



Small Cell Wireless on Metal Streetlight Poles

1/11/2024 Rev 1

T&D Standard

LC11570-PUB

IMPORTANT: Do not use this document until you verify it is the version with the most recent date.

PURPOSE

This standard covers requirements for the installation of small wireless facilities co-located on PGE owned metal streetlight poles.

SAFETY

Safety is a foremost concern in all our work. To ensure that you work safely, make sure that you are familiar with the [PGE Safety Manual](#); follow [Six Safety Rules to Live By](#) and safe work practices; and understand applicable PGE standards.

REFERENCES

LC11550	Streetlight Underground Installations
LC21001	Transformer Vault Designs: Transformers and Equipment In or On Vaults

GENERAL INFORMATION

This standard is intended for use by PGE Design Project Managers (DPMs), Wireless Construction Managers, Lighting Services, engineers, line crews, and contractors installing co-located small wireless facilities on underground-fed metal streetlight poles. The construction objective is to replace the existing PGE streetlight poles with specialty poles that are designed and manufactured for the additional equipment and the associated load. Once installed, the new pole will become the property of PGE. Where conflict exists between requirements, PGE standards will always take priority. This standard will be used in conjunction with [LC11550](#).

NOTE: Wireless streetlight poles are custom made and are NOT a PGE stock item.

INSTALLATION

SERVICE TO STREETLIGHT POLES WITH SMALL CELL ANTENNAS

Two types of metal/fiberglass streetlights allow small cell antennas in PGE service territory.

NOTE: Should a carrier wish to co-locate on an existing Option B pole, the respective municipality will be required to decide if the pole will be converted to an Option A or an Option C.

- **Option A Streetlights:** These are owned and maintained by PGE. Service requirements for Option A streetlights are listed in the Service to Aluminum or Decorative Streetlight Poles section in [LC11550](#). Customers must provide certain items for these antennas; see [Customer-Provided Items for Small Antennas on Option A Streetlights](#).
- **Option C Streetlights:** These are installed, owned, and maintained by the customer. Service requirements for Option C streetlights are listed in the Service to Customer-Owned Streetlights section in [LC11550](#). Customers must provide certain items for these antennas; see [Customer-Provided Items for Small Antennas on Option C Streetlights](#).

A 1-inch duct must be used for all service to small cell equipment. See the Duct Requirements section in [LC11550](#) for additional information.

NOTE: [Figure 1](#) and [Figure 2](#) show how small cell antennas and streetlights will receive electrical service. Infrastructure ownership for each option is also displayed.

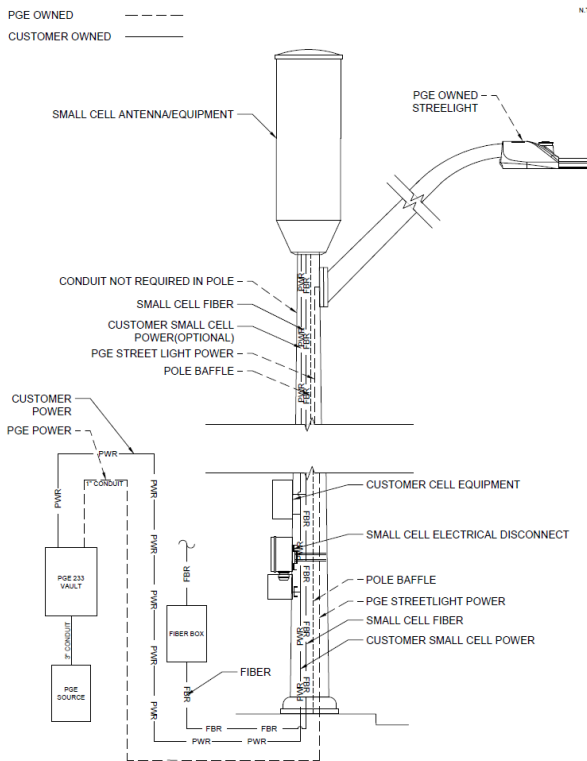


Figure 1. Electrical Service for Option A (PGE-Owned Small Cell Metal/Composite Streetlight Poles)

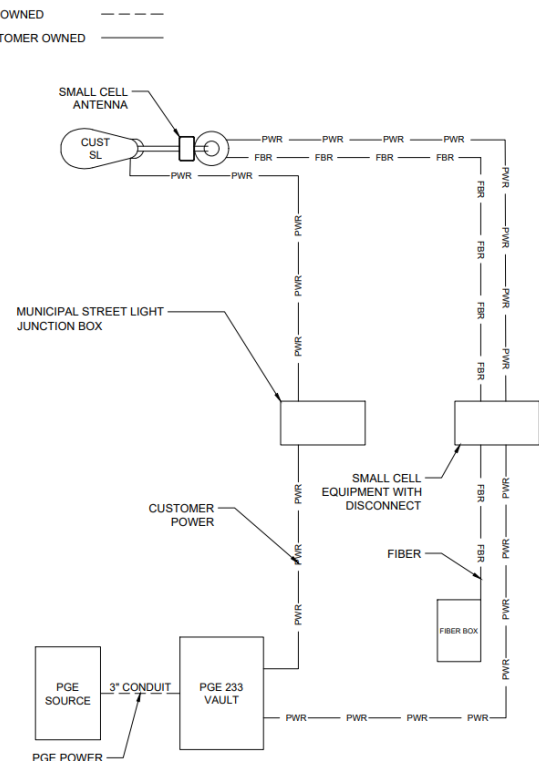


Figure 2. Electrical Service for Option C (Customer-Owned Poles)

CUSTOMER-PROVIDED ITEMS FOR SMALL CELL ANTENNAS ON OPTION A STREETLIGHTS

The customer must provide and install the following for a small cell antenna on an Option A streetlight:

- A PGE-approved 233 vault, if required. The vault must be installed 4 to 8 feet from the pole and have a lid labeled ELECTRIC. The vault will be owned and maintained by PGE.
- If the secondary conductor powering the proposed cell site is buried cable, the carrier will be responsible for the expense of bringing the conductor to current standards.
- A 1-inch SCH 40 PVC duct between the 233 vault and the streetlight luminaire.
- All additional ducts needed for secondary cables.
- PVC, rigid steel, or approved fiberglass sweeps, with a minimum 36-inch radius. Rigid steel or approved fiberglass sweeps are required for runs of 150 feet or longer, or for a run of any length that has more than 180 degrees in bends. When all the bends in a conduit are added up, the sum must not exceed 270 degrees.

- A 500-pound-rated pull line in the customer's duct for use with PGE-owned conductors.
- A physical barrier (a.k.a. baffle) between the PGE electrical service and the customer electrical service.

CUSTOMER-PROVIDED ITEMS FOR SMALL CELL ANTENNAS ON OPTION C STREETLIGHTS

The customer must provide and install the following for a small cell antenna on an Option C streetlight:

- A PGE-approved 233 vault, if required. The vault must be installed 4 to 8 feet from the pole and have a lid labeled ELECTRIC. The vault will be owned and maintained by PGE.

SERVICE TO CUSTOMER-OWNED STREETLIGHTS

For more information about energy service to customer-owned streetlights, see [LC11550](#).

SERVICE FOR OPTION A WITH CO-LOCATED STREETLIGHT SYSTEM AT BEGINNING OF STREETLIGHT RUN

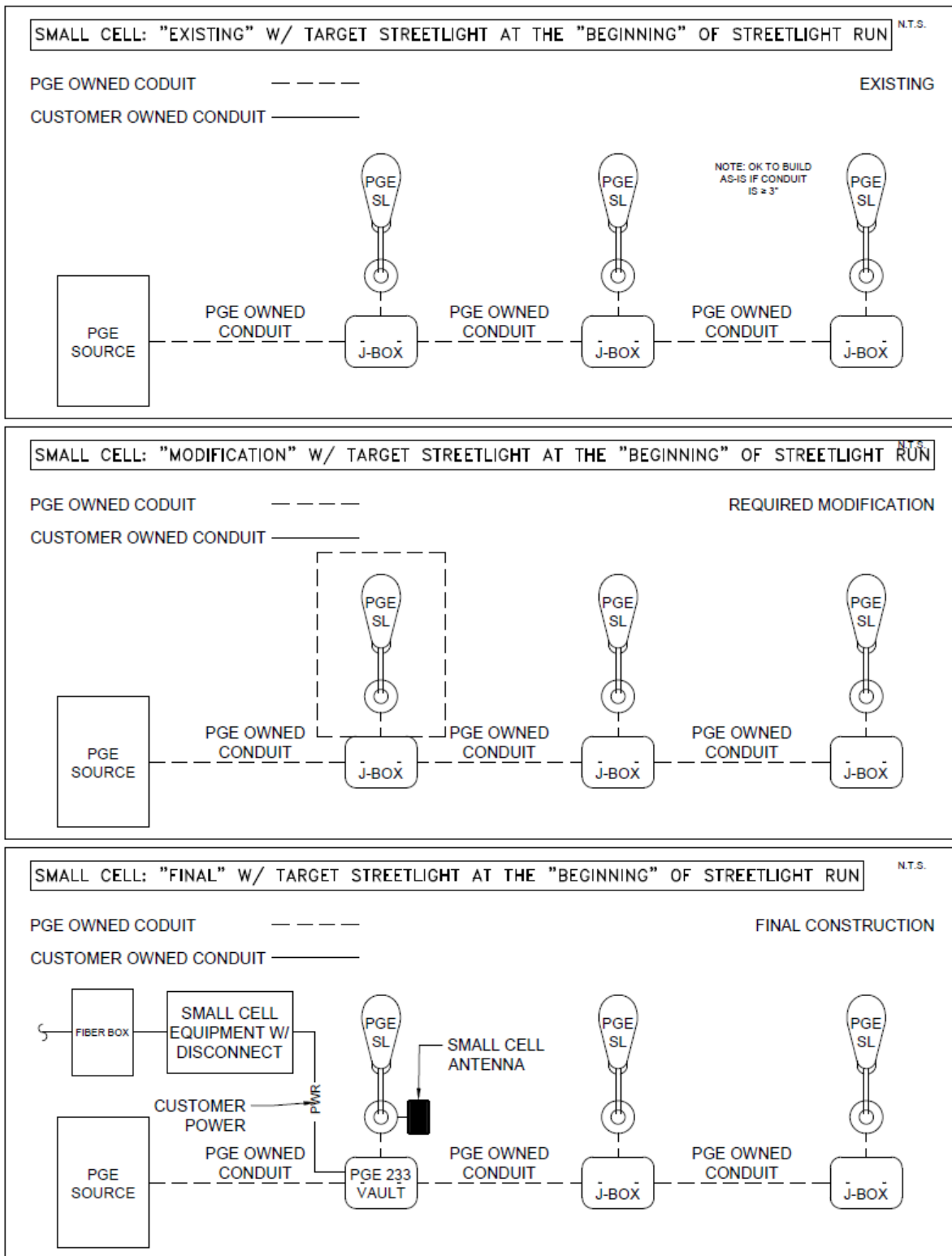


Figure 3. Electrical Service for Option A with Co-located Streetlight System AT BEGINNING of Streetlight Run

SERVICE FOR OPTION A WITH CO-LOCATED STREETLIGHT SYSTEM IN STREETLIGHT RUN

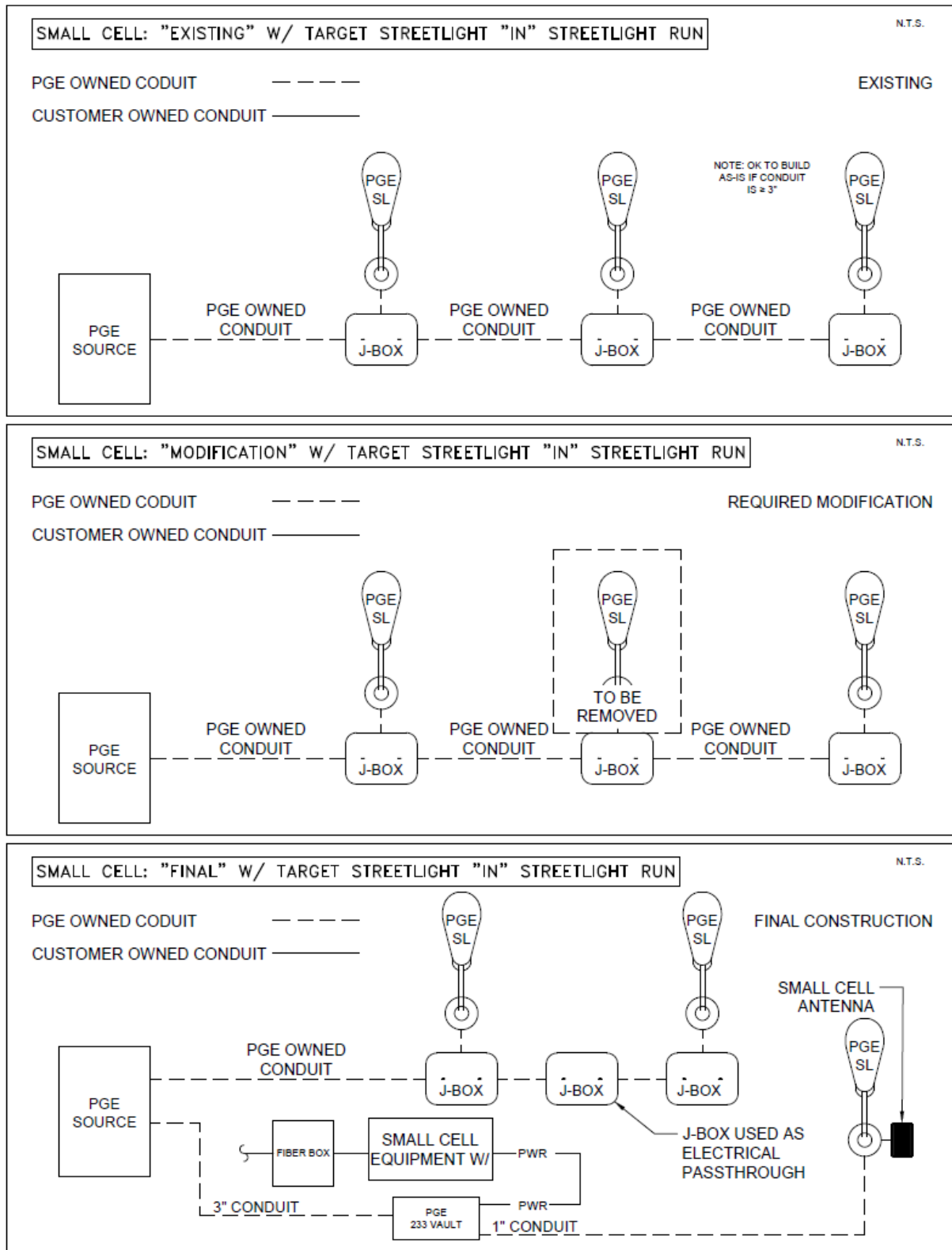


Figure 4. Electrical Service for Option A with Co-located Streetlight System IN Streetlight Run

SERVICE FOR OPTION A WITH CO-LOCATED STREETLIGHT SYSTEM AT END OF STREETLIGHT RUN

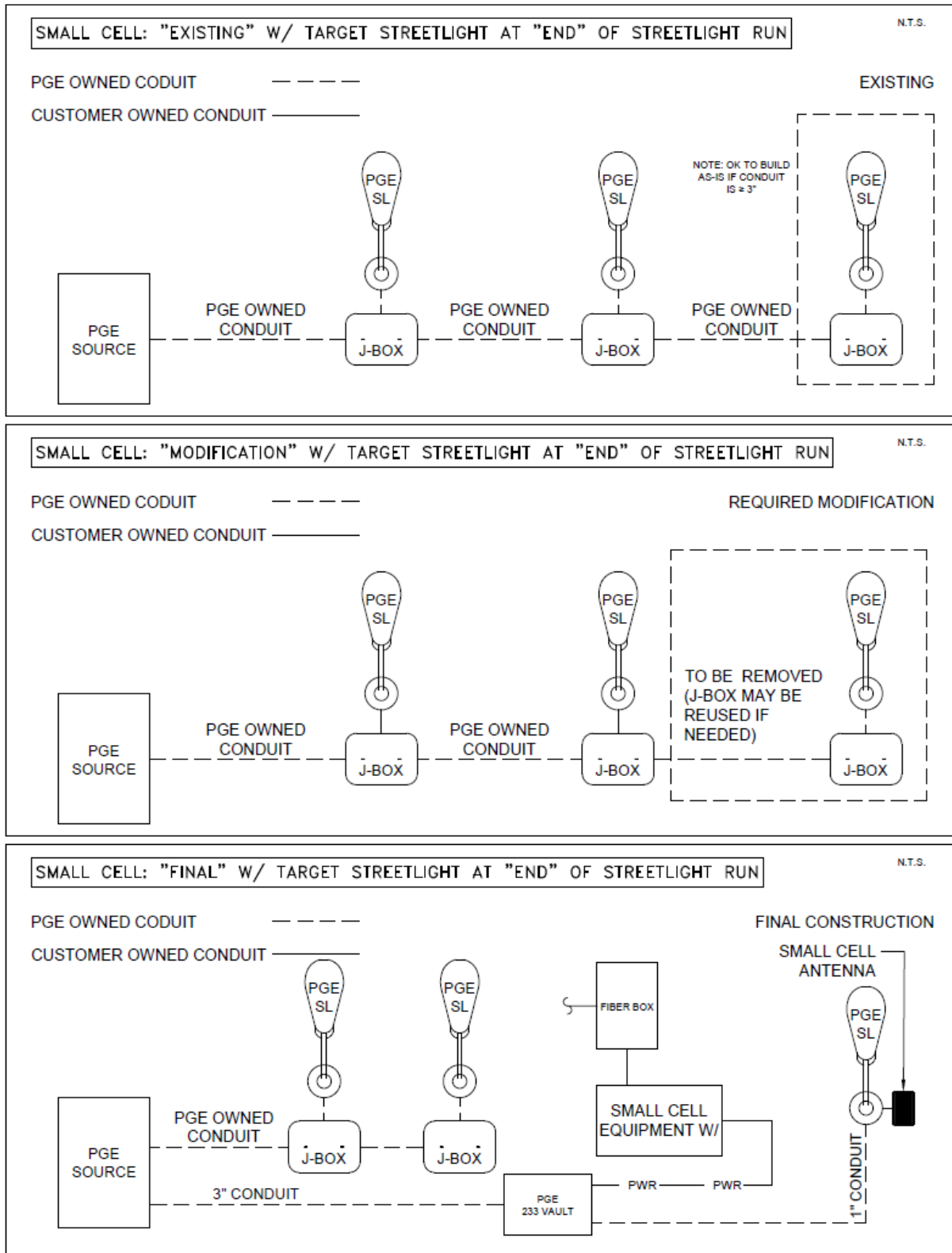


Figure 5. Electrical Service for Option A with Co-located Streetlight System AT END of Streetlight Run

RESPONSIBILITY MATRIX

Figure 6 and Table 1 below describes responsibility for the various points of construction, inspection, maintenance, and removal of unused facilities.

PGE OWNED -----
 CUSTOMER OWNED _____

N.T.S.

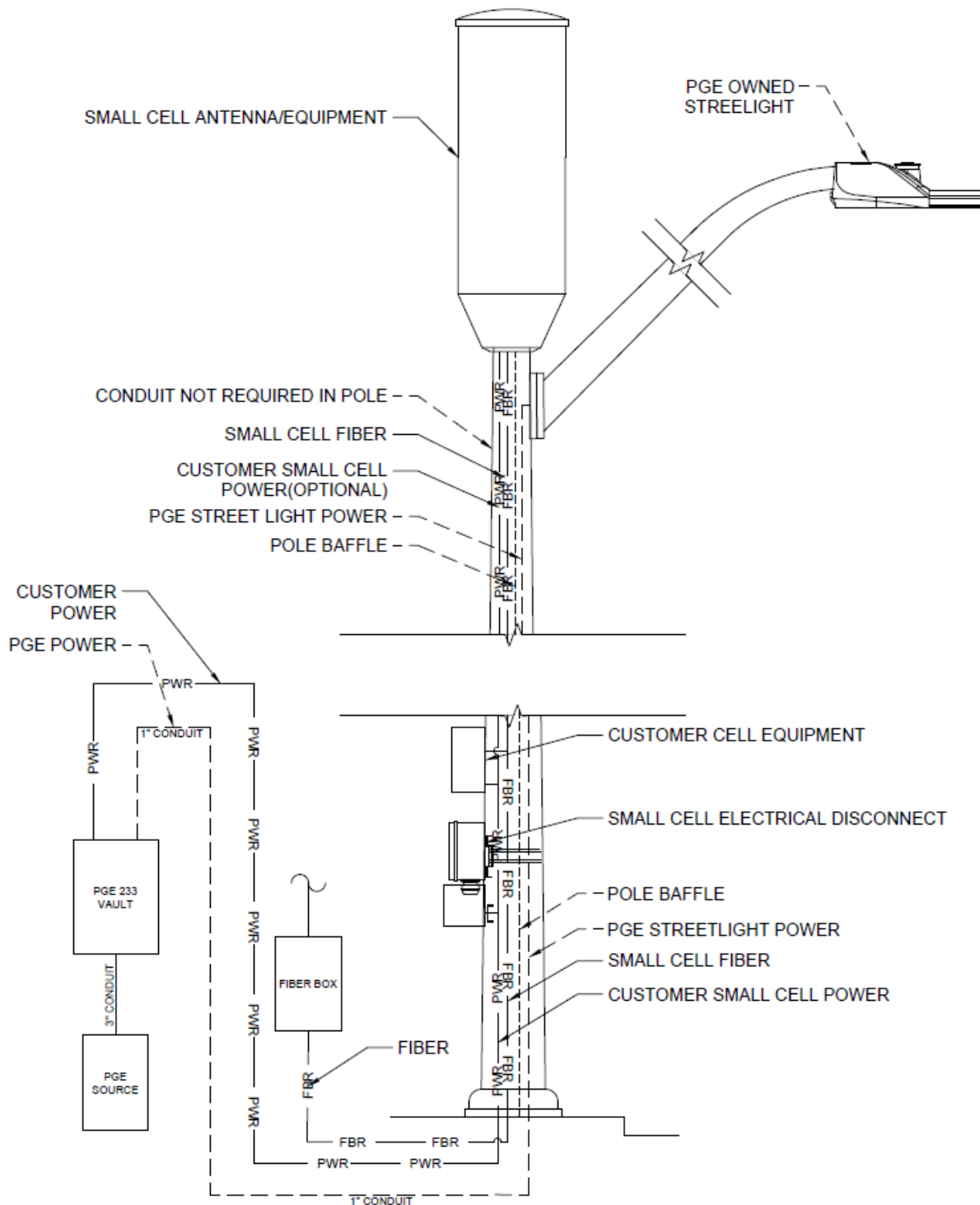


Figure 6. Responsibility Matrix for PGE-Owned Small Cell Streetlights

Table 1. Responsibility Matrix for PGE-Owned Small Cell Streetlights

Point	Conduit/ Junction Box Installation	Conductor/ Fiber Installation	Inspection	Streetlight/ Small Cell Installation	Removal of Unused Facilities	Maintenance
A	Customer	PGE	PGE Service Inspector/FCC (Inspected on CMDEV WO*)	N/A	PGE removes conductor, Customer removes conduit	PGE
B	Customer	PGE	PGE Service Inspector/FCC (Inspected on CMDEV WO*)	N/A	PGE	PGE
C	Customer	PGE	PGE Service Inspector/FCC (Inspected on CMDEV WO*)	N/A	PGE removes conductor, Customer removes conduit	PGE
D	Customer	Customer (PGE crew to connect inside 233 vault)	PGE Service Inspector/FCC (Inspected on CMDEV WO*)	N/A	Customer	Customer
E	Customer	Customer	PGE Wireless PM/ Possible municipal inspector depending on municipality	N/A	Customer	Customer
F	N/A	PGE	PGE Wireless PM/ Possible municipal inspector depending on municipality	PGE/PGE Contractor	PGE/PGE Contractor	PGE
G	N/A	N/A	PGE Wireless PM/ Possible municipal inspector depending on municipality	Customer	Customer	Customer

* Commercial development work order.

DAMAGED POLE PROCESS

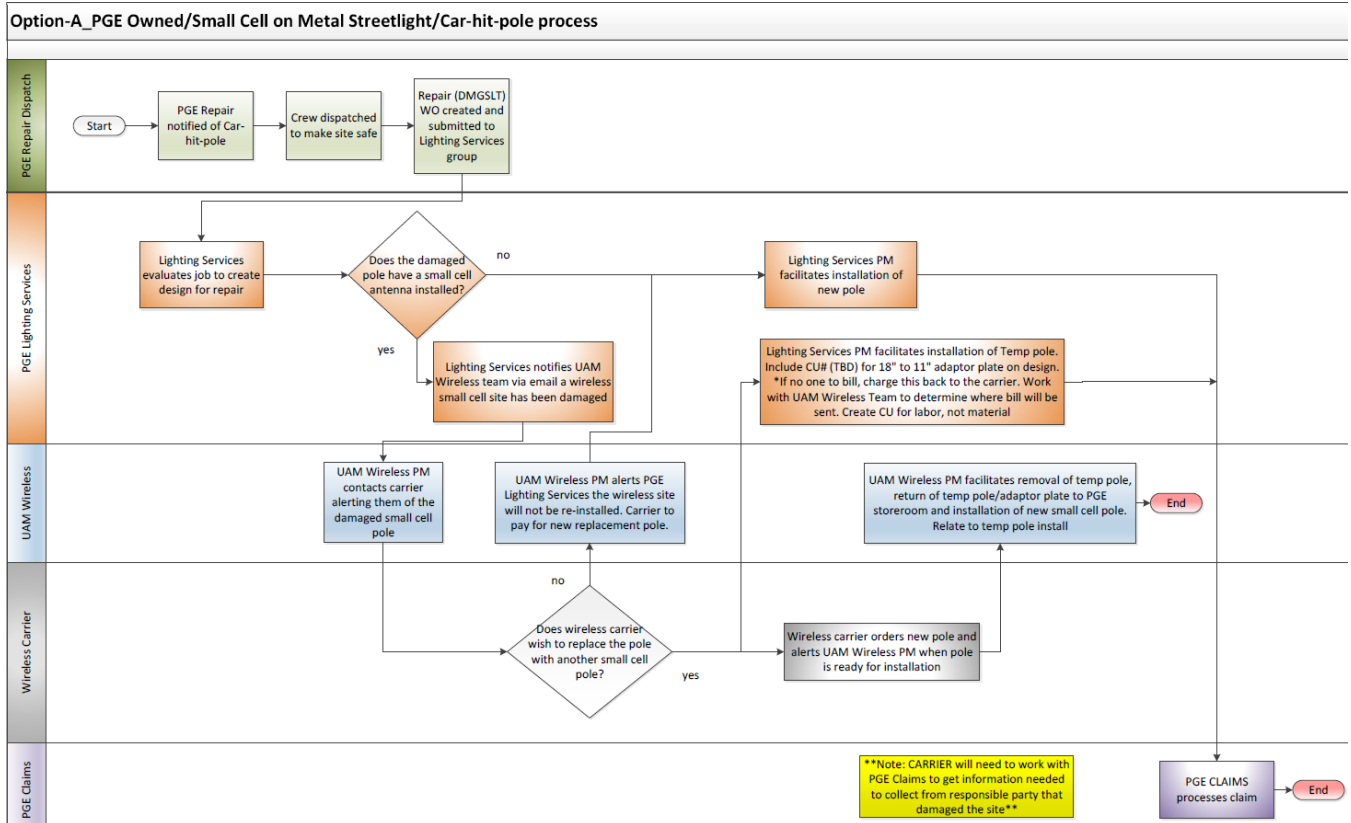


Figure 7. Damaged Pole Process Chart

ADDITIONAL INSTALLATION NOTES:

- Pole design shall be approved and stamped by an Oregon state-licensed Professional Engineer. This design will also include a passing structural analysis report.
- All bases will be prefab, no pour-in-place.
- An optional 18" to 11" Bolt-Circle Adaptor Plate may be installed. Designed for situations where a small-cell wireless pole is damaged, and there is an existing base with an 18" bolt-circle. This adaptor plate facilitates the temporary installation of a standard 11" bolt-circle PGE streetlight pole, enabling continued streetlight operation while the cell carrier arranges for a replacement pole. See [Figure 8](#), [Figure 9](#), and [Figure 10](#) for images, engineered drawings, and application guidelines.



Figure 8. 18" to 11" Bolt-Circle Adaptor Plate

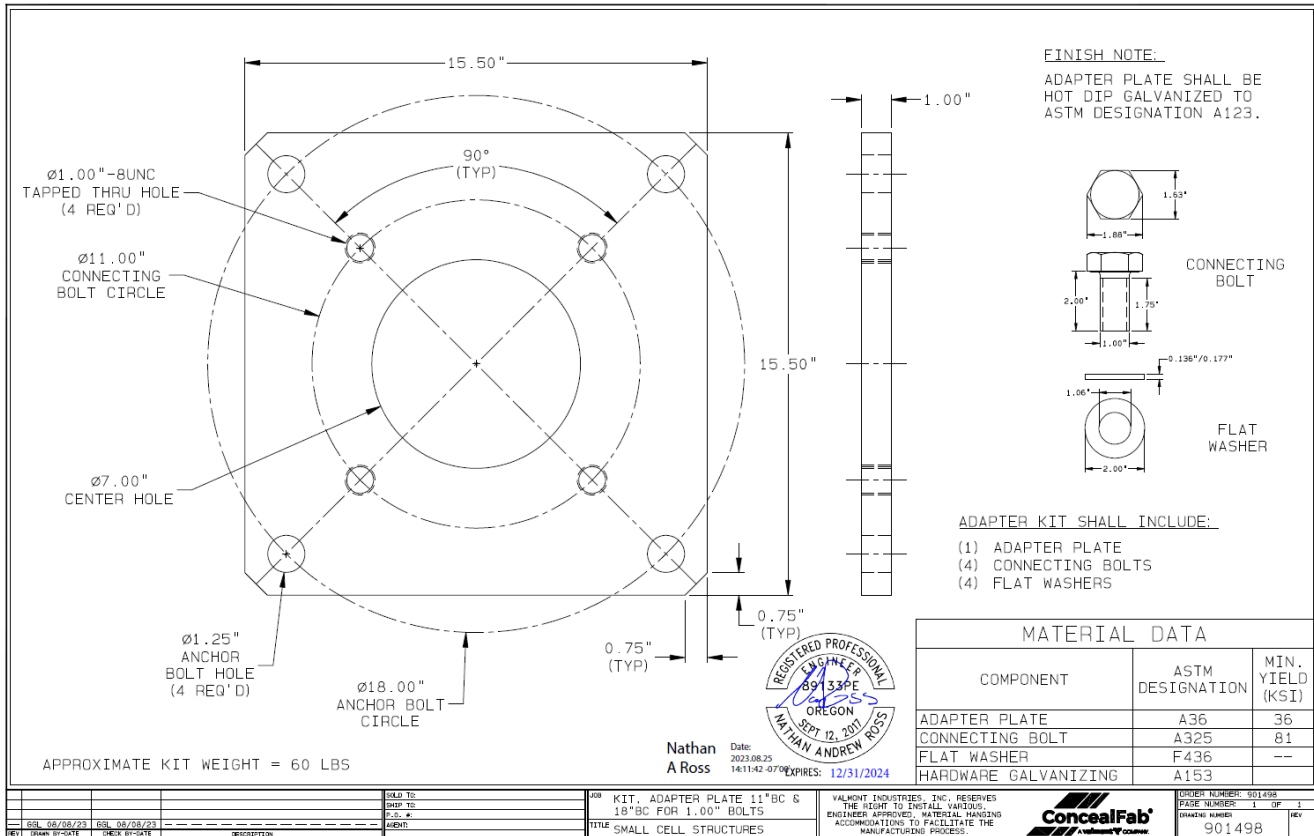


Figure 9. 18" to 11" Adaptor Plate Engineered Drawings

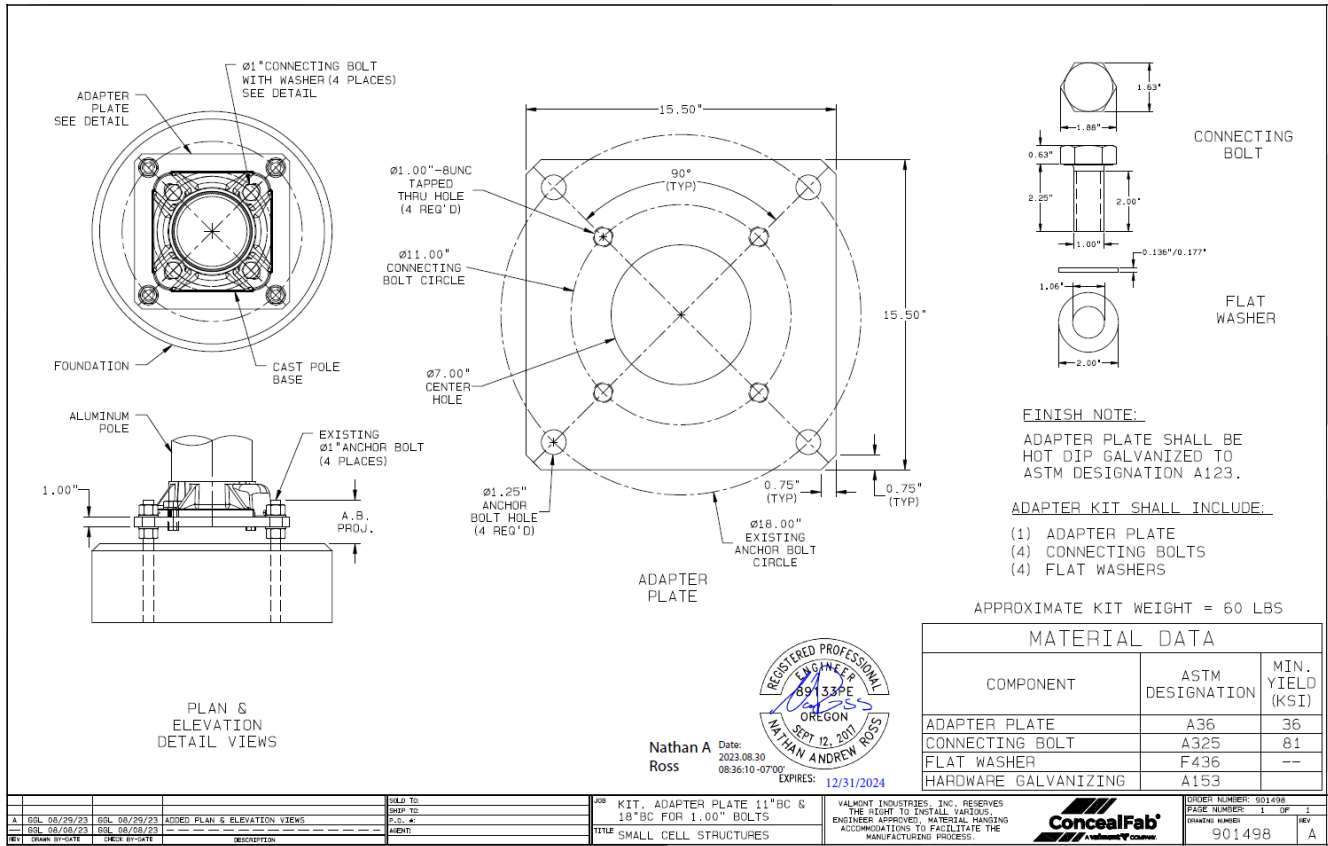


Figure 10. 18" to 11" Adaptor Plate Application Details

REVISION TABLE

Rev. No.	Revision Date	Reason for Revision	Affected Pages
0	11/29/2023	Issued for implementation by Utility Standards Engineering.	ALL
1	1/11/2024	Changed figures 1–6 and text from 3" duct to 1" where applicable.	2, 4–7