AND
 CONFIRMATORY LIGHT (PHASES 3+8)
 1-R10-X12 SIGN ADJACENT TO HEAD (3-1)
 1-TYPE D SIGN (D-1) (SEE SIGN DETAILS)
 3" CONDUIT TO HH 12:
 2-12/C 14
 1-6/C 14
 2-4/C 14
 * 1-3/C 14
 * 1-3/C 20
 1-1/C 6 INS. GR.

A EQUIPMENT PAD (SEE DETAIL SHEET)
 SERVICE CABINET (SSB)
 INSTALL—CONTROLLER AND CABINET (COUNTY FURNISHED)
 3" CONDUIT TO HH 1:
 2-12/C 14
 1-6/C 14
 2-4/C 14
 * 1-3/C 14
 * 1-3/C 20
 3" CONDUIT TO HH 16:
 2-12/C 14
 1-6/C 14
 2-4/C 14
 * 1-3/C 14
 * 1-3/C 20
 1-1/C 6 INS. GR.
 3" CONDUIT TO HH 1:
 15-2/C 14
 3" CONDUIT TO HH 16:
 2-12/C 14
 1-6/C 14
 2-4/C 14
 * 1-3/C 14
 * 1-3/C 20
 1-1/C 6 INS. GR.
 3" CONDUIT TO HH 16:
 8-2/C 14
 **—2" CONDUIT TO HH 1:
 1-FO CABLE (12SM)

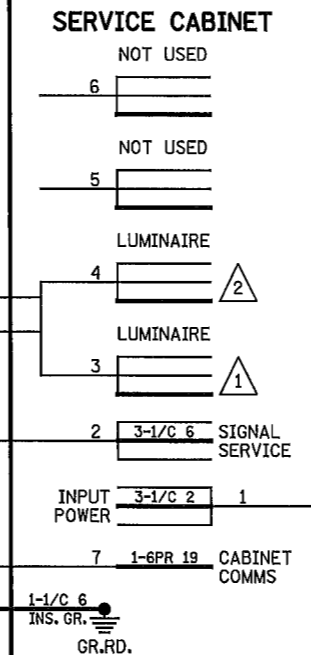
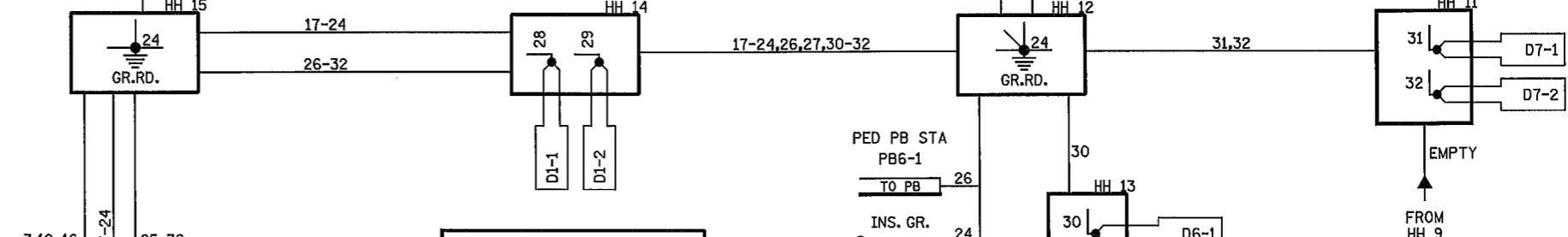
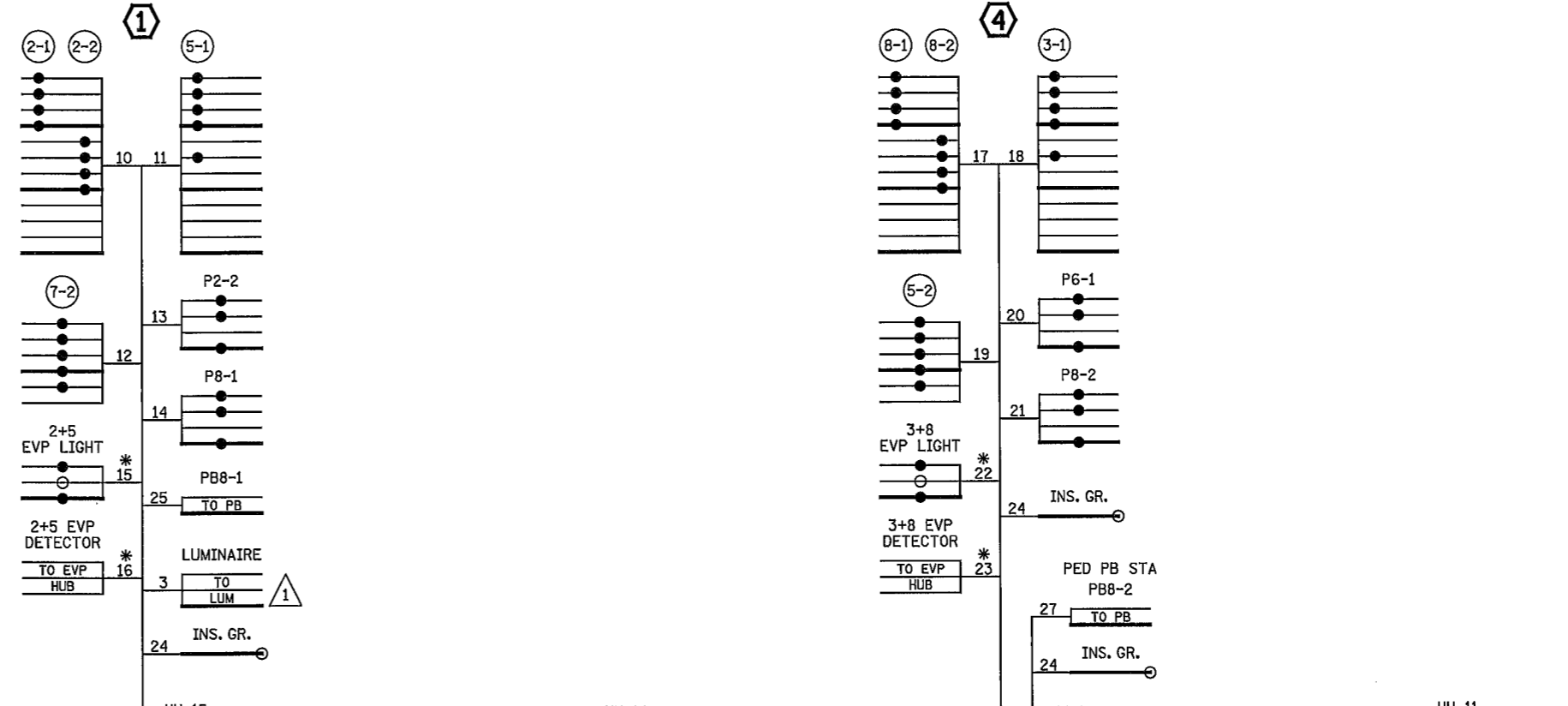
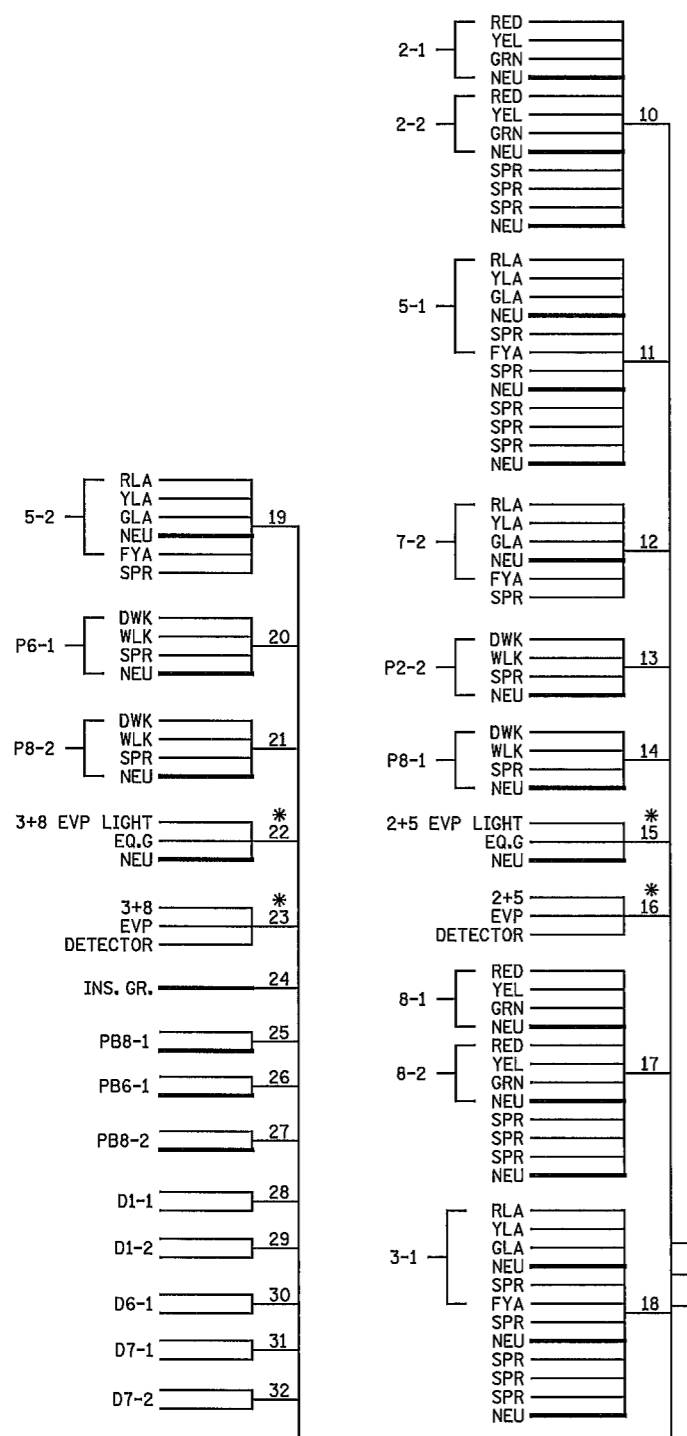
GROUND WIRE AND GROUND ROD - MIN 8' OUT FROM PAD
 2-3" AND 1-1" CONDUIT STUBBED OUT (CAPPED BOTH ENDS)
 CONTROLLER CABINET TO SERVICE CABINET:
 2" CONDUIT
 3-1/C 6
 CONTROLLER CABINET TO SERVICE CABINET (COMMS):
 2" CONDUIT
 1-4/C 14
 1-6PR 19
 SERVICE CABINET TO HH 17 TO POLE MOUNTED TRANSFORMER:
 2" CONDUIT
 3-1/C 2
 SERVICE CABINET TO HH 1:
 1 1/4" CONDUIT
 1-3/C 14 (LUM)
 SERVICE CABINET TO HH 16:
 1 1/4" CONDUIT
 1-3/C 14 (LUM)
 SERVICE CABINET TO EXTERNAL GR. RD.:
 1" CONDUIT
 1-1/C 6 INS. GR.
 (SEE EQUIPMENT PAD LAYOUT)

B SOP-WOOD POLE MOUNTED
 TRANSFORMER
 2" CONDUIT TO HH 17 TO SERVICE CABINET:
 3-1/C 2

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|---|--|--|--|--|---|--|--|--|--------------------------|
| I hereby certify that this plan, specification, or report was prepared by me or under my direct supervision and that I am a duly Licensed Professional Engineer under the laws of the State of Minnesota. Pr Int Name: <u>NATHAN A. POOLE</u> Date <u>03/22/19</u> License # <u>56071</u> | | | | | STATE PROJECT NO. 002-614-045 106-142-001 CITY OF BLAINE PROJECT NO. 18-09 | DRAWN BY M. BRESSLER DESIGNED BY M. BRESSLER CHECKED BY N. POOLE COMM. NO. 1811762 | ANOKA COUNTY TRAFFIC SIGNAL PLANS CSAH 14 RECONSTRUCTION INTERSECTION NOTES | | SHEET 96 OF 106 |
| NO DATE BY CKD APPR REVISION | | | | | ... \P\an\F Ina\IP\an\11762_r01a.dgn | | | | |

CONTROLLER CABINET



- NOTES:**
1. SIGNAL SYSTEM INCLUDES BATTERY BACKUP SERVICE CABINET (NO BATTERIES).
 2. FOR CONDUCTOR COLOR CODE, SEE TRAFFIC SIGNAL POLE WIRING CONNECTOR DETAIL.
 3. ITEMS DENOTED WITH AN * ARE INCLUDED IN PAYMENT FOR THE EVP SYSTEM PAY ITEM.
 4. ITEMS DENOTED WITH AN ** ARE INCLUDED IN PAYMENT FOR THE TRAFFIC CONTROL INTERCONNECTION PAY ITEM.

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| NO | DATE | BY | CKD | APPR | REVISION |
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Print Name: **NATHAN A. POOLE**

Date: **03/22/19** License #: **56071**

STATE PROJECT NO.
002-614-045
106-142-001

CITY OF BLAINE
PROJECT NO.
18-09

DRAWN BY
M. BRESSLER

DESIGNED BY
M. BRESSLER

CHECKED BY
N. POOLE

COMM. NO. 1811762

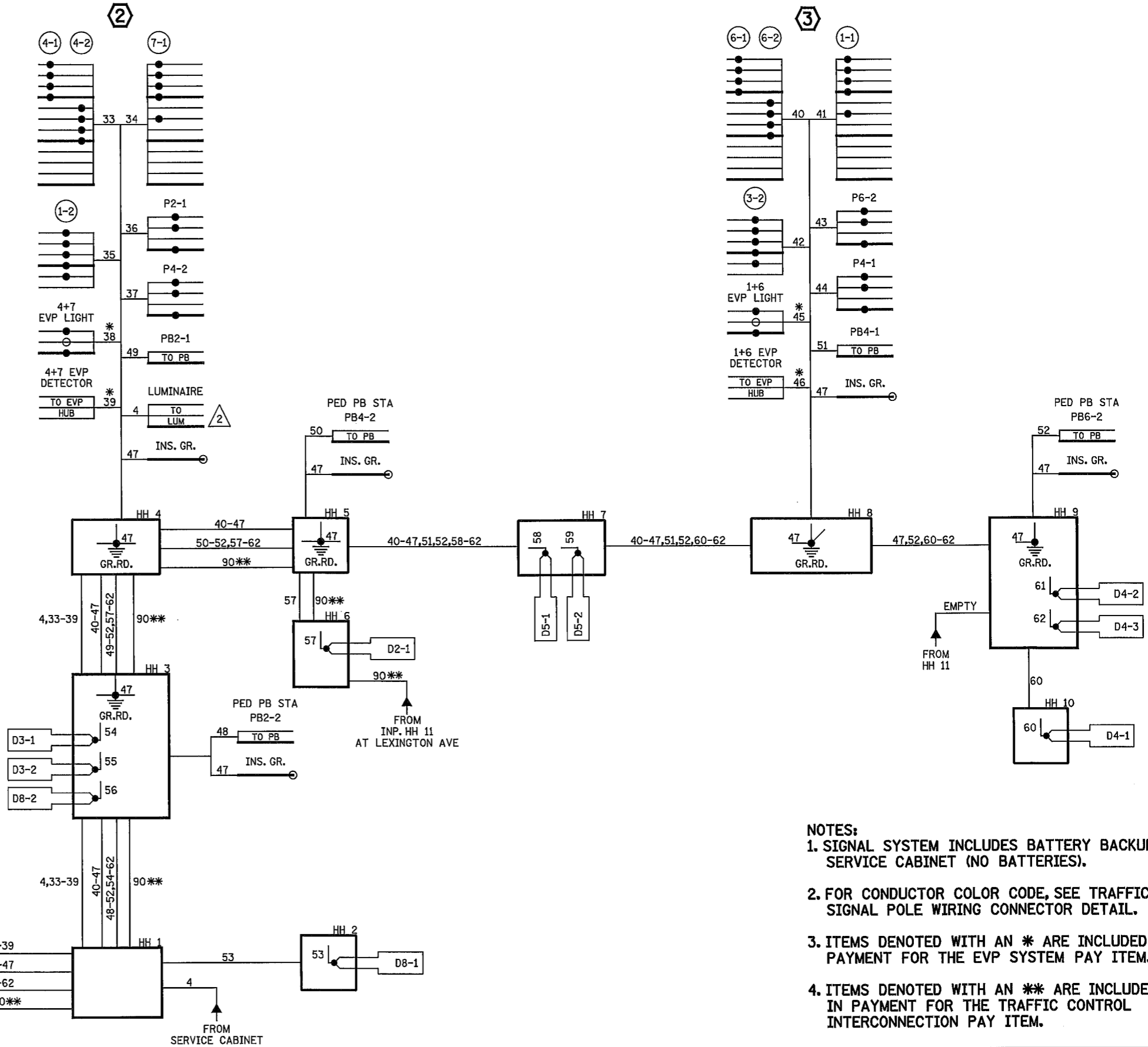
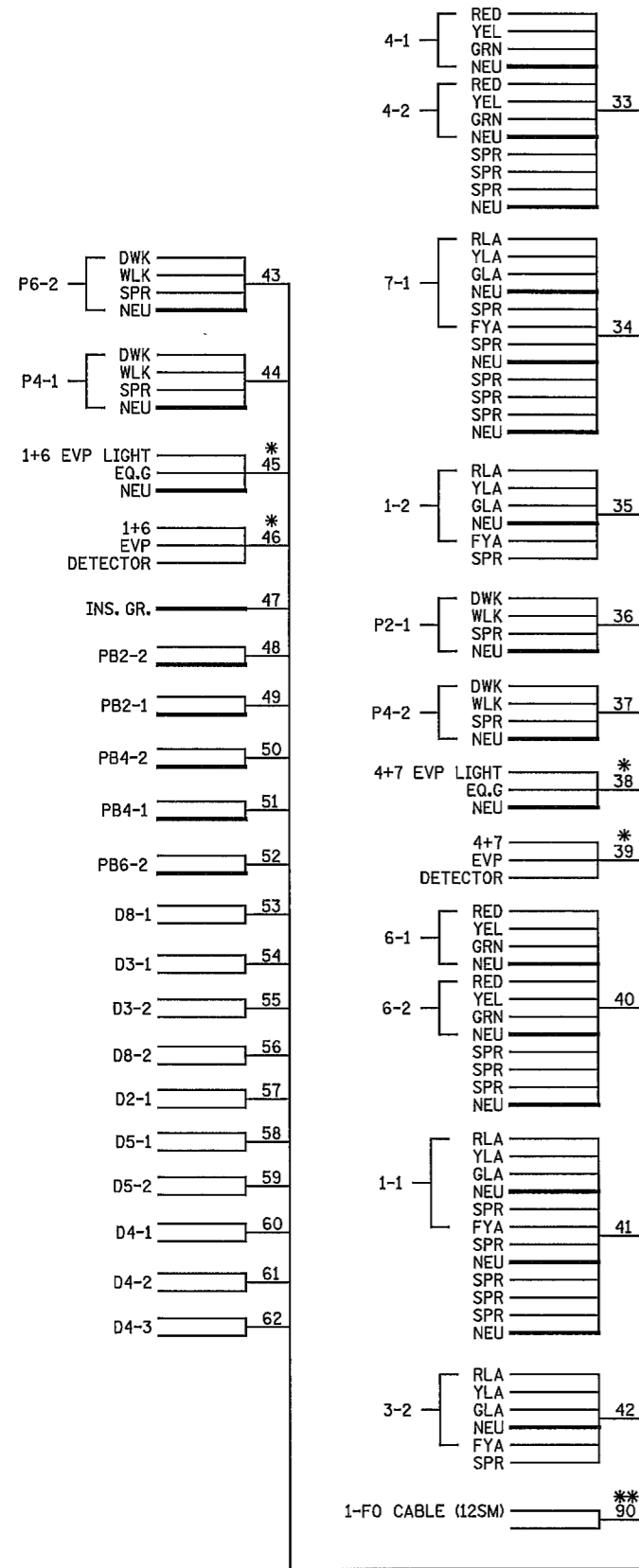


ANOKA COUNTY

TRAFFIC SIGNAL PLANS
CSAH 14 RECONSTRUCTION
FIELD WIRING DIAGRAM

SHEET
97
OF
106

CONTROLLER CABINET



- NOTES:**
1. SIGNAL SYSTEM INCLUDES BATTERY BACKUP SERVICE CABINET (NO BATTERIES).
 2. FOR CONDUCTOR COLOR CODE, SEE TRAFFIC SIGNAL POLE WIRING CONNECTOR DETAIL.
 3. ITEMS DENOTED WITH AN * ARE INCLUDED IN PAYMENT FOR THE EVP SYSTEM PAY ITEM.
 4. ITEMS DENOTED WITH AN ** ARE INCLUDED IN PAYMENT FOR THE TRAFFIC CONTROL INTERCONNECTION PAY ITEM.

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| NO | DATE | BY | CKD | APPR | REVISION |
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002-614-045
106-142-001

CITY OF BLAINE
PROJECT NO.
18-09

DRAWN BY
M. BRESSLER

DESIGNED BY
M. BRESSLER

CHECKED BY
N. POOLE

COMM. NO. 1811762



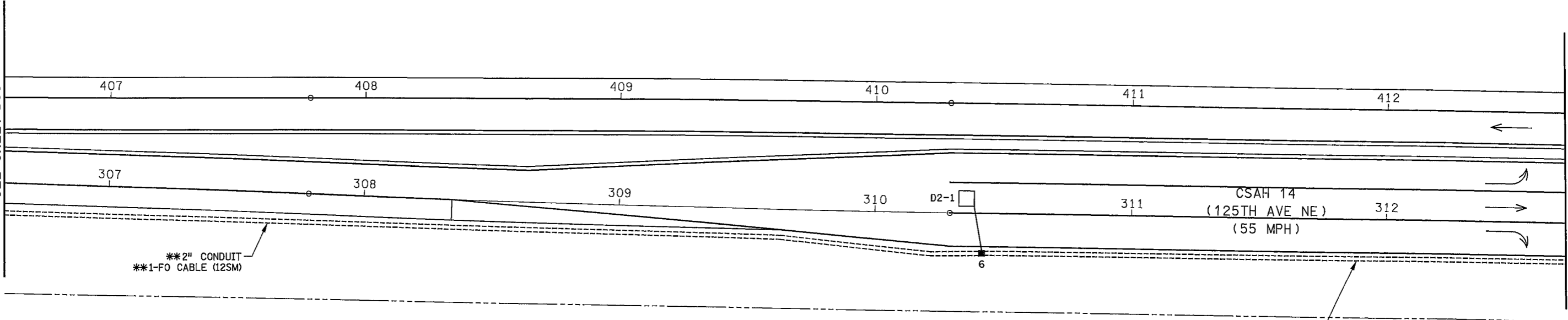
ANOKA COUNTY

TRAFFIC SIGNAL PLANS
CSAH 14 RECONSTRUCTION
FIELD WIRING DIAGRAM

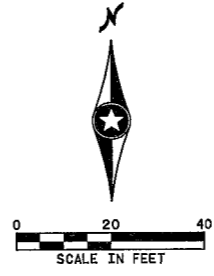
SHEET
98
OF
106

MATCH LINE "C"
SEE SHEET 100

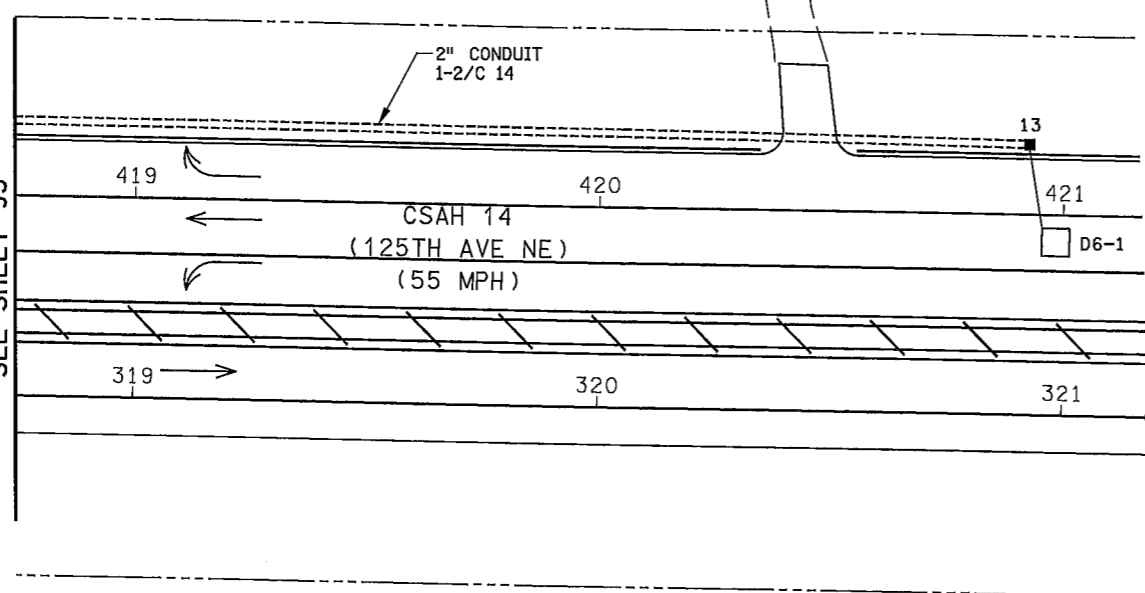
MATCH LINE "A"
SEE SHEET 95



2" CONDUIT
1-2/C 14
**2" CONDUIT
**1-FO CABLE (12SM)



MATCH LINE "B"
SEE SHEET 95



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Print Name: **NATHAN A. POOLE**

Date 03/22/19 License # 56071

STATE PROJECT NO.
002-614-045
106-142-001

CITY OF BLAINE
PROJECT NO.
18-09

DRAWN BY
M. BRESSLER

DESIGNED BY
M. BRESSLER

CHECKED BY
N. POOLE

COMM. NO. 1811762



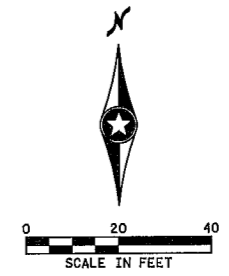
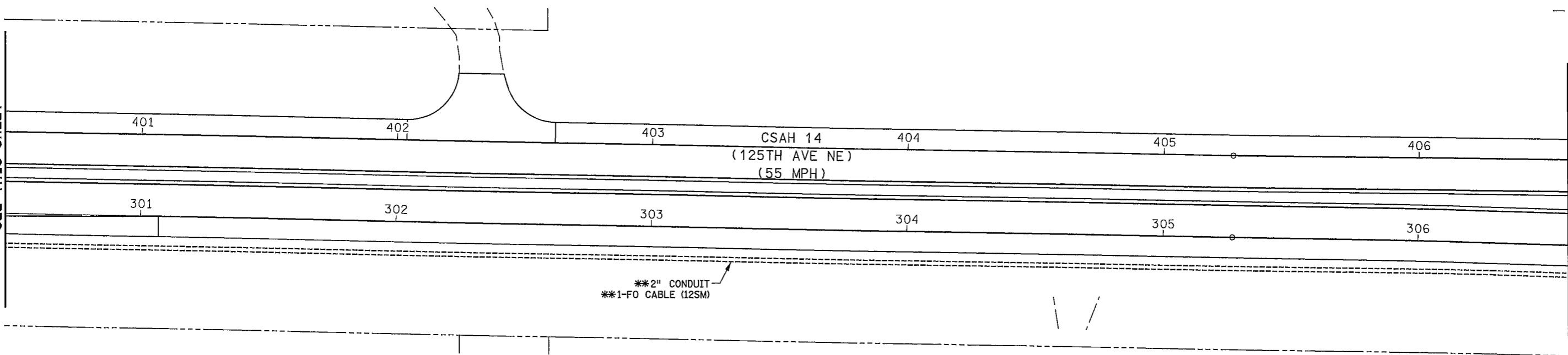
ANOKA COUNTY

TRAFFIC SIGNAL PLANS
CSAH 14 RECONSTRUCTION
MATCH LINE/INTERCONNECT LAYOUT

SHEET
99
OF
106

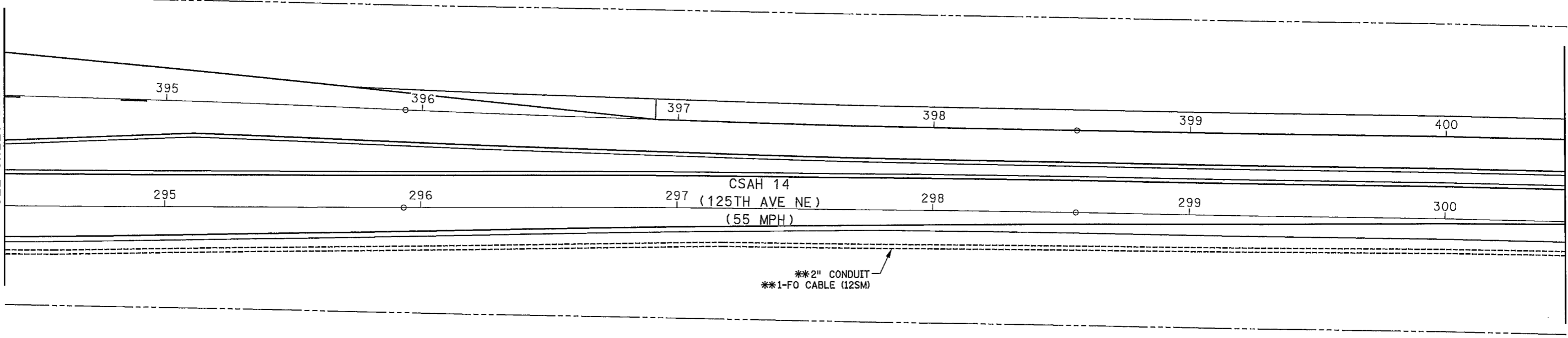
MATCH LINE "D"
SEE THIS SHEET

MATCH LINE "C"
SEE SHEET 99



MATCH LINE "E"
SEE SHEET 101

MATCH LINE "D"
SEE THIS SHEET



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DRAWN BY
M. BRESSLER

DESIGNED BY
M. BRESSLER

CHECKED BY
N. POOLE

COMM. NO. 1811762



ANOKA COUNTY

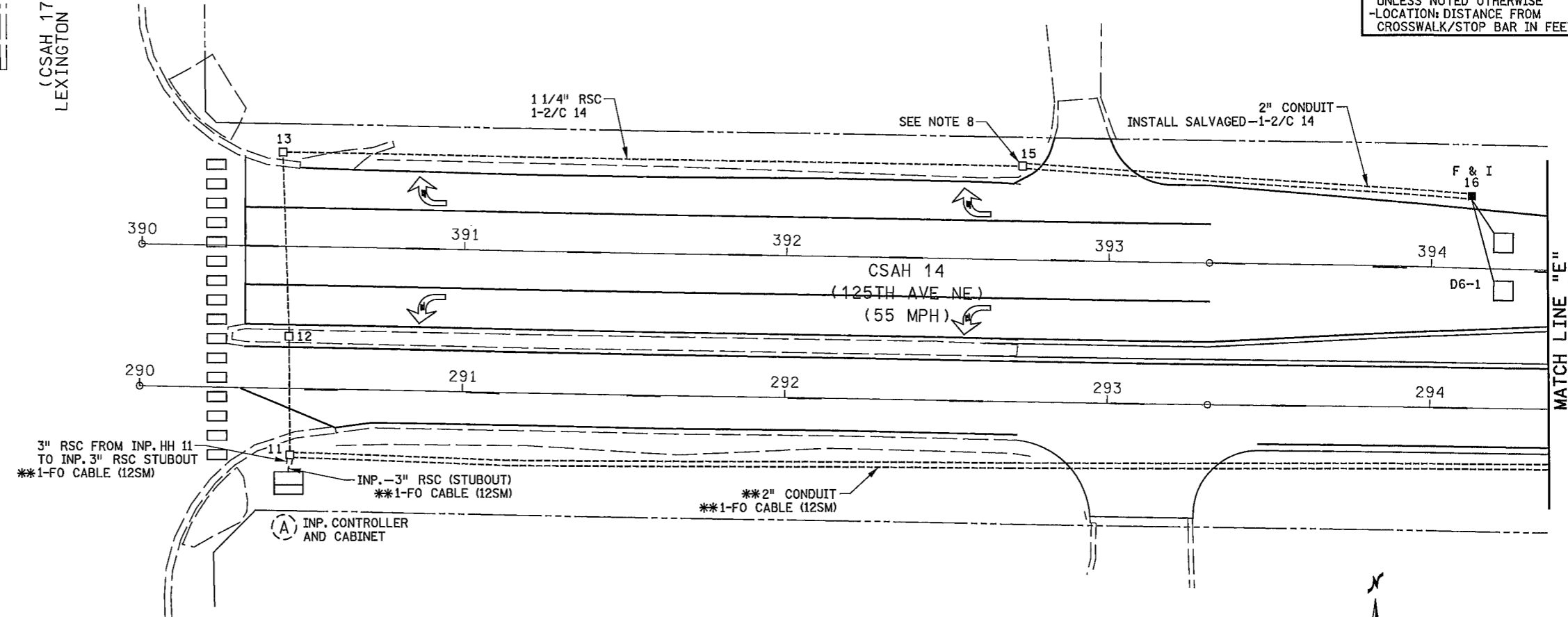
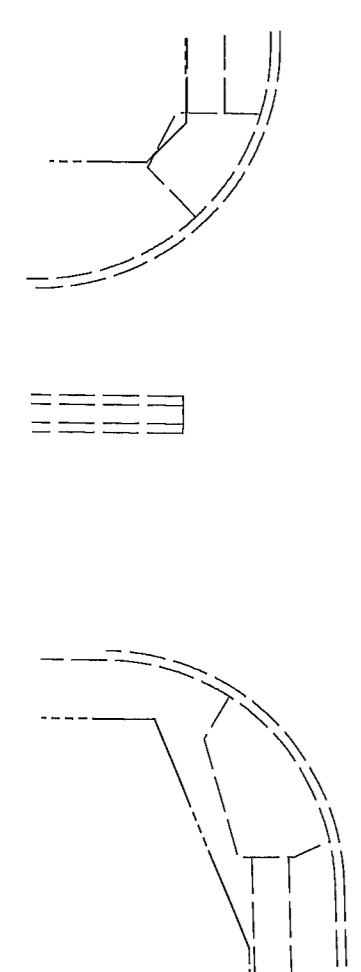
TRAFFIC SIGNAL PLANS
CSAH 14 RECONSTRUCTION
INTERCONNECT LAYOUT

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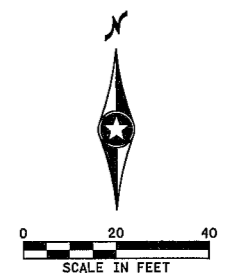
| LOOP DETECTOR CHART | | |
|---------------------|-----------|----------|
| NUMBER | SIZE (FT) | LOCATION |
| D6-1 | 2-6x6 | 405 |

F & I -
 -ALL LOOP DETECTORS SHALL BE PVC UNLESS NOTED OTHERWISE
 -LOCATION: DISTANCE FROM CROSSWALK/STOP BAR IN FEET

(CSAH 17)
 LEXINGTON AVE



MATCH LINE "E"
 SEE SHEET 100



- NOTES:
1. ALL ITEMS SHOWN ARE INPLACE AND SHALL REMAIN INPLACE UNLESS NOTED OTHERWISE.
 2. REFER TO "FOR INFORMATION ONLY" SHEETS FOR INPLACE SIGNAL COMPONENTS.
 3. SEE SPECIAL PROVISIONS FOR COUNTY FURNISHED MATERIALS.
 4. ENSURE THE EXACT LOCATION OF THE HANDHOLE, CONDUIT AND LOOP DETECTORS ARE VERIFIED IN THE FIELD BY COUNTY OFFICE PERSONNEL.
 5. THIS PLAN SPECIFIES CONDUIT SIZE, TYPE, AND GENERAL LOCATION. THE EXACT LOCATION WILL BE DETERMINED IN THE FIELD. CONDUITS UNDER THE ROADWAYS REQUIRE BORING.
 6. USE RSC FOR ALL NEW CONDUIT.
 7. CONDUIT SIZES ARE NOMINAL DIAMETER.
 8. INTERCEPT EXISTING HH 15 WITH NEW CONDUIT TO NEW HH 16. CONTRACTOR SHALL COIL AND PROTECT SALVAGED LOOP DETECTOR LEAD-IN CONDUCTOR IN EXISTING HH 15. CONTRACTOR SHALL INSTALL SALVAGED CONDUCTORS AS SHOWN AND MAKE ALL NECESSARY SPLICES TO NEW LOOP DETECTOR D6-1 TO MAKE THE REVISED SIGNAL SYSTEM OPERATIONAL TO THE SATISFACTION OF THE ENGINEER.
 9. ITEMS DENOTED WITH AN ** ARE INCLUDED IN PAYMENT FOR THE TRAFFIC CONTROL INTERCONNECTION PAY ITEM.

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| NO | DATE | BY | CHKD | APPR | REVISION |
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 Date 03/22/19 License # 56071

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DRAWN BY
 M. BRESSLER
 DESIGNED BY
 M. BRESSLER
 CHECKED BY
 N. POOLE
 COMM. NO. 1811762



ANOKA COUNTY
 TRAFFIC SIGNAL PLANS
 CSAH 14 RECONSTRUCTION
 REVISED INTERSECTION/INTERCONNECT LAYOUT

SHEET
 101
 OF
 106