



CITY OF PHOENIX STREETLIGHTING LAYOUT GUIDELINES

July 2023

This document is in accordance with the City of Phoenix Streetlighting Policy originally adopted by City Council July 1961

Amendment approved by City Council March 1967

Amendment approved by City Council September 1973

Amendment approved by City Council January 27, 1975

Amendment approved by City Council June 5, 1978

Amendment approved by City Council July 1, 1990

Amendment approved by City Council June 18, 1996

Table of Contents

INTRODUCTION.....	1
Residential and Commercial Development Projects	1
Capital Improvement Projects.....	1
1. STREETLIGHTING DESIGN REQUIREMENTS	2
1.1. STREETLIGHT EQUIPMENT	2
1.2. STREETLIGHT POLE LAYOUTS AND SPACING REQUIREMENTS.....	4
1.3. STREETLIGHT DESIGN IN THE DOWNTOWN DISTRICT	8
1.4. STREETLIGHTING INSTALLED ON BRIDGES	9
1.5. STREETLIGHTING INSTALLED NEAR AIRPORTS	10
2. PLAN PREPARATION	19
2.1. GENERAL STREETLIGHT PLAN REQUIREMENTS.....	19
2.2. GENERAL NOTES TO BE INCLUDED ON STREETLIGHT PLANS COVER SHEET 20	
2.3. SALT RIVER PROJECT (SRP) NOTES.....	22
2.4. ARIZONA PUBLIC SERVICE (APS) NOTES	24
3. RESIDENTIAL AND COMMERCIAL DEVELOPMENT PROJECTS	28
3.1. DEVELOPER RESPONSIBILITY	28
3.2. STREETLIGHT PLAN REQUIREMENTS	28
3.3. STREETLIGHT ACCEPTANCE LETTER	29
4. CAPITAL IMPROVEMENT PROJECTS (CIP)	29
4.1. ADDITIONAL DESIGN REQUIREMENTS	29
4.2. CONSTRUCTION REQUIREMENTS.....	30
5. SMALL PLAN REVIEW.....	30
5.2. STREETLIGHT POLE RELOCATION.....	30
5.3. LOT SPLITS	31
5.4. ADAPTIVE REUSE.....	32

List of Tables

Table 1: Light Pole Spacing, Luminaire and Mounting Height Criteria	5
---	---

List of Figures

Figure 1:	Typical Arterial Streetlight Pole Layout.....	11
Figure 2:	Streetlight Layout at Arterial Street Intersections.....	12
Figure 3:	Typical Collector Streetlight Pole Layouts	13
Figure 4:	Typical Residential Streetlight Pole Spacing	14
Figure 5:	Elbow (Dog-Leg) Intersections	15
Figure 6:	Arterial Street Roundabout Intersections.....	16
Figure 7:	Local/Local Roundabout Intersections.....	17
Figure 8:	Downtown District Lighting	18
Figure 9:	Sample Cover Sheet Format.....	25
Figure 10:	Sample Plan Sheet Format	26
Figure 11:	Sample Detail Sheet Format	27

List of Appendices

- Appendix A: Streetlight Location Layouts at Traffic Calming Installations
- Appendix B: Sample Plan Submittal for Single Lot Review

INTRODUCTION

The intent of this manual is to help design professionals understand City of Phoenix (COP) streetlight design and installation requirements allowing for a straightforward design and construction process. The unique status of 'shared ownership' of the COP streetlight system requires a unique approach to streetlight design. The COP owns the poles and luminaires, and the utility companies own the electrical feed and bill for the unmetered service.

The Streetlighting Layout Guidelines have been created to aid design professionals to create a layout that will meet COP streetlight guidelines and provide the utility company a standard design format from which to start their streetlight electrical service design. Any deviations from the layouts or equipment described in this document from the approved streetlight design must be reviewed and approved by COP Street Transportation Department Streetlighting design section. Sample streetlighting plans along with Computer Aided Drafting (CAD) details and notes are provided on the City's website to ensure a consistent design format. The design specifications contained herein and an approved materials list on the City website assist the contractor in constructing a system that meets COP requirements.

These Guidelines embody the City Council Approved Streetlight Policy amended July 18, 1996 and City Council's adoption of a standard for Light Emitting Diode (LED) lighting with a Correlated Color Temperature (CCT) of 2,700°K on November 30, 2016.

Residential and Commercial Development Projects

Developers of residential subdivisions, apartments, condominiums, commercial, industrial projects and all permittees are responsible for the design, materials, and installation costs of all streetlighting on public streets within and adjacent to their projects. The design requirements, plan preparation requirements and approved materials included within this document and on the City's, website apply to private residential and commercial developments. Section 3 of this document includes information specifically for residential and commercial development projects. Residential and commercial development projects are reviewed and approved by the COP Planning and Development Department. Developers of residential subdivisions of less than 4 lots, fall under Section 5, Small Plan Review.

Capital Improvement Projects

The COP regularly constructs Capital Improvement Projects (CIP), including arterial street improvements and street modernization projects throughout the city and streetlighting is typically a part of these projects. The engineering consultant is responsible for the design of the project including the streetlight layout. The design requirements, plan preparation requirements and approved materials included within this document and on the City's, website apply to Capital Improvement Projects. Section 4 of this document includes information specifically for Capital Improvement Projects. Streetlight designs for Capital Improvement Projects are reviewed and approved by COP Street Transportation Department.

1. STREETLIGHTING DESIGN REQUIREMENTS

The information presented below and included in Table 1 summarizes the City of Phoenix Streetlight Policy adopted by COP City Council on July 18, 1996, and the City Council's decision to adopt Light Emitting Diode (LED) lighting with a Correlated Color Temperature (CCT) of 2,700°K on November 30, 2016.

Special consideration must first be made by the COP Street Transportation staff before any approval is given for the design and installation of decorative streetlighting. Decorative streetlighting shall be limited to pre-approved types and styles and installed only on special projects identified by COP Street Transportation Department. Additional streetlight requirements for the Downtown District are included in Section 1.3 of these guidelines.

1.1. STREETLIGHT EQUIPMENT

- 1.1.1. All streetlights shall be Light Emitting Diode (LED) type II with a Correlated Color Temperature of 2,700° K.
- 1.1.2. All new LED luminaires shall conform to approved manufacturers by the COP Street Transportation Department. The preapproved luminaires for each street classification are shown on the Approved Products List that can be found on the City's website at <https://www.phoenix.gov/streets/reference-material>.
- 1.1.3. All luminaires shall have a fail-on 7-pin photoelectric cell (PEC) rated for 20-year life.
- 1.1.4. Streetlight poles shall be galvanized steel as shown on the sample Streetlight Plans except when installed in the Downtown District or in other areas of the City approved for decorative lighting. These areas include but not limited to:

Special light fixture locations:

- Jackson St 4TH St to 9TH Ave Decorative Jackson Street Streetlights are to be installed
- Central Avenue Candy Canes – (Culver St to Camelback Rd)
- Downtown area bordered by 7th Avenue, to 7th Street, Lincoln Street to the South side of Interstate 10. Contact Street Transportation Department for the appropriate streetlight type.

Downtown Brown Architectural Square Streetlight locations:

- McDowell Rd – Central Ave to SR51
- North of the Central Arizona Project
- Light Rail Corridor current and proposed, including all connecting streets

Metro Center Parkway

Central Ave – Baseline Rd to South Mountain Park Guard Post

Downtown Brown Architectural Square Streetlight locations cont.:

- Van Buren Ave – 7TH St to 11TH St
 - 11TH St Jefferson St to Moreland St
 - Grand Ave – Van Buren to Camelback Rd
 - 56TH St - Oak St to Camelback Rd
 - Camelback Esplanade (Biltmore) Area (Camelback Rd 22ND St – 26TH St, 24TH St Highland to Missouri Ave)
 - Kierland Area (Area bounded by Scottsdale Rd, from Acoma Dr to Kierland Blvd, and Kierland Blvd Loop. Greenway Pkwy from 64TH St to Scottsdale Rd.)
 - CIP pedestrian corridor projects with pedestrian lighting
- 1.1.5. Decorative lighting shall include architectural square “Downtown Brown” light poles with bronze luminaires as shown on the COP Sample Streetlight Plans and Details unless otherwise approved by the COP.
- 1.1.6. For installation of new streetlights in Historic Districts, refer to the COP Planning and Development Department Historic Preservation Office Policy for Streetlights in Historic Districts. Contact the Planning and Development Department for a copy of the policy.
- 1.1.7. Luminaire mounting heights by roadway classification are shown in Table 1 for galvanized steel round poles and architectural square poles.
- 1.1.8. All streetlight equipment shall conform to approved manufacturers per current City standards. Refer to the City’s Approved Products List at <https://www.phoenix.gov/streets/reference-material>.
- 1.1.9. Where new standard light poles conflict with overhead utilities, contact COP Street Transportation Department for alternative light pole options. The designer shall work with the utility company and City staff to design a streetlighting layout that meets all utility and roadway clearance requirements.
- 1.1.10. Existing streetlight poles impacted by construction must be replaced with new streetlight equipment. Relocation of existing streetlight equipment is not allowed unless preapproved in writing by the Deputy Director of Traffic Services or authorized designee.
- 1.1.11. All new or relocated electric lines associated with streetlighting shall be placed underground in all new residential and commercial developments where the overhead lines are visible from streets or adjoining properties. Based on existing streetlight and utility conditions, other streetlight and/or utility poles adjacent to the development (adjoining properties) may also be required to be upgraded to underground lines. This requirement will be determined during plan review.
- 1.1.12. Electric streetlight power lines for relocated streetlights in existing developments shall be placed underground per COP 1990 policy.

1.2. STREETLIGHT POLE LAYOUTS AND SPACING REQUIREMENTS

Light pole layouts, pole spacing, pole offsets and pole location requirements are described below. The light pole layout, pole spacing and fixture mounting height are also summarized in Table 1 for each street classification. For streetlight pole layouts and requirements in the Downtown District, refer to Section 1.3 of these guidelines.

While the City does not require photometry, for special or unusual circumstances, the City may request the design engineer to provide photometric calculations as a reference to show the lighting layout provides illumination levels that meet recommended practice guidelines set forth in the Recommended Practice for Design and Maintenance of Roadway and Parking Facility Lighting (ANSI/IES RP-8), latest edition, published by the Illuminating Engineering Society.

Table 1: Light Pole Spacing, Luminaire and Mounting Height Criteria

Classification	Luminaire	Mounting Height	Standard Spacing ¹	Spacing Type
Galvanized Steel Light Poles (South of CAP)				
Arterial	Refer to Approved Products List on City Website	34'-11"	200'	Double-Sided Staggered
Collector with Median Island or ≥ 50' (4 or more lanes)		32'-11"	200'	Double-Sided Staggered
Collector < 50' (3 or less lanes) Local St within Commercial Use ⁴		32'-11"	200' ⁵	Single-Sided
Local ⁴		25'-11"	200'	Single-Sided
Architectural Square Light Poles (North of CAP and Light Rail Corridor)²				
Arterial	Refer to Approved Products List on City Website	31'-6"	200'	Double-Sided Staggered
Collector with Median Island or ≥ 50' (4 or more lanes)		31'-6"	200'	Double-Sided Staggered
Collector < 50' (3 or less lanes) Local St within Commercial Use ⁴		31'-6"	200' ⁵	Single-Sided
Local ⁴		25'-0"	200'	Single-Sided
*Sidewalk (Pedestrian Lighting)		16'-0"	50'-75'	

1. Double sided spacing shown above is the distance between poles on the same side of the street.
2. Refer to Section 1.3 for streetlighting layouts and spacing in the Downtown District.
3. Existing power poles, safety considerations and traffic volumes may impact spacing and single/double sided streetlight installation requirements and will be determined by the COP.
4. Local streets in industrial areas (Zoned A-1, A-2, C-0, C-1, C-2, or C-3) shall be illuminated in accordance with the requirements for collector streets.
5. Newly constructed collector streets less than 50' wide should consider double-sided staggered lighting at 200' spacing.

1.2.1. Arterial Streets

1.2.1.1. Arterial streets shall be illuminated from both sides of the street using 200-foot double-sided staggered spacing. This measurement is along the same side of the street. See Figure 1.

1.2.1.2. Arterial streets with medians shall also be illuminated from both sides of the street using 200-foot double-sided staggered spacing. In locations where it is not feasible to install streetlight poles on both sides of the street and raised median islands are present, streetlight poles with dual mast arms may be installed at a maximum spacing of 200 feet in the median if approved by the City Street Transportation Department.

1.2.1.3. On arterial streets, where double-sided lighting is not possible due to physical conflicts, there shall be single-sided lighting with a maximum pole spacing of 200 feet and a higher lumen output luminaire. Single-sided streetlighting on arterial streets must be approved by the City Street Transportation Department.

1.2.1.4. Refer to Figure 2 for streetlight pole locations adjacent to arterial street intersections.

1.2.2. Collector Streets

1.2.2.1. Collector streets 50 feet in width or wider (4 or more combined vehicular and bicycle lanes), or collector streets with a median island shall be illuminated from both sides of the street using 200-foot staggered spacing. This measurement is along the same side of the street. See Figure 3.

1.2.2.2. Collector streets narrower than 50 feet in width (3 or less combined vehicular and bicycle lanes) with no median island shall be illuminated from one side of the street with 200-foot pole spacing. Newly constructed collector streets less than 50 feet wide should consider double-sided staggered streetlighting at 200-foot spacing. See Figure 3.

1.2.2.3. On collector streets 50 feet in width or wider (4 or more combined vehicular and bicycle lanes), or collector streets with a median island, where double-sided lighting is not possible due to physical conflicts, there shall be single-sided lighting with a maximum pole spacing of 200 feet and a higher lumen output luminaire. Single-sided lighting on collector streets must be approved by the City Street Transportation Department.

1.2.3. Local Streets

1.2.3.1. Local streets shall be illuminated from one side of the street with 200-foot pole spacing.

1.2.3.2. Streetlight poles should be placed within approximately one foot laterally from the divisional property line.

1.2.3.3. Local streets in industrial areas that are typically zoned A-1, A-2, C-0, C-1, C-2, or C-3 shall follow collector street requirements.

1.2.3.4. Refer to Figure 4 for typical residential streetlight pole layouts.

1.2.4. Low Density Residential Lighting

1.2.4.1. Low Density Residential Lighting areas may qualify for a reduced level of lighting per COP Policy adopted July 18, 1996. Requests must be submitted to the COP Planning and Development Department.

1.2.5. Streetlight Pole Location Requirements

1.2.5.1. To achieve reasonable uniformity, deviations in the light pole spacing shown in Table 1 may be permitted up to 25 feet at a individual streetlight location due to physical conflicts. Any further deviation must be approved by the City.

1.2.5.2. Streetlights are to be set back approximately four (4) feet back of curb where a landscape tract exists or approximately one (1) foot back of sidewalk where the sidewalk abuts the curb. The goal is to keep obstructions, including streetlights, out of the sidewalk.

1.2.5.3. The public streetlight system shall be installed in the right-of-way. Where right of way is not available and where an easement allows for streetlight equipment, the engineer may design equipment within the easement with approval from the City.

1.2.5.4. In areas where standard vertical curb, roll curb or sidewalk do not exist, all poles shall be centered at least ten (10) feet from edge of asphalt pavement.

1.2.5.5. There should be a minimum six (6) feet of clearance between streetlight poles, fire hydrants, and City water services facilities. A minimum clearance of three (3) feet is required for service taps (water/sewer) and two (2) feet is required from storm drains and city sewer facilities.

1.2.5.6. Streetlights along Arterial and Collector roadways shall be located a minimum distance of six (6) feet from driveways. If the driveway has a "wing", streetlight poles must be located a minimum distance of six (6) feet from the wing.

1.2.5.7. Streetlight layout and design shall include existing and known future streetlight location information for all streets adjacent to and across from the proposed project. Future streetlight locations may be identified by researching adjacent developments through the Planning and Development KIVA System.

1.2.5.8. A minimum of two (2) streetlights shall be located at each arterial street intersection and a minimum of one streetlight at all other intersections. Streetlights shall be installed on opposing corners when possible. See Figure 4 for sample streetlight locations at intersections.

1.2.5.9. Any public street cul-de-sac having a depth of one hundred fifty (150) feet or greater from face of furthest curb of intersecting street to the furthest point on the end of the cul-de-sac shall have a streetlight. Near side may be used if there is a streetlight on the near side corner of the intersecting street. Cul-de-Sacs greater than 200' may require multiple streetlights on the cul-de-sac. See Figure 5.

- 1.2.5.10. Refer to Figure 5 for streetlight pole placement at elbow (Dog-leg) intersections.
- 1.2.5.11. Figure 6 shows recommended streetlight locations at roundabout intersections on arterial or collector streets.
- 1.2.5.12. Streetlighting design at roundabouts on local/local street intersections is shown on Figure 7.
- 1.2.5.13. When neighborhood traffic calming devices are installed, additional streetlights may be required. Refer to Appendix A for detailed drawings. These layouts are shown as examples only. The design engineer should use their professional judgment when designing all types of scenarios.
- 1.2.5.14. Frontage roads along freeways that are within COP jurisdiction shall be illuminated from the nose of the striped gore point between the freeway on ramp and the frontage road to the nose of the striped gore point between the freeway off ramp and the frontage road.
- 1.2.5.15. For new developments located in another jurisdiction that are adjacent to a COP roadway, the City may require installation of streetlights. If required, streetlights shall be installed along the entire frontage of the development in conformance with these Guidelines. The COP will own and maintain these streetlights.
- 1.2.5.16. For new developments within the COP that are located adjacent to another jurisdiction's unlit roadway, the City may require installation of streetlights in anticipation of annexation. If required, streetlights shall be installed along the entire frontage of the development in conformance with these Guidelines. The COP will own and maintain these streetlights.
- 1.2.5.17. Once the right-of-way permit is issued, adherence to pole locations is expected. Exceptions are hereby granted for shifts up to 5± feet parallel to the roadway with approval of the COP Streetlight Inspector. Where underground obstructions are encountered, any shift in pole placement must not interfere with a driveway. Shifts perpendicular to the roadway from permit locations will not be allowed without permission from the City Streetlight Inspector.

1.3. STREETLIGHT DESIGN IN THE DOWNTOWN DISTRICT

Streetlighting in the Downtown District shall follow the guidelines below. The Downtown District is bordered by 7th Street on the East, 7th Avenue on the West, South of Interstate 10 on the North and Lincoln/Grant Street on the South. All Streetlighting within this area shall be Architectural Square lighting or approved decorative lighting.

- 1.3.1.1. Streetlights shall be Architectural Square "Downtown Brown" light poles with bronze luminaires as shown on the COP Sample Streetlight Plans and Details unless otherwise approved by the COP.

- 1.3.1.2. Refer to the Lighting Equipment Design Requirements Map at <https://www.phoenix.gov/streets/reference-material> for types of decorative streetlights within the Downtown District boundaries.
- 1.3.1.3. Refer to Figure 8 for streetlight layout within the Downtown District.
- 1.3.1.4. Light pole mounting heights shall follow Table 1 for architectural square streetlight poles.
- 1.3.1.5. Pedestrian lighting shall be installed in the Downtown District. The sidewalks are illuminated from poles at approximately 50 to 75-foot spacing. Combination streetlight and pedestrian light poles may be used where luminaire spacing is applicable.
- 1.3.1.6. In the Downtown District only, where the streetlight facilities conflict with underground or overhead utilities, streetlights may be set a minimum of two feet back of curb. However, any setback deviation must be approved by the Street Transportation Streetlighting Design section.

1.4. STREETLIGHTING INSTALLED ON BRIDGES

This section applies to streetlight poles installed on bridge structures.

- 1.4.1.1. Regardless of utility service area, bridge mounted pole details and specifications shall be in accordance with Arizona Public Service concrete base type light poles.
- 1.4.1.2. The Consulting Engineer shall coordinate with the bridge structural engineer to design foundations for the streetlight pole into the bridge barrier/deck. Refer to streetlight pole specifications for design criteria.
- 1.4.1.3. A cast-in-place junction box is required within three (3) feet of each streetlight pole mounted on a bridge.
- 1.4.1.4. Conduit between junction boxes on a bridge shall be a minimum of 2.5" in diameter.
- 1.4.1.5. Streetlight pole spacing will be in accordance with typical spacing criteria corresponding to roadway designation as described in the design guidelines section.
- 1.4.1.6. The Consulting Engineer shall provide a detail showing the installation of expansion couplings in bridge abutments and expansion joints.

1.5. STREETLIGHTING INSTALLED NEAR AIRPORTS

This section applies to streetlight poles installed near airports.

- 1.5.1.1. New light poles installed within one mile of any airport runway shall follow FAA Title 14 of the Code of Federal Regulations (14 CFR) Part 77 Obstruction Evaluation/ Airport Airspace Analysis to determine if the new light poles have an impact on the navigable airspace surrounding the airport.
- 1.5.1.2. The lighting design engineer should use the Notice Criteria Tool on the FAA website (<https://oeaaa.faa.gov/oeaaa/external/portal.jsp>) to determine whether the new light poles need to be filed through FAA Form 7460-1, Notice of Proposed Construction or Alteration. If filing is required, the design engineer shall follow the requirements of the FAA in filing Form 7460-1 and any subsequent forms required by the FAA.

Figure 1: Typical Arterial Streetlight Pole Layout

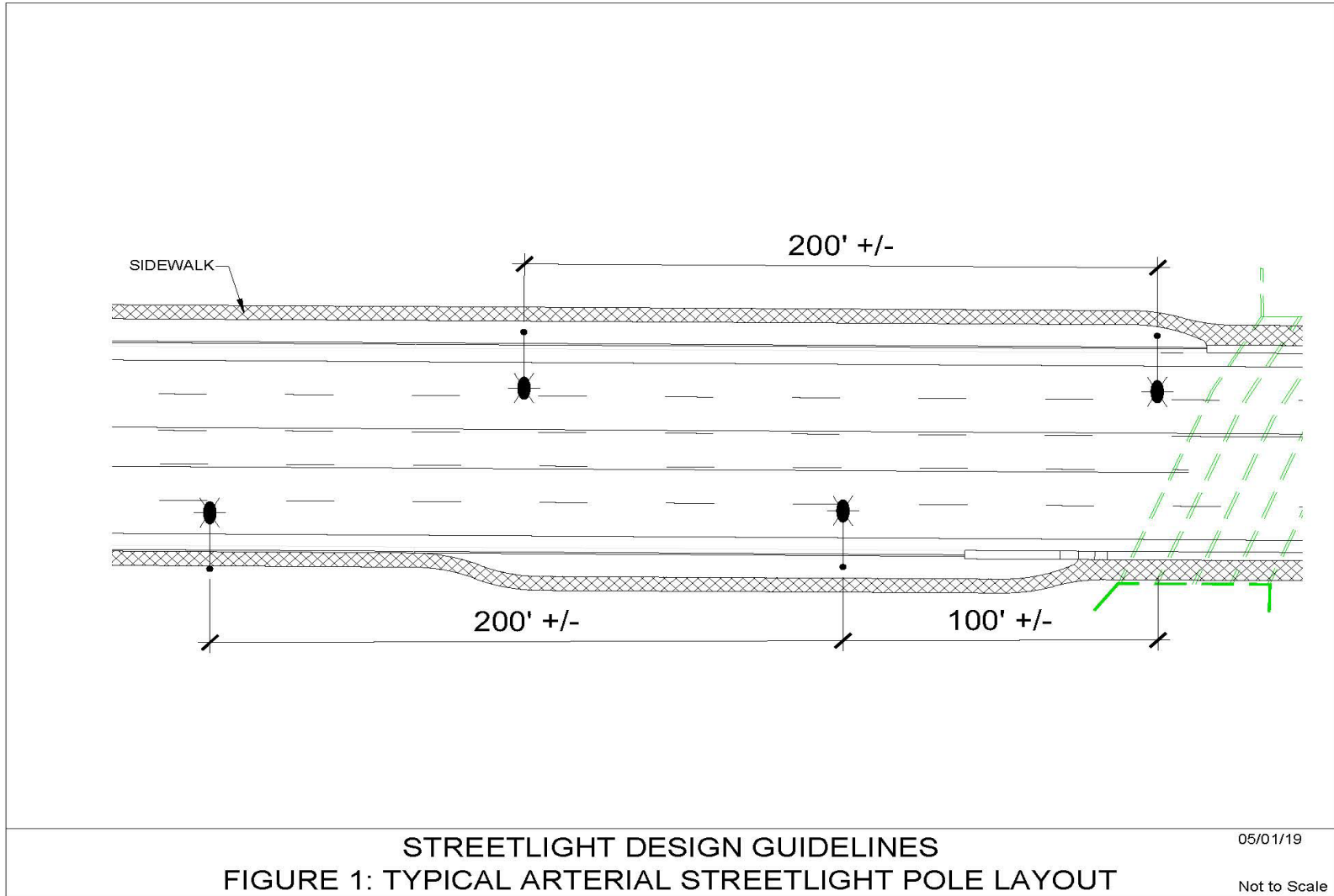


Figure 2: Streetlight Layout at Arterial Street Intersections

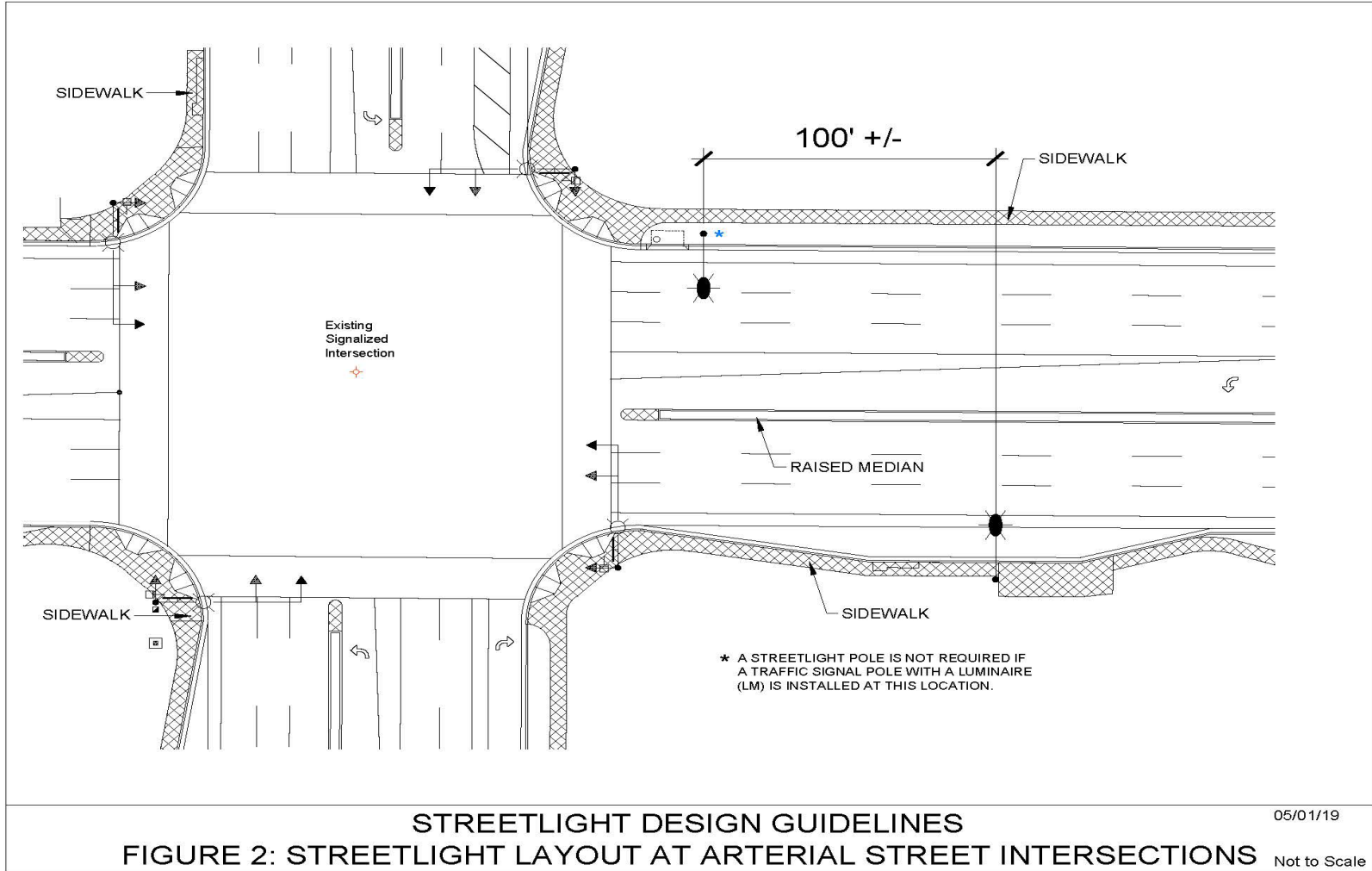


Figure 3: Typical Collector Streetlight Pole Layouts

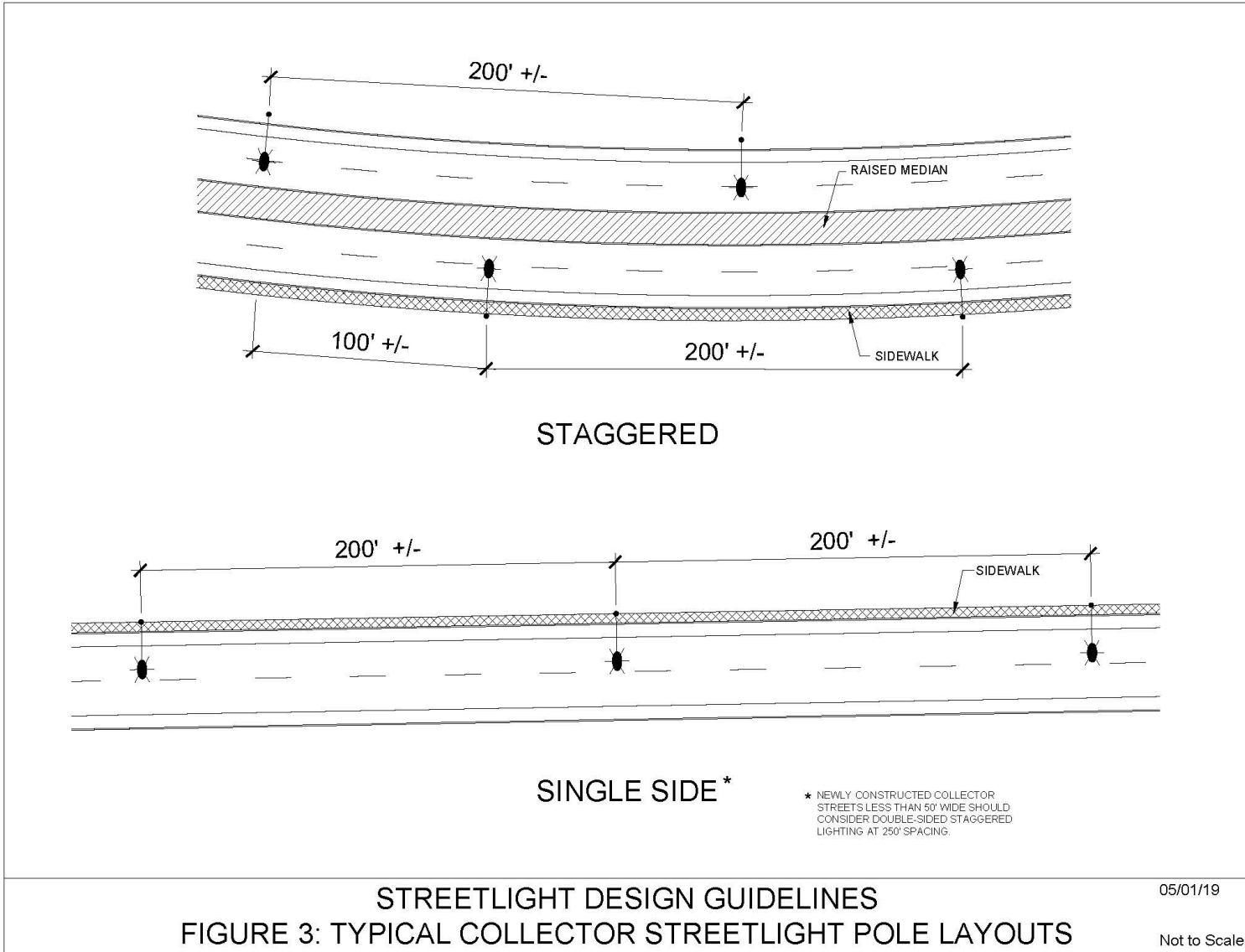


Figure 4: Typical Residential Streetlight Pole Spacing

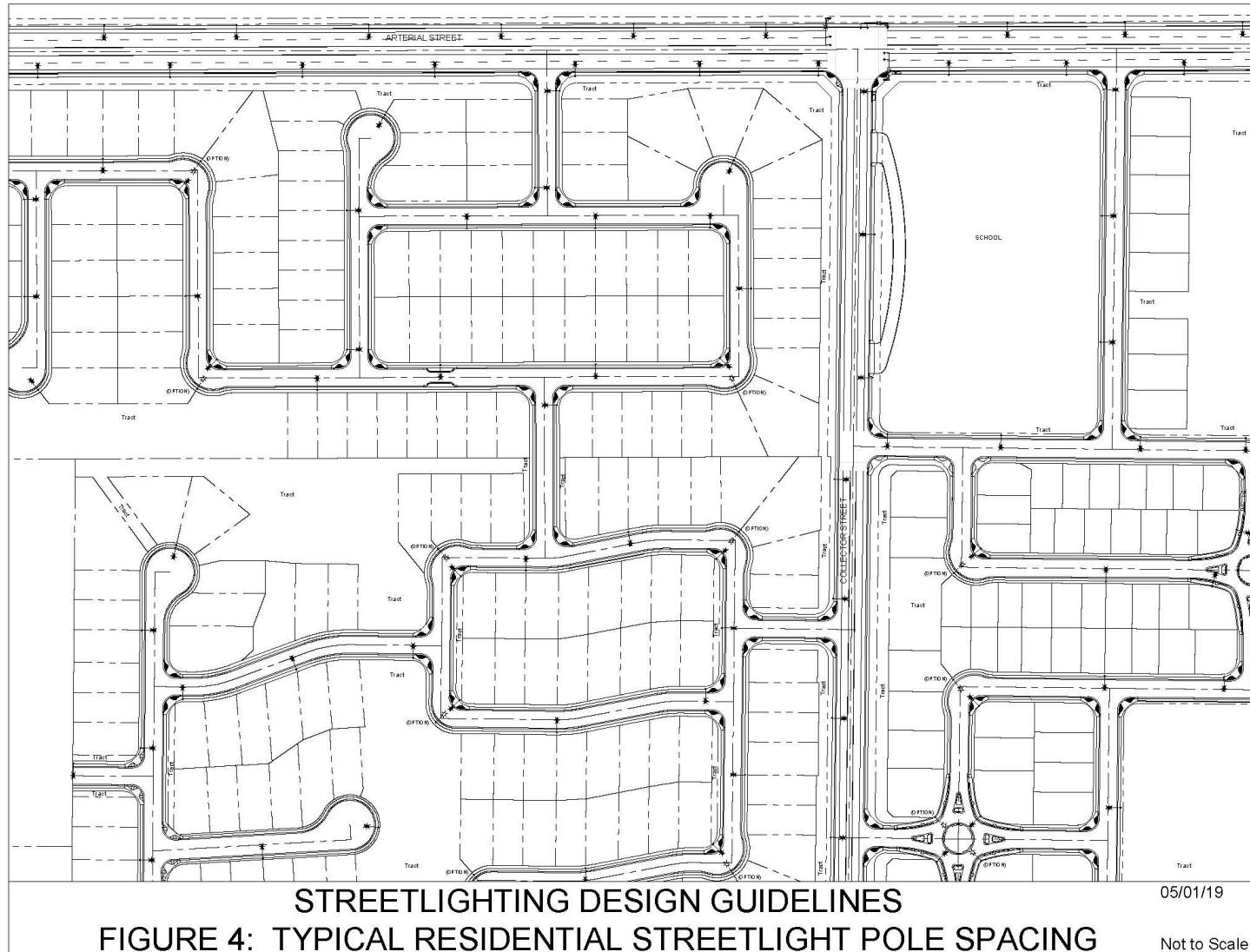


Figure 5: Elbow (Dog-Leg) Intersections

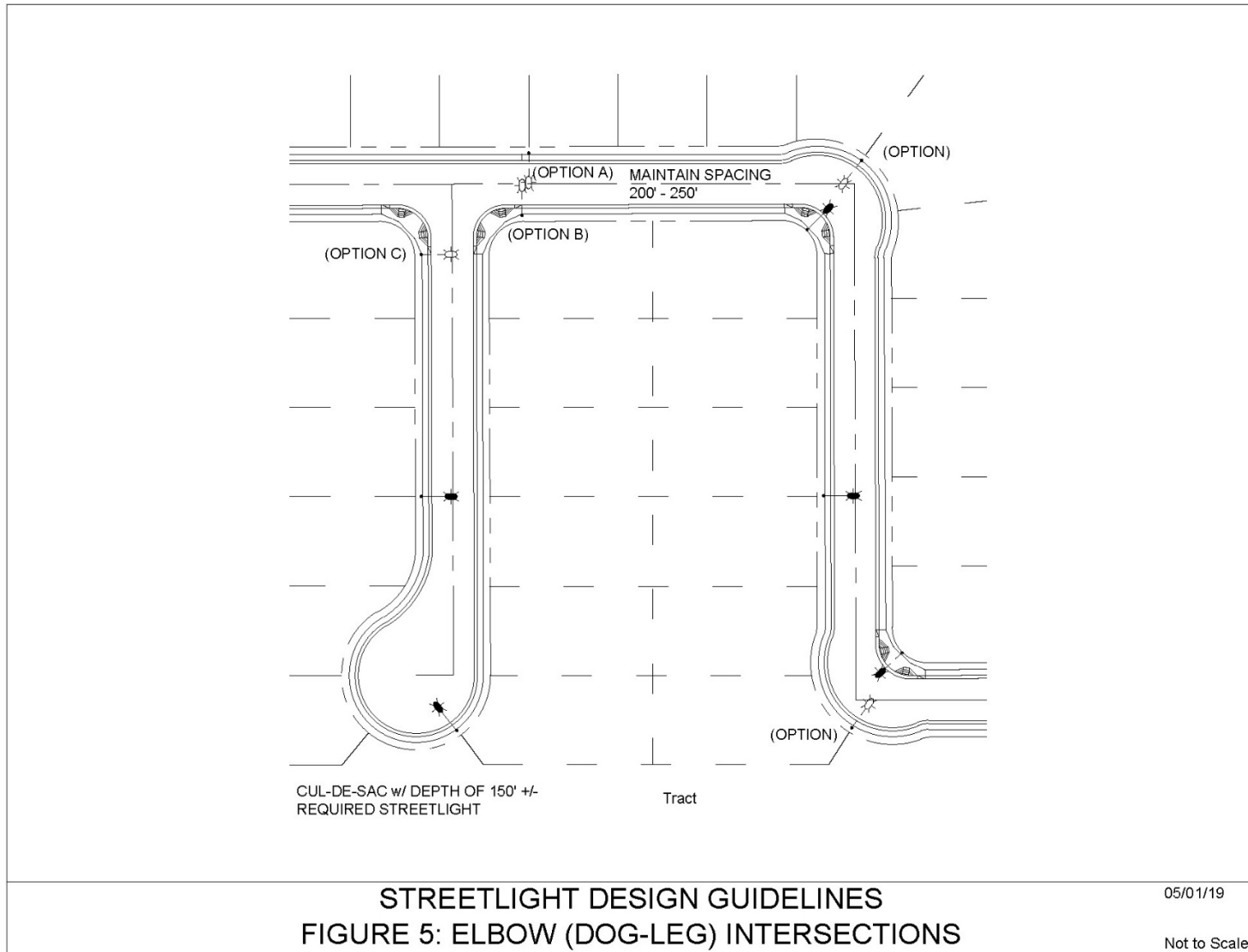


Figure 6: Arterial Street Roundabout Intersections

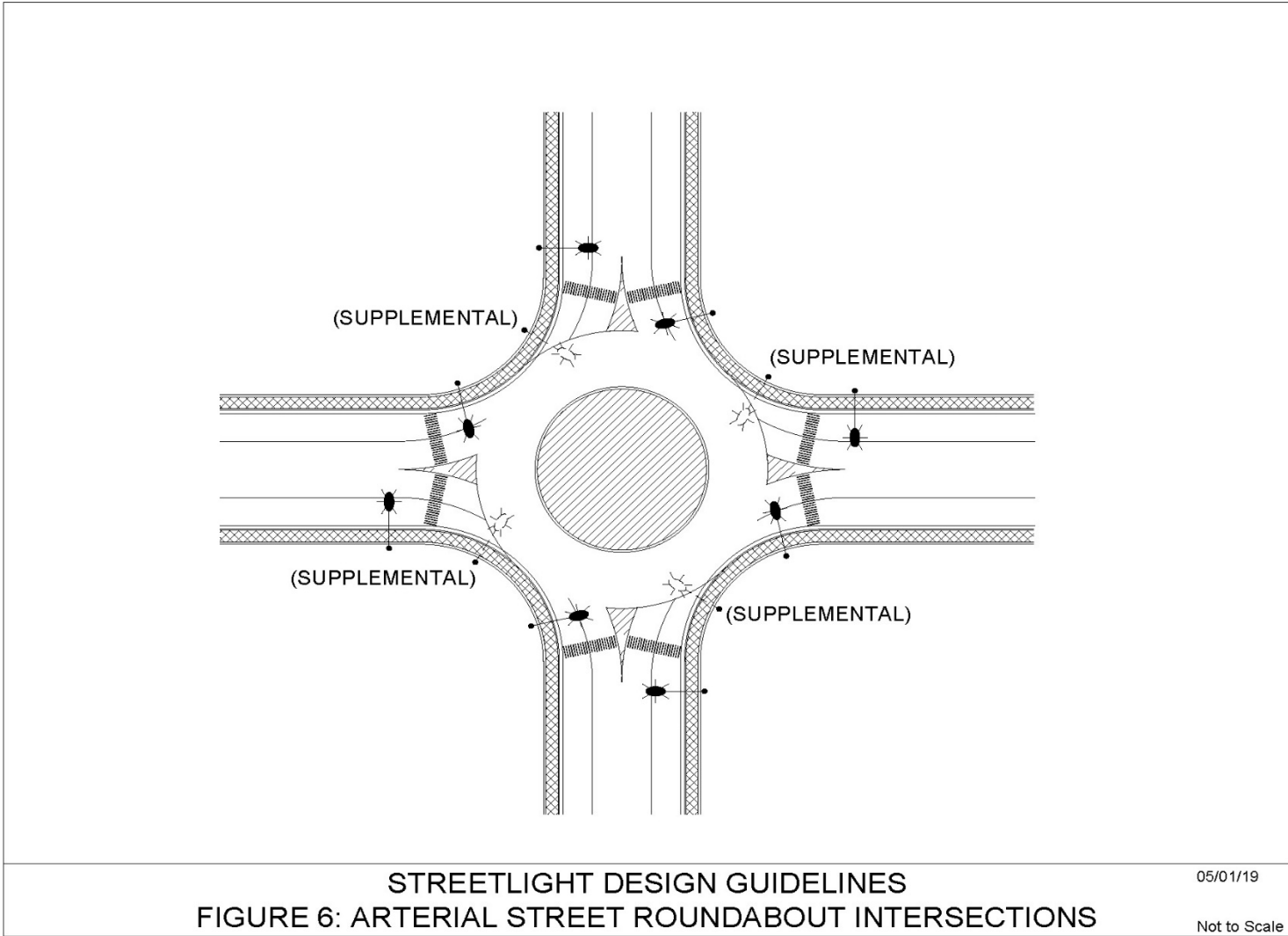


Figure 7: Local/Local Roundabout Intersections

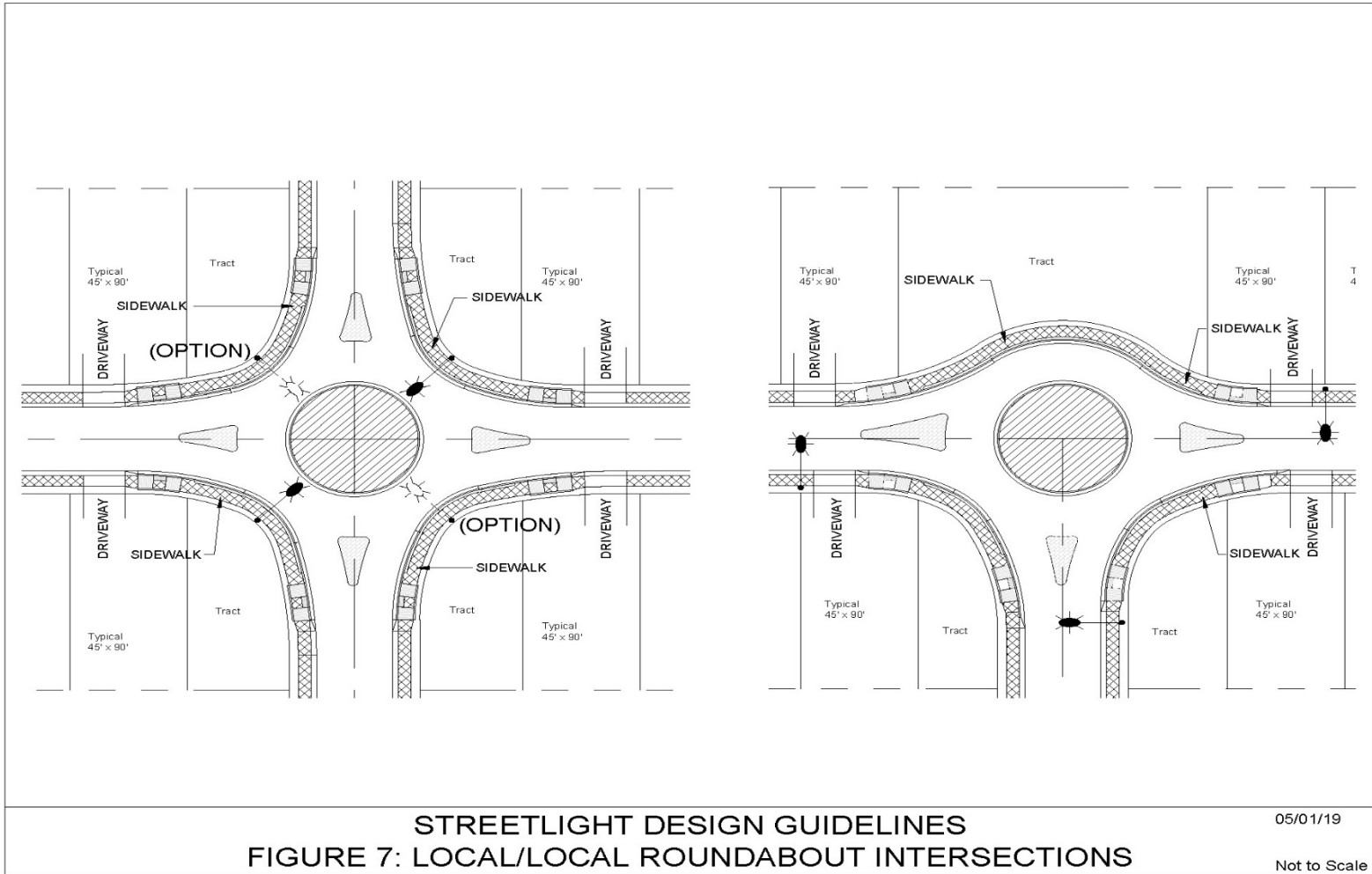
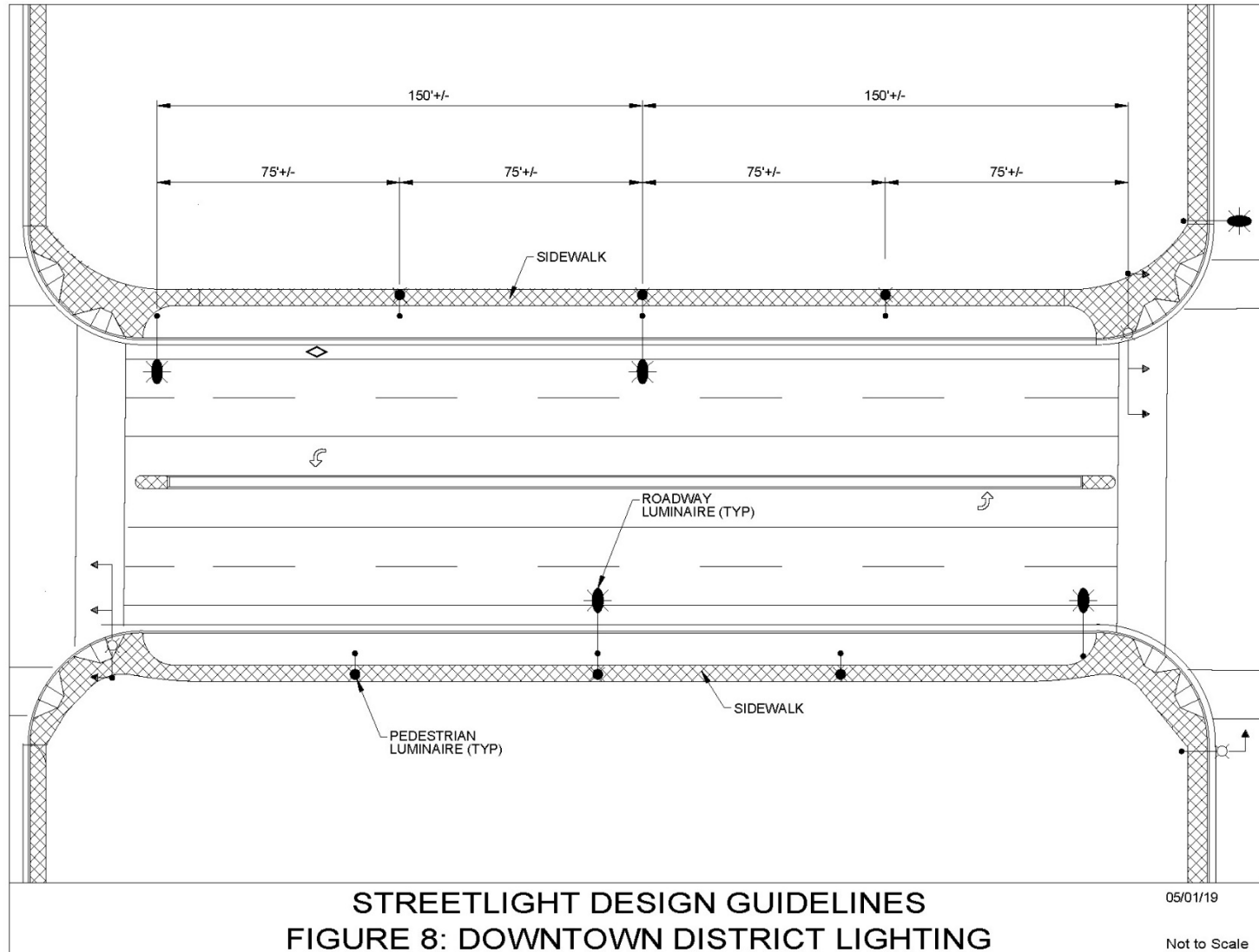


Figure 8: Downtown District Lighting



2. PLAN PREPARATION

2.1. GENERAL STREETLIGHT PLAN REQUIREMENTS

The general requirements for streetlight plans are listed below. Sample plan sheets are provided on the City's website at <https://www.phoenix.gov/streets/reference-material>. AutoCAD drawings, including the notes in this section and lighting equipment details, are also included on this website. Residential and commercial development project streetlight plans submitted to the COP Planning and Development Department for review shall include the requirements shown below in addition to the requirements on the Streetlight Layout Checklist. This Checklist can be found on the City's website at https://www.phoenix.gov/pddsite/Documents/TRT/dsd_trt_pdf_00026.pdf.

- 2.1.1. The streetlight design shall be submitted on E size sheets (24" x 36"). Plans shall be prepared so that North is to the top or right side of the sheet. The scale for the streetlight plan shall be 1- inch equals 20 feet or 1-inch equals 40 feet.
- 2.1.2. Design line characteristics are as follows:
 - a. Solid medium for proposed street improvements
 - b. Light and/or dashed for existing street improvements.
 - c. Bold for streetlight system design
- 2.1.3. Label specific locations, sizes, and dimension from the center line and/or monument line along with the following:
 - a. Existing and proposed underground wet and dry utilities
 - b. Existing and proposed overhead utilities
 - c. Face of curb
 - d. Back of Curb
 - e. Landscape tract
 - f. Width of sidewalk
 - g. Width of any Public Utility Easement (PUE)
 - h. Edge of right-of-way
 - i. Edge of pavement
 - j. Streetlight station and offset
 - k. Streetlight Lat / Long
- 2.1.4. Information needed on each set of plans:
 - a. Vicinity map
 - b. Legend
 - c. Construction notes
 - d. Streetlight notes
 - e. General notes as required
 - f. SRP or APS notes as required
 - g. Project number/Kiva number, SDEV number, CSPR number, project title and address, if applicable (36-point minimum font)
 - h. Streetlighting pole station and offset
 - i. Streetlight pole type
 - j. Streetlight mast arm length
 - k. Luminaire model number
 - l. Luminaire mounting height

- m. Blue Stake caution label
- n. Quantities list
- o. Utility provider

- 2.1.5. All streetlight poles and equipment should be shown with station and offset dimension and Latitude / Longitude of the pole location.
- 2.1.6. On local, collector and arterial streets, all existing and/or proposed driveways and Americans with Disability Act (ADA) ramps shall be shown on the streetlight plans.
- 2.1.7. Construction plan sheet format shall follow COP standards. AutoCAD details and standards will be provided by the COP. Standard sheet formats are shown in Figures 9 through 11.
- 2.1.8. The streetlight general notes shall be as provided by COP. See General Notes in Section 2.2 of this document.
- 2.1.9. Salt River Project (SRP) or Arizona Public Service (APS) notes should be included on the plans. See utility company notes in Sections 2.3 and 2.4 of this document.
- 2.1.10. Provide additional details of any items not covered by COP standard details.

2.2. GENERAL NOTES TO BE INCLUDED ON STREETLIGHT PLANS COVER SHEET

The following information is provided to emphasize critical work and is intended to supplement the specifications.

- 2.2.1. The Contractor shall comply with State and City statutes and ordinances.
- 2.2.2. Prior to submittal, the streetlight designer shall examine all general construction drawings and visit the construction site to become familiar with existing conditions under which they will operate, and which will in any way affect the work under the contract.
- 2.2.3. The streetlight designer should verify dimensions at the site and immediately report differences to the developer's construction manager and not proceed with work until the construction manager renders a decision.
- 2.2.4. The electrical contractor shall comply with all licensing requirements set forth by the State Registrar of Contractor's office to perform work relating to streetlight installation in City of Phoenix right-of-way.
- 2.2.5. One dry utility permit for each City of Phoenix streetlight project, or phase if a multi-phase project, shall be obtained by the contractor prior to construction.
- 2.2.6. Streetlight poles shall be installed plumb, be adjusted to provide proper alignment to the roadway being illuminated and properly grounded when the installation is completed.
- 2.2.7. Streetlights are inspected by the utility company and by City of Phoenix assigned Streetlight Inspector. When accepted and energized, the utility company will install a streetlight number on each pole.

2.2.8. Luminaires shall be installed level and include a photocell. The photocell shall be installed with the photo-eye facing north. The luminaires shall be free of dust, dirt or anything that would impair the output of the light.

Non-LED Luminaires or non-smart drivers, furnished with multi-tap ballast shall be wired or connected to match the voltage supplied by the electric utility company.

2.2.9. Poles shall be set plumb in two directions, ninety (90) degrees apart.

2.2.10. Surplus excavation shall be disposed of by the contractor.

2.2.11. Wiring shall be installed per serving utility company standards. Conduit shall be installed at the depth specified on their plans.

2.2.12. Conduit must be UL rated and suitable for underground use per utility company requirement.

2.2.13. Connections shall be per serving utility company standards. Each pole shall have an 8' x 5/8" copper clad ground rod driven beneath pull box. A #6 bare copper lead from the ground rod in pull box to landing lug in streetlight pole hand hole is required.

2.2.14. Excavation for pull boxes and material specifications shall be per utility company requirements.

2.2.15. Trenches shall be installed per serving utility company standards. The use of a common electric utility company trench is permitted.

2.2.16. It is the Contractor's responsibility to contact the utility company for coordination of the trenching and the installation of conduit.

2.2.17. It is the Contractor's responsibility to restore all property, landscaping, paving and driveways that are disturbed during streetlight construction to their original condition in conformance with MAG Specification section 107.9.

2.2.18. Prior to acceptance, the Developer shall energize and operate the entire roadway lighting system, from sunset to sunrise for two (2) consecutive days without interruption or failure. If a luminaire should fail, it shall be immediately replaced. The Developer shall be responsible for furnishing all personnel and equipment to successfully perform this test.

2.2.19. The Contractor shall guarantee all work for a period of one (1) year from the date of final acceptance by the engineering manager against imperfect workmanship, failure, malfunction of materials and/or equipment due to faulty or imperfect workmanship. The Contractor shall provide to the City a five-year manufacturer's warranty for the LED luminaires (fixtures only).

2.2.20. This guarantee is to be in writing to the City at the time of issuing final acceptance. Materials and workmanship found to be defective within the one-year guarantee shall be replaced without cost to the City.

SALT RIVER PROJECT (SRP) NOTES

The following SRP plan notes are to be part of the notes listed on the plans for streetlighting projects in the SRP service area:

- 2.2.21. The Contractor shall call SRP for a pre-construction meeting prior to any excavation at (602) 236-0676.
- 2.2.22. The Contractor will supply all trenching and conduit if requested by COP Project Manager.
- 2.2.23. The Contractor will stake streetlights per City of Phoenix approved streetlighting construction drawings.
- 2.2.24. The j-box shall be located a minimum of two (2) feet to a maximum of five (5) feet from the outer dimension of the streetlight pole. Prior to installation of j-box, the location shall be staked in the field.
- 2.2.25. The Contractor will coordinate with SRP and City of Phoenix for de-energizing of streetlight conductor.
- 2.2.26. A ground rod will be provided and installed by the Contractor in the SRP J-box at each streetlight location.
- 2.2.27. Number 6 bare copper ground wire shall be attached from the grounding lug on the streetlight pole to the ground rod in the J-box.
- 2.2.28. If the Contractor installs the streetlight pole, the bare #6 copper ground wire shall be connected from the ground rod in the SRP J-box to the ground connection in the pole hand-hole.
- 2.2.29. All trenching and conduit shall be inspected by SRP. Do not backfill until inspected.
- 2.2.30. An SRP construction print must be used as a trenching reference. Trenching variations must have written SRP designer approval. Follow details for construction. Variations in trench route may result in a redesign fee payable by the Contractor.
- 2.2.31. Trenches should be straight, flat, and free of debris. All trench depths shall be measured from final grade to top of conduit (per SRP design) within all easements and right of way. Maintain minimum 12" of compacted earth separation from water and sewer lines, gas lines and all other utilities.
- 2.2.32. Use DB120 PVC for all straight conduit, and 36" radius schedule 40 PVC sweeps for all elbows. No reducers are allowed in the conduit system. No couplings or bell ends are allowed at equipment locations. All conduits within the road right of way or PUE must be red.
- 2.2.33. Retaining walls are required adjacent to equipment where the grade slope is greater than 30" in 12'.
- 2.2.34. All conduit stub outs are to be capped and marked with an electronic marker and 7" red flag marking ribbon.
- 2.2.35. Hard caps are to be used for all conduit stub outs below grade.

SALT RIVER PROJECT (SRP) NOTES cont:

- 2.2.36. A mandrel inspection is required with the SRP inspector within three (3) days of final inspection. The Contractor must provide two (2) representatives, a minimum 125-CFM trailer mounted compressor and all necessary attachments.
- 2.2.37. The Contractor is responsible for the integrity of all conduits until SRP has installed conductors.
- 2.2.38. Backfill requirements for a trench in or under future pavement shall include 1-part slurry mix. Within the roadway right of way and in dirt backfill, the requirements shall be ½ part slurry mix. Backfill requirements under all SRP equipment shall include ½ part slurry mix maximum.
- 2.2.39. See duct bank specifications for all duct bank encasement requirements.

ARIZONA PUBLIC SERVICE (APS) NOTES

The following APS plan notes are to be part of the notes listed on plans for streetlighting projects in the APS service area:

- 2.2.40. The Contractor shall contact the APS inspector identified on the APS construction drawing for pre-construction meeting prior to any excavation.
- 2.2.41. The Contractor shall supply all trench and conduit per APS requirements, unless otherwise noted.
- 2.2.42. A grade stake shall be set minimum two (2) feet of the J-Box location.
- 2.2.43. The Contractor will coordinate with APS and City of Phoenix for de-energizing of streetlight conductor.
- 2.2.44. A ground rod shall be provided and installed by the Contractor. The ground rod shall be driven flush outside the APS j-box at each streetlight location.
- 2.2.45. If the Contractor installs the pole, a bare #6 copper ground wire shall be connected from the ground rod to the ground connection in the hand hole.
- 2.2.46. All trenching and conduit shall be inspected by APS. Do not backfill until inspected.
- 2.2.47. An APS construction print must be used as a trenching reference. Trenching variations must have written APS CSR approval. Follow details for construction. Variations in trench route may result in a redesign fee payable by the Contractor.
- 2.2.48. Contact APS for all trench and conduit specifications and requirements.
- 2.2.49. The Contractor is responsible for the integrity of all conduits until APS has installed conductors.
- 2.2.50. The Contractor is responsible for obtaining required variances prior to submitting CIP drawings to the utilities.
- 2.2.51. The Contractor is responsible for verifying vertical and horizontal clearances to existing overhead lines and poles when placing new streetlights.

Figure 9: Sample Cover Sheet Format

CITY OF PHOENIX STREET LIGHTING PROJECT NAME

	FUND #	STATE	PRJL. NO.	NO.	TOTAL
	9	ARIZ.			
DR.	DES.	CK.	DATE		

STREETLIGHT GENERAL NOTES

THE FOLLOWING INFORMATION IS PROVIDED TO EMPHASIZE CRITICAL WORK AND IS INTENDED TO SUPPLEMENT THE SPECIFICATIONS.

- THE CONTRACTOR SHALL COMPLY WITH STATE AND CITY STATUTES AND ORDINANCES.
- PRIOR TO SUBMITTAL, THE STREETLIGHT DESIGNER SHALL EXAMINE ALL GENERAL CONSTRUCTION DRAWINGS AND VISIT THE CONSTRUCTION SITE TO BECOME FAMILIAR WITH EXISTING CONDITIONS UNDER WHICH HE WILL OPERATE AND WHICH WILL IN ANY WAY AFFECT THE WORK UNDER THE CONTRACT.
- THE STREETLIGHT DESIGNER SHOULD VERIFY DIMENSIONS AT THE SITE AND IMMEDIATELY REPORT DIFFERENCES TO THE DEVELOPER'S CONSTRUCTION MANAGER AND NOT PROCEED WITH WORK UNTIL THE CONSTRUCTION MANAGER ISSUES A DECISION.
- THE ELECTRICAL CONTRACTOR SHALL COMPLY WITH ALL LICENSING REQUIREMENTS SET FORTH BY THE STATE REGISTRAR OF CONTRACTORS OFFICE TO PERFORM WORK RELATING TO STREETLIGHT INSTALLATION IN CITY OF PHOENIX OFF-OF-WAY.
- ONE DRY UTILITY PERMIT FOR EACH CITY OF PHOENIX STREETLIGHT PROJECT SHALL BE OBTAINED BY THE CONTRACTOR PRIOR TO CONSTRUCTION.
- LIGHT POLES SHALL BE INSTALLED PLUMB, BE ADJUSTED TO PROVIDE PROPER ALIGNMENT TO THE ROADWAY BEING LIGHTED AND BE PROPERLY GROUNDED WHEN THE INSTALLATION IS COMPLETED.
- STREETLIGHTS ARE INSPECTED BY THE CITY OF PHOENIX STREETLIGHTING INSPECTOR. WHEN ACCEPTED AND ENERGIZED THE CONTRACTOR WILL INSTALL POLE NUMBERS PRIOR TO INSPECTION.
- LUMINAIRES SHALL BE INSTALLED LEVEL AND INCLUDE A PHOTOCELL. THE LUMINAIRES SHALL BE FREE OF DIRT, OIL OR ANYTHING THAT WOULD IMPAIR THE OUTPUT OF THE LIGHT.
- POLE SHALL BE SET PLUMB IN TWO DIRECTIONS, NINETY (90) DEGREES APART.
- SURPLUS EXCAVATION SHALL BE DISPOSED OF BY THE CONTRACTOR.

STREETLIGHT GENERAL NOTES (CONTINUED)

- WIRING SHALL BE INSTALLED PER SERVING UTILITY COMPANY STANDARDS. CONDUIT SHALL BE INSTALLED AT THE DEPTH SPECIFIED ON THEIR PLANS.
- CONDUIT MUST BE LISTED AND LABELED AND SUITABLE FOR UNDERGROUND USE.
- CONNECTIONS SHALL BE PER SERVING UTILITY COMPANY STANDARDS. EACH POLE SHALL HAVE A 8 X 8" COPPER CLAD GROUND ROD DRIVEN BENEATH PULL BOX. A #8 BARE COPPER LEAD FROM THE GROUND ROD IN PULL BOX TO LANDING LUG IN STREETLIGHT POLE HAND HOLE IS REQUIRED.
- EXCAVATION FOR PULL BOXES AND MATERIAL SPECIFICATIONS SHALL BE PER SERVING UTILITY COMPANY STANDARDS.
- TRENCH SHALL BE INSTALLED PER SERVING UTILITY COMPANY STANDARDS. THE USE OF A COMMON ELECTRIC UTILITY COMPANY TRENCH IS PERMITTED.
- IT IS THE CONTRACTOR'S RESPONSIBILITY TO CONTACT THE UTILITY COMPANY FOR COORDINATION OF THE TRENCHING AND THE INSTALLATION OF CONDUIT.
- IT IS THE CONTRACTOR'S RESPONSIBILITY TO RESTORE ALL PROPERTY, LANDSCAPING, PAVING AND DRIVEWAYS THAT ARE DISTURBED DURING STREETLIGHT CONSTRUCTION TO THEIR ORIGINAL CONDITION IN CONFORMANCE WITH MAG SPECIFICATION SECTION 107.9.
- IF A FUTURE SHOULD FAIL, IT SHALL BE IMMEDIATELY REPLACED. THE DEVELOPER SHALL BE RESPONSIBLE FOR FURNISHING ALL PERSONNEL AND EQUIPMENT NECESSARY TO SUCCESSFULLY REPAIR THE FUTURE.
- THE CONTRACTOR SHALL GUARANTEE ALL WORK FOR A PERIOD OF ONE YEAR FROM THE DATE OF FINAL ACCEPTANCE BY THE ENGINEERING MANAGER, AGAINST IMPERFECT WORKMANSHIP, FAILURE, MALFUNCTION OF MATERIALS AND/OR EQUIPMENT DUE TO FACTORY OR IMPERFECT WORKMANSHIP. THE CONTRACTOR SHALL PROVIDE TO THE CITY A FIVE-YEAR MANUFACTURER'S WARRANTY FOR THE LED LUMINAIRE (FUTURE ONLY).
- THIS GUARANTEE IS TO BE IN WRITING TO THE CITY AT THE TIME OF ISSUING FINAL ACCEPTANCE. MATERIALS AND WORKMANSHIP FOUND TO BE DEFECTIVE WITHIN THE ONE YEAR GUARANTEE SHALL BE REPLACED WITHOUT COST TO THE CITY.

ARIZONA PUBLIC SERVICE (APS) NOTES

- CONTRACTOR SHALL CONTACT APS INSPECTOR IDENTIFIED ON THE APS CONSTRUCTION DRAWING FOR PRE-CONSTRUCTION MEETING PRIOR TO ANY EXCAVATION.
- CONTRACTOR TO SUPPLY ALL TRENCH AND CONDUIT, PER APS REQUIREMENTS, UNLESS OTHERWISE NOTED.
- GRADE STAKE WILL BE SET WITHIN 2' OF J-BOX LOCATION.
- CONTRACTOR WILL COORDINATE WITH APS AND CITY OF PHOENIX FOR DE-ENERGIZING OF STREETLIGHT CONDUIT.
- A GROUND ROD TO BE PROVIDED AND INSTALLED BY CONTRACTOR. THE GROUND ROD SHALL BE DRIVEN FLUSH OUTSIDE THE APS J-BOX AT EACH STREETLIGHT LOCATION.
- IF THE CONTRACTOR INSTALLS THE POLE, THE BARE #4 COPPER GROUND WIRE SHALL BE CONNECTED FROM THE GROUND ROD TO THE GROUND CONNECTION IN THE HAND HOLE.
- ALL TRENCH AND CONDUIT TO BE INSPECTED BY APS. DO NOT BACKFILL UNTIL INSPECTED.
- APS CONSTRUCTION PRINT MUST BE USED AS A TRENCHING REFERENCE. TRENCHING VARIATIONS MUST HAVE WRITTEN APS CSR APPROVAL. FOLLOW DETAILS FOR CONSTRUCTION. VARIATIONS IN TRENCH ROUTE MAY RESULT IN A REDESIGN FEE.
- CONTACT APS FOR ALL TRENCH AND CONDUIT SPECIFICATIONS AND REQUIREMENTS.
- CONTRACTOR IS RESPONSIBLE FOR INTEGRITY OF ALL CONDUITS UNTIL APS HAS INSTALLED CONDUITS.
- CONTRACTOR IS RESPONSIBLE FOR OBTAINING REQUIRED VARIANCES PRIOR TO SUBMITTING CIP DRAWINGS TO THE UTILITIES.
- CONTRACTOR IS RESPONSIBLE FOR VERIFYING VERTICAL AND HORIZONTAL CLEARANCES TO EXISTING OVERHEAD LINES AND POLES WHEN PLACING NEW STREETLIGHTS.

LED STREETLIGHT NOTES

LOCAL

- INSTALL ONE LOCAL STREET LUMINAIRE WITH PHOTOELECTRIC CONTROL ON A 30'-0" POLE WITH A R MAIST ARM (GRAY) PER APS DETAILS AND SPECIFICATIONS. FOUNDATION PER APS STANDARDS AND SPECIFICATIONS. POLE SHALL BE CENTERED 1'-0" BEHIND BACK OF SIDEWALK OR 4'-0" BEHIND BACK OF CURB. INSTALL (2) #12 THIN THIN FROM LUMINAIRE TO FUSE HOLDER IN POLE. INSTALL SRP PULL BOX ADJACENT TO POLE WITH 1" FLEX CONDUIT FROM PULL BOX TO POLE PER SRP SPECIFICATIONS AND REQUIREMENTS. ALL WIRING, FUSING, AND GROUNDING PER SRP DETAILS AND SPECIFICATIONS.

COLLECTOR

- INSTALL ONE COLLECTOR ROAD LUMINAIRE WITH PHOTOELECTRIC CONTROL ON A 30'-0" POLE WITH A R MAIST ARM (GRAY) PER APS DETAILS AND SPECIFICATIONS. FOUNDATION PER APS STANDARDS AND SPECIFICATIONS. POLE SHALL BE CENTERED 1'-0" BEHIND BACK OF SIDEWALK OR 4'-0" BEHIND BACK OF CURB. INSTALL (2) #12 THIN THIN FROM LUMINAIRE TO FUSE HOLDER IN POLE. INSTALL SRP PULL BOX ADJACENT TO POLE WITH 1" FLEX CONDUIT FROM PULL BOX TO POLE PER SRP SPECIFICATIONS AND REQUIREMENTS. ALL WIRING, FUSING, AND GROUNDING PER SRP DETAILS AND SPECIFICATIONS.

ARTERIAL

- INSTALL ONE ARTERIAL STREET LUMINAIRE WITH PHOTOELECTRIC CONTROL ON A 30'-0" POLE WITH A X MAIST ARM (GRAY) PER APS DETAILS AND SPECIFICATIONS. FOUNDATION AND GROUNDING PER APS STANDARDS AND SPECIFICATIONS. POLE SHALL BE CENTERED 1'-0" BEHIND BACK OF SIDEWALK OR 4'-0" BEHIND BACK OF CURB. INSTALL (2) #12 THIN THIN FROM LUMINAIRE TO FUSE HOLDER IN POLE. INSTALL SRP PULL BOX ADJACENT TO POLE WITH 1" FLEX CONDUIT FROM PULL BOX TO POLE PER SRP SPECIFICATIONS AND REQUIREMENTS. ALL WIRING, FUSING, AND GROUNDING PER SRP DETAILS AND SPECIFICATIONS.

PEDESTRIAN

- INSTALL ONE PEDESTRIAN LUMINAIRE WITH PHOTOELECTRIC CONTROL ON A 20'-0" POLE WITH A X MAIST ARM PER APS DETAILS AND SPECIFICATIONS. FOUNDATION AND GROUNDING PER APS STANDARDS AND SPECIFICATIONS. POLE SHALL BE CENTERED 1'-0" BEHIND BACK OF SIDEWALK OR 4'-0" BEHIND CURB. INSTALL (2) #12 THIN THIN FROM LUMINAIRE TO FUSE HOLDER IN POLE. INSTALL SRP PULL BOX ADJACENT TO POLE WITH 1" FLEX CONDUIT FROM PULL BOX TO POLE PER SRP SPECIFICATIONS AND REQUIREMENTS. ALL WIRING, FUSING, AND GROUNDING PER APS DETAILS AND SPECIFICATIONS.

SPECIAL ARTERIAL STREET WITH SINGLE-SIDE LIGHTING

- INSTALL ONE SPECIAL ARTERIAL STREET LUMINAIRE WITH PHOTOELECTRIC CONTROL ON A 30'-0" POLE WITH A R MAIST ARM (GRAY) PER APS DETAILS AND SPECIFICATIONS. FOUNDATION PER APS STANDARDS AND SPECIFICATIONS. POLE SHALL BE CENTERED 1'-0" BEHIND BACK OF SIDEWALK OR 4'-0" BEHIND BACK OF CURB. INSTALL (2) #12 THIN THIN FROM LUMINAIRE TO FUSE HOLDER IN POLE. INSTALL SRP PULL BOX ADJACENT TO POLE WITH 1" FLEX CONDUIT FROM PULL BOX TO POLE PER SRP SPECIFICATIONS AND REQUIREMENTS. ALL WIRING, FUSING, AND GROUNDING PER SRP DETAILS AND SPECIFICATIONS.

GRAY ROADWAY LED STREETLIGHT POLE AND LUMINAIRE SPECIFICATIONS

ITEM NUMBER	TYPE OF STREET	QUANTITY	MOUNTING HEIGHT	POLE LENGTH	MAIST ARM	APPROVED POLE & ARM MANUFACTURERS	VOLTAGE	TYPE	APPROVED LUMINAIRES
1	LOCAL	0	25'-11"	30'-6"	6'	CEM-TEC MS-1936 VALMONT C809158 SOUTHWEST FABRICATION, LLC 388RD8	MULTIVOLT 120-277	LED	REFER TO CITY OF PHOENIX APPROVED PRODUCTS LIST
2	COLLECTOR	0	32'-11"	38'-6"	6'	CEM-TEC MS-1944 VALMONT C809159 SOUTHWEST FABRICATION, LLC 388RD8	MULTIVOLT 120-277	LED	
3	ARTERIAL	0	32'-11"	38'-6"	6'	CEM-TEC MS-1944 VALMONT C809159 SOUTHWEST FABRICATION, LLC 388RD8	MULTIVOLT 120-277	LED	

ALL CATALOG NUMBERS SHALL BE CONFIRMED WITH THE CITY PRIOR TO ORDERING

DARK BRONZE LED STREETLIGHT POLE AND LUMINAIRE SPECIFICATIONS

ITEM NUMBER	TYPE OF STREET	QUANTITY	MOUNTING HEIGHT	POLE LENGTH	MAIST ARM	APPROVED POLE & ARM MANUFACTURERS	VOLTAGE	TYPE	APPROVED LUMINAIRES
1	LOCAL	0	25'-0"	30'-6"	2'	CEM-TEC MS-1936 VALMONT C809158 SOUTHWEST FABRICATION, LLC 388RD8	MULTIVOLT 120-277	LED	REFER TO CITY OF PHOENIX APPROVED PRODUCTS LIST
2	COLLECTOR	0	31'-6"	38'-0"	2'	CEM-TEC MS-1944 VALMONT C809159 SOUTHWEST FABRICATION, LLC 388RD8	MULTIVOLT 120-277	LED	
3	ARTERIAL	0	31'-6"	38'-0"	2'	CEM-TEC MS-1944 VALMONT C809159 SOUTHWEST FABRICATION, LLC 388RD8	MULTIVOLT 120-277	LED	
4	PEDESTRIAN	0	16'-0"	20'-0"	2'	CEM-TEC MS-1944 VALMONT C809159 SOUTHWEST FABRICATION, LLC 388RD8	MULTIVOLT 120-277	LED	

ALL CATALOG NUMBERS SHALL BE CONFIRMED WITH THE CITY PRIOR TO ORDERING

SHEET INDEX

COVER SHEET SL-1

STREETLIGHT PLAN SL-2

DETAIL SHEET SL-3

LEGEND

- NEW LED CORRIDOR LUMINAIRE STAND ALONE STREETLIGHT POLE
- EXISTING STREETLIGHT MOUNTED ON POWER POLE
- EXISTING STREETLIGHT POLE

VICINITY MAP
N.T.S.

STREETLIGHT COVER SHEET
CITY OF PHOENIX, ARIZONA
STREET TRANSPORTATION DEPARTMENT

PROJECT # _____ FILE NO. _____

DR. _____ DES. _____ CK. _____ SHEET NO. _____ TOTAL SHEETS _____

SCALE: NTS _____ 1" = _____'

APPROVED BY: _____ DATE _____

CITY OF PHOENIX TRAFFIC ENGINEER

Figure 10: Sample Plan Sheet Format

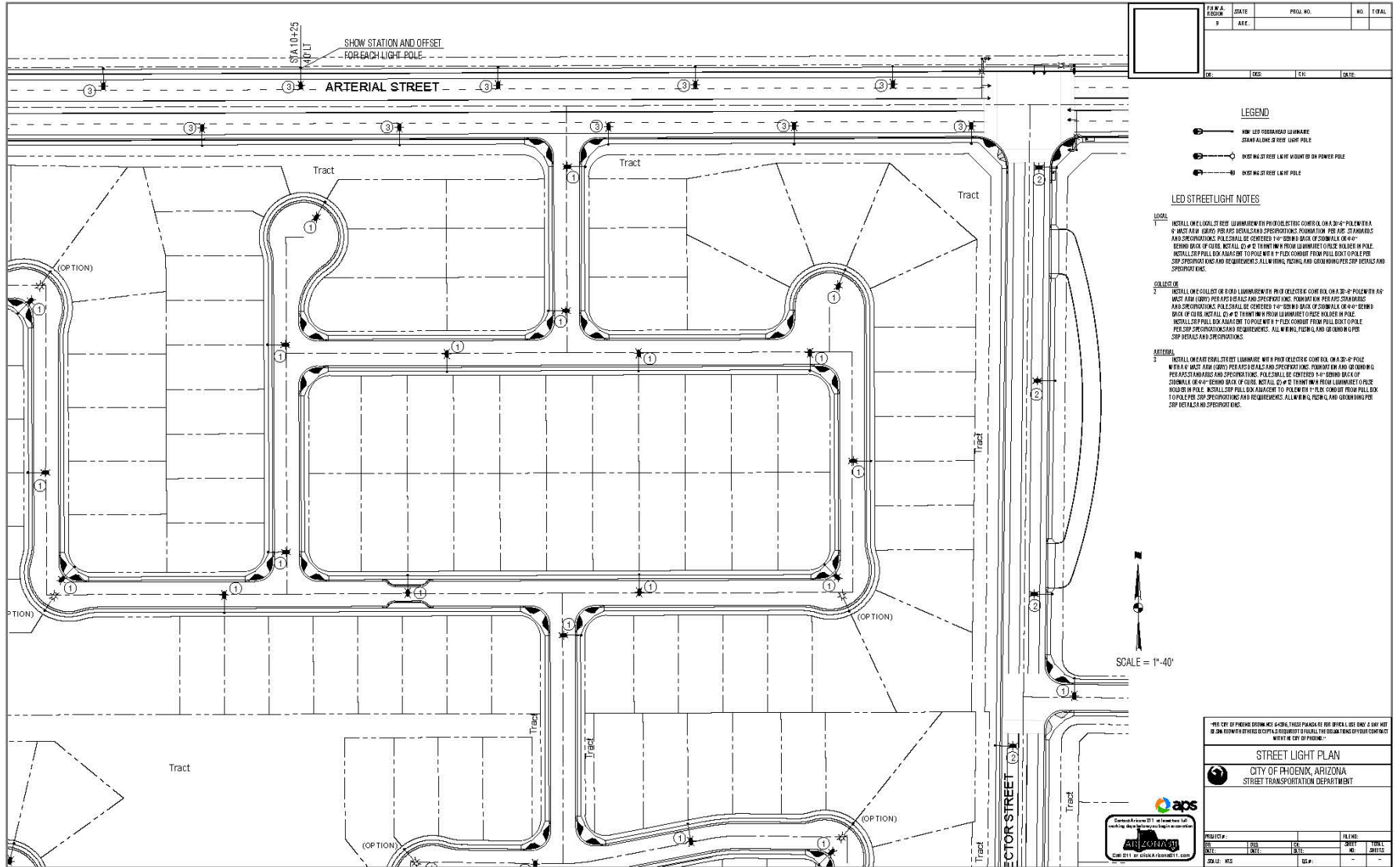
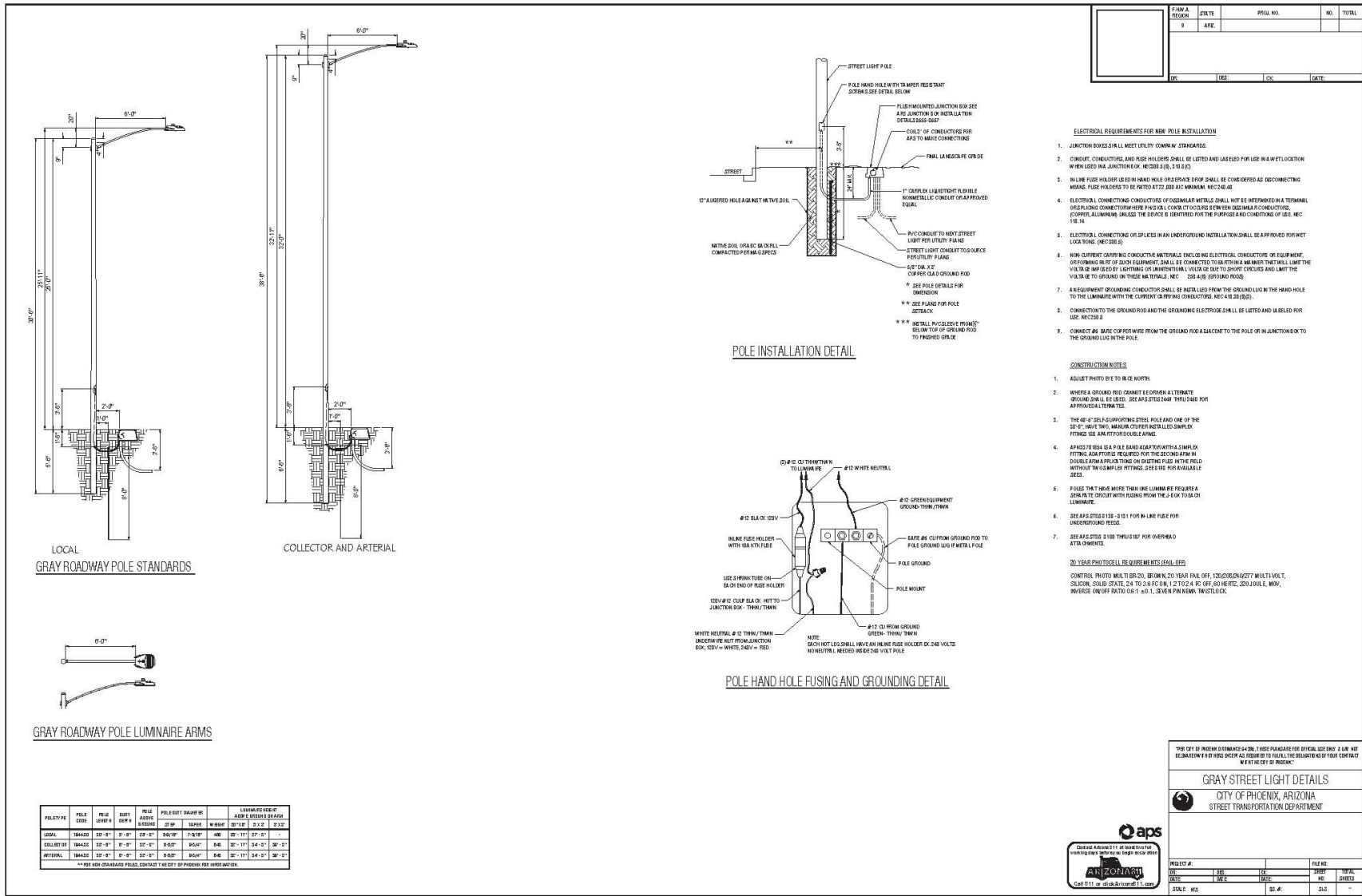


Figure 11: Sample Detail Sheet Format



3. RESIDENTIAL AND COMMERCIAL DEVELOPMENT PROJECTS

The information included in Sections 1 and 2 in this document is provided for use on streetlighting design and plan preparation for all new residential and commercial development projects. The information included in Section 3 is specifically for all new residential and commercial development projects that will be reviewed by the COP Planning and Development Department (PDD). For information or questions regarding streetlight design, please contact (602) 262-7223 or go to the following website: <https://www.phoenix.gov/pdd/topics/street-lights>.

3.1. DEVELOPER RESPONSIBILITY

- 3.1.1. Developers of residential subdivisions, apartments, condominiums, commercial, industrial projects, and all permittees are responsible for the design, materials, and installation costs of all streetlighting on public streets within and adjacent to their project.
- 3.1.2. Streetlighting plans expiration parallels Civil plans expiration and requires re-submittal if Civil plans are updated.
- 3.1.3. Salt River Project (SRP) – Specific Requirements (Applicable only in SRP service areas) (www.srpnet.com)
 - 3.1.3.1. All costs for streetlight installation including construction and energization are to be addressed in a streetlight construction contract between the developer and SRP.
- 3.1.4. Arizona Public Service (APS) – Specific Requirements (Applicable only in APS service areas) (www.aps.com)
 - 3.1.4.1. All costs for streetlight installation including construction and energization are to be addressed in a streetlight construction contract between the developer and APS.
- 3.1.5. Streetlights must be shown on all roadway right-of-way adjacent to private developments. The Developer shall pay all City inspection permit fees. Design conflicts shall be resolved by the Developer to the satisfaction of the electrical utility company and COP. It shall be the Developer's responsibility to coordinate conflict resolution with electric utility company facilities, including vertical clearances, without compromise to the uniformity in the streetlighting design.

3.2. STREETLIGHT PLAN REQUIREMENTS

- 3.2.1. Private streetlights should be labeled as such. Streetlighting on private streets is approved by the Planning and Development Department per their requirements at review.
- 3.2.2. All items described on the streetlight layout checklist shall be included on the streetlight plans. The Checklist can be found on the City's website at: https://www.phoenix.gov/pddsite/Documents/TRT/dsd_trt_pdf_00026.pdf

3.3. STREETLIGHT ACCEPTANCE LETTER

- 3.3.1. Upon completion of streetlight installation, energization and testing, the Contractor and the Owner or Legal Agent shall sign and submit the Streetlight Acceptance Letter to the City. The Streetlight Acceptance Letter is provided on the City's website at: <https://www.phoenix.gov/streets/reference-material>.
- 3.3.2. In addition to the Streetlight Acceptance Letter, the Contractor shall provide to the City the Streetlight Data Sheet with all information included for each streetlight installed with the project. The Streetlight Data Sheet is provided on the City's website at: <https://www.phoenix.gov/streets/reference-material>

4. CAPITAL IMPROVEMENT PROJECTS (CIP)

The information included in Sections 1 and 2 in this document is provided for use on streetlighting design and plan preparation for all Capital Improvement Projects. The information included in Section 4 is specifically for all Capital Improvement Projects that will be reviewed by the COP Street Transportation Department. For questions regarding streetlight design, please contact the Programing and Project Delivery (PPD) Project Manager assigned to the project.

4.1. ADDITIONAL DESIGN REQUIREMENTS

- 4.1.1. The design submittal package shall be in accordance with the requirements stipulated by the COP Project Manager during each project's kick-off meeting.
- 4.1.2. Prior to submitting a streetlight layout plan, the streetlight design Consultant shall examine all general construction drawing details and visit the construction site to become familiar with existing conditions under which they will operate. The Consultant should also be aware of any additional requirements normally imposed by the affected utility company and/or other regulatory agencies when designing in close proximity to their infrastructure. No subsequent allowance will be made in this connection on behalf of the Contractor for any error or negligence on their part.
- 4.1.3. The Design Consultant shall review all proposed streetlight locations, and coordinate with the utility company and COP staff to achieve the best streetlight layout design. The identified locations shall meet all COP Streetlighting Layout Guidelines, while addressing any overhead and/or underground conflicts and identifying all Easements and/or Right-of-Way needs.
- 4.1.4. For all new streetlight installations, a Letter of Authorization (LOA) shall be issued to the utility company along with the approved streetlight layout plan set by the COP Traffic Services Section. The LOA shall authorize the utility company to generate the power design off all new streetlights within the project limits.
- 4.1.5. Cost for streetlight design shall be included in the project scope.

CONSTRUCTION REQUIREMENTS

- 4.1.6. The Contractor shall furnish and install all equipment and material as specified in the bid documents and in compliance with all the applicable details, specifications, rules, and regulations of the agencies involved. In the case of any conflicting requirements, the most stringent requirement shall prevail.
- 4.1.7. Prior to ordering any materials or doing any work, the Contractor should verify dimensions at the site. Immediately report differences to the COP Project Manager and shall not proceed with work until a decision is rendered. No extra charges or compensation will be allowed for differences in actual dimensions and dimensions indicated on the drawings.
- 4.1.8. The Contractor shall comply with all licensing requirements set forth by the State Register of Contractor's office to perform work relating to streetlight installation in the Right-of-Way.
- 4.1.9. A project(s) underground utilities (Right-of-Way) permit(s) shall be obtained by the Contractor prior to starting construction. The permit will be issued by the COP to the Contractor after the award of the contract.
- 4.1.10. The Contractor is responsible for obtaining required variances prior to submitting CIP drawings to the utilities.

5. SMALL PLAN REVIEW

This section includes guidelines for other streetlighting projects that are not included with Capital Improvement Projects or new residential or commercial developments. These streetlighting projects must adhere to the information contained in these guidelines and will be reviewed by the COP Planning and Development Department (PDD). For information or questions regarding streetlight design, please contact (602) 262-7223 or go to the following website: <https://www.phoenix.gov/pdd/topics/street-lights>.

5.1. STREETLIGHT POLE RELOCATION

Small scale plan review is a process established for a resident that wants to install one new streetlight or move one existing streetlight adjacent to their property and/or to convert from overhead electric lines to underground lines that feed an existing streetlight.

- 5.1.1. The resident shall submit a request to the COP Planning & Development Department with associated fees that describes in detail the streetlight changes they are requesting and the reason for the changes. The submittal request shall include the following information in the cover letter.
 - a. Property owner
 - b. Address
 - c. Telephone number
 - d. Legal description of the property/parcel
 - e. Adjacent street classification
 - f. Power company provider
 - g. Overhead or underground power
 - h. Contractor
 - i. Materials to be used

- j. Pole manufacture date (stamped on pole)
 - k. Note if existing light pole is in concrete surface
 - l. PDD/KIVA permit number (if available)
- 5.1.2. The resident shall prepare a site plan or plot plan on one single 8-1/2" by 11" or 11" by 17" sheet including the information listed below. A sample plan submittal is included in appendix B.
- a. Property lines
 - b. Existing Right-of-Way
 - c. Adjacent roadway(s)
 - d. Roadway width
 - e. Public Utility Easements (if applicable)
 - f. Property dimensions
 - g. Property setbacks (if applicable)
 - h. Sidewalk (attached or detached from curb) (if applicable)
 - i. Home position
 - j. Driveway position
 - k. Area parcel number (APN) of the impacted lot and any adjacent lots
 - l. Overhead and underground utilities
 - m. Existing streetlight pole location and material type
 - n. New streetlight pole location
 - o. Distance from existing impacted streetlight to adjacent streetlights
 - p. Existing fencing and/or walls
 - q. Existing vegetation, including trees, located on both sides of new pole location
 - r. Any existing or proposed body of water (pool or ponds)
- 5.1.3. The resident shall describe the changes that are being requested to the existing streetlight system with all neighbors that are within a 100-foot radius of the impacted streetlight. The resident shall have the neighbors sign a petition that shows they are in favor of the changes. This petition shall be submitted to the City with the site plan. A copy of the petition can be found on the City's website at: <https://www.phoenix.gov/streets/reference-material>.

5.2. LOT SPLITS

Lost splits occur when a larger lot is split into two or more smaller lots.

- 5.2.1. Prior to approval for a lot split, the COP Street Transportation Department will perform a streetlight spacing analysis to determine if one or more new streetlight poles are required to meet the design requirements included in Section 1 of these Guidelines.
- 5.2.2. If the Street Transportation Department determines that additional streetlight poles are required, the owner or developer of the property is required to design and submit streetlighting plans in accordance with the requirements set forth in Sections 1, 2 and 3 of these Guidelines.

ADAPTIVE REUSE

Adaptive reuse is a program that allows customers to adapt older buildings for new business uses.

- 5.2.3. If offsite improvements are made as part of an adaptive reuse project, streetlighting is required. The COP Street Transportation Department will perform a streetlight spacing analysis to determine if one or more new streetlight poles are required to meet the design requirements included in Section 1 of these Guidelines.
- 5.2.4. If the Street Transportation Department determines that additional streetlight poles are required, the owner or developer of the property is required to design and submit streetlighting plans in accordance with the requirements set forth in Sections 1, 2 and 3 of these Guidelines.

APPENDIX A:

**STREETLIGHT LOCATION LAYOUTS
AT TRAFFIC CALMING INSTALLATIONS**

Table of Contents:

Figure A-1: Football Island

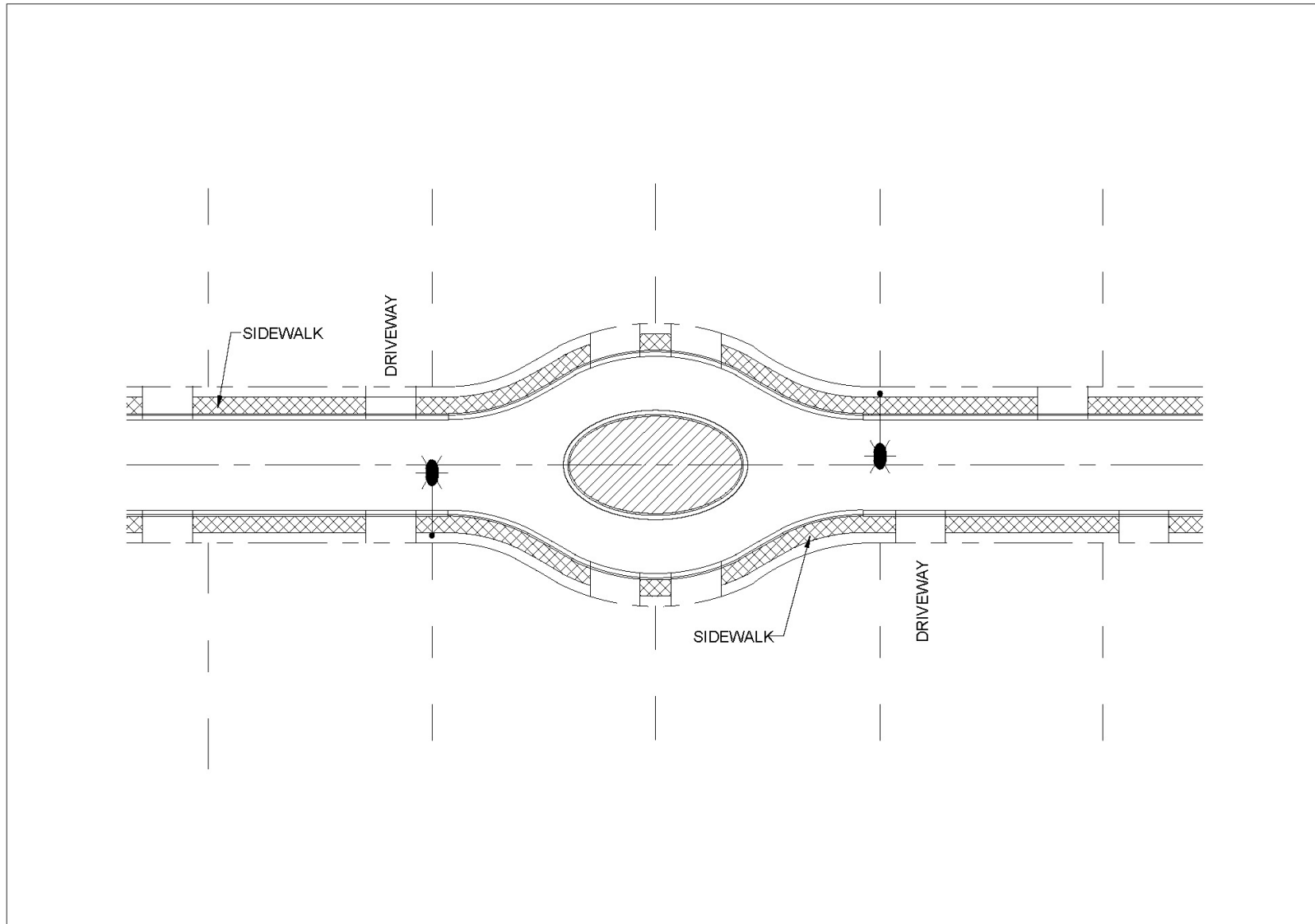
Figure A-2: Baseball Island

Figure A-3: Choker

Figure A-4: Chicane

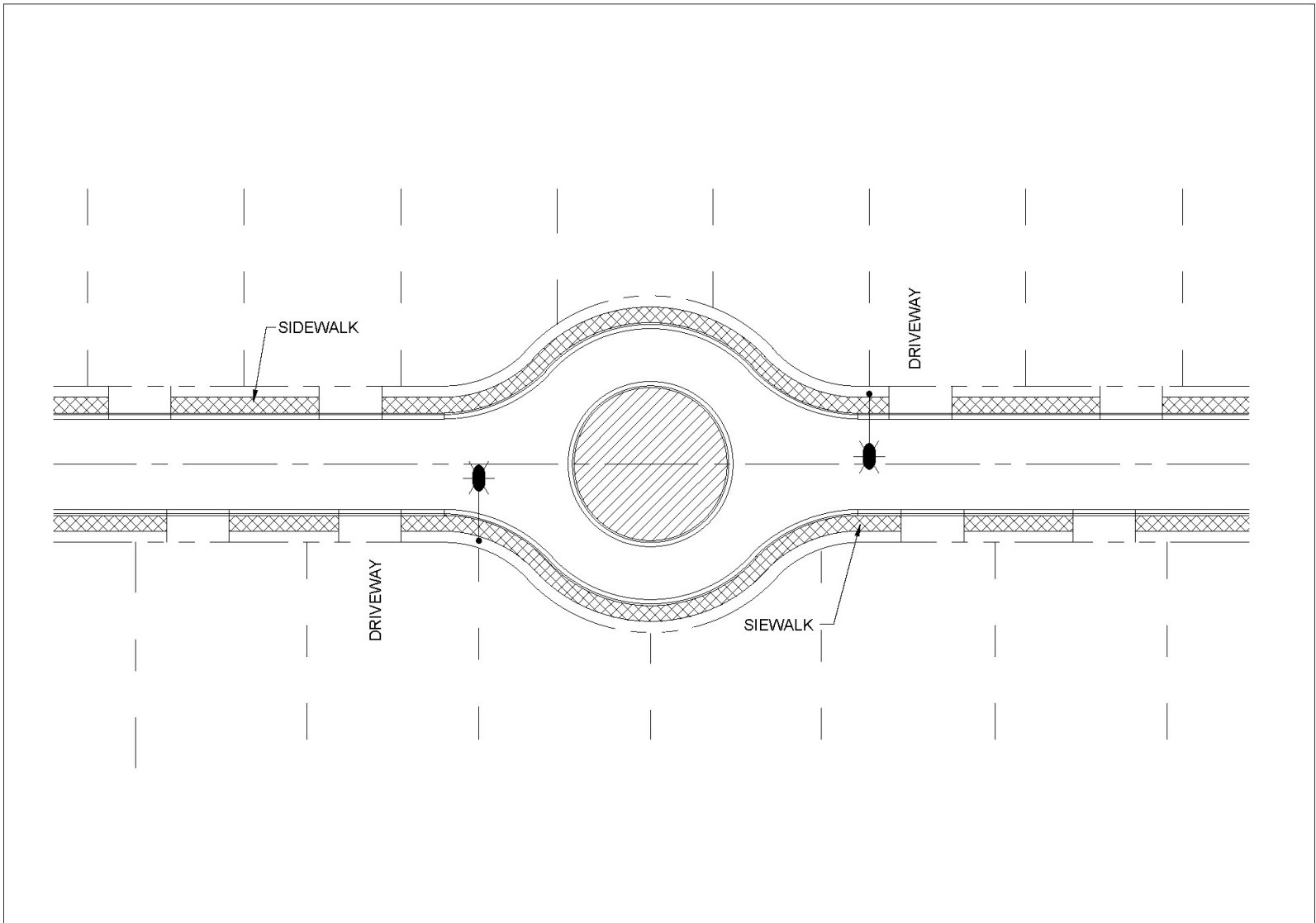
Figure A-5: Semi-Diverter

Figure A-1: Football Island



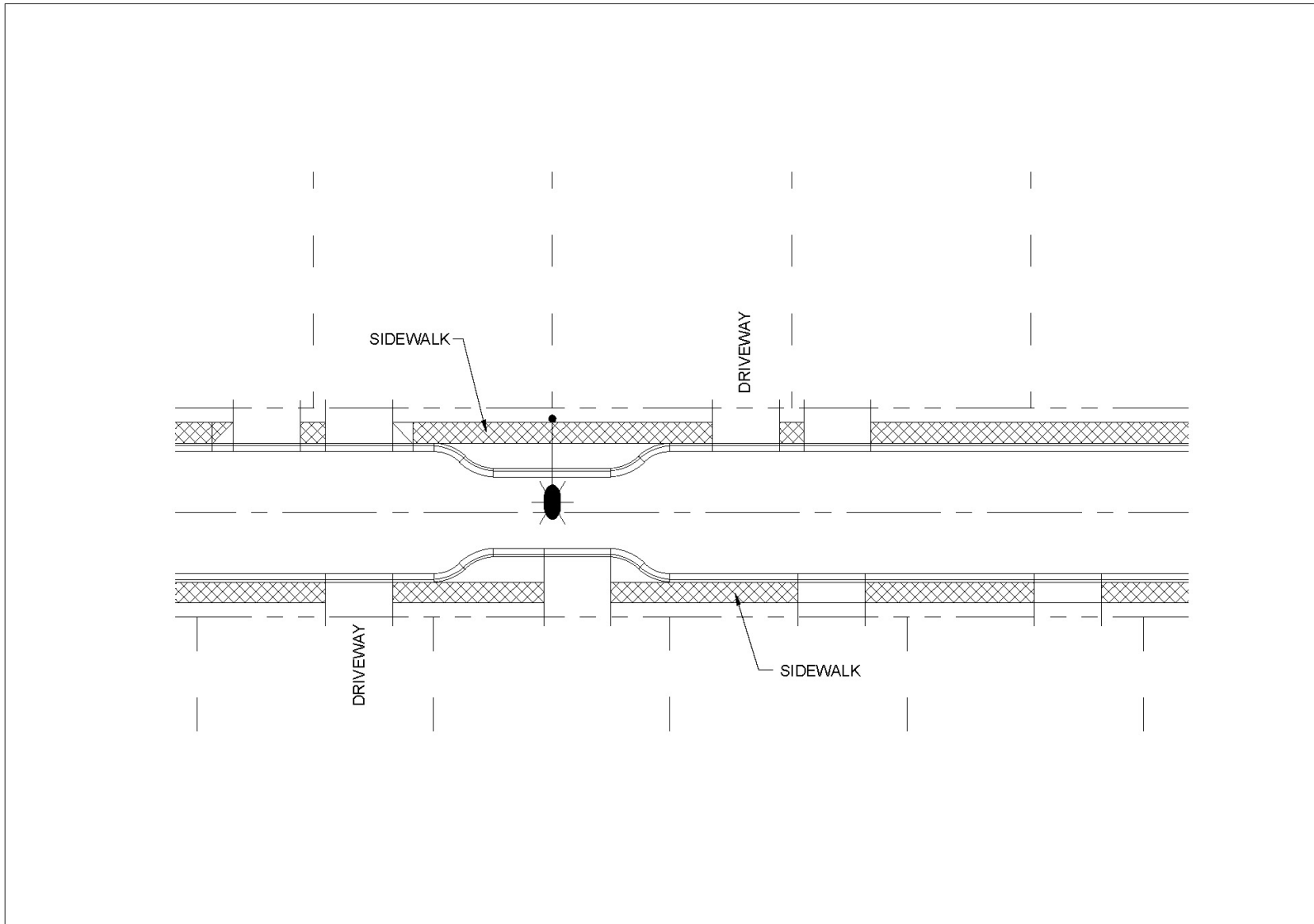
A-1	<p>STREETLIGHT DESIGN GUIDELINES FIGURE A-1: FOOTBALL ISLAND</p>	<p>05/01/19 Not to Scale</p>
-----	--	----------------------------------

Figure A-2: Baseball Island



A-2	STREETLIGHT DESIGN GUIDELINES FIGURE A-2: BASEBALL ISLAND	05/01/19 Not to Scale
-----	--	--------------------------

Figure A-3: Choker



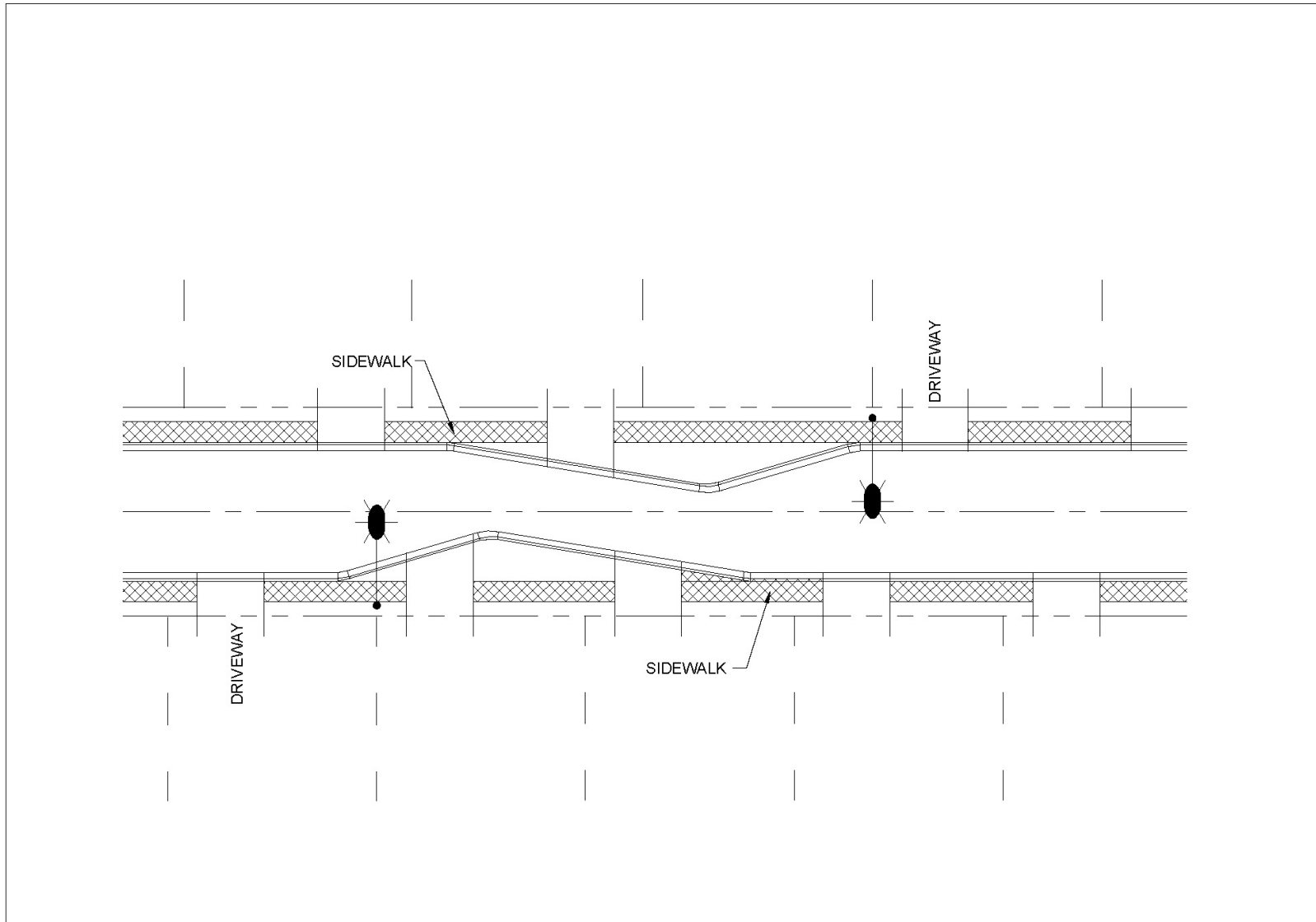
A-3

STREETLIGHT DESIGN GUIDELINES
FIGURE A-3: CHOKER

05/01/19

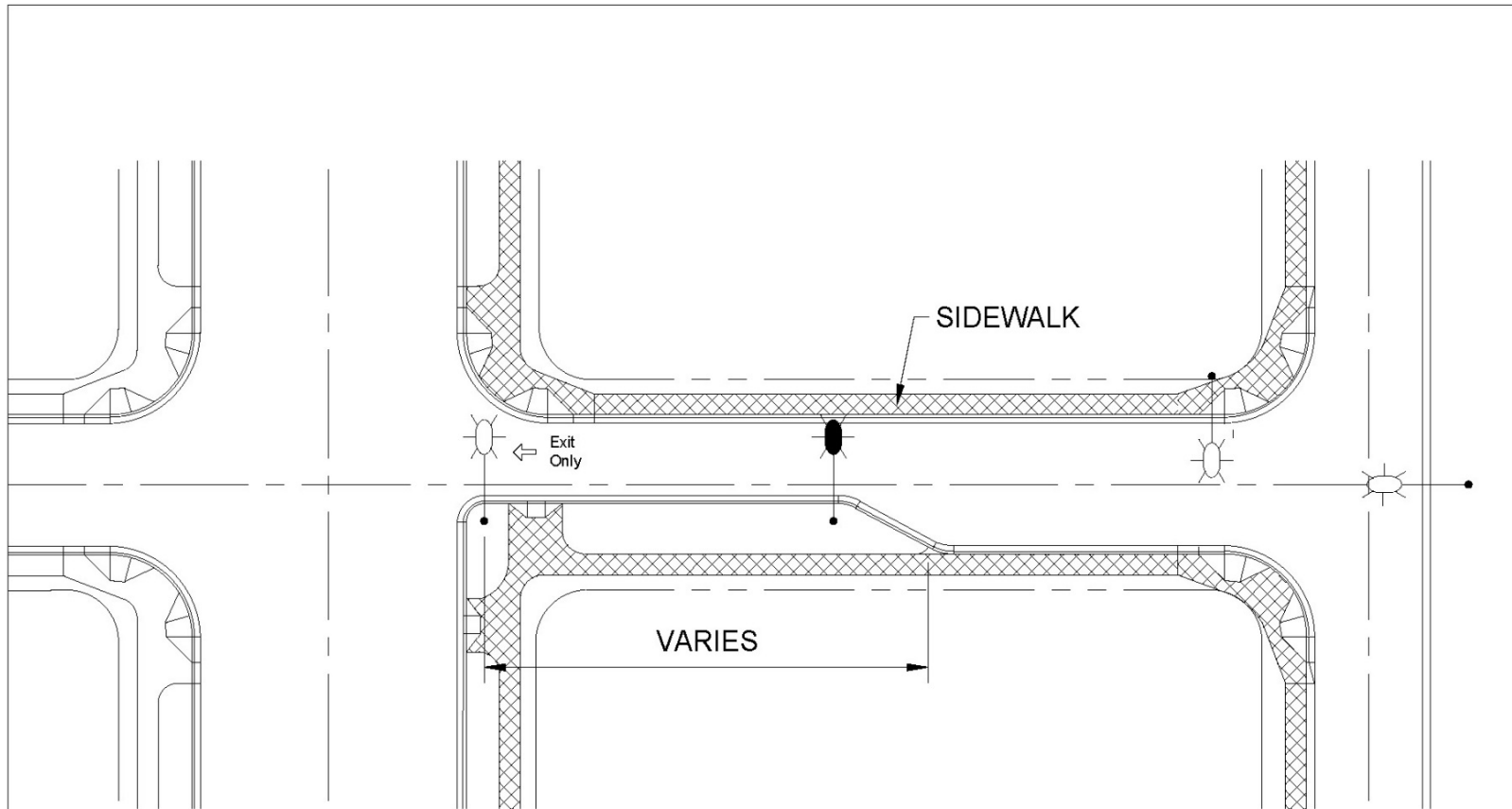
Not to Scale

Figure A-4: Chicane



A-4	STREETLIGHT DESIGN GUIDELINES FIGURE A-4: CHICANE	05/01/19 Not to Scale
-----	--	--------------------------

Figure A-5: Semi-Diverter



A-5

STREETLIGHT DESIGN GUIDELINES
FIGURE A-5: SEMI-DIVERTER

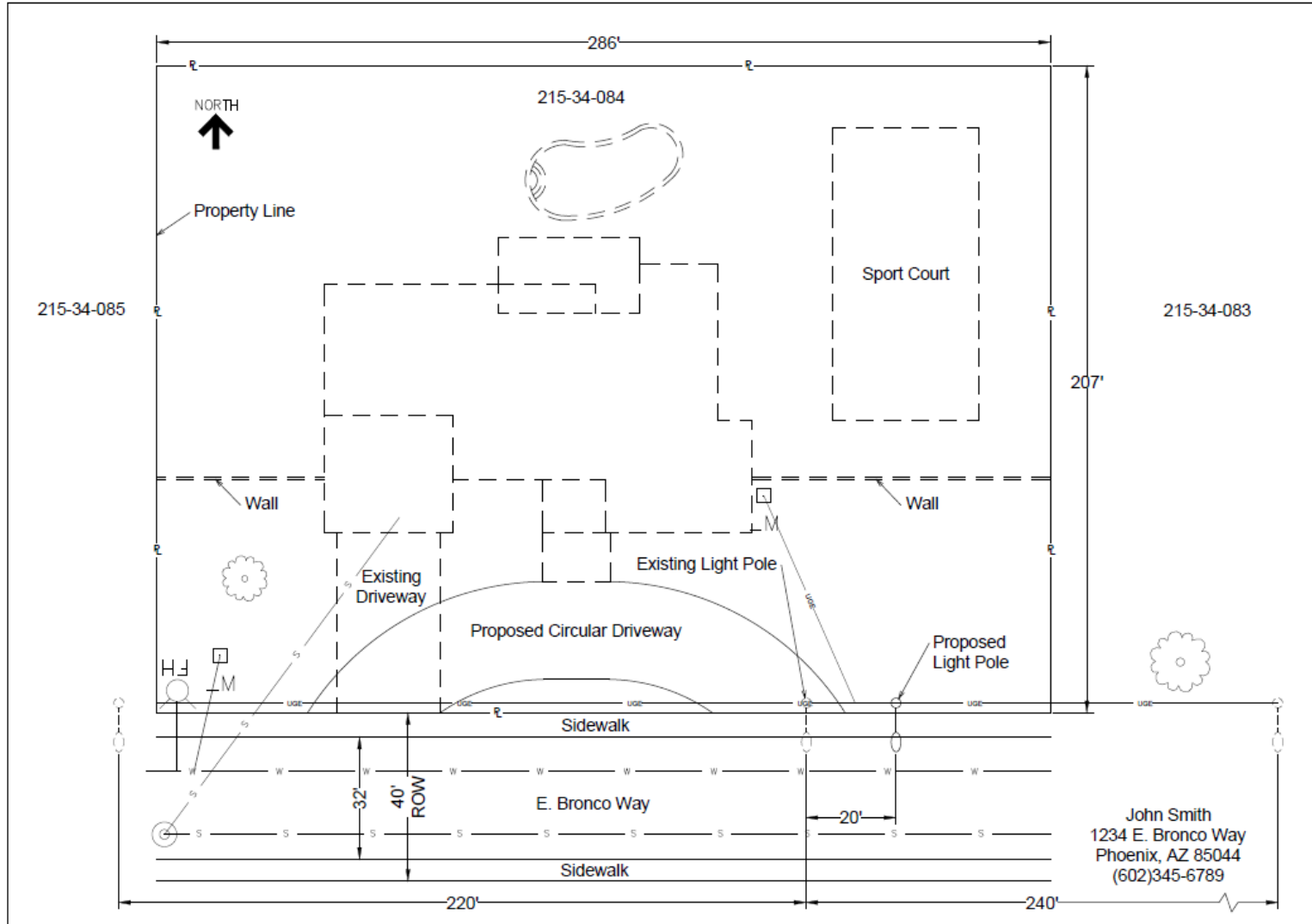
05/01/19

Not to Scale

APPENDIX B:

SAMPLE PLAN SUBMITTAL FOR SINGLE LOT REVIEW

Figure B-1: Sample Plan Submittal for Single Lot Review



B-1	<p align="center">STREETLIGHT DESIGN GUIDELINES</p> <p align="center">FIGURE B-1: SAMPLE PLAN SUBMITTAL FOR SINGLE LOT REVIEW</p>	<p align="right">05/01/19</p> <p align="right">Not to Scale</p>
-----	---	---