

Date: October 29, 2024

To: Governing Body, Finance Committee, and Public Works & Utilities Committee

From: Michael Dalmolin, PE Traffic Operations Engineer

Via: Regina Wheeler, Public Works Department Director

Subject: PNM Streetlight Conversion - Amendment #1

Vendor Name: PNM

Munis Vendor Number: 8279

ACTION:

Request for Approval of the First Amendment to The Agreement for Conversion of Streetlights Owned by the Public Service Company of New Mexico (PNM) Item #24-0120 with PNM to Complete the Conversion of Streetlights to LEDs, Increasing the Compensation by \$480,000 to a new Not to Exceed Total Compensation of \$1,050,000 Including NMGR and Extending the Term for One Year.

CONTRACT NUMBER:

The FY24 Munis contract number is 3202638

BACKGROUND AND SUMMARY:

There are approximately 5,600 streetlights in the City of Santa Fe. The City owns approximately 3,500 and PNM owns most of the remaining streetlights within the City.

The conversion of City owned lights was completed in March 2022 and results in approximately 2,560,000 kWh and \$230,000 of energy savings each year. LEDs reduce power consumption by 60%, have a longer life span, improve reliability, have full cutoff fixtures protecting the night sky, and can be fit with shields to reduce fugitive light trespass. The new LED streetlights are performing with high reliability, and we have seen a significant decrease in complaints.

PNM is currently completing conversion of approximately 1,100 streetlights, or about half of the PNM-owned lights within the City. Completion is expected by December 2024. The energy and maintenance savings are expected to be \$135,000 per year and thus the project would pay for itself in approximately 4 years.

The City and PNM now propose to extend the project to complete the conversion of the remaining 1,000 PNM streetlights. If approved, PNM expects to begin the final phase of their streetlight conversion in early 2025 and to complete the conversion in 4-6 months. PNM's price for LED retrofits is regulated by the PRC. The cost to the City for this conversion is \$480,000. A payback analysis conservatively estimates that the second phase will pay for itself within 5 years. This work is being funded by recently appropriated fund balance one time funding.

Public Engagement for the PNM Streetlight Conversion included an Early Neighborhood Notification (ENN) meeting held online on February 22nd. PNM also hosts a public webmap, allowing residents to track the progress of the conversion street by street.

Prior Approvals and Supporting Information:

PROCUREMENT METHOD:

The procurement method used was NMSA 1978, Section 13-1-98, Exempt

Since PNM, the local electric utility company, owns the lights and PRC regulations define the conversion by PNM.


Chief Procurement Officer (CPO) / Designee:  Date: Nov 12, 2024
CPO Comment/Exceptions: _____

FUNDING SOURCE:

Fund Name/Number: 1/2 GRT / 365

Munis Org Name/Number: Roadways & Drainage / 3650414

Munis Object Name/Number: WIP Construction / 572970

Budget Officer / Designee:  ALEXIS LOTERO (Nov 12, 2024 10:45 MST) Date: Nov 12, 2024
Budget Officer Comment/Exceptions: _____

ASSOCIATED APPROVALS:

Does this purchase require any of the following associated approvals: Yes | No
(ITT, Vehicles/Fleet, Facilities, Asset, Grant Review)

IT Components included? Yes | No

Approval: _____ Title: _____ Date: _____
Comment/Exceptions: _____

Vehicles included? Yes | No

Approval: _____ Title: _____ Date: _____
Comment/Exceptions: _____

Construction, Facilities, Furniture, Fixtures, Equipment included? Yes | No


Approval: _____ Title: _____ Date: _____
Comment/Exceptions: _____

Capital Asset* or Project** Yes | No

Project Ledger #: STREETLTS

(*will this procurement result in a tangible item that costs more than \$5,000?)

(**Capital Projects are new and improvement projects that are going to cost \$10,000 or more)

Approval:  (Link Stored in #712, 2024 12:23 MST) Title: Accounting Manager Date: Nov 12, 2024
Comment/Exceptions: to be determined. Most lights are not owned by City, but the project will benefit the city & pay for itself over 5 years.

Is this a Grant Funded Purchase? Yes | No

Approval: _____ Title: _____ Date: _____
Comment/Exceptions: _____

ATTACHMENTS:

Procurement Document: Choose an item.

Vendor's Proposal

Goods/General Services Contract

Original contract packet

First Contract Amendment with Public Service Company of New Mexico

City of Santa Fe Roadway Lighting Guidelines

Reviewed by Halona Crowe

**FIRST AMENDMENT TO THE AGREEMENT FOR CONVERSION OF
STREETLIGHTS OWNED BY THE PUBLIC SERVICE COMPANY OF NEW MEXICO**
Item #24-0120

This First Amendment to the Agreement for Conversion of Streetlights Owned by the Public Service Company of New Mexico (“First Amendment”), executed as of October ___, 2024, is by and between the Public Service Company of New Mexico, a New Mexico corporation (“PNM” or “Company”), and the City of Santa Fe (“Santa Fe” or “City”), a municipal corporation. The Parties may be referred to herein individually as “Party” or collectively as “Parties.”

RECITALS

WHEREAS the Parties executed the Agreement for the Conversion of Streetlights Owned by the Public Service Company of New Mexico (“Agreement”) in February of 2024;

WHEREAS the Agreement contemplated the conversion of some of the Company’s streetlights into light-emitting diode (“LED”) lights (“LED Streetlight Conversion Project”);

WHEREAS Santa Fe has asked PNM to complete a second phase of the LED Streetlight Conversion Project, which will consist of converting an additional 957 streetlights into LED lights;

WHEREAS the City has appropriated the funds necessary to complete the second phase of the LED Streetlight Conversion Project, which PNM estimates to be Four Hundred Eighty Thousand Dollars and Zero Cents (\$480,000.00); and

WHEREAS the Parties wish to amend the Agreement to contemplate the completion of the second phase of the LED Streetlight Conversion Project and payment for same by Santa Fe.

AGREEMENT

NOW, THEREFORE, in consideration of the mutual covenants herein contained, the receipt and sufficiency of which are hereby acknowledged, the Parties hereby agree to the following:

1. Paragraph 3(a) shall be amended as follows:

Santa Fe agrees to issue a Purchase Order to PNM in the amount of Four Hundred Eighty Thousand Dollars and Zero Cents (\$480,000.00) including applicable GRT for the completion of the second phase of the LED Conversion Project, which shall consist of the conversion of 957 additional streetlights into LED lights. The total amount of compensation, including the amount for the original agreement, shall not exceed \$1,050,000.00 including GRT.

The Purchase Order shall memorialize in writing Santa Fe’s request that PNM convert the 957 additional Company-owned streetlights to LED lights within the City of Santa Fe in accordance with the Rate Tariff, the Agreement, and this First Amended Agreement. PNM will share with Santa Fe certain information regarding

Company-owned streetlights, if needed, so that Santa Fe can prepare the Purchase Order contemplated by this section. Such information includes the number of Company-owned streetlights, the geographic location of Company-owned streetlights, and the types of Company-owned streetlights, categorized by light wattage. PNM will also provide Santa Fe with the cost of a conversion to an LED by listing the cost per operational substitute on Appendix A. Santa Fe agrees to include within the Purchase Order the information required by Section 3(b) of the Agreement.

2. Paragraph 1(k) shall be added to the Agreement. Paragraph 1(k) shall state as follows:

PNM will make a good faith effort to complete the second phase of the LED Conversion Project within twelve (12) months of the execution of the First Amendment to the Agreement, although the Company cannot guarantee an exact date of completion, as such date is likely to fluctuate, and the City recognizes that the estimated timeline may change due to the lead time necessary for procuring fixtures from the manufacturer, which PNM currently estimates to be approximately 6 weeks.

Section 3. All capitalized terms used in this First Amendment and not otherwise defined or modified herein shall have the meanings set forth in the Agreement.

Section 4. Except as expressly amended by this First Amendment, all other terms of the Agreement shall remain in full force and effect.

Section 5. This First Amendment may be executed in one or more counterparts, including by facsimile or electronic signature, but each such counterpart shall be deemed an original and all such counterparts shall be deemed one and the same instrument.

Section 6. This First Amendment contains the entire understanding of the Parties and supersedes all prior agreements and understandings between the Parties relating to the subject matter herein. This First Amendment shall be binding upon and inure to the benefit of the Parties' respective successors and permitted assigns.

[Signature Page Follows]

CITY OF SANTA FE

By: _____

Alan Webber
Mayor, City of Santa Fe, New Mexico

Attest:

Geraldyn Cardenas, Interim City Clerk

City Attorney's Office:

Marcos Martinez

Marcos Martinez (Oct 29, 2024 13:09 MDT)

Senior Assistant City Attorney

Approved for Finances:

Emily K. Oster

Emily Oster, Finance Director

PUBLIC SERVICE COMPANY OF NEW MEXICO

Signed by:
By: Mike Mertz
B51818D1E09D410...

Mike Mertz
PNM Vice President, New Mexico Operations



City of Santa Fe New Development Roadway Lighting Guidelines



SUMMARY

- Roadway luminaires must meet the following requirements:

Roadway Type	Correlated Color Temperature (Kelvin)	Input Wattage Range (W)	Nominal Lumen Output (lumen) +/- 10%	Minimum Color Rendering Index	IES Distribution	Visual Comfort Refractor	IES TM-15 Backlight, Uplight, and Glare Rating		
							B	U	G
Residential	2700K	28-45	4,000	70	Type 2	Required	1	0	1
Local/Collector	3000K	90-100	8,900	70	Type 2 or Type 3	Required	2	0	2
Major	3000K	190-200	20,000	70	Type 2 or Type 3	Not required	3	0	3

Luminaires must be fitted with a Ubiqvia Ubicell control. Full specifications are in Appendix B.

- Pole and arm composition varies by area in the City of Santa Fe. To expedite approval, seek recommendations based on proposed construction location from the City's street lighting maintenance provider, Dalkia Energy Solutions.
- Submit a package with the following components
 - Plans indicating the location, type, and height of both building and ground mounted luminaires; and
 - Specification sheets for proposed luminaires, arms, poles, foundations, supports, shielding devices, and smart controls; and
 - Photometric data: provide photometric showing footcandles on the ground or luminaire .ies files with .dwg of proposed layouts. (Examples included in Appendix A)

Submit package to City Traffic Engineer and the City's street lighting maintenance provider, Dalkia Energy Solutions. A response will be provided within five business days.

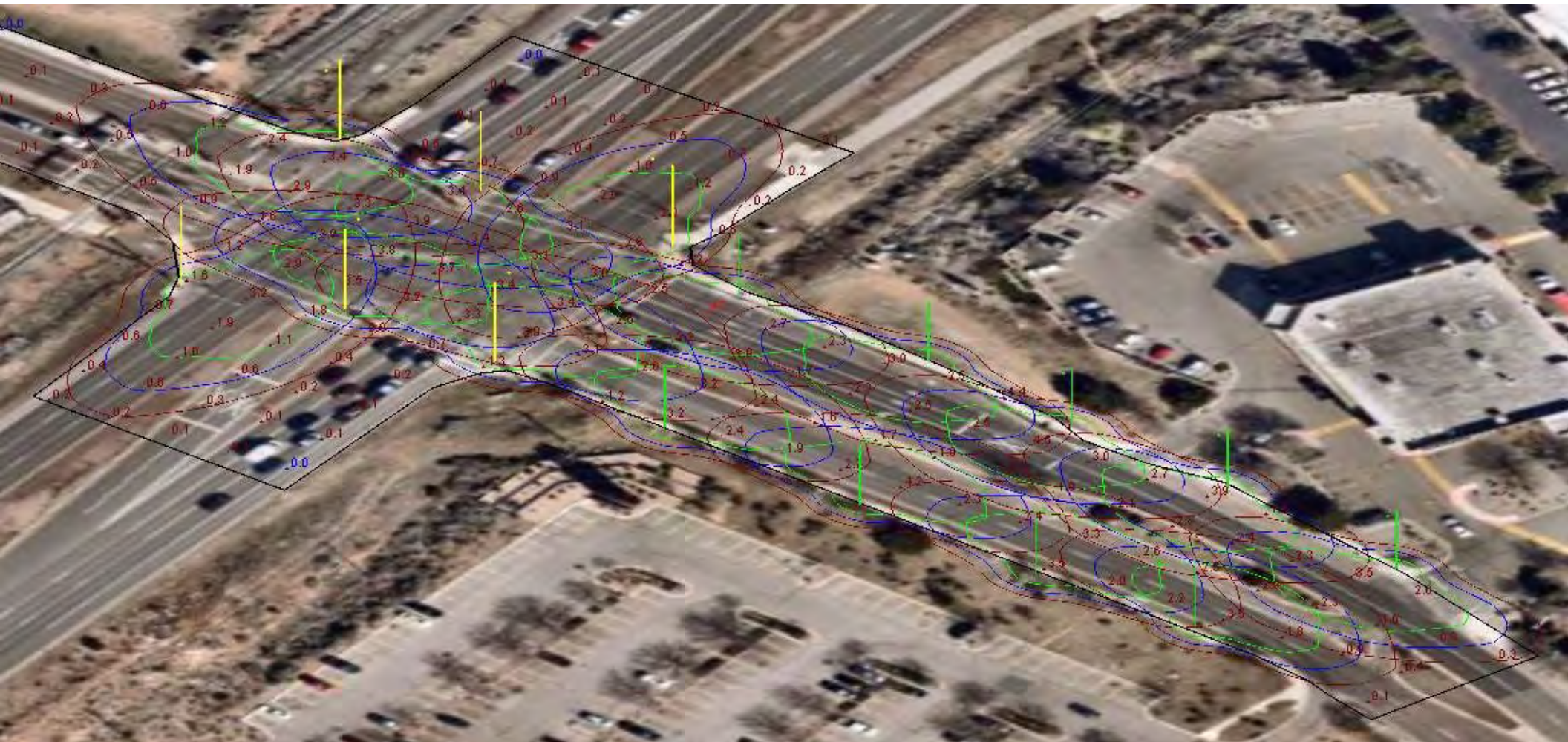
Jeanne Wolfenbarger <jawolfenbarger@santafenm.gov>

Matt O'Brien <matt.obrien@dalkiasolutions.com>



Appendix A:

EXAMPLE ROADWAY PHOTOMETRICS



Current View



Appendix B:

COMMUNITY-GUIDED SMART STREET LIGHTING DESIGN SPECIFICATIONS



City of Santa Fe
Department of Public Works
Community-Guided Smart Street Lighting Design Specifications

The City of Santa Fe seeks to convert its existing street lighting assets to smart LED technology in order to “reduce light pollution, reduce or prevent glare, reduce or prevent light trespass, conserve energy, promote a sense of safety and security, and ensure aesthetically appropriate outdoor lighting in keeping with the character of Santa Fe.” - (City of Santa Fe Ord. No. 2011-37 § 10)

Following the Community-Guided Design phase outlined in its Global Management Contract with Dalkia, the Department of Public Works is recommending to the Governing Body the smart lighting design summarized in the below table and described with detailed specifications in the following pages.

Roadway Type	Correlated Color Temperature (Kelvin)	Input Wattage Range (W)	Nominal Lumen Output (lumen) +/- 10%	Minimum Color Rendering Index	IES Distribution	Visual Comfort Refractor	IES TM-15 Backlight, Uplight, and Glare Rating		
							B	U	G
Residential	2700K	28-45	4,000	70	Type 2	Required	1	0	1
Local/Collector	3000K	90-100	8,900	70	Type 2 or Type 3	Required	2	0	2
Major	3000K	190-200	20,000	70	Type 2 or Type 3	Not required	3	0	3

Roadway Type	Number of Fixtures	Percentage of Total
Residential	3,137	58%
Local/Collector	1,578	29%
Major	697	13%

In order to develop this Community-Guided Smart Lighting Design Plan, Dalkia worked with multiple stakeholders, including PNM, and compiled various sets of data; evaluated various products and performed a comprehensive set of photometric analyses; gathered community feedback from multiple channels; and combined all analyses into this recommendation. The final plan is designed to be actionable and to provide results in line with the Sustainable Santa Fe 25-Year Plan and the City of Santa Fe’s expectations. The City of Santa Fe and Dalkia will work together to develop a dimming strategy to further increase energy savings and dark-sky protection, aligned with dark-sky best practices.



City of Santa Fe
Department of Public Works
Community-Guided Smart Street Lighting Design Specifications

Part A: STREET LIGHTING LIGHT EMITTING DIODE (LED) LUMINAIRE SPECIFICATIONS

1.0 REFERENCES

The publications listed below form a part of this specification to the extent referenced. Publications are referenced within the text by their basic designation only. Versions listed shall be superseded by updated versions as they become available.

1.1 American National Standards Institute (ANSI)

- A. C136.2 (Most current), American National Standard for Roadway and Area Lighting Equipment—Luminaire Voltage Classification
- B. C136.10-2010 (Most current), American National Standard for Roadway and Area Lighting Equipment Locking-Type Photocontrol Devices and Mating Receptacle Physical and Electrical Interchangeability and Testing
- C. C136.15-2011 (Most current), American National Standard for Roadway and Area Lighting Equipment Luminaire Field Identification
- D. C136.25-2009 (Most current), American National Standard for Roadway and Area Lighting Equipment Ingress Protection (Resistance to Dust, Solid Objects and Moisture) for Luminaire Enclosures
- E. C136.31-2010 (Most current), American National Standard for Roadway Lighting Equipment – Luminaire Vibration.
- F. C136.41

1.2 American Society for Testing and Materials International (ASTM)

- A. B117-09 (Most current), Standard Practice for Operating Salt Spray (Fog) Apparatus
- B. D1654-08 (Most current), Standard Test Method for Evaluation of Painted or Coated Specimens Subjected to Corrosive Environments
- C. D523-08 (Most current), Standard Test Method for Specular Gloss
- D. G154-06 (Most current), Standard Practice for Operating Fluorescent Light Apparatus for UV Exposure of Nonmetallic Materials

1.3 Council of the European Union (EC)

- A. RoHS Directive 2002/95/EC, on the restriction of the use of certain hazardous substances in electrical and electronic equipment

1.4 Illuminating Engineering Society of North America (IESNA or IES)

- A. DG-4-03 (Most current), Design Guide for Roadway Lighting Maintenance
- B. HB-10-11 (Most current), IES Lighting Handbook, 10th Edition
- C. LM-50-99 (Most current), IESNA Guide for Photometric Measurement of Roadway Lighting Installations
- D. LM-61-06 (Most current), IESNA Approved Guide for Identifying Operating Factors Influencing Measured Vs. Predicted Performance for Installed Outdoor High Intensity Discharge (HID) Luminaires
- E. LM-79-08 (Most current), IESNA Approved Method for the Electrical and Photometric Measurements of Solid-State Lighting Products
- F. LM-80-08 (Most current), IESNA Approved Method for Measuring Lumen Maintenance of LED Light Sources
- G. RP-8-18 (Most current), ANSI / IESNA American National Standard Practice for Roadway Lighting



City of Santa Fe

Department of Public Works

Community-Guided Smart Street Lighting Design Specifications

- H. RP-16-10 (Most current), ANSI/IES Nomenclature and Definitions for Illuminating Engineering
- I. TM-3-95 (Most current), A Discussion of Appendix E - "Classification of Luminaire Lighting Distribution," from ANSI/IESNA RP-8-83
- J. TM-15-11 (Most current), Luminaire Classification System for Outdoor Luminaires
- K. TM-21-11 (Most current), Projecting Long Term Lumen Maintenance of LED Light Sources
- 1.5 National Electrical Manufacturers Association (NEMA)
 - A. ANSI/NEMA/ANSI C78.377-2008 (or latest), American National Standard for the Chromaticity of Solid State Lighting Products
- 1.6 National Fire Protection Association (NFPA)
 - A. 70 – National Electrical Code (NEC)
- 1.7 Underwriters Laboratories (UL)
 - A. 1449, Surge Protective Devices
 - B. 1598, Luminaires.
 - C. 8750, Light Emitting Diode (LED) Equipment for Use in Lighting Products LED Roadway Specification
- 1.8 CSA
 - 1. 1598, Luminaires

2.0 GENERAL CONSTRUCTION

- 2.1 Shall be compliant with CSA C22.2 No. 250.0-08 – UL 1598 Harmonized Std.
- 2.2 Luminaire housing to be fabricated from die cast aluminum low copper content alloy.
 - A. Luminaire housing to act as passive heat sink for LED Array.
 - B. Housing to be designed in such a manner that debris build-up within "heat-fin" structure will not significantly impact lamp lumen depreciation (LLD).
 - C. Luminaire finish and casting to be tested to ASTM B117 salt fog, and must maintain a scribe creepage rating of 8 per ASTM D1654 after 5000 hours.
 - D. Access to electrical compartment shall be tool-less by means of a thumb screw.
 - E. Tool-less access should accommodate user wearing electrical gloves.
- 2.3 LED light engine
 - A. Shall be IP66 rated (provide 0% uplight and restrict backlight to within sidewalk depth).
 - B. Lens shall be created from borosilicate glass.
- 2.4 Luminaire Attachment
 - A. Luminaire shall be able to attach to 1 1/4" and/or 2" IPS schedule 40 mast arms (1 5/8" to 2 3/8" OD).
 - B. Luminaire shall be designed to be able to tilt +/- 5 degrees from horizontal.
 - C. Luminaire shall be designed to withstand 3G vibration testing prescribed in ANSI C136.31.
 - D. Luminaire shall include internal integral leveling bubble to assist in the installation.
- 2.5 Luminaire Markings
 - A. Shall have external wattage label affixed on underside of luminaire to be seen from ground per ANSI C136.15.
 - B. Luminaire shall have internal label indicating manufacturer's name, product name, input voltage and date of manufacture.
- 2.6 Wildlife shield shall be a cast in feature (not a separate component).



City of Santa Fe

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Community-Guided Smart Street Lighting Design Specifications

3.0 ELECTRICAL

- 3.1 All electrical components shall be terminated through the use of quick disconnect couplings.
- A. There shall not be any wire nuts supplied in the luminaire
 - B. All luminaires shall be equipped with a 3 station tunnel style terminal block for terminating supply wire.
 - 1. Terminal block shall accommodate up to 6 AWG conductors.
 - 2. For ease of installation, the terminal block shall be positioned in such a manner that supply wires do not need to be bent or re-routed around components to make electrical termination.
 - C. Luminaire shall provide means to protect LED driver and LED lighting array from electrical transients caused by electrical storms or capacitor switching by means of surge protection device.
 - 1. Surge Protection Device (SPD) shall be UL1449 recognized.
 - 2. SPD shall be 3 wire and provide both common and differential mode protection.
 - 3. SPD must have an inductive filter circuit that reduces the amount of energy passed thru to electronics during a surge event.
 - 4. Surge protection device shall be rated to protect the luminaire up to 10kV/5kA combination wave surges in accordance with ANSI C136.2 (Most Current).
 - 5. Surge protection shall be thermally fused.
 - 6. Failure mode of surge protection is to leave luminaire off.
 - D. LED Driver shall meet the following minimum requirements
 - 1. LED Driver shall have a minimum power factor of 90% at full load.
 - 2. LED Driver THD shall be less than 20% at full load.
 - 3. LED Driver shall comply with the requirements of UL, CSA, FCC47 subpart 15
 - 4. LED Driver maximum case temperature shall not be exceeded when luminaire is operating in a 40C ambient.
 - 5. LED Driver shall be RoHS compliant
 - 6. LED Driver shall have an ingress protection rating IP66.
 - E. Photocontrol receptacle shall comply with ANSI C136.10 for standard 7 PIN configurations. When using smart controls receptacle shall comply with ANSI C136.41.

4.0 LIFE

- 4.1 Component rated life shall be a minimum of 20 years (or 100,000 hours) when operating in a continuous 25C ambient.
- 4.2 The design life of the LED array (based on LM80/TM21) shall be defined as L80 at 98,000 hours operation in an ambient of 25C.

5.0 WARRANTY

- 5.1 Luminaire shall be warranted to be free from manufacturing defects for a minimum period of 10 years.

6.0 LED LUMINAIRE PERFORMANCE

- 6.1 Residential Roadway LED Luminaires
- A. Correlated Color Temperature (CCT) shall be nominally rated at 2700 Kelvin CCT.
 - B. Luminaire input wattage shall be between 28 watts and 45 watts.



City of Santa Fe

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Community-Guided Smart Street Lighting Design Specifications

- C. Luminaire nominal lumen output shall be between 4000 lumens and 5000 lumens.
 - D. Minimum Color Rendering Index (CRI) shall be 70.
 - E. Luminaire shall have a distribution pattern consistent with IES RP-8-18 Type II Distribution.
 - F. Luminaire shall have a maximum BUG rating per IES TM-15 of B1-U0-G1.
 - G. Product shall have a visual comfort glare reduction refractor.
- 6.2 Local/Collector Roadway LED Luminaires
- A. Correlated Color Temperature (CCT) shall be nominally rated at 3000 Kelvin CCT.
 - B. Luminaire input wattage shall be between 90 watts and 120 watts.
 - C. Luminaire nominal lumen output shall be between 8000 lumens and 12000 lumens.
 - D. Minimum Color Rendering Index (CRI) shall be 70.
 - E. Luminaire shall have a distribution pattern consistent with IES RP-8-18 Type II or Type III Distribution.
 - F. Luminaire shall have a maximum BUG rating per IES TM-15 of B2-U0-G2.
 - G. Product shall have a visual comfort glare reduction refractor.
- 6.3 Major Roadway LED Luminaires
- A. Correlated Color Temperature (CCT) shall be nominally rated at 3000 Kelvin CCT.
 - B. Luminaire input wattage shall be between 190 watts and 260 watts.
 - C. Luminaire nominal lumen output shall be between 20000 lumens and 24000 lumens.
 - D. Minimum Color Rendering Index (CRI) shall be 70.
 - E. Luminaire shall have a distribution pattern consistent with IES RP-8-18 Type II or Type III Distribution.
 - F. Luminaire shall have a BUG rating per IES TM-15 of B3-U0-G3.
 - G. Product shall be Design Lights Consortium (DLC) qualified.



City of Santa Fe
Department of Public Works
Community-Guided Smart Street Lighting Design Specifications

Part 2: SMART CONTROLS

One of the use-cases for smart controls technology on the city's street lighting infrastructure is dimming capability. Dimming control will allow luminaires to be adjusted as an additional mechanism to increase energy savings and dark-sky protection.

7.0 Smart Node Technology

- 7.1 Node shall have twist-lock controller compatibility with 3, 5 or 7 pin NEMA socket receptacle.
- 7.2 Node shall utilize AES 128/256-bit encryption in its communication security.
- 7.3 Node shall function with a 0-10V, DALI or DALI2 driver and will provide a dimming circuit with a range of 0% to 100%.
- 7.4 Node shall have a single SKU to handle both low voltage and high voltage.
- 7.5 Node shall have a minimum of 10KV/5KA power surge protection and a single power supply range for 90V to 506V line voltage.
- 7.6 Node shall have a minimum IP66 rating to withstand harsh weather conditions with a -30C to +70C (-22F to +158F) operating temperature range.
- 7.7 Node shall utilize LTE CAT-1 cellular communication per module and provide advanced lighting and IoT functions and services to include, but not limited to, Tilt, Scheduling, Dynamic Dimming, Asset Management, GPS, Outage Notification, Traffic Trends, Beaconing, and Utility Grade Power Metering accuracy of ANSI C12.20 Class + or - 0.5.
- 7.8 Node must have a 10-year warranty and include 10 years of Software as a Service and connectivity.



Appendix C:

EXISTING CITY EQUIPMENT SPECIFICATIONS SHEETS



LUMINAIRE SPECIFICATIONS SHEETS



Consistent with LEED® goals & Green Globes™ criteria for light pollution reduction

Autobahn Series ATBS Roadway & Security Lighting

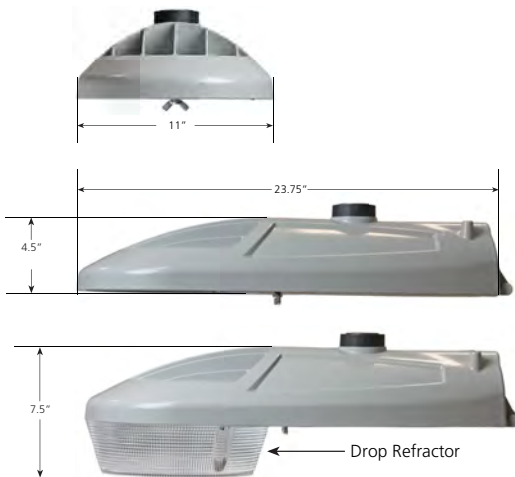
PRODUCT OVERVIEW



Applications:

- Residential streets
- Parking lots
- General security lighting

DIMENSIONS



Effective Projected Area (EPA) The EPA for the ATBS is 0.3 sq. ft., Approx. Wt. = 12 lbs. (5 kg)

STANDARDS

DesignLights Consortium® (DLC) qualified product. Not all versions of this product may be DLC qualified. Please check the DLC Qualified Products List at www.designlights.org/QPL to confirm which versions are qualified.

Color temperatures of $\leq 3000\text{K}$ must be specified for International Dark-Sky Association certification.

Rated for -40°C to 40°C ambient

CSA Certified to U.S. and Canadian standards

Complies with ANSI: C136.2, C136.10, C136.14, C136.31, C136.15, C136.37

Note: Actual performance may differ as a result of end-user environment and application. Specifications subject to change without notice.

Features:

OPTICAL

Same Light: Performance is comparable to 100W – 200W HPS and up to 175W Mercury Vapor roadway and security lighting luminaires.

White Light: Correlated color temperature - 4000K, 70 CRI minimum, 3000K, 70 CRI minimum or optional 5000K, 70 CRI minimum.

IP66 rated borosilicate glass optics ensure longevity and minimize dirt depreciation. Unique IP66 rated LED light engines provide 0% uplight and restrict backlight to within sidewalk depth, providing optimal application coverage and optimal pole spacing.

Available distributions are Type II, III, and V roadway distributions. When used with the optional acrylic refractor the unit provides approximately 10% uplight and increased vertical foot-candles

ELECTRICAL

Expected Life: LED light engines are rated $>100,000$ hours at 25°C , L70. Electronic driver has an expected life of 100,000 hours at a 25°C ambient.

Lower Energy: Saves an expected 40-60% over comparable HID luminaires.

Standard surge protection is 20kV/10kA "Extreme Level" per ANSI C136.2. An optional MOV pack provides 10kV/5kA "Enhanced Level".

MECHANICAL

Includes standard AEL lineman-friendly features such as tool-less entry, 3 station terminal block and quick disconnects. Bubble level located inside the electrical compartment for easy leveling at installation.

Rugged die-cast aluminum housing and door are polyester powder-coated for durability and corrosion resistance. Rigorous five-stage pre-treating and painting process yields a finish that achieves a scribe creepage rating of 8 (per ASTM D1654) after over 5000 hours exposure to salt fog chamber (operated per ASTM B117).

Mast arm mount is adjustable for arms from 1-1/4" to 2" (1-5/8" to 2-3/8" O.D.) diameter. The 2 – bolt clamping mechanism provides 3G vibration rating per ANSI C136.31.

The Wildlife shield is cast into the housing (not a separate piece).

CONTROLS

NEMA 3 pin photocontrol receptacle is standard, with the Acuity designed ANSI standard 7 pin receptacles optionally available.

Premium solid state locking-style photocontrol – PCSS (10 year rated life) Extreme long life solid state locking-style photocontrol – PCL1 (20 year rated life)

Optional onboard Adjustable Output module allows the light output and input wattage to be modified to meet site specific requirements, and also can allow a single fixture to be flexibly applied in many different applications.

Autobahn Series ATBS

Roadway & Security Lighting

ORDERING INFORMATION

Series	Performance Packages	Voltage	Optics
ATBS Autobahn LED Roadway & Security	P10 5,500 lumens P20 6,800 lumens P30 8,300 lumens P40 9,400 lumens P50 10,800 lumens P60⁴ 11,850 lumens	MVOLT Multi-volt, 120-277V 347 347V 480 480V	R2 Roadway Type II R3 Roadway Type III R5 Roadway Type V D3 Type III, Drop Refractor included D5 Type V, Drop Refractor included

Options

Color Temperature (CCT)

(Blank)	4000K CCT, 70 CRI Min.
3K	3000K CCT, 70 CRI Min.
5K	5000K CCT, 70 CRI Min.

Paint

Blank	Gray (Standard)
BK	Black
WH	White
BZ	Bronze

Surge Protection

Blank	Standard 20kV/10kA SPD
MP	MOV Pack 10kV/5kA

Misc.

HS	House Side Shield
NL	NEMA Label
XL	Not CSA Certified
VR³	Visual Comfort Optic

UMR-XX	8" Horizontal Arm for Round Pole, Painted to match Fixture
UMS-XX	8" Horizontal Arm for Square Pole, Painted to match Fixture
UMR-GALV	8" Horizontal Arm for Round Pole, Painted to match Fixture
UMS-GALV	8" Horizontal Arm for Square Pole, Painted to match Fixture

Controls

(Blank)	3 Pin NEMA Photocontrol Receptacle
NR¹	No Photocontrol Receptacle
DM²	0V-10V Dimmable Driver
P7	7 Pin Photocontrol Receptacle (dimmable driver included)
PCSS¹	DTL DSS Photocontrol
PCL1¹	DTL DLL Photocontrol 120-277V
AO	Field Adjustable Output
SH	Shorting Cap

Packages

(Blank)	Standard Pack
JP	Job Pack (54/pallet)

Install Packages

PKGS	DTL DSS Photocontrol
PKGL	DTL DLL Photocontrol

Packages ship with selected photocontrol, 24", 1 1/4" diameter arm, 5' of prewire and mounting hardware

Accessories

ATBSREF	Drop Refractor for field installation
ATBSHSS	House Side Shield for field installation
ATBSLTS	Light Trespass Shield for field installation
ATBS LOUVER KIT	Louver Kit for field installation
ATBSVR-XX	Visual Comfort Refractor and painted skirt for field installation

Notes

1. Not available with Install Packages.
2. Not available with AO option.
3. Not available with D3 or D5 option.
4. Not available with 347V and 480V supply voltage options.



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ATBS

Rev 1.0 February 2023

Warranty Five-year limited warranty. Complete warranty terms located at:

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Autobahn Series ATBS

Roadway & Security Lighting

PERFORMANCE PACKAGE

ATBS

Performance Package	Distribution	Input Watts	3K (3000K CCT, 70 CRI)					4K/5K (4000K/5000K CCT, 70 CRI)					LLD @ 25°C		
			Lumens	LPW	B	U	G	Lumens	LPW	B	U	G	50k Hours	75k Hours	100k Hours
P10	R2	40	5,360	134	1	0	2	5,577	139	1	0	2	0.92	0.89	0.85
	R3		5,287	132	1	0	1	5,524	138	1	0	1			
	R5		5,576	139	3	0	1	5,758	144	3	0	1			
	D3		4,963	124	1	3	3	5,163	129	1	3	3			
	D5		5,372	134	2	3	3	5,590	140	2	3	3			
P20	R2	50	6,707	134	1	0	2	6,809	136	1	0	2	0.92	0.89	0.85
	R3		6,687	134	2	0	2	6,760	135	2	0	2			
	R5		6,926	139	3	0	1	7,108	142	3	0	1			
	D3		6,496	130	2	3	4	6,244	125	1	3	4			
	D5		7,032	141	3	4	4	7,317	146	3	4	4			
P30	R2	60	8,092	135	2	0	2	8,067	134	1	0	1	0.92	0.89	0.85
	R3		7,971	133	2	0	2	8,328	139	2	0	2			
	R5		8,470	141	3	0	2	8,760	146	3	0	2			
	D3		7,491	125	2	3	4	7,795	130	2	3	4			
	D5		8,110	135	3	4	4	8,438	141	3	4	4			
P40	R2	70	9,138	131	2	0	2	9,533	136	2	0	2	0.92	0.89	0.85
	R3		9,136	131	2	0	2	9,355	134	2	0	2			
	R5		9,868	141	3	0	2	9,710	139	3	0	2			
	D3		8,460	121	2	3	4	8,802	126	2	3	5			
	D5		9,158	131	3	4	5	9,529	136	3	4	5			
P50	R2	82	10,628	130	2	0	3	10,829	132	2	0	3	0.92	0.89	0.85
	R3		10,624	130	2	0	2	10,826	132	2	0	2			
	R5		11,450	140	4	0	2	11,181	136	4	0	2			
	D3		10,143	124	2	4	5	10,553	129	2	4	5			
	D5		10,651	130	3	4	5	11,082	135	3	4	5			
P60	R2	92	11,050	120	2	0	3	11,848	129	2	0	3	0.92	0.89	0.85
	R3		10,911	119	2	0	2	11,862	129	2	0	2			
	R5		12,199	133	4	0	2	12,756	139	4	0	2			
	D3		10,230	111	2	4	5	10,644	116	2	4	5			
	D5		11,074	120	3	4	5	11,523	125	3	4	5			

ATBS with VR

Performance Package	Distribution	Input Watts	3K (3000K CCT, 70 CRI)					4K/5K (4000K/5000K CCT, 70 CRI)					LLD @ 25°C		
			Lumens	LPW	B	U	G	Lumens	LPW	B	U	G	50k Hours	75k Hours	100k Hours
P10	R2 with VR	40	4,450	111	1	0	1	4,561	114	1	0	1	0.92	0.89	0.85
	R3 with VR		4,273	107	1	0	1	4,605	115	1	0	1			
	R5 with VR		4,539	113	2	0	1	4,679	117	2	0	1			
P20	R2 with VR	50	5,491	110	1	0	1	5,550	111	1	0	1	0.92	0.89	0.85
	R3 with VR		5,379	108	1	0	1	5,582	112	2	0	1			
	R5 with VR		5,647	113	2	0	1	5,692	114	2	0	1			
P30	R2 with VR	60	6,479	108	2	0	1	6,530	109	2	0	1	0.92	0.89	0.85
	R3 with VR		6,400	107	2	0	1	6,564	109	2	0	1			
	R5 with VR		6,703	112	3	0	1	6,693	112	2	0	1			
P40	R2 with VR	70	7,307	104	2	0	1	7,561	108	2	0	1	0.92	0.89	0.85
	R3 with VR		7,347	105	2	0	1	7,638	109	2	0	1			
	R5 with VR		7,693	110	3	0	1	7,749	111	3	0	1			
P50	R2 with VR	82	8,552	104	2	0	2	8,711	106	2	0	2	0.92	0.89	0.85
	R3 with VR		8,494	104	2	0	1	8,814	107	2	0	1			
	R5 with VR		8,895	108	3	0	1	8,911	109	3	0	1			
P60	R2 with VR	92	8,989	98	2	0	2	9,815	107	2	0	2	0.92	0.89	0.85
	R3 with VR		8,899	97	2	0	1	9,857	107	2	0	2			
	R5 with VR		9,309	101	3	0	1	10,256	111	3	0	1			

Note: Individual fixture performance may vary. Specifications subject to change without notice.



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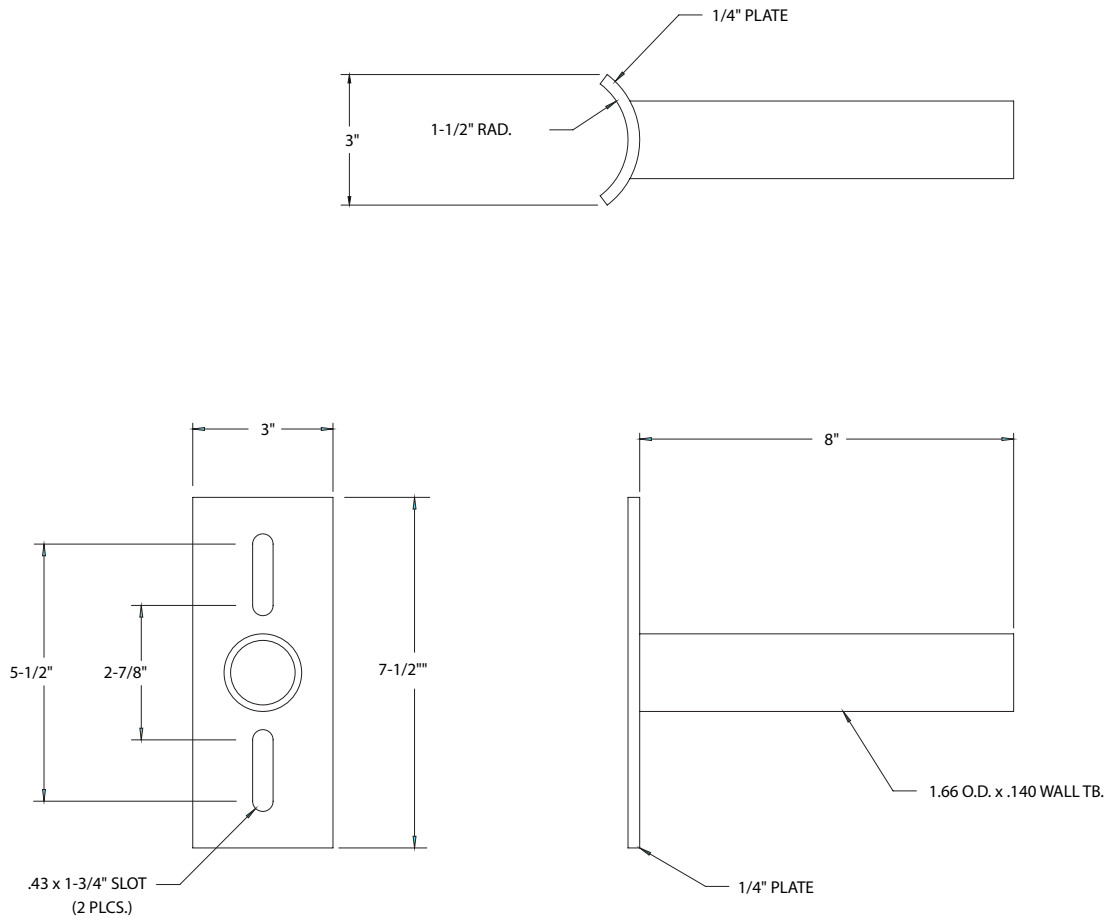
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Autobahn Series ATBS

Roadway & Security Lighting

UMR POLE ADAPTOR

RECOMMENDED FOR USE WITH POLES OF 4" DIAMETER OR SMALLER



UMS POLE ADAPTOR



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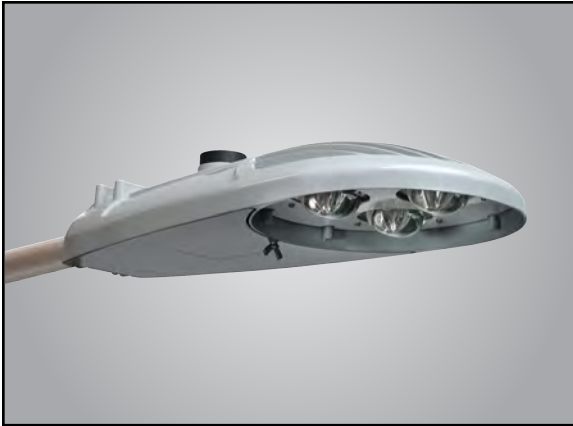
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Consistent with LEED® goals & Green Globes™ criteria for light pollution reduction

Autobahn Series ATBM Roadway

PRODUCT OVERVIEW



Applications:

- Residential streets
- Parking lots
- High speed roadways

DIMENSIONS

Effective Projected Area (EPA)
The EPA for the ATBM is 0.3 sq. ft.,
Approx. Wt. = 21 lbs. (9.5 kg)

STANDARDS

Color temperatures of $\leq 3000\text{K}$ must be specified for International Dark-Sky Association certification.

Rated for -40°C to 40°C ambient

CSA Certified to U.S. and Canadian standards

Complies with ANSI: C136.2, C136.10, C136.14, C136.31, C136.15, C136.37

Features:

OPTICAL

Same Light: Performance is comparable to 150W – 250W HPS

White Light: Correlated color temperature - 4000K, 70 CRI minimum, 3000K, 70 CRI minimum or optional 5000K, 70 CRI minimum.

IP66 rated borosilicate glass optics ensure longevity and minimize dirt depreciation. Unique IP66 rated LED light engines provide 0% uplight and restrict backlight to within sidewalk depth, providing optimal application coverage and optimal pole spacing.

Available distributions are Type II, III, IV, & V roadway distributions.

DualOptix™ visual comfort option is also available for all distributions.

ELECTRICAL

Expected Life: LED light engines are rated $>100,000$ hours at 25°C , L70.

Electronic driver has an expected life of 100,000 hours at a 25°C ambient.

Lower Energy: Saves an expected 40-60% over comparable HID luminaires.

Robust Surge Protection: Standard surge protection is 20kV/10kA "Extreme Level" per ANSI C136.2. An optional MOV pack provides 10kV/5kA "Enhanced Level."

MECHANICAL

Includes standard AEL lineman-friendly features such as tool-less entry, 3 station terminal block and quick disconnects. Bubble level located inside the electrical compartment for easy leveling at installation.

Rugged die-cast aluminum housing and door are polyester powder-coated for durability and corrosion resistance. Rigorous five-stage pre-treating and painting process yields a finish that achieves a scribe creepage rating of 8 (per ASTM D1654) after over 5000 hours exposure to salt fog chamber (operated per ASTM B117).

Mast arm mount is adjustable for arms from 1-1/4" to 2" (1-5/8" to 2-3/8" O.D.) diameter.

The 2 – bolt and optional 4 bolt clamping mechanism provide 3G vibration rating per ANSI C136.31.

The Wildlife shield is cast into the housing (not a separate piece).

CONTROLS

NEMA 3 pin photocontrol receptacle is standard, with the Acuity designed ANSI standard 7 pin receptacle optionally available.

Premium solid state locking-style photocontrol – PCSS (10 year rated life) Extreme long life solid state locking-style photocontrol – PCL1 (20 year rated life).

Extreme long life solid state locking-style photocontrol with on demand remote on/off control - PCCC (15 year rated life).

Optional onboard Adjustable Output module allows the light output and input wattage to be modified to meet site specific requirements, and also can allow a single fixture to be flexibly applied in many different applications.

Autobahn Series ATBM

Roadway

ORDERING INFORMATION

Series	Performance Packages	Voltage	Optics	Mounting
ATBM Autobahn LED Roadway	P05 9,700 lumens P10 11,000 lumens P20 12,800 lumens P30 15,500 lumens P40 17,400 lumens P50 18,700 lumens P60 20,000 lumens P70 21,500 lumens	MVOLT Multi-volt, 120-277V 347 347V 480 480V	R2 Roadway Type II R3 Roadway Type III R4 Roadway Type IV R5 Roadway Type V	(Blank) 2 Bolt Mounting 4B 4 Bolt Mounting

Options

Color Temperature (CCT)

(Blank)	4000K CCT, 70 CRI Min.
3K	3000K CCT, 70 CRI Min.
5K	5000K CCT, 70 CRI Min.

Paint

(Blank)	Gray
BK	Black
BZ	Bronze
DDB	Dark Bronze
GI	Graphite
WH	White

Surge Protection

(Blank)	Standard 20kV/10kA SPD
MP	MOV Pack

Miscellaneous Options

HSS	House Side Shield
NL	NEMA Label Indicating Wattage
XL	Not CSA Certified – No Terminal Block Cover
VR⁵	Dual Optix visual comfort
UMR-XX	8" Horizontal Arm for Round Pole, Painted to match Fixture
UMS-XX	8" Horizontal Arm for Square Pole, Painted to match Fixture
UMR-GALV	8" Horizontal Arm for Round Pole, Galvanized
UMS-GALV	8" Horizontal Arm for Square Pole, Galvanized

Control Options

(Blank)	3 Pin NEMA Photocontrol Receptacle
P7	7 Pin Photocontrol Receptacle (dimmable driver included) ¹
NR	No Photocontrol Receptacle
AO	Field Adjustable Output ³
DM	0-10V Dimmable Driver ²
PCSS	Solid-State Lighting Photocontrol ⁴
PCLL	Solid-State Long Life Photocontrol
PCCC	Solid-State Long Life Photocontrol with remote control on/off ⁴
SH	Shorting Cap

Packages

(Blank)	Standard Pack
JP	Job Pack (36/pallet)

Accessories

ATBMHSS	House Side Shield
ATBMLTS	Light Trespass Shield
RKATBMMVOLTSPD	ATBM Acuity SPD, MVOLT
RKATBMHVSPD	ATBM Acuity SPD, 347/480V
RKATBMMVOLTMP	ATBM MOV Pack, MVOLT
RKATBMHVMP	ATBM MOV Pack, 347/480V

Notes:

- 1 Dimmable Driver included. Not available with DM or NR.
- 2 Controls by others. Not available with P7 or AO.
- 3 Not available with DM.
- 4 MVOLT only.
- 5 VR option does not provide zero upright performance.



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Rev 1.0 February 2023

ATBM

Autobahn Series ATBM

Roadway

PERFORMANCE PACKAGE

Performance Package	Distribution	Input Watts	3K (3000K CCT, 70 CRI)					4K/5K (4000K/5000K CCT, 70 CRI)					LLD @ 25°C		
			Lumens	LPW	B	U	G	Lumens	LPW	B	U	G	25k Hours	75k Hours	100k Hours
P05	R2	68	9,396	138	1	0	2	9,718	143	1	0	2	0.93	0.86	0.83
	R3		9,366	138	1	0	3	9,688	142	1	0	3			
	R4		9,030	133	1	0	3	9,340	137	1	0	3			
	R5		10,334	152	3	0	2	10,689	157	3	0	2			
P10	R2	81	10,635	131	2	0	3	11,299	139	2	0	3	0.93	0.86	0.83
	R3		10,675	132	2	0	3	11,302	140	2	0	3			
	R4		10,391	128	2	0	4	10,994	136	2	0	4			
	R5		11,504	142	3	0	2	12,086	149	3	0	2			
P20	R2	94	12,073	128	2	0	3	12,874	137	2	0	3	0.93	0.86	0.83
	R3		12,065	128	2	0	3	12,818	136	2	0	3			
	R4		11,946	127	2	0	4	12,525	133	2	0	4			
	R5		13,085	139	4	0	2	13,776	147	4	0	2			
P30	R2	118	14,637	124	2	0	3	15,514	131	2	0	3	0.93	0.86	0.83
	R3		14,631	124	2	0	3	15,452	131	2	0	3			
	R4		14,317	121	2	0	4	15,151	128	2	0	5			
	R5		15,775	134	4	0	2	16,685	141	4	0	2			
P40	R2	135	16,233	120	2	0	3	17,493	130	2	0	3	0.93	0.86	0.83
	R3		16,402	121	2	0	3	17,367	129	2	0	3			
	R4		15,911	118	2	0	5	17,008	126	2	0	5			
	R5		17,507	130	4	0	2	18,595	138	4	0	2			
P50	R2	152	17,541	115	2	0	3	18,748	123	2	0	3	0.93	0.86	0.83
	R3		17,677	116	2	0	4	18,712	123	2	0	4			
	R4		17,154	113	2	0	5	18,246	120	2	0	5			
	R5		19,008	125	4	0	2	20,088	132	4	0	2			
P60	R2	168	18,770	112	2	0	3	20,095	120	3	0	3	0.93	0.86	0.83
	R3		18,830	112	2	0	4	20,094	120	3	0	4			
	R4		18,369	109	2	0	5	19,648	117	2	0	5			
	R5		20,350	121	4	0	2	21,505	128	4	0	2			
P70	R2	190	20,190	106	3	0	3	21,565	114	3	0	3	0.93	0.86	0.83
	R3		20,142	106	3	0	4	21,504	113	3	0	4			
	R4		19,660	103	2	0	5	21,024	111	3	0	5			
	R5		21,988	116	4	0	2	23,076	121	4	0	2			

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ATBM

Autobahn Series ATBM

Roadway

PERFORMANCE PACKAGE

ATBM with DualOptix	Distribution	Input Watts	3000K					4000K/5000K					LDD @ 25°C		
			Lumens	LPW	B	U	G	Lumens	LPW	B	U	G	50k Hours	75k Hours	100k Hours
P05	R2 with VR	68	8,323	122	2	3	3	8,609	127	2	3	3	0.93	0.86	0.83
	R3 with VR		8,296	122	2	3	3	8,581	126	2	3	3			
	R4 with VR		7,998	118	2	3	4	8,273	122	2	3	4			
	R5 with VR		9,154	135	3	3	3	9,468	139	3	3	3			
P10	R2 with VR	81	9,421	116	2	3	3	10,009	124	2	3	3	0.93	0.86	0.83
	R3 with VR		9,456	117	2	3	4	10,012	124	2	3	4			
	R4 with VR		9,204	114	2	3	4	9,738	120	2	3	4			
	R5 with VR		10,191	126	3	3	3	10,706	132	3	3	3			
P20	R2 with VR	94	10,694	114	2	3	4	11,404	121	2	3	4	0.93	0.86	0.83
	R3 with VR		10,687	114	2	3	4	11,354	121	2	3	4			
	R4 with VR		10,581	113	2	3	5	11,094	118	2	3	5			
	R5 with VR		11,591	123	3	3	3	12,203	130	3	3	3			
P30	R2 with VR	118	12,966	110	2	3	4	13,742	116	2	3	4	0.93	0.86	0.83
	R3 with VR		12,960	110	2	3	4	13,687	116	2	3	5			
	R4 with VR		12,681	107	2	3	5	13,420	114	2	3	5			
	R5 with VR		13,974	118	3	3	3	14,780	125	3	3	3			
P40	R2 with VR	135	14,379	107	2	3	4	15,495	115	3	3	5	0.93	0.86	0.83
	R3 with VR		14,529	108	2	3	5	15,384	114	3	3	5			
	R4 with VR		14,093	104	2	3	5	15,066	112	3	3	5			
	R5 with VR		15,508	115	3	3	3	16,471	122	4	3	3			
P50	R2 with VR	152	15,538	102	3	3	5	16,607	109	3	3	5	0.93	0.86	0.83
	R3 with VR		15,658	103	3	3	5	16,575	109	3	3	5			
	R4 with VR		15,195	100	3	3	5	16,162	106	3	3	5			
	R5 with VR		16,837	111	4	3	3	17,794	117	4	3	4			
P60	R2 with VR	168	16,626	99	3	3	5	17,800	106	3	3	5	0.93	0.86	0.83
	R3 with VR		16,679	99	3	3	5	17,799	106	3	3	5			
	R4 with VR		16,271	97	3	3	5	17,404	104	3	3	5			
	R5 with VR		18,026	107	4	3	4	19,049	113	4	3	4			
P70	R2 with VR	190	17,884	94	3	3	5	19,102	101	3	3	5	0.93	0.86	0.83
	R3 with VR		17,842	94	3	3	5	19,048	100	3	3	5			
	R4 with VR		17,415	92	3	3	5	18,623	98	3	3	5			
	R5 with VR		19,477	103	4	3	4	20,440	108	4	3	4			



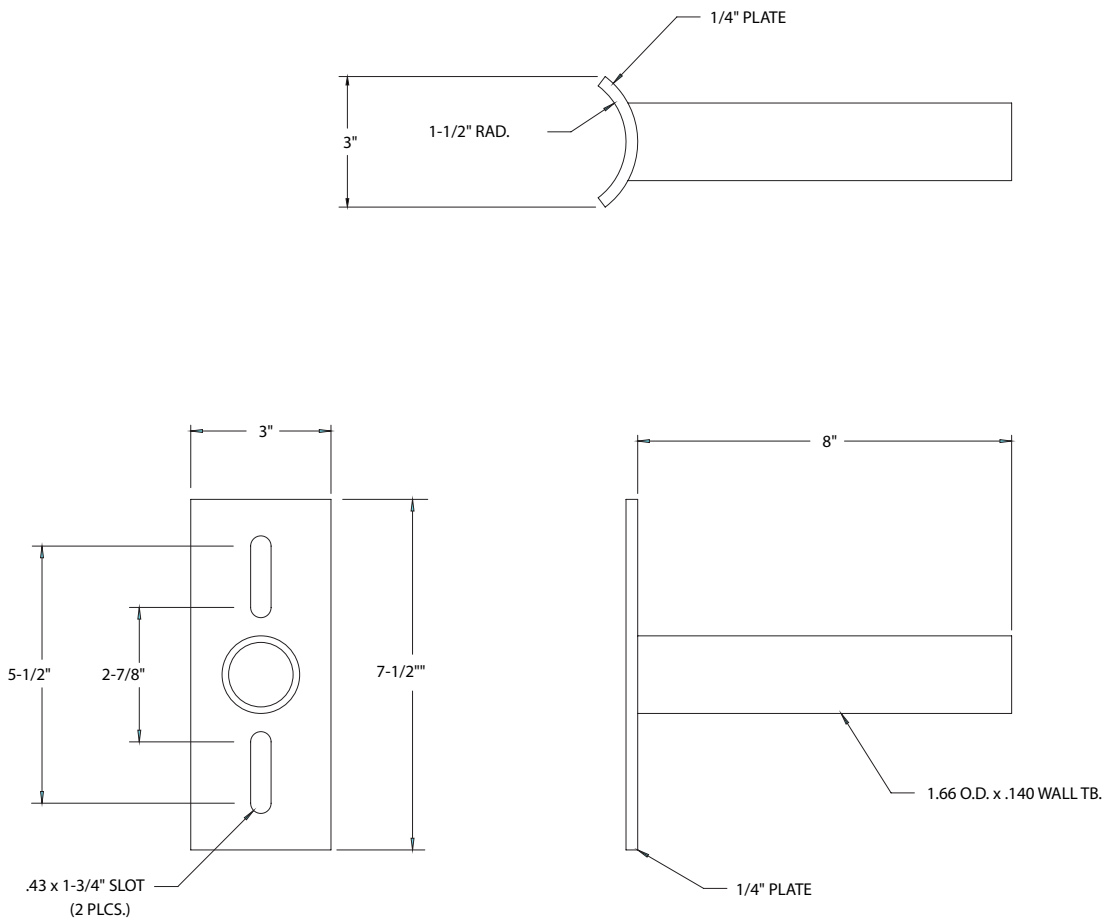
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UMR POLE ADAPTOR

RECOMMENDED FOR USE WITH POLES OF 4" DIAMETER OR SMALLER



UMS POLE ADAPTOR



SMART CONTROL SPECIFICATIONS SHEETS

Ubicell Model 2.0 Smart Streetlight Controller



Specifications

Lamp Interface	LED, CF and HID
Lamp Power	960W@480V, 554W@277V, 480W@240V, 240W@120V
On/Off	Photocell control, software programmable
Dimming Controls	PWM, 0-10V, DALI, DALI2
Dimming Range	DIM 1 - 0-10V PWM, ability to detect stray voltage but prohibits external sensor use DIM 2 - 0-10V PWM, ability to hardwire an external sensor, but prohibits the ability to detect stray voltage DIM 3 - DALI enabled, ability to hardwire an external sensor, plus the ability to detect stray voltage
External Sensor Interface	DALI/DALI 2
Communication Module	LTE CAT-1
Location Based Services	GPS, WiFi traffic movement, Bluetooth info beacons
OTA Updates	Yes
Security	AES 128/256-bit encryption
Voltage Detection	Real-time detection of "energized" metal poles
Power Surge Protection	10KV/5KA
Power Supply	90V to 506V (50/60Hz)
Average Power Consumption	1W
IP Ratings	IP66
Impact Rating	IK07
Operating Temperature Range	-30C to +70C
Dimensions	Diameter: 82.5mm (3.25 in) Height: 98mm (3.86 in)
Weight	290 grams
Network Protocol	IPV4 and IPV6 network compliant

Utility Power Metering

Accuracy	ANSI C12.20 Class 0.5
Accuracy Verification	Infrared pulse
Line Voltage	90V to 506V (50/60Hz)
Line Voltage Accuracy	+/- 0.5%
Current Accuracy	+/- 0.5%
Power	Active/reactive/power factor
Energy Consumption	kWh
Sag & Swell Detection	Yes
On/Off Cycles	Cycle count and cycle variation (fault detection)
Running Hour	0-10 years

Programmable Parameters

- Customer device management
- Scheduling controls
- Alert thresholds
- Sunrise/sunset offsets
- Tilt detection
- Vibration detection
- Voltage detection
- Power detection
- Photocell levels
- Luminaire fault detection
- Power loss after power failure
- Network communication failure
- Wireless network configuration

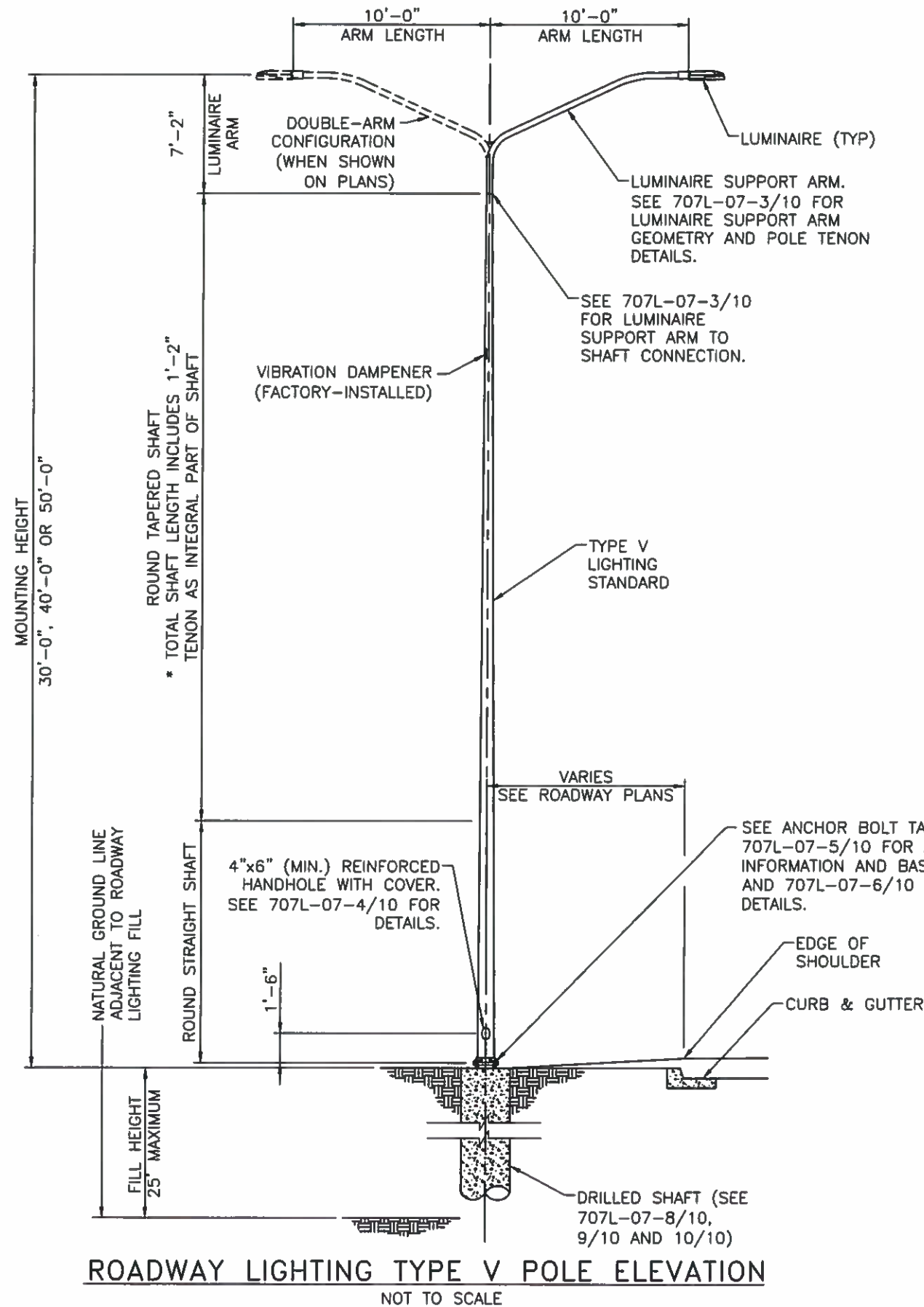
Warranty

- 5-Year Warranty
- 10-Year Optional Warranty





POLE AND ARM SPECIFICATIONS SHEETS



MOUNTING HEIGHT	ARM CONFIGURATION	MAX TAPERED SHAFT LENGTH	TOTAL SHAFT LENGTH*	OUTSIDE DIAMETER (IN)		MIN SHAFT SECTION THICKNESS (IN)
				BOTTOM	TOP	
30'-0"	SINGLE	22'-7"	24'-0"	8.00	4.50	0.156
	DOUBLE					0.219
40'-0"	SINGLE	30'-0"	34'-0"	8.00	4.50	0.25
	DOUBLE					0.375
50'-0"	SINGLE	39'-6"	44'-0"	10.00	4.50	0.25
	DOUBLE					0.375

THIS STANDARD DRAWING IS FOR USE ON NMDOT PROJECTS. OTHERS WHO USE THE NMDOT STANDARD DRAWINGS DO SO AT THEIR OWN RISK. STANDARD DRAWINGS THAT ARE APPLICABLE TO A SPECIFIC PROJECT WILL BE IDENTIFIED ON THE PROJECT PLANS BUT WILL NOT BE PHYSICALLY INCLUDED IN THOSE PLANS. THE DESIGNER WHO SPECIFIES A STANDARD DRAWING ACCEPTS THE RESPONSIBILITY OF DETERMINING THEIR APPLICABILITY.

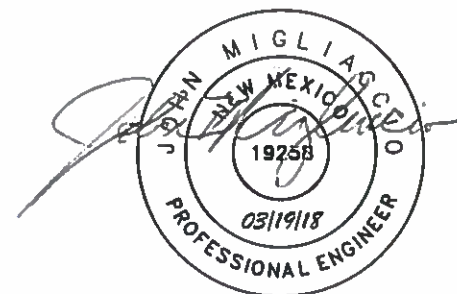
DATE	BY	DESCRIPTION

REVISIONS (OR CHANGE NOTICES)

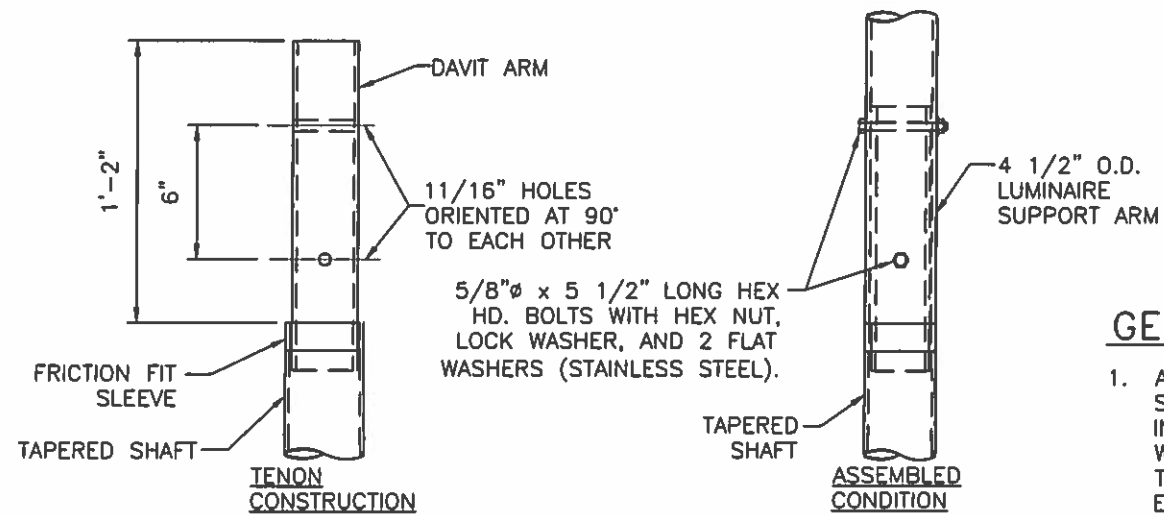
NEW MEXICO
DEPARTMENT OF TRANSPORTATION
STANDARD DRAWING

ROADWAY LIGHTING
SUPPORT STRUCTURES
TYPE V

POLE ELEVATION AND DIMENSIONS



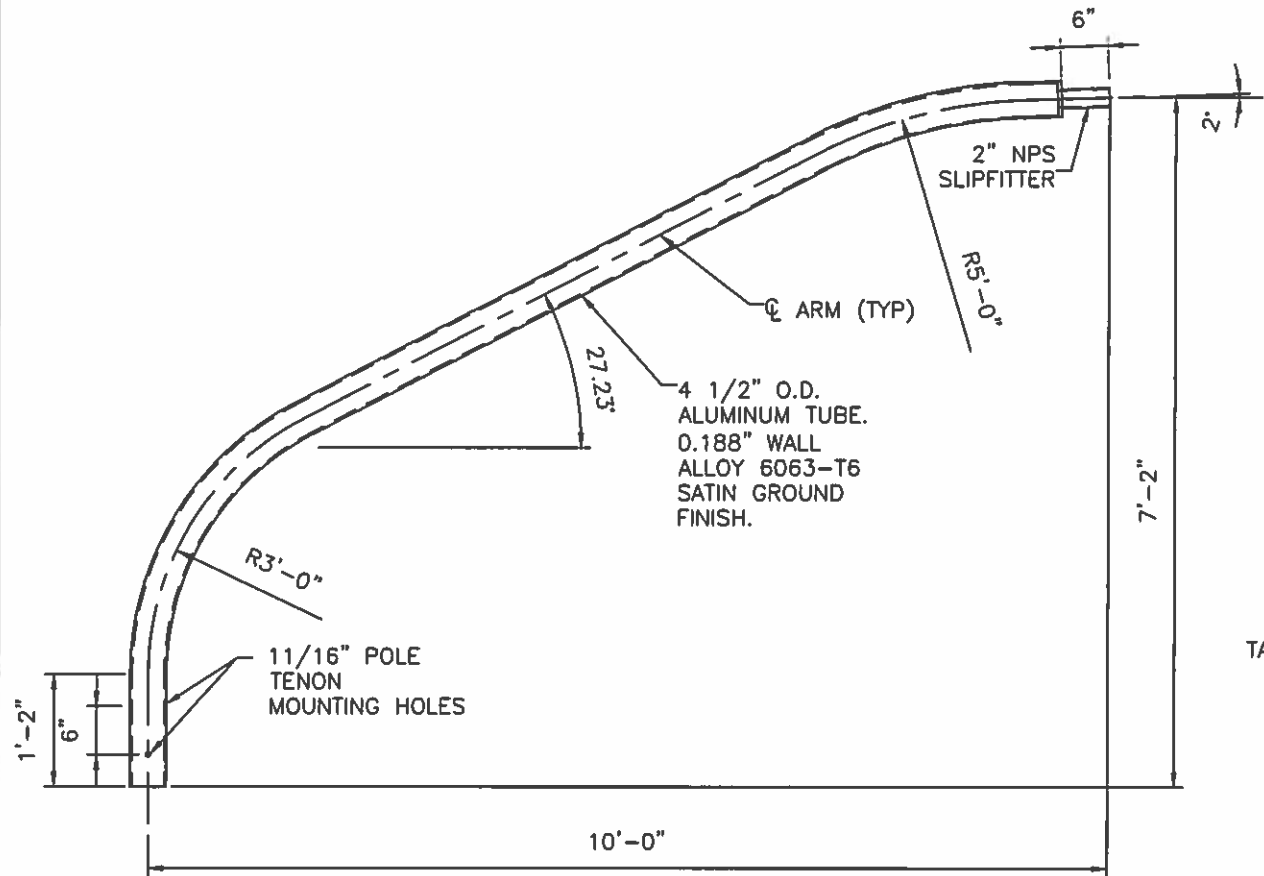
APPROVED FOR USE ON NMDOT PROJECTS: *John Migliacchio* DATE: 3/22/18



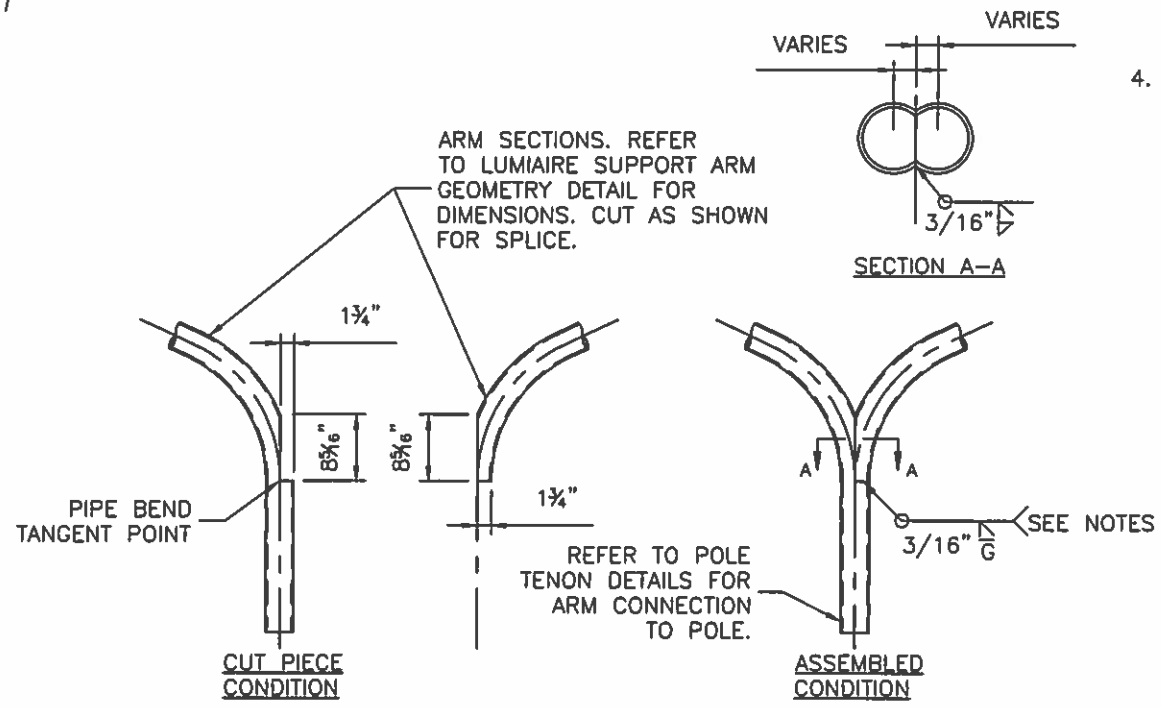
POLE TENON DETAILS
NOT TO SCALE

GENERAL NOTES

1. ARM BOTTOM CONNECTIONS AS WELL AS TOP SLIPFITTER CONNECTIONS SHALL BE FREE OF INTERNAL AND EXTERNAL OBSTRUCTIONS WHICH WOULD DAMAGE OR INTERFERE WITH WIRES OR THE PROPER OPERATION OF ANY OTHER ELECTRICAL COMPONENT.
2. ARM MEMBERS MAY TAPER FROM 4 1/2" DIAMETER AT BASE, AT FABRICATOR'S OPTION.
3. HORIZONTAL WELD AT DOUBLE-ARM SPLICE MAY A SQUARE GROOVE WELD WITH BACKING RING, AT FABRICATOR'S OPTION.
4. IF ARM CONNECTION DETAILS OTHER THAN THOSE DEPICTED HEREIN ARE PROPOSED, THE DESIGN SHALL ENSURE THAT THE CONNECTION DEVELOPS THE STRENGTH OF THE 4 1/2" DIAMETER MEMBER. DIMENSIONS OF ALTERNATE CONNECTIONS SHALL BE GENERALLY CONSISTENT WITH THE DIMENSIONS HEREIN.



LUMINAIRE SUPPORT ARM GEOMETRY
NOT TO SCALE



DOUBLE ARM SPLICE DETAILS
NOT TO SCALE

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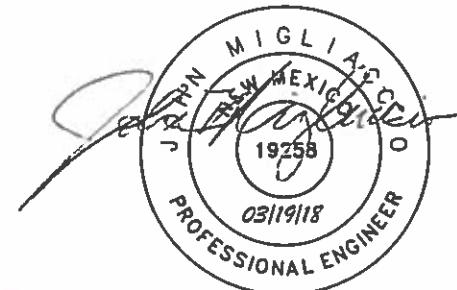
DATE	BY	DESCRIPTION

REVISIONS (OR CHANGE NOTICES)

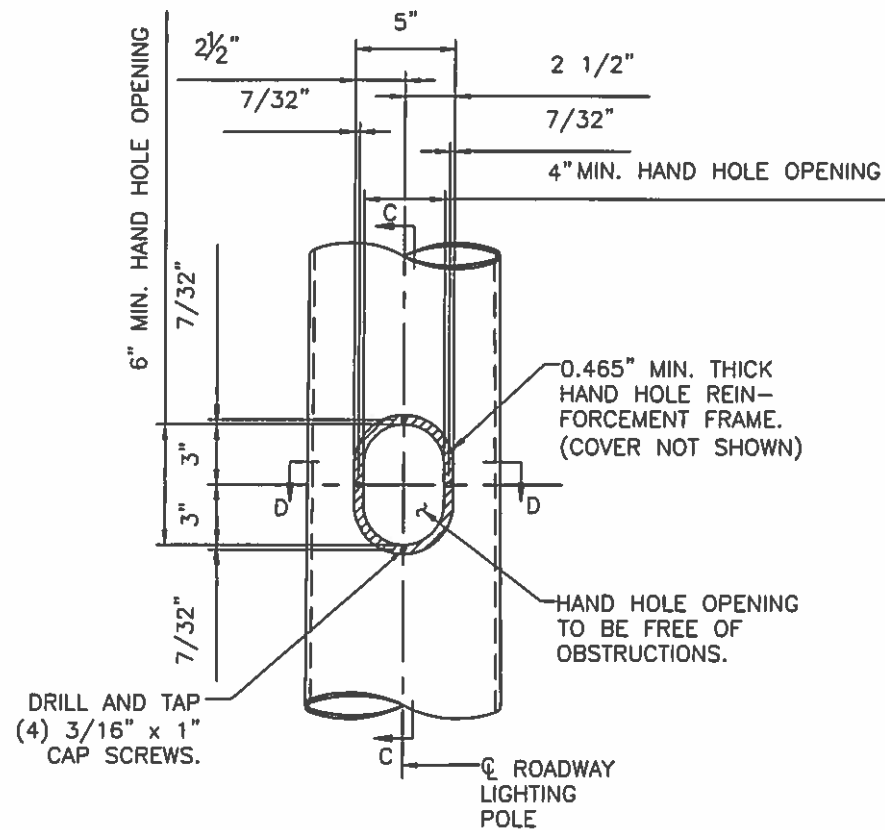
NEW MEXICO
DEPARTMENT OF TRANSPORTATION
STANDARD DRAWING

ROADWAY LIGHTING
SUPPORT STRUCTURES
TYPE V

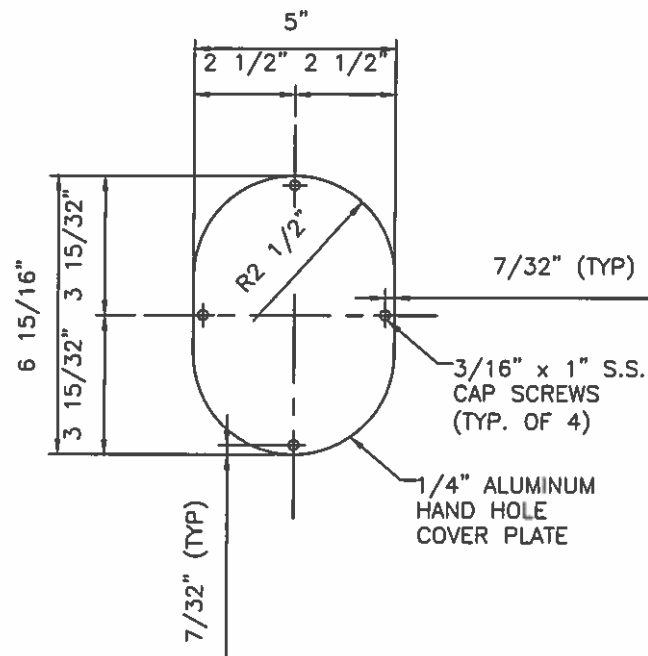
ARM AND TENON DETAILS



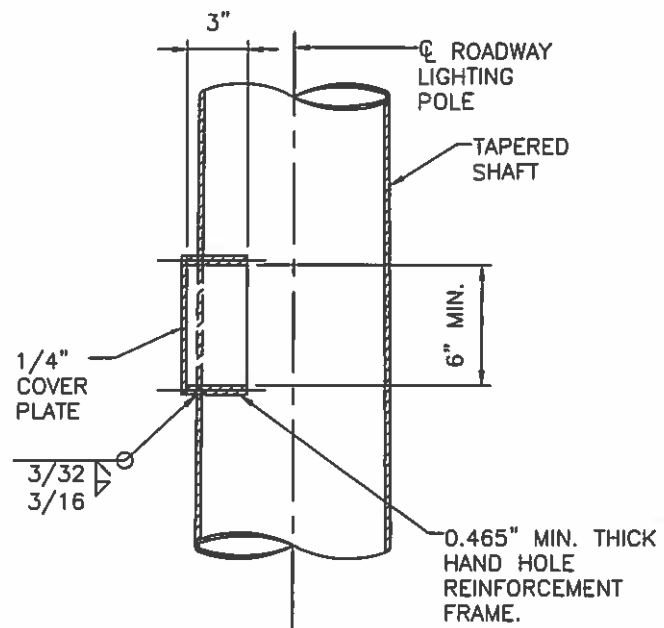
Kathy Cress DATE: 3/22/18



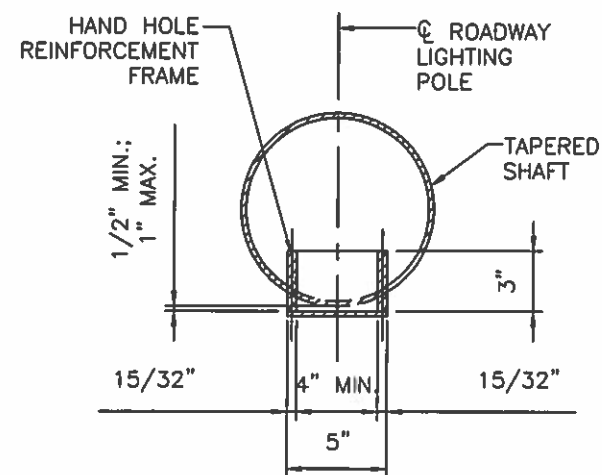
HAND HOLE DETAIL
NOT TO SCALE



HAND HOLE COVER
NOT TO SCALE



SECTION C-C
NOT TO SCALE



SECTION D-D
NOT TO SCALE

GENERAL NOTES

- HANDHOLES SHALL BE FREE OF INTERNAL AND EXTERNAL OBSTRUCTIONS WHICH WOULD DAMAGE OR INTERFERE WITH WIRES OR THE PROPER OPERATION OF ANY OTHER ELECTRICAL COMPONENT.
- HAND HOLE COVER SHALL BE FABRICATED FROM 1/4", ALLOY 6063-T6 PLATE OR MAY BE HINGED WITH A SUITABLE METHOD OF CLOSURE AS APPROVED BY THE PROJECT MANAGER.
- HAND HOLE REINFORCEMENT FRAME SHALL BE FABRICATED FROM 15/32" (MIN) WALL TUBING, CAST ALLOY 356-T6.
- COORDINATE LOCATIONS OF HOLES FOR CAP SCREWS IN HAND HOLE COVER PLATES WITH CONSTRUCTION OF HAND HOLE REINFORCING FRAME. TAPPED HOLES SHALL BE CENTERED IN REINFORCING FRAME RING.
- HAND HOLES SHALL BE ORIENTED DOWNSTREAM OF ONCOMING TRAFFIC.
- IF HAND HOLE FABRICATION DETAILS OTHER THAN THOSE DEPICTED HEREIN ARE PROPOSED, THE DESIGN SHALL ENSURE THAT SUCH HAND HOLE REINFORCEMENT SHALL STRENGTHEN POLE SHAFT SECTION TO THAT OF A SHAFT FABRICATED WITHOUT A HANDHOLE. DIMENSIONS OF ALTERNATE HAND HOLES FABRICATIONS SHALL BE GENERALLY CONSISTENT WITH THE DIMENSIONS HEREIN.

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DATE	BY	DESCRIPTION

REVISIONS (OR CHANGE NOTICES)

NEW MEXICO
DEPARTMENT OF TRANSPORTATION
STANDARD DRAWING

ROADWAY LIGHTING
SUPPORT STRUCTURES
TYPE V

HAND HOLE DETAILS



ANCHOR BOLT TABLE

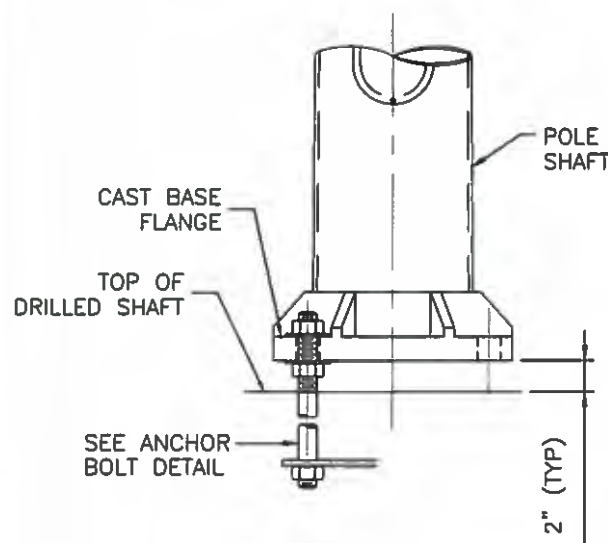
MOUNTING HEIGHT	BOLT DIAMETER	NUMBER OF BOLTS	SLOTTED HOLE SIZE	BOLT CIRCLE DIAMETER	BOLT TEMPLATE		BASE PLATE OPENING	BASE PLATE	
					O.D.	I.D.		"A"	"C"
(FT)	(IN)		(IN x IN)	(IN)	(IN)	(IN)	(IN)	(IN)	(IN)
50	1.0	4	1.25 x 2.25	15.0	18.0	12.0	7.0	16.0	1.0
40	1.0	4	1.25 x 2.25	11.5	14.5	8.5	6.0	14.0	1.0
30	1.0	4	1.25 x 2.25	11.5	14.5	8.5	5.0	14.0	1.0

BASE WELD TABLE

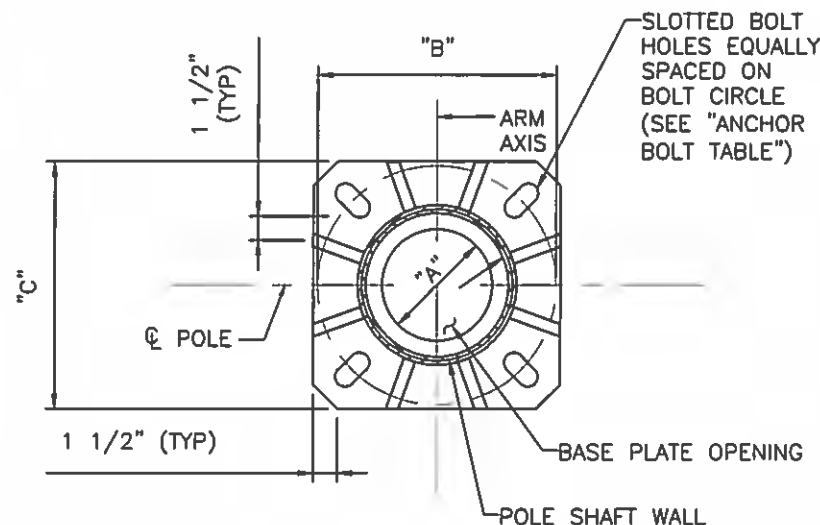
MOUNTING HEIGHT	WELD SIZE (SINGLE ARM)	WELD SIZE (DOUBLE ARM)
50	5/16	3/8
40	5/16	3/8
30	1/4	1/4

GENERAL NOTES

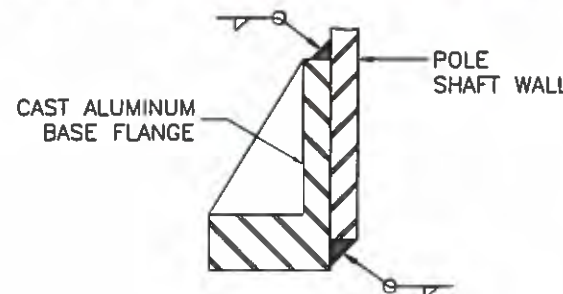
- REFER TO STANDARD DRAWING 707L-07-6/10 FOR BREAKAWAY POLE BASE SYSTEM DETAILS AND REQUIREMENTS.
- INSTALL DIRECT-MOUNT BASE ONLY WHEN SPECIFIED. REFER TO PLANS FOR DIRECT-MOUNT OR BREAKAWAY BASE REQUIREMENT.
- ALUMINUM BASE FLANGE SHALL BE CAST FROM ALUMINUM ALLOY 356 T6, CONFORMING TO ASTM B 108. BASE FLANGE SHALL ACCOMMODATE FOUR ANCHOR BOLTS AS SHOWN, AND SHALL BE CAPABLE OF DEVELOPING THE FULL MOMENT, SHEAR, AND TORSIONAL STRENGTHS OF THE ALUMINUM POLE SHAFTS. BASE FLANGE SHALL ACCOMMODATE POLE SHAFT OUTSIDE DIAMETER, OR POLE SHAFT DIAMETER MAY BE INCREASED TO BE COMPATIBLE WITH BASE FLANGE.
- ANCHOR BOLTS AND BOLT CIRCLE DIMENSIONS FOR THE ALUMINUM POLE SHALL ACCOMMODATE THE PROVIDED CAST BASE FLANGE. ANCHOR BOLT SIZES SHOWN SHALL BE CONSIDERED A MINIMUM.
- ANCHOR BOLT PROJECTION LENGTHS AND TOTAL LENGTHS SHOWN IN STANDARD DRAWINGS 707L-07-9/10 AND 10/10 APPLY TO DIRECT-MOUNT BASE CONDITION. ADJUST ACCORDINGLY FOR BREAKAWAY BASE CONDITION.
- WHEN BREAKAWAY COUPLINGS ARE SPECIFIED, THREAD UNC OF ANCHOR BOLTS SHALL MATCH THAT OF THE COUPLINGS.



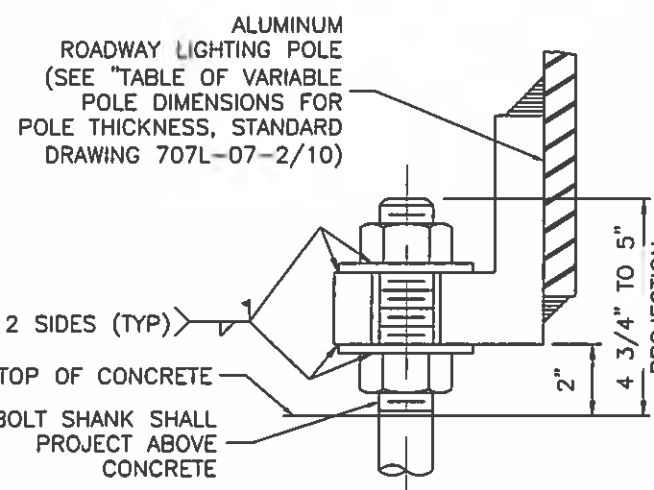
POLE BASE ELEVATION
NOT TO SCALE



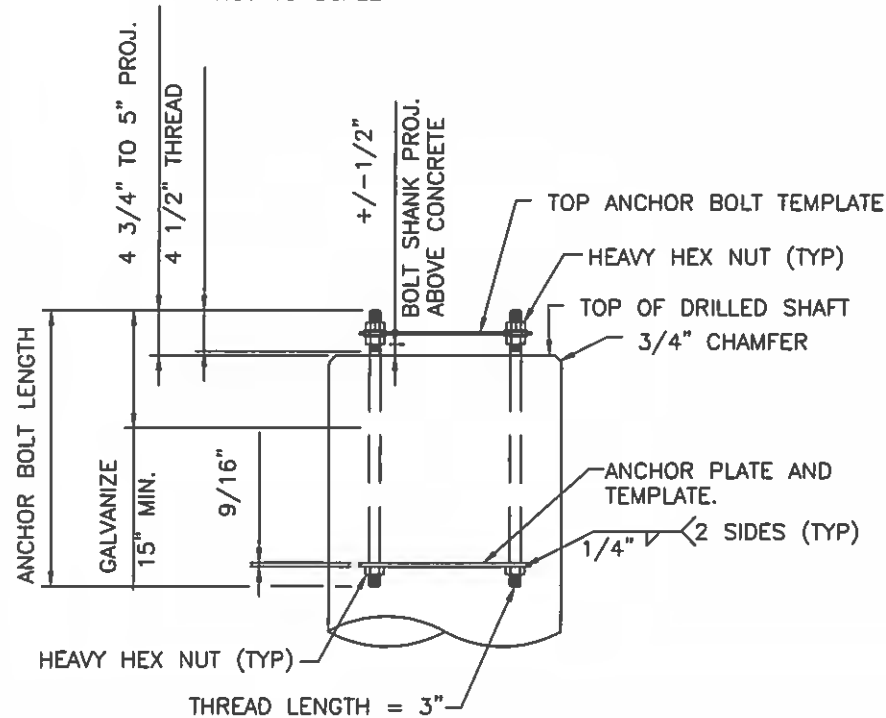
POLE BASE PLAN
NOT TO SCALE



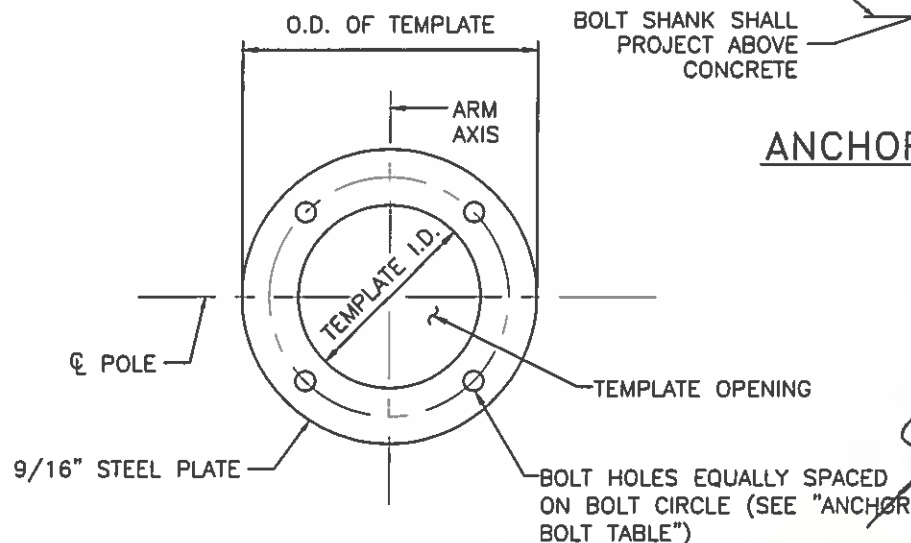
BASE WELD DETAIL
NOT TO SCALE



ANCHOR BOLT DETAIL
NOT TO SCALE



ANCHOR BOLT ASSEMBLY
NOT TO SCALE
(SEE ANCHOR BOLT TABLE)



ANCHOR BOLT AND ANCHOR PLATE TEMPLATE
NOT TO SCALE

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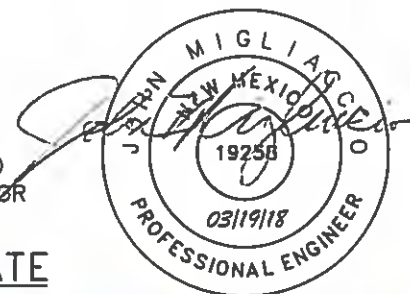
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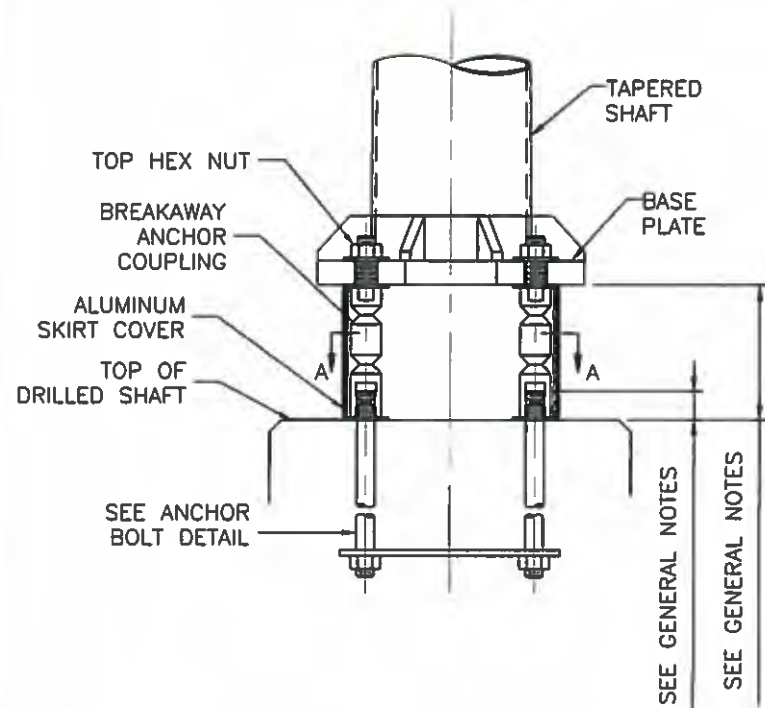
REVISIONS (OR CHANGE NOTICES)

NEW MEXICO
DEPARTMENT OF TRANSPORTATION
STANDARD DRAWING

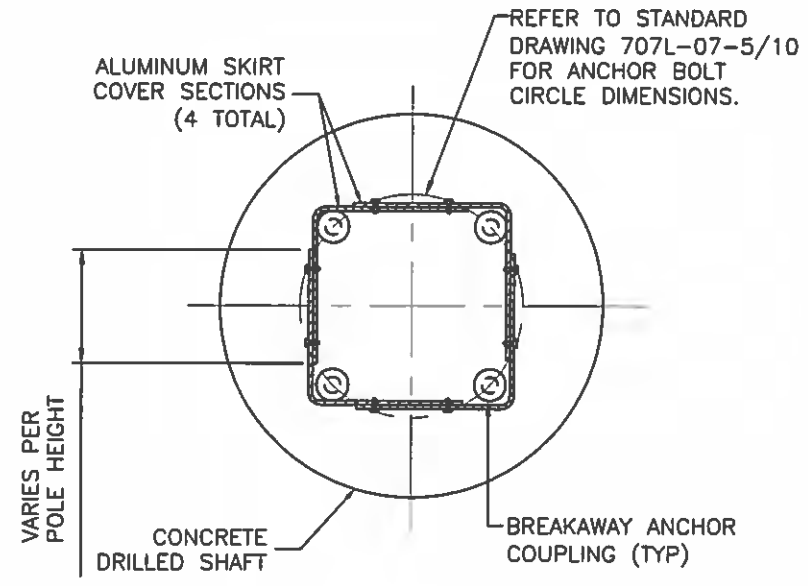
ROADWAY LIGHTING
SUPPORT STRUCTURES
TYPE V

BASE PLATE & ANCHOR BOLT DETAILS

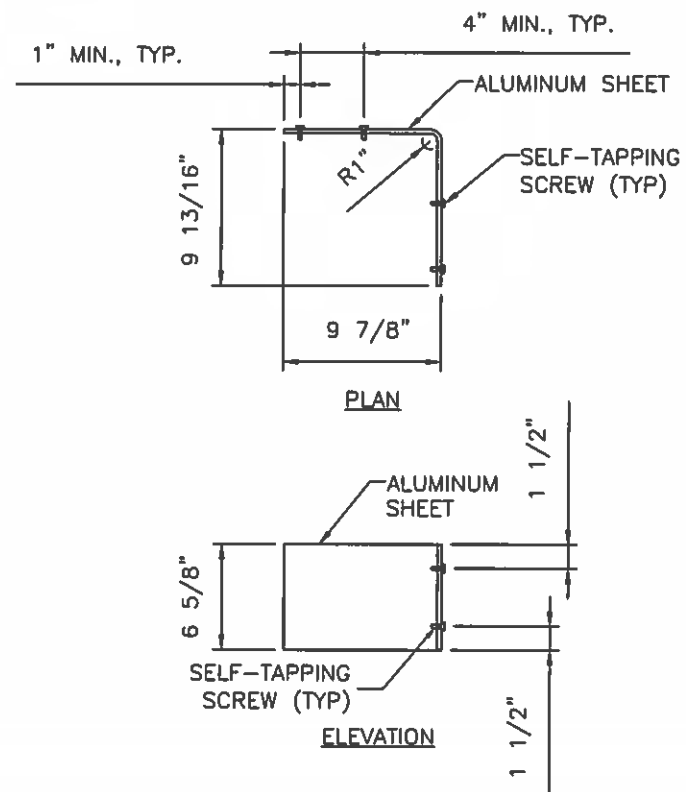




**BREAKAWAY POLE
BASE ELEVATION**
NOT TO SCALE



**SECTION A-A:
BREAKAWAY BASE SECTION**
NOT TO SCALE



SKIRT COVER DIMENSIONS
NOT TO SCALE

GENERAL NOTES

1. REFER TO STANDARD DRAWING 707L-07-5/10 FOR BASE PLATE AND ADDITIONAL ANCHOR BOLT DETAILS AND REQUIREMENTS.
2. SKIRT COVER SHALL BE FABRICATED FROM 1/16" SHEET ALUMINUM ALLOY 3003H14.
3. WHEN BREAKAWAY BASES ARE SPECIFIED, EACH LIGHT POLE SHALL BE FURNISHED WITH FOUR (4) SKIRT COVER SECTIONS AND SIXTEEN (16) SCREWS.
4. THE INTENDED USE OF THE SKIRT COVER IS TO ENCLOSE THE VOID UNDER POLES WITH BREAKAWAY SUPPORT COUPLINGS.
5. SCREWS SHALL BE SELF-TAPPING #10 x 5/8" STAINLESS STEEL.
6. BREAKAWAY SUPPORT COUPLINGS SHALL MEET THE REQUIREMENTS IN NCHRP REPORT 350, AND THE REQUIREMENTS IN 2015 (1ST EDITION) AASHTO LRFD SPECIFICATIONS FOR STRUCTURAL SUPPORTS FOR HIGHWAY SIGNS, LUMINAIRES AND TRAFFIC SIGNALS, SECTION 12.
7. WHEN BREAKAWAY BASES ARE SPECIFIED, EACH LIGHT POLE SHALL BE FURNISHED WITH FOUR (4) COUPLING SYSTEMS, COMPLETE WITH COUPLINGS, THREADED STUDS, WASHERS, NUTS, AND SHIMS.
8. BREAKAWAY ASSEMBLY DIMENSIONS VARY PER MANUFACTURER. INSTALL ANCHOR BOLT PROJECTIONS AND BASE PLATE OFFSETS IN ACCORDANCE WITH SPECIFIC BREAKAWAY ASSEMBLY MANUFACTURER'S SPECIFICATIONS.
9. ALTERNATE DESIGNS OF BREAKAWAY ASSEMBLIES MAY BE APPROVED BY THE PROJECT MANAGER, PROVIDED THEY MEET THE REQUIREMENTS HEREIN. WHEN ALTERNATE BREAKAWAY SYSTEMS ARE UTILIZED, IT SHALL BE THE CONTRACTOR'S RESPONSIBILITY TO PROVIDE COMPATIBLE SKIRT COVERS, AND MAKE NECESSARY ADJUSTMENTS TO ANCHOR BOLT PROJECTIONS.
10. CERTIFICATION OF BOTH BREAKAWAY AND STRUCTURAL ADEQUACY, DESIGN CALCULATIONS AND/OR TEST DATA OF PRODUCTION SAMPLES TO SUPPORT CERTIFICATION SHALL BE PROVIDED FOR BREAKAWAY SYSTEMS.

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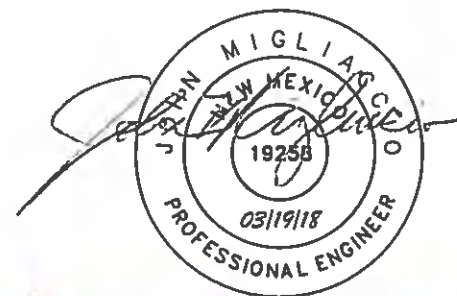
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REVISIONS (OR CHANGE NOTICES)

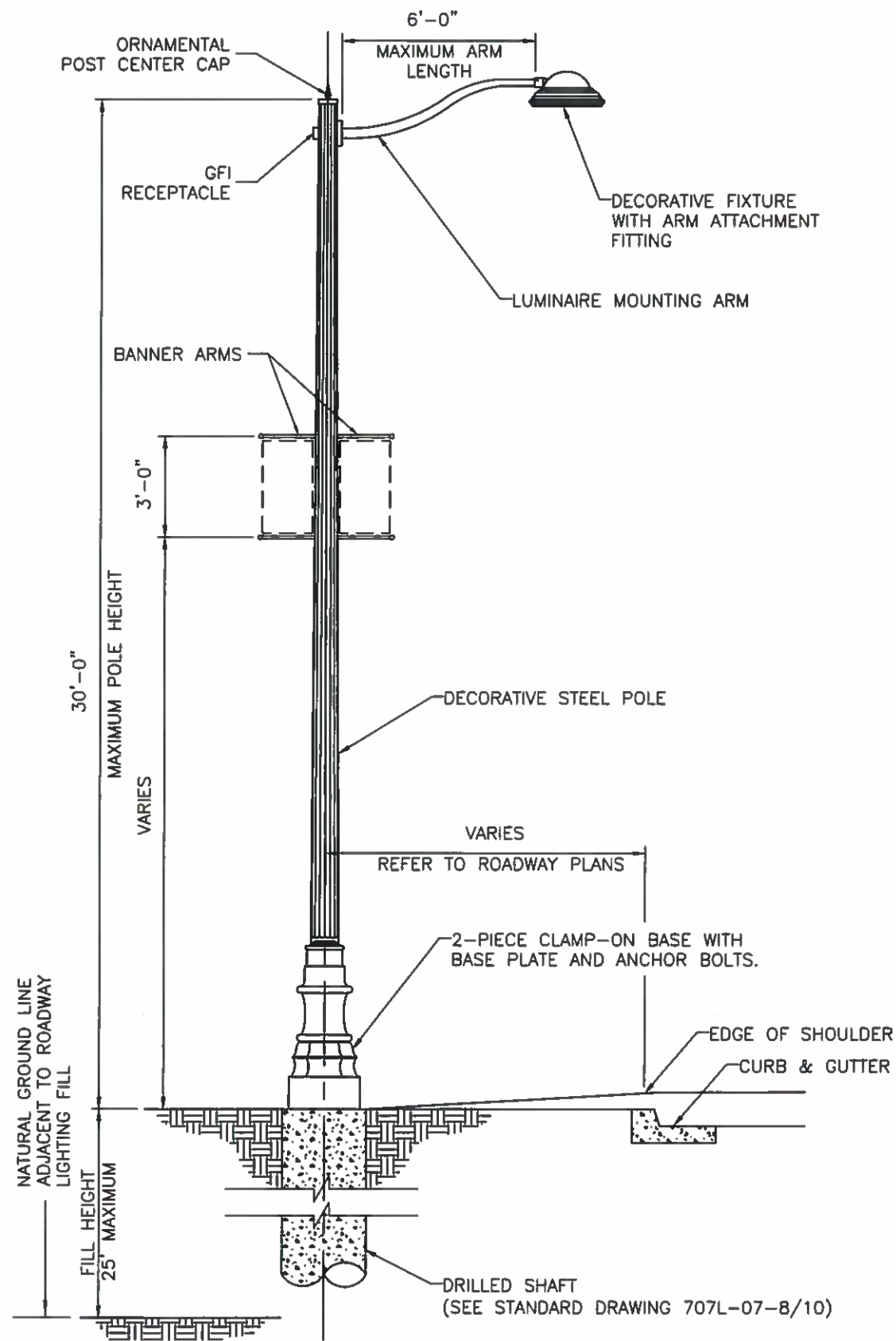
**NEW MEXICO
DEPARTMENT OF TRANSPORTATION
STANDARD DRAWING**

**ROADWAY LIGHTING
SUPPORT STRUCTURES
TYPE V**

BREAKAWAY BASE DETAILS



Steph Migliardi
DATE: 3/22/18



**30' DECORATIVE ROADWAY LIGHTING
OPTION ELEVATION**
NOT TO SCALE

GENERAL NOTES

1. REFER TO STANDARD DRAWING 707L-07-1/10 FOR GENERAL DESIGN CRITERIA, WORKMANSHIP REQUIREMENTS, AND SUBMITTAL REQUIREMENTS.
2. SHOP DRAWINGS FOR ORNAMENTAL LIGHT ASSEMBLIES SHALL BE PROVIDED TO THE NMDOT PROJECT MANAGER FOR APPROVAL, PRIOR TO FABRICATION AND CONSTRUCTION. SHOP DRAWINGS SHALL DEPICT ALL FEATURES AND OPTIONS CALLED FOR IN THE CONTRACT DOCUMENTS INCLUDING, BUT NOT LIMITED TO:
 - A. POLE MODEL
 - B. POLE HEIGHT
 - C. POLE SHAFT MATERIAL
 - D. POLE SHAFT STYLE
 - E. POST CAP STYLE
 - F. ARM MODEL
 - G. ARM LENGTH
 - H. ARM MATERIAL
 - I. ARM STYLE
 - J. LUMINAIRE FIXTURE MODEL
 - K. LUMINAIRE FITTING MOUNT METHOD
 - L. WATTAGE
 - M. LIGHT SOURCE TYPE
 - N. VOLTAGE
 - O. LUMINAIRE LENS TYPE
 - P. OPTICS TYPE
 - Q. DECORATIVE BASE STYLE
 - R. ACCESS DOOR LOCATION AND SIZE
 - S. BASE PLATE
 - T. ANCHOR BOLTS
 - U. FOUNDATION LOADINGS
 - V. GROUND FAULT INTERRUPTER LOCATION
 - W. BANNER ARM LOCATIONS
 - X. FINISHES
3. FOR ALL STRUCTURAL COMPONENTS PROVIDED BY THE ORNAMENTAL LIGHTING MANUFACTURER, CERTIFICATION OF STRUCTURAL ADEQUACY AND DESIGN CALCULATIONS TO SUPPORT CERTIFICATION SHALL BE PROVIDED.
4. THE POLE AND BASE ASSEMBLY SHALL BE PROVIDED WITH ONE ACCESS DOOR FOR WIRING AND MECHANICALLY SECURED WITH TWO, TAMPER-PROOF STAINLESS STEEL SCREWS OR OTHER APPROVED METHOD. ACCESS DOOR SHALL BE LOCATED OPPOSITE FROM THE STREET-FACING SIDE OF THE POLE.
5. THE 30' DECORATIVE ROADWAY LIGHTING OPTION ELEVATION SHOWN ON THIS STANDARD DRAWING IS A SCHEMATIC REPRESENTATION OF POSSIBLE FEATURES IN THE ASSEMBLY. ACTUAL OPTIONS, FEATURES, AND COMPONENTS SHALL BE SELECTED BY NMDOT ON A PROJECT BASIS AND WILL BE SPECIFIED IN THE ROADWAY PLANS.

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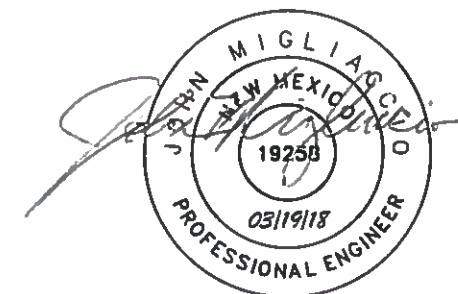
DATE	BY	DESCRIPTION

REVISIONS (OR CHANGE NOTICES)

**NEW MEXICO
DEPARTMENT OF TRANSPORTATION
STANDARD DRAWING**

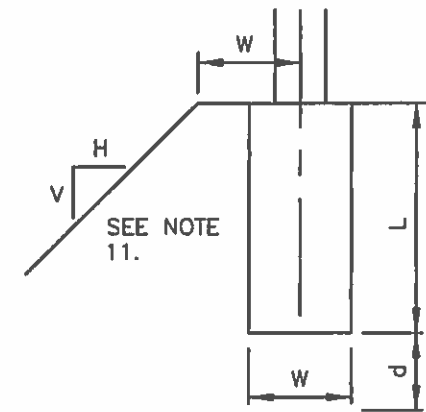
**ROADWAY LIGHTING
SUPPORT STRUCTURES
TYPE V**

DECORATIVE LIGHTING DETAILS



FOUNDATION NOTES:

1. DRILLED SHAFT FOUNDATIONS SHALL CONFORM TO SECTION 502 AND SPREAD FOOTING FOUNDATIONS SHALL CONFORM TO SECTION 511 OF THE LATEST EDITION OF THE NEW MEXICO STANDARD SPECIFICATIONS FOR HIGHWAY AND BRIDGE CONSTRUCTION. FOUNDATIONS SHALL BE COMPLETED AT LEAST 7 DAYS BEFORE ERECTING LIGHTING STRUCTURES ON THE FOUNDATIONS.
2. ALUMINUM ROADWAY LIGHTING SUPPORT STRUCTURES TYPE V FOR THE 30 FT, 40 FT, AND 50 FT CASES, AND ASSOCIATED FOUNDATIONS, ARE DESIGNED TO CONFORM TO 2015 (1ST EDITION) AASHTO STANDARD SPECIFICATIONS FOR STRUCTURAL SUPPORTS FOR HIGHWAY SIGNS, LUMINAIRES AND TRAFFIC SIGNALS. STEEL DECORATIVE (ORNAMENTAL) LIGHTING, AND ASSOCIATED FOUNDATIONS, IS DESIGNED TO CONFORM TO 2009 (5TH EDITION) AASHTO STANDARD SPECIFICATIONS FOR STRUCTURAL SUPPORTS FOR HIGHWAY SIGNS, LUMINAIRES AND TRAFFIC SIGNALS.
3. ALL CONCRETE FOR DRILLED SHAFT FOUNDATIONS SHALL BE CLASS G, $f'_c = 3000$ PSI. ALL CONCRETE FOR SPREAD FOOTING FOUNDATIONS SHALL BE CLASS A, $f'_c = 3000$ PSI. CONCRETE SHALL CONFORM TO SECTION 510 - PORTLAND CEMENT CONCRETE. ALL EXPOSED EDGES OF CONCRETE SHALL BE CHAMFERED $\frac{1}{4}$ " UNLESS OTHERWISE NOTED.
4. REINFORCING STEEL (REBAR) SHALL CONFORM TO SECTION 540 - STEEL REINFORCEMENT AASHTO M 31 (ASTM A615), GRADE 60. DIMENSIONS REFER TO THE CENTERLINE OF THE BAR. ALL REINFORCING STEEL SHALL BE NON-EPOXY UNLESS OTHERWISE NOTED.
5. ANCHOR BOLTS SHALL CONFORM TO AASHTO M 314 (ASTM F1554 GRADE 55). PROVIDE A HEX NUT, LEVELING NUT AND 2 WASHERS TOP AND BOTTOM OF EACH BOLT. ANCHOR BOLTS SHALL BE CONSIDERED INCIDENTAL TO THE FOUNDATIONS.
6. PROVIDE BOLT TEMPLATE FOR CAST-IN-PLACE INSTALLATION OF ANCHOR BOLTS. COORDINATE TEMPLATE REQUIREMENTS WITH BOLT CIRCLE DIAMETER, BOLT DIAMETER, AND DRILLED SHAFT DIAMETER FOR PLACEMENT AND FIT. TAKE PROPER CARE TO ALIGN FOUNDATION BOLT PATTERN WITH THE BASE PLATE PATTERN THAT RESULTS IN CORRECT CENTERLINE ALIGNMENT OF SUPPORT STRUCTURE WITH BOLT PATTERN.
7. PRIOR TO ERECTION OF POSTS, EXCAVATION CREATED FOR FOUNDATION CONSTRUCTION SHALL BE BACKFILLED IN ACCORDANCE WITH SECTION 210 OF THE LATEST EDITION OF THE NEW MEXICO STANDARD SPECIFICATIONS FOR HIGHWAY AND BRIDGE CONSTRUCTION WITH MATERIAL EQUIVALENT TO THE SURROUNDING SOIL. FOUNDATION CONCRETE SHALL HAVE REACHED A MINIMUM STRENGTH OF 2200 PSI PRIOR TO BACKFILLING. BACKFILL SHALL BE CONSIDERED INCIDENTAL TO CONSTRUCTION.
8. FOUNDATION DESIGN IS FOR THE ROADWAY LIGHTING SUPPORT STRUCTURES STANDARD DIAMETERS. IF A LARGER DIAMETER IS FURNISHED, THE CONTRACTOR SHALL BUILD A LARGER FOUNDATION AS DETERMINED NECESSARY BY THE PROJECT MANAGER AND NO ADDITIONAL PAYMENT OR COMPENSATION SHALL BE MADE.
9. DRILLED SHAFT DESIGN CONSIDERED PARAMETERS FOR COHESIVE AND NON-COHESIVE SOILS AS WELL AS ROCK. SHOULD SITE OR SOIL CONDITIONS POSE UNIQUE CHALLENGES, CONSULT WITH THE STATE GEOTECHNICAL ENGINEER FOR ANY REMEDIAL MEASURES BEFORE PLACEMENT OF THE FOUNDATION.
10. DRILLED SHAFT FOUNDATION DEPTH MUST BE INCREASED IF INSTALLED ON OR NEAR (WITHIN A SHAFT DIAMETER OF) A GROUND SLOPE. IF GROUND SLOPES MINIMALLY DOWN NO MORE THAN 2 FEET AND THEN BACK UP WITHIN $\frac{1}{2}$ FOUNDATION DEPTH, AS IN A DRAINAGE DITCH, TREAT AS IF LEVEL. SEE FOUNDATION DETAIL FOR SLOPING GROUND, THIS SHEET.
11. FINISHED GRADE FOR ALL FOUNDATIONS SHALL BE PER THE CONTRACT DOCUMENTS. THE TOP OF STANDARD FOUNDATIONS SHALL BE FLUSH WITH ADJACENT SIDEWALK OR PAVED AREAS WHEN PRESENT AND SHALL CONFORM TO THE AMERICANS WITH DISABILITIES ACT.
12. FOR BASE PLATE AND ANCHOR BOLT DETAILS, SEE 707L-07-5/10.



SLOPE	d
3H:1V	0
2H:1V	0.5W
1.5H:1V	1.0W

d = INCREASE IN FOUNDATION DEPTH AND REBAR LENGTH DUE TO SLOPE

FOUNDATION DETAIL FOR SLOPING GROUND

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NO.	DATE	BY	DESCRIPTION

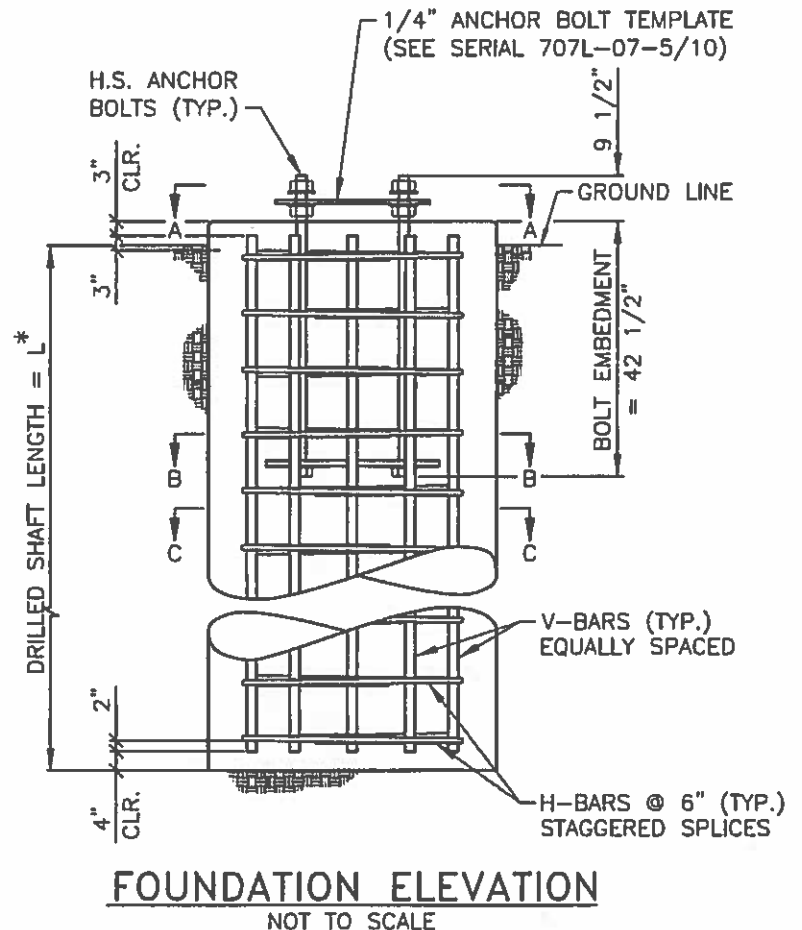
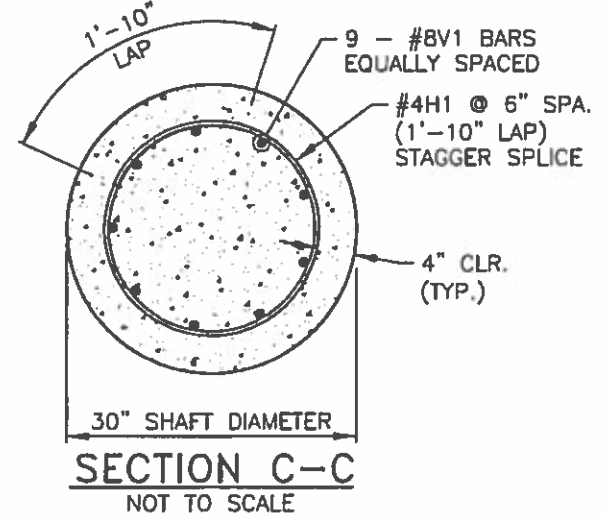
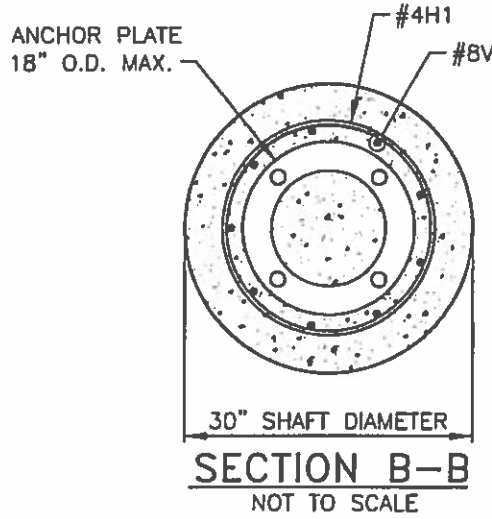
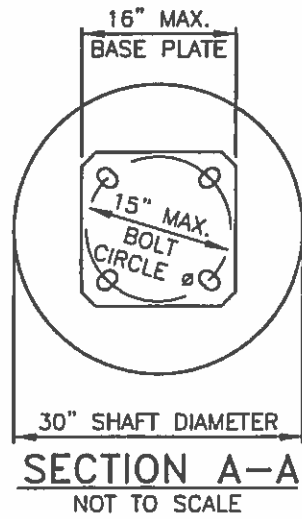
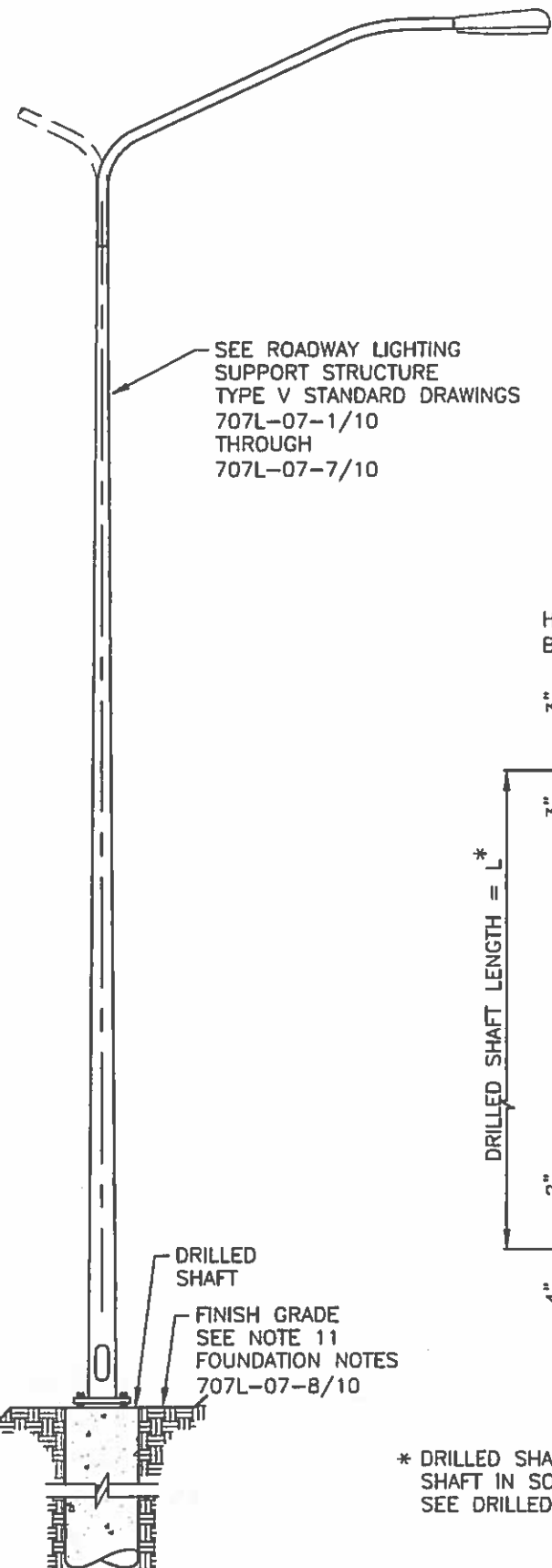
REVISIONS (OR CHANGE NOTICES)

NEW MEXICO
DEPARTMENT OF TRANSPORTATION
STANDARD DRAWING

ROADWAY LIGHTING
SUPPORT STRUCTURES
TYPE V

FOUNDATION GENERAL NOTES





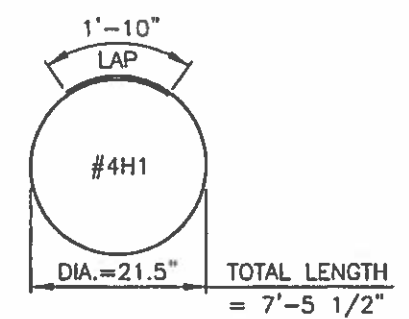
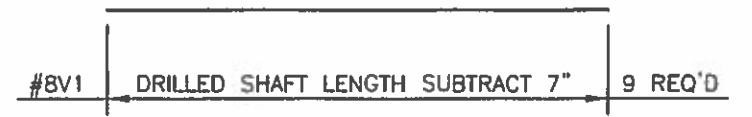
DRILLED SHAFT LENGTHS
SEE NOTE 9 FOUNDATION NOTES 707-07-8/10

POLE HEIGHT (ft)	DRILLED SHAFT LENGTH (ft)
50	8.5
30 ORNAMENTAL	7.0
40	7.5
30	6.0

ANCHOR BOLTS

POLE HEIGHT (ft)	POLE DIAMETER O.D. (in)	BOLT DIAMETER (in)	BOLT LENGTH (in)	NUMBER OF BOLTS	BOLT CIRCLE DIAMETER (in)
50	10	1.000	52	4	15
40	9	1.000	52	4	11.5
30	8	1.000	52	4	11.5

REINFORCING SCHEDULE



* DRILLED SHAFT LENGTH IS MEASURED AS LENGTH OF SHAFT IN SOIL OR ROCK AS APPLICABLE. SEE DRILLED SHAFT LENGTHS TABLE FOR LENGTH.

THIS STANDARD DRAWING IS FOR USE ON NMDOT PROJECTS. OTHERS WHO USE THE NMDOT STANDARD DRAWINGS DO SO AT THEIR OWN RISK. STANDARD DRAWINGS THAT ARE APPLICABLE TO A SPECIFIC PROJECT WILL BE IDENTIFIED ON THE PROJECT PLANS BUT WILL NOT BE PHYSICALLY INCLUDED IN THOSE PLANS. THE DESIGNER WHO SPECIFIES A STANDARD DRAWING ACCEPTS THE RESPONSIBILITY OF DETERMINING THEIR APPLICABILITY.

NO	DATE	BY	DESCRIPTION

REVISIONS (OR CHANGE NOTICES)

NEW MEXICO
DEPARTMENT OF TRANSPORTATION
STANDARD DRAWING

ROADWAY LIGHTING
SUPPORT STRUCTURES
TYPE V

DRILLED SHAFT DETAILS



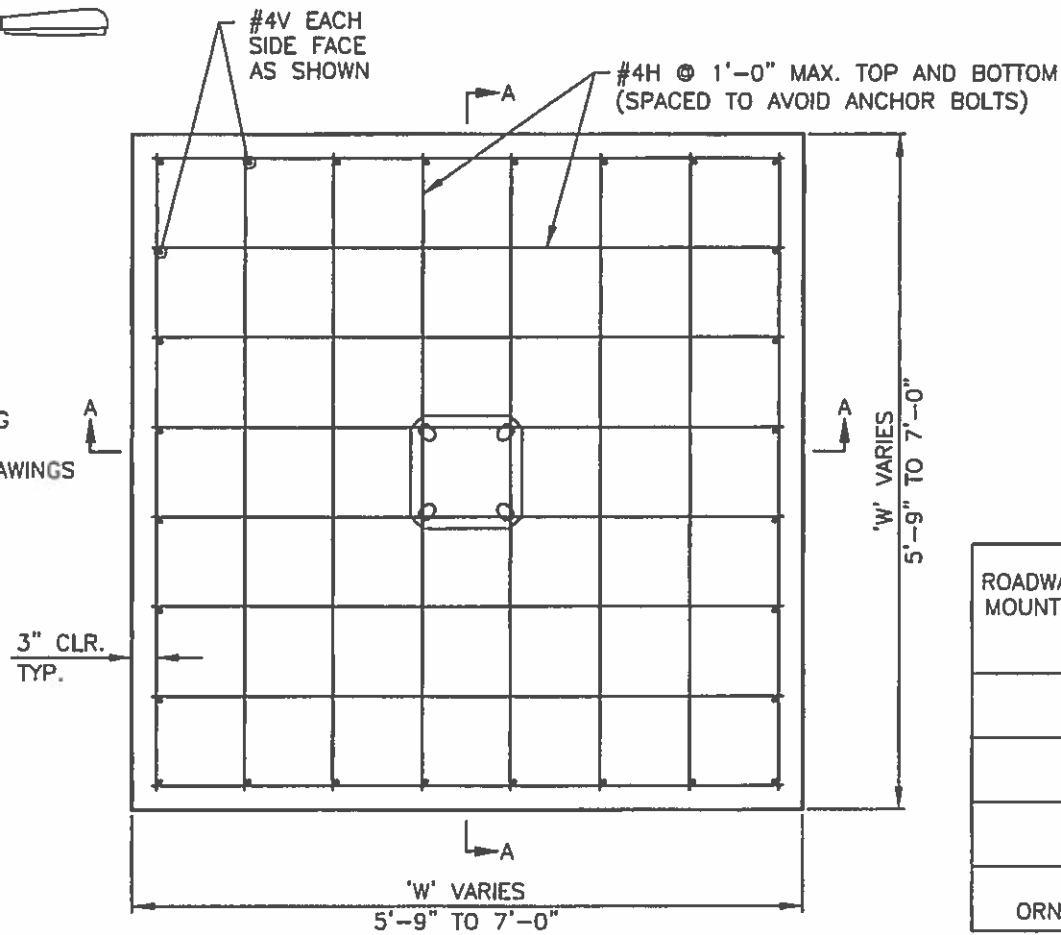
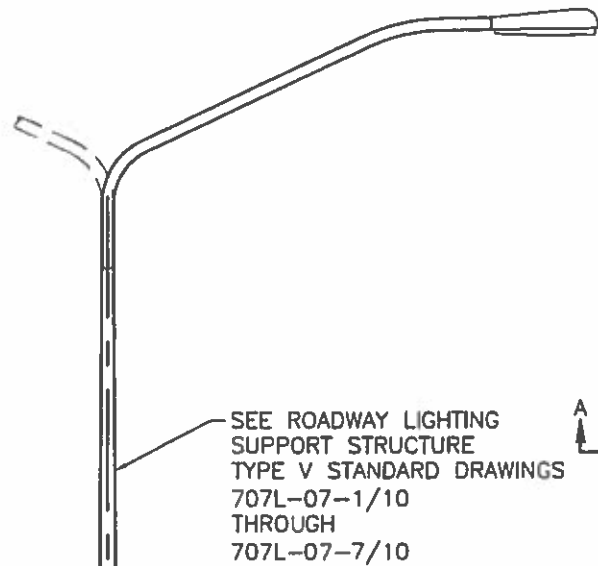
**ROADWAY LIGHTING
POLE ELEVATION**
NOT TO SCALE

DESIGNED BY: ADA DRAWN BY: DLH CHECKED BY: NJB

APPROVED FOR USE ON NMDOT PROJECTS: *Kathy Cull* DATE: 11/17/17

707L-07-9/10

9 of 10

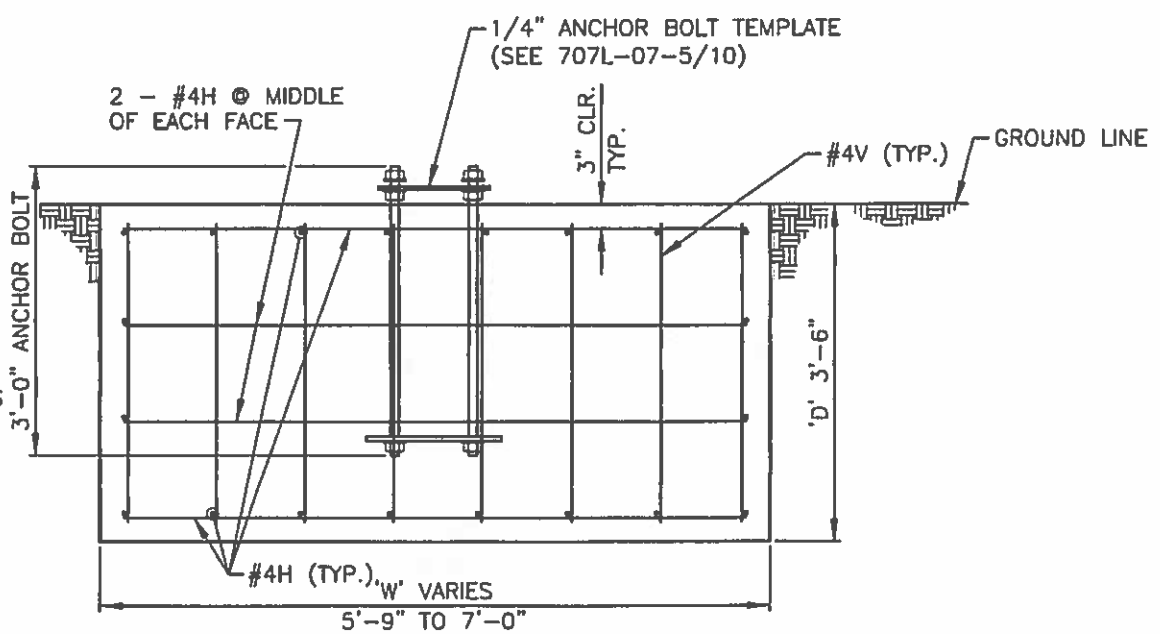


DESIGN DATA:

DESIGN STRENGTH:
 CONCRETE: $f_c' = 3000$ PSI @ 28 DAYS = NMDOT CLASS "A" CONCRETE.
 REINFORCING STEEL: $f_y = 60$ KSI
 ALLOWABLE SOIL BEARING PRESSURE: 1.0 T/SQ. FT.

ROADWAY LIGHTING MOUNTING HEIGHT (ft)	SQUARE FOOTING WIDTH 'W' (ft)	SQUARE FOOTING DEPTH 'D' (ft)	REINFORCING SCHEDULE				ESTIMATED QUANTITIES	
			MARK	SIZE	LENGTH	NO. REQ'D	CONCRETE CLASS "A" (cu. yd.)	BARS (lbs)
50	7.00	3.50	#4V	#4	3'-0"	28	6.4	230
			#4H	#4	6'-6"	40		
40	6.50	3.50	#4V	#4	3'-0"	24	5.5	193
			#4H	#4	6'-0"	36		
30	5.75	3.50	#4V	#4	3'-0"	20	4.3	153
			#4H	#4	5'-3"	32		
30 ORNAMENTAL	6.75	3.50	#4V	#4	3'-0"	24	5.9	199
			#4H	#4	6'-3"	36		

PLAN VIEW OF SPREAD FOOTING
NOT TO SCALE



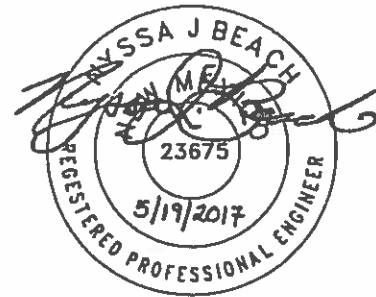
SECTION A-A
NOT TO SCALE

ROADWAY LIGHTING POLE ELEVATION
NOT TO SCALE

DESIGNED BY: ADA DRAWN BY: DLH CHECKED BY: NJB

THIS STANDARD DRAWING IS FOR USE ON NMDOT PROJECTS. OTHERS WHO USE THE NMDOT STANDARD DRAWINGS DO SO AT THEIR OWN RISK. STANDARD DRAWINGS THAT ARE APPLICABLE TO A SPECIFIC PROJECT WILL BE IDENTIFIED ON THE PROJECT PLANS BUT WILL NOT BE PHYSICALLY INCLUDED IN THOSE PLANS. THE DESIGNER WHO SPECIFIES A STANDARD DRAWING ACCEPTS THE RESPONSIBILITY OF DETERMINING THEIR APPLICABILITY.

NO.	DATE	BY	DESCRIPTION



REVISIONS (OR CHANGE NOTICES)

NEW MEXICO DEPARTMENT OF TRANSPORTATION STANDARD DRAWING

ROADWAY LIGHTING SUPPORT STRUCTURES TYPE V

SPREAD FOOTING DETAILS

APPROVED FOR USE ON NMDOT PROJECTS: *Kathy Cull* DATE: 11/17/17

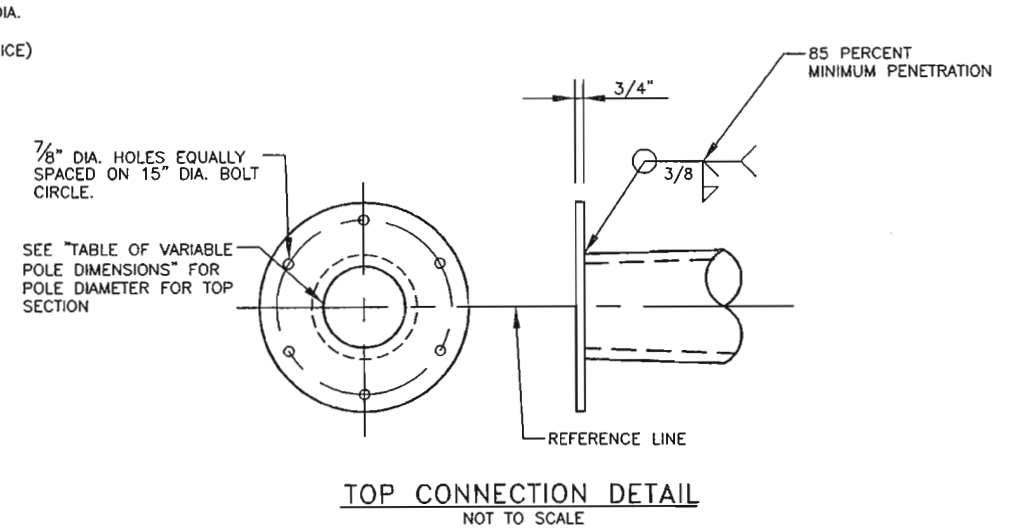
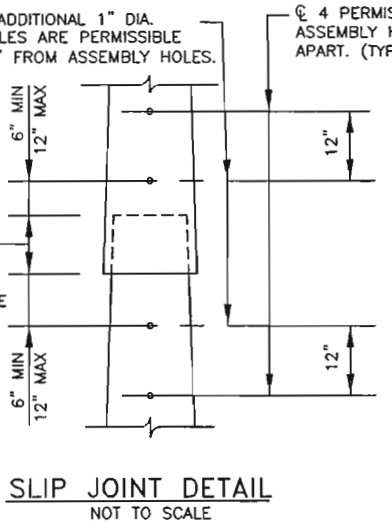
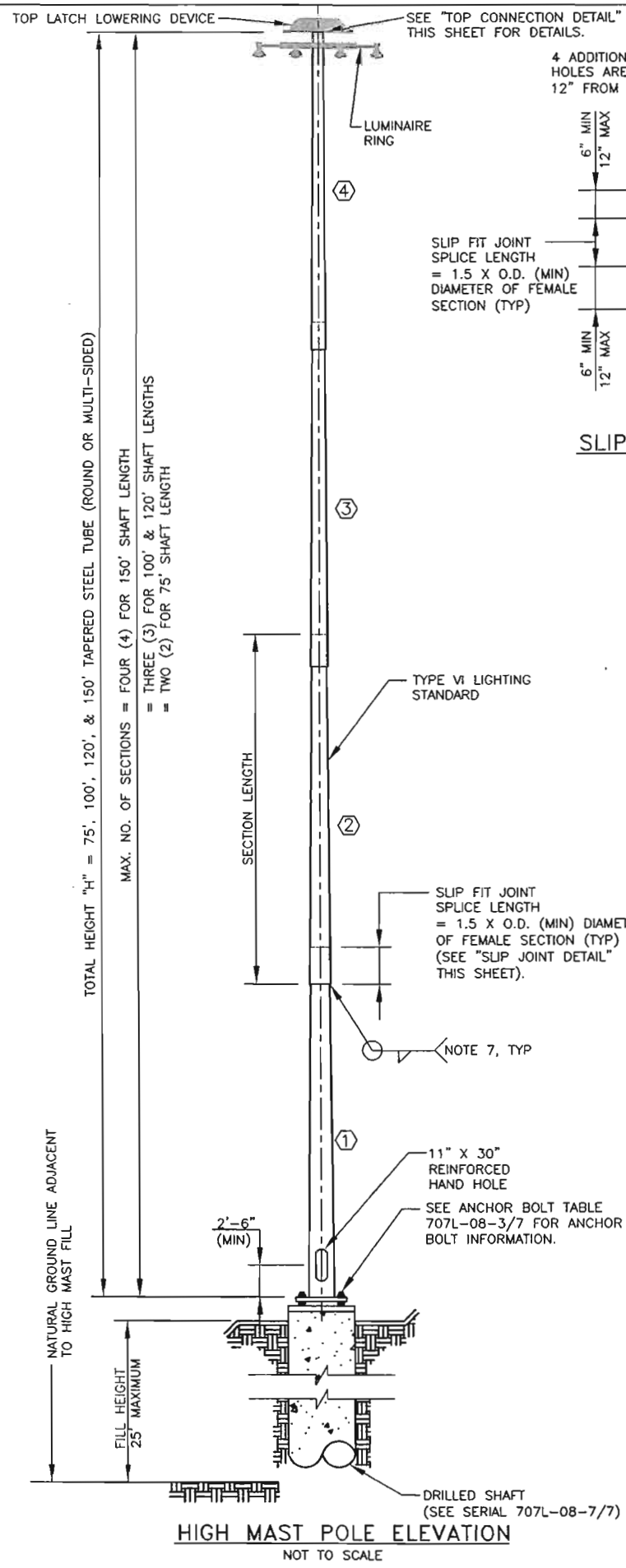
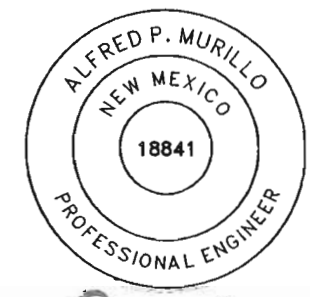


TABLE OF VARIABLE POLE DIMENSIONS							
TOTAL HEIGHT "H" (FT)	SECTION	SECTION LENGTH (FT)	SPLICE LENGTH (IN)	RATE OF TAPER (IN/FT)	OUTSIDE DIAMETER (IN)		SECTION THICKNESS (IN)
					BOTTOM	TOP	
150	1	40.00	33.00	0.14	26.000	20.400	0.3750
	2	39.50	26.00	0.14	21.410	15.880	0.3125
	3	39.42	18.00	0.14	16.683	11.165	0.2500
	4	37.50	0.00	0.14	11.853	6.603	0.2391
120	1	42.00	26.00	0.14	22.000	16.120	0.2500
	2	41.33	18.00	0.14	16.902	11.115	0.2391
	3	40.33	0.00	0.14	11.700	6.054	0.1875
100	1	32.00	25.00	0.14	20.000	15.520	0.1875
	2	31.67	19.00	0.14	16.187	11.753	0.1875
	3	40.00	0.00	0.14	12.350	6.750	0.1875
75	1	38.92	20.00	0.14	18.000	12.551	0.1875
	2	37.75	0.00	0.14	13.160	7.875	0.1875

GENERAL NOTES:

- DESIGN CONFORMS TO 2001 AASHTO STANDARD SPECIFICATIONS FOR STRUCTURAL SUPPORTS FOR HIGHWAY SIGNS, LUMINAIRES AND TRAFFIC SIGNALS, WITH REVISIONS UP TO AND INCLUDING 2006 INTERIMS.
- DESIGN CRITERIA:
 RECURRENCE INTERVAL = 50 YRS
 SERVICE LIFE = 50 YRS
 DESIGN WIND SPEED = 90 MPH
 GUST EFFECT FACTOR = 1.14
 FATIGUE CATEGORY I
 MATERIALS (POLES AND HAND HOLES): 55,000 PSI MINIMUM YIELD
 MAXIMUM NUMBER OF LUMINAIRES IS EIGHT (8). MAXIMUM WEIGHT OF EACH LUMINAIRE IS 85 LBS, WITH A PROJECTED AREA OF 3.4 FT².
 MAXIMUM ALLOWABLE DEFLECTION = 9% OF POLE HEIGHT.
- WORKMANSHIP AND MATERIALS SHALL CONFORM TO NEW MEXICO DEPARTMENT OF TRANSPORTATION (NMDOT) STANDARD SPECIFICATIONS FOR HIGHWAY AND BRIDGE CONSTRUCTION CURRENT EDITION. CONTRACTOR SHALL CONTACT NMDOT FOR APPROVED PRODUCTS LISTING.
- POLES SHALL CONSIST OF ROUND TELESCOPING SECTIONS, TAPERED AT A RATE OF 0.14"/FOOT. MULTI-SIDED SECTIONS WILL BE PERMITTED AS AN ALTERNATE DESIGN. SEE NOTE 9 FOR REQUIREMENTS.
- MATERIALS:
 A. POLES SHALL BE STEEL OF 50 KSI MINIMUM YIELD STRENGTH AFTER FABRICATION.
 B. BASE PLATES AND ANCHOR BOLT TEMPLATES SHALL BE PER AASHTO M-183 (ASTM A-36).
 C. HARDWARE AND ANCHOR BOLTS SHALL BE PER AASHTO M-314 (ASTM F-1554), GR. 55. EACH BOLT SHALL BE SUPPLIED WITH A MINIMUM OF THREE HEAVY HEX NUTS AND TWO FLAT WASHERS. STEEL BOLT TEMPLATES SHALL BE SUPPLIED WITH ANCHOR BOLTS. NUTS SHALL BE ASTM A-563. WASHERS SHALL BE ASTM A-436.
 D. PRELOAD BOLTS BASED ON BOLT TYPE AND DIAMETER. PROVIDE LOCKING ADHESIVE (ND INDUSTRIES, NYLOCK, LOCKTITE, OR APPROVED EQUAL).
- GALVANIZING:
 A. POLES AND PLATES SHALL BE GALVANIZED PER AASHTO M-111-94 (ASTM A-123).
 B. HARDWARE AND ANCHOR BOLTS SHALL BE HOT-DIPPED GALVANIZED PER AASHTO M-232 M (ASTM A-153).
- WELDS:
 ALL FABRICATORS SHALL BE CERTIFIED UNDER NMDOT SPECIFICATION SECTION 541.3 "CERTIFICATION OF STEEL FABRICATORS", AND SHALL CONFORM TO THE LATEST EDITION OF THE STRUCTURAL WELDING CODE (ANSI/AWS D1.1) AND SHALL CONFORM TO SECTION 707 "SIGNAL AND LIGHTING STANDARDS" OF THE CURRENT NEW MEXICO DEPARTMENT OF TRANSPORTATION (NMDOT) STANDARD SPECIFICATIONS AND SPECIAL PROVISIONS OR MEET THE DATA SHOWN ON THESE DRAWINGS.
 FILLET WELD AT BOTTOM OF SLIP FIT JOINT SHALL BE MINIMUM SIZE PER AWS D1.1.
- THE CONTRACTOR/FABRICATOR SHALL FURNISH EIGHT SETS OF SHOP DRAWINGS OF ALL HIGH MAST LUMINAIRE SUPPORT STRUCTURE COMPONENTS FOR THE TYPE VI LIGHTING STANDARD TO THE STATE BRIDGE ENGINEER FOR APPROVAL. SHOP DRAWINGS SHALL COVER ALL MECHANISMS/PARTS REQUIRED FOR THE INSTALLATION. THE CONTRACTOR SHALL FURNISH AN APPROPRIATE CERTIFICATION OF COMPLIANCE WITH ALL DESIGN REQUIREMENTS. THE CONTRACTOR'S CERTIFICATION SHALL APPEAR ON THE DRAWINGS. THE CONTRACTOR MUST RECEIVE WRITTEN APPROVAL OF THE SHOP DRAWINGS FROM THE ENGINEER PRIOR TO BEGINNING FABRICATION OR ASSEMBLY OF PARTS.
- THE INFORMATION AND DETAILS PROVIDED FOR POLES, ANCHOR BOLTS, HAND HOLE, AND FOUNDATIONS IN THESE STANDARDS ARE MINIMUM REQUIREMENTS. DESIGN AND DETAILS FOR ALTERNATE DESIGNS AND ALL OTHER LUMINAIRE SUPPORT STRUCTURE COMPONENTS SUCH AS TOP CONNECTION PLATE, SPECIFIC REQUIREMENTS FOR HAND HOLES TO ACCOMMODATE EXTERNAL WINCH, HEADFRAME ASSEMBLY, LUMINAIRE RING ASSEMBLY, AND TOP LATCH LOWERING DEVICE SHALL BE PROVIDED BY CONTRACTOR/FABRICATOR IN COMPLIANCE WITH AASHTO SPECIFICATIONS REFERENCED IN NOTE 1 AND ALL OTHER GOVERNING ELECTRICAL AND MECHANICAL SPECIFICATIONS.
- THE TOP CONNECTION DETAIL MAY BE REVISED TO COMPLY WITH THE REQUIREMENTS OF THE TOP LATCH LOWERING DEVICE SYSTEM. THE REVISED TOP CONNECTION DETAIL SHALL BE SUBMITTED TO NMDOT FOR REVIEW AND APPROVAL AS PART OF THE DESIGN FOR THE TOP LATCH LOWERING DEVICE SYSTEM.
- ALL TYPE VI STANDARDS SHALL BE EQUIPPED WITH AN INTERNAL MOTOR ASSEMBLY WITH 20' REMOTE CONTROL FOR THE LOWERING DEVICE. LOWERING DEVICES SHALL BE TOP LATCH AS APPROVED BY LIGHTING DESIGN ENGINEER. THE INTERNAL MOTOR ASSEMBLY AND LOWERING DEVICE WILL BE SUBSIDIARY TO THE HIGH MAST POLE PAY ITEM.
- THE LOWERING DEVICE, LIGHTING FIXTURES AND POLES SHALL BE MANUFACTURED AND TESTED AS AN INTEGRATED SYSTEM AND BE PROVIDED AND WARRANTED BY THE MANUFACTURER.
- FACTORY REPRESENTATIVE SHALL PROVIDE ONE DAY TRAINING AND VIDEO TAPE ON OPERATING THE LOWERING DEVICE SYSTEM FOR THE LOCAL MAINTAINING AGENCY AND LOCAL POWER COMPANY. THIS TRAINING SHALL BE APPROXIMATELY ONE-HALF IN THE CLASSROOM AND ONE-HALF IN THE FIELD.
- APPROXIMATELY 90 DAYS AFTER INSTALLATION, A FACTORY REPRESENTATIVE SHALL RETURN TO THE PROJECT SITE TO ADJUST THE LOWERING DEVICE CABLES AND LATCHING MECHANISMS. THE CONTRACTOR SHALL COORDINATE WITH THE NMDOT LIGHTING ENGINEER, THE LOCAL MAINTENANCE AGENCY, AND THE LOCAL POWER COMPANY TO BE PRESENT WHILE THE ADJUSTMENTS ARE MADE.
- DURING THE ERECTION OF THE HIGH MAST LIGHTING POLES AND LOWERING DEVICES, A FACTORY REPRESENTATIVE SHALL BE PRESENT TO ENSURE CORRECT ERECTION.
- CONTRACTOR SHALL PROVIDE COPIES OF ALL HIGH MAST LIGHTING SYSTEM TECHNICAL DATA, CALCULATIONS, SHOP DRAWINGS, AND LUMINAIRE TYPE INFORMATION TO THE LOCAL MAINTAINING AGENCY AND THE LOCAL POWER COMPANY.
- THE DESIGN PROVIDED FOR THIS STANDARD MUST BE RE-EVALUATED FOR POLES LOCATED IN ELEVATED REGIONS AND POLES LOCATED IN SPECIAL WIND REGIONS EXCEEDING THE DESIGN CRITERIA PROVIDED IN THESE STANDARDS.
- CONTRACTOR/POLE FABRICATOR SHALL SUBMIT GROUNDING DETAILS FOR REVIEW AND APPROVAL.
- ALL DESIGNS SUBMITTED FOR APPROVAL MUST BE SIGNED AND SEALED BY A LICENSED ENGINEER IN THE STATE OF NEW MEXICO.



Alfred P. Murillo
12-15-08

NO.	DATE	REV. BY	DESCRIPTION
REVISIONS (OR CHANGE NOTICES)			
NEW MEXICO DEPARTMENT OF TRANSPORTATION STANDARD DRAWING			
HIGH MAST LUMINAIRE SUPPORT STRUCTURES TYPE VI			
DESIGNED BY NB/MS DRAWN BY CCS CHECKED BY APM			
707L-08-1/7			

GB 600 PNM Amendment 1

Final Audit Report


2024-11-01

Created:	2024-10-30
By:	Amanda Archuleta (ajarchuleta@santafenm.gov)
Status:	Canceled / Declined
Transaction ID:	CBJCHBCAABAAO2dtAooY47aaiUmvdxrXeaz5OB4YXTKv

"GB 600 PNM Amendment 1" History

 Document created by Amanda Archuleta (ajarchuleta@santafenm.gov)

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2024-10-30 - 10:56:55 PM GMT

 Email viewed by Halona Crowe (hcrowe@santafenm.gov)

2024-10-31 - 1:49:38 PM GMT- IP address: 174.231.18.16

 Document canceled by Amanda Archuleta (ajarchuleta@santafenm.gov)

2024-11-01 - 1:31:24 PM GMT- IP address: 63.232.20.2

**FIRST AMENDMENT TO THE AGREEMENT FOR CONVERSION OF
STREETLIGHTS OWNED BY THE PUBLIC SERVICE COMPANY OF NEW MEXICO**
Item #24-0120

This First Amendment to the Agreement for Conversion of Streetlights Owned by the Public Service Company of New Mexico (“First Amendment”), executed as of October ___, 2024, is by and between the Public Service Company of New Mexico, a New Mexico corporation (“PNM” or “Company”), and the City of Santa Fe (“Santa Fe” or “City”), a municipal corporation. The Parties may be referred to herein individually as “Party” or collectively as “Parties.”

RECITALS

WHEREAS the Parties executed the Agreement for the Conversion of Streetlights Owned by the Public Service Company of New Mexico (“Agreement”) in February of 2024;

WHEREAS the Agreement contemplated the conversion of some of the Company’s streetlights into light-emitting diode (“LED”) lights (“LED Streetlight Conversion Project”);

WHEREAS Santa Fe has asked PNM to complete a second phase of the LED Streetlight Conversion Project, which will consist of converting an additional 957 streetlights into LED lights;

WHEREAS the City has appropriated the funds necessary to complete the second phase of the LED Streetlight Conversion Project, which PNM estimates to be Four Hundred Eighty Thousand Dollars and Zero Cents (\$480,000.00); and

WHEREAS the Parties wish to amend the Agreement to contemplate the completion of the second phase of the LED Streetlight Conversion Project and payment for same by Santa Fe.

AGREEMENT

NOW, THEREFORE, in consideration of the mutual covenants herein contained, the receipt and sufficiency of which are hereby acknowledged, the Parties hereby agree to the following:

1. Paragraph 3(a) shall be amended as follows:

Santa Fe agrees to issue a Purchase Order to PNM in the amount of Four Hundred Eighty Thousand Dollars and Zero Cents (\$480,000.00) including applicable GRT for the completion of the second phase of the LED Conversion Project, which shall consist of the conversion of 957 additional streetlights into LED lights. The total amount of compensation, including the amount for the original agreement, shall not exceed \$1,050,000.00 including GRT.

The Purchase Order shall memorialize in writing Santa Fe’s request that PNM convert the 957 additional Company-owned streetlights to LED lights within the City of Santa Fe in accordance with the Rate Tariff, the Agreement, and this First Amended Agreement. PNM will share with Santa Fe certain information regarding

Company-owned streetlights, if needed, so that Santa Fe can prepare the Purchase Order contemplated by this section. Such information includes the number of Company-owned streetlights, the geographic location of Company-owned streetlights, and the types of Company-owned streetlights, categorized by light wattage. PNM will also provide Santa Fe with the cost of a conversion to an LED by listing the cost per operational substitute on Appendix A. Santa Fe agrees to include within the Purchase Order the information required by Section 3(b) of the Agreement.

2. Paragraph 1(k) shall be added to the Agreement. Paragraph 1(k) shall state as follows:

PNM will make a good faith effort to complete the second phase of the LED Conversion Project within twelve (12) months of the execution of the First Amendment to the Agreement, although the Company cannot guarantee an exact date of completion, as such date is likely to fluctuate, and the City recognizes that the estimated timeline may change due to the lead time necessary for procuring fixtures from the manufacturer, which PNM currently estimates to be approximately 6 weeks.

Section 3. All capitalized terms used in this First Amendment and not otherwise defined or modified herein shall have the meanings set forth in the Agreement.

Section 4. Except as expressly amended by this First Amendment, all other terms of the Agreement shall remain in full force and effect.

Section 5. This First Amendment may be executed in one or more counterparts, including by facsimile or electronic signature, but each such counterpart shall be deemed an original and all such counterparts shall be deemed one and the same instrument.

Section 6. This First Amendment contains the entire understanding of the Parties and supersedes all prior agreements and understandings between the Parties relating to the subject matter herein. This First Amendment shall be binding upon and inure to the benefit of the Parties' respective successors and permitted assigns.

[Signature Page Follows]

CITY OF SANTA FE

By: _____

Alan Webber
Mayor, City of Santa Fe, New Mexico

Attest:

Geraldyn Cardenas, Interim City Clerk

City Attorney's Office:

Marcos Martinez

Marcos Martinez (Oct 29, 2024 13:09 MDT)

Senior Assistant City Attorney

Approved for Finances:

Emily Oster, Finance Director

PUBLIC SERVICE COMPANY OF NEW MEXICO

Signed by:
By: Michael Mertz
B51818D1E09D410...

Mike Mertz
PNM Vice President, New Mexico Operations






GB 600 PNM Amendment 1

Final Audit Report

2024-11-12

Created:	2024-11-12
By:	Kristy Miera (kamiera@santafenm.gov)
Status:	Signed
Transaction ID:	CBJCHBCAABAAbDMVIAb4Tr6rYaaplbS9w-UKf9FlipQa

"GB 600 PNM Amendment 1" History

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2024-11-12 - 5:34:09 PM GMT- IP address: 63.232.20.2
-  Document sent to ALEXIS LOTERO (aclotero@santafenm.gov) and ajhopkins@santafenm.gov
ajhopkins@santafenm.gov (ajhopkins@santafenm.gov) for signature. One of them to sign
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-  Email viewed by ALEXIS LOTERO (aclotero@santafenm.gov)
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-  Agreement completed.
2024-11-12 - 5:45:03 PM GMT

URGENT GB 600 PNM Amendment

Final Audit Report

2024-11-12

Created:	2024-11-12
By:	Kristy Miera (kamiera@santafenm.gov)
Status:	Canceled / Declined
Transaction ID:	CBJCHBCAABAAGsYcaxhHgdJ6Fnz9jtLpayXbL7CvZtVT


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Signature Date: 2024-11-12 - 7:23:27 PM GMT - Time Source: server- IP address: 63.232.20.2

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2024-11-12 - 7:23:32 PM GMT

 Document canceled by Kristy Miera (kamiera@santafenm.gov)

Cancel reason: Accidentally added Alexis to the Purchasing group

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URGENT GB 600 PNM Amendment (1)


Final Audit Report


2024-11-12


Created:	2024-11-12
By:	Kristy Miera (kamiera@santafenm.gov)
Status:	Signed
Transaction ID:	CBJCHBCAABAA9V6EeMR-889UWcqFjJOO1R01PqYFVMGI


"URGENT GB 600 PNM Amendment (1)" History


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2024-11-12 - 8:25:07 PM GMT- IP address: 63.232.20.2


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2024-11-12 - 8:27:03 PM GMT

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Signature Date: 2024-11-12 - 10:09:59 PM GMT - Time Source: server- IP address: 63.232.20.2

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