





SHEET NUM.											PART.		ITEM	ITEM EXT	GRAND TOTAL	UNIT	DESCRIPTION	SEE SHEET NO.	
						11	15	16	39	163	01/MPO/P V	02/S>2>P V							
<b>STRUCTURE 20 FOOT SPAN AND UNDER (E. WILSON BRIDGE ROAD) CONTINUED</b>																			
										40	40		512	10050	40	SY	SEALING OF CONCRETE SURFACES (NON-EPOXY)		
										127	127		512	33001	127	SY	TYPE 2 WATERPROOFING, AS PER PLAN	162	
										63	63		512	33011	63	SY	TYPE 3 WATERPROOFING, AS PER PLAN	162	
										32	32		516	13600	32	SF	1" PREFORMED EXPANSION JOINT FILLER		
										29	29		518	21200	29	CY	POROUS BACKFILL WITH GEOTEXTILE FABRIC		
										130	130		518	40000	130	FT	6" PERFORATED CORRUGATED PLASTIC PIPE		
										11	11		601	32200	11	CY	ROCK CHANNEL PROTECTION, TYPE C WITH FILTER		
										70	70		611	97400	70	FT	CONDUIT, MISC.:9'X4' CONDUIT, TYPE A, 706.05		
<b>STRUCTURE 20 FOOT SPAN AND UNDER (S. WORTHINGTON-GALENA ROAD)</b>																			
										LS	LS		503	11100	LS		COFFERDAMS AND EXCAVATION BRACING		
										LS	LS		503	21301	LS		UNCLASSIFIED EXCAVATION, AS PER PLAN	162	
										8,386	8,386		509	10000	8,386	LB	EPOXY COATED REINFORCING STEEL		
										26	26		511	46011	26	CY	CLASS QC1 CONCRETE, RETAINING/WINGWALL NOT INCLUDING FOOTING, AS PER PLAN	162	
										46	46		511	46510	46	CY	CLASS QC1 CONCRETE, FOOTING		
										68	68		512	10050	68	SY	SEALING OF CONCRETE SURFACES (NON-EPOXY)		
										228	228		512	33001	228	SY	TYPE 2 WATERPROOFING, AS PER PLAN	162	
										41	41		516	13600	41	SF	1" PREFORMED EXPANSION JOINT FILLER		
										56	56		518	21200	56	CY	POROUS BACKFILL WITH GEOTEXTILE FABRIC		
										258	258		518	40000	258	FT	6" PERFORATED CORRUGATED PLASTIC PIPE		
										6	6		518	40010	6	FT	6" NON-PERFORATED CORRUGATED PLASTIC PIPE, INCLUDING SPECIALS		
										22	22		601	32200	22	CY	ROCK CHANNEL PROTECTION, TYPE C WITH FILTER		
										101	101		611	94800	101	FT	8' X 4' CONDUIT, TYPE A, 706.05		
<b>STRUCTURE 20 FOOT SPAN AND UNDER (PRIVATE DRIVE)</b>																			
										LS	LS		202	11000	LS		STRUCTURE REMOVED		
										LS	LS		503	11100	LS		COFFERDAMS AND EXCAVATION BRACING		
										LS	LS		503	21301	LS		UNCLASSIFIED EXCAVATION, AS PER PLAN	162	
										3,937	3,937		509	10000	3,937	LB	EPOXY COATED REINFORCING STEEL		
										12	12		511	46011	12	CY	CLASS QC1 CONCRETE, RETAINING/WINGWALL NOT INCLUDING FOOTING, AS PER PLAN	162	
										24	24		511	46510	24	CY	CLASS QC1 CONCRETE, FOOTING		
										40	40		512	10050	40	SY	SEALING OF CONCRETE SURFACES (NON-EPOXY)		
										164	164		512	33001	164	SY	TYPE 2 WATERPROOFING, AS PER PLAN	162	
										34	34		516	13600	34	SF	1" PREFORMED EXPANSION JOINT FILLER		
										30	30		518	21200	30	CY	POROUS BACKFILL WITH GEOTEXTILE FABRIC		
										12	12		601	32200	12	CY	ROCK CHANNEL PROTECTION, TYPE C WITH FILTER		
										72	72		611	94800	72	FT	8' X 4' CONDUIT, TYPE A, 706.05		
<b>MAINTENANCE OF TRAFFIC</b>																			
													410	12000	1,500	CY	TRAFFIC COMPACTED SURFACE, TYPE A OR B	16	
										LS	LS		614	11000	LS		MAINTAINING TRAFFIC		
										120	120		614	11110	120	hour	LAW ENFORCEMENT OFFICER WITH PATROL CAR FOR ASSISTANCE	16	
										3	3		SPECIAL	61411300	3	EACH	WORK ZONE TRAFFIC SIGNAL	16	
										1.69	1.69		614	21000	1.69	MILE	WORK ZONE CENTER LINE, CLASS I		
													614	21550	0.19	MILE	WORK ZONE CENTER LINE, CLASS III, 642 PAINT		
													614	22000	1.93	MILE	WORK ZONE EDGE LINE, CLASS I, 4"		
													614	22350	0.19	MILE	WORK ZONE EDGE LINE, CLASS III, 4", 642 PAINT		
										819	819		614	23000	819	FT	WORK ZONE CHANNELIZING LINE, CLASS I, 8"		
										58	58		614	24000	58	FT	WORK ZONE DOTTED LINE, CLASS I		
													614	25000	222	FT	WORK ZONE TRANSVERSE/DIAGONAL LINE, CLASS I		
													614	26000	197	FT	WORK ZONE STOP LINE, CLASS I		
													614	26610	100	FT	WORK ZONE STOP LINE, CLASS III, 642 PAINT		
										812	812		614	27000	812	FT	WORK ZONE CROSSWALK LINE, CLASS I		
										11	11		614	30000	11	EACH	WORK ZONE ARROW, CLASS I		
										2	2		614	31000	2	EACH	WORK ZONE WORD ON PAVEMENT, 72", CLASS I		
										3	3		614	32000	3	EACH	WORK ZONE RAILROAD SYMBOL MARKING, CLASS I		
										346	346		615	20000	346	SY	PAVEMENT FOR MAINTAINING TRAFFIC, CLASS A		
													616	10000	2,000	MGAL	WATER	11	
													616	20000	0.5	TON	CALCIUM CHLORIDE	11	
						2,000													
						0.5													

GENERAL SUMMARY

FRA-CR 84-1.36  
NORTHEAST GATEWAY

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**STREET LIGHTING NOTES**

The street lighting shall be constructed in accordance with the current Ohio Department of Transportation "Construction and Material Specifications" (2016 Edition, Section 625 titled "Highway Lighting") and City of Columbus, Ohio "Construction and Material Specifications" (2018 Edition, Section 1001, titled "Street Lighting"), including all supplements thereto, in force on the date of the contract, shall govern all materials and workmanship involved in the improvements shown on these plans, except as such specifications are modified by the following specifications or by the construction details set forth herein.

**ITEM 625- LUMINAIRE, UNDERPASS, SOLID STATE (LED), AS PER PLAN, 480V**  
In addition to the requirements of ODOT's Construction and Material Specifications, luminaires for underpass lighting shall be as follows:

Luminaires for underpass lighting units shall be 480V, 3000K and shall be Evolve LED Area Light, Scalable Wall Pack EWS3-5-A7-D1-30-1-BLCK, Holophane Wallpack Full Cutoff LED HLWPC2-P10-30K-AH-T3M-BKSDP, or equal are approved by the Engineer.

Luminaires for underpass lighting unit which are wall mounted shall be furnished with an integral fuse holder and 10-ampere fuses.

Luminaires shall be painted black to match the light poles.

Payment will be made at the unit price bid under C&MS Item 625, "Luminaire, Underpass, Solid State (LED), As Per Plan, 480V" for each luminaire which shall be full compensation for all labor, materials and incidentals required to complete this item in a satisfactory and workmanlike manner.

**ITEM 625 - SERVICE TO UNDERPASS LIGHTING, AS PER PLAN**

This item shall consist of providing complete electrical power, except for luminaires, for underpass lighting systems. This installation work shall include disconnect switch, conduits, grounding, mountings, fittings, junction boxes, cables, splice kits, connection kits, and all incidentals necessary to complete, ready for use, the service as detailed on the plans.

The price bid for Item 625, Service to Underpass Lighting, As Per Plan, shall include payment for all equipment, labor and materials necessary to complete the work as specified, component parts not specifically mentioned, but required for satisfactory operation of this item, shall be furnished and considered paid for as part of the item.

**ITEM 625 - LUMINAIRE, DECORATIVE, SOLID STATE (LED), AS PER PLAN, 480V**

Tear Drop luminaires shall conform with all of the specifications of ODOT Item 625, with the following exceptions:

- Luminaire shall be manufactured by Spring City Electrical Mfg. Co., Columbia Series, catalog number ALMCLU-LE155/EV2/X2-22-CR3-YLC3-FED-LACLB-CB.
- Luminaires shall be painted black to match the light poles.

Payment shall be as per Item 625.

**ITEM 625 - LIGHTING, MISC.: POLE TO BE WIRED, 3 WIRE**

Poles shall be wired in accordance with MIS-501, except that they shall be designed for a three wire, 480V single phase power, with ground, lighting system. The Contractor shall wire each pole as shown on the detail contained herein.

Payment shall be as per Item 625.

**ITEM 625- LIGHTING, MISC.: 240/480V PAD MOUNTED CONTROL SITE, COMPLETE**

Pad mount control site shall be as per MIS-603, except that it shall be designed for a three wire, 240/480V plus ground, single phase power system with a separate insulated neutral bus and a ground bar. The Contractor shall install three #4, 5 kV cables from the line terminals of the control panel to the CT cabinet and from the CT cabinet to the power company's ground mounted service transformer, leaving 10' of cable coiled for the final connection to be made by the power company.

Provide an Arc Flash Hazard Warning sign on the outside front door of the enclosure, CT cabinet, and meter socket in accordance with the current National Electrical Code paragraph 110.16.

Provide an Available Fault Current sign on the outside of the front door of the service disconnect enclosure in accordance with the current National Electrical Code paragraph 110.24.

All lighting control enclosures, including CT cabinet, meter socket and disconnect switch, exposed conduits/fittings, mounting supports, etc. shall be painted black to match the light poles.

All labor and equipment required to provide a metered power service per AEP's requirements including meter, socket mounting, CT cabinet, mounting supports, foundations, and disconnect switch shall be considered incidental to this item. Additional compensation for coordination with the power supply agency shall not be made.

Payment shall be as per Item 625.

**ITEM 625 - Lighting Misc.: LIGHT POLE, DECORATIVE, AS PER PLAN**

Light poles for teardrop lighting shall be manufactured by Spring City Electrical Mfg. Co., catalog number SSHOC-G17-07.88-29.00-TN3.50/8.00-CB, with base DWBWR-23-CB and upper cross arm SARCMB-1S-72.00-TN2.38/-CB similar in appearance with Spring City drawing number LP-29139. All elements of the light

pole shall be a classic black finish, prime paint then finish Sherwin Williams Acrolon. Light poles shall include a warranty not less than five years.

In addition to the requirements of Item 625, light pole structures shall be designed and constructed by the supplier to support the loads that the plan requires to Contractor to install. The use of standard design designations and any details provided in this plan are intended to promote uniformity of design and are not warranted to be structurally adequate. The Contractor shall verify the anchor bolt circle, anchor bolt diameter, and orientation pattern with the light pole manufacturer. The manufacturer shall be responsible for verifying the pole design, and shall prepare shop drawings and structural design calculations stamped by an Ohio Professional Engineer. The shop drawings and calculations shall be submitted to the City of Worthington for approval prior to fabrication.

Payment shall be made per Item 625.

**ITEM 625 - LIGHTING, MISC.: PULL BOX, MEDIUM DUTY, 13" X 24" (MIS-54)**

Lighting pull boxes installed for use associated with existing City of Columbus street lighting circuits near the intersection of Worthington-Galena Road and Sancus Boulevard shall be installed as per City of Columbus MIS-54.

Payment shall be as per Item 625 for each pull box furnished and installed by the Contractor.

**ITEM 625 - LIGHTING, MISC.: 6' STREET LIGHT FOUNDATION (MIS-201)**

Street light pole foundations installed for this project shall be as per City of Columbus MIS-201.

Payment shall be as per Item 625 for each foundation furnished and installed by the Contractor.

**ITEM 625 - LIGHTING, MISC.: POLE TO BE WIRED, 2 WIRE (MIS-500)**

Existing light poles to be wired and remain wired on an existing City of Columbus maintained circuit near the intersection of Worthington-Galena Road and Sancus Boulevard shall be wired in accordance with City of Columbus MIS-500.

Payment shall be made for each existing light pole to be wired and shall include all labor and materials listed in MIS-500.

**ITEM 625 - LIGHTING, MISC.: CIRCUIT CABLE, TWO #4 AWG, CU, 5KV (MIS-403)**

Proposed lighting circuit cable installed as part of a modification to an existing City of Columbus lighting circuit near the intersection of Worthington-Galena Road and Sancus Boulevard shall be furnished and installed as per City of Columbus MIS-403.

Payment shall be made per linear foot of circuit, which shall include both #4 AWG cables.

**ITEM 625 - LIGHTING, MISC.: 2" CONDUIT, CONCRETE ENCASED (MIS-700)**

**ITEM 625 - LIGHTING, MISC.: 3" CONDUIT, JACKED OR DRILLED (MIS-702)**

Lighting conduit shall be furnished and installed per the associated City of Columbus MIS drawing.

Payment shall be made per linear foot of conduit furnished and installed by the Contractor.

**GROUNDING AND BONDING**

The requirements of the State of Ohio Department of Transportation Construction and Material Specifications (C&MS) and the HL series of Standard Construction Drawings are modified as follows:

- All metallic parts containing electrical conductors shall be permanently joined to form an Effective Ground Fault Current Path back to the grounded conductor in the power service disconnect switch.
  - Provide an equipment grounding conductor in metallic conduits (725.04) in addition to the conductors specified and bond the conduit to this grounding conductor.
  - When an equipment grounding conductor is required in plastic conduit (725.05), the installation shall include a separate equipment grounding conductor in addition to the conductors specified.
  - Metal pull box lids shall be bonded by attachment of the equipment grounding conductor to the frame diagonal as provided on HL-30.11.
- Conduits.
  - The 725.04 conduit shall have grounding bushings installed at all termination points. The bushing material shall be compatible with galvanized steel conduit and the grounding lug material shall be compatible for use with copper wire. Threaded or compression type bushings may be used.
  - The 725.05 conduit shall have the inside and outside diameters of the conduit deburred at all termination points.
  - Both ends of metallic conduit shall be bonded to the equipment grounding conductor.
  - Metallic conduit may be bonded to metallic boxes through the use of conduit fittings UL approved for this type of connection, with the box bonded to the equipment grounding conductor.
- Wire for grounding and bonding.
  - Use insulated, copper wire for the equipment grounding conductor. Bonding jumpers in boxes and enclosures may be bare or insulated

copper wire. Wire size shall be as follows: The insulation shall be green or green with yellow stripe(s). For 4 AWG or larger, insulation may also be black with green tape/labels installed at all access points.

- In a highway lighting system, the equipment grounding conductor shall be the minimum conductor size of 4 AWG. Bonding jumpers shall be minimum size 4 AWG.

**4. Ground rod.**

- A 3/4 inch Schedule 40 PVC conduit shall be used in foundations and concrete walls for the grounding conductor (ground wire) raceway to the ground rod. Should metallic conduit be used, both ends of the conduit shall be bonded to the grounding conductor.
- The typical grounding conductor (ground wire) shall be 4 AWG insulated, copper.

**5. Power Service and Disconnect Switch.**

- At the power service location, the grounding conductor (ground wire) from the disconnect switch neutral (AC-) bar to the ground rod shall be a continuous, unspliced conductor. If spliced, it shall be an exothermic weld butt splice.
- The service neutral shall only be connected to ground at the main power service disconnect switch.

**6. Payment for grounding and bonding shall be considered incidental to the conductors installed by the project.**

**ITEM 625- LIGHTING, MISC.: CIRCUIT CABLE, THREE #4 AWG, CU, 5KV**

In addition to the requirements of MIS-404 circuit cable for this project shall contain three (3) #4 AWG, 5 kV cables.

Payment shall be made per linear foot of circuit, which shall include three #4 AWG cables.

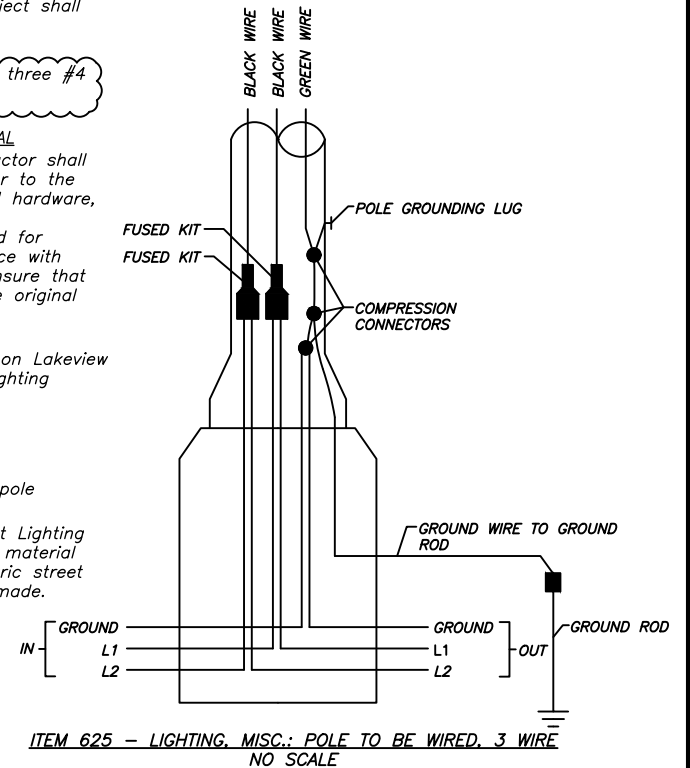
**ITEM 625 - LIGHTING, MISC.: EXISTING STREET LIGHTING SYSTEM REMOVAL**

In addition to the requirements of MIS-901 and MIS-902, the Contractor shall coordinate with AEP and the City of Columbus, Division of Power prior to the removal of all conduits, wire, aerial cable, insulators, cross arms and hardware, street light fixtures and lamps, mast arms, coils, transformers, poles, miscellaneous hardware, and appurtenances that have been designated for removal in the plans. Pole foundations shall be removed in accordance with MIS-900 and shall be incidental to this item. The Contractor shall ensure that all poles and luminaires that are removed remain the property of the original owner.

This item of work shall also include decommissioning two light poles on Lakeview Plaza Boulevard to remove them from the City of Columbus public lighting circuit. Decommissioning a light pole shall consist of removing:

- all underground wire leading up to or departing from the pole
- all connector kits in the base of the pole
- all pole and bracket cable
- all City of Columbus pole identification tags/stickers from the pole

Payment shall be made per Item 625 - Lighting, MISC.: Existing Street Lighting System Removal, shall include all coordination, equipment, labor, and material necessary to remove the designated components of the existing electric street lighting system. No separate payment for itemized removal shall be made.



SUB-SUMMARY OF LIGHTING ITEMS			
ITEM NO.	TOTAL	UNIT	ITEM DESCRIPTION
625	12	EACH	LUMINAIRE, UNDERPASS, SOLID STATE (LED), AS PER PLAN, 480V
625	2	EACH	SERVICE TO UNDERPASS LIGHTING, AS PER PLAN
625	3	EACH	LIGHTING, MISC.: PULL BOX, MEDIUM DUTY, 13"X24" (MIS-54)
625	9	EACH	PULL BOX, 18", 725.06
625	3	EACH	PULL BOX, 24", 725.06
625	32	EACH	LIGHTING, MISC.: 6' STREET LIGHT FOUNDATION (MIS-201)
625	32	EACH	LIGHT POLE, DECORATIVE, AS PER PLAN
625	32	EACH	LUMINAIRE, DECORATIVE, SOLID STATE (LED), AS PER PLAN, 480V
625	3	EACH	LIGHTING, MISC.: POLE TO BE WIRED, 2 WIRE (MIS-500)
625	34	EACH	LIGHTING, MISC.: POLE TO BE WIRED, 3 WIRE
625	547	FT	LIGHTING, MISC.: CIRCUIT CABLE, TWO #4 AWG, CU, 5KV (MIS-403)
625	9866	FT	LIGHTING, MISC.: CIRCUIT CABLE, THREE #4 AWG, CU, 5KV
625	9194	FT	LIGHTING, MISC.: 2" CONDUIT, CONCRETE ENCASED (MIS-700)
625	130	FT	LIGHTING, MISC.: 3" CONDUIT, JACKED OR DRILLED (MIS-702)
625	1	EACH	LIGHTING, MISC.: 240/480V PAD MOUNTED CONTROL SITE, COMPLETE
625	1	LS	LIGHTING, MISC.: EXISTING STREET LIGHTING SYSTEM REMOVAL

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LIGHTING NOTES

FRA-CR 84-1.36  
NORTHEAST GATEWAY

240  
347

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