JOINT POWERS AGREEMENT
Between the City of Saint Paul and the City of Roseville
For the Completion of Signal System Revisions at the Intersection of
Snelling Avenue (TH 51) and Lydia Avenue

This Agreement is made this _____ day of _____, 2021 by and between the City of Saint Paul, (herein referred to as "St. Paul") a Minnesota municipality, and the City of Roseville, Ramsey County, Minnesota (herein referred to as "Roseville") a political subdivision of the State of Minnesota. St. Paul and Roseville are collectively referred to herein as the "Parties".

WHEREAS, St. Paul and Roseville, pursuant to the provisions of Minnesota Statutes §471.59, are authorized to enter into an agreement to exercise jointly the governmental powers and function each has individually; and

WHEREAS, St. Paul and Roseville, pursuant to the provisions of Minnesota Statutes §471.64, are authorized to lease, sell, and buy materials between one another; and

WHEREAS, St. Paul possesses the skill and expertise via its Department of Public Works, to service, repair, maintain and install street lights, traffic signals, signs, and pavement markings and have serviced its own traffic and lighting infrastructure for several decades (the "Services"); and

WHEREAS, Roseville has need of the Services at various locations within its borders; and

WHEREAS, both St. Paul and Roseville are willing to enter into an agreement whereby St. Paul will provide Roseville with Services and Roseville will pay St. Paul for the same within 30 days of the respective invoice date, unless otherwise stipulated and approved by the Parties. Now therefore,

IT IS HEREBY AGREED BY AND BETWEEN THE PARTIES AS FOLLOWS:

1. That St. Paul will provide general construction and installation Services in a timely manner as identified and agreed upon by the Authorized Representatives.

2. That this agreement shall be effective on the date that all required signatures are obtained. St. Paul must not begin work addressed by this agreement until all required signatures have been obtained and St. Paul has been notified in writing to begin such work by Roseville's Authorized Representative.

3. That this agreement will expire on December 31, 2021, or when all obligations and payments have been satisfactorily fulfilled, whichever occurs first.

4. That said services shall include: removing items of the existing traffic control signal system; furnishing and installing materials and electrical equipment; and installing other materials as specified and furnished by Roseville. This work shall serve to provide a revised and operating signal system at the intersection of T.H. 51 (Snelling Avenue) and Lydia Avenue W., as outlined by the construction documents listed in Appendix A.

5. That this agreement, and documents identified by Appendix A, may be amended by the Parties to include additional services at any time, providing such amendment is in conformance with Paragraph 18, in writing, and specifically describes the nature and type of such matter, its location and effective date of the change. Parties must propose such amendment by sending it to the respective contacts:

St. Paul Contact: Traffic Operations Engineer, 899 N. Dale Street, Saint Paul, Minnesota 55103.

Roseville Contact: City Engineer, Assistant Public Works Director, Department of Public Works, City of Roseville, 2660 Civic Center Drive, Roseville, MN 55113.

6. That all electrical work performed by St. Paul will be in conformance with the national electrical code and in a neat and workmanlike manner. Further, all work shall comply with conditions and expectations set forth in SS-1 (2565) REVISE SIGNAL SYSTEM dated 11/24/2020, which has been included with supporting construction documents.

7. That all materials removed by St. Paul, shall be reused, or disposed of pursuant to the supporting construction documents.

8. That Roseville, if available, shall furnish to St. Paul a copy of any and all repair and maintenance manuals and revisions of the same for any and all equipment.

9. That Roseville shall provide a written list of persons authorized by Roseville to contact during construction, and for any after-hours emergencies.

10. That authorized Roseville representatives shall direct telephone calls for non-emergency requests as needed between the hours of 7:00 AM and 3:00 PM Monday through Friday excluding legal holidays to St. Paul's Traffic Operations center at 651-266-9777. At all other times, calls for any emergency service shall be directed to St. Paul's 24-hour dispatcher at 651-266-9700.

11. That St. Paul will bill Roseville for Services rendered hereunder on a one-time payment basis detailing a description of the work involved; the labor and equipment used in the performance thereof, the parts and materials furnished, and any costs incurred as a result of subcontracted services or resources. This payment request will be issued by St. Paul to Roseville upon acceptance of the final deliverable.

12. That labor charges will be billed by St. Paul at the wage it has established as adjusted, via collective bargaining with the various occupational groups who actually perform the work. The labor charges referenced shall commence at the time travel begins and terminate when travel ends for any task performed for Roseville hereunder. St. Paul shall provide to Roseville the most current billing rates for labor for each occupational group performing the work. St. Paul shall also provide to Roseville the most current equipment billing rates.

13. That Roseville shall be billed for parts and materials at St. Paul's actual cost plus a markup of twenty percent (20%) to cover the costs of restocking, handling and operating expense, provided the parts and materials are received or managed by the City of St. Paul Traffic Operations Warehouse.

14. That Roseville will remit the sums payable to St. Paul within thirty (30) days after its receipt of same.

15. That all written notices and other communications required hereunder shall be sent to the Authorized Representatives identified:

FOR ST. PAUL:
Joe Spah
Assistant City Engineer
Traffic Operations Division
899 N. Dale Street
St. Paul, MN 55103
Phone: (651) 266-9773
Mobile: (651) 485-6725

FOR ROSEVILLE:
Jesse Freihammer
City Engineer/ Assistant Public Works Director
Department of Public Works
City of Roseville
2660 Civic Center Drive
Roseville, MN 55113
Phone: (651) 792-7042

16. Either St. Paul or Roseville may terminate this agreement at any time, with or without cause, upon sixty (60) days written notice from one to the other; and any charges for Services rendered prior to the termination date shall survive until paid.

17. There shall be no assignment of this Agreement except upon the written consent of the nonassigning party, which consent shall not be unreasonably withheld.

18. This Agreement may be amended or any of its terms modified only by written amendment authorized and executed by St. Paul and Roseville.

19. St. Paul and Roseville shall each be responsible for their own acts and omissions and the results thereof to the extent authorized by law. St. Paul and Roseville's liabilities are subject to statutory liability limitations.

20. St. Paul shall assist Roseville with respect to any requests for documentation or reports or any other general assistance required pursuant to this Agreement.

21. The parties may sign this Agreement in counterparts, each of which constitutes an original, but all of which together constitute one instrument.

22. The parties agree that the electronic signature of a party to this Agreement shall be as valid as an original signature of such party and shall be effective to bind such party to this Agreement. The parties further agree that any document (including this Agreement and any attachments or exhibits to this Agreement) containing, or to which there is affixed, an electronic signature shall be deemed (i) to be "written" or "in writing," (ii) to have been signed and (iii) to constitute a record established and maintained in the ordinary course of business and an original written record when printed from electronic files. For purposes hereof, "electronic signature" also means a manually signed original signature that is then transmitted by any electronic means, including without limitation a faxed version of an original signature or an electronically scanned and transmitted version (e.g., via PDF) of an original signature. Any party's failure to produce the original signature of any electronically transmitted signature shall not affect the enforceability of this Agreement.

CITY OF SAINT PAUL

By: _____
Melvin Carter, Mayor Date

By: _____
Sean Kershaw Date
Director, Department of Public Works

By: _____ _____
John McCarthy Date
Director, Office of Financial Services

APPROVED AS TO FORM:

By: _____
Saint Paul City Attorney Date

CITY OF ROSEVILLE

By: _____ 4-13-21
Dan Roe, Mayor Date

By: _____ 4/13/2021
Patrick Trudgeon, City Manager Date

APPENDIX A

1. SS-1 (2565) REVISE SIGNAL SYSTEM, dated 11/24/2020

2. CITY OF ROSEVILLE, SNELLING AVENUE AND LYDIA AVENUE, CONSTRUCTION PLAN SET, dated 01/27/2021

3. TRAFFIC OPERATIONS LABOR AND EQUIPMENT BILLING RATES (MARCH 2021)

DIVISION SS
Table of Contents

Nathan A. Poole

Lic. No 56071 Date MM/DD/YYYY

SS-1 (2565) REVISE SIGNAL SYSTEM

This work consists of removing items of the existing traffic control signal system; furnishing and installing materials and electrical equipment; and installing Department furnished materials as specified herein, all to provide a complete operating revise signal system at the intersection of T.H. 51 (Snelling Avenue) and Lydia Avenue W in the City of Roseville, Ramsey County in accordance with the applicable provisions of MnDOT 2565; with the current edition of the National Electrical Code; with the Plans; and as follows:

2565 ABBREVIATIONS

GLOSSARY OF ACRONYMS AND ABBREVIATIONS

Acronyms and abbreviation used in the Contract to represent full text in accordance with 1102 "Abbreviations and Measurement Units" and as shown in Table 2545-1:

Table 2565-1
Acronyms and Abbreviations Used

Acronym or Short Form	Full Name or Meaning
APL	Approved/Qualified Products List

SS-1.1 GENERAL

A Revise Existing Traffic Control Signal System

Revise the existing traffic control signal system in accordance with the Plans and with the following to provide a complete operating revise signal system:

(1) Remove and dispose of items of the existing traffic control signal system not being reused in the revise signal system as required by the Plans and these Special Provisions.
(2) Incorporate into the revise signal system all in place items of the existing traffic control signal system as indicated in the Plans.
(3) Install Department furnished traffic materials as specified herein.
(4) Provide and install new items as required by the Plans which includes, but is not limited to the following:

(a) LED vehicle signal indications
(b) Conduit and conduit fittings
(c) Traffic control signal electrical cables and conductors
(d) Bonding and grounding materials

(5) Provide and install insulated spade lugs on conductors required to be terminated.
(6) Provide and install new labels to identify cables and conductors as required by the field wiring diagram.
(7) Terminate all cables and conductors as required to provide an operational revised signal system to the satisfaction of the Engineer.

SS-1.2 MATERIALS

Provide materials in accordance with 2565.2A and as follows:

A Department Provided Materials

The Department provides to the Contractor (at no expense to the Contractor) the following materials and electrical equipment for the Contractor to install:

(1) One (1) traffic control signal cabinet each complete with actuated controller unit and all required signal control equipment.

(2) Four (4) sets of anchor rods, nuts, and washers to mount the Department provided traffic control signal cabinet (one set = one anchor rod, nut, and washer).
(3) One (1) 4-section rubber gasket to be installed between the bottom of each traffic control signal cabinet and the concrete foundation.
(4) One (1) traffic control video detection camera and mount.
(5) One (1) traffic control video detection COMMS manager / Video Image Processor.
(6) Warning stickers on new sign panels shall be in accordance with 2564.3 H. The quantity required must be coordinated with the Engineer.

SS-1.3 CONSTRUCTION REQUIREMENTS

A Pick Up Department Provided Materials

Pick up materials and electrical equipment from:

MnDOT's Electrical Services Section,
6000 Minnehaha Avenue,
St. Paul, MN. 55111- 4014.

Follow these requirements:

(1) Request from the Electrical Services Section the materials and electrical equipment listed in (A) above.
(2) Direct MnDOT's Electrical Services Section to the T.E. Request No. _____.
(3) Request Department provided materials at least 30 business days in advance of needing the material on the project.
(4) Notify MnDOT's Electrical Services Section at least 3 business days in advance of intention to pick up materials and electrical equipment. Contact:

Electronic Maintenance Supervisor	651 366 5759
Stockroom	651 366 5720
Transportation Program Supervisor	651 366 5753

(5) Pick up the Department provided materials and electrical equipment at the above specified location and transport them to the job site
(6) Secure each cabinet in an upright position when transporting to the job site. Ensure that each cabinet being transported will not tip and be damaged

Notify the Engineer in advance of contacting MnDOT's Electrical Services Section.

B Installation of Department Provided Materials

Install the Department provided traffic control signal cabinets each complete with actuated controller unit and all required signal control equipment.

Provide and install all additional materials and electrical equipment for a complete operating traffic control signal cabinet installation which includes, but is not limited to:

(1) A cabinet concrete foundation as part of the equipment pad concrete foundation using Department provided anchor rods, nuts, and washers.
(2) Bonding and grounding materials and connections.
(3) Make all field conductor connections in each traffic control signal cabinet as directed by the Engineer to make each traffic control signal system operational.

Protect the Department provided cabinet pallet from damage and return the pallet to MnDOT Central Electrical Inventory Center at the address specified herein, or the District Headquarters.

C Video Detection Systems Construction Requirements

Install traffic signal high definition video detection systems at the locations shown on the Plan and the following:

(1) Aim each camera for optimal field of view and detector placement at each specific approach,
(2) Install continuous unspliced Cat 5 E cable, or microwave and sonic detector cable
(3) Zoom and focus the cameras to provide proper imaging of the approaches
(4) Program video image detection zones as shown on the Plan, and
(5) Verify with MnDOT's district traffic office:
    (1) Aim each camera for optimal field of view and detector placement at each specific approach,
    (2) Detection zones are working correctly, and
    (a) Live video images show the detection zones properly overlaid and operating

D Splicing

Use grease filled wire nuts for splicing signal control cable.

E Maintenance of Existing Electrical Systems

Maintain and keep in operation new and existing electrical systems in accordance with 2565.3B and as follows:

The Contractor is responsible for locating underground facilities of existing traffic control signal systems including temporary, and newly constructed signal systems within the limits of the construction project, for the duration of the construction project in accordance with the applicable provisions of MnDOT 1514 and in accordance with Minnesota State Statute 216D.

The responsibility for locating underground traffic control signal system facilities shall be transferred to the Contractor on the project start date as shown on the proposal.

MnDOT's locating group will provide an initial locate of the underground traffic control signal system facilities within the project limits at the request of the Contractor at the start of the project. The request for the initial locate must be submitted to MnDOT's Locating Office a minimum of 4 business days prior to the project start date.

Locate requests that are within the construction project limits will continue to be received by MnDOT's Locating Office. These locate tickets will be forwarded to the Contractor's representative responsible for coordinating locate requests within the projects limits. The locate tickets will be forwarded via e mail or fax. Confirmation of receipt of the locate ticket must be sent by the Contractors representative back to MnDOT's locating office within 2 hours of MnDOT's sending the Contractor's representative the locate request.

The Contractor responsible for locating underground traffic control signal system facilities will repair damage as the result of improperly located or unmarked underground traffic control signal system facilities within the project limits.

The repair the damaged underground traffic control signal system facilities in accordance with 2545.3A, 2565.3B and RTMC design and construction requirements.

Until final written acceptance of the project by the Engineer (MnDOT 1716), locate underground traffic control signal facilities as required in this section. This Work is included in the Pay Item Traffic Control Signal System.

It is the Contractor's responsibility to notify MnDOT's Locating Office to provide contact information and establish the contractor has assumed responsibility for locating MnDOT's underground traffic control signal system facilities within the project limits. The form in this section is filled out by the Contractor's representative and provided to the Engineer at the pre-construction meeting. A copy of the completed form sent to the following:

Electrical Services Dispatch
Phone: (651)366-5750
Fax: (651)366-5742
E mail: ElectricalServicesDispatch.dot@state.mn.us
6000 Minnehaha Ave. St. Paul, MN 55111-4014

and

Locating Supervisor
Phone: (651)755-9061
Fax: (651)366-5742
E mail: bruce.camitsch@state.mn.us
6000 Minnehaha Ave. St. Paul, MN 55111-4014

and

MnDOT District Signal Operations
Name: Peter Ellwanger
Phone: (651) 775-1279
Fax: (651) 234-7850
E mail: peter.ellwangerl@state.mn.us
Address: 1500 County Road B2 West, Roseville, MN 55113

Locating Responsibility Form

Job S.P. Number _____

Job Type _____

Start Date _____

End Date _____

T.H. _____

Location _____

Lighting/ Signal Inspector _____

Contractor _____

Contractor (24 Hour Contact) _____

Project Manager _____

Phone Number _____

Fax Number _____

Email _____

Electrician _____

Phone Number _____

Locator Area _____

Project Engineer _____

Phone Number _____

Chief Inspector _____

Phone Number _____

Weekly Meeting _____

During any periods of authorized work suspension, the contractor is responsible for maintenance of the existing, temporary, and newly constructed traffic control signal systems.

Provide to the Department contact information with the names and telephone numbers for 24 hours a day, 7 days a week maintenance as defined above.

This Work is included in the Unit Prices of the Pay Items that are part of the Traffic Control Signal System.

F Mast Arm Extension with Flange Brace

Install the mast arm extension and flange brace according to manufacturer's installation instructions.
Cut mast arm extension to length to center the signal head on the driving lane.
The following language needs to be included if "pole base connectors" are being used as conductor termination devices. The District must use either Pole Base Connectors or Terminal Bocks but not both.
All RED text must be removed from the special provisions prior to the special provisions being submitted for project letting.

G Sign Panel Warning Stickers

Install Department furnished warning stickers on new sign panels in accordance with MnDOT 2564.3H. Provide 30 days advance notice to Chris Dochniak at 651-775-0316 prior to picking up the Department furnished warning stickers.

H Remove and Dispose of Conduit

Except under roadway surfaces, remove and dispose of the existing traffic control signal system underground conduit, unless otherwise specified in Contract Documents or directed by the Engineer.

Abandon the existing conduit under roadway surfaces, unless otherwise specified in Contract Documents or directed by the Engineer.

I Remove and Salvage Traffic Control Signal Cabinet and Equipment

To ensure proper care and prevent damage during removal, handling and shipping of control signal cabinets and equipment, provide in order the following:

(1) De-energize the traffic control cabinet and equipment
(2) Disconnect the power conductors
(3) Unplug and remove removable control equipment including the controller unit, detector amplifier units, conflict monitor, and load switches from the cabinet.
(4) Package and secure the removed control equipment in a method and manner that prevents damage to the equipment during handling and shipping
(5) Coil together the connecting harnesses of the removed equipment
(6) Fasten and secure the harnesses to a cabinet shelf in a method and manner that prevents the harnesses from being damaged when closing the cabinet door and from falling through the bottom of the cabinet during removal, handling and shipping
(7) Secure the cabinet in an upright position when removing, handling and shipping

J As Built Drawings and GPS Coordinates

As Built drawings and GPS coordinates in accordance with Division S Special Provisions "AS-Builts" including Pay Item No. 2011.601 (As-builts).

SS-1.4 MEASUREMENT AND PAYMENT

A Measurement

Removing items of the existing traffic control signal system; furnishing and installing materials and electrical equipment; and installing Department furnished materials as specified herein, all to provide a complete operating revise signal system at the intersection of T.H. 51 (Snelling Avenue) and Lydia

Avenue W in the City of Roseville, Ramsey County as contained in these Special Provisions and in the Plans will be measured as an integral unit complete in place PAYMENT

B Payment

Removing items of the existing traffic control signal system; furnishing and installing materials and electrical equipment; and installing Department furnished materials as specified herein, all to provide a complete operating revise signal system at the intersection of T.H. 51 (Snelling Avenue) and Lydia Avenue W in the City of Roseville, Ramsey County as contained in these Special Provisions and in the Plans will be paid for under Item No. 2565.616 (REVISE SIGNAL SYSTEM) at the Contract price per SYSTEM, which price will be compensation in full for all costs incidental thereto.

SIGNAL HEAD CHART

FACE	R	Y	FYA	G	Y	G
▲1-1, 1-2▲	⇦	⇦		⇦		
⊠1-1, 1-2⊠	←	←	←	←		
2-1, 2-2, 2-3	○	○		○		
4-1	○	○		○		
▲4-2, 4-3▲	○	○		○	⇦	⇦
⊠4-2	●	●		●		
⊠7-1,7-2⊠,7-3⊠	←	←	←	←		
▲5-1, 5-2▲	⇦	⇦		⇦		
⊠5-1, 5-2⊠	←	←	←	←		
6-1, 6-2, 6-3	○	○		○		
8-1	○	○		○		
▲8-2, 8-3▲	○	○		○	⇦	⇦
⊠8-2	●	●		●		
⊠3-1, 3-2⊠	←	←	←	←		

-ALL SIGNAL INDICATIONS ARE 12" LED
-ALL SIGNAL HEADS HAVE BACKGROUND SHIELDS

40
SCALE IN FEET

VIDEO DETECTION CHART

CAMERA NUMBER	LOCATION	PHASE
■ V-1	POLE 1	1,2,3,4,5,6,7,8

LOOP DETECTION CHART

NUMBER	SIZE (FT)	LOCATION
2-1,2-2	6x6	INP.
6-1,6-2	6x6	INP.

SIGNAL REVISION NOTES:
A NEW CABINET SHALL BE INSTALLED IN THE SAME LOCATION AS THE EXISTING CABINET. A GRIDSMART CAMERA SHALL BE INSTALLED ON LUMINAIRE 1. THE INTERSECTION SHALL BE CONVERTED TO VIDEO DETECTION. ALL EXISTING LOOP DETECTORS AND ASSOCIATED CONDUITS SHALL BE ABANDONED INPLACE. A 5' MAST ARM EXTENSION SHALL BE INSTALLED ON SIGNAL POLE 2. MAST ARM MOUNTED SIGNAL HEADS ON POLES 2 AND 4 WILL BE REVISED AS SHOWN IN THE PLANS. SIGNAL HEADS 7-2 AND 3-2 WILL ALSO BE REVISED AS SHOWN IN THE PLANS. THE ABANDONED PED PB STATION FOUNDATION IN THE NORTH MEDIAN AND THE CONDUIT CONNECTING IT TO HH 8 SHALL BE REMOVED.

GENERAL NOTES:
1. ALL ITEMS SHOWN ARE INPLACE AND REMAIN INPLACE UNLESS NOTED OTHERWISE.
2. ABANDON ALL LOOP DETECTORS AND LOOP DETECTOR LEAD-IN WIRES WITH THE EXCEPTION OF LOOPS 2-1, 2-2, 6-1, AND 6-2. SEE FIO SHEETS FOR EXISTING LOOP LOCATIONS.
3. SEE SPECIAL PROVISIONS FOR STATE FURNISHED MATERIALS.
4. REFER TO "FOR INFORMATION ONLY" SHEETS FOR INPLACE SIGNAL COMPONENTS.
5. ALL WIRES LISTED ARE AWG (AMERICAN WIRE GAUGE).

▲ = REMOVE
◪ = SALVAGE AND INSTALL
⊠ = FURNISH AND INSTALL
■ = INSTALL (STATE FURNISHED)

LYDIA AVE
POSTED SPEED 30 M.P.H.

PED PB STATION
1-APS PB AND SIGN
(RT ARROW) (PB6-2)
EXTEND INTO HH 2:
2" PVC
1-2/C #14

2" PVC
1-2/C #14

PED PB STATION
1-APS PB AND SIGN
(LT ARROW) (PB6-1)
EXTEND INTO HH 5:
2" PVC
1-2/C #14

4" RSC
2-12/C #12
⊠1-12/C #12
3-3/C #12
6-2/C #14
2-3/C #20

2" PVC
4-2/C #14

4" RSC
5-12/C #12
7-3/C #12
13-2/C #14
2-3/C #20
■1-CAT 5E (VIDEO DET.)

PED PB STATION FOUNDATION
(ABANDONED INPLACE)
EXTEND INTO HH 5:
2" PVC

4" RSC
3-12/C #12
4-3/C #12
9-2/C #14
1-3/C #20

2" PVC
2-2/C #14

160 SB T.H.51 (SNELLING AVE.)
POSTED SPEED 50 M.P.H.

MATCHLINE "B" STATION 154+79

NB T.H.51 (SNELLING AVE.)
POSTED SPEED 50 M.P.H.

PED PB STATION
1-APS PB AND SIGN
(DBL ARROW) (PB4-3)
EXTEND INTO HH 17:
2" PVC
1-2/C #14

3" RSC
2-12/C #12
⊠1-12/C #12
3-3/C #12
4-2/C #14
2-3/C #20

4" RSC
3-12/C #12
4-3/C #12
7-2/C #14
1-3/C #20

▲ PED PB STATION FOUNDATION
(ABANDONED INPLACE)
EXTEND INTO HH 8:
2" PVC

2" PVC
2-2/C #14

2" PVC
1-3/C #20

2" PVC
1-2/C #14

PED PB STATION
1-APS PB AND SIGN
(RT ARROW) (PB4-2)
EXTEND INTO HH 11:
2" PVC
1-2/C #14

PED PB STATION
1-APS PB AND SIGN
(LT ARROW) (PB2-1)
EXTEND INTO HH 11:
2" PVC
1-2/C #14

1 1/4" RSC
1-3/C #20

PED PB STATION FOUNDATION
(ABANDONED INPLACE)
EXTEND INTO HH 9:
2" PVC

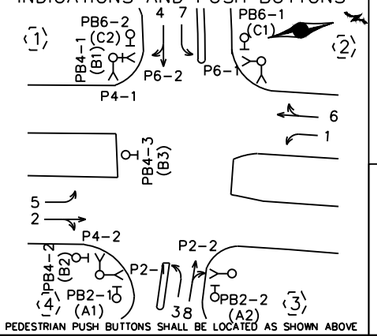
PED PB STATION
1-APS PB AND SIGN
(RT ARROW) (PB2-2)
EXTEND INTO HH 9:
2" PVC
1-2/C #14

LYDIA AVE
POSTED SPEED 30 M.P.H.

MATCHLINE "C" STATION 23+12

MATCHLINE "A" STATION 161+38

CONTROLLER PHASING, PEDESTRIAN INDICATIONS AND PUSH BUTTONS



PEDESTRIAN PUSH BUTTONS SHALL BE LOCATED AS SHOWN ABOVE

SIGNAL SYSTEM OPERATION

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

SYSTEM ID: 1735348
TE 28933
METER ADDRESS: 2995 SNELLING AVE N

NO	DATE	BY	CKD	APPR

H:\PROJECTS\13000\13420\DESIGN\PLANSHEETS\13420_SGNL01.DWG: SGNL-LAY-01

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.
Print Name: NATHAN POOLE
Date 01/27/21 License # 56071

DRAWN BY KAO
DESIGNED BY NAP
CHECKED BY NAP
COMM. NO. 13420

SRF

CITY OF ROSEVILLE
TH 51 (SNELLING AVENUE) AND LYDIA AVENUE
SIGNAL LAYOUT

SHEET 123 OF 128

KEVIN OLM | 2/2/2021 3:16:42 PM
23.1S (LMS TECH) | C:\Users\kolm\AppData\Roaming\Autodesk\C3D 2020\enu\
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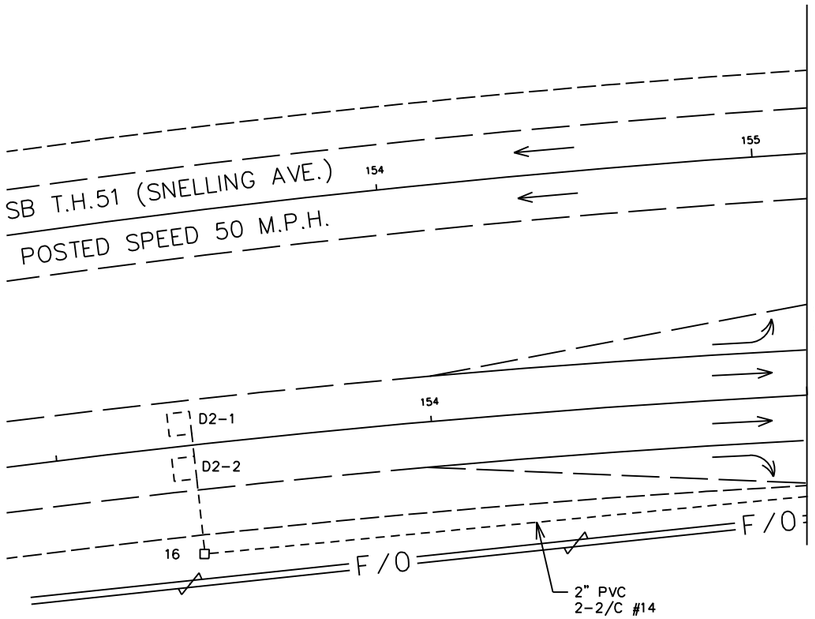


(A) EQUIPMENT PAD
SERVICE CABINET
▲ CONTROLLER AND CABINET
■ CONTROLLER AND CABINET
4" RSC TO HH 1:
5-12/C #12
7-3/C #12
3-3/C #20
6-2/C #14
⊠ 1-12/C #12

4" RSC TO HH 2:
5-12/C #12
6-3/C #12
2-3/C #20
19-2/C #14
■ 1-CAT 5E (VIDEO DET.)

2" RSC TO SERVICE CABINET:
2-1/C #6
1-1/C #6 INS. GR.
SERVICE CABINET TO HH 1:
2" RSC
⊠ 4-3/C #12
SERVICE CABINET TO HH 19:
2" RSC
3-1/C #2

CONTROLLER CABINET TO HH 18:
2" RSC
◪ 1-25PR. #19

HH 1 TO HH 2:
2" RSC
◪ 1-3/C #12

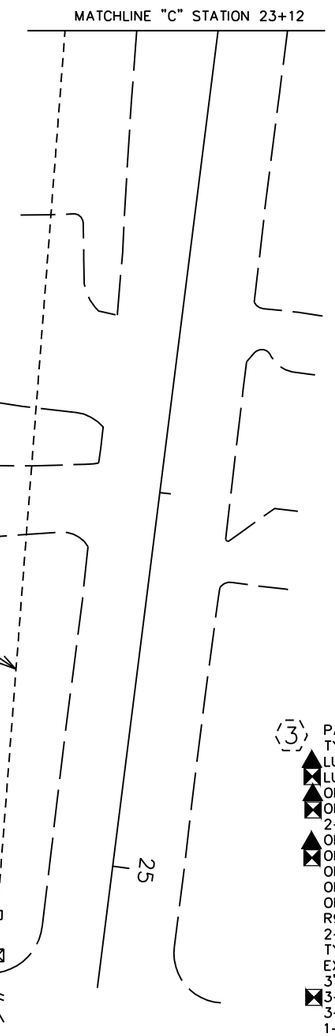
CONTROLLER CABINET TO TMS VAULT
1 1/2" PVC INSIDE 3"RSC STUB OUT:
◪ FIBER OPTIC CABLE (6SM)
(WITH PRE-TERMINATED CABLE END)

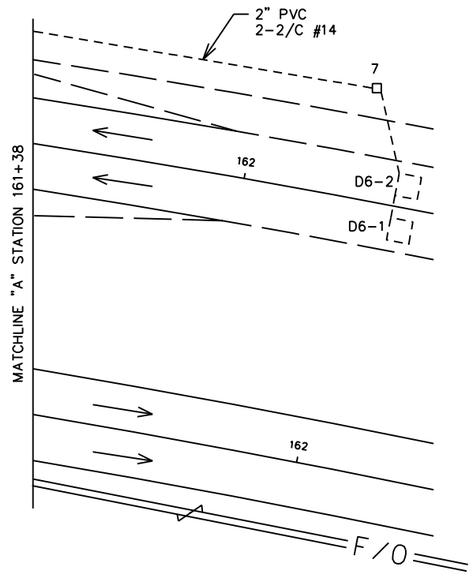
(B) SOP-WOOD POLE
2" RISER, WEATHERHEAD, AND CONDUIT TO HH 19
3-1/C #2

(1) PA100 POLE FOUNDATION
TYPE PA100-A-50-X6-350/CAM 400 (X AT 350 DEG)
▲ LUMINAIRE-250W HPS
⊠ LUMINAIRE-LED (FOR 40' MOUNTING HEIGHT)
VIDEO CAMERA
▲ ONE-WAY SIGNAL AT 0'
⊠ ONE-WAY SIGNAL AT 0'
2-ONE-WAY SIGNALS AT 12' & 22'
ONE-WAY SIGNAL AT 45 DEG
▲ ONE-WAY SIGNAL AT 225 DEG
⊠ ONE-WAY SIGNAL AT 225 DEG
2-ONE-WAY CD PED HEADS AT 45 & 225 DEG
ONE WAY EVP DETECTOR & CONFIRMATORY LIGHT (1+6)
APS PB AND SIGN (LT ARROW) (PB4-1)
2-R6-1R SIGNS
TYPE D SIGN
EXTEND INTO HH 1:
3" RSC
⊠ 3-12/C #12
4-3/C #12
1-3/C #12
1-3/C #20
1-7/16" GROUNDING BRAID TO GROUND ROD IN HH 1
1-3/C #14 (CAMERA POWER)
1-COM CABLE
1-COAXIAL CABLE

(4) PA100 POLE FOUNDATION
TYPE PA100-A-40
⊠ D40-9 LUMINAIRE EXTENSION (DAVIT AT 350 DEG)
⊠ LUMINAIRE-LED (FOR 40' MOUNTING HEIGHT)
⊠ 5' MAST ARM EXTENSION
▲ ONE-WAY SIGNAL AT 0'
⊠ 3-ONE-WAY SIGNALS AT 0', 14.5', AND 25'
▲ ONE-WAY SIGNAL AT 45 DEG
⊠ ONE-WAY SIGNAL AT 45 DEG
ONE-WAY SIGNAL AT 225 DEG
2-ONE-WAY CD PED HEADS AT 45 & 225 DEG
ONE WAY EVP DETECTOR & CONFIRMATORY LIGHT (4)
▲ R10-12 SIGN (ADJACENT TO 4-2)
⊠ R10-X12 SIGN (ADJACENT TO 7-2)
TYPE D SIGN
EXTEND INTO HH 11:
3" RSC
2-12/C #12
⊠ 1-12/C #12
3-3/C #12
⊠ 1-3/C #12
1-3/C #20

(5) PEDESTAL FOUNDATION
13' PEDESTAL POLE PLUS BASE
ONE WAY EVP DETECTOR (8)
EXTEND INTO HH 14:
1 1/4" RSC
1-3/C #30





(2) PA90 POLE FOUNDATION
TYPE PA90-A-30
⊠ D40-9 LUMINAIRE EXTENSION (DAVIT AT 350 DEG)
⊠ LUMINAIRE-LED (FOR 40' MOUNTING HEIGHT)
⊠ 5' MAST ARM EXTENSION
▲ ONE-WAY SIGNAL AT 0'
⊠ 2-ONE-WAY SIGNALS AT 0' AND 9'
▲ ONE-WAY SIGNAL AT 45 DEG
⊠ ONE-WAY SIGNAL AT 45 DEG
ONE-WAY SIGNAL AT 225 DEG
ONE-WAY CD HEAD HEAD AT 45 DEG
ONE WAY EVP DETECTOR & CONFIRMATORY LIGHT (8)
■ 1-VIDEO DETECTION CAMERA (V-1)
(STATE FURNISHED) INSTALL ON LUM. EXTENSION
▲ R10-12 SIGN (ADJACENT TO 8-2)
⊠ R10-X12 SIGN (ADJACENT TO 3-1)
R9-3 SIGN (FACING POLE 3)
TYPE D SIGN
EXTEND INTO HH 5:
3" RSC
2-12/C #12
3-3/C #12
⊠ 1-3/C #12
1-3/C #20
■ 1-CAT 5E (VIDEO DET.)

(3) PA100 POLE FOUNDATION
TYPE PA100-A-50-D40-9 (DAVIT AT 350 DEG)
▲ LUMINAIRE-250W HPS
⊠ LUMINARIE-LED (FOR 40' MOUNTING HEIGHT)
▲ ONE-WAY SIGNAL AT 0'
⊠ ONE-WAY SIGNAL AT 0'
2-ONE-WAY SIGNALS AT 12' & 22'
▲ ONE-WAY SIGNAL AT 45 DEG
⊠ ONE-WAY SIGNAL AT 45 DEG
ONE-WAY SIGNAL AT 225 DEG
ONE WAY CD PED HEAD AT 225 DEG
ONE WAY EVP DETECTOR & CONFIRMATORY LIGHT (2+5)
R9-3 SIGN (FACING POLE 2)
2-R6-1R SIGNS
TYPE D SIGN
EXTEND INTO HH 9:
3" RSC
⊠ 3-12/C #12
3-3/C #12
1-3/C #12
1-3/C #20

▲ = REMOVE
◪ = SALVAGE AND INSTALL
⊠ = FURNISH AND INSTALL
■ = INSTALL (STATE FURNISHED)

NO	DATE	BY	CKD	APPR

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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.
Print Name: NATHAN POOLE
Date 01/27/21 License # 56071

DRAWN BY KAO
DESIGNED BY NAP
CHECKED BY NAP
COMM. NO. 13420

SRF

CITY OF ROSEVILLE
TH 51 (SNELLING AVENUE) AND LYDIA AVENUE
SIGNAL LAYOUT

SHEET 124 OF 128

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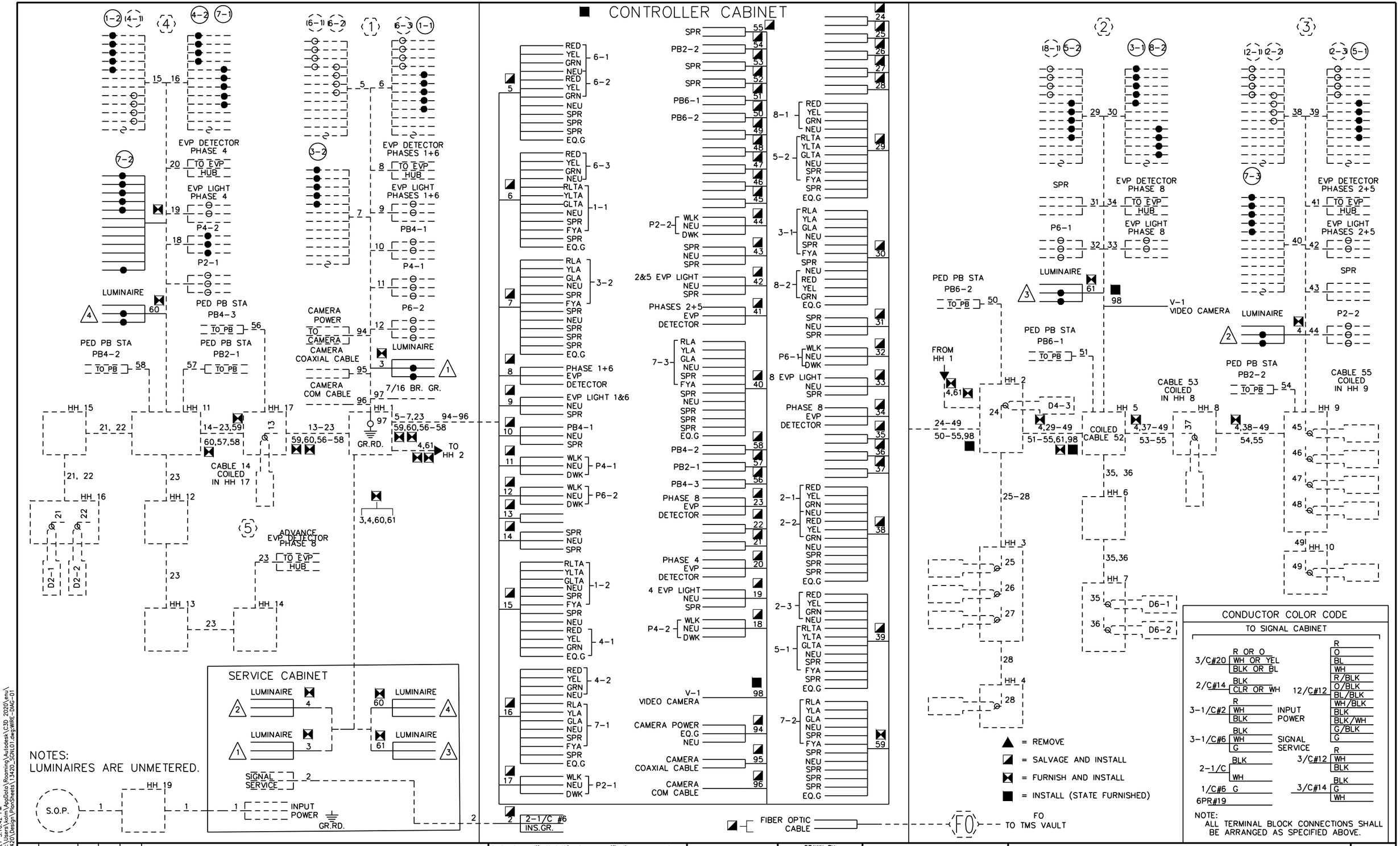

NO	DATE	BY	CKD	APPR

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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.

Print Name: NATHAN POOLE

Date 01/27/21 License # 56071

DRAWN BY KAO
DESIGNED BY NAP
CHECKED BY NAP
COMM. NO. 13420

SRF

CITY OF ROSEVILLE

TH 51 (SNELLING AVENUE) AND LYDIA AVENUE

WIRING DIAGRAM

SHEET 125 OF 128

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PLOTTED/REVISED: $$$$@DATE@$$$$

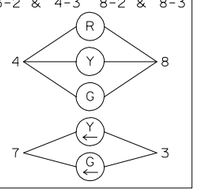
DISTRICT #: $$DISTRICT@$$
IPLOT NAME: $$$@PLOT$NAME@$$
PATH & FILENAME: $$$@PATHFILENAME@$$$

SIGNAL HEAD CHART					
FACE	R	Y	G	Y	G
1-1, 1-2	◁	◁	◁		
2-1, 2-2, 2-3	○	○	○		
4-1	○	○	○		
4-2, 4-3	○	○	○	◁	◁
5-1, 5-2	◁	◁	◁		
6-1, 6-2, 6-3	○	○	○		
8-1	○	○	○		
8-2, 8-3	○	○	○	◁	◁

-ALL SIGNAL INDICATIONS ARE 12" LED
-ALL SIGNAL HEADS HAVE BACKGROUND SHIELDS

SIGNAL HEAD PHASING

HEADS 3-2 & 4-3 HEADS 8-2 & 8-3



LOOP DETECTOR CHART		
NUMBER	SIZE (FT)	LOCATION
D1-1	2-6x6	10 & 40
D2-1, D2-2	6x6	400
D3-1	2-6x6	20 & 50
D3-2	2-6x6	5 & 35
D4-1	6x6	120
D4-2	2-6x6	5 & 20
D4-3	2-6x6	-10 & 5
D5-1	2-6x6	10 & 40
D6-1, 6-2	6x6	400
D7-1	2-6x6	20 & 50
D7-2	2-6x6	5 & 35
D8-1	6x6	120
D8-2	2-6x6	5 & 20
D8-3	6x6	-13

-ALL LOOP DETECTORS ARE PVC
-LOCATION: DISTANCE FROM CROSSWALK/STOP BAR IN FEET

CONTROLLER PHASING, PEDESTRIAN INDICATIONS AND PUSH BUTTONS

PEDESTRIAN PUSH BUTTONS SHALL BE LOCATED AS SHOWN ABOVE

SIGNAL SYSTEM OPERATION

- THE SIGNAL SYSTEM FLASH MODE IS ALL RED.
- NORMAL OPERATION IS 8 PHASE, WITH PHASES 3 AND 7 BEING A PROTECTED/PERMISSIVE LEFT TURN PHASES, WITH PHASES 1 AND 5 BEING PROTECTED LEFT TURN PHASES.
- PHASES 2 AND 6 SHALL BE ON VEHICLE RECALL.

BY	DATE	REVISIONS
EJA	02-08-16	AS-BUILT OF SP 6216-133 FIBER & CAMERA

SYSTEM ID: 20744 T.E.
METER ADDRESS: 2995 SNELLING AVE N
MASTER ID: N/A T.E.

INTERSECTION LAYOUT
TH 51 (SNELLING AVE) AT LYDIA AVE
IN ROSEVILLE, RAMSEY COUNTY

S.A.P. NO. | DRAWN BY: SJK | CKD BY: EJA | DATE: 04-10-14

CERTIFIED BY _____ LIC. NO. _____ DATE: _____
LICENSED PROFESSIONAL ENGINEER

STATE PROJ.NO. (T.H.51) SHEET NO. 1 OF 3 SHEETS

NO	DATE	BY	CKD	APPR

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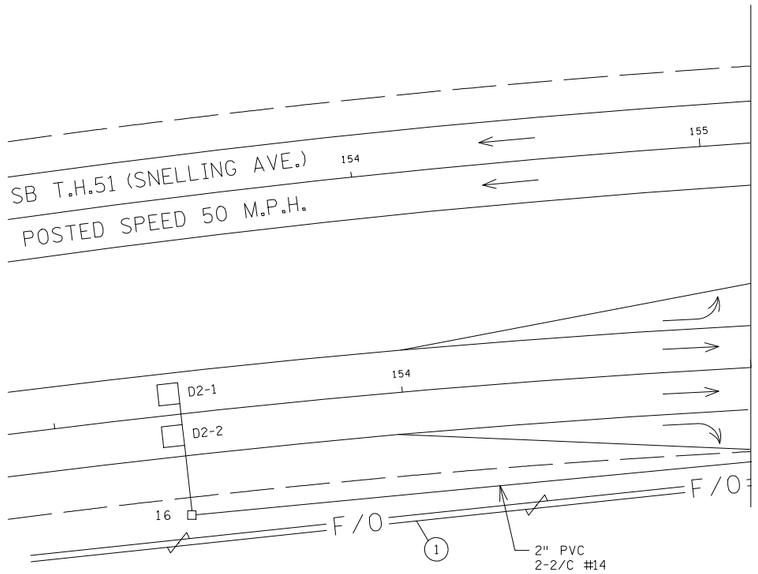
CITY OF ROSEVILLE
TH 51 (SNELLING AVENUE) AND LYDIA AVENUE
FOR INFORMATION ONLY SHEET

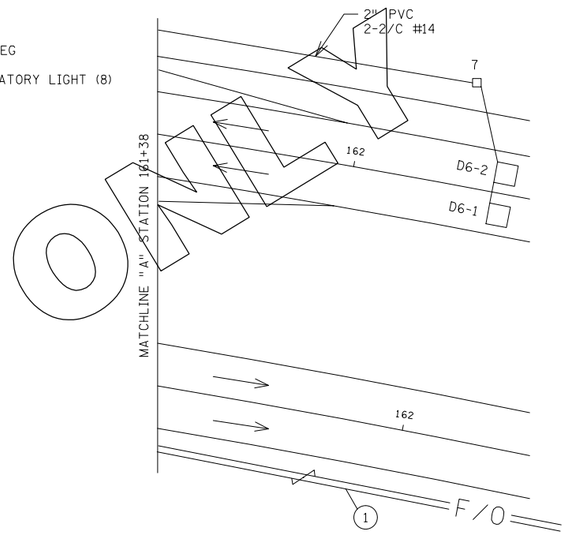
SHEET 126 OF 128

PLOTTED/REVISED: $$$$@DATE@$$$$



(1) PA100 POLE FOUNDATION
TYPE PA100-A-50-X6-350/CAM 400 (X AT 350 DEG)
LUMINAIRE-250W HPS
VIDEO CAMERA
3-ONE-WAY SIGNALS AT 0',12'& 22'
2-ONE-WAY SIGNALS AT 45 & 225 DEG
2-ONE-WAY CD PED HEADS AT 45 & 225 DEG
ONE WAY EVP DETECTOR & CONFIRMATORY LIGHT (1+6)
APS PB AND SIGN (LT ARROW)(PB4-1)
2-R6-1R SIGNS
TYPE D SIGN
EXTEND INTO HH 1:
3" RSC
3-12/C #12
5-3/C #12
1-3/C #20
1-7/16" GROUNDING BRAID
TO GROUND ROD IN HH 1
1-3/C #14 (CAMERA POWER)
1-COM CABLE
1-COAXIAL CABLE

(2) PA90 POLE FOUNDATION
TYPE PA90-A-30
ONE-WAY SIGNAL AT 0'
2-ONE-WAY SIGNALS AT 45 & 225 DEG
ONE-WAY CD HEAD HEAD AT 45 DEG
ONE WAY EVP DETECTOR & CONFIRMATORY LIGHT (8)
R10-12 SIGN (ADJACENT TO 8-2)
R9-3 SIGN (FACING POLE 3)
TYPE D SIGN
EXTEND INTO HH 5:
3" RSC
2-12/C #12
3-3/C #12
1-3/C #20



(3) PA100 POLE FOUNDATION
TYPE PA100-A-50-D40-9 (DAVIT AT 350 DEG)
LUMINAIRE-250W HPS
3-ONE-WAY SIGNALS AT 0',12'& 22'
2-ONE-WAY SIGNALS AT 45 & 225 DEG
ONE WAY CD PED HEAD AT 225 DEG
ONE WAY EVP DETECTOR & CONFIRMATORY LIGHT (2+5)
R9-3 SIGN (FACING POLE 2)
2-R6-1R SIGNS
TYPE D SIGN
EXTEND INTO HH 9:
3" RSC
3-12/C #12
4-3/C #12
1-3/C #20

(4) PA100 POLE FOUNDATION
TYPE PA100-A-40
ONE-WAY SIGNAL AT 0'
2-ONE-WAY SIGNALS AT 45 & 225 DEG
2-ONE-WAY CD PED HEADS AT 45 & 225 DEG
ONE WAY EVP DETECTOR & CONFIRMATORY LIGHT (4)
R10-12 SIGN (ADJACENT TO 4-2)
TYPE D SIGN
EXTEND INTO HH 11:
3" RSC
2-12/C #12
3-3/C #12
1-3/C #20

(5) PEDESTAL FOUNDATION
13' PEDESTAL POLE PLUS BASE
ONE WAY EVP DETECTOR (8)
EXTEND INTO HH 14:
1 1/4" RSC
1-3/C #30

(A) EQUIPMENT PAD
SERVICE CABINET
CONTROLLER AND CABINET

4" RSC TO HH 1:	4" RSC TO HH 2:
5-12/C #12	5-12/C #12
7-3/C #12	6-3/C #12
3-3/C #20	2-3/C #20
6-2/C #14	19-2/C #14

2" RSC TO SERVICE CABINET:
2-1/C #6
1-1/C #6 INS. GR.
SERVICE CABINET TO HH 1:
2" RSC
2-3/C #12
SERVICE CABINET TO HH 19:
2" RSC
3-1/C #2

CONTROLLER CABINET TO HH 18:
2" RSC
1-25PR. #19

HH 1 TO HH 2:
2" RSC
1-3/C #12

CONTROLLER CABINET TO TMS VAULT
1 1/2" PVC INSIDE 3"RSC STUB OUT:
FIBER OPTIC CABLE (GSM)
(WITH PRE-TERMINATED CABLE END)

(B) SOP-WOOD POLE
2" RISER, WEATHERHEAD, AND
CONDUIT TO HH 19
3-1/C #2

(1) SEE THE TMS PLAN FOR FIBER OPTICSCONSTRUCTION.

DISTRICT *: $@DISTRICT@$
IPLOT NAME: $$@IPLOT$NAME@$$
PATH & FILENAME: $$$@PATHFILENAME@$$$

BY	DATE	REVISIONS
EJA	02-08-16	AS-BUILT OF SP 6216-133 FIBER & CAMERA

SYSTEM ID: 20744 T.E.
METER ADDRESS: 2995 SNELLING AVE N
MASTER ID: N/A T.E.

MATCH LINES AND POLE NOTES
TH 51 (SNELLING AVE) AT LYDIA AVE
IN ROSEVILLE, RAMSEY COUNTY

S.A.P. NO. | DRAWN BY:SJK | CKD BY:EJA | DATE:04-10-14

CERTIFIED BY _____ LIC. NO. _____ DATE: _____
LICENSED PROFESSIONAL ENGINEER

STATE PROJ.NO. (T.H.51) SHEET NO. 2 OF 3 SHEETS

NO	DATE	BY	CKD	APPR

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CITY OF ROSEVILLE
TH 51 (SNELLING AVENUE) AND LYDIA AVENUE
FOR INFORMATION ONLY SHEET

SHEET 127 OF 128

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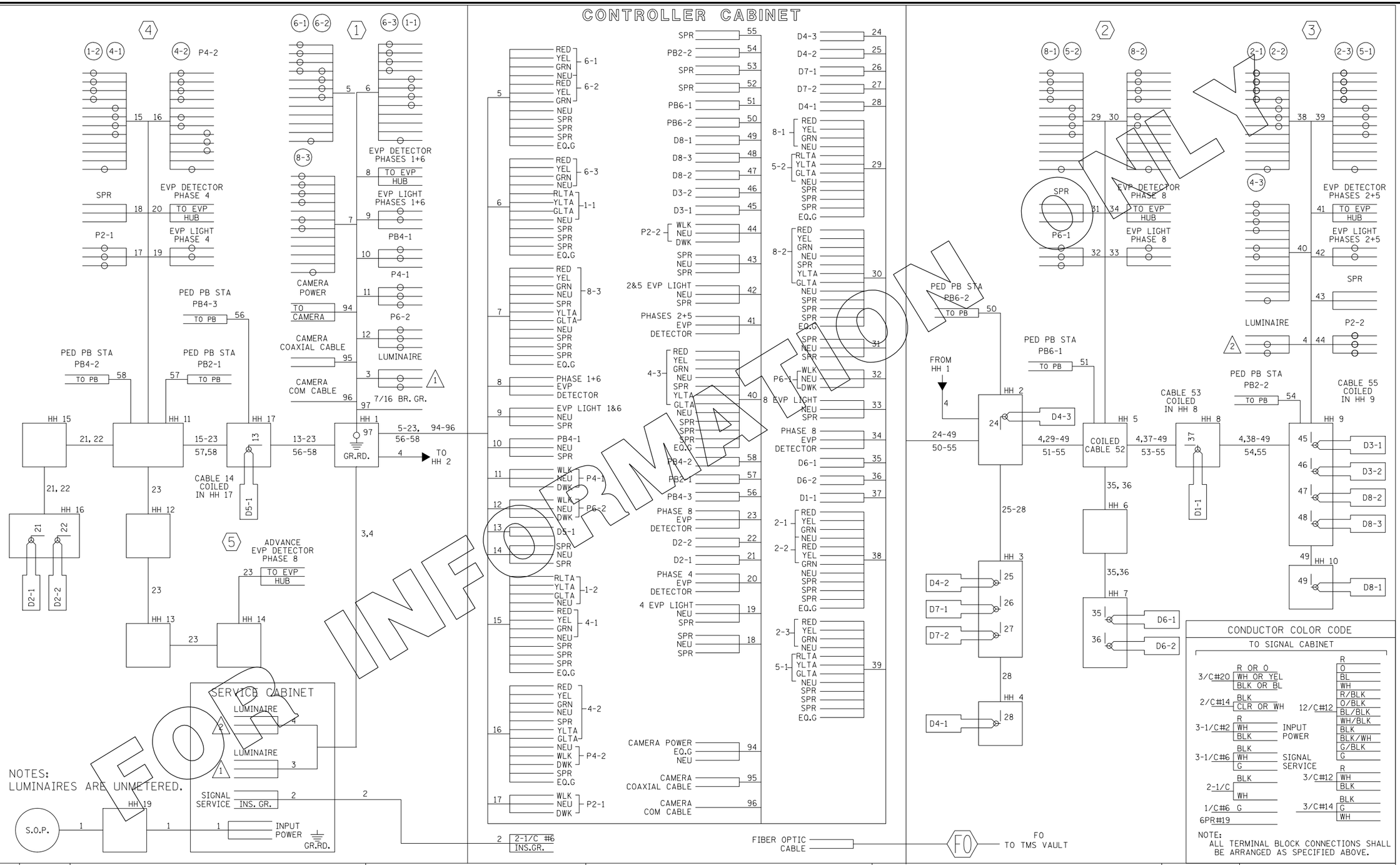
DISTRICT #: $@DISTRICT@$
PLOT NAME: $$@PLOT$NAME@$$
PATH & FILENAME: $$$@PATHFILENAME@$$$

CONTROLLER CABINET



BY	DATE	REVISIONS
EJA	02-08-16	AS-BUILT OF SP 6216-133 FIBER & CAMERA

SYSTEM ID: 20744 T.E.
METER ADDRESS: 2995 SNELLING AVE N
MASTER ID: N/A T.E.

WIRING DIAGRAM
TH 51 (SNELLING AVE) AT LYDIA AVE
IN ROSEVILLE, RAMSEY COUNTY

S.A.P. NO. | DRAWN BY:SJK | CKD BY:EJA | DATE:04-10-14

CERTIFIED BY _____ LICENSED PROFESSIONAL ENGINEER LIC. NO. DATE:

STATE PROJ.NO. (T.H.51) SHEET NO. 3 OF 3 SHEETS

NO	DATE	BY	CKD	APPR

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CITY OF ROSEVILLE
TH 51 (SNELLING AVENUE) AND LYDIA AVENUE
FOR INFORMATION ONLY SHEET

SHEET 128 OF 128

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3. TRAFFIC OPERATIONS LABOR AND EQUIPMENT BILLING RATES (MARCH 2021)

Item	Rate ($/hr)
Pickup Truck	$ 17.00
Dump Truck	$ 21.00
Mini Excavator	$ 30.00
Digger Derrick	$ 45.00
Aerial Lift	$ 28.00
Air Compressor	$ 14.00
Regular Electrician Labor Rate	$ 119.00
Regular Lead Electrician Labor Rate	$ 123.00