

MINNESOTA DEPARTMENT OF TRANSPORTATION ANOKA COUNTY

CONSTRUCTION PLAN FOR _____ MILL BITUMINOUS, BITUMINOUS SURFACING, CURB & GUTTER, AND SEWER REPAIRS

LOCATED ON CSAH 116 BETWEEN 250' WEST OF 12TH AVENUE AND QUAY STREET NW

GOVERNING SPECIFICATIONS

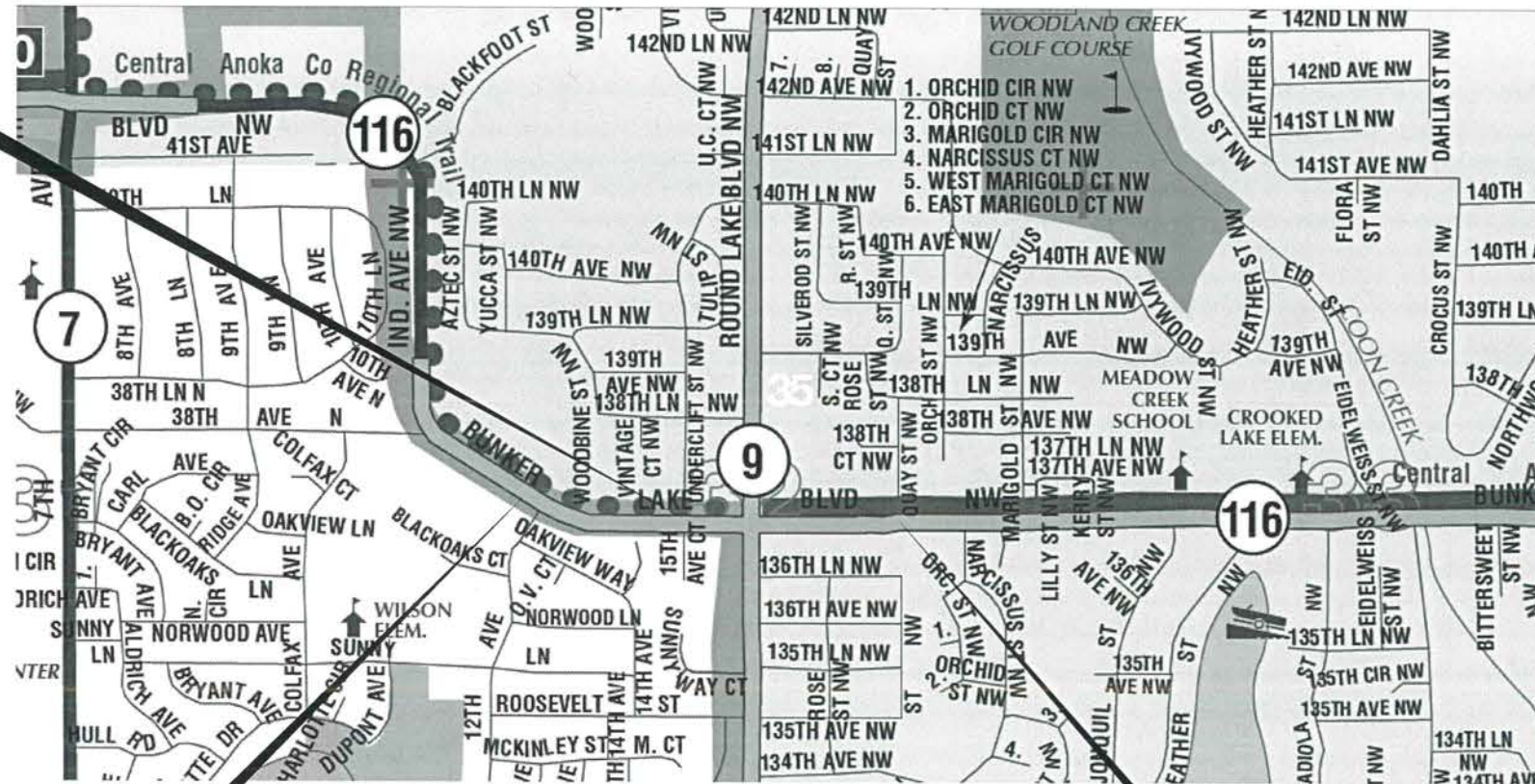
THE 2014 EDITION OF THE MINNESOTA DEPARTMENT OF TRANSPORTATION "STANDARD SPECIFICATIONS FOR CONSTRUCTION" AND THE 2014 EDITION OF THE "MATERIALS LAB SUPPLEMENTAL SPECIFICATIONS FOR CONSTRUCTION" SHALL GOVERN. ALL TRAFFIC CONTROL DEVICES SHALL CONFORM AND BE INSTALLED IN ACCORDANCE TO THE "MINNESOTA MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES" (MNMUTCD), AND PART VI, "FIELD MANUAL FOR TEMPORARY TRAFFIC CONTROL ZONE LAYOUTS."

THIS PLAN CONTAINS 22 SHEETS

INDEX

| SHEET NO. | DESCRIPTION |
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BEGIN CP 15-26-116
CSAH 116, STA: 26+16(LWB)



BEGIN CP 15-26-116
CSAH 116, STA: 11+78 (LEB)

END CP 15-26-116
CSAH 116, STA: 42+67 (LEB/LWB)

| CSAH 116 | | |
|-------------------|-----------|-------------|
| GROSS LENGTH(LWB) | 1651 FEET | 0.313 MILES |
| EXCEPTIONS-LENGTH | 0.00 FEET | 0.000 MILES |
| NET LENGTH(LWB) | 1651 FEET | 0.313 MILES |

DESIGN SPEED 45 MPH
CURRENT ADT 22994

| CSAH 116 | | |
|-------------------|-----------|-------------|
| GROSS LENGTH(LEB) | 3089 FEET | 0.585 MILES |
| EXCEPTIONS-LENGTH | 0.00 FEET | 0.000 MILES |
| NET LENGTH(LEB) | 3089 FEET | 0.585 MILES |

DESIGN SPEED 45 MPH
CURRENT ADT 22994

PROJECT LOCATION



CITY OF ANDOVER
ANOKA COUNTY
MN/DOT TRANSPORTATION DISTRICT - METRO
SECTION 32
TOWNSHIP 32 NORTH
RANGE 24 WEST

Approved

[Signature] 4/2/15
ANOKA COUNTY ENGINEER

| NO | DATE | BY | CKD | APPR | REVISION | TIME |
|----|------------|----|-----|------|----------|------------|
| | 03/20/2015 | | | | | 3:07:43 PM |

NAME: P:\15-01-00\CSAH_116(Undercliff-Quay)\Base\PROPOSED\TEMPLATE_PLAN.dgn

I HEREBY CERTIFY THAT THIS PLAN 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.
PRINT NAME: MATTHEW J. JOHN
SIGNATURE: *[Signature]*
DATE: 4/2/15 LICENSE NO. 51639

DRAWN BY: SRK DATE: 2/27/2015
DESIGN BY: SRK DATE: 2/27/2015
CHECKED BY: MJJ DATE: 03/13/2015



ANOKA COUNTY
HIGHWAY DEPT.

COUNTY PROJECT 15-26-116

TITLE SHEET
Sheet 1 of 22 Sheets

STATEMENT OF ESTIMATED QUANTITIES

| ITEM NUMBER | ITEM DESCRIPTION | NOTES | UNIT | TOTAL PROJECT QUANTITIES ESTIMATED |
|-------------|---|--------|----------|------------------------------------|
| 2021.501 | MOBILIZATION | | LUMP SUM | 1 |
| 2104.501 | REMOVE CURB AND GUTTER | | LIN FT | 747 |
| 2104.503 | REMOVE CONCRETE WALK | 16 | SQ FT | 1013 |
| 2104.505 | REMOVE BITUMINOUS PAVEMENT | 17 | SQ YD | 466 |
| 2104.509 | REMOVE CASTING | | EACH | 26 |
| 2104.509 | REMOVE DRAINAGE STRUCTURE | | EACH | 3 |
| 2104.511 | SAWING CONCRETE PAVEMENT (FULL DEPTH) | | LIN FT | 241 |
| 2104.513 | SAWING BITUMINOUS PAVEMENT (FULL DEPTH) | | LIN FT | 1494 |
| 2104.523 | SALVAGE SIGN | 21 | EACH | 10 |
| 2211.501 | AGGREGATE BASE CLASS 5 | 1 | TON | 60 |
| 2232.501 | MILL BITUMINOUS SURFACE (2.0") | 2 | SQ YD | 22574 |
| 2232.604 | MILL BITUMINOUS PAVEMENT (SPECIAL) | 3 | SQ YD | 2695 |
| 2357.502 | BITUMINOUS MATERIAL FOR TACK COAT | | GAL | 1263 |
| 2360.501 | TYPE SP 12.5 WEARING COURSE MIX (3,B) | | TON | 310 |
| 2360.501 | TYPE SP 12.5 WEARING COURSE MIXTURE (4,E) | | TON | 2596 |
| 2360.505 | TYPE SP 12.5 BITUMINOUS MIXTURE FOR PATCHING | 4 | TON | 104 |
| 2504.602 | ADJUST GATE VALVE | 18 | EACH | 5 |
| 2506.501 | CONST DRAINAGE STRUCTURE DESIGN C | | LIN FT | 5 |
| 2506.501 | CONSTRUCT DRAINAGE STRUCTURE DESIGN 48-4020 | 9, 10 | LIN FT | 3 |
| 2506.502 | CONST DRAINAGE STRUCTURE DESIGN G | 9, 10 | EACH | 1 |
| 2506.502 | CONST DRAINAGE STRUCTURE DESIGN H | 9, 10 | EACH | 1 |
| 2506.516 | CASTING ASSEMBLY | 19 | EACH | 26 |
| 2506.602 | GROUT CATCH BASIN OR MANHOLE | 5 | EACH | 20 |
| 2506.602 | CLEAN OUT CATCH BASIN | | EACH | 3 |
| 2521.501 | 4" CONCRETE WALK | 16 | SQ FT | 295 |
| 2521.501 | 6" CONCRETE WALK | 6 | SQ FT | 2202 |
| 2531.501 | CONCRETE CURB & GUTTER DESIGN B412 | | LIN FT | 20 |
| 2531.501 | CONCRETE CURB & GUTTER DESIGN B418 | | LIN FT | 10 |
| 2531.501 | CONCRETE CURB & GUTTER DESIGN B618 | | LIN FT | 717 |
| 2531.618 | TRUNCATED DOMES | | SQ FT | 384 |
| 2545.602 | ADJUST HANDHOLE | | EACH | 2 |
| 2550.602 | LOOP DETECTOR DESIGN NMC | 13 | EACH | 47 |
| 2563.601 | TRAFFIC CONTROL | 20, 22 | LUMP SUM | 1 |
| 2563.610 | POLICE OFFICER | | HOUR | 84 |
| 2563.613 | PORTABLE CHANGEABLE MESSAGE SIGN | 14 | UNIT DAY | 14 |
| 2564.602 | INSTALL SIGN | 21 | EACH | 10 |
| 2573.530 | STORM DRAIN INLET PROTECTION | 7 | EACH | 43 |
| 2575.523 | EROSION CONTROL BLANKETS CATEGORY 0 | 11 | SQ YD | 118 |
| 2581.501 | REMOVABLE PREFORMED PAVEMENT MARKING TAPE | 15 | LIN FT | 788 |
| 2582.502 | 4" SOLID LINE WHITE-EPOXY | 13 | LIN FT | 6375 |
| 2582.502 | 4" BROKEN LINE WHITE-EPOXY | 13 | LIN FT | 771 |
| 2582.502 | 4" SOLID LINE YELLOW-EPOXY | 13 | LIN FT | 3620 |
| 2582.601 | PAVEMENT MESSAGE (LT ARROW) PREFORMED THERMOPLASTIC | 13 | EACH | 8 |
| 2582.601 | PAVEMENT MESSAGE (RT ARROW) PREFORMED THERMOPLASTIC | 13 | EACH | 5 |
| 2582.602 | 24" SOLID LINE WHITE PREFORMED THERMOPLASTIC | 13 | LIN FT | 164 |
| 2582.618 | 3' X 6' ZEBRA CROSSWALK - PREFORMED THERMOPLASTIC | 13 | SQ FT | 954 |

CONSTRUCTION NOTES

| | |
|----|---|
| 1 | ITEM TO BE USED AS BASE FOR NEW CONCRETE WALK |
| 2 | DETAIL MILLING AROUND MANHOLES, CATCH BASINS, AND GATE VALVES IS INCIDENTAL TO THIS ITEM. |
| 3 | TO BE USED FOR JOINT MATCHING AT EXISTING STREET APPROACHES AND/OR DETAIL MILLING ALONG FACE OF CONCRETE CURB AND GUTTER. DETAIL MILLING AROUND MANHOLES, CATCH BASINS, AND GATE VALVES IS INCIDENTAL TO THIS ITEM. |
| 4 | ITEM INCLUDES BITUMINOUS PATCHING AROUND NEW CURB, STORM STRUCTURE REPAIRS, AND ANY POTHOLES. |
| 5 | ITEM INCLUDES GROUTING OF INVERTS, DOGHOUSES, RINGS, AND CASTINGS AS REQUIRED (SEE DRAINAGE TAB, PAGE 3). |
| 6 | ISLAND NOSES PAID FOR AS 6" CONCRETE WALK (PLATE 7113A). |
| 7 | ALL DRAINAGE STRUCTURES AFFECTED BY THIS PROJECT MUST HAVE INLET PROTECTION. |
| 8 | ITEM INCLUDES GROUTING AND FURNISH AND INSTALL. |
| 9 | PAY HEIGHT IS MEASURED FROM INVERT OF OUTLET PIPE TO TOP OF PRECAST CONCRETE STRUCTURE PLUS AN ALLOWANCE OF 0.70 FEET FOR THE DEPTH OF THE CONCRETE BASE, REGARDLESS OF ITS ACTUAL THICKNESS. CONCRETE ADJUSTMENT RINGS ARE INCIDENTAL. |
| 10 | CONNECTIONS TO EXISTING STORM SEWER ARE INCIDENTAL. |
| 11 | TYPE 1 FERTILIZER AND TYPE 25-121 SEED ARE INCIDENTAL TO THIS ITEM. 4" OF TOPSOIL IS INCIDENTAL TO ALL TURF ESTABLISHMENT. |
| 12 | FULL LOOP REPLACEMENT REQUIRED. CONTRACTOR SHALL CONTACT ANOKA COUNTY TO DETERMINE PLACEMENT. SIGNAL PLANS ARE LOCATED AT THE END OF THIS PLAN. |
| 13 | FINAL STRIPING SHALL BE INSTALLED WITHIN 72 HOURS OF COMPLETION OF MAINLINE WEAR COURSE PAVING. DO NOT PASS, PASS WITH CARE AND NO CENTER STRIPE SIGNS TO BE INPLACE DURING MILLING, RECLAIMING OR PAVING OPERATIONS. |
| 14 | 2 MESSAGE BOARDS, ONE ON THE EACH END OF PROJECT WILL BE INSTALLED 7 DAYS PRIOR TO ANY CONSTRUCTION; REFERENCE STRIPING PLAN FOR DETAILS. |
| 15 | CENTERLINE AND LANE DESIGNATION SKIPS TO BE APPLIED AS SOON AS POSSIBLE ON EACH NEW LIFT OF PAVEMENT; SKIPS MUST BE INPLACE BEFORE THE CONTRACTOR LEAVES FOR THE DAY. CONTRACTOR IS TO REMOVE PRIOR TO FINAL PAINT STRIPING. |
| 16 | ITEM INCLUDES CONCRETE MEDIAN. |
| 17 | ITEM INCLUDES BITUMINOUS TRAIL. |
| 18 | GATE VALVES TO BE ADJUSTED ONLY AS NECESSARY AS DETERMINED BY THE ENGINEER. |
| 19 | ITEM INCLUDES FULL REPLACEMENT OF CASTING ADJUSTMENT RINGS. SEE STORM TABULATIONS FOR RING HEIGHTS. |
| 20 | DO NOT PASS, PASS WITH CARE AND NO CENTER STRIPE SIGNS TO BE INPLACE DURING MILLING, RECLAIMING OR PAVING OPERATIONS. |
| 21 | ITEM USED FOR SIGNS IN MEDIAN REMOVAL AREAS. |
| 22 | CONTRACTOR TO FURNISH, INSTALL, AND MAINTAIN TEMPORARY SIGNAGE WHENEVER EXISTING SIGNAGE IS REMOVED. TEMPORARY SIGNAGE SHALL BE INCIDENTAL TO TRAFFIC CONTROL. |

BASIS OF PLANNED QUANTITIES

| | | |
|------|---|--------------------------------|
| 2357 | BITUMINOUS MATERIAL FOR TACK COAT | 0.05 GAL / SQ YD |
| 2211 | AGGREGATE BASE CLASS 5 | 1.8 TONS / CU YD |
| 2360 | ALL BITUMINOUS PAVEMENT | 115 LBS / SQ YD / IN THICKNESS |
| 2581 | REMOVABLE PREFORM PAVEMENT MARKING TAPE | 2' AT 50' INTERVALS |

MNDOT STANDARD PLATES

| PLATE NUMBER | DESCRIPTION |
|--------------|--|
| 4002F | MANHOLE OR CATCH BASIN (MASONRY FIELD CONSTRUCTION) - DESIGN |
| 4006L | MANHOLE OR CATCH BASIN PRECAST-DESIGNS G & H |
| 4020J | MANHOLE OR CATCH BASIN FOR USE WITH OR WITHOUT TRAFFIC LOADS |
| 4026A | CONCRETE ENCASED CONCRETE ADJUSTING RINGS |
| 4101D | RING CASTING FOR MANHOLE OR CATCH BASIN |
| 4110F | COVER CASTING FOR MANHOLE |
| 7035N | CONCRETE WALK |
| 7038A | DETECTABLE WARNING SURFACE |
| 7100H | CONCRETE CURB AND GUTTER |
| 7113A | CONCRETE APPROACH NOSE DETAIL |

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**ANOKA COUNTY
HIGHWAY DEPT.**

COUNTY PROJECT 15-26-116

STATEMENT OF ESTIMATED QUANTITIES

Sheet 2 of 22 Sheets

| NO | DATE | BY | CKD | APPR | REVISION | |
|----|------------|----|-----|------|----------|------------|
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| STORM DRAINAGE TAB | | | | | | | | | | | | | |
|--------------------|--------|-----------------|-------------|--------------------------------------|------------------|----------|----------|---------------|-----------------|--|--------------|--------------|-----------------|
| NUMBER | TYPE | ACTION | NEW CASTING | FURNISH AND INSTALL CASTING ASSEMBLY | REMOVE STRUCTURE | H (EACH) | G (EACH) | BLOCK (LN FT) | 48-4020 (LN FT) | RING HEIGHT (LN FT) INCIDENTAL TO CASTING ASSEMBLY | GROUT (EACH) | CLEAN (EACH) | NOTES |
| 100B | MH SAN | RE-RING | A-7D | 1 | | | | | | (1.9) | | | |
| 101 | CB | RE-RING | R-3030 | 1 | | | | | | (1.1) | | | |
| 102 | CB | GROUT | | | | | | | | | 1 | | GROUT STRUCTURE |
| 106 | CB | GROUT | | | | | | | | | 1 | | GROUT STRUCTURE |
| 107 | CB | GROUT | | | | | | | | | 1 | | GROUT STRUCTURE |
| 108 | CB | GROUT | | | | | | | | (0.8) | 1 | | GROUT STRUCTURE |
| 109 | CB | RE-RING / GROUT | R-3030 | 1 | | | | | | (0.6) | 1 | | GROUT STRUCTURE |
| 113 | MH | RE-RING | A-7D | 1 | | | 1 | | | (0.5) | | | |
| 114 | CB | GROUT | | | | | | | | | 1 | | GROUT STRUCTURE |
| 115 | CB | GROUT | | | | | | | | (1.1) | | 1 | |
| 116 | MH | OK | | | | | | | | (0.6) | 1 | | GROUT STRUCTURE |
| 117 | MH | RE-RING / GROUT | A-7D | 1 | | | | | | (0.5) | 1 | | GROUT STRUCTURE |
| 120 | CB | RECONSTRUCT | R-3030 | 1 | 1 | 1 | | | | | | | |
| 121 | CB | RE-RING / GROUT | R-3030 | 1 | | | | | | (0.8) | 1 | | GROUT STRUCTURE |
| 122 | CB | GROUT | | | | | | | | | 1 | | GROUT STRUCTURE |
| 123 | CB | GROUT | | | | | | | | | 1 | | GROUT STRUCTURE |
| 124 | MH | RE-RING | A-7D | 1 | | | | | | (0.9) | | | |
| 125 | CB | RE-RING | R-3030 | 1 | | | | | | (0.4) | | | |
| 129 | CB | GROUT | | | | | | | | | 1 | | GROUT STRUCTURE |
| 130 | MH | RE-RING | A-7D | 1 | | | | | | (1.4) | | | |
| 131 | CB | GROUT | | | | | | | | | 1 | 1 | GROUT STRUCTURE |
| 132 | MH | OK | | | | | | | | (0.5) | | | |
| 133 | CB | GROUT | | | | | | | | | 1 | | GROUT STRUCTURE |
| 134 | MH | OK | | | | | | | | (1.8) | | | |
| 135 | CB | RE-RING | R-3030 | 1 | | | | | | (0.2) | | | |
| 136 | CB | RE-RING | R-3030 | 1 | | | | | | (0.3) | | 1 | |
| 137 | CB | GROUT | | | | | | | | | 1 | | GROUT STRUCTURE |
| 138 | CB | RE-RING | R-3030 | 1 | | | | | | (0.9) | | | |
| 140 | CB | RE-RING | R-3030 | 1 | | | | | | (0.9) | | | |
| 141 | CB | GROUT | | | | | | | | | 1 | | GROUT STRUCTURE |
| 143 | CB | RE-RING | R-3030 | 1 | | | | | | (1.1) | | | |
| 144 | CB | RE-RING | R-3030 | 1 | | | | | | (1.0) | | | |
| 145 | CB | RE-RING | R-3030 | 1 | | | | | | (0.6) | | | |
| 147 | CB | RE-RING | R-3030 | 1 | | | | | | (0.7) | | | |
| 148 | CB | RE-RING | R-3030 | 1 | | | | | | (0.9) | | | |
| 149 | CB | RE-RING | R-3030 | 1 | | | | | | (0.7) | | | |
| 151 | CB | RECONSTRUCT | R-3030 | 1 | 1 | | | | 3.0 | | | | |
| 152 | CB | GROUT | | | | | | | | | 1 | | GROUT STRUCTURE |
| 153 | CB | RE-RING | R-3030 | 1 | | | | | | (0.8) | | | |
| 154 | CB | RECONSTRUCT | R-3030 | 1 | 1 | | | 4.7 | | | | | |
| 156 | MH SAN | GROUT | | | | | | | | (1.2) | 1 | | GROUT STRUCTURE |
| 157 | CB | RE-RING | R-3030 | 1 | | | | | | (0.2) | | | |
| 158 | CB | GROUT | | | | | | | | | 1 | | GROUT STRUCTURE |
| 159 | CB | RE-RING, GROUT | R-3030 | 1 | | | | | | | 1 | | GROUT STRUCTURE |
| 160 | CB | RE-RING | R-3030 | 1 | | | | | | (0.6) | | | |
| TOTALS: | | | | 26 | 3 | 1 | 1 | 4.7 | 3.0 | (23.0) | 20 | 3 | |

| CASTING ASSEMBLIES SUMMARY | | | | | |
|---|-----------------------|------------------------|----------|----------|--------------------------|
| ASSEMBLY | RING OR FRAME CASTING | COVER OR GRATE CASTING | CURB BOX | QUANTITY | DESCRIPTION |
| A-7D | 700-7 | 715 | | 5 | STD. PLATE: 4101D, 4110F |
| NEENAH* | R-3030 | L | YES | 21 | |
| *OR APPROVED EQUAL | | | | | |
| ALL CASTING HEIGHTS ARE TO BE VERIFIED IN THE FIELD. | | | | | |
| ALL MANHOLE COVERS SHOULD BE LABELED AS STORM OR SANITARY | | | | | |

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ANOKA COUNTY
HIGHWAY DEPT.

COUNTY PROJECT 15-26-116

STATEMENT OF ESTIMATED QUANTITIES
Sheet 3 of 22 Sheets

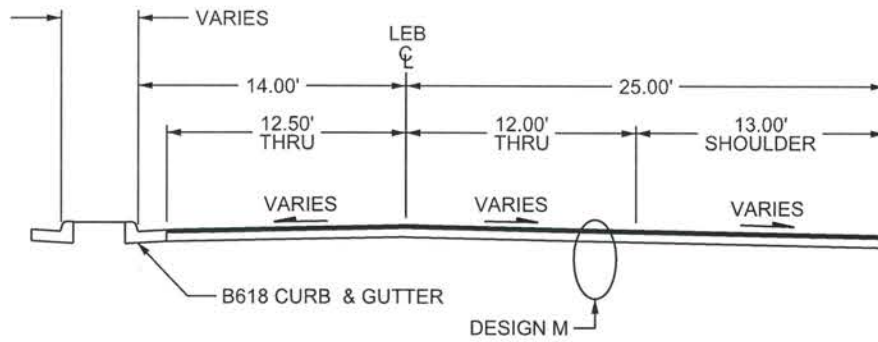
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BUNKER LAKE BLVD (CSAH 116)

TYPICAL LEB MAINLINE

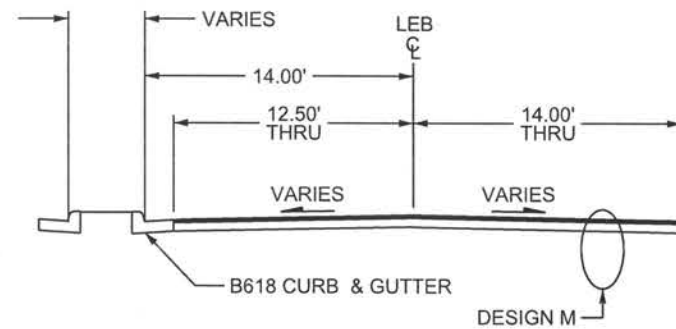
11+78 - 14+00 (LEB)



BUNKER LAKE BLVD (CSAH 116)

TYPICAL LEB MAINLINE

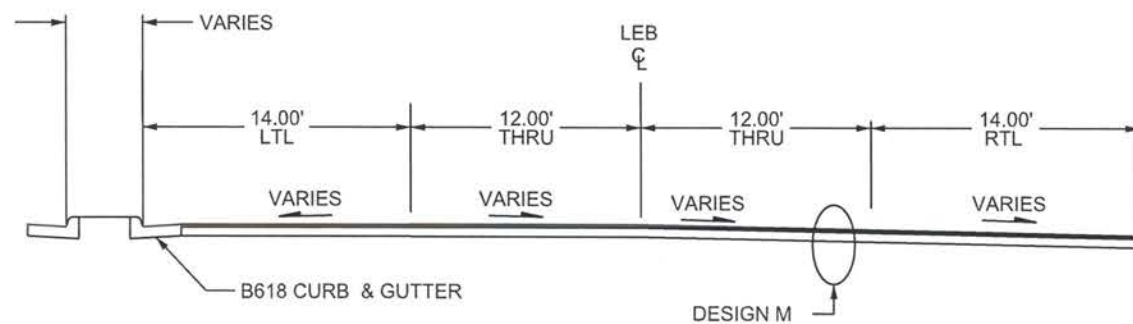
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BUNKER LAKE BLVD (CSAH 116)

TYPICAL LEB MAINLINE

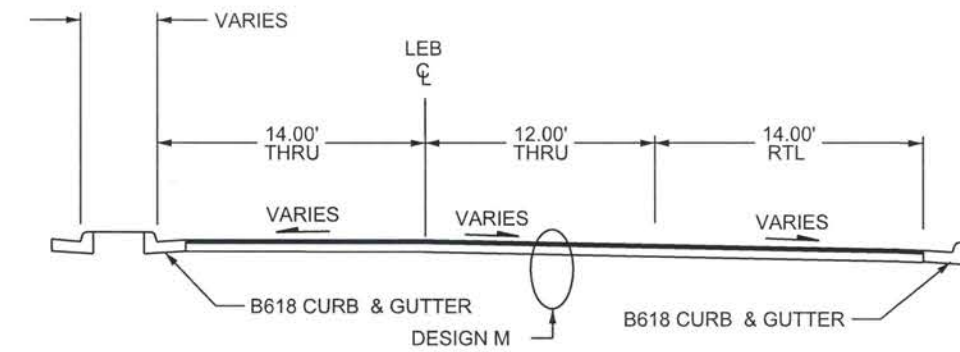
20+44 - 24+90 (LEB)



BUNKER LAKE BLVD (CSAH 116)

TYPICAL LEB MAINLINE

30+15 - 34+65 (LEB)

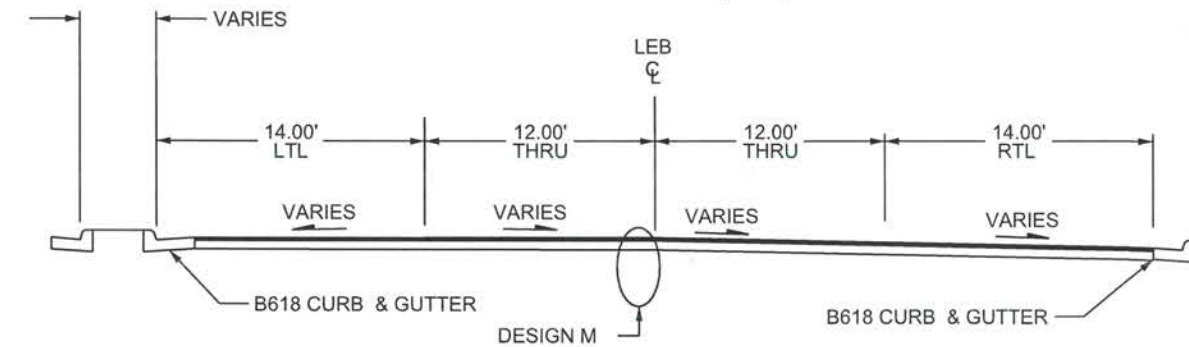


BUNKER LAKE BLVD (CSAH 116)

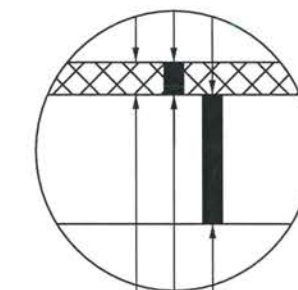
TYPICAL LEB TURN LANES

24+90 - 30+15 (LEB)

34+65 - 40+00 (LEB)



**DESIGN M
MILL SECTION**



2.0" MILL BITUMINOUS
2.0" BITUMINOUS WEAR (SPWEB440E)
REMAINING BITUMINOUS

| NO | DATE | BY | CKD | APPR | REVISION | 03/20/2015 | 2:48:04 PM |
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COUNTY PROJECT 15-26-116

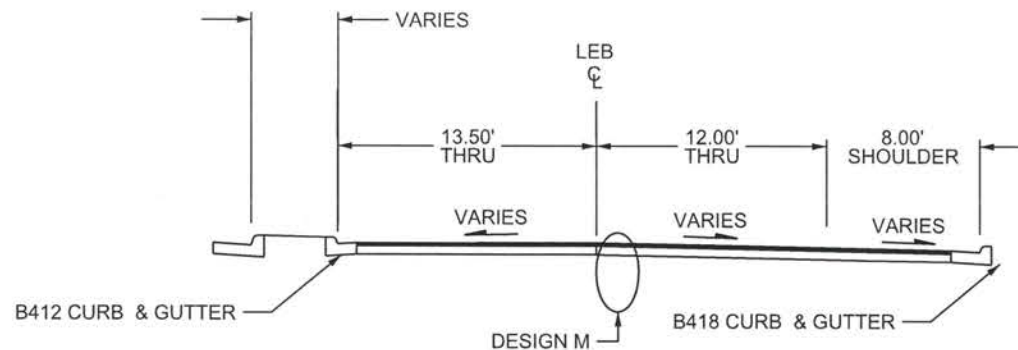
TYPICAL SECTIONS

Sheet 4 of 22 Sheets

BUNKER LAKE BLVD (CSAH 116)

TYPICAL LEB MAINLINE

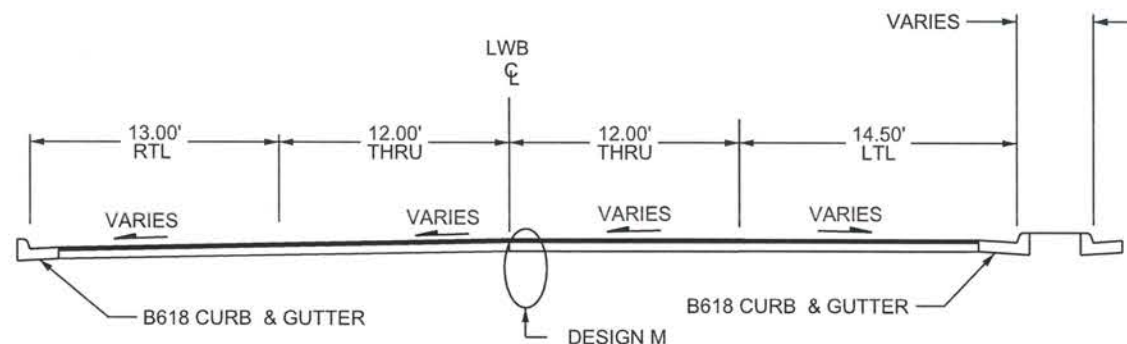
40+00 - 42+67 (LEB)



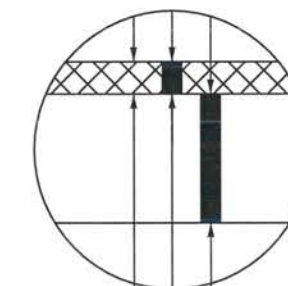
BUNKER LAKE BLVD (CSAH 116)

TYPICAL LWB TURN LANES

26+16 - 31+70 (LWB)



**DESIGN M
MILL SECTION**

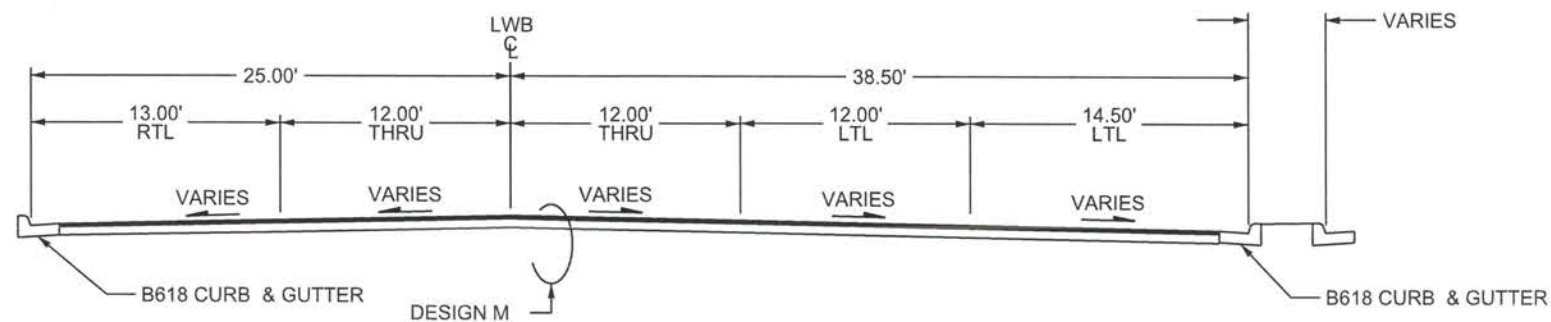


2.0" MILL BITUMINOUS
2.0" BITUMINOUS WEAR (SPWEB440E)
REMAINING BITUMINOUS

BUNKER LAKE BLVD (CSAH 116)

TYPICAL LWB TURN LANES

31+70 - 37+00 (LWB)



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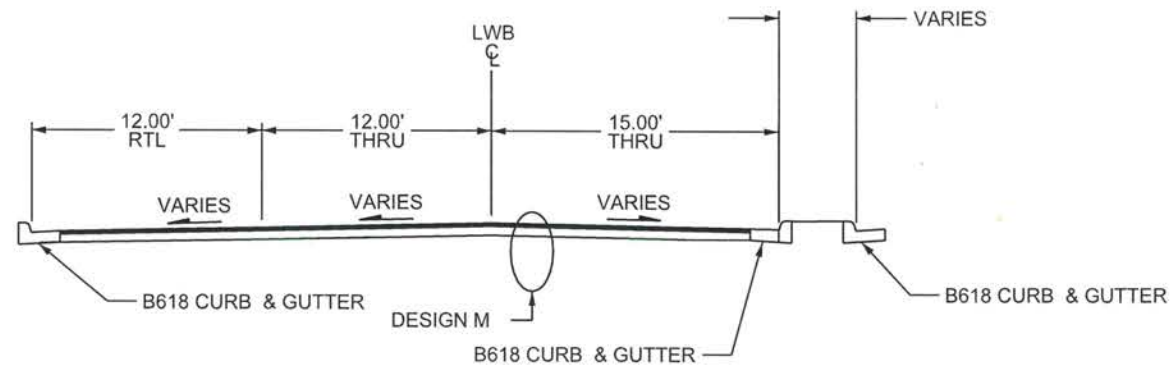
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HIGHWAY DEPT.**

COUNTY PROJECT 15-26-116

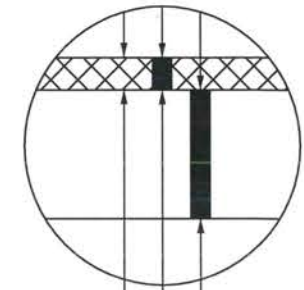
TYPICAL SECTIONS
 Sheet 5 of 22 Sheets

BUNKER LAKE BLVD (CSAH 116)
TYPICAL LWB TURN LANES

37+00 - 40+00 (LWB)



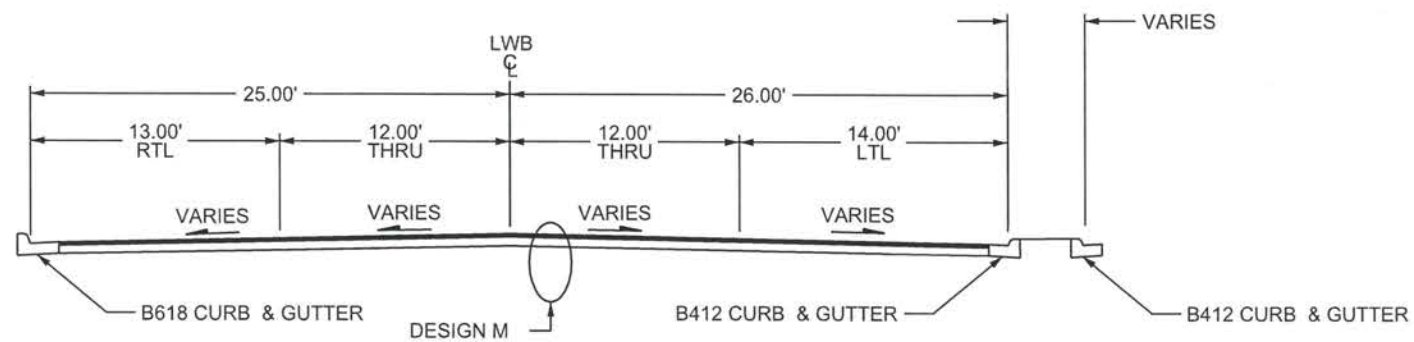
DESIGN M
MILL SECTION



2.0" MILL BITUMINOUS
2.0" BITUMINOUS WEAR (SPWEB440E)
REMAINING BITUMINOUS

BUNKER LAKE BLVD (CSAH 116)
TYPICAL MAINLINE


40+00 - 42+67(LWB)



| NO | DATE | BY | CKD | APPR | REVISION | |
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I HEREBY CERTIFY THAT THIS PLAN 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.
 PRINT NAME: MATTHEW J. JOHN
 SIGNATURE: *Matthew J. John*
 DATE: 4/2/15 LICENSE NO. 51639

DRAWN BY: SRK DATE: 02/27/2015
 DESIGN BY: SRK DATE: 02/27/2015
 CHECKED BY: MJJ DATE: 03/13/2015

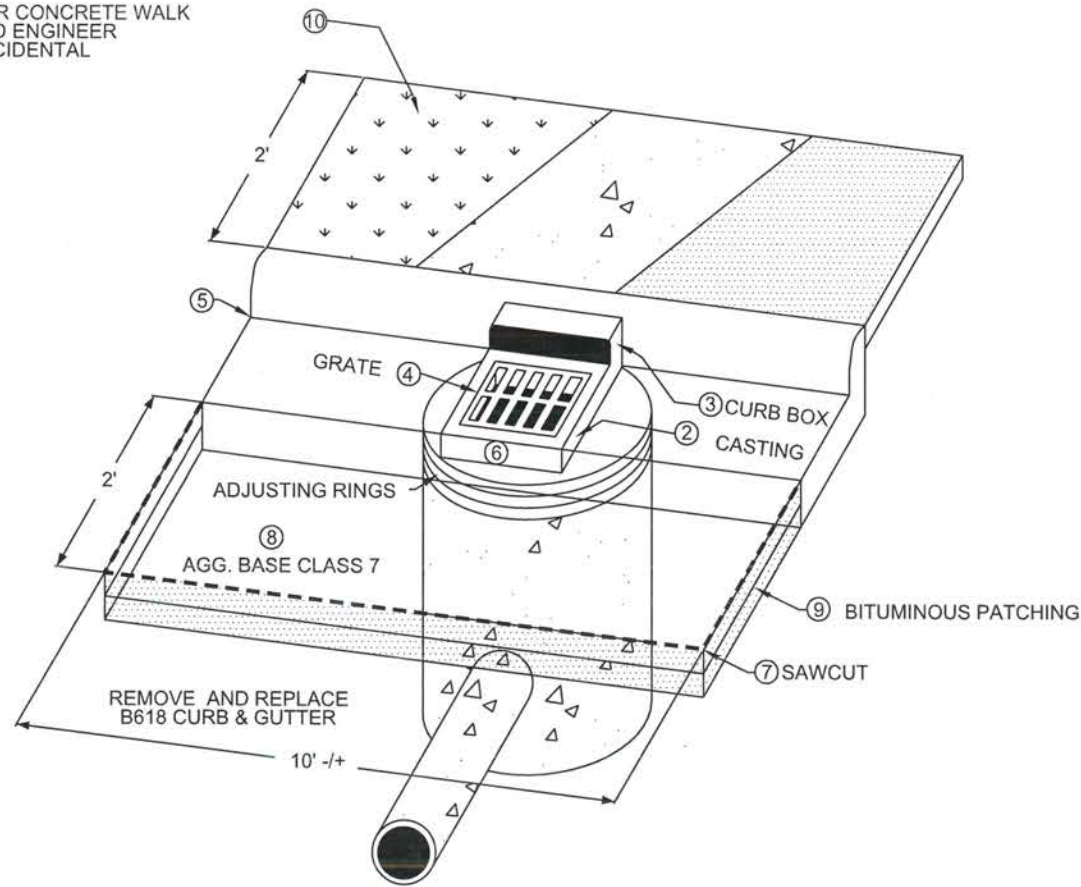

ANOKA COUNTY
HIGHWAY DEPT.

COUNTY PROJECT 15-26-116

CATCH BASIN DETAIL

SEE STRUCTURE TAB FOR LOCATION
(PAGE 3)

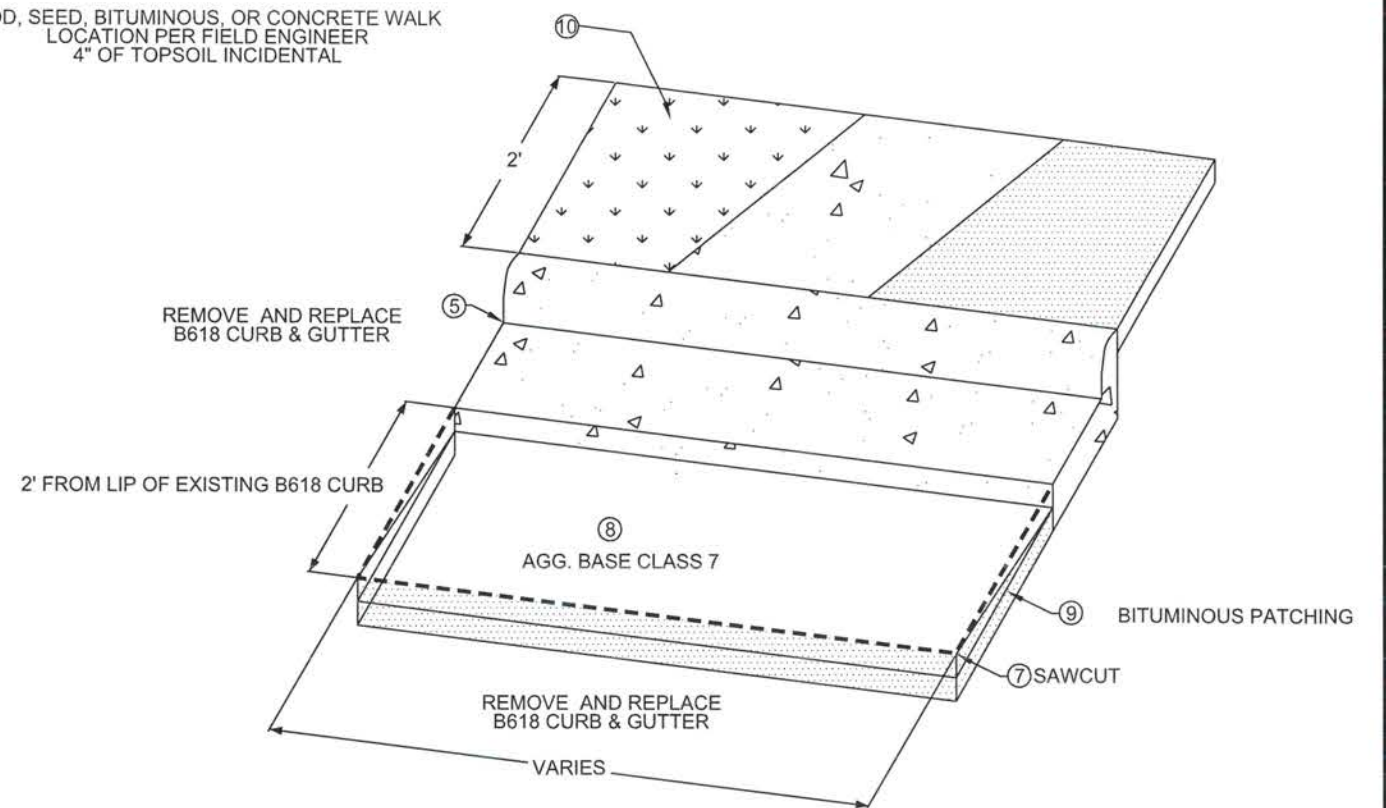
SOD, SEED, BITUMINOUS, OR CONCRETE WALK
LOCATION PER FIELD ENGINEER
4" OF TOPSOIL INCIDENTAL



NEW CURB DETAIL

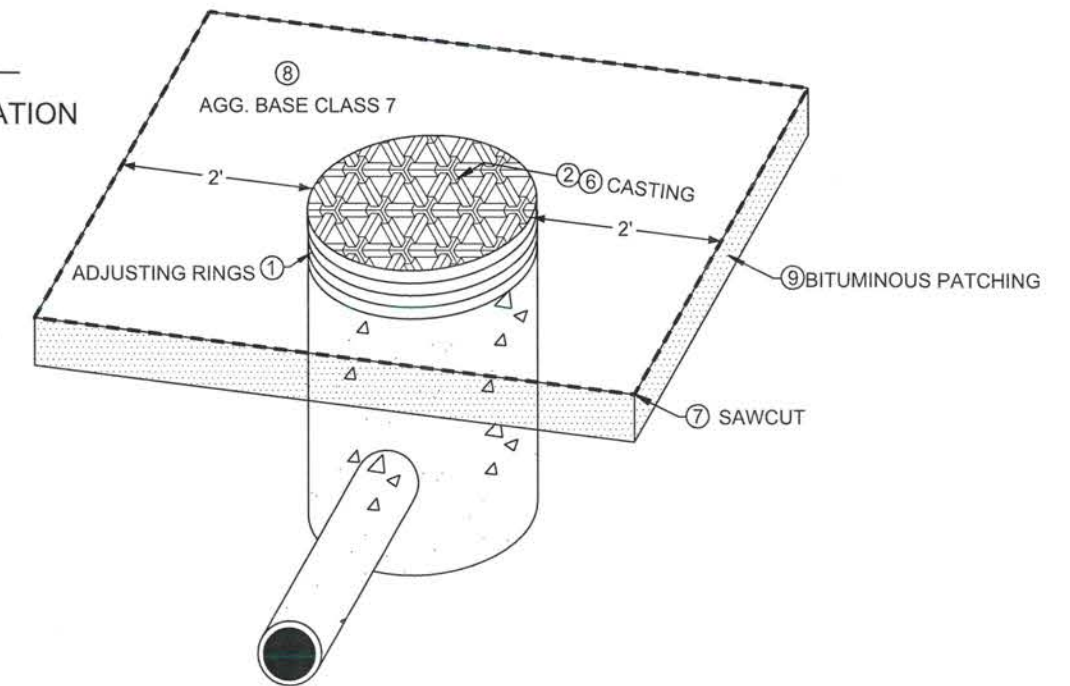
SEE PLAN FOR LOCATION

SOD, SEED, BITUMINOUS, OR CONCRETE WALK
LOCATION PER FIELD ENGINEER
4" OF TOPSOIL INCIDENTAL



MANHOLE DETAIL

SEE STRUCTURE TAB FOR LOCATION
(PAGE 3)



NOTES

FOR TRAFFIC CONTROL AT CATCH BASIN AND MANHOLE REPAIRS REFER TO THE MINNESOTA MANUAL ON TEMPORARY TRAFFIC CONTROL LAYOUTS FIELD MANUAL.

- ① CONCRETE ENCASED CONCRETE ADJUSTING RINGS STANDARD PLATE 4026A
- ② RING AND FRAME CASTING; REFERENCE CASTING ASSEMBLIES SUMMARY CHART FOR CASTING TYPE
- ③ CURB BOX MATCHES CASTING REFERENCE CHART FOR CASTING TYPE
- ④ GRATE CASTING; REFERENCE CASTING ASSEMBLIES SUMMARY CHART FOR CASTING TYPE
- ⑤ CONCRETE CURB AND GUTTER DESIGN B STANDARD PLATE 7100G
- ⑥ INSTALLATION OF CATCH BASIN OR MANHOLE CASTINGS; REFERENCE STANDARD PLATE PER TYPE OF CASTING
- ⑦ SAWCUT BITUMINOUS PAVEMENT / CONCRETE CURB FULL DEPTH.
- ⑧ ADD AND COMPACT AGGREGATE BASE CLASS 7 AROUND REPAIRED STRUCTURE. ITEM INCIDENTAL TO ENTIRE STRUCTURE REPAIR
- ⑨ REMOVE VARIABLE DEPTH BITUMINOUS, PATCH WITH 2, 3" LIFTS OF BITUMINOUS, TOP LIFT SHOULD TAPER TO BOTTOM LIFT AT CURB.
- ⑩ REPLACE DISTURBED AREA BEHIND CATCH BASIN WITH EITHER SOD (RESIDENTIAL AREAS), EROSION CONTROL BLANKET, BITUMINOUS, OR CONCRETE

| NO | DATE | BY | CKD | APPR | REVISION | 03/20/2015 | 2:48:05 PM |
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| NAME: P:\15-01-00\CSAH_116(Underlift-Quay)\Base\PROPOSED\TEMPLATE_PLAN.dgn | | | | | | | |

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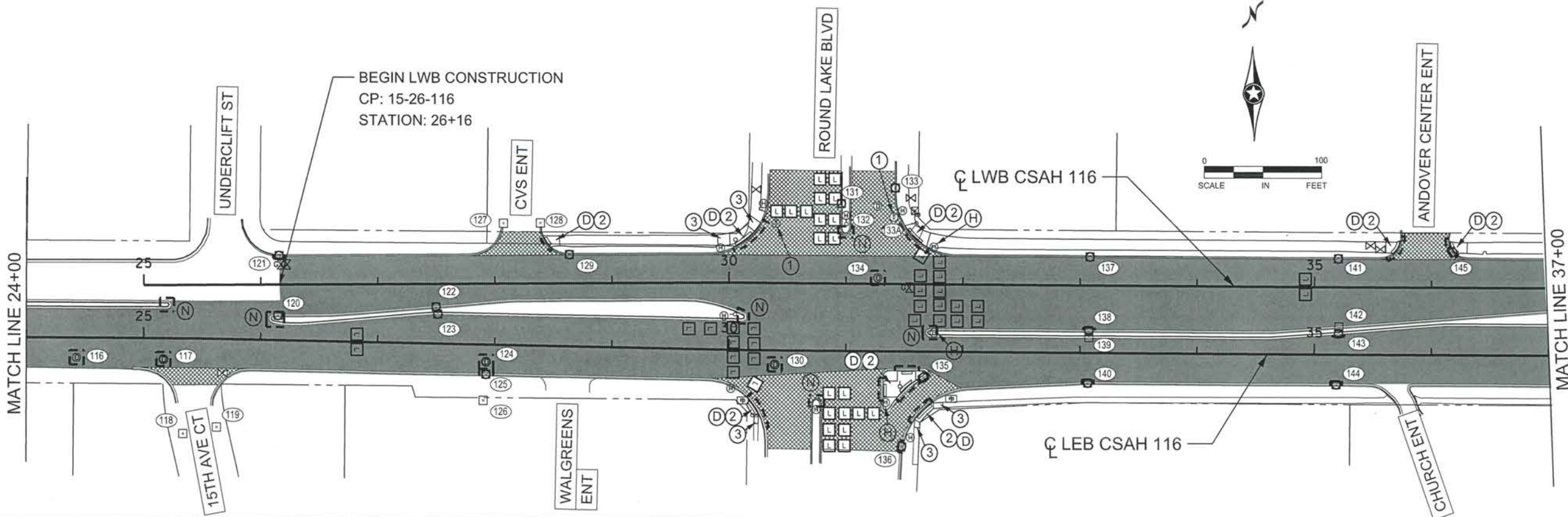
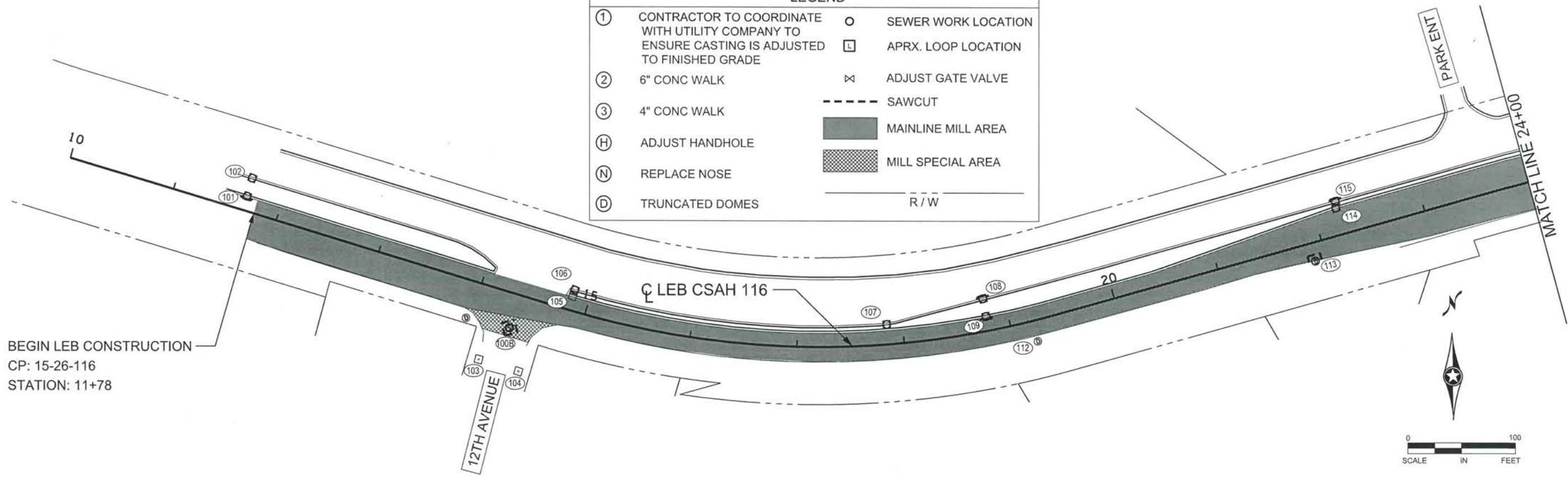
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 DESIGN BY: SRK DATE: 02/27/2015
 CHECKED BY: MJJ DATE: 03/13/2015

ANOKA COUNTY
HIGHWAY DEPT.

COUNTY PROJECT 15-26-116

DETAILS
 Sheet 7 of 22 Sheets

| LEGEND | | | |
|--------|---|-----|---------------------|
| ① | CONTRACTOR TO COORDINATE WITH UTILITY COMPANY TO ENSURE CASTING IS ADJUSTED TO FINISHED GRADE | ○ | SEWER WORK LOCATION |
| ② | 6" CONC WALK | □ | APRX. LOOP LOCATION |
| ③ | 4" CONC WALK | ⊗ | ADJUST GATE VALVE |
| (H) | ADJUST HANDHOLE | --- | SAWCUT |
| (N) | REPLACE NOSE | ■ | MAINLINE MILL AREA |
| (D) | TRUNCATED DOMES | ▨ | MILL SPECIAL AREA |
| | | --- | R / W |



| NO | DATE | BY | CKD | APPR | REVISION | |
|----|------------|----|-----|------|----------|------------|
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NAME: P:\15-01-00\CSAH_116(Underclift-Quay)\Base\PROPOSED\TEMPLATE_PLAN.dgn

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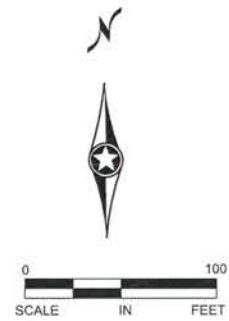
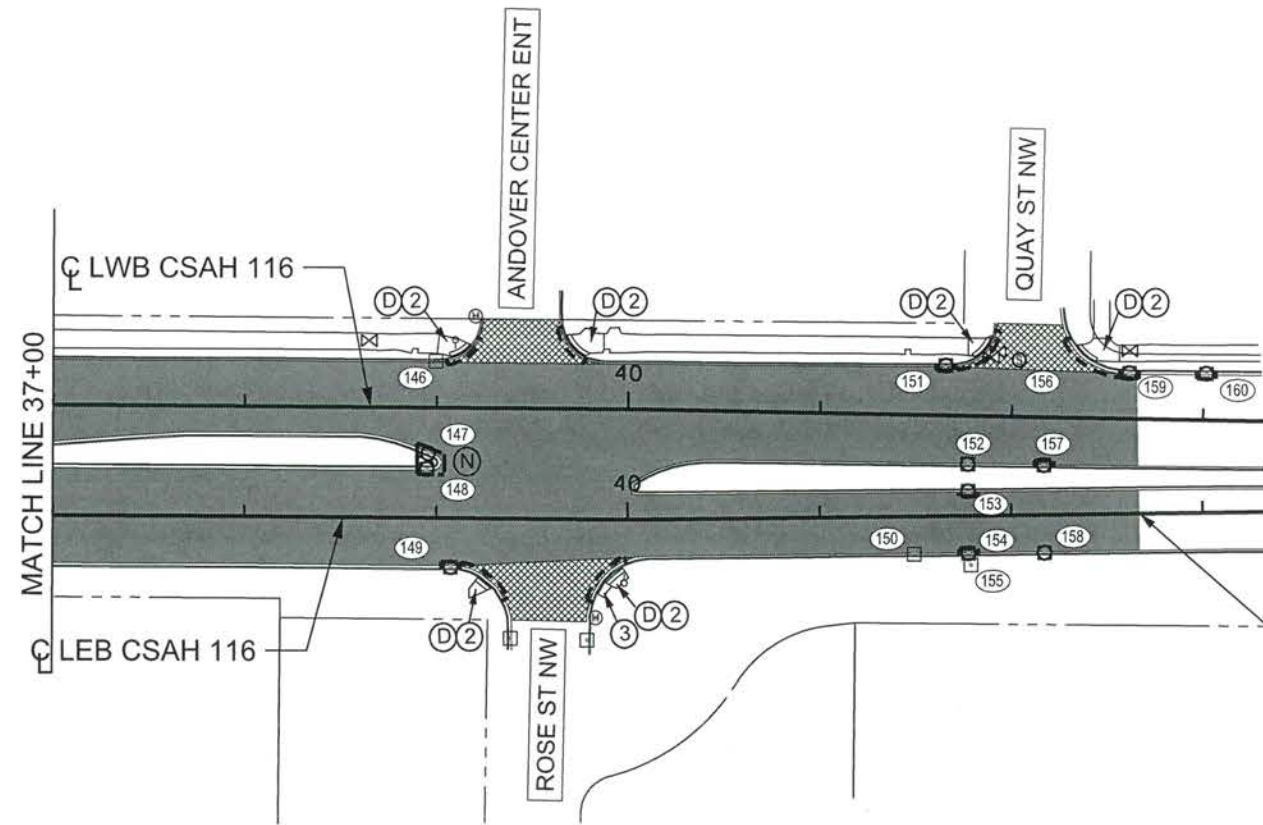
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 DESIGN BY: SRK DATE: 02/27/2015
 CHECKED BY: MJJ DATE: 03/13/2015

ANOKA COUNTY
HIGHWAY DEPT.

COUNTY PROJECT 15-26-116

CONSTRUCTION PLAN
 STA 11+78 TO 37+00
 Sheet 8 of 22 Sheets

| LEGEND | | | |
|--------|---|-----|---------------------|
| ① | CONTRACTOR TO COORDINATE WITH UTILITY COMPANY TO ENSURE CASTING IS ADJUSTED TO FINISHED GRADE | ○ | SEWER WORK LOCATION |
| ② | 6" CONC WALK | □ | APRX. LOOP LOCATION |
| ③ | 4" CONC WALK | ⊗ | ADJUST GATE VALVE |
| (H) | ADJUST HANDHOLE | --- | SAWCUT |
| (N) | REPLACE NOSE | ■ | MAINLINE MILL AREA |
| (D) | TRUNCATED DOMES | ▨ | MILL SPECIAL AREA |
| | | --- | R / W |



END LEB/LWB CONSTRUCTION
 CP: 15-26-116
 STATION: 42+67

| NO | DATE | BY | CKD | APPR | REVISION | |
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NAME: P:\15-01-00\CSAH_116(Undercliff-Quay)\Base\PROPOSED\TEMPLATE_PLAN.dgn

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DRAWN BY: SRK DATE: 02/27/2015
 DESIGN BY: SRK DATE: 02/27/2015
 CHECKED BY: MJJ DATE: 03/13/2015

ANOKA COUNTY
HIGHWAY DEPT.

COUNTY PROJECT 15-26-116

CONSTRUCTION PLAN
 STA 37+00 TO 42+67
 Sheet 9 of 22 Sheets

PERMANENT PAVEMENT MARKING PLAN
NOTES AND GUIDELINES

GENERAL INFORMATION:

THE ENGINEER'S INVOLVEMENT IN THE APPLICATION OF THE MATERIAL SHALL BE LIMITED TO FIELD CONSULTATION AND INSPECTION. ANOKA COUNTY HIGHWAY DEPARTMENT WILL PLACE NECESSARY "SPOTTING" AT APPROPRIATE POINTS TO PROVIDE HORIZONTAL CONTROL FOR STRIPING AND TO DETERMINE NECESSARY STARTING AND CUTOFF POINTS, LONGITUDINAL JOINTS, PAVEMENT EDGES AND EXISTING MARKINGS MAY SERVE AS HORIZONTAL CONTROL WHEN SO DIRECTED.

EDGE LINES AND LANE LINES ARE TO BE BROKEN ONLY AT INTERSECTIONS WITH PUBLIC ROADS AND AT PRIVATE ENTRANCES IF THEY ARE CONTROLLED BY A YIELD SIGN, STOP SIGN OR TRAFFIC SIGNAL. THE BREAK POINT IS TO BE AT THE START OF THE RADIUS FOR THE INTERSECTION OR AT MARKED STOP LINES OR CROSSWALKS.

A TOLERANCE OF 1/4 INCH UNDER OR 1/4 INCH OVER THE SPECIFIED WIDTH WILL BE ALLOWED FOR STRIPING PROVIDED THE VARIATION IS GRADUAL AND DOES NOT DETRACT FROM THE GENERAL APPEARANCE. BROKEN LINE SEGMENTS MAY VARY UP TO ONE-HALF FOOT FROM THE SPECIFIED LENGTHS PROVIDED THE OVER AND UNDER VARIATIONS ARE REASONABLY COMPENSATORY. ALIGNMENT DEVIATIONS FROM THE CONTROL GUIDE SHALL NOT EXCEED 1 INCH. MATERIAL SHALL NOT BE APPLIED OVER LONGITUDINAL JOINTS, ESTABLISHMENT OF APPLICATION TOLERANCES SHALL NOT RELIEVE THE CONTRACTOR OF THEIR RESPONSIBILITY TO COMPLY AS CLOSELY AS PRACTICABLE WITH THE PLANNED DIMENSIONS.

EPOXY:

THE ROAD SURFACE SHALL BE CLEANED AT THE DIRECTION OF THE ENGINEER JUST PRIOR TO APPLICATION. PAVEMENT CLEANING SHALL CONSIST OF AT LEAST BRUSHING WITH A ROTARY BROOM (NON-METALLIC) OR AS RECOMMENDED BY THE MATERIAL MANUFACTURER AND ACCEPTABLE TO THE ENGINEER. NEW PORTLAND CEMENT CONCRETE SURFACES SHALL BE SANDBLAST CLEANED TO REMOVE ANY SURFACE TREATMENT AND/OR LAITANCE ON LOW SPEED (SPEED LIMIT 35 MPH OR LESS) URBAN PORTLAND CEMENT CONCRETE ROADWAYS. SANDBLAST CLEANING SHALL BE USED FOR ALL EPOXY PAVEMENT MARKINGS.

THE EPOXY MARKING APPLICATION SHALL IMMEDIATELY FOLLOW THE PAVEMENT CLEANING. GLASS BEANS SHALL BE APPLIED IMMEDIATELY AFTER APPLICATION OF THE EPOXY RESIN LINE TO PROVIDE AN IMMEDIATE NO-TRACK SYSTEM.

AN EPOXY RESIN LINE 4" WIDE AND 15 MILL THICKNESS (WET), REQUIRES AN APPLICATION RATE OF ONE (1) GALLON OF COMPONENTS FOR 320 FEET OF LINE. GLASS BEADS SHALL BE APPLIED AT A POUND PER GALLON RATE SUFFICIENT TO ACHIEVE AN ACCEPTABLE NO-TRACK SYSTEM.

OPERATIONS SHALL BE CONDUCTED ONLY WHEN THE ROAD PAVEMENT SURFACE TEMPERATURES ARE 50 DEGREES FAHRENHEIT OR GREATER.

PERMANENT PAVEMENT MARKINGS SHALL NOT BE PLACED OVER TEMPORARY TAPE MARKINGS.

PREFORMED THERMOPLASTIC:

THE PREFORMED THERMOPLASTIC MARKINGS SHALL BE APPLIED IN ACCORDANCE WITH THE MANUFACTURER'S RECOMMENDATIONS ON CLEAN AND DRY SURFACES. SEE SPECIAL PROVISIONS FOR PREFORMED THERMOPLASTIC MARKING SPECIFICATIONS.

PAINT:

AT THE TIME OF APPLYING THE MARKING MATERIAL, THE APPLICATION AREA SHALL BE FREE OF CONTAMINATION. THE CONTRACTOR SHALL CLEAN THE ROADWAY SURFACE PRIOR TO THE LINE APPLICATION IN A MANNER AND TO THE EXTENT REQUIRED BY THE ENGINEER.

GLASS BEADS SHALL BE APPLIED IMMEDIATELY AFTER APPLICATION OF THE PAINT LINE.

EXCEPT WHEN USED AS A TEMPORARY MARKING, PAVEMENT MARKINGS SHALL ONLY BE APPLIED IN SEASONABLE WEATHER WHEN AIR TEMPERATURE IS 50 DEGREES FARHENHEIT OR HIGHER AND SHALL NOT BE APPLIED WHEN THE WIND OR OTHER CONDITIONS CAUSE A FILM OR DUST TO BE DEPOSITED ON THE PAVEMENT SURFACE AFTER CLEANING AND BEFORE THE MARKING MATERIAL CAN BE APPLIED.

THE FILLING OF TANKS, POURING OF MATERIALS OR CLEANING OF EQUIPMENT SHALL NOT BE PERFORMED ON UNPROTECTED PAVEMENT SURFACES UNLESS ADEQUATE PROVISIONS ARE MADE TO PREVENT SPILLAGE OF MATERIAL.

| PERMANENT MARKING QUANTITIES | | |
|--|--------|----------------|
| ITEM | UNIT | TOTAL QUANTITY |
| 4" SOLID LINE WHITE - EPOXY PAINT | LIN FT | 6375 |
| 4" BROKEN LINE WHITE - EPOXY PAINT | LIN FT | 771 |
| 4" SOLID LINE YELLOW - EPOXY PAINT | LIN FT | 3620 |
| 24" SOLID LINE WHITE - PREFORMED THERMOPLASTIC | LIN FT | 164 |
| 3'X6' ZEBRA CROSSWALK - PREFORMED THERMOPLASTIC | SQ FT | 954 |
| PAVEMENT MESSAGE (RT ARROW) - PREFORMED THERMOPLASTIC | EACH | 5 |
| PAVEMENT MESSAGE (LFT ARROW) - PREFORMED THERMOPLASTIC | EACH | 8 |

SYMBOLS & MATERIALS LEGEND

■ CROSSWALK BLOCK WHITE PREFORMED THERMOPLASTIC

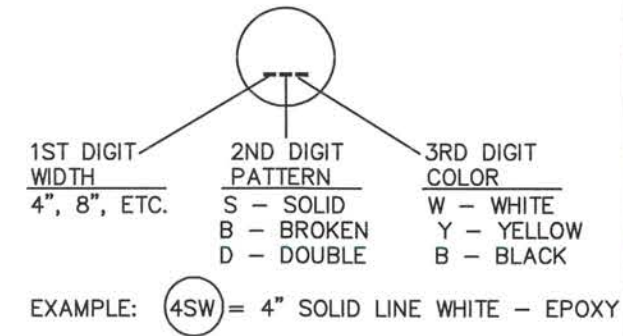
↩ PAVEMENT MESSAGE (LEFT ARROW) PREFORMED THERMOPLASTIC

STRIPING KEY

○ CIRCLE - EPOXY □ SQUARE PREFORMED THERMOPLASTIC

△ TRIANGLE - PAINT

⬠ PENTAGON - REMOVABLE PREFORMED PLASTIC MARKING



| NO | DATE | BY | CKD | APPR | REVISION |
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NAME: P:\13-01-00\CSAH 18\Bases\TRAFFIC\Perm pvmt mrkg guide notes_guidelines.dwg

I HEREBY CERTIFY THAT THIS PLAN 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.

PRINT NAME: MATTHEW J. JOHN
SIGNATURE: *Matthew J. John*
DATE: 4/2/15 LICENSE NO. 51639

DRAWN BY: RLB DATE: 2/14/14
DESIGN BY: RLB DATE: 2/14/14
CHECKED BY: JR DATE: 2/14/14



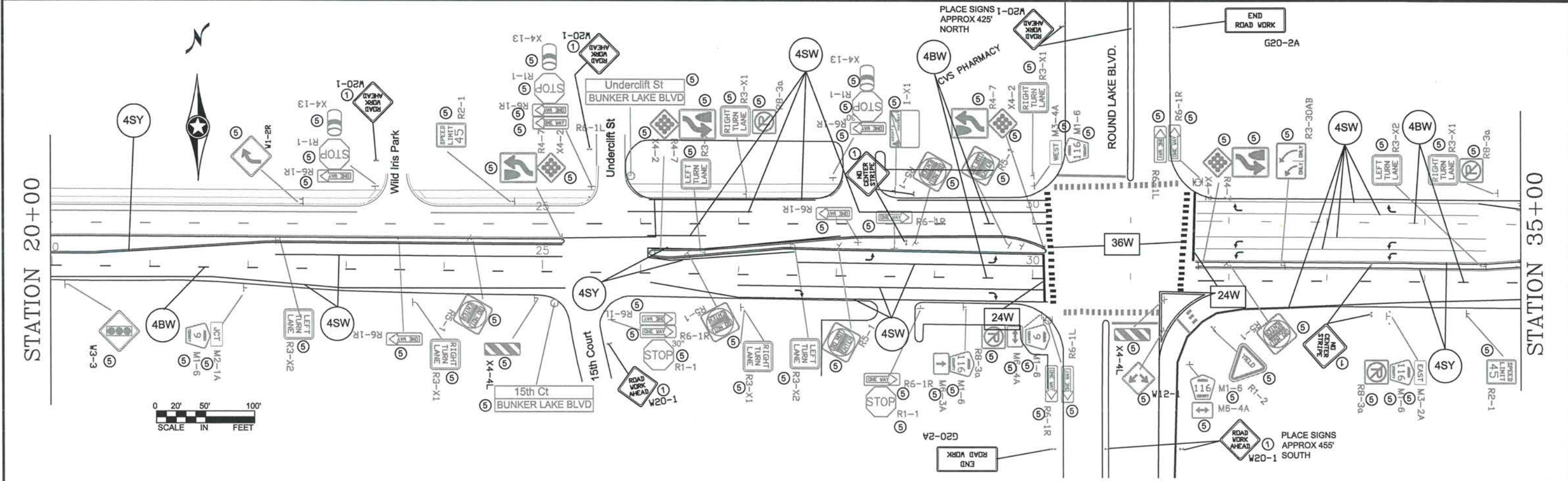
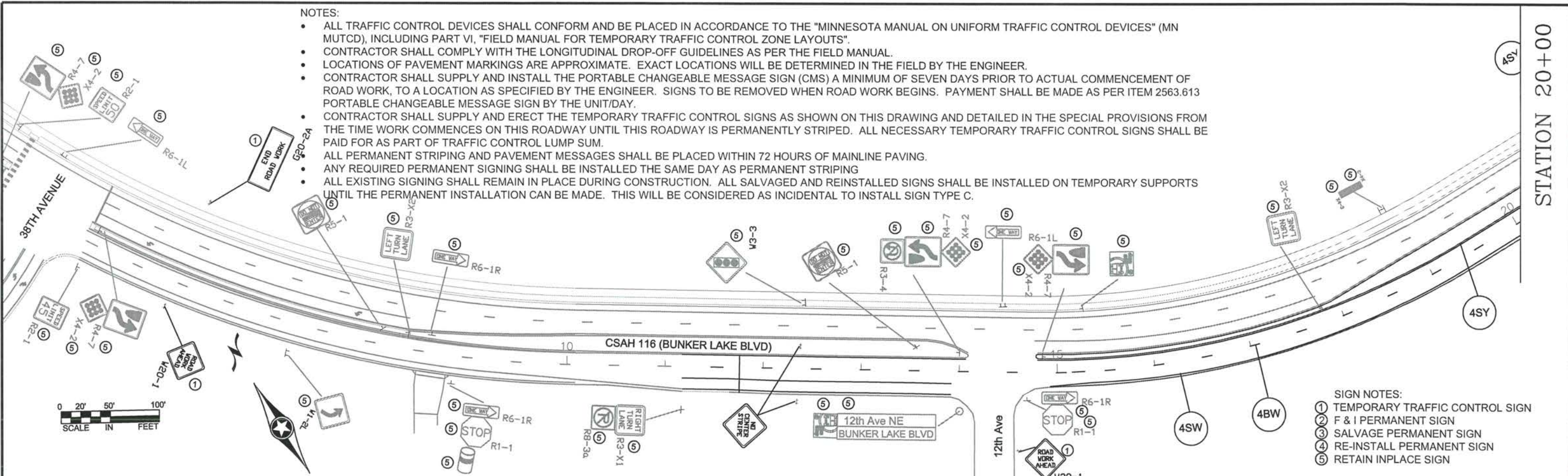
ANOKA COUNTY
HIGHWAY DEPT.

STATE PROJECT NO. _____
STATE AID PROJECT NO. _____
STATE AID PROJECT NO. _____
COUNTY PROJECT NO. 15-26-116

PERMANENT MARKING TABULATION
Sheet 10 of 22 Sheets

NOTES:

- ALL TRAFFIC CONTROL DEVICES SHALL CONFORM AND BE PLACED IN ACCORDANCE TO THE "MINNESOTA MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES" (MN MUTCD), INCLUDING PART VI, "FIELD MANUAL FOR TEMPORARY TRAFFIC CONTROL ZONE LAYOUTS".
- CONTRACTOR SHALL COMPLY WITH THE LONGITUDINAL DROP-OFF GUIDELINES AS PER THE FIELD MANUAL.
- LOCATIONS OF PAVEMENT MARKINGS ARE APPROXIMATE. EXACT LOCATIONS WILL BE DETERMINED IN THE FIELD BY THE ENGINEER.
- CONTRACTOR SHALL SUPPLY AND INSTALL THE PORTABLE CHANGEABLE MESSAGE SIGN (CMS) A MINIMUM OF SEVEN DAYS PRIOR TO ACTUAL COMMENCEMENT OF ROAD WORK, TO A LOCATION AS SPECIFIED BY THE ENGINEER. SIGNS TO BE REMOVED WHEN ROAD WORK BEGINS. PAYMENT SHALL BE MADE AS PER ITEM 2563.613 PORTABLE CHANGEABLE MESSAGE SIGN BY THE UNIT/DAY.
- CONTRACTOR SHALL SUPPLY AND ERECT THE TEMPORARY TRAFFIC CONTROL SIGNS AS SHOWN ON THIS DRAWING AND DETAILED IN THE SPECIAL PROVISIONS FROM THE TIME WORK COMMENCES ON THIS ROADWAY UNTIL THIS ROADWAY IS PERMANENTLY STRIPED. ALL NECESSARY TEMPORARY TRAFFIC CONTROL SIGNS SHALL BE PAID FOR AS PART OF TRAFFIC CONTROL LUMP SUM.
- ALL PERMANENT STRIPING AND PAVEMENT MESSAGES SHALL BE PLACED WITHIN 72 HOURS OF MAINLINE PAVING.
- ANY REQUIRED PERMANENT SIGNING SHALL BE INSTALLED THE SAME DAY AS PERMANENT STRIPING
- ALL EXISTING SIGNING SHALL REMAIN IN PLACE DURING CONSTRUCTION. ALL SALVAGED AND REINSTALLED SIGNS SHALL BE INSTALLED ON TEMPORARY SUPPORTS UNTIL THE PERMANENT INSTALLATION CAN BE MADE. THIS WILL BE CONSIDERED AS INCIDENTAL TO INSTALL SIGN TYPE C.



- SIGN NOTES:
- ① TEMPORARY TRAFFIC CONTROL SIGN
 - ② F & I PERMANENT SIGN
 - ③ SALVAGE PERMANENT SIGN
 - ④ RE-INSTALL PERMANENT SIGN
 - ⑤ RETAIN INPLACE SIGN

| NO | DATE | BY | CHKD | APPR | REVISION |
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| | | | | | |
| NAME: P:\02-617-19\base\Traffic\Curves from CSAH 18 to CSAH 22.dwg | | | | | |

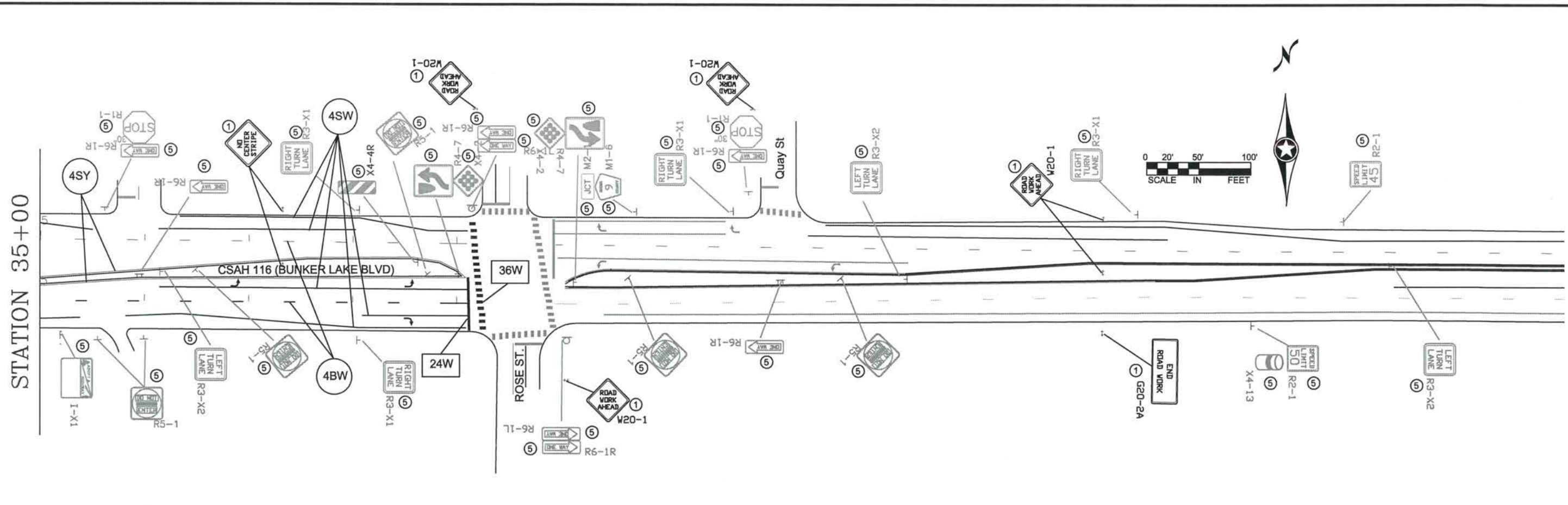
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 DATE: 4/24/15 REG. NO. 51639

DRAWN BY: RLB DATE: 1/7/14
 DESIGN BY: RLB DATE: 1/7/14
 CHECKED BY: JLR DATE: 1/7/14

ANOKA COUNTY
HIGHWAY DEPT.

STATE PROJECT NO. _____
 STATE AID PROJECT NO. _____
 STATE AID PROJECT NO. _____
 COUNTY PROJECT NO. 15-26-116

TEMPORARY SIGNING,
 PERMANENT SIGNING
 AND STRIPING
 Sheet 11 of 22 Sheets



- SIGN NOTES:**
- ① TEMPORARY TRAFFIC CONTROL SIGN
 - ② F & I PERMANENT SIGN
 - ③ SALVAGE PERMANENT SIGN
 - ④ RE-INSTALL PERMANENT SIGN
 - ⑤ RETAIN INPLACE SIGN

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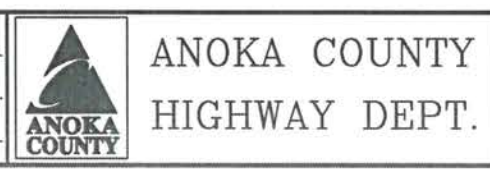
| NO | DATE | BY | CKD | APPR | REVISION |
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NAME: P:\02-617-19\base\Traffic\Curves from CSAH 18 to CSAH 22.dwg

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DRAWN BY: RLB DATE: 1/7/14
 DESIGN BY: RLB DATE: 1/7/14
 CHECKED BY: JR DATE: 1/7/14



STATE PROJECT NO. _____
 STATE AID PROJECT NO. _____
 STATE AID PROJECT NO. _____
 COUNTY PROJECT NO. 15-26-116

TEMPORARY SIGNING,
 PERMANENT SIGNING
 AND STRIPING

Sheet 12 of 22 Sheets

TEMPORARY TRAFFIC CONTROL SIGNS

| M.U.T.C.D. CODE | SIZE | PANEL AREA FT. ² | INSERT | QUANTITY | | MOUNTING HEIGHT TO PAVEMENT EDGE FT. |
|--|-----------|--------------------------------|--------|-----------------------------|----------|---|
| | | | | | No. POST | |
| W8-12 | 48" x 48" | 16.00 | | 8 | 2 | 7.0' |
| R4-1 | 24" x 30" | 5.00 | | 0 | 1 | 7.0' |
| R4-2 | 24" x 30" | 5.00 | | 0 | 1 | 7.0' |
| G20-2A | 48" x 24" | 8.00 | | 4 | 2 | 7.0' |
| W8-1A | 48" x 48" | 16.00 | | AS NEEDED | | |
| W8-1A | 48" x 48" | 16.00 | | AS NEEDED | | |
| W8-8 | 48" x 48" | 16.00 | | AS NEEDED | | |
| W8-9 | 48" x 48" | 16.00 | | AS NEEDED | | |
| | 48" x 48" | 16.00 | | AS NEEDED | | |
| W8-11 | 48" x 48" | 16.00 | | AS NEEDED | | |
| W20-1 | 48" x 48" | 16.00 | | AS NEEDED (ESTIMATED 14) | | |
| CMS sign to be installed a minimum of seven days prior to actual commencement of road work. Signs to be removed when road work begins. | | | | 2 | | |

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CHANGEABLE MESSAGE BOARD - MESSAGE SEQUENCE LAYOUT

| | | | | | | | |
|--|--|---|---|---|---|---|---|
| | | R | O | A | D | | |
| | | W | O | R | K | | |
| | | B | E | G | I | N | S |
| | | < | D | A | T | E | > |
| | | E | X | P | E | C | T |
| | | D | E | L | A | Y | S |

CMS sign to be installed a minimum of seven days prior to actual commencement of road work. Signs to be removed when road work begins.

| NO | DATE | BY | CKD | APPR | REVISION |
|----|------|----|-----|------|----------|
| | | | | | |

NAME: P:\02-817-19\base\Traffic\Curves from CSAH 18 to CSAH 22.dwg

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.
 PRINT NAME: MATTHEW J. JOHN
 SIGNATURE:
 DATE: 4/2/15 REG. NO. 51639

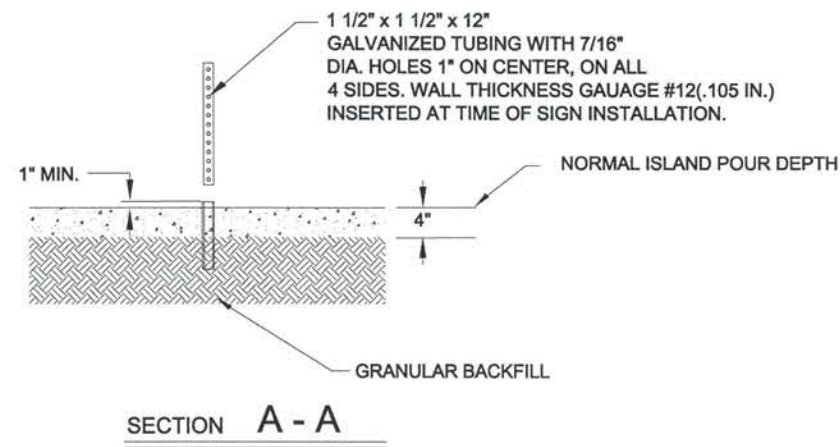
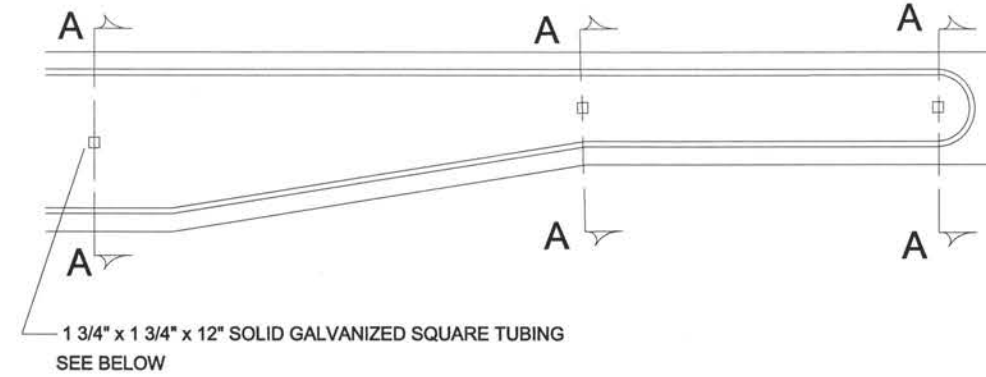
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 DESIGN BY: RLB DATE 1/7/14
 CHECKED BY: JR DATE 1/7/14



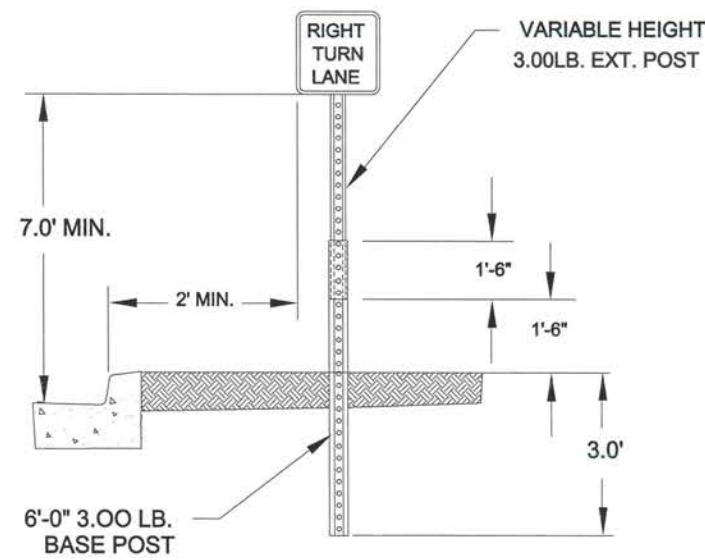
ANOKA COUNTY
 HIGHWAY DEPT.

STATE PROJECT NO. _____
 STATE AID PROJECT NO. _____
 STATE AID PROJECT NO. _____
 COUNTY PROJECT NO. 15-26-116

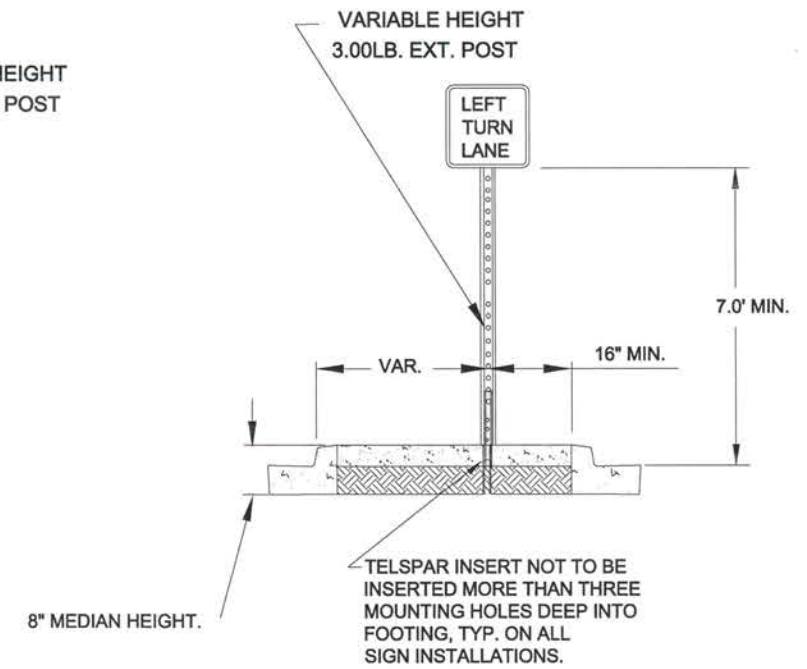
TRAFFIC CONTROL
 QUANTITY



GROUND POST MOUNT SIGN INSTALLATION TYPICAL



ISLAND MOUNT BREAK-AWAY SIGN INSTALLATION TYPICAL



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.

PRINT NAME: MATTHEW J. JOHN

SIGNATURE: *[Signature]*

DATE: 4/2/15 REG. NO. 51639

DRAWN BY: RLB DATE: 2/6/14

DESIGN BY: RLB DATE: 2/6/14

CHECKED BY: JR DATE: 2/6/14



ANOKA COUNTY
HIGHWAY DEPT.

STATE PROJECT NO. _____

STATE AID PROJECT NO. _____

STATE AID PROJECT NO. _____

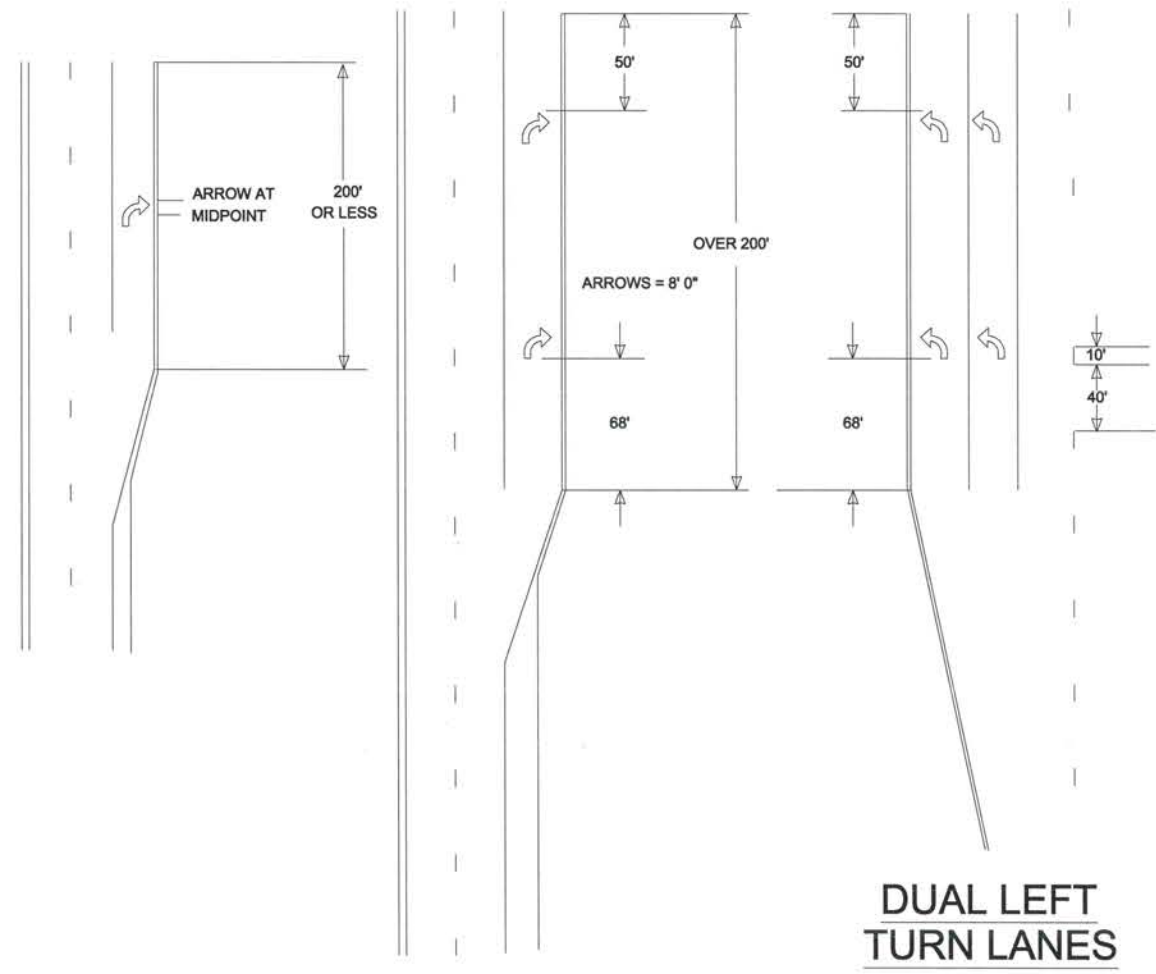
COUNTY PROJECT NO. 15-26-116

SIGNING & STRIPING
DETAILS

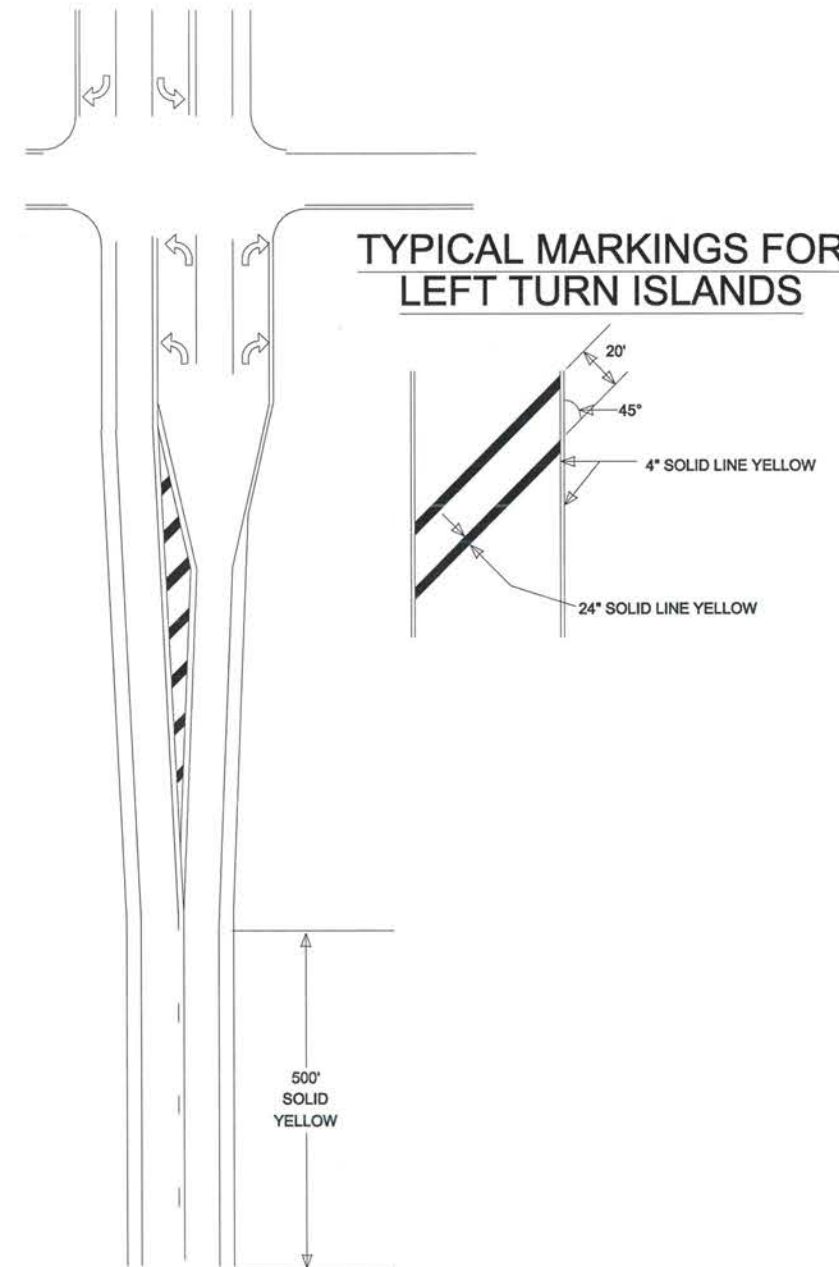
Sheet 14 of 22 Sheets

| NO | DATE | BY | CKD | APPR | REVISION |
|----|------|----|-----|------|----------|
| | | | | | |
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| | | | | | |
| | | | | | |

**TYPICAL MESSAGE PLACEMENT
FOR TURN LANES**



**TYPICAL MARKINGS FOR
LEFT TURN ISLANDS**



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.
 PRINT NAME: MATTHEW J. JOHN
 SIGNATURE: *[Signature]*
 DATE: 4/2/15 REG. NO. 51639

DRAWN BY: RLB DATE: 2/6/14
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 CHECKED BY: JR DATE: 2/6/14



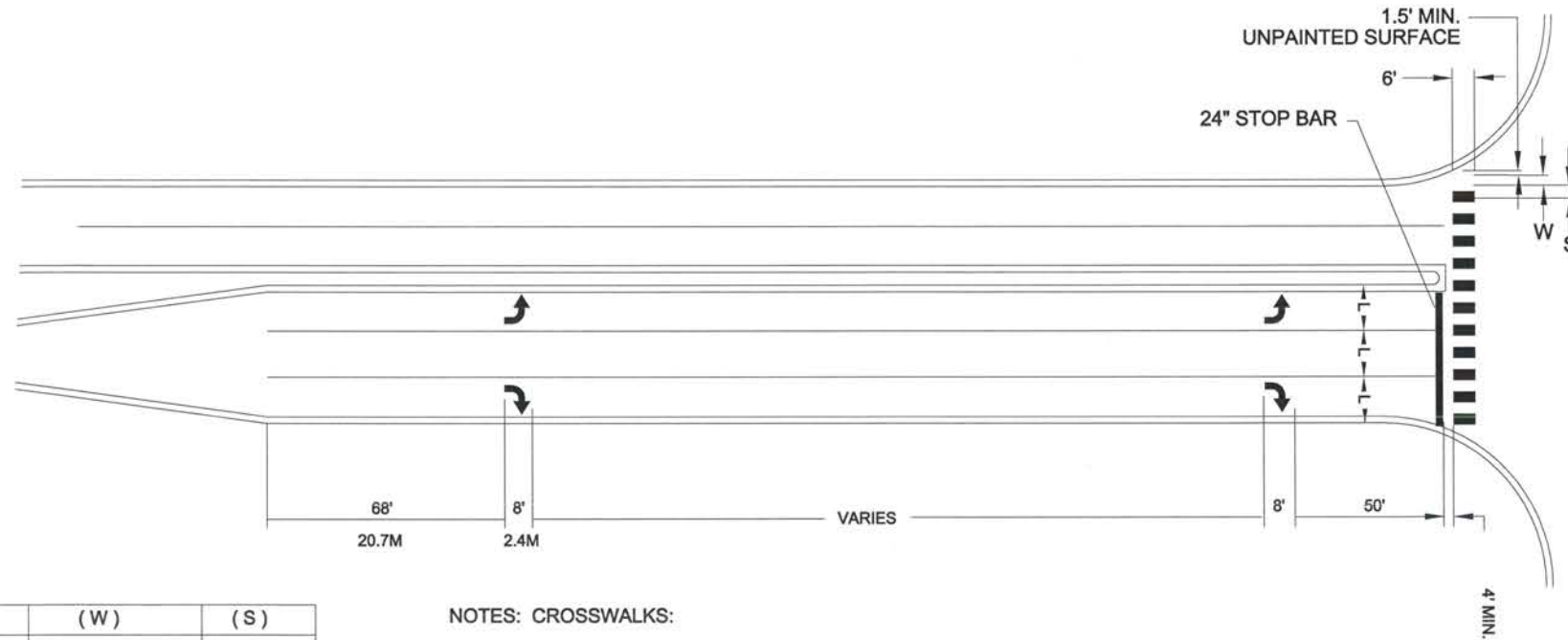
**ANOKA COUNTY
HIGHWAY DEPT.**

STATE PROJECT NO. _____
 STATE AID PROJECT NO. _____
 STATE AID PROJECT NO. _____
 COUNTY PROJECT NO. 15-26-116

**SIGNING & STRIPING
DETAILS**

| NO | DATE | BY | CKD | APPR | REVISION |
|----|------|----|-----|------|----------|
| | | | | | |
| | | | | | |
| | | | | | |

MARKINGS FOR PEDESTRIAN CROSSWALKS



| (L) | (W) | (S) |
|----------------------|------------------------|----------------|
| WIDTH OF INSIDE LANE | WIDTH OF PAINTED AREAS | WIDTH OF SPACE |
| 9' | 2.0' | 2.5' |
| 10' | 2.5' | 2.5' |
| 11' | 2.5' | 3.0' |
| 12' | 3.0' | 3.0' |
| 13' | 3.0' | 3.5' |

NOTES: CROSSWALKS:

- 1.) PAINTED AREAS ARE TO BE CENTERED ON CENTER AND LANE LINES, EVEN IF INTERSECTION IS NOT ALIGNED.
- 2.) LOCATION OF ZEBRA CROSSWALKS AND STOP BARS, SIGNAL LOOPS AND PED RAMPS ARE APPROXIMATE. FINAL LOCATIONS ARE TO BE DETERMINED AND FIELD VERIFIED DURING CONSTRUCTION BY THE FIELD ENGR.
- 3.) ZEBRA CROSSWALKS ARE TO BE PARALLEL TO THE DRIVING LANE OR LANES. EVEN IF THE STREET IS ON AN ANGLE TO THE INTERSECTION.
- 4.) A MIN. OF 1.5' (450mm) CLEAR DISTANCE MUST BE LEFT ADJACENT TO THE CURB. IF LAST PAINTED AREA FALLS INTO THIS AREA, IT MUST BE OMITTED.
- 5.) ON TWO LANE STREETS, USE SPACING SHOWN FOR AN 11' (3.3mm) INSIDE LANE.

| NO | DATE | BY | CKD | APPR | REVISION |
|----|------|----|-----|------|----------|
| | | | | | |
| | | | | | |

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PRINT NAME: MATTHEW J. JOHN

SIGNATURE: *Matthew J. John*

DATE: 4/2/15 REG. NO. 51639

DRAWN BY: RLB DATE: 2/6/14

DESIGN BY: RLB DATE: 2/6/14

CHECKED BY: JR DATE: 2/6/14



**ANOKA COUNTY
HIGHWAY DEPT.**

STATE PROJECT NO. _____

STATE AID PROJECT NO. _____

STATE AID PROJECT NO. _____

COUNTY PROJECT NO. 15-26-116

SIGNING & STRIPING
DETAILS

Sheet 16 of 22 Sheets

mjohn

1071

FOR REFERENCE PURPOSES ONLY

- NOTES:
- 1) PEDESTRIAN INDICATIONS ARE 12" X 12".
 - 2) HANDHOLES 1 AND 16 SHALL BE DOUBLE HANDHOLES.

N.M.C. LOOP DETECTORS

| NUMBER | SIZE (FT.) | LOCATION | FUNCTION |
|--------|------------|----------|----------|
| D1-1 | 2'-6x8 | 20' | 1 |
| D1-2 | 2'-6x8 | 20' | 1 |
| D1-3 | 2'-6x8 | 5' | 1 |
| D1-4 | 2'-6x8 | 5' | 1 |
| D2-1 | 3'-6x8 | 330' | 1 |
| D2-2 | 2'-6x8 | 5' | 4 |
| D3-1 | 2'-6x8 | 20' | 1 |
| D3-2 | 2'-6x8 | 5' | 1 |
| D3-3 | 2'-6x8 | 5' | 1 |
| D3-4 | 2'-6x8 | 5' | 1 |
| D4-1 | 3'-6x8 | 330' | 1 |
| D4-2 | 2'-6x8 | 5' | 5 |
| D4-3 | 2'-6x8 | 5' | 4 |
| D4-4 | 2'-6x8 | 5' | 4 |
| D5-1 | 2'-6x8 | 20' | 1 |
| D5-2 | 2'-6x8 | 20' | 1 |
| D5-3 | 2'-6x8 | 5' | 1 |
| D5-4 | 2'-6x8 | 5' | 1 |
| D6-1 | 2'-6x8 | 330' | 1 |
| D6-2 | 2'-6x8 | 5' | 4 |
| D6-3 | 2'-6x8 | 5' | 1 |
| D6-4 | 2'-6x8 | 5' | 1 |
| D7-1 | 2'-6x8 | 20' | 1 |
| D7-2 | 2'-6x8 | 20' | 1 |
| D7-3 | 2'-6x8 | 5' | 1 |
| D7-4 | 2'-6x8 | 5' | 1 |

- 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) SPECIAL DETECTOR

④ A100 POLE FOUNDATION
 TYPE A100-A-45-D40-9 (DAVIT AT 350')
 LUMINAIRE-250 W HPS WITH PEC & CHECK SWITCH
 2-ONE WAY SIGNALS-OVERHEAD (0' & 11'
 FROM END OF MAST ARM)
 MID MAST ARM MOUNT AT 23' (CAPPED FOR FUTURE USE)
 2-TYPE 100-POLE MOUNTED 90° AND 180°
 2-PEDESTRIAN PUSH BUTTONS & R10-4c SIGNS
 TYPE D SIGN PANEL (126"x18")-OVERHEAD
 2-RS-1 SIGN PANELS-POLE MOUNTED 0° & 180°
 ONE WAY EVP DETECTOR AND LIGHT (#6.1)
 EXTEND INTO H.H.11:
 3'R.S.C.
 2-12/c#12
 3-3/c#12
 1-3/c#20
 2-1/c#10

⑤ TYPE 2A
 10' PEDESTAL POLE AND BASE
 PEDESTAL FOUNDATION
 EXTEND INTO H.H.20:
 2'R.S.C.
 1-12/c#12
 1-3/c#12

③ TYPE 2A
 10' PEDESTAL POLE AND BASE
 PEDESTAL FOUNDATION
 EXTEND INTO H.H.10:
 2'R.S.C.
 1-12/c#12
 1-3/c#12

② A100 POLE FOUNDATION
 TYPE A100-A-50-D40-9 (DAVIT AT 350')
 LUMINAIRE-250 W HPS WITH PEC & CHECK SWITCH
 3-ONE WAY SIGNALS-OVERHEAD (0', 5'
 AND 23' FROM END OF MAST ARM)
 2-TYPE 100-POLE MOUNTED 90° & 270°
 TYPE 10A-POLE MOUNTED 180°
 2-PEDESTRIAN PUSH BUTTONS & R10-4c SIGNS
 TYPE D SIGN PANEL (126"x18")-OVERHEAD
 ONE WAY EVP DETECTOR AND LIGHT (#4.7)
 EXTEND INTO H.H.5:
 3'R.S.C.
 3-12/c#12
 2-3/c#12
 1-3/c#20
 2-1/c#10

⑧ SERVICE CABINET
 CABINET FOUNDATION
 STUB OUT 2'R.S.C.
 (FOR SERVICE BY CONDUITS)
 EXTEND INTO H.H.24:
 METERED SIGNAL SERVICE
 1 1/4'R.S.C.
 3-1/c#6
 EXTEND INTO H.H.16:
 UNMETERED STREET LIGHT SERVICE
 2'R.S.C.
 5-1/c#10
 BETWEEN H.H.1 AND H.H.16:
 2'R.S.C.
 4-1/c#10

CONTRACTOR SHALL FURNISH & INSTALL THE FOLLOWING MATERIALS ON MAST ARMS 1, 4 AND 6:
 ONE WAY EVP DETECTOR AND INDICATOR LIGHT AT 4' FROM END OF MAST ARM.
 CONTRACTOR SHALL FURNISH & INSTALL THE FOLLOWING MATERIALS ON MAST ARM 2:
 ONE WAY EVP DETECTOR AND INDICATOR LIGHT AT 2' FROM END OF MAST ARM.

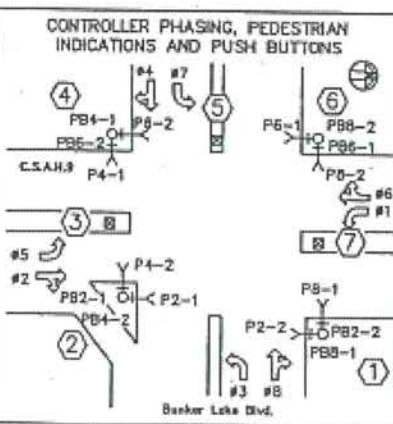
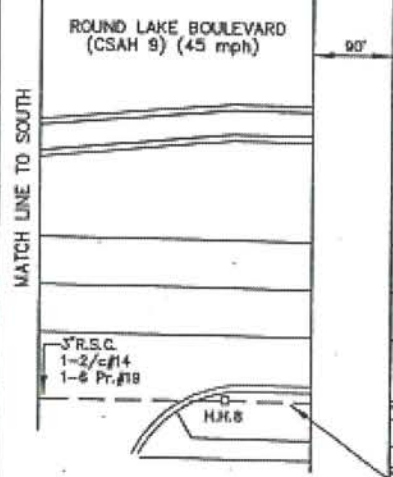
⑥ A100 POLE FOUNDATION
 TYPE A100-A-45-D40-9 (DAVIT AT 350')
 LUMINAIRE-250 W HPS WITH PEC & CHECK SWITCH
 2-ONE WAY SIGNALS-OVERHEAD (0' & 11'
 FROM END OF MAST ARM)
 2-TYPE 100-POLE MOUNTED 90° & 270°
 TYPE 10A-POLE MOUNTED 180°
 2-PEDESTRIAN PUSH BUTTONS & R10-4c SIGNS
 TYPE D SIGN PANEL (126"x18")-OVERHEAD
 ONE WAY EVP DETECTOR AND LIGHT (#6.3)
 EXTEND INTO H.H.18:
 3'R.S.C.
 2-12/c#12
 3-3/c#12
 1-3/c#20
 2-1/c#10

⑨ CONTROLLER AND CABINET
 CABINET FOUNDATION
 EXTEND INTO H.H.24:
 METERED SIGNAL SERVICE
 1 1/4'R.S.C.
 3-1/c#6
 EXTEND INTO H.H.1:
 2-4'R.S.C.
 5-12/c#12
 6-3/c#12
 2-3/c#20
 17-2/c#14
 EXTEND INTO H.H.16:
 2-4'R.S.C.
 5-12/c#12
 6-3/c#12
 2-3/c#20
 9-2/c#14
 EXTEND INTO H.H.1:
 2'R.S.C.
 1-8 Pr.#19
 EXTEND INTO H.H.16:
 2'R.S.C.
 1-8 Pr.#19

① A100 POLE FOUNDATION
 TYPE A100-A-50-D40-9 (DAVIT AT 350')
 LUMINAIRE-250 W HPS WITH PEC & CHECK SWITCH
 2-ONE WAY SIGNALS-OVERHEAD (0' & 11'
 FROM END OF MAST ARM)
 MID MAST ARM MOUNT AT 23' (CAPPED FOR FUTURE USE)
 2-TYPE 100-POLE MOUNTED 90° AND 270°
 TYPE 10A-POLE MOUNTED 180°
 2-PEDESTRIAN PUSH BUTTONS & R10-4c SIGNS
 TYPE D SIGN PANEL (126"x18")-OVERHEAD
 2-RS-1 SIGN PANELS-POLE MOUNTED 0° & 180°
 ONE WAY EVP DETECTOR AND LIGHT (#2.5)
 EXTEND INTO H.H.16:
 3'R.S.C.
 2-12/c#12
 3-3/c#12
 1-3/c#20
 2-1/c#10

⑦ TYPE 2A
 10' PEDESTAL POLE AND BASE
 PEDESTAL FOUNDATION
 EXTEND INTO H.H.17:
 2'R.S.C.
 1-12/c#12
 1-3/c#12

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



SIGNAL SYSTEM OPERATION:
 NORMAL OPERATION SHALL BE 8 PHASE, WITH PHASES 1,3,5 AND 7 BEING PROTECTED LEFT TURN PHASES.
 SIGNAL SYSTEM FLASH MODE SHALL BE ALL RED.

SIGNAL FACES

| SIGNAL FACE | ALL SIGNAL INDICATIONS ARE 12" | | | | | |
|--------------------|--------------------------------|---|---|---|---|---|
| | R | Y | C | R | Y | C |
| 1-1, 1-2, 1-3 | | | | | | |
| 2-1, 2-2, 2-3, 2-4 | O | O | O | | | |
| 3-1, 3-2, 3-3 | | | | | | |
| 4-1, 4-2 | O | O | O | | | |
| 5-1, 5-2, 5-3 | | | | | | |
| 6-1, 6-2, 6-3, 6-4 | O | O | O | | | |
| 7-1, 7-2, 7-3 | | | | | | |
| 8-1, 8-2, 8-3, 8-4 | O | O | O | | | |

DRAWN BY: JMG
 DESIGNER: JMG
 CHECKED BY: JMG
 DESIGN TEAM

RECORD DRAWING
 NO. BY DATE
 REVISIONS

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I HEREBY CERTIFY THAT THIS PLAN 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.
 Matthew J. John, P.E.
 License No. 51639

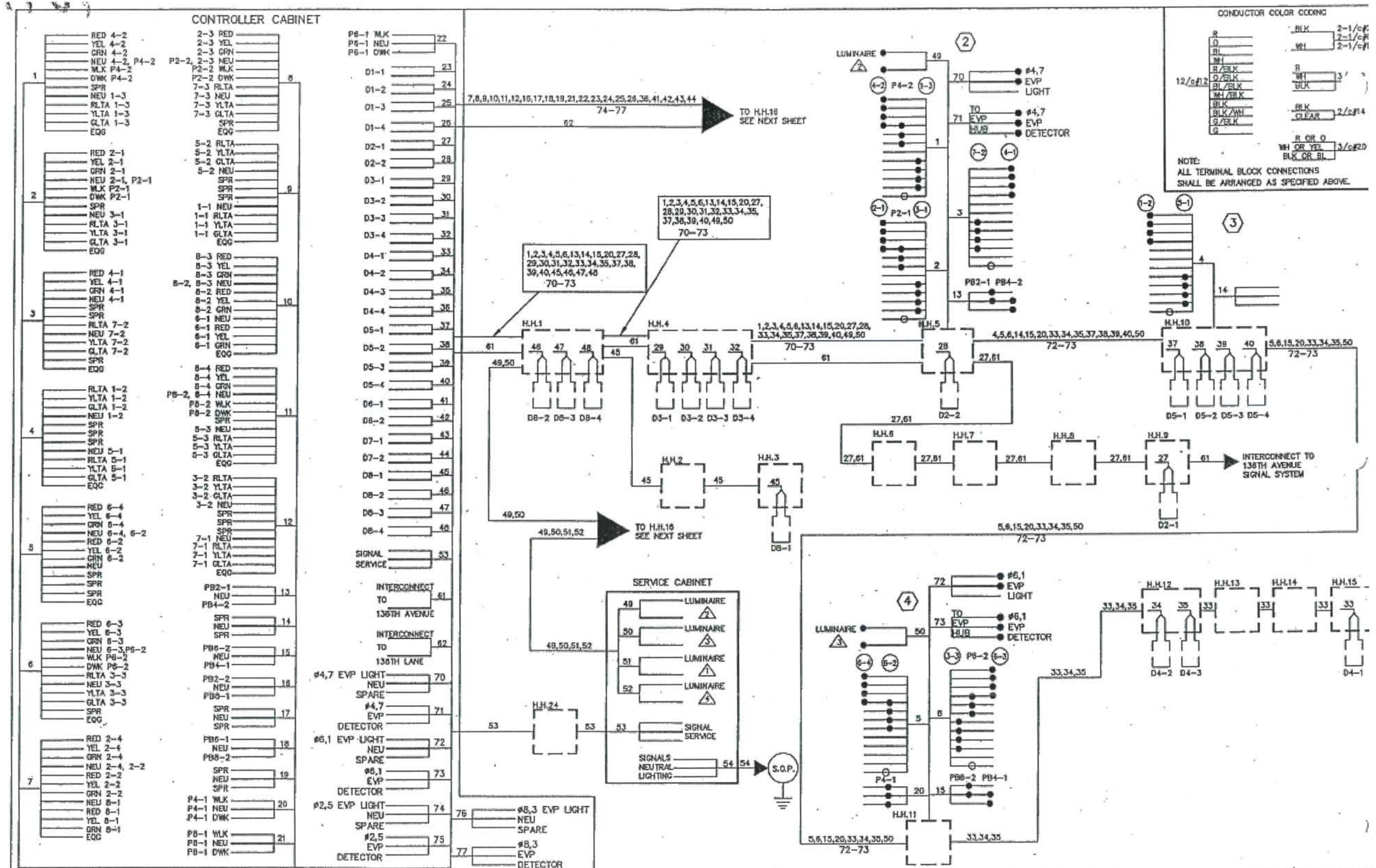


ANDOVER, MINNESOTA
 S.A.P. 198-020-20
 CITY PROJ. NO. 03-31

EVP SYSTEM "B"
 INTERSECTION LAYOUT
 BUNKER LAKE BOULEVARD (CSAH 116) AT
 ROUND LAKE BOULEVARD (CSAH 9)

FILE NO. ANDOV0401.03
 DATE 06/20/11
 5
 11

mjohn



FOR REFERENCE PURPOSES ONLY

| | | | | |
|------------------|---|-----|-------|----------------|
| DRAWN BY: MJJ | 1 | JMG | 11/03 | RECORD DRAWING |
| DESIGNED BY: MJJ | | | | |
| CHECKED BY: MJJ | | | | |
| APPROVED BY: | | | | |
| DATE: | | | | |

I HEREBY CERTIFY THAT THIS PLAN 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.

PRINT NAME: MATTHEW J. JOHN
 SIGNATURE: *[Signature]*
 DATE: 4/2/15 LICENSE NO. 51639

I HEREBY CERTIFY THAT THIS PLAN 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.

PRINT NAME: JOHN U. DRUGG
 SIGNATURE: *[Signature]*
 DATE: 02/27/15 LICENSE NO. 51639



ANDOVER, MINNESOTA
 S.A.P. 198-020-20
 CITY PROJ. NO. 03-31

EVP SYSTEM 'B'
FIELD WIRING DIAGRAM
 BUNKER LAKE BOULEVARD (CSAH 116) AT
 BUNKER LAKE BOULEVARD (CSAH 116)

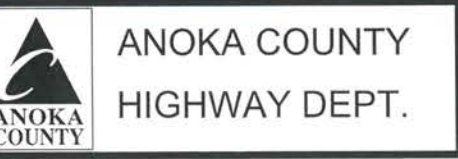
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| FILE NO. | 7 |
| DATE | 02/27/15 |

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|---|------|----|-----|------|----------|------------|------------|
| NO | DATE | BY | CKD | APPR | REVISION | 03/20/2015 | 2:48:16 PM |
| NAME: P:\15-01-00\CSAH_116(Undercliff-Quay)\Base\PROPOSED\TEMPLATE_PLAN.dgn | | | | | | | |

I HEREBY CERTIFY THAT THIS PLAN 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.

PRINT NAME: MATTHEW J. JOHN
 SIGNATURE: *[Signature]*
 DATE: 4/2/15 LICENSE NO. 51639

DRAWN BY: SRK DATE: 02/27/2015
 DESIGN BY: SRK DATE: 02/27/2015
 CHECKED BY: MJJ DATE: 03/13/2015



COUNTY PROJECT 15-26-116

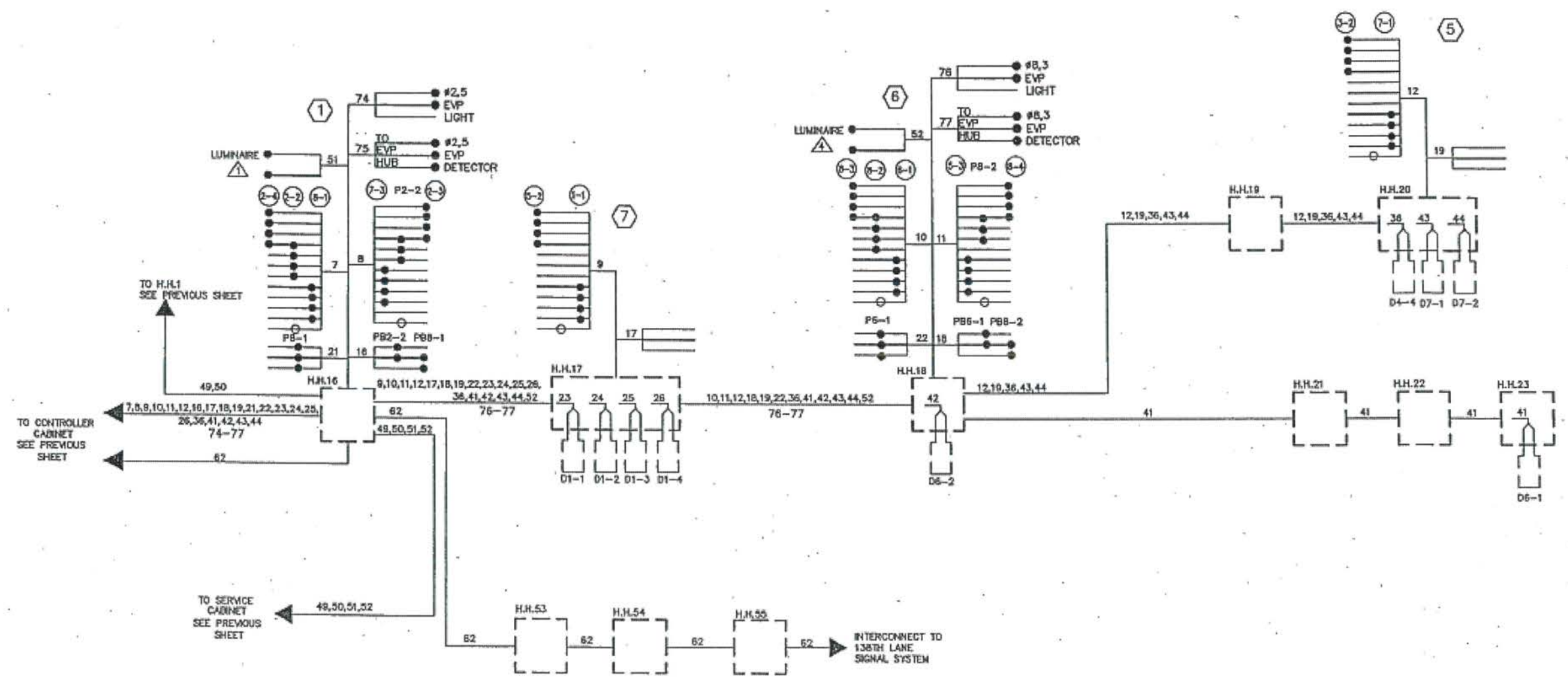
ORIGINAL SIGNAL PLANS
 Sheet 18 of 22 Sheets

mjohn

1071

| CONDUCTOR COLOR CODE | |
|----------------------|------------------|
| R | BLK 2-1/0#12 |
| O | WH 2-1/0#10 |
| BL | WH 2-1/0#10 |
| WH | |
| R/BLK | R |
| O/BLK | WH 3/0#12 |
| BL/BLK | BLK |
| WH/BLK | |
| BLK | BLK 2/0#14 |
| BLK/WH | CLEAR |
| O/BLK | |
| G | |
| R OR O | R OR O |
| WH OR YEL | WH OR YEL 3/0#10 |
| BLK OR BL | BLK OR BL |

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



FOR REFERENCE PURPOSES ONLY

| | | | | | | | | |
|-----------------|-------------|----------------|--|---|------------------------|----------------------|--------------------------------------|------------------------|
| DRAWN BY: JMG | 1 JMG 12/03 | RECORD DRAWING | © SHORT ELLIOTT HENRIKSSON 2003. ANY USE OR REUSE OF THIS PLAN/DRAWING AND THE CORRESPONDING COMPUTER AIDED DESIGN/DRAFTING FILES WITHOUT THE EXPRESS WRITTEN CONSENT OF SEH IS PROHIBITED. SEH SHALL NOT BE RESPONSIBLE FOR ANY UNAUTHORIZED USE OR REUSE OF THESE MATERIALS, OR DAMAGES RESULTING THEREFROM. | I HEREBY CERTIFY THAT THIS PLAN 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. | | ANDOVER, MINNESOTA | EVP SYSTEM 'B' | FILE NO. AND00V0401.00 |
| DESIGNER: JMG | | | | <i>John M. Gray</i> | PHON: (612) 490-2000 | S.A.P. 198-020-20 | FIELD WIRING DIAGRAM | 8 |
| CHECKED BY: JMG | | | | Matthew John M. Gray P.E. | 3535 WARDEN CENTER DR. | CITY PROJ. NO. 03-31 | BLINGER LAKE BOULEVARD (CSAH 116) AT | DATE: 03/10/15 |
| DESIGN TEAM | NO. BY DATE | REVISIONS | | | | | BLINGER LAKE BOULEVARD (CSAH 116) AT | 11 |

| | | | | | | | | | |
|---|--|--|--|--|----------------------------------|--|-------------------------------|--------------------------|-----------------------|
| I HEREBY CERTIFY THAT THIS PLAN 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. | | | | | DRAWN BY: SRK DATE: 02/27/2015 | | ANOKA COUNTY HIGHWAY DEPT. | COUNTY PROJECT 15-26-116 | ORIGINAL SIGNAL PLANS |
| PRINT NAME: MATTHEW J. JOHN | | | | | DESIGN BY: SRK DATE: 02/27/2015 | | | | |
| SIGNATURE: <i>Matthew J. John</i> | | | | | CHECKED BY: MJJ DATE: 03/13/2015 | | | | |
| DATE: 4/2/15 LICENSE NO. 51639 | | | | | | | | | |

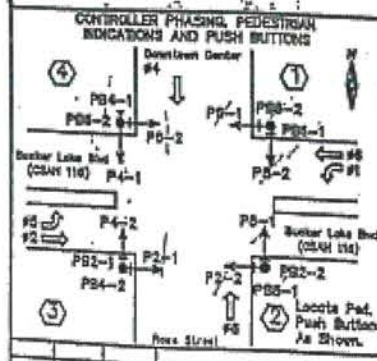
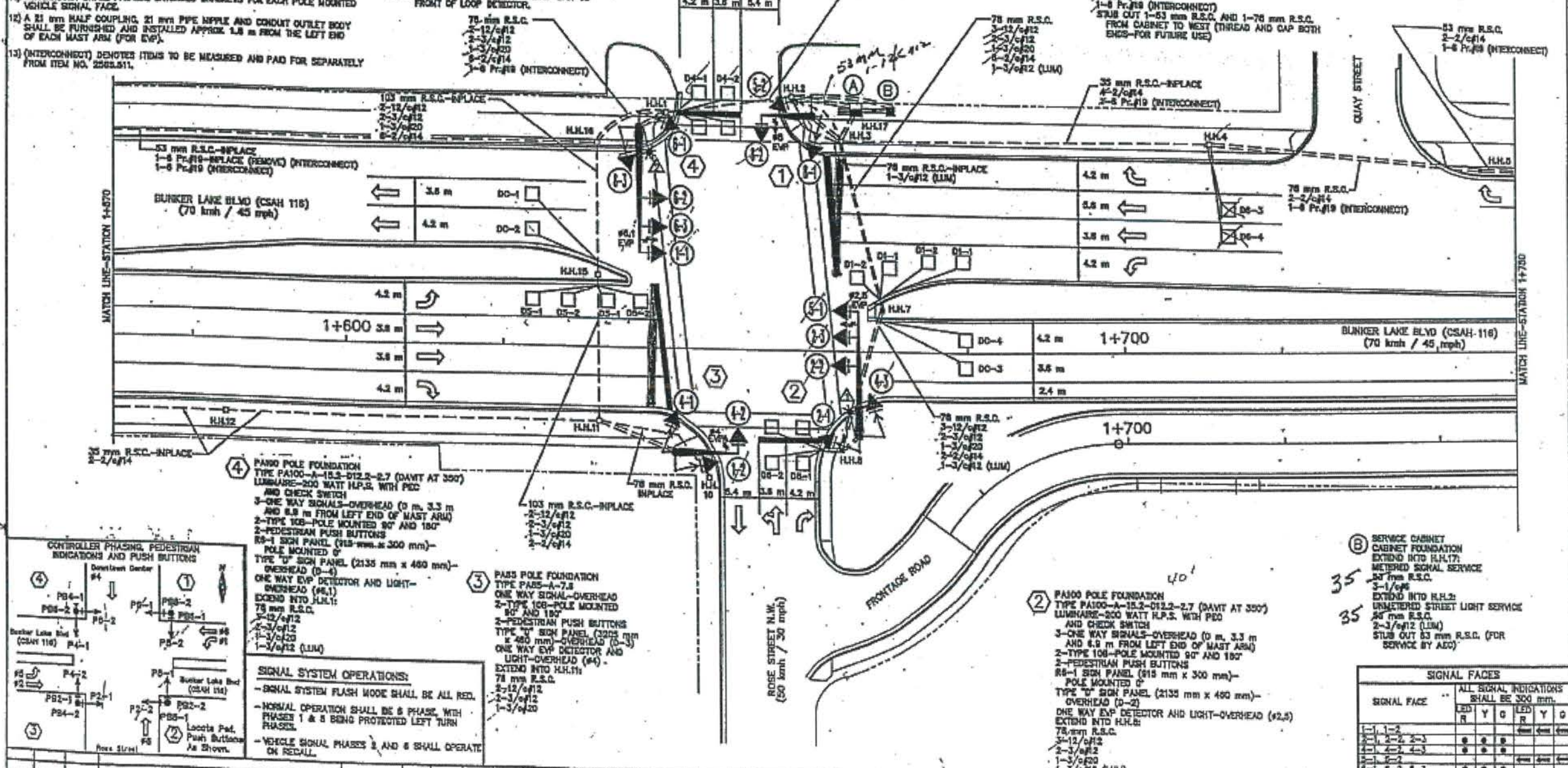
mjohn

7142

- NOTES:**
- LOCATIONS OF POLES, CONTROLLER CABINET, SERVICE CABINET, LOOP DETECTORS AND HANDHOLES SHALL BE DETERMINED IN THE FIELD BY THE ENGINEER.
 - SEE SPECIAL PROVISIONS FOR COUNTY FURNISHED MATERIALS.
 - LOOP DETECTOR WIRING SHALL BE CROSS-LINKED POLYETHYLENE (XLP) #1 21 mm N.M.C. SEE SPECIAL PROVISIONS.
 - NEW HANDHOLES SHALL BE PVC HANDHOLES WITH METAL FRAMES AND COVERS, PER Mn/DOT STANDARD PLAN NO. MS114A.
 - EACH SIGNAL FACE SHALL HAVE BACKGROUND SHIELD.
 - EACH PEDESTRIAN INDICATION SHALL BE ONE SECTION HAND/ WALKING PERSON INDICATION. SEE SPECIAL PROVISIONS.
 - ALL "RED" VEHICLE SIGNAL INDICATIONS AND ALL "HAND" PEDESTRIAN SIGNAL INDICATIONS SHALL BE LED. SEE SPECIAL PROVISIONS.
 - SEE SPECIAL PROVISIONS REGARDING REMOVAL AND SALVAGE OF INPLACE SIGNAL SYSTEM (SEPARATE FROM ITEM NO. 2562.511).
 - INPLACE ITEMS TO BE REUSED INPLACE AS PART OF NEW SIGNAL SYSTEM SHALL BE PROTECTED AND MAINTAINED INPLACE. SEE SPECIAL PROVISIONS.
 - SEE SPECIAL PROVISIONS AND DETAILS REGARDING SIGN PANELS TO BE FURNISHED AND INSTALLED BY CONTRACTOR.
 - CONTRACTOR SHALL PROVIDE EXTENDED BRACKETS FOR EACH POLE MOUNTED VEHICLE SIGNAL FACE.
 - A 21 mm HALF COUPLING, 21 mm PIPE NIPPLE AND CONDUIT OUTLET BODY SHALL BE FURNISHED AND INSTALLED APPROX 1.8 m FROM THE LEFT END OF EACH MAST ARM (FOR E.V.P.).
 - (INTERCONNECT) DENOTES ITEMS TO BE MEASURED AND PAID FOR SEPARATELY FROM ITEM NO. 2562.511.

| N.M.C. LOOP DETECTORS | | | |
|-----------------------|-------------|---------------|----------|
| NUMBER | SIZE (m) | LOCATION | FUNCTION |
| DL-1 | 2-1.7 x 1.7 | 8 m & 15 m | 1 |
| DL-2 | 2-1.7 x 1.7 | 15 m & 10.5 m | 1 |
| DL-3 | 1.7 x 1.7 | 100 m | 1 |
| DL-4 | 2-1.7 x 1.7 | AS SHOWN | 1 |
| DL-5 | 2-1.7 x 1.7 | AS SHOWN | 7 |
| DL-6 | 2-1.7 x 1.7 | 5 m & 15 m | 1 |
| DL-7 | 2-1.7 x 1.7 | 15 m & 10.5 m | 1 |
| DL-8 | 1.7 x 1.7 | 100 m | 1 |
| DL-9 | 1.7 x 1.7 | 100 m | 1 |
| DL-10 | 1.7 x 1.7 | 100 m | 1 |
| DL-11 | 2-1.7 x 1.7 | AS SHOWN | 7 |
| DL-12 | 2-1.7 x 1.7 | AS SHOWN | 7 |
| DL-13 | 1.7 x 1.7 | 15 m | 1 |
| DL-14 | 1.7 x 1.7 | 15 m | 1 |
| DL-15 | 1.7 x 1.7 | 15 m | 1 |

- LOOP DETECTORS FUNCTIONS:**
- CALL AND EXTEND
 - CALL ONLY
 - EXTEND ONLY
 - CALL ONLY DENSITY
 - DELAYED CALL ONLY DENSITY
 - DELAYED CALL-MEDIATE EXTEND
 - CARRY OVER (STRETCH)
 - ADVISORY DETECTOR
 - SAMPLING DETECTOR
 - SPECIAL DETECTOR (COUNT)



SIGNAL SYSTEM OPERATIONS:

- SIGNAL SYSTEM FLASH MODE SHALL BE ALL RED.
- NORMAL OPERATION SHALL BE 6 PHASE WITH PHASES 1 & 5 BEING PROTECTED LEFT TURN PHASES.
- VEHICLE SIGNAL PHASES 2 AND 6 SHALL OPERATE ON RECALL.

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.



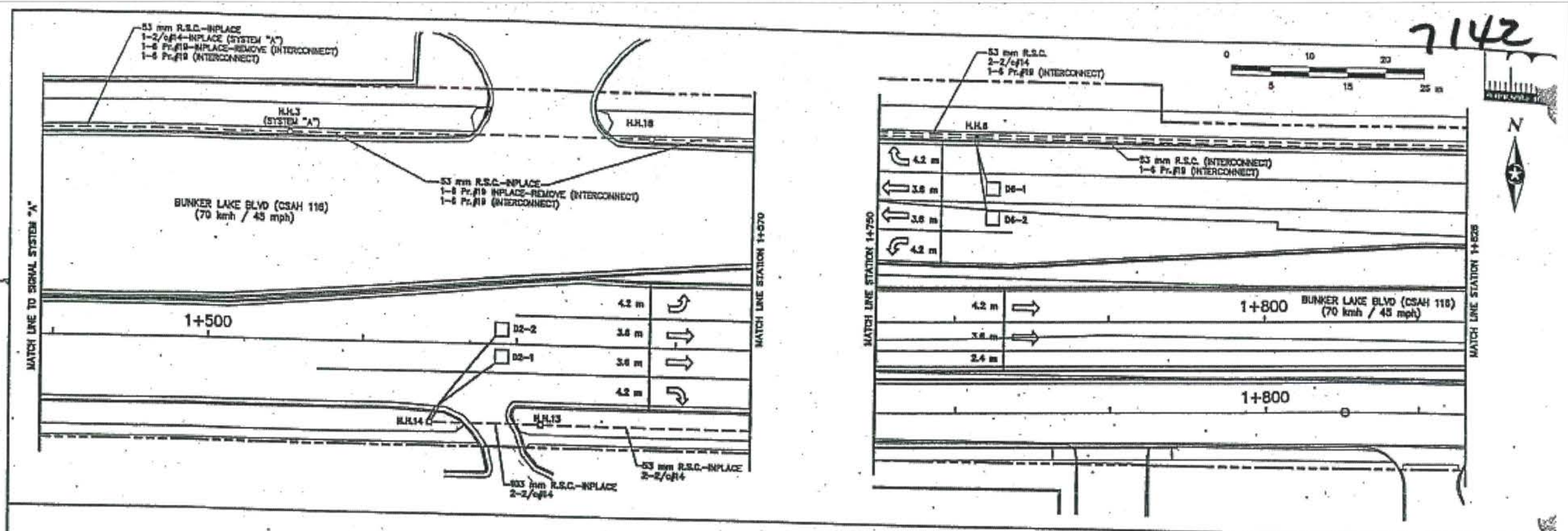
ANOKA COUNTY
O.S.A.H. 116 (BUNKER LAKE BLVD.)

TRAFFIC SIGNAL SYSTEM "B"
INTERSECTION LAYOUT

| SIGNAL FACES | | | | | | |
|--------------|---|---|---|---|---|---|
| SIGNAL FACE | ALL SIGNAL INDICATIONS SHALL BE 300 mm. | | | | | |
| | LED | Y | G | R | Y | G |
| 1-1 | 1 | 1 | 1 | 1 | 1 | 1 |
| 2-1 | 1 | 1 | 1 | 1 | 1 | 1 |
| 3-1 | 1 | 1 | 1 | 1 | 1 | 1 |
| 4-1 | 1 | 1 | 1 | 1 | 1 | 1 |
| 5-1 | 1 | 1 | 1 | 1 | 1 | 1 |
| 6-1 | 1 | 1 | 1 | 1 | 1 | 1 |

FOR REFERENCE PURPOSES ONLY

mjohn



FOR REFERENCE PURPOSES ONLY

| NO. | DATE | BY | CKD | APPR | REVISION |
|-----|------|----|-----|------|----------|
| | | | | | |
| | | | | | |

I hereby certify that this plan 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.



ANOKA COUNTY
C.S.A.H. 116 (BUNKER LAKE BLVD.)

TRAFFIC SIGNAL SYSTEM "B"
MATCH LINE

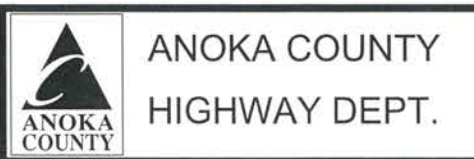
FILE NO. 53-10
ANOKA0806.01

| NO. | DATE | BY | CKD | APPR | REVISION | TIME |
|-----|------|----|-----|------|----------|------|
| | | | | | | |
| | | | | | | |

I HEREBY CERTIFY THAT THIS PLAN 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.

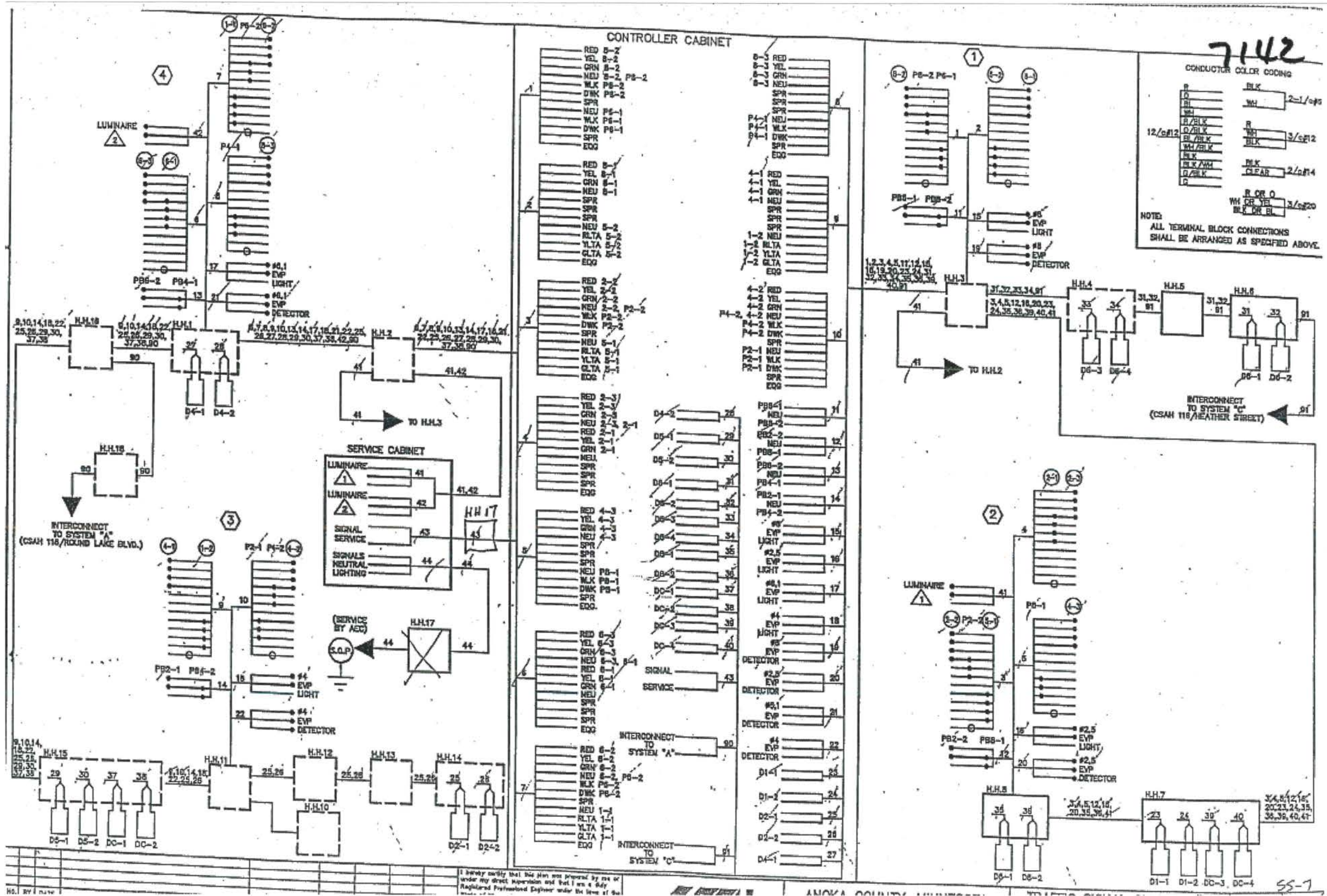
PRINT NAME: MATTHEW J. JOHN
SIGNATURE: *Matthew J. John*
DATE: 4/2/15 LICENSE NO. 51639

DRAWN BY: SRK DATE: 02/27/2015
DESIGN BY: SRK DATE: 02/27/2015
CHECKED BY: MJJ DATE: 03/13/2015



COUNTY PROJECT 15-26-116

ORIGINAL SIGNAL PLANS
Sheet 21 of 22 Sheets



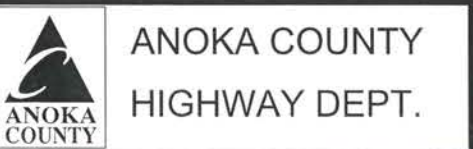
FOR REFERENCE PURPOSES ONLY

| | | | | | | | |
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| NO | DATE | BY | CKD | APPR | REVISION | 03/20/2015 | 2:48:21 PM |
| NAME: P:\15-01-00\CSAH_116(Undercliff-Quay)\Base\PROPOSED\TEMPLATE_PLAN.dgn | | | | | | | |

I HEREBY CERTIFY THAT THIS PLAN 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.

PRINT NAME: MATTHEW J. JOHN
 SIGNATURE: *[Signature]*
 DATE: 4/2/15 LICENSE NO. 51639

DRAWN BY: SRK DATE: 02/27/2015
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COUNTY PROJECT 15-26-116

ORIGINAL SIGNAL PLANS
 Sheet 22 of 22 Sheets