THE CONSOLIDATED MUTUAL WATER COMPANY
12700 WEST 27TH AVENUE, LAKEWOOD, COLORADO 80215
(303) 238-0451
SPECIFICATIONS for 3-INCH or 4-INCH WATER SERVICE

ARRANGE FOR INSPECTION FORTY-EIGHT HOURS IN ADVANCE

1. TAPS:

- **A 3-inch or 4-inch connection will be installed as a tee on the water main**.
- The design of the tee will be reviewed by the Company's Engineering Department through the plan submittal and review process.
- The installation of the tee will either be performed by Consolidated crews or a private contractor which will be determined during the review process.

2. VALVES AND VALVE BOXES:

- All valves shall be open left resilient seat gate valves.
- Valves in the meter vault shall be flanged with OS&Y rising stems.

3. METER VAULT:

The meter vault shall be a 84" (7') wide, 96" (8') long and 72" (6') high (minimum inside dimensions) pre-cast "water-tight" concrete vault manufactured with a **H-20 load rating** in accordance with AASHTO Specifications. The roof shall be flat having a 36-inch eccentric opening (the 36-inch eccentric opening shall be located so that the meter can be seen from ground level). The meter pit shall have a 6-inch thick floor (min) with a 12- inch diameter sump hole recessed 3-inches into the floor. The meter pit shall have steps installed under the 36-inch opening in the roof. The steps shall be set 12-inches apart with the top step set 12 to 18-inches below final grade, and the bottom step set 12-inches above the floor of the vault. The meter pit shall be bedded on 8-inches of 1-1/2" crushed rock bedding material.

NO ALUMINUM METER PIT COVERS WILL BE ALLOWED.

The meter pit vault extension rings, roof and cover, shall be jointed with a mastic sealant. The holes for piping shall be sealed both inside and outside the meter vault with a non-shrinking foam sealant Dow Chemical #157906 ("Great Stuff" big gap filler).

4. LOCATION OF METER VAULT:

- The standard location for the meter vault is such that the outside edge of the vault will be set 18-inches inside the Public Right-of-Way, or inside a Company Easement.
- Meters may be installed on private property within 5' of the property line as a result of site limitations.
- The location of the vault shall be approved by the Company prior to installation and property corners must be in place to assure proper placement.
- The meter vault ring and cover will be 2-inches above final grade for new construction or as specified by CMWCo inspector/representative.

- Meter vaults will be located such that a CMWCo representative can access the meter at all times.
- In no circumstance shall a meter vault be located in a paved area, a parking space, a driveway, or inside a fence.
- If a meter vault is located such that vehicles are prone to park near or on the meter and obstruct access, CMWCo will require the property owner, at their expense, to protect the meter with multiple 6-inch ductile iron bollards filled with concrete.

ANY ADJUSTMENT OF THE METER VAULT TO MEET FINAL GRADE WILL BE DONE WITH A SOLID CONCRETE RISER RING ONLY (NO BRICKS).

5. <u>SERVICE LINE PIPING</u>:

- The service line from the main to the structure shall be 3-inch or 4-inch, class 52, cement lined ductile iron pipe.
- The service line from the water main to the structure shall be installed at least 4 ½ feet below final grade.
- A minimum horizontal distance of 10-feet shall separate the water service and any sanitary sewer line.
- A minimum vertical clearance of 18-inches shall be provided for all perpendicular utility crossings.
- The 3-inch or 4-inch ductile iron pipe shall be bedded in sand of squeegee 6- inches above and below the pipe.
- The service piping through the meter vault shall be installed so that piping is between 18 and 30-inches above the floor while maintaining the proper burial depth.
- All ductile iron pipe, valves, and fittings shall be wrapped in a polyethylene encasement material.
- All tees and bends shall have thrust blocks according to CMWCo engineering specifications, and as directed by CMWCo inspector.
- The portion of the service line service between the water main and the vault shall be installed in a continuous straight line perpendicular to the tap on the water main with all joints and fittings restrained with mega lugs.
- Horizontal and/or vertical bends are not allowed between the main and the meter vault or within 5 feet of the vault on the downstream side.

6. <u>METER SETTING</u>:

- The Consolidated Mutual Water Company standard meter setting shall be constructed with ductile iron pipe and ductile iron flanged fittings. (See attached drawing for specifications).
- The meter setting shall be supported from the vault floor with Company approved pipe stands.
- The meter shall be installed so that the by-pass is on the opposite side of the 36-inch opening in the roof.
- The Meter, Meter Register, and Endponit will be provided by CMWC.

Only flanged joints are allowed inside the meter vault. NO MECHANICAL JOINTS OR FIELD FLANGES (UNI-FLANGES) WILL BE ALLOWED IN THE VAULT.

7. BACKFLOW PREVENTION:

Title 25 of the Colorado Revised Statues Articles 1-114 & 1-114.1 does not allow anyone to install, maintain, or permit an uncontrolled cross-connection that is connected to a drinking water system that supplies water to the public. Per Colorado Primary Drinking Water Regulations, 5 CCR 1002-11 (Regulation 11), Section 11.39, a Backflow Prevention Assembly is required to be installed in accordance with the Company's Backflow Prevention Policy.

Backflow Prevention Assemblies protect the public water supply against potential backflow and the possibility of contamination to the public water supply. All commercial, industrial, agricultural, and multi-family residential service accounts must have approved Backflow Prevention Assemblies properly installed and tested by a certified backflow tester, which is tracked and enforced by the Company's Backflow Prevention Department. Per state regulation, the Company also reserves the right to require approved backflow protection for single-family residential service accounts whenever a known hazardous cross-connection exists.

The domestic containment Backflow Prevention Assembly shall be a Reduced Pressure Principle Assembly (RP), which must be lead-free and approved by the University of Southern California Foundation for Cross Connection Control and Hydraulic Research (USC) (approved model lists available upon request) unless otherwise approved by the Company's Backflow Prevention Department. The domestic containment Backflow Prevention Assembly shall be installed before all branches or tees in the water service's plumbing system and within 5-feet of the point of entry. The installation shall maintain an air gap between the relief valve at the bottom of the assembly and any drainage flood level rims that are at least 2X the connection size but no less than 1-inch. The installation shall provide adequate drainage in accordance with the manufacturer's assembly model discharge rates. The assembly shall not be installed in any areas with hazardous gases or extreme temperatures. Irrigation systems also require a USC approved lead-free RP assembly if the system is connected to the potable water supply upstream from a domestic containment RP. Irrigation systems that are connected to a potable water supply downstream from an approved domestic containment RP are not *required* to have approved backflow protection by the Company, though it is still highly advised since isolation backflow prevention will ensure the occupants of the property will also continue to have access to safe drinking water.

Existing and properly installed USC approved Backflow Prevention Assemblies may receive temporary variances until the existing assembly needs extensive repair or replacement, at which time the Company would require the new backflow protection to be in accordance with the current Backflow Prevention Policy and specifications. The Company's Backflow Prevention Department reserves the right to approve or deny, in its sole discretion, any and all variance requests for the type of Backflow Prevention Assembly required.

After the flushing of the service line and installation of the required backflow preventer(s), the backflow preventer(s) must have the initial assembly testing completed by a Certified ABPA (American Backflow Prevention Association) or ASSE (American Society of Sanitary Engineering) Backflow Tester with an authorized CMWC representative present. The

CDPHE and Company Policy requires the owner to have the backflow preventer(s) tested upon installation, after any repair/maintenance, and at least once a year by a Certified Backflow Tester. All required backflow testing results must be properly submitted by the testing company through the Company's online portal (cmwc.tokaytest.com) within 5 business days. The Company's Backflow Prevention Department will not accept any backflow testing results that have not been properly submitted through the online portal. Lists of approved Backflow Prevention Assembly models and backflow tester references are available upon request through the Backflow Prevention Department via phone (303-274-7433) or email (Backflow@cmwc.net). The Consolidated Mutual Water Company is in no way liable for any damages caused by the installation, testing, repair/maintenance, or malfunction of a Backflow Prevention Assembly.

Please reference the Company's Backflow Prevention Policy for more details, or contact the Backflow Prevention Department directly with any additional questions or concerns

CAUTION NOTICE TO OWNER/PLUMBER

IN ACCORDANCE WITH APPLICABLE LAWS AND REGULATIONS, THE WATER SERVICE TO THIS STRUCTURE IS EQUIPPED WITH A CHECK VALVE AND, WHICH CREATES A CLOSED PLUMBING SYSTEM. EXCESS PRESSURE WILL NOT BE ABLE TO ESCAPE PAST THE WATER METER AND/OR A BACKFLOW PREVENTION ASSEMBLY, WHICH COULD CAUSE DAMAGES TO THE PLUMBING SYSTEM. THE OWNER/PLUMBER IS ADVISED TO INSTALL A PRESSURE RELIEF VALVE AND/OR EXPANSION TANK ON THE HOUSE SIDE OF THE SERVICE LINE AND TO CHECK THE OPERATION OF THE HOT WATER HEATER T/P RELIEF VALVE AT <u>LEAST</u> EVERY THREE (3) MONTHS TO ENSURE ITS PROPER OPERATION.

8. <u>IRRIGATION SYSTEMS</u>:

IRRIGATION SYSTEM CONNECTIONS SHALL NOT BE CONNECTED WITHIN THE METER PIT

Irrigation connections shall be installed a minimum of 5-feet outside of the meter pit wall on the "house" side of the meter pit. The irrigation system shall have a lead-free USC approved RP backflow preventer installed before any branches or tees if the system is connected to the potable water supply upstream from a domestic containment backflow preventer. Irrigation systems that are connected to the potable water supply downstream from an approved domestic containment RP are not *required* to have approved backflow prevention by the Company, though it is still highly advised since isolation backflow prevention will ensure the occupants of the property will also continue to have access to safe drinking water.

9. <u>INSPECTIONS</u>:

ALL INSPECTIONS SHALL BE ARRANGED 48 HOURS IN ADVANCE.

All water service installations from the water main to the structure shall be inspected and approved by an **<u>AUTHORIZED COMPANY REPRESENTATIVE BEFORE BACK-FILLING.</u>**

- The service line shall be hydrostatically tested after the installation is complete by the installing contractor or owner's representative.
- The service line shall be hydrostatically tested at a test pressure of 150 PSIG for a period of two hours.

- Tests shall be witnessed by a representative of the Company.
- The test will be performed, and all equipment provided by the installing contractor/owner.
- Test equipment shall include a pump, calibrated **WATER METER** (the meter shall register in U.S. gallons and have a “leak indicator” hand), approved water source, calibrated pressure gauge, fittings and hoses.
- Allowable leakage* shall be 0.28 gallons per hour per 1,000 feet of 3-inch pipe, or 0.37 gallons per hour per 1,000 feet of 4-inch pipe (*Source: Ductile Iron Pipe Research Association).

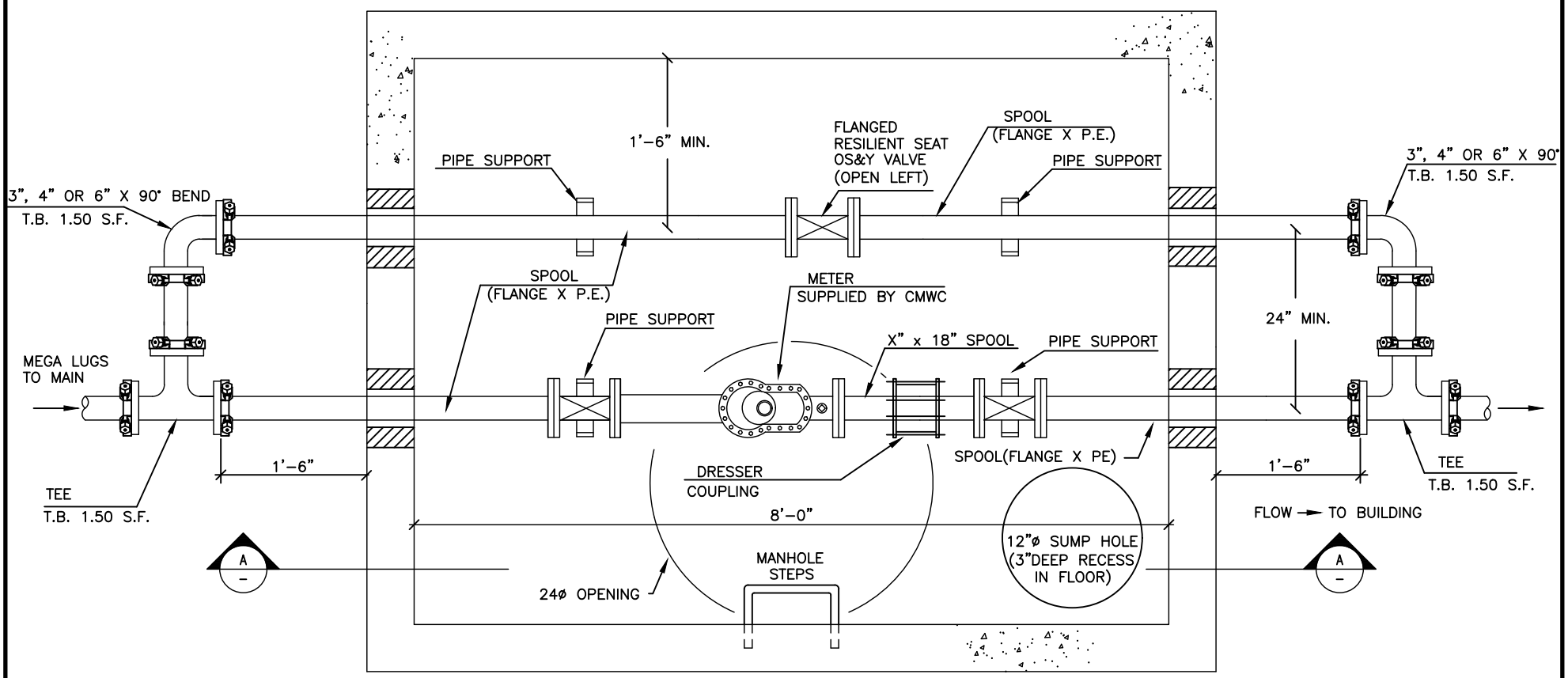
SOIL AMENDMENT: Soil amendment requirements may be obtained at our website (www cmwc.net).

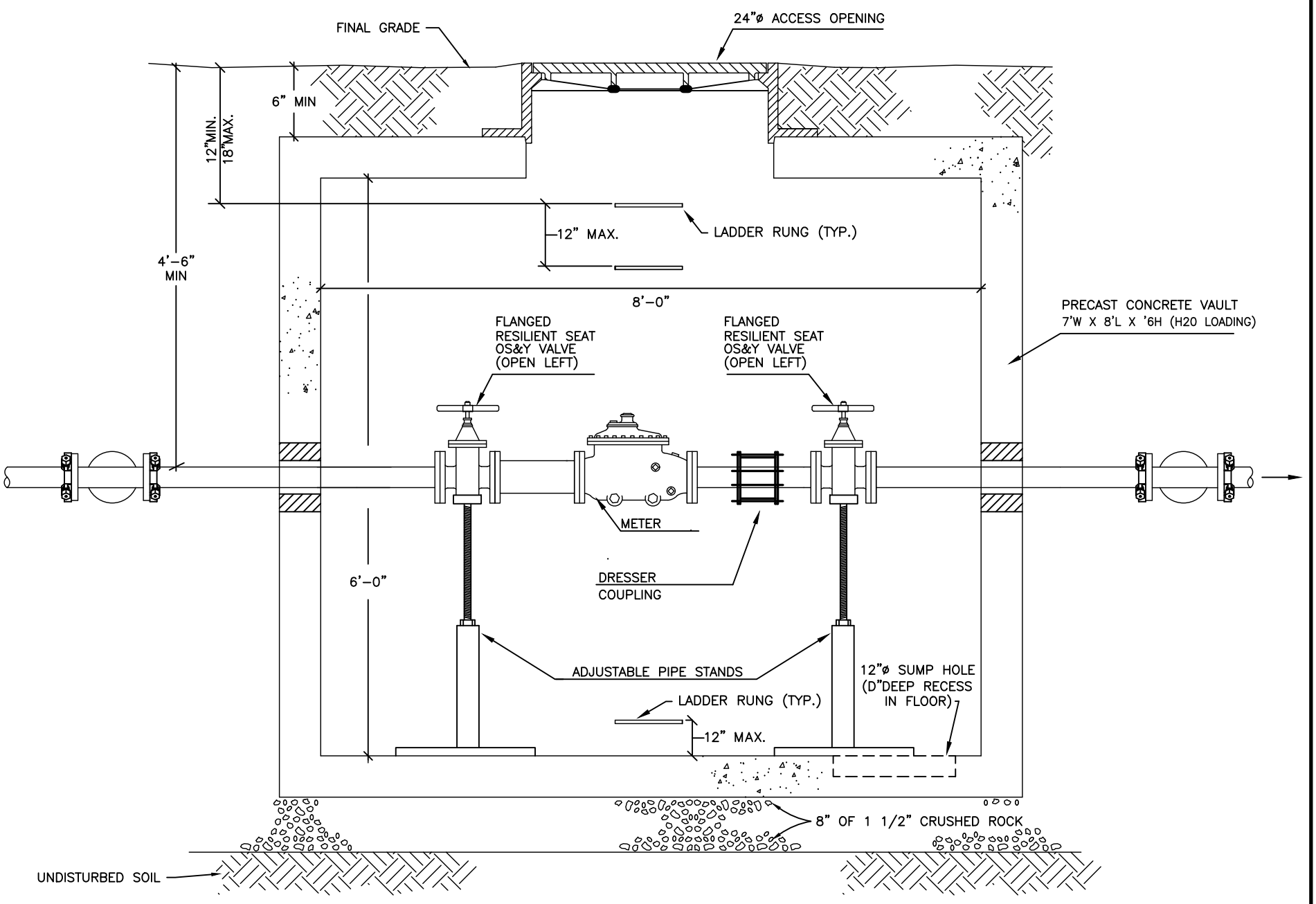
Safety fence and T-posts must be installed per specs (attached) before the meter will be *unlocked*.

Water service will not be considered complete for Certificate of Occupancy until the entire installation from the water main to the structure has passed final inspection and soil amendment has been completed, if applicable. Final landscaping must be installed around the meter vault lid to allow verification of grade.

The Company reserves the right to modify these specifications without notice. Any deviation from these specifications must be approved by Consolidated, in writing, prior to installation.

3", 4" & 6" METER VAULT PLAN





3", 4" & 6" METER VAULT SECTION (A / –)

NOTES:

PRE–CAST CONCRETE VAULT – 7'W X 8'L X '6H (H20 LOADING)

MANHOLE RING & COVER SHALL BE EAST JORDAN ASSEMBLY
EAST JORDAN PART
24" STEEL RING No. 00243011
24" LID No. 00240539

METER (TO BE PROVIDED BY CMWC)

ADJUSTABLE PIPE STANDS (3 REQ'ED)
(PER DENVER WATER DETAIL, SHEET 24)

ALL FITTINGS TO BE 200LB CLASS AND PIPE
INSIDE VAULT SHALL BE CLASS 52, DI

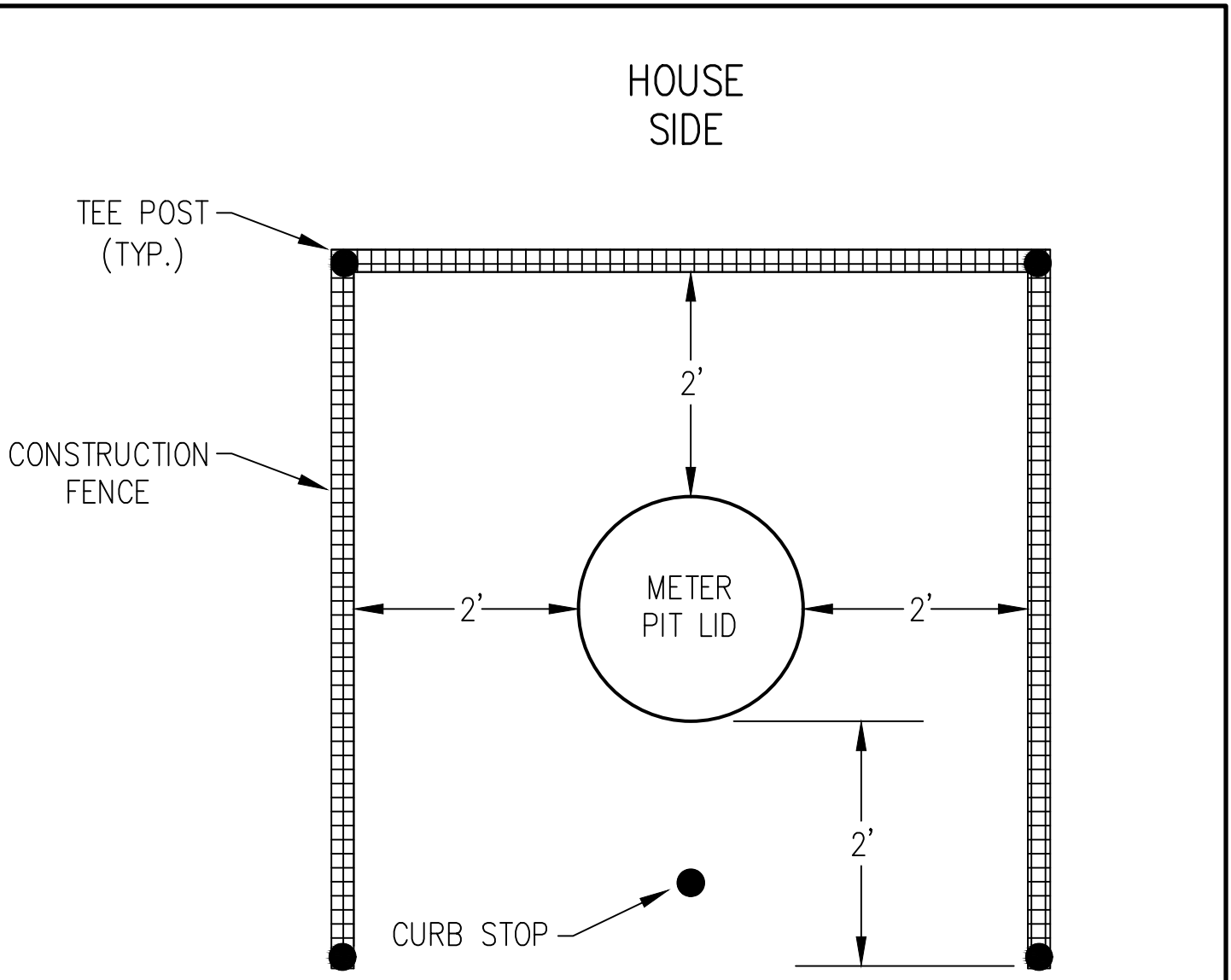
ALL VALVES INSIDE VAULT SHALL BE FLANGED
OS&Y OPEN LEFT RESILIENT SEAT.

ALL PIPE PENETRATIONS SHALL BE SEALED WITH NON–SHRIINKING
FOAM SEALANT DOW CHEMICAL #157906 (GREAT STUFF BIG GAP FILLER)

THE CONSOLIDATED MUTUAL WATER COMPANY

3", 4" & 6" METER AND VAULT DETAIL

DRAWM BY: HEH	DATE: 3-2021	SCALE: NTS
REVISED:		



NOTES:
THE CONTRACTOR SHALL MAINTAIN PROTECTION AROUND THE NEWLY INSTALLED METER PIT.
EXAMPLE: 4–TEE POSTS W/ORANGE CONTRUCTION FENCING.

STREET SIDE MUST BE LEFT OPEN TO PROVIDE 24 HOUR ACCESS TO CMWCO.

NO DUMPSTERS, CONSTRUCTION MATERIAL,
VEHICLES OR EQUIPMENT WITHIN 5 FEET.

STREET
SIDE

T–POSTS AND SAFETY FENCE MUST BE INSTALLED PER SPECS BEFORE THE METER WILL BE UNLOCKED.

THE CONSOLIDATED MUTUAL WATER COMPANY

METER PIT INSTALLATION SPEC

DRAWN BY: SH	**DATE:** 10–12–10	**SCALE:** NTS
REVISED: 7–2012		PAGE 1 OF 1