

APPENDIX E

Outdoor Lighting Standards



Last Updated 11/1/2022

OSU STANDARD HOLOPHANE LIGHTING FIXTURES (Last Updated 7/15/2022)

Poles:

Pedestrian Post Top Sitelink – North Yorkshire (NY), Aluminum (A), Height (14'), Shaft Size (SL5), Base Diameter – 17" (17D), Tenon Size C03 (3"x3"), Pole Mounting Anchor Bolts (ABG), Color-Bronze (BZ)

#: NYA 14 SL5 17D C03 BZ ABG

Parking Lot Fluted – North Yorkshire (NY), Material- Steel (S), Height (21'), Shaft Style (FTB), Base-17" (17D), Tenon C09 (3"x9"), Mounting-ABG, Finish-Bronze (BZ); Poles may also be Aluminum – No clamshell base (Parking Lots)

#: NYS 21 FTB 17D C09 BZ ABG

Roadway Fluted – North Yorkshire (NY), Material-Steel (S), Height (21'-4"), Shaft Style-Round Tapered Fluted (12 Flat), Tenon (4.5" x 10"), (4) Banner Arm Provisions, Mounting-10.4" Butt Diameter, Baseplate to accommodate a 15" bolt circle, Color Holophane Bronze (BZ);

North Yorkshire (NY) Cast Iron (CI) Clamshell Base (CSB-24" Diameter, 42" Tall), 24" Diameter Holophane Bronze.
Set of 1.25" Anchor Bolts.

#: FL210-T40B210-4.5T 10-BZ (4) BAPADS NY24 WNC SBC IDBH AB-28-4 RFD250368

Mounting Arms:

Parking Lot Single Arm – West Liberty (WLC), 72", Single (1A), Tenon Mount (TN), Color Bronze (BZ), with West Liberty Fitter (WLDF), Quick Lock Stem Mount (QSM), Bronze (BZ)

WLC 72IN 1A TN BZ WLDF QSM BZ

Parking Lot Double Arm – West Liberty (WLC), 72", Double (2A), Tenon Mount (TN), Color Bronze (BZ), with West Liberty Fitter (WLDF), Quick Lock Stem Mount (QSM), Bronze (BZ)

WLC 72IN 2A TN BZ WLDF QSM BZ

Roadway Arms Single – Aluminum roadway crossarm, 51 inches, Single arm, Tenon mount, 1-1/2" NPT, Bronze with Boston Harbor Fitter (BHDF)

#ATC 51IN 1A TN NPT BZ BHDF QSM BZ

Roadway Arms Double – Aluminum roadway crossarm, 51 inches, 2 at 180 degrees, Tenon mount, 1-1/2IN NPT, Bronze with Boston Harbor Fitter (BHDF)

#ATC 51IN 2A TN NPT BZ BHDF QSM BZ

Luminaires:

Pedestrian- Utility Post Top LED (PTUE3), Taft Utility, Performance Package P40, 60W, Color Temp 4000K (40K), Voltage 120-277 (MVOLT), Optics- Glass asymmetric, type 3, Bronze (BZ), Spike Finial (SK), Option-Field adjustable lumen output (AO)

Post Top LED#: PTUE3 P40 40K MVOLT GL3 BZ SK AO

Roadway-Esplanade LED (ESL3), Performance Package P35S, Wattage 112W, Color Temp 40K, Voltage 120-277(MVOLT) or 347-480(HVOLT), Optics-Teardrop Asymmetric (TG3), Top Entry- Stem Mount (QSM), Housing Color – Bronze (BZ), Adjustable Output (AO), Shallow Skirt (SS)

Roadway #: ESL3 P35S 40K MVOLT TG3 QSM BZ AO SS

Parking Lot-Esplanade LED (ESL3), Performance Package P35S, Wattage 112W, Color Temp 4000K (40K), Voltage 120-277(MVOLT) or 347-480(HVOLT), Optics-Teardrop Asymmetric, type 3 (TG3), Top Entry- Stem Mount (QSM), Housing Color – Bronze (BZ), Adjustable Output (AO), Shallow Skirt (SS)

Parking: # ESL3 P35S 40K MVOLT TG3 QSM BZ AO SS

Options:

Banner Arms – *BA? BO H 4 BZ* (? = Banner Arm length: 30 for roadway and parking lot light assembly; 18 for pedestrian light assembly, Bolt On, Finial-Half Sphere (H), 1” diameter (4), Bronze (BZ)

Bollard Path Light-Colombia LED Series (CLBOLED), Cast Aluminum (CA), P40 LED Performance Package (P40), 4000K Color Temperature (40K), Auto-sensing voltage (120 thru 277) 60 HZ (MVOLT), Louver - semi-specular - Type 5 (LS5), Acrylic Clear Smooth Outer Lens (ASC), Black (BK), Field adjustable output device (AO), Factory Installed direct burial base for mounting without a concrete footing (DBB), GFI receptacle externally mounted with wet-location cover (FGE)**

Bollard with Concrete Foundation#: CLBOLED CA P40 40K MVOLT LS5 ACS BK AO FGE**

Bollard with Direct Burial Base#: CLBOLED CA P40 40K MVOLT LS5 ACS BK AO DBB* FGE**

*Bollard shall have a concrete foundation by default. Bollard with direct burial base (DBB) shall be only used with the permission of OSU ES.

**GFI receptacle is optional and shall be decided by each project.

Contractor Installed in Base:

Slow-Blow In-line fuses

All post top lights and bollard lights are typically 120V. All parking lot and roadway lights are typically 480V single phase.

OSU STANDARD HOLOPHANE LIGHTING FIXTURES

OSU has adopted the following illumination standards for outdoor spaces from the IESNA Recommended Practices, Design Guides, Guidelines, the 10th Edition Lighting Handbook and the 2013 OSU Exterior Lighting Study. All parking lots and pedestrian pathways on the campus are considered to be "Secure", which requires maintaining a more even uniformity ratio for the areas.

Parking Lots (All)

3 foot candle minimum maintained horizontal and vertical average at 5'-0" above grade
Minimum maintained foot candle reading of no less than .7
Maximum maintained foot candle reading of 10.5
Average to minimum ratio no greater than 4:1
Maximum to minimum ratio no greater than 15:1

Roadways/Street (All on/around Campus)

1 foot candle minimum maintained horizontal average
Minimum foot candle reading of no less than .25
Average to minimum ratio no greater than 4:1

Sidewalks and Pedestrian Pathways (All on/around Campus)

1 foot candle horizontal average
Minimum foot candle reading of no less than .25
Average to minimum ratio no greater than 4:1

Illumination plots shall be calculated on a 5'x5' grid spacing. The illumination plot shall show fixture placement and statistics including average, minimum, maximum, average-to-minimum ratio and maximum-to-minimum ratio for each calculation zone.

Coordinate all intersection and crosswalk lighting designs with OSU Energy Services – Utilities Engineering.

References

IESNA RP-20-14 Revised, Part II, Section 7
IESNA RP-8-14
IESNA G-1-16, Section 8.2.6; Section 8.2.16

The following suite of standardized light fixtures describes the aesthetic properties of the light assemblies only. Detailed specifications for lighting standards can be found in the Oklahoma State University Building Design Standards - Section 16530, Exterior Lighting Fixtures:

Street Light Assembly - Single Fixture:

- Manufacturer - Holophane®
- Pole - SiteLink® Pole, 5.75" Fluted Aluminum, 24" North Yorkshire Base, 21' Height, Black Color
- Fixture - Esplanade Tear Drop, Decorative Shallow Skirt, West Liberty Leveling Fitter, Black Color
- Cross Arm - ATC Single Arm
- Banner Arms - Two 30" Long Banner Arms, Black Color

Street Light Assembly - Double Fixture:

- Manufacturer - Holophane®
- Pole - SiteLink® Pole, 5.75" Fluted Aluminum, 24" North Yorkshire Base, 21' Height, Black Color
- Fixture - Esplanade Tear Drop, Decorative Shallow Skirt, West Liberty Leveling Fitter, Black Color
- Cross Arm - West Liberty Twin Crossarm
- Banner Arms - Four 30" Long Banner Arms, Black Color

Parking Lot Light Assembly - Double Fixture:

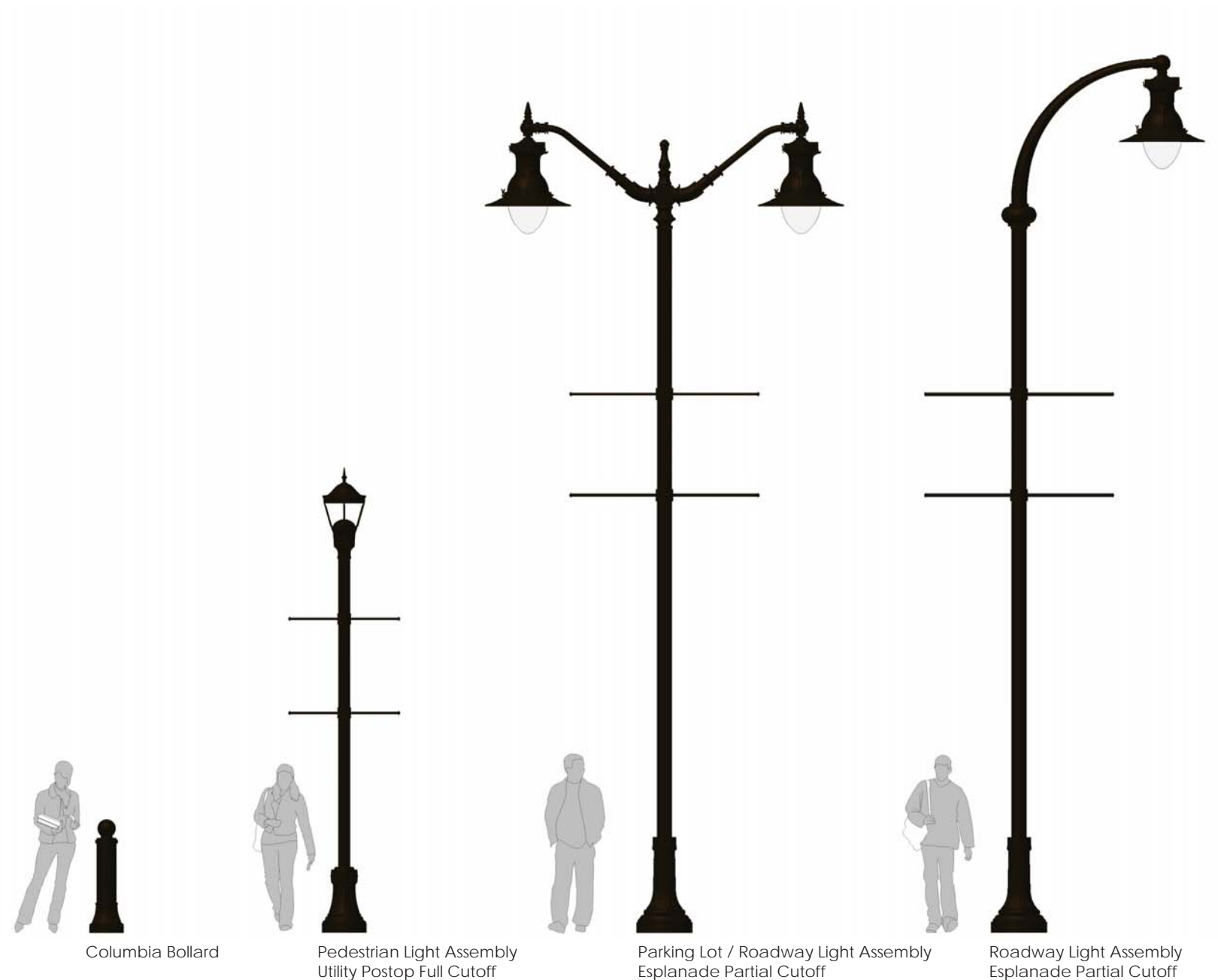
- Manufacturer - Holophane®
- Pole - SiteLink® Pole, 5.75" Fluted Aluminum, 24" North Yorkshire Base, 21' Height, Black Color
- Fixture - Esplanade Tear Drop, Decorative Shallow Skirt, West Liberty Leveling Fitter, Black Color
- Cross Arm - West Liberty Twin Crossarm
- Banner Arms - Four 30" Long Banner Arms, Black Color
- Notes - Same assembly as the Double Fixture Street Light

Pedestrian Light Assembly:

- Manufacturer - Holophane®
- Pole - SiteLink® Pole, 4.5" Fluted Aluminum, 17" North Yorkshire Base, 12' Height, Dark Bronze Color
- Fixture - Utility Postop, Full Cutoff, Spike Finial, Black Color
- Banner Arms - Four 18" Long Banner Arms, Black Color

Lighted Bollard:

- Manufacturer - Holophane®
- Model - Columbia™, 44" Height, 13" Diameter Base
- Material - Cast Aluminum or Cast Iron
- Color - Black Powder Coat
- Notes - Lighted bollards match non-lighted bollards (see Site Furnishings)



Columbia Bollard

Pedestrian Light Assembly
Utility Postop Full Cutoff

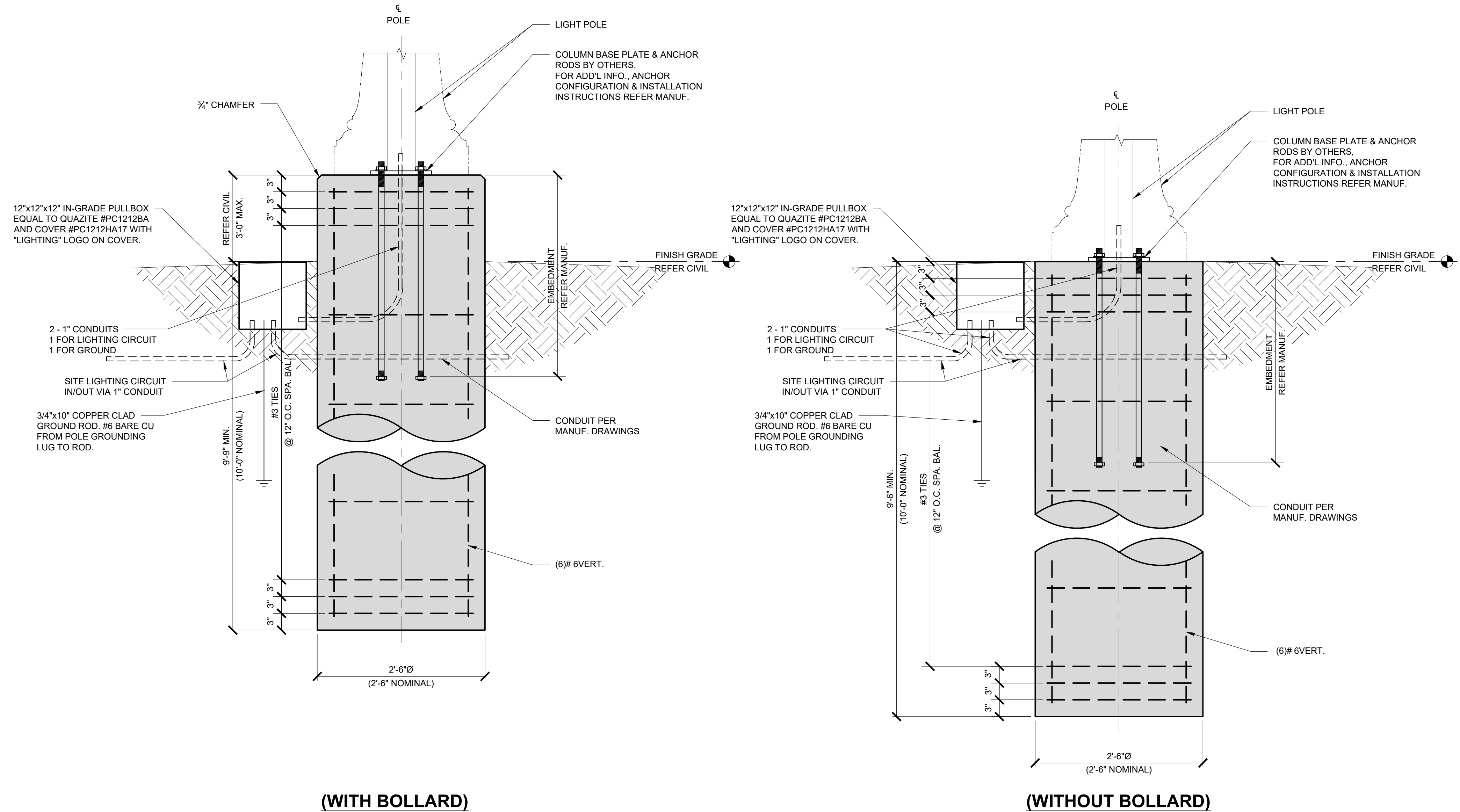
Parking Lot / Roadway Light Assembly
Esplanade Partial Cutoff

Roadway Light Assembly
Esplanade Partial Cutoff

GENERAL NOTES

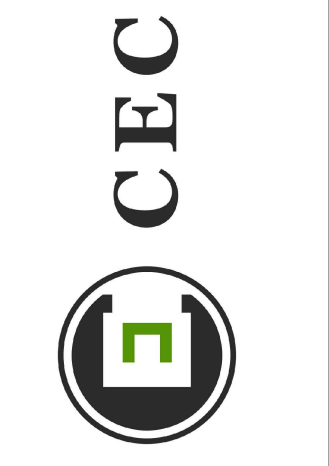
- I. OVERALL NOTES**
 1. PRIOR TO BEGINNING ANY WORK OR ORDERING ANY MATERIALS, THE CONTRACTOR SHALL COORDINATE THE STRUCTURAL DRAWINGS WITH ALL OTHER TRADES, NOTIFY THE OWNER AND THE ENGINEER OF RECORD OF ANY DISCREPANCIES OR POSSIBLE DEFICIENCIES.
 2. PRIOR TO STARTING WORK, THE CONTRACTOR SHALL VERIFY THE EXISTING SITE CONDITIONS AND CONSTRAINTS AS WELL AS EXISTING BUILDING LOCATION, DIMENSIONS, AND ELEVATIONS, IF ANY.
 3. NO FIELD REVISIONS OR MODIFICATIONS TO ANY STRUCTURAL COMPONENT SHALL BE PERFORMED WITHOUT PRIOR APPROVAL BY THE ENGINEER OF RECORD.
 4. PLANS AND DETAILS SHALL NOT BE SCALED FOR DETERMINATION OF LENGTHS, QUANTITIES, OR CONFIGURATION OF MATERIALS.
- II. COORDINATION WITH OTHER TRADES**
 1. THE CONTRACTOR SHALL SUPPLY ALL ITEMS FOR ATTACHING MECHANICAL AND ELECTRICAL EQUIPMENT TO THE STRUCTURE TO RESIST ALL LOADS, INCLUDING SEISMIC FORCES. COORDINATE THE LOCATION(S) AND REQUIRED ATTACHMENT(S) WITH THE STRUCTURE. REFER TO THE ELECTRICAL AND MECHANICAL DOCUMENTS FOR ADDITIONAL REQUIREMENTS.
 2. COORDINATE AND PROVIDE SLEEVE LAYOUTS FOR ALL PIPES, CONDUITS, OR ANY OTHER ITEMS PENETRATING THROUGH STRUCTURAL MEMBERS. LAYOUTS ARE TO BE SUBMITTED TO AND APPROVED BY THE ENGINEER OF RECORD PRIOR TO CONSTRUCTION.
- III. GEOTECHNICAL NOTES**
 1. THE FOUNDATIONS FOR THIS STRUCTURE WE REDESIGNED BASED UPON THE PRESUMPTIVE ALLOWABLE VALUES AS DESCRIBED IN THE 2015 INTERNATIONAL BUILDING CODE, TABLE 1806.2 "PRESUMPTIVE LOAD-BEARING VALUES" FOR CLAY, SANDY CLAY, SILTY CLAY, CLAYEY SILT, SILT, AND SANDY SILT. SHOULD ACTUAL SITE CONDITIONS VARY FROM THIS, THE FOUNDATION SHALL BE REDESIGNED.
- IV. REINFORCED CONCRETE NOTES**
 1. ALL REINFORCED CONCRETE SHALL CONFORM TO ALL REQUIREMENTS OF ACI 301 "SPECIFICATIONS FOR STRUCTURAL CONCRETE FOR BUILDINGS", LATEST EDITION INCLUDING AMENDMENTS, AND ACI 318 "BUILDING CODE REQUIREMENTS FOR STRUCTURAL CONCRETE", EDITION REFERENCED IN THE 2009 INTERNATIONAL BUILDING CODE.
 2. TOLERANCES FOR CONCRETE MEMBERS AND COMPONENTS SHALL CONFORM TO ACI 117 "SPECIFICATION FOR TOLERANCES FOR CONCRETE CONSTRUCTION AND MATERIALS."
 3. DETAILING OF CONCRETE REINFORCEMENT AND ACCESSORIES SHALL CONFORM TO ACI 315 "DETAILS AND DETAILING OF CONCRETE REINFORCEMENT."
 4. U.N.O., CONCRETE SHALL HAVE SAND AND CRUSHED STONE OR GRAVEL AGGREGATE AND TYPE I, II, OR III PORTLAND CEMENT. THE CONCRETE SHALL HAVE A MINIMUM 28-DAY COMPRESSIVE STRENGTH OF 3,500 PSI AND A MAXIMUM WATER/CEMENTITIOUS MATERIALS RATIO OF 0.50, AND SHALL BE AIR ENTRAINED WITH AIR CONTENT OF 6% ±1.5%.
 5. NORMAL WEIGHT AGGREGATE SHALL CONFORM TO ASTM C33.
 6. SLUMP OF CONCRETE SHALL NOT EXCEED 3" AT THE END OF THE TRUCK OR PUMP HOSE (PER ACI 211.1 TABLE 6.3.1). SLUMP LOSS DUE TO PUMPING SHALL BE ACCOMMODATED. IF A SUPERPLASTICIZER OR MID-RANGE WATER REDUCING ADMIXTURE IS USED IN THE MIX DESIGN, THE SLUMP SHALL NOT EXCEED 8" AFTER ADDITION OF THE ADMIXTURE. DO NOT ADD WATER TO CONCRETE AFTER ADDING WATER-REDUCING ADMIXTURES TO THE MIX.
 7. U.N.O., ALL CONCRETE REINFORCING BARS SHALL CONFORM TO ASTM A615, GRADE 60 AND BE OF DOMESTIC MANUFACTURE. REINFORCING BARS TO BE WELDED SHALL CONFORM TO THE REQUIREMENTS OF ASTM A706, GRADE 60. WELDING TO REINFORCING BARS NOT SHOWN ON THE DRAWINGS, SHALL NOT BE PERMITTED. ELECTRICAL GROUNDING AND OTHER REQUIRED CONNECTIONS TO REINFORCING BARS SHALL BE ATTAINED VIA CLAMPS OR OTHER MANUFACTURED CONNECTIONS.
 8. REINFORCING SHALL BE SUPPORTED AND SECURED IN ITS PROPER LOCATION TO PREVENT DISPLACEMENT DURING PLACEMENT OF CONCRETE.
 9. THE CONTRACTOR SHALL VERIFY WITH ALL DISCIPLINES THE LOCATIONS OF ALL REQUIRED OPENINGS, SLEEVES, CAST-IN-PLACE ANCHORS OR HANGERS, SLAB DEPRESSIONS, INSERTS AND ANY OTHER ITEM TO BE CAST INTO THE CONCRETE.
 10. ALL HIGH-STRENGTH GROUT SHALL BE PREPACKAGED, NON-METALLIC, AND NON-GASEOUS. IT SHALL BE NON-SHRINK ACCORDING TO ASTM C-1107 OR CRD-C-821. GROUT SHALL OBTAIN A MINIMUM COMPRESSIVE STRENGTH OF 7,000 PSI IN 28 DAYS AND SHALL NOT BLEED. GROUT SHALL BE MOIST CURED FOR A MINIMUM OF 24 HOURS AFTER PLACEMENT. SUBMIT CERTIFIED, INDEPENDENT TEST DATA FOR APPROVAL.

ROADWAY LIGHT POLE FOUNDATION (WITH CLAMSHELL BASE)



LIGHT POLE REACTIONS AT T.O. FOUNDATION BASIS OF DESIGN				
POLE SIZE	BENDING MOMENT (FT/LBS)	TORSION (FT/LBS)	SHEAR FORCE (LBS)	AXIAL FORCE (LBS)
REFER LIGHT POLE DESCRIPTIONS	17,596	1149	1089	1055

1. SHOULD FOUNDATION REACTIONS FROM SELECTED FIXTURE(S) EXCEED THE BASIS OF DESIGN, THE FOUNDATIONS SHALL BE RE-EVALUATED.
2. REFER TO PAGE 1 AND 2 OF OSU'S "OUTDOOR LIGHTING STANDARDS" FOR DESCRIPTIONS OF PRODUCTS.



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NO.	DESCRIPTION	DATE	BY	DATE

**OSU ROADWAY LIGHT POLE
FOUNDATIONS**

STILLWATER, OKLAHOMA

SHEET NAME
FOUNDATION
DETAILS

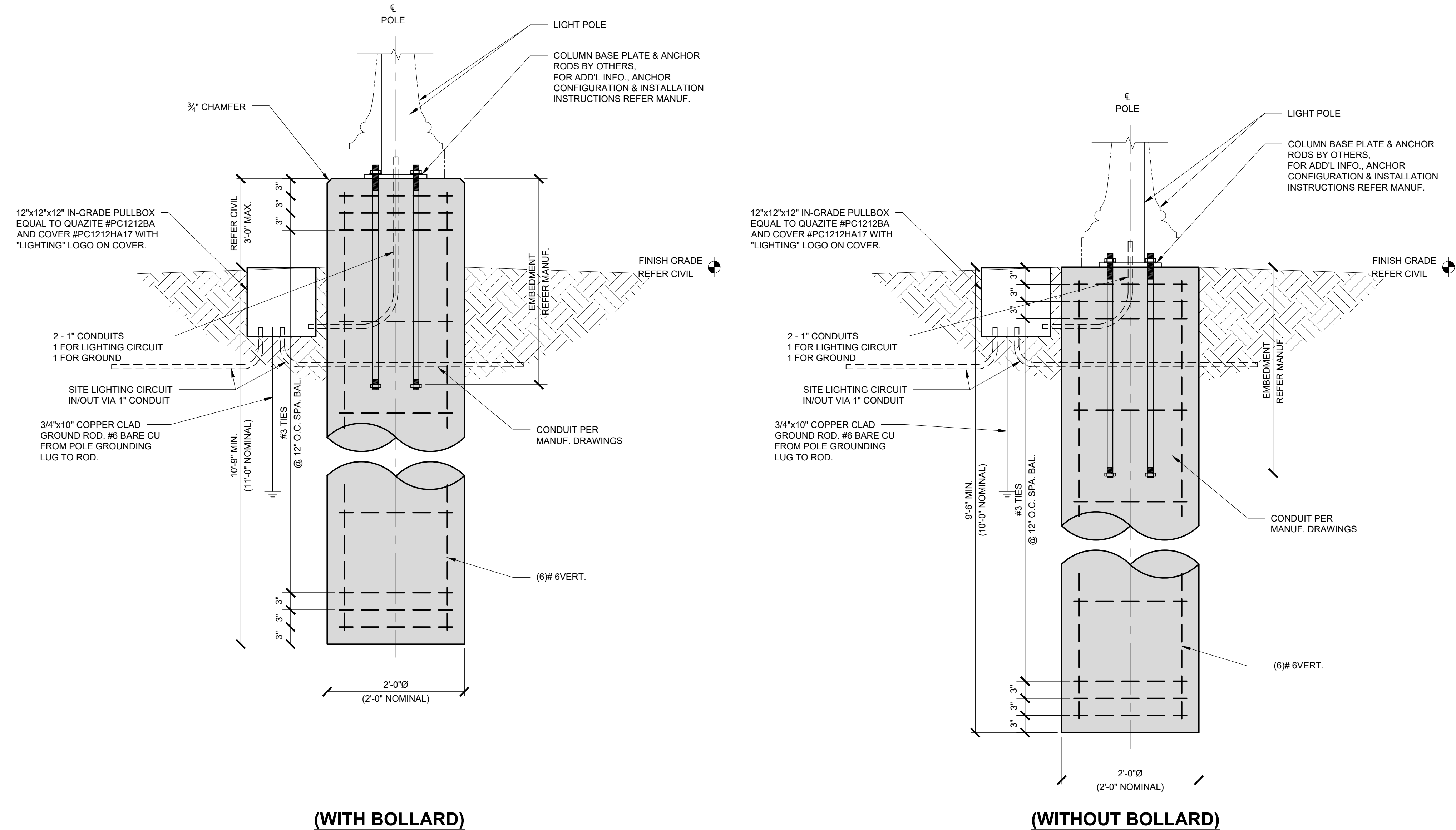
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S1

PLOT DATE:

GENERAL NOTES

PARKING LOT LIGHT POLE FOUNDATION (WITH INTEGRATED BASE)

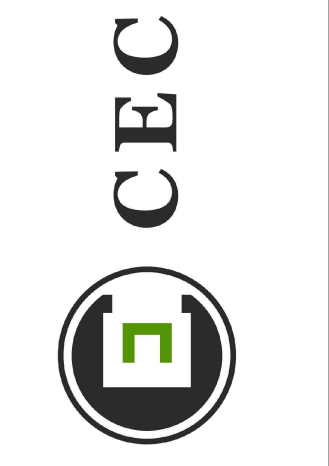
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 3. NO FIELD REVISIONS OR MODIFICATIONS TO ANY STRUCTURAL COMPONENT SHALL BE PERFORMED WITHOUT PRIOR APPROVAL BY THE ENGINEER OF RECORD.
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 8. REINFORCING SHALL BE SUPPORTED AND SECURED IN ITS PROPER LOCATION TO PREVENT DISPLACEMENT DURING PLACEMENT OF CONCRETE.
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 10. ALL HIGH-STRENGTH GROUT SHALL BE PREPACKAGED, NON-METALLIC, AND NON-GASEOUS. IT SHALL BE NON-SHRINK ACCORDING TO ASTM C-1107 OR CRD-C-821. GROUT SHALL OBTAIN A MINIMUM COMPRESSIVE STRENGTH OF 7,000 PSI IN 28 DAYS AND SHALL NOT BLEED. GROUT SHALL BE MOIST CURED FOR A MINIMUM OF 24 HOURS AFTER PLACEMENT. SUBMIT CERTIFIED, INDEPENDENT TEST DATA FOR APPROVAL.



USE THIS DESIGN UNLESS OTHERWISE NOTED BY ESUE

LIGHT POLE REACTIONS AT T.O. FOUNDATION BASIS OF DESIGN				
POLE SIZE	BENDING MOMENT (FT/LBS)	TORSION (FT/LBS)	SHEAR FORCE (LBS)	AXIAL FORCE (LBS)
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C.L.S.	DESIGNED BY
J.F.R.	DRAWN BY
C.L.S.	APPROVED BY
AS SHOWN	SCALE

**OSU ROADWAY/PARKING
LIGHT POLE FOUNDATIONS**

STILLWATER, OKLAHOMA

SHEET NAME
FOUNDATION
DETAILS

SHEET
S2

PLOT DATE:

GENERAL NOTES

PEDESTRIAN WALKWAY LIGHT POLE FOUNDATIONS

I. OVERALL NOTES

- PRIOR TO BEGINNING ANY WORK OR ORDERING ANY MATERIALS, THE CONTRACTOR SHALL COORDINATE THE STRUCTURAL DRAWINGS WITH ALL OTHER TRADES, NOTIFY THE OWNER AND THE ENGINEER OF RECORD OF ANY DISCREPANCIES OR POSSIBLE DEFICIENCIES.
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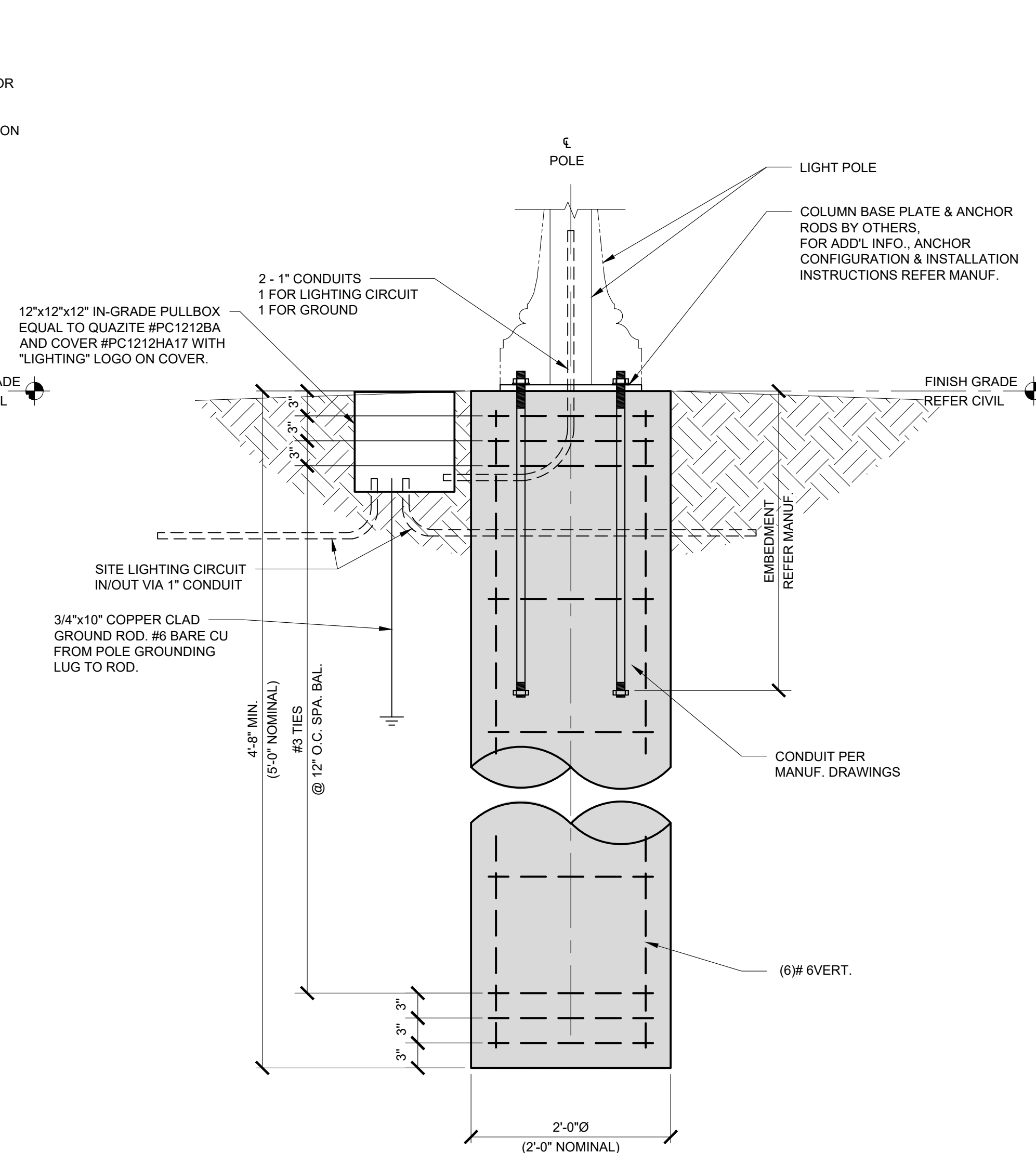
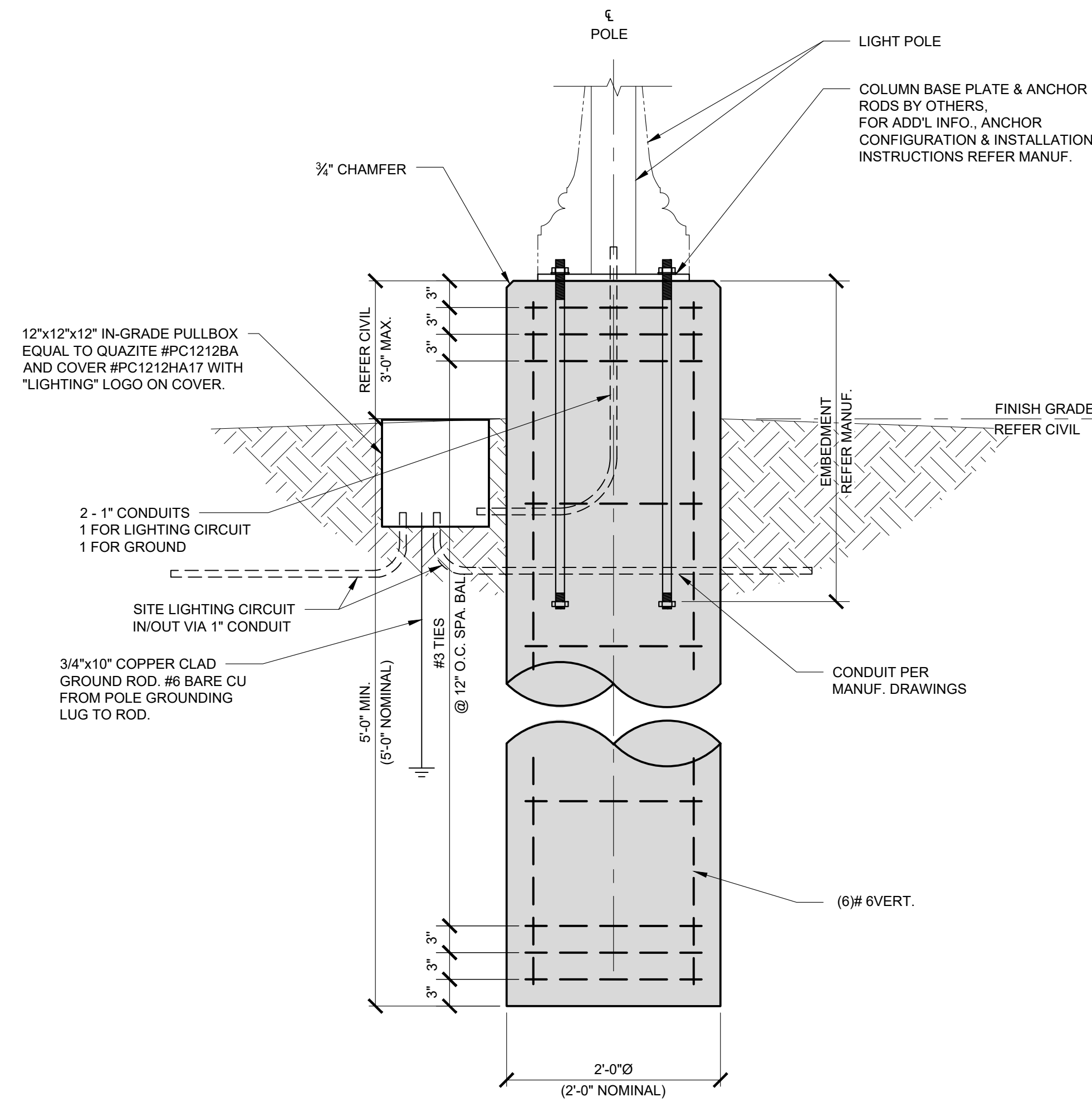
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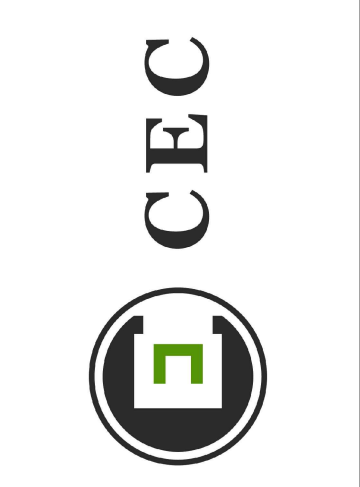


USE THIS DESIGN UNLESS OTHERWISE NOTED BY ESUE

LIGHT POLE REACTIONS AT T.O. FOUNDATION BASIS OF DESIGN

POLE SIZE	BENDING MOMENT (FT/LBS)	TORSION (FT/LBS)	SHEAR FORCE (LBS)	AXIAL FORCE (LBS)
REFER LIGHT POLE DESCRIPTIONS	1666.43	---	220.20	212.32

- SHOULD FOUNDATION REACTIONS FROM SELECTED FIXTURE(S) EXCEED THE BASIS OF DESIGN, THE FOUNDATIONS SHALL BE RE-EVALUATED.
- REFER TO PAGE 1 AND 2 OF OSU'S "OUTDOOR LIGHTING STANDARDS" FOR DESCRIPTIONS OF PRODUCTS.



CEC CORPORATION
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P. 405.533.4000
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STATE OF OK CERTIFICATE OF AUTHORIZATION
CHRISTOPHER L. SHIDER
LICENSE NO. 11-02-2020
23089

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NO.	DESCRIPTION	DATE

DATE: 10/16/20	DESIGNED BY: C.L.S.	APPROVED BY: J.F.R.	SCALE: AS SHOWN
PROJECT NO: 190071.23	DRAWN BY: J.F.R.		

OSU PEDESTRIAN WALKWAY LIGHT POLE FOUNDATIONS

STILLWATER, OKLAHOMA

SHEET NAME
FOUNDATION DETAILS

SHEET
S3

GENERAL NOTES

I. OVERALL NOTES

1. PRIOR TO BEGINNING ANY WORK OR ORDERING ANY MATERIALS, THE CONTRACTOR SHALL COORDINATE THE STRUCTURAL DRAWINGS WITH ALL OTHER TRADES, NOTIFY THE OWNER AND THE ENGINEER OF RECORD OF ANY DISCREPANCIES OR POSSIBLE DEFICIENCIES.
2. PRIOR TO STARTING WORK, THE CONTRACTOR SHALL VERIFY THE EXISTING SITE CONDITIONS AND CONSTRAINTS AS WELL AS EXISTING BUILDING LOCATION, DIMENSIONS, AND ELEVATIONS, IF ANY.
3. NO FIELD REVISIONS OR MODIFICATIONS TO ANY STRUCTURAL COMPONENT SHALL BE PERFORMED WITHOUT PRIOR APPROVAL BY THE ENGINEER OF RECORD.
4. PLANS AND DETAILS SHALL NOT BE SCALED FOR DETERMINATION OF LENGTHS, QUANTITIES, OR CONFIGURATION OF MATERIALS.

II. COORDINATION WITH OTHER TRADES

1. THE CONTRACTOR SHALL SUPPLY ALL ITEMS FOR ATTACHING MECHANICAL AND ELECTRICAL EQUIPMENT TO THE STRUCTURE TO RESIST ALL LOADS, INCLUDING SEISMIC FORCES. COORDINATE THE LOCATION(S) AND REQUIRED ATTACHMENT(S) WITH THE STRUCTURE. REFER TO THE ELECTRICAL AND MECHANICAL DOCUMENTS FOR ADDITIONAL REQUIREMENTS.
2. COORDINATE AND PROVIDE SLEEVE LAYOUTS FOR ALL PIPES, CONDUITS, OR ANY OTHER ITEMS PENETRATING THROUGH STRUCTURAL MEMBERS. LAYOUTS ARE TO BE SUBMITTED TO AND APPROVED BY THE ENGINEER OF RECORD PRIOR TO CONSTRUCTION.

III. GEOTECHNICAL NOTES

1. THE FOUNDATIONS FOR THIS STRUCTURE WE REDESIGNED BASED UPON THE PRESUMPTIVE ALLOWABLE VALUES AS DESCRIBED IN THE 2015 INTERNATIONAL BUILDING CODE, TABLE 1806.2 "PRESUMPTIVE LOAD-BEARING VALUES" FOR CLAY, SANDY CLAY, SILTY CLAY, CLAYEY SILT, SILT, AND SANDY SILT. SHOULD ACTUAL SITE CONDITIONS VARY FROM THIS, THE FOUNDATION SHALL BE REDESIGNED.

IV. REINFORCED CONCRETE NOTES

1. ALL REINFORCED CONCRETE SHALL CONFORM TO ALL REQUIREMENTS OF ACI 301 "SPECIFICATIONS FOR STRUCTURAL CONCRETE FOR BUILDINGS", LATEST EDITION INCLUDING AMENDMENTS, AND ACI 318 "BUILDING CODE REQUIREMENTS FOR STRUCTURAL CONCRETE", EDITION REFERENCED IN THE 2009 INTERNATIONAL BUILDING CODE.
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7. U.N.O., ALL CONCRETE REINFORCING BARS SHALL CONFORM TO ASTM A615, GRADE 60 AND BE OF DOMESTIC MANUFACTURE. REINFORCING BARS TO BE WELDED SHALL CONFORM TO THE REQUIREMENTS OF ASTM A706, GRADE 60. WELDING TO REINFORCING BARS NOT SHOWN ON THE DRAWINGS, SHALL NOT BE PERMITTED. ELECTRICAL GROUNDING AND OTHER REQUIRED CONNECTIONS TO REINFORCING BARS SHALL BE ATTAINED VIA CLAMPS OR OTHER MANUFACTURED CONNECTIONS.
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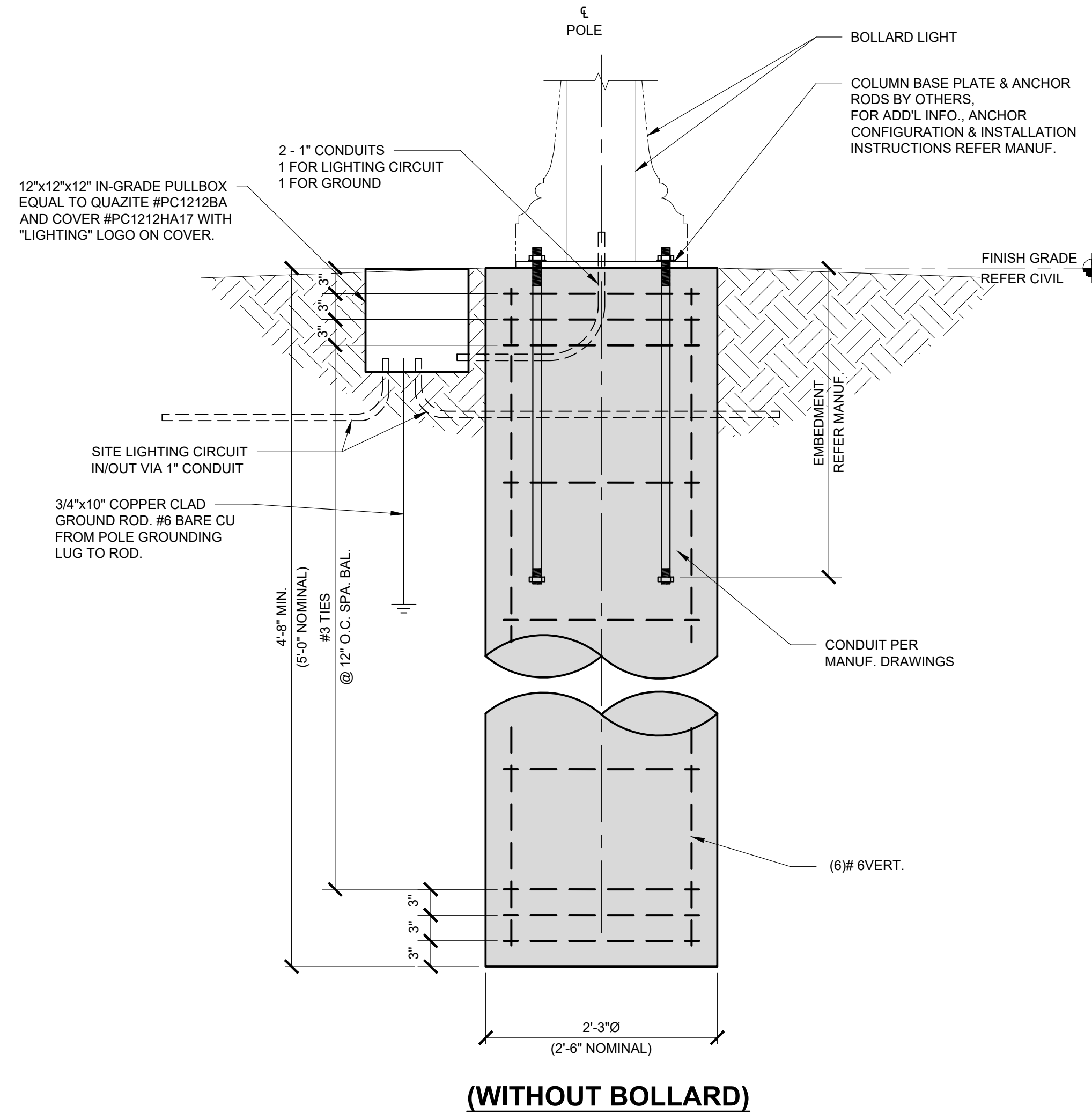
**LIGHT POLE REACTIONS AT T.O. FOUNDATION
BASIS OF DESIGN**


1. THE FOUNDATIONS FOR THE PEDESTRIAN WALKWAY LIGHT POLE FOUNDATIONS HAVE BEEN DESIGNED FOR AN IMPACT LOAD OF 1,000 LBS AT A HEIGHT OF 18" ABOVE GRADE. SHOULD ANTICIPATED OR PROBABLE IMPACT FORCES EXCEED THE DESIGN FORCES, THE FOUNDATION SHALL BE REVISITED.

NOTES:

1. REFER TO PAGE 1 AND 2 OF OSU'S "OUTDOOR LIGHTING STANDARDS" FOR DESCRIPTIONS OF PRODUCTS.


BOLLARD LIGHT FOUNDATIONS





CEC CORPORATION
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CHRISTOPHER T. SHIGER
C.E.T. 11-02-2020
23089
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REVISION HISTORY

NO.	DESCRIPTION	DATE

SUBMITTAL: 10/16/20
DATE: 10/16/20
PROJECT NO: 190071.23
DESIGNED BY: C.L.S.
DRAWN BY: J.F.R.
APPROVED BY: C.L.S.
SCALE: AS SHOWN

**OSU BOLLARD LIGHT
FOUNDATIONS**
STILLWATER, OKLAHOMA

SHEET NAME
FOUNDATION
DETAILS

SHEET
S4

PLOT DATE:

GENERAL NOTES

I. OVERALL NOTES

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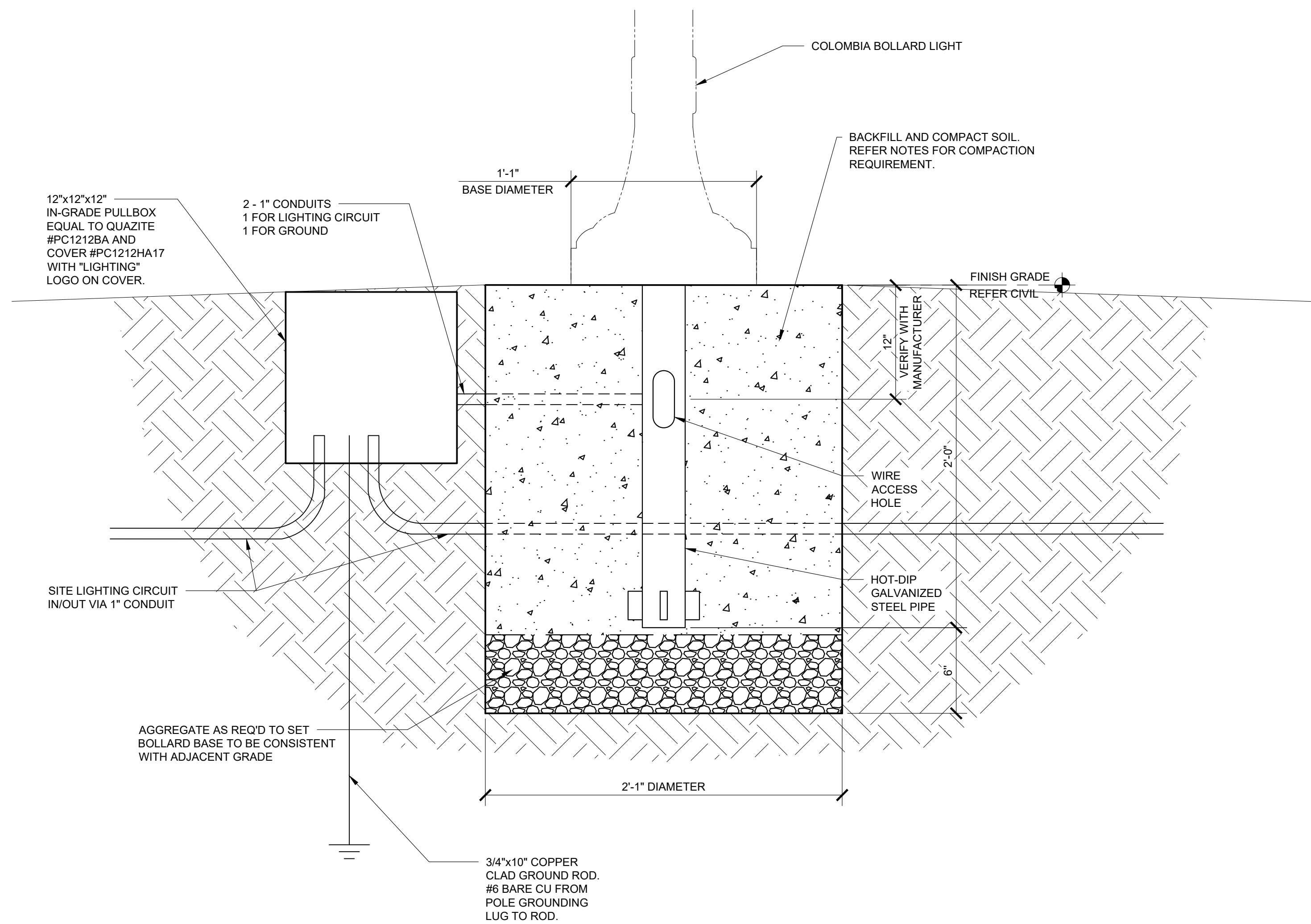
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COLOMBIA BOLLARD DIRECT BURIAL BASE DETAIL




- NOTES:
1. REFER TO PAGE 1 AND 2 OF OSU'S "OUTDOOR LIGHTING STANDARDS" FOR DESCRIPTIONS OF PRODUCTS.
 2. BACKFILL AND COMPACTION REQUIREMENTS: UNLESS NOTED OTHERWISE BY A GEOTECHNICAL REPORT.
 - a. ALL FILL MATERIALS SHALL BE FREE OF ORGANIC OR OTHER DELETERIOUS MATERIAL, HAVE A MAXIMUM PARTICLE SIZE LESS THAN 3 INCHES, HAVE A LIQUID LIMIT NOT MORE THAN 35 AND PLASTICITY INDEX IN THE RANGE OF 5 TO 18 AND PERCENT OF FINES PASSING THE #200 SIEVE NOTE LESS THAN 60 PERCENT.
 - b. FILL SHALL BE PLACED IN MAXIMUM LIFTS OF 8" OF LOOSE MATERIAL AND SHALL BE COMPACTED TO A MOISTURE CONTENT RANGING TO -2 TO +3% OF OPTIMUM.
 - c. ENSURE BOLLARD REMAINS PLUMB AND LEVEL DURING COMPACTION AND BACKFILL OPERATIONS.
 3. REFER TO MANUFACTURER'S PRINTED INSTALLATION INSTRUCTIONS FOR ADDITIONAL INFORMATION.

PLOT DATE:



CEC CORPORATION
4650 W. MEMORIAL ROAD
OKLAHOMA CITY, OKLAHOMA 73142
P. 405.753.4000
WWW.CONNEXTEC.COM

STATE OF OK CERTIFICATE OF AUTHORIZATION
NO. 11-02-2020
EXPIRES 11-02-2025
CHRISTOPHER T. SNIDER
11-02-2020
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SUBMITTAL:		REVISION HISTORY	
DATE:	DESCRIPTION:	NO.	DATE
10/16/20			
PROJECT NO: 190071.23			
DESIGNED BY: C.L.S.			
DRAWN BY: J.F.R.			
APPROVED BY: C.L.S.			
SCALE: AS SHOWN			

OSU BOLLARD LIGHT FOUNDATIONS

STILLWATER, OKLAHOMA

SHEET NAME FOUNDATION DETAILS
SHEET S5

GENERAL NOTES

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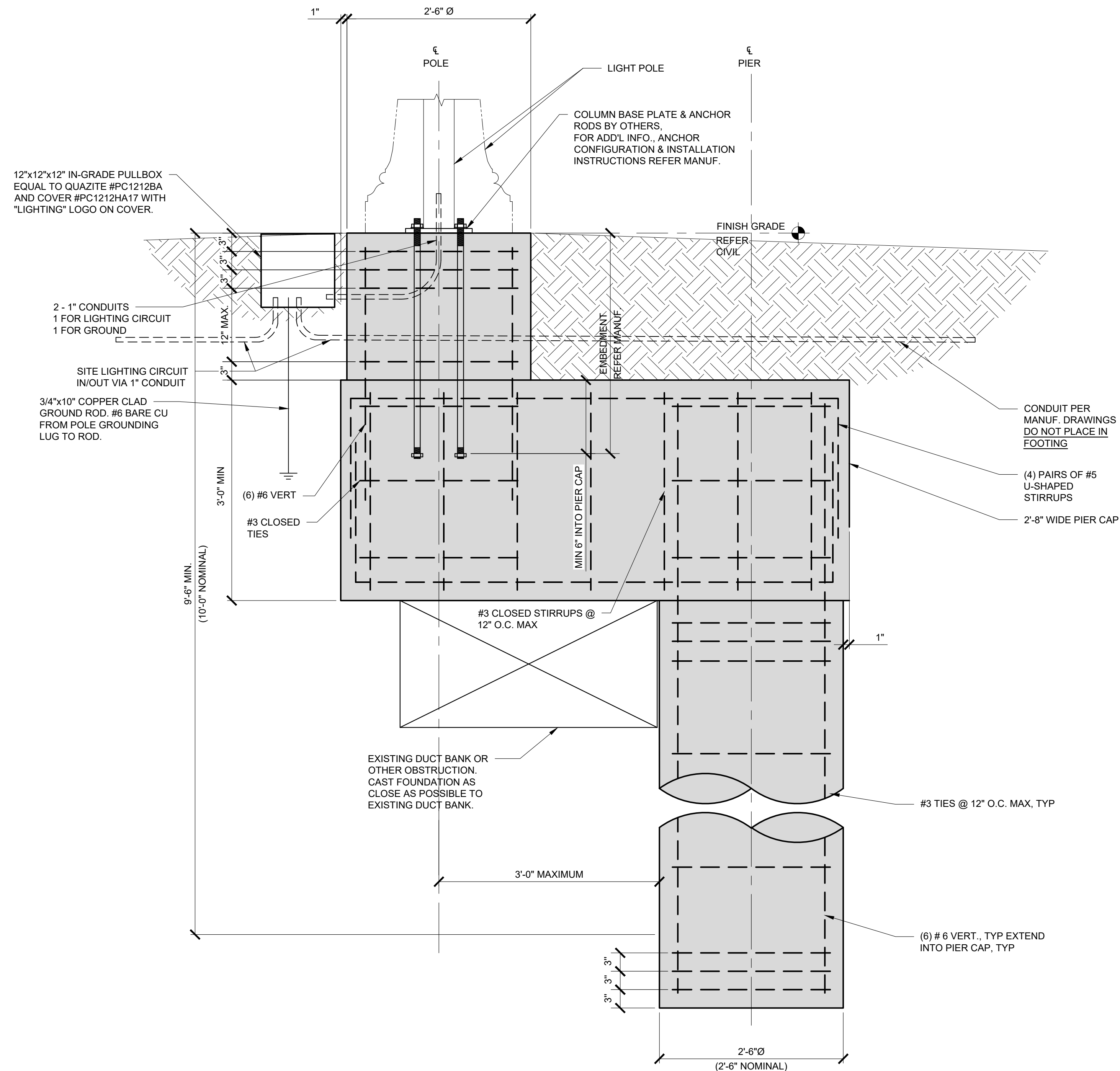
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ROADWAY LIGHT POLE FOUNDATION WITH OBSTRUCTION AT DRILLED PIER (WITH CLAMSHELL BASE)



(WITHOUT BOLLARD)

LIGHT POLE REACTIONS AT T.O. FOUNDATION BASIS OF DESIGN				
POLE SIZE	BENDING MOMENT (FT/LBS)	TORSION (FT/LBS)	SHEAR FORCE (LBS)	AXIAL FORCE (LBS)
REFER LIGHT POLE DESCRIPTIONS	17,596	1149	1089	1055


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CEC

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REVISION HISTORY

NO.	DESCRIPTION	DATE

SUBMITTAL: DATE: 10/16/20 PROJECT NO: 190071.23 DESIGNED BY: C.L.S. DRAWN BY: J.F.R. APPROVED BY: C.L.S. SCALE: AS SHOWN

OSU BOLLARD LIGHT FOUNDATIONS
STILLWATER, OKLAHOMA

SHEET NAME
FOUNDATION DETAILS

SHEET
S6

PLOT DATE: