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F & I APS PUSH BUTTON STATION (SEE DETAILS)
 1-APS PB AND SIGN (RT ARROW) (PB6-2)
 EXTEND INTO HH 8:
 1" CONDUIT
 1-2/C 14
 1-1/C 6 (INS. GR.)

HH 8 TO HH 9:
 2" CONDUIT
 1-2/C 14

F & I APS PUSH BUTTON STATION (SEE DETAILS)
 1-APS PB AND SIGN (RT ARROW) (PB8-2)
 EXTEND INTO HH 10:
 1" CONDUIT
 1-2/C 14
 1-1/C 6 (INS. GR.)

HH 6 TO HH 7:
 4" CONDUIT
 2-6/C 16
 7-4/C 16
 (*) 1-3/C 16
 7-2/C 14
 (*) 1-3/C 20
 1-3/C 16 (LUM)
 1-1/C 6 (INS GR)

HH 7 TO HH 8:
 2" CONDUIT
 6-2/C 14
 1-1/C 6 (INS. GR.)

HH 10 TO HH 13:
 4" CONDUIT
 2-6/C 16
 4-4/C 16
 (*) 1-3/C 16
 8-2/C 14
 (*) 1-3/C 20
 1-3/C 16 (LUM)
 1-1/C 6 (INS GR)

HH 10 TO HH 11:
 2" CONDUIT
 3-2/C 14

MATCHLINE A

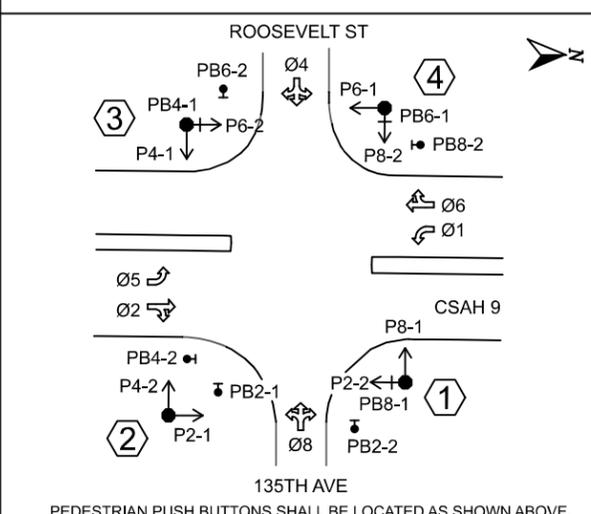
MATCHLINE B

HH 3 TO HH 4:
 2" CONDUIT
 3-2/C 14

FO VAULT 100 TO HH 61
 F & I (***) 1.5" CONDUIT
 INPLACE (***) 1-6 SM FO CABLE
 (S & I)

FO VAULT 100 TO FO VAULT 101:
 F & I (***) 1.5" CONDUIT
 (***) 1-12 SM FO CABLE

CONTROLLER PHASING, PEDESTRIAN INDICATIONS AND PUSH BUTTONS



HH 3 TO HH 6:
 4" CONDUIT
 2-6/C 16
 7-4/C 16
 (*) 1-3/C 16
 9-2/C 14
 (*) 1-3/C 20
 1-3/C 16 (LUM)
 1-1/C 6 (INS GR)

F & I APS PUSH BUTTON STATION (SEE DETAILS)
 1-APS PB AND SIGN (RT ARROW) (PB4-2)
 EXTEND INTO HH 3:
 1" CONDUIT
 1-2/C 14
 1-1/C 6 (INS. GR.)

F & I APS PUSH BUTTON STATION (SEE DETAILS)
 1-APS PB AND SIGN (LT ARROW) (PB2-1)
 EXTEND INTO HH 3:
 1" CONDUIT
 1-2/C 14
 1-1/C 6 (INS. GR.)

HH 1 TO HH 3:
 2-4" CONDUITS
 4-6/C 16
 11-4/C 16
 (*) 2-3/C 16
 17-2/C 14
 (*) 2-3/C 20
 2-3/C 16 (LUM)
 1-1/C 6 (INS GR)

HH 13 TO HH 14:
 4" CONDUIT
 2-6/C 16
 4-4/C 16
 (*) 1-3/C 16
 10-2/C 14
 (*) 1-3/C 20
 1-3/C 16 (LUM)
 1-1/C 6 (INS GR)

SIGNAL SYSTEM OPERATIONS:
 - SIGNAL SYSTEM FLASH MODE SHALL BE ALL RED.
 - NORMAL OPERATION SHALL BE 6 PHASE FULLY-ACTUATED, WITH PHASES 1 AND 5 BEING FLASHING YELLOW ARROW SEQUENCING SELECTABLE BY TIME OF DAY PROGRAMS.
 - VEHICLE SIGNAL PHASES 2 AND 6 SHALL BE ON RECALL.

SEE NEXT SHEET FOR DETAILED POLE AND CONTROLLER CABINET NOTES.

NOTE:
 LOCATION = DISTANCE FROM STOP BAR TO FRONT OF LOOP DETECTOR
 LOOP DETECTOR FUNCTIONS:
 1) CALL AND EXTEND
 3) EXTEND ONLY
 7) DELAYED CALL-IMMEDIATE EXTEND
 8) CARRY OVER (STRETCH)
 11) SPECIAL DETECTOR (COUNT)



PVC LOOP DETECTORS			
NUMBER	SIZE (FT.)	LOCATION	FUNCTION
D1-1	3-6X6	20', 35', 50'	1
D1-2	6X6	5'	1
D2-1	6X6	450'	1
D2-2	6X6	450'	1
D2-3	6X6	450'	1
D2-4	6X6	5'	11
D2-5	6X6	5'	11
D2-6	6X6	5'	11
D4-1	6X6	200'	3,8
D4-2	6X6	5'	7
D4-3	6X6	-5'	7
D4-4	6X6	20'	7
D4-5	6X6	5'	7
D5-1	3-6X6	20', 35', 50'	1
D5-2	6X6	5'	1
D6-1	6X6	450'	1
D6-2	6X6	450'	1
D6-3	6X6	450'	1
D6-4	6X6	5'	11
D6-5	6X6	5'	11
D6-6	6X6	5'	11
D8-1	6X6	180'	3,8
D8-2	6X6	5'	7
D8-3	6X6	-5'	7
D8-4	6X6	20'	7
D8-5	6X6	5'	7

LED SIGNAL HEAD CHART

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

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

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.
 Printed Name: JOHN M. GRAY
 License No. 22457 Date: 09/23/2025



ANOKA COUNTY, MN
 CSAH 9
 SAP 002-609-023
 CITY OF ANDOVER SAP 198-020-042, CITY PROJECT 25-13
 CITY OF ANOKA SAP 103-020-020

TRAFFIC SIGNAL SYSTEM "A"
 INTERSECTION LAYOUT
 CSAH 9 (ROUND LAKE BOULEVARD) AT 135TH AVENUE/ROOSEVELT STREET

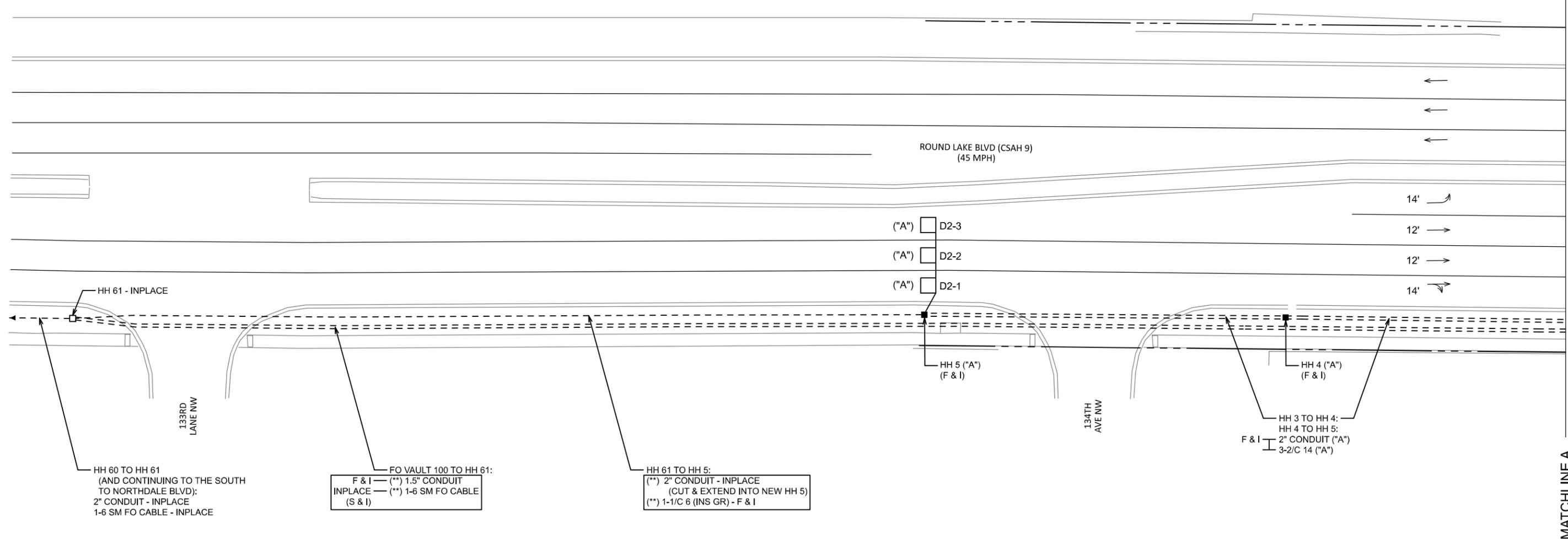
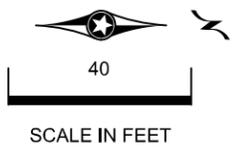
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INTERCONNECT NOTES:

- 1) IT SHALL BE THE CONTRACTOR'S RESPONSIBILITY TO UTILIZE THE "ONE CALL EXCAVATION NOTICE SYSTEM" (TELEPHONE NUMBER 651-454-0002) AS REQUIRED BY MINNESOTA STATUTE 2160.
- 2) DISTANCE OFF SHOULDER OR CURB FOR NEW INTERCONNECT CONDUIT SHALL BE 1-2 FEET UNLESS OTHERWISE APPROVED BY ENGINEER.
- 3) (**) DENOTES ITEMS TO BE FURNISHED AND INSTALLED BY THE CONTRACTOR UNDER ITEM NO. 2565 (TRAFFIC CONTROL INTERCONNECT). SEE STATEMENT OF ESTIMATED QUANTITIES AND SPECIAL PROVISIONS.
- 4) ITEMS DENOTED BY "A" SHALL BE INCLUDED AS PART OF THE PAY ITEM FOR ITEM NO. 2565 (TRAFFIC CONTROL SIGNAL SYSTEM "A").
- 5) (F & I) DENOTES ITEMS TO BE FURNISHED AND INSTALLED BY CONTRACTOR AS PART OF THIS PROJECT.
(S & I) DENOTES INPLACE ITEMS TO BE SALVAGED AND INSTALLED BY CONTRACTOR AS PART OF THIS PROJECT.
- 6) ALL NEW INTERCONNECT CONDUIT INSTALLATIONS (UNDER ROADWAYS, SIDEWALKS, AND IN BOULEVARD AREAS) SHALL BE DIRECTIONALLY BORED UNLESS OTHERWISE APPROVED BY THE ENGINEER IN THE FIELD (DURING CONSTRUCTION) FOR A CONDUIT SECTION TO BE TRENCHED-IN DUE TO UTILITY OR OTHER CONFLICTS THAT WILL NOT ALLOW FOR A CONDUIT SECTION TO BE BORED. TURF ESTABLISHMENT (INCLUDING GRADING AND RESTORATION) SHALL ALSO BE PROVIDED FOR ALL CONDUIT INSTALLATION AREAS IN THE BOULEVARDS (INCIDENTAL).



HH 60 TO HH 61
(AND CONTINUING TO THE SOUTH
TO NORTHDAL BLVD):
2" CONDUIT - INPLACE
1-6 SM FO CABLE - INPLACE

FO VAULT 100 TO HH 61:
F & I — (**) 1.5" CONDUIT
INPLACE — (**) 1-6 SM FO CABLE
(S & I)

HH 61 TO HH 5:
(**) 2" CONDUIT - INPLACE
(CUT & EXTEND INTO NEW HH 5)
(**) 1-1/C 6 (INS GR) - F & I

HH 3 TO HH 4:
HH 4 TO HH 5:
2" CONDUIT ("A")
3-2/C 14 ("A")

DESIGN TEAM	NO.	BY	DATE	REVISIONS
DRAWN BY: MRB				
DESIGNER: MRB				
CHECKED BY: JMG				

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.

John M. Gray
Printed Name: JOHN M. GRAY
Lic. No. 22457 Date: 09/23/2025



ANOKA COUNTY, MN
CSAH 9
SAP 002-609-023
CITY OF ANDOVER SAP 198-020-042, CITY PROJECT 25-13
CITY OF ANOKA SAP 103-020-020

TRAFFIC SIGNAL SYSTEM "A"
INTERSECTION LAYOUT AND INTERCONNECT
ROUND LAKE BLVD (CSAH 9) AT 135TH AVENUE/ROOSEVELT STREET

87
133

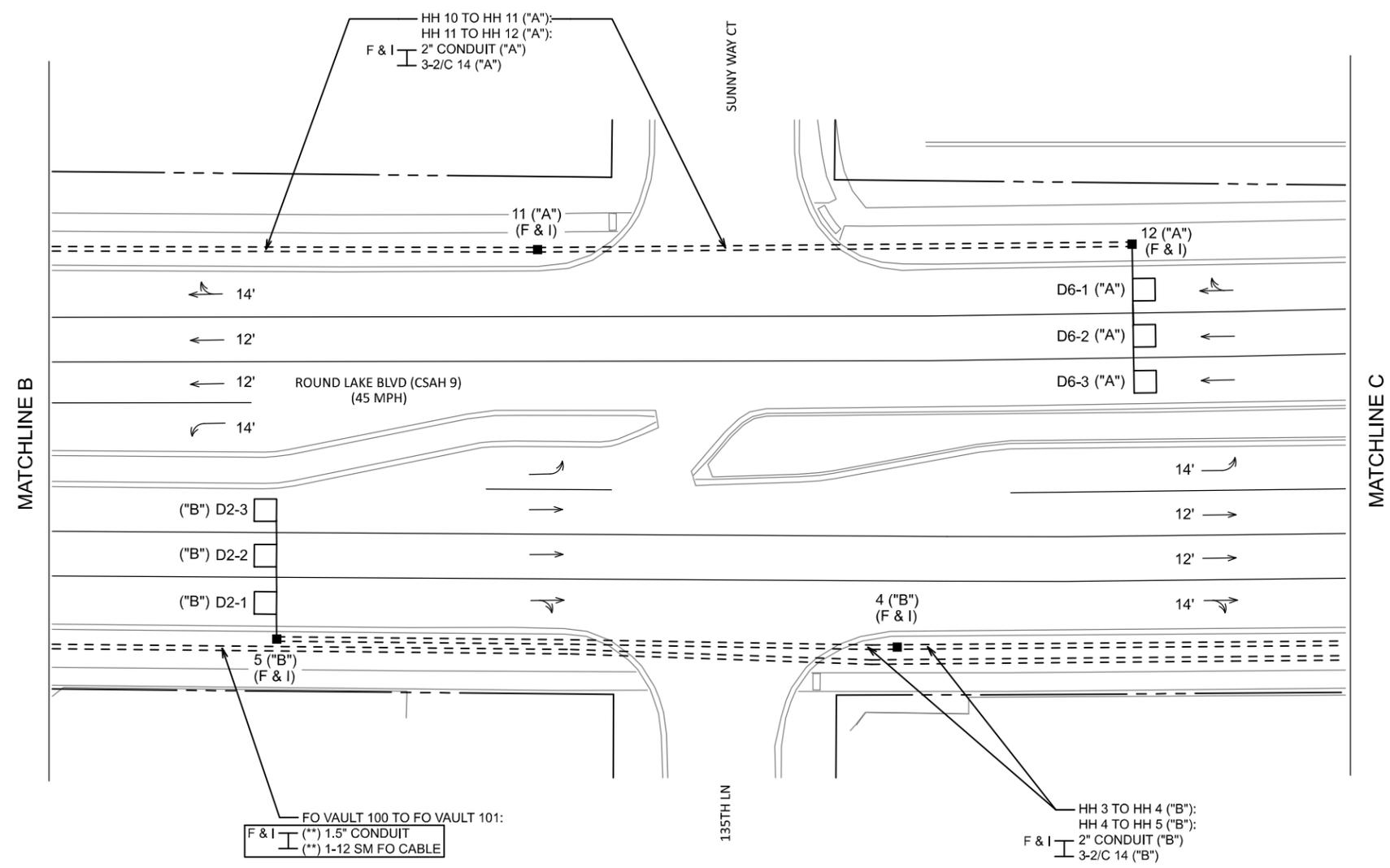
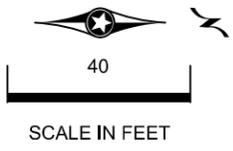
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INTERCONNECT NOTES:

- 1) IT SHALL BE THE CONTRACTOR'S RESPONSIBILITY TO UTILIZE THE "ONE CALL EXCAVATION NOTICE SYSTEM" (TELEPHONE NUMBER 651-454-0002) AS REQUIRED BY MINNESOTA STATUTE 2160.
- 2) DISTANCE OFF SHOULDER OR CURB FOR NEW INTERCONNECT CONDUIT SHALL BE 1-2 FEET UNLESS OTHERWISE APPROVED BY ENGINEER.
- 3) (**) DENOTES ITEMS TO BE FURNISHED AND INSTALLED BY THE CONTRACTOR UNDER ITEM NO. 2565 (TRAFFIC CONTROL INTERCONNECT). SEE STATEMENT OF ESTIMATED QUANTITIES AND SPECIAL PROVISIONS.
- 4) ITEMS DENOTED BY "A" SHALL BE INCLUDED AS PART OF THE PAY ITEM FOR ITEM NO. 2565 (TRAFFIC CONTROL SIGNAL SYSTEM "A").
ITEMS DENOTED BY "B" SHALL BE INCLUDED AS PART OF THE PAY ITEM FOR ITEM NO. 2565 (TRAFFIC CONTROL SIGNAL SYSTEM "B").
- 5) (F & I) DENOTES ITEMS TO BE FURNISHED AND INSTALLED BY CONTRACTOR AS PART OF THIS PROJECT.
- 6) ALL NEW INTERCONNECT CONDUIT INSTALLATIONS (UNDER ROADWAYS, SIDEWALKS, AND IN BOULEVARD AREAS) SHALL BE DIRECTIONALLY BORED UNLESS OTHERWISE APPROVED BY THE ENGINEER IN THE FIELD (DURING CONSTRUCTION) FOR A CONDUIT SECTION TO BE TRENCHED-IN DUE TO UTILITY OR OTHER CONFLICTS THAT WILL NOT ALLOW FOR A CONDUIT SECTION TO BE BORED. TURF ESTABLISHMENT (INCLUDING GRADING AND RESTORATION) SHALL ALSO BE PROVIDED FOR ALL CONDUIT INSTALLATION AREAS IN THE BOULEVARDS (INCIDENTAL).



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DESIGNER: MRB				
CHECKED BY: JMG				

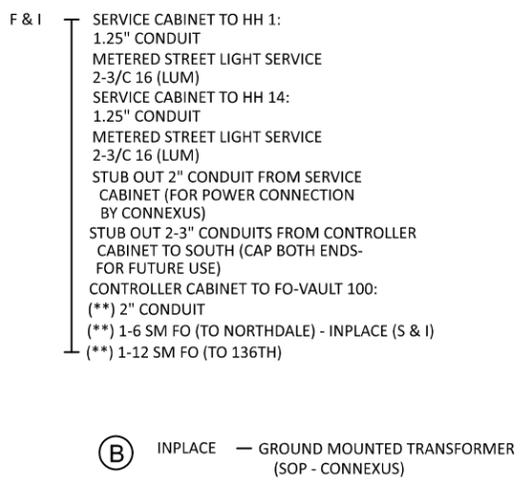
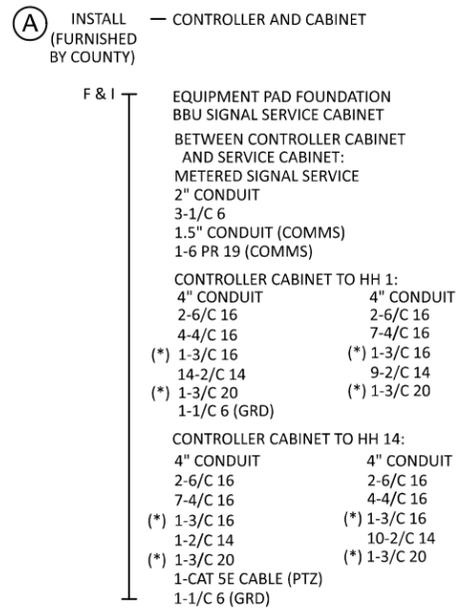
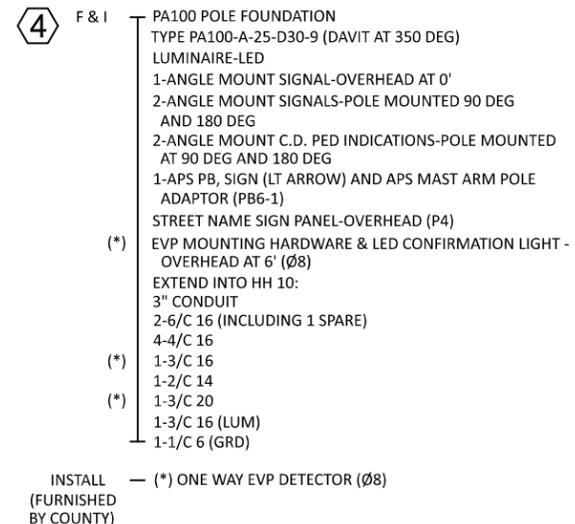
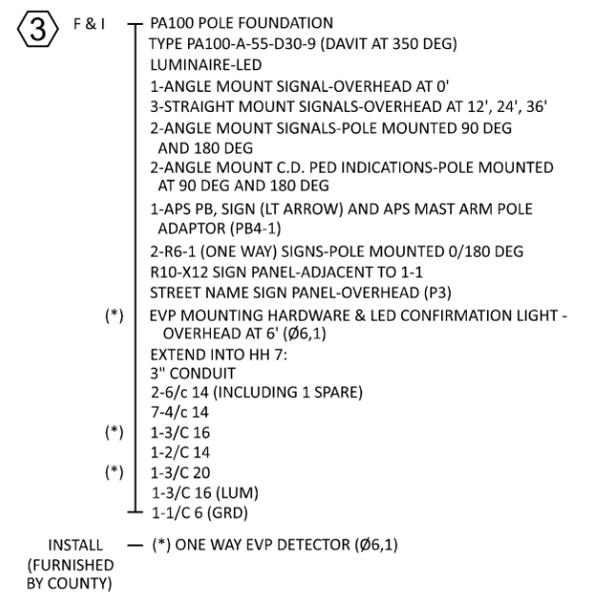
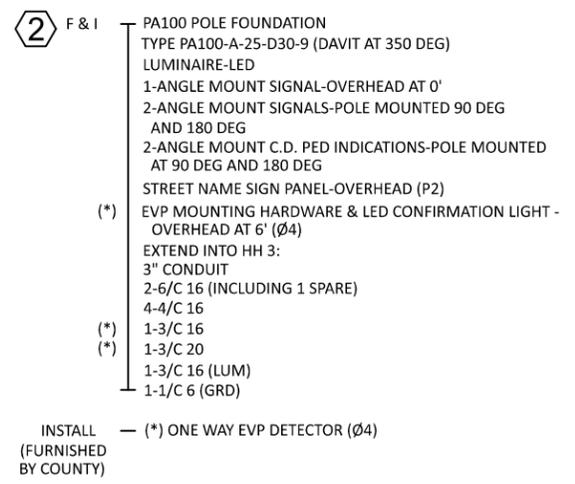
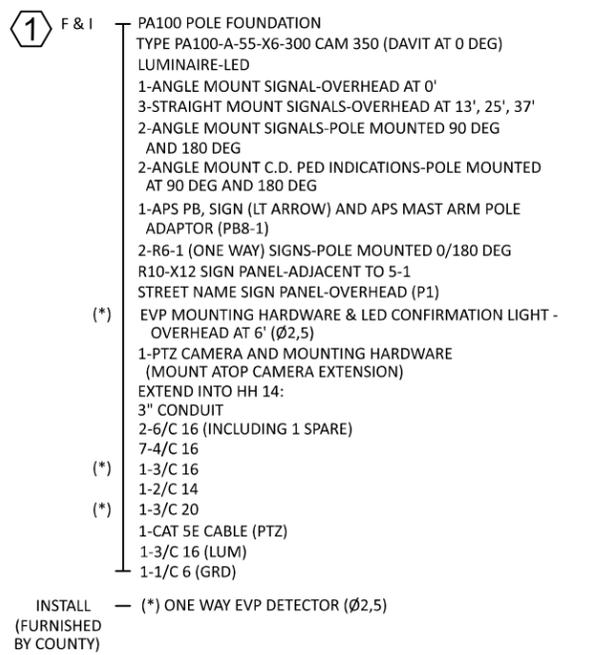
I hereby certify that this plan was prepared by me or under my direct supervision and that I am a duly Licensed Professional Engineer under the laws of the State of Minnesota.

John M. Gray
 Printed Name: JOHN M. GRAY
 License No. 22457 Date: 09/23/2025

ANOKA COUNTY, MN
 CSAH 9
 SAP 002-609-023
 CITY OF ANDOVER SAP 198-020-042, CITY PROJECT 25-13
 CITY OF ANOKA SAP 103-020-020

TRAFFIC SIGNAL SYSTEMS "A-B"
 INTERSECTION LAYOUT AND INTERCONNECT
 CSAH 9 (ROUND LAKE BOULEVARD) BETWEEN 135TH AVENUE AND 136TH AVENUE

- NOTES:**
- 1) LOCATION OF FOUNDATIONS, LOOP DETECTORS, HANDHOLES, AND PUSH BUTTON STATIONS SHALL BE DETERMINED IN FIELD BY THE ENGINEER.
 - 2) SEE SPECIAL PROVISIONS FOR COUNTY FURNISHED MATERIALS.
 - 3) ALL HANDHOLES, CONDUIT, AND CABLES AND CONDUCTORS SHALL BE NEW AND SHALL BE FURNISHED AND INSTALLED BY CONTRACTOR UNLESS OTHERWISE NOTED.
 - 4) NEW HANDHOLES SHALL BE IN ACCORDANCE WITH THE MnDOT APPROVED/QUALIFIED PRODUCTS LIST AND THE SPECIAL PROVISIONS.
 - 5) A 3/4" HALF COUPLING, 3/4" PIPE NIPPLE & CONDUIT OUTLET BODY SHALL BE FURNISHED AND INSTALLED 6 FEET FROM THE END OF EACH MAST ARM (FOR EVP).
 - 6) THE CONTRACTOR SHALL BE RESPONSIBLE FOR CONTACTING THE POWER COMPANY TO ARRANGE FOR THE POWER CONNECTION (CONNEXUS). SEE SPECIAL PROVISIONS.
 - 7) SEE SPECIAL PROVISIONS & DETAILS REGARDING SIGNS TO BE FURNISHED AND INSTALLED BY CONTRACTOR (TO BE MEASURED AND PAID FOR SEPARATELY FROM THE "TRAFFIC CONTROL SIGNAL SYSTEM A" PAY ITEM).
 - 8) EACH PEDESTRIAN INDICATION SHALL BE ONE SECTION LED COUNTDOWN TIMER "HAND/WALKING PERSON" INDICATION.
 - 9) SEE DETAILS, SPECIAL PROVISIONS & STATEMENT OF ESTIMATED QUANTITIES REGARDING BATTERY BACK-UP SIGNAL SERVICE CABINET TO BE FURNISHED AND INSTALLED BY CONTRACTOR (SEPARATE FROM ITEM NO. 2565 FOR THIS SIGNAL SYSTEM).
 - 10) LOOP DETECTOR WIRES SHALL BE CROSS-LINKED POLYETHYLENE (XLP) #12 AWG IN 3/4" N.M.C. SEE SPECIAL PROVISIONS.
 - 11) (*) DENOTES ITEMS TO BE INCLUDED AS PART OF THE PAY ITEM FOR ITEM INO. 2565 (EMERGENCY VEHICLE PREEMPTION SYSTEM A). SEE STATEMENT OF ESTIMATED QUANTITIES AND SPECIAL PROVISIONS.
 - 12) (**) DENOTES ITEMS TO BE FURNISHED AND INSTALLED BY CONTRACTOR UNDER ITEM NO. 2565 (TRAFFIC CONTROL INTERCONNECT). SEE STATEMENT OF ESTIMATED QUANTITIES AND SPECIAL PROVISIONS.
 - 13) NO SPLICING IS ALLOWED ON ANY CABLE OR CONDUCTOR BETWEEN THE CONTROLLER/SERVICE CABINETS AND EACH POLE OR MAST ARM MOUNTED COMPONENT (EXCEPT THAT LOOP DETECTORS SPLICES ARE ALLOWED IN ADJACENT HANDHOLES ONLY).
 - 14) SEE SPECIAL PROVISIONS REGARDING REMOVAL OF EXISTING SIGNAL SYSTEM (TO BE MEASURED AND PAID FOR SEPARATELY FROM ITEM NO. 2565 - "TRAFFIC CONTROL SIGNAL SYSTEM A").
 - 15) CONTRACTOR SHALL MAINTAIN OPERATION OF A SIGNAL SYSTEM AT THIS INTERSECTION AT ALL TIMES (EITHER VIA THE EXISTING SIGNAL SYSTEM OR A TEMPORARY SIGNAL SYSTEM), EXCEPT AS OTHERWISE APPROVED BY THE COUNTY FOR THE SIGNAL SYSTEM TO BE TURNED OFF FOR CHANGEOVER FROM EXISTING TO TEMPORARY (AND/OR PERMANENT) SIGNAL SYSTEM. SEE SPECIAL PROVISIONS AND "TEMPORARY SIGNAL SYSTEM A" PLANS FOR FURTHER INFORMATION.
 - 16) CONTRACTOR SHALL PROVIDE, INSTALL, AND MAKE OPERATIONAL ALL COMPONENTS RELATED TO THE COMPLETE PTZ CAMERA INSTALLATION (TO BE MEASURED AND PAID FOR SEPARATELY FROM THE "TRAFFIC CONTROL SIGNAL SYSTEM A" PAY ITEM). SEE SPECIAL PROVISIONS AND STATEMENT OF ESTIMATED QUANTITIES.



DESIGN TEAM	NO.	BY	DATE	REVISIONS
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DESIGNER: MRB				
CHECKED BY: JMG				

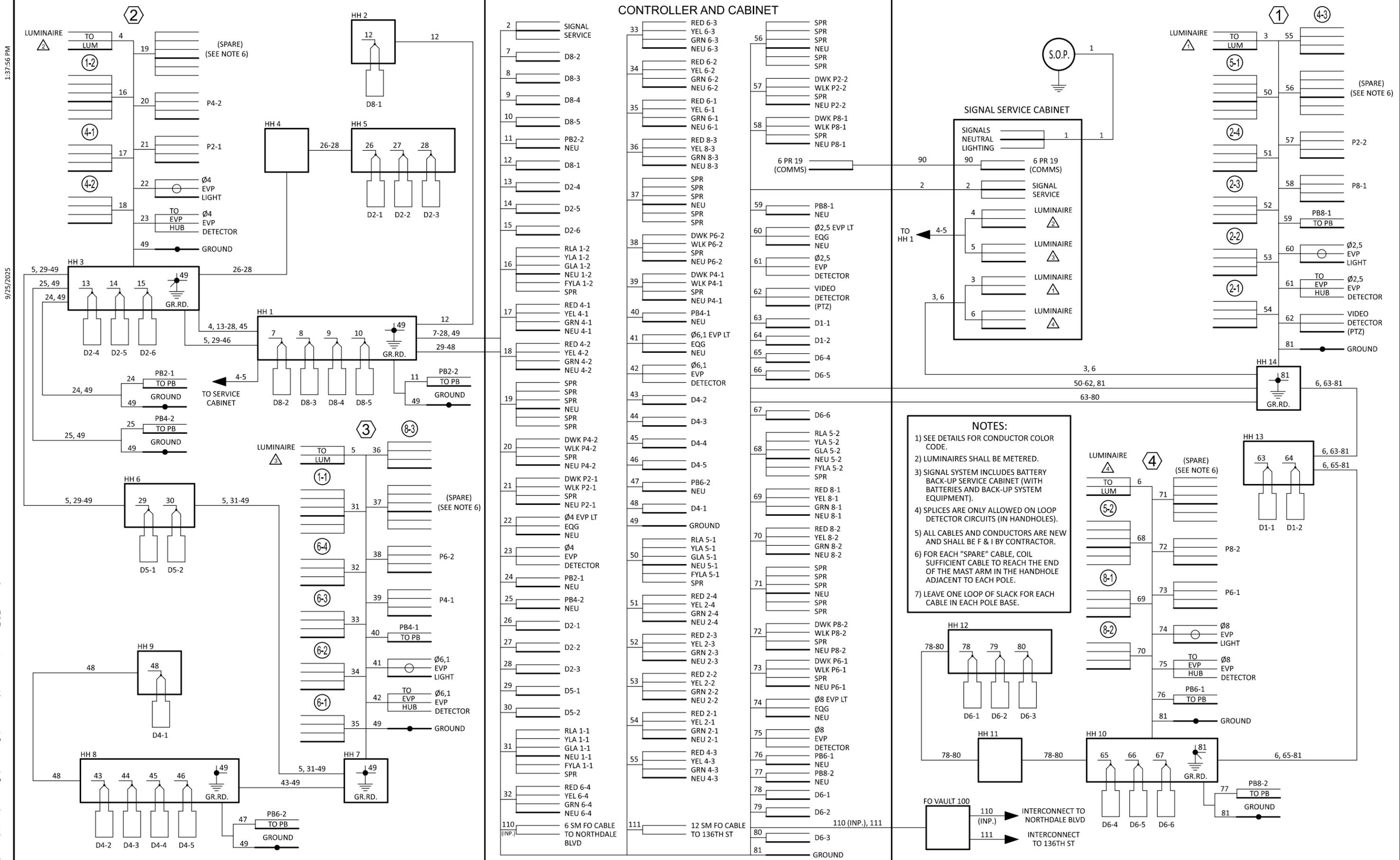
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Printed Name: JOHN M. GRAY
Lic. No. 22457 Date: 09/23/2025

ANOKA COUNTY, MN
CSAH 9
SAP 002-609-023
CITY OF ANDOVER SAP 198-020-042, CITY PROJECT 25-13
CITY OF ANOKA SAP 103-020-020



TRAFFIC SIGNAL SYSTEM "A"
POLE & CABINET NOTES
CSAH 9 (ROUND LAKE BOULEVARD) AT 135TH AVENUE/ROOSEVELT STREET



- NOTES:**
- 1) SEE DETAILS FOR CONDUCTOR COLOR CODE.
 - 2) LUMINAIRES SHALL BE METERED.
 - 3) SIGNAL SYSTEM INCLUDES BATTERY BACK-UP SERVICE CABINET (WITH BATTERIES AND BACK-UP SYSTEM EQUIPMENT).
 - 4) SPLICES ARE ONLY ALLOWED ON LOOP DETECTOR CIRCUITS (IN HANDHOLES).
 - 5) ALL CABLES AND CONDUCTORS ARE NEW AND SHALL BE F & I BY CONTRACTOR.
 - 6) FOR EACH "SPARE" CABLE, COIL SUFFICIENT CABLE TO REACH THE END OF THE MAST ARM IN THE HANDHOLE ADJACENT TO EACH POLE.
 - 7) LEAVE ONE LOOP OF SLACK FOR EACH CABLE IN EACH POLE BASE.

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DESIGN TEAM	NO.	BY	DATE	REVISIONS
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DESIGNER: MRB				
CHECKED BY: JMG				

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