

**STREET LIGHTING NOTES**

**1. GENERAL**

A. The street lighting shall be constructed in accordance with the current City of Columbus, Ohio "Construction and Material Specifications", Section 1000, titled "Street Lighting" including all supplements thereto, in force on the date of the contract, and 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.

B. No splices shall be made to circuit cables except at noted locations.

C. The plan details shall be considered supplemental to MIS Specifications.

**2. POWER SERVICE**

The power supply agency for this project is: The maintaining agency for this project is:

South Central Power Co. 10229 Busey Road Canal Winchester, OH 43110 (614) 837-4351 1-800-524-0802	Canal Winchester Street Department 38 South High Street Canal Winchester, Ohio 43110 (614) 837-1992
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The Contractor shall pay electrical energy charges for new power services established by this project. After acceptance of this project, power service electrical accounts shall be transferred to the maintaining agency noted in the plans.

**3. ITEM 1000 PAD MOUNTED CONTROL SITE, 480V, AS PER PLAN**

The lighting controller shall conform with MIS 119 except the top finish coat of paint shall be similar to Federal Specification 595B Color #27040 (Black). Paint samples shall be submitted with the light controller drawings for review.

The power source location shall be determined by the South Central Power Co. It shall be the Contractor's responsibility to make arrangement for connection between the power source location and the lighting controller. All cost associated with making the connection shall be the responsibility of the Contractor.

**4. ITEM 1000 POLE ALUMINUM WITH T-BASE FOR TEAR DROP LUMINAIRE, AS PER PLAN**

Light Poles shall be Hapca - Division of Kearney National, Inc. Tapered Aluminum Standard or approved interchangeable equal. Light pole shall be in accordance with MIS Specification No. 129 except the pole shall be fluted (18 sharp flutes) and the top finish coat of paint shall be similar to Federal Specification 595B Color #27040 (Black). Paint samples shall be submitted with the light pole drawings for review.

**5. ITEM 1000 LUMINAIRE 250W HPS, 480V, TEAR DROP, AS PER PLAN**

Luminaire shall be Teardrop style, 480 volt, 250 watt, high pressure sodium. Luminaire shall be in accordance with MIS Specification No. 130 except Luminaire shall be coated to match their respective support pole (Black). Paint samples shall be submitted with the luminaire drawings for review.

**6. FURNISHING SPARE PARTS**

For each 12 street lights installed, one complete pole and luminaire shall be furnished to the Canal Winchester Street Department.

A. ITEM 1000 POLE ALUMINUM WITH T-BASE FOR TEAR DROP LUMINAIRE, (FURNISH ONLY), AS PER PLAN. Light Poles shall be as per ITEM 1000 POLE ALUMINUM WITH T-BASE FOR TEAR DROP LUMINAIRE, AS PER PLAN, except shall be delivered directly to Canal Winchester.

B. ITEM 1000 LUMINAIRE 250W HPS, 480V, TEAR DROP, (FURNISH ONLY), AS PER PLAN. Luminaire shall ITEM 1000 LUMINAIRE 250W HPS, 480V, TEAR DROP, AS PER PLAN except shall be delivered directly to Canal Winchester.

**7. LIGHT POLE FOUNDATION**

Light foundations shall be installed at locations shown on the drawings. Upon approval by the Engineer, a light standard may be moved a maximum of 5' parallel with the roadway to avoid a potential conflict with existing utility lines.

**8. PAINT CHIP SUBMITTAL**

Prior to any painting, the Contractor shall submit paint samples to the Engineer and Canal Winchester. Paint samples shall be representative of the color, type and manufacture that will be used for finishing the various items. The Engineer and Canal Winchester shall review the paint samples prior to the commencement of the finishing process.

Paint samples shall be submitted for all proposed street lighting items called for in this plan set, including, lighting controller, poles and luminaires.

**9. CONDUIT 2" UNDER STREET PAVEMENT, AS PER PLAN**

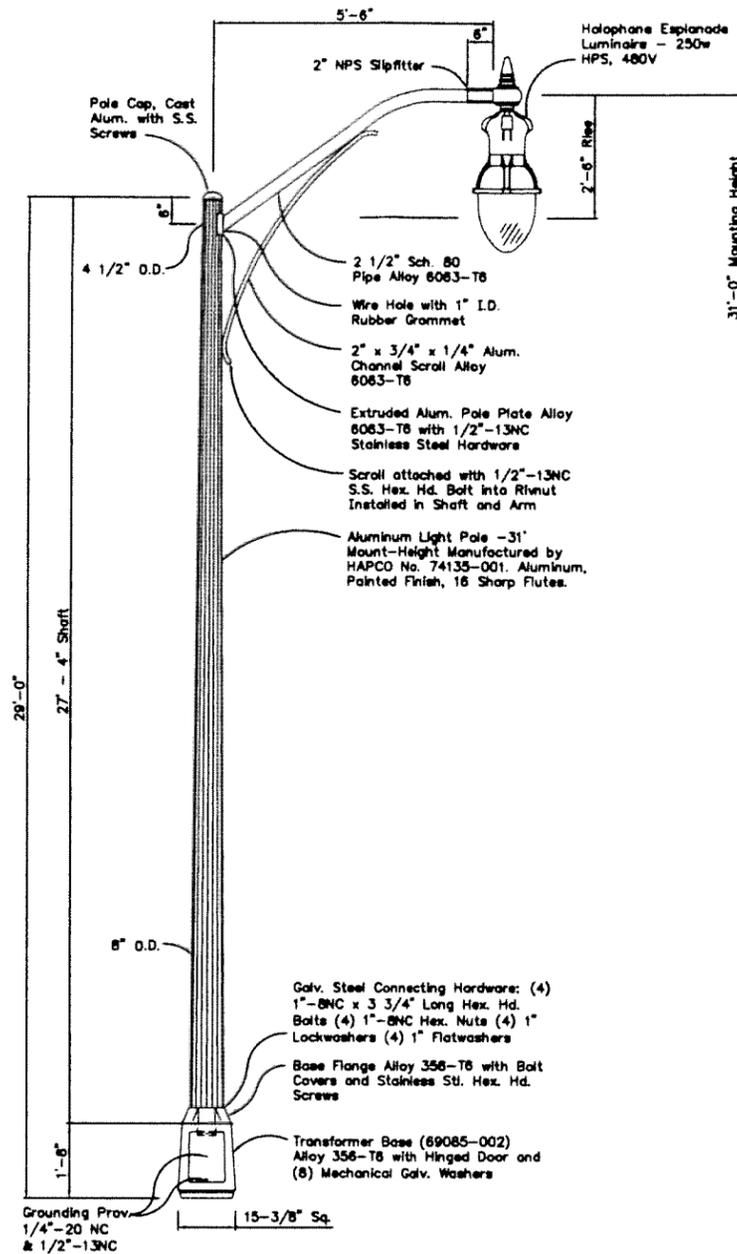
All conduit installed under existing and future street pavement shall be 2" rigid PVC and concrete encased per MIS-17 except two future drive locations as noted in the lighting plans. The conduit shall be 36" deep at those locations.

**10. CONDUIT 2" IN OPEN AREAS, AS PER PLAN**

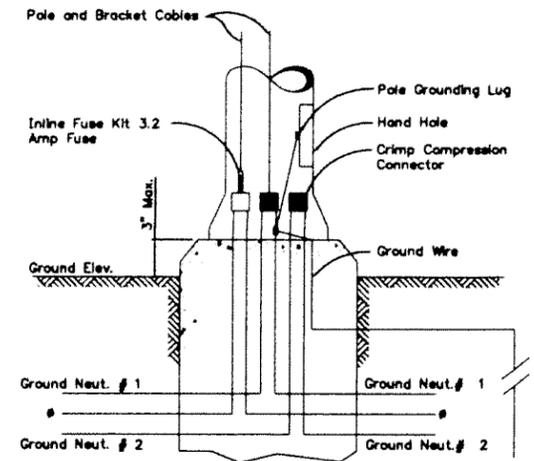
All street lighting conduit located behind curb & gutter in open areas shall NOT be encased. All other specifications shall conform to MIS-15.

**11. ITEM 1000 CIRCUIT CABLE, STREET LIGHT CIRCUIT, THREE #4AWG, 5KV, AS PER PLAN**

Circuit cable for street light circuit shall be three #4AWG, 5KV cable and connection shall be made at pole base as shown on this sheet. Ground Neutral #2 is alternate path in the event Ground Neutral #1 sustain a break. Connect Ground Neutral #1 and Ground Neutral #2 in the polebase at the last pole in the run.

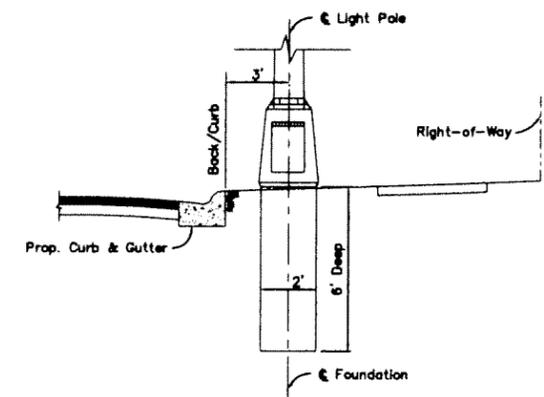


**31' POLE WITH 250W HPS LUMINAIRE (MIS-129, AS PER PLAN)**  
No Scale



**ITEM 1000 POLE TO BE WIRED, TRANSFORMER AND ANCHOR BASE AS PER PLAN**

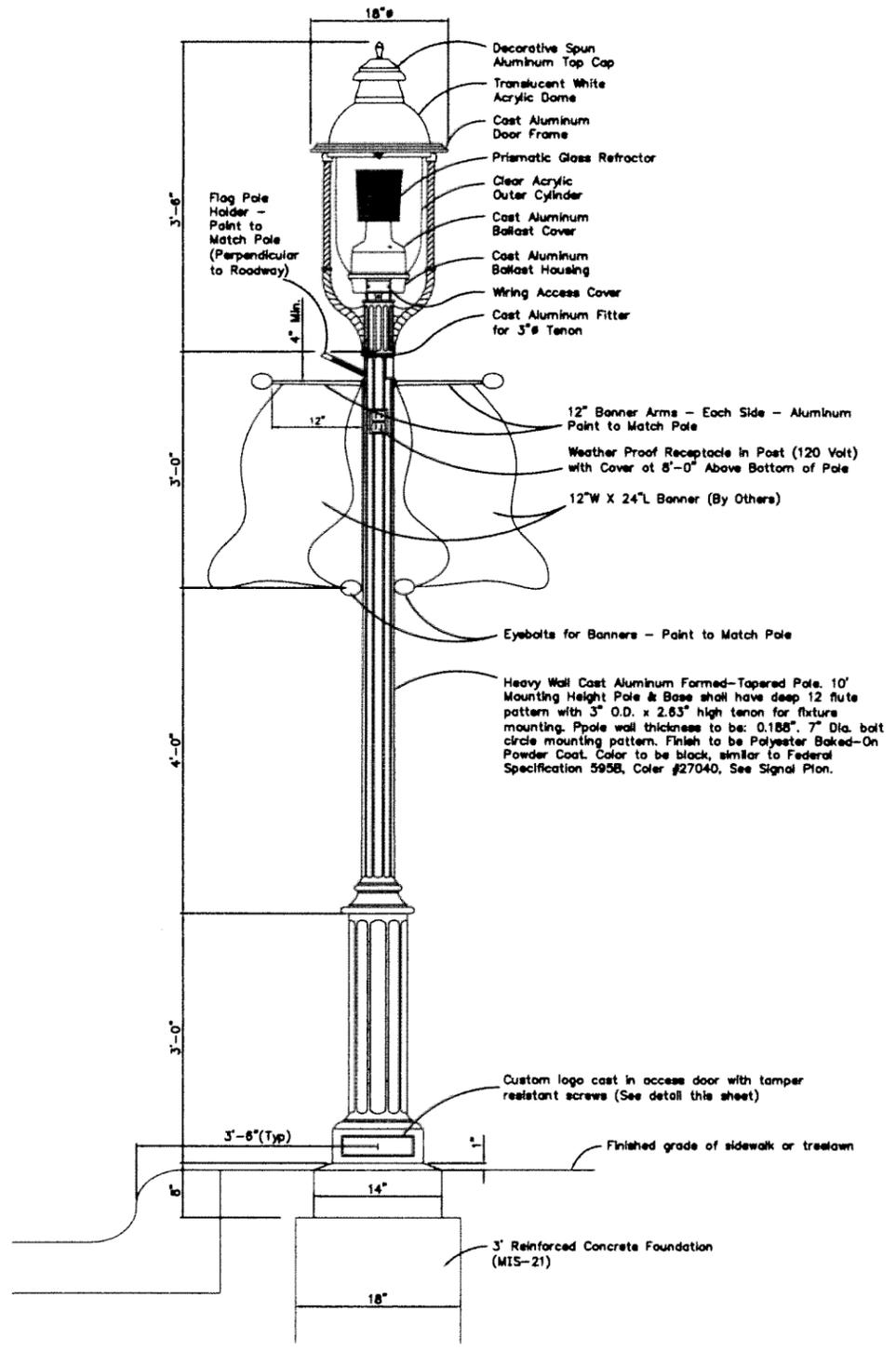
**480 VOLT, THREE-WIRE, GROUND NEUTRAL STREET LIGHT CIRCUIT, 3 #4 AWG, 5KV**  
No Scale



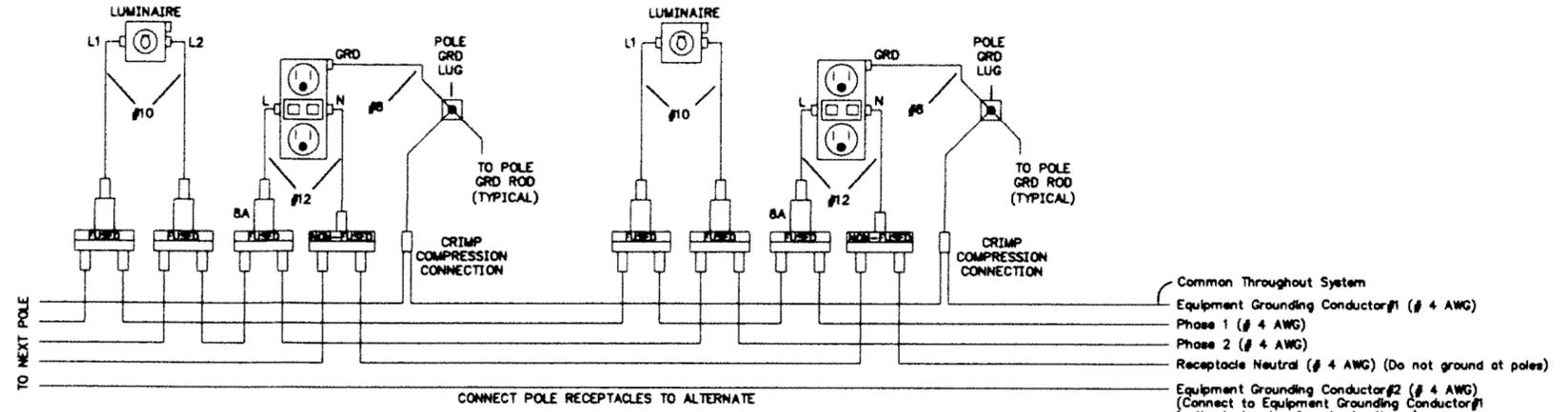
NOTE: Contractor shall exercise CAUTION when installing foundation adjacent to existing or proposed utilities

**TYPICAL LIGHT POLE AND FOUNDATION LOCATION**  
No Scale

STREETLIGHT TYPE "A" LIGHTING NOTES AND DETAILS	
PROJECT TITLE 123 MAIN STREET CANAL WINCHESTER, OHIO	
	ENGINEERING FIRM LOGO
	DATE: X/XX/XX SCALE: 1" = 11' DRAWN BY: XXX CHECKED BY: XXX PROJECT NO.: 200X-XXX SHEET: X OF X



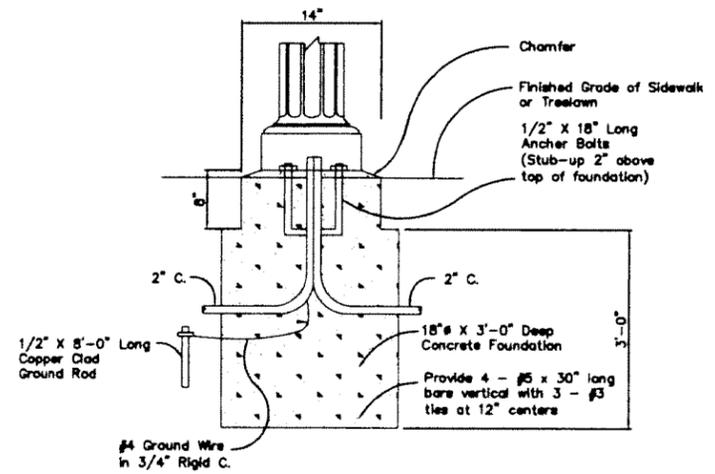
10' HIGH CAST ALUMINUM POLE & LUMINAIRE DETAIL  
No Scale



TYPICAL POLE LUMINAIRE & RECEPTACLE CIRCUIT CONNECTIONS  
No Scale



LOGO DETAIL  
No Scale



LIGHT POLE FOUNDATION DETAIL  
No Scale

STREETLIGHT TYPE "B" LIGHTING DETAILS	
PROJECT TITLE 123 MAIN STREET CANAL WINCHESTER, OHIO	
	
DATE: X/XX/XX SCALE: 1" = 1' DRAWN BY: XXX CHECKED BY: XXX PROJECT NO.: 200X-XXX SHEET: X OF X	

**STREET LIGHTING NOTES**

**GENERAL**

- The street lighting shall be constructed in accordance with the current City of Columbus, Ohio "Construction and Material Specifications" (2002 Edition, Section 1000, titled "Street Lighting") including all supplements thereto, in force on the date of the contract, and 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.
- No splices shall be made to circuit cables except at noted locations. The plan details shall be considered supplemental to MIS Specifications.
- The City of Columbus, Ohio, Division of Electricity, material and construction specifications are hereby incorporated into this set of plans. The Division of Electricity Standard Specifications can be obtained at 3500 Indiana Ave. The MIS numbers listed in the roadway lighting quantities are referenced to specifications published by the Division of Electricity which shall govern work relating to the installation of roadway lighting equipment and apparatus for this project.
- Foundations for roadway light standards shall be located with centerline at locations indicated in the plans. Where utilities interfere with light pole locations, the foundation may be moved as approved by Canal Winchester.
- Provide a capped vacant all out of the last light standard foundation at the end of each circuit in which circuits terminate for future extension of the lighting system.
- Pullboxes shall be located approximately where shown on plans with exact location of each pullbox to be determined after careful consideration has been given to the location of utilities, pavements, and grades. The quantity of pullboxes may vary depending upon the actual site conditions and location of utilities.
- The Contractor is responsible to comply with all local codes and ordinances pertinent to the progression of the work described within the project plans. Any required permit shall be obtained and paid for by the Contractor. The Contractor and Sub-Contractor shall be responsible for complying with all Federal, State and Local safety requirements, together with exercising precautions at all times for the protection of persons (including employees) and property. It is also the sole responsibility of the Contractor and Sub-Contractor to initiate, maintain and supervise all safety requirements, precautions and programs in connection with the work. The Contractor shall restore all disturbed areas to an equal or better condition than existed prior to construction.
- Circuit voltage for all luminaires shall be 240 volt. All luminaires shall be High Pressure Sodium with Wattage as indicated.
- All underground lighting cables to be placed in 2" PVC conduit except where noted on plans. The centerline of the trench shall be located in accordance with the plan details. Trench location may be deflected around obstacles as approved by the Engineer.
- Light Standards - All light standards shall be aligned along the roadway, unless otherwise noted, with foundation centerlines located equal distance off edge of curb. Prior to placement of any foundation, the Contractor shall check and verify the location of existing utilities, and notify the Engineer of any conflict on plans. All proposed light standards and equipment locations shall be field verified by the Contractor in regards to proper clearances for existing overhead and underground utilities prior to performing any construction work.
- As Built Record - The Contractor shall maintain a set of project record documents. These documents shall include reviewed shop drawings, change orders, equipment operating instructions, field test records, and as-built drawings. The as-built drawings shall be marked legibly in red, the actual location of equipment and conduits as constructed. All equipment and underground conduits installed shall have locations marked in distances off a landmark at least every 25 feet and as necessary at bends for location at a later date.
- All items of work called for on the plans, for which no specific method of payment is provided, shall be performed by the Contractor and the cost of these shall be included in the unit prices bid for the various related items. This includes, but not limited to such incidental items, as relocation of man boxes, saw cutting, and removal and/or relocation of signs, railroad ties, sprinklers, relocating roof or sump drains around light pole foundations, hand digging around underground utilities or other miscellaneous items.

**GROUNDING AND BONDING**

The requirements of the State of Ohio Department of Transportation Construction and Material Specifications (CMS) 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 same wire size as the duct cable or distribution cable circuit conductors, with the minimum conductor size of 4 AWG. Bonding jumpers will be minimum size 4 AWG.

- Ground rod.
  - A 3/4 inch Schedule 40 PVC conduit will be used in foundations and concrete walls for the grounding conductor (ground wire) roadway 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.
- 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 (AC-) shall only be connected to ground at the primary power service disconnect switch.

**POWER SERVICE**

- The power supply agency for this project is: The maintaining agency for this project is:
 

South Central Power Co. 10229 Busey Road Canal Winchester, Ohio 43110 (614) 837-4351 1-800-524-0802	Canal Winchester Street Department 36 South High Street Canal Winchester, Ohio 43110 (614) 837-1992
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**PAINT CHIP SUBMITTAL**

- Prior to any painting, the Contractor shall submit paint samples to the Engineer and Canal Winchester officials. Paint samples shall be representative of the color, type and manufacture that will be used for finishing the various items. The Engineer and Canal Winchester officials shall review the paint samples prior to the commencement of the finishing process.
- Paint samples shall be submitted for all proposed street lighting items called for in this plan set, including lighting controller, poles and luminaires. Any cost associated with providing paint samples shall be incidental to the individual items to be painted.
- The power supply shall be 120/240V, single phase, 3-wire. The Contractor shall pay electrical energy charges for new power services established by this project. After acceptance of this project, power service electrical energy accounts shall be transferred to the maintaining agency noted in the plans.

**SPECIAL STREET LIGHT STANDARD, COMPLETE**

- This item shall consist of furnishing the materials, labor and equipment necessary to supply and install one light pole, one luminaire, one foundation and pole to be wired complete at the locations shown on the plans. Street Light standard shall be comprised of following basic four items and all necessary equipment to complete the work.
- Luminaire, Victorian Style Gaslight, 100 Watt High Pressure Sodium, 240 Volt: This item shall consist of furnishing the materials, labor and equipment necessary to supply and install one Victorian style gaslight luminaire, complete with lamp and ballast, at the locations shown on the plans. The luminaire shall be Dorchester Series Luminaire Victorian Style Gaslight, as manufactured by Unique Solutions, a Division of Halophane. Fixture shall operate at 240 volts. The luminaire black polyester powder coat finish shall match the pole, similar to Federal specification 595B, color #27040.
- The unit shall be supplied with a translucent white acrylic dome, a stepped edge cast aluminum door frame on a hinged roof. The luminaire shall be 100 Watt high pressure sodium, with prismatic refractor providing an asymmetrical light distribution. The door frame shall be stepped instead of smooth. A scalloped edge is not acceptable. Model No. DH 100HP248A-STEPPED-G-LU100.
- Light Pole, Cast Aluminum Decorative with 120 Volt Duplex GFI Receptacle: This item shall consist of furnishing the materials, labor and equipment necessary to supply and install one Victorian style cast aluminum light pole, with a ten foot mounting height, complete with anchor bolts, two 12" banner arms, one flag pole holder and miscellaneous hardware necessary for a complete installation in accordance with the plan details. The pole shall be a Hamilton Series cast aluminum post as manufactured by Unique Solutions, a Division of Halophane. Model No. H 10C/10-CA/BK-CLD-T(3.0X2.63)-RS/GFI/WPC-2BA12B/1/BO-CA/BK-2EB/BO-SS/BK-FPH1/BO-CA/BK.
- The pole shall be painted with polyester, baked on powder coat. The color shall be similar to Federal Specification 595B Color #27040 (Black). The Contractor shall supply paint chips with the shop drawings.
- The access door in the base of the pole shall be furnished with a custom cast logo of a design furnished by the Owner. Poles shall be ordered as soon as shop drawings are approved by the Engineer. Note the lead time for the poles and completion dates in contract.
- Light Pole Foundation, 3'-8" Reinforced Concrete: This item shall consist of a reinforced concrete foundation per MIS-21 except that the depth shall be 3'-8". 3' Section diameter shall be 18" minimum, the top 8" shall be formed into a 14" diameter circle with chamfer from finished grade to pole base, and anchor bolts and reinforcing bars shall be as shown in foundation detail on this Sheet.
- Light pole to be wired, MIS-41: In addition to the requirements in MIS-41 and the standard specifications, this item shall include all labor, equipment and materials necessary to supply, install, and equip each light pole with one 120 volt duplex receptacle (which shall be a GFI type) located as noted in the detail on this Sheet. Stagger the line connections for receptacles from pole to pole in each circuit so that the circuit connections are balanced for receptacles in each circuit. The connector kits shall be as per COC CMS 713.15.
- In addition to the requirements in MIS-14 & MIS-41, circuit cable for street light circuit shall be five #4AWG, 5KV cable and connection shall be made at pole as shown on this sheet.

**CONDUIT, 2" IN OPEN AREAS (MIS-15), AS PER PLAN**

- Install all conduits at 36" below the finished grade and provide the following plastic caution tape: The location of the conduit in the trench shall be marked by the use of a continuous identifying tape buried in that trench above the line. The identifying tape shall be an inert material approximately 6" wide composed of polyethylene plastic and shall be highly resistant to alkalis, acids, and other chemical components likely to be encountered in soils. The tape shall be red with the words "Electric Line Buried Below" printed in black letters on one side only. It shall be supplied in continuous rolls with the identifying lettering repeated for the full length of the tape. The Contractor shall bury the tape in the trench with one strip placed approximately down the centerline and 8" to 12" below the final grade. It shall be placed in the trench with the printed side up and shall be essentially parallel to the finished surface. The Contractor shall take any necessary precautions to insure that the tape is not pulled, distorted or otherwise misplaced in completing the trench backfilling. The tape shall be Terra Tape, Allen System's or an equal as approved by the Engineer in advance.

**240V CONTROL SITE, AS PER PLAN**

- In addition to the requirements in MIS-120 and the standard specifications, this item shall include all labor, equipment and materials necessary to supply, install, and mount the control site on a padmount controller base. The padmount controller base and pad shall be as detailed under MIS-119 (DWG-0150128 and 0150108). The enclosure specified for 240V Control Site (MIS-120) shall be replaced with the enclosure required under MIS-119 so that it fits to the padmount controller base. All equipment and material placed inside the enclosure shall be adjusted to fit in the enclosure.
- For power service, the Contractor shall install three #4 5KV cables (MIS-14) from the line terminals of the control panel to power company's service transformer or pedestal leaving 4'-6" of cable coiled for connection by the power company. The neutral cable shall be clearly marked with white stripes and tape. The power source location shall be determined by the South Central Power Co. It shall be the Contractor's responsibility to make arrangement for connection between the power source location and the lighting controller. All cost associated with making the connection shall be the responsibility of the Contractor.
- The photo electric control shall be mounted on top of the first light standard of the circuit. The three control wires shall be installed in the same 2" conduit as circuit.
- The lighting controller top finish coat of paint shall be similar to Federal Specification 595B Color #27040 (Black). Paint samples shall be submitted with the light controller drawings for review.

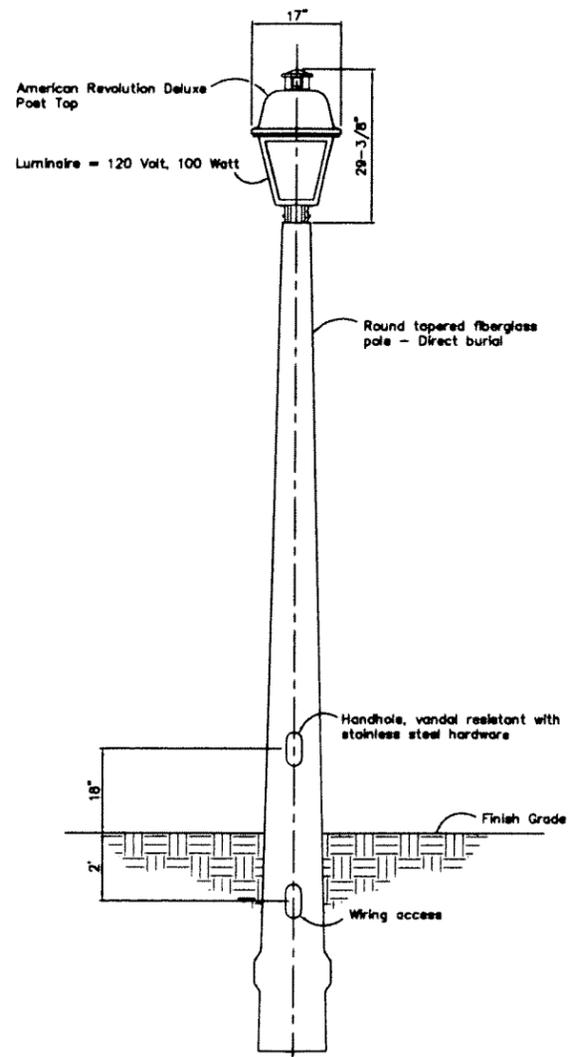
**CIRCUIT CABLE, FIVE #4 AWG, CU, 5KV, AS PER PLAN**

- In addition to the requirements in MIS-14 & MIS-41, circuit cable for street light circuit shall be five #4AWG, 5KV cable and connection shall be made at pole as shown on this sheet. Equipment conductor#2 grounding is alternate path in the event equipment grounding conductor#1 sustain a break. Connect Equipment grounding conductor#1 and Equipment grounding conductor#2 in the polebase at the last pole in the run.

<b>STREETLIGHT TYPE "B" LIGHTING NOTES</b>	
PROJECT TITLE 123 MAIN STREET CANAL WINCHESTER, OHIO	
	
DATE: X/X/XX SCALE: 1" = 1' DRAWN BY: XXX CHECKED BY: XXX PROJECT NO.: 200X-XXX SHEET: X OF X	

EPA (ft) with 1.3 gust							
Catalog Number	Nominal Shaft Length (Feet)	Pole Shaft Size (in x in x ft)	80 mph	90 mph	100 mph	Max. Weight	Approximate Shipping Weight (pounds)
RTFDR 18 6X	18	6.6 x 4.1 x 20	10.0	7.4	5.5	150	34

Color as selected by Canal Winchester



NOTE: Lighting based on American Electric Lighting brand products

POLE DETAIL  
No Scale

STREETLIGHT TYPE "C" LIGHTING NOTES AND DETAILS	
PROJECT TITLE 123 MAIN STREET CANAL WINCHESTER, OHIO	ENGINEERING FIRM LOGO
 	
DATE: X/XX/XX SCALE: 1" = 1' DRAWN BY: XXX CHECKED BY: XXX PROJECT NO.: 20XX-XXX SHEET: X OF X	