FOR BIDDING PURPOSES ONLY

SECTION L: LIGHTING AND SIGNAL PLANS

STATE OF SOUTH DAKOTA	PROJECT	SHEET	TOTAL SHEETS
	NH 0100(106)409 & P 8042(00)	L1	L74

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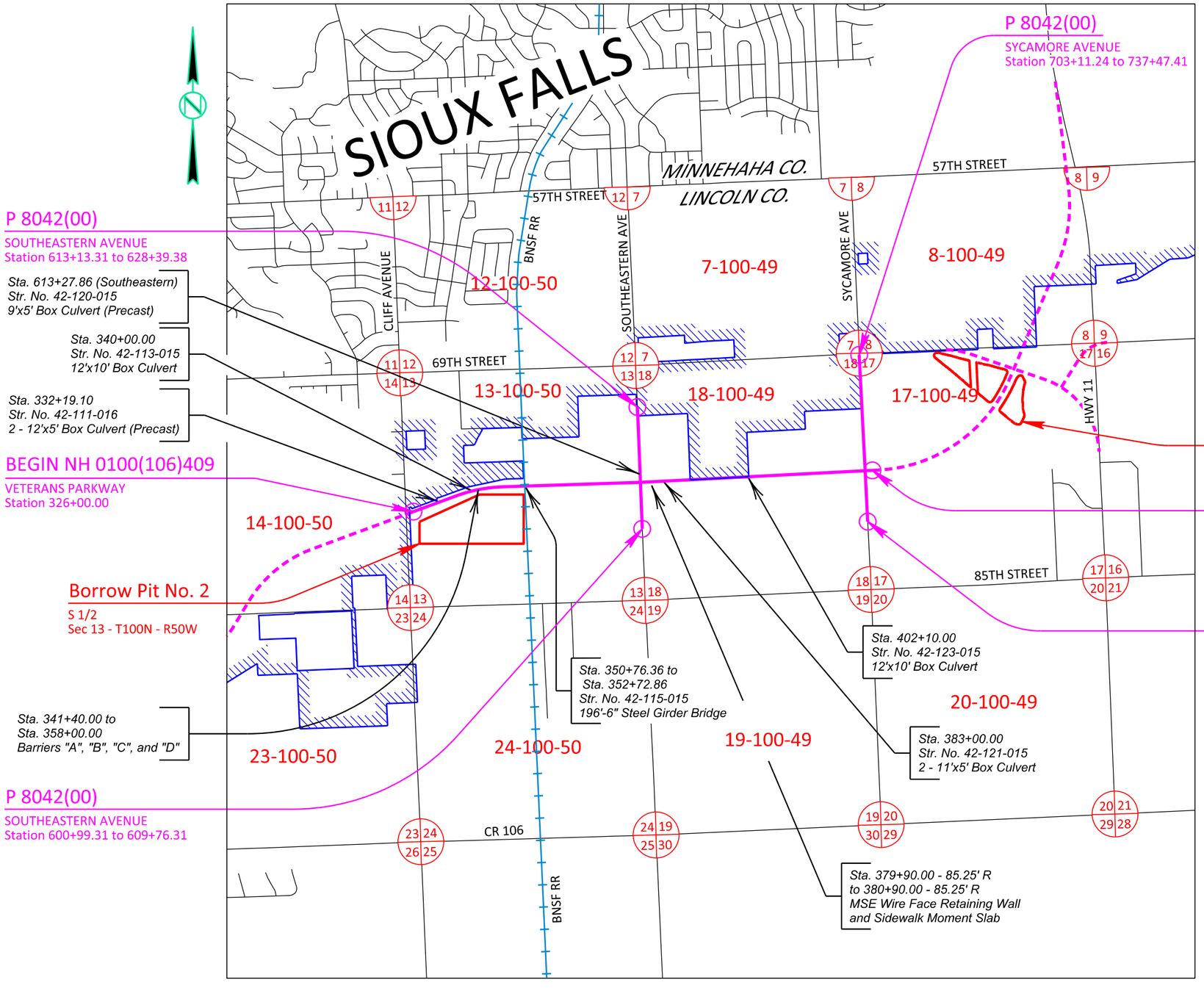
PLOTTING DATE: 10-11-2024
REV DATE:
INITIAL:

INDEX OF SHEETS



REGISTERED PROFESSIONAL ENGINEER
REG. NO. 8324
LANCE R. MCQUEEN
SOUTH DAKOTA
10-11-24

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STATE OF SOUTH DAKOTA	PROJECT	SHEET	TOTAL SHEETS
	NH 0100(106)409 & P 8042(00)	L2	L74

Plotting Date: 1/2/2025

REV DATE: 01/02/2025 INITIAL: LRM

SECTION L ESTIMATE OF QUANTITIES

LIGHTING

Bid Item Number	Item	Quantity				Unit
		PCN 01V7 Veterans	PCN 08DG Southeastern	PCN 08DH Sycamore	Total	
110E1540	Remove Luminaire Pole Footing	-	1	-	1	Each
110E5100	Salvage Luminaire Pole	-	1	-	1	Each
635E0050	Breakaway Base Luminaire Pole with Arm, 50' Mounting Height	67	-	-	67	Each
635E0140	Breakaway Base Luminaire Pole with Twin Arms, 40' Mounting Height	-	12	8	20	Each
635E0150	Breakaway Base Luminaire Pole with Twin Arms, 50' Mounting Height	2	-	-	2	Each
635E3545	Under Bridge Deck Luminaire, LED	4	-	-	4	Each
635E3585	Tunnel Luminaire, LED	24	-	-	24	Each
635E3700	Roadway Luminaire, LED with Photoelectric Cell	80	24	16	120	Each
635E5020	2' Diameter Footing	554.0	96.0	64.0	714.0	Ft
635E5310	Special Electrical Junction Box	42	3	-	45	Each
635E5360	Surface Mounted Junction Box	2	-	-	2	Each
635E5400	Electrical Service Cabinet	4	-	-	4	Each
635E5420	Circuit Control Center	3	-	-	3	Each
635E6200	Miscellaneous, Electrical	Lump Sum	Lump Sum	Lump Sum	Lump Sum	LS
635E7899	Locator Ball	-	1	1	2	Each
635E8008	0.75" Rigid Galvanized Steel Conduit	880	-	-	880	Ft
635E8040	4" Rigid Galvanized Steel Conduit	2,310	-	-	2,310	Ft
635E8120	2" Rigid Conduit, Schedule 40	21,775	2,430	1,440	25,645	Ft
635E8220	2" Rigid Conduit, Schedule 80	2,730	560	220	3,510	Ft
635E8830	2/2/2/4 Aluminum Wire	25,940	2,880	1,590	30,410	Ft
635E8900	3/C #0000 AWG Aluminum Wire	935	-	-	935	Ft
635E9014	1/C #4 AWG Copper Wire	1,535	-	-	1,535	Ft
635E9016	1/C #6 AWG Copper Wire	-	500	200	700	Ft
635E9020	1/C #10 AWG Copper Wire	4,170	-	-	4,170	Ft
635E9024	1/C #14 AWG Copper Wire	1,770	145	120	2,035	Ft
635E9710	2/C #10 AWG Copper Pole and Bracket Cable	5,440	1,320	880	7,640	Ft

TRAFFIC SIGNALS

Bid Item Number	Item	Quantity				Unit
		PCN 01V7 Veterans	PCN 08DG Southeastern	PCN 08DH Sycamore	Total	
635E2070	Signal Pole with 70' Mast Arm	1	-	-	1	Each
635E2165	Signal Pole with 65' Mast Arm and Luminaire Arm	2	-	-	2	Each
635E2170	Signal Pole with 70' Mast Arm and Luminaire Arm	1	-	-	1	Each
635E2175	Signal Pole with 75' Mast Arm and Luminaire Arm	2	-	-	2	Each
635E2275	Signal Pole with 75' Mast Arm and Twin Luminaire Arms	2	-	-	2	Each
635E4030	3 Section Vehicle Signal Head	34	-	-	34	Each
635E4040	4 Section Vehicle Signal Head	4	-	-	4	Each
635E4080	3 Section Directional Vehicle Signal Head	18	-	-	18	Each
635E5030	3' Diameter Footing	28.0	-	-	28.0	Ft
635E5040	4' Diameter Footing	90.0	-	-	90.0	Ft
635E5310	Special Electrical Junction Box	44	9	4	57	Each
635E5430	Traffic Signal Controller	2	-	-	2	Each
635E5450	Side Mounted Cabinet	4	-	-	4	Each
635E5515	Battery Backup System for Traffic Signal	2	-	-	2	Each
635E5520	Video Detection System	2	-	-	2	Each
635E5560	Emergency Vehicle Preemption Unit	2	-	-	2	Each
635E5570	Optical Detector	8	-	-	8	Each
635E5600	Surveillance Camera	4	-	-	4	Each
635E5880	Accessible Pedestrian Signal	16	-	-	16	Each
635E5910	Pedestrian Push Button Pole	16	-	-	16	Each
635E5922	Pedestrian Signal Head with Countdown Timer	16	-	-	16	Each
635E5930	Pedestrian Crossing Sign	16	-	-	16	Each
635E6500	* Furnish Signal Pole with Mast Arm	2	-	-	2	Each
635E8040	4" Rigid Galvanized Steel Conduit	335	-	-	335	Ft
635E8110	1" Rigid Conduit, Schedule 40	405	-	-	405	Ft
635E8120	2" Rigid Conduit, Schedule 40	155	-	-	155	Ft
635E8140	4" Rigid Conduit, Schedule 40	310	-	-	310	Ft
635E8230	3" Rigid Conduit, Schedule 80	2,290	525	45	2,860	Ft
635E8410	1/2" Innerduct, SDR 13.5	-	4,850	-	4,850	Ft
635E8415	1" Innerduct, SDR 13.5	22,910	4,940	2,610	30,460	Ft
635E8420	1.5" Innerduct, SDR 13.5	290	-	-	290	Ft
635E9016	1/C #6 AWG Copper Wire	180	-		180	Ft
635E9022	1/C #12 AWG Copper Wire	14,655	3,395	2,660	20,710	Ft
635E9302	2/C #14 AWG IMSA Copper Cable, K1	565	-	-	565	Ft
635E9303	3/C #14 AWG IMSA Copper Cable, K1	240	-	-	240	Ft
635E9305	5/C #14 AWG IMSA Copper Cable, K1	3,295	-	-	3,295	Ft
635E9307	7/C #14 AWG IMSA Copper Cable, K1	220	-	-	220	Ft
635E9325	25/C #14 AWG IMSA Copper Cable, K1	2,305	-	-	2,305	Ft
635E9800	Preemption Cable	6,050	-	-	6,050	Ft
635E9924	24 Strand Fiber Optic Cable	12,700	8,550	-	21,250	Ft

* - Denotes Non-Participating

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STATE OF SOUTH DAKOTA	PROJECT	SHEET	TOTAL SHEETS
	NH 0100(106)409 & P 8042(00)	L3	L74

FOR BIDDING PURPOSES ONLY

Plotting Date: 1/2/2025

REV DATE: 01/02/2025 INITIAL: LRM

SUPPLYING AS BUILT PLANS

If the traffic signal systems or roadway lighting systems are constructed differently than what is stated in the plans, the Contractor will supply as built plans to the Engineer and a copy will be sent to the Traffic Design Engineer and City Lighting Department. The as built plans may include conduit layouts, wiring diagrams, or other drawings depicting the changes from the original plans.

SHOP DRAWING AND CATALOG CUTS SUBMITTAL

The Contractor will submit shop drawings and catalog cuts in accordance with Section 985 of the Specifications.

PDF submittals will be sent to the following email address:

Lance.McQueen@hdrinc.com

Upon review of the submittals, they will be sent by the Engineer to the following email addresses for concurrence of approvals or remarks:

Stacy.Bartlett@state.sd.us
HHoftiezer@siouxfalls.org

ON-SITE INSPECTION

An on-site inspection of the traffic signals will be conducted before acceptance of the project, once the traffic signals are completed and operational. The on-site inspection will be conducted by the Contractor, Region Traffic Engineer, City Traffic Engineer and Consultant Design Engineer and City Light Department.

SPECIAL PROVISIONS

The following special provisions are attached to the project specifications and will be reviewed by the Contractor for furnishing and installing the proposed traffic equipment.

- Special Provision for Optical Activated Emergency Vehicle Preemption System
- Special Provision for ATC Traffic Signal Controller Cabinet
- Special Provision for Traffic Signal Heads (LED Modules)

MISCELLANEOUS, ELECTRICAL

The contract lump sum price for “Miscellaneous, Electrical” will include all costs for the following work items:

NH 0100(106)409 - PCN 01V7 (Veterans Parkway)

- Connecting / tying to existing conduits and junction boxes
- Marking all wires and conduits within junction boxes and luminaire pole bases to label the line direction and description of the opposite end.

P 8042 (00) - PCN 08DG (Southeastern Avenue)

- Removal of existing traffic and lighting junction boxes
- Removal / abandonment of existing lighting and traffic conduits and cables
- Marking all wires and conduits within junction boxes and luminaire pole bases to label the line direction and description of the opposite end.

P 8042 (00) - PCN 08DH (Sycamore Avenue)

- Marking all wires and conduits within junction boxes and luminaire pole bases to label the line direction and description of the opposite end.

SALVAGE LUMINAIRE POLE

Existing luminaire poles will be salvaged and delivered to the City of Sioux Falls Light Department. The existing street light luminaires and bases are to be removed from the luminaire poles when returned, with the existing street light luminaires and bases also being returned to the City. Contact the City Light Department (#605-373-6979) for delivery information.

Luminaire poles and luminaires damaged during this work will be repaired or replaced by the Contractor at no cost to the State.

All costs for work involved for salvaging and delivering the existing luminaire poles, luminaires and bases to the City Light Department will be incidental to the contract unit price per each for “Salvage Luminaire Pole”.

REMOVE LUMINAIRE POLE FOOTING

The footings of salvaged and “remove and reset” luminaire poles will be removed by the Contractor to a minimum of 2’ below the ground surface. Restoration of the disturbed area will be to the satisfaction of the Engineer.

All costs for removing the footings of the salvaged luminaire poles will be incidental to the contract unit price per each for “Remove Luminaire Pole Footing”.

REMOVE JUNCTION BOX (TRAFFIC OR LIGHTING)

The Contractor will remove all junction boxes as designated in the plans. All rings and covers will be returned to the applicable department. If the junction box is labeled “Electric”, deliver to City Light Shop. If the junction box is labeled “Traffic”, deliver to City Traffic Shop.

Contact the City Light Shop (#605-373-6979) and City Traffic Shop (#605-367-8634) for delivery information. The Contractor will contact the City 5 days before delivery.

All costs for removal and delivery of the junction boxes will be included in the contract lump sum price for “Miscellaneous, Electrical”.

TABLE OF FOOTING DATA

NH 0100(106)409 - PCN 01V7 (Veterans Pkwy)					
Site Designation	Footing Diameter	*Footing Depth	**Spiral Diameter	**Spiral Length	Vertical Reinforcement
L1-L9, L11-L51, L53-L69	2’ - 0”	8’ - 0”	1’ - 8”	54’ - 9”	8-#7 x 7’ - 6”
L10, L52	2’ - 0”	9’ - 0”	1’ - 8”	60’ - 0”	8-#7 x 8’ - 6”
S1	4’ - 0”	15’ - 0”	3’ - 8”	200’ - 6”	23-#8 x 14’ -6”
S3	4’ - 0”	15’ - 0”	3’ - 8”	200’ - 6”	23-#8 x 14’ -6”
S5	4’ - 0”	15’ - 0”	3’ - 8”	200’ - 6”	23-#8 x 14’ -6”
S7	4’ - 0”	15’ - 0”	3’ - 8”	200’ - 6”	23-#8 x 14’ -6”
S9	4’ - 0”	15’ - 0”	3’ - 8”	200’ - 6”	23-#8 x 14’ -6”
S11	3’ - 0”	14’ - 0”	2’ - 8”	137’ - 6”	14-#8 x 13’ -6”
S12	4’ - 0”	15’ - 0”	3’ - 8”	200’ - 6”	23-#8 x 14’ -6”
S14	3’ - 0”	14’ - 0”	2’ - 8”	137’ - 6”	14-#8 x 13’ -6”

P 8042 (00) - PCN 08DG (Southeastern Avenue)					
Site Designation	Footing Diameter	*Footing Depth	**Spiral Diameter	**Spiral Length	Vertical Reinforcement
SEL1-SEL2	2’ - 0”	8’ - 0”	1’ - 8”	54’ - 9”	8-#7 x 7’ - 6”

P 8042 (00) - PCN 08DH (Sycamore Avenue)					
Site Designation	Footing Diameter	*Footing Depth	**Spiral Diameter	**Spiral Length	Vertical Reinforcement
SL1-SL8	2’ - 0”	8’ - 0”	1’ - 8”	54’ - 9”	8-#7 x 7’ - 6”

*Footing depth will be below ground level.
**The size of all spirals will be #3.

SOILS INFORMATION

Luminaire pole footings:
The subsurface conditions within the project limits primarily consist of brown silt clay overlying brown sandy clay at varying depths based on the subsurface investigation conducted in December 2021-January 2022. Groundwater was encountered during the subsurface investigation at varying depths from 1.9 to 7.0 feet below the original surface. Caving occurred from 6.5 to 14.2 feet below the original surface.

Cylindrical luminaire footings will be installed in soils varying from silt clay and sandy clay to newly placed fill.

During the construction of the cylindrical footings, concrete placement operations will closely follow excavation procedures. The longer the excavations are left open, the more likely caving may occur. If caving soils are encountered, it may be necessary to use casing or drilling fluids to maintain an open excavation. The casing will be of sufficient strength to withstand handling and installation procedures. Casing material may consist of Sonotube, corrugated metal pipe, PVC, smooth metal pipe, or any other material as approved by the Engineer. Drilling fluids can be water or other slurries as approved by the Engineer.

Concrete will not be dropped through standing water. Concrete placed through drilling fluids must be tremied. If caving is not an issue, but water is present, it will be removed prior to concrete placement, or the concrete will be tremied.

Signal pole footings:
The subsurface conditions at the intersection of Veterans Parkway and Southeastern Avenue consist of brown sandy clay based on the subsurface investigation conducted in July 2023. Groundwater was encountered during the subsurface investigation at a depth of 2.0 feet below the original ground surface. Caving can be anticipated 15 feet below the finished groundline at the signal locations.

The subsurface conditions at the intersection of Veterans Parkway and Sycamore Avenue consist of brown sandy clay based on the subsurface investigation conducted in July 2023. Groundwater was encountered during the subsurface investigation at a depth of 7.5 feet below the original ground surface. Caving can be anticipated 15.0 feet below the finished groundline at the signal locations.

During the construction of the cylindrical footings, concrete placement operations should closely follow excavation procedures. The longer the excavations are left open, the more likely caving may occur. If caving soils are encountered, it may be necessary to use drilling fluids to maintain an open excavation. Drilling fluids can be water or other slurries as approved by the Engineer.

Concrete will not be dropped through standing water. Concrete placed through drilling fluids must be tremied. If caving is not an issue, but water is present, it will be removed prior to concrete placement, or the concrete will be tremied.

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	NH 0100(106)409 & P 8042(00)	L4	L74

Plotting Date: 10/11/2024

ROADWAY LIGHTING

The roadway lighting items will be installed as shown in the plans and the Standard Specifications for Roadway Lighting – Section 635B. The following notes are provided for the Contractor's clarification.

- The Standard Specifications can be viewed online at: https://www.siouxfalls.gov/business-permits/development-projects/construction-management-and-design/specs-policies-manuals.
- The Contractor will refer to Section A of 635B.3 of the Construction Requirements in the Standard Specifications for the coordination and application process to follow for the electrical services.
- The Contractor will complete both the Roadway Lighting and Traffic Signal Checklists for installation of all items shown on the plans. The checklists can be found at the following website: https://www.siouxfalls.gov/business-permits/development-projects/construction-management-and-design/cip-forms-permits.
- The proposed luminaire poles will have breakaway transformer bases and will be installed on concrete footings.
- The Contractor will furnish and install all street light wire and will pull all wires through the conduits, junction boxes, and luminaire poles.
- The Contractor will make all line-to-line connections and will furnish and install all items listed under Section 635B.G (Connectors) in the Standard Specifications for fuses, fuse-holder kits, in-line fuse holders, splice kits, stub connection kits and multi-cable connectors to be furnished and installed within the junction boxes, light pole bases and meter locations.
- The City Light department will de-energize the lights to be removed.
- #14 AWG Tracer wire will be installed in lighting conduit not carrying wire. The tracer wire will be paid for separately under its respective bid item, unless noted otherwise.

VIBRATION DAMPENER

The proposed 50 foot tall luminaire poles will be furnished and installed with a vibration dampener that is internal to the pole.

LABELING WIRE/CONDUIT

All wires and conduits within junction boxes and luminaire pole bases will be permanently marked, clearly stating line direction and description of the opposite end. The markings will be of sufficient durability to withstand the environment involved.

ELECTRICAL SERVICE CABINET

All costs to furnish and install the Electrical Service Cabinets as shown on the plans and as discussed below will be incidental to the contract unit price per each for "Electrical Service Cabinet".

The electrical service cabinets will be U6281-XL-200-5T9 as manufactured by Milbank or approved equal. The electrical service cabinets may be mounted to an 8' long 6"x6" wood post, with 3' of the post being buried. Conduits will be attached to post with strut and clamps at 6" above ground. Meter pedestals will be installed for each service cabinet shown on the plans.

The City of Sioux Falls standard plates #635.41 and #635.42 are shown in the plans for general guidance for these electrical service cabinets.

Contact the City Light Department (#605-373-6979) to verify the field location of the service cabinets.

BNSF RAILROAD UNDER BRIDGE LUMINAIRES

The Contractor will coordinate with the Engineer and bridge Contractor prior to installing the under bridge luminaires. See Section E for the under bridge luminaire locations.

All costs for the under bridge luminaires will be included in the contract unit price per each for "Under Bridge Deck Luminaire, LED".

PHOTOCELL CONTROL BOX (CIRCUIT CONTROL CENTER)

Photocell Control Boxes will be installed at the proposed meter pedestals installed at Sta. 353+75 and at Sta. 402+55. They will provide controls for the tunnel luminaires mounted on the wall and under bridge luminaires mounted beneath the bridge, to allow the luminaires to turn on and off for night and day time.

The Photocell Control Boxes will be mounted on top of the meter pedestals, to be in clear view of the sky. The Photocell Control Boxes will be installed per the manufacturer's specifications. The Photocell Control Boxes will be per the City's Standard Specifications for Roadway Lighting – Section 635B.

All costs for the Photocell Control Boxes will be included in the contract unit price per each for "Circuit Control Center". This will include furnishing, installing, mounting to the meter pedestal and wire connections to provide a fully functional light control system for the tunnel and under bridge luminaires.

SPECIAL ELECTRICAL JUNCTION BOX

The proposed electrical junction boxes for traffic, innerduct and lighting will be the 24" or 30" diameter junction boxes as shown on City of Sioux Falls standard plates #635.31, 635.33 and 635.70.

All costs for the junction boxes, regardless of type or size, will be included in the contract unit price per each for "Special Electrical Junction Box".

SURFACE MOUNTED JUNCTION BOXES

Surface mounted junction boxes will be per the City's Standard Specifications for Roadway Lighting – Section 635B, with the boxes meeting the latest NEC, in lieu of the 2008 NEC.

Surface Mounted Junction Boxes JSM1 and JSM2 and will be equipped with 3M 314 connectors having a minimum of 24 positions and be UL approved.

The Contractor will use ¼" concrete inserts with ¼" X 2" bolts and washers to attach the surface mounted junction boxes to the bridge. Bolts, washers and inserts will be galvanized.

All costs for attaching the surface mounted junction boxes to the bridge, for the fuse holders, and for the terminal blocks will be incidental to the contract unit price per each for "Surface Mounted Junction Box".

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CONDUITS INSTALLED ON BRIDGE

The proposed conduits to be installed on the BNSF bridge will be coordinated with the bridge Contractor. See Section E for utility chases that have been designed to allow for the conduits to be installed across the bridge. The surface mounted junction boxes for the conduits will be field determined for locations. The Contractor will verify all locations with the Engineer prior to installation.

The proposed conduits to be installed on bridge will be attached to the underside of the deck / structure. See Section E for conduit attachment to bridge. Expansion joints will be required to be installed by the Contractor for the conduit being installed on the bridge. Quantities for the conduits to be installed on the proposed bridge are as follows:

- 380' of 0.75" RGSC will be installed on the structure.
- 2645' of 4" RGSC will be installed on the structure.

For the 0.75" rigid galvanized steel conduit, all costs for the following items will be incidental to the cost to the conduit.

1. Conduit, with expansion fittings, junction boxes will be provided at the locations detailed in the plans.

2. Cast in place concrete inserts for conduit attachment will be Dayton Superior ¼" bolt diameter stainless steel F-42 Loop Ferrule Inserts with ¼" stainless steel bolts conforming to ASTM F593.

3. Conduit, fittings and attaching hardware will meet the requirements of NFPA 70 National Electrical Code (NEC). All steel components will be hot dip galvanized in accordance with ASTM A123 or A153 as applicable. Isolate the galvanized conduit brackets from the stainless steel insert and bolt with fiber washers.

4. All costs to provide the 1.5" diameter conduit, including concrete inserts, conduit, attaching hardware, expansion devices, labor, equipment and any incidentals necessary to install the conduit will be included in the contract unit price per foot for "1.5" Rigid Galvanized Steel Conduit".

1/C #10 AWG COPPER WIRE

The #10 AWG Copper Wire will meet the following requirements:

- Insulation will be 600 volt rated thermosetting, cross linked polyethylene meeting the requirements of ICEA S-66-524 (NEMA WC-7).
- Conductors will be annealed copper meeting the requirements of ASTM B3.
- Suitable for use in conduit or direct burial application.
- Wire will be UL Listed Type USE-2 per UL Standard 854 and Type RHH or RHW-2 per UL Standard 44.
- The wire will be as manufactured by Southwire, Prysmian Group or approved equal.

All costs for the 1/C #10 AWG Copper Wire will be included in the contract unit price per foot for "1/C #10 AWG Copper Wire".

VETERANS PARKWAY LUMINAIRES ***(NH 0100(106)409 - PCN 01V7)***

The accepted design for Veterans Parkway will provide 1.1 and greater average maintained foot-candles and a uniformity ratio (average maintained to minimum maintained foot-candles) of 3:1 and 5:1 (maximum to minimum maintained foot candles):

L1-L9, L22-L51, L53-L69

Setback:	6.0 Ft.
Lamp Loss Factor (LLF):	0.8
Width of Lighted Area:	70-100 Ft.
Spacing:	280 Ft.
Configuration:	Opposite / Staggered
Mounting Height:	50 Ft.
Arm Extension Length:	8 Ft.
Luminaire:	Type 2 – 199W LED

L11-L21

Setback:	6.0 Ft.
Lamp Loss Factor (LLF):	0.8
Width of Lighted Area:	70-100 Ft.
Spacing:	280 Ft.
Configuration:	Staggered
Mounting Height:	50 Ft.
Arm Extension Length:	8 Ft.
Luminaire:	Type 3 – 199W LED

L10, L52

Setback:	6.0 Ft.
Lamp Loss Factor (LLF):	0.8
Width of Lighted Area:	90 Ft.
Spacing:	280 Ft.
Configuration:	Staggered
Mounting Height:	50 Ft.
Arm Extension Length:	Twin 8 Ft.
Luminaire:	Type 2 – 199W LED

UBL1-UBL4 (under bridge luminaires)

Setback:	50 Ft.
Lamp Loss Factor (LLF):	0.8
Width of Lighted Area:	85 Ft.
Spacing:	95 Ft.
Configuration:	Opposite
Mounting Height:	23 Ft. (See Section E)
Arm Extension Length:	Mounted to bottom of bridge girder
Luminaire:	57W LED

T1-T24 (underpass / tunnel luminaires)

Setback:	0 Ft.
Lamp Loss Factor (LLF):	0.8
Width of Lighted Area:	12 Ft.
Spacing:	15 Ft.
Configuration:	One sided
Mounting Height:	9.5 Ft. (See Section E)
Arm Extension Length:	Mounted to wall of underpass / tunnel
Luminaire:	28W LED

SOUTHEASTERN AVENUE LUMINAIRES ***(P 8042 (00) - PCN 08DG)***

The accepted design for Southeastern Avenue will provide 1.1 and greater average maintained foot-candles and a uniformity ratio (average maintained to minimum maintained foot-candles) of 3:1 and 5:1 (maximum to minimum maintained foot candles):

SEL1-SEL12

Setback:	2.0-16.0 Ft.
Lamp Loss Factor (LLF):	0.8
Width of Lighted Area:	30-64 Ft.
Spacing:	220 Ft.
Configuration:	Median / CL
Mounting Height:	40 Ft.
Arm Extension Length:	Twin 8 Ft
Luminaire:	SEL1, SEL2, SEL7-SEL11 Type 2 – 105W LED SEL3-SEL6, SEL12 Type 3 – 105W LED

SYCAMORE AVENUE LUMINAIRES ***(P 8042 (00) - PCN 08DH)***

The accepted design for Sycamore Avenue will provide 1.1 and greater average maintained foot-candles and a uniformity ratio (average maintained to minimum maintained foot-candles) of 3:1 and 5:1 (maximum to minimum maintained foot candles):

SL1-SL8

Setback:	2.0-16.0 Ft.
Lamp Loss Factor (LLF):	0.8
Width of Lighted Area:	30-64 Ft.
Spacing:	220 Ft.
Configuration:	Median / CL
Mounting Height:	40 Ft.
Arm Extension Length:	Twin 8 Ft
Luminaire:	Type 2 – 105W LED

ROADWAY LUMINAIRES

Luminaires will meet the specifications below and in the City's Standard Specifications for Roadway Lighting – Section 635B. Approved equals are allowed for these luminaires.

- Type 2 - 105W LED
  - Autobahn ATB0-P451-MVOLT-R2-P7-PCLL or approved equal
  - Voltage will be universal 120-277V
  - Distribution will be Type 2
  - Absolute Lumens will be 16,570
  - Will have a BUG rating of B3-U0-G3
  - CCT will be 4000K
  - Color will be gray
  - 20kV/10kA SPD Surge Protection will be provided
  - A Terminal Block will be provided
  - A 7 pin photocontrol receptacle will be provided
  - A Long Life Photocontrol receptacle will be provided
  - Bird guards will be provided on the mounting hole of the LED fixture
- Type 3 - 105W LED
  - Autobahn ATB0-P451-MVOLT-R3-P7-PCLL or approved equal
  - Voltage will be universal 120-277V
  - Distribution will be Type 3
  - Absolute Lumens will be 16,640
  - Will have a BUG rating of B3-U0-G3
  - CCT will be 4000K
  - Color will be gray
  - 20kV/10kA SPD Surge Protection will be provided
  - A Terminal Block will be provided
  - A 7 pin photocontrol receptacle will be provided
  - A Long Life Photocontrol receptacle will be provided
  - Bird guards will be provided on the mounting hole of the LED fixture
- Type 2 - 199W LED
  - Autobahn ATB2-P901-MVOLT-R2-P7-PCLL or approved equal
  - Voltage will be universal 120-277V
  - Distribution will be Type 2
  - Absolute Lumens will be 30,430
  - Will have a BUG rating of B3-U0-G3
  - CCT will be 4000K
  - Color will be gray
  - 20kV/10kA SPD Surge Protection will be provided
  - A Terminal Block will be provided
  - A 7 pin photocontrol receptacle will be provided
  - A Long Life Photocontrol receptacle will be provided
  - Bird guards will be provided on the mounting hole of the LED fixture
- Type 3 - 199W LED
  - Autobahn ATB2-P901-MVOLT-R3-P7-PCLL or approved equal
  - Voltage will be universal 120-277V
  - Distribution will be Type 3
  - Absolute Lumens will be 31,350
  - Will have a BUG rating of B3-U0-G4
  - CCT will be 4000K
  - Color will be gray
  - 20kV/10kA SPD Surge Protection will be provided
  - A Terminal Block will be provided
  - A 7 pin photocontrol receptacle will be provided
  - A Long Life Photocontrol receptacle will be provided
  - Bird guards will be provided on the mounting hole of the LED fixture
- Under Bridge Luminaire - 57W LED
  - Holophane TunnelPass LED Medium TNLEDMED-PK1-40K-MVOLT-CLN-DGRA-SCRW or approved equal
  - Voltage will be universal 120-277V
  - Distribution will be ceiling mount / long and narrow
  - Absolute Lumens will be 6,858
  - CCT will be 4000K
  - Color will be gray
  - Will be a ceiling / surface mount and bolted assembly fixture
- Tunnel Luminaire - 28W LED (for pedestrian box culverts / underpasses)
  - RAB VANLED-28-N or approved equal
  - Voltage will be universal 120-277V
  - Absolute Lumens will be 3,577
  - CCT will be 4000K
  - Color will be gray (bronze or white color also allowed)
  - 20kV/10kA SPD Surge Protection will be provided
  - 0-10V Dimming will be provided
  - Will have a drop lens
  - Will have maximum dimensions on 12" tall x 12" wide x 6" depth
  - Will have a polycarbonate lens
  - Will be a surface wall mount fixture that is vandal resistant

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TRAFFIC AND FIBER OPTIC CABLE CONDUIT

All nonmetallic conduit open ends will have an approved bell end or bushing installed to prevent damage to cable or conductors, per the City's specifications Section 635A.3.G.6.

#12 AWG Tracer wire will be installed in all traffic conduit and interconnect. The tracer wire will be paid for separately under its respective bid item, unless noted otherwise.

SIGNAL POLES

Signal poles will be per SDDOT Specifications.

Cantilever traffic signal supports, including anchor bolts, will be designed for fatigue in accordance with Fatigue Importance Category III without galloping and truck induced gusts.

All poles will have transformer bases.

Signal poles will have rotatable mast arms.

The Contractor will review the plans for signal pole mast arm lengths and the heights & arm lengths of the luminaire extensions on the signal poles.

FURNISH SIGNAL POLE WITH LUMINAIRE

Two signal poles with 75' mast arm length and 50' luminaire extension with 8' arm (50' tall luminaire from the ground) will be furnished with the project.

- A transformer base, anchor bolts, mounting hardware, etc. will be furnished with each signal pole.
- All items will meet the specifications discussed above under the heading SIGNAL POLES.

All items will be delivered to the City Traffic Department.

- Contact Heath Hoftiezer (#605-367-8634) for delivery information.
- The Contractor will contact the City 5 days before delivery.
- The mast arm, luminaire extension, luminaire arm and transformer base will not be attached to the signal pole upon delivery.

All costs for this will be included in the contract unit price per each "Furnish Signal Pole with Mast Arm".

TRAFFIC SIGNAL HEADS

Traffic signal heads for vehicle and pedestrian traffic signal heads will be furnished and installed by the Contractor, as specified in the special provisions. All costs for the traffic signal heads will be included in the appropriate signal head bid item.

In addition to the special provisions for the traffic signal heads, the following specifications will also apply:

- vehicle and pedestrian signals heads colors will be Black body, Black doors, Black tunnel visors and Black backplates
- all hardware associated with mounting the vehicle and pedestrian signals heads will have P33 Gloss Black color
- pedestrian signal heads will be two separate 12"x12" signal heads. The man/hand display head will be mounted above the countdown timer display head as shown to the right.

SURVEILLANCE CAMERAS

Both a PTZ and 4-way traffic surveillance camera will be furnished and installed by the Contractor.

- The PTZ camera will be an AXIS Q6318-LE PTZ Dome Network Camera 60Hz model as manufactured AXIS Communications or approved equal.
- The 4-way camera will be an AXIS P3738-PLE Camera model as manufactured AXIS Communications or approved equal.

The cameras will be outdoor-ready and will be pre-equipped from the manufacturer with the following:

- pole mounting kit AXIS T91L61 or approved equal for the PTZ camera
- pole mounting kit AXIS T91B67 or approved equal for the 4-way camera
- a power supply, an outdoor rated power strip, and a lightning suppression device
- outdoor rated Cat6e cable and a 64 MB SD Card
- all other required cables, connectors and jumpers to make a fully functional surveillance camera system

The Contractor will mount the cameras as follows:

- PTZ camera - the mounting bracket is on the luminaire extension as high as possible before the luminaire extension starts to curve.
- 4-way camera - the mounting bracket is directly below the mast arm connection on the signal pole.

All costs to furnish and install the traffic surveillance cameras will be included in the contract unit price per each for "Surveillance Camera".

The CAT-5 cable for the traffic surveillance cameras will be installed from the controller cabinet to the camera without splices. The cable will be rated for outdoor use and installed according to the manufacturer's recommendations. All costs for the CAT-5 cable will be included in the contract unit price per each for "Surveillance Camera".

FISHEYE VIDEO CAMERA DETECTION SYSTEM

The Fisheye Video Camera, Processor Unit, and Cables will be furnished and installed by the Contractor to meet the specifications discussed below.

All costs to furnish and install the complete Fisheye Video Camera Detection System will be included in the contract unit price per each for "Video Detection System". These costs will include, but not be limited to:

- fisheye camera, mounting brackets, and hardware
- processor unit, cabling between processor and controller, Shielded CAT-5e cable, and antenna
- all equipment required in the controller cabinet to provide a fully functioning fisheye video vehicle detection system

The Fisheye Video Camera Detection Systems will also be furnished and installed with a module capable of traffic counting and enhanced pedestrian and cyclist detection, as well as functionality for generating reports for traffic counts, length-based classifications, turning movements, red and green occupancy, and cycle lengths. The module will be incidental to the contract unit price per each for "Video Detection System". The first 10 years of any subscription required to allow for the module to work on an annual basis will be included in the contract unit price per each for "Video Detection System".

The Shielded CAT-5e cable for the Fisheye Camera will be installed from the controller cabinet to the camera unit without splices. The Contractor will use only shielded cable approved by the camera manufacturer to protect against Electromagnetic Interference (EMI). Cable will be rated for outdoor use and installed according to the manufacturer's recommendations. All costs for the Shielded CAT-5e cable will be incidental to the contract unit price per each for "Video Detection System".

The Contractor will coordinate with the City prior to determining the final video camera mounting location. Contact Heath Hoftiezer (#605-367-8634) of the City.

SIGNAL BACKPLATES

All new vehicle signal heads will have backplates with retroreflective border. The vehicle signal head backplates will have a factory applied 3-inch wide yellow retroreflective border. Sheeting for the border will be Type XI or Type IX in conformance with ASTM D4956. Backplates may be aluminum. Backplates will be polycarbonate, aluminum, or aluminum-composite. Minimum material thicknesses are:

- Polycarbonate, 0.10-inch
- Aluminum, 0.06-inch
- Aluminum-Composite, 0.08-inch

Signal backplates will extend not less than 5 inches from the edge of the signal head at the top, bottom, and sides. The bottom of the backplate on vehicle signal faces mounted directly above pedestrian signal indications will be sized to permit the separate adjustment of the vehicle and pedestrian signal indication and may be less than 4 inches.

All costs involved with furnishing and installing backplates with retroreflective border for the new vehicle signal heads will be incidental to the contract unit price per each for the appropriate type and size of signal head.

MULTICONDUCTOR CONTROL CABLE FOR SIGNAL CIRCUITS

The Conductor Jackets for the multiconductor control cables will be color coded in accordance with IMSA 19-1 Table 5.1.

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TRAFFIC SIGNAL CONTROLLER AND CONTROLLER CABINET

The traffic signal controller and controller cabinet will be furnished and installed by the Contractor to meet the specifications in the special provisions. See the diagram below for signal controller cabinet details.

SIDE MOUNTED CABINET *(FOR FIBER OPTIC CABLE)*

The side mounted cabinet will house the fiber optic cable and will be furnished and installed by the Contractor.

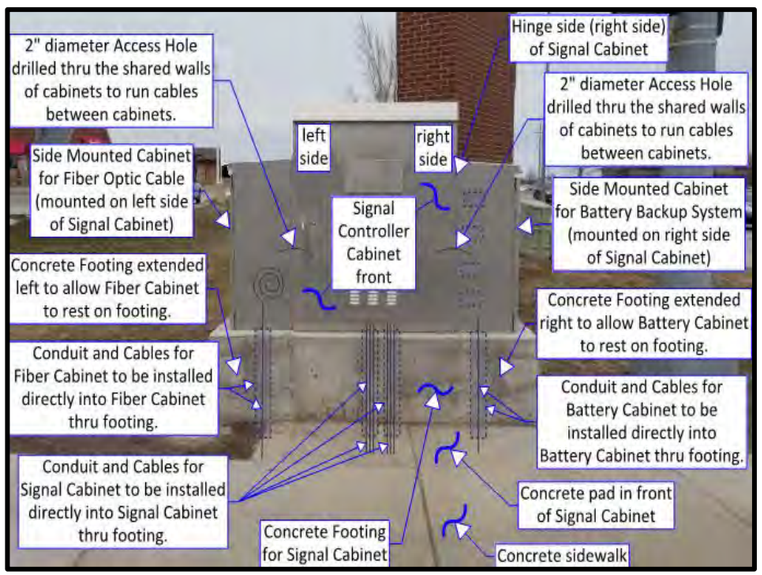
The side mounted cabinet will be mounted on the side of the signal controller cabinet as shown on the diagram below. The side mounted cabinet will:

- meet standards for a NEMA Traffic Enclosure for fiber optic cable
- have dimensions of 56”H, 26.25”W, 14.625”D
- be furnished with a door that includes ventilation louvers, fan, and filter
- be provided with a No. 2 key for the main door with a 3-point locking mechanism which operates from a single easy turning handle
- include at least 3 adjustable shelves
- have lockable doors that swing open towards the rear of the main cabinet (hinges located to rear with handle located at front)
- include LED lighting and a white powder-coated interior
- be provided with a thermostatically controlled exhaust fan and air filter
- be manufactured by Southern Manufacturing or approved equal

The side mounted cabinet will be plumb and level in reference to the back side of the signal controller cabinet. The Contractor must take precautions when positioning the side mounted cabinet to avoid damaging wire or equipment within the controller cabinet while drilling the mounting holes and the access hole. The access hole will be two inch diameter and will be drilled through the side mounted cabinet into the controller cabinet. A grommet or bushing will be installed in the two inch diameter hole to prevent damage during pull through of the fiber optic cable.

The side mounted cabinet will be mounted and tightened securely to the controller cabinet using a minimum of four bolts. A bead of clear silicon caulking will be placed in all gaps between the side mounted cabinet and controller cabinet to prevent water intrusion into either cabinet.

All costs to furnish and install the side mounted cabinet, including the concrete base, must be included in the contract unit price per each for “Side Mounted Cabinet”.



SIDE MOUNTED CABINET *(FOR BATTERY BACKUP SYSTEM)*

The side mounted cabinet will house the battery backup and flash system will be furnished and installed by the Contractor.

The side mounted cabinet for the battery backup and flash system will be mounted on the side of the signal controller cabinet as shown on the graphic on this sheet. The side mounted cabinet will:

- meet standards for a NEMA Traffic Enclosure
- have dimensions of 56”H, 26.25”W, 14.625”D
- be furnished with a door that includes ventilation louvers, fan, and filter
- be provided with a No. 2 key for the main door with a 3-point locking mechanism which operates from a single easy turning handle
- include the optional generator compartment and port / socket
- include shelves that are sized accommodate 220GXL AlphaCell Gel Top Terminal Batteries and that slide out to provide easy access to batteries for testing
- include an include an operational external LED indication light that activates when the cabinet is on generator power and utility power is disconnected / off-line
- include LED lighting and a white powder-coated interior
- will have a thermostatically controlled exhaust fan and air filter
- be manufactured by Southern Manufacturing or approved equal

The side mounted cabinet will be plumb and level in reference to the back side of the controller cabinet. The Contractor must take precautions when positioning the side mounted cabinet to avoid damaging wire or equipment within the controller cabinet while drilling the mounting holes and the access hole. The access hole will be two inch diameter and will be drilled through the side mounted cabinet into the controller cabinet. A grommet or bushing will be installed in the two inch diameter hole to prevent damage during pull through of the battery / power cables.

The side mounted cabinet will be mounted and tightened securely to the controller cabinet using a minimum of four bolts. A bead of clear silicon caulking will be placed in all gaps between the side mounted cabinet and controller cabinet to prevent water intrusion into either cabinet.

All costs to furnish and install the side mounted cabinet, including the concrete base, must be included in the contract unit price per each for “Side Mounted Cabinet”.

BATTERY BACKUP SYSTEM

The signal head battery backup and flash system will be furnished and installed by the Contractor.

The signal head battery backup and flash system will be Alpha Backup Power System—2000 VA Power Module as manufactured by Alpha Technologies or approved equal. The battery backup system will also be supplied with an automatic transfer switch to transfer from line power to battery backup and a generator transfer switch to allow switching from line power or battery power to generator power. The transfer switches will be capable of transferring power in under 250 milliseconds permitting the traffic signal to operate normally without interruption to the traffic signal.

A terminal strip for input and output power connections in addition to neutral and ground connections will also be incorporated in the transfer switch design. An interface connector (preferably utilizing a 30-amp, twist lock recessed male plug) allows an external generator or vehicle inverter to be plugged into the system.

Upon loss of utility power the battery backup system will switch to battery power. In cases of UPS failure, while on utility, the system will auto-bypass and remain in that mode until repaired. Should batteries deplete, while on batteries, the unit will auto-shutdown and return to normal operating mode once the utility power is restored. The By-pass switch will enable removal and replacement of the Traffic UPS without shutting down the traffic control system (i.e. “hot swap” capability). The UPS will support generator input without going to batteries.

The backup battery power system will be sized to accommodate the operation of the signal as shown on the plans for a **minimum of 4 hours**.

The signal head battery backup and flash system will meet the following specifications:

Standard Features
Hot-swappable Input/Output Surge Protection
Intelligent boost operation for brownout protection
Hot-swappable UPS and batteries
Noise suppression, FCC Class A
Multiple mounting configurations
Rugged, outdoor weather resistant construction
Lockable enclosure
NRTL/CSA approved

General Specifications
Output:
Output Voltage Regulation +/-10% over input voltage range
Waveform sine
Typical Efficiency >95%
Typical Output Voltage THD <3%
Typical Transfer Time < 5 ms typical
Audible Noise at 1m <55 dbA

Environment:

Operating Temperature	-35°C to +70°C

Agency Compliance:

Lightning/Surge Protection:	Passes ANSI/IEEE C.62.41/C.62.45 Cat A&B
Safety:	EN50091-1
Low Voltage:	EN50091-2

Power Modules

2000VA Power Module	**60Hz**
Input/Output Voltage nominal	120VAC
Input/Output Frequency nominal	60Hz
Input Current	20A
Input Voltage Variation	85-152VAC
Output Power	2000VA
Active Output Power	1500W
Typical Efficiency	>95%
Max Charge Current	15 Amps
Battery Backup Time	4–16 hrs

Communications and Alarms
DB-9 compatible connector/RS-232 interface capable of monitoring, controlling, and calibrating the UPS, using ASCII commands with terminal emulation software.

External Alarm Signal with relay contacts for a) line fail, b) low battery warning, c) UPS needs service.

Brownout Protection
Boost mode increases voltage by 12% of nominal line voltage if input voltage falls below 12% of nominal.

All costs for furnishing and installing the signal head battery backup and flash system must be included in the contract unit price per each for “Battery Backup System for Traffic Signal”.

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PEDESTRIAN PUSH BUTTON POLE

Push button poles will use a 48” schedule 40, 4” diameter, aluminum pipe screwed into a frangible pedestal base that is designed to break away at the flange and/or the mid-section around the door to preserve anchor bolts and concrete.

- The pedestal base will have a 6” bolt circle.
- 4 anchors made of stainless steel threaded rod, washers, and nuts will be drilled and epoxied into the concrete.
- A cable tether system will be used to connect the pole to one of the anchor bolts keeping the pole from becoming a projectile in the event of a knock down.
- Shop drawings for approval of the push buttons poles will be submitted.

ACCESSIBLE PEDESTRIAN SIGNAL

Accessible pedestrian push buttons will be in compliance with sections 4E.08 through 4E.13 of the 2009 MUTCD.

- Shop drawings for approval of the push buttons, including materials, functionality, and color will be submitted.
- Accessible pedestrian signals will have both audible and vibrotactile walk indications and will be capable of recording speech messages.
- Accessible pedestrian signals will be in compliance with all MUTCD and PROWAG guidance.

Pedestrian crossing signs will be required for each pedestrian push button and are allowed to be furnished with the button as a complete assembly. Shop drawings depicting the proposed pedestrian crossing sign size, design, and language will be submitted.

All costs for furnishing and installing the accessible pedestrian signal including labor, materials, and equipment, must be incidental to the contract unit price per each for “Accessible Pedestrian Signal”.

INNERDUCT

The innerduct conduit will be orange in color and longitudinally ribbed on the inside wall.

The innerduct bid items will include furnishing and installing the innerduct, as well as all work to seal the traffic interconnect conduit within the junction boxes. Innerduct ends will be sealed using a mastic style tape wrapped around the end of the innerduct and fiber optic cable. If innerduct is empty, a heat shrinkable cap will be installed over the end of the innerduct.

All costs for the innerduct must be included in the contract unit price per foot for “1/2” Innerduct, SDR 13.5”, “1” Innerduct, SDR 13.5” or “1.5” Innerduct SDR 13.5”.

FIBER OPTIC CABLE

Fiber optic cable will be furnished and installed by the Contractor. Fiber optic cable will meet all requirements discussed in the City’s specifications. Each fiber optic cable will have buffer tubes containing 12 fiber strands.

25 feet of fiber cable coil will be installed in the side mounted cabinet. The fiber optic cable will be installed continuous from traffic cabinet to traffic cabinet. No splices will be allowed in the fiber optic cable, except in the cabinets. All terminations and/or splicing will be completed by the City of Sioux Falls fiber optic specialist. For questions regarding the fiber optic cabling, contact Matt Rock at (605) 941-1143.

No testing will be completed on the fiber optic cable by the Contractor. All testing will be completed by the City outside of this project / contract. If repairs are needed to be completed by the Contractor due to deficiencies found by the City during their testing, the Contractor will repair the fiber optic cable as required to correct these deficiencies at no cost to the City.

All costs to furnish and install the 24SM fiber optic cable must be included in the contract unit price per foot for “24 Strand Fiber Optic Cable”.

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TABLE FOR CONDUIT & CABLE QUANTITIES

Location to Location		RGSC		PVC Conduit Sch 40			PVC Conduit Sch 80		Innerduct SDR 13.5			Cable[1]																	
		0.75" (Ft)	4" (Ft)	1" (Ft)	2" (Ft)	4" (Ft)	2" (Ft)	3" (Ft)	0.5" (Ft)	1" (Ft)	1.5" (Ft)	2/2/2/4 (Ft)	3C #0000 (Ft)	1C #4 (Ft)	1C #6 (Ft)	1C #10 (Ft)	1C #12 (Ft)	1C #14 (Ft)	2/C #14 (Ft)	3/C #14 (Ft)	5/C #14 (Ft)	7/C #14 (Ft)	25/C #14 (Ft)	Pole & Bracket (Ft)	PC (EVP & 3c) (Ft)	24SM FO (Ft)	CAT5[2] (video) (Ft)	CAT5[3] (camera) (Ft)	Conduit[4] Boring (Ft)
LIGHTING																													
Veterans Pkwy & Cliff Ave																													
EL1	L2				190							205												65					
L2	L3				210							225												65					
L3	L5				260							275												65					
L5	L7				255							265												65					
L7	L9				300							305												65					
L9	L11				270							280												65					
EJL7	L1				180							195												65					
L1	L4				280							290												65					
L4	L6				285							295												65					
L6	L8				280							290												65					
L8	L10				275							285												130					
L10	JL2				140							150																	
JL2	L12				190							200												65					
Veterans Pkwy @ Sta. 353+75																													
Transformer	M1						100						150																
M1	JL10				40									420															
JL10	JL9				135							165																	
JL9	L18				25							35												65					
JL9	JL6		345									350																	
JL6	L16				100							115												65					
L16	L14				355							365												65					
L14	L12				355							365																	
JL10	JL11						210					230																	
JL11	JL8				50							55																	
JL8	JL7		320									325																	
JL7	L17				25							35												65					
JL7	L15				295							305												65					
L15	L13				360							375												65					
L13	L11				360							370																	
JL11	L19				115							130												65					
L19	L21				395							405												65					
L21	L23				260							270												65					
L23	L25				255							265												65					
L25	L27				265							275												65					
JL10	L20				315							325												65					
L20	L22				350							360												65					
L22	L24				280							295												65					
L24	L26				300							310												65					

1 - All cable quantities shown include 6' of slack/coil installed in each junction box, unless shown otherwise.
2 - Incidental to "Video Detection System" bid item.
3 - Incidental to "Surveillance Camera" bid item.
4 - Incidental to "Miscellaneous, Electrical" bid item.

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TABLE FOR CONDUIT & CABLE QUANTITIES CONT'D

Location to Location		RGSC		PVC Conduit Sch 40			PVC Conduit Sch 80		Innerduct SDR 13.5			Cable[1]																	
		0.75" (Ft)	4" (Ft)	1" (Ft)	2" (Ft)	4" (Ft)	2" (Ft)	3" (Ft)	0.5" (Ft)	1" (Ft)	1.5" (Ft)	2/2/2/4 (Ft)	3C #0000 (Ft)	1C #4 (Ft)	1C #6 (Ft)	1C #10 (Ft)	1C #12 (Ft)	1C #14 (Ft)	2/C #14 (Ft)	3/C #14 (Ft)	5/C #14 (Ft)	7/C #14 (Ft)	25/C #14 (Ft)	Pole & Bracket (Ft)	PC (EVP & 3c) (Ft)	24SM FO (Ft)	CAT5[2] (video) (Ft)	CAT5[3] (camera) (Ft)	Conduit[4] Boring (Ft)
LIGHTING (cont'd)		**NH 0100(106)409 - PCN 01V7 (Veterans Pkwy)**																											
JL9	JSM2											160																	
JSM2	UBL3	110														345													
JSM2	UBL4	60														195													
JSM2	JSM1															600													
JSM1	UBL1	80														255													
JSM1	UBL2	130														405													
JL9	JL6											350																	
JL6	JL5				100							105																	
JL5	JL4				355							360																	
JL4	JL3				355							360																	
JL3	JL2				190							200																	
JL2	JL1				30							120																	
JL1	T1	20														90								10					
T1	T2	25														105								10					
T2	T3	20														90								10					
T3	T4	20														90								10					
T4	T5	20														90								10					
T5	T6	20														90								10					
T6	T7	20														90								10					
T7	T8	20														90								10					
T8	T9	20														90								10					
T9	T10	20														90								10					
T10	T11	20														90								10					
T11	T12	25														105								10					
JB1	JB9		345															350											
JB2	JB10		350															355											
JB3	JB8		320															325											
JB4	JB7		315															320											
JB5	JB6		315															320											

1 - All cable quantities shown include 6' of slack/coil installed in each junction box, unless shown otherwise.

2 - Incidental to "Video Detection System" bid item.

3 - Incidental to "Surveillance Camera" bid item.

4 - Incidental to "Miscellaneous, Electrical" bid item.

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TABLE FOR CONDUIT & CABLE QUANTITIES CONT'D

Location to Location		RGSC		PVC Conduit Sch 40			PVC Conduit Sch 80		Innerduct SDR 13.5			Cable[1]																	
		0.75" (Ft)	4" (Ft)	1" (Ft)	2" (Ft)	4" (Ft)	2" (Ft)	3" (Ft)	0.5" (Ft)	1" (Ft)	1.5" (Ft)	2/2/2/4 (Ft)	3C #0000 (Ft)	1C #4 (Ft)	1C #6 (Ft)	1C #10 (Ft)	1C #12 (Ft)	1C #14 (Ft)	2/C #14 (Ft)	3/C #14 (Ft)	5/C #14 (Ft)	7/C #14 (Ft)	25/C #14 (Ft)	Pole & Bracket (Ft)	PC (EVP & 3c) (Ft)	24SM FO (Ft)	CAT5[2] (video) (Ft)	CAT5[3] (camera) (Ft)	Conduit[4] Boring (Ft)
LIGHTING (cont'd)		**NH 0100(106)409 - PCN 01V7 (Veterans Pkwy)**																											
Veterans Pkwy & Southeastern Ave																													
Transformer	JL17						200						250																
JL17	M2						20						30																
JL17	M3						15						25																
M2	JL16				40									210				25											
M3	JL16				40									210				25											
JL16	JL15				240							280																	
JL15	JL12						195					200																	
JL12	S7				10							25												130					
JL12	L32				285							295												65					
L32	L30				265							275												65					
L30	L28				295							305												65					
L28	L26				305							320																	
JL15	JL14						420					435																	
JL14	S3				25							40												65					
JL14	JL13						190					195																	
JL13	S1				10							25												65					
JL13	L33				265							275												65					
L33	L31				265							275												65					
L31	L29				290							300												65					
L29	L27				265							275																	
JL14	L35				100							115												65					
L35	L37				270							280												65					
L37	L39				280							290												65					
L39	L41				280							290												65					
L41	L43				285							295												65					
L43	L45				285							295												65					
JL16	L34				25							40												65					
L34	L36				270							280												65					
L36	L38				275							290												65					
L38	L40				280							295												65					
L40	L42				285							295												65					
L42	L44				290							300												65					

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3 - Incidental to "Surveillance Camera" bid item.

4 - Incidental to "Miscellaneous, Electrical" bid item.

REGISTERED PROFESSIONAL ENGINEER
REG. NO. 8324
LANCE R. MCQUEEN
SOUTH DAKOTA
10-11-24

HDR

TABLE FOR CONDUIT & CABLE QUANTITIES CONT'D

Location to Location		RGSC		PVC Conduit Sch 40			PVC Conduit Sch 80		Innerduct SDR 13.5			Cable[1]																	
		0.75" (Ft)	4" (Ft)	1" (Ft)	2" (Ft)	4" (Ft)	2" (Ft)	3" (Ft)	0.5" (Ft)	1" (Ft)	1.5" (Ft)	2/2/2/4 (Ft)	3C #0000 (Ft)	1C #4 (Ft)	1C #6 (Ft)	1C #10 (Ft)	1C #12 (Ft)	1C #14 (Ft)	2/C #14 (Ft)	3/C #14 (Ft)	5/C #14 (Ft)	7/C #14 (Ft)	25/C #14 (Ft)	Pole & Bracket (Ft)	PC (EVP & 3c) (Ft)	24SM FO (Ft)	CAT5[2] (video) (Ft)	CAT5[3] (camera) (Ft)	Conduit[4] Boring (Ft)
LIGHTING (cont'd)												**NH 0100(106)409 - PCN 01V7 (Veterans Pkwy)**																	
Veterans Pkwy @ Sta. 402+55																													
Transformer	M4						50						100																
M4	JL21				40									275															
JL21	L51				100							110												65					
L51	L49				280							290												65					
L49	L47				280							290												65					
L47	L45				280							290																	
JL21	JL20						250					260																	
JL20	L50				120							135												65					
L50	L48				255							270												65					
L48	L46				280							290												65					
L46	L44				280							290																	
JL21	JL22				45											150													
JL22	T24	20														90								10					
T24	T23	25														105								10					
T23	T22	20														90								10					
T22	T21	20														90								10					
T21	T20	20														90								10					
T20	T19	20														90								10					
T19	T18	20														90								10					
T18	T17	20														90								10					
T17	T16	20														90								10					
T16	T15	20														90								10					
T15	T14	20														90								10					
T14	T13	25														105								10					
JL21	L53				185							200												65					
L53	L55				280							290												65					
L55	L57				275							285												65					
L57	L59				280							290												65					
L59	L61				280							290												65					
L61	L63				280							290												65					
JL20	L52				185							200												130					
L52	L54				280							290												65					
L54	L56				275							285												65					
L56	L58				280							290												65					
L58	L60				280							290												65					
L60	L62				280							290												65					

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10-11-24

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FOR BIDDING PURPOSES ONLY

STATE OF SOUTH DAKOTA	PROJECT	SHEET	TOTAL SHEETS
	NH 0100(106)409 & P 8042(00)	L13	L74

Plotting Date: 10/11/2024

TABLE FOR CONDUIT & CABLE QUANTITIES CONT'D

Location to Location		RGSC		PVC Conduit Sch 40			PVC Conduit Sch 80		Innerduct SDR 13.5			Cable[1]																	
		0.75" (Ft)	4" (Ft)	1" (Ft)	2" (Ft)	4" (Ft)	2" (Ft)	3" (Ft)	0.5" (Ft)	1" (Ft)	1.5" (Ft)	2/2/2/4 (Ft)	3C #0000 (Ft)	1C #4 (Ft)	1C #6 (Ft)	1C #10 (Ft)	1C #12 (Ft)	1C #14 (Ft)	2/C #14 (Ft)	3/C #14 (Ft)	5/C #14 (Ft)	7/C #14 (Ft)	25/C #14 (Ft)	Pole & Bracket (Ft)	PC (EVP & 3c) (Ft)	24SM FO (Ft)	CAT5[2] (video) (Ft)	CAT5[3] (camera) (Ft)	Conduit[4] Boring (Ft)
LIGHTING (cont'd)		NH 0100(106)409 - PCN 01V7 (Veterans Pkwy)																											
Veterans Pkwy & Sycamore Avenue																													
Transformer	JL26						60						100																
JL26	JL28						140						145																
JL28	JL30						75						80																
JL30	M5						20						30																
JL30	M6						15						25																
M5	JL29				40									210				25											
M6	JL29				40									210				25											
JL29	JL27				260							260																	
JL27	S12				20							30												65					
JL27	JL23						170					175																	
JL23	S14				10							20												65					
JL23	L68				175							185												65					
L68	L66				230							240												65					
L66	L64				300							310												65					
L64	L62				280							290																	
JL27	JL25						435					450																	
JL25	S11				20							30												65					
JL25	JL24						165					170																	
JL24	S9				10							25												130					
JL24	L69				160							170												65					
L69	L67				245							260												65					
L67	L65				280							295												65					
L65	L63				280							290																	

1 - All cable quantities shown include 6' of slack/coil installed in each junction box, unless shown otherwise.

2 - Incidental to "Video Detection System" bid item.

3 - Incidental to "Surveillance Camera" bid item.

4 - Incidental to "Miscellaneous, Electrical" bid item.

REGISTERED PROFESSIONAL ENGINEER
REG. NO. 8324
LANCE R. MCQUEEN
SOUTH DAKOTA
10-11-24

HDR

TABLE FOR CONDUIT & CABLE QUANTITIES CONT'D

Location to Location		RGSC		PVC Conduit Sch 40			PVC Conduit Sch 80		Innerduct SDR 13.5			Cable[1]																	
		0.75" (Ft)	4" (Ft)	1" (Ft)	2" (Ft)	4" (Ft)	2" (Ft)	3" (Ft)	0.5" (Ft)	1" (Ft)	1.5" (Ft)	2/2/2/4 (Ft)	3C #0000 (Ft)	1C #4 (Ft)	1C #6 (Ft)	1C #10 (Ft)	1C #12 (Ft)	1C #14 (Ft)	2/C #14 (Ft)	3/C #14 (Ft)	5/C #14 (Ft)	7/C #14 (Ft)	25/C #14 (Ft)	Pole & Bracket (Ft)	PC (EVP & 3c) (Ft)	24SM FO (Ft)	CAT5[2] (video) (Ft)	CAT5[3] (camera) (Ft)	Conduit[4] Boring (Ft)
FIBER		**NH 0100(106)409 - PCN 01V7 (Veterans Pkwy)**																											
ECC1	EJF6																									50			
EJF6	EJF5																									250			
EJF5	JF1									910							460									500			
JF1	JF2									1120							565									600			
JF2	JF3									500							255									300			
JF3	JF4									690							350									400			
JF3	JF5									710							360									400			
JF5	JF6									890							450									700			
JF6	JF7		335							670							340									400			
JF7	JF8									730							370									400			
JF8	JF9									690							350									400			
JF9	JF10									550							280									300			
JF10	JF11									620							315									350			
JF11	JF12									1160							585									600			
JF12	JF13									1110							560									600			
JF13	JF14							185		370							380												
JF14	JF15							165		330							340												
JF13	JF16							185		370							190									200			
JF16	JF15							165		330							170												
JF16	JF17										100						55									250			
JF17	CC1										40						25									50			
JF17	JF18									1160							585									600			
JF18	JF19									1120							565									600			
JF19	JF20									1120							565									600			
JF20	JF21									1010							510									750			
JF21	JF22									660							335									350			
JF22	JF23									1090							550									600			
JF23	JF24									1110							560									600			
JF24	JF25									1110							560									600			
JF25	JF26									480							245									250			
JF26	JF27									940							475									500			
JF27	JF28							185		370							380												
JF28	JF29							140		280							290												
JF27	JF30							155		310							160									200			
JF30	JF29							160		320							330												
JF30	JF31										110						60									250			
JF31	CC2										40						25									50			
JF31	JF32									80							90												

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REGISTERED PROFESSIONAL ENGINEER
REG. NO. 8324
LANCE R. MCQUEEN
SOUTH DAKOTA
10-11-24

HDR

FOR BIDDING PURPOSES ONLY

STATE OF SOUTH DAKOTA	PROJECT	SHEET	TOTAL SHEETS
	NH 0100(106)409 & P 8042(00)	L15	L74

Plotting Date: 10/11/2024

TABLE FOR CONDUIT & CABLE QUANTITIES CONT'D

Location to Location		RGSC		PVC Conduit Sch 40			PVC Conduit Sch 80		Innerduct SDR 13.5			Cable[1]																	
		0.75"	4"	1"	2"	4"	2"	3"	0.5"	1"	1.5"	2/2/2/4	3C #0000	1C #4	1C #6	1C #10	1C #12	1C #14	2/C #14	3/C #14	5/C #14	7/C #14	25/C #14	Pole & Bracket	PC (EVP & 3c)	24SM FO	CAT5[2] (video)	CAT5[3] (camera)	Conduit[4] Boring
		(Ft)	(Ft)	(Ft)	(Ft)	(Ft)	(Ft)	(Ft)	(Ft)	(Ft)	(Ft)	(Ft)	(Ft)	(Ft)	(Ft)	(Ft)	(Ft)	(Ft)	(Ft)	(Ft)	(Ft)	(Ft)	(Ft)	(Ft)	(Ft)	(Ft)	(Ft)	(Ft)	(Ft)
SIGNALS		**NH 0100(106)409 - PCN 01V7 (Veterans Pkwy)**																											
Veterans Pkwy & Southeastern Ave																													
M2	CC1				20										90														
CC1	JS5					40											50												
JS5	JS3					110											120												
JS3	S5				15												20												
S5	PB5			25													30												
S5	PB6			40													45												
JS3	JS4							175									180												
JS4	S7				15												20												
S7	PB7			15													20												
S6	PB8			25													30												
JS3	JS2							150									155												
JS2	S3				10												15												
S3	PB3			20													25												
S3	PB4			25													30												
JS2	JS1							170									175												
JS1	S1				15												20												
S1	PB1			20													25												
S1	PB2			30													35												
CC1	S1																						455		1090				
CC1	S3																						275		730		350		
CC1	S5																						125		430			155	
CC1	S7																						305		790		380	370	
	S1																			30	510								
	S3																			30	455								
	S5																			30	505								
	S7																			30	455								
S1	PB1																	30											
S1	PB2																	40											
S3	PB3																	30											
S3	PB4																	35											
S5	PB5																	35											
S5	PB6																	50											
S7	PB7																	25											
S7	PB8																	35											

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REG. NO. 8324
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SOUTH DAKOTA
10-11-24

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FOR BIDDING PURPOSES ONLY

STATE OF SOUTH DAKOTA	PROJECT	SHEET	TOTAL SHEETS
	NH 0100(106)409 & P 8042(00)	L16	L74

Plotting Date: 10/11/2024

TABLE FOR CONDUIT & CABLE QUANTITIES CONT'D

Location to Location		RGSC		PVC Conduit Sch 40			PVC Conduit Sch 80		Innerduct SDR 13.5			Cable[1]																	
		0.75"	4"	1"	2"	4"	2"	3"	0.5"	1"	1.5"	2/2/2/4	3C #0000	1C #4	1C #6	1C #10	1C #12	1C #14	2/C #14	3/C #14	5/C #14	7/C #14	25/C #14	Pole & Bracket	PC (EVP & 3c)	24SM FO	CAT5[2] (video)	CAT5[3] (camera)	Conduit[4] Boring
		(Ft)	(Ft)	(Ft)	(Ft)	(Ft)	(Ft)	(Ft)	(Ft)	(Ft)	(Ft)	(Ft)	(Ft)	(Ft)	(Ft)	(Ft)	(Ft)	(Ft)	(Ft)	(Ft)	(Ft)	(Ft)	(Ft)	(Ft)	(Ft)	(Ft)	(Ft)	(Ft)	(Ft)
SIGNALS (cont'd)		**NH 0100(106)409 - PCN 01V7 (Veterans Pkwy)**																											
Veterans Pkwy & Sycamore Avenue																													
M5	CC2				20										90														
CC2	JS10					40											50												
JS10	JS8					120											130												
JS8	S12				15												20												
S12	PB13			25													30												
S12	PB14			40													45												
JS8	JS9							155									160												
JS9	S14				15												20												
S14	PB15			20													25												
S14	PB16			25													30												
JS8	JS7							150									155												
JS7	S11				15												20												
S11	PB11			20													25												
S11	PB12			20													25												
JS7	JS6							150									155												
JS6	S9				15												20												
S9	PB9			20													25												
S9	PB10			35													40												
CC2	S9																						440		1060				
CC2	S11																						285		750		360		
CC2	S12																						130		440			160	
CC2	S14																						290		760		365	355	
	S9																			30	495	15							
	S11																			30	190	95							
	S12																			30	495	15							
	S14																			30	190	95							
S9	PB9																	30											
S9	PB10																	45											
S11	PB11																	30											
S11	PB12																	30											
S12	PB13																	35											
S12	PB14																	50											
S14	PB15																	30											
S14	PB16																	35											
NH 0100(106)409 - PCN 01V7 Lighting Total:		**880**	**2310**	**0**	**21775**	**0**	**2730**	**0**	**0**	**0**	**0**	**25940**	**935**	**1535**	**0**	**4170**	**0**	**1770**	**0**	**0**	**0**	**0**	**0**	**5440**	**0**	**0**	**0**	**0**	**0**
NH 0100(106)409 - PCN 01V7 Traffic Total:		**0**	**335**	**405**	**155**	**310**	**0**	**2290**	**0**	**22910**	**290**	**0**	**0**	**0**	**180**	**0**	**14655**	**0**	**565**	**240**	**3295**	**220**	**2305**	**0**	**6050**	**12700**	**1455**	**1040**	**0**
NH 0100(106)409 - PCN 01V7 Grand Total:		**880**	**2645**	**405**	**21930**	**310**	**2730**	**2290**	**0**	**22910**	**290**	**25940**	**935**	**1535**	**180**	**4170**	**14655**	**1770**	**565**	**240**	**3295**	**220**	**2305**	**5440**	**6050**	**12700**	**1455**	**1040**	**0**

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3 - Incidental to "Surveillance Camera" bid item.
4 - Incidental to "Miscellaneous, Electrical" bid item.

REGISTERED PROFESSIONAL ENGINEER
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LANCE R. MCQUEEN
SOUTH DAKOTA
10-11-24

FOR BIDDING PURPOSES ONLY

STATE OF SOUTH DAKOTA	PROJECT	SHEET	TOTAL SHEETS
	NH 0100(106)409 & P 8042(00)	L17	L74

Plotting Date: 10/11/2024

TABLE FOR CONDUIT & CABLE QUANTITIES CONT'D

Location to Location		RGSC		PVC Conduit Sch 40			PVC Conduit Sch 80		Innerduct SDR 13.5			Cable[1]																	
		0.75" (Ft)	4" (Ft)	1" (Ft)	2" (Ft)	4" (Ft)	2" (Ft)	3" (Ft)	0.5" (Ft)	1" (Ft)	1.5" (Ft)	2/2/2/4 (Ft)	3C #0000 (Ft)	1C #4 (Ft)	1C #6 (Ft)	1C #10 (Ft)	1C #12 (Ft)	1C #14 (Ft)	2/C #14 (Ft)	3/C #14 (Ft)	5/C #14 (Ft)	7/C #14 (Ft)	25/C #14 (Ft)	Pole & Bracket (Ft)	PC (EVP & 3c) (Ft)	24SM FO (Ft)	CAT5[2] (video) (Ft)	CAT5[3] (camera) (Ft)	Conduit[4] Boring (Ft)
LIGHTING															**P 8042 (00) - PCN 08DG (Southeastern Ave)**													
LB1	SEL1				70													75						110					
SEL1	SEL2				220							230												110					
SEL2	SEL3				175							185												110					
SEL3	SEL4				180							195												110					
SEL4	JL18				20							25																	
JL18	JL15						145					155																	
JL14	JL19						105					110																	
JL19	SEL5				35							50												110					
SEL5	SEL6				190							205												110					
SEL6	SEL7				205							215												110					
SEL7	SEL8				225							240												110					
SEL8	JL34				110							115																	
JL34	JL35						65											70											
JL34	SEL9				120							130												110					
SEL9	Irrigation Water Meter				150										500														
SEL9	SEL10				230							240												110					
SEL10	SEL11				225							240												110					
SEL11	SEL12				215							225												110					
SEL12	EJL12				60		60					125																	
SEL12	JL33						75					80																	
JL33	EJL13						110					115																	110
FIBER																													
JF34	JF35							25		1230							1240												
JF35	JF16									240							250												
CC1	JF17																									50			
JF17	JF16																									250			
JF16	JF15																									200			
JF15	JF36									780							395									400			
JF36	JF37							55		840							245									450			
JF37	JF38									1080							545									600			
JF38	JF39									500							255									450			
JF39	JF40							135		270							140									150			135
JF40	ECC2								4850																	6000			
SIGNALS																													
JS11	JS12							120									125												
JS12	EJS10							110									115												110
JS11	EJS9							80									85												80
P 8042 (00) - PCN 08DG Lighting Total:		**0**	**0**	**0**	**2430**	**0**	**560**	**0**	**0**	**0**	**0**	**2880**	**0**	**0**	**500**	**0**	**0**	**145**	**0**	**0**	**0**	**0**	**0**	**1320**	**0**	**0**	**0**	**0**	**110**
P 8042 (00) - PCN 08DG Traffic Total:		**0**	**0**	**0**	**0**	**0**	**0**	**525**	**4850**	**4940**	**0**	**0**	**0**	**0**	**0**	**0**	**3395**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**8550**	**0**	**0**	**325**
P 8042 (00) - PCN 08DG Grand Total:		**0**	**0**	**0**	**2430**	**0**	**560**	**525**	**4850**	**4940**	**0**	**2880**	**0**	**0**	**500**	**0**	**3395**	**145**	**0**	**0**	**0**	**0**	**0**	**1320**	**0**	**8550**	**0**	**0**	**435**

1 - All cable quantities shown include 6' of slack/coil installed in each junction box, unless shown otherwise.
2 - Incidental to "Video Detection System" bid item.
3 - Incidental to "Surveillance Camera" bid item.
4 - Incidental to "Miscellaneous, Electrical" bid item.

REGISTERED PROFESSIONAL ENGINEER
REG. NO. 8324
LANCE R. MCQUEEN
SOUTH DAKOTA
10-11-24

TABLE FOR CONDUIT & CABLE QUANTITIES CONT'D

Location to Location		RGSC		PVC Conduit Sch 40			PVC Conduit Sch 80		Innerduct SDR 13.5			Cable[1]																	
		0.75" (Ft)	4" (Ft)	1" (Ft)	2" (Ft)	4" (Ft)	2" (Ft)	3" (Ft)	0.5" (Ft)	1" (Ft)	1.5" (Ft)	2/2/2/4 (Ft)	3C #0000 (Ft)	1C #4 (Ft)	1C #6 (Ft)	1C #10 (Ft)	1C #12 (Ft)	1C #14 (Ft)	2/C #14 (Ft)	3/C #14 (Ft)	5/C #14 (Ft)	7/C #14 (Ft)	25/C #14 (Ft)	Pole & Bracket (Ft)	PC (EVP & 3c) (Ft)	24SM FO (Ft)	CAT5[2] (video) (Ft)	CAT5[3] (camera) (Ft)	Conduit[4] Boring (Ft)
LIGHTING												**P 8042 (00) - PCN 08DH (Sycamore Ave)**																	
LB2	SL1				105													110						110					
SL1	SL2				185							200												110					
SL2	SL3				185							200												110					
SL3	SL4				195							205												110					
SL4	JL31				75							80																	
JL31	JL27						125					130																	
JL25	JL32						95					100																	
JL32	SL5				65							80												110					
SL5	SL6				190							200												110					
SL6	Irrigation Water Meter				60										200														
SL6	SL7				195							205												110					
SL7	SL8				180							190												110					
SL8	north				5													10											
FIBER																													
JF42	JF43									1010							1020												
JF43	JF33									490							500												
JF33	JF30									140							150												
JF29	JF44									350							360												
JF44	JF45							45		620							630												
P 8042 (00) - PCN 08DH Lighting Total:		**0**	**0**	**0**	**1440**	**0**	**220**	**0**	**0**	**0**	**0**	**1590**	**0**	**0**	**200**	**0**	**0**	**120**	**0**	**0**	**0**	**0**	**0**	**880**	**0**	**0**	**0**	**0**	**0**
P 8042 (00) - PCN 08DH Traffic Total:		**0**	**0**	**0**	**0**	**0**	**0**	**45**	**0**	**2610**	**0**	**0**	**0**	**0**	**0**	**0**	**2660**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**
P 8042 (00) - PCN 08DH Grand Total:		**0**	**0**	**0**	**1440**	**0**	**220**	**45**	**0**	**2610**	**0**	**1590**	**0**	**0**	**200**	**0**	**2660**	**120**	**0**	**0**	**0**	**0**	**0**	**880**	**0**	**0**	**0**	**0**	**0**

1 - All cable quantities shown include 6' of slack/coil installed in each junction box, unless shown otherwise.

2 - Incidental to "Video Detection System" bid item.

3 - Incidental to "Surveillance Camera" bid item.

4 - Incidental to "Miscellaneous, Electrical" bid item.

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SOUTH DAKOTA
10-11-24

FOR BIDDING PURPOSES ONLY

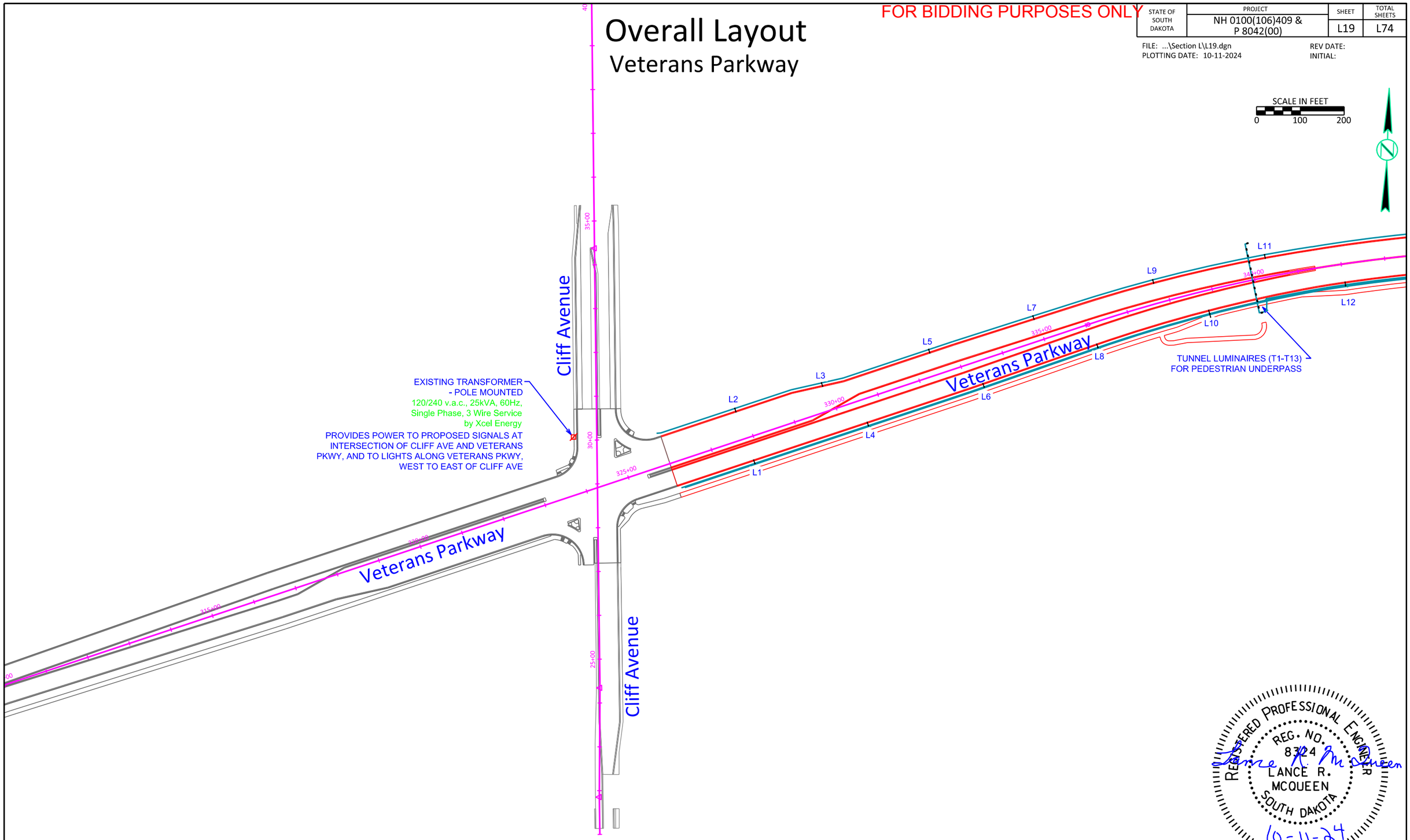
STATE OF SOUTH DAKOTA	PROJECT	SHEET	TOTAL SHEETS
	NH 0100(106)409 & P 8042(00)	L19	L74

FILE: ...\Section L\L19.dgn
PLOTTING DATE: 10-11-2024

REV DATE:
INITIAL:

Overall Layout
Veterans Parkway

SCALE IN FEET
0 100 200



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REG. NO. 8324
LANCE R. MCQUEEN
SOUTH DAKOTA
10-11-24

HDR

FOR BIDDING PURPOSES ONLY

STATE OF SOUTH DAKOTA	PROJECT	SHEET	TOTAL SHEETS
	NH 0100(106)409 & P 8042(00)	L20	L74

FILE: ...\Section L\L20.dgn
PLOTTING DATE: 10-11-2024

REV DATE:
INITIAL:

Overall Layout
Veterans Parkway

SCALE IN FEET
0 100 200

BNSF Railroad

UNDER BRIDGE
LUMINAIRES (UBL1-UBL4)

L13 L14 L15 L16 L17 L18 L19 L20 L21 L22 L23 L24 L25 L26 L27 L28 L29 L30 L31 L32 L33

345+00 350+00 355+00 360+00 365+00 370+00 375+00

Veterans Parkway

Veterans Parkway

UBL1 UBL2 UBL3 UBL4

PROPOSED TRANSFORMER
- POLE MOUNTED
120/240 v.a.c., 25kVA, 60Hz,
Single Phase, 3 Wire Service
by Xcel Energy

PROVIDES POWER TO LIGHTS ALONG VETERANS PKWY, WEST TO EAST OF THE HALF MILE

BNSF Railroad

REGISTERED PROFESSIONAL ENGINEER
REG. NO. 8324
LANCE R. MCQUEEN
SOUTH DAKOTA
10-11-24

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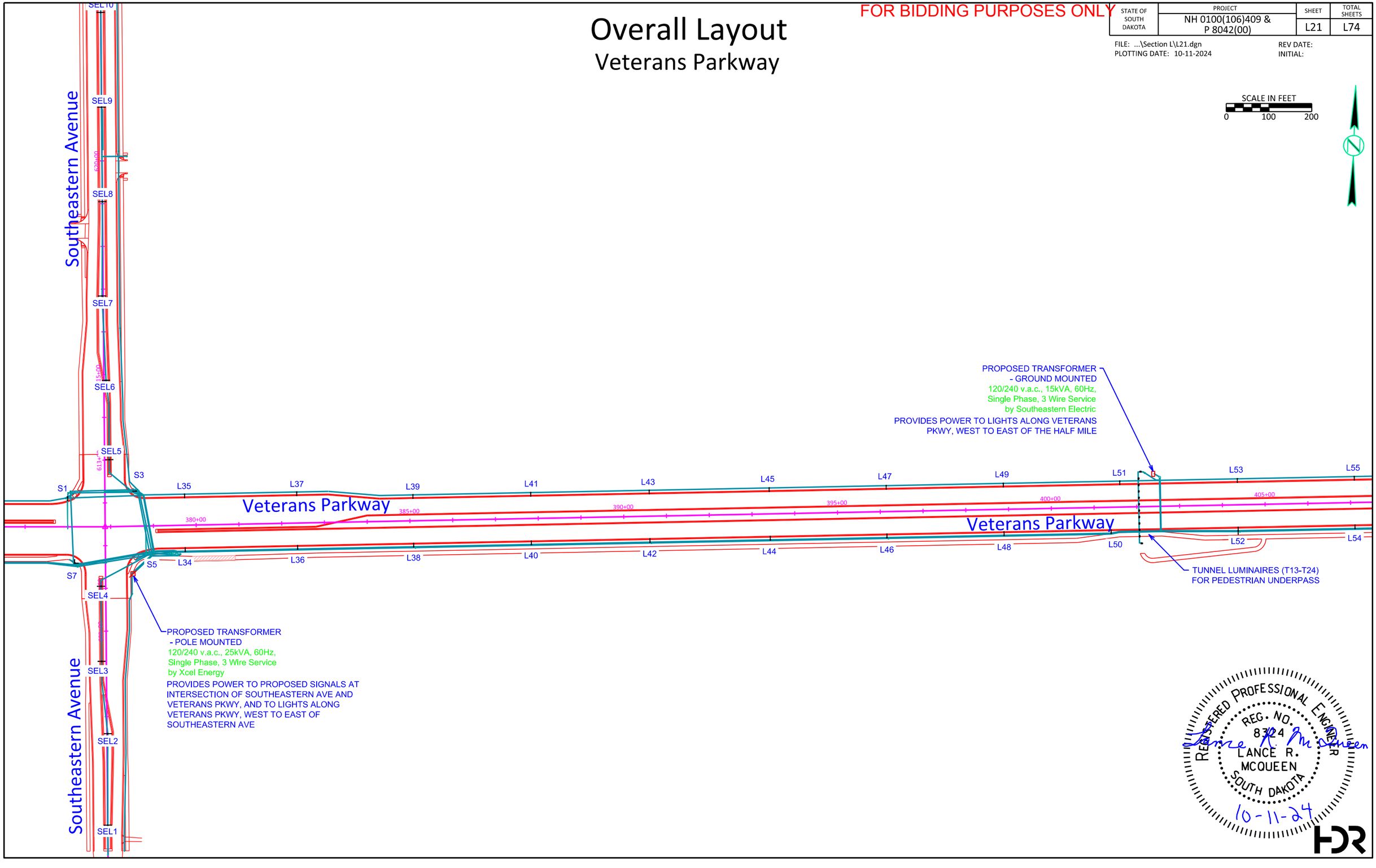
Overall Layout
Veterans Parkway

STATE OF SOUTH DAKOTA	PROJECT	SHEET	TOTAL SHEETS
	NH 0100(106)409 & P 8042(00)	L21	L74

FILE: ...\Section L\L21.dgn
PLOTTING DATE: 10-11-2024

REV DATE:
INITIAL:

SCALE IN FEET
0 100 200



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SOUTH DAKOTA
10-11-24

FOR BIDDING PURPOSES ONLY

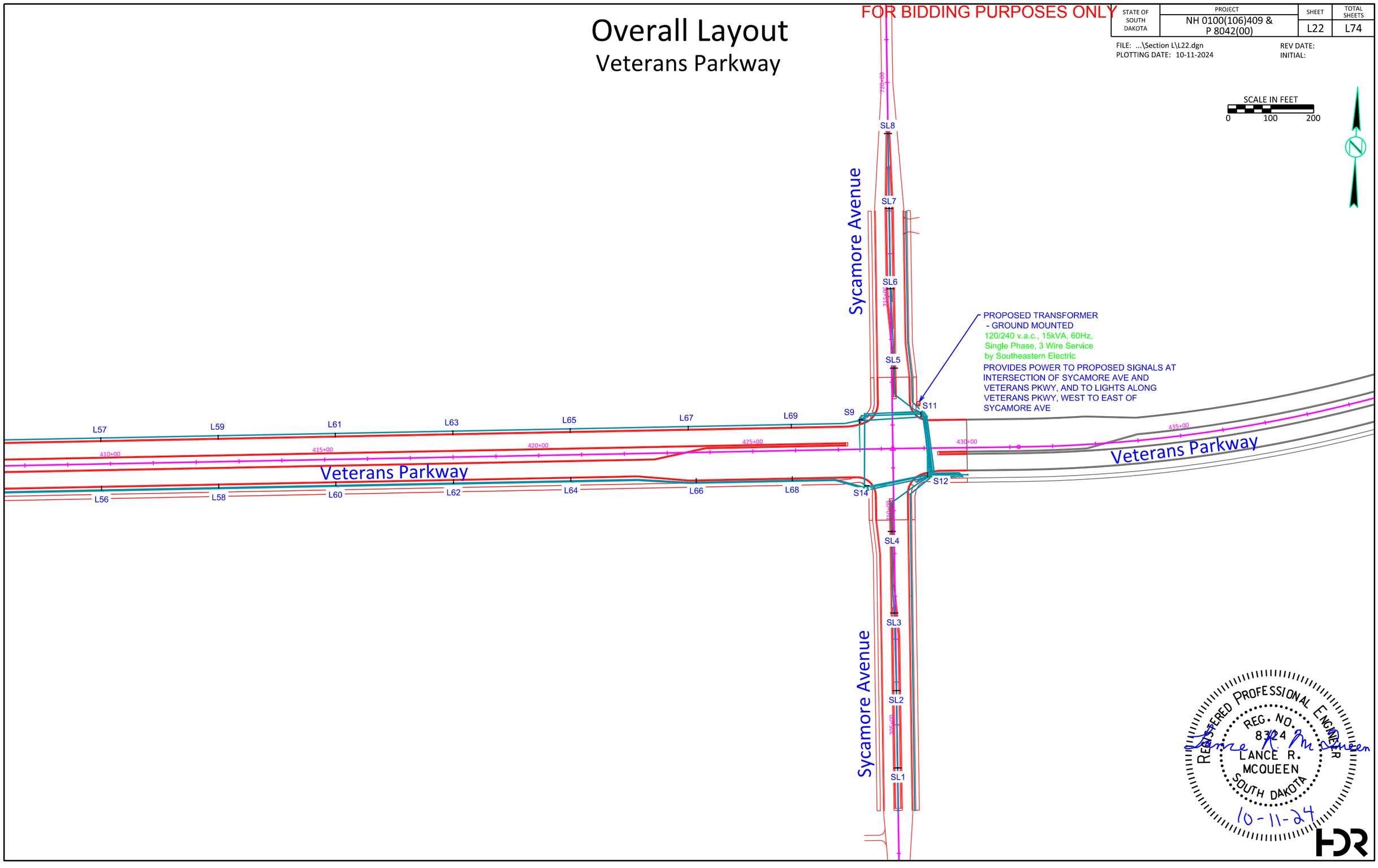
STATE OF SOUTH DAKOTA	PROJECT	SHEET	TOTAL SHEETS
	NH 0100(106)409 & P 8042(00)	L22	L74

FILE: ...\Section L\L22.dgn
PLOTTING DATE: 10-11-2024

REV DATE:
INITIAL:

Overall Layout
Veterans Parkway

SCALE IN FEET
0 100 200



REGISTERED PROFESSIONAL ENGINEER
REG. NO. 8324
LANCE R. MCQUEEN
SOUTH DAKOTA
10-11-24

SIGNAL LAYOUT

Southeastern Avenue & Veterans Parkway

FOR BIDDING PURPOSES ONLY

STATE OF SOUTH DAKOTA	PROJECT	SHEET	TOTAL SHEETS
	NH 0100(106)409 & P 8042(00)	L23	L74

FILE: ...\Section L\L23.dgn
PLOTTING DATE: 10-11-2024

REV DATE:
INITIAL:

SCALE IN FEET
0 20 40

REGISTERED PROFESSIONAL ENGINEER
REG. NO. 8324
LANCE R. MCQUEEN
SOUTH DAKOTA
10-11-24

ESTIMATE OF QUANTITIES
NH 0100(106)409 - PCN 01V7 - VETERANS PKWY

KEY	ITEM	QUANTITY	UNIT
	SIGNAL POLE WITH 70' MAST ARM (S5)	1	EACH
	SIGNAL POLE WITH 75' MAST ARM & 8' LUMIN ARM, 50' MT HT (S1, S3)	2	EACH
	SIGNAL POLE WITH 75' MAST ARM & TWIN 8' LUMIN ARMS, 50' MT HT (S7)	1	EACH
	3 SECTION VEHICLE SIGNAL HEAD (3-7,11-14,18-22,26-29)	18	EACH
	3 SECTION DIRECTIONAL VEHICLE SIGNAL HEAD (1,2,8,9,10,15,16,17,23,24,25,30)	12	EACH
	4' DIAMETER FOOTING (S1,S3,S5,S7)	60.0	FT
	EMERGENCY VEHICLE PREEMPTION UNIT (4 CHANNEL)	1	EACH
	OPTICAL DETECTOR	4	EACH
	SURVEILLANCE CAMERA (PTZ AND 4-WAY)	2	EACH
PB	ACCESSIBLE PEDESTRIAN SIGNAL	8	EACH
	PEDESTRIAN PUSH BUTTON POLE (PB1-PB8)	8	EACH
	PEDESTRIAN SIGNAL HEAD W/ COUNTDOWN TIMER (31-38)	8	EACH
START CROSSING WATCH FOR VEHICLES / DON'T START FINISH CROSSING IF STARTED / TIME REMAINING TO FINISH CROSSING / DON'T CROSS / TO CROSS PUSH BUTTON	PEDESTRIAN CROSSING SIGN R10-3e (LEFT-4) (RIGHT-4)	8	EACH

Southeastern Avenue

Veterans Parkway

613+00 612+00 611+00 610+00

375+00 376+00 377+00 378+00 379+00 380+00

PB1 PB2 PB3 PB4 PB5 PB6 PB7 PB8

S1 S3 S5 S7

INSTALL THE PROPOSED PTZ SURVEILLANCE CAMERA AT THE TOP OF THE NORTH LUMINAIRE EXTENSION OF THE SIGNAL POLE.

INSTALL THE PROPOSED 4-WAY SURVEILLANCE CAMERA ON SIGNAL POLE, JUST BELOW THE MAST ARM CONNECTION.

ESTIMATE OF QUANTITIES
NH 0100(106)409 - PCN 01V7 - VETERANS PKWY

KEY	ITEM	QUANTITY	UNIT
	SIGNAL POLE WITH 65' MAST ARM & 8' LUMIN ARM, 50' MT HT (S11, S14)	2	EACH
	SIGNAL POLE WITH 70' MAST ARM & 8' LUMIN ARM, 50' MT HT (S12)	1	EACH
	SIGNAL POLE WITH 75' MAST ARM & TWIN 8' LUMIN ARMS, 50' MT HT (S9)	1	EACH
	3 SECTION VEHICLE SIGNAL HEAD (3-7,10-12,16-20,23-25)	16	EACH
	4 SECTION VEHICLE SIGNAL HEAD (8,9,21,22)	4	EACH
	3 SECTION DIRECTIONAL VEHICLE SIGNAL HEAD (1,2,13,14,15,26)	6	EACH
	3' DIAMETER FOOTING (S11,S14)	28.0	FT
	4' DIAMETER FOOTING (S9,S12)	30.0	FT
	EMERGENCY VEHICLE PREEMPTION UNIT (4 CHANNEL)	1	EACH
	OPTICAL DETECTOR	4	EACH
	SURVEILLANCE CAMERA (PTZ AND 4-WAY)	2	EACH
PB	ACCESSIBLE PEDESTRIAN SIGNAL	8	EACH
	PEDESTRIAN PUSH BUTTON POLE (PB9-PB16)	8	EACH
	PEDESTRIAN SIGNAL HEAD W/ COUNTDOWN TIMER (27-34)	8	EACH
START CROSSING WATCH FOR VEHICLES / DON'T START FINISH CROSSING IF STARTED / TIME REMAINING TO FINISH CROSSING / DON'T CROSS / TO CROSS / PUSH BUTTON	PEDESTRIAN CROSSING SIGN R10-3e (LEFT-4) (RIGHT-4)	8	EACH

SIGNAL LAYOUT
Sycamore Avenue & Veterans Parkway

FOR BIDDING PURPOSES ONLY

STATE OF SOUTH DAKOTA	PROJECT	SHEET	TOTAL SHEETS
	NH 0100(106)409 & P 8042(00)	L24	L74

FILE: ...\Section L\L24.dgn
PLOTTING DATE: 10-11-2024
REV DATE:
INITIAL:

SCALE IN FEET
0 20 40

Sycamore Avenue
Veterans Parkway
713+00
712+00
711+00
710+00
425+00
426+00
427+00
428+00
429+00
430+00
PB9
PB10
PB11
PB12
PB13
PB14
PB15
PB16
S9
S11
S12
S14
INSTALL THE PROPOSED PTZ SURVEILLANCE CAMERA AT THE TOP OF THE LUMINAIRE EXTENSION OF THE SIGNAL POLE.
INSTALL THE PROPOSED 4-WAY SURVEILLANCE CAMERA ON SIGNAL POLE, JUST BELOW THE MAST ARM CONNECTION.

REGISTERED PROFESSIONAL ENGINEER
REG. NO. 8324
LANCE R. MCQUEEN
SOUTH DAKOTA
10-11-24

HDR

Conduit Layout - Veterans Parkway

FOR BIDDING PURPOSES ONLY

STATE OF SOUTH DAKOTA	PROJECT	SHEET	TOTAL SHEETS
	NH 0100(106)409 & P 8042(00)	L25	L74

FILE: ...\Section L\L25.dgn
PLOTTING DATE: 10-11-2024
REV DATE:
INITIAL:

SCALE IN FEET 0 20 40

REGISTERED PROFESSIONAL ENGINEER
REG. NO. 8324
LANCE R. MCQUEEN
SOUTH DAKOTA
10-11-24

ESTIMATE OF QUANTITIES
NH 0100(106)409 - PCN 01V7 - VETERANS PKWY

KEY	ITEM	QUANTITY	UNIT
	BREAKAWAY BASE LUMINAIRE POLE, 50' MOUNTING HEIGHT W/ 8' ARM (L1-L9, L11-L51, L53-L69)	67	EACH
	BREAKAWAY BASE LUMINAIRE POLE, 50' MOUNTING HEIGHT W/ TWIN 8' ARM (L10, L52)	2	EACH
	UNDER BRIDGE DECK LUMINAIRE, LED (UBL1-UBL4)	4	EACH
	TUNNEL LUMINAIRE, LED (T1-T24)	24	EACH
	ROADWAY LUMINAIRE, LED WITH PHOTOELECTRIC CELL (L1-L69, S1, S3, S7, S9, S11, S12, S14)	80	EACH
	2' DIAMETER FOOTING (L1-L69)	554.0	FT
	24" DIAMETER ELECTRICAL JUNCTION BOX (JL: 1,3-5,7,8,12,13,17-19,22-24,26,28,30-32) (JF: 1-5,7-10,12-14,18-20,22-28,32,33,35) (JS: 1,4,6,9)	49	EACH
	30" DIAMETER ELECTRICAL JUNCTION BOX (JL: 2,6,9-11,14-16,20,21,25,27,29) (JB: 1-10) (JF: 6,11,15-17,21,29-31) (JS: 2,3,5,7,8,10)	37	EACH
	SURFACE MOUNTED JUNCTION BOX (JSM1-JMS2)	2	EACH
M	ELECTRICAL SERVICE CABINET (M1-M4) SINGLE METER PEDESTAL = 2 = M1, M3 DOUBLE METER PEDESTAL = 2 = M2, M4	4	EACH
	CIRCUIT CONTROL CENTER (PHOTOCELL CONTROL BOX) (M1,M3)	3	EACH
RIGID GALV	0.75" RIGID GALVANIZED STEEL CONDUIT	880	FT
RIGID GALV	4" RIGID GALVANIZED STEEL CONDUIT	2645	FT
SCH 40	1" RIGID CONDUIT, SCHEDULE 40	405	FT
SCH 40	2" RIGID CONDUIT, SCHEDULE 40	21930	FT
SCH 40	4" RIGID CONDUIT, SCHEDULE 40	310	FT
SCH 80	2" RIGID CONDUIT, SCHEDULE 80	2730	FT
SCH 80	3" RIGID CONDUIT, SCHEDULE 80	2290	FT
1C INT	1" INNERDUCT, SDR 13.5	22910	FT
1.5C INT	1.5" INNERDUCT, SDR 13.5	290	FT
2/2/2/4	2/2/2/4 ALUMINUM WIRE	25940	FT
#0000	3/C #0000 ALUMINUM WIRE (TRIPLEX)	935	FT
#4	1/C #4 AWG COPPER WIRE	1535	FT
#6	1/C #6 AWG COPPER WIRE	180	FT
#10	1/C #10 AWG COPPER WIRE	4170	FT
#12	1/C #12 AWG COPPER WIRE	14655	FT
#14	1/C #14 AWG COPPER WIRE	1770	FT
	2/C #10 AWG COPPER POLE AND BRACKET CABLE	5440	FT
24 FIBER	24 STRAND FIBER OPTIC CABLE	12700	FT

Cliff Avenue
Veterans Parkway
EXISTING TRANSFORMER - POLE MOUNTED 120/240 v.a.c., 25kVA, 60Hz, Single Phase, 3 Wire Service by Xcel Energy
TIE TO EXISTING CONDUIT
CONNECT TO EXISTING JUNCTION BOX
COIL 200' OF CABLE WITHIN JUNCTION BOX
CONNECT TO EXISTING CONDUIT
Pressurized Sanitary
323+00
324+00
325+00
326+00
29+00
30+00
28+00
EJL1 EJF3 EJS2 ES1 EJF1 EJF2 ES5 EJL9 EJS1 EJL10 EL3 28FB002
EJL2 EJL3 EJS4 EJS5 EJL5A FPB10 EJF4 EJL5 ES2 FPB9 EJS3 EJL1 EL1 EJL4
PB21 EJF7 EJL8 EJF6 EJL7 EJF5 EJS7 EL2 ES3 ES4 28FB003 EJS6 ECC1 EM1 EM2 EJL6
A

FOR BIDDING PURPOSES ONLY

Conduit Layout - Veterans Parkway

STATE OF SOUTH DAKOTA	PROJECT	SHEET	TOTAL SHEETS
	NH 0100(106)409 & P 8042(00)	L26	L74

FILE: ...\Section L\L26.dgn
PLOTTING DATE: 10-11-2024

REV DATE:
INITIAL:

PROPOSED ITEM LOCATIONS	
ITEM	STATION-OFFSET
L1	327+83.96 - 60.67' RT
L2	327+80.20 - 72.67' LT
L3	329+86.26 - 65.59' LT
L4	330+57.04 - 60.67' RT
L5	332+42.48 - 60.67' LT
JF1	330+60.70 - 62.67' RT

SCALE IN FEET
0 20 40

1 2/2/2/4 2" SCH 40

L1 L2 L3 L4 JF1 L5

Veterans Parkway

327+00 328+00 329+00 330+00 331+00 332+00 333+00

ID 1" ID 1" 1 #12 24 FIBER

28FB004 28FB005

Pressurized Sanitary Main

REGISTERED PROFESSIONAL ENGINEER
REG. NO. 8324
LANCE R. MCQUEEN
SOUTH DAKOTA
10-11-24

HDR

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Conduit Layout - Veterans Parkway

STATE OF SOUTH DAKOTA	PROJECT	SHEET	TOTAL SHEETS
	NH 0100(106)409 & P 8042(00)	L27	L74

FILE: ...\Section L\L27.dgn
PLOTTING DATE: 10-11-2024

REV DATE:
INITIAL:

SCALE IN FEET
0 20 40

PROPOSED ITEM LOCATIONS	
ITEM	STATION-OFFSET
L6	333+35.45 - 60.21' RT
L7	334+92.34 - 58.17' LT
L8	336+10.75 - 57.60' RT
L9	337+75.08 - 54.50' LT
L10	338+81.21 - 53.12' RT
JF2	336+14.75 - 58.58' RT
JF3	338+61.58 - 55.37' RT

Veterans Parkway

334+00 335+00 336+00 337+00 338+00 339+00

L6 L7 L8 JF2 L9 JF3 L10

1 2/2/2/4 2" SCH 40

ID 1" ID 1" 1 #12 24 FIBER

28FB006 28FB007

LS239AR01

Pressurized Sanitary Main

REGISTERED PROFESSIONAL ENGINEER
REG. NO. 8324
LANCE R. MCQUEEN
SOUTH DAKOTA
10-11-24

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Conduit Layout - Veterans Parkway

STATE OF SOUTH DAKOTA	PROJECT	SHEET	TOTAL SHEETS
	NH 0100(106)409 & P 8042(00)	L28	L74

FILE: ...\Section L\L28.dgn
PLOTTING DATE: 10-11-2024

REV DATE:
INITIAL:

SCALE IN FEET
0 20 40

PROPOSED ITEM LOCATIONS		PROPOSED ITEM LOCATIONS	
ITEM	STATION-OFFSET	ITEM	STATION-OFFSET
L11	340+32.65 - 51.15' LT	JL1	340+12.25 - 74.07' RT
L12	342+02.87 - 49.75' RT	JL2	340+18.07 - 48.33' RT
L13	343+81.84 - 49.75' LT	JL3	342+06.56 - 47.75' RT
L14	345+54.73 - 49.75' RT	JL4	345+58.88 - 47.96' RT
JF4	342+07.11 - 51.75' RT	T1-T12	SEE SECTION E.
JF5	345+60.62 - 51.75' RT		

PEDESTRIAN UNDERPASS.
SEE SECTION E FOR
TUNNEL LUMINAIRES (T1-T12)
AND CONDUIT LOCATIONS.

Veterans Parkway

340+00

345+00

REGISTERED PROFESSIONAL ENGINEER
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10-11-24

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Conduit Layout - Veterans Parkway

STATE OF SOUTH DAKOTA	PROJECT	SHEET	TOTAL SHEETS
	NH 0100(106)409 & P 8042(00)	L29	L74

FILE: ...\Section L\L29.dgn
PLOTTING DATE: 10-11-2024

REV DATE:
INITIAL:

SCALE IN FEET
0 20 40

PROPOSED ITEM LOCATIONS	
ITEM	STATION-OFFSET
L15	347+33.35 - 49.75' LT
L16	349+04.21 - 52.42' RT
JL5	349+08.12 - 50.42' RT

345+00

Veterans Parkway

L13 L15 JL4 L14 JF5 JL5 L16

1 2/2/2/4 2" SCH 40

ID 1" 1 #12 24 FIBER

REGISTERED PROFESSIONAL ENGINEER
REG. NO. 8324
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SOUTH DAKOTA
10-11-24

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Conduit Layout - Veterans Parkway

STATE OF SOUTH DAKOTA	PROJECT	SHEET	TOTAL SHEETS
	NH 0100(106)409 & P 8042(00)	L30	L74

FILE: ...\Section L\L30.dgn
PLOTTING DATE: 10-11-2024

REV DATE:
INITIAL:

SCALE IN FEET
0 20 40

PROPOSED ITEM LOCATIONS	
ITEM	STATION-OFFSET
L17	350+40.40 - 51.40' LT
L18	353+15.01 - 49.75' RT
L19	354+83.94 - 52.42' LT
JF6	350+03.11 - 54.42' RT
JF7	353+29.36 - 51.37' RT
JL6	350+00.30 - 52.42' RT
JL7	350+21.43 - 50.72' LT
JL8	353+28.40 - 52.42' LT
JL9	353+33.28 - 49.06' RT
JL10	353+73.80 - 49.06' RT
JL11	353+73.45 - 52.38' LT
M1	353+74.22 - 55.94' RT

PROPOSED ITEM LOCATIONS	
ITEM	STATION-OFFSET
JB1	350+12.82 - 66.62' RT
JB2	350+16.95 - 66.30' RT
JB3	350+23.50 - 54.07' LT
JB4	350+26.35 - 56.77' LT
JB5	350+29.56 - 59.28' LT
JB6	353+19.44 - 61.02' LT
JB7	353+22.15 - 58.34' LT
JB8	353+25.18 - 55.52' LT
JB9	353+30.94 - 65.50' RT
JB10	353+28.90 - 68.67' RT

PROPOSED ITEM LOCATIONS	
ITEM	STATION-OFFSET
UBL1	SEE SECTION E.
UBL2	
UBL3	
UBL4	
JSM1	
JSM2	

BNSF Railroad

350+00

355+00

Veterans Parkway

COIL 200' OF CABLE WITHIN JUNCTION BOX

PROPOSED TRANSFORMER
- POLE MOUNTED
120/240 v.a.c., 25kVA, 60Hz,
Single Phase, 3 Wire Service
by Xcel Energy
PROVIDES POWER TO LIGHTS ALONG VETERANS PKWY, WEST TO EAST OF THE HALF MILE

OH OH OH OH OH

REGISTERED PROFESSIONAL ENGINEER
REG. NO. 8324
LANCE R. MCQUEEN
SOUTH DAKOTA
10-11-24

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FOR BIDDING PURPOSES ONLY

Conduit Layout - Veterans Parkway

STATE OF SOUTH DAKOTA	PROJECT	SHEET	TOTAL SHEETS
	NH 0100(106)409 & P 8042(00)	L31	L74

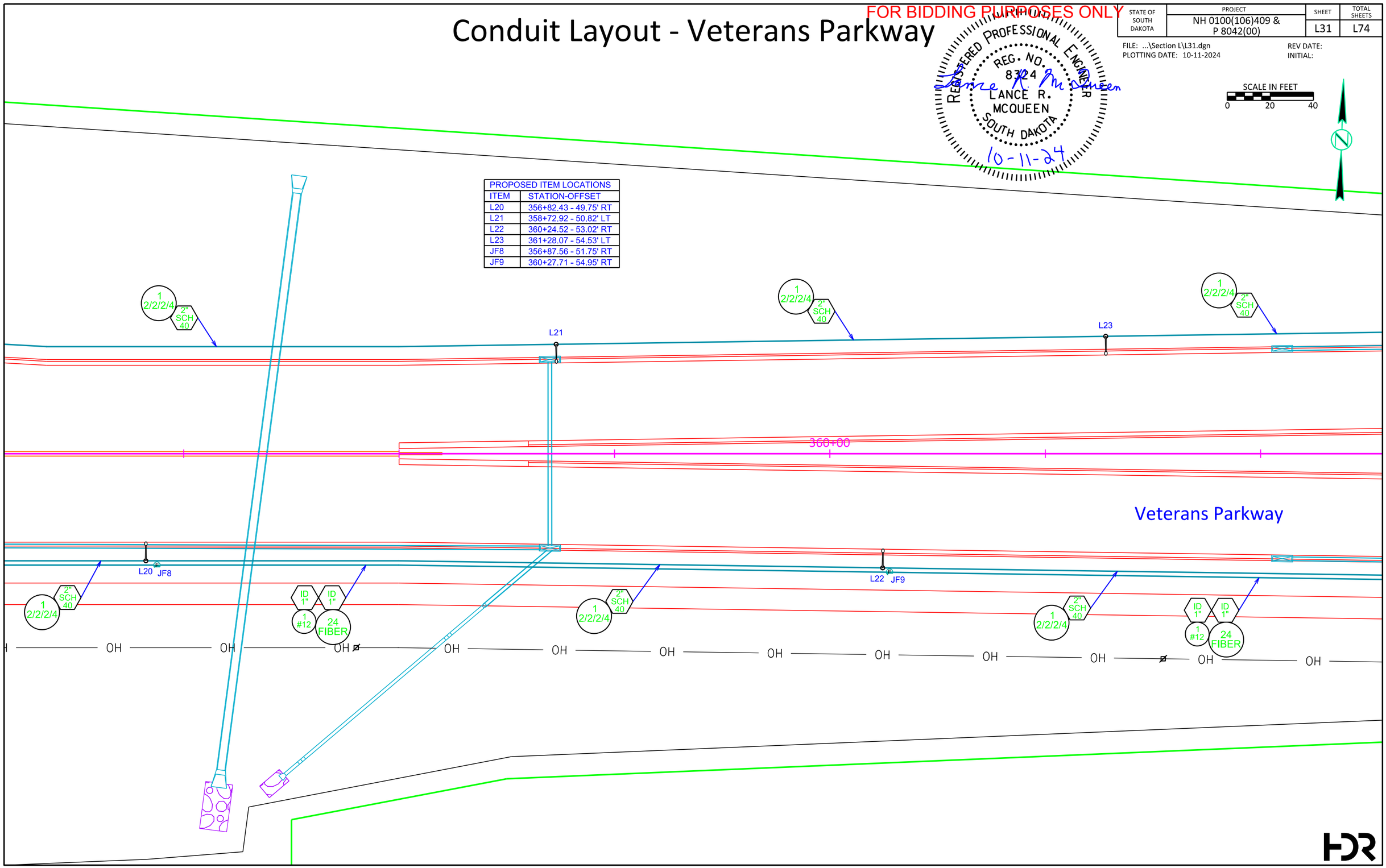
FILE: ...\Section L\L31.dgn
PLOTTING DATE: 10-11-2024

REV DATE:
INITIAL:

REGISTERED PROFESSIONAL ENGINEER
REG. NO. 8324
LANCE R. MCQUEEN
SOUTH DAKOTA
Lance R. McQueen
10-11-24

SCALE IN FEET
0 20 40

PROPOSED ITEM LOCATIONS	
ITEM	STATION-OFFSET
L20	356+82.43 - 49.75' RT
L21	358+72.92 - 50.82' LT
L22	360+24.52 - 53.02' RT
L23	361+28.07 - 54.53' LT
JF8	356+87.56 - 51.75' RT
JF9	360+27.71 - 54.95' RT



Conduit Layout - Veterans Parkway

FOR BIDDING PURPOSES ONLY

STATE OF SOUTH DAKOTA	PROJECT	SHEET	TOTAL SHEETS
	NH 0100(106)409 & P 8042(00)	L32	L74

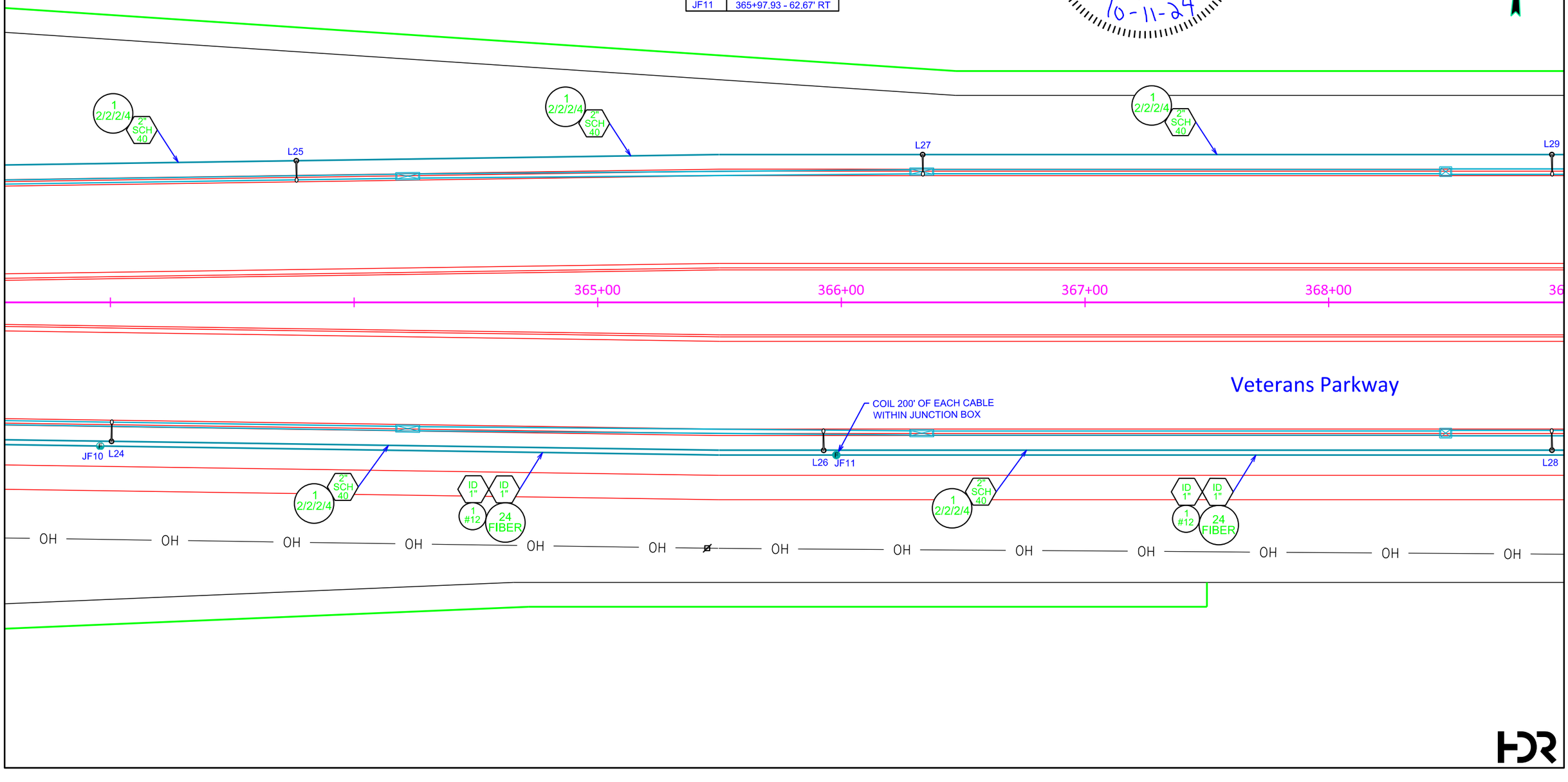
FILE: ...\Section L\L32.dgn
PLOTTING DATE: 10-11-2024

REV DATE:
INITIAL:

PROPOSED ITEM LOCATIONS	
ITEM	STATION-OFFSET
L24	363+00.47 - 57.04' RT
L25	363+76.31 - 58.14' LT
L26	365+92.73 - 60.75' RT
L27	366+33.36 - 60.67' LT
L28	368+91.63 - 60.67' RT
L29	368+91.59 - 60.67' LT
JF10	362+95.84 - 58.97' RT
JF11	365+97.93 - 62.67' RT

REGISTERED PROFESSIONAL ENGINEER
REG. NO. 8324
LANCE R. MCQUEEN
SOUTH DAKOTA
Lance R. McQueen
10-11-24

SCALE IN FEET
0 20 40



FOR BIDDING PURPOSES ONLY

Conduit Layout - Veterans Parkway

STATE OF SOUTH DAKOTA	PROJECT	SHEET	TOTAL SHEETS
	NH 0100(106)409 & P 8042(00)	L33	L74

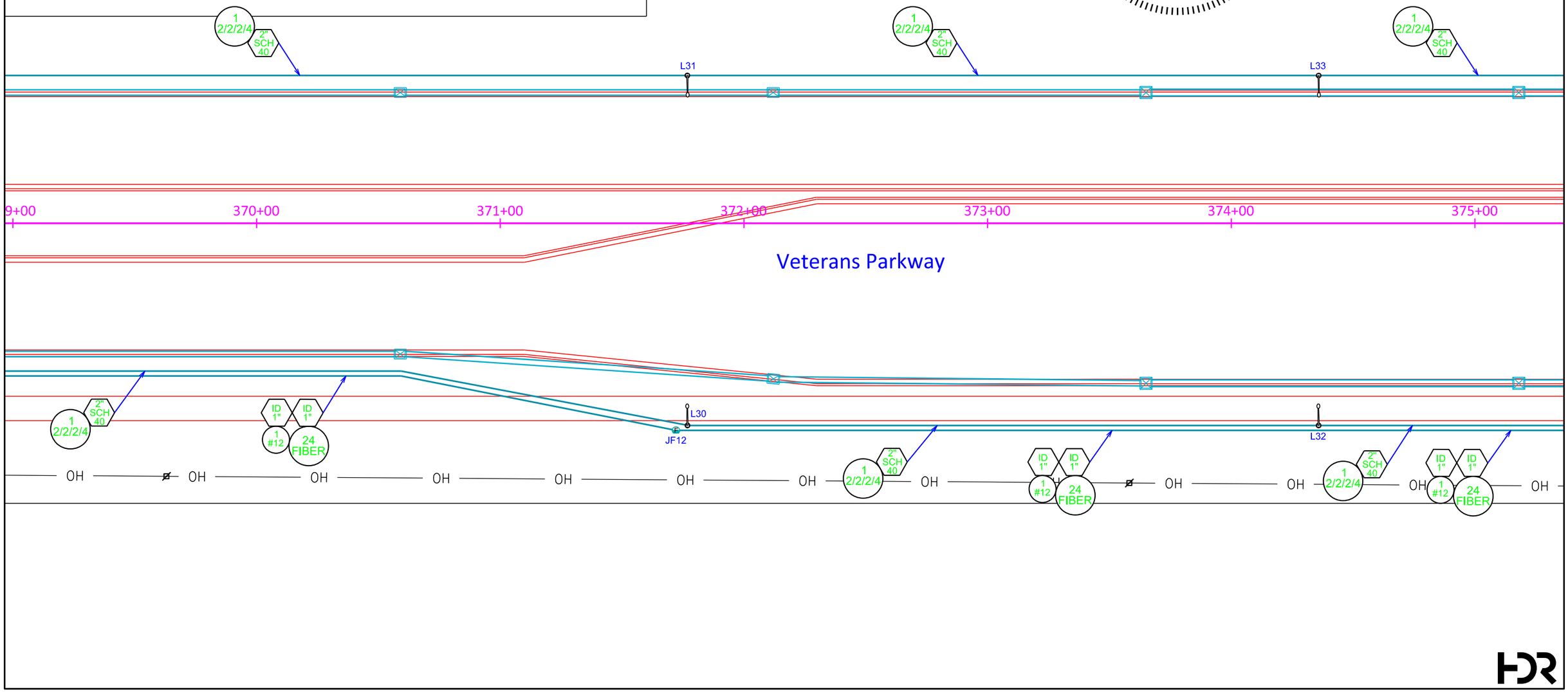
FILE: ...\Section L\L33.dgn
PLOTTING DATE: 10-11-2024

REV DATE:
INITIAL:

SCALE IN FEET
0 20 40

PROPOSED ITEM LOCATIONS	
ITEM	STATION-OFFSET
L30	371+76.84 - 83.00' RT
L31	371+76.80 - 60.67' LT
L32	374+35.86 - 83.00' RT
L33	374+35.86 - 60.65' LT
JF12	371+72.12 - 85.00' RT

REGISTERED PROFESSIONAL ENGINEER
REG. NO. 8324
LANCE R. MCQUEEN
SOUTH DAKOTA
Lance R. McQueen
10-11-24



Conduit Layout - Veterans Parkway

FOR BIDDING PURPOSES ONLY

STATE OF SOUTH DAKOTA	PROJECT	SHEET	TOTAL SHEETS
	NH 0100(106)409 & P 8042(00)	L34	L74

FILE: ...\Section L\L34.dgn
PLOTTING DATE: 10-11-2024

REV DATE:
INITIAL:

PROPOSED ITEM LOCATIONS		PROPOSED ITEM LOCATIONS		PROPOSED ITEM LOCATIONS	
ITEM	STATION-OFFSET	ITEM	STATION-OFFSET	ITEM	STATION-OFFSET
L34	379+73.32 - 60.67' RT	JL12	377+13.60 - 88.92' RT	PB1	SEE SECTION B.
L35	379+74.21 - 72.67' LT	JL13	376+94.35 - 67.16' LT	PB2	
S1	376+99.05 - 69.74' LT	JL14	378+78.08 - 72.46' LT	PB3	
S3	378+61.61 - 81.99' LT	JL15	378+99.77 - 59.96' RT	PB4	
S5	378+81.79 - 66.24' RT	JL16	379+51.93 - 60.43' RT	PB5	
S7	377+15.84 - 85.21' RT	JL17	379+61.68 - 67.08' RT	PB6	
CC1	379+44.70 - 67.30' RT	JL18	610+18.72 - 10.96' LT	PB7	
M2	379+53.36 - 66.75' RT	JL19	612+70.53 - 11.00' RT	PB8	
JF13	377+22.96 - 93.12' RT	JS1	377+00.52 - 79.27' LT		
JF14	377+06.08 - 82.78' LT	JS2	378+65.29 - 79.78' LT		
JF15	378+64.26 - 85.32' LT	JS3	378+89.79 - 63.35' RT		
JF16	378+96.28 - 66.72' RT	JS4	377+23.79 - 89.68' RT		
JF17	379+40.26 - 62.65' RT	JS5	379+36.35 - 67.47' RT		

SCALE IN FEET
0 20 40

Southeastern Avenue

Veterans Parkway

Veterans Parkway

376+00 377+00 378+00 379+00 380+00 381+00

611+00 612+00 613+00 610+00

SEL5 JL19 SEL4 JL18

1 2/2/2/4 2" SCH 40

ID 1" ID 1" 1 #12 24 FIBER

JF14 JS1 PB2 S1 PB1 JL13

PB3 JF15 S3 JS2 JL14 PB4

L35

PB8 PB7 JL12 JS4 S7 JF13

JS3 JL15 JF17 JL16 L34 PB5 S5 JF16 JS5 CC1 M2 JL17 PB6

OH

PROPOSED TRANSFORMER
- POLE MOUNTED
120/240 v.a.c., 25kVA, 60Hz,
Single Phase, 3 Wire Service
by Xcel Energy
PROVIDES POWER TO PROPOSED SIGNALS AT INTERSECTION OF SOUTHEASTERN AVE AND VETERANS PKWY, AND TO LIGHTS ALONG VETERANS PKWY, WEST TO EAST OF SOUTHEASTERN AVE

JF35

REGISTERED PROFESSIONAL ENGINEER
REG. NO. 8324
LANCE R. MCQUEEN
SOUTH DAKOTA
10-11-24

HDR

Signal Conduit Layout

Southeastern Avenue & Veterans Parkway

FOR BIDDING PURPOSES ONLY

STATE OF SOUTH DAKOTA	PROJECT	SHEET	TOTAL SHEETS
	NH 0100(106)409 & P 8042(00)	L35	L74

FILE: ...\Section L\L35.dgn
PLOTTING DATE: 10-11-2024

REV DATE:
INITIAL:

SCALE IN FEET
0 15 30

ESTIMATE OF QUANTITIES
NH 0100(106)409 - PCN 01V7 - VETERANS PKWY

KEY	ITEM	QUANTITY	UNIT
	TRAFFIC SIGNAL CONTROLLER	1	EACH
	SIDE MOUNTED CABINET (FOR BATTERY BACKUP AND FLASH SYSTEM) (INSTALLED ON RIGHT SIDE OF CABINET FRONT)	1	EACH
	SIGNAL HEAD BATTERY BACKUP AND FLASH SYSTEM (INSTALLED WITHIN SIDE MOUNTED CABINET) (INSTALLED ON RIGHT SIDE OF CABINET FRONT)	1	EACH
	SIDE MOUNTED CABINET (FOR FIBER OPTIC CABLE) (INSTALLED ON LEFT SIDE OF CABINET FRONT)	1	EACH
2C	2/C #14 AWG IMSA COPPER CABLE, K1 (TO PED. PUSH BUTTONS)	280	FT
3C	3/C #14 AWG IMSA COPPER CABLE, K1 (TO PED. SIGNAL HEADS)	120	FT
5C	5/C #14 AWG IMSA COPPER CABLE, K1 (TO 3 SECTION SIGNAL HEADS)	1925	FT
25C	25/C #14 AWG IMSA COPPER CABLE, K1 (TO SIGNAL BASES)	1160	FT
PC	PREEMPTION CABLE (TO OPTICAL DETECTORS) (1 PC FOR THE PREEMPTION UNIT) (1 PC FOR THE CONFIRMATION LIGHT)	3040	FT
CAT5	OUTDOOR RATED CAT5 CABLE (TO VIDEO DETECTION CAMERAS) (NOT A BID ITEM) (INCIDENTAL TO VIDEO DETECTION SYSTEM)	730	FT
CAT5	OUTDOOR RATED CAT5 CABLE (TO SURVEILLANCE CAMERAS) (NOT A BID ITEM) (INCIDENTAL TO SURVEILLANCE CAMERAS)	525	FT

REGISTERED PROFESSIONAL ENGINEER
REG. NO. 8324
LANCE R. MCQUEEN
SOUTH DAKOTA
Lance R. McQueen
10-11-24

Southeastern Avenue

Veterans Parkway

376+00 377+00 378+00 379+00

611+00 612+00

JL13 JL19 JL14 JL15 JL16 JL17 JL18 JL12 L35 L34

JF13 JF14 JF15 JF16 JF17

JS1 JS2 JS3 JS4 JS5

S1 S3 S5 S7

PB1 PB2 PB3 PB4 PB5 PB6 PB7 PB8

SEL4

CC1 M2

COIL 200' OF EACH CABLE WITHIN JUNCTION BOX

CABINET FRONT

HDR

FOR BIDDING PURPOSES ONLY

Conduit Layout - Veterans Parkway

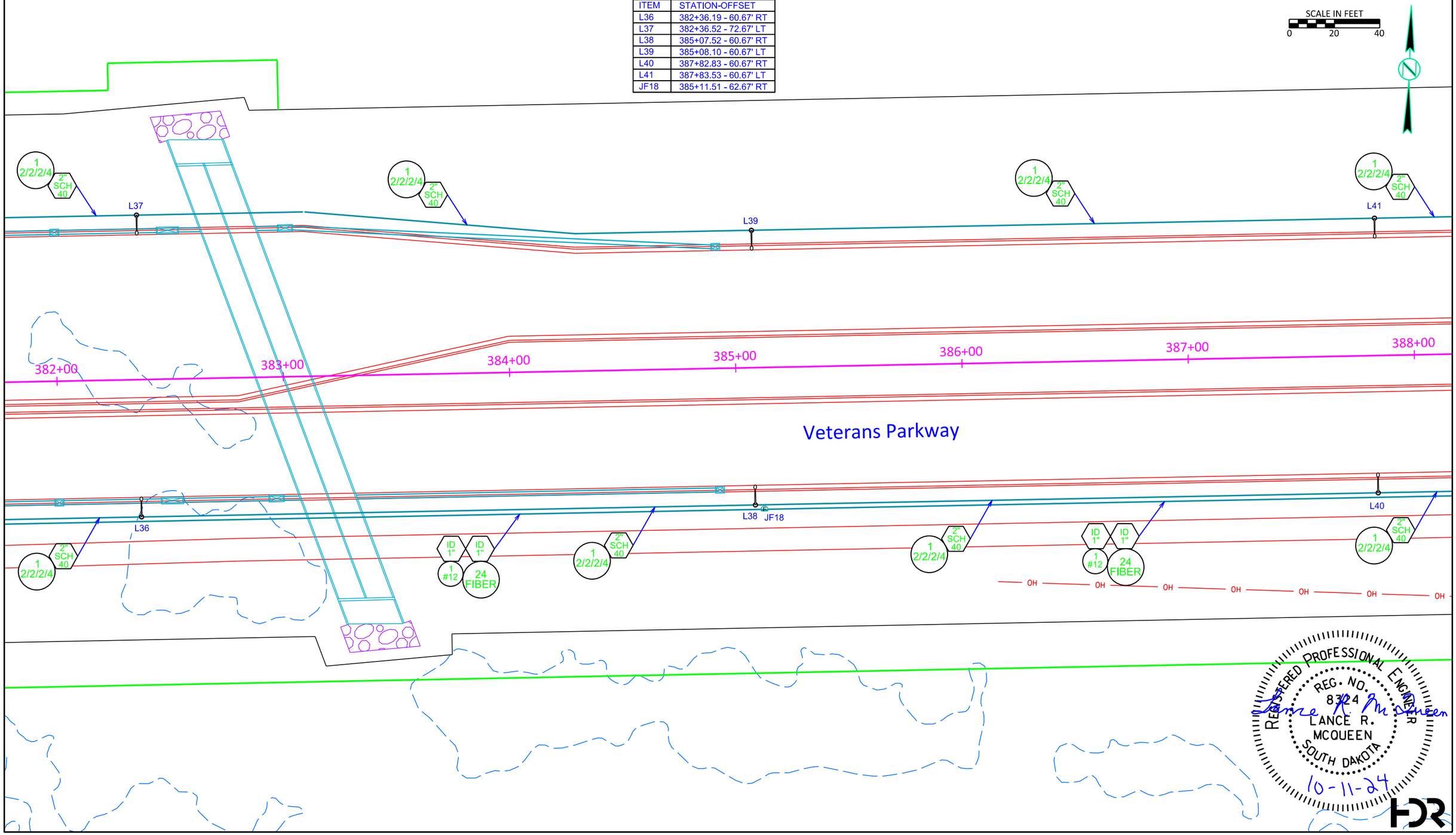
STATE OF SOUTH DAKOTA	PROJECT	SHEET	TOTAL SHEETS
	NH 0100(106)409 & P 8042(00)	L36	L74

FILE: ...\Section L\L36.dgn
PLOTTING DATE: 10-11-2024

REV DATE:
INITIAL:

PROPOSED ITEM LOCATIONS	
ITEM	STATION-OFFSET
L36	382+36.19 - 60.67' RT
L37	382+36.52 - 72.67' LT
L38	385+07.52 - 60.67' RT
L39	385+08.10 - 60.67' LT
L40	387+82.83 - 60.67' RT
L41	387+83.53 - 60.67' LT
JF18	385+11.51 - 62.67' RT

SCALE IN FEET
0 20 40



REGISTERED PROFESSIONAL ENGINEER
REG. NO. 8324
LANCE R. MCQUEEN
SOUTH DAKOTA
10-11-24

FOR BIDDING PURPOSES ONLY

Conduit Layout - Veterans Parkway

STATE OF SOUTH DAKOTA	PROJECT	SHEET	TOTAL SHEETS
	NH 0100(106)409 & P 8042(00)	L37	L74

FILE: ...\Section L\L37.dgn
PLOTTING DATE: 10-11-2024

REV DATE:
INITIAL:

SCALE IN FEET
0 20 40

PROPOSED ITEM LOCATIONS	
ITEM	STATION-OFFSET
L42	390+60.31 - 60.67' RT
L43	390+60.74 - 60.67' LT
L44	393+41.68 - 60.67' RT
L45	393+41.26 - 60.67' LT
JF19	390+63.49 - 62.67' RT

1 2/2/2/4 2" SCH 40

ID 1" 1 #12 24 FIBER

L43 L45 L42 JF19 L44

389+00 390+00

Veterans Parkway

OH

REGISTERED PROFESSIONAL ENGINEER
REG. NO. 8324
LANCE R. MCQUEEN
SOUTH DAKOTA
10-11-24

FDR

FOR BIDDING PURPOSES ONLY

Conduit Layout - Veterans Parkway

STATE OF SOUTH DAKOTA	PROJECT	SHEET	TOTAL SHEETS
	NH 0100(106)409 & P 8042(00)	L38	L74

FILE: ...\Section L\L38.dgn
PLOTTING DATE: 10-11-2024

REV DATE:
INITIAL:

SCALE IN FEET
0 20 40

PROPOSED ITEM LOCATIONS	
ITEM	STATION-OFFSET
L46	396+14.37 - 60.67' RT
L47	396+15.03 - 60.67' LT
L48	398+88.33 - 60.67' RT
L49	398+88.80 - 60.67' LT
JF20	396+17.79 - 62.67' RT

1 2/2/2/4 2" SCH 40

L47 L49

395+00 400+00

Veterans Parkway

L46 JF20 L48

ID 1" ID 1" 1 #12 24 FIBER

OH

REGISTERED PROFESSIONAL ENGINEER
REG. NO. 8324
LANCE R. MCQUEEN
SOUTH DAKOTA
10-11-24

HDR

FOR BIDDING PURPOSES ONLY

Conduit Layout - Veterans Parkway

STATE OF SOUTH DAKOTA	PROJECT	SHEET	TOTAL SHEETS
	NH 0100(106)409 & P 8042(00)	L39	L74

FILE: ...\Section L\L39.dgn
PLOTTING DATE: 10-11-2024

REV DATE:
INITIAL:

SCALE IN FEET
0 20 40

PROPOSED ITEM LOCATIONS	
ITEM	STATION-OFFSET
L50	401+38.93 - 60.67' RT
L51	401+61.31 - 60.67' LT
L52	404+35.84 - 60.67' RT
L53	404+36.26 - 60.67' LT
L54	407+09.25 - 60.67' RT
L55	407+09.67 - 60.67' LT
JF21	401+15.76 - 62.67' RT
JF22	404+39.75 - 62.67' RT

PROPOSED ITEM LOCATIONS	
ITEM	STATION-OFFSET
JL20	402+55.23 - 56.94' RT
JL21	402+55.22 - 60.67' LT
JL22	402+20.10 - 78.79' LT
M3	402+55.19 - 68.62' LT
T13-T24	SEE SECTION E.

PROPOSED TRANSFORMER
- GROUND MOUNTED
120/240 v.a.c., 15kVA, 60Hz,
Single Phase, 3 Wire Service
by Southeastern Electric
PROVIDES POWER TO LIGHTS ALONG VETERANS PKWY, WEST TO EAST OF THE HALF MILE

PEDESTRIAN UNDERPASS.
SEE SECTION E FOR
TUNNEL LUMINAIRES (T13-T24)
AND CONDUIT LOCATIONS.

COIL 200' OF CABLE
WITHIN JUNCTION BOX

Veterans Parkway

1+00 402+00 403+00 404+00 405+00 406+00

REGISTERED PROFESSIONAL ENGINEER
REG. NO. 8324
LANCE R. MCQUEEN
SOUTH DAKOTA
10-11-24

FDR

FOR BIDDING PURPOSES ONLY

Conduit Layout - Veterans Parkway

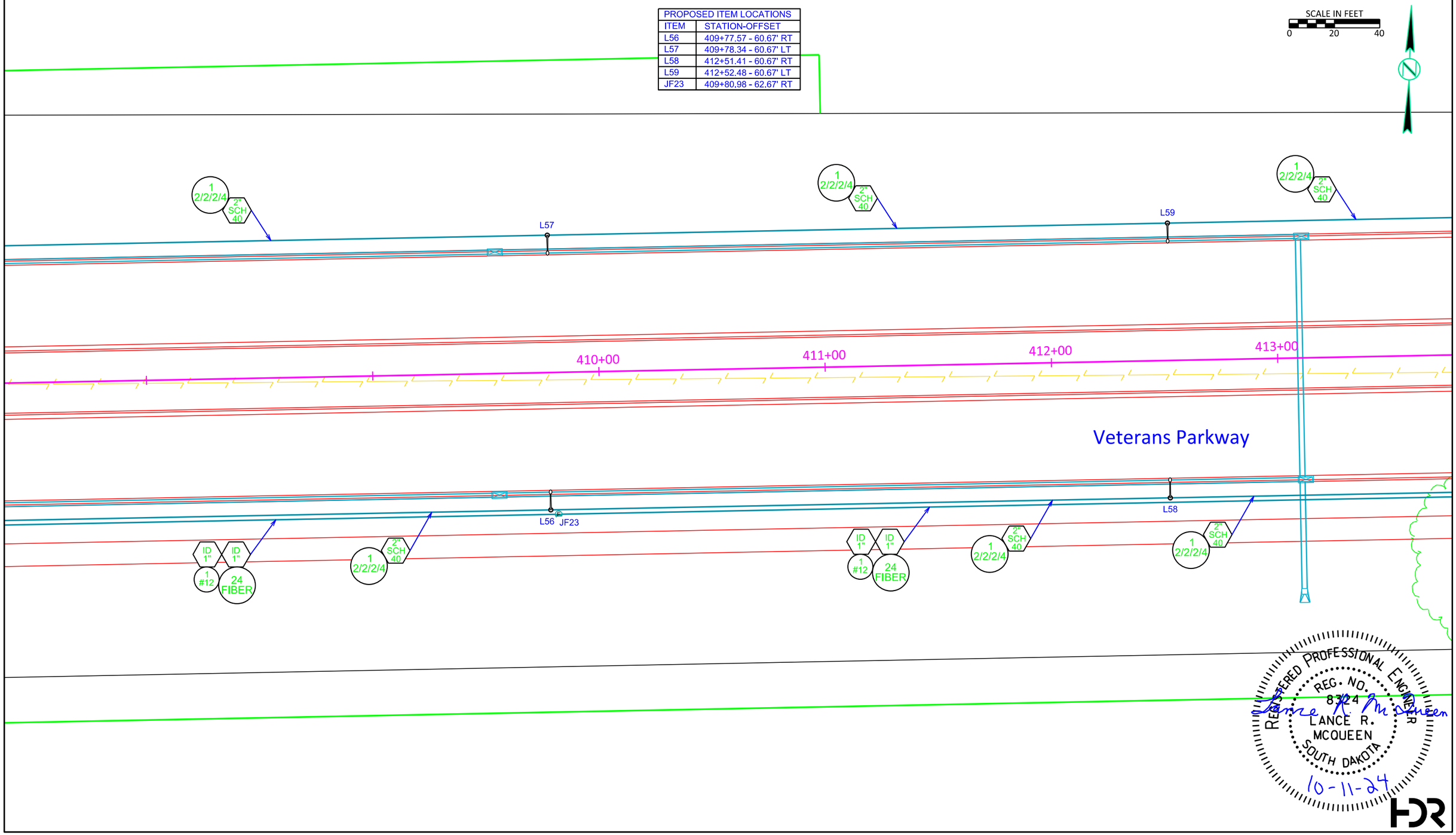
STATE OF SOUTH DAKOTA	PROJECT	SHEET	TOTAL SHEETS
	NH 0100(106)409 & P 8042(00)	L40	L74

FILE: ...\Section L\L40.dgn
PLOTTING DATE: 10-11-2024

REV DATE:
INITIAL:

PROPOSED ITEM LOCATIONS	
ITEM	STATION-OFFSET
L56	409+77.57 - 60.67' RT
L57	409+78.34 - 60.67' LT
L58	412+51.41 - 60.67' RT
L59	412+52.48 - 60.67' LT
JF23	409+80.98 - 62.67' RT

SCALE IN FEET
0 20 40



REGISTERED PROFESSIONAL ENGINEER
REG. NO. 8324
LANCE R. MCQUEEN
SOUTH DAKOTA
10-11-24

FOR BIDDING PURPOSES ONLY

Conduit Layout - Veterans Parkway

STATE OF SOUTH DAKOTA	PROJECT	SHEET	TOTAL SHEETS
	NH 0100(106)409 & P 8042(00)	L41	L74

FILE: ...\Section L\L41.dgn
PLOTTING DATE: 10-11-2024

REV DATE:
INITIAL:

PROPOSED ITEM LOCATIONS	
ITEM	STATION-OFFSET
L60	415+24.89 - 60.67' RT
L61	415+25.96 - 60.67' LT
L62	417+99.81 - 60.67' RT
L63	418+00.45 - 60.67' LT
JF24	415+29.10 - 62.67' RT

SCALE IN FEET
0 20 40

N

1 2/2/2/4 2" SCH 40

L61

L63

414+00 415+00 416+00 417+00 418+00 419+00 420+00

Veterans Parkway

L60 JF24

L62

ID 1" ID 1" 1 #12 24 FIBER

REGISTERED PROFESSIONAL ENGINEER
REG. NO. 8324
LANCE R. MCQUEEN
SOUTH DAKOTA

Lance R. McQueen
10-11-24

HDR

Conduit Layout - Veterans Parkway

FOR BIDDING PURPOSES ONLY

STATE OF SOUTH DAKOTA	PROJECT	SHEET	TOTAL SHEETS
	NH 0100(106)409 & P 8042(00)	L42	L74

FILE: ...\Section L\L42.dgn
PLOTTING DATE: 10-11-2024

REV DATE:
INITIAL:

SCALE IN FEET
0 20 40

PROPOSED ITEM LOCATIONS	
ITEM	STATION-OFFSET
L64	420+73.69 - 60.67' RT
L65	420+74.52 - 60.67' LT
L66	423+66.51 - 69.67' RT
L67	423+50.15 - 60.67' LT
L68	425+90.91 - 69.67' RT
L69	425+90.90 - 60.67' LT
JF25	420+77.18 - 62.67' RT
JF26	423+09.52 - 68.65' RT

1 2/2/2/4 2" SCH 40

ID 1" 1 #12

24 FIBER

L65 L67 L69

L64 JF25 JF26 L66 L68

421+00 422+00 423+00 424+00 425+00 426+00

Veterans Parkway

REGISTERED PROFESSIONAL ENGINEER
REG. NO. 8324
LANCE R. MCQUEEN
SOUTH DAKOTA
10-11-24

HDR

FOR BIDDING PURPOSES ONLY

Conduit Layout - Veterans Parkway

STATE OF SOUTH DAKOTA	PROJECT	SHEET	TOTAL SHEETS
	NH 0100(106)409 & P 8042(00)	L43	L74

FILE: ...\Section L\L43.dgn
PLOTTING DATE: 10-11-2024

REV DATE:
INITIAL:

SCALE IN FEET
0 20 40

PROPOSED TRANSFORMER
- GROUND MOUNTED
120/240 v.a.c., 15kVA, 60Hz,
Single Phase, 3 Wire Service
by Southeastern Electric

PROVIDES POWER TO PROPOSED SIGNALS AT INTERSECTION OF SYCAMORE AVE AND VETERANS PKWY, AND TO LIGHTS ALONG VETERANS PKWY, WEST TO EAST OF SYCAMORE AVE

PROPOSED ITEM LOCATIONS		PROPOSED ITEM LOCATIONS		PROPOSED ITEM LOCATIONS	
ITEM	STATION-OFFSET	ITEM	STATION-OFFSET	ITEM	STATION-OFFSET
S9	427+50.19 - 68.96' LT	JL23	427+57.60 - 89.13' RT	PB9	SEE SECTION B.
S11	428+93.59 - 82.48' LT	JL24	427+45.55 - 66.25' LT	PB10	
S12	429+07.26 - 65.86' RT	JL25	429+03.40 - 73.93' LT	PB11	
S14	427+60.32 - 85.59' RT	JL26	429+07.28 - 74.44' LT	PB12	
CC2	429+71.76 - 67.26' RT	JL27	429+18.48 - 61.03' RT	PB13	
M4	429+80.84 - 66.65' RT	JL28	429+23.02 - 58.47' RT	PB14	
JF27	427+66.16 - 90.74' RT	JL29	429+79.12 - 60.60' RT	PB15	
JF28	427+62.84 - 82.16' LT	JL30	429+88.72 - 66.96' RT	PB16	
JF29	428+96.51 - 85.46' LT	JS6	427+55.44 - 78.06' LT		
JF30	429+16.13 - 66.34' RT	JS7	428+99.77 - 79.83' LT		
JF31	429+67.28 - 62.67' RT	JS8	429+11.51 - 62.94' RT		
JF32	430+00.62 - 63.03' RT	JS9	427+66.16 - 90.74' RT		
		JS10	429+63.40 - 67.51' RT		

Sycamore Avenue

Veterans Parkway

Sycamore Avenue

Pressurized 16" Sanitary Main

427+00 428+00 429+00 430+00

713+00 712+00 711+00 710+00

JL32 JL31 JL24 JL23 JL25 JL26 JL27 JL28 JL29 JL30 JL31

JS6 JS7 JS8 JS9 JS10

JF28 JF29 JF27 JF31 JF32 JF30 JF33

PB9 PB10 PB11 PB12 PB13 PB14 PB15 PB16

S9 S11 S12 S14

CC2 M4

SL4

1 2/2/2/4 2" SCH 40

24 FIBER ID 1" 1 #12

2" SCH 80

OH HO P S T F L M

REGISTERED PROFESSIONAL ENGINEER
REG. NO. 8324
LANCE R. MCQUEEN
SOUTH DAKOTA
10-11-24

FDR

Signal Conduit Layout

Sycamore Avenue & Veterans Parkway

FOR BIDDING PURPOSES ONLY

STATE OF SOUTH DAKOTA	PROJECT	SHEET	TOTAL SHEETS
	NH 0100(106)409 & P 8042(00)	L44	L74

FILE: ...\Section L\L44.dgn
PLOTTING DATE: 10-11-2024
REV DATE:
INITIAL:

SCALE IN FEET
0 15 30

ESTIMATE OF QUANTITIES
NH 0100(106)409 - PCN 01V7 - VETERANS PKWY

KEY	ITEM	QUANTITY	UNIT
	TRAFFIC SIGNAL CONTROLLER	1	EACH
	SIDE MOUNTED CABINET (FOR BATTERY BACKUP AND FLASH SYSTEM) (INSTALLED ON RIGHT SIDE OF CABINET FRONT)	1	EACH
	SIGNAL HEAD BATTERY BACKUP AND FLASH SYSTEM (INSTALLED WITHIN SIDE MOUNTED CABINET) (INSTALLED ON RIGHT SIDE OF CABINET FRONT)	1	EACH
	SIDE MOUNTED CABINET (FOR FIBER OPTIC CABLE) (INSTALLED ON LEFT SIDE OF CABINET FRONT)	1	EACH
2C	2/C #14 AWG IMSA COPPER CABLE, K1 (TO PED. PUSH BUTTONS)	285	FT
3C	3/C #14 AWG IMSA COPPER CABLE, K1 (TO PED. SIGNAL HEADS)	120	FT
5C	5/C #14 AWG IMSA COPPER CABLE, K1 (TO 3 SECTION SIGNAL HEADS)	1370	FT
7C	7/C #14 AWG IMSA COPPER CABLE, K1 (TO 4 SECTION AND 5 SECTION SIGNAL HEADS)	220	FT
25C	25/C #14 AWG IMSA COPPER CABLE, K1 (TO SIGNAL BASES)	1145	FT
PC	PREEMPTION CABLE (TO OPTICAL DETECTORS) (1 PC FOR THE PREEMPTION UNIT) (1 PC FOR THE CONFIRMATION LIGHT)	3010	FT
CAT5	OUTDOOR RATED CAT5 CABLE (TO VIDEO DETECTION CAMERAS) (NOT A BID ITEM) (INCIDENTAL TO VIDEO DETECTION SYSTEM)	725	FT
CAT5	OUTDOOR RATED CAT5 CABLE (TO SURVEILLANCE CAMERAS) (NOT A BID ITEM) (INCIDENTAL TO SURVEILLANCE CAMERAS)	515	FT

REGISTERED PROFESSIONAL ENGINEER
REG. NO. 8324
LANCE R. MCQUEEN
SOUTH DAKOTA
10-11-24

Sycamore Avenue
Veterans Parkway
Sycamore Avenue
Veterans Parkway

426+00 427+00 428+00 429+00 430+00
712+00 711+00

COIL 200' OF CABLE WITHIN JUNCTION BOX
CABINET FRONT

HDR

FOR BIDDING PURPOSES ONLY

Conduit Layout - Southeastern Avenue

STATE OF SOUTH DAKOTA	PROJECT	SHEET	TOTAL SHEETS
	NH 0100(106)409 & P 8042(00)	L45	L74

FILE: ...\Section L\L45.dgn
PLOTTING DATE: 10-11-2024

REV DATE:
INITIAL:

SCALE IN FEET
0 20 40

ESTIMATE OF QUANTITIES
P 8042(00) - PCN 08DG - CIP#11116 - SOUTHEASTERN AVE

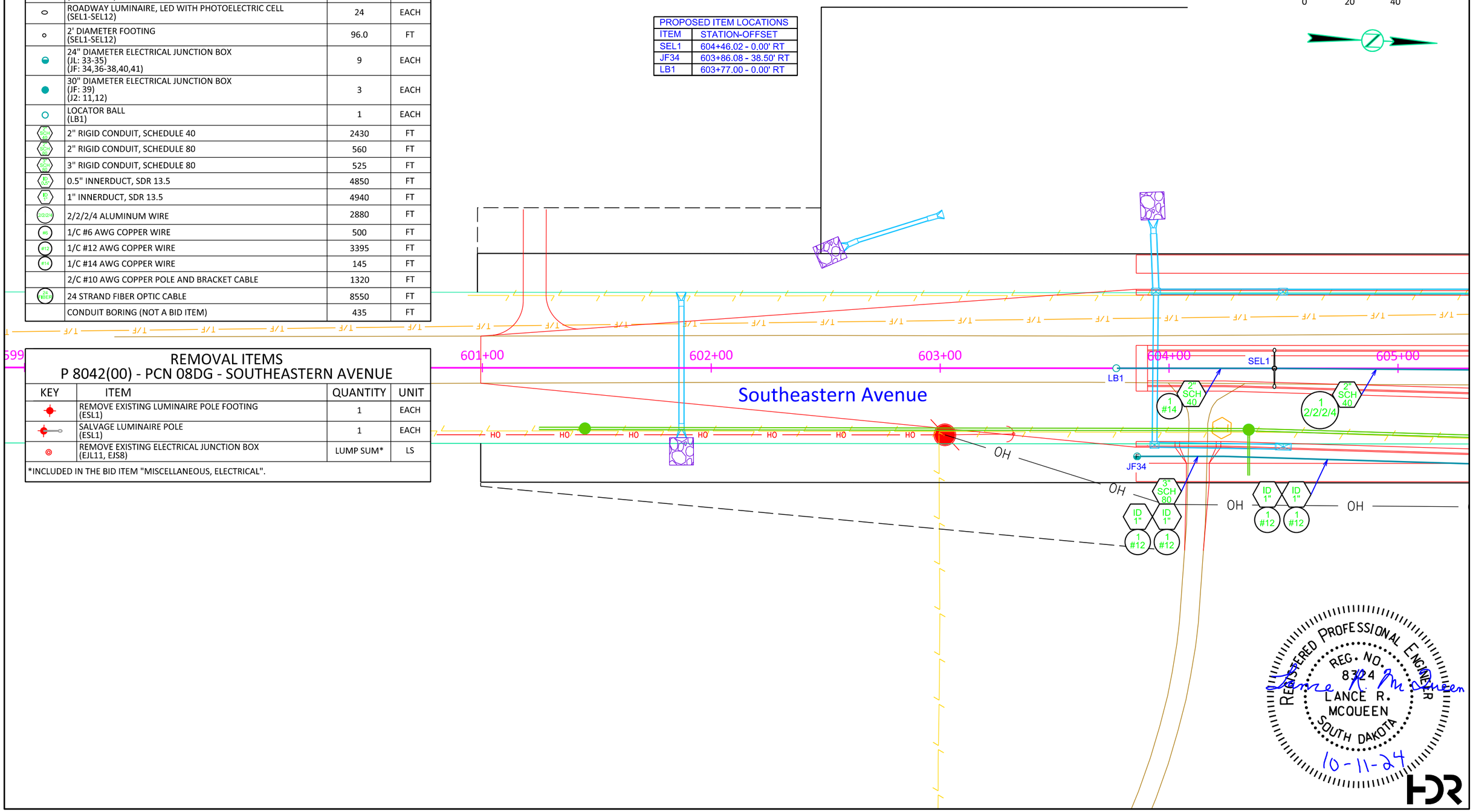
KEY	ITEM	QUANTITY	UNIT
	BREAKAWAY BASE LUMINAIRE POLE, 40' MOUNTING HEIGHT W/ TWIN 8' ARM (SEL1-SEL12)	12	EACH
	ROADWAY LUMINAIRE, LED WITH PHOTOELECTRIC CELL (SEL1-SEL12)	24	EACH
	2' DIAMETER FOOTING (SEL1-SEL12)	96.0	FT
	24" DIAMETER ELECTRICAL JUNCTION BOX (JL: 33-35) (JF: 34,36-38,40,41)	9	EACH
	30" DIAMETER ELECTRICAL JUNCTION BOX (JF: 39) (J2: 11,12)	3	EACH
	LOCATOR BALL (LB1)	1	EACH
SCH 40	2" RIGID CONDUIT, SCHEDULE 40	2430	FT
SCH 80	2" RIGID CONDUIT, SCHEDULE 80	560	FT
SCH 80	3" RIGID CONDUIT, SCHEDULE 80	525	FT
ID 1/2"	0.5" INNERDUCT, SDR 13.5	4850	FT
ID 1"	1" INNERDUCT, SDR 13.5	4940	FT
2/2/2/4	2/2/2/4 ALUMINUM WIRE	2880	FT
#6	1/C #6 AWG COPPER WIRE	500	FT
#12	1/C #12 AWG COPPER WIRE	3395	FT
#14	1/C #14 AWG COPPER WIRE	145	FT
	2/C #10 AWG COPPER POLE AND BRACKET CABLE	1320	FT
24 FIBER	24 STRAND FIBER OPTIC CABLE	8550	FT
	CONDUIT BORING (NOT A BID ITEM)	435	FT

REMOVAL ITEMS
P 8042(00) - PCN 08DG - SOUTHEASTERN AVENUE

KEY	ITEM	QUANTITY	UNIT
	REMOVE EXISTING LUMINAIRE POLE FOOTING (ESL1)	1	EACH
	SALVAGE LUMINAIRE POLE (ESL1)	1	EACH
	REMOVE EXISTING ELECTRICAL JUNCTION BOX (EJL11, EJS8)	LUMP SUM*	LS

*INCLUDED IN THE BID ITEM "MISCELLANEOUS, ELECTRICAL".

PROPOSED ITEM LOCATIONS	
ITEM	STATION-OFFSET
SEL1	604+46.02 - 0.00' RT
JF34	603+86.08 - 38.50' RT
LB1	603+77.00 - 0.00' RT



REGISTERED PROFESSIONAL ENGINEER
REG. NO. 8324
LANCE R. MCQUEEN
SOUTH DAKOTA
10-11-24

HDR

FOR BIDDING PURPOSES ONLY

Conduit Layout - Southeastern Avenue

STATE OF SOUTH DAKOTA	PROJECT	SHEET	TOTAL SHEETS
	NH 0100(106)409 & P 8042(00)	L46	L74

FILE: ...\Section L\L46.dgn
PLOTTING DATE: 10-11-2024

REV DATE:
INITIAL:

SCALE IN FEET
0 20 40

PROPOSED ITEM LOCATIONS	
ITEM	STATION-OFFSET
SEL2	606+60.12 - 1.80' RT
SEL3	608+29.44 - 11.00' LT
SEL4	610+05.08 - 11.00' LT
JF35	609+86.76 - 61.59' RT

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Lance R. McQueen
10-11-24

Southeastern Avenue

Veterans Parkway

606+00 607+00 608+00 609+00 610+00 611+00

376+00 378+00 379+00

SEL2 SEL3 SEL4 JL18 JF35 JF16 JL15 L34 S5 S7

1 2/2/2/4 2" SCH 40

ID 1" 1 #12

OH T/F

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Conduit Layout - Southeastern Avenue

STATE OF SOUTH DAKOTA	PROJECT	SHEET	TOTAL SHEETS
	NH 0100(106)409 & P 8042(00)	L47	L74

FILE: ...\Section L\L47.dgn
PLOTTING DATE: 10-11-2024

REV DATE:
INITIAL:

SCALE IN FEET
0 20 40

PROPOSED ITEM LOCATIONS	
ITEM	STATION-OFFSET
SEL5	613+01.01 - 11.00' RT
SEL6	614+86.65 - 4.88' RT
SEL7	616+84.03 - 2.60' LT
JF36	616+08.31 - 38.88' RT

Veterans Parkway

Southeastern Avenue

612+00 613+00 614+00 615+00 616+00 617+00 618+00

S1 JL19 SEL5 SEL6 SEL7 JF36 JF15 S3 JL14 L35

1 2/2/2/4 2" SCH 40

ID 1" 1 #12 ID 1" 24 FIBER

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SOUTH DAKOTA
10-11-24

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Conduit Layout - Southeastern Avenue

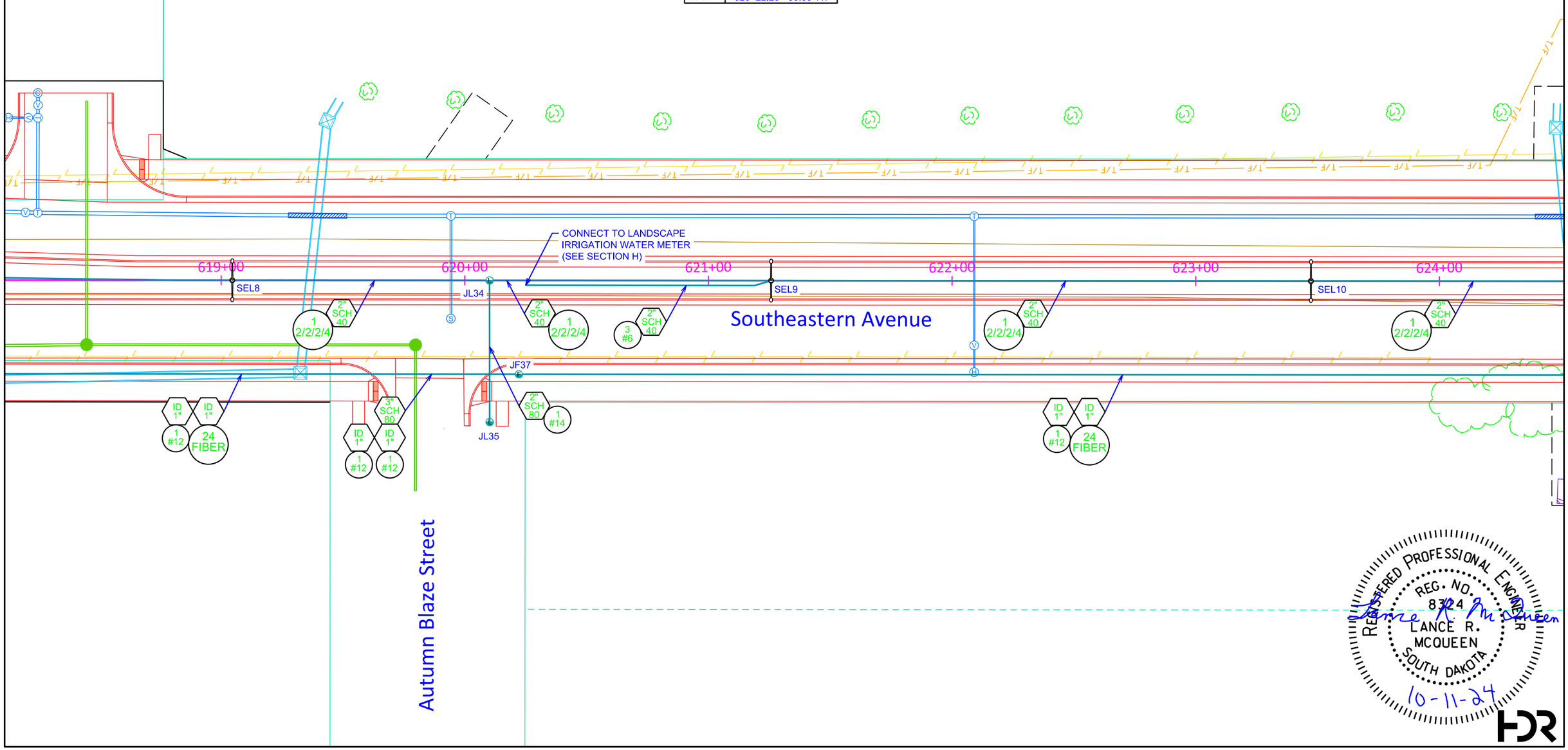
STATE OF SOUTH DAKOTA	PROJECT	SHEET	TOTAL SHEETS
	NH 0100(106)409 & P 8042(00)	L48	L74

FILE: ...\Section L\L48.dgn
PLOTTING DATE: 10-11-2024

REV DATE:
INITIAL:

SCALE IN FEET
0 20 40

PROPOSED ITEM LOCATIONS	
ITEM	STATION-OFFSET
SEL8	619+04.60 - 0.00' RT
SEL9	621+25.73 - 0.00' RT
SEL10	623+47.28 - 0.00' RT
JL34	620+10.18 - 0.00' RT
JL35	620+10.18 - 58.11' RT
JF37	620+22.25 - 38.50' RT



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SOUTH DAKOTA
Lance R. McQueen
10-11-24

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Conduit Layout - Southeastern Avenue

STATE OF SOUTH DAKOTA	PROJECT	SHEET	TOTAL SHEETS
	NH 0100(106)409 & P 8042(00)	L49	L74

FILE: ...\Section L\L49.dgn
PLOTTING DATE: 10-11-2024

REV DATE:
INITIAL:

SCALE IN FEET
0 20 40

PROPOSED ITEM LOCATIONS	
ITEM	STATION-OFFSET
SEL11	625+67.19 - 2.41' LT
SEL12	627+75.82 - 5.48' LT
JF38	625+61.61 - 38.50' RT
JF39	628+03.50 - 58.58' RT
JF40	629+32.31 - 40.14' RT
JF41	628+05.64 - 53.11' LT
JL33	628+06.53 - 55.54' RT
JS11	628+10.23 - 59.67' RT
JS12	628+09.87 - 53.15' LT

REMOVAL ITEMS
ESL1
EJS8
EJL11

Bison Trail

Southeastern Avenue

625+00 626+00 627+00 628+00

SEL11 SEL12

JF38 JF39 JF40 JF41

JS11 JS12

EJL11 EJL12 EJL13

ESL1 ESL2

EJS8 EJS9 EJS10

JL33

EM3

CONNECT TO EXISTING JUNCTION BOX

BORE CONDUIT

CONNECT TO EXISTING CONDUIT

1 2/2/2/4 2" SCH 40

1 2/2/2/4 2" SCH 80

1 #12 3" SCH 80

1 #12 ID 1"

24 FIBER ID 0.5" ID 2"

REGISTERED PROFESSIONAL ENGINEER
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SOUTH DAKOTA
10-11-24

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Conduit Layout - Sycamore Avenue

STATE OF SOUTH DAKOTA	PROJECT	SHEET	TOTAL SHEETS
	NH 0100(106)409 & P 8042(00)	L50	L74

FILE: ...\Section L\L50.dgn
PLOTTING DATE: 10-11-2024

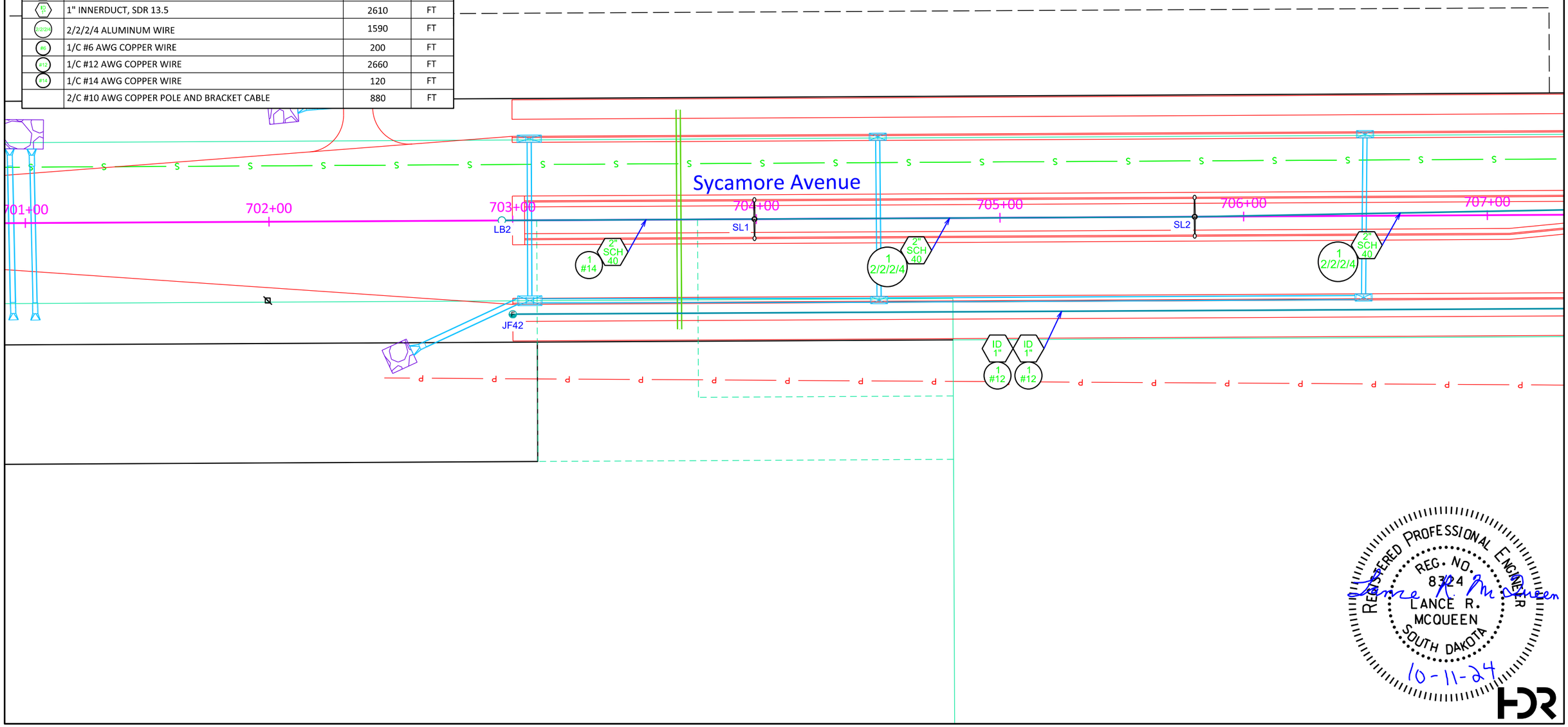
REV DATE:
INITIAL:

SCALE IN FEET
0 20 40

ESTIMATE OF QUANTITIES
P 8042(00) - PCN 08DH - CIP#11117 - SYCAMORE AVE

KEY	ITEM	QUANTITY	UNIT
	BREAKAWAY BASE LUMINAIRE POLE, 40' MOUNTING HEIGHT W/ TWIN 8' ARM (SL1-SL8)	8	EACH
	ROADWAY LUMINAIRE, LED WITH PHOTOELECTRIC CELL (SL1-SL8)	16	EACH
	2' DIAMETER FOOTING (SL1-SL8)	64.0	FT
	24" DIAMETER ELECTRICAL JUNCTION BOX (JF42-JF45)	4	EACH
	LOCATOR BALL (LB2)	1	EACH
2" SCH 40	2" RIGID CONDUIT, SCHEDULE 40	1440	FT
2" SCH 80	2" RIGID CONDUIT, SCHEDULE 80	220	FT
3" SCH 80	3" RIGID CONDUIT, SCHEDULE 80	45	FT
1" ID	1" INNERDUCT, SDR 13.5	2610	FT
2/2/2/4	2/2/2/4 ALUMINUM WIRE	1590	FT
#6	1/C #6 AWG COPPER WIRE	200	FT
#12	1/C #12 AWG COPPER WIRE	2660	FT
#14	1/C #14 AWG COPPER WIRE	120	FT
	2/C #10 AWG COPPER POLE AND BRACKET CABLE	880	FT

PROPOSED ITEM LOCATIONS	
ITEM	STATION-OFFSET
SL1	703+99.23 - 0.00' RT
SL2	705+79.92 - 0.00' RT
JF42	702+99.87 - 38.50' RT
LB2	702+95.56 - 0.00' RT



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10-11-24

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Conduit Layout - Sycamore Avenue

STATE OF SOUTH DAKOTA	PROJECT	SHEET	TOTAL SHEETS
	NH 0100(106)409 & P 8042(00)	L51	L74

FILE: ...\Section L\L51.dgn
PLOTTING DATE: 10-11-2024
REV DATE:
INITIAL:

SCALE IN FEET
0 20 40

PROPOSED ITEM LOCATIONS	
ITEM	STATION-OFFSET
SL3	707+61.35 - 2.39' LT
SL4	709+51.72 - 5.50' LT
SL5	713+32.74 - 5.50' RT
JF33	710+37.89 - 38.67' RT
JF43	708+00.48 - 38.50' RT
JL31	710+18.26 - 5.51' LT
JL32	712+71.63 - 5.50' RT

Pressurized 16" Sanitary Main

Sycamore Avenue

Veterans Parkway

427+00

428+00

429+00

430+00

708+00 709+00 710+00 711+00 712+00 713+00

S14 S9 S12 S11 JL27 JL26 SL3 SL4 SL5 JL31 JL32 JF43 JF33

1 2/2/2/4 2" SCH 40

1 2/2/2/4 2" SCH 80

ID 1" 1 #12

HO

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10-11-24

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Conduit Layout - Sycamore Avenue

STATE OF SOUTH DAKOTA	PROJECT	SHEET	TOTAL SHEETS
	NH 0100(106)409 & P 8042(00)	L52	L74

FILE: ...\Section L\L52.dgn
PLOTTING DATE: 10-11-2024

REV DATE:
INITIAL:

SCALE IN FEET
0 20 40

PROPOSED ITEM LOCATIONS	
ITEM	STATION-OFFSET
SL6	715+18.13 - 0.00' RT
SL7	717+05.53 - 0.00' RT
SL8	718+80.52 - 0.00' RT
JF44	713+91.57 - 38.50' RT
JF45	716+97.05 - 38.50' RT

Sycamore Avenue

714+00 715+00 716+00 717+00 718+00 719+00 720+00

CONNECT TO LANDSCAPE IRRIGATION WATER METER (SEE SECTION H)

SL6 SL7 SL8

JF44 JF45

STUB-OUT CONDUIT 5' TO THE NORTH. INSTALL CAP ON NORTH END OF PROPOSED CONDUIT.

1 2/2/2/4 2" SCH 40
3 #6 2" SCH 40
1 2/2/2/4 2" SCH 40
1 2/2/2/4 2" SCH 40
1 #14 2" SCH 40
ID 1" 1 #12
3" SCH 80 ID 1" 1 #12

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SOUTH DAKOTA
10-11-24

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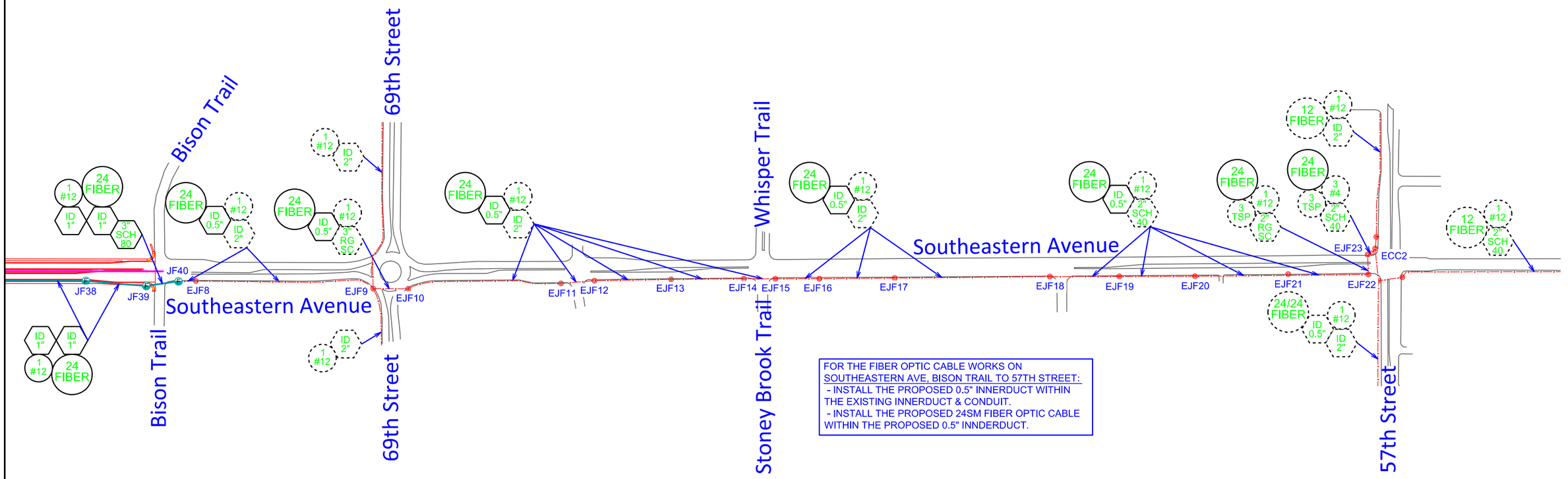
STATE OF SOUTH DAKOTA	PROJECT	SHEET	TOTAL SHEETS
	NH 0100(106)409 & P 8042(00)	L53	L74

FILE: ...\Section L\L53.dgn
PLOTTING DATE: 10-11-2024

REV DATE:
INITIAL:

SCALE IN FEET
0 200 400

FIBER OPTIC CABLE LAYOUT
Southeastern Avenue, Bison Trail to 57th Street



FOR THE FIBER OPTIC CABLE WORKS ON SOUTHEASTERN AVE, BISON TRAIL TO 57TH STREET:
- INSTALL THE PROPOSED 0.5" INNERDUCT WITHIN THE EXISTING INNERDUCT & CONDUIT.
- INSTALL THE PROPOSED 24SM FIBER OPTIC CABLE WITHIN THE PROPOSED 0.5" INNDERDUCT.

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STATE OF SOUTH DAKOTA	PROJECT	SHEET	TOTAL SHEETS
	NH 0100(106)409 & P 8042(00)	L54	L74

FILE: ...\Section L\L54.dgn
PLOTTING DATE: 10-11-2024

REV DATE:
INITIAL:

SCALE IN FEET
0 75 150

Video Detection Layout

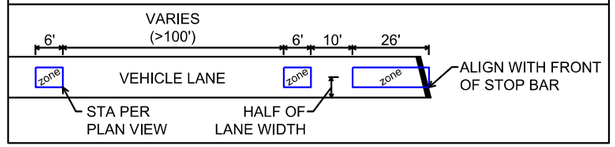
Southeastern Avenue & Veterans Parkway

ESTIMATE OF QUANTITIES
NH 0100(110)405 - PCN 01V9

KEY	ITEM	QUANTITY	UNIT
	VIDEO DETECTION SYSTEM (PAID PER INTERSECTION)	1	EACH
	VIDEO DETECTION CAMERA - SINGLE CAMERA OPTION (MOUNTED ON ARM OF LUMINAIRE POLE) (POSITIONED TO DETECT ZONES SHOWN)	2*	EACH

* ADDITIONAL CAMERAS MAY BE NEEDED FOR DETECTION SYSTEM SHOWN ON PLAN VIEW, WHICH WILL BE BE DETERMINED BY THE CONTRACTOR.
* INCIDENTAL TO "VIDEO DETECTION SYSTEM".

VIDEO DETECTION ZONE DETAIL



REGISTERED PROFESSIONAL ENGINEER
REG. NO. 8324
LANCE R. MCQUEEN
SOUTH DAKOTA
10-11-24

VIDEO DETECTION NOTES:
FOR SOUTHEASTERN AVENUE INTERSECTION, THE DILEMMA DETECTION ZONE WILL BE SET AS FOLLOWS:

EAST-WEST ON VETERANS PKWY
- FOR 55MPH VEHICLE SPEEDS THAT ARE 5.5 AND 2.5 SECONDS OF TRAVEL TIME FROM THE STOP BAR.
- FOR 60MPH VEHICLE SPEEDS THAT ARE 3.0 SECONDS OF TRAVEL FROM THE OUTERMOST SLOWER ZONE.

NORTH-SOUTH ON SOUTHEASTERN AVENUE
- FOR 40MPH VEHICLE SPEEDS THAT ARE 5.5 AND 2.5 SECONDS OF TRAVEL TIME FROM THE STOP BAR.
- FOR 45MPH VEHICLE SPEEDS THAT ARE 3.0 SECONDS OF TRAVEL FROM THE OUTERMOST SLOWER ZONE.

FOR BIDDING PURPOSES ONLY

Video Detection Layout

Sycamore Avenue & Veterans Parkway

STATE OF SOUTH DAKOTA	PROJECT	SHEET	TOTAL SHEETS
	NH 0100(106)409 & P 8042(00)	L55	L74

FILE: ...\Section L\L55.dgn
PLOTTING DATE: 10-11-2024

REV DATE:
INITIAL:

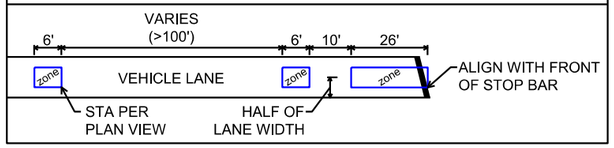
SCALE IN FEET
0 75 150

ESTIMATE OF QUANTITIES
NH 0100(110)405 - PCN 01V9

KEY	ITEM	QUANTITY	UNIT
	VIDEO DETECTION SYSTEM (PAID PER INTERSECTION)	1	EACH
	VIDEO DETECTION CAMERA - SINGLE CAMERA OPTION (MOUNTED ON ARM OF LUMINAIRE POLE) (POSITIONED TO DETECT ZONES SHOWN)	2*	EACH

* ADDITIONAL CAMERAS MAY BE NEEDED FOR DETECTION SYSTEM SHOWN ON PLAN VIEW, WHICH WILL BE BE DETERMINED BY THE CONTRACTOR.
* INCIDENTAL TO "VIDEO DETECTION SYSTEM".

VIDEO DETECTION ZONE DETAIL



REGISTERED PROFESSIONAL ENGINEER
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LANCE R. MCQUEEN
SOUTH DAKOTA
Lance R. McQueen
10-11-24

VIDEO DETECTION NOTES:
FOR SYCAMORE AVENUE INTERSECTION, THE DILEMMA DETECTION ZONE WILL BE SET AS FOLLOWS:

EAST-WEST ON VETERANS PKWY
- FOR 55MPH VEHICLE SPEEDS THAT ARE 5.5 AND 2.5 SECONDS OF TRAVEL TIME FROM THE STOP BAR.
- FOR 60MPH VEHICLE SPEEDS THAT ARE 3.0 SECONDS OF TRAVEL FROM THE OUTERMOST SLOWER ZONE.

NORTH-SOUTH ON SYCAMORE AVENUE
- FOR 40MPH VEHICLE SPEEDS THAT ARE 5.5 AND 2.5 SECONDS OF TRAVEL TIME FROM THE STOP BAR.
- FOR 45MPH VEHICLE SPEEDS THAT ARE 3.0 SECONDS OF TRAVEL FROM THE OUTERMOST SLOWER ZONE.

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STATE OF SOUTH DAKOTA	PROJECT	SHEET	TOTAL SHEETS
	NH 0100(106)409 & P 8042(00)	L56	L74

FILE: ...\Section L\L56.dgn
PLOTTING DATE: 10-11-2024

REV DATE:
INITIAL:

SIGNAL WIRING DIAGRAM

Southeastern Avenue & Veterans Parkway

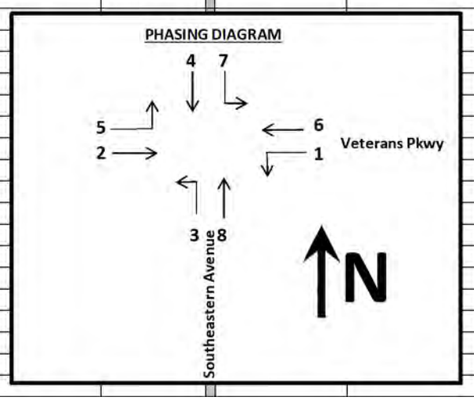
CORNER	S5 - Southeast		
		Cable # or color	Controller
Phase # 2			Terminal
Head No.	Wire Color	Head Color	Designation
18,19,20,21,22	Red	Red	2 R
	Orange	Amber	2 Y
	Green	Green	2 G
	White	Ground/neutral	CB
Phase # 2 Ped			
Head No.			
35	Black	Don't Walk	9 R
	Blue	Walk	9 G
	White/Black	Ground/neutral	CB
Phase # 8 Ped			
Head No.			
36	Black/White	Don't Walk	12 R
	Blue/Black	Walk	12 G
	White/Black	Ground/neutral	CB
Phase # 5			
Head No.			
16,17	Red/Black	<< Red <<	5 R
	Orange/Black	<< Amber <<	5 Y
	Green/Black	<< Green <<	5 G
	White	Ground/neutral	CB
Phase # 7			
Head No.			
23	Red/Green	<< Red <<	7 R
	Orange/Red	<< Amber <<	7 Y
	Green/White	<< Green <<	7 G
	White	Ground/neutral	CB
PED. P.B.'s			
	Blue/Red	Phase 2	L 11
	Red/white	Phase 4	L 9
	Blue/Red	Phase 6	Q 11
	Red/white	Phase 8	Q 9
	White/Red	P.B. common	R 9 ~12

CORNER	S7 - Southwest		
		Cable # or color	Controller
Phase # 4			Terminal
Head No.	Wire Color	Head Color	Designation
26,27,28,29	Red	Red	4 R
	Orange	Amber	4 Y
	Green	Green	4 G
	White	Ground/neutral	CB
Phase # 4 Ped			
Head No.			
37	Black	Don't Walk	10 R
	Blue	Walk	10 G
	White/Black	Ground/neutral	CB
Phase # 2 Ped			
Head No.			
38	Black/White	Don't Walk	9 R
	Blue/Black	Walk	9 G
	White/Black	Ground/neutral	CB
Phase # 7			
Head No.			
24,25	Red/Black	<< Red <<	7 R
	Orange/Black	<< Amber <<	7 Y
	Green/Black	<< Green <<	7 G
	White	Ground/neutral	CB
Phase # 1			
Head No.			
30	Red/Green	<< Red <<	1 R
	Orange/Red	<< Amber <<	1 Y
	Green/White	<< Green <<	1 G
	White	Ground/neutral	CB
PED. P.B.'s			
	Blue/Red	Phase 2	L 11
	Red/white	Phase 4	L 9
	Blue/Red	Phase 6	Q 11
	Red/white	Phase 8	Q 9
	White/Red	P.B. common	R 9 ~12

CORNER	S1 - Northwest		
		Cable # or color	Controller
Phase # 6			Terminal
Head No.	Wire Color	Head Color	Designation
3,4,5,6,7	Red	Red	6 R
	Orange	Amber	6 Y
	Green	Green	6 G
	White	Ground/neutral	CB
Phase # 6 Ped			
Head No.			
31	Black	Don't Walk	11 R
	Blue	Walk	11 G
	White/Black	Ground/neutral	CB
Phase # 4 Ped			
Head No.			
32	Black/White	Don't Walk	10 R
	Blue/Black	Walk	10 G
	White/Black	Ground/neutral	CB
Phase # 1			
Head No.			
1,2	Red/Black	<< Red <<	1 R
	Orange/Black	<< Amber <<	1 Y
	Green/Black	<< Green <<	1 G
	White	Ground/neutral	CB
Phase # 3			
Head No.			
8	Red/Green	<< Red <<	3 R
	Orange/Red	<< Amber <<	3 Y
	Green/White	<< Green <<	3 G
	White	Ground/neutral	CB
PED. P.B.'s			
	Blue/Red	Phase 2	L 11
	Red/white	Phase 4	L 9
	Blue/Red	Phase 6	Q 11
	Red/white	Phase 8	Q 9
	White/Red	P.B. common	R 9 ~12

CORNER	S3 - Northeast		
		Cable # or color	Controller
Phase # 8			Terminal
Head No.	Wire Color	Head Color	Designation
11,12,13,14	Red	Red	8 R
	Orange	Amber	8 Y
	Green	Green	8 G
	White	Ground/neutral	CB
Phase # 8 Ped			
Head No.			
33	Black	Don't Walk	12 R
	Blue	Walk	12 G
	White/Black	Ground/neutral	CB
Phase # 6 Ped			
Head No.			
34	Black/White	Don't Walk	11 R
	Blue/Black	Walk	11 G
	White/Black	Ground/neutral	CB
Phase # 3			
Head No.			
9,10	Red/Black	<< Red <<	3 R
	Orange/Black	<< Amber <<	3 Y
	Green/Black	<< Green <<	3 G
	White	Ground/neutral	CB
Phase # 5			
Head No.			
15	Red/Green	<< Red <<	5 R
	Orange/Red	<< Amber <<	5 Y
	Green/White	<< Green <<	5 G
	White	Ground/neutral	CB
PED. P.B.'s			
	Blue/Red	Phase 2	L 11
	Red/white	Phase 4	L 9
	Blue/Red	Phase 6	Q 11
	Red/white	Phase 8	Q 9
	White/Red	P.B. common	R 9 ~12

PHASING DIAGRAM



FOR BIDDING PURPOSES ONLY

STATE OF SOUTH DAKOTA	PROJECT	SHEET	TOTAL SHEETS
	NH 0100(106)409 & P 8042(00)	L57	L74

FILE: ...\Section L\L57.dgn
PLOTTING DATE: 10-11-2024

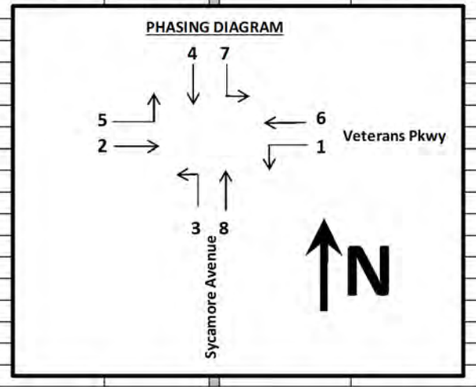
REV DATE:
INITIAL:

SIGNAL WIRING DIAGRAM

Sycamore Avenue & Veterans Parkway

CORNER	S12 - Southeast			CORNER	S14 - Southwest			CORNER	S9 - Northwest			CORNER	S11 - Northeast		
		Cable # or color	Controller			Cable # or color	Controller			Cable # or color	Controller			Cable # or color	Controller
Phase # 2			Terminal	Phase # 4			Terminal	Phase # 6			Terminal	Phase # 8			Terminal
Head No.	Wire Color	Head Color	Designation	Head No.	Wire Color	Head Color	Designation	Head No.	Wire Color	Head Color	Designation	Head No.	Wire Color	Head Color	Designation
16,17,18,19,20	Red	Red	2 R	23,24,25	Red	Red	4 R	3,4,5,6,7	Red	Red	6 R	10,11,12	Red	Red	8 R
	Orange	Amber	2 Y		Orange	Amber	4 Y		Orange	Amber	6 Y		Orange	Amber	8 Y
	Green	Green	2 G		Green	Green	4 G		Green	Green	6 G		Green	Green	8 G
	White	Ground/neutral	CB		White	Ground/neutral	CB		White	Ground/neutral	CB		White	Ground/neutral	CB
Phase # 2 Ped				Phase # 4 Ped				Phase # 6 Ped				Phase # 8 Ped			
Head No.				Head No.				Head No.				Head No.			
31	Black	Don't Walk	9 R	33	Black	Don't Walk	10 R	27	Black	Don't Walk	11 R	29	Black	Don't Walk	12 R
	Blue	Walk	9 G		Blue	Walk	10 G		Blue	Walk	11 G		Blue	Walk	12 G
	White/Black	Ground/neutral	CB		White/Black	Ground/neutral	CB		White/Black	Ground/neutral	CB		White/Black	Ground/neutral	CB
Phase # 8 Ped				Phase # 2 Ped				Phase # 4 Ped				Phase # 6 Ped			
Head No.				Head No.				Head No.				Head No.			
32	Black/White	Don't Walk	12 R	34	Black/White	Don't Walk	9 R	28	Black/White	Don't Walk	10 R	30	Black/White	Don't Walk	11 R
	Blue/Black	Walk	12 G		Blue/Black	Walk	9 G		Blue/Black	Walk	10 G		Blue/Black	Walk	11 G
	White/Black	Ground/neutral	CB		White/Black	Ground/neutral	CB		White/Black	Ground/neutral	CB		White/Black	Ground/neutral	CB
Phase # 5				Phase # 7				Phase # 1				Phase # 3			
Head No.				Head No.				Head No.				Head No.			
14,15	Red/Black	<< Red <<	5 R	22	Red/Black	<< Red <<	7 R	1,2	Red/Black	<< Red <<	1 R	9	Red/Black	<< Red <<	3 R
	Orange/Black	<< Amber <<	5 Y		Orange/Black	<< Amber <<	7 Y		Orange/Black	<< Amber <<	1 Y		Orange/Black	<< Amber <<	3 Y
	Green/Black	<< Green <<	5 G		Black/Red	<FL Amber <-	12 Y		Green/Black	<< Green <<	1 G		Black/Red	<FL Amber <-	10 Y
	White	Ground/neutral	CB		Green/Black	<< Green <<	7 G		White	Ground/neutral	CB		Green/Black	<< Green <<	3 G
					White	Ground/neutral	CB						White	Ground/neutral	CB
Phase # 7				Phase # 1				Phase # 3				Phase # 5			
Head No.				Head No.				Head No.				Head No.			
21	Red/Green	<< Red <<	7 R	26	Red/Green	<< Red <<	1 R	8	Red/Green	<< Red <<	3 R	13	Red/Green	<< Red <<	5 R
	Orange/Red	<< Amber <<	7 Y		Orange/Red	<< Amber <<	1 Y		Orange/Red	<< Amber <<	3 Y		Orange/Red	<< Amber <<	5 Y
	Blue/White	<FL Amber <-	12 Y		Green/White	<< Green <<	1 G		Blue/White	<FL Amber <-	10 Y		Green/White	<< Green <<	5 G
	Green/White	<< Green <<	7 G		White	Ground/neutral	CB		Green/White	<< Green <<	3 G		White	Ground/neutral	CB
	White	Ground/neutral	CB						White	Ground/neutral	CB				
PED. P.B.' s				PED. P.B.' s				PED. P.B.' s				PED. P.B.' s			
	Blue/Red	Phase 2	L 11		Blue/Red	Phase 2	L 11		Blue/Red	Phase 2	L 11		Blue/Red	Phase 2	L 11
	Red/white	Phase 4	L 9		Red/white	Phase 4	L 9		Red/white	Phase 4	L 9		Red/white	Phase 4	L 9
	Blue/Red	Phase 6	Q 11		Blue/Red	Phase 6	Q 11		Blue/Red	Phase 6	Q 11		Blue/Red	Phase 6	Q 11
	Red/white	Phase 8	Q 9		Red/white	Phase 8	Q 9		Red/white	Phase 8	Q 9		Red/white	Phase 8	Q 9
	White/Red	P.B. common	R 9 ~12		White/Red	P.B. common	R 9 ~12		White/Red	P.B. common	R 9 ~12		White/Red	P.B. common	R 9 ~12

PHASING DIAGRAM



REGISTERED PROFESSIONAL ENGINEER
REG. NO. 8324
LANCE R. MCQUEEN
SOUTH DAKOTA
10-11-24

HDR

FOR BIDDING PURPOSES ONLY

STATE OF SOUTH DAKOTA	PROJECT	SHEET	TOTAL SHEETS
	NH 0100(106)409 & P 8042(00)	L58	L74

FILE: ...\Section L\L58.dgn
PLOTTING DATE: 10-11-2024

REV DATE:
INITIAL:

LIGHTING WIRING DIAGRAM

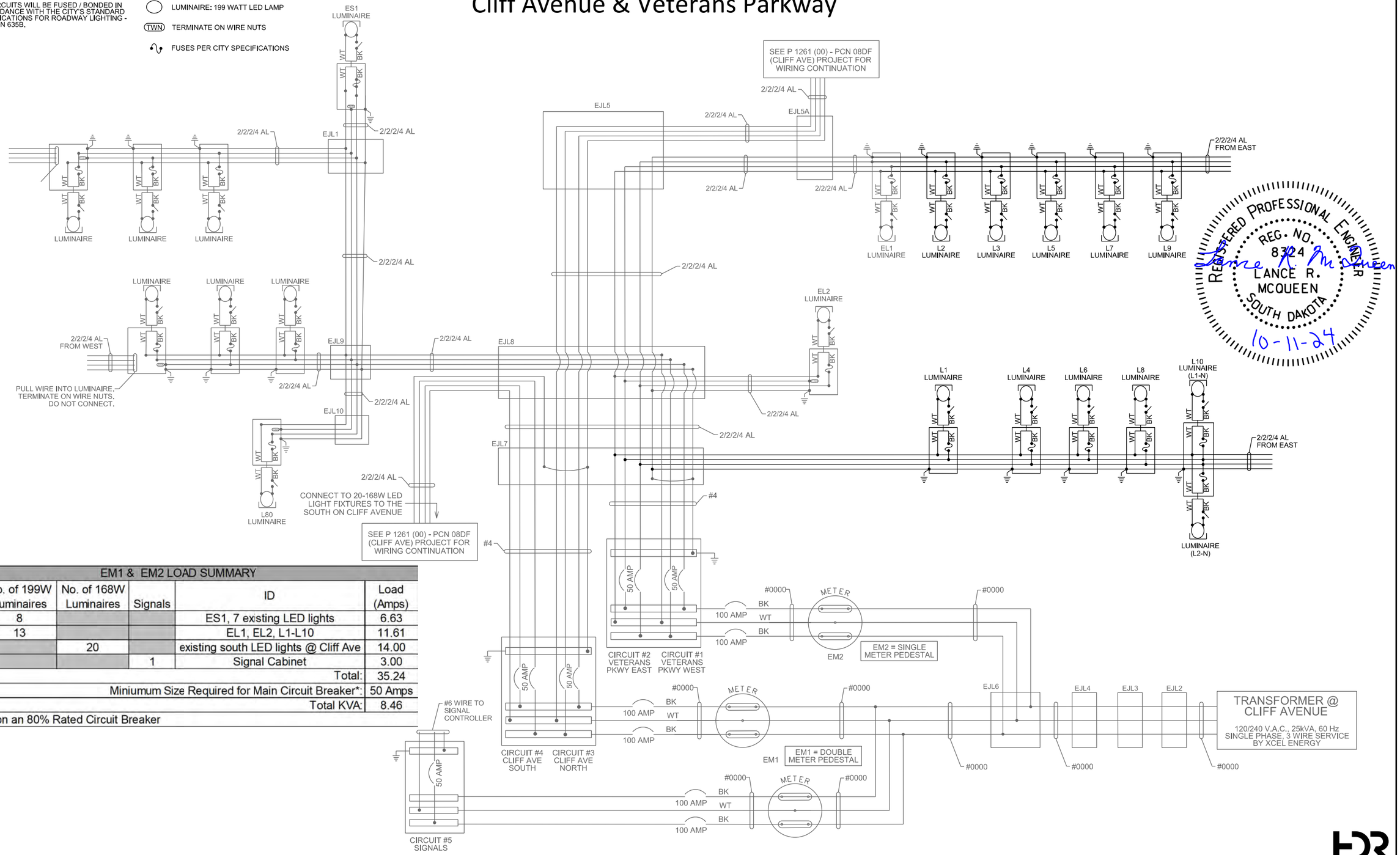
Cliff Avenue & Veterans Parkway

NOTE:

ALL CIRCUITS WILL BE FUSED / BONDED IN ACCORDANCE WITH THE CITY'S STANDARD SPECIFICATIONS FOR ROADWAY LIGHTING - SECTION 635B.

LEGEND:

- LUMINAIRE: 199 WATT LED LAMP
- (TWN) TERMINATE ON WIRE NUTS
- FUSES PER CITY SPECIFICATIONS



EM1 & EM2 LOAD SUMMARY					
Circuit #	No. of 199W Luminaires	No. of 168W Luminaires	Signals	ID	Load (Amps)
1	8			ES1, 7 existing LED lights	6.63
2	13			EL1, EL2, L1-L10	11.61
4		20		existing south LED lights @ Cliff Ave	14.00
5			1	Signal Cabinet	3.00
				Total:	35.24
				Miniumum Size Required for Main Circuit Breaker*:	50 Amps
				Total KVA:	8.46

*Based Upon an 80% Rated Circuit Breaker

REGISTERED PROFESSIONAL ENGINEER
REG. NO. 8324
LANCE R. MCQUEEN
SOUTH DAKOTA
Lance R. McQueen
10-11-24

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STATE OF SOUTH DAKOTA	PROJECT	SHEET	TOTAL SHEETS
	NH 0100(106)409 & P 8042(00)	L59	L74

FILE: ...\Section L\L59.dgn
PLOTTING DATE: 10-11-2024

REV DATE:
INITIAL:

LIGHTING WIRING DIAGRAM

Veterans Parkway @ Sta. 353+75

NOTE:

ALL CIRCUITS WILL BE FUSED / BONDED IN ACCORDANCE WITH THE CITY'S STANDARD SPECIFICATIONS FOR ROADWAY LIGHTING - SECTION 635B.

LEGEND:

- LUMINAIRE: 199 WATT LED LAMP
- LUMINAIRE: 57 WATT LED LAMP
- LUMINAIRE: 28 WATT LED LAMP
- (TWN) TERMINATE ON WIRE NUTS
- FUSES PER CITY SPECIFICATIONS

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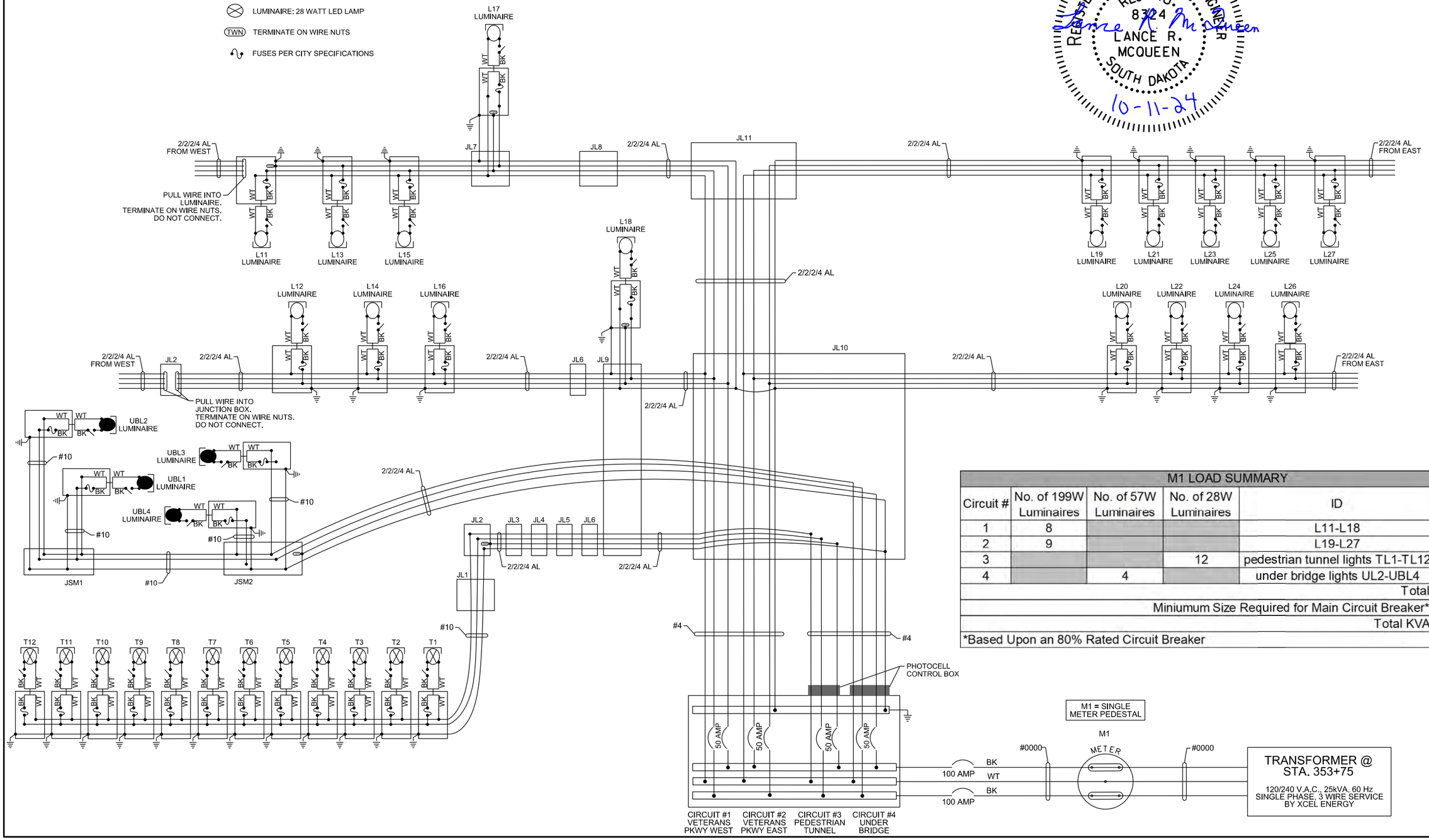
REG. NO. 8324
LANCE R. MCQUEEN
SOUTH DAKOTA
Lance R. McQueen
10-11-24



M1 LOAD SUMMARY					
Circuit #	No. of 199W Luminaires	No. of 57W Luminaires	No. of 28W Luminaires	ID	Load (Amps)
1	8			L11-L18	6.63
2	9			L19-L27	8.29
3			12	pedestrian tunnel lights TL1-TL12	1.40
4		4		under bridge lights UL2-UBL4	0.95
				Total:	17.28
				Miniumum Size Required for Main Circuit Breaker*:	50 Amps
				Total KVA:	4.15

*Based Upon an 80% Rated Circuit Breaker

FOR BIDDING PURPOSES ONLY

LIGHTING WIRING DIAGRAM

Southeastern Avenue & Veterans Parkway

STATE OF SOUTH DAKOTA	PROJECT	SHEET	TOTAL SHEETS
	NH 0100(106)409 & P 8042(00)	L60	L74

FILE: ...\Section L\L60.dgn
PLOTTING DATE: 10-11-2024

REV DATE:
INITIAL:

REGISTERED PROFESSIONAL ENGINEER
REG. NO. 8324
LANCE R. MCQUEEN
SOUTH DAKOTA
10-11-24

NOTE:

ALL CIRCUITS WILL BE FUSED / BONDED IN ACCORDANCE WITH THE CITY'S STANDARD SPECIFICATIONS FOR ROADWAY LIGHTING - SECTION 635B.

LEGEND:

- LUMINAIRE: 199 WATT LED LAMP
- LUMINAIRE: 105 WATT LED LAMP
- (TWN) TERMINATE ON WIRE NUTS
- FUSES PER CITY SPECIFICATIONS

EM3 METER BK WT BK

CONNECT TO LANDSCAPE IRRIGATION WATER METER (SEE SECTION H)

#6

JL33 EJL13

PULL WIRE INTO JUNCTION BOX. TERMINATE ON WIRE NUTS. DO NOT CONNECT.

2/2/2/4 AL

EJL12

EXISTING 2/2/2/4 AL

ESL2 LUMINAIRE

EXISTING 2/2/2/4 AL

SEL12 LUMINAIRE (L1-N) / (L2-N)
SEL11 LUMINAIRE (L1-N) / (L2-N)
SEL10 LUMINAIRE (L1-N) / (L2-N)
SEL9 LUMINAIRE (L1-N) / (L2-N)

JL35

#14

JL34

SEL8 LUMINAIRE (L1-N) / (L2-N)
SEL7 LUMINAIRE (L1-N) / (L2-N)
SEL6 LUMINAIRE (L1-N) / (L2-N)
SEL5 LUMINAIRE (L1-N) / (L2-N)

2/2/2/4 AL

JL19

2/2/2/4 AL

2/2/2/4 AL FROM WEST

PULL WIRE INTO LUMINAIRE. TERMINATE ON WIRE NUTS. DO NOT CONNECT.

L29 LUMINAIRE
L31 LUMINAIRE
L33 LUMINAIRE
L28 LUMINAIRE
L30 LUMINAIRE
L32 LUMINAIRE

JL13

S1 LUMINAIRE

JL14

S3 LUMINAIRE

L35 LUMINAIRE
L37 LUMINAIRE
L39 LUMINAIRE
L41 LUMINAIRE
L43 LUMINAIRE
L34 LUMINAIRE
L36 LUMINAIRE
L38 LUMINAIRE
L40 LUMINAIRE
L42 LUMINAIRE

2/2/2/4 AL FROM EAST

JL12

JL15

JL16

S7 LUMINAIRE (L2-N) — LUMINAIRE (L1-N)

#14

#4

SEL1 LUMINAIRE (L1-N) / (L2-N)
SEL2 LUMINAIRE (L1-N) / (L2-N)
SEL3 LUMINAIRE (L1-N) / (L2-N)
SEL4 LUMINAIRE (L1-N) / (L2-N)

LB1

JL18

PULL WIRE INTO LUMINAIRE. TERMINATE ON WIRE NUTS. DO NOT CONNECT.

#6 WIRE TO SIGNAL CONTROLLER

50 AMP

CIRCUIT #5 SIGNALS

CIRCUIT #4 SOUTHEASTERN AVE SOUTH
CIRCUIT #3 SOUTHEASTERN AVE NORTH
CIRCUIT #2 VETERANS PKWY WEST
CIRCUIT #1 VETERANS PKWY EAST

100 AMP BK WT BK

#0000

METER

M2 = DOUBLE METER PEDESTAL

JL17

TRANSFORMER @ SOUTHEASTERN AVENUE
120/240 V.A.C., 25kVA, 60 Hz
SINGLE PHASE, 3 WIRE SERVICE
BY XCEL ENERGY

M2 LOAD SUMMARY					
Circuit #	No. of 199W Luminaires	No. of 105W Luminaires	Signals	ID	Load (Amps)
1	10			L34-L43	8.29
2	10			L28-L33, S1, S3, S7	8.29
3		16		SEL5-SEL12	7.00
4		8		SEL1-SEL4	3.50
5			1	Signal Cabinet	3.00
				Total:	30.08
				Miniumum Size Required for Main Circuit Breaker*:	50 Amps
				Total KVA:	7.22

*Based Upon an 80% Rated Circuit Breaker

FOR BIDDING PURPOSES ONLY

STATE OF SOUTH DAKOTA	PROJECT	SHEET	TOTAL SHEETS
	NH 0100(106)409 & P 8042(00)	L61	L74

FILE: ...\Section L\L61.dgn
PLOTTING DATE: 10-11-2024

REV DATE:
INITIAL:

LIGHTING WIRING DIAGRAM

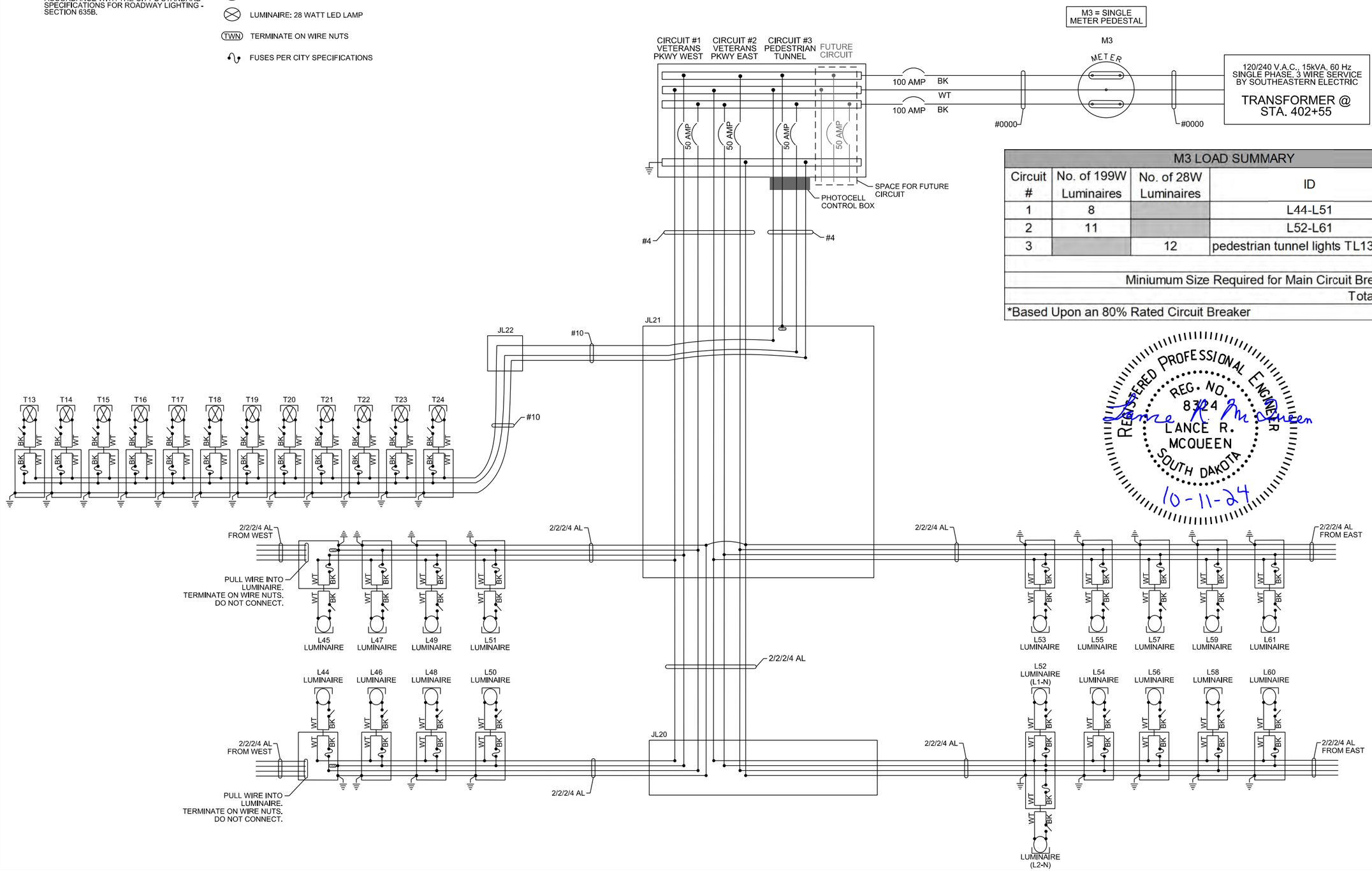
Veterans Parkway @ Sta. 402+55

NOTE:

ALL CIRCUITS WILL BE FUSED / BONDED IN ACCORDANCE WITH THE CITY'S STANDARD SPECIFICATIONS FOR ROADWAY LIGHTING - SECTION 635B.

LEGEND:

- LUMINAIRE: 199 WATT LED LAMP
- LUMINAIRE: 28 WATT LED LAMP
- (TWN) TERMINATE ON WIRE NUTS
- FUSES PER CITY SPECIFICATIONS



M3 LOAD SUMMARY				
Circuit #	No. of 199W Luminaires	No. of 28W Luminaires	ID	Load (Amps)
1	8		L44-L51	6.63
2	11		L52-L61	9.95
3		12	pedestrian tunnel lights TL13-TL24	1.40
			Total:	17.98
			Miniumum Size Required for Main Circuit Breaker*:	50 Amps
			Total KVA:	4.32
*Based Upon an 80% Rated Circuit Breaker				

REGISTERED PROFESSIONAL ENGINEER
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LANCE R. MCQUEEN
SOUTH DAKOTA
10-11-24

FOR BIDDING PURPOSES ONLY

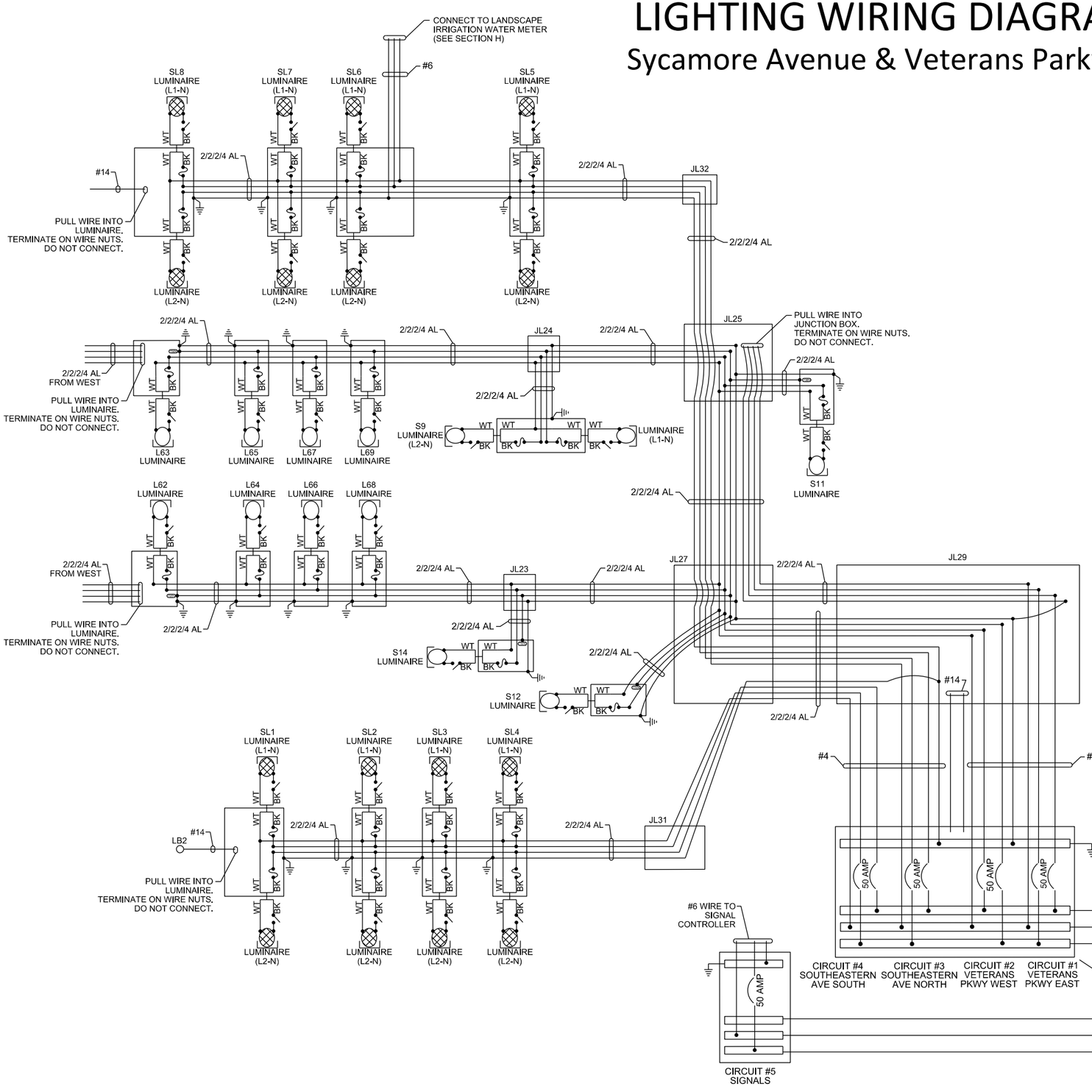
LIGHTING WIRING DIAGRAM

Sycamore Avenue & Veterans Parkway

STATE OF SOUTH DAKOTA	PROJECT	SHEET	TOTAL SHEETS
	NH 0100(106)409 & P 8042(00)	L62	L74

FILE: ...\Section L\L62.dgn
PLOTTING DATE: 10-11-2024

REV DATE:
INITIAL:



NOTE:

ALL CIRCUITS WILL BE FUSED / BONDED IN ACCORDANCE WITH THE CITY'S STANDARD SPECIFICATIONS FOR ROADWAY LIGHTING - SECTION 635B.

LEGEND:

- LUMINAIRE: 199 WATT LED LAMP
- LUMINAIRE: 105 WATT LED LAMP
- (TWN) TERMINATE ON WIRE NUTS
- FUSES PER CITY SPECIFICATIONS

REGISTERED PROFESSIONAL ENGINEER
REG. NO. 8324
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SOUTH DAKOTA
10-11-24

M4 LOAD SUMMARY					
Circuit #	No. of 199W Luminaires	No. of 105W Luminaires	Signals	ID	Load (Amps)
1	12			12 future lights	9.95
2	13			L62-L69, S9, S11, S12, S14	11.61
3		8		SL5-SL8	3.50
4		8		SL1-SL4	3.50
5			1	Signal Cabinet	3.00
				Total:	31.56
				Miniumum Size Required for Main Circuit Breaker*:	50 Amps
				Total KVA:	7.57
*Based Upon an 80% Rated Circuit Breaker					

FOR BIDDING PURPOSES ONLY

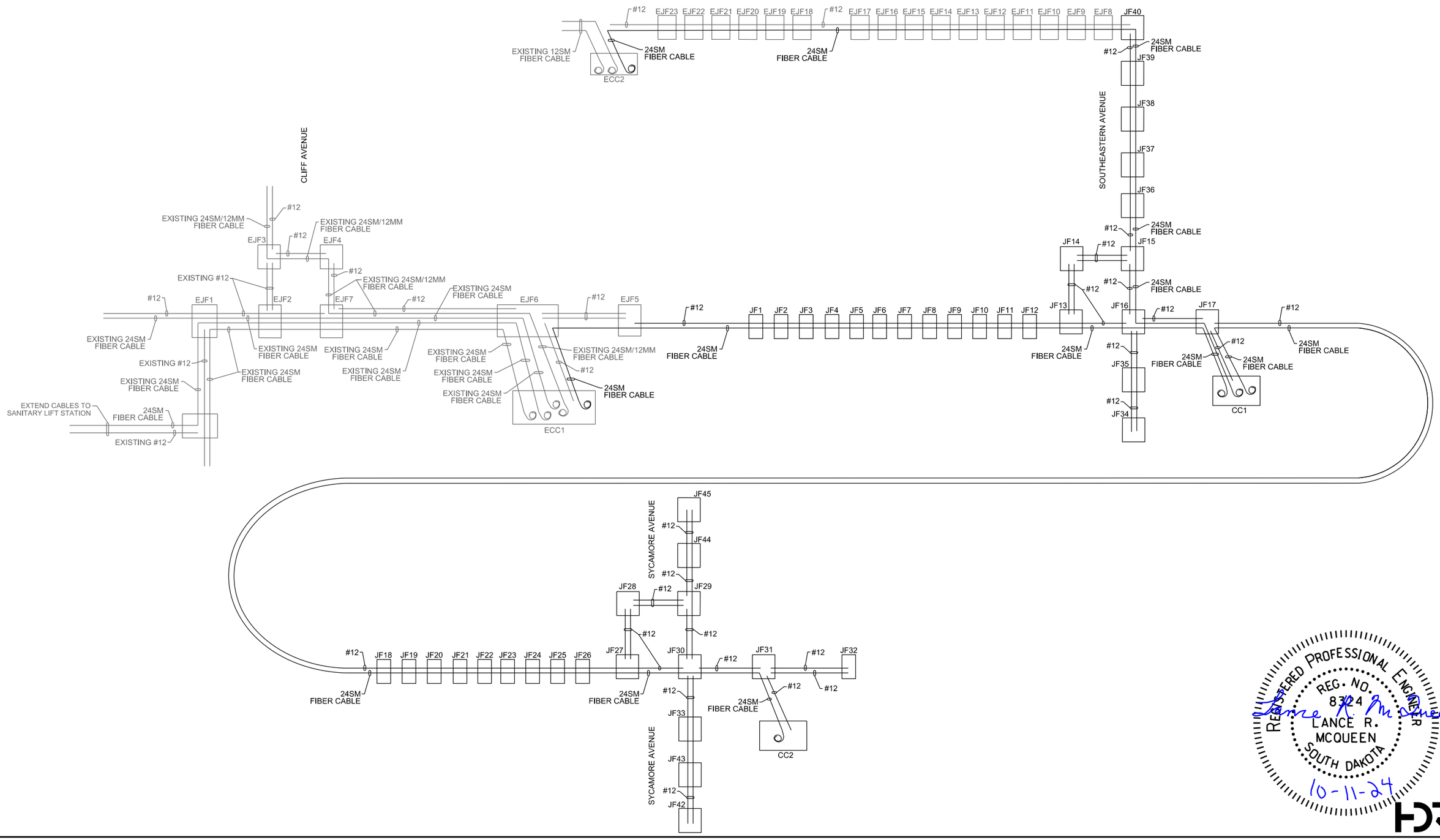
STATE OF SOUTH DAKOTA	PROJECT	SHEET	TOTAL SHEETS
	NH 0100(106)409 & P 8042(00)	L63	L74

FILE: ...\Section L\L63.dgn
PLOTTING DATE: 10-11-2024

REV DATE:
INITIAL:

FIBER OPTIC CABLE DIAGRAM

Veterans Parkway



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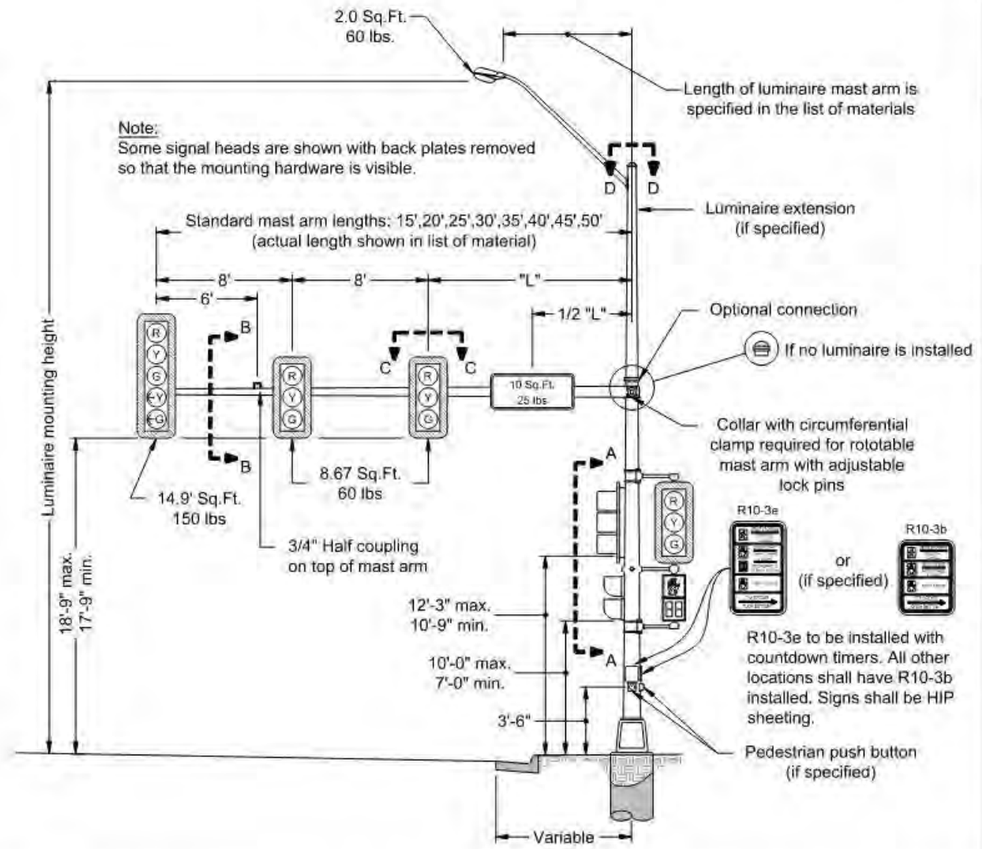
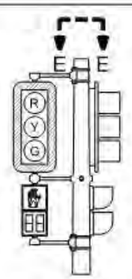
REG. NO. 8324
LANCE R. MCQUEEN
SOUTH DAKOTA
10-11-24

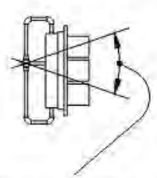
STATE OF SOUTH DAKOTA	PROJECT	SHEET	TOTAL SHEETS
	NH 0100(106)409 & P 8042(00)	L64	L74

Plotting Date: 10/11/2024





Section A-A

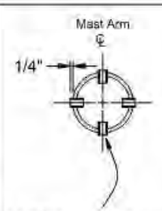


All mast arm mounted signals shall be adjustable about a horizontal axis as shown

Section B-B

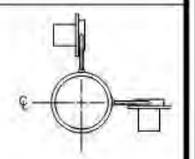
All mast arm mounted signals shall be adjustable about a vertical axis as shown

Section C-C



1 1/2" Half coupling - 4 required per pole as shown - provided plugs for unused couplings

Section D-D

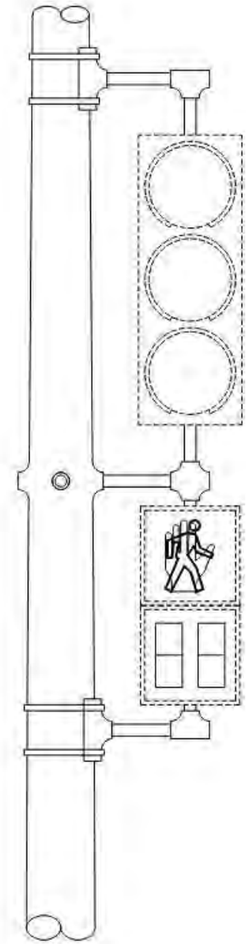


All traffic signal and pedestrian head mounting brackets shall be mounted behind poles.

Section E-E

Revised: December 2016

CITY OF SIOUX FALLS PUBLIC WORKS Providing a Better Quality of Life for You!	Traffic Signal Pole Shown With Optional Luminaire Extension	Specification Reference No. 635A	Plate Number 635.01



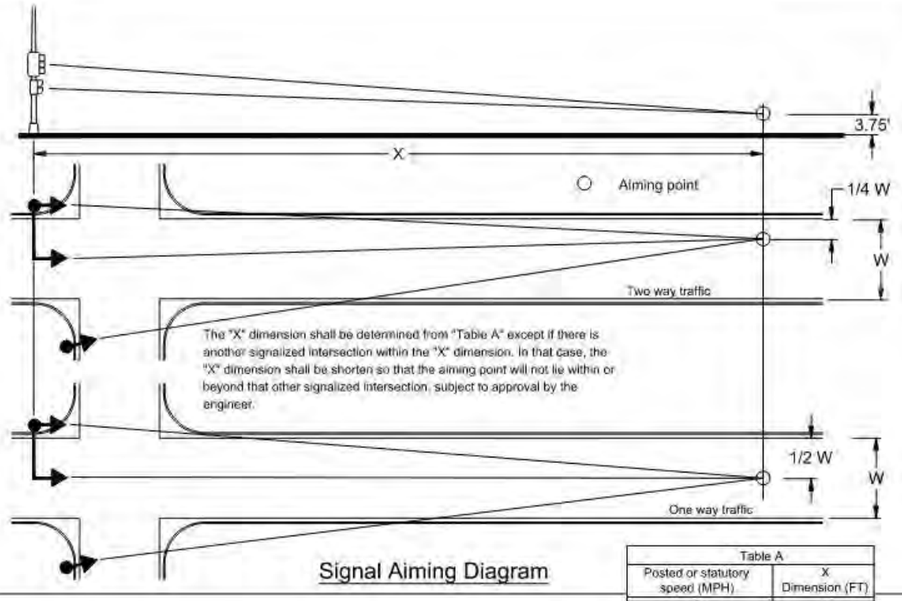
Typical Section
Type 10B

Revised: November 2013

CITY OF SIOUX FALLS PUBLIC WORKS Providing a Better Quality of Life for You!	Signal and Pedestrian Head Mounting Brackets	Specification Reference No. 635A	Plate Number 635.05

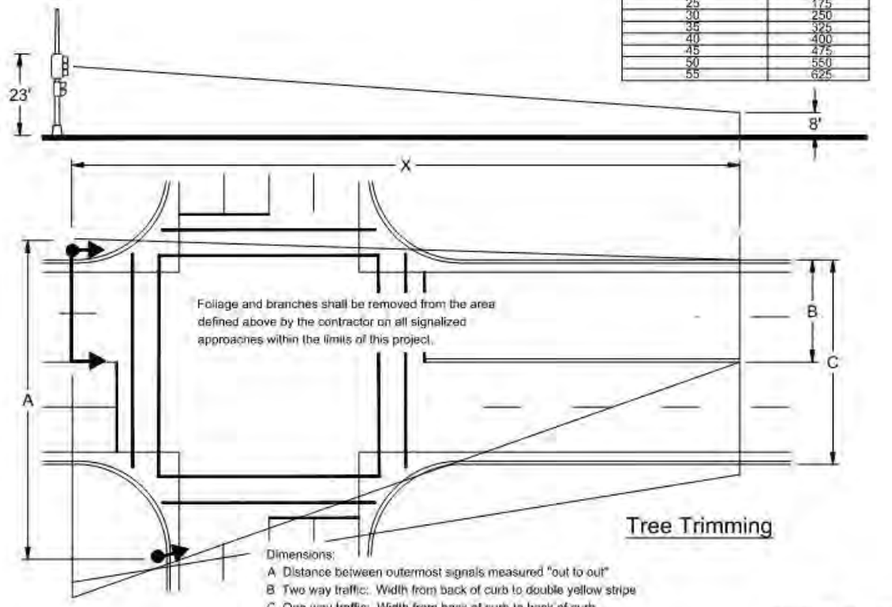
STATE OF SOUTH DAKOTA	PROJECT	SHEET	TOTAL SHEETS
	NH 0100(106)409 & P 8042(00)	L65	L74

Plotting Date: 10/11/2024



Signal Aiming Diagram

Table A	
Posted or statutory speed (MPH)	X Dimension (FT)
20	100
25	175
30	250
35	325
40	400
45	475
50	550
55	625

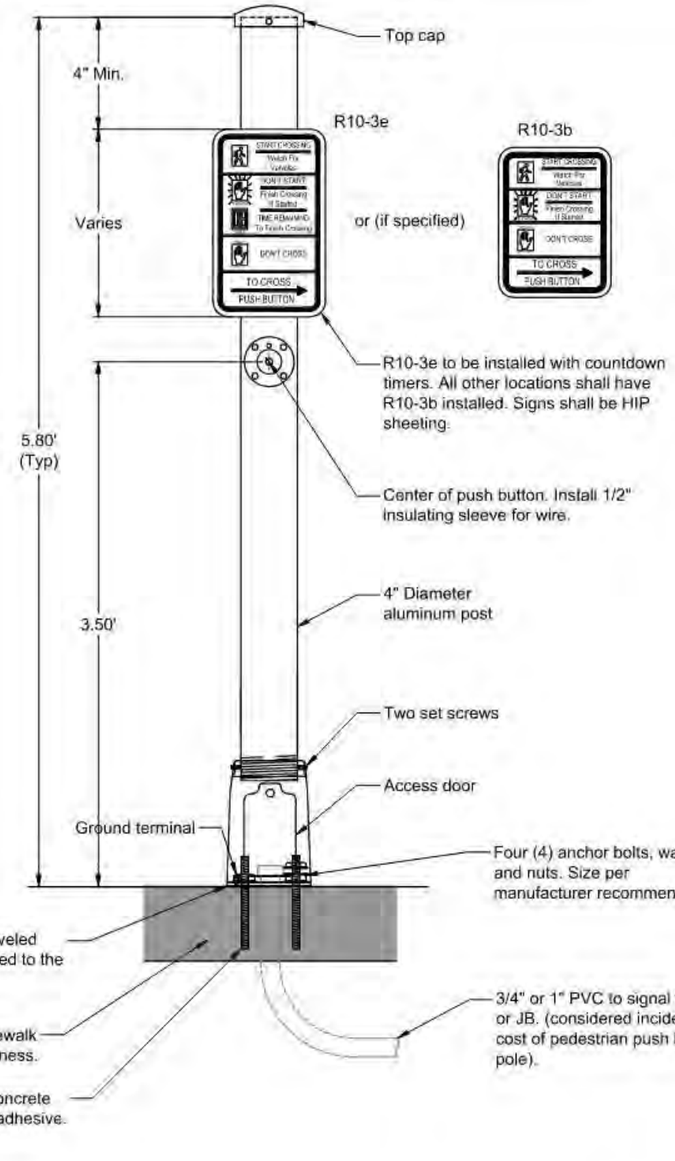


Tree Trimming

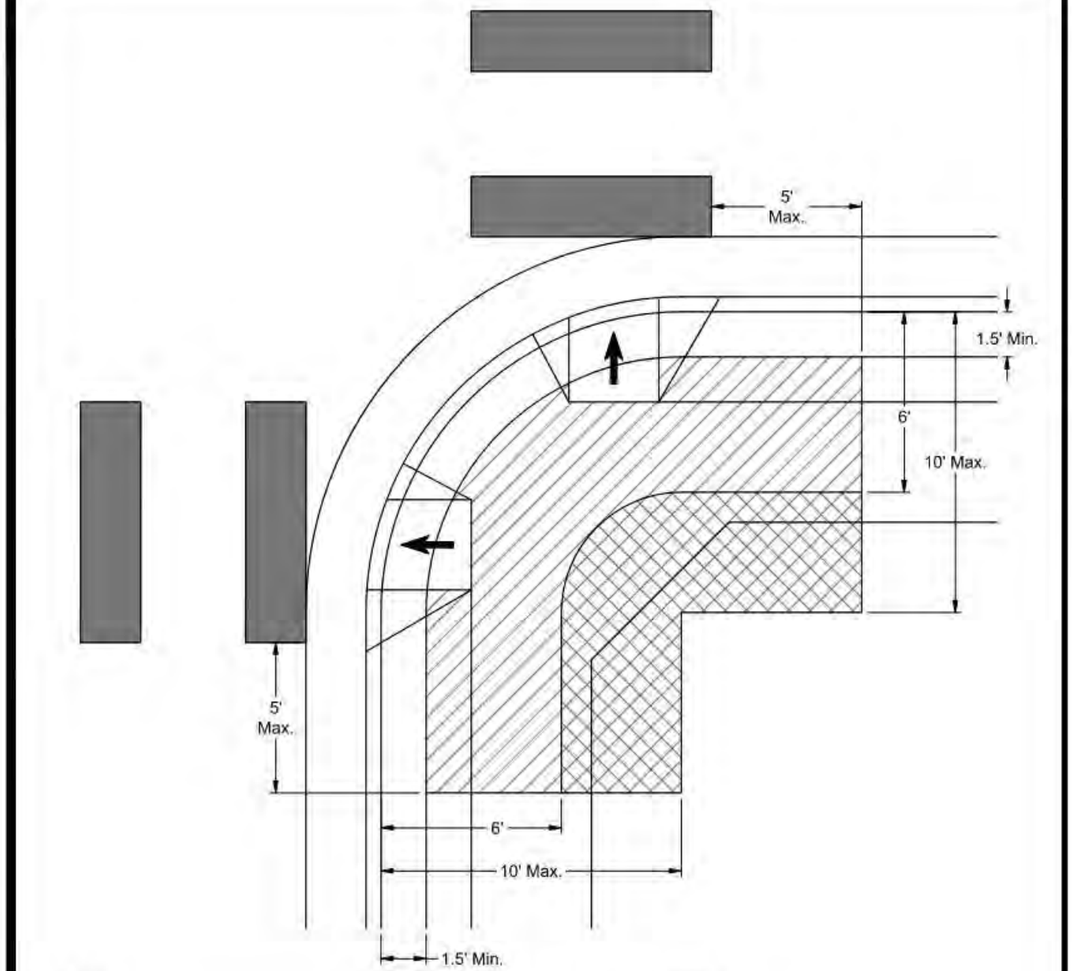
Dimensions:
A Distance between outermost signals measured "out to out"
B Two way traffic: Width from back of curb to double yellow stripe
C One way traffic: Width from back of curb to back of curb

Revised: December 2007

CITY OF SIOUX FALLS PUBLIC WORKS Providing a Better Quality of Life for You!	Traffic Signal Head Alignment	Specification Reference No. 635A	Plate Number 635.08



CITY OF SIOUX FALLS PUBLIC WORKS Providing a Better Quality of Life for You!	Pedestrian Push Button, Sign, Post, and Location	Specification Reference No. 635A	Plate Number 635.09



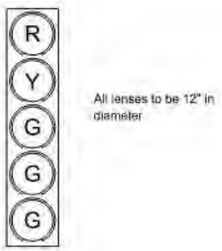
Notes:

- Pushbuttons shall be mounted parallel to crosswalks.
- There shall be at least 10 feet of separation between pushbutton locations.
- Only one pushbutton shall be mounted on a pushbutton pole.

Legend

- Recommended pushbutton locations.
- If recommended pushbutton locations are impractical, this area is acceptable.

CITY OF SIOUX FALLS PUBLIC WORKS Providing a Better Quality of Life for You!	Pedestrian Push Button, Sign, Post, and Location	Specification Reference No. 635A	Plate Number 635.09

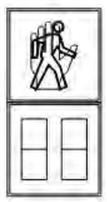


All lenses to be 12" in diameter

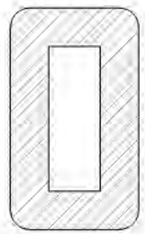
One way 5-section traffic signal

All lenses to be 12" in diameter

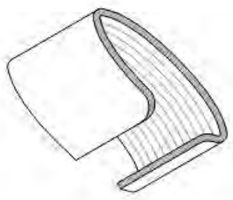
One way 3-section traffic signal



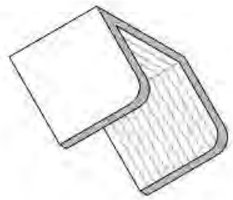
One way 1-section pedestrian signal



Typical 5" back plate

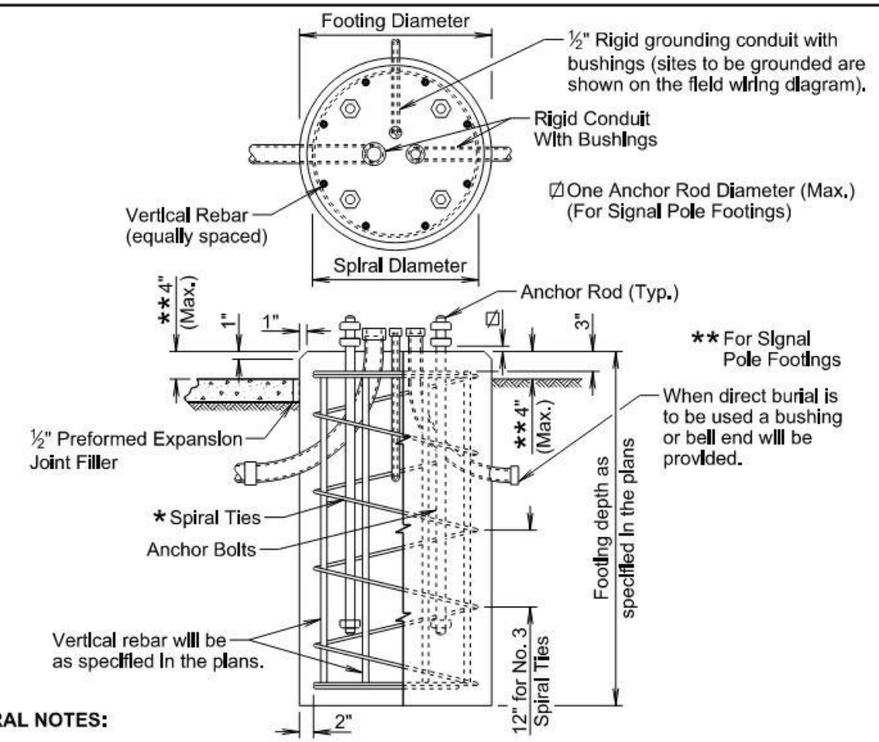


(V-1) Tunnel visor



(V-6) Pedestrian

Revised: November 2013



GENERAL NOTES:

* Circular ties may be used in lieu of the spiral ties. The No. 3 ties will be spaced 12 inches apart except for the top two which will be spaced 6 inches apart. The ties will be lapped 18 inches and the laps will be staggered around the cage.

Spiral ties will have 1-1/2 extra turns at each end.

See Section 985 of the Specifications for footing materials.

Conduits and bushings may project 2½ inches to 6 inches above footing for fixed base poles but will not project above the slip plane or fracture plane for breakaway poles.

Conduits will be sealed water-tight during all phases of construction until poles are in place.

The anchor rods will fit inside the reinforcing steel cage. If the anchor rods designed by the Pole Manufacturer do not fit, contact the Office of Bridge Design for footing redesign. No additional payment will be made for the redesigned footing.

Costs of conduit and conduit bushings shown on footing detail will be incidental to the footing bid item(s).

The pole will not be installed until the concrete has attained design strength (4000 psi).

The contour of the area surrounding the breakaway pole will be flat, though not necessarily level for a distance of 5 feet in all directions. The Contractor may be required to provide finish grading at some breakaway pole locations.

November 19, 2022

CITY OF SIOUX FALLS
PUBLIC WORKS
Providing a Better Quality of Life for You!

Traffic Signal Head and Pedestrian Head Plate

Specification Reference	Plate Number
No. 635A	635.10

Published Date: 2025

SDDOT

POLE FOOTING

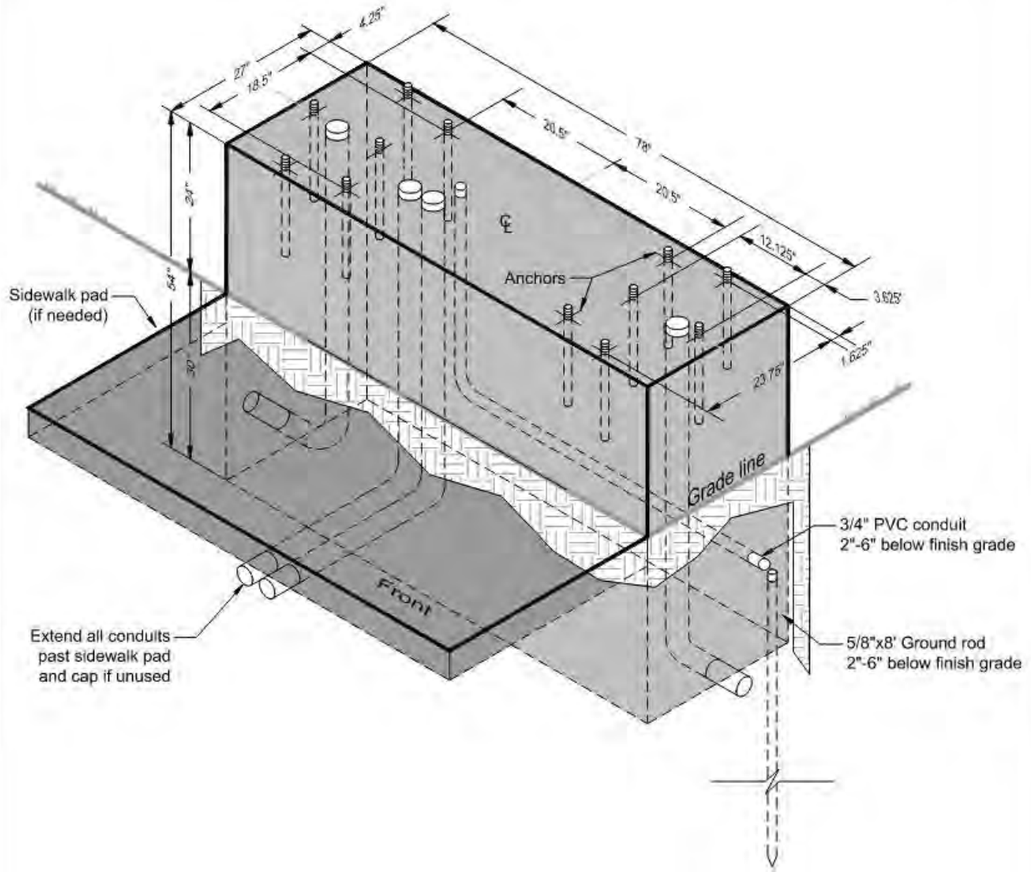
PLATE NUMBER 635.55

Sheet 1 of 1

FOR BIDDING PURPOSES ONLY

STATE OF SOUTH DAKOTA	PROJECT	SHEET	TOTAL SHEETS
	NH 0100(106)409 & P 8042(00)	L68	L74

Plotting Date: 10/11/2024



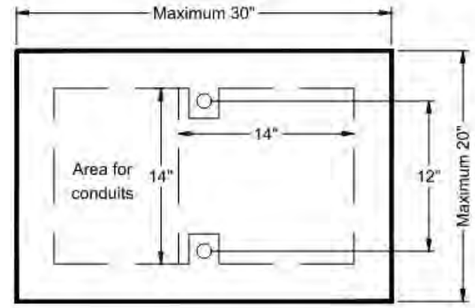
General Notes:

1. Verify anchor bolt placement with cabinet manufacturers and shop drawings.
2. 5/8" Dia. x 18" galvanized anchors shall be 2" above finished concrete.
3. Conduits shall be 2" to 3" above finished concrete.
4. Conduit to be rigid steel and have threads so the grounding bushings can be installed.
5. Concrete shall be level and steel trowel finished.
6. 5/8"x8' Ground rod shall be installed 2"-6" below finished grade.
7. 3/4" PVC conduit shall end adjacent to the ground rod.

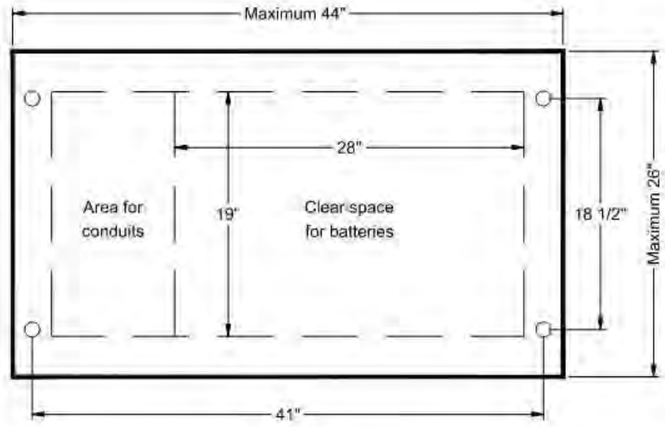
Revised: December 2017

CITY OF SIOUX FALLS PUBLIC WORKS Providing a Better Quality of Life for You!	Controller Cabinet Footing for Eight Phase Signal	Specification Reference No. 635A	Plate Number 635.17

Top View Four-Phase Controller Cabinets:



Top View Eight-Phase Controller Cabinets:



Front

Revised: November 2013

CITY OF SIOUX FALLS PUBLIC WORKS Providing a Better Quality of Life for You!	Traffic Signal Controller Cabinet Size and Bolt Hole Requirements	Specification Reference No. 635A	Plate Number 635.19

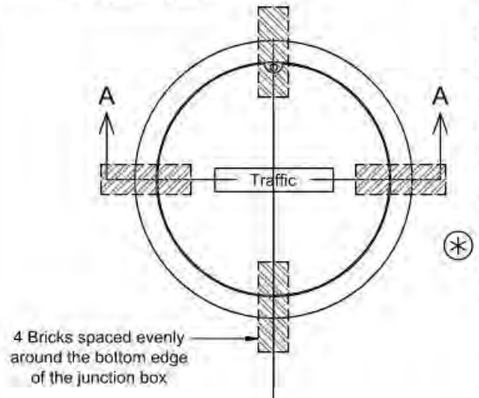
Cast Iron Cover

12" JB - Neenah Foundry Co. R-5900-A series or engineer approved.

18" JB - Neenah Foundry Co. R-5900-C series or engineer approved

24" JB - Neenah Foundry Co. R-5900-E series or engineer approved

30" JB - Neenah Foundry Co. R-5900-G series or engineer approved



Notes:

Allow sufficient slack so that cable ends can be pulled to 30" above junction box.

Number of conduit entrances varies with location of junction box.

Anchor frame to pipe as approved by the engineer.

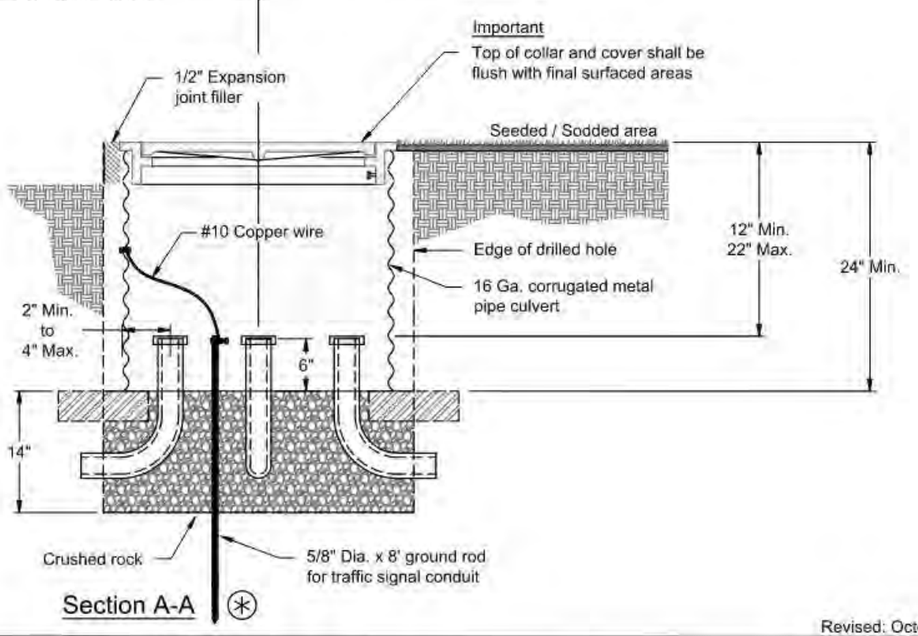
Cover shall be stamped traffic.

All conduits coming into and leaving the junction box will be rigid steel and for at least (5) feet outside of the junction box. These conduit will have a grounding bushing attached and a grounding wire installed to bond all conduits to the junction box using an appropriately sized terminal lug bolted to the wall of the junction box.

Slots cut in culvert must be repaired. Permanently fastened from the outside and made out of culvert material. Infiltration point shall be sprayed with foam from the outside.

The junction box sizes and quantities are shown on the plan sheets.

(*) When junction box is used for traffic signal conduit a ground rod will be installed in the bottom of the junction box. It shall not protrude more than (6) inches out of the crushed rock.



Section A-A (*)

Revised: October 2020

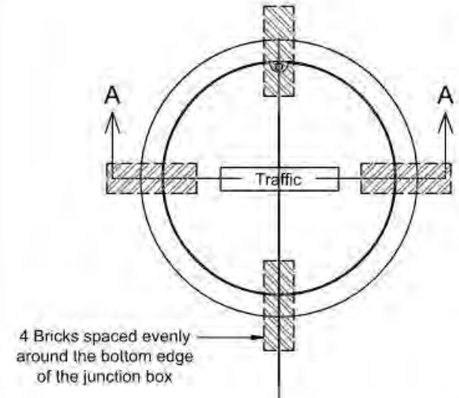
CITY OF SIOUX FALLS PUBLIC WORKS Providing a Better Quality of Life for You!	Junction Box - Traffic	Specification Reference No. 635A	Plate Number 635.31

Cast Iron Cover

18" JB - Neenah Foundry Co. R-5900-C series or engineer approved

24" JB - Neenah Foundry Co. R-5900-E series or engineer approved

30" JB - Neenah Foundry Co. R-5900-G series or engineer approved



Notes:

Allow sufficient slack so that cable ends can be pulled to 30" above junction box.

Number of conduit entrances varies with location of junction box.

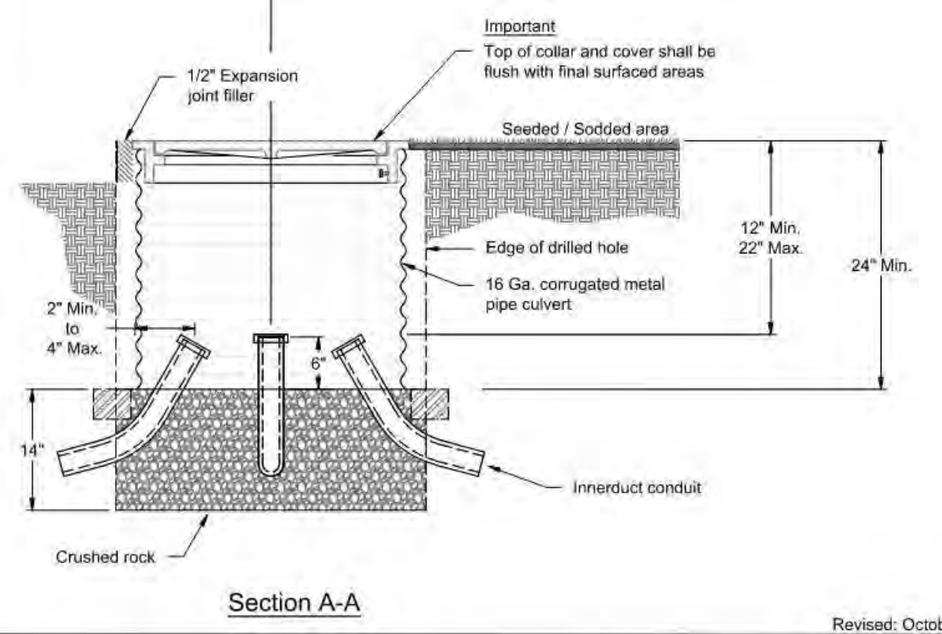
Anchor frame to pipe as approved by the engineer.

Cover shall be stamped traffic.

The ends of the innerduct conduit in the junction box shall be sealed with a water proof sealant to prevent water infiltration into the conduit.

Slots cut in culvert must be repaired. Permanently fastened from the outside and made out of culvert material. Infiltration point shall be sprayed with foam from the outside.

The junction box sizes and quantities are shown on the plan sheets.

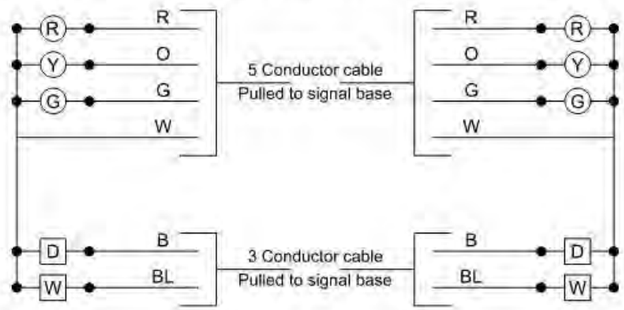


Section A-A

Revised: October 2020

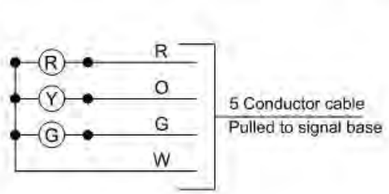
CITY OF SIOUX FALLS PUBLIC WORKS Providing a Better Quality of Life for You!	Junction Box - Innerducts	Specification Reference No. 635A	Plate Number 635.33

Post Top Mounted

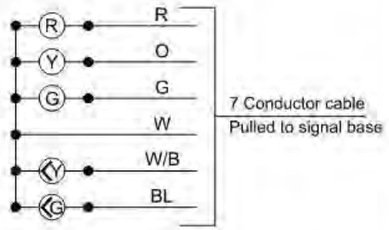


3 Sec. traffic & 2 sec. pedestrian heads

Mast Arm Mounted

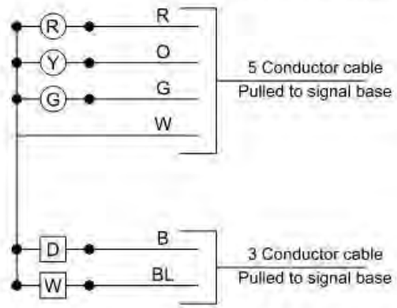


3 Section traffic signal head



5 Section traffic signal head

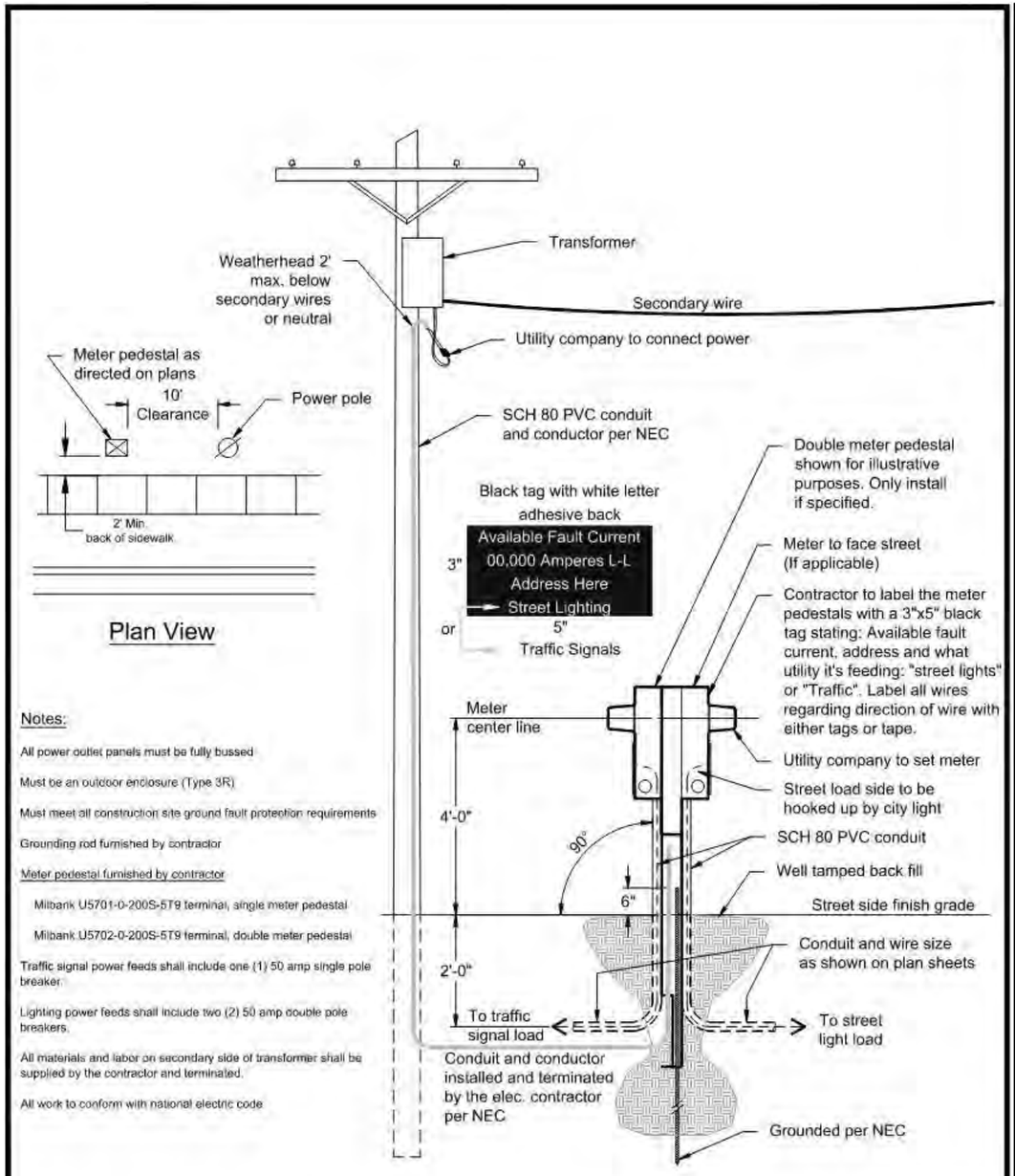
Side of Post Mounted



3 Sec. traffic & 2 sec. pedestrian heads

Revised: November 2013

CITY OF SIOUX FALLS PUBLIC WORKS Providing a Better Quality of Life for You!	**Traffic Signal Head Wiring Diagram**	Specification Reference No. 635A	Plate Number 635.39



Notes:

All power outlet panels must be fully bussed

Must be an outdoor enclosure (Type 3R)

Must meet all construction site ground fault protection requirements

Grounding rod furnished by contractor

Meter pedestal furnished by contractor

- Milbank U5701-0-200S-5T9 terminal, single meter pedestal
- Milbank U5702-0-200S-5T9 terminal, double meter pedestal

Traffic signal power feeds shall include one (1) 50 amp single pole breaker.

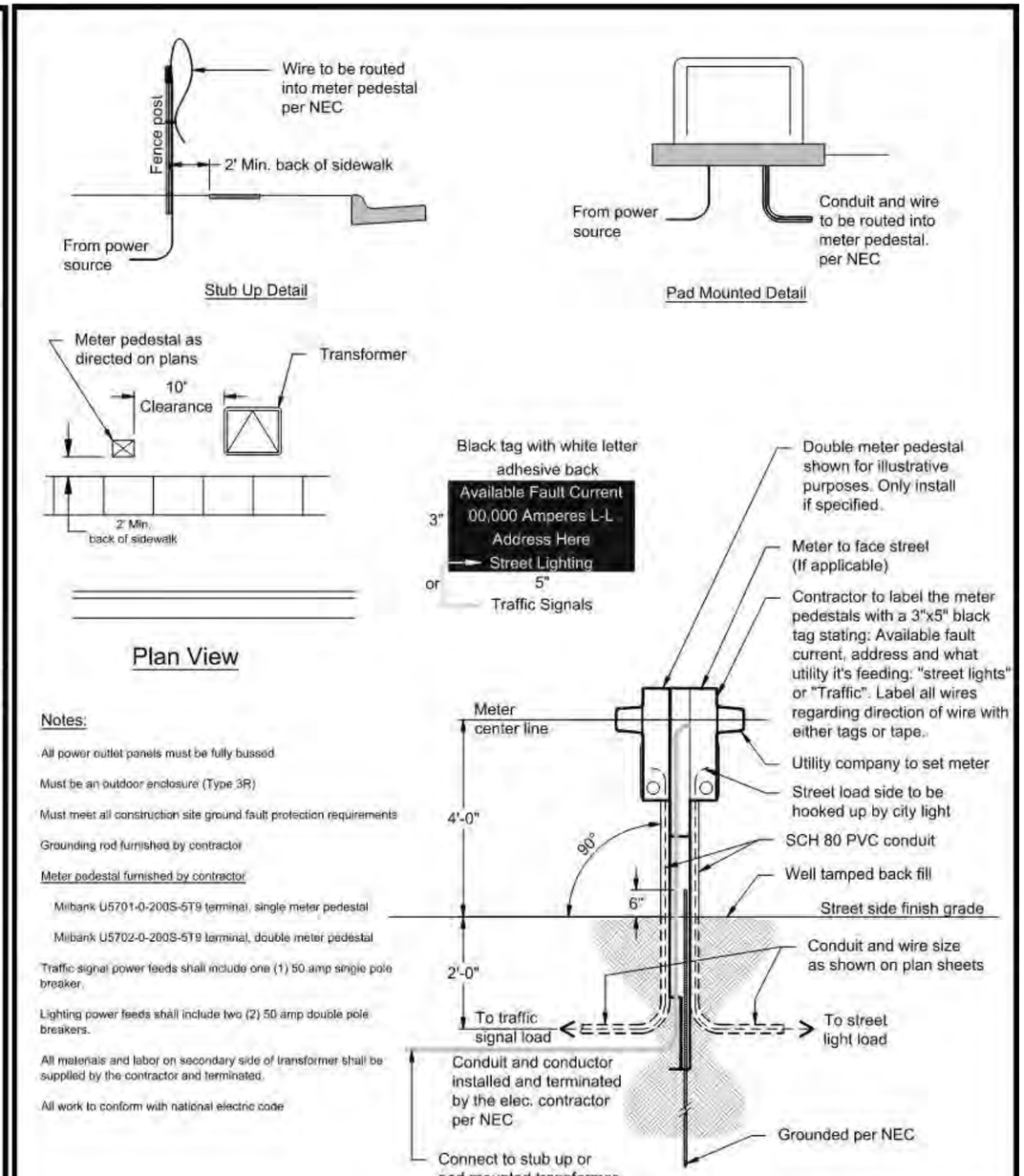
Lighting power feeds shall include two (2) 50 amp double pole breakers.

All materials and labor on secondary side of transformer shall be supplied by the contractor and terminated.

All work to conform with national electric code

Revised: November 2020

CITY OF SIOUX FALLS PUBLIC WORKS Providing a Better Quality of Life for You!	Power Feed From Elevated Transformer	Specification Reference No. 635A/B	Plate Number 635.41



Notes:

All power outlet panels must be fully bussed

Must be an outdoor enclosure (Type 3R)

Must meet all construction site ground fault protection requirements

Grounding rod furnished by contractor

Meter pedestal furnished by contractor

- Milbank U5701-0-200S-5T9 terminal, single meter pedestal
- Milbank U5702-0-200S-5T9 terminal, double meter pedestal

Traffic signal power feeds shall include one (1) 50 amp single pole breaker.

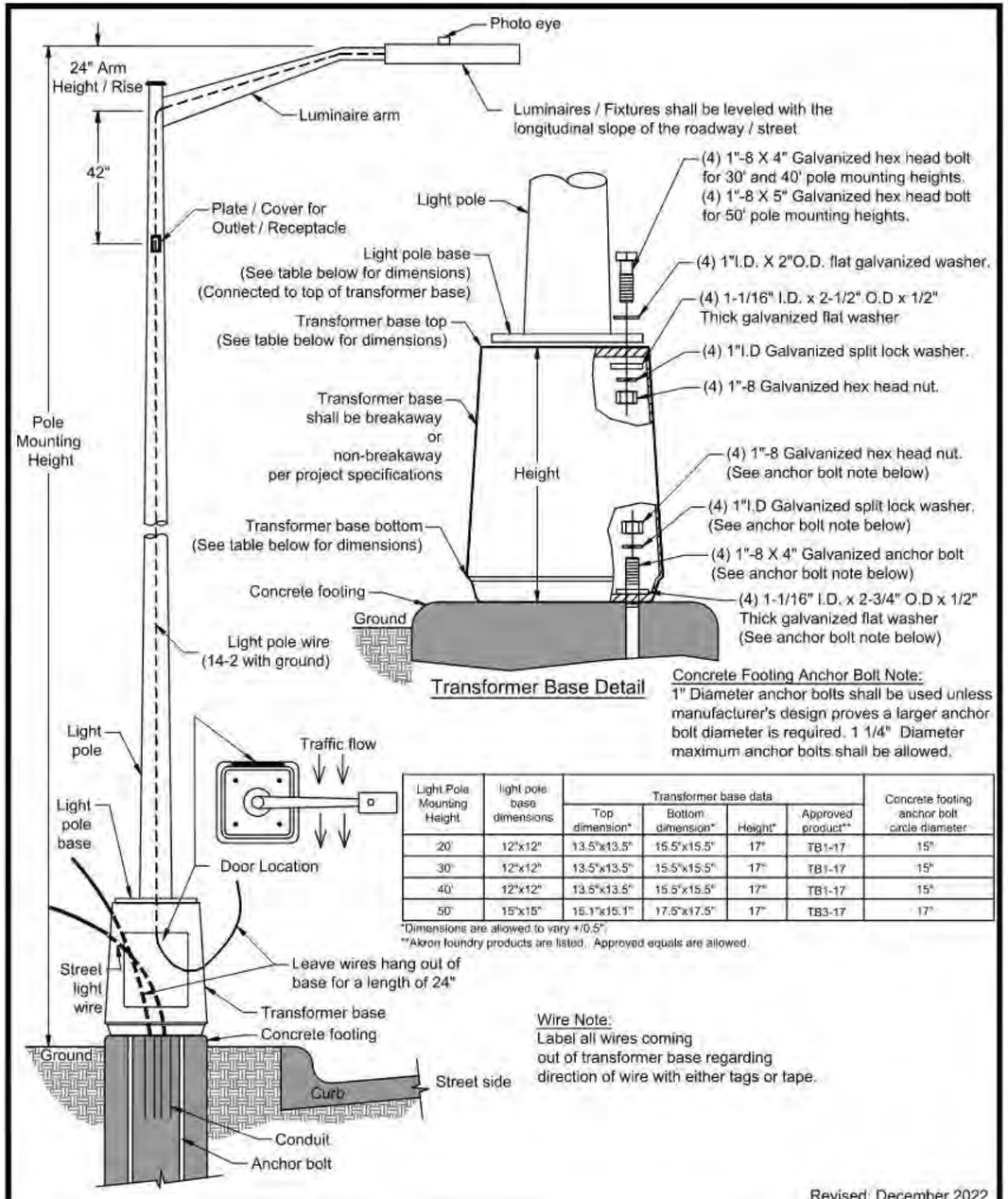
Lighting power feeds shall include two (2) 50 amp double pole breakers.

All materials and labor on secondary side of transformer shall be supplied by the contractor and terminated.

All work to conform with national electric code

Revised: November 2020

CITY OF SIOUX FALLS PUBLIC WORKS Providing a Better Quality of Life for You!	Power Feed From Ground Power Source	Specification Reference No. 635A/B	Plate Number 635.42



Transformer Base Detail

Concrete Footing Anchor Bolt Note:
1" Diameter anchor bolts shall be used unless manufacturer's design proves a larger anchor bolt diameter is required. 1 1/4" Diameter maximum anchor bolts shall be allowed.

Light Pole Mounting Height	light pole base dimensions	Transformer base data				Concrete footing anchor bolt circle diameter
		Top dimension*	Bottom dimension*	Height*	Approved product**	
20'	12"x12"	13.5"x13.5"	15.5"x15.5"	17"	TB1-17	15"
30'	12"x12"	13.5"x13.5"	15.5"x15.5"	17"	TB1-17	15"
40'	12"x12"	13.5"x13.5"	15.5"x15.5"	17"	TB1-17	15"
50'	15"x15"	15.1"x15.1"	17.5"x17.5"	17"	TB3-17	17"

*Dimensions are allowed to vary +/0.5".
**Akron foundry products are listed. Approved equals are allowed.

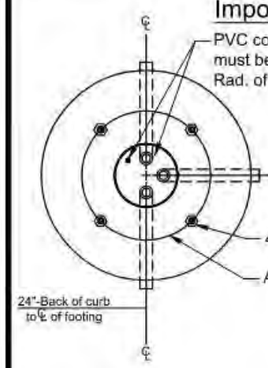
Wire Note:
Label all wires coming out of transformer base regarding direction of wire with either tags or tape.

Revised: December 2022

CITY OF SIOUX FALLS PUBLIC WORKS Providing a Better Quality of Life for You!	Street Light Standard T-Base	Specification Reference No. 635B	Plate Number 635.56

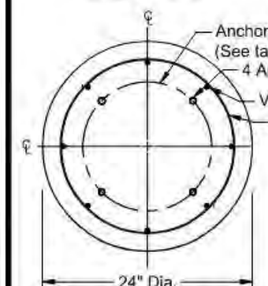
Important

PVC conduits and grounding rod must be installed within a 3 1/2" Rad. of the center of the footing.



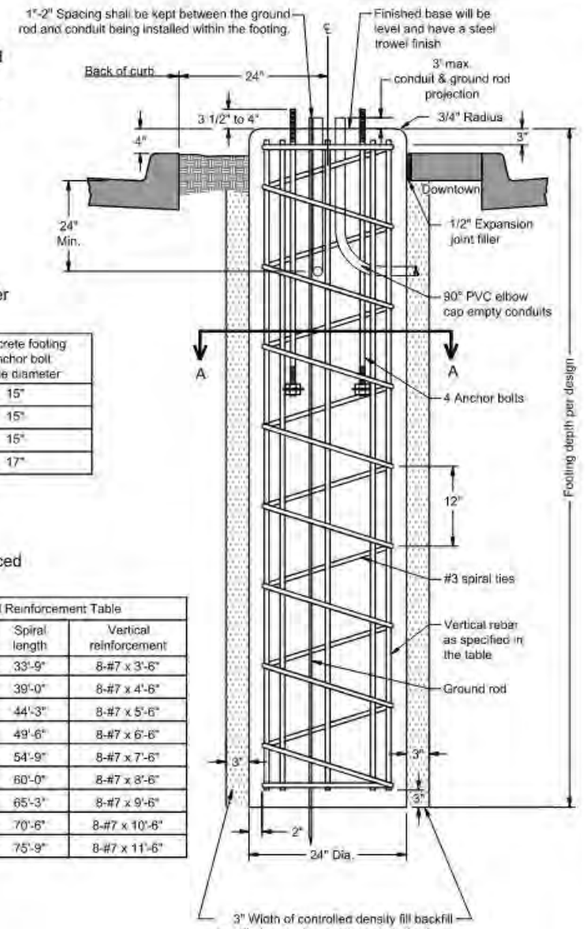
Pole Mounting Height	Concrete footing anchor bolt circle diameter
20'	15"
30'	15"
40'	15"
50'	17"

Plan View



Section A-A

Footing Spiral and Reinforcement Table			
Footing depth	Spiral diameter	Spiral length	Vertical reinforcement
4'-0"	1'-8"	33'-9"	8-#7 x 3'-6"
5'-0"	1'-8"	39'-0"	8-#7 x 4'-6"
6'-0"	1'-8"	44'-3"	8-#7 x 5'-6"
7'-0"	1'-8"	49'-6"	8-#7 x 6'-6"
8'-0"	1'-8"	54'-9"	8-#7 x 7'-6"
9'-0"	1'-8"	60'-0"	8-#7 x 8'-6"
10'-0"	1'-8"	65'-3"	8-#7 x 9'-6"
11'-0"	1'-8"	70'-6"	8-#7 x 10'-6"
12'-0"	1'-8"	75'-9"	8-#7 x 11'-6"



3" Width of controlled density fill backfill installed around precast concrete footings. See note on this detail

General Notes:
All concrete shall be class M-6.
Precast concrete footings are allowed, if approved by the engineer; however, all details on this sheet shall be followed for footing reinforcement, ground rods, anchor bolts, concrete curing, etc.

All reinforcing steel shall conform to A.S.T.M. A-615, Grade 40.

Circular ties may be used in lieu of spiral ties.
The No. 3 ties shall be spaced 12" apart except For the top two, which shall be spaced 6" apart.
The ties shall be lapped 18" and laps shall be staggered around the cage.

Spiral ties shall have 1-1/2 extra turns at each end.

Square shaped reinforcement cages shall be allowed upon approval.
Square cages shall allow for the anchor bolt patterns listed on this detail.

Anchor bolts:
- Anchor bolts shall fit inside the reinforcing steel cage.
- Anchor bolts shall be galvanized steel.
- 1" Diameter anchor bolts shall be used unless manufacturer's design proves a larger anchor bolt diameter is required.
- 11/4" Diameter maximum anchor bolts shall be allowed upon approval.

The contractor shall furnish and install the ground rod.

Costs of conduit and elbows shown on footing detail shall be incidental to the footing bid item(s).

Conduits shall be sealed water-tight during all phases of construction until poles are in place

Conduit Entrances:
Always one empty conduit entrance (facing away from curb) but no more than four.

Precast Concrete Footing Trench Installation and Backfill Requirements
The trench / hole for the precast footing shall be a maximum of 6" larger than the diameter of the precast footing being installed; with a maximum of a 3" width being allowed on both sides of the precast footing during the footing installation. Controlled density fill per the South Dakota DOT Specification 464 or approved equal filler shall be installed around the precast base during the footing backfill installation, to ensure a solid backfill backfill around the footing. The extra costs for the wider trench / hole and controlled density fill backfill shall be incidental to the cost of the precast concrete footing.

Revised: December 2022

CITY OF SIOUX FALLS PUBLIC WORKS Providing a Better Quality of Life for You!	Street Light Footing	Specification Reference No. 635B	Plate Number 635.60

Cast Iron Cover

18" Dia. JB - Neenah Foundry Company
R-5900-C Series or engineer approved.

24" Dia. JB - Neenah Foundry Company
R-5900-E Series or engineer approved.

Notes:

Allow sufficient slack so that cable ends can be pulled to 18" above junction box.

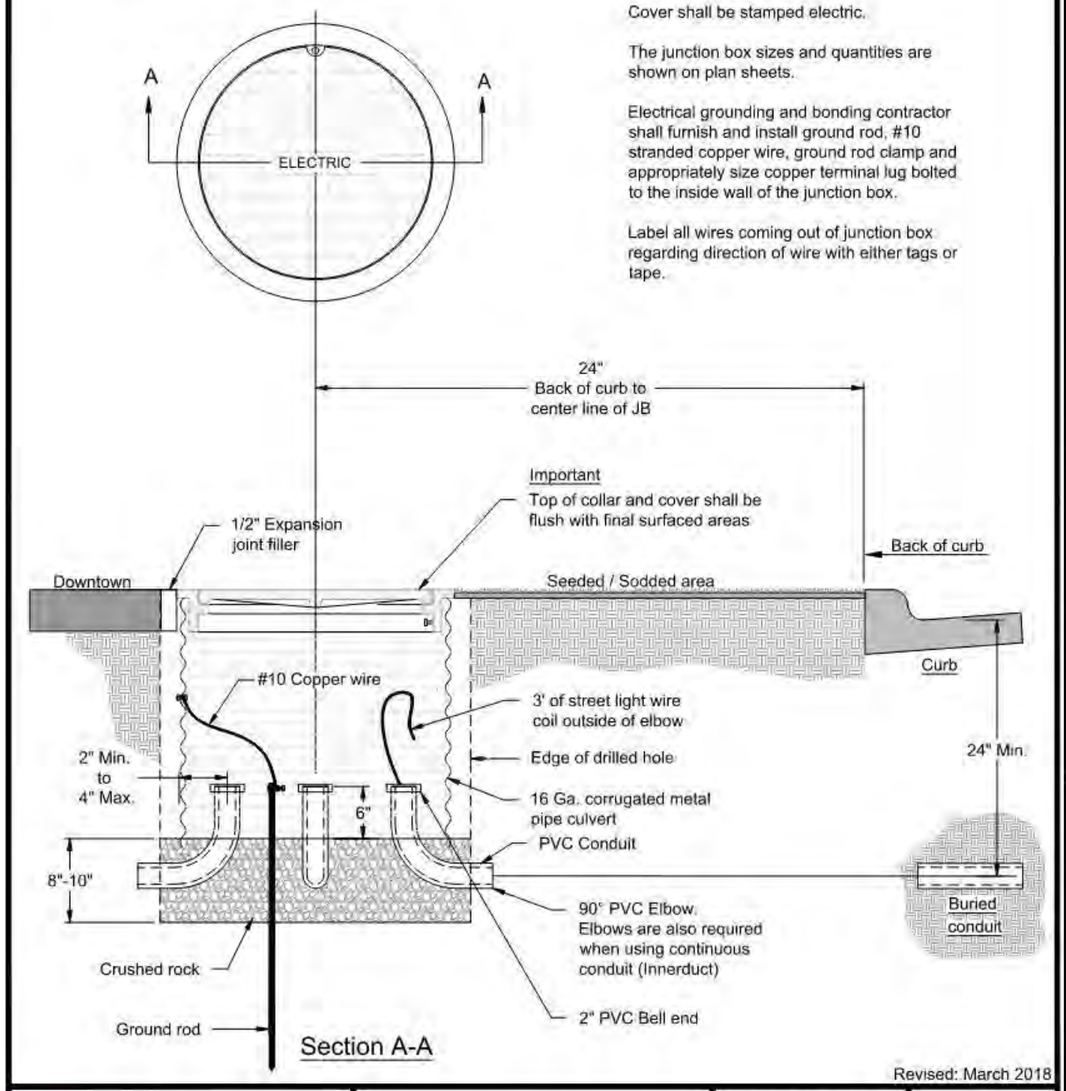
Number of conduit entrances varies with location of junction box.

Cover shall be stamped electric.

The junction box sizes and quantities are shown on plan sheets.

Electrical grounding and bonding contractor shall furnish and install ground rod, #10 stranded copper wire, ground rod clamp and appropriately size copper terminal lug bolted to the inside wall of the junction box.

Label all wires coming out of junction box regarding direction of wire with either tags or tape.

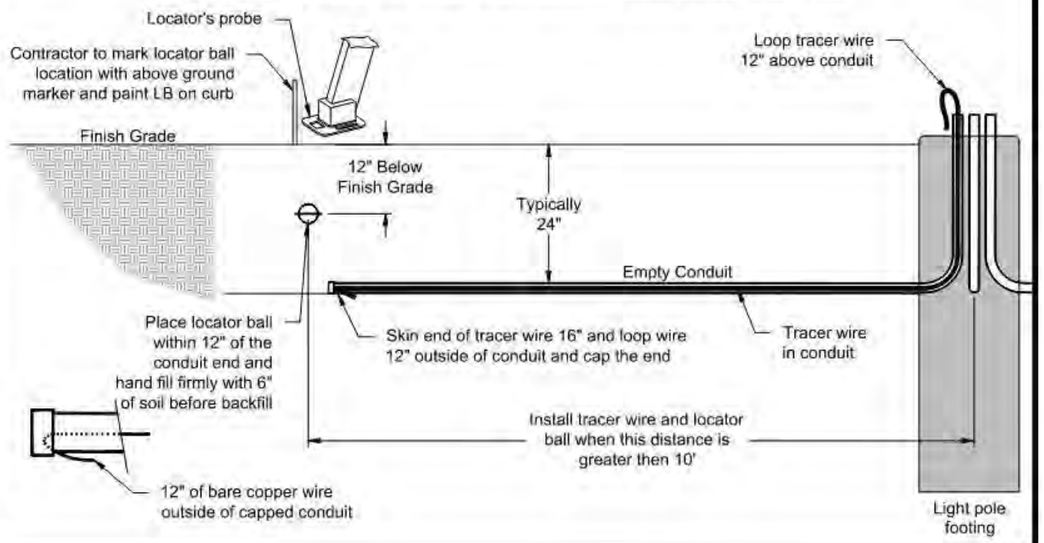


Section A-A

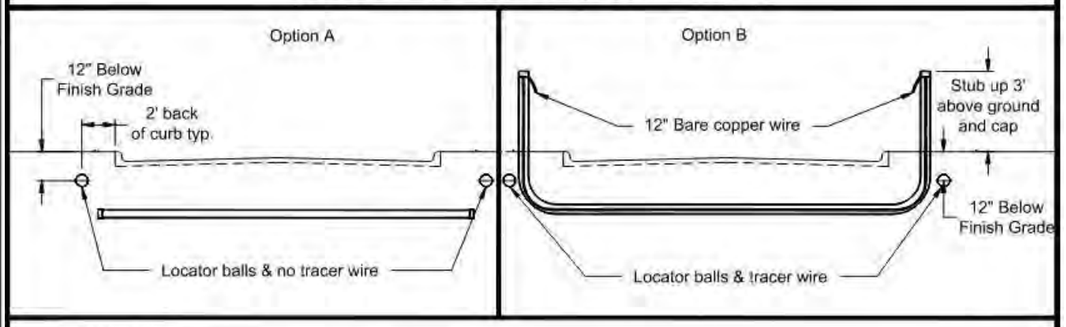
Revised: March 2018

CITY OF SIOUX FALLS PUBLIC WORKS Providing a Better Quality of Life for You!	Junction Box - Lighting	Specification Reference No. 635B	Plate Number 635.70

Locator ball & tracer wire detail when used with footings & junction boxes



Street crossings only no footings or junction boxes



Locator Ball Marker Notes:

1. Before placing the locator ball over the key point, decide if a tie-down procedure is necessary to keep it in place. If so, secure the ball by inserting a cable tie through one or both tie-down tabs and to the key point (E.G. pipe or cable)
2. If the key point is metallic, then the locator ball should be separated from it with a minimum of 4 inches of dirt.
3. Otherwise, put the locator ball over the desired point.

   Important: The locator ball cannot reliably reradiate the locator's signal at a separation greater than 5 ft. (1.5M). This is the maximum allowable distance between the locator ball and the locator. This implies that the ball marker should be buried at a distance less than 5 ft. to allow for the distance between the locator's probe and the ground surface.
4. Hand fill at least six inches of soil over the locator ball.
5. Backfill the hole.

Revised: September 2020

CITY OF SIOUX FALLS PUBLIC WORKS Providing a Better Quality of Life for You!	Locator Ball and Tracer Wire	Specification Reference No. 635B	Plate Number 635.81

STATE OF SOUTH DAKOTA	PROJECT	SHEET	TOTAL SHEETS
	NH 0100(106)409 & P 8042(00)	L74	L74

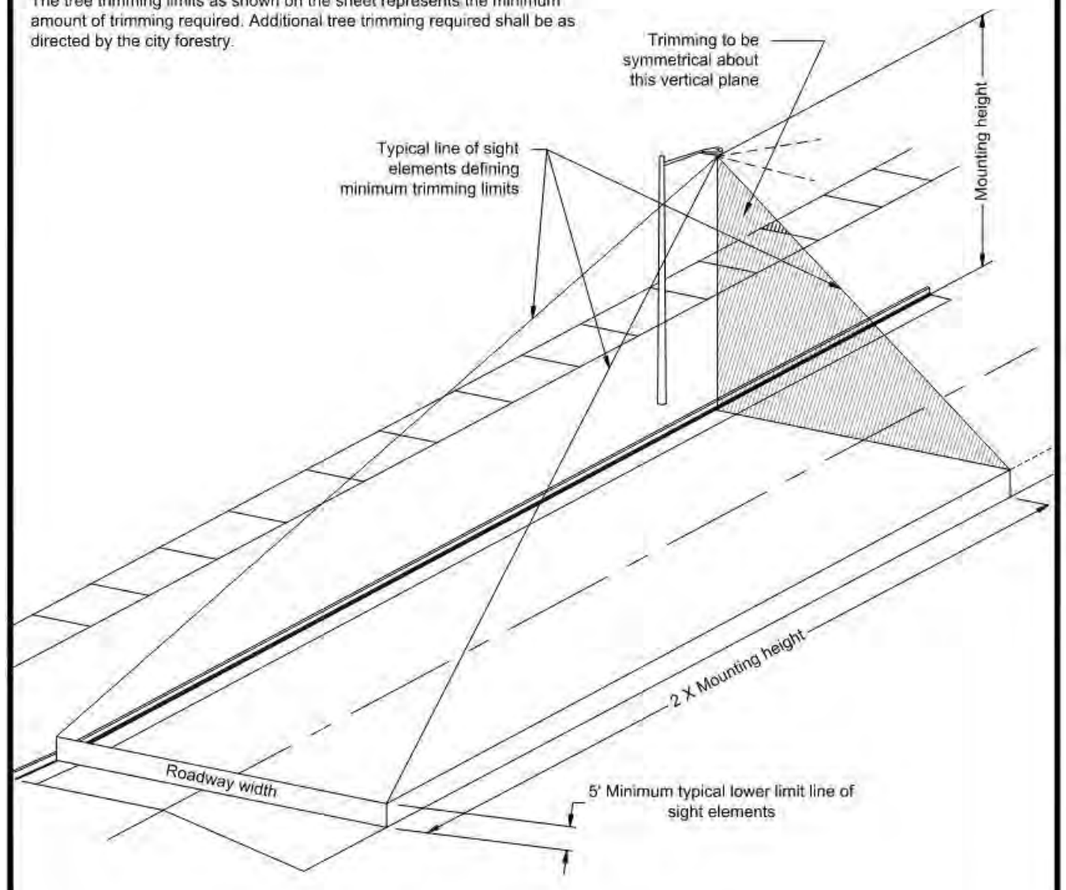
Plotting Date: 10/11/2024

Tree trimming for street lights

Notes:
Tree trimming shall be done in accordance with proper tree trimming practices. The underside of each branch to be removed shall have a groove sawed through the bark (1/2" min. depth) before any sawing is started on the top side of the branch.

Tree trimming shall be applied around each light source installed.

The tree trimming limits as shown on the sheet represents the minimum amount of trimming required. Additional tree trimming required shall be as directed by the city forestry.



Revised: March 2018

CITY OF SIOUX FALLS PUBLIC WORKS Providing a Better Quality of Life for You!	Tree Trimming for Street Lights	Specification Reference No. 635B	Plate Number 635.84