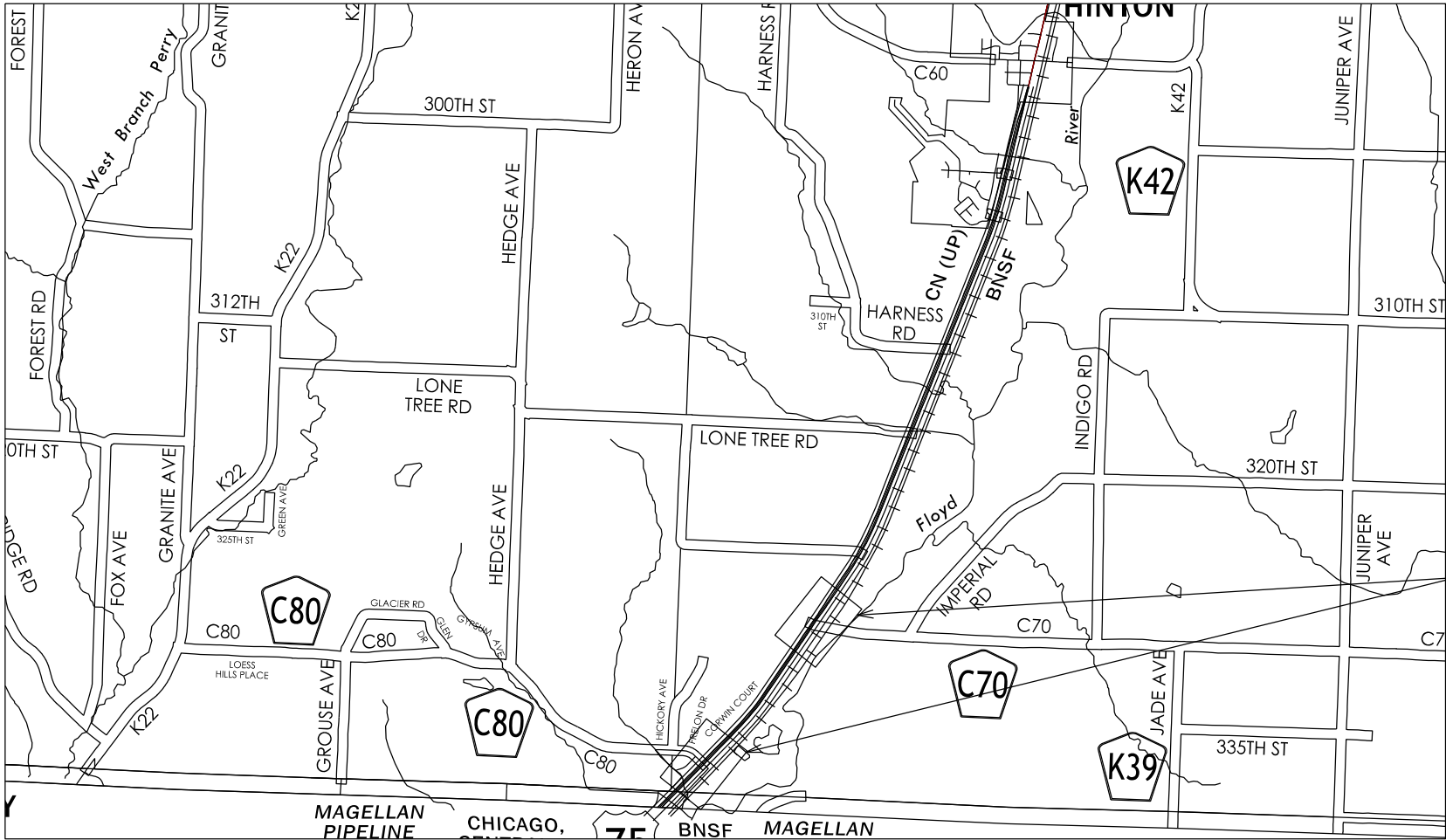




PLANS OF PROPOSED IMPROVEMENT ON THE
STATE HIGHWAY ROAD SYSTEM
PLYMOUTH COUNTY

Lighting

Co.Rd. C80 and Co.Rd. C70 Intersections

SCALES: As Noted

Refer to the Proposal Form for list of applicable specifications.

Value Engineering Saves. Refer to Article 1105.14 of the Specifications.



PROJECT LOCATION

REVISIONS

TOTAL

8

PROJECT IDENTIFICATION NUMBER

26-75-075-020

PROJECT NUMBER

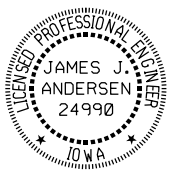
NHSN-075-2(139)--2R-75

R.O.W. PROJECT NUMBER

INDEX OF SHEETS

No.	DESCRIPTION
A Sheets	Title Sheet
A.1	Title Page
C Sheets	Quantities and General Information
C.1	Estimated Quantities and Reference Notes
C.2-C.3	Tabulations
J Sheets	Traffic Control Plan
J.1	Traffic Control Plan
P Sheets	Lighting Plan
P.1-P.2	Lighting Plan
U Sheets	Lighting Detail Sheets
U.1	One-Line Diagrams

LIGHTING DESIGN



I hereby certify that this engineering document was prepared by me or under my direct personal supervision and that I am a duly licensed Professional Engineer under the laws of the State of Iowa.

James J. Andersen

9/1/2026

Signature

Date

JAMES J. ANDERSEN

Printed or Typed Name

My license renewal date is December 31, 2026

Pages or sheets covered by this seal: A.1, C.1-3, J.1, P.1-2, U.1

FILE NO.

ENGLISH

DESIGN TEAM

IOWA DOT / HDR

PLYMOUTH COUNTY

PROJECT NUMBER NHSN-075-2(139)--2R-75

SHEET NUMBER A.1

SYSTEMTIME SYSTEMDATE USERNAME DGNSSPEC

ESTIMATED PROJECT QUANTITIES AND REFERENCE NOTES

Lighting Items :

Item no.	Item Code	Item	Unit	Quantities	Estimate Reference Notes
				Estimated	
				Lighting Items	
1	2523-0000100	LIGHTING POLES	EACH	24	Bid to include LED fixtures as listed in 'Roadway Luminaires' description in Tab 108-11A. Bid to include transformer bases and poles with mounting heights and mastarm lengths as shown on the lighting plans.
2	2523-0000200	ELECTRICAL CIRCUITS	LF	5,572	Bid to include 600-volt fuses at 3 amperes for luminaire supply (L-1 connectors) and 5 amperes for tap circuit protection (Y-1 connectors) located in the junction boxes or handholes. Included are (12) type Y-1 connectors, (16) type Y-2 connectors, (12) type L-1 connectors, and (38) type L-2 connectors. L-2 connectors in circuits with conductor sizes that do not fit standard connector to be split bolt connectors with waterproof covering. Electrical circuit length is calculated from plan dimensions as the linear, one-way length of both new and existing embedded conduits. No allowance has been added to this quantity. Allowances have been added to all wire and cable quantities listed in Tab 108-12.
3	2523-0000310	HANDHOLES AND JUNCTION BOXES	EACH	12	All handholes to be LI-103, Type II.
4	2523-0000400	CONTROL CABINET	EACH	2	Control Cabinet to be based on LI-151, with photocell, contactor, and as shown on drawings.
5	2526-8285040	CONSTRUCTION SURVEY, LOCATION SURVEY	LS	1	Refer to TC-283 for traffic control layout.
6	2526-9000000	GEOSPATIAL MAPPING OF SUB-SURFACE AND UNDERGROUND UTILITIES	LF	5,572	Refer to DS-23045.
7	2528-8445110	TRAFFIC CONTROL	LS	1	--
8	2533-4980005	MOBILIZATION	LS	1	
9	2599-9999005	('EACH' ITEM) METER PEDESTAL	EACH	2	Supply and install MidAmerican Energy approved meter pedestal for electrical service. The meter pedestal shall include all circuit breakers as shown in the respective one-line diagram. Method of Measurement: The Engineer will count the number of meter pedestals installed. Basis of Payment: The Contractor shall be paid the contract unit price for meter pedestals installed. This payment shall be considered full compensation for furnishing all labor, equipment, and materials required to properly supply and install meter pedestal, as specified.

100 01D 8/15/22
PROJECT DESCRIPTION
This project will construct lighting at the intersections of US 75/County Road C80 and US 75/County Road C70 northeast of Sioux City. This project includes the installation of new light poles, electrical control cabinets, meter pedestals, conduits and handholes.

108 11A 8/15/22
HIGHWAY LIGHTING DATA
Electrical Service: Utilize existing secondary service (120/240 volts, single phase) for the new service. It shall be the Contractor's responsibility to make the necessary contacts with the utility company regarding this electrical service as needed. Contact information is: MidAmerican Energy: Casey Meinen, Casey.meinen@midamerican.com (712) 233-4831 Roadway Luminaires: Contractor shall be responsible for supplying and installing light emitting diode (LED) luminaires as described. Luminaires shall be the following: Type III distribution, gray/silver finish: Cooper Lighting (Nvn Navion 'NVN-SA3B-740-U-T3R'), American Electric Lighting (Autobahn 'ATB0-P304-MVOLT-R3-4K'), OR GE/Current(Evolve 'ERL2-0-16-C5-40'). No substitutes will be allowed.

232 03B 9/28/22
EROSION CONTROL (URBAN SEEDING)
Area to be seeded is estimated to be less than 1 acre. If the Contractor determines the area exceeds 2 acres, notify the Engineer. Approved quantity in excess of 2 acres will be paid for as extra work according to Article 1109.03,B of the Standard Specifications. Following the completion of work in a disturbed area and according to the seeding dates in Section 2601 of the Standard Specifications, place seed, fertilizer, and mulch on the disturbed area as follows: Place seed and fertilize according to the requirements of Article 2601.03,C,4 and Section 4169 of the Standard Specifications. Place mulch according to the requirements of Articles 2601.03,E,2,a and 4169.07,A of the Standard Specifications. Preparing the seedbed, furnishing and applying seed, fertilizer, and mulch are incidental to mobilization and will not be paid for separately.

232 11 6/21/23
EROSION CONTROL (STABILIZING CROP SEEDING)
Area to be seeded is estimated to be less than 1 acre. If the contractor determines the area exceeds 2 acres, notify the Engineer. Approved quantity in excess of 2 acres will be paid for as extra work according to Article 1109.03,B of the Standard Specifications. If outside of permanent seeding dates in Section 2601 of the Standard Specifications, or if required by a storm water permit, place stabilizing crop, fertilizer, and mulch on the disturbed area as follows: Place seed and fertilize according to the requirements of Article 2601.03,C,1 and Section 4169 of the Standard Specifications. Place mulch according to the requirements of Articles 2601.03,E,2,a and 4169.07,A of the Standard Specifications. Preparing the seedbed, furnishing and applying seed, fertilizer, and mulch are incidental to mobilization and will will not be paid for separately.

108-2
10/24/24

ELECTRICAL DUCTS				
Location	Conduit	Dia.	Length	Remarks
	Type	IN	FT	
Transformer to Meter Pedestal "AA"	Rigid Plastic	2.0	8.0	A-00 Circuit Ducts
Meter Pedestal "AA" to Control Cabinet "A"	Rigid Plastic	2.0	13.0	A-0 Circuit Ducts
	Plastic	2.0	1304.0	A-1 Circuit Ducts
	Plastic	2.0	1256.0	A-2 Circuit Ducts
Existing Pole to Existing Transformer	Rigid Galvanized Steel	2.0	28.0	B-00 Circuits Ducts
Existing Pole to Meter Pedestal "BB"	Plastic	2.0	320.0	B-00 Circuits Ducts
HH #B5 to HH #B4	Rigid Plastic	2.0	47.0	B-00 Circuits Ducts
Meter Pedestal "BB" to Control Cabinet "B"	Rigid Plastic	2.0	14.0	B-0 Circuits Ducts
	Plastic	2.0	609.0	B-1 Circuit Ducts
	Plastic	2.0	1032.0	B-2 Circuit Ducts
HH #A2 to HH #A1	Rigid Plastic	2.0	131.0	A-1 Circuit (Roadway Crossing)
HH #A3 to HH #A1	Rigid Plastic	2.0	163.0	A-2 Circuit (Roadway Crossing)
HH #A3 to A203	Rigid Plastic	2.0	118.0	A-2 Circuit (Roadway Crossing)
HH #B1 to B103	Rigid Plastic	2.0	132.0	B-1 Circuit (Roadway Crossing)
HH #B1 to HH #B2	Rigid Plastic	2.0	154.0	B-1 Circuit (Roadway Crossing)
B204 to HH #B3	Rigid Plastic	2.0	64.0	B-2 Circuit (Roadway Crossing)
HH #B6 to HH #B7	Rigid Plastic	2.0	77.0	B-2 Circuit (Roadway Crossing)
HH #B8 to HH #B9	Rigid Plastic	2.0	62.0	B-2 Circuit (Roadway Crossing)
	Rigid Plastic	2.0	10.0	A-1 Circuit Riser at Control Cabinet "A"
	Rigid Plastic	2.0	10.0	A-2 Circuit Riser at Control Cabinet "A"
	Rigid Plastic	2.0	10.0	B-1 Circuit Riser at Control Cabinet "B"
	Rigid Plastic	2.0	10.0	B-1 Circuit Riser at Control Cabinet "B"
			5572.0	Total Circuit Ducts

105 04
4/21/26

STANDARDS		
The following Standards apply to construction work on this project.		
Number	Date	Title
LI-101	10-21-14	Light Pole Location
LI-103	10-21-25	Conduit and Precast Handholes
LI-141	10-21-14	Electrical Installation (Roadway Ducts)
LI-142	04-21-15	Electrical Installation (Bases)
LI-151	10-21-14	Control Cabinet (Pole-Mounted)
LI-201	04-21-26	Light Pole Foundation
LI-210	10-21-14	Transformer Base (Cast Aluminum)
TC-1	10-15-19	Work Not Affecting Traffic (Two-Lane or Multi-Lane)
TC-202	04-18-23	Work Within 15 ft of Traveled Way
TC-283	04-18-23	Surveying Operations

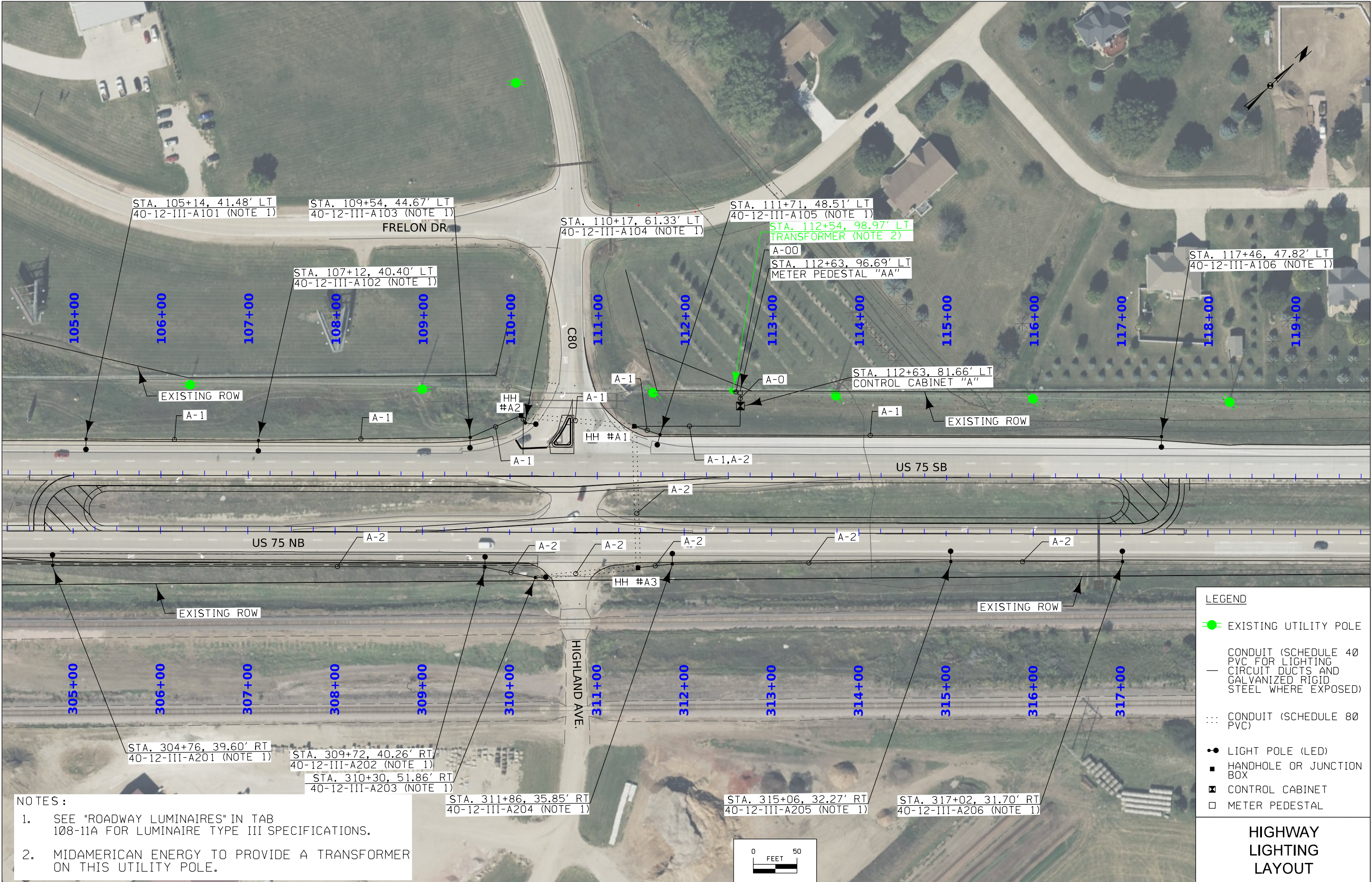
108 12
8/15/22

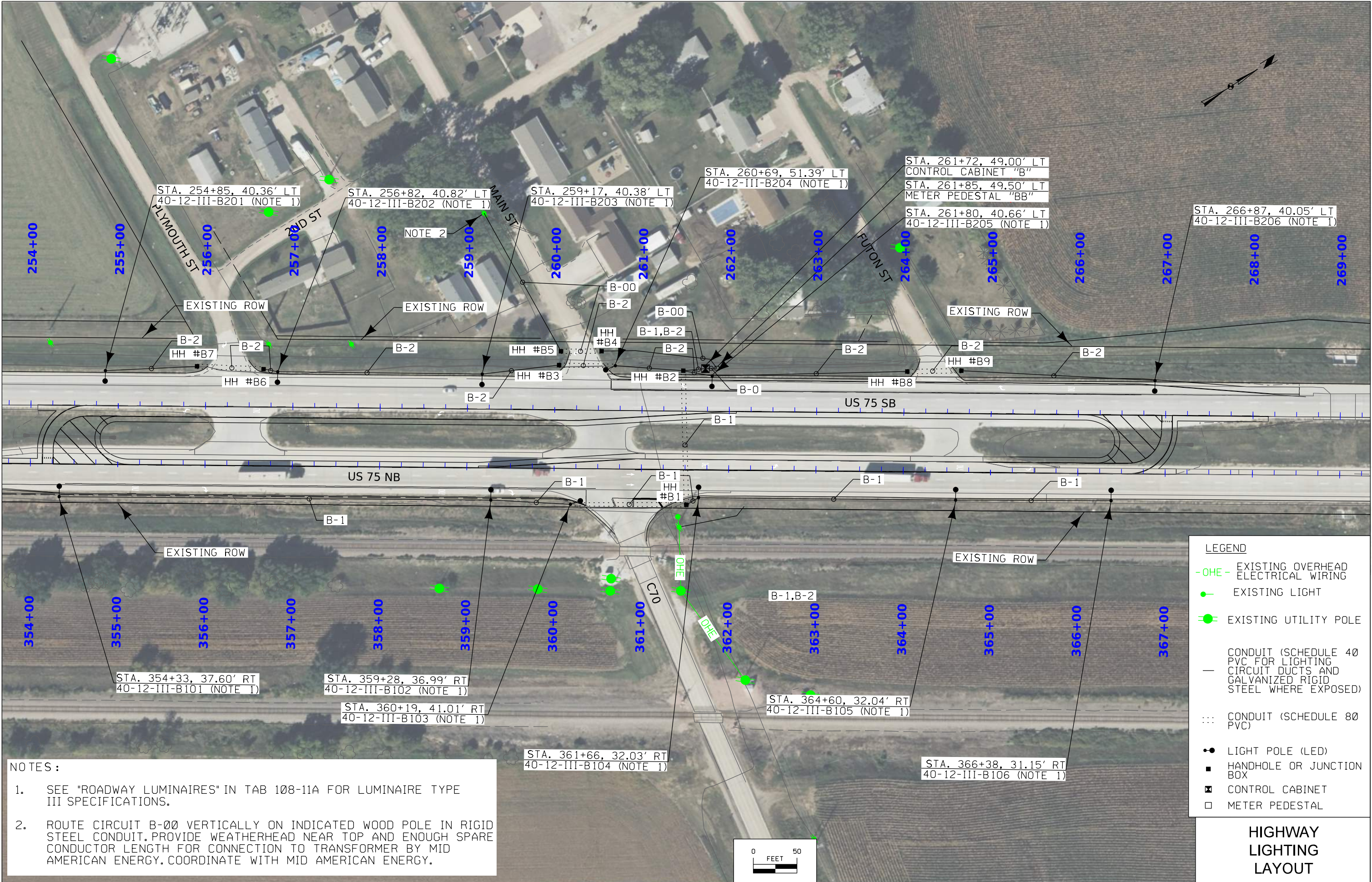
WIRE, CABLE AND CONNECTORS																			
Circuit Number	Connector Type	Quantity (EA)	Connector Type	Quantity (EA)	Connector Type	Quantity (EA)	Connector Type	Quantity (EA)	Phase Line Size (AWG)	Quantity (LF)	Phase Line Size (AWG)	Quantity (LF)	Phase Line Size (AWG)	Quantity (LF)	Phase Line Size (AWG)	Quantity (LF)	Ground Size (AWG)	Quantity (LF)	Remarks
A-00													#1	27.0					
B-00													#1	1056.0					
A-0															#6	50.0	#6	17.0	
B-0															#6	43.0	#6	15.0	
A-1	Y-1	4	Y-2	2	L-1	2	L-2	10	#10	780.0					#8	3186.0	#8	1593.0	
A-2	Y-1	2			L-1	2	L-2	10	#10	780.0					#8	3382.0	#8	1691.0	
B-1	Y-1	4	Y-2	4	L-1	4	L-2	10	#10	780.0					#8	1969.0	#8	985.0	
B-2	Y-1	2	Y-2	10	L-1	4	L-2	8	#10	780.0					#8	2717.0	#8	1359.0	

108_01 8/15/22						
LIGHTING INSTALLATIONS						
Location No.	Station	LI-101 Type	A	E (FT)	LI-201 Type	Remarks
40-12-III-A101	105+14.00	1	4	8.0	A	T-BASE
40-12-III-A102	107+12.00	1	4	8.0	A	T-BASE
40-12-III-A103	109+54.00	1	4	8.0	A	T-BASE
40-12-III-A104	110+17.00	1	4	8.0	A	T-BASE
40-12-III-A105	111+71.00	1	4	8.0	A	T-BASE
40-12-III-A106	117+46.00	1	4	8.0	A	T-BASE
40-12-III-A201	304+76.00	1	4	8.0	A	T-BASE
40-12-III-A202	309+72.00	1	4	8.0	A	T-BASE
40-12-III-A203	310+30.00	1	4	8.0	A	T-BASE
40-12-III-A204	311+86.00	1	4	8.0	A	T-BASE
40-12-III-A205	315+06.00	1	4	8.0	A	T-BASE
40-12-III-A206	317+02.00	1	4	8.0	A	T-BASE
40-12-III-B101	354+33.00	1	4	8.0	A	T-BASE
40-12-III-B102	359+28.00	1	4	8.0	A	T-BASE
40-12-III-B103	360+19.00	1	4	8.0	A	T-BASE
40-12-III-B104	361+66.00	1	4	8.0	A	T-BASE
40-12-III-B105	364+60.00	1	4	8.0	A	T-BASE
40-12-III-B106	366+38.00	1	4	8.0	A	T-BASE
40-12-III-B201	254+85.00	1	4	8.0	A	T-BASE
40-12-III-B202	256+82.00	1	4	8.0	A	T-BASE
40-12-III-B203	259+17.00	1	4	8.0	A	T-BASE
40-12-III-B204	260+69.00	1	4	8.0	A	T-BASE
40-12-III-B205	261+80.00	1	4	8.0	A	T-BASE
40-12-III-B206	266+87.00	1	4	8.0	A	T-BASE

TRAFFIC CONTROL PLAN	108 23A 8/15/22
SEE GRADE AND PAVE PROJECT NHSN-075-2(137)--2R-75 FOR TRAFFIC CONTROL INFORMATION.	

511 TRAVEL RESTRICTIONS													108_25 3/28/24
Line No.	Route	Direction	County	Location Description	Feature Crossed	Object Type	Maint. Bridge No. or Structure ID or FHWA No.	Type of Restriction	Existing Measurement	Construction Measurement	Construction Measurement as Signed	Projected As Built Measurement	Remarks
				NONE ANTICIPATED				None					



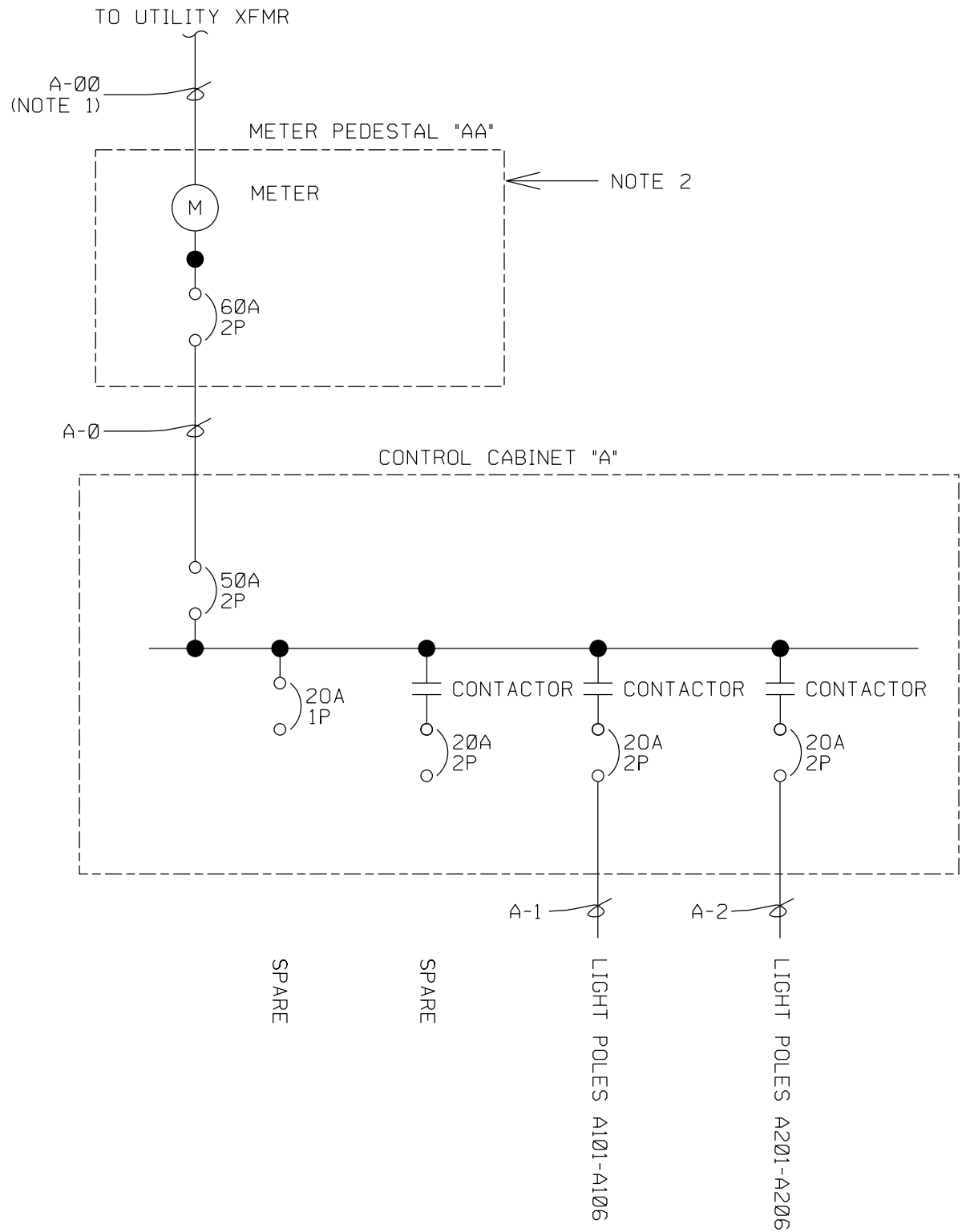


- NOTES :
- SEE "ROADWAY LUMINAIRES" IN TAB 108-11A FOR LUMINAIRE TYPE III SPECIFICATIONS.
 - ROUTE CIRCUIT B-00 VERTICALLY ON INDICATED WOOD POLE IN RIGID STEEL CONDUIT. PROVIDE WEATHERHEAD NEAR TOP AND ENOUGH SPARE CONDUCTOR LENGTH FOR CONNECTION TO TRANSFORMER BY MID AMERICAN ENERGY. COORDINATE WITH MID AMERICAN ENERGY.

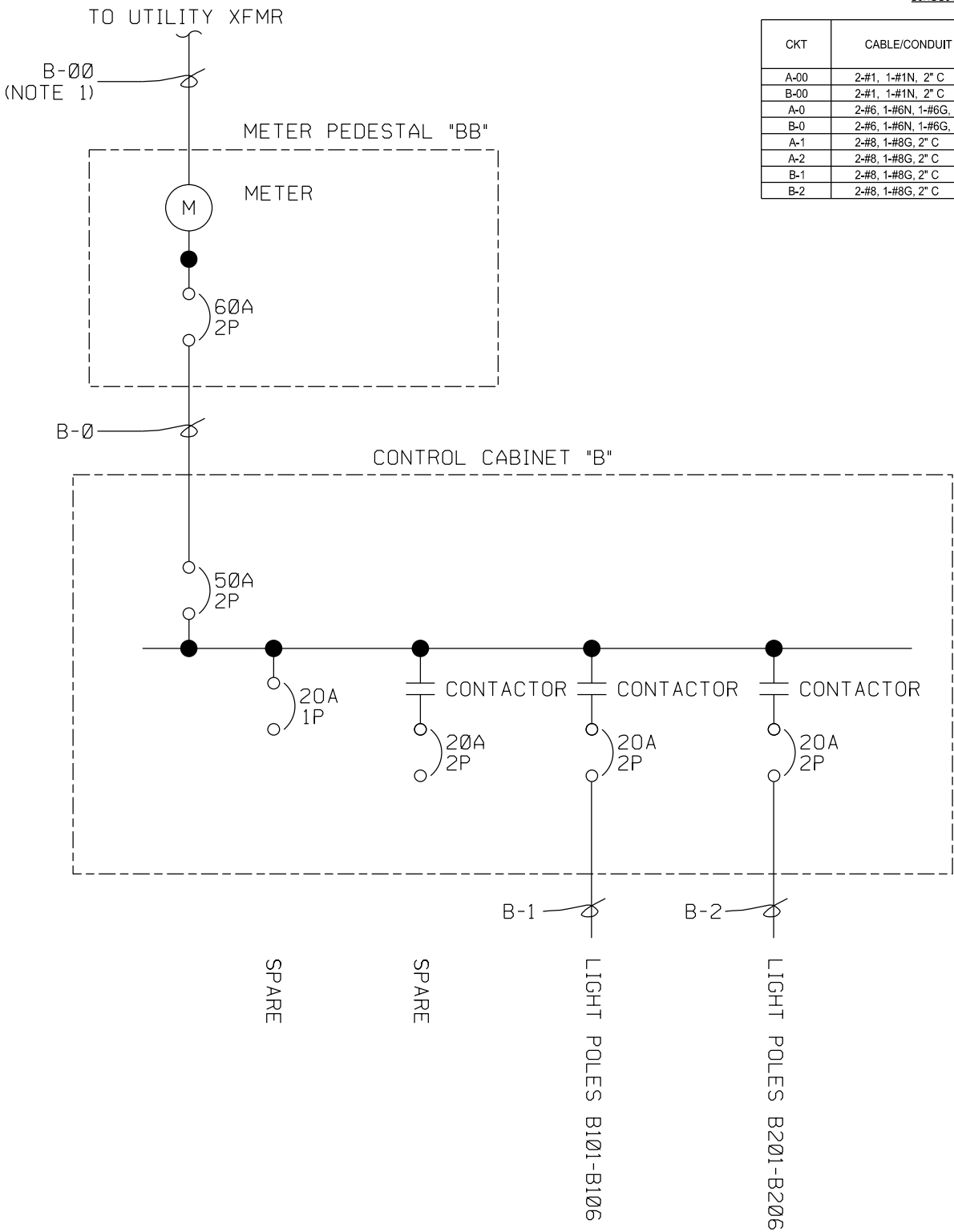
LEGEND

- OHE- EXISTING OVERHEAD ELECTRICAL WIRING
- EXISTING LIGHT
- EXISTING UTILITY POLE
- CONDUIT (SCHEDULE 40 PVC FOR LIGHTING CIRCUIT DUCTS AND GALVANIZED RIGID STEEL WHERE EXPOSED)
- ... CONDUIT (SCHEDULE 80 PVC)
- LIGHT POLE (LED)
- HANDHOLE OR JUNCTION BOX
- ☒ CONTROL CABINET
- METER PEDESTAL

HIGHWAY LIGHTING LAYOUT



CABINET A ONE-LINE DIAGRAM



CABINET B ONE-LINE DIAGRAM

CIRCUIT SCHEDULE

CKT	CABLE/CONDUIT DESCRIPTION	CONDUCTORS: COPPER (CU) OR ALUMINUM (AL)
A-00	2-#1, 1-#1N, 2" C	CU
B-00	2-#1, 1-#1N, 2" C	CU
A-0	2-#6, 1-#6N, 1-#6G, 2" C	CU
B-0	2-#6, 1-#6N, 1-#6G, 2" C	CU
A-1	2-#8, 1-#8G, 2" C	CU
A-2	2-#8, 1-#8G, 2" C	CU
B-1	2-#8, 1-#8G, 2" C	CU
B-2	2-#8, 1-#8G, 2" C	CU

NOTE :

- LEAVE 50 FEET OF CONDUCTOR AT POLE FOR CONNECTION BY MIDAMERICAN ENERGY.
- COORDINATE METER PEDESTAL LOCATION WITH MIDAMERICAN ENERGY.

CONTROL CABINET
ONE-LINE DIAGRAM