

# Water T&D Construction Standard

## SERVICE LINE REPLACEMENT - TRENCHLESS - CABLE PULLING METHOD

Application: Replacement of existing service lines with a new copper tube service line using a trenchless construction technique which replaces the old service using the existing route.

Service line replacement is performed with the expectation that the existing service line will be removed. This Standard references construction techniques that replace the service line using the existing route. A cone shaped tool sometimes called a "pulling block", locks onto the trailing end of the service pipe. The cone plus the pipe is pulled from the ground by a cable passing through the pipe and attached to the cone. The replacement pipe is simultaneously pulled in behind the cone. This technique cannot be used if the service pipe is; 1) looped 2) badly clogged so that the cable cannot pass through 3) service is encased in concrete (excluding basement wall) 4) existing utilities interfere with a straight line pull 5) if the ground is extremely hard and dry. Generally, service section lengths greater than 60' cannot be replaced using this technique.

### GENERAL INSTALLATION NOTES:

See Water T&D Construction Standard W-03-0002 for General Installation Requirements For Water Service Lines. See W-03-0004 for Water Service Disconnects and Reconnects, and W-03-0005 for Documentation of Installed Water Services. Reference W-03-6000 if existing service cannot be removed and must be abandoned.

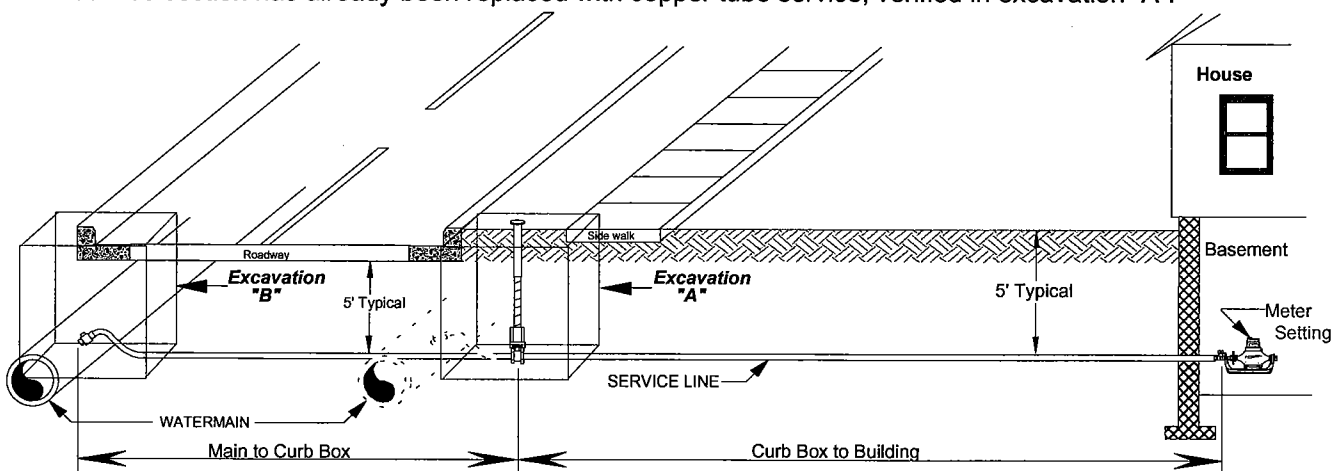
- Replace all 5/8" & 3/4" galvanized iron or lead services with a 3/4" copper tube service.
- Replace all 1" galvanized iron or lead services with 1" copper tube service.
- Meter set and meter installation shall be performed by LBWL personnel only.
- A "Water Service Order" shall be completed for each service replacement. The Service Order shall be forwarded to the Water T&D Resource Center no later than one week after completion of the work.

### Excavation "A":

Required for any combination of complete, or partial service replacement. Excavate at "A" to unearth the curb stop. Expose the curb stop and a minimum of 2' of service line in each direction, unless otherwise directed by the LBWL Engineer. It is imperative that the material type of the existing service sections be identified. If either of the service line sections (main to curb box / curb box to bldg.) are of non-standard material or construction, they shall be replaced.

### Excavation "B":

Required for complete service replacement, or main to curb box partial service replacement. May not be required when the water main is exposed by excavation "A" (short side), also not required if the main to curb box service section has already been replaced with copper tube service, verified in excavation "A".



Director of Engineering

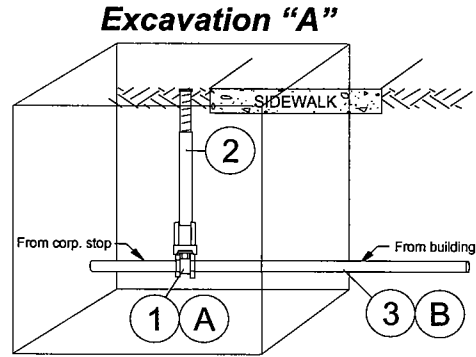
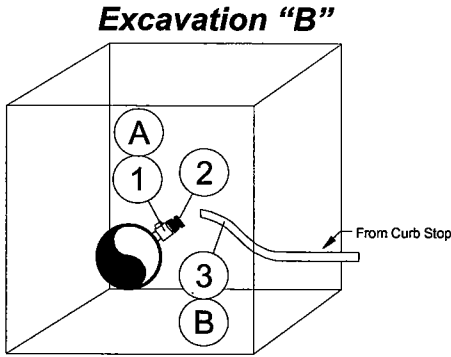
*D. Wood*

Date: 5/20/05

Manager, Water T&D Resource Center

*B. McLeod*

Date: 5/23/05



**INSTALLATION NOTES:**

**Excavation "B"**

If a new 3/4" or 1" tap is required, refer to Water T&D Standard W-03-1075. If a new tap larger than 1" is required, refer to Water T&D Standard W-03-1200.

- (A) Existing service corporation can be used if it is the correct size for the service being installed. Allowable transitions are; 5/8" to 3/4", 3/4" to 1" 1" to 3/4". 1/2" corp. stops shall not be re-used. If new corporation is being installed, abandon the existing corp. stop in the OFF position and cap using Water T&D Standard W-03-6810.
- (B) Existing service material is to be removed during the service installation. If existing service cannot be removed, refer to Water T&D Standard W-03-6000.

MATERIALS FOR 3/4" SERVICE			
REF	ITEM	QTY	DESCRIPTION
①	30-03123	If Req'd	Corp. Stop, 3/4" CC x 3/4" CTS comp
②	30-00193	If Req'd	Coupling, Corp adapter, 5/8" XS x 3/4" CTS comp
	30-00221		Coupling, Corp adapter, 3/4" XS x 3/4" CTS comp
	30-00263		Coupling, Corp adapter 3/4" XS x 1" CTS comp
③	30-45329	As Req'd	Tube, Copper, Type K, 3/4" x 60'
MATERIALS FOR 1" SERVICE			
①	30-03446	If Req'd	Corp. Stop, 1" CC x 1" CTS comp
②	30-00250	If Req'd	Coupling, Corp adapter, 1" XS x 1" CTS comp
③	30-45345	As Req'd	Tube, Copper, Type K, 1" x 60'

Excavation "B"

**INSTALLATION NOTES:**

**Excavation "A"**

- (A) New curb stop & curb box may be required if existing curb stop is \*non-standard or damaged. This may not be necessary if a partial service replacement has previously replaced the curb stop and/or curb box.
- (B) Existing service material is to be removed during the service installation. If existing service cannot be removed, refer to Water T&D Standard W-03-6000.

MATERIALS FOR 3/4" SERVICE			
REF	ITEM	QTY	DESCRIPTION
①	30-05680	1	Curb Stop, 3/4" CTS Comp. Both ends
②	30-00320	1	Curb Box Complete
③	30-45329	As Req'd	Tube, Copper, Type K, 3/4" x 60'
MATERIALS FOR 1" SERVICE			
①	30-06166	1	Curb Stop, 1" CTS Comp both ends
②	30-00320	1	Curb Box Complete
③	30-45345	1	Tube, Copper, Type K, 1" x 60'

Excavation "A"

\* The new standard curb stop will be a ball type curb stop with quick compression fittings on both ends. An inverted key type curb stop with flared fittings on both ends is considered an acceptable installation but should be replaced if any work is required on either end of the curb stop.

Director of Engineering

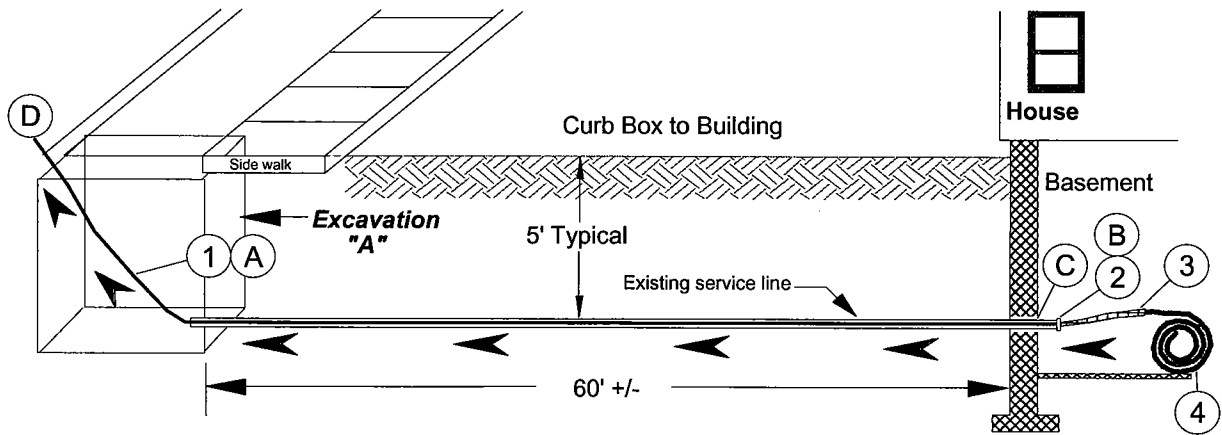
*Wood*

Date: 5/20/05

Manager, Water T&D Resource Center

*B. McLeod*

Date: 5/23/05

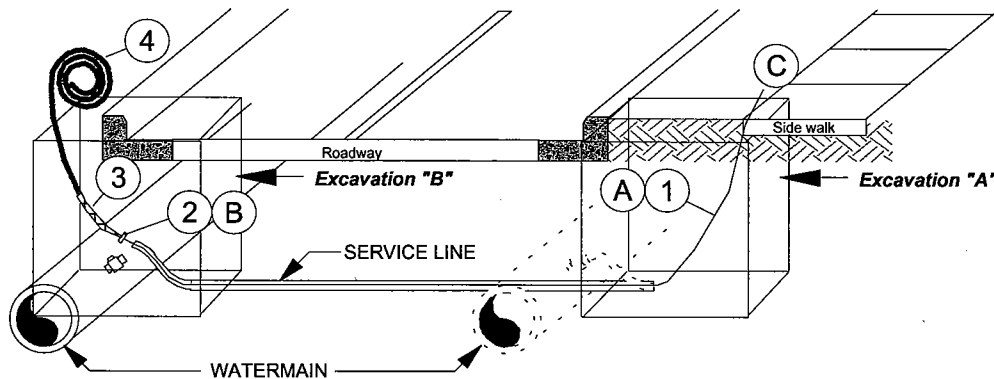


**INSTALLATION NOTES:**

**Curb Box To Building**

- (A) Insert the 3/8" wire rope into the existing service pipe pushing it through till it reaches the other pipe end inside the basement.
- (B) Attach cone or "Push Block" to cable and attach the pulling sock behind that. Secure new copper tubing in pulling sock.
- (C) Chip out around the existing service line to loosen the contact and allow new copper to pull in smoothly.
- (D) Pulling equipment may vary. Equipment and procedure shall be approved by the LBWL Engineer In Charge. The new copper tube service will be pulled in as the old service line is pulled out.

MATERIALS FOR SERVICE REPLACEMENT			
REF	ITEM	QTY	DESCRIPTION
(1)	Non-stock	75'	Wire rope, 3/8", 18,000 lbs.
(2)	Non-stock	1	Block, cable pulling for "Push" pulls
(3)	Non-stock	1	Grip, pulling (pulling sock)
(4)	30-45329 or 30-45345	As Req'd	Tube, Copper, Type K, 3/4" x 60' or Tube, Copper, Type K, 1" x 60'
<b>Curb Box To Building &amp; Main To Curb Box</b>			



**INSTALLATION NOTES: Main To Curb Box**

If the Watermain can be accessed by enlarging Excavation "A", Excavation "B" will not be necessary and the short side service can be removed from the single excavation.

- (A) Insert the 3/8" wire rope into the existing service pipe pushing it through till it reaches the end of the pipe at the watermain.
- (B) Attach "Push Block" to cable and attach the pulling sock behind that. Secure new copper tubing in pulling sock.
- (C) Pulling equipment may vary. Pulling can be performed from either direction. Equipment and procedure shall be approved by the LBWL Engineer In Charge. The new copper tube service will be pulled in as the old service line is pulled out.

Director of Engineering                     D. Wood                    

Date: 5/20/05

Manager, Water T&D Resource Center                     B. McLeod                    

Date: 5/23/05