

SECTION 00 73 21

UTILITY CROSSINGS SPECIFICATIONS (Effective January 2019)

SECTION U1. SUPPORT, WORK AROUND, AND PROTECT EXISTING UTILITY COMPANY FACILITIES-GENERAL SPECIFICATIONS

I. General

Contractor shall support, work around, and protect Pacific Gas and Electric Company (PG&E), Pacific Bell Telephone Company D/B/A AT&T California (AT&T), and Comcast Corp. (Comcast) facilities, as applicable, where shown on the Drawings or where directed, at utility crossings which exist within the excavations and interfere with the prosecution of the work because of their presence.

This Section covers supporting documentation required from Contractor and direct payment by Utility Company to the Contractor for all costs incurred as a result of the work performed by the Contractor to support, work around and/or protect Utility Facility within the Project Limit.

A "Utility Crossing" is defined as any facility (Utility Main, Duct Structure, or Service) located within the excavation area, where the facility will remain in place and will not be relocated, abandoned in place, or removed.

If provided by the Utility Companies prior to advertisement of this Contract, Utility Contract Drawings showing Utility Crossings will be incorporated into the Contract Drawings. Utility facilities which the Utility Company intends to adjust or abandon thus eliminating the need for Contractor to support, work around, or protect will also be shown. Estimates of the cost of Utility Crossing work will be included with the Drawings.

Within 45 calendar days of notification of the award of the City contract, PG&E, AT&T, and Comcast, as applicable, will execute a payment agreement with the Contractor and will pay said Contractor directly for the work of supporting, working around, and protecting such facilities, according to the Cost of Fixed Price Schedule, hereinafter set forth. The Utility Company is not required to accept or pay invoices submitted to Utility Company by a subcontractor. Prime contractor will not be allowed to mark up the invoices for the support and work around costs from the Subcontractor.

Work at crossings of other non-governmental utility company facilities in public streets shall be in accordance with the provisions of Section 00 73 20, Article 1.5, unless otherwise specified.

Any PG&E, AT&T, and Comcast, or other non-governmental facilities, as applicable, that require relocation to avoid physical conflict with the facilities to be constructed under this Contract will be relocated by the appropriate Utility Company in accordance with the requirements of Section 00 73 20, Article 1.5, or treated as otherwise allowed therein.

Fixed Price Schedule

Utility Crossings where the length of the Facility is not more than 3 times the width of the excavation for excavation widths less than 18 feet, shall be priced pursuant to the Fixed Price Schedules hereinafter set forth, and submitted to the Utility Company for payment.

Excavation width will be the outside diameter or width of the City structure plus 3 feet. The length of a Utility Crossing is the centerline distance, in feet, of the portion of the Facility within the excavation area.

Utility Co. Facility Support, Etc., Work Located in Contract but Utility Contract Drawings Omitted from Contract

In the event that Utility Contract Drawings from PG&E, AT&T, and Comcast, as applicable, are not included in the Contract but the Estimate and General Location of the Support, Work Around and Protect Work are known and included in the Contract, all such work performed will be paid for by the Utility according to the Cost of Fixed Price Schedule hereinafter set forth.

Abandoned and other facilities which the DPW Standard Specifications provide may be cut or treated by Contractor at its expense are excluded from this coverage.

Utility Co. Facility Support, Etc., Work Overlooked, Unexpected, and Not Shown on Utility Contract Drawings, but Ownership Known

Support, Work Around and Protect Work for those Utility Crossings overlooked, unexpected, and not shown on Utility Contract Drawings and Estimates will be paid for by the Utility Company according to the Cost of Fixed Price Schedule hereinafter set forth plus an additional fifteen (15) percent surcharge for Contractor's profit and overhead.

Abandoned and other facilities which the DPW Standard Specifications provide may be cut or treated by Contractor at its expense are excluded from this coverage.

No Surcharge for Certain Work

Due to urgent and contingency nature of the following contracts and related work, an additional fifteen percent (15%) surcharge does not apply:

- Emergency Contract Work
- As Needed Contracts including As Needed Spot Sewer Repair and Job Order Contracts
- Added Scope (Via Change Order or Addendum)
- Work performed under conditional Bid items

Negotiated Payment

Notwithstanding the Fixed Price Schedules hereinafter set forth, the Utility Company and the Contractor shall directly negotiate the costs for other crossings and encroachments including following:

- "Parallel" Utility Crossings,
- Utility Crossings with lengths more than three times the width of the excavation, and/or
- Where the computed cost of any crossing exceeds \$10,174.

If a utility facility is located longitudinally and directly on top of the City trench or multiple utility facilities crossing the City trench are located too close to each other leaving no space in between for the Contractor to excavate and shore the trench, and there is a need to change the construction method to install City facilities, the increased cost shall be shared by various utility agencies and City based on the number and size of each Utility agency or City department facilities.

Duct Structure

Duct structure is one or more ducts, conduits or pipes, of any size, or a combination of such ducts, conduits or pipes, which are grouped together but which may or may not be banded, encased in concrete, or otherwise incorporated into a solid unit.

Nested Utility Facilities

Nested utility facilities are defined as facilities six- inches (6") or less in outside diameter or width and are less than 3 feet clear distance from each other regardless of ownership. In the case of nested facilities, each crossing shall be paid for according to the Cost of Fixed Price Schedule reduced by 33-1/3%.

Abandoned or Inactive/Deactivated FacilitiesAbandoned Facilities

Utility Company identifies abandoned facilities as facilities that they have stopped using with the intent of never using again. Utility Company may, but is not required to, specify abandoned facilities on its utility contract drawings. If City Contractor encounters unidentified utility company facility during construction, Contractor shall notify the Utility Company in accordance with paragraph "Unexpected or Unidentified Facilities". The Utility Company Inspector shall visit the site within the time mentioned to confirm that the facility is abandoned. If the Utility Company fails to confirm that facility is abandoned, the contractor will receive full payment per Fixed Price Schedule for support, work around and protect work performed.

Inactive/Deactivated Facilities

Utility Company identifies Inactive/Deactivated facilities as facilities that they have temporarily stopped using with the possible intent of future use. Utility Company will specify on its utility contract drawings Inactive Facilities. The Contractor will perform Utility Company Reimbursed Work around Inactive Facilities unless otherwise instructed by the Utility Company on the Utility Contract Drawings.

Flushing

Within 48 hours of the Utility Company's receipt of notice pursuant to paragraph "Unexpected or Unidentified Facilities", the Utility Company will either flush or inform the Contractor that the Utility Company has already flushed all Abandoned gas Facilities or Inactive/deactivated gas Facilities prior to removal by the Contractor.

Removal of Abandoned Facilities or Inactive Facilities

If necessary to construct City Project, the removal of Abandoned Facilities, and Inactive Facilities that the Company specifies on its Utility Contract Drawings that it intends to abandon will be at the Contractor's sole expense, except for removal of PG&E and AT&T owned duct banks, and conduits or pipes larger than twelve-inch (12") in outside diameter. Utility Company and the Contractor will negotiate the cost for removal of such PG&E and AT&T duct banks, and conduits or pipes larger than twelve-inch (12") in diameter.

Any increase in the cost of the Contractor's operations occasioned by the presence and/or removal of other abandoned subsurface facilities shall be handled in accordance with section 700.09 of the DPW Standard Specifications.

Payment Only for Work Performed by the Contractor

The Utility Company will not pay the Contractor unless actual work to support, work around and/or protect Utility Company's Facilities was performed. No payment shall be due to the Contractor if the Utility Company crews respond and are supporting, working around, and/or protecting their Company's Facilities, such as in an emergency, or if the Contractor does not actually perform any work or undertake any action to support, work around or protect the Utility Company's Facilities.

Third Party Insurance

The Contractor shall provide third party insurance naming the affected Utility Company or Utility Companies in addition to the City as an insured against claims for property damage and personal liability arising directly or indirectly from Utility work performed by the Contractor.

II. Contract Activities**The Contractor Measurement**

The Contractor shall measure the outside diameter or width of Utility Crossings to the nearest inch (outside diameter **excluding** any fittings, bells, or gate valves) and length of the Utility Crossings to the nearest foot to determine the cost of each Utility Crossing according to the Fixed Price Schedule hereinafter set forth.

Utility Company's Right of Confirmation

The Utility Company shall have the right to confirm measurements with the Contractor but all disagreements shall be resolved without delay to the City Project.

Variations and Cost Adjustments

The Contractor shall notify the Utility Company immediately of any variation of Utility Crossings from the Utility Contract Drawings and/or estimate that require cost adjustment and such cost adjustments shall be settled within no more than two business days without delay to the City Project. Contractor shall also notify the City Representative immediately of any such variations, and any disagreement between Contractor and the Utility Companies regarding Utility Crossings will be decided prior to backfilling by the Director of Public Works or his or her designated City representative. The decision of the Director of Public Works will be final. The Contractor's only recourse is to file a claim.

Verification and the Contractor Itemization

Contractor shall keep an itemized record of the Utility Crossing work done, noting any variations from the Utility Contract Drawings and Estimates. The itemized record shall be maintained and copies submitted monthly to Company and the City as the City Contract work progresses, or as otherwise agreed by Company and City Contractor.

Supporting Documentation for City Projects other than Spot Sewer Repair Contracts

The Contractor shall, at a minimum, submit the following supporting documentation with each invoice submitted to the Utility Company for payment:

- Utility Facility Crossing Support and Work Around Summary and "Drawing for Support and Work Around Invoice for Utility Facilities" identifying Company reimbursed work by type of facility, and shall include following:
 - Identification of all Utility Crossings by alpha-numerical numbering system (e.g., E1, E2, G1, G2);
 - Location and size of all Utility Crossings
 - Length of all Utility Crossings
- Photos of following Utility Crossings:
 - Utility Crossings where the size of the Facility varies from that shown on Utility Contract drawings or estimates; any change of measurement requires one photo per block per size variation.
 - Utility Crossings not shown on Company's Utility Contract Drawings or estimates.
 - Parallel Utility Crossings showing measurements and potential facilities support
 - Utility Crossings six-feet (6') or longer unless:
 - Shown on Utility Contract Drawings and/or estimates and no variance.
 - Facility is a lateral that is crossing the City main facility trench having 6 feet or greater trench width and crossing length does not exceed the trench width.

Supporting Documentation for Spot Sewer Repair Contracts

The Contractor shall, submit following documentation with each invoice submitted to the Company for payment for Spot Sewer Repair Contracts:

- Utility Facility Crossing Support and Work Around Summary.
- "Drawing for Support and Work Around Invoice for Utility Facilities" identifying company reimbursed work by block, type of facility and shall include following:
 - Identification of all Utility Crossings by alpha-numerical numbering system (e.g., E1, E2, G1, G2);
 - Location and size of all Utility Crossings

- Length of all Utility Crossings.
- Invoice and as-built templates should be utilized and all information filled out in its entirety (e.g. City Representative's Name and Signature, Date, the Contractor's Full Name, Signature, etc.)
- Photos of following Utility Crossings:
 - All Duct Bank Structures and related measurements
 - All Utility Crossings six-feet (6') or greater in length
 - All unmarked active Utility Crossings that are supported
 - Each utility that varies in size and/or location from USA street marking(s).
- Underground Service Alert ticket number

Photos

All photos must include:

- Label with Utility Crossing Reference Number
- Name of Street or Intersection
- Above-ground picture that includes a landmark (street sign, or house) that helps identify location of the crossing.

Unexpected or Unidentified Facilities

If, during the course of the work, an unexpected or unidentified interference is discovered, the Contractor shall immediately call this fact to the attention of all Utility Companies, including appropriate City Departments. The City Departments and Utility Company shall have 48 hours from receipt of such notification including at least 8 working hours to determine ownership and provide direction to the Contractor for disposition of the facility which are not in direct conflict with City Project work and can be supported, worked around and protected in the trench. However, if the unidentified facility is in direct physical conflict with the City Project work and the Contractor cannot proceed further without resolution, the Utility Company and City Departments will visit the site as soon as possible within the 24 hours from receipt of such notification to determine ownership and provide direction to the Contractor. The time allowance shall include at least 8 working hours. If the ownership of the unidentified facility is unknown, the Contractor shall call Underground Service Alert (USA) requesting Utility Agencies to visit the site to identify the ownership. If no determination can be made after the aforementioned procedure is followed, the Contractor will follow the direction of the City Representative or authorized designee. Disposition shall be in accordance with the applicable requirements of Section 00 73 20, Article 1.5, if such facilities are owned by companies other than PG&E, AT&T, and Comcast. If ownership is by one or more of PG&E, AT&T, and Comcast, disposition shall be as hereinbefore set forth under the heading, "Utility Co. Facility Support, Etc., Work Overlooked, Unexpected, and Not Shown on Utility Contract Drawings, But Ownership Known."

Progress Payments

Progress payment for the utility crossing work done shall be made by Company within ninety (90) days of receipt of an invoice from the Contractor submitted along with the supporting documentation listed above.

III. METHOD OF DETERMINING UTILITY CROSSING COSTS

Fixed Price Schedule (Effective January 2019)

The cost of support, work around and protection of utility mains, duct structures and services shall be based on the outside diameter or width of said Facilities and the length of the Utility Crossing.

In the following schedules the maximum outside diameter shall mean outside diameter of pipe, conduit, service, duct or main **excluding** any fittings, bells, or gate valves, and width shall mean the distance measured horizontally across the duct structure.

$$\text{Cost of Utility Crossing} = \text{Fixed Cost} + \text{Support Cost}$$

Group I: Length of Crossing less than Six (6) Feet

Maximum Outside Diameter Of Main And Service Or Width Of Duct Structure	Fixed Cost	Support Cost Per Foot of Length of Crossing
4 inches or less	\$572	0
Over 4 inches to 20 inches	\$572 + \$95 per inch over 4 inches	0
Over 20 inches	\$2,097 + \$159 per inch over 20 inches	0

Group II: Length of Crossing Six (6) Feet to Twelve (12) Feet

Maximum Outside Diameter Of Main And Service Or Width Of Duct Structure	Fixed Cost	Support Cost Per Foot of Length of Crossing Over Six Feet
4 inches or less	\$731	\$95
Over 4 inches to 20 inches	\$731 + \$102 per inch over 4 inches	\$95
Over 20 inches	\$2,186 + \$159 per inch over 20 inches	\$95

Group III: Length of Crossing greater than Twelve (12) Feet

Maximum Outside Diameter Of Main And Service Or Width Of Duct Structure	Fixed Cost	Support Cost Per Foot of Length of Crossing Over Twelve Feet
4 inches or less	\$1,303	\$127
Over 4 inches to 20 inches	\$1,303 + \$114 per inch over 4 inches	\$127
Over 20 inches	\$3,133 + \$191 per inch over 20 inches	\$159

SECTION U2. SUPPORT, WORK AROUND, AND PROTECT EXISTING PACIFIC GAS AND ELECTRIC COMPANY (PG&E) UNDERGROUND FACILITIES - STANDARD TECHNICAL SPECIFICATIONS

The requirements for supporting, working around, and protecting existing Pacific Gas and Electric Company (PG&E) underground electric, gas and steam facilities are as follows:

For pipe and conduit in sizes up to and including 6 inches inside diameter, spans of less than 6 feet shall be considered self-supporting unless otherwise directed by the City or by the PG&E inspector through the City Representative. Spans of 6 feet and more, but not to exceed 12 feet, shall be supported by a beam with at least one cable and turnbuckle. For spans over 12 feet, an additional cable and turnbuckle shall be installed for each additional 6 feet or fraction thereof of span. Cables and turnbuckles shall be located to support

joints, valves and other fittings. Cast iron joints and valves, where encountered, shall be supported on both sides.

For pipe and conduit in sizes larger than 6 inches inside diameter, spans shall be supported by beams with cables and turnbuckles located at intervals not to exceed ten times the diameter of the pipe measured in inches, unless otherwise directed by the City or PG&E inspector through the City Representative. Cable and turnbuckles shall be located to support joints, valves, and other fittings. Cast iron joints and valves, where encountered, shall be supported on both sides.

Concrete-encased duct lines and/or concrete-encased steam lines shall not be considered as self-supporting, but may be so designated by the City or PG&E inspector through the City Representative, upon a visual examination of the concrete envelope.

Beams, cables and turnbuckles for supporting steel pipe and/or conduit shall be adequately sized to limit the deflection so as not to exceed length of span in feet divided by 360.

Length of span in feet

Beams, cables and turnbuckles used for supporting cast iron pipe shall be adequately sized to insure that no deflection will occur.

Beams, cables and turnbuckles used for supporting concrete encased duct lines and/or concrete encased steam lines shall be adequately sized and spaced to insure that no deflection will occur.

For multi-way conduits, spacers shall be placed to maintain conduit separation at point of support. 2-inch x 4-inch wood softeners shall be used with all cable slings to prevent damage to pipe, coating, wrapping or concrete encasement. However, slings supporting unreinforced concrete encased pipe must also incorporate strongbacks to prevent cracking of concrete.

Contractor shall exercise due care to avoid damage to pipe and pipe coatings, wrapping or concrete encasement. Should Contractor damage or displace any PG&E facility Contractor shall notify the PG&E immediately by calling Gas Dispatch at 995-5666 (gas and electric facilities). Repairs or replacements will be made by the PG&E. However, all expenses in connection therewith shall be borne solely by Contractor. Contractor shall notify the PG&E Inspection Department at 695-3358 one week prior to excavating so that all crossings can be verified.

SECTION U3. SUPPORT, WORK AROUND, AND PROTECT EXISTING PACIFIC BELL TELEPHONE COMPANY D/B/A AT&T CALIFORNIA (AT&T) UNDERGROUND FACILITIES - STANDARD TECHNICAL SPECIFICATIONS

General

The requirements for supporting, working around, and protecting existing AT&T underground facilities are as follows:

Requirements for Supporting AT&T Ducts

A single duct spanning less than 6 feet shall be considered self-supporting unless otherwise directed by the City or by the AT&T inspector through the City Representative.

A single duct spanning more than 6 feet shall be supported by a beam with at least one cable and turnbuckle. For spans over 12 feet, an additional cable and turnbuckle shall be installed for each additional 6 feet or fraction thereof of span. Cables and turnbuckles shall be located to support duct joints.

Duct structures consisting of 2 or more single ducts not encased in concrete and spanning more than 4 feet, shall be banded with at least 2 bands and supported by a beam with at least one cable and turnbuckle. For spans over 8 feet, an additional set of bands, cable and turnbuckle shall be installed for each additional 4 feet or fraction thereof of span. Banding of ducts shall be done in such a manner as to not distort the normal configuration of the structure.

Duct structures consisting of 2 or more single ducts, encased in concrete and spanning more than 4 feet, shall be supported by a beam with at least one cable and turnbuckle. For spans over 8 feet, an additional cable and turnbuckle shall be installed for each additional 4 feet or fraction thereof of span.

Multiple-duct structures of vitrified clay and/or concrete shall be supported for the complete width of the trench. The support shall consist of planking or beams equal in width to the width of the structure and banded to it. This structure in turn shall be supported by a beam with at least one cable and turnbuckle placed every 4 feet or fraction thereof so as to maintain the existing position and alignment of the duct structure.

Duct structures consisting of dissimilar conduit materials shall be supported in the manner applicable to the most fragile portion of the structure.

Requirements for Protecting AT&T Ducts

Single ducts shall be protected if required. This determination will be made by the City or by the AT&T inspector through the City Representative.

Duct structures having top and bottom wood planking or encased in concrete will not require additional protection unless otherwise directed by the City or by the AT&T inspector through the City Representative.

All other multiple duct structures, with the exception of steel pipe in good condition, shall be protected by the placement of wood planking or sheeting no less than 1/2-inch in thickness and equal in width to the width of the structure.

Damage or Displacement of AT&T Facilities

Should Contractor damage or displace any AT&T owned facility, the Cable Maintenance Department of AT&T shall be notified immediately by calling 863-6906. Repairs or replacements will be made by AT&T. However, all expenses in connection therewith shall be borne solely by Contractor.

SECTION U4. SUPPORT, WORK AROUND, AND PROTECT EXISTING COMCAST CORP. (COMCAST) UNDERGROUND FACILITIES - STANDARD TECHNICAL SPECIFICATIONS

General

The requirements for supporting, working around, and protecting existing Comcast underground facilities are as follows:

Requirements for Supporting Comcast Corp. Ducts

A single duct spanning less than six (6) feet shall be considered self-supporting, unless otherwise directed by the Comcast engineering coordinator or the Comcast inspector, through the City Representative.

A single duct spanning more than six (6) feet shall be supported by a beam with at least one cable and turnbuckle. For spans over twelve (12) feet, an additional cable and turnbuckle shall be installed for each additional six (6) feet or fraction thereof of span. Cables and turnbuckles shall be located to support duct joints.

Duct Structures consisting of two (2) or more single ducts spanning more than four (4) feet shall be banded with at least two (2) bands and supported by a beam with at least one (1) cable and turnbuckle. For spans over eight (8) feet an additional set of bands, cable, and turnbuckle shall be installed for each additional four (4) feet or fraction thereof of span. Banding of ducts shall be done in such a manner as to not distort the normal configuration of the structure.

Duct structures consisting of dissimilar conduit materials shall be supported in the manner applicable to the most fragile portion of the structure.

Requirements for Protecting Comcast Ducts

Single ducts shall be protected if required. This determination will be made by the Comcast engineering coordinator or by the Comcast Corp. inspector, through the City Representative.

Duct Structure having top and bottom wood planking will not require additional protection unless otherwise directed by the Comcast engineering coordinator or the Comcast Corp. inspector through the City Representative.

All other multiple duct structures shall be protected by the placement of wood planking or sheeting no less than 1/2-inch in thickness and equal in width to the width of the structure.

Damage or Displacement of Comcast Facilities

Should Contractor damage or displace any Comcast owned facility the proper authorities shall be notified immediately by calling (888) 824-8219. Repairs or replacements will be made by Comcast. However, all expenses in connection therewith shall be borne solely by Contractor.

SECTION U5. SUPPORT, WORK AROUND, AND PROTECT EXISTING MUNI TRANSIT POWER (MTP) UNDERGROUND FACILITIES - STANDARD TECHNICAL SPECIFICATIONS

General

The requirements for supporting, working around, and protecting existing Muni Transit Power (MTP) underground conduit and ducts are as follows:

Requirements for Supporting MTP Conduits and Ducts

Steel conduit spanning less than six feet shall be considered self-supporting unless otherwise directed by the City or by the MTP inspector through the City Representative.

Steel conduit spanning six feet and more shall be supported by a beam with at least one cable and turnbuckle. For spans over 12 feet, an additional cable and turnbuckle shall be installed for each additional six feet or fraction thereof of span. Cables and turnbuckles shall be located to support duct joints.

Beams, cables and turnbuckles for supporting steel conduit shall be adequately sized to limit the deflection so as not to exceed length of span in feet divided by 360.

Spacers shall be placed between multiple conduits in a manner to maintain conduit separation at points of support.

Concrete-encased ducts spanning more than four feet shall be supported by a beam with at least one cable and turnbuckle. For spans over eight feet, an additional cable and turnbuckle shall be installed for each additional four feet or fraction thereof of span for the complete width of the excavation.

Beams, cables and turnbuckles for supporting concrete-encased duct lines shall be adequately sized and spaced to insure that no deflection will occur.

Contractor shall provide adequate support and protection to prevent differential movement at the juncture of manholes and duct banks.

Duct structures consisting of dissimilar conduit materials shall be supported in the manner applicable to the most fragile portion of the structure.

Requirements for Protecting MTP Conduits and Ducts

Steel conduit shall be protected if required. This determination will be made by the City or by the MTP inspector through the City Representative.

Duct structures having top and/or bottom wood planking or encased in concrete will not require additional protection unless otherwise directed by the City or by the MTP inspector through the City Representative.

All other duct structures, such as unprotected tile and the like, shall be adequately protected by the placement of wood planking or sheeting no less than 1/2-inch in thickness and equal in width to the width of the structure. The top, bottom and sides shall be covered as necessary, depending on Contractor's operations and the conditions of the work.

Damage or Displacement of MTP Facilities

Should Contractor damage or displace any MTP-owned facility, the General Superintendent of Facilities Maintenance shall be notified immediately by calling 554-9221. Repairs or replacements will be made by MTP. However, all expenses in connection therewith shall be borne solely by Contractor.

Conduits to Pole Risers to be Considered as Services

For the purpose of payment, conduits that run directly from a manhole or pull box to a pole riser shall be considered to be a service and will be paid for according to the Cost of Utility Crossing Schedule.

END OF SECTION