CLEVELAND DIVISION OF WATER DESIGN AND CONSTRUCTION MANUAL

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PLAN REVIEW PROCEDURES AND DESIGN REQUIREMENTS

This document outlines the procedures needed to submit plans for review to the Cleveland Division of Water. All projects involving new or replaced water mains, as well as work taking place in a public right-of-way or water main easement must be submitted for review. While there is charge for plan review for water main projects, there is no fee if your project has no water work or ultimately performs no water work

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Plan Review Procedures

City of Cleveland Codified Ordinance 535.35 states that no water mains shall be laid or extended within the City of Cleveland or in any direct service suburb unless properly submitted plans have been approved by the Commissioner of Water. These plans shall be in accordance with the standard specifications and standard details of Cleveland Water.

In addition, Cleveland Water requests copies of all plans for projects taking place in the public right-of-way or a dedicated water main easement to ensure all Cleveland Water facilities are accurately noted, and so Cleveland Water has a record of the project if problems occur.

Plans submitted should include the Title Page and index of sheets, all plan and profile pages for work taking place in the right of way or water main easement, general notes, general summary pages that include water items, and water standard details (available at clevelandwater.com/construction). You may exclude other pages such as non-water details, additional notes, and other pages not relevant to the water review. Please see plan format guidelines for more information. It is expected that all submitted plans will already indicate Cleveland Water facilities as well as other underground utilities. To obtain available records prior to submission, please submit a design ticket to the Ohio Utilities Protection Service and put in a design ticket.

If you are planning a project involving significant paving, we suggest contacting the Planning and Hydraulics unit of Cleveland Water to obtain a break analysis to determine if replacement of the main may also be recommended.

SUBMIT PLANS TO: **Cleveland Water, Engineering - 2nd Floor**
1201 Lakeside Avenue
Cleveland, Ohio 44114

Please allow at least 30 days for review of each submission. However, during periods of high review volume, reviews may take longer to process. Plan Review is often iterative, with multiple rounds of submissions and comments. As such, we recommend submitting initial drawings for plan review a minimum of 120 before a proposed bid opening.

Water Main Extension Projects (Including Subdivisions)

Please submit the following:

- Two (2) full size hard copy sets and one digital set (on CD, DVD, USB Drive, or link to download) of preliminary plans
- Proposed dedicated plat or original standard water main easement (with copy of resolution and drawing)
- Peak demand requirements for domestic and fire protection calculated and sealed by a professional engineer (a.k.a. ISO calculations)
- A completed Cleveland Water Project Questionnaire

Cleveland Water will review the drawings, and return 1 set of marked up preliminary plans along with any additional requirements will be returned to the design engineer for their use in preparing the final plans.

Once corrections have been made, submit one set of revised final plans along with any information previously requested (either digital or hard copy, per the Cleveland review engineer's preference) for final approval. Any changes to water work and plan and profile pages must be indicated with a revision cloud in the review set.

If the plans are approved, the Cleveland review engineer will request 8 sets of hardcopy drawings be provided. They will be stamped as approved. Four copies will be provided to the design engineer. One will be provided to

the contractor at the preconstruction meeting. One is provided for the Cleveland Water inspector. The remaining copies are kept on file by Cleveland Water.

Water main extension projects also require Ohio EPA approval per the Ohio Administrative Code 3745-91-02. The additional copies of the stamped plans provided to the design engineer are to be used to submit for this review. The Ohio EPA will notify Cleveland Water of the results of their review.

Once all approvals are complete and a contractor is hired, please call (216) 664-2342 to speak with the Inspection and Enforcement Department to set up a preconstruction meeting. Once the meeting is scheduled, Cleveland Water Permits and Sales will provide a quote for both construction related charges and for any new accounts that may be approved. Please note that approval does not mean that an inspector may request changes based on observed field conditions.

Water Main Replacement or Rehabilitation Projects

Please submit the following:

- One full size hard copy set and one digital set (on CD, DVD, USB Drive, or link to download) of plans
- A completed Cleveland Water Project Questionnaire

A Cleveland Water Engineer will submit comments to the designated contact. Please keep submitting plans for each stage of design. Any changes to water work and plan and profile pages must be indicated with a revision cloud. Once all comments are incorporated, you may send a final set in (either digital or hard copy, per the Cleveland review engineer's preference) for final approval.

Once Cleveland Water approves a plan, a letter will be provided indicating approval. The letter will also include a summary of Cleveland Water charges. Six additional sets of plans will be requested to stamp as approved and keep on file, as well as provide the design engineer and contractor a record of what Cleveland Water approved.

Once all approvals are complete and a contractor is hired, please call (216) 664-2342 to speak with the Inspection and Enforcement Department to set up a preconstruction meeting. Please note all fees must be paid at the start of the project. Please note that approval does not mean that an inspector may request changes based on observed field conditions.

Projects That Do Not Propose Any Water Work

This includes projects that only involve casting adjustments. Please submit the following:

- One half size (11x17) or larger hard copy set and one digital set (on CD, DVD, USB Drive, or link to download) of plans
- A completed Cleveland Water Project Questionnaire

Cleveland Water will review the plans to ensure our facilities are accurately represented based on available records. If approved, Cleveland Water will issue a letter indicating approval as well as steps to take if a conflict is found in the field that will require water work.

Only one set of preliminary drawings (~30% Design) need submitted if there is no water work proposed. No additional sets are required unless there is an impact to the water system.

Water Main Design Guidelines

Plan Format

Title sheet

1. Title block should contain name of street, easement, or project, name of consultant, name of the sponsoring agency, name of the municipalities the work takes place in, scale and date of preparation.
2. If more than one sheet, sheets should be numbered consecutively with each sheet containing definite match lines. A drawing reference should be included with descriptions on title sheet. (Cleveland Water may ask to omit sheets that are not needed)
3. A location map must be provided on title sheet. The site plan or location map shall have a scale of 1 "= 400'.

Scales

Use a scale graduation of 1 "=20', 30', 40' or 50' for horizontal and 1 "= 5' on vertical. The use of architect's scale is not permitted.

General

1. Sheets are to be between 22" X 34" and 34” × 44” with ANSI D or Arch D preferred. (11”x17” if no water work is proposed) and must show water main and sewers in plan and profile.
2. All sheets of plans should be provided with a directional arrow indicating north.
3. Street or easements must have stationing noted along the center line with appurtenances and bends referenced to center line and stationing. Planned measurements may be used along main instead of stations.
4. Parcel boundary lines must be shown on drawing with frontage dimensions given.
5. Proposed and existing connections with connection numbers should be noted on drawings for connections involved in project. However, any new connections are not approved as part of the plan review process.
6. A measurement tie-in between the location of the proposed street/easement and the closest intersecting street or thoroughfare centerline and the proposed water main and visible water main appurtenances must be noted.
7. Plans of water main installations through easements for apartments, office buildings, factories, or condominiums shall follow scheme for normal installation in right-of-way.
8. Revision Clouds shall be used to indicate changes on all plan and profile pages for all submissions subsequent to the initial submittal.

Water Mains

10 States Standard

All distribution system piping and appurtenances shall be designed in accordance with Part 8 of the latest revision of the Recommended Standards For Water Works by the Water Supply Committee of the Great Lakes, also known as the 10 States Standards. The standards are available at http://10statesstandards.com/.

Sizing

1. Water mains to be sized in accordance with Codified Ordinance Section 535.34.
2. Distribution mains shall be not less than eight inches and no more than sixteen inches in nominal diameter.

3. For streets within residential areas, mains shall be at least eight inches, provided such streets do not exceed 1500 feet in length between intersecting streets improved with water mains.
4. In county roads, crossings under freeways and railroads, crossing in bridges and in streets adjoining commercial or industrial developments, mains shall be at least twelve inches.
5. In streets extending through several municipalities and designated as State or county streets, roads or highways, mains shall be sixteen inches.

Depth

Cover over all 8" and 12" pipe should nominally be at least 6'-0" from established centerline grade and from the top of ground over the water main to the top of the pipe. All 16" pipe should have 5' of cover. A variance of 1 "-0" above and 2' below is only permissible while crossing over or under obstructions.

Location

1. Water mains must be located a minimum of 9' -0" from the property line or 10' -0" from the easement line in the street or easement in which it is to be installed. Under this provision, service stop boxes (curb boxes) or meter vault manhole ring and covers will not fall within proposed sidewalk areas. ("9'-Rule) In no case should any portion of the water main or hydrants fall less than 5' from an easement or right-of-way line.
2. In all allotment layouts, water mains in proposed streets must be extended to the further most limits of the allotments.
3. Intersection pipe for future streets must be installed to the abutting property line, and a line valve and box or flush pipe installed at the property line, as directed by Cleveland Water's Engineer

Dead-Ends/Looping

All dead-end pipes must have a plug and complete 2" flushing pipe assembly with box or hydrant installed. (Tee hydrants may be installed with a plug on the hydrant tee)

Utility/Obstruction Clearances

1. For Sanitary and Storm Sewers

   Horizontal Clearance: Water mains shall be laid at least 10 feet horizontally from any existing or proposed gravity sanitary or storm sewer, sewer manhole, or sewer force main. The distance shall be measured edge to edge. In cases where it is not practical to maintain a 10 foot separation, the Cleveland Water may allow deviation on a case-by-case basis, if supported by data from the design engineer.

   Vertical clearance: Water mains crossing sewers shall be laid to provide a minimum vertical distance of 18 inches between the outside of the water main and the outside of the sewer. This shall be the case where the water main is either above or below the sewer with preference to the water main located above the sewer. At crossings, one full length of water pipe shall be located so both joints will be as far from the sewer as possible. Special structural support for the water and sewer pipes may be required.

   Where such separations are not possible, an exception main be made provided that the water main is laid in a separate trench or on an undisturbed earth shelf located on one side of the sewer at such an elevation that the bottom of the water main is at least 18 inches above the top of the gravity sewer.

2. Depths over 8 Feet: To clear obstructions which result in main being 8 feet or greater, bends to be used. Valves are to be installed at both ends to be used in the event of a water main break. When determined by Cleveland Water Engineer, usually large streams, rivers, large culverts, freeways.

Valves

General Location

1. Line valves should be provided between 1,000 feet and 1,500 feet along run of pipe between intersecting streets. (For example, if run between 2 streets is 1800' then put a valve at 900')
2. Valves installed between intersections shall be located one length of pipe from hydrant tee on the run of the pipe.
3. For new mains, there must be a minimum of two (2) valves at tee intersecting streets and a minimum of three (3) valves installed at cross intersecting streets. When looping is an issue you can install three (3) valves at tee intersections and four (4) valves at cross intersection.

Tapping Sleeves & Valves

1. An existing tee at an intersection of proposed project shall not be used. Normally the existing tee is removed and a new cut-in-anchor tee and valve are installed. A tapping sleeve and valve shall be installed so that service to users will be maintained whenever possible. Boxes for tapping sleeves and valves are to be supplied by the contractor.
2. Where a branch sleeve and valve with valve box is installed on an existing main, if said main is over 8 lineal feet from the abutting property line, then a line valve and box must be installed at said property line.
3. Where a tapping sleeve, valve and box are installed, the connecting run of pipe must be installed at right angles from the distribution main to the line valve located at the property line. A bend will then be installed, if necessary, to align the run of pipe in the proposed street or easement.

Service Divides

Where a change of service occurs in an existing street or allotment in which a water main is to be installed, Cleveland Water Engineering will determine the location of the point of service change and a standard gate valve and box will be required at that point in the run of pipe. This valve will then be kept closed during normal service. In regulated zones a pressure regulator may be required.

Pipe Fittings

Vertical Bends: the maximum vertical bend shall be 22 1/2° (1/16). Offsets may be used in place of bends where possible. 90° bends shall not be used.

Horizontal Bends: Where right angle turns occur in run of pipe, if main may be extended in the future, a tee should be installed and the unused branch plugged and clamped. 90° bends are not permitted.

Thrust Restraints

1. Thrust blocks (concrete piers) are required behind all tees, horizontal bends, and hydrant elbows, the contractor shall also install a concrete thrust block behind all tapping sleeves in which the nominal tap is one half or greater than the nominal diameter of the pipe to be tapped. The concrete pier behind the tapping sleeve, as herein stated, is required on all connecting mains and service connections.
2. Thrust blocks normally installed where access for concrete trucks is available.

Hydrants

Spacing

Hydrants shall be to be sized in accordance with Codified Ordinance Section 535-34. Hydrant spacing is 300' on average (325' maximum) in accordance with ordinance Section 535 .36 in residential areas. Commercial and industrial streets shall have an average spacing of 250' to 280'.

Location and Setting

All hydrants must be contained within the dedicated right-of-way or easement lateral limits, no closer than 5' from an easement or right-of-way line.

Abandoning Hydrants

Where existing hydrants are to be abandoned, they must be spooled out at the distribution main. They cannot be plugged at the hydrant valves. Before any hydrants may be abandoned, the local fire department must provide written approval.

New Connections as Part of Main Installation

Any new connection must be separately approved and are not included in any plan review. A separate application is required. However, as part of a new subdivision, new one inch service connections will be permitted if certain criteria are met. Please see notes 21-23 on STD-011.

Cleveland Water shall perform all taps 1.5” and larger on active, in service water mains. Contractors may install tees and valves in lieu of taps for connections 3” and larger.

If an abandoned intersection of pipe is to be converted to a service connection feed in the future, then a valve and box must be installed on this line at a point where the curb valve would normally fall, as determined by Cleveland Water Engineer. The use of this pipe for such purpose must be approved by the Commissioner of Water. If refused, then a separate tap must be made for the connection and unused intersection pipe plugged at the main.

Where a hydrant is located at the end of a run of pipe, as in cul-de-sacs, connections must be taken off ahead of the reducer on the hydrant branch. No connection can be taken off of the hydrant branch on feed hydrants.

Other Agency Approvals

Ohio Environmental Protection Agency (OEPA) must review and approve plans for "substantial change in a public water system” as defined by Ohio Administrative Code 3745-91-02. Construction is, by law, not permitted to start until approval by OEPA is granted. However, projects where the increase in main size is not greater than four inches in diameter, the replacement of the waterline complies with the requirements of sections 8.0 through 8.12 of the 10 States Standards, and pipe replacement does not take place in an area of known water or soil contamination, the project is exempted from review.

Cleveland Water Project Questionnaire

Project Name

Organization Sponsoring Project (e.g. Local Municipality, ODOT, County, Utility Company, developer, etc.)

Design Firm Name and Address

Primary Technical Contact Name, Phone Number, and E-Mail Address

Date Response Requested (Please allow at least 30 days for review)

Estimated date of project bid advertisement

What water work does your project include (check all that apply)

- [ ] None
- [ ] New Water Mains
- [ ] Replace Water Mains
- [ ] Rehabilitate Water Mains (clean and line or structural lining)
- [ ] Relocate Hydrant(s)
- [ ] Relocate Water Service Connections
- [ ] Lower or Raise a Section of Water Main
- [ ] Expose Water Main
- [ ] Adjust Castings to Grade
- [ ] Other

What other work your project include? (Check all that apply)

- [ ] Resurface Street
- [ ] Resurface Street with Base Repair
- [ ] Full Depth Pavement Replacement
- [ ] New Streets
- [ ] Realign Existing Street
- [ ] Bridge Work
- [ ] Culvert Work
- [ ] Sanitary Sewer Work (New, Replacement, or Rehabilitation)
- [ ] Storm Sewer Work (New, Replacement, or Rehabilitation)
- [ ] Combined Sewer Work (Replacement, or Rehabilitation)
- [ ] Gas Line (New, Replacement, or Rehabilitation)
- [ ] Electrical Duct Work
- [ ] Buried Communications Line in Duct Bank (New, Replacement, or Rehabilitation)
- [ ] Buried Communications Line in Conduit (New, Replacement, or Rehabilitation)
- [ ] Installation/Replacement of Other Below Ground Utilities (inc. poles, manholes, or vaults)
- [ ] Installation/Replacement of Other Above Ground Utilities
- [ ] New Building Construction
- [ ] Vacate Right-of-Way
- [ ] Vacate Water Easement
- [ ] Only water work with pavement restoration
- [ ] Other

Does Your Project Require Temporary Water (Check all that apply)

- [ ] No
- [ ] Yes, water for construction purposes is needed (this requires obtaining a hydrant permit from Permits and Sales in addition to this plan review)
- [ ] Yes, for domestic water for impacted customers from a hydrant
- [ ] Yes, for domestic water for impacted customers using temporary bypass piping
- [ ] Yes, to feed temporary hydrants
- [ ] Yes, to feed private fire lines

Will Water Main Easements be Required? (check all that apply)

- [ ] No, no water main work
- [ ] No, all water main work to take place in a public right-of-way
- [ ] Yes, Water Mains being installed outside of public right-of-way
- [ ] Yes, Water Mains being installed in public right-of-way, but less than 9 feet from the right-of-way line
- [ ] Yes, existing Water Main and/or appurtenances fall outside of revised right-of-way
- [ ] Yes, project includes a circulation main that will require a circulation main easement
- [ ] Yes, project includes relocating water meter vaults outside of public right-of-way, requiring vault easement(s)

If water mains are being installed or replaced, please list the streets, sizes, limits of construction, and design lengths
(For example: "Lakeside Ave, replace 12" with 12" from E 12th to E 18th, 1,584 ft.")

SERVICE CONNECTION REQUIREMENTS

Table of Contents

Types of Service Connections

Cleveland Water has three types of services and connections:

- Domestic, which is metered water service for all uses
- Fire, which is unmetered service solely for the purpose of fire suppression and/or private fire hydrants
- Combined, which carries both domestic and fire suppression service, and is metered with a UL/FM-approved specialty meter. This must be approved in writing by Cleveland Water – see the section on Metered Domestic and Fire Service

Domestic services may be teed off fire connections before the edge of the right of way. Thus only one tap may be required, however, the services shall be considered separate domestic and fire. (see "Single Feed-dual Service Connections")

Approval and Inspection of Service Connections

Cleveland Water reserves the right to approve or change proposed service connection plans. Changes may be made to the following components to meet Cleveland Water standards:

- Pipe alignment, position, material, and/or size
- Meter type, location, and/or size
- Backflow prevention device type, location, and/or size,

according to the Division's requirements.

The Division of Water will inspect all new and modified water service connections, meter settings, and backflow devices to ensure the standards outlined in this document, Cleveland Water Standard Details, and other requirements provided for on the service connection quote are met. Such inspections are in addition to any local plumbing inspections. Please note that the Division of Water must inspect the lines while the trench is open. If the excavation is backfilled before the Division of Water has been allowed to inspect, the customer will be required to excavate and expose the connection to allow for inspection. It is the responsibility of the customer and their designated contractor to call for inspections, which must be scheduled with Permits and Sales at least 24 hours in advance.

Standard Details

When installing service connections, vaults, meter settings, and backflows, contractors shall conform to Cleveland Division of Water Standard Details. Site Plans for new water service connections shall include applicable Standard Details. The latest versions may be found at clevelandwater.com/construction. In the event a standard detail does not exist for proposed work, please supply a proposed drawing for approval.

Service Taps by the Cleveland Water

All service taps on active, in service water mains are to be performed by Cleveland Water. Approved contractors may perform 1" taps on new or replacement mains with authorization from Cleveland Water. For new or replacement mains, contractors may install tees and tap valves in lieu of taps for larger connections.

Domestic Supply for More than One Building

A domestic service line shall supply no more than one building unless written variance is sought and approved in writing by Cleveland Water.

Depth of Service Pipe

Depth of service pipe from the water main to the curb valve/meter vault for domestic and fire service shall not be less than 6 feet from the established grade and from curb valve/meter vault to building shall not be less than 5 ½ feet from established grade.

Meter Connections

No plastic fittings shall be used to connect to a water meter.

Copper and Brass Couplings

Mechanical joints/fittings such as flared, threaded, or mechanically crimped/pressed connections shall be required before the meter. Soldered/sweat and compression connections shall not be permitted before the meter. After the meter, any connection method approved by local and Ohio plumbing codes and the local plumbing inspector can be used.

Service Pipe Material Two Inch and Less

All service pipe from the curb valve to the home or building with a nominal diameter of two inch and less shall be Type K Copper for all connections 150 feet and less as measured from the right-of-way to the face of home or building.

High-density polyethylene (HDPE) SDR 9 or cross-linked polyethylene (PEX) SDR 9 may be used in lieu of copper under the following conditions:

- The service connection is in excess of 150 feet as measured from the right-of-way to the face of home or building.
- The meter is to be placed in a vault in the right of way or in an easement contiguous to the right-of- way.
- A double-check backflow prevention device is installed in the vault immediately downstream of the meter.
- The piping from the main to the meter and backflow device and within the meter vault shall be Type K Copper. HDPE may only be used from the outlet of the backflow assembly to the house or building.
- All Plastic pipe must meet all applicable performance standards for a pressure rated applications as required in NSF/ANSI Standard 14, and shall comply with NSF/ANSI Standard 61 for health effects. HDPE pipe must be marked as NSF-pw (NSF compliant for potable water)
- The HDPE Pipe must meet all requirements of the latest revision of AWWA C901, and ASTM 03035. Where intermediate joints are necessary connections must be made by either the use of a compression coupling with insert rings or by creating a fusion butt weld.
- PEX Tubing must meet all the requirements of the latest revision of AWWA C904.

All material between the curb valve and the house or building is the responsibility of the property owner. Where HDPE Pipe is used, Cleveland Water recommends that the owner install a tracer tape system so that their connection can be located in the future and that the five and a half feet depth requirements are strictly adhered to so that the line is not susceptible to freezing as HDPE cannot be thawed by Cleveland Water.

Type K Copper must be used between the water main and the curb valves in all instances. HDPE downstream of the curb valve will only be considered upon a written request by the applicant to Cleveland Water.

All service line materials and installation procedures must also meet local building and fire code criteria where applicable. Type K copper is required for all fire service applications unless this conflicts with local building code.

Service Pipe Material Greater than Two-Inches

All service pipes from the curb valve to the home or building with a nominal diameter greater than two inch shall be Class 52 Cement Lined Ductile Iron Pipe for all connections 150 feet and less as measured from the right-of-way to the face of home or building.

PVC Pressure Rated Pipe SDR 18 or thicker as per ASTM 02241 manufactured for potable water application may be used in lieu of Class 52 Cement Lined Ductile Iron Pipe for connections in excess of 150 feet as measured from the right-of-way to the face of home or building. Domestic Service lines in excess of 150 feet also require a meter vault. In such instances, all the piping from the main to the meter and within the meter vault shall be Class 52 Cement Lined Ductile Iron Pipe. PVC may be used from the outlet of the meter assembly to the house or building.

The PVC pipe shall be manufactured and tested in accordance with AWWA Standard C900 for Polyvinyl Chloride (PVC) pressure pipe and fabricated fittings, four in. through twelve- inch (100 mm through 300 mm), for water distribution, or AWWA standard C909 for Molecularly Oriented Polyvinyl Chloride (PVCO) Pressure Pipe, four-inch through twelve-inch (100 mm through 300 mm), for water distribution and clearly marked as such. PVC water pipe shall be certified to NSF International Standard No. 61.

All material between the curb valve and the house or building is the responsibility of the property owner. Where PVC Pipe is used, Cleveland Water recommends that the owner install a tracer tape system so that their connection can be located in the future and that the five and a half foot depth requirements are strictly adhered to so that the line is not susceptible to freezing as PVC cannot be thawed by Cleveland Water.

- Class 52 Cement Lined Ductile Iron Pipe must be used between the water main and the curb valves with no exceptions.
- Class 52 Cement Lined Ductile Iron Pipe must be used for all owner side fire service applications in the City of Cleveland with no exception. In direct service communities, PVC meeting the

above standards may be permitted on the owner side of the connection with local fire department approval, provided to the Division of Water in writing.

- All service line materials and installation procedures must also meet local building and fire code criteria where applicable.

Polyethylene Wrap

Polywrap is required for use on all ductile iron pipe on the city side of the connection. It is recommended but not required for use on the customer side.

Service Pipe in Sewer Trenches

Service pipes shall not be laid in sewer trenches except in rock excavation, in which case the service pipe may be put on a shelf not less than eight-inches wide, cut into the side of the trench. In all other cases, there shall not be less than five feet between centers of service pipes and sewer pipes.

Size of Water Mains that cannot be tapped for Service Connections

Water mains 20 inches and larger, as well as any 16 inch main designated a transmission main by Cleveland Water, shall not be tapped for service connections.

Minimum Size of Service Tap

Taps less than one-inch in diameter shall not be approved.

Maximum Size of Service Tap

No service connection shall be larger than the water main which serves it. Tapping sleeves are not permitted to be used in equal size to the tapped main (i.e. no 8" tapping sleeves on 8" mains or 6" tapping sleeves on 6" mains). Customers requiring a connection of equal size to the tapped main shall be required to cut in a tee at the customer's expense, with plans submitted to and approved by Cleveland Water. No service taps larger than the 12 inches are permitted.

Bends on Service Pipe

No horizontal bends are permitted on the service pipe prior to (upstream of) the curb valve.

Size of Curb Valves

Curb Valves shall be equal in size to the connection at the main.

Location of Curb Valves

All service connections require curb valves that shall be located in the right of way approximately three feet behind the face of curb. For water mains in easements, curb valves shall be located approximately three feet from the water main unless otherwise directed by Cleveland Water. If no curb exists, criteria shall be established from edge of pavement.

More than One Domestic Service Line to a Single Building

Only one domestic service line may supply a home or building unless written variance is sought and approved in writing by the Division of Water.

Fire Supply for More than One Building on a Single Parcel

A fire service line shall supply no more than one building. If the local fire department requires looping of the fire line then Cleveland Water will evaluate these situations on a case by case basis.

Backflow Vault for Fire Service

All private fire service connections require a backflow device. A backflow vault for the fire service is required if the distance between the existing right-of-way and the service line point of entry into the building is more than 50 feet. The backflow vault must be placed in the right-of-way or in an easement adjacent to either the right-of-way or a standard water main easement.

Service Lines Crossing Property Lines

Under no circumstances shall a service line cross property lines unless one parcel is landlocked and therefore has no frontage to the water main. In cases such as these, a copy of the easement agreement between the impacted property owners must be sent to the Permits and Sales Office, Cleveland Water.

Service Connections along Frontage of Property

A service connection to a water main shall be permitted only if the water main extends across the full frontage of the premises. On corner lots or lots that are adjacent to more than one street, a service connection will be permitted only if the lot has a water main that is extended across the full frontage as well as across the property limits on the other adjacent street(s) or if a variance is granted by Cleveland Water and the local community containing the parcel.

Casing for Service Connections

No rigid casing is permitted on service connections between the water main and curb valve.

Single Feed-dual Service Connections

A domestic service connection that comes off the fire service connection must be teed off in the right-of-way before either service line enters the meter or the backflow vault. The fire service line is not permitted to tee off a domestic service line.

Reusing Existing Service Connections

An existing service connection can be reused only if the new service pipe after the curb valve is of the same nominal diameter as the existing connection. Lead connections are not permitted to be reused under any circumstances. If a connection cannot be reused, a new connection must be purchased and the existing connection must be plugged at the customer's expense.

No Connections off Circulation Mains

No service connection can be tapped off a designated circulation main. A circulation main is defined as a main installed for the purpose of providing circulation and installed in a circulation easement. This restriction shall include the portion of the circulation main in the public right of way.

Distance between Taps

One-inch connections shall have a minimum distance of five feet between taps when the taps are made on the same side of the water main. One-inch connections made on opposite sides of the water main require a minimum horizontal separation of eighteen inches. Connections larger than one-inch require a minimum distance of five feet between taps. A minimum distance of five feet is required between the tap and a hydrant tee or valves. A minimum distance of two feet is required between a tap and any bell or fitting.

Tap Size and Connection Size

The size of the tap must correspond to the size of the curb valve. The tap size must also correspond to the size of the connection throughout its length unless permission is granted in writing by the Division of Water.

Location of Meter Vaults

Meter vaults are to be installed in the right-of-way or within the water main easement or adjacent to either the right-of-way or water main easement in a meter vault easement.

Metered Domestic and Fire Service

Combined services are only permitted where approved in writing by the Cleveland Division of Water where installing separate domestic and fire services is unreasonably cost prohibitive. Where approved, the customer must purchase an approved UL/FM meter, as Cleveland Water does not stock such meters.

One Meter Allowed Per Service Connection

Only one meter shall be set on one service line unless the owner is installing a sewer deduct meter for irrigation purposes. The deduct meter must be purchased from Cleveland Water.
Cleveland Water reads both the domestic meter and the deduct meter but is not responsible for repairs to the deduct meter. The local sewer authority has jurisdiction over allowing a sewer deduct meter.

Sub Metering

Cleveland Water will not sub meter any property. While customer can purchase and install additional meters for the purpose of submetering, customer bills will always be determined by the primary meter and billed to the property owner.

Placement of Meter

A meter vault is required when the size of the meter is 3-inch and greater unless special permission is granted in writing by the Division of Water. A meter vault will also be required if the distance between the existing right-of-way and the domestic service point of entry into the building is more than 250 feet. The meter must be installed immediately after the service line enters the building in a horizontal position a maximum of 36 inches from the basement floor. The backflow device, if required, is to be installed immediately after the meter unless another location is specified by Cleveland Water.

Meter Bypass Settings Inside Buildings

Bypass lines are not permitted on meter setters inside buildings or in vaults accessible from the interior of the building.

Multiplex Connections

Twoplex/Duplex connections are permitted only to serve buildings which are less than 50 feet apart. The tap must be made in line with any property line or division between the two premises being served. The line(s) must remain perpendicular to the right-of-way, with the exception of the wye branch. Curb valves must be located no more than 5 feet from the edge of the right-of-way. Once the individual lines have separated, they must remain within 5 feet of each other. All lines on private property must be on the property they are serving or common area to all accounts served by the multiplex connection. Threeplex and fourplex connections shall only be permitted were specifically approved in writing by the Division of Water.

Variances

Any deviation from these requirements must be approved in writing by the Commissioner of the Division of Water or their designee. Approval must be in the form of a letter, email, or recorded as part of the service connection quote.

CLEVELAND WATER EASEMENTS

Select the proper easement form. Easements for water supply purposes allow for service connections, whereas circulation easements do not. Easements also vary depending on whether the current easement is within the city of Cleveland or within a municipality, village, township, or district outside of the city of Cleveland. Limits. Also included are forms for vault easements and easement releases.

Please note that terms are generally non-negotiable. If there is a provision you are unable to abide by, please contact Cleveland Water Distribution Engineering to explain the reasons a variance is being requested

It is the responsibility of the developer or property owner to prepare the easements, including legal description, to supply the original signed to documents to Cleveland Water for final signatures, and to have the documents recorded. All recording fees are the responsibility of the developer or property owner. Before the mains are chlorinated, the County's document identifying number, AFN Number, or Book/Page number must be provided to Cleveland Water to prove the easement was recorded.

In lieu of using these forms, the text and format may be reproduced, inserting names and legal descriptions as needed. Legal descriptions may also be attached as exhibits

LIST OF EASEMENTS AVAILABLE

STANDARD EASEMENT FOR THE INSTALLATION AND MAINTENANCE OF A WATER MAIN FOR THE PURPOSE OF SUPPLYING WATER SERVICE IN THE CITY OF CLEVELAND

STANDARD EASEMENT FOR THE INSTALLATION AND MAINTENANCE OF A WATER MAIN FOR THE PURPOSE OF SUPPLYING WATER SERVICE IN A SUBURBAN MUNICIPALITY (EXCLUDING OLMSTED TOWNSHIP AND HUNTING VALLEY)

STANDARD EASEMENT FOR THE INSTALLATION AND MAINTENANCE OF A WATER MAIN FOR THE PURPOSE OF SUPPLYING WATER SERVICE IN OLMSTED TOWNSHIP

STANDARD EASEMENT FOR THE INSTALLATION AND MAINTENANCE OF A WATER MAIN FOR THE PURPOSE OF SUPPLYING WATER SERVICE IN HUNTING VALLEY

STANDARD EASEMENT FOR THE INSTALLATION AND MAINTENANCE OF A WATER MAIN FOR CIRCULATION PURPOSES ONLY IN THE CITY OF CLEVELAND

STANDARD EASEMENT FOR THE INSTALLATION AND MAINTENANCE OF A WATER MAIN FOR CIRCULATION PURPOSES ONLY IN STREETS VACATED BY CITY ORDINANCES

STANDARD EASEMENT FOR THE INSTALLATION AND MAINTENANCE OF A WATER MAIN FOR CIRCULATION PURPOSES ONLY IN A SUBURBAN MUNICIPALITY (EXCLUDING OLMSTED TOWNSHIP)

STANDARD EASEMENT FOR THE INSTALLATION AND MAINTENANCE OF A WATER MAIN FOR CIRCULATION PURPOSES ONLY IN OLMSTED TOWNSHIP

RELEASE OF EASEMENT

EASEMENT FOR WATER METER VAULT

STANDARD EASEMENT FOR THE INSTALLATION AND MAINTENANCE OF A WATER MAIN FOR THE PURPOSE OF SUPPLYING WATER SERVICE IN THE CITY OF CLEVELAND

STANDARD EASEMENT
FOR THE
INSTALLATION AND MAINTENANCE OF A WATER MAIN
FOR THE PURPOSE OF SUPPLYING WATER SERVICE
IN THE CITY OF CLEVELAND

(I, We) _____, the Grantor herein, for valuable consideration received and to be received to (my, our) full satisfaction, do hereby grant and convey to the City of Cleveland, a municipal corporation of the State of Ohio and Grantee herein, the perpetual right-of-way and easement for the purposes hereinafter mentioned in the following described premises (the "Premises"):

Situated in the City of Cleveland, County of Cuyahoga, State of Ohio, known as being part of the Original _____ Township Lot No. _____, And bounded and described as follows:

_____

Insert legal description of proposed
Easement area by metes and bounds, or
Attach description as Exhibit "A" and
Insert here: "A copy of the legal
Description is attached hereto as
Exhibit "A" and made a part hereof as
If fully written herein."

_____

Grantor and Grantee agree that all references to either part in this instrument shall include that party and the party's heirs, administrators, successors and/or assignees.

In consideration of the mutual covenants contained herein, the Grantor hereby grants and conveys unto the Grantee the right and easement to enter upon the premises to lay, install and maintain therein a water main and appurtenances, including service connections and pipes; to set all water meters and make all repairs to water mains, service meters and appurtenances which the Grantee deems to be necessary or advisable from time to time; to turn off water to any service connection or water main; or to do any other thing which the Grantee deems to be necessary or advisable in order to operate or maintain said mains, meters, connections, pipes and appurtenances in accordance with the ordinances, rules and regulation of the Grantee which are now in effect or may be adopted hereafter.

In consideration of acceptance of the easement by the Grantee, the Grantor agrees to pay the entire cost of installing a water main and appurtenances upon the premises, which main shall be located not less than nine (9) feet from either lateral limit of the premises, The water main and appurtenances, including valves and hydrants, shall upon completion, and approval by the Grantee, become and remain the property of the Grantee City of Cleveland, and shall be a distribution water main of said Grantee within the purview and subject to the terms of any Water Service Agreement now or hereafter in effect.

All service connections shall be installed in accordance with the ordinances, rules and regulations of the Grantee at the expense of owners of abutting property or others who seek water service thereby. All water meters shall be furnished and set by Grantee at the expense of the Grantor.

The Grantor hereby restricts the premises against the construction thereon of any temporary or permanent structures, except that Grantor may install or cause to be installed sidewalks or pavements, or tunnels, railroad switch tracks, sewers, ducts, pipes or pole lines which cross over or under the premises at an angle of not less than forty-five (45) degrees with the center line of the water main, or which clear the water main by not less than one and one-half (1 – ½) feet above or one and one-half (1- ½) feet below.

The Grantor agrees to keep the premises free of materials, equipment, vehicles, trees, shrubbery, and any other obstructions which would interfere with Grantee's access to or maintenance of water mains and appurtenances. Grantor further agrees to make no alterations to the premises which would increase the dept of the water main to more than six (6) feet or reduce its depth to less than five (5) feet.

The Grantor agrees to construct a hard surface driveway, of at least fifteen (15) feet in width, adjacent to the water main. The Access driveway shall be constructed of concrete or asphalt and shall conform to current Ohio Department Of Transportation specifications.

If the Grantor desires to alter the premises in any way other than is expressly permitted herein, he must obtain the prior written approval of the Grantee. Upon receipt of such approval, the Grantor shall at his own expense relocate or reconstruct all or any portion of the water main and appurtenances which are affected by such alteration and, where necessary, grant a new easement of not less than fifty (50) feet in width under the same terms and conditions as herein provided. The relocated or reconstructed water main and appurtenances shall, upon completion, and approval by the Grantee, become the property of Grantee, City of Cleveland.

If the Grantor violates any of the provisions of this easement, the Grantee, at the expense of the Grantor, may enter upon the premises and discontinue water service or make such alterations as are necessary to bring the premises into compliance with the provisions of this easement.

Whenever maintenance or work of any kind is performed on the premises under the terms of this easement, the Grantee shall bear no responsibility for restoration of the premises or their environs to their original topographical condition.

The Grantor indemnifies and holds harmless the Grantee from any and all damage, injury or loss to any person or property caused by, related to or resulting from any leaks in the water main or appurtenances or the maintenance, construction, reconstruction or relocation of said main or appurtenances, other than damage, injury or loss caused by, related to or resulting from the sole negligence of the Grantee. The Grantor further indemnifies and holds harmless the Grantee from any and all expense incurred and damage to the water main and appurtenances caused by, related to or resulting from the Grantor's construction or maintenance of any paving, walks, switch tracks, tunnels, sewers, ducts, pipes or pole line within or upon the premises or from any other use of the premises by the Grantor.

The Grantor hereby reserves the right to use the premises for the passage or transportation of personnel, materials or equipment, and to make such other use of the premises as is not expressly prohibited by or inconsistent with the terms of this easement.

The Grantor and the Grantee mutually agree that neither the recording of this instrument nor its acceptance by the Grantee shall be construed as a dedication of the premises or an agreement by the Grantee to accept the premises for dedication for public use as a street.

The Grantor covenants with the Grantee that it is well seized of the premises as a good and indefeasible estate in fee simple and has the right to grant and convey the premises in the manner and form above written. The Grantor further convenants that he will warrant and defend the premises with the appurtenances thereunto belonging to the Grantee against all lawful claims and demands whatsoever for the purposes described herein.

TO HAVE AND TO HOLD the above granted easement, right-of-way, water lines, appurtenances and additions installed by the Grantor, for the purposes above mentioned, unto the Grantee forever.

IN WITNESS WHEREOF, the undersigned have hereunto set their hands at _____ this _____ day of _____, 20____.

Signed in the Presence of:

_____

_____
(print or type name)

_____

_____
(print or type name)

GRANTOR:

_____

_____
(print or type name)

This Instrument Prepared By:

_____

STATE OF OHIO)
) SS:
COUNTY OF CUYAHOGA)

Before me, a Notary Public in and for said County and State, personally appeared the above-named _____, who acknowledged that (he, they) did sign the foregoing instrument and that the same is (his, their) free act and deed, personally and as such officer(s) and the free act and deed of said (corporation, partnership).

IN WITNESS WHEREOF, I have hereunto set may hand and official seal at _____, this _____ day of _____, 20___.

_____
NOTARY

The City of Cleveland, by and through its Director of Public Utilities, does hereby accept the within easement and all the terms and conditions thereof this _____ day of _____, 20____, as authorized by Section 129.20 of the Codified Ordinances of Cleveland, Ohio, 1976, passed by the Council of the City of Cleveland on June 17, 1991.

Signed in the presence of:

_____

_____

CITY OF CLEVELAND

By: _____
Director of Public Utilities

The legal form and correctness of the within instrument is hereby approved:

_____
Director of Law

By: _____
Chief, Assistant Director of Law

Date: _____

CHECKLIST

For Standard Water Service
And Circulation Easements
(Cleveland)

Attention to the following details will expedite the processing of your easement:

Page 1

a) First blank: insert grantor's name
b) Second and third blanks: insert original township name and lot number.
c) Space after introductory paragraphs: insert legal description of easement area only, or attach it as "Exhibit A," and insert: "a copy of the legal description is attached hereto as Exhibit A and is incorporated herein as if fully rewritten."

Page 4 CAUTION: this is where mistakes are most frequently made.

a) The grantor must sign in the presence of TWO witnesses and, on the lines immediately preceding his/her signature, must insert the date of and place at which the signing occurred. The Grantor's name must be typed or printed.
b) If the grantor is signing on behalf of a partnership, corporation, etc., he/she must indicate his representative capacity (President, Agent, etc.)
c) The grantors signature must be notarized.
d) The remaining lines of the Easement should be left blank. They will be filled in by the City of Cleveland.

STANDARD EASEMENT FOR THE INSTALLATION AND MAINTENANCE OF A WATER MAIN FOR THE PURPOSE OF SUPPLYING WATER SERVICE IN A SUBURBAN MUNICIPALITY (EXCLUDING OLMSTED TOWNSHIP AND HUNTING VALLEY)

STANDARD EASEMENT
FOR THE
INSTALLATION AND MAINTENANCE OF A WATER MAIN
FOR THE PURPOSE OF SUPPLYING WATER SERVICE

(I, We) _____, the Grantor herein, for valuable consideration received and to be received to (my, our) full satisfaction, do hereby grant and convey to the (City, Village, Township, District) of _____, and to the City of Cleveland, political subdivision of the State of Ohio and Grantees herein, the perpetual right-of-way and easement for the purposes hereinafter mentioned in the following described premises (the "Premises"):

Situated in the(City, Village, Township, District) of _____, County of _____, State of Ohio, known as being part of the Original _____ Township Lot No. _____, and bounded and described as follows:

_____

Insert legal description of proposed
Easement area by metes and bounds, or
Attach description as Exhibit "A" and
Insert here: "A copy of the legal
Description is attached hereto as
Exhibit "A" and made a part hereof as
If fully written herein."

_____

Grantor and Grantee agree that all references to either part in this instrument shall include that party and the party's heirs, administrators, successors and/or assigns.

In consideration of the mutual covenants contained herein, the Grantor hereby grants and conveys unto the Grantees the right and easement to enter upon the premises to lay, install and maintain therein a water main and appurtenances, including service connections and pipes; to set all water meters and make all repairs to water mains, service meters and appurtenances which the Grantee deems to be necessary or advisable from time to time; to turn off water to any service connection or water main; or to do any other thing which the Grantees deems to be necessary or advisable in order to operate or maintain said mains, meters, connections, pipes and appurtenances in accordance with the ordinances, rules and regulation of the Grantees which are now in effect or may be adopted hereafter.

In consideration of acceptance of the easement by the Grantees, the Grantor agrees to pay the entire cost of installing a water main and appurtenances upon the premises, which main shall be located not less than nine (9) feet from either lateral limit of the premises, The water main and appurtenances, including valves and hydrants, shall upon completion, and approval by the Grantees, become and remain the property of the Grantee (City, Village, Township, District) of _____, and shall be a distribution water main of said Grantee within the purview and subject to the terms of any Water Service Agreement between said Grantee and Grantee, the City of Cleveland, now or hereafter in effect.

All service connections shall be installed in accordance with the ordinances, rules and regulations of the Grantees at the expense of owners of abutting property or others who seek water service thereby. Service connections shall be assigned to specific street mailing addresses by Grantee, City of Cleveland, when said Grantee receives the official designation of such addresses from Grantee, the (City, Village, Township, District) of _____.

All water meters shall be furnished and set by Grantee, City of Cleveland, at the expense of the Grantor. All water shall be supplied by Grantee, City of Cleveland, in the same manner and to the same extent that said Grantee supplies water to properties abutting on public streets in the City of Cleveland.

The Grantor hereby restricts the premises against the construction thereon of any temporary or permanent structures, except that Grantor may install or cause to be installed sidewalks or pavements, or tunnels, railroad switch tracks, sewers, ducts, pipes or pole lines which cross over or under the premises at an angle of not less than forty-five (45) degrees with the center line of the water main, or which clear the water main by not less than one and one-half (1 – ½) feet above or one and one-half (1- ½) feet below.

The Grantor agrees to keep the premises free of materials, equipment, vehicles, trees, shrubbery, and any other obstructions which would interfere with Grantees' access to or maintenance of water mains and appurtenances. Grantor further agrees to make no alterations to the premises which would increase the dept of the water main to more than six (6) feet or reduce its depth to less than five (5) feet.

The Grantor agrees to construct a hard surface driveway, of at least fifteen (15) feet in width, adjacent to the water main. The Access driveway shall be constructed of concrete or asphalt and shall conform to current Ohio Department Of Transportation specifications.

If the Grantor desires to alter the premises in any way other than is expressly permitted herein, he must obtain the prior written approval of the Grantees. Upon receipt of such approval, the Grantor shall at his own expense relocate or reconstruct all or any portion of the water main and appurtenances which are affected by such alteration and, where necessary, grant a new easement of not less than fifty (50) feet in width under the same terms and conditions as herein provided. The relocated or reconstructed water main and appurtenances shall, upon completion, and approval by the Grantees, become the property of Grantee, the (City, Village, Township, District) of _____.

If the Grantor violates any of the provisions of this easement, the Grantees, either jointly or separately and at the expense of the Grantor, may enter upon the premises and discontinue water service or make such alterations as are necessary to bring the premises into compliance with the provisions of this easement.

Whenever maintenance or work of any kind is performed on the premises under the terms of this easement, the Grantees, jointly and separately, shall bear no responsibility for restoration of the premises or their environs to their original topographical condition.

The Grantor indemnifies and holds harmless the Grantees from any and all damage, injury or loss to any person or property caused by, related to or resulting from any leaks in the water main or appurtenances or the maintenance, construction, reconstruction or relocation of said main or appurtenances, other than damage, injury or loss caused by, related to or resulting from the sole negligence of the Grantees. The Grantor further indemnifies and holds harmless the Grantees from any and all expense incurred and damage to the water main and appurtenances caused by, related to or resulting from the Grantor's construction or maintenance of any paving, walks, switch tracks, tunnels, sewers, ducts, pipes or pole line within or upon the premises or from any other use of the premises by the Grantor.

The Grantor hereby reserves the right to use the premises for the passage or transportation of personnel, materials or equipment, and to make such other use of the premises as is not expressly prohibited by or inconsistent with the terms of this easement.

The Grantor and the Grantees mutually agree that neither the recording of this instrument nor its acceptance by the Grantees shall be construed as a dedication of the premises or an agreement by the Grantees to accept the premises for dedication for public use as a street.

The Grantor covenants with the Grantees that it is well seized of the premises as a good and indefeasible estate in fee simple and has the right to grant and convey the premises in the manner and form above written. The Grantor further convenants that he will warrant and defend the premises with the appurtenances thereunto belonging to the Grantees against all lawful claims and demands whatsoever for the purposes described herein.

TO HAVE AND TO HOLD the above granted easement, right-of-way, water lines, appurtenances and additions installed by the Grantor, for the purposes above mentioned, unto the Grantees forever.

IN WITNESS WHEREOF, the undersigned have hereunto set their hands at _____ this _____ day of _____, 20____.

Signed in the Presence of:

_____

_____
(print or type name)

_____

_____
(print or type name)

GRANTOR:

_____

_____
(print or type name)

This Instrument Prepared By:

_____

STATE OF OHIO)
) SS:
COUNTY OF CUYAHOGA)

Before me, a Notary Public in and for said County and State, personally appeared the above-named _____, who acknowledged that (he, they) did sign the foregoing instrument and that the same is (his, their) free act and deed, personally and as such officer(s) and the free act and deed of said (corporation, partnership).

IN WITNESS WHEREOF, I have hereunto set may hand and official seal at _____, this _____ day of _____, 20___.

_____
NOTARY

The legal form and correctness
of the within instrument is
hereby approved:

_____
Director of Law

_____
(City, Village, Township, District)

_____
(Date)

Accepted by the Council of _____ by

(Resolution/Ordinance) No. _____

Passed _____, 20_____.

_____
Clerk or Assistant

_____
(Date)

The City of Cleveland, by and through its Director of Public Utilities, does hereby accept the within easement and all the terms and conditions thereof this _____ day of _____, 20____, as authorized by Section 129.20 of the Codified Ordinances of Cleveland, Ohio, 1976, passed by the Council of the City of Cleveland on June 17, 1991.

Signed in the presence of:

_____

_____

CITY OF CLEVELAND

By: _____
Director of Public Utilities

The legal form and correctness
of the within instrument is
hereby approved:

_____
Director of Law

By: _____
Chief, Assistant Director of Law

Date: _____

CHECKLIST
For Standard Water Service
And Circulation Easements
(Suburban)

Attention to the following details will expedite the processing of your easement:

Page 1

a) First blank: insert grantor's name
b) Second and third blanks: insert name of community in which easement property is located (the "grantee").
c) Fourth blank: insert name of county in which easement property is located.
d) Fifth and sixth blanks: insert original township name and lot number.
e) Space after introductory paragraphs: insert legal description of easement area only, or attach it as "Exhibit A," and insert: "a copy of the legal description is attached hereto as Exhibit A and is incorporated herein as if fully rewritten.

Page 2

Insert name of the grantee (as explained in "b)" above) on both lines.

Page 4 CAUTION: this is where mistakes are most frequently made.

a) The grantor must sigh in the presence of TWO witnesses and, on the lines immediately preceding his/her signature, must insert the date of and place at which the signing occurred.
b) If the grantor is signing on behalf of a partnership, corporation, etc., he/she must indicate his representative capacity (President, Agent, etc.)
c) The grantors signature must be notarized.
d) The grantee must accept the easement:
    1) The easement form must be accompanied by the ordinance or resolution by which the grantee accepts the grant of easement;
    2) The grantee's Law Director must approve the document; and
    3) The grantees Clerk of Council must note the Council's approval.
e) The remaining lines of the Easement should be left blank. They will be filled in by the City of Cleveland.

STANDARD EASEMENT FOR THE INSTALLATION AND MAINTENANCE OF A WATER MAIN FOR THE PURPOSE OF SUPPLYING WATER SERVICE IN OLMSTED TOWNSHIP

STANDARD EASEMENT
FOR THE
INSTALLATION AND MAINTENANCE OF A WATER MAIN
FOR THE PURPOSE OF SUPPLYING WATER SERVICE
IN OLMSTED TOWNSHIP

(I, We) _____, the Grantor herein, for valuable consideration received and to be received to (my, our) full satisfaction, do hereby grant and convey to the City of Cleveland, a municipal corporation of the State of Ohio and Grantee herein, the perpetual right-of-way and easement for the purposes hereinafter mentioned in the following described premises (the "Premises").

Situated in the Olmsted Township, County of Cuyahoga, State of Ohio, known as being part of the Original _____ Township Lot No. _____, and bounded and described as follows:

_____

Insert legal description of proposed easement area by metes and bounds, or attach description as Exhibit "A" and insert here: "A copy of the legal description is attached hereto as Exhibit "A" and made a part hereof as if fully written herein."

_____

Grantor and Grantee agree that all references to either party in this instrument shall include that party and the party's heirs, administrators, successors and/or assigns.

In consideration of the mutual covenants contained herein, the Grantor hereby grants and conveys unto the Grantee the right and easement to enter upon the Premises to lay, install and maintain therein a water main and appurtenances, including service connections and pipes; to set all water meters and make all repairs to water mains, service meters and appurtenances which the Grantee deems to be necessary or advisable from time to time; to turn off water to any service connection or water main; or to do any other thing which the Grantee deems to be necessary or advisable in order to operate or maintain said mains, meters, connections, pipes and appurtenances in accordance with the ordinances, rules and regulations of the Grantee which are now in effect or may be adopted hereafter.

In consideration of acceptance of the easement by the Grantee, the Grantor agrees to pay the entire cost of installing a water main and appurtenances upon the Premises,

which main shall be located not less than nine (9) feet from either lateral limit of the premises. The water main and appurtenances, including valves and hydrants, shall upon completion, and approval by the Grantee, become a distribution water main within the purview and subject to the terms of any Water Service Agreement with Cuyahoga County and/or Olmsted Township now or hereafter in effect.

All service connections shall be installed in accordance with the ordinances, rules and regulations of the Grantee at the expense of owners of abutting property or others who seek water service thereby. All water meters shall be furnished and set by Grantee at the expense of the Grantor. Service connections shall be assigned to specific street mailing addresses by Grantee when said Grantee receives the official designation of such addresses from Olmsted Township.

The Grantor hereby restricts the Premises against the construction thereon of any temporary or permanent structures, except that Grantor may install or cause to be installed sidewalks or pavements, or tunnels, railroad switch tracks, sewers, ducts, pipes or pole lines which cross over or under the premises at an angle of not less than forty-five (45) degrees with the center lien of the water main, or which clear the water main by not less than one and one-half (1½) feet above or one and one-half (1½) feet below.

The Grantor agrees to keep the Premises free of materials, equipment, vehicles, trees, shrubbery, and any other obstructions which would interfere with Grantee's access to or maintenance of water mains and appurtenances. Grantor further agrees to make no alternations to the Premises which would increase the depth of the water main to more than six (6) feet or reduce its depth to less than five (5) feet.

The Grantor agrees to construct a hard surface driveway, of at least fifteen (15) feet in width, adjacent to the water main. The access driveway shall be constructed of concrete or asphalt and shall conform to current O.D.O.T. specifications.

If the Grantor desires to alter the Premises in any way other than is expressly permitted herein, he must obtain the prior written approval of the Grantee. Upon receipt of such approval, the Grantor shall at his own expense relocate or reconstruct all or any portion of the water main and appurtenances which are affected by such alteration and, where necessary, grant a new easement of not less than fifty (50) feet in width under the same terms and conditions as herein provided.

If the Grantor violates any of the provisions of this easement, the Grantee, at the expense of the Grantor, may enter upon the Premises and discontinue water service or make such alterations as are necessary to bring the Premises into compliance with the provisions of this easement.

Whenever maintenance or work of any kind is performed on the Premises under the terms of this easement, the Grantee shall bear no responsibility for restoration of the Premises or their environs to their original topographical condition.

The Grantor indemnifies and holds harmless the Grantee from any and all damage, injury or loss to any person or property caused by, related to or resulting from any leaks in the water main or appurtenances or the maintenance, construction, reconstruction or relocation of said main or appurtenances, other than damage, injury or loss caused by, related to or resulting from the sole negligence of the Grantee. The Grantor further indemnifies and holds harmless the Grantee from any and all expense incurred and damage to the water main and appurtenances caused by, related to or resulting from the Grantor's construction or maintenance of any paving, walks, switch tracks, tunnels, sewers, ducts, pipes or pole line within or upon the Premises or from any other use of the Premises by the Grantor.

The Grantor hereby reserves the right to use the Premises for the passage or transportation of personnel, materials or equipment, and to make such other use of the premises as is not expressly prohibited by or inconsistent with the terms of this easement.

The Grantor and the Grantee mutually agree that neither the recording of this instrument nor its acceptance by the Grantee shall be construed as a dedication of the Premises or an agreement by the Grantee to accept the Premises for dedication for public use as a street.

The Grantor covenants with the Grantee that it is well seized of the Premises as a good and indefeasible estate in free simple and has the right to grant and convey the premises in the manner and form above written. The Grantor further covenants that he will warrant and defend the Premises with the appurtenances thereunto belonging to the Grantee against all lawful claims and demands whatsoever for the purposes described herein.

TO HAVE AND TO HOLD, the above granted easement, right-of-way, water lines, appurtenances and additions installed by the Grantor, for the purposes above mentioned unto the Grantee forever.

IN WITNESS WHEREOF, the undersigned have hereunto set their hands at _____, this _____ day of _____, 20__.

Signed and acknowledged
in the presence of:

GRANTOR

_____ By: _____

_____ _____
(PRINT OR TYPE NAME) (Title)

_____

_____
(PRINT OR TYPE NAME)

This Instrument Prepared By:

_____

STATE OF OHIO)
) *SS:*
COUNTY OF CUYAHOGA)

Before me, a Notary Public in and for said County and State, personally appeared the above-named _____, by _____, its _____, who acknowledged that (he, they) did sign the foregoing instrument and that the same is (his/their) free act and deed personally and as officer(s) of _____.

IN WITNESS WHEREOF, I have hereunto set my hand and official seal at _____, this _____ day of _____, 2000.

_____
Notary Public

The City of Cleveland, by and through its Director of Public Utilities, does hereby accept the within easement and all the terms and conditions thereof this _____ day of _____, 2000, as authorized by Section 129.20 of the Codified Ordinances of Cleveland, Ohio 1976, passed by the Council of the City of Cleveland on June 17, 1991.

Signed in the presence of:

CITY OF CLEVELAND

_____

By: _____
Director of Public Utilities

_____
(PRINT OR TYPE NAME)

_____

_____
(PRINT OR TYPE NAME)

The legal form and correctness of the within instrument is hereby approved:

_____
Director of Law

By:_____
Assistant Director of Law

_____
Date

STANDARD EASEMENT FOR THE INSTALLATION AND MAINTENANCE OF A WATER MAIN FOR THE PURPOSE OF SUPPLYING WATER SERVICE IN HUNTING VALLEY

STANDARD EASEMENT
FOR THE
INSTALLATION AND MAINTENANCE OF A WATER MAIN
FOR THE PURPOSE OF SUPPLYING WATER SERVICE
IN HUNTING VALLEY

(I, We) _____, the Grantor herein, for valuable consideration received and to be received to (my, our) full satisfaction, do hereby grant and convey to the City of Cleveland, a municipal corporation of the State of Ohio and Grantee herein, the perpetual right-of-way and easement for the purposes hereinafter mentioned in the following described premises (the "Premises").

Situated in the Village of Hunting Valley, Counties of Cuyahoga and Geauga, State of Ohio, known as being part of the Original _____ Township Lot No. _____, and bounded and described as follows:

_____

Insert legal description of proposed easement area by metes and bounds, or attach description as Exhibit "A" and insert here: "A copy of the legal description is attached hereto as Exhibit "A" and made a part hereof as if fully written herein."

_____

Grantor and Grantee agree that all references to either party in this instrument shall include that party and the party's heirs, administrators, successors and/or assigns.

In consideration of the mutual covenants contained herein, the Grantor hereby grants and conveys unto the Grantee the right and easement to enter upon the Premises to lay, install and maintain therein a water main and appurtenances, including service connections and pipes; to set all water meters and make all repairs to water mains, service meters and appurtenances which the Grantee deems to be necessary or advisable from time to time; to turn off water to any service connection or water main; or to do any other thing which the Grantee deems to be necessary or advisable in order to operate or maintain said mains, meters, connections, pipes and appurtenances in accordance with the ordinances, rules and regulations of the Grantee which are now in effect or may be adopted hereafter.

In consideration of acceptance of the easement by the Grantee, the Grantor agrees to pay the entire cost of installing a water main and appurtenances upon the Premises,

which main shall be located not less than nine (9) feet from either lateral limit of the premises. The water main and appurtenances, including valves and hydrants, shall upon completion, and approval by the Grantee, become a distribution water main within the purview and subject to the terms of any Water Service Agreement with Hunting Valley now or hereafter in effect.

All service connections shall be installed in accordance with the ordinances, rules and regulations of the Grantee at the expense of owners of abutting property or others who seek water service thereby. All water meters shall be furnished and set by Grantee at the expense of the Grantor. Service connections shall be assigned to specific street mailing addresses by Grantee when said Grantee receives the official designation of such addresses from the Village of Hunting Valley.

The Grantor hereby restricts the Premises against the construction thereon of any temporary or permanent structures, except that Grantor may install or cause to be installed sidewalks or pavements, or tunnels, railroad switch tracks, sewers, ducts, pipes or pole lines which cross over or under the premises at an angle of not less than forty-five (45) degrees with the center lien of the water main, or which clear the water main by not less than one and one-half (1½) feet above or one and one-half (1½) feet below.

The Grantor agrees to keep the Premises free of materials, equipment, vehicles, trees, shrubbery, and any other obstructions which would interfere with Grantee's access to or maintenance of water mains and appurtenances. Grantor further agrees to make no alternations to the Premises which would increase the depth of the water main to more than six (6) feet or reduce its depth to less than five (5) feet.

The Grantor agrees to construct a hard surface driveway, of at least fifteen (15) feet in width, adjacent to the water main. The access driveway shall be constructed of concrete or asphalt and shall conform to current O.D.O.T. specifications.

If the Grantor desires to alter the Premises in any way other than is expressly permitted herein, he must obtain the prior written approval of the Grantee. Upon receipt of such approval, the Grantor shall at his own expense relocate or reconstruct all or any portion of the water main and appurtenances which are affected by such alteration and, where necessary, grant a new easement of not less than fifty (50) feet in width under the same terms and conditions as herein provided.

If the Grantor violates any of the provisions of this easement, the Grantee, at the expense of the Grantor, may enter upon the Premises and discontinue water service or make such alterations as are necessary to bring the Premises into compliance with the provisions of this easement.

Whenever maintenance or work of any kind is performed on the Premises under the terms of this easement, the Grantee shall bear no responsibility for restoration of the Premises or their environs to their original topographical condition.

The Grantor indemnifies and holds harmless the Grantee from any and all damage, injury or loss to any person or property caused by, related to or resulting from any leaks in the water main or appurtenances or the maintenance, construction, reconstruction or relocation of said main or appurtenances, other than damage, injury or loss caused by, related to or resulting from the sole negligence of the Grantee. The Grantor further indemnifies and holds harmless the Grantee from any and all expense incurred and damage to the water main and appurtenances caused by, related to or resulting from the Grantor's construction or maintenance of any paving, walks, switch tracks, tunnels, sewers, ducts, pipes or pole line within or upon the Premises or from any other use of the Premises by the Grantor.

The Grantor hereby reserves the right to use the Premises for the passage or transportation of personnel, materials or equipment, and to make such other use of the premises as is not expressly prohibited by or inconsistent with the terms of this easement.

The Grantor and the Grantee mutually agree that neither the recording of this instrument nor its acceptance by the Grantee shall be construed as a dedication of the Premises or an agreement by the Grantee to accept the Premises for dedication for public use as a street.

The Grantor covenants with the Grantee that it is well seized of the Premises as a good and indefeasible estate in free simple and has the right to grant and convey the premises in the manner and form above written. The Grantor further covenants that he will warrant and defend the Premises with the appurtenances thereunto belonging to the Grantee against all lawful claims and demands whatsoever for the purposes described herein.

TO HAVE AND TO HOLD, the above granted easement, right-of-way, water lines, appurtenances and additions installed by the Grantor, for the purposes above mentioned unto the Grantee forever.

IN WITNESS WHEREOF, the undersigned have hereunto set their hands at _____, this _____ day of _____, 20__.

Signed and acknowledged
in the presence of:

GRANTOR

_____ By: _____

_____ _____
(PRINT OR TYPE NAME) (Title)

_____

_____
(PRINT OR TYPE NAME)

This Instrument Prepared By:

_____

STATE OF OHIO)
) SS:
COUNTY OF CUYAHOGA)

Before me, a Notary Public in and for said County and State, personally appeared the above-named _____, by _____, its _____, who acknowledged that (he, they) did sign the foregoing instrument and that the same is (his/their) free act and deed personally and as officer(s) of _____.

IN WITNESS WHEREOF, I have hereunto set my hand and official seal at _____, this _____ day of _____, 2000.

_____
Notary Public

The City of Cleveland, by and through its Director of Public Utilities, does hereby accept the within easement and all the terms and conditions thereof this _____ day of _____, 2000, as authorized by Section 129.20 of the Codified Ordinances of Cleveland, Ohio 1976, passed by the Council of the City of Cleveland on June 17, 1991.

Signed in the presence of:

CITY OF CLEVELAND

_____

By: _____
Director of Public Utilities

_____
(PRINT OR TYPE NAME)

_____

_____
(PRINT OR TYPE NAME)

The legal form and correctness of the within instrument is hereby approved:

_____
Director of Law

By:_____
Assistant Director of Law

_____
Date

STANDARD EASEMENT FOR THE INSTALLATION AND MAINTENANCE OF A WATER MAIN FOR CIRCULATION PURPOSES ONLY IN THE CITY OF CLEVELAND

STANDARD EASEMENT
FOR THE
INSTALLATION AND MAINTENANCE OF A WATER MAIN
FOR THE CIRCULATION PURPOSES ONLY
IN THE CITY OF CLEVELAND

(I, We) _____, the Grantor herein, for valuable consideration received and to be received to (my, our) full satisfaction, do hereby grant and convey to the City of Cleveland, a municipal corporation of the State of Ohio and Grantee herein, the perpetual right-of-way and easement for the purposes hereinafter mentioned in the following described premises (the "Premises"):

Situated in the City of Cleveland, County of Cuyahoga, State of Ohio, known as being part of the Original _____ Township Lot No. _____, And bounded and described as follows:

_____

Insert legal description of proposed
Easement area by metes and bounds, or
Attach description as Exhibit "A" and
Insert here: "A copy of the legal
Description is attached hereto as
Exhibit "A" and made a part hereof as
If fully written herein."

_____

Grantor and Grantee agree that all references to either part in this instrument shall include that party and the party's heirs, administrators, successors and/or assignees.

In consideration of the mutual covenants contained herein, the Grantor hereby grants and conveys unto the Grantee the right and easement to enter upon the premises to lay, install and maintain therein a water main and appurtenances, including service connections and pipes; to set all water meters and make all repairs to water mains, service meters and appurtenances which the Grantee deems to be necessary or advisable from time to time; to turn off water to any service connection or water main; or to do any other thing which the Grantee deems to be necessary or advisable in order to operate or maintain said mains, meters, connections, pipes and appurtenances in accordance with the ordinances, rules and regulation of the Grantee which are now in effect or may be adopted hereafter.

In consideration of acceptance of the easement by the Grantee, the Grantor agrees to pay the entire cost of installing a water main and appurtenances upon the premises, which main shall be located not less than nine (9) feet from either lateral limit of the premises, The water main and appurtenances, including valves and hydrants, shall upon completion, and approval by the Grantee, become and remain the property of the Grantee City of Cleveland, and shall be a distribution water main of said Grantee within the purview and subject to the terms of any Water Service Agreement now or hereafter in effect.

The Grantor hereby restricts the premises against the construction thereon of any temporary or permanent structures, except that Grantor may install or cause to be installed sidewalks or pavements, or tunnels, railroad switch tracks, sewers, ducts, pipes or pole lines which cross over or under the premises at an angle of not less than forty-five (45) degrees with the center line of the water main, or which clear the water main by not less than one and one-half (1 – ½) feet above or one and one-half (1- ½) feet below.

The Grantor agrees to keep the premises free of materials, equipment, vehicles, trees, shrubbery, and any other obstructions which would interfere with Grantee's access to or maintenance of water mains and appurtenances. Grantor further agrees to make no alterations to the premises which would increase the dept of the water main to more than six (6) feet or reduce its depth to less than five (5) feet.

If the Grantor desires to alter the premises in any way other than is expressly permitted herein, he must obtain the prior written approval of the Grantee. Upon receipt of such approval, the Grantor shall at his own expense relocate or reconstruct all or any portion of the water main and appurtenances which are affected by such alteration and, where necessary, grant a new easement of not less than fifty (30) feet in width under the same terms and conditions as herein provided. The relocated or reconstructed water main and appurtenances shall, upon completion, and approval by the Grantee, become the property of Grantee, City of Cleveland.

If the Grantor violates any of the provisions of this easement, the Grantee, at the expense of the Grantor, may enter upon the premises and discontinue water service or make such alterations as are necessary to bring the premises into compliance with the provisions of this easement.

Whenever maintenance or work of any kind is performed on the premises under the terms of this easement, the Grantee shall bear no responsibility for restoration of the premises or their environs to their original topographical condition.

The Grantor indemnifies and holds harmless the Grantee from any and all damage, injury or loss to any person or property caused by, related to or resulting from any leaks in the water main or appurtenances or the maintenance, construction, reconstruction or relocation of said main or appurtenances, other than damage, injury or

loss caused by, related to or resulting from the sole negligence of the Grantee. The Grantor further indemnifies and holds harmless the Grantee from any and all expense incurred and damage to the water main and appurtenances caused by, related to or resulting from the Grantor's construction or maintenance of any paving, walks, switch tracks, tunnels, sewers, ducts, pipes or pole line within or upon the premises or from any other use of the premises by the Grantor.

The Grantor hereby reserves the right to use the premises for the passage or transportation of personnel, materials or equipment, and to make such other use of the premises as is not expressly prohibited by or inconsistent with the terms of this easement.

The Grantor further agrees that since the water main to be installed on the premises is for circulation purposes only, no service connections or hydrants shall be connected to it at any time, and that divisional valves of the same size as the water main shall be installed at each longitudinal end of the premises.

The Grantor and the Grantee mutually agree that neither the recording of this instrument nor its acceptance by the Grantee shall be construed as a dedication of the premises or an agreement by the Grantee to accept the premises for dedication for public use as a street.

The Grantor covenants with the Grantee that it is well seized of the premises as a good and indefeasible estate in fee simple and has the right to grant and convey the premises in the manner and form above written. The Grantor further convenants that he will warrant and defend the premises with the appurtenances thereunto belonging to the Grantee against all lawful claims and demands whatsoever for the purposes described herein.

TO HAVE AND TO HOLD the above granted easement, right-of-way, water lines, appurtenances and additions installed by the Grantor, for the purposes above mentioned, unto the Grantee forever.

IN WITNESS WHEREOF, the undersigned have hereunto set their hands at _____ this _____ day of _____, 20____.

Signed in the Presence of:

_____

_____
(print or type name)

_____

_____
(print or type name)

GRANTOR:

_____

_____
(print or type name)

This Instrument Prepared By:

_____

STATE OF OHIO)
) SS:
COUNTY OF CUYAHOGA)

Before me, a Notary Public in and for said County and State, personally appeared the above-named _____, who acknowledged that (he, they) did sign the foregoing instrument and that the same is (his, their) free act and deed, personally and as such officer(s) and the free act and deed of said (corporation, partnership).

IN WITNESS WHEREOF, I have hereunto set may hand and official seal at _____, this _____ day of _____, 20___.

_____
NOTARY

The City of Cleveland, by and through its Director of Public Utilities, does hereby accept the within easement and all the terms and conditions thereof this _____ day of _____, 20____, as authorized by Section 129.20 of the Codified Ordinances of Cleveland, Ohio, 1976, passed by the Council of the City of Cleveland on June 17, 1991.

Signed in the presence of:

_____

_____

CITY OF CLEVELAND

By: _____
Director of Public Utilities

The legal form and correctness of the within instrument is hereby approved:

_____
Director of Law

By: _____
Assistant Director of Law

Date: _____

CHECKLIST
For Standard Water Service
And Circulation Easements
(Cleveland)

Attention to the following details will expedite the processing of your easement:

Page 1

a) First blank: insert grantor's name
b) Second and third blanks: insert original township name and lot number.
c) Space after introductory paragraphs: insert legal description of easement area only, or attach it as "Exhibit A," and insert: "a copy of the legal description is attached hereto as Exhibit A and is incorporated herein as if fully rewritten."

Page 4 CAUTION: this is where mistakes are most frequently made.

a) The grantor must sign in the presence of TWO witnesses and, on the lines immediately preceding his/her signature, must insert the date of and place at which the signing occurred. The Grantor's name must be typed or printed.
b) If the grantor is signing on behalf of a partnership, corporation, etc., he/she must indicate his representative capacity (President, Agent, etc.)
c) The grantors signature must be notarized.
d) The remaining lines of the Easement should be left blank. They will be filled in by the City of Cleveland.

STANDARD EASEMENT FOR THE INSTALLATION AND MAINTENANCE OF A WATER MAIN FOR CIRCULATION PURPOSES ONLY IN STREETS VACATED BY CITY ORDINANCES

Standard Easement

For The

Maintenance Of A Water Main

In Streets Vacated By City Ordinances

For Circulation Purposes Only

KNOWN ALL MEN BY THESE PRESENTS: That (I, We, Company or Corporation)

---

the grantor, herein, for valuable consideration received and to be received to (my, our or its) full satisfaction, (do or does) hereby give, grant, bargain and convey to the City of Cleveland, a municipal corporation of the State of Ohio, the Grantee herein, the perpetual right-of-way and easement, for the purpose hereinafter mentioned in the following described premises, to-wit:

Situated in the City of Cleveland, County of Cuyahoga, State of Ohio, and Known as being part of the Original _____ Township Lot No. _____, and bounded and described as follows:

_____

Insert description of proposed street
Or easement area, by metes and bounds
For its full width and length

_____

In consideration of the mutual convenants herein contained, the Grantor hereby gives, grants and conveys unto said the right and maintain therein a water main and all appurtenances connected therewith that in the opinion of the Grantee, its successors or assigns, may be necessary at anytime, also, to turn off the water of any main, or to do any other thing that my be necessary or advisable in the judgement of said Grantee, its successors or assigns, in order to maintain or operate said main, pipes and appurtenances, in accordance with the ordinance, rules and regulations for the management and protection of said Grantee now in force or that may hereafter be adopted. Further, whenever maintenance or work of any kind is required hereunder, the Grantee shall not be responsible for restoration of the property or its environs to its original topographical condition, and should also be held blameless for any damage accruing by reason of water leakage from water mains or appurtenances.

The Grantors hereby restrict said premises within the limits of the above described easement against the construction thereon of any buildings of a temporary or permanent type, excepting any sidewalks and/or pavements, or the construction, in, over, or subjacent to the above described easement of any tunnels, railroad switch tracks, sewers, ducts, pipe, or pole lines within the limits of the above described easement which cross over or under said easement at any angle of not less than forty-five (45) degrees with the center lines of the water main or with clearance of not less than one (1) foot above or one and one-half (1 ½) feet below said water main.

In the event of a violation of any of the provisions of this easement by the Grantor, or his successors or assigns, the Grantee shall retain the right to enter upon the premises of the Grantor and either discontinue the water service, or make the necessary alterations to conform to the ordinances, rules and regulations of the Grantee. Any expenses involved by reason of the work involved shall be the responsibility of the Grantor. Further the Grantee shall not be responsible for restoration of the property of its environs to its original topographical condition, and should also be held blameless for any damage occurring by reason of water leakage from water mains or appurtenances. Further, to restrict the storing or placing of any materials, parking of any vehicles of any type, equipment or other obstructions thereon, or otherwise interfering with the access to or the maintenance of the water or appurtenances, and also against the planting or sufferance thereon or in such proximity thereto of trees and shrubbery which may restrict the accessibility for the maintenance of said water main and appurtenances.

The Grantors further agree that no additional fill will be made, or a ramp constructed within the limits of the above described easement for the purpose of providing access to the property which will increase the depth of the water main in excess of six (6) feet or to grade the surface within the limits of said easement which will reduce the depth of the water main to less than five (5) feet. It is agreed, however, that if in the event the Grantor herein, his successors, or assigns, desire to build over, encroach upon, change the grade, or otherwise utilize all or any portion of the easement granted hereby to permit improvement of property now restricted hereunder, the Grantee must first approve such use of land within the limits of easement granted hereby, the Grantor shall reconstruct or relocate all or any portion of water main affected by such use of land and where necessary, grant a new easement of not less than thirty (30) feet in width under the same terms and conditions as herein provided and bear the entire cost of reconstruction or relocation of the water main or appurtenances, in accordance with the provisions, rules and requirements of the Grantee, its successors or assigns. Said reconstructed or relocated water main and appurtenances shall, upon completion and approval of the Grantee, become the property of the City of Cleveland.

The Grantors further agree that the Grantee shall be relieved of all liability to the Grantor on account of the maintenance, construction, and reconstruction or relocation of said water main or appurtenances, and said Grantor hereby indemnifies and guarantees to save harmless the Grantee against any expense or damage to said later main or appurtenances, that said Grantors, their successors or assigns may at anytime cause by the sewers, ducts, pipe or pole lines within or over said easement, or such other use of premises within the limits of the above described easement as are not expressly prohibited herein, under the same conditions that legally exist for the installation and maintenance of water mains and appurtenances in streets dedicated to public use.

The Grantor further agrees that since this water main is for circulation purposes only, no service connections or hydrants, shall be taken off it at anytime, and that divisional valves of the same size of the water main shall be installed at each longitudinal end of the easement area. All existing water service connections within the water circulation easement shall be plugged prior to recording of said easement. In the event of leakage or a break, the Division of Water and Heat will close the divisional valves and take the section of water main out of service until it is repaired by and at the expense of the Grantor.

To HAVE AND TO HOLD THE above granted easement, right-of-way, water lines and appurtenances and further additions installed by the Grantor to said water lines and appurtenances in, over, and subject to above described premises, for the purpose above mentioned unto said Grantee forever.

It is the intent of this conveyance that neither the filing of this deed or conveyance, its acceptance by the Grantee nor any other circumstances shall be construed as a dedication of or as an agreement by the Grantee to accept for dedication the premises here in described for public use as a street.

And the Grantor does for itself, its successors and assigns covenant with the said Grantee, and its successors and assigns, that at and until the sealing of these presents, it is well seized of the above described premised as a good and indefeasible estate in FEE SIMPLE and has good right to bargain and grant the same in manner and forms as above written, and that it will WARRANT AND DEFEND SAID PREMISES with the appurtenances thereunto belonging to the Grantee, its successors and assigns against all lawful claims and demands whatsoever for the purpose herein described.

It is agreed that whatever party is named in this instrument there shall be intended and included, in each case, that party, his or hers heirs, administrators, its successors, and/or assigns.

IN WITNESS WHEREOF, the undersigned have hereunto set their hands at _____ this _____ day of _____, 20_____

Signed in the Presence of: Grantor:

_____ _____

_____ _____

STATE OF OHIO)

SS

COUNTY OF CUYAHOGA)

Before me, a Notary Public in and for said County and State, personally appeared the above named _____ who acknowledged that they did sign the foregoing instrument and that the same is their free act and deed, personally and as such officers and the free act and deed of said corporation.

IN WITNESS WHEREOF, I have hereunto set my hand and official seal at _____ this _____ day of 20_____

_____

NOTARY PUBLIC

The City of Cleveland, by and through its Director of Public Utilities, does hereby accept the within easement and all terms and conditions thereof this _____ day of _____, 20_____ as authorized by Resolution #1620-72 adopted by the Council of the City of Cleveland on May 1, 1974.

Signed in the presence of:

_____ By _____

Director of Public Utilities

_____

The legal form and correctness of the within instrument is hereby approved.

_____ By _____

Director of Law Assistant Director of Law

STANDARD EASEMENT FOR THE INSTALLATION AND MAINTENANCE OF A WATER MAIN FOR CIRCULATION PURPOSES ONLY IN A SUBURBAN MUNICIPALITY (EXCLUDING OLMSTED TOWNSHIP)

STANDARD EASEMENT
FOR THE
INSTALLATION AND MAINTENANCE OF A WATER MAIN
FOR CIRCULATION PURPOSES ONLY

(I, We) _____, the Grantor herein, for valuable consideration received and to be received to (my, our) full satisfaction, do hereby grant and convey to the (City, Village, Township, District) of _____, and to the City of Cleveland, political subdivision of the State of Ohio and Grantees herein, the perpetual right-of-way and easement for the purposes hereinafter mentioned in the following described premises (the "Premises"):

Situated in the(City, Village, Township, District) of _____, County of _____, State of Ohio, known as being part of the Original _____ Township Lot No. _____, and bounded and described as follows:

_____

Insert legal description of proposed
Easement area by metes and bounds, or
Attach description as Exhibit "A" and
Insert here: "A copy of the legal
Description is attached hereto as
Exhibit "A" and made a part hereof as
If fully written herein."

_____

Grantor and Grantee agree that all references to either part in this instrument shall include that party and the party's heirs, administrators, successors and/or assignees.

In consideration of the mutual covenants contained herein, the Grantor hereby grants and conveys unto the Grantees the right and easement to enter upon the premises to lay, install and maintain therein a water main and appurtenances, including service connections and pipes; to set all water meters and make all repairs to water mains, service meters and appurtenances which the Grantee deems to be necessary or advisable from time to time; to turn off water to any service connection or water main; or to do any other thing which the Grantees deems to be necessary or advisable in order to operate or maintain said mains, meters, connections, pipes and appurtenances in accordance with the ordinances, rules and regulation of the Grantees which are now in effect or may be adopted hereafter.

In consideration of acceptance of the easement by the Grantees, the Grantor agrees to pay the entire cost of installing a water main and appurtenances upon the premises, which main shall be located not less than nine (9) feet from either lateral limit of the premises, The water main and appurtenances, including valves and hydrants, shall upon completion, and approval by the Grantees, become and remain the property of the Grantee (City, Village, Township, District) of _____, and shall be a distribution water main of said Grantee within the purview and subject to the terms of any Water Service Agreement between said Grantee and Grantee, the City of Cleveland, now or hereafter in effect.

The Grantor hereby restricts the premises against the construction thereon of any temporary or permanent structures, except that Grantor may install or cause to be installed sidewalks or pavements, or tunnels, railroad switch tracks, sewers, ducts, pipes or pole lines which cross over or under the premises at an angle of not less than forty-five (45) degrees with the center line of the water main, or which clear the water main by not less than one and one-half (1 – ½) feet above or one and one-half (1- ½) feet below.

The Grantor agrees to keep the premises free of materials, equipment, vehicles, trees, shrubbery, and any other obstructions which would interfere with Grantees' access to or maintenance of water mains and appurtenances. Grantor further agrees to make no alterations to the premises which would increase the dept of the water main to more than six (6) feet or reduce its depth to less than five (5) feet.

If the Grantor desires to alter the premises in any way other than is expressly permitted herein, he must obtain the prior written approval of the Grantees. Upon receipt of such approval, the Grantor shall at his own expense relocate or reconstruct all or any portion of the water main and appurtenances which are affected by such alteration and, where necessary, grant a new easement of not less than thirty (30) feet in width under the same terms and conditions as herein provided. The relocated or reconstructed water main and appurtenances shall, upon completion, and approval by the Grantees, become the property of Grantee, the (City, Village, Township, District) of _____.

If the Grantor violates any of the provisions of this easement, the Grantees, either jointly or separately and at the expense of the Grantor, may enter upon the premises and discontinue water service or make such alterations as are necessary to bring the premises into compliance with the provisions of this easement.

Whenever maintenance or work of any kind is performed on the premises under the terms of this easement, the Grantees, jointly and separately, shall bear no responsibility for restoration of the premises or their environs to their original topographical condition.

The Grantor indemnifies and holds harmless the Grantees from any and all damage, injury or loss to any person or property caused by, related to or resulting from

any leaks in the water main or appurtenances or the maintenance, construction, reconstruction or relocation of said main or appurtenances, other than damage, injury or loss caused by, related to or resulting from the sole negligence of the Grantees. The Grantor further indemnifies and holds harmless the Grantees from any and all expense incurred and damage to the water main and appurtenances caused by, related to or resulting from the Grantor's construction or maintenance of any paving, walks, switch tracks, tunnels, sewers, ducts, pipes or pole line within or upon the premises or from any other use of the premises by the Grantor.

The Grantor hereby reserves the right to use the premises for the passage or transportation of personnel, materials or equipment, and to make such other use of the premises as is not expressly prohibited by or inconsistent with the terms of this easement.

The Grantor further agrees that since the water main to be installed on the premises is for circulation purposes only, no service connections or hydrants shall be connected to it at any time, and that divisional valves of the same size as the water main shall be installed at each longitudinal end of the premises.

The Grantor and the Grantees mutually agree that neither the recording of this instrument nor its acceptance by the Grantees shall be construed as a dedication of the premises or an agreement by the Grantees to accept the premises for dedication for public use as a street.

The Grantor covenants with the Grantees that it is well seized of the premises as a good and indefeasible estate in fee simple and has the right to grant and convey the premises in the manner and form above written. The Grantor further convenants that he will warrant and defend the premises with the appurtenances thereunto belonging to the Grantees against all lawful claims and demands whatsoever for the purposes described herein.

TO HAVE AND TO HOLD the above granted easement, right-of-way, water lines, appurtenances and additions installed by the Grantor, for the purposes above mentioned, unto the Grantees forever.

IN WITNESS WHEREOF, the undersigned have hereunto set their hands at _____ this _____ day of _____, 20____.

Signed in the Presence of:

_____

_____
(print or type name)

_____

GRANTOR:

_____

_____
(print or type name)

_____
(print or type name)

This Instrument Prepared By:

_____

STATE OF OHIO)
) SS:
COUNTY OF CUYAHOGA)

Before me, a Notary Public in and for said County and State, personally appeared the above-named _____, who acknowledged that (he, they) did sign the foregoing instrument and that the same is (his, their) free act and deed, personally and as such officer(s) and the free act and deed of said (corporation, partnership).

IN WITNESS WHEREOF, I have hereunto set may hand and official seal at _____, this _____ day of _____, 20___.

_____
NOTARY

The legal form and correctness
of the within instrument is
hereby approved:

_____
Director of Law

_____
(City, Village, Township, District)

_____
(Date)

Accepted by the Council of _____ by

(Resolution/Ordinance) No. _____

Passed _____, 20_____.

_____

Clerk or Assistant

_____
(Date)

The City of Cleveland, by and through its Director of Public Utilities, does hereby accept the within easement and all the terms and conditions thereof this _____ day of _____, 20____, as authorized by Section 129.20 of the Codified Ordinances of Cleveland, Ohio, 1976, passed by the Council of the City of Cleveland on June 17, 1991.

Signed in the presence of:

_____

_____

CITY OF CLEVELAND

By: _____
Director of Public Utilities

The legal form and correctness of the within instrument is hereby approved:

_____
Director of Law

By: _____
Assistant Director of Law

Date: _____

CHECKLIST
For Standard Water Service
And Circulation Easements
(Suburban)

Attention to the following details will expedite the processing of your easement:

Page 1

a) First blank: insert grantor's name
b) Second and third blanks: insert name of community in which easement property is located (the "grantee").
c) Fourth blank: insert name of county in which easement property is located.
d) Fifth and sixth blanks: insert original township name and lot number.
e) Space after introductory paragraphs: insert legal description of easement area only, or attach it as "Exhibit A," and insert: "a copy of the legal description is attached hereto as Exhibit A and is incorporated herein as if fully rewritten.

Page 2

Insert name of the grantee (as explained in "b)" above) on both lines.

Page 4 CAUTION: this is where mistakes are most frequently made.

a) The grantor must sigh in the presence of TWO witnesses and, on the lines immediately preceding his/her signature, must insert the date of and place at which the signing occurred.
b) If the grantor is signing on behalf of a partnership, corporation, etc., he/she must indicate his representative capacity (President, Agent, etc.)
c) The grantors signature must be notarized.
d) The grantee must accept the easement:
    1) The easement form must be accompanied by the ordinance or resolution by which the grantee accepts the grant of easement;
    2) The grantee's Law Director must approve the document; and
    3) The grantees Clerk of Council must note the Council's approval.
e) The remaining lines of the Easement should be left blank. They will be filled in by the City of Cleveland.

STANDARD EASEMENT FOR THE INSTALLATION AND MAINTENANCE OF A WATER MAIN FOR CIRCULATION PURPOSES ONLY IN OLMSTED TOWNSHIP

STANDARD EASEMENT
FOR THE
INSTALLATION AND MAINTENANCE OF A WATER MAIN
FOR CIRCULATION PURPOSES ONLY
IN OLMSTED TOWNSHIP

(I, We) _____, the Grantor herein, for valuable consideration received and to be received to (my, our) full satisfaction, do hereby grant and convey to the City of Cleveland, political subdivision of the State of Ohio and Grantee herein, the perpetual right-of-way and easement for the purposes hereinafter mentioned in the following described premises (the "Premises"):

Situated in the(City, Village, Township, District) of _____, County of _____, State of Ohio, known as being part of the Original _____ Township Lot No. _____, and bounded and described as follows:

_____

Insert legal description of proposed
Easement area by metes and bounds, or
Attach description as Exhibit "A" and
Insert here: "A copy of the legal
Description is attached hereto as
Exhibit "A" and made a part hereof as
If fully written herein."

_____

Grantor and Grantee agree that all references to either part in this instrument shall include that party and the party's heirs, administrators, successors and/or assignees.

In consideration of the mutual covenants contained herein, the Grantor hereby grants and conveys unto the Grantee the right and easement to enter upon the premises to lay, install and maintain therein a water main and appurtenances, including service connections and pipes; to set all water meters and make all repairs to water mains, service meters and appurtenances which the Grantee deems to be necessary or advisable from time to time; to turn off water to any service connection or water main; or to do any other thing which the Grantee deems to be necessary or advisable in order to operate or maintain said mains, meters, connections, pipes and appurtenances in accordance with the ordinances, rules and regulations of the Grantee which are now in effect or may be adopted hereafter.

In consideration of acceptance of the easement by the Grantee, the Grantor agrees to pay the entire cost of installing a water main and appurtenances upon the premises, which main shall be located not less than nine (9) feet from either lateral limit of the premises. The water main and appurtenances, including valves and hydrants, shall upon completion, and approval by the Grantee, become a distribution water main within the purview and subject to the terms of any Water Service Agreement with Cuyahoga County and/or Olmsted Township .

The Grantor hereby restricts the premises against the construction thereon of any temporary or permanent structures, except that Grantor may install or cause to be installed sidewalks or pavements, or tunnels, railroad switch tracks, sewers, ducts, pipes or pole lines which cross over or under the premises at an angle of not less than forty-five (45) degrees with the center line of the water main, or which clear the water main by not less than one and one-half (1 – ½) feet above or one and one-half (1- ½) feet below.

The Grantor agrees to keep the premises free of materials, equipment, vehicles, trees, shrubbery, and any other obstructions which would interfere with Grantee's access to or maintenance of water mains and appurtenances. Grantor further agrees to make no alterations to the premises which would increase the dept of the water main to more than six (6) feet or reduce its depth to less than five (5) feet.

If the Grantor desires to alter the premises in any way other than is expressly permitted herein, he must obtain the prior written approval of the Grantee. Upon receipt of such approval, the Grantor shall at his own expense relocate or reconstruct all or any portion of the water main and appurtenances which are affected by such alteration and, where necessary, grant a new easement of not less than fifty (50) feet in width under the same terms and conditions as herein provided.

If the Grantor violates any of the provisions of this easement, the Grantee at the expense of the Grantor, may enter upon the premises and discontinue water service or make such alterations as are necessary to bring the premises into compliance with the provisions of this easement.

Whenever maintenance or work of any kind is performed on the premises under the terms of this easement, the Grantee shall bear no responsibility for restoration of the premises or their environs to their original topographical condition.

The Grantor indemnifies and holds harmless the Grantee from any and all damage, injury or loss to any person or property caused by, related to or resulting from any leaks in the water main or appurtenances or the maintenance, construction, reconstruction or relocation of said main or appurtenances, other than damage, injury or loss caused by, related to or resulting from the sole negligence of the Grantee. The Grantor further indemnifies and holds harmless the Grantee from any and all expense incurred and damage to the water main and appurtenances caused by, related to or

resulting from the Grantor's construction or maintenance of any paving, walks, switch tracks, tunnels, sewers, ducts, pipes or pole line within or upon the premises or from any other use of the premises by the Grantor.

The Grantor hereby reserves the right to use the premises for the passage or transportation of personnel, materials or equipment, and to make such other use of the premises as is not expressly prohibited by or inconsistent with the terms of this easement.

The Grantor further agrees that since the water main to be installed on the premises is for circulation purposes only, no service connections or hydrants shall be connected to it at any time, and that divisional valves of the same size as the water main shall be installed at each longitudinal end of the premises.

The Grantor and the Grantee mutually agree that neither the recording of this instrument nor its acceptance by the Grantee shall be construed as a dedication of the premises or an agreement by the Grantee to accept the premises for dedication for public use as a street.

The Grantor covenants with the Grantee that it is well seized of the premises as a good and indefeasible estate in fee simple and has the right to grant and convey the premises in the manner and form above written. The Grantor further covenants that he will warrant and defend the premises with the appurtenances thereunto belonging to the Grantee against all lawful claims and demands whatsoever for the purposes described herein.

TO HAVE AND TO HOLD the above granted easement, right-of-way, water lines, appurtenances and additions installed by the Grantor, for the purposes above mentioned, unto the Grantee forever.

IN WITNESS WHEREOF, the undersigned have hereunto set their hands at _____ this _____ day of _____, 20____.

Signed in the Presence of: GRANTOR:

_____ _____

_____ _____

(print or type name) (print or type name)

_____

_____
(print or type name)

This Instrument Prepared By:

_____

STATE OF OHIO)
) SS:
COUNTY OF CUYAHOGA)

Before me, a Notary Public in and for said County and State, personally appeared the above-named _____, who acknowledged that (he, they) did sign the foregoing instrument and that the same is (his, their) free act and deed, personally and as such officer(s) and the free act and deed of said (corporation, partnership).

IN WITNESS WHEREOF, I have hereunto set may hand and official seal at _____, this _____ day of _____, 20___.

_____
NOTARY

The City of Cleveland, by and through its Director of Public Utilities, does hereby accept the within easement and all the terms and conditions thereof this _____ day of _____, 20____, as authorized by Section 129.20 of the Codified Ordinances of Cleveland, Ohio, 1976, passed by the Council of the City of Cleveland on June 17, 1991.

Signed in the presence of:

_____

_____

CITY OF CLEVELAND

By: _____
Director of Public Utilities

The legal form and correctness
of the within instrument is
hereby approved:

_____
Director of Law

By: _____
Assistant Director of Law

Date: _____

RELEASE OF EASEMENT

RELEASE OF EASEMENT
FOR
WATER MAIN

KNOW ALL MEN BY THESE PRESENTS:

That the City of Cleveland, Ohio, acting through its Director of Public Utilities, pursuant to Section 129.20 of the Codified Ordinances of Cleveland, passed June 17, 1991, for valuable consideration received and to be received to its satisfaction, does hereby release, cancel, rescind, vacate, and hold for naught the perpetual right-of-way and easement for the installation, repair, and maintenance of a water main granted to the City of Cleveland by _____, by instrument dated _____, _____, and recorded in Volume _____, Page _____ of the records of _____ County, Ohio in the following described premises, to wit:

INSERT LEGAL DESCRIPTION HERE

IN WITNESS WEREOF, the undersigned has hereunto set his hand at Cleveland, Ohio, this _____ day of _____, _____.

SIGNED IN THE PRESENCE OF:

_____

_____

CITY OF CLEVELAND

_____
Director, Department of Public Utilities

STATE OF OHIO)
) ss:
CUYAHOGA COUNTY)

BEFORE ME, a Notary Public in and for said County and State, personally appeared the above-named Robert L. Davis, Director of Public Utilities, who acknowledged that he did sign the foregoing instrument and that the same is his free act and deed, personally and as such officer, and the free act and deed of said municipal corporation.

IN WITNESS WHEREOF, I have hereunto set my hand and official seal at _____, Ohio, this _____ day of _____, _____.

_____
Notary Public

This instrument prepared by:

_____

The legal form and correctness of the within instrument are hereby approved.

BARBARA A. LANGHENRY
DIRECTOR OF LAW

By: _____
Assistant Director of Law

EASEMENT FOR WATER METER VAULT

Easement for Water Meter Vault Instructions

An easement for a water meter vaults is required **only** when a water meter and/or backflow vault is proposed to go outside the public right-of-way. This is only permitted when obstructions or insufficient space between the curb and right-of-way edge do not allow the vault to remain in the right-of-way. The easement allows access to Cleveland Water to maintain the water meter on the property in perpetuity. Please note the text of the easement is not negotiable.

If it is determined an easement for a water meter vault is required, here are the steps to completing one.

1. **Obtain a legal description.** A legal description of property is a way to define or accurately pinpoint where a particular piece of property is located. It describes the location in terms of measurements from a monument or surveying plat, and is also often accompanied by a drawing to make clear the location. A legal description is usually prepared by a Professional Surveyor. The legal description may be inserted into the blank space on the first page of the easement, or attached as Exhibit A, noting the see Exhibit A on page 1. For the water meter vault easement, the easement must be contiguous with the public right of way and cover the entire vault.
2. **Fill out the property owner's name.** The property owner or owners are known as the Grantor or Grantors. (Please note the text and format of the form may be reproduced with names and the legal description added rather than filled in the blanks.)
3. **Sign in the presence of two witnesses and a notary public.** They will need to witness the signature and indicate the date of signing
4. **Send the signed original to Cleveland Water.** It may be delivered or sent to Cleveland Water, Engineering – 2nd Floor, 1201 Lakeside Ave. E, Cleveland OH 44114. Please note we must have the original document. Cleveland Water will then review the easement for completeness and have it signed as accepted by Cleveland Water. The document will then be returned.
5. **Have the easement recorded.** The easement must then be recorded by the County were the property is located. In Cuyahoga and Summit Counties, this is part of the Office of the County Fiscal Officer. In Medina and Geauga Counties, it is done in the Office of the County Recorder. The property owner is responsible for paying all recording fees.
6. **Provide CWD with the document number of the recorded easement.** Cleveland Water will need to verify the easement is recorded before service can be turned on. Please provide CWD with the Document Number, AFN Number, or Book/Page so that Cleveland Water can verify the easement has been recorded. You may email this information to WaterServiceApplication@ClevelandWater.com.

EASEMENT FOR WATER METER VAULT

KNOW ALL MEN BY THESE PRESENTS

THAT_____, herein for consideration of the sum of one dollar ($1.00) and other valuable consideration, receipt of which is hereby acknowledged, do(es) hereby give, grant, bargain and convey to the City of Cleveland, municipal corporation of the State of Ohio, the Grantees herein, the Right-of-way and easement for the purpose hereinafter mentioned is the following premises, to-wit:

Be the same more or less but subject to all legal highways.

The Grantor(s) convey the right and easement to enter upon said premises and to install, repair and maintain therein the water meter(s), also to turn off the water of any service or main, or to do any other thing that may be necessary or advisable in the judgment of said Grantees, its successors or assigns, in order to maintain or operate said meters in accordance with the ordinances, rules and regulations for the management of said Grantees now in force or that may hereafter be adopted.

The Grantor(s) further in consideration of the acceptance of the easement above mentioned, by the Grantee does hereby agree to pay the entire cost of installing and maintaining a water meter vault and appurtenances within the above described easement, constructed and maintained in accordance with the provisions, rules, regulations and requirements of the Grantee, its successors or assigns.

Whenever the Grantor(s) is notified by the Grantee that the water meter vault or its appurtenances are in need of maintenance, said maintenance shall be performed by the Grantor(s). In the event the Grantor(s) fails to perform said maintenance within a reasonable period of time as determined by the Grantee, the Grantee reserves the right to perform said maintenance and charge the expense thereof to the Grantor(s).

The Grantor(s) hereby restrict said premises within the limits of the above described easement against the construction thereon of any buildings of a temporary or permanent type, excepting any sidewalks and/or pavements.

TO HAVE AND TO HOLD THE above described easement and right-of-way for the purpose above mentioned unto said Grantee forever.

It is the intent of this conveyance that neither the filling of this deed or conveyance, its acceptance by the Grantee nor any other circumstance shall be construed as a dedication of or as an agreement by the Grantee to accept for dedication the premises herein described for public use as a street.

It is agreed that whatever party is named in this instrument there shall be intended and included in each case that party, his or her heirs, administrators, successors and/or assigns.

IN WITNESS WHEREOF, The Grantor(s) has caused this instrument to be executed on the _____ day of _____, _____.

Signed in the presence of:

_____

_____

Grantors:

_____

_____

This instrument prepared by:

_____

STATE OF OHIO }
} SS:
COUNTY OF _____}

Before me, a Notary Public in and for said County and State, personally appeared the above named Grantor(s)

_____

who acknowledged that the signing of the foregoing instrument in my presence was a free and duly authorized act and deed.

IN WITNESS WHEREOF,
I have hereunto set my hand and official seal this_____day of _____, _____.

_____

The City of Cleveland by its Director of Public Utilities does hereby accept the grant of easement this _____ day of _____, _____, as authorized by Codified Ordinance Section 129.20.

Witness:

_____

City of Cleveland

By: _____
Director of Public Utilities

The legal form and correctness of the within instrument is hereby approved.

_____
Assistant Director of Law

HYDRANT RELOCATION REQUIREMENTS

Introduction

All hydrants owned by the Cleveland Division of Water are located in a public right-of-way or a water supply easement, and as such, Cleveland Water does not move them at customer request. However, a customer may relocate a hydrant at their expense provided the new hydrant meets all Cleveland Water requirements and is approved by the local fire department. Such work will be performed by a contractor hired by the customer and subject to inspection by the Division of Water. It will also likely require street opening permits from the local municipality.

Due to the amount of work involved, relocating hydrants can be a large added expense to a project. It is recommended that architects and engineers examine all alternatives before choosing to relocate a hydrant.

Submission Requirements

A customer may request a hydrant be moved by submitting plans for review. **This is a separate submission from any connection application submitted for new water service to the location.** The submission must conform to the requirements set forth in the Plan Review document found at http://www.clevelandwater.com/construction/design-construction-specifications.

All submitted plans must include the following:

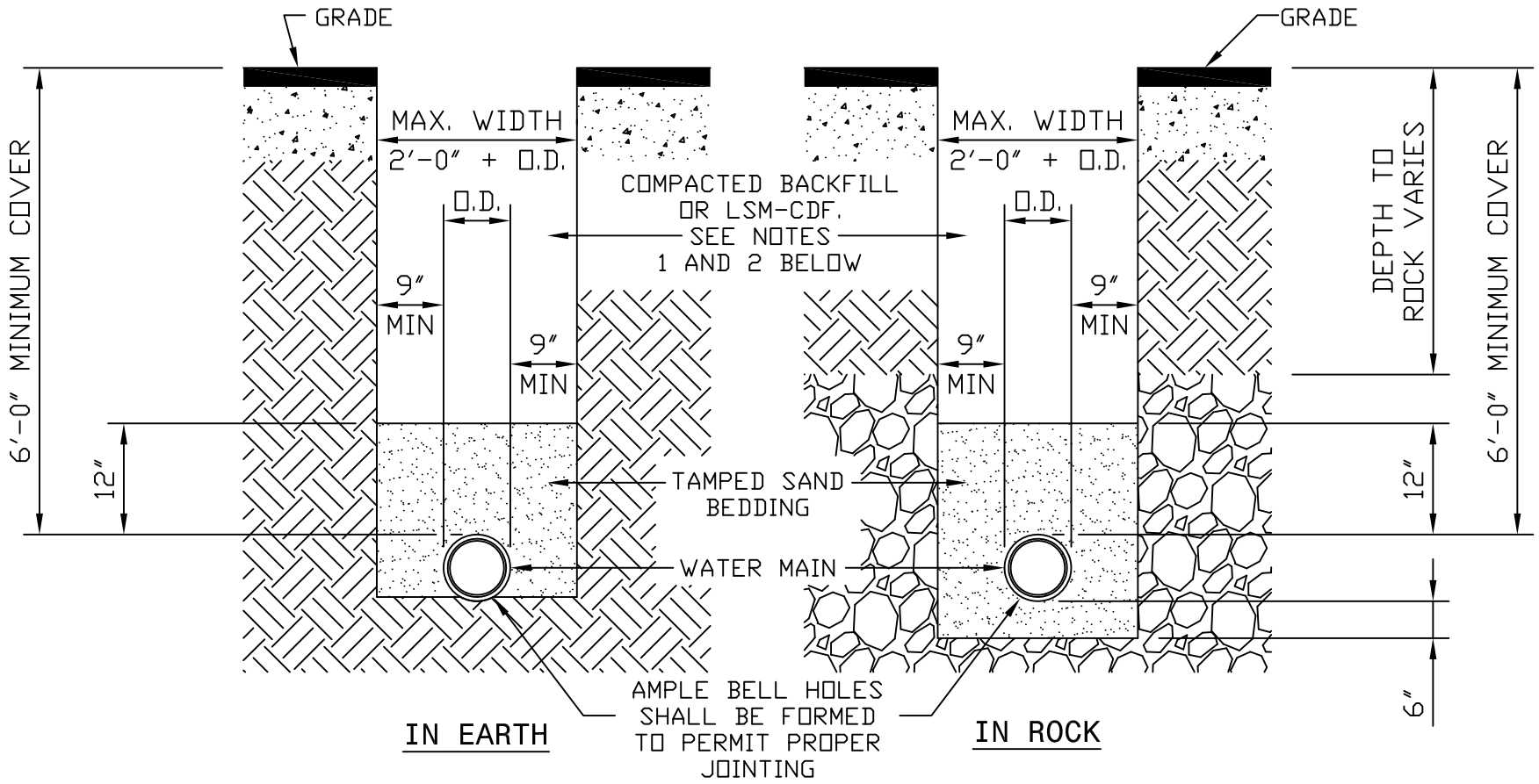
- A plan view, drawn to scale, showing the current and proposed location of the hydrant(s)
- The location of all water, sewer, gas, communication, and other utility lines. You may obtain this information through a records request to the Ohio Utilities Protection Service (OUPS)
- All standard details proposed to be used, including hydrant, thrust blocks, and cut-in tees, as needed
- The distance to the next hydrants along the main
- Documentation from the local fire department approving the move

Design Requirements

- New hydrants, meeting Cleveland Water standards, must be installed rather than reusing the existing hydrant(s).
- All new piping is to be Class 52 Ductile Iron and meet all Cleveland Water standards.
- 4” hydrants must be replaced with 6” hydrants.
- Hydrants may be offset by no more than 20 feet from the hydrant tee. A move that will exceed this distance will require the original hydrant tee to be spooled out, that is, physically removed from the system and replaced with a piece of straight pipe. A new hydrant tee must be cut in.
- If the branch valve has leaded joints, it must also be replaced. Any disturbed leaded joints must also be replaced.
- Hydrant spacing must not exceed 325 feet in residential areas and 280 feet in commercial areas. If relocating a hydrant causes spacing to exceed requirement, an additional hydrant must be installed to ensure maximum spacing is not exceeded.

CLEVELAND DIVISION OF WATER CONSTRUCTION STANDARDS

General Details

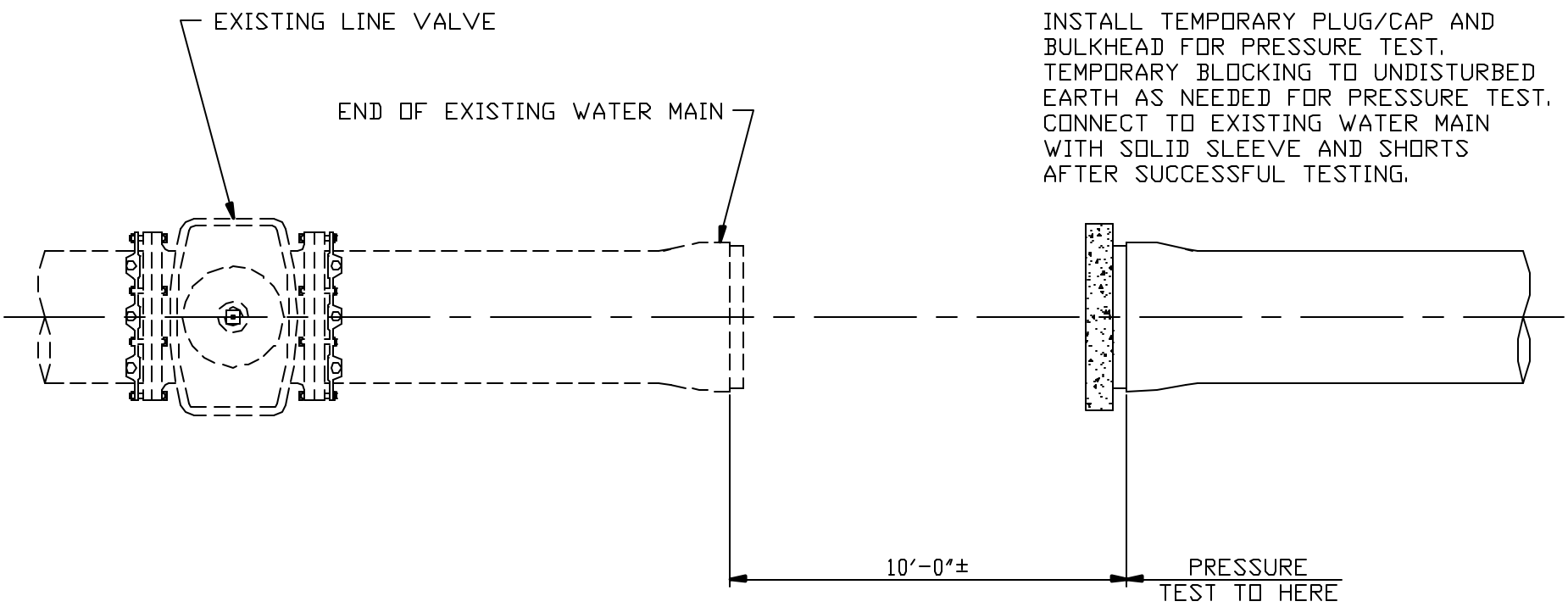


WATER MAIN TRENCH DETAILS

- NOT TO SCALE -

NOTES:

1) PREMIUM BACKFILL CONSISTING OF LOW STRENGTH MORTAR - CONTROLLED DENSITY FILL (LSM-CDF) "FLOWABLE FILL" IS REQUIRED:
   A) UNDER ALL EXISTING OR FUTURE PAVEMENTS, SIDEWALKS AND DRIVES WITHIN THE CITY OF CLEVELAND CORPORATION LIMITS.
   B) AS SPECIFIED IN LOCAL MUNICIPALITIES SERVED BY CWD (SEE LOCAL REQUIREMENTS)
2) WHEN PREMIUM BACKFILL IS REQUIRED BY THE LOCAL MUNICIPALITY FOR CASES OTHER THAN THOSE LISTED IN NOTE 1 ABOVE, IT SHALL BE LIMESTONE GRADED PER ODOT 304.02 OR ODOT 411. NO SLAG IS PERMITTED.
3) CONTRACTOR SHALL USE SPECIAL CARE IN PLACING THE SAND BEDDING, SO AS TO AVOID SCRAPING OF THE EXTERIOR COATING, INJURING THE PIPE, DISTORTING OR MOVING THE PIPE WHEN COMPACTING THE SAME. THE SAND BEDDING SHALL BE TAMPED IN SIX (6) INCH LAYERS, SIMULTANEOUSLY ON EACH SIDE OF THE PIPE, AND THOROUGHLY COMPACTED SO AS TO PROVIDE A SOLID BACKING AGAINST THE EXTERNAL SURFACE OF THE PIPE.
4) MINIMUM COMPACTION FOR ALL SAND BEDDING, BACKFILL AND PREMIUM BACKFILL SHALL BE 95% STANDARD PROCTOR.
5) PAVEMENT, SIDEWALK OR DRIVES TO BE INSTALLED IN ACCORDANCE WITH LOCAL MUNICIPALITY'S SPECIFICATIONS.



NOTE:

PRESSURE TESTING OF WATER MAINS:

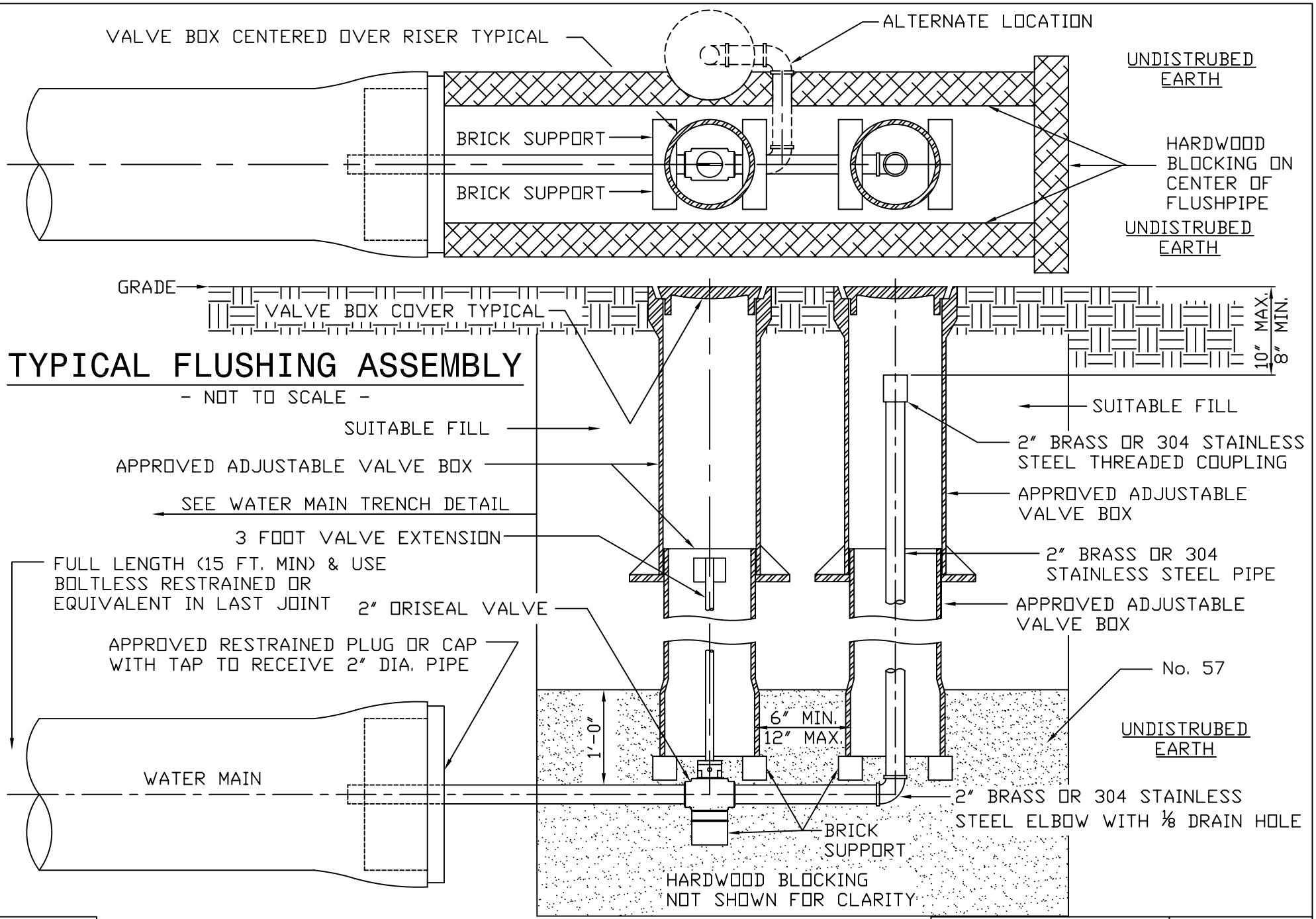
WHERE NEW/EXTENDED WATER MAINS ARE CONNECTED TO AN EXISTING WATER MAIN FOR PRESSURE TEST, RESULTING IN FAILURE OF THE PRESSURE TEST OR ANY DAMAGE TO THE EXISTING WATER MAIN , OR ITS APPURTENANCES, THE REPAIR THEREOF SHALL BE THE SOLE RESPONSIBILITY OF THE CONTRACTOR.

ALL REPAIRS SHALL BE DONE TO THE SATISFACTION OF THE DIVISION OF WATER.

ALTERNATE PRESSURE TESTING DETAIL

- NOT TO SCALE -

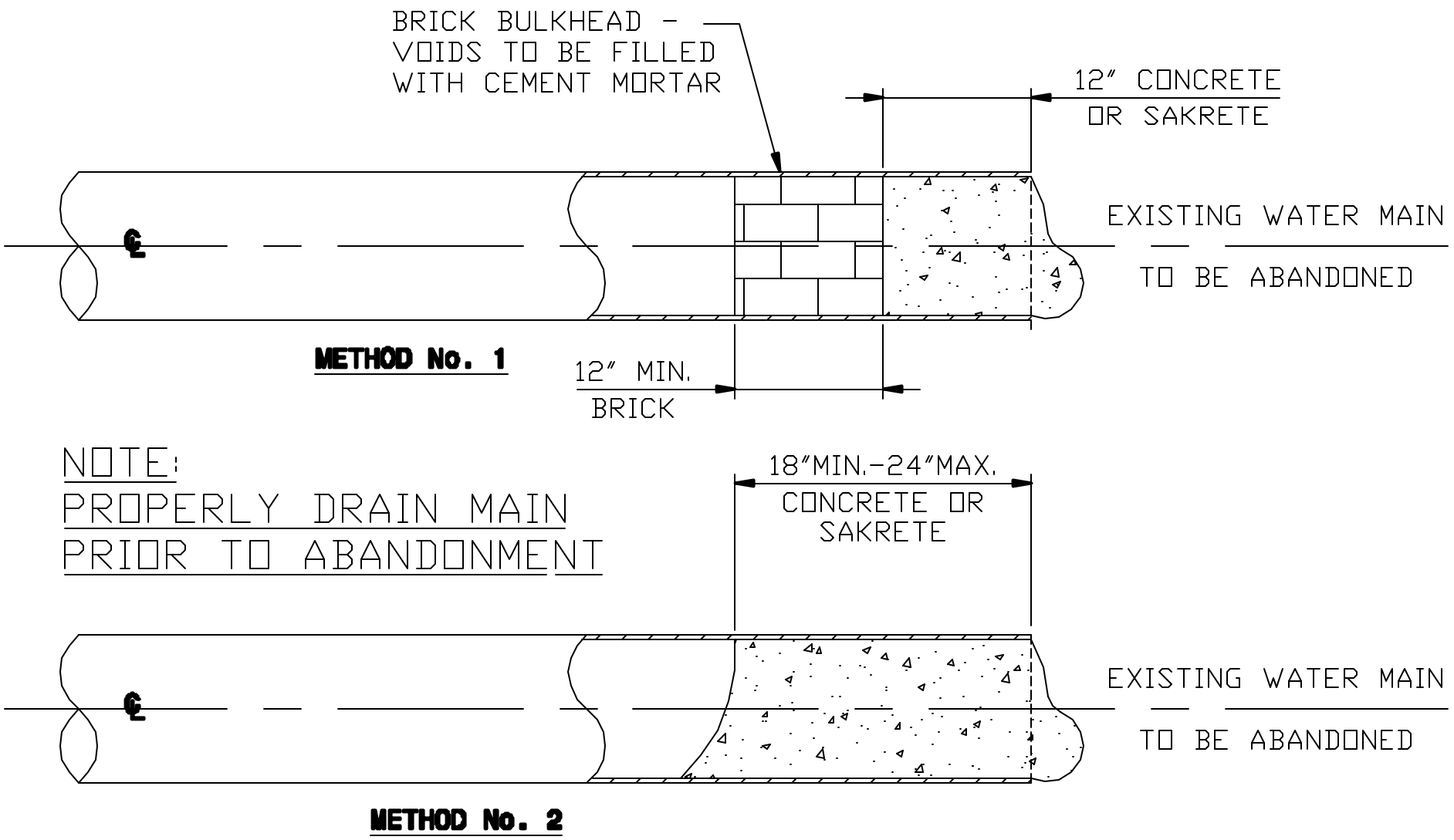
STD-002	DATE: 10-1-97	BY: RSK



TYPICAL FLUSHING ASSEMBLY

- NOT TO SCALE -

STD-003	DATE: 8-19-2010	BY: RSK



PLUGGING ABANDONED WATER MAIN ENDS

- NOT TO SCALE -

STD-004	DATE: 10-1-97	BY: RSK

*CONNECTION SHALL BE MADE WITH RETAINED MECHANICAL JOINT SOLID SLEEVES (SHORT OR LONG PATTERN) DUCTILE IRON CLASS 350 OR CAST IRON CLASS 250 OR COMPRESSION COUPLINGS.

COMPRESSION COUPLINGS SHALL BE OF A GASKETED, SLEEVE TYPE WITH DIAMETERS TO PROPERLY FIT PLAIN END IRON PIPE. EACH COUPLING SHALL CONSIST OF ONE (1) MIDDLE RING, WITHOUT STOPS; TWO (2) FOLLOWER GLANDS; TWO (2) RUBBER-COMPOUND BUNA-N BLEND, WEDGE SECTION GASKETS; AND SUFFICIENT TRACKHEAD STAINLESS STEEL BOLTS AND NUTS (ASTM A276/A193/194, TYPE 304, EXTRA HEAVY HEX) TO PROPERLY COMPRESS THE GASKETS.

MIDDLE RING AND FOLLOWER GLANDS SHALL BE OF EITHER STEEL OR DUCTILE IRON (ASTM-A536).

THE COMPRESSION COUPLING SHALL BE WITHOUT STOPS AND BE RATED FOR A MINIMUM WORKING PRESSURE OF 250 PSI AND SHALL BE EQUAL TO THE DRESSER STYLE No's 38, 138 OR 162 (TRANSITION TYPE), OR SMITH-BLAIR 441 STRAIGHT AND TRANSITION COUPLINGS.

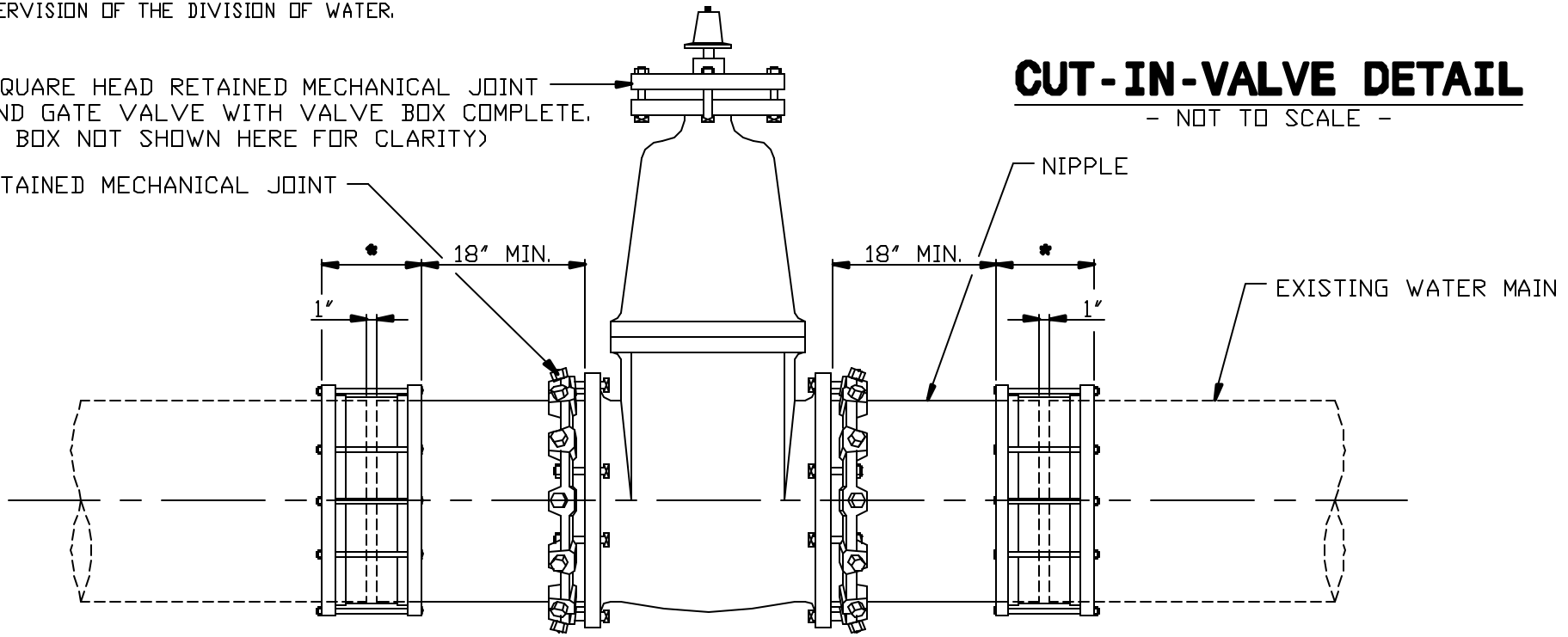
ALL BOLTS AND NUTS ON ALL MECHANICAL JOINTS, INCLUDING THOSE ON THE "RETAINED" TYPE, SHALL HAVE FIELD APPLIED ONE (1) COAT OF BITUMASTIC PAINTING FOLLOWED BY AN ENCASEMENT OF POLYETHYLENE WRAPPING IN ACCORDANCE WITH ANSI/AWWA C-105/A21.5-88, CLASS "C", METHOD "B".

THE DIVISION OF WATER WILL DETERMINE THE FIELD LOCATION OF THE CUT-IN-VALVE ASSEMBLY. THE DIVISION OF WATER WILL ALSO SET THE TIME OF INSTALLATION OF THE CUT-IN-VALVE ASSEMBLY.

THE CONTRACTOR SHALL DO ALL PIPE CUTTING AND INSTALLATION. HOWEVER, THE INSTALLATION OF THE CUT-IN-VALVE ASSEMBLY SHALL BE DONE UNDER THE SUPERVISION OF THE DIVISION OF WATER.

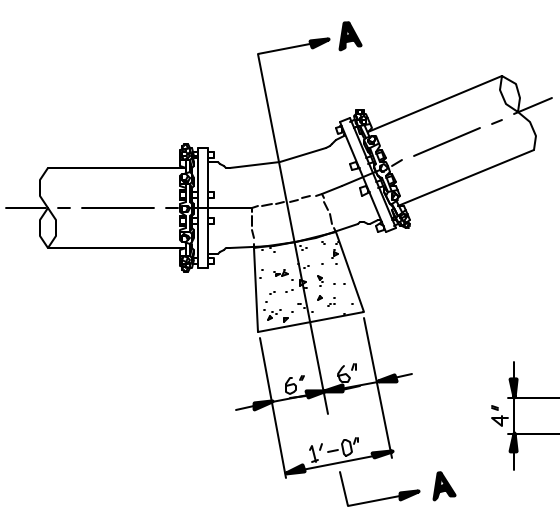
CUT-IN-VALVE DETAIL

- NOT TO SCALE -

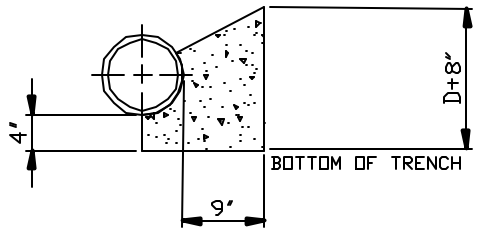


NOTE:
BEFORE CUTTING EXISTING WATER MAIN, THE NIPPLES SHALL BE CONNECTED TO THE MECHANICAL JOINT BELL END GATE VALVE. AFTER CUTTING PIPE, FINAL CONNECTIONS SHALL BE MADE WITH COUPLINGS/SOLID SLEEVES AS SPECIFIED.

STD-005	DATE: 10-1-97	BY: RSK

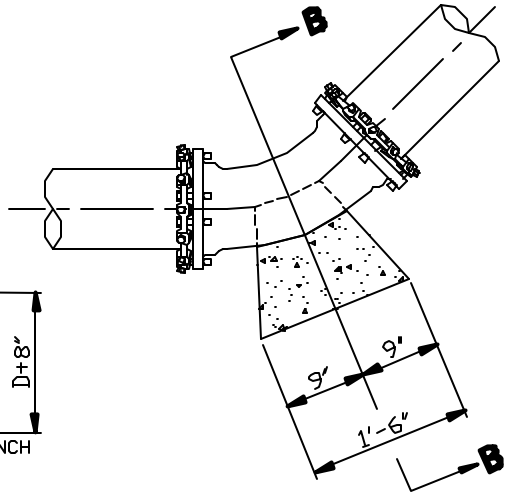


PLAN

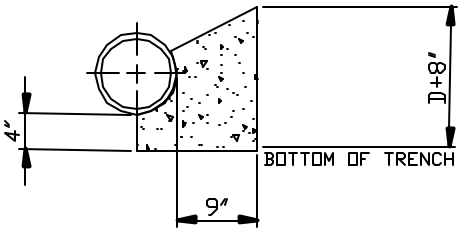


SECTION A-A

(22-1/2 DEGREE) BEND



PLAN

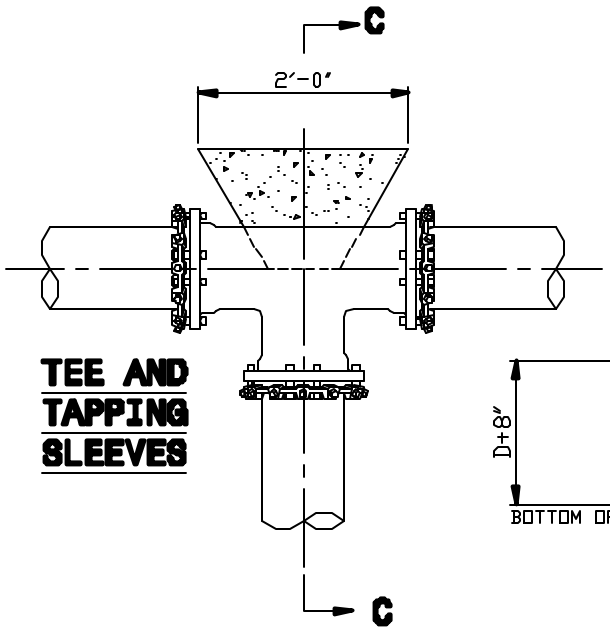


SECTION B-B

(45 DEGREE) BEND

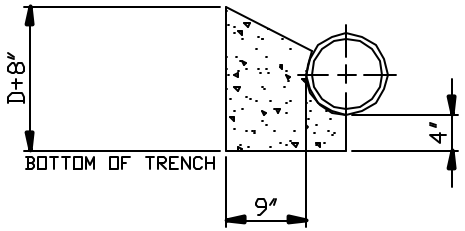
TYPICAL THRUST BLOCK DETAIL FOR HORIZONTAL DEFLECTION FOR PIPE UP TO 16" DIAMETER

- NOT TO SCALE -
D = PIPE DIAMETER



TEE AND TAPPING SLEEVES

PLAN



SECTION C-C

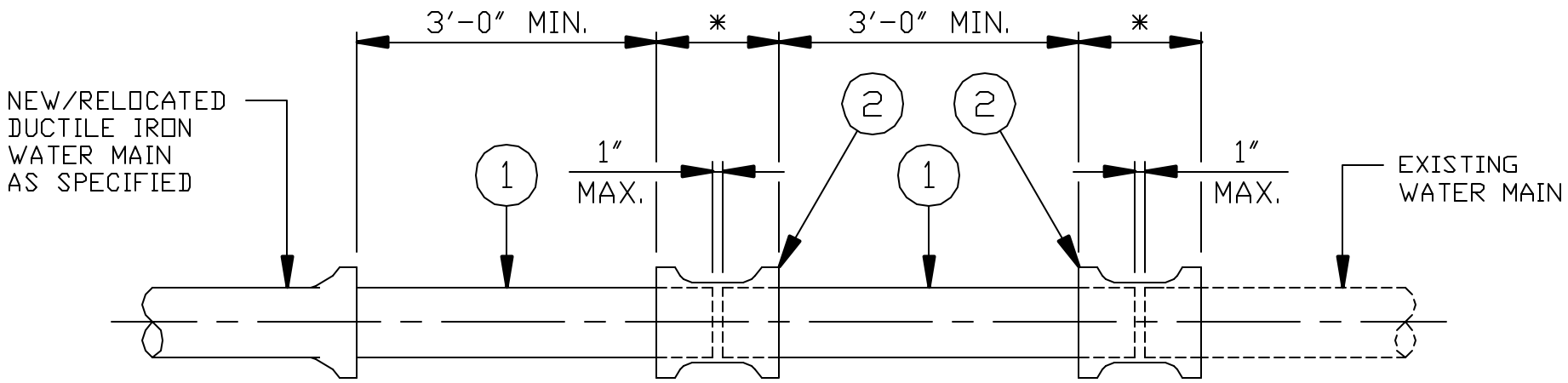
NOTE 1: ALL DIMENSIONS SHOWN HEREON ARE MINIMUM; THRUST BLOCK SHALL BE POURED TO UNDISTURBED EARTH.

NOTE 2: ALL CONCRETE FOR THRUST BLOCKS SHALL BE CLASS "C" HAVING 4,000 PSI 28 DAY COMPRESSIVE STRENGTH.

NOTE 3: DO NOT COVER BOLTS WITH CONCRETE ON MECHANICAL JOINTS.

NOTE 4: USE FORMS WHEN POURING CONCRETE TO MAINTAIN SHAPE AND DIMENSIONS OF THRUST BLOCKS.

STD-006	DATE: 1-15-98	BY: RSK



SLEEVE-IN INSTALLATION DETAIL

- NOT TO SCALE -

1) PLAIN END x PLAIN END DUCTILE IRON PIPE AS SPECIFIED (CUT TO SUIT).

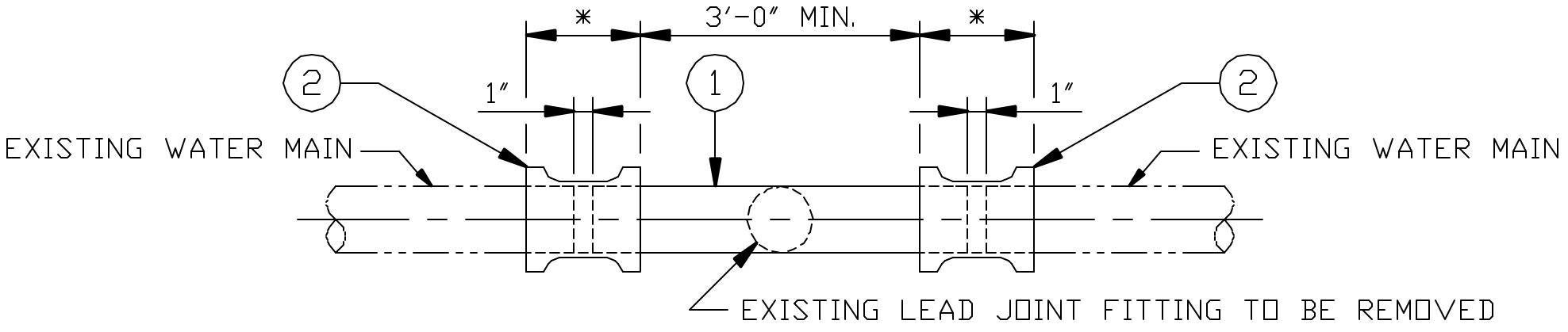
2) *CONNECTION SHALL BE MADE WITH RETAINED MECHANICAL JOINT SOLID SLEEVES (SHORT OR LONG PATTERN) DUCTILE IRON CLASS 350 OR CAST IRON CLASS 250 OR COMPRESSION COUPLINGS.

COMPRESSION COUPLINGS SHALL BE OF A GASKETED, SLEEVE TYPE WITH DIAMETERS TO PROPERLY FIT PLAIN END IRON PIPE. EACH COUPLING SHALL CONSIST OF ONE (1) MIDDLE RING, WITHOUT STOPS; TWO (2) FOLLOWER GLANDS; TWO (2) RUBBER-COMPOUND BUNA-N BLEND, WEDGE SECTION GASKETS; AND SUFFICIENT TRACKHEAD STAINLESS STEEL BOLTS AND NUTS (ASTM A276/A193/194, TYPE 304, EXTRA HEAVY HEX) TO PROPERLY COMPRESS THE GASKETS.

MIDDLE RING AND FOLLOWER GLANDS SHALL BE OF EITHER STEEL OR DUCTILE IRON (ASTM-A536).

THE COMPRESSION COUPLING SHALL BE WITHOUT STOPS AND BE RATED FOR A MINIMUM WORKING PRESSURE OF 250 PSI AND SHALL BE EQUAL TO THE DRESSER STYLE No's 38, 138 OR 162 (TRANSITION TYPE), OR SMITH-BLAIR 441 STRAIGHT AND TRANSITION COUPLINGS.

3) ALL BOLTS AND NUTS ON ALL MECHANICAL JOINTS, INCLUDING THOSE ON THE "RETAINED" TYPE, SHALL HAVE FIELD APPLIED ONE (1) COAT OF BITUMASTIC PAINTING FOLLOWED BY AN ENCASEMENT OF POLYETHYLENE WRAPPING IN ACCORDANCE WITH ANSI/AWWA C-105/A21.5-88, CLASS "C", METHOD "B".



SPOOL PIECE INSTALLATION DETAIL

NOT TO SCALE

1) PLAIN END x PLAIN END DUCTILE IRON PIPE AS SPECIFIED (CUT TO SUIT).

2) *CONNECTION SHALL BE MADE WITH RETAINED MECHANICAL JOINT SOLID SLEEVES (SHORT OR LONG PATTERN) DUCTILE IRON CLASS 350 OR CAST IRON CLASS 250 OR COMPRESSION COUPLINGS.

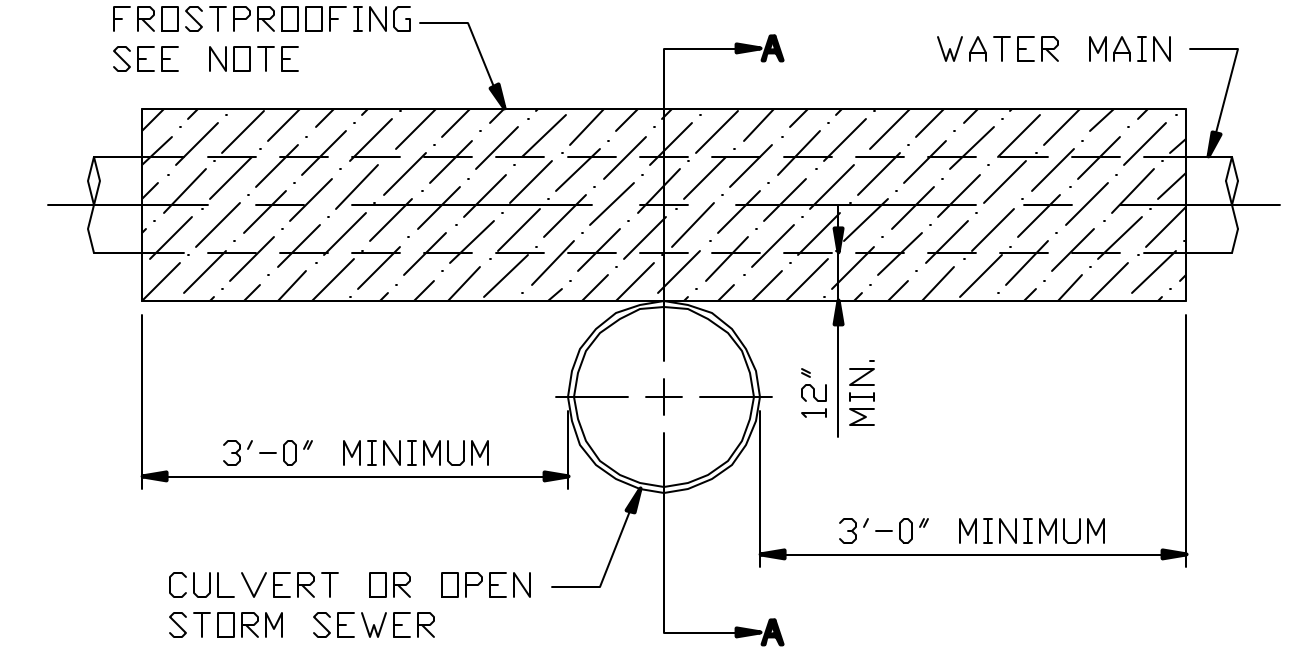
COMPRESSION COUPLINGS SHALL BE OF A GASKETED, SLEEVE TYPE WITH DIAMETERS TO PROPERLY FIT PLAIN END IRON PIPE. EACH COUPLING SHALL CONSIST OF ONE (1) MIDDLE RING, WITHOUT STOPS; TWO (2) FOLLOWER GLANDS; TWO (2) RUBBER-COMPOUND BUNA-N BLEND, WEDGE SECTION GASKETS; AND SUFFICIENT TRACKHEAD STAINLESS STEEL BOLTS AND NUTS (ASTM A276/A193/194, TYPE 304, EXTRA HEAVY HEX) TO PROPERLY COMPRESS THE GASKETS.

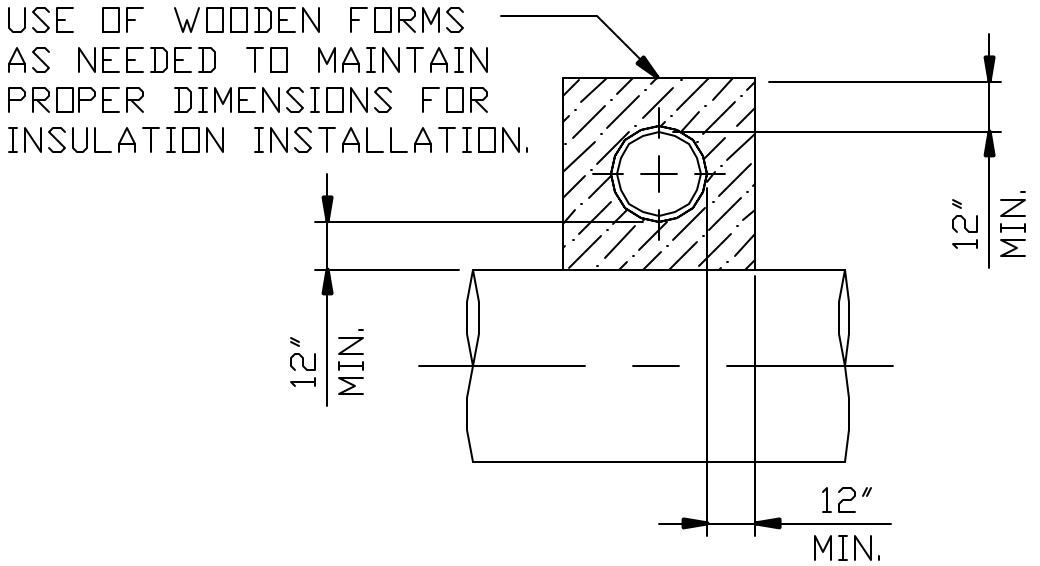
MIDDLE RING AND FOLLOWER GLANDS SHALL BE OF EITHER STEEL OR DUCTILE IRON (ASTM-A536).

THE COMPRESSION COUPLING SHALL BE WITHOUT STOPS AND BE RATED FOR A MINIMUM WORKING PRESSURE OF 250 PSI AND SHALL BE EQUAL TO THE DRESSER STYLE No's 38, 138 OR 162 (TRANSITION TYPE), OR SMITH-BLAIR 441 STRAIGHT AND TRANSITION COUPLINGS.

3) ALL BOLTS AND NUTS ON ALL MECHANICAL JOINTS, INCLUDING THOSE ON THE "RETAINED" TYPE, SHALL HAVE FIELD APPLIED ONE (1) COAT OF BITUMASTIC PAINTING FOLLOWED BY AN ENCASEMENT OF POLYETHYLENE WRAPPING IN ACCORDANCE WITH ANSI/AWWA C-105/A21.5-88, CLASS "C", METHOD "B".

STD-008	DATE: 10-1-97	BY: RSK





SECTION A-A

MINIMUM ONE (1) FOOT FROSTPROOFING INSULATION ENVELOPE REQUIRED WITH WATER MAIN LAID WITH LESS THAN FIVE (5) FT. COVER; CROSSING OVER STORM SEWERS 24" AND LARGER; OR CROSSING UNDER OPEN END CULVERTS, OR OTHERWISE DIRECTED BY C.W.D.

IN NO CASE SHALL THE MAINS BE LAID WITH LESS THAN 3'-6" OF COVER IN UNPAVED AREAS & 3'-0" TO BOTTOM OF SLAB IN PAVED AREAS.

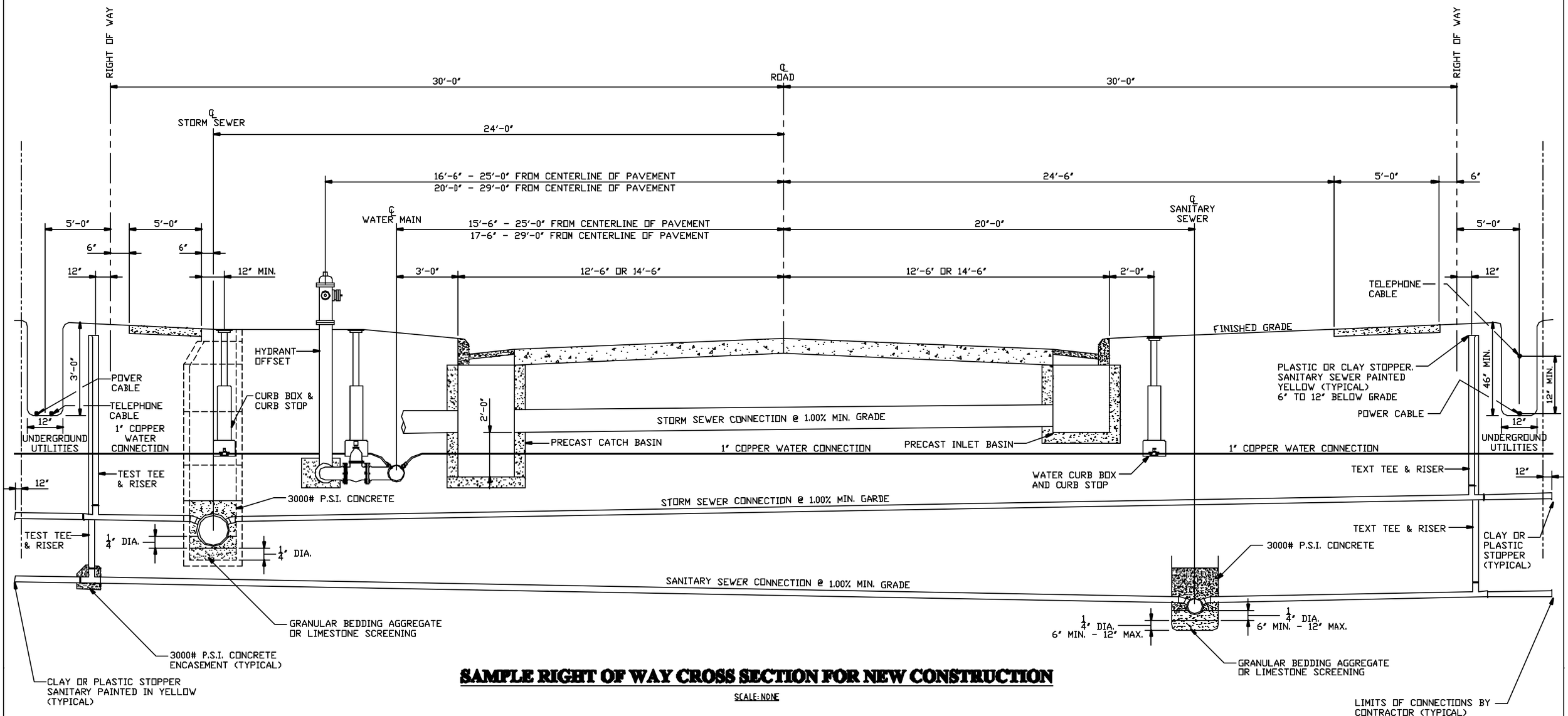
NOTE:

COMPACTED "WITCOLITE" INSULATION AS MANUFACTURED BY PIONEER PRODUCTS, DIVISION OF WITCO CHEMICAL COMPANY, INC. OR "GILSULATE 500 XR" AS MANUFACTURED BY AMERICAN THERMAL PRODUCTS, INC.

TYPICAL FROSTPROOFING DETAIL

- NOT TO SCALE -

STD-009	DATE: 10-1-97	BY: RSK



SAMPLE RIGHT OF WAY CROSS SECTION FOR NEW CONSTRUCTION

SCALE: NONE

CLEVELAND WATER NOTES FOR WATER MAIN INSTALLATION AND/OR REPLACEMENT

DEVELOPERS, ENGINEERS, AND CONTRACTORS ARE TO ABIDE BY THE MOST CURRENT VERSION OF THE CLEVELAND WATER NOTES AND DETAILS. THE MOST UP-TO-DATE VERSION CAN BE FOUND AT WWW.CLEVELANDWATER.COM/CONSTRUCTION/

GENERAL:

1. ALL WATER WORK REQUIRED, WHETHER SHOWN ON THE PLANS OR AS DIRECTED BY CLEVELAND WATER, SHALL BE AT THE EXPENSE OF THE PROJECT UNLESS OTHERWISE AGREED TO BY THE COMMISIONER OF THE CLEVELAND DIVISION OF WATER.

2. THE INFORMATION SHOWN ON THE CLEVELAND DIVISION OF WATER'S SUMMARY OF WORK/CHARGE LETTER, STRIP MAPS, AS BUILT DRAWINGS, AND GIS ARE TAKEN FROM EXISTING AVAILABLE RECORDS, AND THEIR ACCURACY IS NOT GUARANTEED.

3. CALL THE INSPECTION AND ENFORCEMENT UNIT AT 216-664-2342 TO SCHEDULE A PRECONSTRUCTION MEETING AT LEAST 1 WEEK PRIOR TO STARTING CONSTRUCTION. THE OPERATION OF ANY VALVE OR ALTERATION OF ANY PART OF THE WATER SYSTEM BY CONTRACTORS OR THEIR EMPLOYEES IS PROHIBITED WITHOUT THE SUPERVISION OF THE CLEVELAND DIVISION OF WATER INSPECTOR. SEE ALSO NOTE 20 REGARDING ADDITIONAL ADVANCE NOTIFICATION REQUIRED IN AREAS SUSPECTED TO CONTAIN LEAD SERVICE CONNECTION (ALL AREAS INSTALLED PRIOR TO 1954).

4. PRIOR TO REQUESTING CHLORINATION, THE CONTRACTOR SHALL SUPPLY THE CLEVELAND WATER INSPECTOR WITH REDLINE DRAWINGS SHOWING CHANGES MADE FROM THE APPROVED DESIGN DRAWINGS AND ACTUAL MEASUREMENTS. CHLORINATION SHALL NOT OCCUR BEFORE THESE DRAWINGS ARE SUBMITTED.

5. FOR THE PURPOSES OF CHLORINATION AND BACTERIOLOGICAL TESTING OF THE WATER MAINS THE CONTRACTOR SHALL PROVIDE AND INSTALL, AT EACH OF THE CHLORINATION PIT LOCATIONS SHOWN AND AT OTHER LOCATIONS DETERMINED BY CLEVELAND WATER. FLUSHING / SAMPLING TAP SIZES ARE TO BE DETERMINED CLEVLEAND WATER. CHLORINATION PITS SHALL BE SIX (6) FOOT SQUARE AND ARE TO MEET OSHA STANDARDS. NO CUSTOMER TAPS SHALL BE INSTALLED PRIOR TO CHLORINATION.

6. A TWO YEAR WARRANTY, COMMENCING FROM THE DATE OF ACCEPTANCE OF THE FINAL CHLORINATION OF THE WATER MAIN INSTALLATION SHALL BE PROVIDED BY THE BUILDER/DEVELOPER AND/OR CONTRACTOR FOR ALL WATER MAINS AND SERVICE CONNECTION WORK PERFORMED BY THE CONTRACTOR, INCLUDING TAPS IF PERFORMED. SHOULD ANY LEAKS OCCUR AND REPAIRS BE REQUIRED DUE TO DEFECTIVE MATERIAL OR POOR WORKMANSHIP. A LETTER INDICATING THE COMMENCEMENT DATE AND END DATE OF THE WARRANTY SHALL BE INCLUDE WITH THE AS-BUILT SUBMISSION IN NOTE 12.

7. USE BACKFILL MATERIAL AS SPECIFIED AND COMPACT SUFFICIENTLY IN THOSE AREAS WHERE EXISTING MAINS AND WATER SERVICE CONNECTIONS ARE EXPOSED. (SEE CLEVELAND WATER STANDARD DETAIL STD-001)

8. ALL MATERIALS, INCLUDING BUT NOT LIMITED TO WATER MAINS, FIRE HYDRANTS, VALVES, CONNECTION MATERIALS AND OTHER WATER APPURTENANCES, SHALL BE NEW AND UNUSED AND SHALL CONFORM TO THE MOST CURRENT CLEVELAND WATER SPECIFICATIONS. ALL MATERIAL SHALL BE INSTALLED IN ACCORDANCE WITH CLEVELAND WATER'S STANDARDS.

9. THE CONTRACTOR SHALL BE RESPONSIBLE FOR ANY DAMAGE TO EXISTING WATER MAINS AND APPURTENANCES THEREOF WHEN CONSTRUCTING OR CONNECTING THE NEW WATER MAIN. THIS SHALL INCLUDE LEADED JOINTS IN EXISTING FITTINGS WHICH MAY REQUIRE REPLACEMENT FITTINGS AT THE DISCRESION OF THE INSPECTOR IF IT IS DETERMINED THEY WERE DISTURBED. ALL REPAIRS TO DAMAGED EXISTING FACILITIES SHALL BE MADE BY THE CONTRACTOR, AT THE PROJECT' EXPENSE, TO THE SATISFACTION OF CLEVELAND WATER.

10. ALL HYDROSTATIC PRESSURE TESTING SHALL BE DONE BY THE CONTRACTOR IN THE PRESENCE OF THE CLEVELAND WATER INSPECTOR. THE HYDROSTATIC TEST PRESSURE SHALL BE 75 PSI ABOVE THE STATIC PRESSURE PREVAILING AT THE SITE, BUT IN NO CASE LESS THAN 150 PSI. THE PRESSURE TEST SHALL BE FOR A DURATION OF TWO (2) HOURS WITH THE PRESSURE BEING MAINTAINED WITHIN 5 PSI OF THE REQUIRED TEST PRESSURE. SHOULD THE PRESSURE TEST FAIL THE CONTRACTOR SHALL FIND AND CORRECT THE DEFICIENCY(IES) TO THE SATISFACTION OF CLEVELAND WATER AND REPEAT THE TWO (2) HOUR PRESSURE TEST.

11. ALL BURIED WATER MAINS, FITTINGS, VALVES, FIRE HYDRANT BRANCH PIPING AND APPURTENANCES SHALL BE ENCASED WITH V-BIO® ENHANCED POLYETHYLENE ENCASEMENT INSTALLED IN ACCORDANCE WITH THE MOST CURRENT REVISION OF ANSI/AWWA C-105/A21.5 MODIFIED METHOD “A”.

12. THE PROJECT'S PROFESSIONAL ENGINEER OR A DESIGNATED PROFESSIONAL SURVEYOR SHALL OBTAIN ACTUAL FIELD MEASUREMENTS OF THE MAIN DURING INSTALLATION AND SHALL FURNISH THE CLEVELAND WATER INSPECTOR WITH AS-BUILT DRAWINGS MEETING CLEVELAND WATER STANDARDS WITHIN 30 DAYS OF THE WATER MAIN GOING INTO SERVICE AND ALL TAPS/RETAPS BEING MADE. ONE HARD COPY AND ONE PDF COPY SHALL BE PROVIDED. DRAWINGS SHALL BE SIGNED, DATED, AND STAMPED WITH THE ENGINEER OR SURVEYOR’S SEAL. REDLINE DRAWINGS ARE NOT SUFFICIENT. CLEVELAND WATER RESERVES THE RIGHT TO WITHHOLD PAYMENT AND/OR APPROVAL OF FUTURE WORK IF AS-BUILTS ARE NOT SUBMITTED.

WATER MAINS:

13. ALL PIPE, UNLESS OTHERWISE APPROVED BY CLEVELAND WATER, SHALL BE DUCTILE IRON, MINIMUM CLASS 52, CEMENT LINED HAVING PUSH-ON JOINTS WITH RADIALLY COMPRESSED RUBBER RING GASKET AND INSTALLED AS PER THE MOST CURRENT REVISION OF AWWA C600.

14. ALL FITTINGS, UNLESS OTHERWISE CALLED FOR, SHALL BE APPROVED DUCTILE IRON, CLASS 350, CEMENT LINED OR FUSION BONDED EPOXY COATED. ALL FITTINGS AND PIPE CONNECTED TO

CLEVELAND WATER NOTES FOR WATER MAIN INSTALLATION AND/OR REPLACEMENT

FITTINGS SHALL BE RESTRAINED USING A "RETAINED" MECHANICAL JOINT CONFORMING TO THE MATERIAL AND PERFORMANCE REQUIREMENTS OF ANSI/AWWA C-110/A21.10 AND ANSI/AWWA C-111/A21.11, OR "COMPACT" FITTINGS IN ACCORDANCE WITH ANSI/AWWA C-153/A21.53. EXCEPT FOR ANCHOR TEES, REDUCERS OR OTHER SPECIAL CIRCUMSTANCES WHEN BY CLEVELAND WATER, ALL FITTINGS ARE TO HAVE BELL ENDS.

15. ALL BOLTS AND NUTS ON ALL "RETAINED" MECHANICAL JOINTS SHALL HAVE FIELD APPLIED ONE (1) COAT OF BITUMASTIC PAINTING.

16. WHERE SHOWN ON THE PLANS, OR WHEN OTHERWISE CALLED FOR, PIPE AND FITTINGS SHALL HAVE AN APPROVED "TYPE I" OR "TYPE II" BOLTLESS RESTRAINED PUSH-ON JOINTS TO THE LIMITS SHOWN ON THE DRAWINGS.

17. AT THE END OF EACH WORKDAY, THE CONTRACTOR SHALL PLUG ALL OPEN PIPE ENDS WITH WATER TIGHT PLUGS AS PER THE "PREVENTITIVE AND CORRECTIVE MEASURES DURING CONSTRUCTION" SECTION OF THE MOST CURRENT REVISION OF AWWA C-651 AS TO PREVENT THE INFILTRATION OR INTRUSION OF ANY FOREIGN OBJECTS OR MATERIALS. DATE STAMPED DIGITAL PHOTOS SHALL BE PROVIDED FOR EACH WORKDAY DEMONSTRATING THAT PROPER AWWA C-651 METHODS WERE USED TO PLUG ALL OPEN WATER MAIN ENDS. EACH PHOTO SHALL CLEARLY IDENTIFY THE STATION AT WHICH THE PIPE IS PLUGGED. THE STATIONING SHALL BE SHOWN BY THE USE OF A STATION MARKER PLACED AT THE PLUGGED PIPE END.

PHOTOS SHALL BE SUBMITTED ON A DAILY BASIS UNLESS OTHERWISE DEFINED BY THE CLEVELAND WATER INSPECTOR OR ENGINEER. ALL PHOTOS TAKEN OVER THE COURSE OF THE PROJECT SHALL BE SUBMITTED BY THE CONTRACTOR AS PART OF THE AS-BUILT SUBMITTAL. PHOTOS ARE TO INCLUDE STATIONING MARKERS. AS-BUILTS SHALL BE DEEMED INCOMPLETE WITHOUT SAID COLLECTION OF DIGITAL PHOTOS.

HYDRANTS:

18. IN ALL HYDRANT INSTALLATIONS THE CONTRACTOR SHALL FACE ALL HYDRANT'S 4" (STEAMER) NOZZLE TOWARD THE PAVEMENT PRIOR TO TESTING AND CHLORINATION OF WATER MAINS. ONLY CLEVELAND WATER APPROVED HYDRANT MODELS SHALL BE INSTALLED. CONTRACTOR SHALL CONSULT WITH THE LOCAL MUNICIPALITY'S ENGINEERING OR SERVICE DEPARTMENT TO OBTAIN HYDRANT NOZZLE THREAD REQUIREMENTS IF NOT INDICATED ON THE APPROVED PLANS. ALL HYDRANTS SHALL BE FACTORY EQUIPPED WITH THE APPROPRIATE HYDRANT NOZZLE.

HYDRANT BRANCHES SHALL BE FULLY RESTRAINED AND INSTALLED PER THE APPROPRIATE HYDRANT CLEVELAND WATER HYDRANT DETAIL. HYDRANT BRANCH VALVES SHALL BE PLACED DIRECTLY AFTER THE HYDRANT TEE UNLESS OTHERWISE APPROVED BY THE INSPECTOR IN WRITING.

VALVES:

19. ALL VALVES SHALL BE AN APPROVED MODEL RESILIENT SEATED GATE VALVES AS PER THE MOST CURRENT VERSION OF AWWA C509 OR C515. VALVE OPERATING NUTS SHALL BE TAPERED (1 7/8" TO 2" FROM TOP TO BOTTOM) AND 2" DEEP. VALVES MORE THAN 10 YEARS OLD AT TIE IN POINTS TO EXISTING MAINS SHALL BE REPLACED AT THE PROJECT'S EXPENSE UNLESS OTHERWISE DIRECTED.

LEAD SERVICE CONNECTIONS:

20. LEAD SERVICES: A MINIMUM OF 45 DAYS BEFORE THE PRECONSTRUCTION MEETING, CWD SHALL PROVIDE A NOTICE TO ALL AFFECTED CUSTOMERS THAT THEIR WATER SERVICE LINE WILL BE DISTURBED. A MINIMUM OF 75 DAYS BEFORE THE PRECONSTRUCTION MEETING, THE CONTRACTOR OR ENGINEER SHALL PROVIDE CWD (AND THE LOCAL MUNICIPALITY OF OUTSIDE THE CITY OF CLEVELAND) A LIST OF ALL CUSTOMER ADDRESSES THAT WILL BE AFFECTED BY THE WATER MAIN REPLACEMENT PROJECT. FAILURE TO PROVIDE A LIST OF CUSTOMER ADDRESSES IN A TIMELY MANNER MAY RESULT IN PROJECT DELAYS.

ANY CITY-OWNED LEAD SERVICE LINE ENCOUNTERED SHALL BE REPLACED WITH TYPE K COPPER. THE REPLACEMENT SERVICE LINE SHALL BE SIZE-ON-SIZE WITH A 1-INCH MINIMUM DIAMETER. IF A CUSTOMER-OWNED LEAD SERVICE LINE IS ENCOUNTERED, THE CONTRACTOR SHALL LEAVE A CWD-SUPPLIED CUSTOMER NOTIFICATION DOOR HANGER ON ALL ACCESSIBLE POINTS OF ENTRY TO THE HOME AND IMMEDIATELY NOTIFY THE CWD INSPECTOR. IF THE CWD INSPECTOR IS NOT AVAILABLE, CALL PAYTON HALL AT (216) 664-2444, EXT. 73000 OR (216) 971-2721. CUSTOMERS WITH A CUSTOMER-OWNED LEAD SERVICE LINE SHALL NOT BE RECONNECTED TO THE NEW WATER MAIN WITHOUT EXPRESS WRITTEN APPROVAL FROM PAYTON HALL, OR HIS APPROVED REPRESENTATIVE AT CWD.

AS PART OF THIS CONTRACT, THE CONTRACTOR SHALL OFFER EACH CUSTOMER TO REPLACE LEAD SERVICES FROM THE CORPORATION STOP TO THE INLET STOP & WASTE VALVE INSIDE THE CUSTOMER'S HOME. IF THE REPLACEMENT IS NOT COVERED UNDER THE BID ITEMS, THE CONTRACTOR SHALL PROVIDE CWD (AND THE LOCAL MUNICIPALITY IF OUTSIDE THE CITY OF CLEVELAND) WITH A CHANGE ORDER AND COST ESTIMATES FOR THE CUSTOMER-OWNED LEAD SERVICE LINE REPLACEMENT. UPON APPROVAL FROM CWD (AND THE LOCAL MUNICIPALITY IF OUTSIDE THE CITY OF CLEVELAND), THE CONTRACTOR SHALL PERFORM THE REPLACEMENT OF THE CUSTOMER-OWNED LEAD SERVICE LINE. AS STATED ABOVE, CUSTOMERS WITH CUSTOMER-OWNED LEAD SERVICE LINES SHALL NOT BE RECONNECTED TO THE NEW WATER MAIN WITHOUT EXPRESS WRITTEN APPROVAL FROM PAYTON HALL, OR HIS APPROVED REPRESENTATIVE AT CWD.

IN THE EVENT THAT A CWD WAIVER IS GRANTED SUCH THAT A CUSTOMER-OWNED LEAD SERVICE LINE IS NOT REPLACED, CWD SHALL SUPPLY THE CONTRACTOR WITH LEAD FILTERS AND PITCHERS THAT THE CONTRACTOR SHALL DISTRIBUTE TO EACH RESIDENCE WITHIN THE PROJECT AREA, INCLUDING TO ALL UNITS OF MULTI-UNIT HOUSING BUILDINGS. THE FILTERS SHALL BE POUR-THROUGH PITCHER TYPE LEAD FILTERS THAT ARE NSF/ANSI-53 CERTIFIED TO REMOVE

CLEVELAND WATER NOTES FOR WATER MAIN INSTALLATION AND/OR REPLACEMENT

LEAD. THE PITCHER, A 3-MONTH SUPPLY OF FILTERS, AND CWD-SUPPLIED USE INSTRUCTIONS AND OTHER APPLICABLE MATERIALS SHALL BE DISTRIBUTED. RECORDS OF RESIDENTS WHO RECEIVED AND WHO REFUSED THE FILTERS SHALL BE PROVIDED BY THE CONTRACTOR TO CWD (AND THE LOCAL MUNICIPALITY IF OUTSIDE THE CITY OF CLEVELAND).

AT THE BEGINNING OF THE DAY THAT A CUSTOMER IS SCHEDULED TO BE CONNECTED TO THE NEW WATER MAIN, THE CONTRACTOR SHALL DISTRIBUTE THE APPROPRIATE CWD-SUPPLIED CUSTOMER NOTIFICATION DOOR HANGER AND OTHER APPLICABLE MATERIALS ON ALL ACCESSIBLE POINTS OF ENTRY TO THE HOME AND IN A PROMINENT LOCATION AT ALL MULTI-UNIT HOUSING BUILDINGS. THE APPROPRIATE DOOR NOTIFICATION WILL BE DETERMINED BY (1) WHETHER A CUSTOMER-OWNED LEAD SERVICE LINE REMAINS IN THE PROJECT AREA AND (2) THE TYPE OF MATERIAL OF THE INDIVIDUAL CUSTOMER-OWNED SERVICE LINE.

21. DIELECTRIC COUPLINGS: IN THE EVENT THAT A CWD WAIVER IS GRANTED SUCH THAT A CUSTOMER-OWNED LEAD SERVICE LINE IS NOT REPLACED, AND A NEW SERVICE IS CONNECTED TO A CUSTOMER-OWNED LEAD SERVICE LINE, A DIELECTRIC COUPLING SHALL BE PROVIDED TO TRANSITION FROM THE NEW MATERIALS TO THE LEAD PIPE. THE MODEL COUPLING USED IS SUBJECT TO APPROVAL FROM CWD. HARCO – PHILMAC UTC OR CWD-APPROVED EQUAL.

GENERAL SERVICE CONNECTIONS:

22. AS PART OF THE AS BUILT SUBMISSION IN NOTE 12, THE CONTRACTOR SHALL PROVIDE A TABLE SHOWING ALL EXISTING CONNECTIONS, IDENTIFIED BY CLEVELAND WATER CONNECTION NUMBER, SHOWING THE FOUND CONNECTION MATERIAL FOR BOTH THE CITYSIDE AND OWNERSIDE CONNECTION, AS WELL AS THE NEW CONNECTION MATERIAL FOR ALL CONNECTIONS REPLACED. THE TABLE SHALL ALSO NOTE ANY REVISED CONNECTION MEASUREMENTS AND SIZES. A SAMPLE TABLE WILL BE PROVIDED. THE SUBMISSION SHALL BE IN MICRSOFT EXCEL FORMAT. CLEVELAND WATER SHALL REQUIRE THE DELIVERY AND ACCEPTANCE OF THIS TABLE BEFORE THE PRESSURE TEST AND CHLORINATION / DISINFECTION OF THE MAIN WILL BE PERMITTED.

23. NEW WATER SERVICE CONNECTIONS LOCATIONS SHOWN ON THESE DRAWINGS ARE FOR REFERENCE ONLY AND ARE NOT PART OF THE WATER MAIN APPROVAL. THE SPECIFIC LOCATION FOR EACH CONNECTION WILL BE DETERMINED BY CLEVELAND WATER PRIOR TO THE TAPS BEING INSTALLED. ALL PERMITS FOR TAPS AND METERS FOR PARCELS ASSOCIATED WITH THE WATER MAINS INSTALLED ON THIS PROJECT ARE TO BE OBTAINED BY THE LAND OWNER OF SAID IMPROVEMENT PLANS. IT IS THE LAND OWNERS RESPONSIBILITY TO ARRANGE FOR OBTAINING PERMITS FOR ALL WATER SERVICE CONNECTIONS BEFORE ANY SERVICE CONNECTION WORK MAY PROCEED. ALL FEES CAN BE OBTAINED FROM THE CLEVELAND WATER PERMITS AND SALES SECTION AT 216-664-3130 PROMPT #7 OR 216-664-2444 X75209.

ACCOUNTS SHALL BE INITIATED IN THE LAND OWNER'S NAME AS PART OF THE PERMITTING PROCESS. ALL RESPONSIBILITIES ASSOCIATED WITH EACH WATER SERVICE, INCLUDING, THE OWNER SIDE INSPECTIONS, METER SET/METER PIPING INSPECTION AND THE METER INSTALLATION SHALL BE THE RESPONSIBILITY OF SAID OWNER.

METERS INSTALLATIONS WILL NOT BE AUTHORIZED TO BE INSTALLED UNTIL ALL INSPECTIONS HAVE BEEN COMPLETED. ESTIMATED BILLS MAY ENSUE IF A HOME IS IDENTIFIED AS HAVING WATER SERVICE BUT NO METER HAS BEEN INSTALLED. IF NEW OWNERS, ONCE PARCELS ARE SOLD OFF AND TRANSFER TITLE, DO NOT CONTACT CLEVELAND WATER TO ESTABLISH ACCOUNTS IN THEIR NAME, ACCOUNTS AND THEIR ASSOCIATED BILLS WILL REMAIN IN THE NAME OF OUR LAST OWNER OF RECORD WHICH MAY BE THE DEVELOPER OR BUILDER. IT IS THE RESPONSIBILITY OF THE NEW OWNER TO TRANSFER ACCOUNTS INTO THEIR NAME WHEN THE PROPERTIES LEGALLY TRANSFER. UPON TRANSFER OF PROPERTY, SELLER OF PROPERTY MUST COMMUNICATE ALL UNCOMPLETED PORTIONS OF THE REFERENCED RESPONSIBILITIES TO THE NEW OWNER.

24. ONE INCH SERVICE CONNECTIONS SHALL BE PERMITTED TO SERVICE NEW HOMES (AS SHOWN ON APPROVED WATER MAIN EXTENSION PLANS) BASED ON THE FOLLOWING CRITERIA:

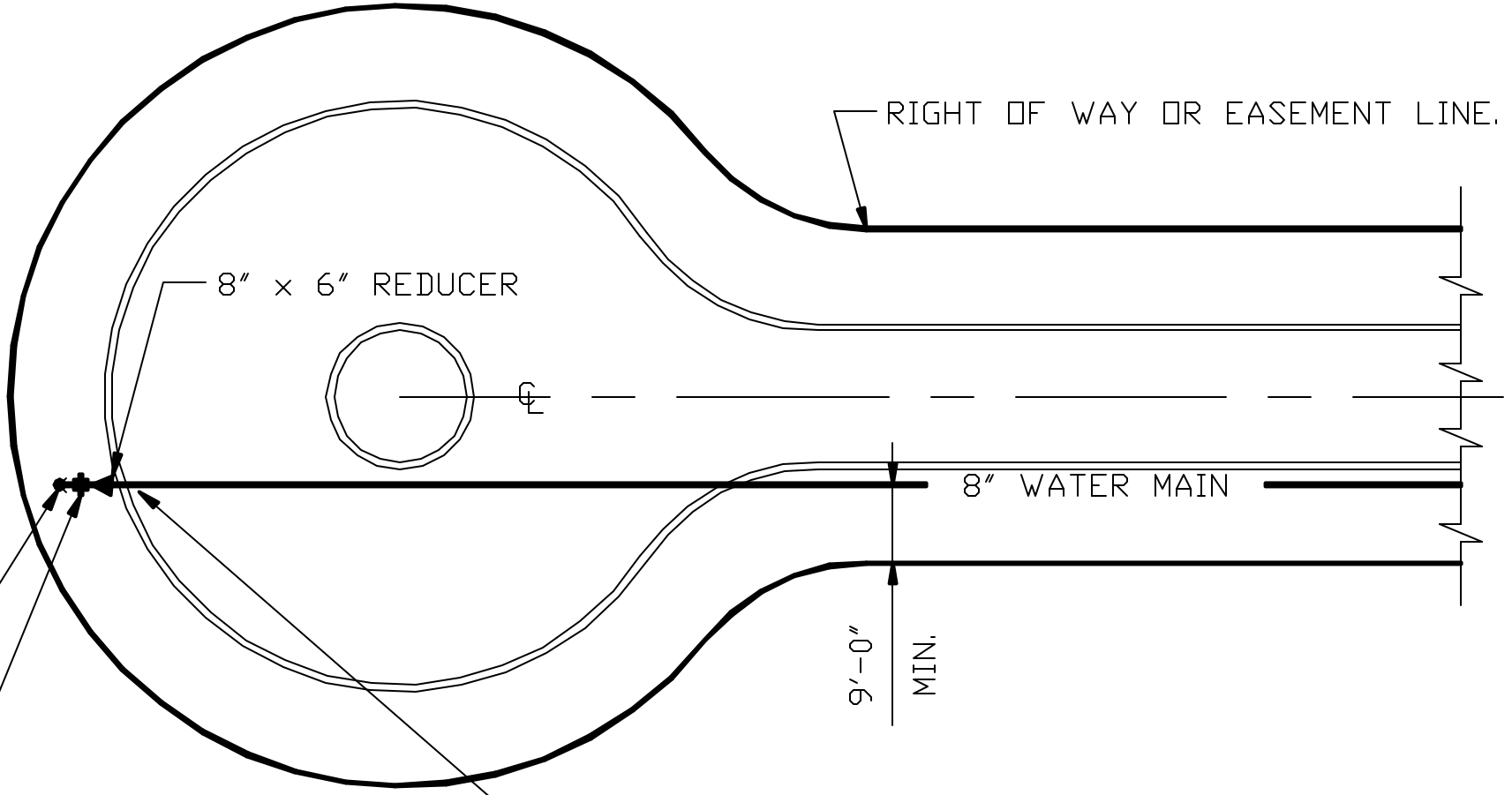
- PEAK FLOW DEMANDS DO NOT EXCEED 25 GPM FOR AN INDIVIDUAL HOME/UNIT. INCLUSIVE OF ALL USAGE (DOMESTIC AND/OR IRRIGATION),
- LENGTH OF ONE INCH CONNECTION DOES NOT EXCEED 75 FEET AS MEASURED FROM THE MAIN TO THE POINT OF ENTRY INTO THE PROPOSED HOME/UNIT.
- THE CONNECTIONS DO NOT INCLUDE LIMITED AREA OR NFPA 13D SPRINKLER SYSTEMS

ANY SERVICE REQUESTS DIFFERING FROM THE STATED CRITERIA SHALL REQUIRE THE SUBMITTAL OF A COMPLETE WATER SERVICE APPLICATION FOR EACH WATER SERVICE REQUESTED.

25. ALL CURB VALVE BOXES & METER VAULTS WILL BE INSTALLED IN GRASS AREAS WHEN POSSIBLE. CURB VALVES SHALL BE PLACED APPROXIMATELY 2 FEET OFF THE CURB. CURB VALVES IN EASEMENTS SHALL BE PLACED APPROXIMATELY 3 FEET OFF THE WATER MAIN. IF VALVE BOXES OR METER VAULTS ARE INSTALLED OUTSIDE OF A DEDICATED RIGHT OF WAY OR EASEMENT FOR THE PURPOSES OF WATER SUPPLY, A STANDARD CLEVELAND EASEMENT FOR A VAULT SHALL BE PROVIDED.

EMERGENCIES:

26. IF A WATER MAIN OR SERVICE CONNECTION BREAK OCCURS DURING CONSTRUCTION AND EMERGENCY ASSISTANCE IS REQUIRED, PLEASE NOTIFY CLEVELAND WATER AT 216-664-3060. THIS LINE IS AVAILABLE 24/7/365



6" LINE VALVE AND BOX

6" HYDRANT ASSEMBLY.
SEE TYPICAL NEW HYDRANT
INSTALLATION DETAIL **"C"**

ON 8" MAIN USE TWO FULL LENGTHS OF BOLTLESS RESTRAINED PUSH-ON JOINT PIPE, WITH TYPE II JOINTS, FOR THE LAST TWO JOINTS.
ON 12" MAIN USE THREE FULL LENGTHS OF BOLTLESS RESTRAINED PUSH-ON JOINT PIPE, TYPE II JOINTS, ON THE LAST THREE JOINTS.

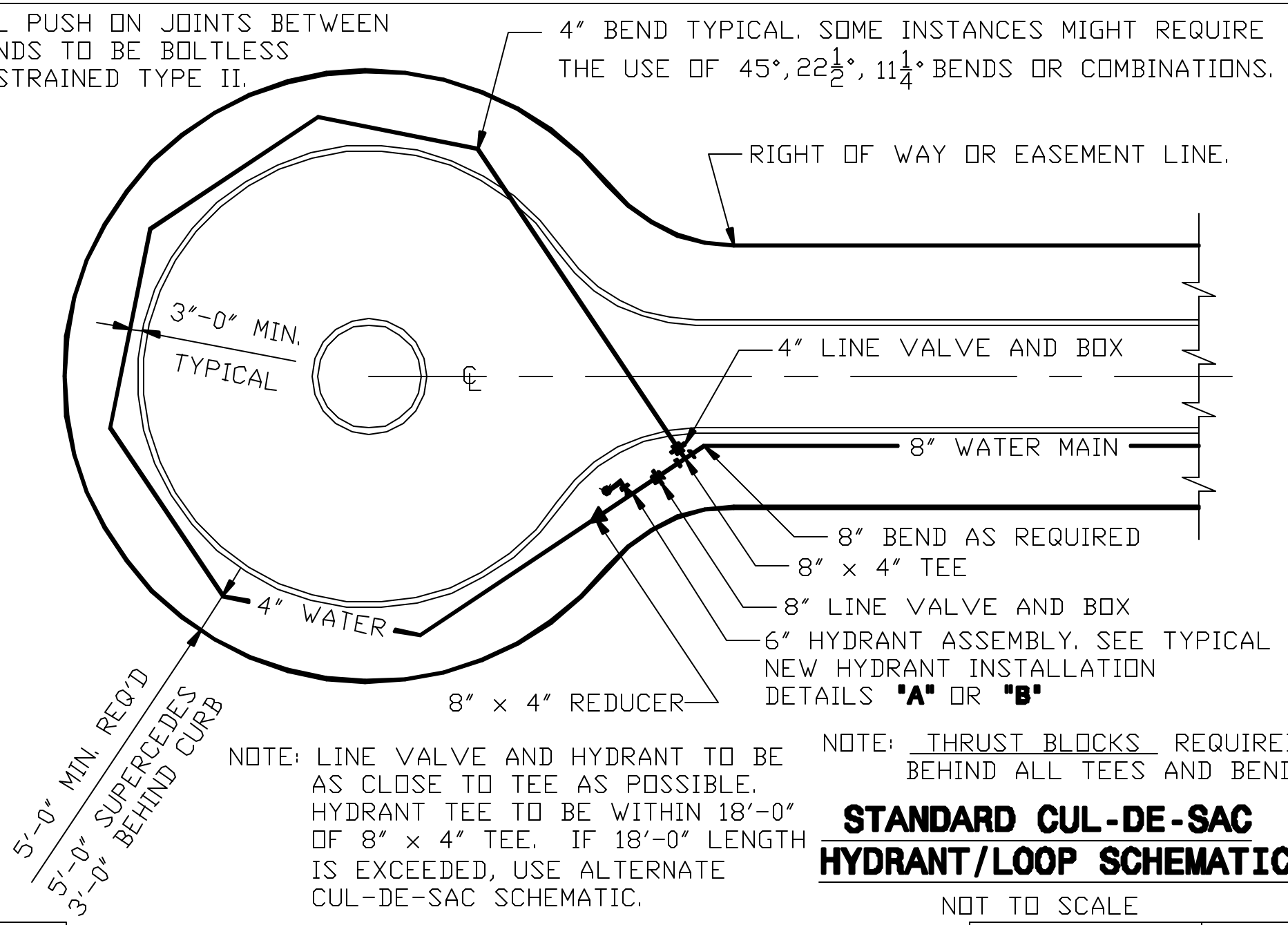
STRAIGHT CUL-DE-SAC SCHEMATIC

NOT TO SCALE

NOTE: THRUST BLOCKS REQUIRED BEHIND ALL TEE AND BENDS.

STD-012

DATE: 6-14-2001 | BY: RSK



NOTE: LINE VALVE AND HYDRANT TO BE AS CLOSE TO TEE AS POSSIBLE. HYDRANT TEE TO BE WITHIN 18'-0" OF 8" x 4" TEE. IF 18'-0" LENGTH IS EXCEEDED, USE ALTERNATE CUL-DE-SAC SCHEMATIC.

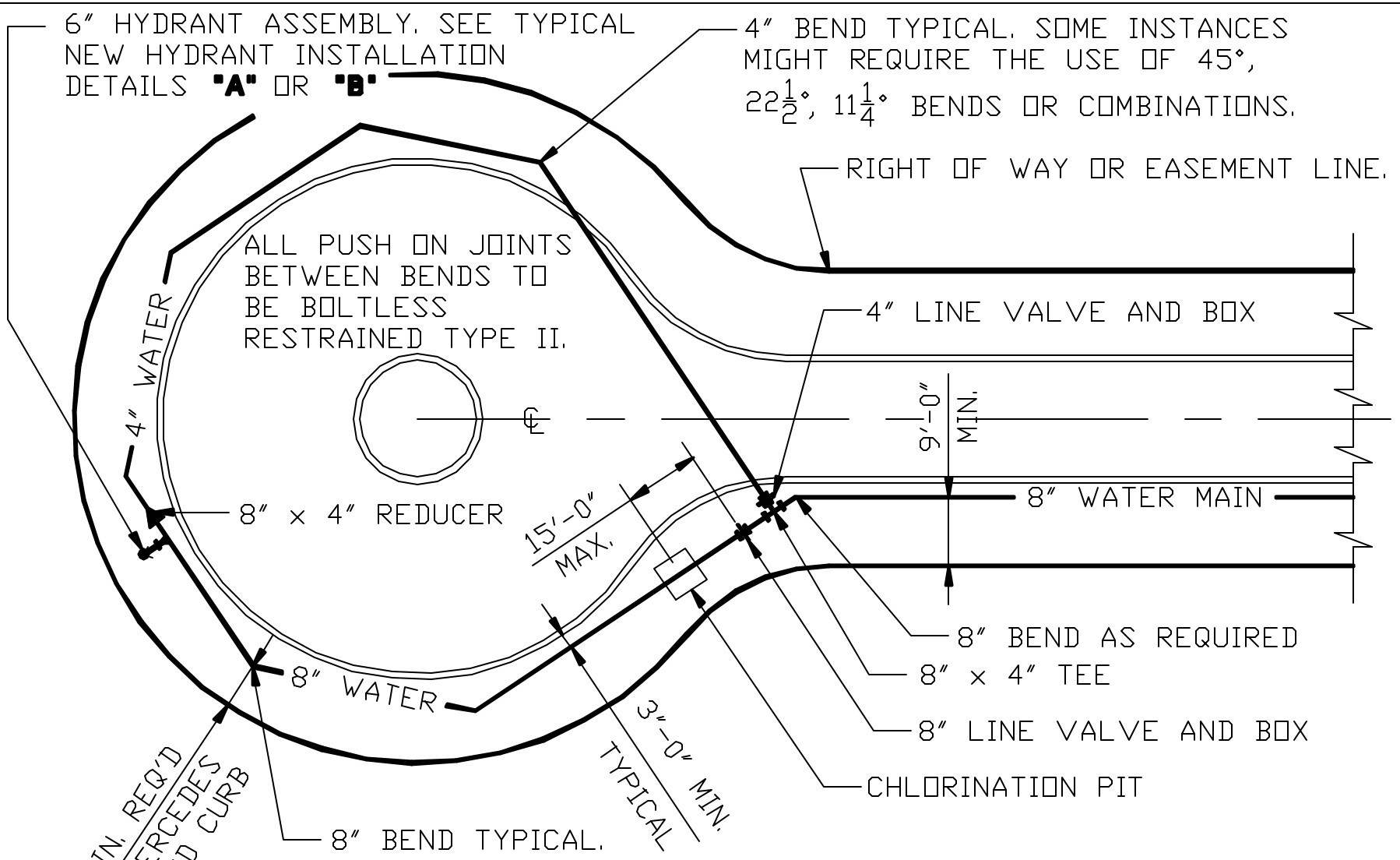
NOTE: THRUST BLOCKS REQUIRED BEHIND ALL TEES AND BENDS.

STANDARD CUL-DE-SAC HYDRANT/LOOP SCHEMATIC

NOT TO SCALE

STD-013

DATE: 6-14-2001 | BY: RSK



NOTE: THRUST BLOCKS REQUIRED BEHIND ALL TEES AND BENDS.

ALTERNATE CUL-DE-SAC HYDRANT/LOOP SCHEMATIC

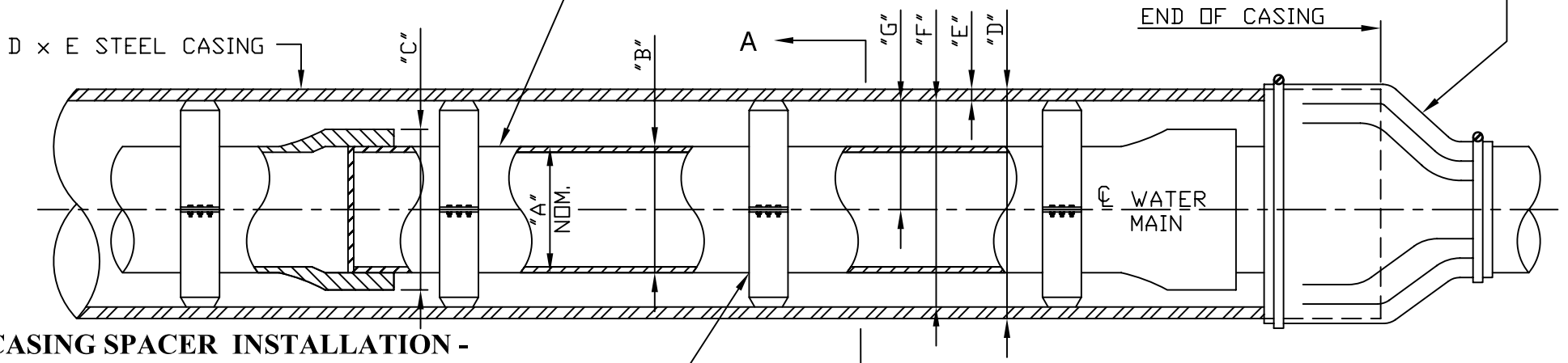
NOT TO SCALE

STD-014

DATE: 6-14-2001 | BY: RSK

DUCTILE IRON CLASS 52 CEMENT LINED BOLTLESS RESTRAINED PUSH-ON JOINT PIPE (TYPE I NEW CONSTRUCTION) (TYPE II EXISTING CONSTRUCTION).

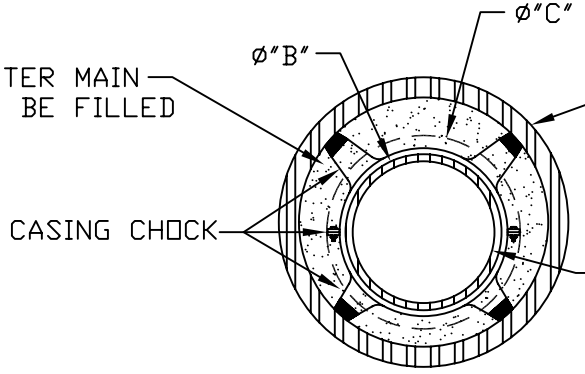
WRAP AROUND RUBBER END SEALS ARE TO BE USED FOR SINGLE CARRIER PIPES, OR MOLDED END SEALS FOR CLUSTER CARRIER PIPES. ALL FASTNERS ARE TO BE STAINLESS STEEL. BRICK BULKHEADS ARE NOT ALLOWED.



- CASING SPACER INSTALLATION -

THREE CASING SPACER PER 18FT. OR 20FT. PIPE JOINTS ARE TO BE USED FOR MAXIMUM CARRIER PIPE SUPPORT; ONE BEHIND THE BELL, ONE AT THE SPIGOT END MAKE-UP LINE, AND ONE CENTERED BETWEEN THE AFOREMENTIONED TWO SPACERS. CASING SPACERS SHOULD CENTER & RESTRAIN THE CARRIER PIPE. WOODEN SKIDS ARE NOT ALLOWED.

A	B	C*	D	E	F	G
8"	9.05"	11.89"	16"	$\frac{3}{8}$"	$15\frac{1}{4}$"	8.00"
12"	13.20"	16.35"	20"	$\frac{3}{8}$"	$19\frac{1}{4}$	10.00"
16"	17.40"	20.84"	24"	$\frac{1}{2}$"	23"	12.00"



SECTION A-A

- CASING SPACER DETAIL -

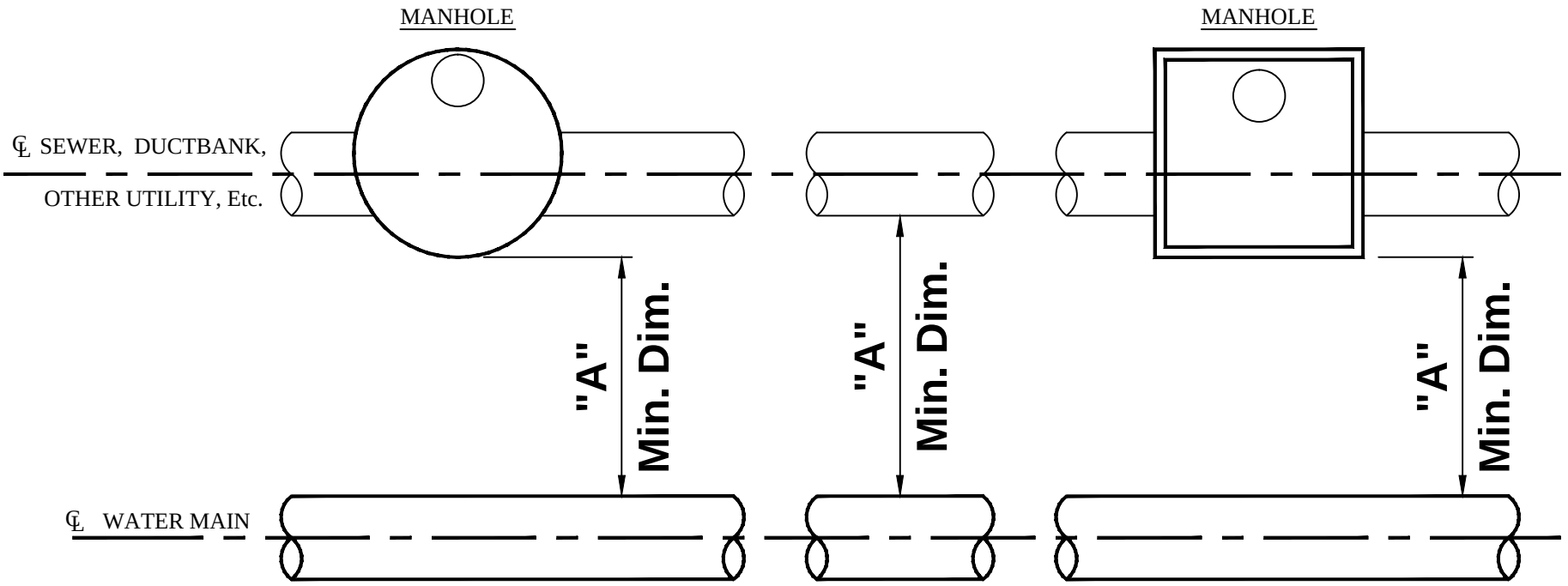
CASING SPACERS ARE TO BE STAINLESS STEEL, OR POLYMER COATED CARBON STEEL. STAINLESS STEEL IS NOT ALLOWED IF GROUTING IS REQUIRED. SPACER BAND WIDTHS ARE TO BE 8" CARRIER PIPES THROUGH 24" AND 21" FOR 26" AND LARGER. RUNNERS ARE TO BE GLASS-FILLED POLYMER PLASTIC AND LINER IS TO BE EPDM OR PVC.

NOTES:

1. CONTRACTOR'S FAILURE TO MAINTAIN THE CASING PIPE ON THE LINE AND GRADE AS SHOWN OR DIRECTED, RESULTING IN THE USE OF ADDITIONAL PIPE AND/OR FITTINGS TO MAKE CONNECTIONS TO EXISTING WATER MAIN WILL BE CAUSE FOR REJECTION OF CASING INSTALLATION.

*2. OUTSIDE DIAMETER OF BELL OF BOLTLESS RESTRAINED PIPE MAY VARY WITH MANUFACTURE, THEREFORE, CONTRACTOR SHALL VERIFY O.D. OF BELL AND INCREASE SIZE OF STEEL CASING AS REQUIRED.

STD-016	CASING DETAIL No. 2 END OF CASING AND CASING CHOCK DETAIL	DATE: 1-21-2010	BY: RSK



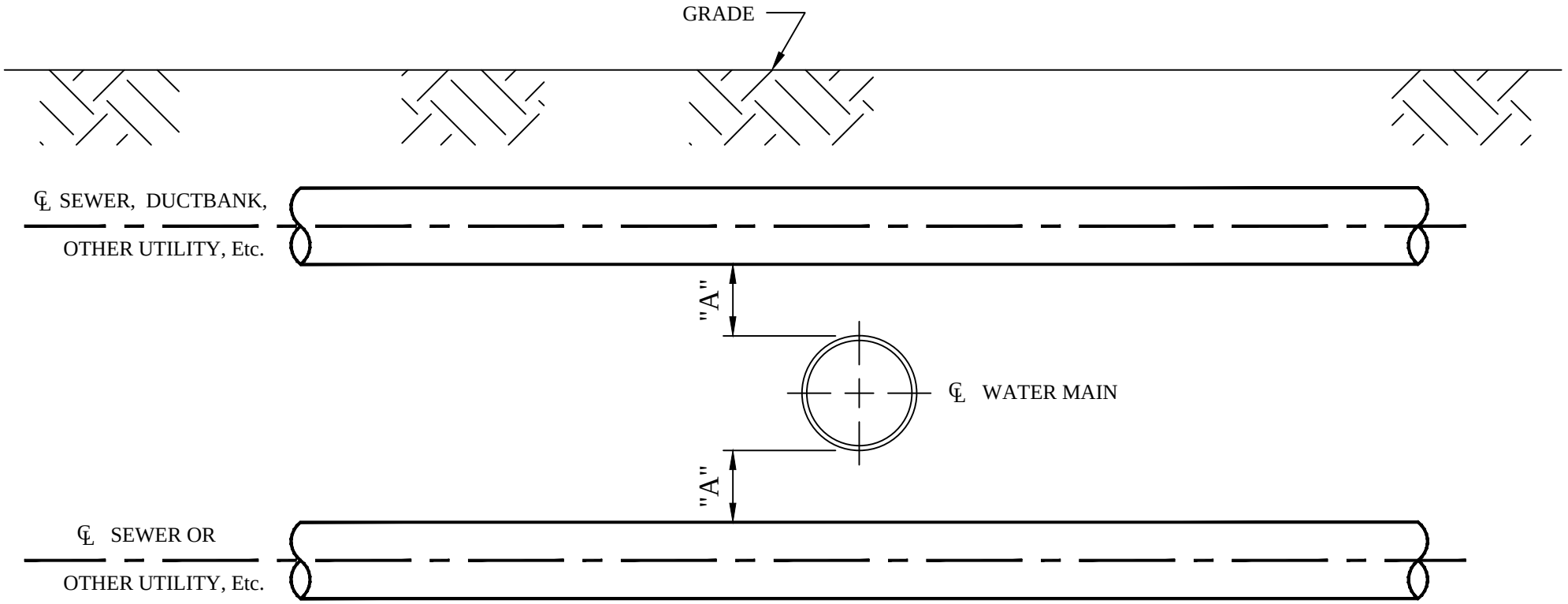
PLAN VIEW

- SEE STD-018 FOR PROFILE VIEW -

HORIZONTAL CLEARANCE	STORM SEWER	SANITARY SEWER	GAS, DUCTBANK, OTHER UTILITY, Etc.
"A"	10'-0" MIN.	10-0" MIN.	5'-0" MIN.

HORIZONTAL CLEARANCE FOR UTILITIES

NOT TO SCALE



PROFILE VIEW

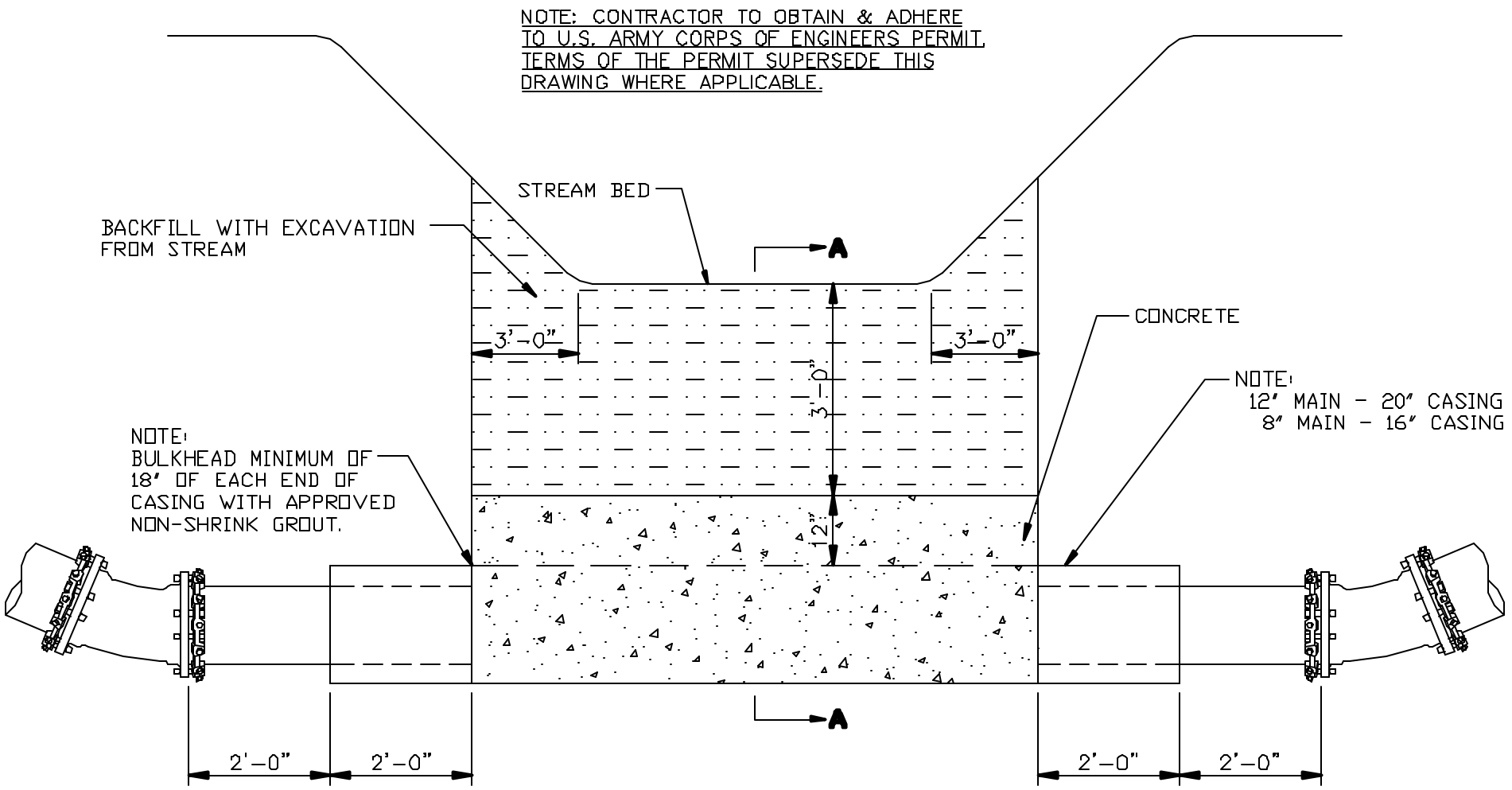
- SEE STD-017 FOR PLAN VIEW -

VERTICAL CLEARANCE	SANITARY SEWER LESS THAN 24"	SANITARY SEWER 24" & LARGER	STORM SEWER, DUCTBANK, GAS, OTHER UTILITY LESS THAN 24"	STORM SEWER, DUCTBANK, GAS, OTHER UTILITY 24" & LARGER	REMARKS
"A"	18" Min.	18" Min.	18" Min.	18" Min.	IF CANNOT ACHIEVE MIN. CLEARANCE WATER MAIN TO BE LOWERED

VERTICAL CLEARANCE FOR UTILITIES

NOT TO SCALE

STD-018	DATE: 7-02-2014	BY: MTA

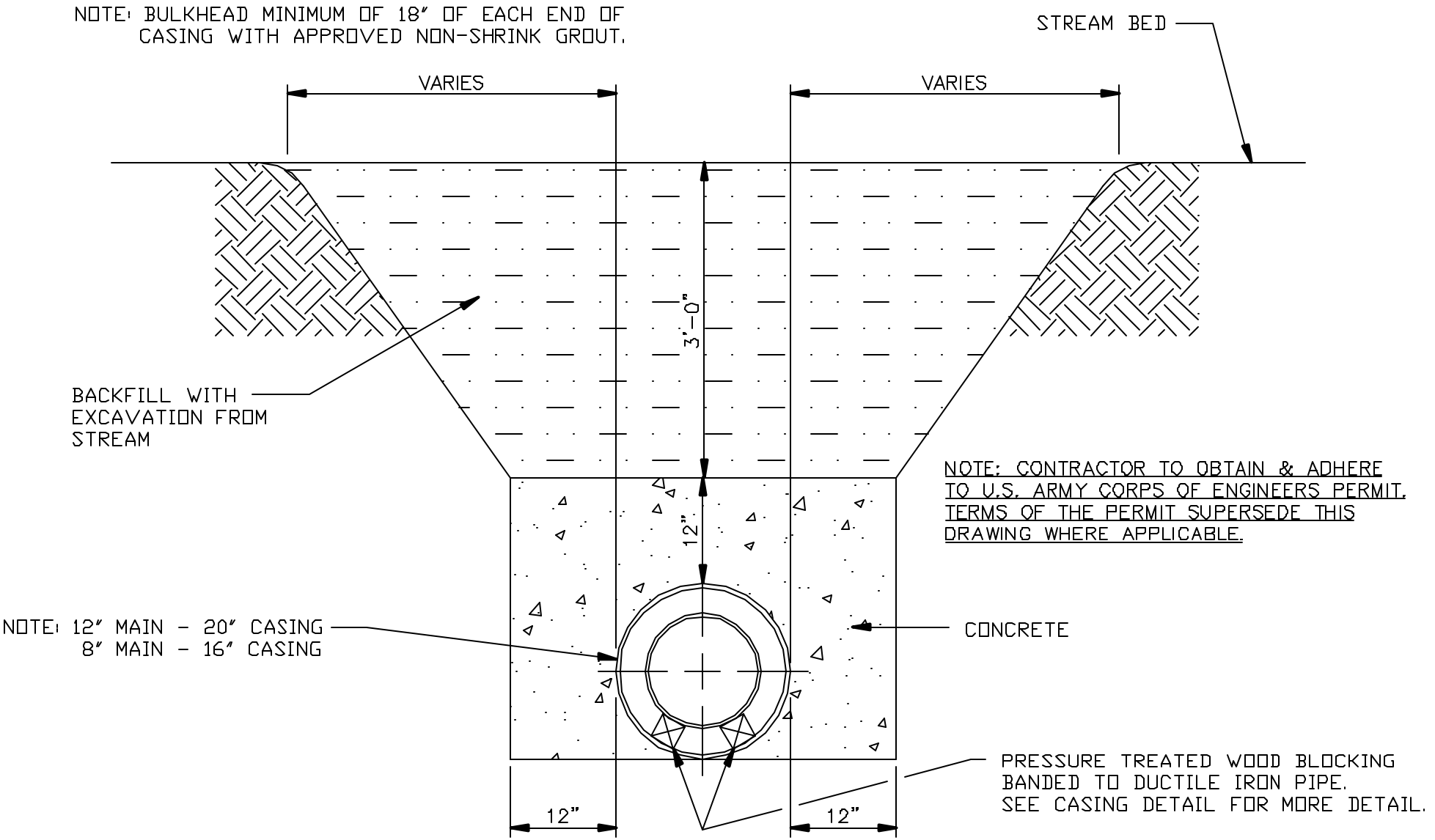


CROSSING LARGE DITCHES OR SMALL STREAMS PROFILE - OPEN CUT METHOD

- NOT TO SCALE -

STD-019	DATE: 9-16-98	BY: RSK

NOTE: BULKHEAD MINIMUM OF 18" OF EACH END OF CASING WITH APPROVED NON-SHRINK GROUT.

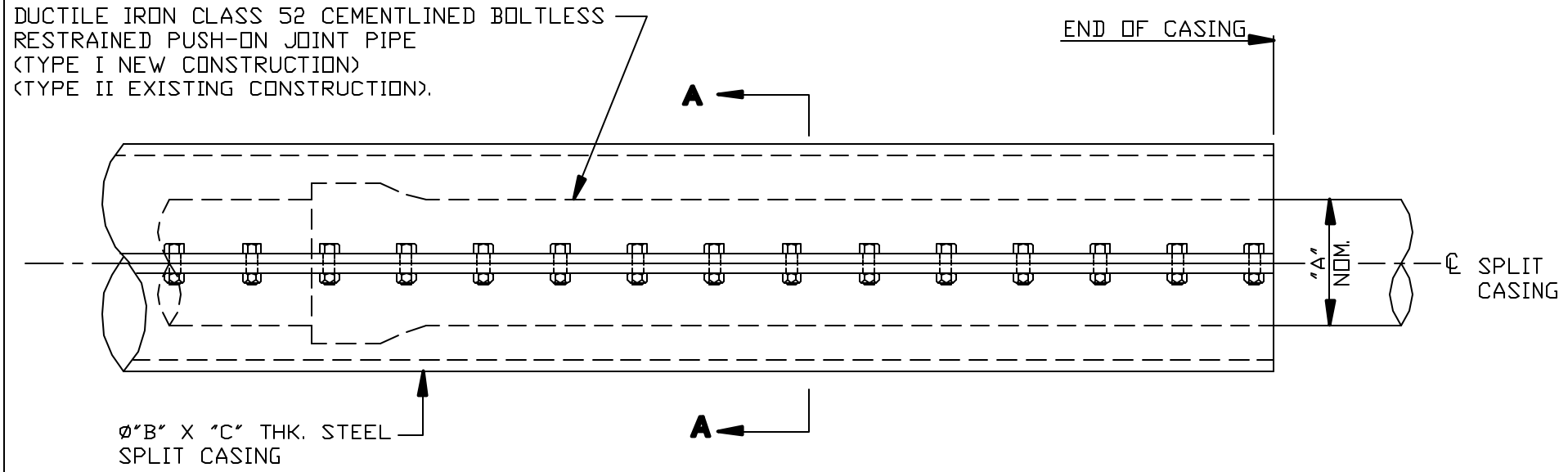


NOTE: CONTRACTOR TO OBTAIN & ADHERE TO U.S. ARMY CORPS OF ENGINEERS PERMIT. TERMS OF THE PERMIT SUPERSEDE THIS DRAWING WHERE APPLICABLE.

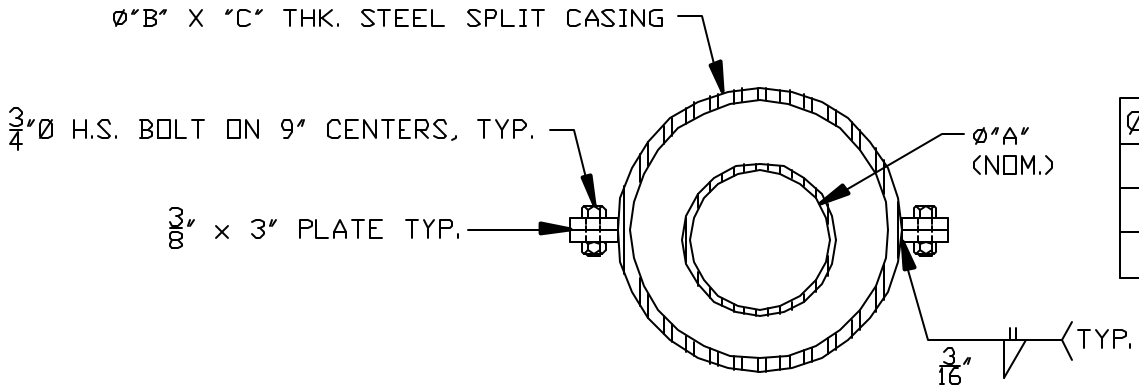
CROSSING LARGE DITCHES OR SMALL STREAMS SECTION A-A - OPEN CUT METHOD

- NOT TO SCALE -

STD-020	DATE: 9-16-98	BY: RSK



SEE STD-015 & STD-016 FOR DETAILED CASING INFORMATION.



Ø"A"	Ø"B"	"C" THK.
8"	16"	⅜"
12"	20"	⅜"
16"	24"	½"

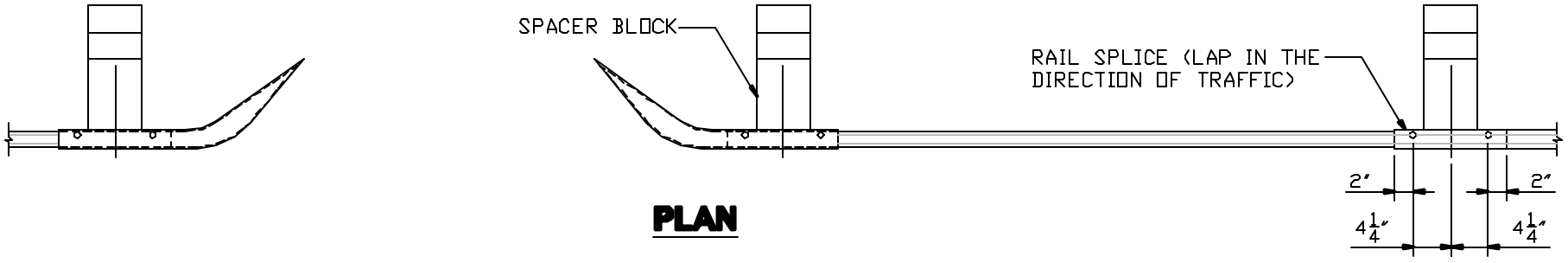
SECTION A-A

SPLIT CASING DETAIL

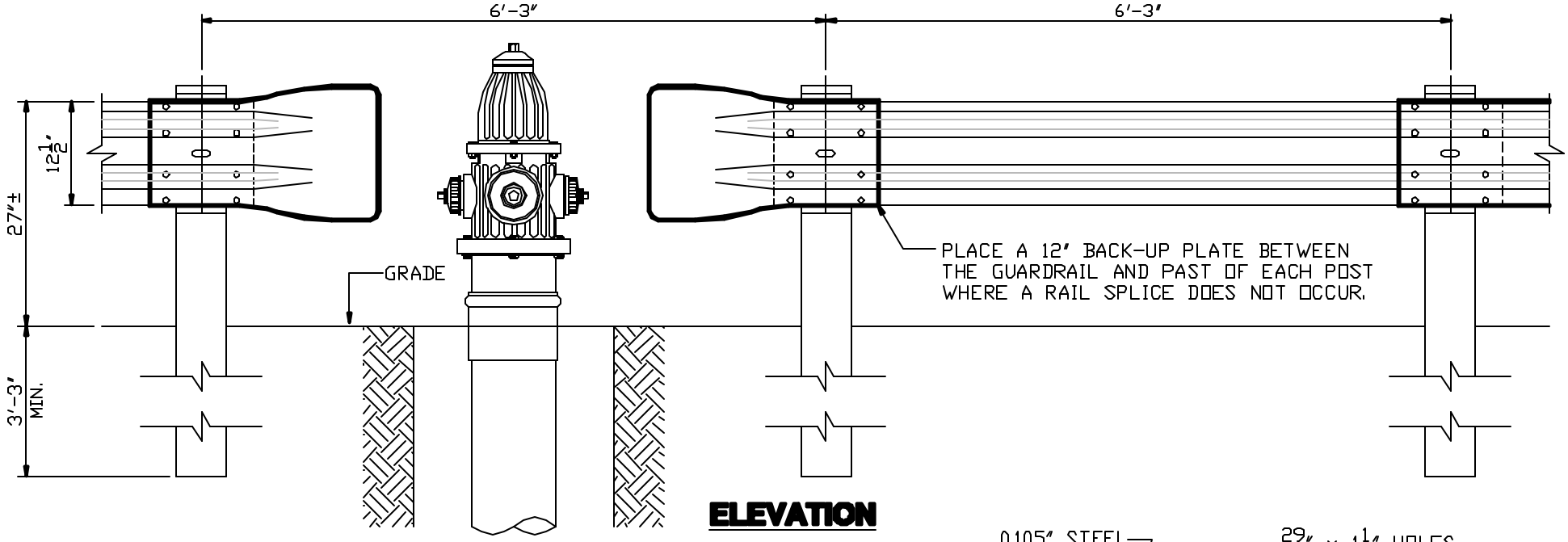
- NOT TO SCALE -

STD-021

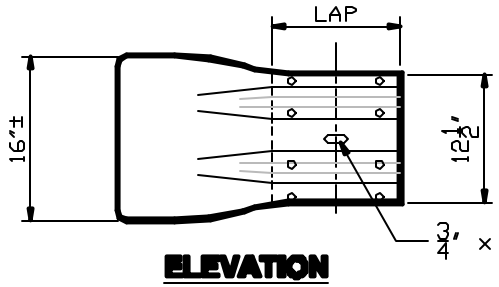
DATE: 9-16-1999 | BY: RSK



PLAN

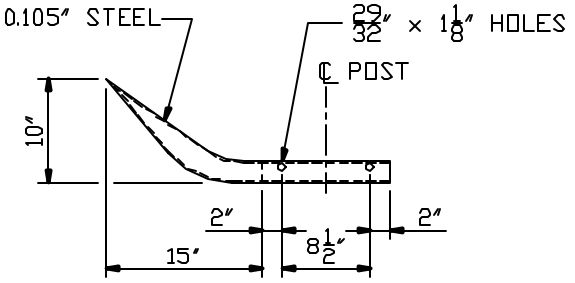


ELEVATION



ELEVATION

FLARED END SECTIONS

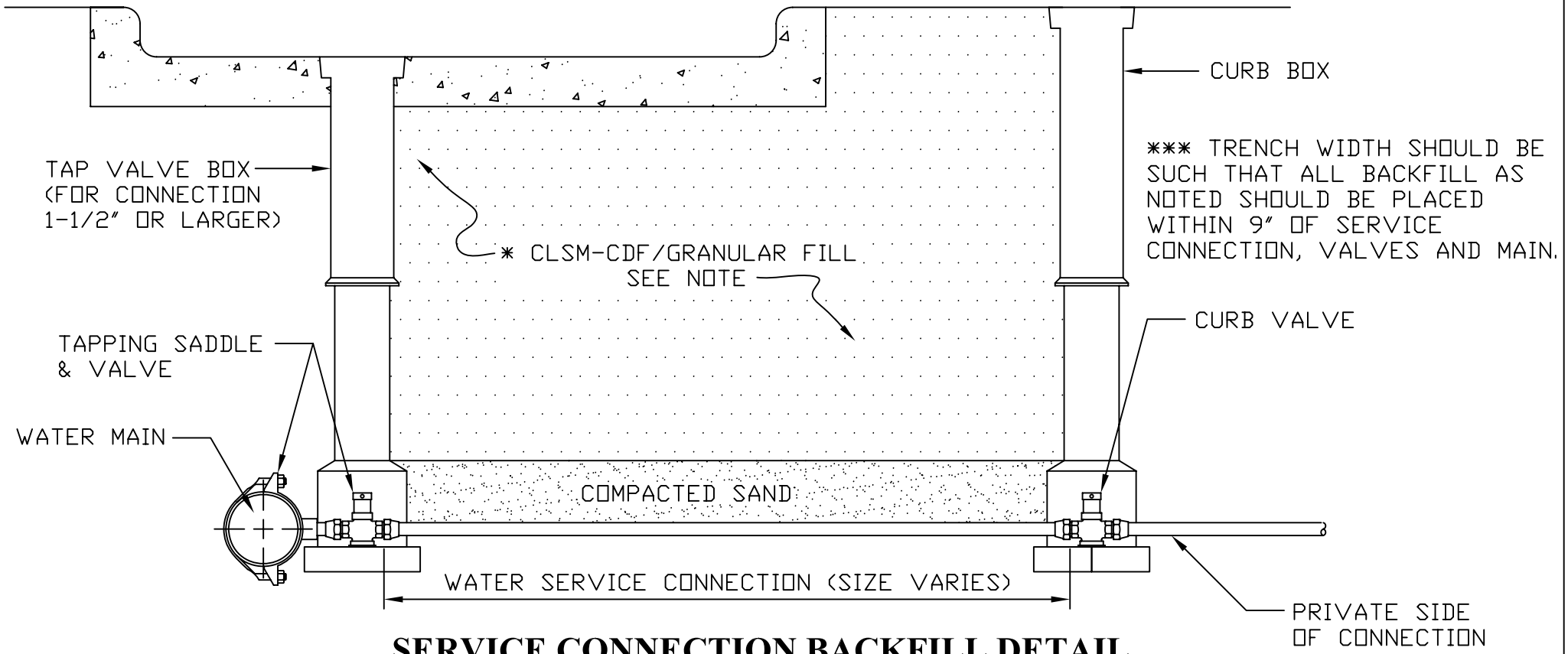


PLAN

STD-022	GUARDRAIL DETAILS AT HYDRANT	DATE: 10-15-1999	BY: RSK

** CLEVELAND REQUIRED MIX DESIGN -
CEMENT - 50 LBS. PER CUBIC YARD
SAND - 2850 LBS. PER CUBIC YARD
WATER - 50 GALLONS PER CUBIC YARD
RHEOCELL 30MB - 3 OZ. PER CUBIC YARD

* CONTROLLED LOW STRENGTH MATERIAL-
CONTROLLED DENSITY FILL (CLSM-CDF)
"FLOWABLE FILL" IS REQUIRED WITHIN THE
CITY OF CLEVELAND CORPORATION LIMITS
AND PERMITTED IN ALL COMMUNITIES
SERVICED BY CWD. CHECK LOCAL REQUIREMENTS.



SERVICE CONNECTION BACKFILL DETAIL

- NOT TO SCALE -

NOTES:
1) CONTRACTOR SHALL USE SPECIAL CARE IN PLACING THE SAND BEDDING BACKFILL, SO AS TO AVOID SCRAPING OF THE EXTERIOR COATING, INJURING THE PIPE, DISTORTING OR MOVING THE PIPE WHEN COMPACTING THE SAME. THE SAND BEDDING BACKFILL SHALL BE TAMPED IN SIX (6) INCH LAYERS, SIMULTANEOUSLY ON EACH SIDE OF THE PIPE, AND THOROUGHLY COMPACTED SO AS TO PROVIDE A SOLID BACKING AGAINST THE EXTERNAL SURFACE OF THE PIPE.
2) MINIMUM COMPACTION FOR ALL SAND BEDDING BACKFILL, BACKFILL AND PREMIUM BACKFILL SHALL BE 95% STANDARD PROCTOR.

STD-023	DATE: 10-7-2008	BY: RSK

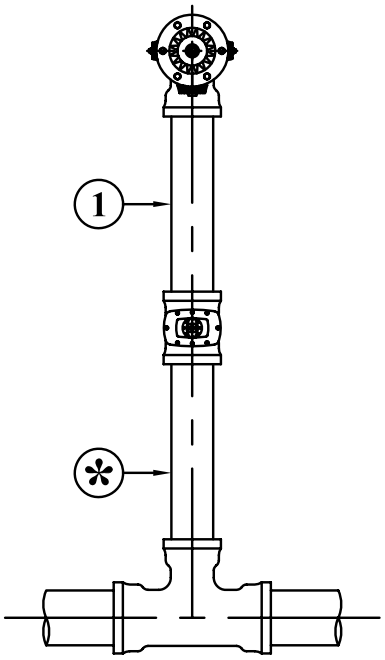
CLEVELAND DIVISION OF WATER CONSTRUCTION STANDARDS

Hydrant Details

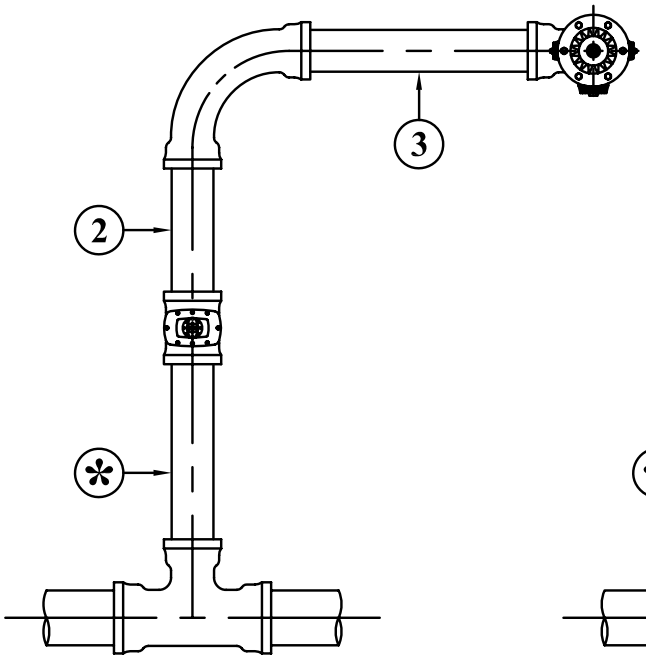
✻ **IF CUTS ARE REQUIRED BETWEEN THE TEE AND VALVE, TOTAL REPLACEMENT WILL BE REQUIRED. SEE DETAILS STD-H06 STD-H07.**

✻✻ **IF EXISTING HYDRANT BRANCH VALVE IS 4" IN DIAMETER TOTAL REPLACEMENT WILL BE REQUIRED UNLESS SPECIFIC PERMISSION IS GRANTED BY THE DIVISION OF WATER ON A CASE BY CASE BASIS.**

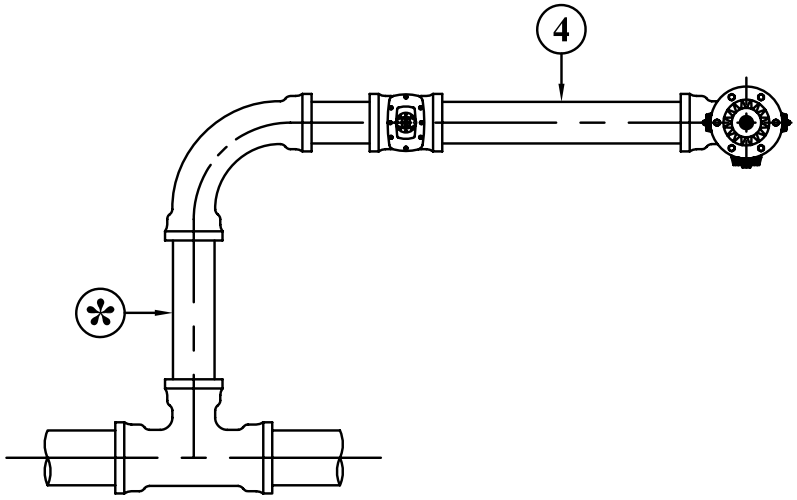
CUT AT	SEE DETAIL
①	STD-H02 FOR STRAIGHT TYPE
②	STD-H03 FOR OFFSET TYPE 1
③	STD-H04 FOR OFFSET TYPE 2
④	STD-H05 FOR OFFSET TYPE 3
TOTAL REPLACEMENT	STD-H06 FOR STRAIGHT TYPE STD-H07 FOR OFFSET TYPE 1 & TYPE 2 & TYPE 3



STRAIGHT TYPE



OFFSET TYPE 1 & 2

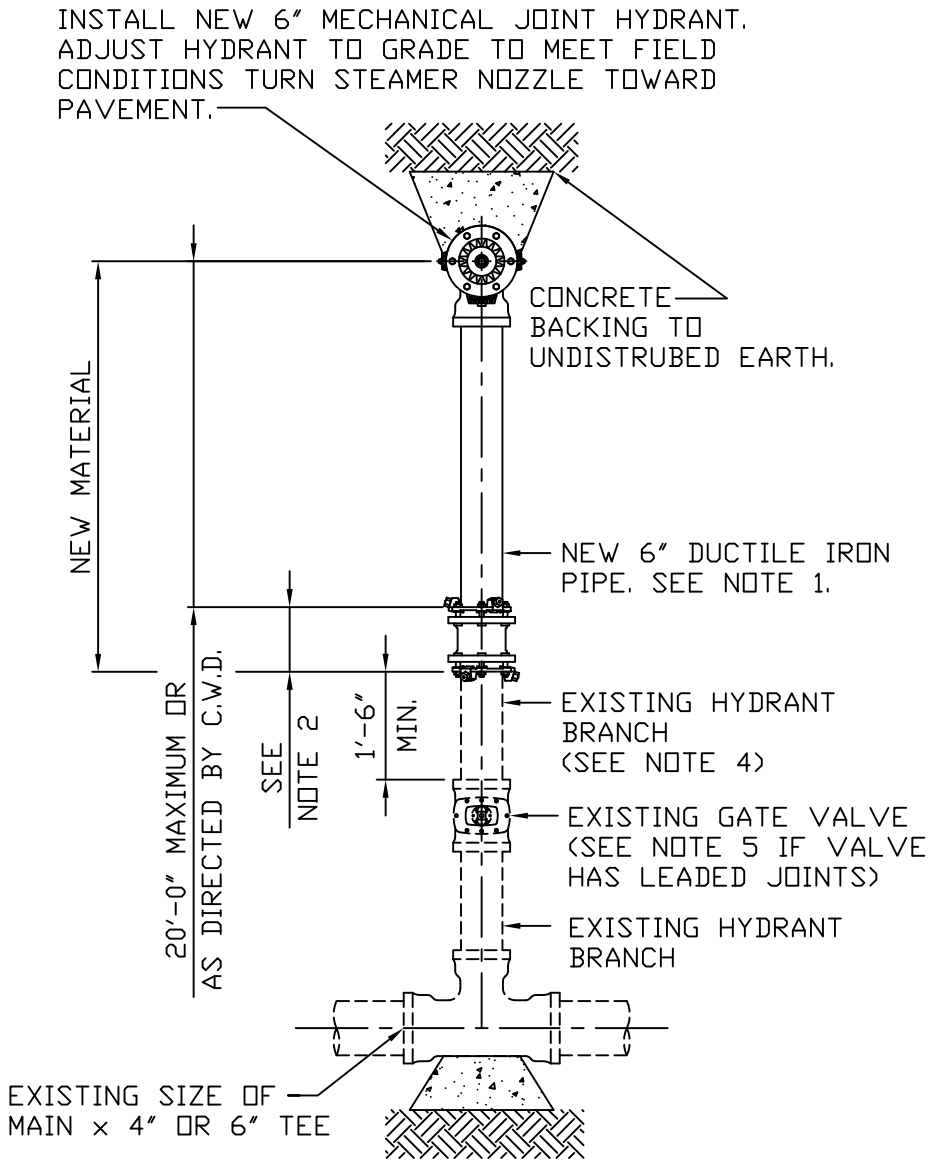


OFFSET TYPE 3

DISTURBING EXISTING LEADED HYDRANTS AND LEADED FITTINGS

- NOT TO SCALE -

STD-H01	DATE: 5-4-2006	BY: RSK



STRAIGHT TYPE

1) PLAIN END x PLAIN END DUCTILE IRON PIPE AS SPECIFIED (CUT TO SUIT).

2) CONNECTION SHALL BE MADE WITH RETAINED MECHANICAL JOINT SOLID SLEEVES (SHORT OR LONG PATTERN) DUCTILE IRON CLASS 350 OR CAST IRON CLASS 250, RETAINED MECHANICAL JOINT REDUCERS WHERE EXISTING PIPE IS 4" IN DIAMETER, OR COMPRESSION COUPLINGS WITH ROD AND CLAMPS AS DIRECTED BY C.W.D. INSPECTOR.

COMPRESSION COUPLINGS SHALL BE OF A GASKETED, SLEEVE TYPE WITH DIAMETERS TO PROPERLY FIT PLAIN END IRON PIPE. EACH COUPLING SHALL CONSIST OF ONE (1) MIDDLE RING, WITHOUT STOPS; TWO (2) FOLLOWER GLANDS; TWO (2) RUBBER-COMPOUND BUNA-N BLEND, WEDGE SECTION GASKETS; AND SUFFICIENT TRACKHEAD STAINLESS STEEL BOLTS AND NUTS (ASTM A276/A193/194, TYPE 304, EXTRA HEAVY HEX) TO PROPERLY COMPRESS THE GASKETS. MIDDLE RING AND FOLLOWER GLANDS SHALL BE OF EITHER STEEL OR DUCTILE IRON (ASTM-A536). THE COMPRESSION COUPLING SHALL BE WITHOUT STOPS AND BE RATED FOR A MINIMUM WORKING PRESSURE OF 250 PSI AND SHALL BE EQUAL TO THE DRESSER STYLE No's 38, 138 (STRAIGHT TYPE), 162 (TRANSITION TYPE), 253 (REDUCING TYPE); OR SMITH-BLAIR 441 (STRAIGHT AND TRANSITION TYPE), R441 (REDUCING TYPE); OR ROMAC STYLE 501 (STRAIGHT AND TRANSITION TYPE), STYLE RC501 (REDUCING TYPE).

IF THE BRANCH IS TO BE SHORTENED, NO NEW IS PIPE REQUIRED.

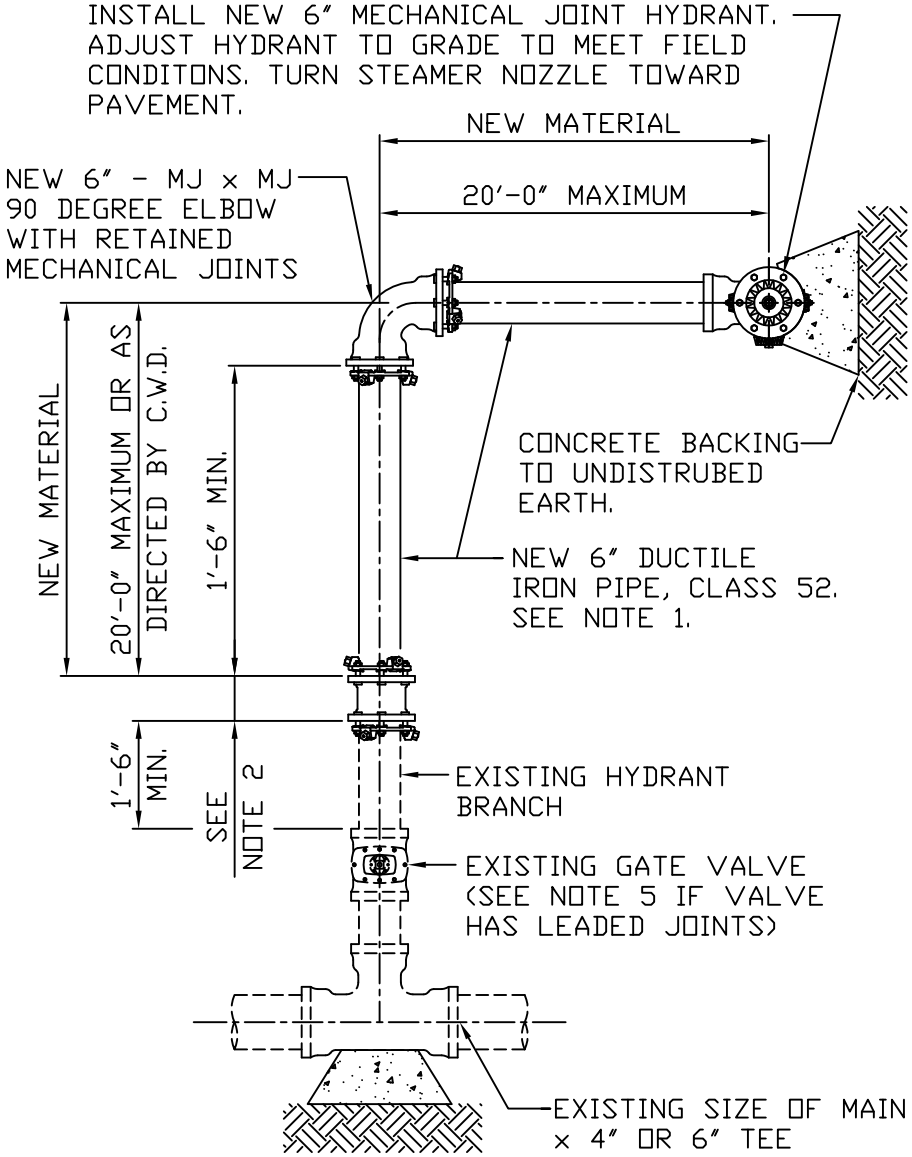
3) ALL BOLTS AND NUTS ON ALL MECHANICAL JOINTS, INCLUDING THOSE ON THE "RETAINED" TYPE, SHALL HAVE FIELD APPLIED ONE (1) COAT OF BITUMASTIC PAINTING FOLLOWED BY AN ENCASEMENT OF POLYETHYLENE WRAPPING IN ACCORDANCE WITH ANSI/AWWA C-105/A21.5-88, CLASS "C", METHOD "B".

4) IF EXISTING PIPING IS 4" USE 4" TO 6" REDUCING MJ REDUCER OR REDUCING TRANSITION COUPLING WITH ROD & CLAMP IF APPROVED BY CWD.

5) IN HIGH PRESSURE AREAS THE EXISTING VALVE MAY NEED TO BE RESTRAINED TO EXISTING TEE OR FITTING USING ROD & CLAMP AS DIRECTED BY CWD.
SEE STD-H01 FOR EXISTING LEAD JOINT REQUIREMENTS.

EXTEND, SHORTEN AND ADJUST HYDRANT TO GRADE, STRAIGHT TYPE

- NOT TO SCALE -



OFFSET TYPE 1

1) PLAIN END x PLAIN END DUCTILE IRON PIPE AS SPECIFIED (CUT TO SUIT).

2) CONNECTION SHALL BE MADE WITH RETAINED MECHANICAL JOINT SOLID SLEEVES (SHORT OR LONG PATTERN) DUCTILE IRON CLASS 350 OR CAST IRON CLASS 250, RETAINED MECHANICAL JOINT REDUCERS WHERE EXISTING PIPE IS 4" IN DIAMETER, OR COMPRESSION COUPLINGS WITH ROD AND CLAMPS AS DIRECTED BY C.W.D. INSPECTOR.

COMPRESSION COUPLINGS SHALL BE OF A GASKETED, SLEEVE TYPE WITH DIAMETERS TO PROPERLY FIT PLAIN END IRON PIPE. EACH COUPLING SHALL CONSIST OF ONE (1) MIDDLE RING, WITHOUT STOPS; TWO (2) FOLLOWER GLANDS; TWO (2) RUBBER-COMPOUND BUNA-N BLEND, WEDGE SECTION GASKETS; AND SUFFICIENT TRACKHEAD STAINLESS STEEL BOLTS AND NUTS (ASTM A276/A193/194, TYPE 304, EXTRA HEAVY HEX) TO PROPERLY COMPRESS THE GASKETS. MIDDLE RING AND FOLLOWER GLANDS SHALL BE OF EITHER STEEL OR DUCTILE IRON (ASTM-A536). THE COMPRESSION COUPLING SHALL BE WITHOUT STOPS AND BE RATED FOR A MINIMUM WORKING PRESSURE OF 250 PSI AND SHALL BE EQUAL TO THE DRESSER STYLE No's 38, 138 (STRAIGHT TYPE), 162 (TRANSITION TYPE), 253 (REDUCING TYPE); OR SMITH-BLAIR 441 (STRAIGHT AND TRANSITION TYPE), R441 (REDUCING TYPE); OR ROMAC STYLE 501 (STRAIGHT AND TRANSITION TYPE), STYLE RC501 (REDUCING TYPE).

IF THE BRANCH IS TO BE SHORTENED, NO NEW IS PIPE REQUIRED.

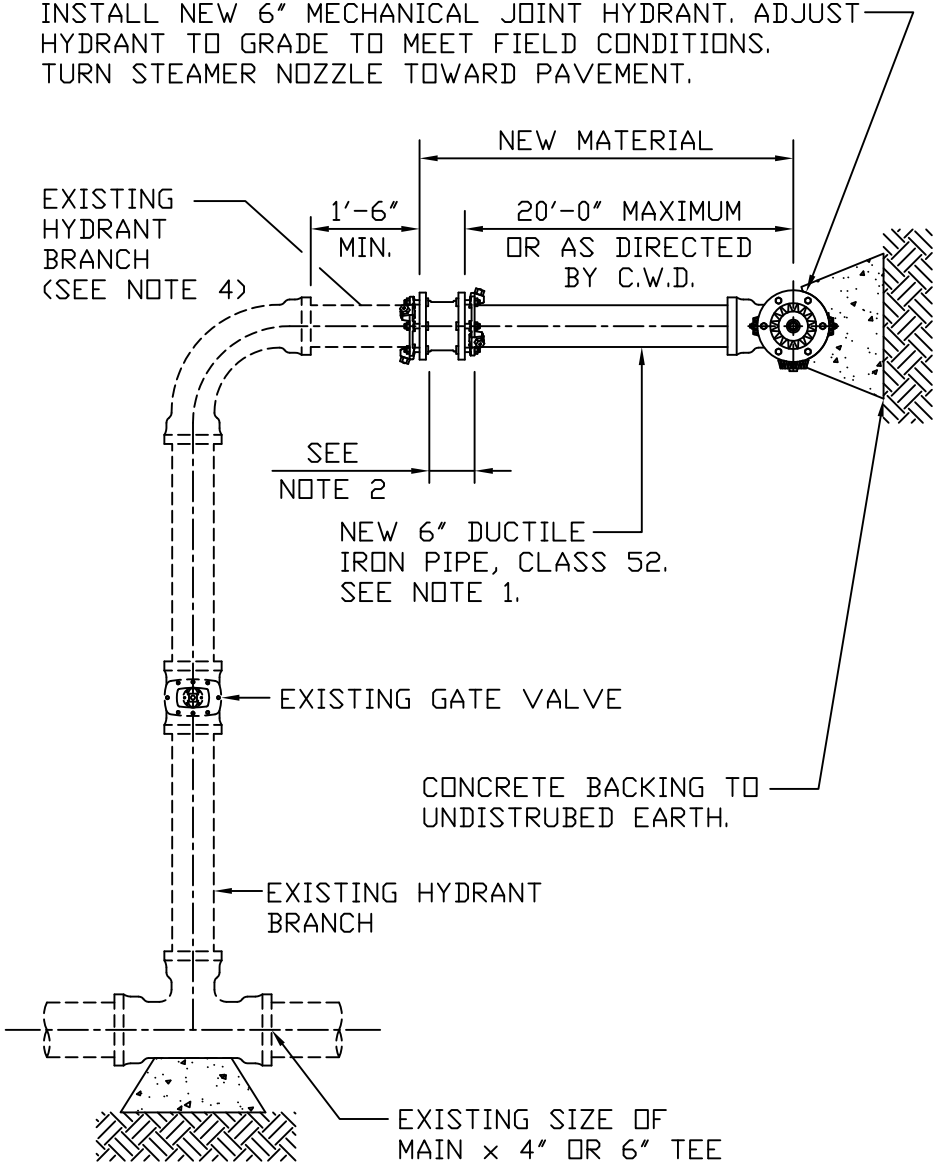
3) ALL BOLTS AND NUTS ON ALL MECHANICAL JOINTS, INCLUDING THOSE ON THE "RETAINED" TYPE, SHALL HAVE FIELD APPLIED ONE (1) COAT OF BITUMASTIC PAINTING FOLLOWED BY AN ENCASEMENT OF POLYETHYLENE WRAPPING IN ACCORDANCE WITH ANSI/AWWA C-105/A21.5-88, CLASS "C", METHOD "B".

4) IF EXISTING PIPING IS 4" USE 4" TO 6" REDUCING MJ REDUCER OR REDUCING TRANSITION COUPLING WITH ROD & CLAMP IF APPROVED BY CWD.

5) IN HIGH PRESSURE AREAS THE EXISTING VALVE MAY NEED TO BE RESTRAINED TO EXISTING TEE OR FITTING USING ROD & CLAMP AS DIRECTED BY CWD.
SEE STD-H01 FOR EXISTING LEAD JOINT REQUIREMENTS.

EXTEND, SHORTEN AND ADJUST HYDRANT TO GRADE, OFFSET TYPE 1

- NOT TO SCALE -



OFFSET TYPE 2

1) PLAIN END x PLAIN END DUCTILE IRON PIPE AS SPECIFIED (CUT TO SUIT).

2) CONNECTION SHALL BE MADE WITH RETAINED MECHANICAL JOINT SOLID SLEEVES (SHORT OR LONG PATTERN) DUCTILE IRON CLASS 350 OR CAST IRON CLASS 250, RETAINED MECHANICAL JOINT REDUCERS WHERE EXISTING PIPE IS 4" IN DIAMETER, OR COMPRESSION COUPLINGS WITH ROD AND CLAMPS AS DIRECTED BY C.W.D. INSPECTOR.

COMPRESSION COUPLINGS SHALL BE OF A GASKETED, SLEEVE TYPE WITH DIAMETERS TO PROPERLY FIT PLAIN END IRON PIPE. EACH COUPLING SHALL CONSIST OF ONE (1) MIDDLE RING, WITHOUT STOPS; TWO (2) FOLLOWER GLANDS; TWO (2) RUBBER-COMPOUND BUNA-N BLEND, WEDGE SECTION GASKETS; AND SUFFICIENT TRACKHEAD STAINLESS STEEL BOLTS AND NUTS (ASTM A276/A193/194, TYPE 304, EXTRA HEAVY HEX) TO PROPERLY COMPRESS THE GASKETS. MIDDLE RING AND FOLLOWER GLANDS SHALL BE OF EITHER STEEL OR DUCTILE IRON (ASTM-A536). THE COMPRESSION COUPLING SHALL BE WITHOUT STOPS AND BE RATED FOR A MINIMUM WORKING PRESSURE OF 250 PSI AND SHALL BE EQUAL TO THE DRESSER STYLE No's 38, 138 (STRAIGHT TYPE), 162 (TRANSITION TYPE), 253 (REDUCING TYPE); OR SMITH-BLAIR 441 (STRAIGHT AND TRANSITION TYPE), R441 (REDUCING TYPE); OR ROMAC STYLE 501 (STRAIGHT AND TRANSITION TYPE), STYLE RC501 (REDUCING TYPE).

IF THE BRANCH IS TO BE SHORTENED, NO NEW IS PIPE REQUIRED.

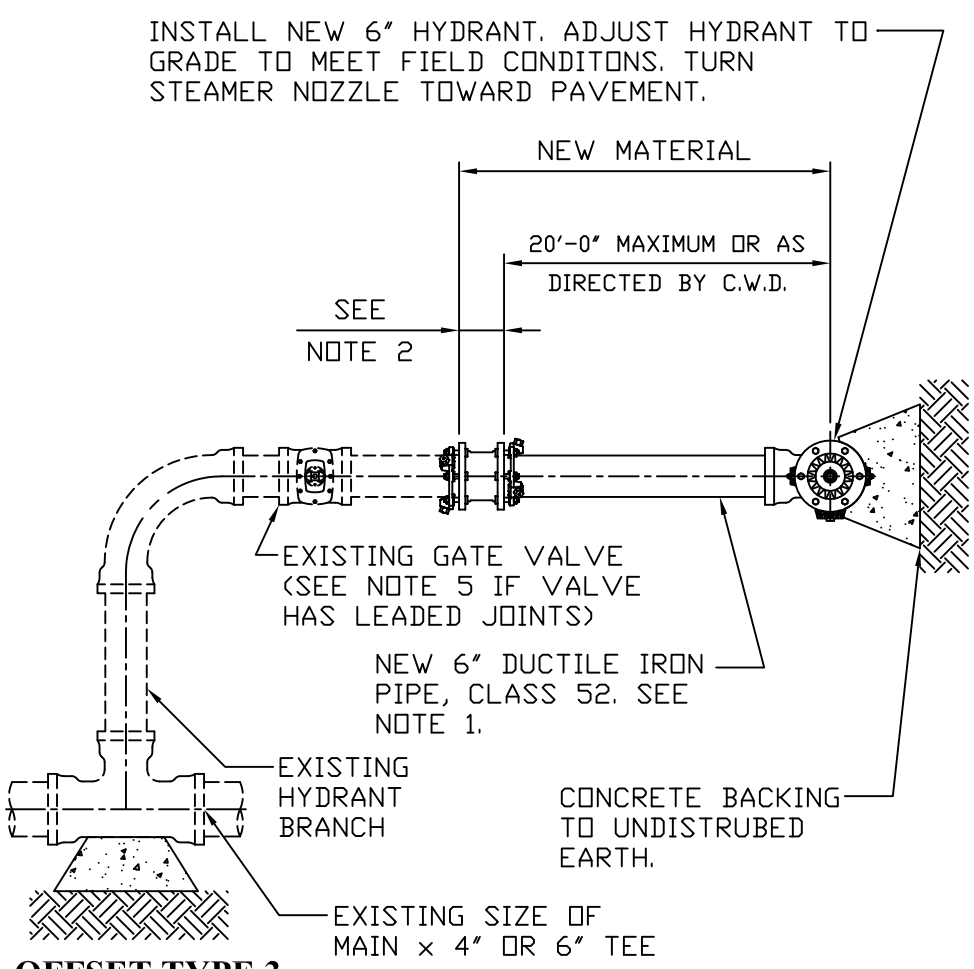
3) ALL BOLTS AND NUTS ON ALL MECHANICAL JOINTS, INCLUDING THOSE ON THE "RETAINED" TYPE, SHALL HAVE FIELD APPLIED ONE (1) COAT OF BITUMASTIC PAINTING FOLLOWED BY AN ENCASEMENT OF POLYETHYLENE WRAPPING IN ACCORDANCE WITH ANSI/AWWA C-105/A21.5-88, CLASS "C", METHOD "B".

4) IF EXISTING PIPING IS 4" USE 4" TO 6" REDUCING MJ REDUCER OR REDUCING TRANSITION COUPLING WITH ROD & CLAMP IF APPROVED BY CWD.

5) IN HIGH PRESSURE AREAS THE EXISTING VALVE MAY NEED TO BE RESTRAINED TO EXISTING TEE OR FITTING USING ROD & CLAMP AS DIRECTED BY CWD.
SEE STD-H01 FOR EXISTING LEAD JOINT REQUIREMENTS.

EXTEND, SHORTEN AND ADJUST HYDRANT TO GRADE, OFFSET TYPE 2

- NOT TO SCALE -



OFFSET TYPE 3

1) PLAIN END x PLAIN END DUCTILE IRON PIPE AS SPECIFIED (CUT TO SUIT).

2) CONNECTION SHALL BE MADE WITH RETAINED MECHANICAL JOINT SOLID SLEEVES (SHORT OR LONG PATTERN) DUCTILE IRON CLASS 350 OR CAST IRON CLASS 250, RETAINED MECHANICAL JOINT REDUCERS WHERE EXISTING PIPE IS 4" IN DIAMETER, OR COMPRESSION COUPLINGS WITH ROD AND CLAMPS AS DIRECTED BY C.W.D. INSPECTOR.

COMPRESSION COUPLINGS SHALL BE OF A GASKETED, SLEEVE TYPE WITH DIAMETERS TO PROPERLY FIT PLAIN END IRON PIPE. EACH COUPLING SHALL CONSIST OF ONE (1) MIDDLE RING, WITHOUT STOPS; TWO (2) FOLLOWER GLANDS; TWO (2) RUBBER-COMPOUND BUNA-N BLEND, WEDGE SECTION GASKETS; AND SUFFICIENT TRACKHEAD STAINLESS STEEL BOLTS AND NUTS (ASTM A276/A193/194, TYPE 304, EXTRA HEAVY HEX) TO PROPERLY COMPRESS THE GASKETS. MIDDLE RING AND FOLLOWER GLANDS SHALL BE OF EITHER STEEL OR DUCTILE IRON (ASTM-A536). THE COMPRESSION COUPLING SHALL BE WITHOUT STOPS AND BE RATED FOR A MINIMUM WORKING PRESSURE OF 250 PSI AND SHALL BE EQUAL TO THE DRESSER STYLE No's 38, 138 (STRAIGHT TYPE), 162 (TRANSITION TYPE), 253 (REDUCING TYPE); OR SMITH-BLAIR 441 (STRAIGHT AND TRANSITION TYPE), R441 (REDUCING TYPE); OR ROMAC STYLE 501 (STRAIGHT AND TRANSITION TYPE), STYLE RC501 (REDUCING TYPE).

IF THE BRANCH IS TO BE SHORTENED, NO NEW IS PIPE REQUIRED.

3) ALL BOLTS AND NUTS ON ALL MECHANICAL JOINTS, INCLUDING THOSE ON THE "RETAINED" TYPE, SHALL HAVE FIELD APPLIED ONE (1) COAT OF BITUMASTIC PAINTING FOLLOWED BY AN ENCASEMENT OF POLYETHYLENE WRAPPING IN ACCORDANCE WITH ANSI/AWWA C-105/A21.5-88, CLASS "C", METHOD "B".

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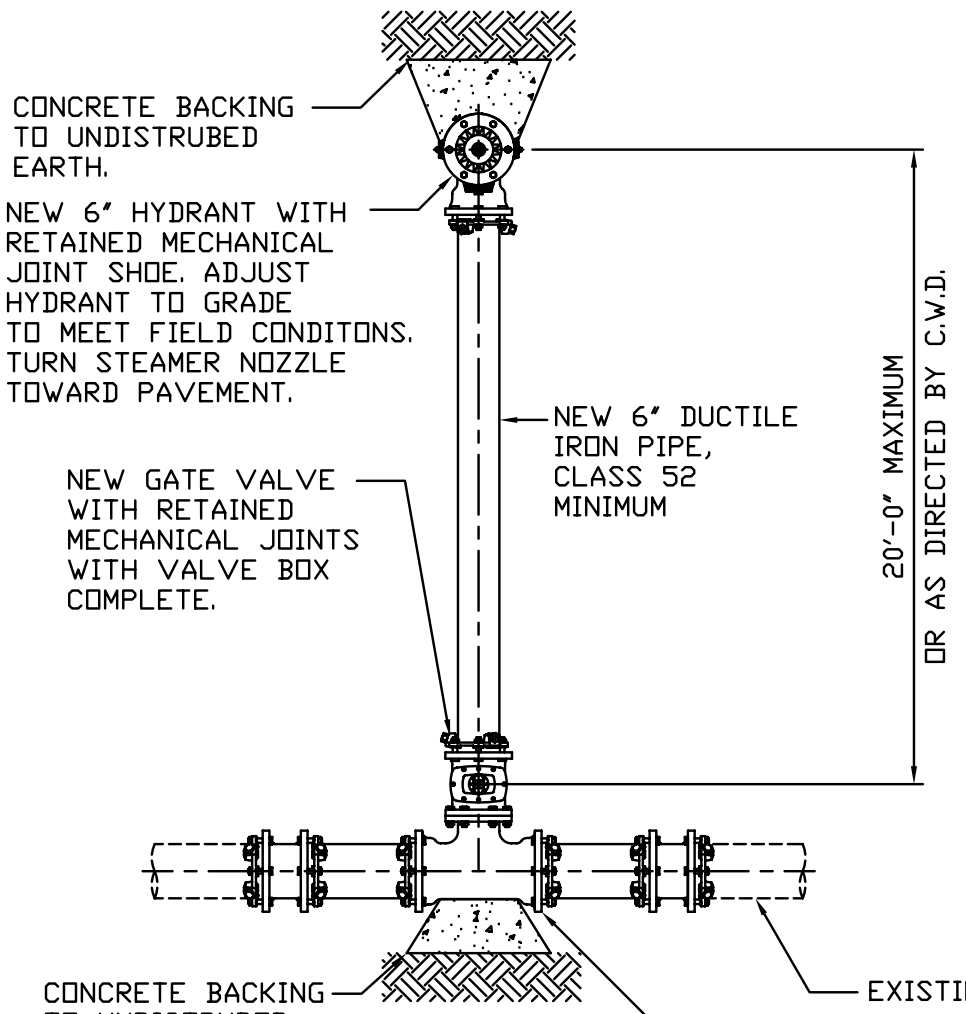
5) IN HIGH PRESSURE AREAS THE EXISTING VALVE MAY NEED TO BE RESTRAINED TO EXISTING TEE OR FITTING USING ROD & CLAMP AS DIRECTED BY CWD.
SEE STD-H01 FOR EXISTING LEAD JOINT REQUIREMENTS.

EXTEND, SHORTEN AND ADJUST 6" HYDRANT TO GRADE, OFFSET TYPE 3

- NOT TO SCALE -



STRAIGHT TYPE

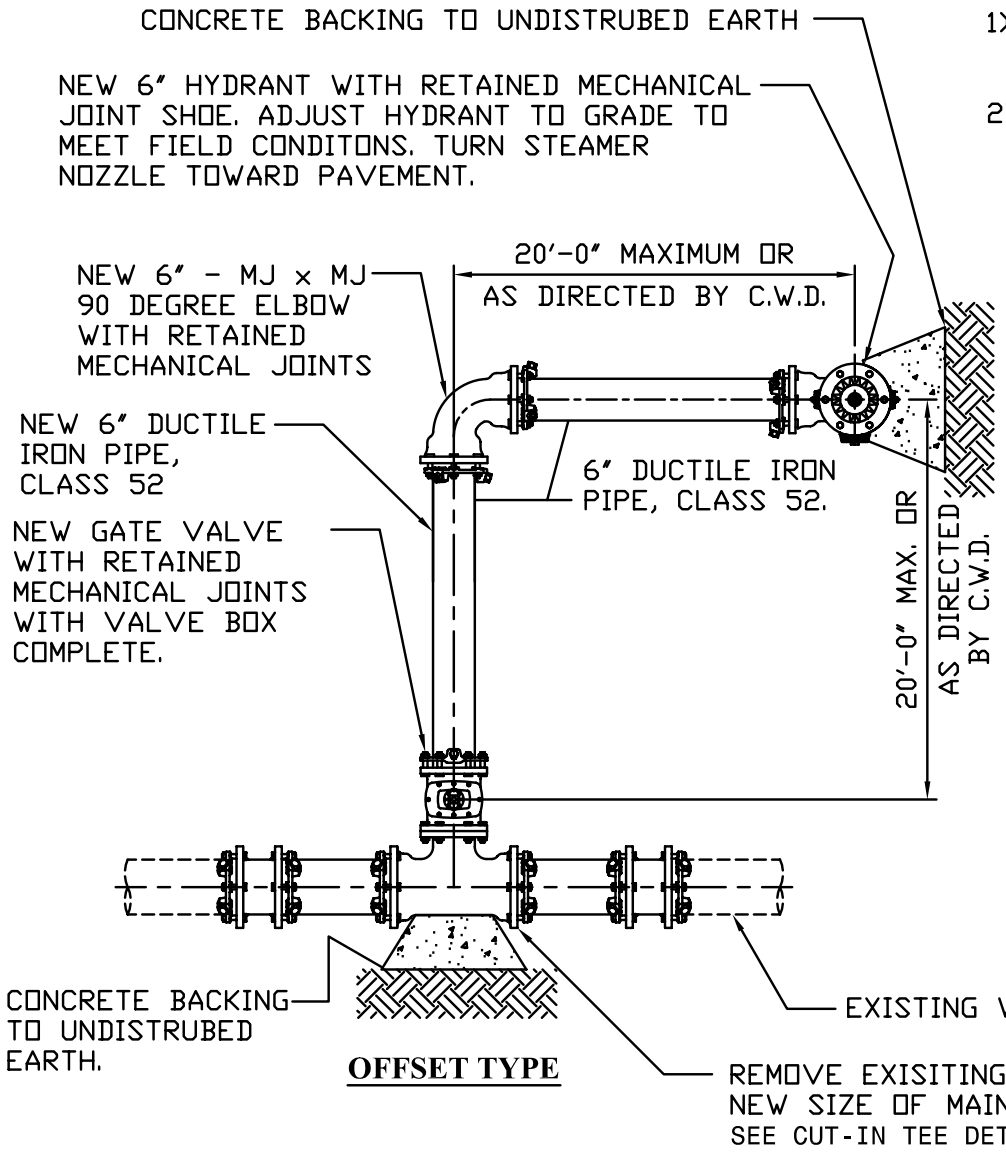
1) PLAIN END x PLAIN END DUCTILE IRON PIPE AS SPECIFIED (CUT TO SUIT).

2) ALL BOLTS AND NUTS ON ALL MECHANICAL JOINTS, INCLUDING THOSE ON THE "RETAINED" TYPE, SHALL HAVE FIELD APPLIED ONE (1) COAT OF BITUMASTIC PAINTING FOLLOWED BY AN ENCASEMENT OF POLYETHYLENE WRAPPING IN ACCORDANCE WITH ANSI/AWWA C-105/A21.5-88, CLASS "C", METHOD "B".

REPLACING EXISTING HYDRANT WITH NEW 6" HYDRANT ASSEMBLY, STRAIGHT TYPE

- NOT TO SCALE -

STD-H06	DATE: 5-4-2006	BY: RSK



1) PLAIN END x PLAIN END DUCTILE IRON PIPE AS SPECIFIED (CUT TO SUIT).

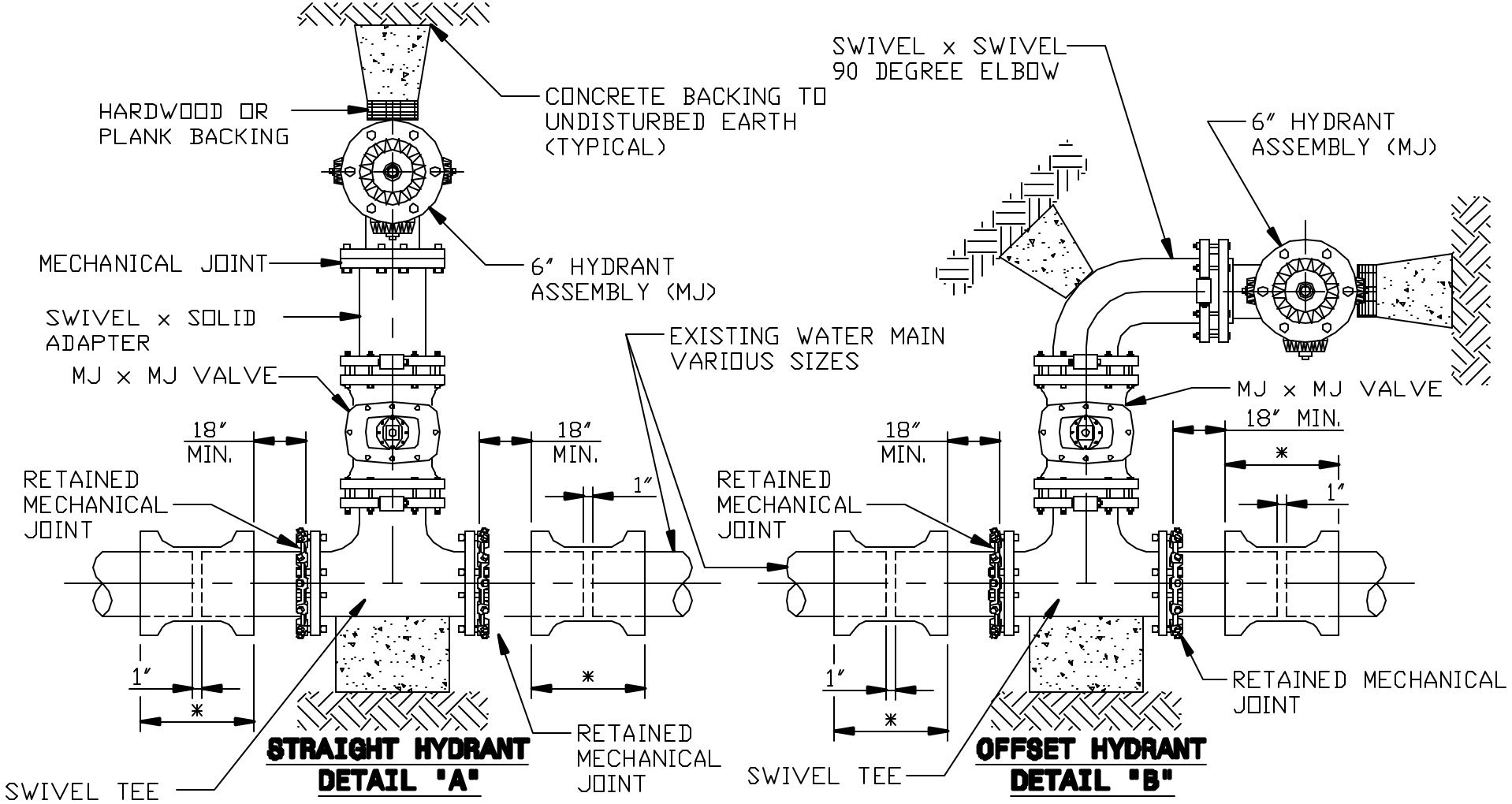
2) ALL BOLTS AND NUTS ON ALL MECHANICAL JOINTS, INCLUDING THOSE ON THE "RETAINED" TYPE, SHALL HAVE FIELD APPLIED ONE (1) COAT OF BITUMASTIC PAINTING FOLLOWED BY AN ENCASEMENT OF POLYETHYLENE WRAPPING IN ACCORDANCE WITH ANSI/AWWA C-105/A21.5-88, CLASS "C", METHOD "B".

REPLACING EXISTING HYDRANT WITH NEW 6" HYDRANT ASSEMBLY, OFFSET TYPE

- NOT TO SCALE -

STD-H07	DATE: 5-4-2006	BY: RSK

*CONNECTION SHALL BE MADE WITH RETAINED MECHANICAL JOINT SOLID SLEEVES (SHORT OR LONG PATTERN) DUCTILE IRON CLASS 350 OR CAST IRON CLASS 250 OR COMPRESSION COUPLINGS.
COMPRESSION COUPLINGS SHALL BE OF A GASKETED, SLEEVE TYPE WITH DIAMETERS TO PROPERLY FIT PLAIN END IRON PIPE. EACH COUPLING SHALL CONSIST OF ONE (1) MIDDLE RING, WITHOUT STOPS; TWO (2) FOLLOWER GLANDS; TWO (2) RUBBER-COMPOUND BUNA-N BLEND, WEDGE SECTION GASKETS; AND SUFFICIENT TRACKHEAD STAINLESS STEEL BOLTS AND NUTS (ASTM A276/A193/194, TYPE 304, EXTRA HEAVY HEX) TO PROPERLY COMPRESS THE GASKETS.
MIDDLE RING AND FOLLOWER GLANDS SHALL BE OF EITHER STEEL OR DUCTILE IRON (ASTM-A536).
THE COMPRESSION COUPLING SHALL BE WITHOUT STOPS AND BE RATED FOR A MINIMUM WORKING PRESSURE OF 250 PSI AND SHALL BE EQUAL TO THE DRESSER STYLE No's 38, 138 OR 162 (TRANSITION TYPE), OR SMITH-BLAIR 441 STRAIGHT AND TRANSITION COUPLINGS. ROD AND CLAMP COMPRESSION COUPLING AS DIRECTED BY C.W.D. INSPECTOR.
ALL BOLTS AND NUTS ON ALL MECHANICAL JOINTS, INCLUDING THOSE ON THE "RETAINED" TYPE, SHALL HAVE FIELD APPLIED ONE (1) COAT OF BITUMASTIC PAINTING FOLLOWED BY AN ENCASEMENT OF POLYETHYLENE WRAPPING IN ACCORDANCE WITH ANSI/AWWA C-105/A21.5-88, CLASS "C", METHOD "B".

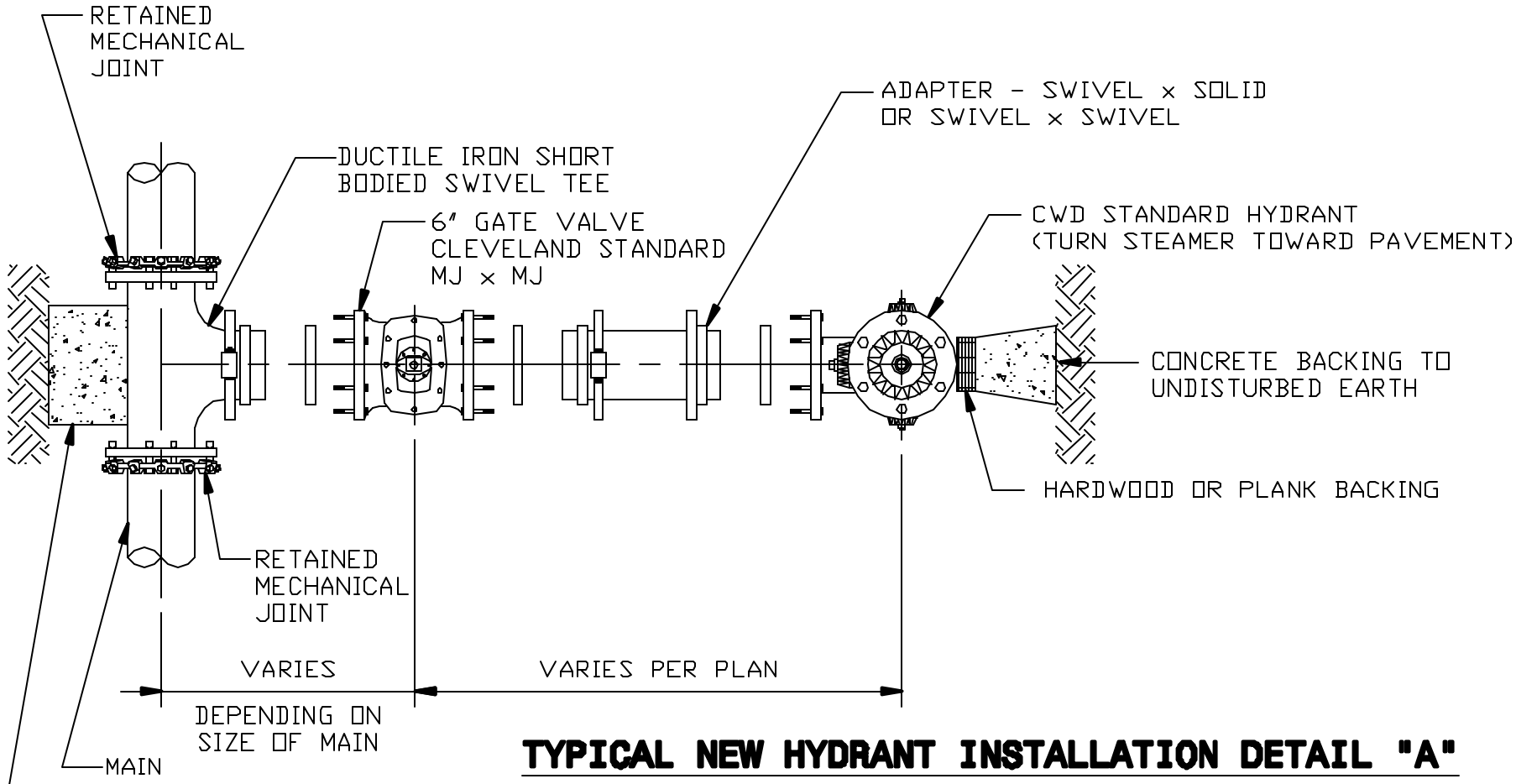


CUT-IN TEE FOR NEW HYDRANT INSTALLATION ON EXISTING WATER MAIN

FOR EXPLODED VIEW OF HYDRANT BRANCH SEE (STD-H09 OR STD-H10).

- NOT TO SCALE -

STD-H08	DATE: 10-1-97	BY: RSK

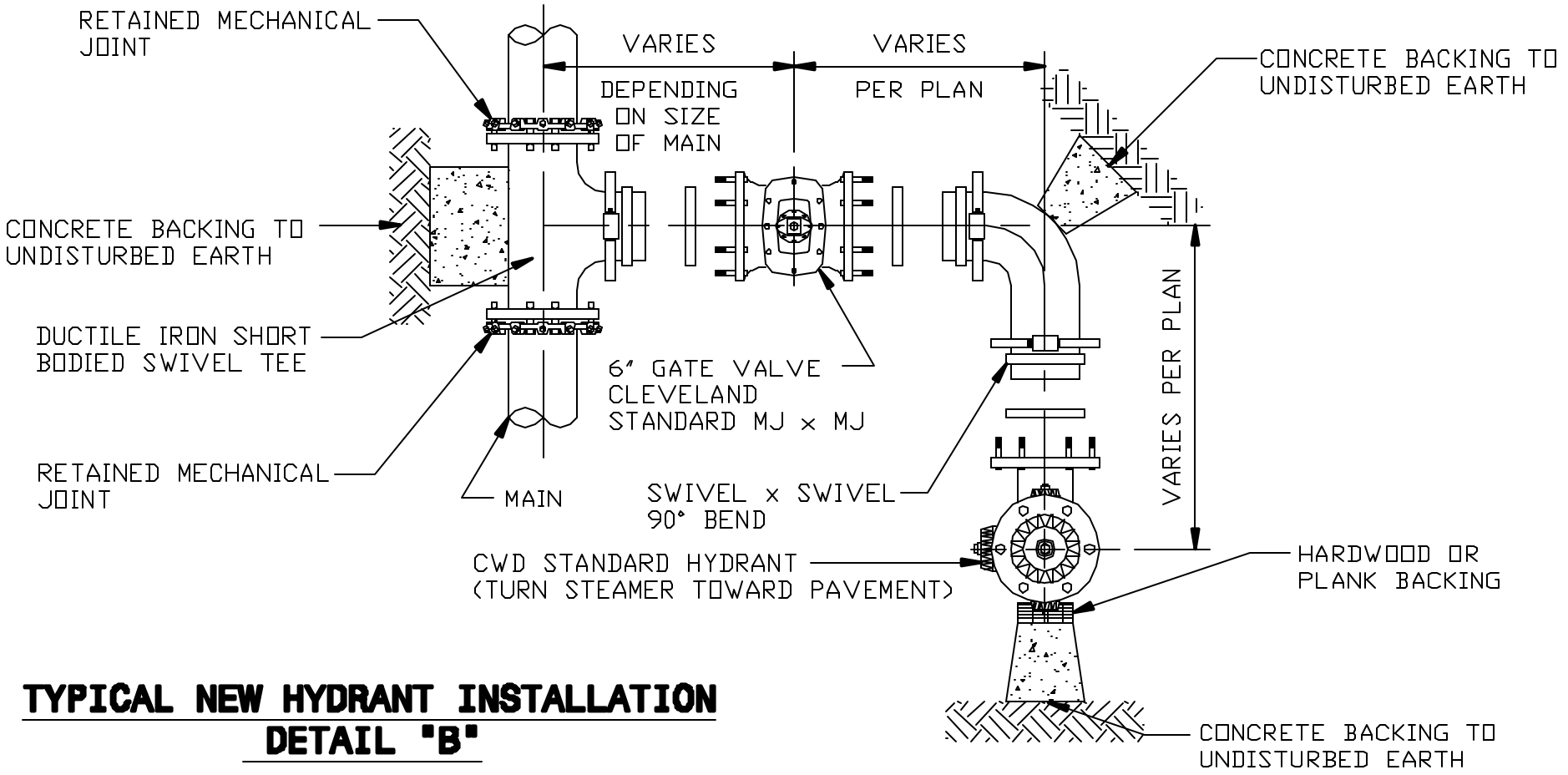


TYPICAL NEW HYDRANT INSTALLATION DETAIL "A"

- NOT TO SCALE -

NOTE: IN LIEU OF SWIVEL BRANCH TEES AND ADAPTERS CONTRACTORS MAY FURNISH HYDRANT BRANCHES HAVING RETAINED MECHANICAL JOINTS INCLUDING HYDRANT SHOE. ALL MECHANICAL JOINTS SHALL HAVE FIELD APPLIED ONE (1) COAT OF BITUMASTIC PAINT. ALL MECHANICAL JOINTS SHALL BE POLYETHYLENE WRAPPED IN ACCORDANCE WITH AWWA C-1-5/A21.5-88 CLASS "C" METHOD "B".

ALL BOLTS AND NUTS FURNISHED WITH RETAINED MECHANICAL JOINTS INCLUDING RETAINER OR WEDGE ACTION TYPE GLANDS SHALL BE COPPER-BEARING DUCTILE IRON, OR EQUIVALENT HIGH STRENGTH, LOW ALLOY CORROSION RESISTANT STEEL.

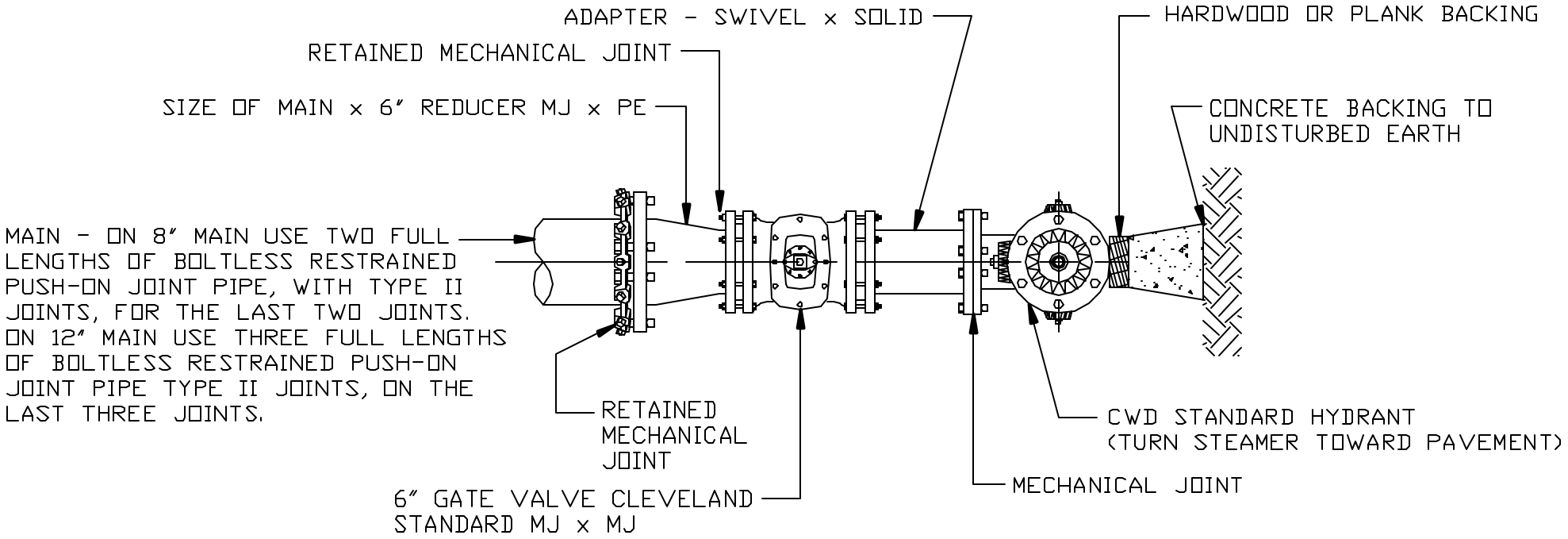


TYPICAL NEW HYDRANT INSTALLATION
DETAIL "B"

- NOT TO SCALE -

NOTE: IN LIEU OF SWIVEL BRANCH TEES AND ADAPTERS CONTRACTORS MAY FURNISH HYDRANT BRANCHES HAVING RETAINED MECHANICAL JOINTS INCLUDING HYDRANT SHOE. ALL MECHANICAL JOINTS SHALL HAVE FIELD APPLIED ONE (1) COAT OF BITUMASTIC PAINT. ALL MECHANICAL JOINTS SHALL BE POLYETHYLENE WRAPPED IN ACCORDANCE WITH AWWA C-1-5/A21.5-88 CLASS "C" METHOD "B".

ALL BOLTS AND NUTS FURNISHED WITH RETAINED MECHANICAL JOINTS INCLUDING RETAINER OR WEDGE ACTION TYPE GLANDS SHALL BE COPPER-BEARING DUCTILE IRON, OR EQUIVALENT HIGH STRENGTH, LOW ALLOY CORROSION RESISTANT STEEL.



TYPICAL NEW HYDRANT INSTALLATION DETAIL "C"

NOT TO SCALE

NOTE: IN LIEU OF SWIVEL BRANCH TEES AND ADAPTERS CONTRACTORS MAY FURNISH HYDRANT BRANCHES HAVING RETAINED MECHANICAL JOINTS INCLUDING HYDRANT SHOE. ALL MECHANICAL JOINTS SHALL HAVE FIELD APPLIED ONE (1) COAT OF BITUMASTIC PAINT. ALL MECHANICAL JOINTS SHALL BE POLYETHYLENE WRAPPED IN ACCORDANCE WITH AWWA C-1-5/A21.5-88 CLASS "C" METHOD "B".

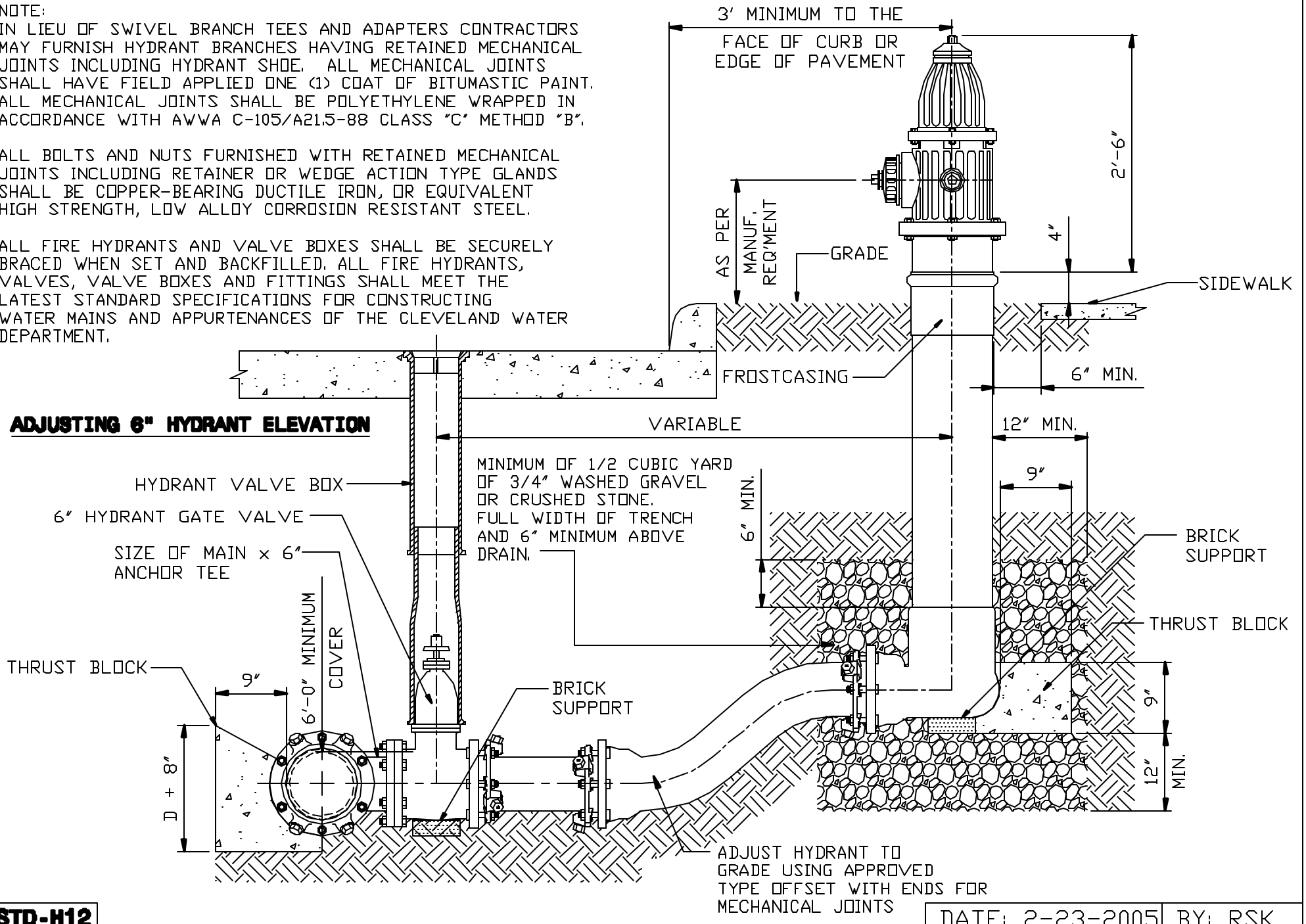
ALL BOLTS AND NUTS FURNISHED WITH RETAINED MECHANICAL JOINTS INCLUDING RETAINER OR WEDGE ACTION TYPE GLANDS SHALL BE COPPER-BEARING DUCTILE IRON, OR EQUIVALENT HIGH STRENGTH, LOW ALLOY CORROSION RESISTANT STEEL.

NOTE:
IN LIEU OF SWIVEL BRANCH TEES AND ADAPTERS CONTRACTORS MAY FURNISH HYDRANT BRANCHES HAVING RETAINED MECHANICAL JOINTS INCLUDING HYDRANT SHOE. ALL MECHANICAL JOINTS SHALL HAVE FIELD APPLIED ONE (1) COAT OF BITUMASTIC PAINT. ALL MECHANICAL JOINTS SHALL BE POLYETHYLENE WRAPPED IN ACCORDANCE WITH AWWA C-105/A21.5-88 CLASS "C" METHOD "B".

ALL BOLTS AND NUTS FURNISHED WITH RETAINED MECHANICAL JOINTS INCLUDING RETAINER OR WEDGE ACTION TYPE GLANDS SHALL BE COPPER-BEARING DUCTILE IRON, OR EQUIVALENT HIGH STRENGTH, LOW ALLOY CORROSION RESISTANT STEEL.

ALL FIRE HYDRANTS AND VALVE BOXES SHALL BE SECURELY BRACED WHEN SET AND BACKFILLED. ALL FIRE HYDRANTS, VALVES, VALVE BOXES AND FITTINGS SHALL MEET THE LATEST STANDARD SPECIFICATIONS FOR CONSTRUCTING WATER MAINS AND APPURTENANCES OF THE CLEVELAND WATER DEPARTMENT.

ADJUSTING 6" HYDRANT ELEVATION



STD-H12

DATE: 2-23-2005 | BY: RSK

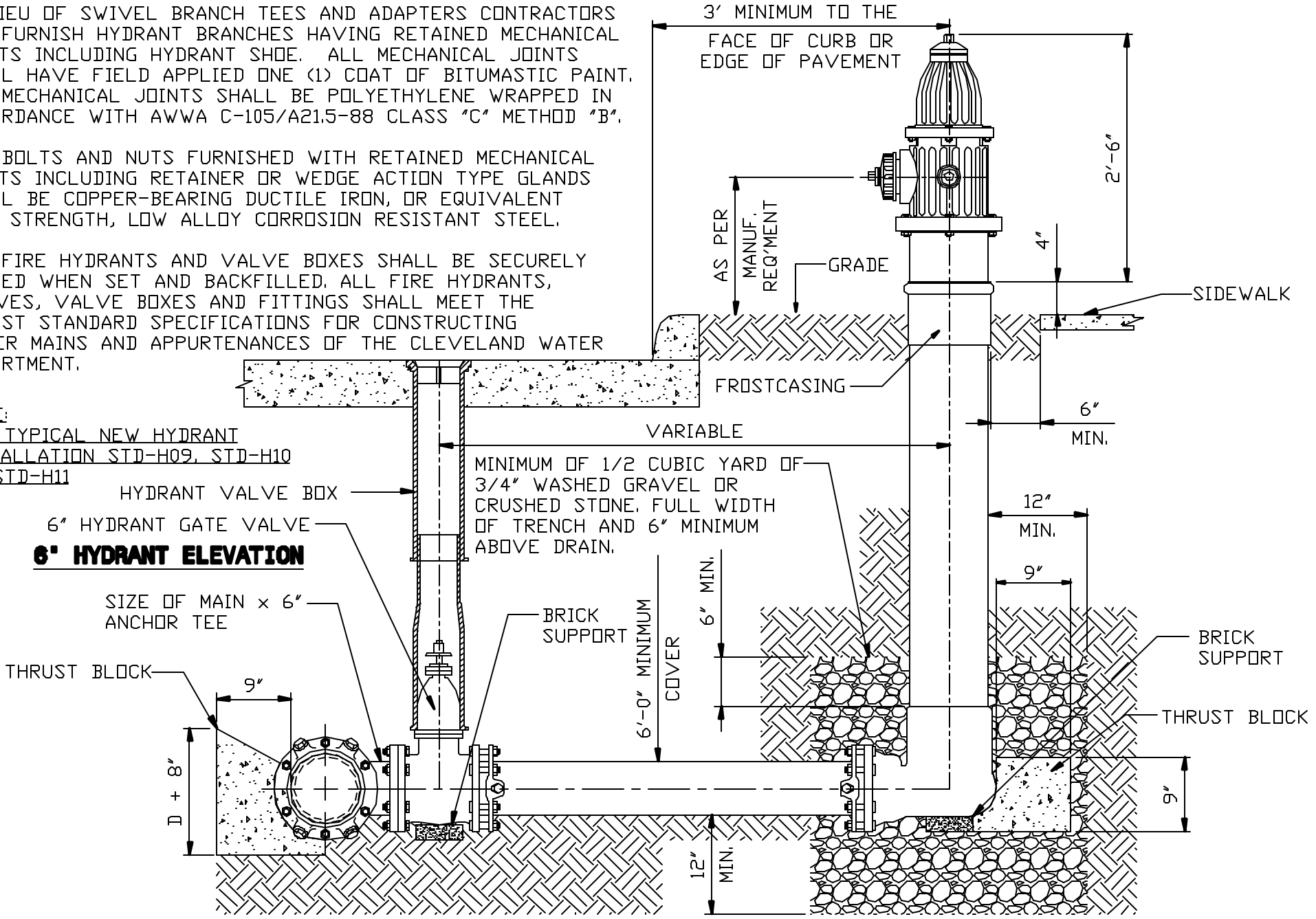
NOTE:
IN LIEU OF SWIVEL BRANCH TEES AND ADAPTERS CONTRACTORS MAY FURNISH HYDRANT BRANCHES HAVING RETAINED MECHANICAL JOINTS INCLUDING HYDRANT SHOE. ALL MECHANICAL JOINTS SHALL HAVE FIELD APPLIED ONE (1) COAT OF BITUMASTIC PAINT. ALL MECHANICAL JOINTS SHALL BE POLYETHYLENE WRAPPED IN ACCORDANCE WITH AWWA C-105/A21.5-88 CLASS "C" METHOD "B".

ALL BOLTS AND NUTS FURNISHED WITH RETAINED MECHANICAL JOINTS INCLUDING RETAINER OR WEDGE ACTION TYPE GLANDS SHALL BE COPPER-BEARING DUCTILE IRON, OR EQUIVALENT HIGH STRENGTH, LOW ALLOY CORROSION RESISTANT STEEL.

ALL FIRE HYDRANTS AND VALVE BOXES SHALL BE SECURELY BRACED WHEN SET AND BACKFILLED. ALL FIRE HYDRANTS, VALVES, VALVE BOXES AND FITTINGS SHALL MEET THE LATEST STANDARD SPECIFICATIONS FOR CONSTRUCTING WATER MAINS AND APPURTENANCES OF THE CLEVELAND WATER DEPARTMENT.

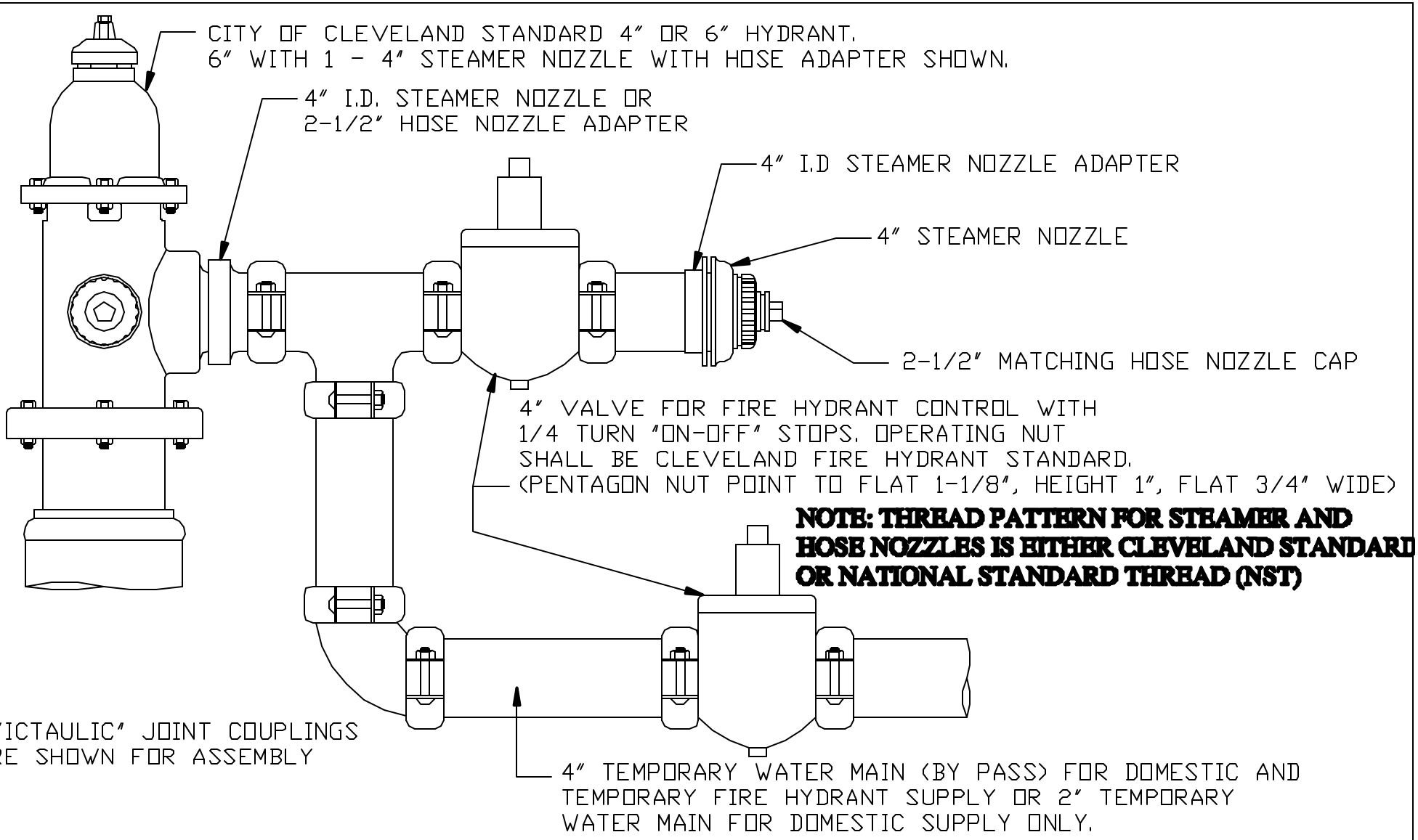
NOTE:
SEE TYPICAL NEW HYDRANT INSTALLATION STD-H09, STD-H10 OR STD-H11

6" HYDRANT ELEVATION



STD-H13

DATE: 2-23-2005 | BY: RSK

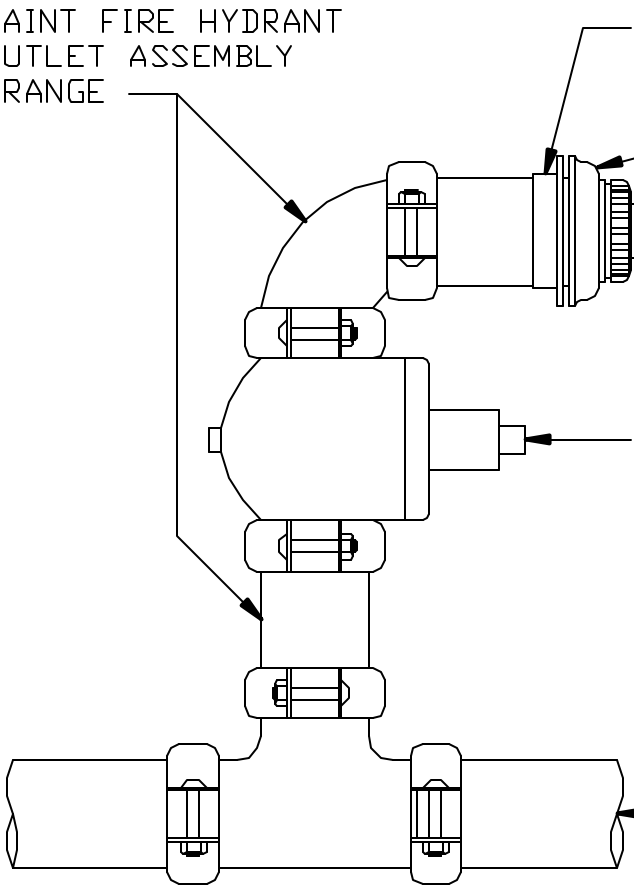


TEMPORARY WATER MAIN & HYDRANT CONNECTION ASSEMBLY-A

TO PROVIDE SIMULTANEOUS SERVICE IN EXISTING HYDRANT AND TEMPORARY BYPASS MAIN

- NOT TO SCALE -

STD-H14	DATE: 10-1-97	BY: RSK



"VICTAULIC" JOINT COUPLINGS
ARE SHOWN FOR ASSEMBLY.

NOTE: THREAD PATTERN FOR STEAMER AND HOSE NOZZLES IS EITHER CLEVELAND STANDARD OR NATIONAL STANDARD THREAD (NST)

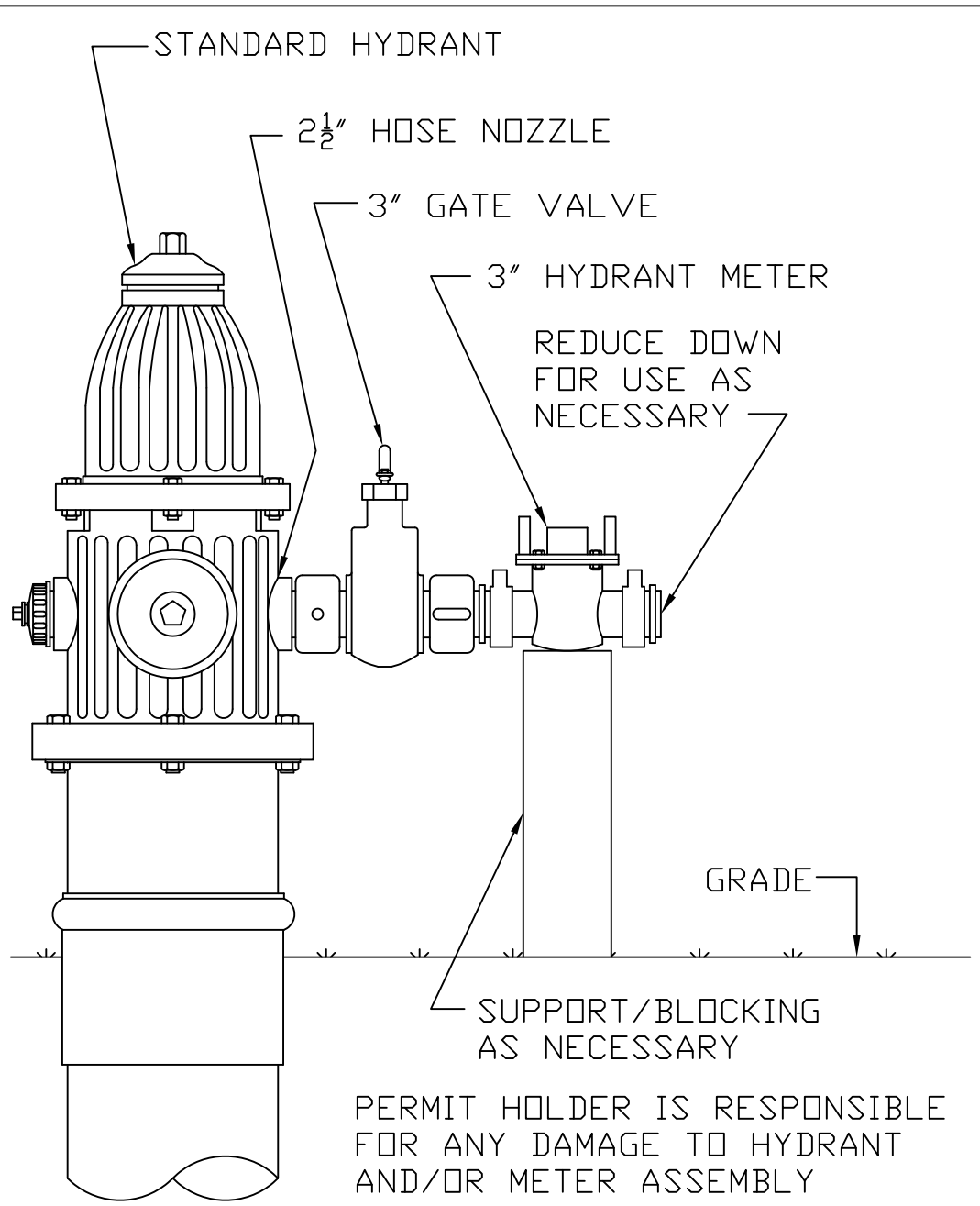
TEMPORARY WATER MAIN & HYDRANT CONNECTION ASSEMBLY-C

OUTLET END

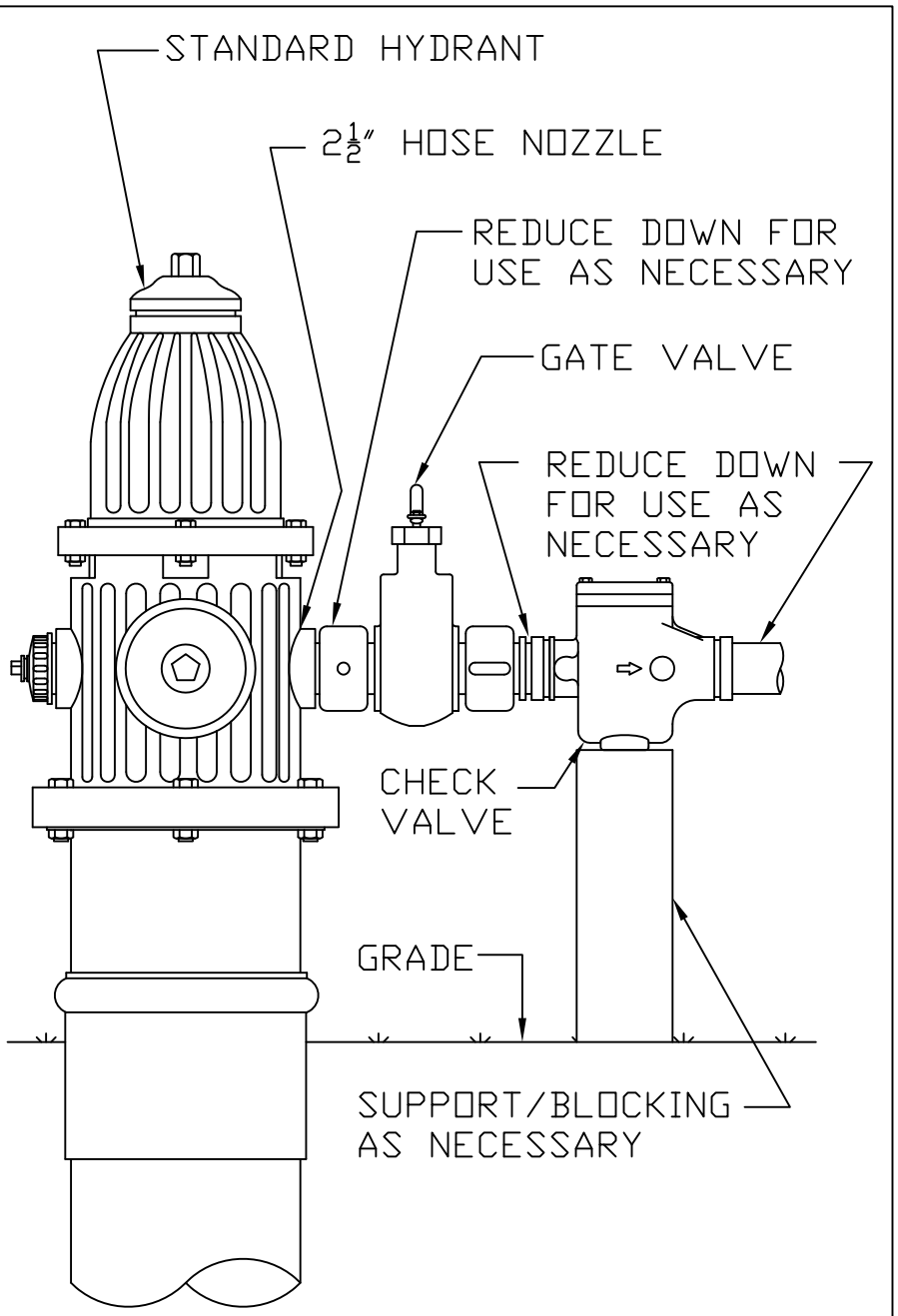
- NOT TO SCALE -

STD-H16

DATE: 10-1-97 | BY: RSK



- WITH METER -



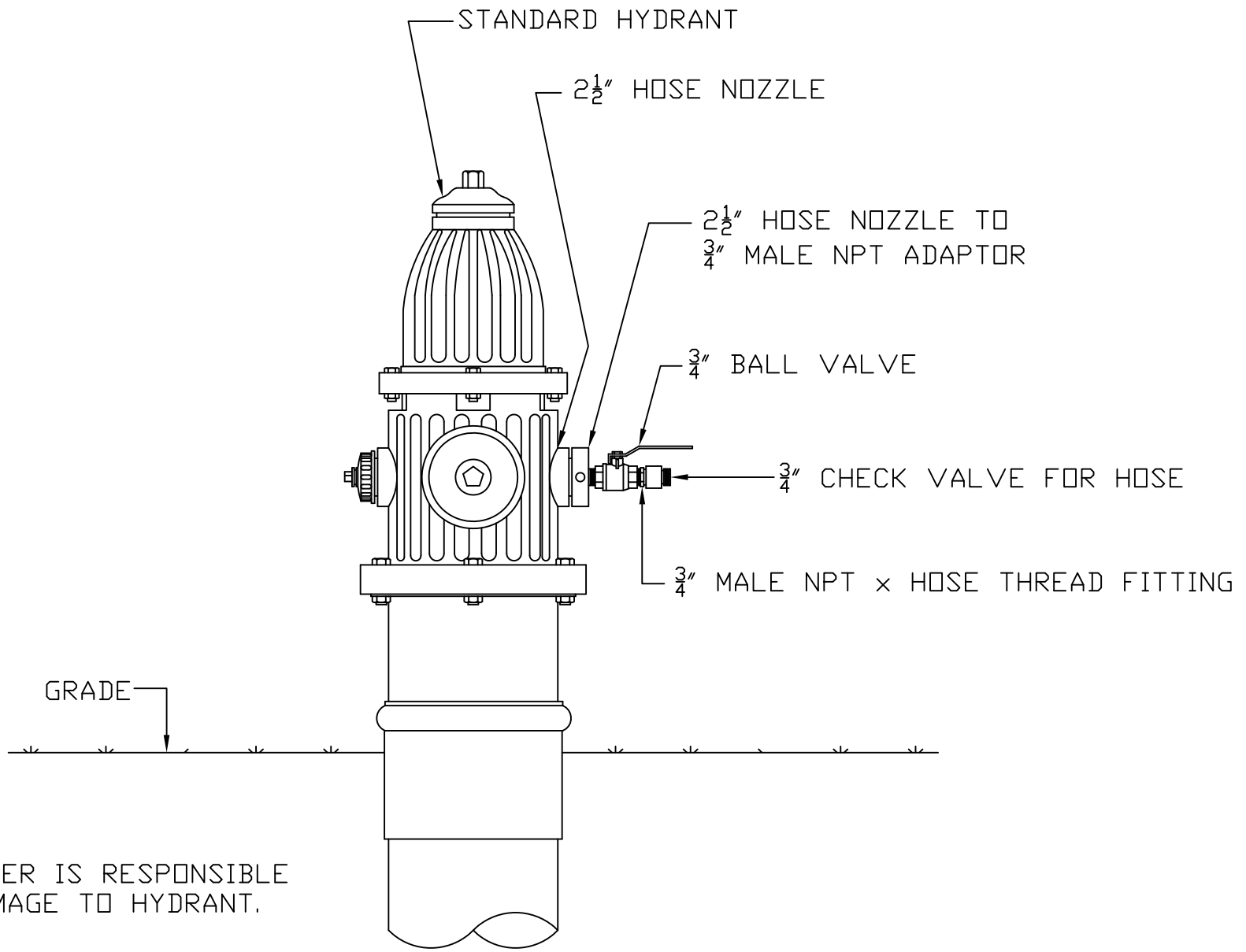
- WITHOUT METER -

TEMPORARY WATER SERVICE FROM PUBLIC FIRE HYDRANT

STD-H17

- NOT TO SCALE -

DATE: 3-16-2012



PERMIT HOLDER IS RESPONSIBLE
FOR ANY DAMAGE TO HYDRANT.

TEMPORARY WATER SERVICE FOR HOSE CONNECTION FROM PUBLIC FIRE HYDRANT

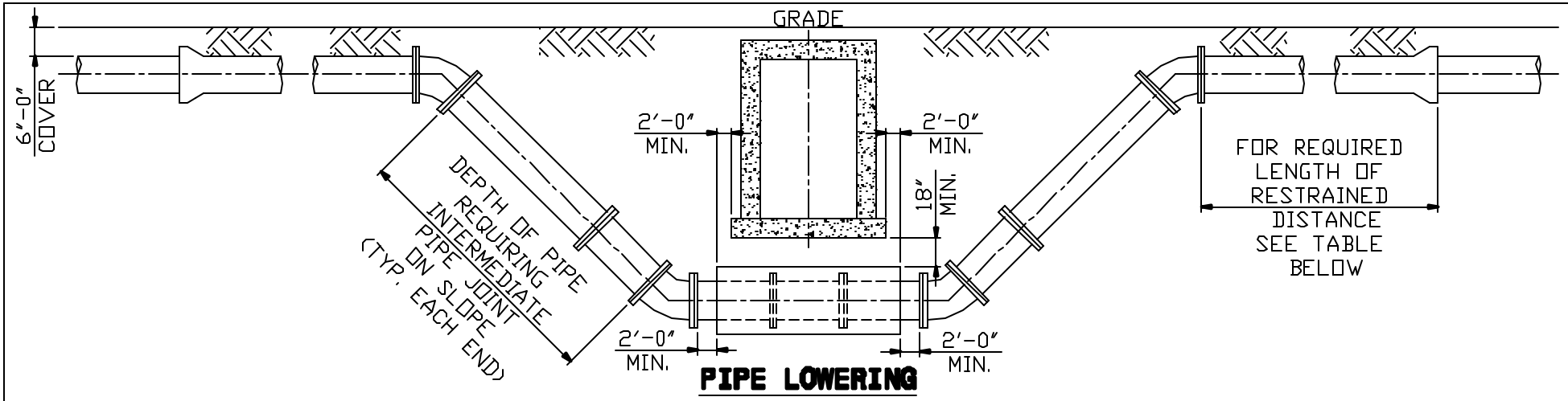
- NOT TO SCALE -

STD-H18

DATE: 5-7-2013

CLEVELAND DIVISION OF WATER CONSTRUCTION STANDARDS

Lowering Details



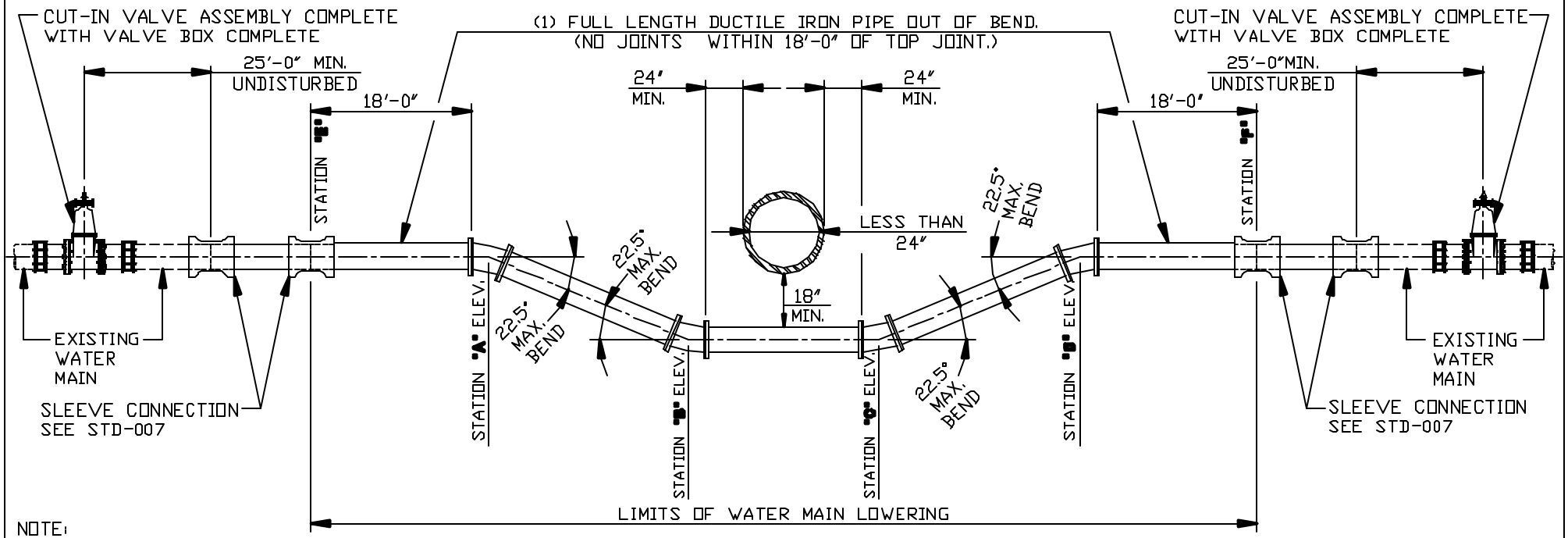
PIPE LOWERING

NOT TO SCALE

. TO LOWER WATER MAIN TO CLEAR OBSTACLE WHERE DEPTH OF PIPE LOWERING REQUIRES AN INTERMEDIATE JOINT ON SLOPE THE ENTIRE OFFSET SHALL HAVE BOLTLESS RESTRAINED PUSH-ON JOINT PIPE AND FITTINGS AS SPECIFIED. JOINT RESTRAINT SHALL EXTEND BEYOND TOP VERTICAL BEND TO THE LIMITS SHOWN IN TABLE.

① CALCULATIONS FOR RESTRAINED LENGTHS INCLUDE 75 PSI FOR TESTING.

DIAMETER	BEND	STATIC PRESSURE ①	* RESTRAINED LENGTHS
8"	11°15'	0 to 275 PSI	ONE (1)
	22°30'	0 to 250 PSI	ONE (1)
		251 to 275 PSI	TWO (2)
	45°	0 to 125 PSI	ONE (1)
		126 to 275 PSI	TWO (2)
12"	11°15'	0 to 275 PSI	ONE (1)
	22°30'	0 to 165 PSI	ONE (1)
		166 to 275 PSI	TWO (2)
	45°	0 to 65 PSI	ONE (1)
		66 to 215 PSI	TWO (2)
		166 to 275 PSI	THREE (3)
16"	11°15'	0 to 275 PSI	ONE (1)
	22°30'	0 to 115 PSI	ONE (1)
		116 to 275 PSI	TWO (2)
	45°	0 to 45 PSI	ONE (1)
		46 to 165 PSI	TWO (2)
		166 to 275 PSI	THREE (3)



NOTE:

1) WATER MAIN SHALL BE DUCTILE IRON, MINIMUM CLASS 52, CEMENT LINED PUSH-ON JOINT PIPE WITH RETAINED MECHANICAL JOINT DUCTILE IRON CLASS 350, CEMENT LINED OR FUSION BONDED EPOXY COATED RETAINED MECHANICAL JOINT FITTINGS.

2) WHERE DEPTH OF LOWERING REQUIRES AN INTERMEDIATE JOINT BETWEEN STATIONS **"A"** & **"B"** AND/OR **"C"** & **"D"** THE ENTIRE LOWERING SHALL BE MADE WITH DUCTILE IRON, MINIMUM CLASS 52, CEMENT LINED PIPE AND DUCTILE IRON CLASS 350, CEMENT LINED FITTINGS **ALL** HAVING BOLTLESS RESTRAINED PUSH-ON JOINTS, TYPE II.

3) WHERE LENGTH OF LOWERING UNDER OBSTRUCTION(S) REQUIRES AN INTERMEDIATE JOINT **ONLY** BETWEEN STATIONS **"B"** & **"C"**, THAT INTERMEDIATE JOINT(S) SHALL BE MADE WITH A BOLTLESS RESTRAINED PUSH-ON JOINT, TYPE II.

4) WHERE EXISTING WATER MAIN IS SIX (6)-INCHES IN DIAMETER THE PIPE LOWERING SHALL BE MADE WITH PIPE AND FITTINGS NO LESS THAN EIGHT (8)-INCH IN DIAMETER WITH REDUCERS INSTALLED AT STATIONS **"E"** AND **"F"**. THE REDUCERS SHALL BE RETAINED MECHANICAL JOINT WITH SMALL END OF REDUCER PLAIN END FOR CONNECTION WITH SLEEVES OR COMPRESSION COUPLINGS.

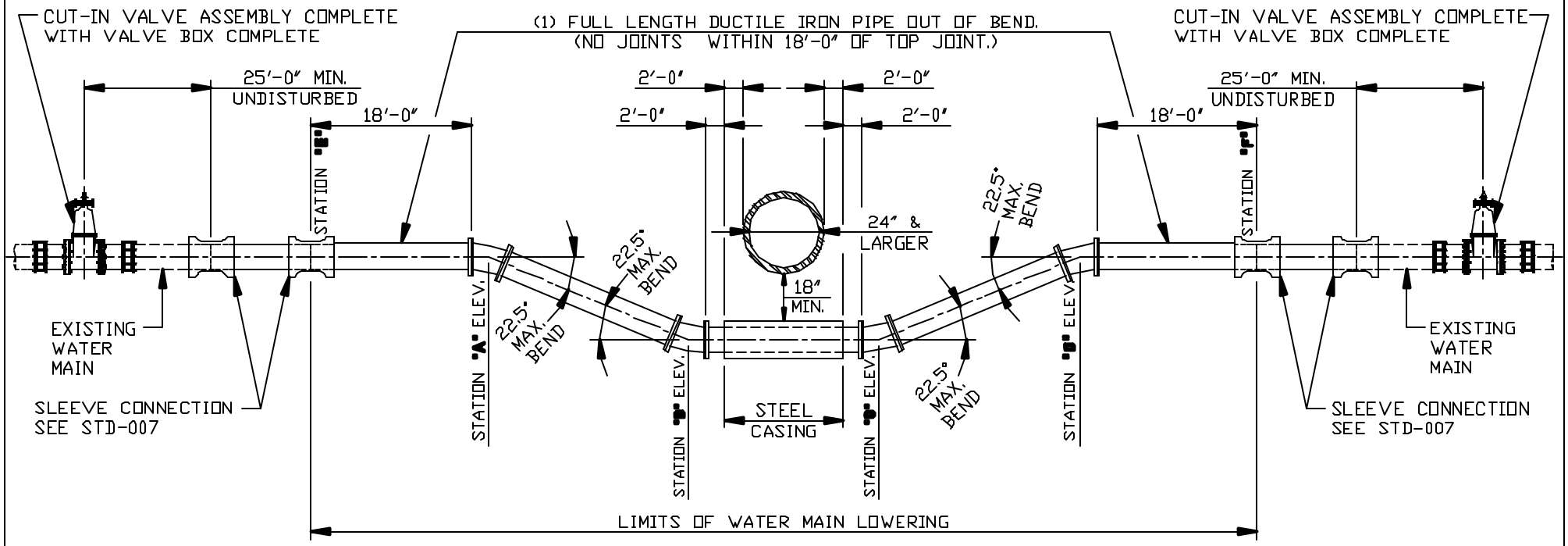
5) ALL EXISTING WATER SERVICE CONNECTIONS BETWEEN THE CUT-IN-VALVE ASSEMBLIES SHALL BE MAINTAINED BY "TEMPORARY SERVICE CONNECTIONS" PROVIDED AND MAINTAINED BY THE CONTRACTOR.

6) EXISTING WATER SERVICE CONNECTIONS NEEDED TO BE RETAPPED AND RECONNECTED WILL ONLY BE PERMITTED BETWEEN STATIONS **"A"** AND **"E"** AND STATIONS **"D"** AND **"F"**. NO RETAPPING OF SERVICE CONNECTIONS WILL BE ALLOWED BETWEEN STATIONS **"A"** AND **"D"**.

DETAIL FOR WATER MAIN LOWERING UNDER OBSTRUCTIONS LESS THAN 24" IN DIAMETER OR WIDTH FOR "EXISTING CONSTRUCTION"

- NOT TO SCALE -

STD-L02	DATE: 3-4-2002	BY: RSK



NOTE:

1) WATER MAIN SHALL BE DUCTILE IRON, MINIMUM CLASS 52, CEMENT LINED PUSH-ON JOINT PIPE WITH RETAINED MECHANICAL JOINT DUCTILE IRON CLASS 350, CEMENT LINED OR FUSION BONDED EPOXY COATED RETAINED MECHANICAL JOINT FITTINGS.

2) WHERE DEPTH OF LOWERING REQUIRES AN INTERMEDIATE JOINT BETWEEN STATIONS **"A"** & **"B"** AND/OR **"C"** & **"D"** THE ENTIRE LOWERING SHALL BE MADE WITH DUCTILE IRON, MINIMUM CLASS 52, CEMENT LINED PIPE AND DUCTILE IRON CLASS 350, CEMENT LINED FITTINGS **ALL** HAVING BOLTLESS RESTRAINED PUSH-ON JOINTS, TYPE II.

3) WHERE LENGTH OF LOWERING UNDER OBSTRUCTION(S) REQUIRES AN INTERMEDIATE JOINT **ONLY** BETWEEN STATIONS **"B"** & **"C"**, THAT INTERMEDIATE JOINT(S) SHALL BE MADE WITH A BOLTLESS RESTRAINED PUSH-ON JOINT, TYPE II.

4) WHERE EXISTING WATER MAIN IS SIX (6)-INCHES IN DIAMETER THE PIPE LOWERING SHALL BE MADE WITH PIPE AND FITTINGS NO LESS THAN EIGHT (8)-INCH IN DIAMETER WITH REDUCERS INSTALLED AT STATIONS **"E"** AND **"F"**. THE REDUCERS SHALL BE RETAINED MECHANICAL JOINT WITH SMALL END OF REDUCER PLAIN END FOR CONNECTION WITH SLEEVES OR COMPRESSION COUPLINGS.

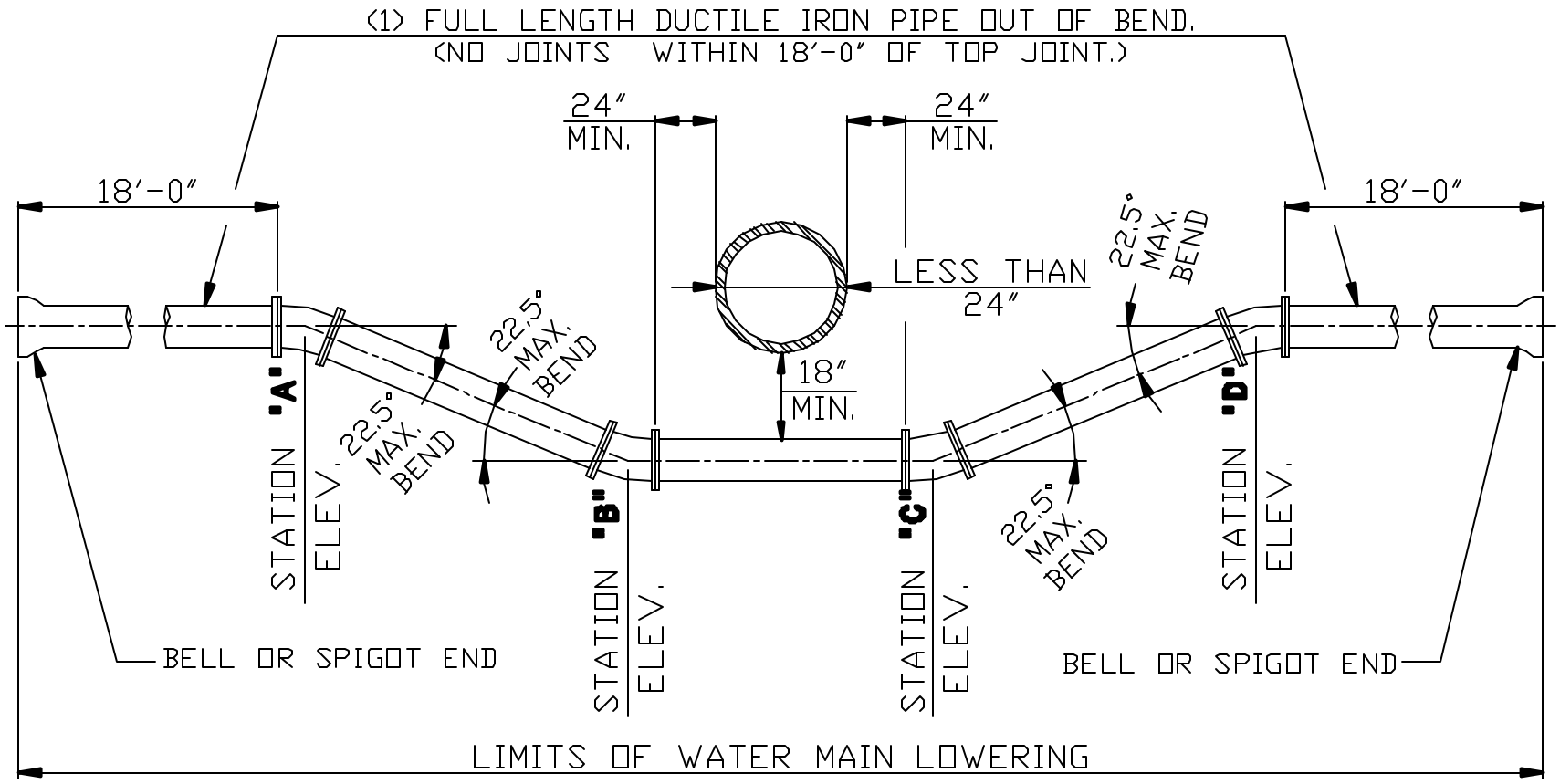
5) ALL EXISTING WATER SERVICE CONNECTIONS BETWEEN THE CUT-IN-VALVE ASSEMBLIES SHALL BE MAINTAINED BY "TEMPORARY SERVICE CONNECTIONS" PROVIDED AND MAINTAINED BY THE CONTRACTOR.

6) EXISTING WATER SERVICE CONNECTIONS NEEDED TO BE RETAPPED AND RECONNECTED WILL ONLY BE PERMITTED BETWEEN STATIONS **"A"** AND **"E"** AND STATIONS **"D"** AND **"F"**. NO RETAPPING OF SERVICE CONNECTIONS WILL BE ALLOWED BETWEEN STATIONS **"A"** AND **"D"**.

DETAIL FOR WATER MAIN LOWERING UNDER OBSTRUCTIONS 24" & LARGER IN DIAMETER OR WIDTH FOR "EXISTING CONSTRUCTION"

- NOT TO SCALE -

STD-L03	DATE: 3-4-2002	BY: RSK



NOTE:

1) WATER MAIN SHALL BE DUCTILE IRON, MINIMUM CLASS 52, CEMENT LINED PUSH-ON JOINT PIPE WITH RETAINED MECHANICAL JOINT DUCTILE IRON CLASS 350, CEMENT LINED RETAINED MECHANICAL JOINT FITTINGS.

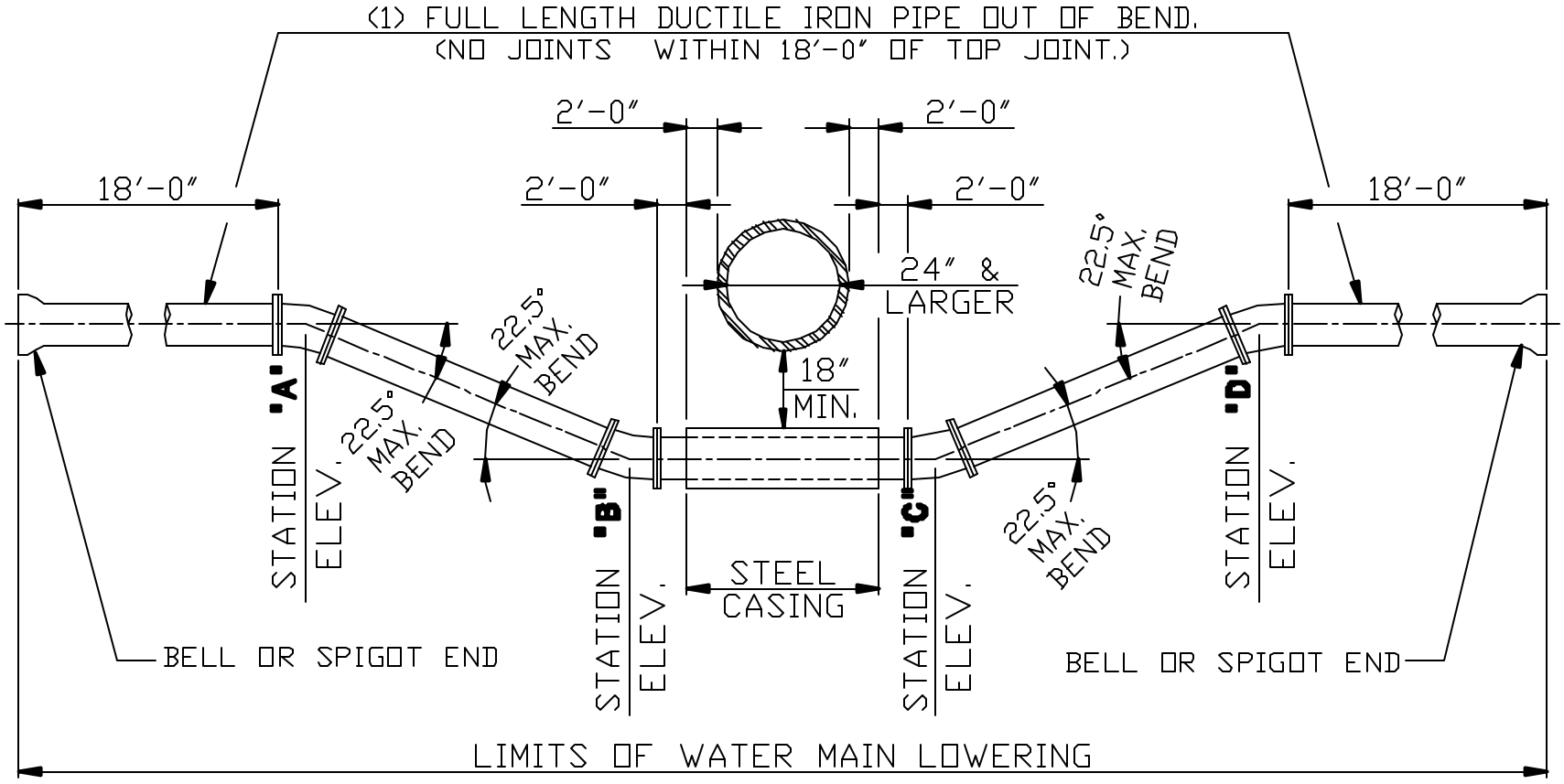
2) WHERE DEPTH OF LOWERING REQUIRES AN INTERMEDIATE JOINT BETWEEN STATIONS **"A"** & **"B"** AND/OR **"C"** & **"D"** THE ENTIRE LOWERING SHALL BE MADE WITH DUCTILE IRON, MINIMUM CLASS 52, CEMENT LINED PIPE AND DUCTILE IRON CLASS 350, CEMENT LINED FITTINGS **ALL** HAVING BOLTLESS RESTRAINED PUSH-ON JOINTS, TYPE I.

3) WHERE LENGTH OF LOWERING UNDER OBSTRUCTION(S) REQUIRES AN INTERMEDIATE JOINT **ONLY** BETWEEN STATIONS **"B"** & **"C"**, AND PIPE JOINTS ARE AS INDICATED IN NOTE **"1"** ABOVE, THAT INTERMEDIATE JOINT(S) SHALL BE MADE WITH A BOLTLESS RESTRAINED PUSH-ON JOINT, TYPE II.

4) WHERE LENGTH OF LOWERING UNDER OBSTRUCTION(S) REQUIRES AN INTERMEDIATE JOINT **ONLY** BETWEEN **"B"** AND **"C"** AND PIPE JOINTS ARE AS INDICATED IN NOTE **"2"** ABOVE, THAT INTERMEDIATE JOINT(S) SHALL BE MADE WITH A BOLTLESS RESTRAINED PUSH-ON JOINT, TYPE I.

DETAIL FOR WATER MAIN LOWERING UNDER OBSTRUCTIONS LESS THAN 24" IN DIAMETER OR WIDTH FOR "NEW CONSTRUCTION"

STD-L04	- NOT TO SCALE -	DATE: 10-1-97	BY: RSK



NOTE:

1) WATER MAIN SHALL BE DUCTILE IRON, MINIMUM CLASS 52, CEMENT LINED PUSH-ON JOINT PIPE WITH RETAINED MECHANICAL JOINT DUCTILE IRON CLASS 350, CEMENT LINED RETAINED MECHANICAL JOINT FITTINGS.

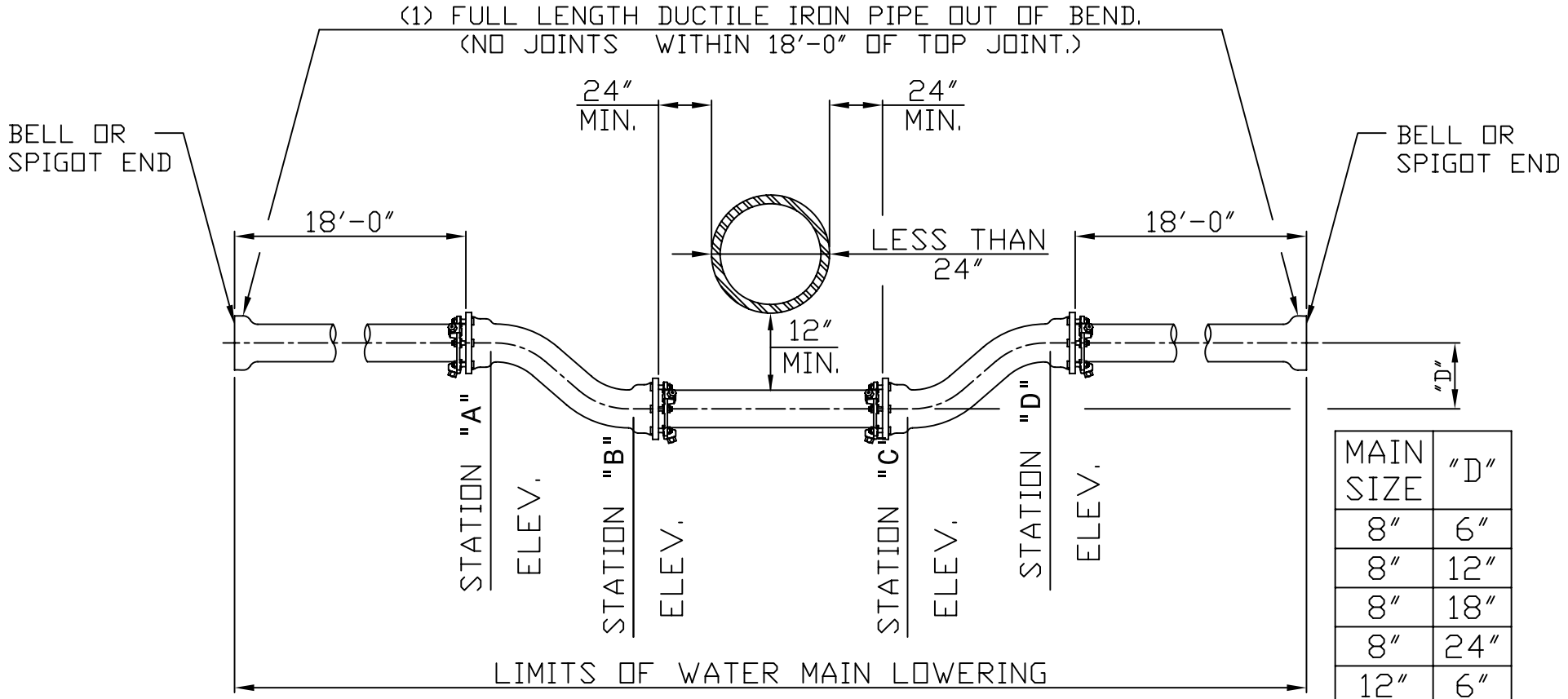
2) WHERE DEPTH OF LOWERING REQUIRES AN INTERMEDIATE JOINT BETWEEN STATIONS **"A"** & **"B"** AND/OR **"C"** & **"D"** THE ENTIRE LOWERING SHALL BE MADE WITH DUCTILE IRON, MINIMUM CLASS 52, CEMENT LINED PIPE AND DUCTILE IRON CLASS 350, CEMENT LINED FITTINGS **ALL** HAVING BOLTLESS RESTRAINED PUSH-ON JOINTS, TYPE I.

3) WHERE LENGTH OF LOWERING UNDER OBSTRUCTION(S) REQUIRES AN INTERMEDIATE JOINT **ONLY** BETWEEN STATIONS **"B"** & **"C"**, AND PIPE JOINTS ARE AS INDICATED IN NOTE **"1"** ABOVE, THAT INTERMEDIATE JOINT(S) SHALL BE MADE WITH A BOLTLESS RESTRAINED PUSH-ON JOINT, TYPE II.

4) WHERE LENGTH OF LOWERING UNDER OBSTRUCTION(S) REQUIRES AN INTERMEDIATE JOINT **ONLY** BETWEEN **"B"** AND **"C"** AND PIPE JOINTS ARE AS INDICATED IN NOTE **"2"** ABOVE, THAT INTERMEDIATE JOINT(S) SHALL BE MADE WITH A BOLTLESS RESTRAINED PUSH-ON JOINT, TYPE I.

DETAIL FOR WATER MAIN LOWERING UNDER OBSTRUCTIONS 24" & LARGER IN DIAMETER OR WIDTH FOR "NEW CONSTRUCTION"

STD-L05	- NOT TO SCALE -	DATE: 10-1-97	BY: RSK



MAIN SIZE	"D"
8"	6"
8"	12"
8"	18"
8"	24"
12"	6"
12"	12"
12"	18"
12"	24"

NOTE:

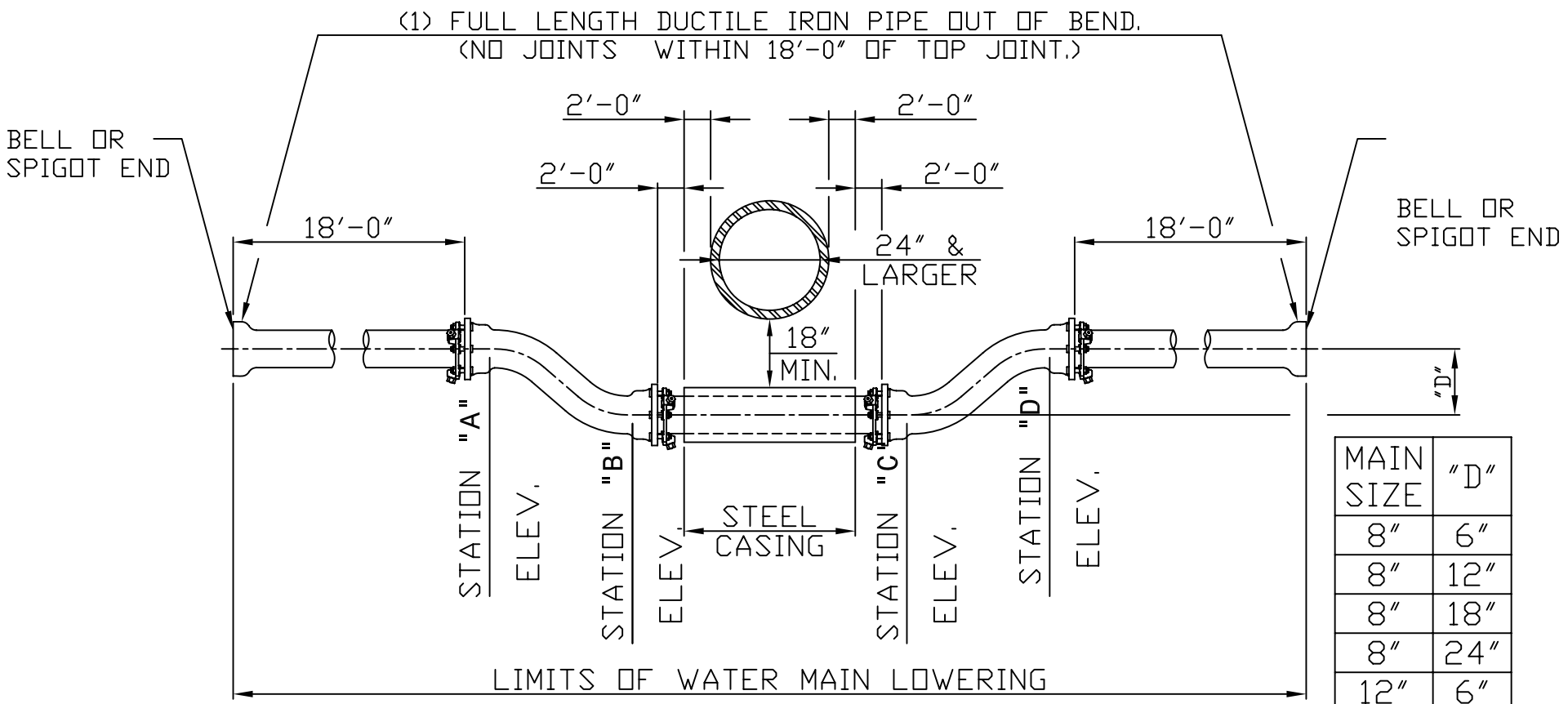
1) WATER MAIN SHALL BE DUCTILE IRON, MINIMUM CLASS 52, CEMENT LINED PUSH-ON JOINT PIPE WITH RETAINED MECHANICAL JOINT DUCTILE IRON CLASS 350, CEMENT LINE RETAINED MECHANICAL JOINT FITTINGS.
   * ALL FITTINGS MUST FOLLOW ANSI/AWWA C110/A21.10 FOR FULL BODY FITTINGS AND ANSI/AWWA C153/A221.5 FOR COMPACT FITTINGS. ALL FITTINGS ARE NOT AVAILABLE FROM ALL APPROVED MANUFACTURES.

2) WHERE LENGTH OF LOWERING UNDER OBSTRUCTION(S) REQUIRES AN INTERMEDIATE JOINT ONLY BETWEEN STATIONS "B" & "C", AND PIPE JOINTS ARE AS INDICATED IN NOTE "1" ABOVE, THAT INTERMEDIATE JOINT(S) SHALL BE MADE WITH A BOLTLESS RESTRAINED PUSH-ON JOINT, TYPE II.

DETAIL FOR WATER MAIN LOWERING USING MECHANICAL JOINT OFFSETS UNDER OBSTRUCTIONS LESS THAN 24" IN DIAMETER OR WIDTH FOR "NEW CONSTRUCTION"

- NOT TO SCALE -

STD-L06	DATE: 12-3-2009	BY: RSK



MAIN SIZE	"D"
8"	6"
8"	12"
8"	18"
8"	24"
12"	6"
12"	12"
12"	18"
12"	24"

NOTE:

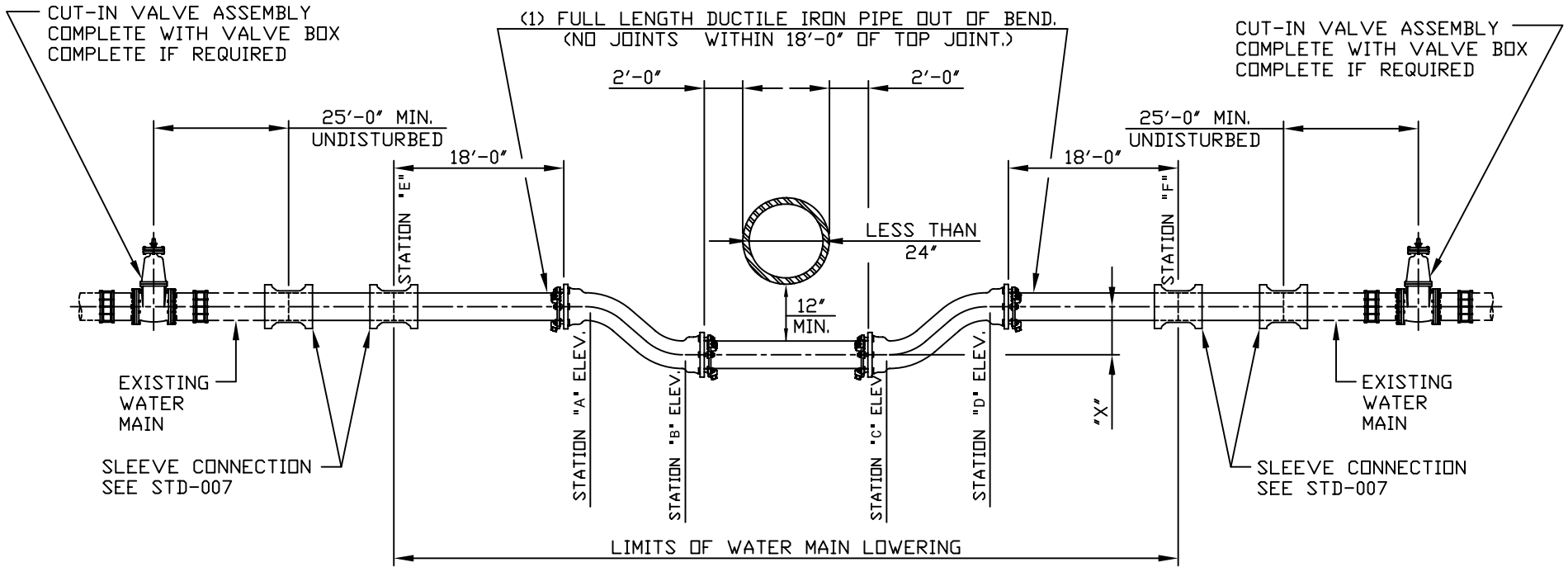
1) WATER MAIN SHALL BE DUCTILE IRON, MINIMUM CLASS 52, CEMENT LINED PUSH-ON JOINT PIPE WITH RETAINED MECHANICAL JOINT DUCTILE IRON CLASS 350, CEMENT LINE RETAINED MECHANICAL JOINT FITTINGS.
   * ALL FITTINGS MUST FOLLOW ANSI/AWWA C110/A21.10 FOR FULL BODY FITTINGS AND ANSI/AWWA C153/A221.5 FOR COMPACT FITTINGS. ALL FITTINGS ARE NOT AVAILABLE FROM ALL APPROVED MANUFACTURES.

2) WHERE LENGTH OF LOWERING UNDER OBSTRUCTION(S) REQUIRES AN INTERMEDIATE JOINT ONLY BETWEEN STATIONS "B" & "C", AND PIPE JOINTS ARE AS INDICATED IN NOTE "1" ABOVE, THAT INTERMEDIATE JOINT(S) SHALL BE MADE WITH A BOLTLESS RESTRAINED PUSH-ON JOINT, TYPE II.

DETAIL FOR WATER MAIN LOWERING USING MECHANICAL JOINT OFFSETS UNDER OBSTRUCTIONS 24" & LARGER IN DIAMETER OR WIDTH FOR "NEW CONSTRUCTION"

- NOT TO SCALE -

STD-L07	DATE: 12-3-2009	BY: RSK



MAIN SIZE	4"	4"	4"	4"	6"	6"	6"	6"	8"	8"	8"	8"	10"	10"	10"	10"	12"	12"	12"	12"
"X"	6"	12"	18"	24"	6"	12"	18"	24"	6"	12"	18"	24"	6"	12"	18"	24"	6"	12"	18"	24"

NOTE:

1) WATER MAIN SHALL BE DUCTILE IRON, MINIMUM CLASS 52, CEMENT LINED PUSH-ON JOINT PIPE WITH RETAINED MECHANICAL JOINT DUCTILE IRON CLASS 350, CEMENT LINED RETAINED MECHANICAL JOINT FITTINGS.
   * ALL FITTINGS MUST FOLLOW ANSI/AWWA C110/A21.10 FOR FULL BODY FITTINGS AND ANSI/AWWA C153/A221.5 FOR COMPACT FITTINGS. ALL FITTINGS ARE NOT AVAILABLE FROM ALL APPROVED MANUFACTURES.

2) WHERE LENGTH OF LOWERING UNDER OBSTRUCTION(S) REQUIRES AN INTERMEDIATE JOINT ONLY BETWEEN STATIONS "B" & "C", THAT INTERMEDIATE JOINT(S) SHALL BE MADE WITH A BOLTLESS RESTRAINED PUSH-ON JOINT, TYPE II.

3) WHERE EXISTING WATER MAIN IS SIX (6)-INCHES IN DIAMETER THE PIPE LOWERING SHALL BE MADE WITH PIPE AND FITTINGS NO LESS THAN EIGHT (8)-INCH IN DIAMETER WITH REDUCERS INSTALLED AT STATIONS "E" AND "F". THE REDUCERS SHALL BE RETAINED MECHANICAL JOINT WITH SMALL END OF REDUCER PLAIN END FOR CONNECTION WITH SLEEVES OR COMPRESSION COUPLINGS.

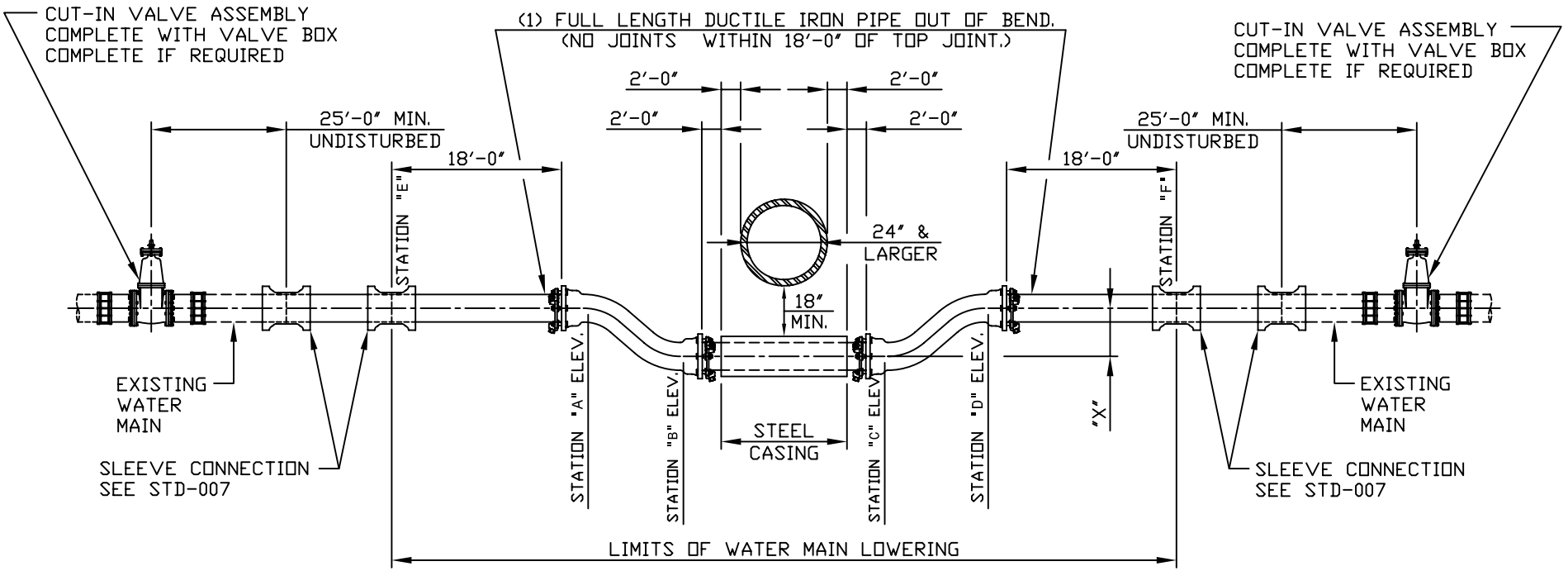
4) ALL EXISTING WATER SERVICE CONNECTIONS BETWEEN THE CUT-IN-VALVE ASSEMBLIES SHALL BE MAINTAINED BY "TEMPORARY SERVICE CONNECTIONS" PROVIDED AND MAINTAINED BY THE CONTRACTOR.

5) EXISTING WATER SERVICE CONNECTIONS NEEDED TO BE RETAPPED AND RECONNECTED WILL ONLY BE PERMITTED BETWEEN STATIONS "A" AND "E" AND STATIONS "D" AND "F". NO RETAPPING OF SERVICE CONNECTIONS WILL BE ALLOWED BETWEEN STATIONS "A" AND "D".

DETAIL FOR WATER MAIN LOWERING UNDER OBSTRUCTIONS LESS THAN 24" IN DIAMETER OR WIDTH USING MECHANICAL OFFSETS FOR "EXISTING MAINS"

- NOT TO SCALE -

STD-L08	DATE: 12-3-2009	BY: RSK



MAIN SIZE	4"	4"	4"	4"	6"	6"	6"	6"	8"	8"	8"	8"	10"	10"	10"	10"	12"	12"	12"	12"
"X"	6"	12"	18"	24"	6"	12"	18"	24"	6"	12"	18"	24"	6"	12"	18"	24"	6"	12"	18"	24"

NOTE:

1) WATER MAIN SHALL BE DUCTILE IRON, MINIMUM CLASS 52, CEMENT LINED PUSH-ON JOINT PIPE WITH RETAINED MECHANICAL JOINT DUCTILE IRON CLASS 350, CEMENT LINED RETAINED MECHANICAL JOINT FITTINGS.
   * ALL FITTINGS MUST FOLLOW ANSI/AWWA C110/A21.10 FOR FULL BODY FITTINGS AND ANSI/AWWA C153/A221.5 FOR COMPACT FITTINGS. ALL FITTINGS ARE NOT AVAILABLE FROM ALL APPROVED MANUFACTURES.

2) WHERE LENGTH OF LOWERING UNDER OBSTRUCTION(S) REQUIRES AN INTERMEDIATE JOINT ONLY BETWEEN STATIONS "B" & "C", THAT INTERMEDIATE JOINT(S) SHALL BE MADE WITH A BOLTLESS RESTRAINED PUSH-ON JOINT, TYPE II.

3) WHERE EXISTING WATER MAIN IS SIX (6)-INCHES IN DIAMETER THE PIPE LOWERING SHALL BE MADE WITH PIPE AND FITTINGS NO LESS THAN EIGHT (8)-INCH IN DIAMETER WITH REDUCERS INSTALLED AT STATIONS "E" AND "F". THE REDUCERS SHALL BE RETAINED MECHANICAL JOINT WITH SMALL END OF REDUCER PLAIN END FOR CONNECTION WITH SLEEVES OR COMPRESSION COUPLINGS.

4) ALL EXISTING WATER SERVICE CONNECTIONS BETWEEN THE CUT-IN-VALVE ASSEMBLIES SHALL BE MAINTAINED BY "TEMPORARY SERVICE CONNECTIONS" PROVIDED AND MAINTAINED BY THE CONTRACTOR.

5) EXISTING WATER SERVICE CONNECTIONS NEEDED TO BE RETAPPED AND RECONNECTED WILL ONLY BE PERMITTED BETWEEN STATIONS "A" AND "E" AND STATIONS "D" AND "F". NO RETAPPING OF SERVICE CONNECTIONS WILL BE ALLOWED BETWEEN STATIONS "A" AND "D".

DETAIL FOR WATER MAIN LOWERING UNDER OBSTRUCTIONS 24" & LARGER IN DIAMETER OR WIDTH USING MECHANICAL OFFSETS FOR "EXISTING MAINS"

- NOT TO SCALE -

STD-L09	DATE: 12-3-2009	BY: RSK

CLEVELAND DIVISION OF WATER CONSTRUCTION STANDARDS

Tee Details

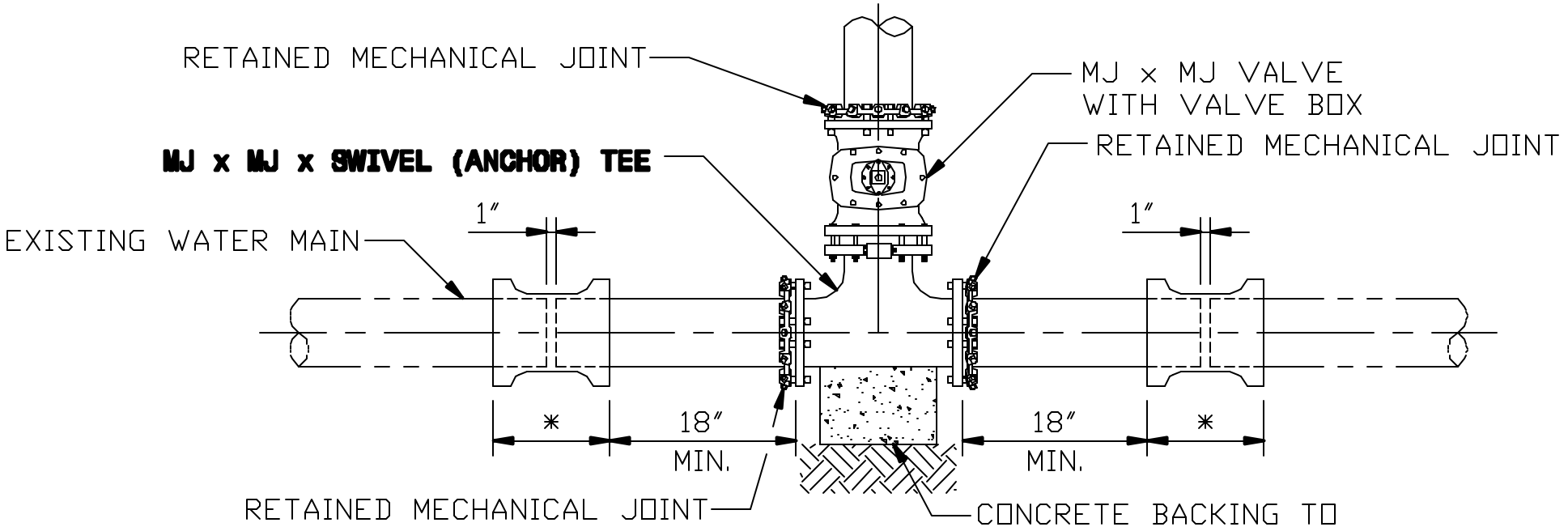
* CONNECTION SHALL BE MADE WITH RETAINED MECHANICAL JOINT SOLID SLEEVES (SHORT OR LONG PATTERN) DUCTILE IRON CLASS 350 OR CAST IRON CLASS 250 OR COMPRESSION COUPLINGS.

COMPRESSION COUPLINGS SHALL BE OF A GASKETED, SLEEVE TYPE WITH DIAMETERS TO PROPERLY FIT PLAIN END IRON PIPE. EACH COUPLING SHALL CONSIST OF ONE (1) MIDDLE RING, WITHOUT STOPS; TWO (2) FOLLOWER GLANDS; TWO (2) RUBBER-COMPOUND BUNA-N BLEND, WEDGE SECTION GASKETS; AND SUFFICIENT TRACKHEAD STAINLESS STEEL BOLTS AND NUTS (ASTM A276/A193/A194, TYPE 304, EXTRA HEAVY HEX) TO PROPERLY COMPRESS THE GASKETS.

MIDDLE RING AND FOLLOWER GLANDS SHALL BE OF EITHER STEEL OR DUCTILE IRON (ASTM-A536).

THE COMPRESSION COUPLING SHALL BE WITHOUT STOPS AND BE RATED FOR A MINIMUM WORKING PRESSURE OF 250 PSI AND SHALL BE EQUAL TO THE DRESSER STYLE No's 38, 138 OR 162 (TRANSITION TYPE), OR SMITH-BLAIR 441 STRAIGHT AND TRANSITION COUPLINGS.

ALL BOLTS AND NUTS ON ALL MECHANICAL JOINTS, INCLUDING THOSE ON THE "RETAINED" TYPE, SHALL HAVE FIELD APPLIED ONE (1) COAT OF BITUMASTIC PAINTING FOLLOWED BY AN ENCASEMENT OF POLYETHYLENE WRAPPING IN ACCORDANCE WITH ANSI/AWWA C-105/A21.5-88, CLASS "C", METHOD "B".



CUT-IN TEE DETAIL METHOD No.1

NOT TO SCALE

STD-T01	DATE: 10-1-97	BY: RSK

* CONNECTION SHALL BE MADE WITH RETAINED MECHANICAL JOINT SOLID SLEEVES (SHORT OR LONG PATTERN) DUCTILE IRON CLASS 350 OR CAST IRON CLASS 250 OR COMPRESSION COUPLINGS.

COMPRESSION COUPLINGS SHALL BE OF A GASKETED, SLEEVE TYPE WITH DIAMETERS TO PROPERLY FIT PLAIN END IRON PIPE. EACH COUPLING SHALL CONSIST OF ONE (1) MIDDLE RING, WITHOUT STOPS; TWO (2) FOLLOWER GLANDS; WO (2) RUBBER-COMPOUND BUNA-N BLEND, WEDGE SECTION GASKETS; AND SUFFICIENT TRACKHEAD STAINLESS STEEL BOLTS AND NUTS (ASTM A276/A193/194, TYPE 304, EXTRA HEAVY HEX) TO PROPERLY COMPRESS THE GASKETS.

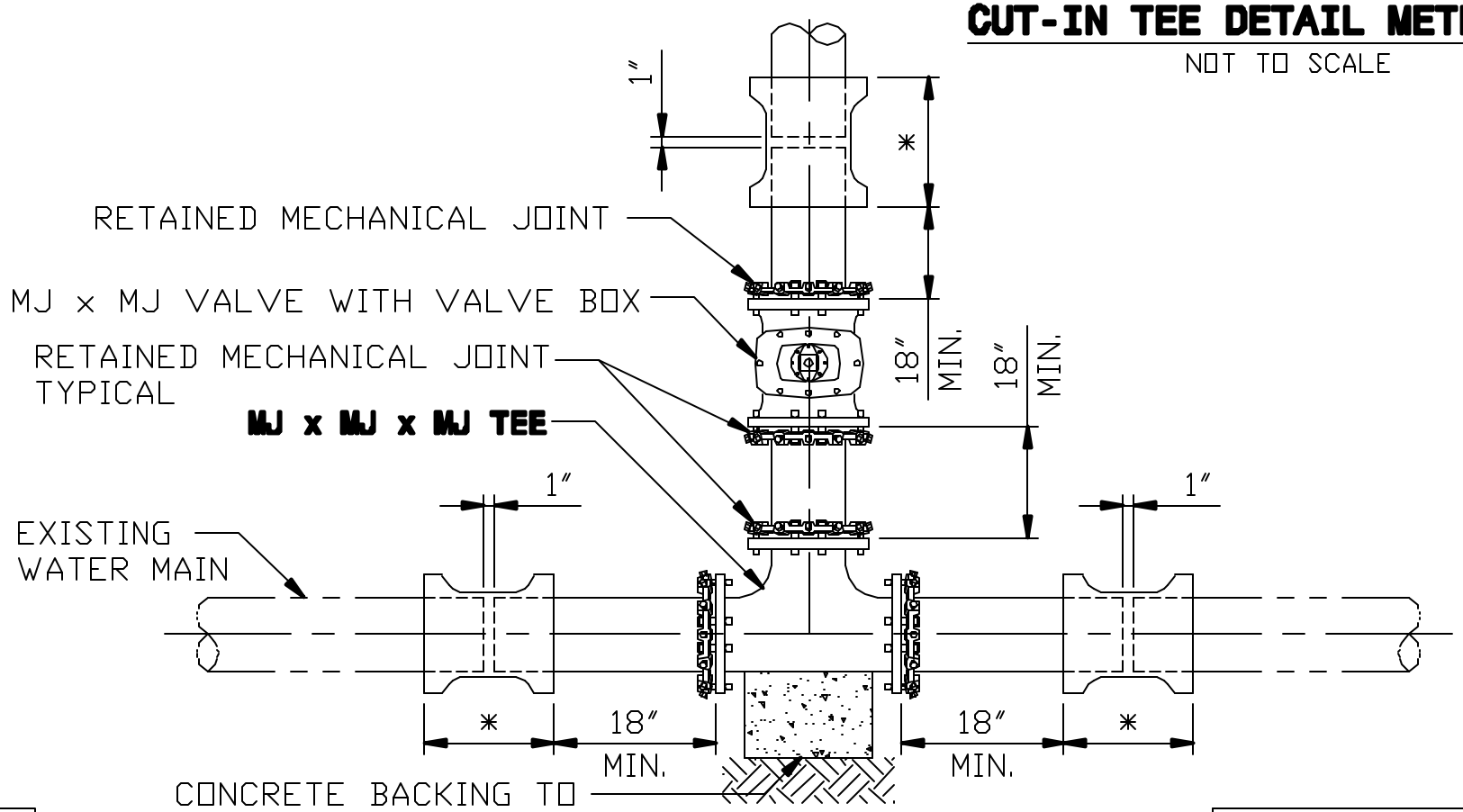
MIDDLE RING AND FOLLOWER GLANDS SHALL BE OF EITHER STEEL OR DUCTILE IRON (ASTM-A536).

THE COMPRESSION COUPLING SHALL BE WITHOUT STOPS AND BE RATED FOR A MINIMUM WORKING PRESSURE OF 250 PSI AND SHALL BE EQUAL TO THE DRESSER STYLE No's 38, 138 OR 162 (TRANSITION TYPE), OR SMITH-BLAIR 441 STRAIGHT AND TRANSITION COUPLINGS.

ALL BOLTS AND NUTS ON ALL MECHANICAL JOINTS, INCLUDING THOSE ON THE "RETAINED" TYPE, SHALL HAVE FIELD APPLIED ONE (1) COAT OF BITUMASTIC PAINTING FOLLOWED BY AN ENCASEMENT OF POLYETHYLENE WRAPPING IN ACCORDANCE WITH ANSI/AWWA C-105/A21.5-88, CLASS "C", METHOD "B".

CUT-IN TEE DETAIL METHOD No. 2

NOT TO SCALE



STD-T02	DATE: 10-1-97	BY: RSK

* CONNECTION SHALL BE MADE WITH RETAINED MECHANICAL JOINT SOLID SLEEVES (SHORT OR LONG PATTERN) DUCTILE IRON CLASS 350 OR CAST IRON CLASS 250 OR COMPRESSION COUPLINGS.

COMPRESSION COUPLINGS SHALL BE OF A GASKETED, SLEEVE TYPE WITH DIAMETERS TO PROPERLY FIT PLAIN END IRON PIPE. EACH COUPLING SHALL CONSIST OF ONE (1) MIDDLE RING, WITHOUT STOPS; TWO (2) FOLLOWER GLANDS; WO (2) RUBBER-COMPOUND BUNA-N BLEND, WEDGE SECTION GASKETS; AND SUFFICIENT TRACKHEAD STAINLESS STEEL BOLTS AND NUTS (ASTM A276/A193/194, TYPE 304, EXTRA HEAVY HEX) TO PROPERLY COMPRESS THE GASKETS.

MIDDLE RING AND FOLLOWER GLANDS SHALL BE OF EITHER STEEL OR DUCTILE IRON (ASTM-A536).

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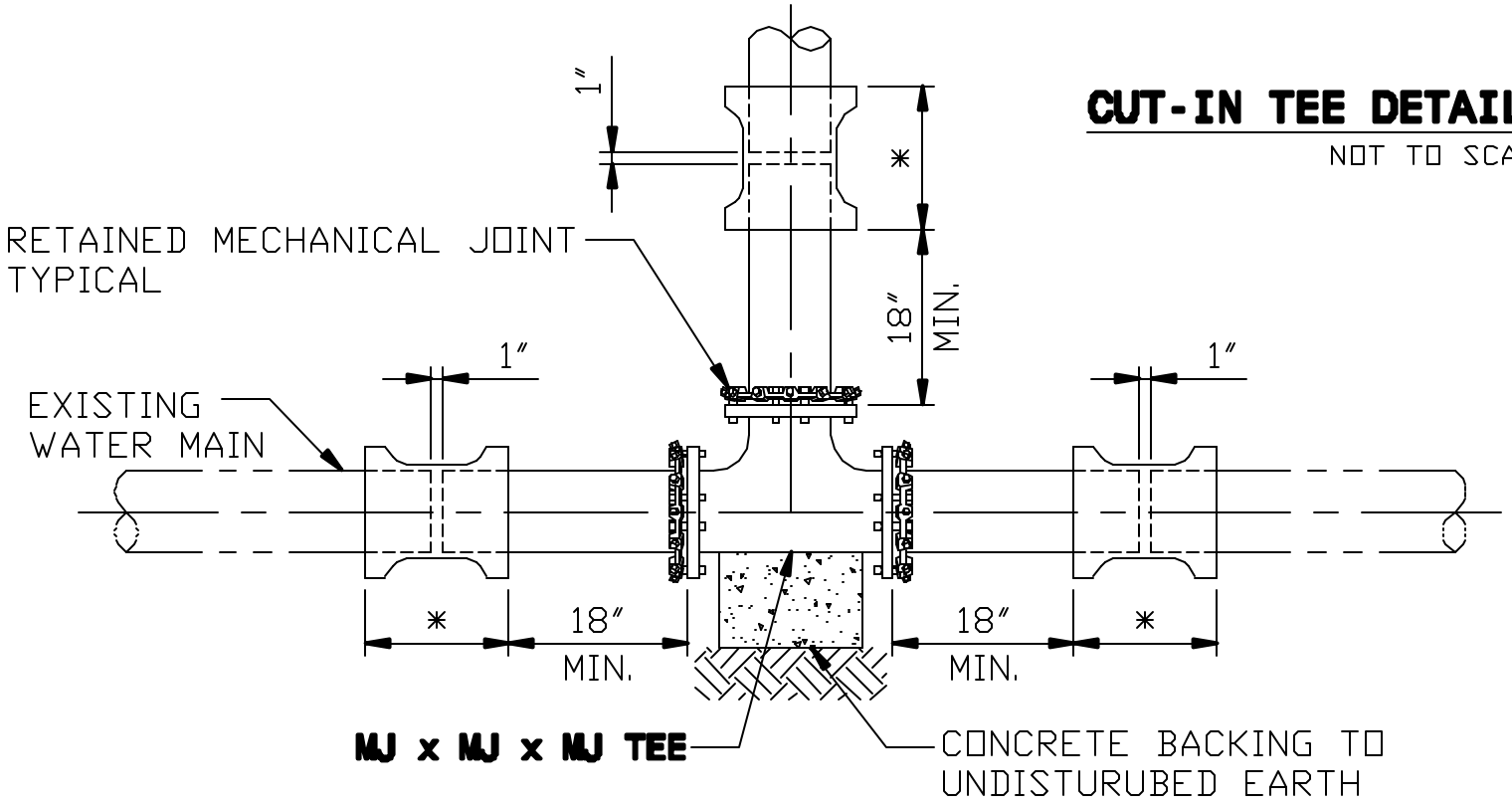
ALL BOLTS AND NUTS ON ALL MECHANICAL JOINTS, INCLUDING THOSE ON THE "RETAINED" TYPE, SHALL HAVE FIELD APPLIED ONE (1) COAT OF BITUMASTIC PAINTING FOLLOWED BY AN ENCASEMENT OF POLYETHYLENE WRAPPING IN ACCORDANCE WITH ANSI/AWWA C-105/A21.5-88, CLASS "C", METHOD "B".

CUT-IN TEE DETAIL METHOD No. 3

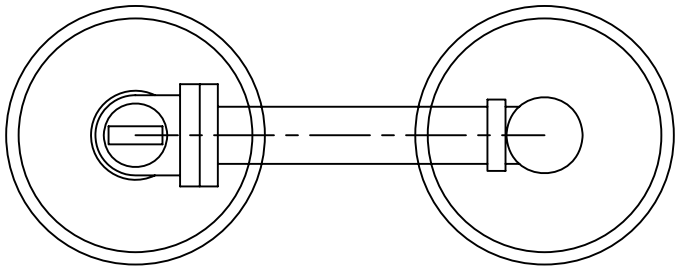
NOT TO SCALE



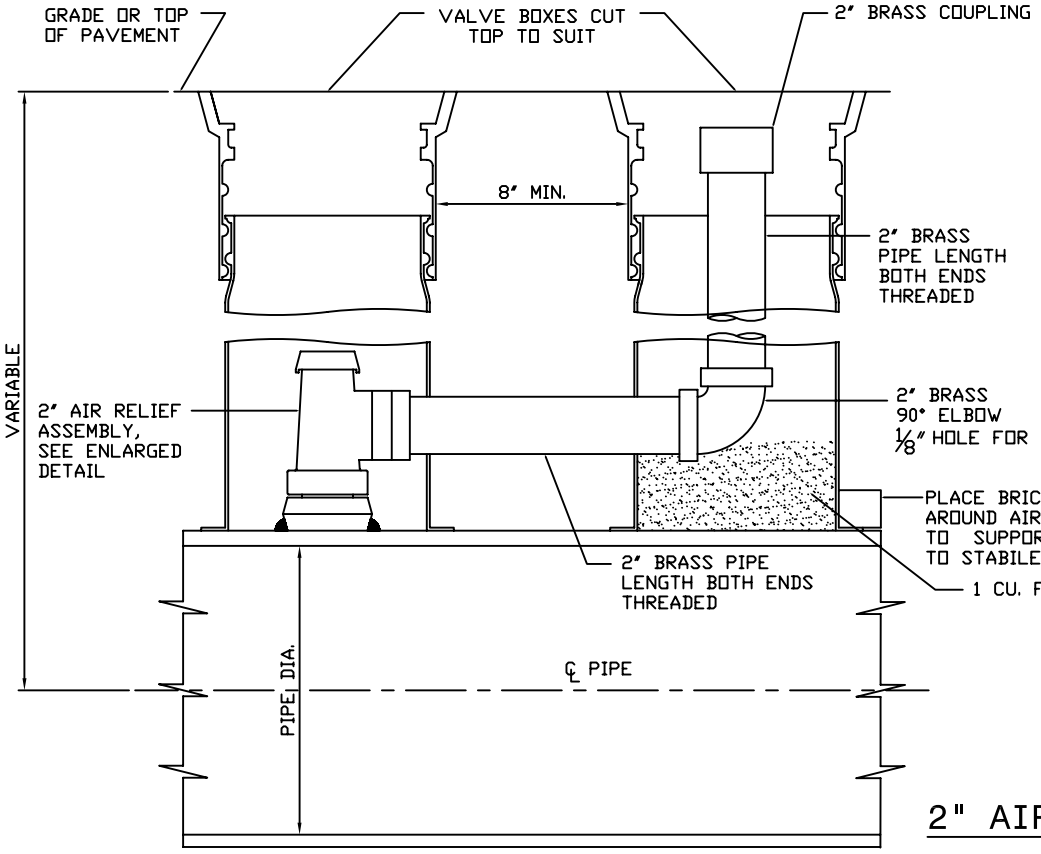
STD-T03	DATE: 10-1-97	BY: RSK

CLEVELAND DIVISION OF WATER CONSTRUCTION STANDARDS

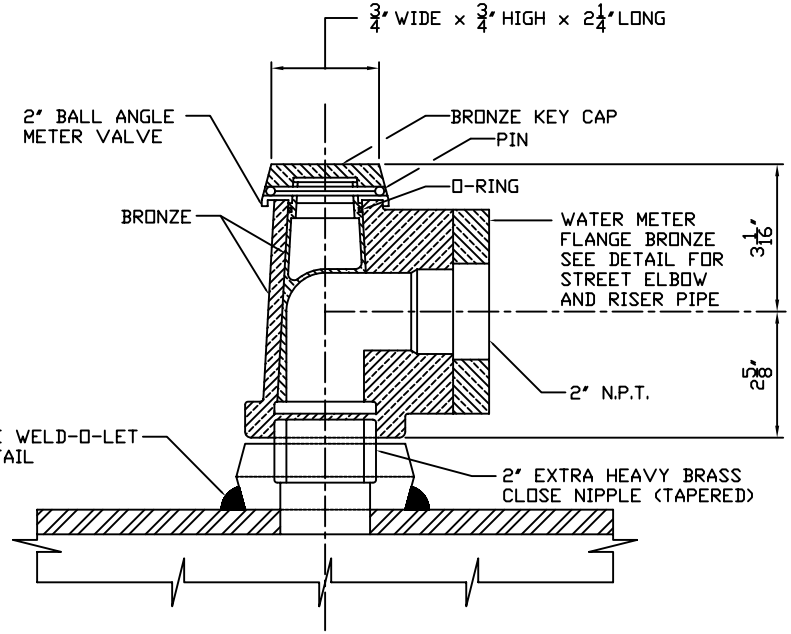
Air Relief Details



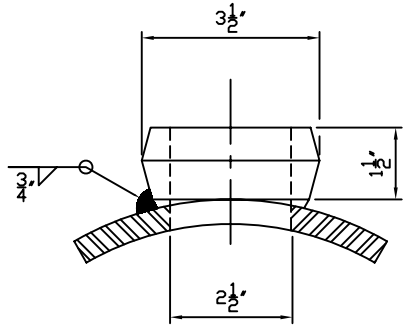
NOTE: AIR RELIEF VALVE BOX(ES) INSTALLED ON BRIDGE DECKS SHALL HAVE INTEGRAL, OR FABRICATED AND SECURELY FASTENED, LUGS OR A RING WHICH WILL ANCHOR THE BOX(ES) INTO THE DECK SLAB, AS APPROVED BY THE ENGINEER.



DOUBLE VALVE BOX ASSEMBLY



AIR RELIEF VALVE ASSEMBLY

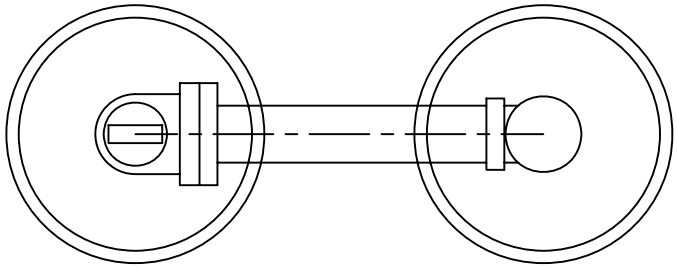


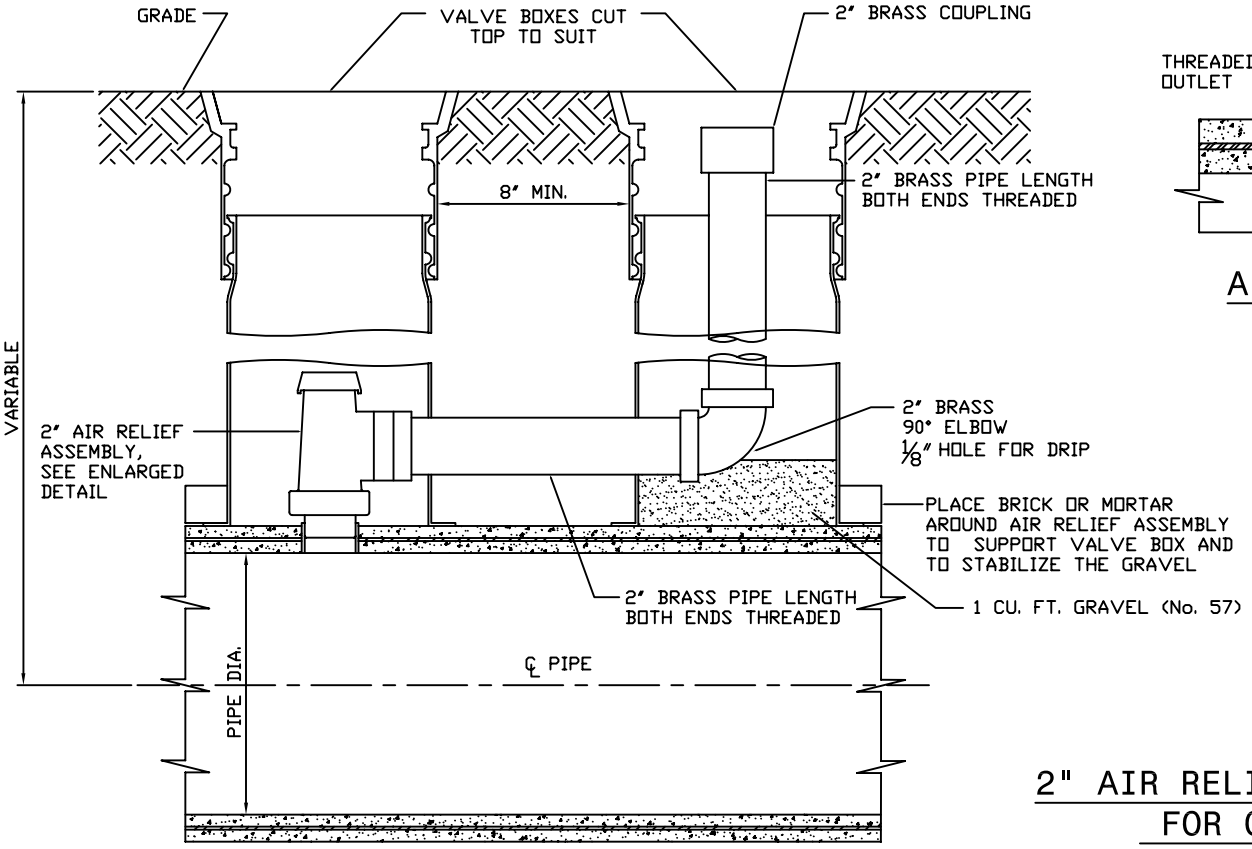
WELD-O-LET DETAIL

2" AIR RELIEF/FLUSHING OUTLET VALVE FOR STEEL WATER MAINS

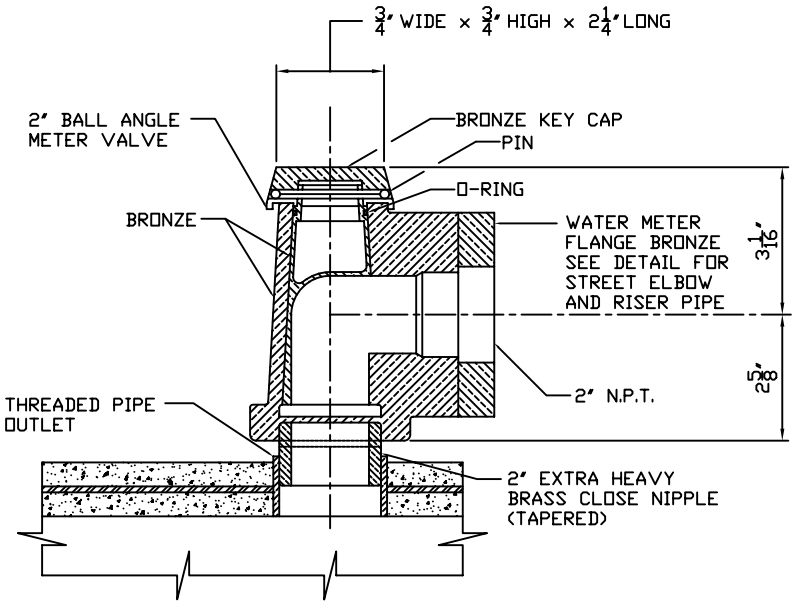
STD-A01

DATE: 5-15-2007 | BY: RSK





DOUBLE VALVE BOX ASSEMBLY

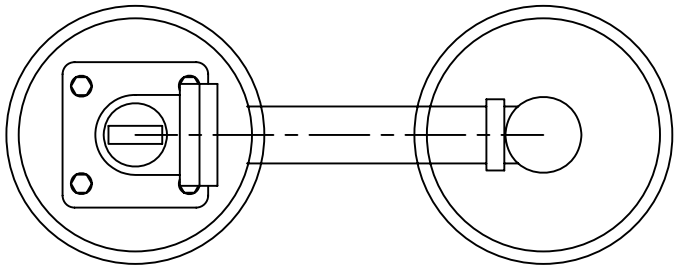


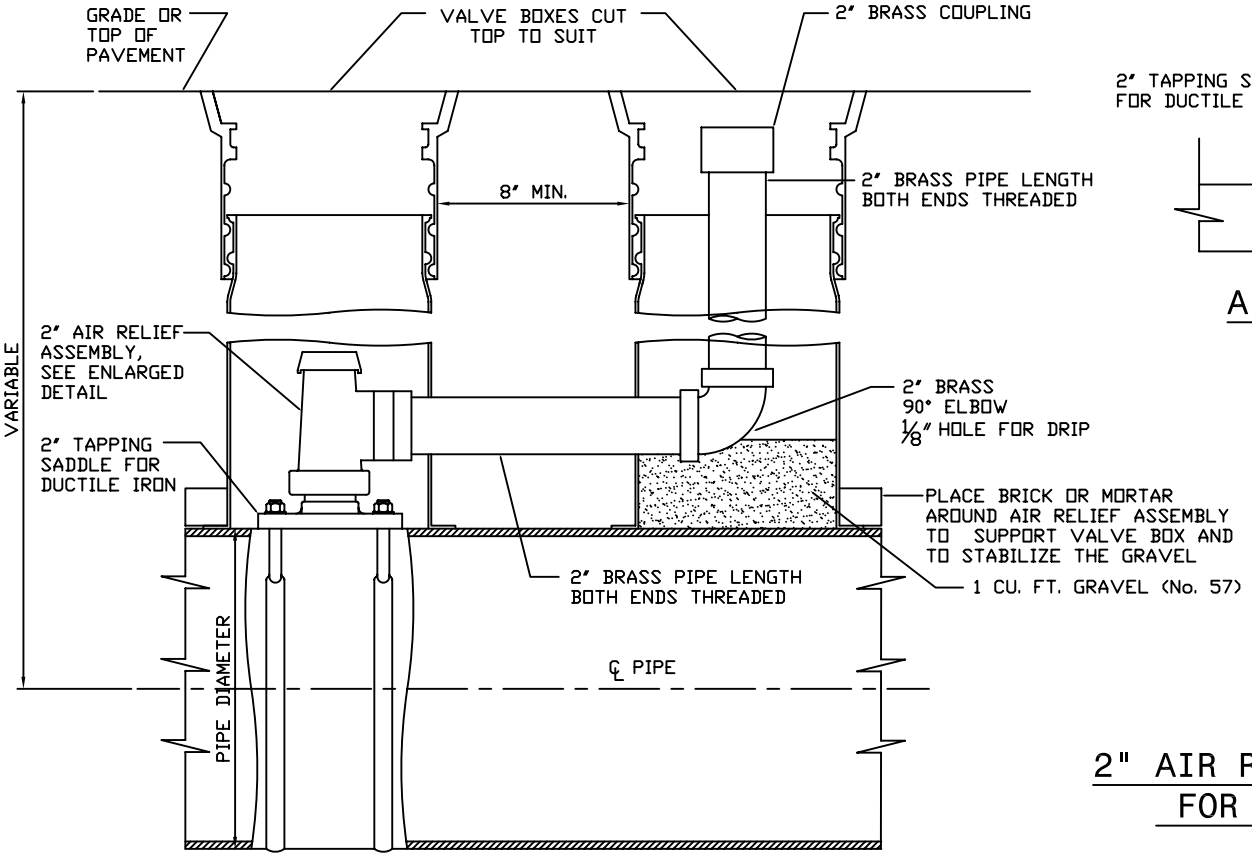
AIR RELIEF VALVE ASSEMBLY

2" AIR RELIEF/FLUSHING OUTLET VALVE FOR CONCRETE WATER MAINS

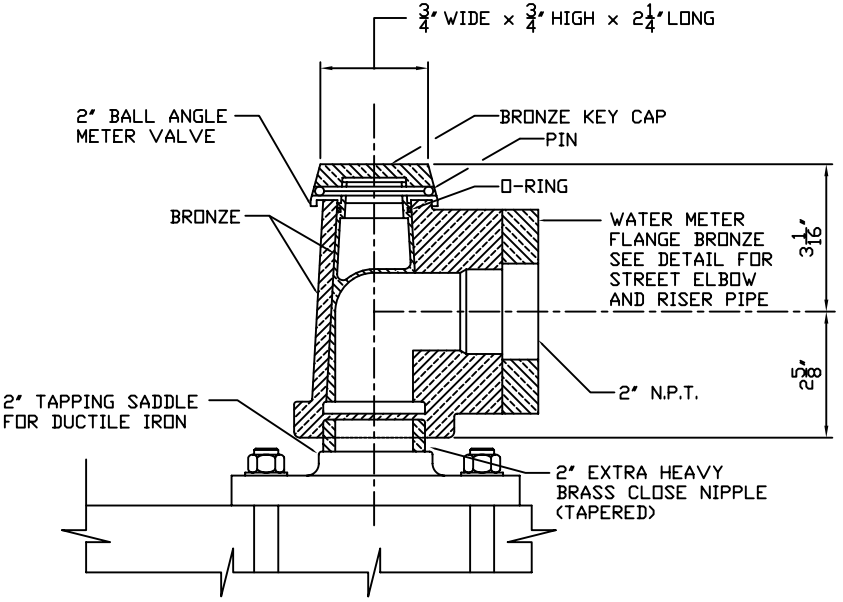
STD-A02

DATE: 5-15-2007 | BY: RSK





DOUBLE VALVE BOX ASSEMBLY

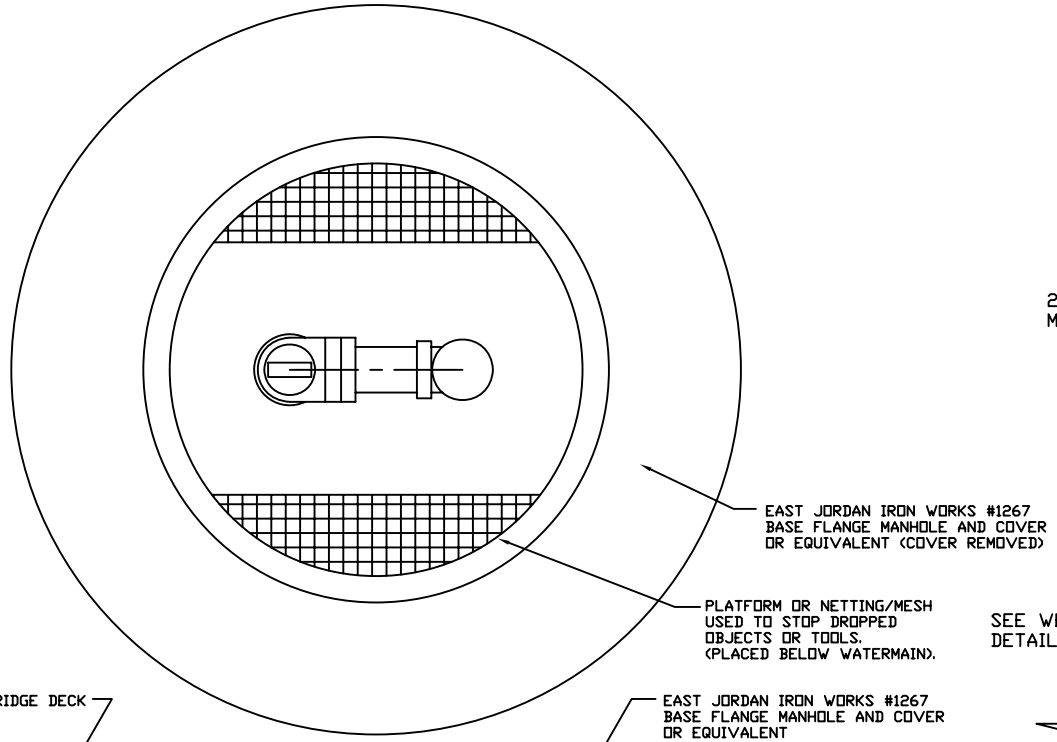


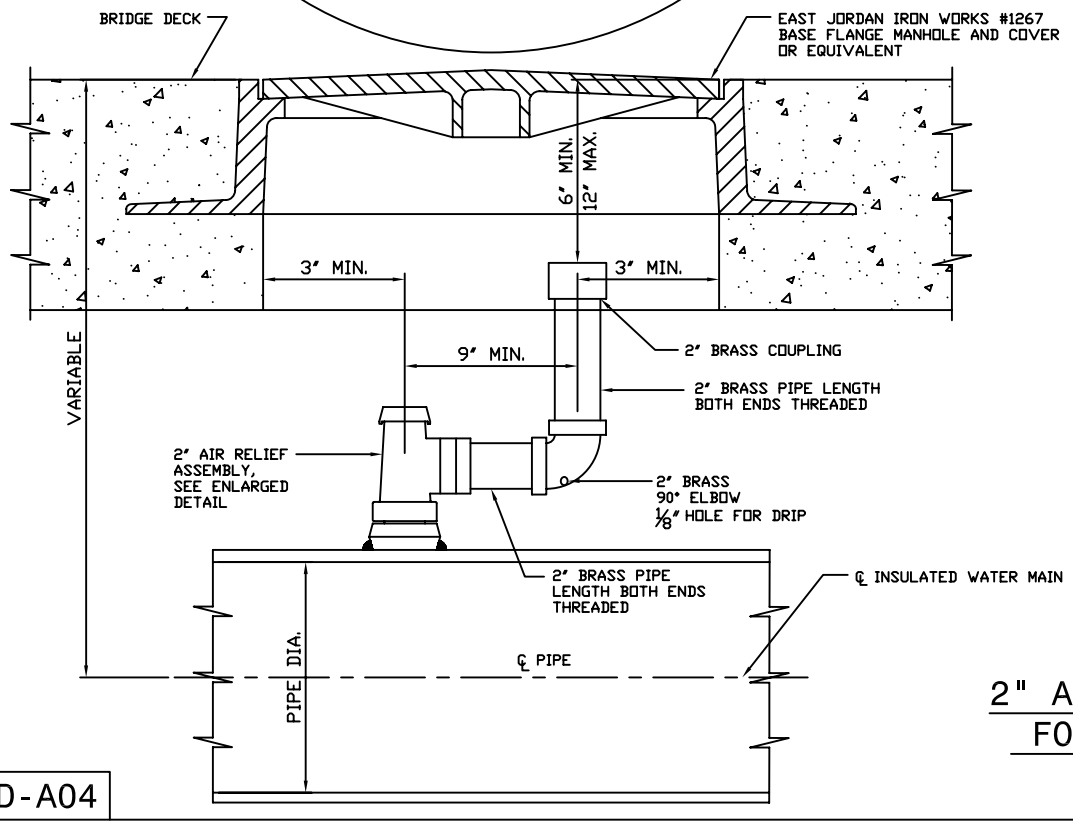
AIR RELIEF VALVE ASSEMBLY

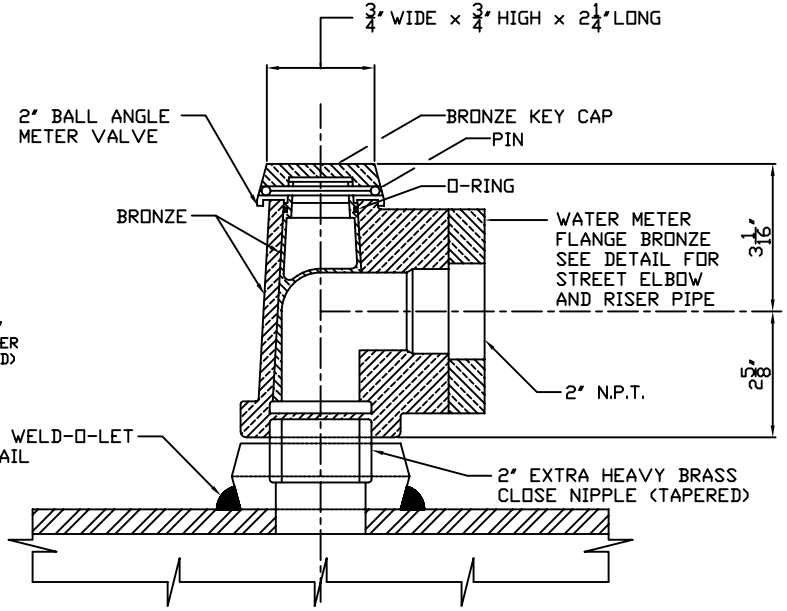
2" AIR RELIEF/FLUSHING OUTLET VALVE FOR DUCTILE IRON WATER MAINS

STD-A03

DATE: 5-15-2007 | BY: RSK

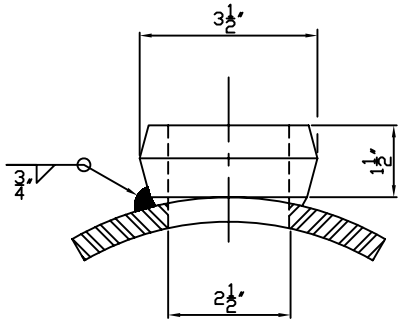






AIR RELIEF VALVE ASSEMBLY

AIR RELIEF ASSEMBLY IS TO BE LOCATED AT THE HIGH POINT OF WATER MAIN ON BRIDGE.



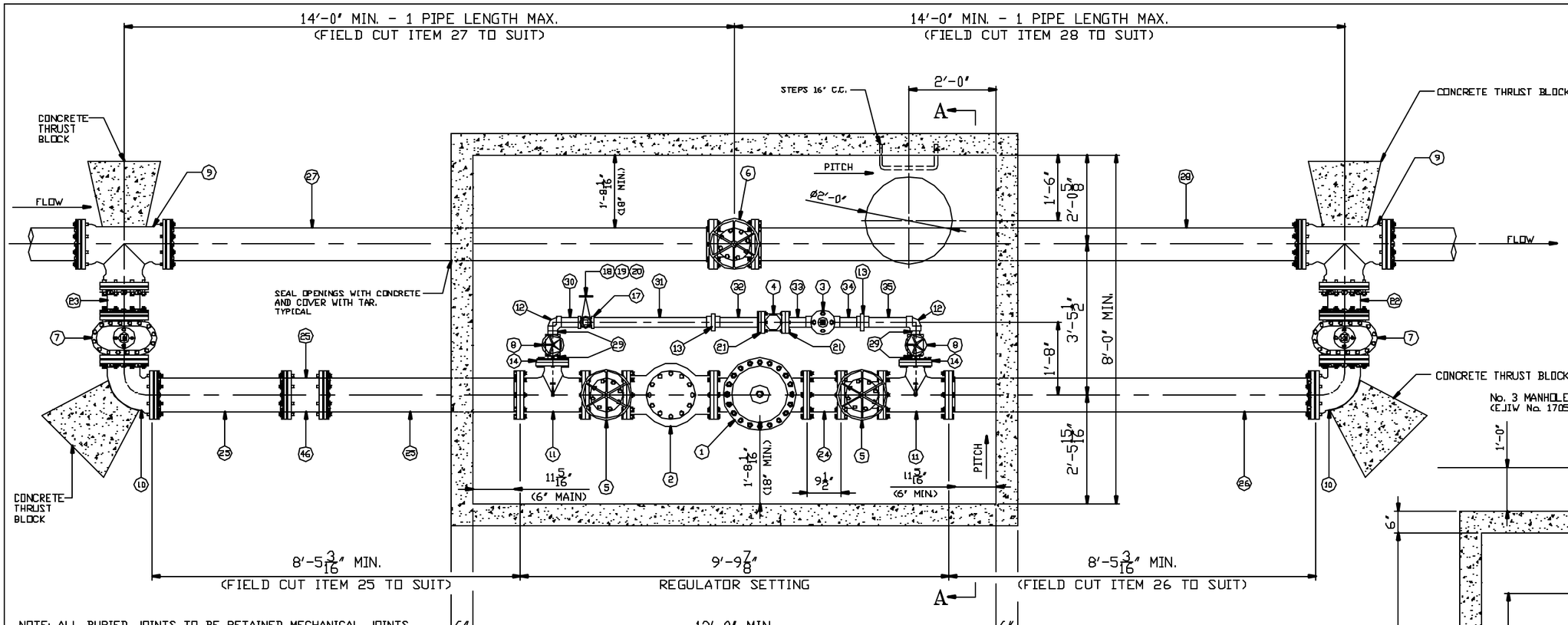
WELD-O-LET DETAIL

2" AIR RELIEF/FLUSHING OUTLET VALVE FOR STEEL WATER MAINS ON BRIDGES

STD-A04	DATE: 8-11-2010	BY: RSK

CLEVELAND DIVISION OF WATER CONSTRUCTION STANDARDS

Regulators



NOTE: ALL BURIED JOINTS TO BE RETAINED MECHANICAL JOINTS. ALL BOLTS AND NUTS FURNISHED WITH RETAINED MECHANICAL JOINTS INCLUDING RETAINER OR WEDGE ACTION TYPE GLANDS SHALL BE COPPER-BEARING DUCTILE IRON, OR EQUIVALENT HIGH STRENGTH, LOW ALLOY CORROSION RESISTANT STEEL.

NOTE: PITCH VAULT TOWARD MANHOLE ACCESS.

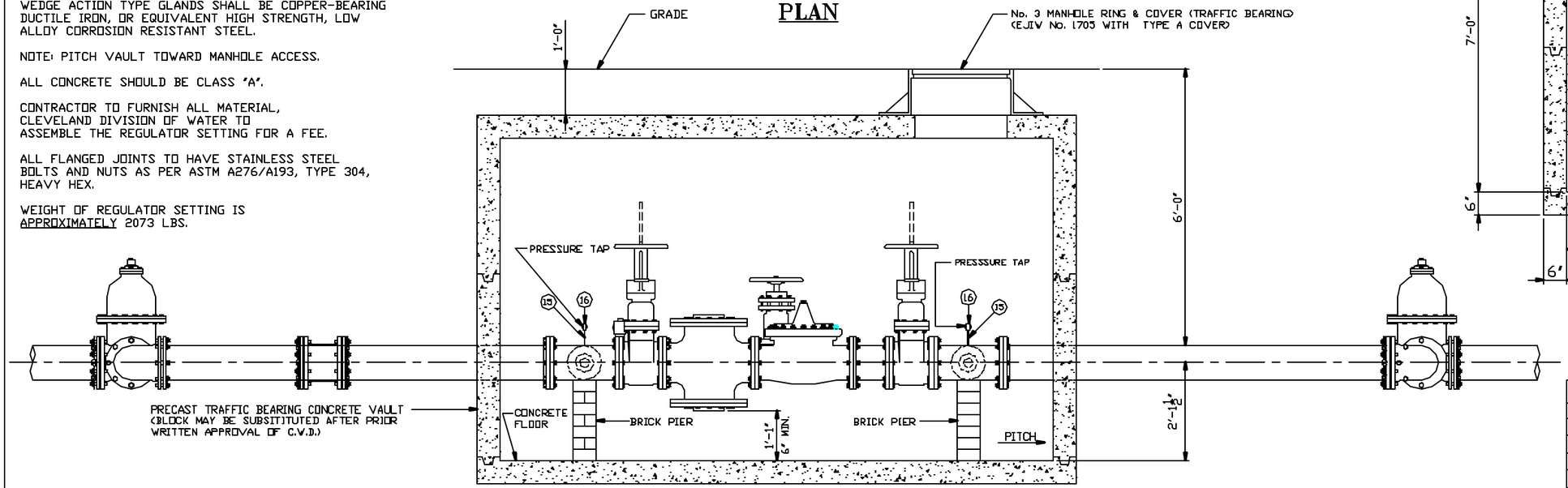
ALL CONCRETE SHOULD BE CLASS "A".

CONTRACTOR TO FURNISH ALL MATERIAL, CLEVELAND DIVISION OF WATER TO ASSEMBLE THE REGULATOR SETTING FOR A FEE.

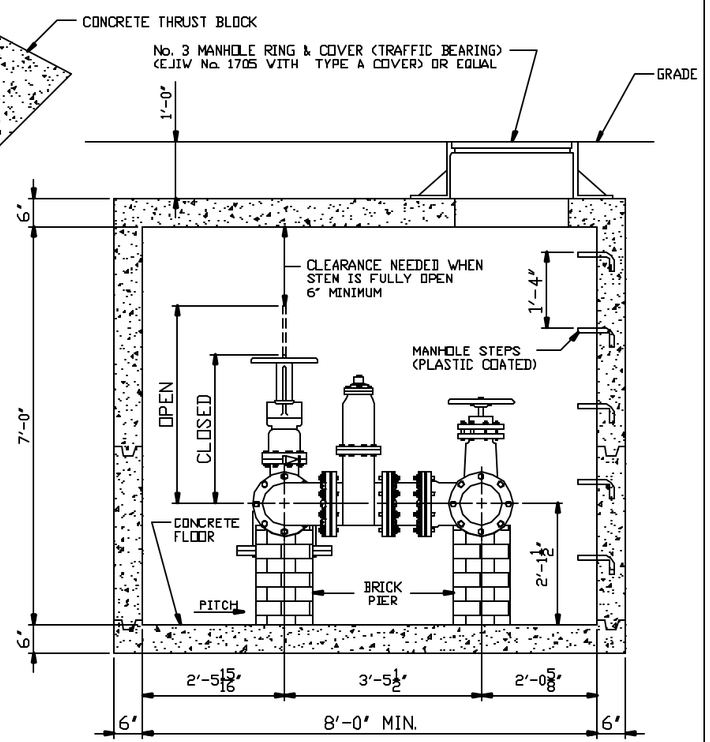
ALL FLANGED JOINTS TO HAVE STAINLESS STEEL BOLTS AND NUTS AS PER ASTM A276/A193, TYPE 304, HEAVY HEX.

WEIGHT OF REGULATOR SETTING IS APPROXIMATELY 2073 LBS.

PLAN



ELEVATION



SECTION A-A

REVISIONS		
No.	DATE	BY

STANDARD DETAILS

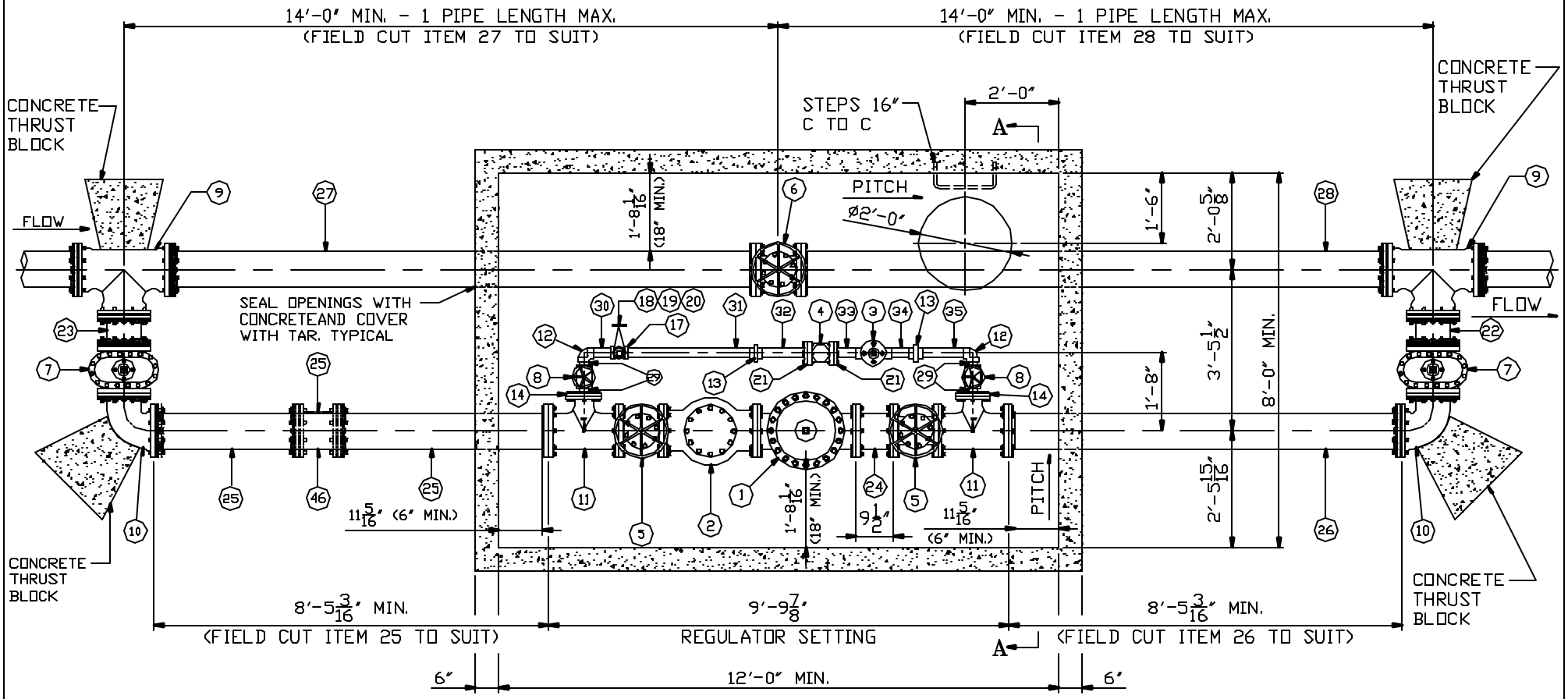
DEPARTMENT OF PUBLIC UTILITIES
DIVISION OF WATER
CLEVELAND, OHIO

SUBJECT
8" REGULATOR IN VAULT

DRAWN BY RSK
DATE 10-1-1997
CHECKED BY MJS DATE 10-1-1997

-SCALE- 3/4" = 1'-0"

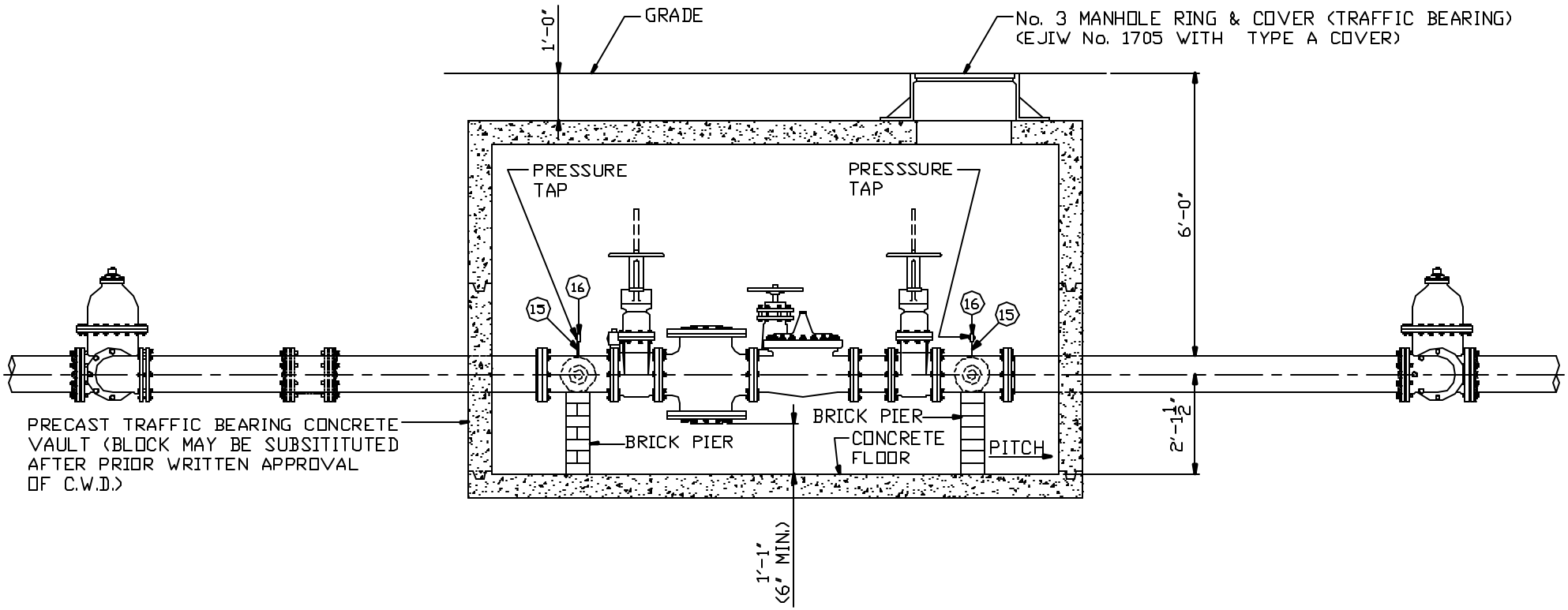
No. REG8



8" REGULATOR - PLAN -

NOTE: ALL BURIED JOINTS TO BE RETAINED MECHANICAL JOINTS.
ALL BOLTS AND NUTS FURNISHED WITH RETAINED MECHANICAL JOINTS INCLUDING RETAINER OR WEDGE ACTION TYPE GLANDS SHALL BE COPPER-BEARING DUCTILE IRON, OR EQUIVALENT HIGH STRENGTH, LOW ALLOY CORROSION RESISTANT STEEL.
NOTE: PITCH VAULT TOWARD MANHOLE ACCESS.
ALL CONCRETE SHOULD BE CLASS "A".
CONTRACTOR TO FURNISH ALL MATERIAL, CLEVELAND DIVISION OF WATER TO ASSEMBLE THE REGULATOR SETTING FOR A FEE.
ALL FLANGED JOINTS TO HAVE STAINLESS STEEL BOLTS AND NUTS AS PER ASTM A276/A193/194, TYPE 304, EXTRA HEAVY HEX.
WEIGHT OF REGULATOR SETTING IS APPROXIMATELY 4550 LBS.

DATE: 10-1-97	BY: RSK



8" REGUALTOR – ELEVATION –

NOTE: ALL BURIED JOINTS TO BE RETAINED MECHANICAL JOINTS.
ALL BOLTS AND NUTS FURNISHED WITH RETAINED MECHANICAL JOINTS INCLUDING RETAINER OR WEDGE ACTION TYPE GLANDS SHALL BE COPPER-BEARING DUCTILE IRON, OR EQUIVALENT HIGH STRENGTH, LOW ALLOY CORROSION RESISTANT STEEL.
NOTE: PITCH VAULT TOWARD MANHOLE ACCESS.
ALL CONCRETE SHOULD BE CLASS "A".
CONTRACTOR TO FURNISH ALL MATERIAL, CLEVELAND DIVISION OF WATER TO ASSEMBLE THE REGULATOR SETTING FOR A FEE.
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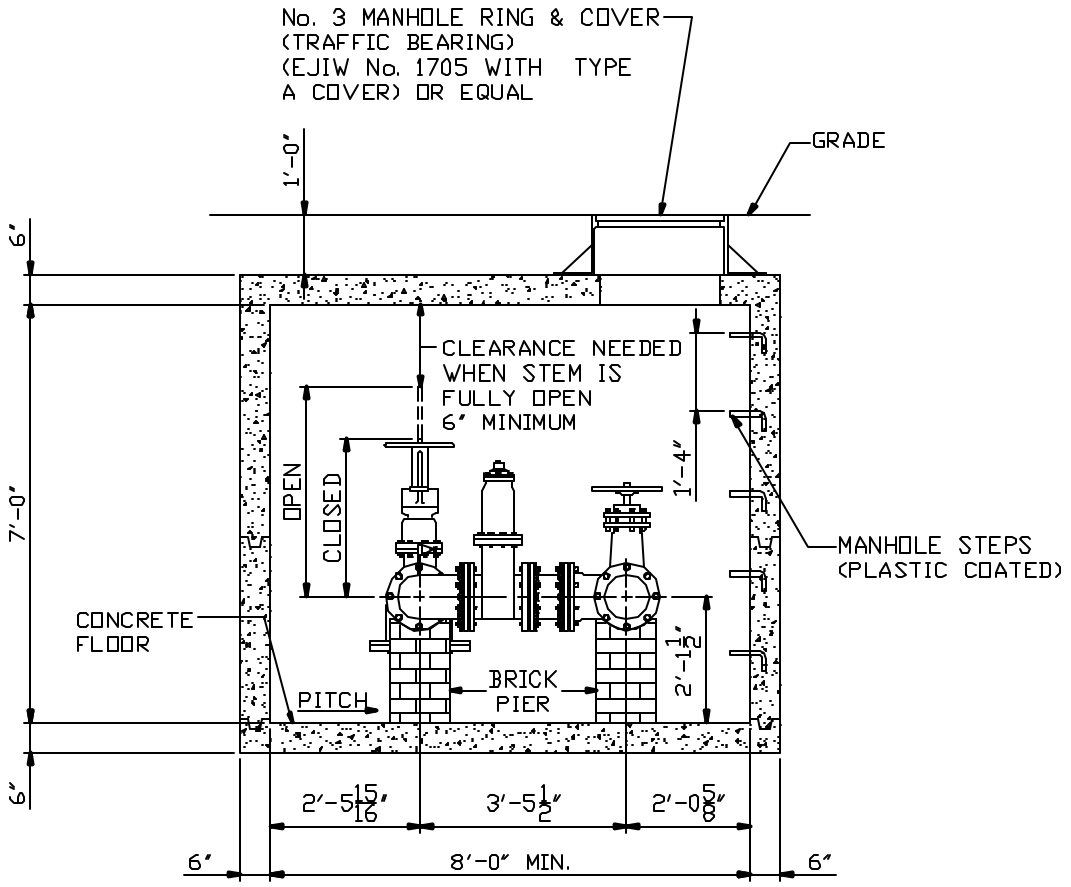
WEIGHT OF REGULATOR SETTING IS APPROXIMATELY 4550 LBS.

DATE: 10-1-97	BY: RSK



8" REGULATOR – SECTION A–A

NOTE: ALL BURIED JOINTS TO BE RETAINED MECHANICAL JOINTS.
ALL BOLTS AND NUTS FURNISHED WITH RETAINED MECHANICAL JOINTS INCLUDING RETAINER OR WEDGE ACTION TYPE GLANDS SHALL BE COPPER-BEARING DUCTILE IRON, OR EQUIVALENT HIGH STRENGTH, LOW ALLOY CORROSION RESISTANT STEEL.
NOTE: PITCH VAULT TOWARD MANHOLE ACCESS.
ALL CONCRETE SHOULD BE CLASS "A".
CONTRACTOR TO FURNISH ALL MATERIAL, CLEVELAND DIVISION OF WATER TO ASSEMBLE THE REGULATOR SETTING FOR A FEE.
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WEIGHT OF REGULATOR SETTING IS APPROXIMATELY 4550 LBS.

DATE: 10-1-97	BY: RSK

MATERIALS REQUIRED FOR INSTALLATION OF 8" REGULATOR

ITEM	REQ'D	SIZE	DESCRIPTION
1	1	8"	CLAYTON REGULATOR **OR** OCV REGULATOR **OR** EQUAL, FLANGED
2	1	8"	ROSS STRAINER, FLANGED
3	1	2"	CLAYTON REGULATOR **OR** OCV REGULATOR **OR** EQUAL, SCREWED **OR** FLANGED
4	1	2"	ROSS STRAINER, FLANGED
5	2	8"	O.S. & Y. GATE VALVE, FLANGED
6	1	8"	GATE VALVE, FLANGED **OR** RETAINED MECHANICAL JOINT WITH HAND WHEEL
7	2	2"	GATE VALVE, RETAINED MECHANICAL JOINT
8	2	2"	O.S. & Y. BRASS GATE VALVE, SCREWED
9	2	8" x 8" x 8"	TEE, RETAINED MECHANICAL JOINT
10	2	8"	90 DEGREE COMPACT ELBOW, RETAINED MECHANICAL JOINT x PLAIN END
11	2	8" x 8" x 4"	TEE, FLANGED
12	2	2"	90 DEGREE BRASS ELBOW, SCREWED
13	2	2"	UNIONS BRASS, SCREWED
14	2	2" x 9"	REDUCING FLANGE, SCREWED
15	2	1/4" x 4"	BRASS NIPPLE, SCREWED
16	2	1/4"	BALL VALVE BRASS, SCREWED
17	1	2" x 2" x 2"	BRASS TEE, SCREWED
18	1	2" x 6"	BRASS NIPPLE, SCREWED
19	1	2"	BRASS GATE VALVE, SCREWED
20	1	2"	BRASS PLUG, SCREWED
ITEM	REQ'D	SIZE	DESCRIPTION

21	2	2"	COMPANION FLANGE

NOTE: (4) 2" COMPANION FLANGES REQ'D IF FLANGED 2" REGULATOR IS USED

NOTE: PIPE LENGTHS ARE APPROXIMATE. CUT TO SUIT

22	14-1/2" LONG	8"	CLASS 52 DUCTILE IRON PIPE PLAIN END x PLAIN END
23	14-1/2" LONG	8"	CLASS 52 DUCTILE IRON PIPE PLAIN END x PLAIN END
24	9" LONG	8"	CLASS 52 DUCTILE IRON PIPE FLANGED SPACER
25	103-3/4" LONG	8"	CLASS 52 DUCTILE IRON PIPE FLANGED x PLAIN END
26	103-3/4" LONG	8"	CLASS 52 DUCTILE IRON PIPE FLANGED x PLAIN END
27	153-1/4" LONG **OR** 1 PIPE LENGTH	8"	CLASS 52 DUCTILE IRON PIPE FLANGED x PLAIN END **OR** PLAIN END x PLAIN END TO MATCH ITEM 6
28	153-1/4" LONG **OR** 1 PIPE LENGTH	8"	CLASS 52 DUCTILE IRON PIPE FLANGED x PLAIN END **OR** PLAIN END x PLAIN END TO MATCH ITEM 6
29	(4) 2-5/16" LONG	2"	BRASS CLOSE NIPPLE
30	6" LONG	2"	BRASS PIPE
31	32-7/8" LONG	2"	BRASS PIPE
32	12" LONG	2"	BRASS PIPE
33	6" LONG	2"	BRASS PIPE
34	6" LONG	2"	BRASS PIPE
35	12" LONG	2"	BRASS PIPE
36	80	3/4" x 3-3/4"	MACHINE BOLTS, STAINLESS STEEL PER ASTM A276/A193, TYPE 304
37	80	3/4"	HEX NUTS, STAINLESS STEEL PER ASTM A276/A193, TYPE 304

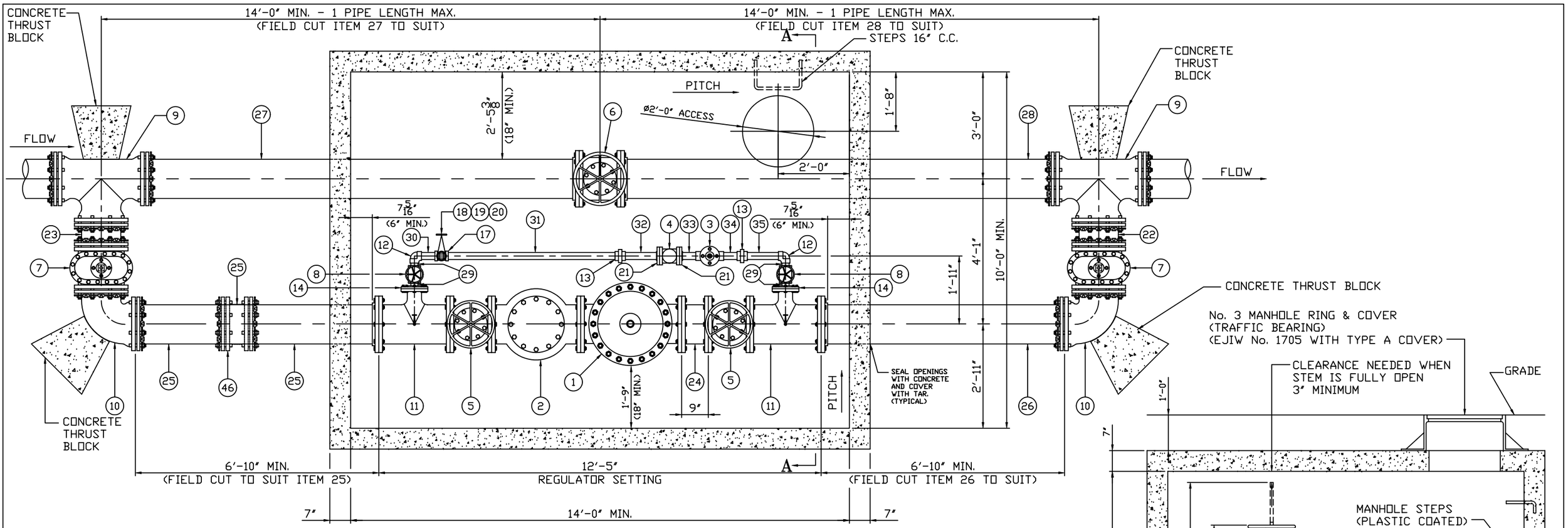
ITEM	REQ'D	SIZE	DESCRIPTION
38	10	8"	RING GASKETS
39	16	5/8" x 3-1/4"	MACHINE BOLTS, STAINLESS STEEL PER ASTM A276/A193, TYPE 304
40	2	4"	RING GASKETS
41	8	5/8" x 2-3/4"	MACHINE BOLTS, STAINLESS STEEL PER ASTM A276/A193, TYPE 304
42	2	2"	RING GASKETS
	NOTE: (4) 2" RING GASKETS REQ'D IF FLANGED 2" REGULATOR IS USED		
43	24	5/8"	HEX NUTS, STAINLESS STEEL PER ASTM A276/A193, TYPE 304
44	12	8"	RETAINED MECHANICAL JOINTS WITH ACCESSORIES
	14	8"	RETAINED MECHANICAL JOINTS WITH ACCESSORIES IF OPTIONAL SOLID SLEEVE USED
45	2	#2	VALVEBOXES SET TO GRADE FOR ITEM #7 (NOT SHOWN ON DRAWING FOR CLARITY)
46	1	8"	**OPTIONAL** RETAINED MECHAICAL JOINT SOLID SLEEVE (SHORT PATTERN)

Regulator Specifications

The regulator valve shall be a pressure reducing/pressure sustaining surge control valve of the globe type manufactured by Cla-Val Company (Series 94, CWD Reg.) or OVC Control Valves (Model No: 127-25). The strainers shall be of the type manufactured by Ross Valve (Model No: 10B/10C).
The pressure reducing valve body and strainer body shall be either cast iron or ductile iron having a working pressure of minimum 250 psi.
All components of the pressure reducing valve assembly shall also have a minimum 250 psi working pressure rating.
The flanges of the pressure reducing valve, strainer, valves and connecting pieces shall have a working pressure of 250 psi with dimensions and drilling of all end flanges conforming to the American 125 lb. Cast Iron Flange Standard. Flanges shall be plain face with a smooth finish.

(SEE DRAWING No. 8REG)

6-11-1998



PLAN

NOTE: ALL BURIED JOINTS TO BE RETAINED MECHANICAL JOINTS. ALL BOLTS AND NUTS FURNISHED WITH RETAINED MECHANICAL JOINTS INCLUDING RETAINER OR WEDGE ACTION TYPE GLANDS SHALL BE COPPER-BEARING DUCTILE IRON, OR EQUIVALENT HIGH STRENGTH, LOW ALLOY CORROSION RESISTANT STEEL.

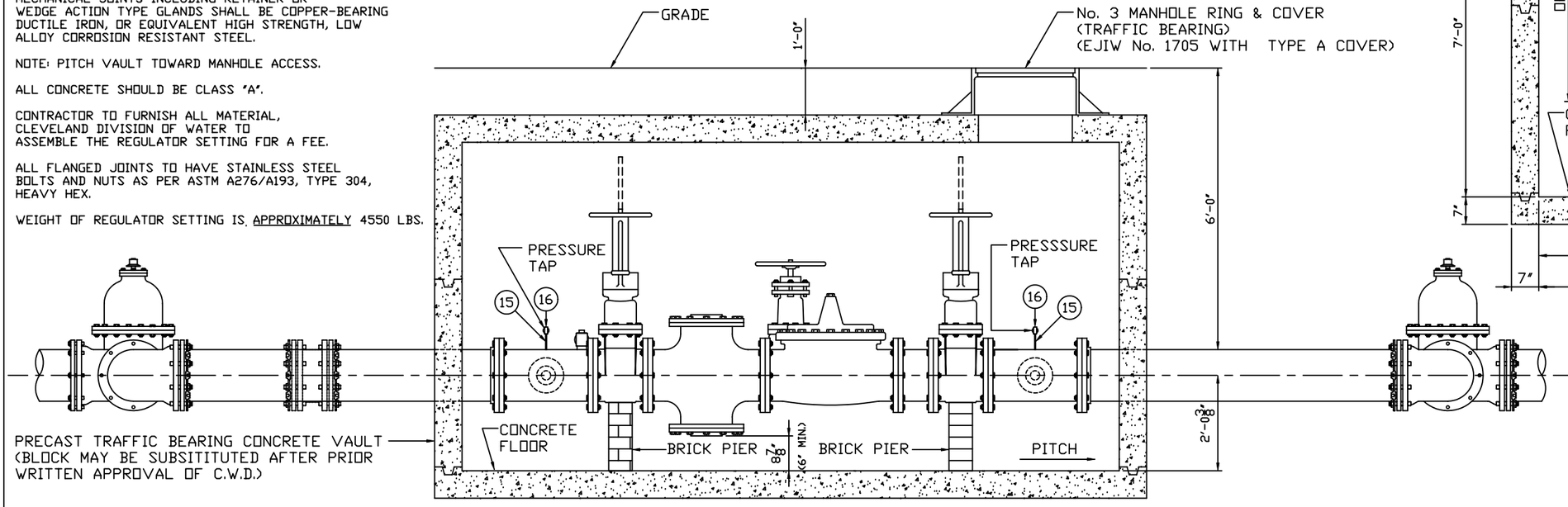
NOTE: PITCH VAULT TOWARD MANHOLE ACCESS.

ALL CONCRETE SHOULD BE CLASS "A".

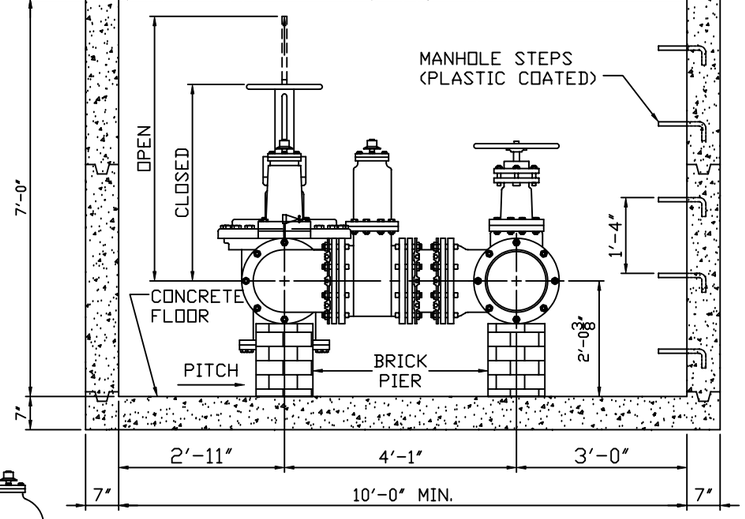
CONTRACTOR TO FURNISH ALL MATERIAL, CLEVELAND DIVISION OF WATER TO ASSEMBLE THE REGULATOR SETTING FOR A FEE.

ALL FLANGED JOINTS TO HAVE STAINLESS STEEL BOLTS AND NUTS AS PER ASTM A276/A193, TYPE 304, HEAVY HEX.

WEIGHT OF REGULATOR SETTING IS APPROXIMATELY 4550 LBS.



ELEVATION



SECTION A–A

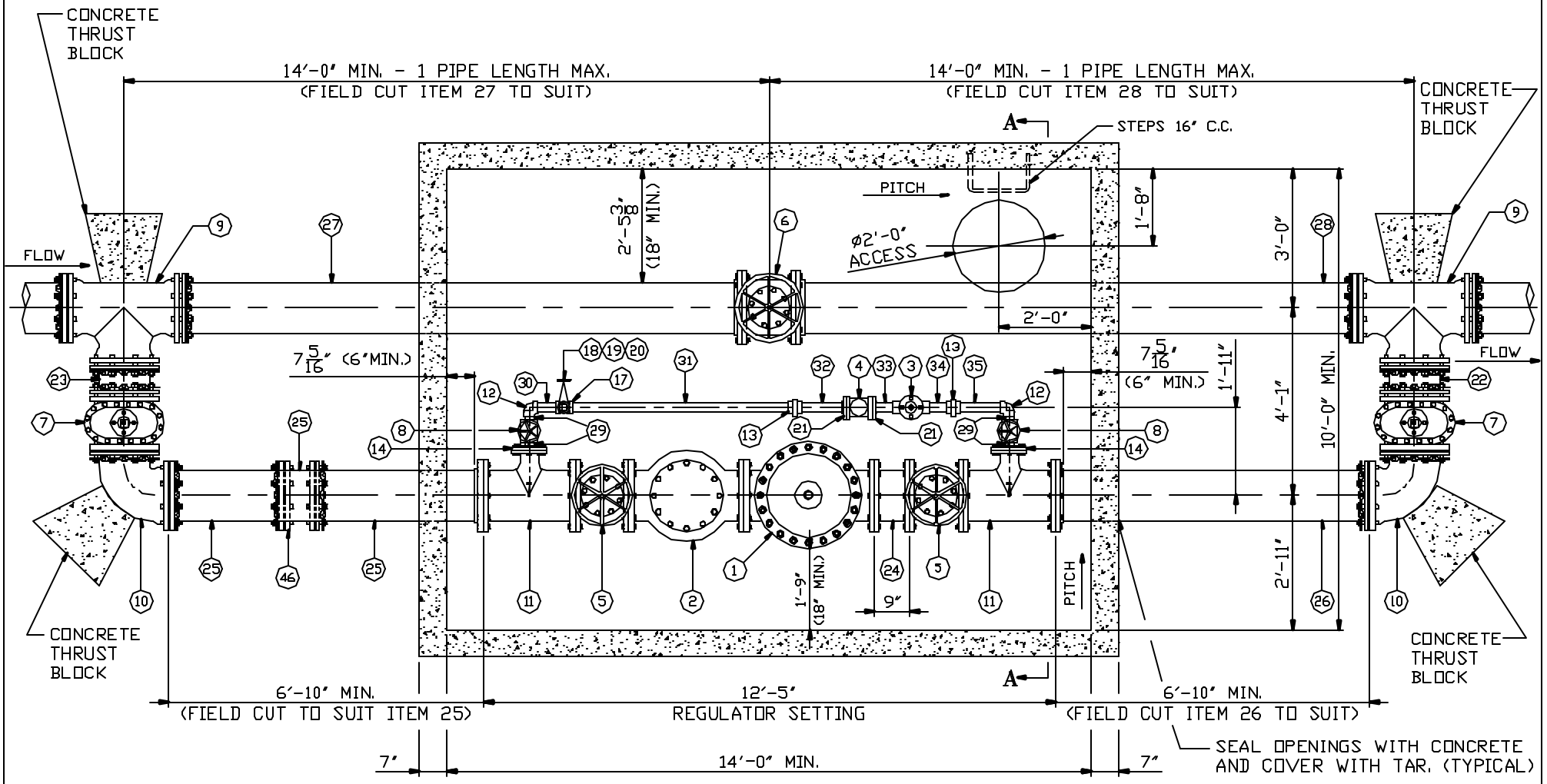
REVISIONS		
No.	DATE	BY

STANDARD DETAILS

DEPARTMENT OF PUBLIC UTILITIES
DIVISION OF WATER
CLEVELAND, OHIO

SUBJECT
12″ REGULATOR IN VAULT

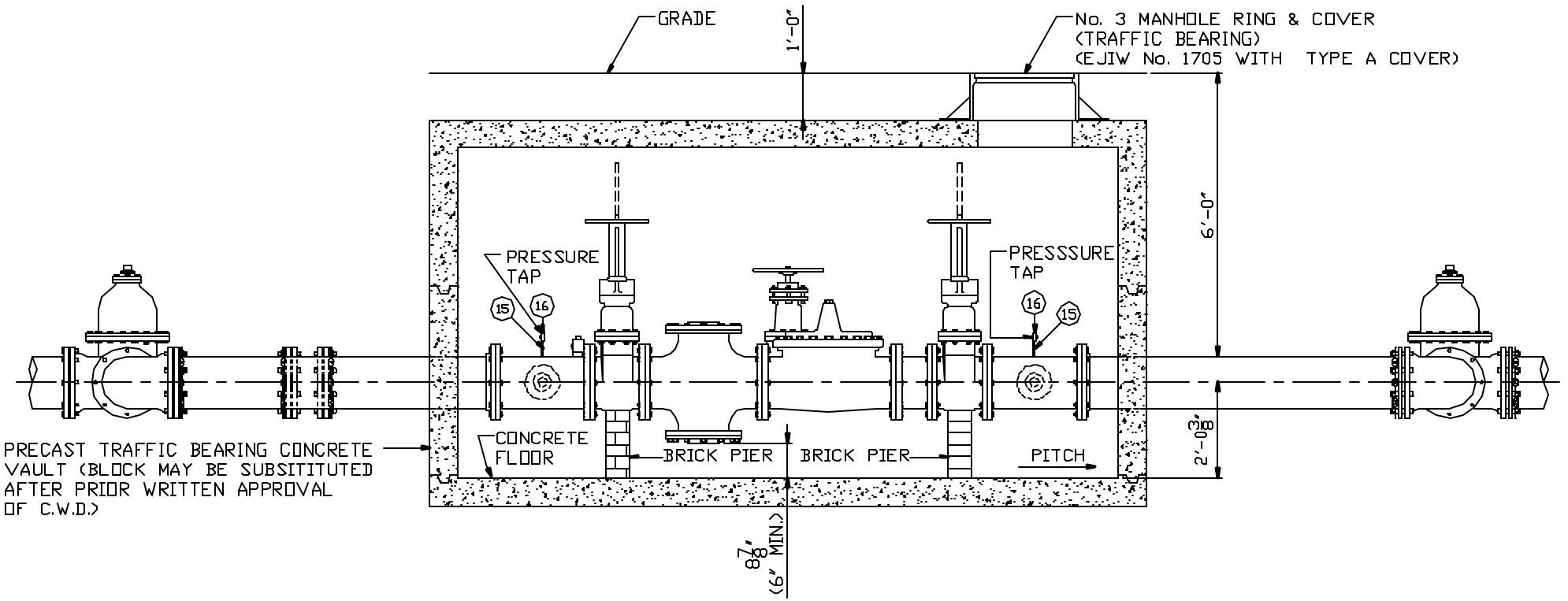
DRAWN BY RSK
DATE 10-1-1997
-SCALE- 1/4″ = 1′-0″
CHECKED BY MJS DATE 10-1-1997
No. REG12



12" REGULATOR - PLAN -

NOTE: ALL BURIED JOINTS TO BE RETAINED MECHANICAL JOINTS.
ALL BOLTS AND NUTS FURNISHED WITH RETAINED MECHANICAL JOINTS INCLUDING RETAINER OR WEDGE ACTION TYPE GLANDS SHALL BE COPPER-BEARING DUCTILE IRON, OR EQUIVALENT HIGH STRENGTH, LOW ALLOY CORROSION RESISTANT STEEL.
NOTE: PITCH VAULT TOWARD MANHOLE ACCESS.
ALL CONCRETE SHOULD BE CLASS "A".
CONTRACTOR TO FURNISH ALL MATERIAL, CLEVELAND DIVISION OF WATER TO ASSEMBLE THE REGULATOR SETTING FOR A FEE.
ALL FLANGED JOINTS TO HAVE STAINLESS STEEL BOLTS AND NUTS AS PER ASTM A276/A193/194, TYPE 304, EXTRA HEAVY HEX.
WEIGHT OF REGULATOR SETTING IS APPROXIMATELY 4550 LBS.

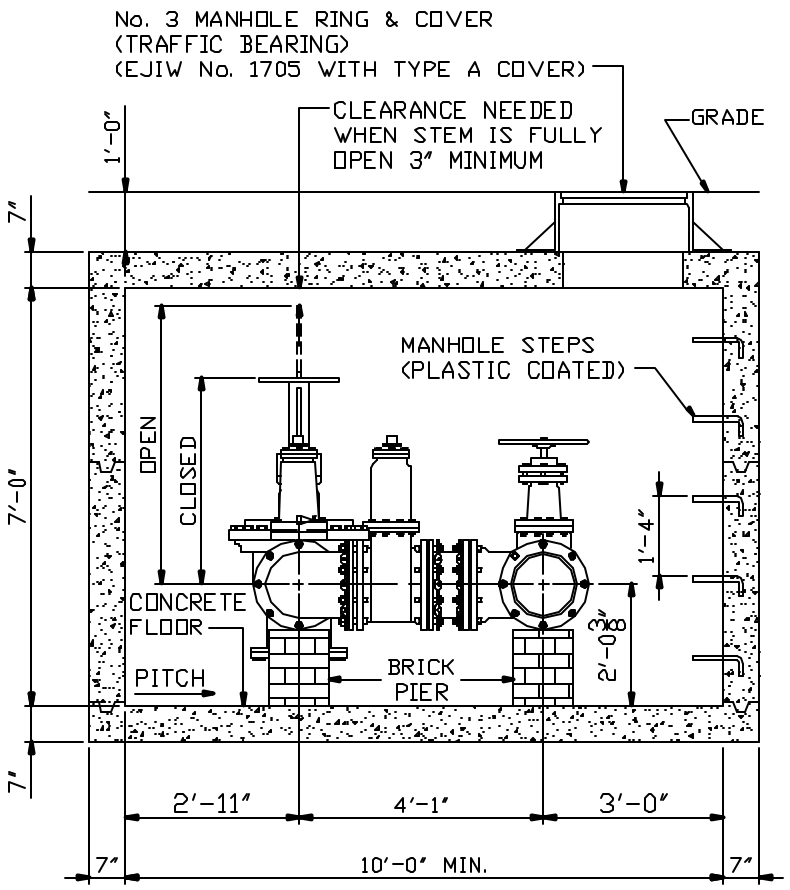
DATE: 10-1-97	BY: RSK



12" REGUALTOR – ELEVATION –

NOTE: ALL BURIED JOINTS TO BE RETAINED MECHANICAL JOINTS.
ALL BOLTS AND NUTS FURNISHED WITH RETAINED MECHANICAL JOINTS INCLUDING RETAINER OR WEDGE ACTION TYPE GLANDS SHALL BE COPPER-BEARING DUCTILE IRON, OR EQUIVALENT HIGH STRENGTH, LOW ALLOY CORROSION RESISTANT STEEL.
NOTE: PITCH VAULT TOWARD MANHOLE ACCESS.
ALL CONCRETE SHOULD BE CLASS "A".
CONTRACTOR TO FURNISH ALL MATERIAL, CLEVELAND DIVISION OF WATER TO ASSEMBLE THE REGULATOR SETTING FOR A FEE.
ALL FLANGED JOINTS TO HAVE STAINLESS STEEL BOLTS AND NUTS AS PER ASTM A276/A193/194, TYPE 304, EXTRA HEAVY HEX.
WEIGHT OF REGULATOR SETTING IS APPROXIMATELY 4550 LBS.

DATE: 10-1-97	BY: RSK



12" REGULATOR SECTION A-A

NOTE: ALL BURIED JOINTS TO BE RETAINED MECHANICAL JOINTS.
ALL BOLTS AND NUTS FURNISHED WITH RETAINED MECHANICAL JOINTS INCLUDING RETAINER OR WEDGE ACTION TYPE GLANDS SHALL BE COPPER-BEARING DUCTILE IRON, OR EQUIVALENT HIGH STRENGTH, LOW ALLOY CORROSION RESISTANT STEEL.
NOTE: PITCH VAULT TOWARD MANHOLE ACCESS.
ALL CONCRETE SHOULD BE CLASS "A".
CONTRACTOR TO FURNISH ALL MATERIAL, CLEVELAND DIVISION OF WATER TO ASSEMBLE THE REGULATOR SETTING FOR A FEE.
ALL FLANGED JOINTS TO HAVE STAINLESS STEEL BOLTS AND NUTS AS PER ASTM A276/A193/194, TYPE 304, EXTRA HEAVY HEX.
WEIGHT OF REGULATOR SETTING IS APPROXIMATELY 4550 LBS.

DATE: 10-1-97	BY: RSK

MATERIALS REQUIRED FOR INSTALLATION OF 12" REGULATOR

ITEM	REQ'D	SIZE	DESCRIPTION
1	1	12"	CLAYTON REGULATOR **OR** OCV REGULATOR **OR** EQUAL, FLANGED
2	1	12"	ROSS STRAINER, FLANGED
3	1	2"	CLAYTON REGULATOR **OR** OCV REGULATOR **OR** EQUAL, SCREWED **OR** FLANGED
4	1	2"	ROSS STRAINER, FLANGED
5	2	12"	O.S. & Y. GATE VALVE, FLANGED
6	1	12"	GATE VALVE, FLANGED **OR** RETAINED MECHANICAL JOINT WITH HAND WHEEL
7	2	2"	GATE VALVE, RETAINED MECHANICAL JOINT
8	2	2"	O.S. & Y. BRASS GATE VALVE, SCREWED
9	2	12" x 12" x 12"	TEE, RETAINED MECHANICAL JOINT
10	2	12"	90 DEGREE COMPACT ELBOW, RETAINED MECHANICAL JOINT x PLAIN END
11	2	12" x 12" x 4"	TEE, FLANGED
12	2	2"	90 DEGREE BRASS ELBOW, SCREWED
13	2	2"	UNIONS BRASS, SCREWED
14	2	2" x 9"	REDUCING FLANGE, SCREWED
15	2	1/4" x 4"	BRASS NIPPLE, SCREWED
16	2	1/4"	BALL VALVE BRASS, SCREWED
17	1	2" x 2" x 2"	BRASS TEE, SCREWED
18	1	2" x 6"	BRASS NIPPLE, SCREWED
19	1	2"	BRASS GATE VALVE, SCREWED
20	1	2"	BRASS PLUG, SCREWED

ITEM	REQ'D	SIZE	DESCRIPTION
21	2	2"	COMPANION FLANGE

NOTE: (4) 2" COMPANION FLANGES REQ'D IF FLANGED 2" REGULATOR IS USED

NOTE: PIPE LENGTHS ARE APPROXIMATE. CUT TO SUIT

22	13-1/2" LONG	12"	CLASS 52 DUCTILE IRON PIPE PLAIN END x PLAIN END
23	13-1/2" LONG	12"	CLASS 52 DUCTILE IRON PIPE PLAIN END x PLAIN END
24	9" LONG	12"	CLASS 52 DUCTILE IRON PIPE FLANGED SPACER
25	84-1/2" LONG	12"	CLASS 52 DUCTILE IRON PIPE FLANGED x PLAIN END
26	84-1/2" LONG	12"	CLASS 52 DUCTILE IRON PIPE FLANGED x PLAIN END
27	149" LONG **OR** 1 PIPE LENGTH	12"	CLASS 52 DUCTILE IRON PIPE FLANGED x PLAIN END **OR** PLAIN END x PLAIN END TO MATCH ITEM 6
28	149" LONG **OR** 1 PIPE LENGTH	12"	CLASS 52 DUCTILE IRON PIPE FLANGED x PLAIN END **OR** PLAIN END x PLAIN END TO MATCH ITEM 6
29	(4) 2-5/16" LONG	2"	BRASS CLOSE NIPPLE
30	6" LONG	2"	BRASS PIPE
31	54-3/4" LONG	2"	BRASS PIPE
32	12" LONG	2"	BRASS PIPE
33	6" LONG	2"	BRASS PIPE
34	6" LONG	2"	BRASS PIPE
35	12" LONG	2"	BRASS PIPE
36	120	7/8" x 3-3/4"	MACHINE BOLTS, STAINLESS STEEL PER ASTM A276/A193, TYPE 304
37	120	7/8"	HEX NUTS, STAINLESS STEEL PER ASTM A276/A193, TYPE 304

ITEM	REQ'D	SIZE	DESCRIPTION
38	10	12"	RING GASKETS
39	16	5/8" x 3-1/4"	MACHINE BOLTS, STAINLESS STEEL PER ASTM A276/A193, TYPE 304
40	2	4"	RING GASKETS
41	8	5/8" x 2-3/4"	MACHINE BOLTS, STAINLESS STEEL PER ASTM A276/A193, TYPE 304
42	2	2"	RING GASKETS
	NOTE: (4) 2" RING GASKETS REQ'D IF FLANGED 2" REGULATOR IS USED		
43	24	5/8"	HEX NUTS, STAINLESS STEEL PER ASTM A276/A193, TYPE 304
44	12	12"	RETAINED MECHANICAL JOINTS WITH ACCESSORIES
	14	12"	RETAINED MECHANICAL JOINTS WITH ACCESSORIES IF OPTIONAL SOLID SLEEVE USED
45	2	#2	VALVEBOXES SET TO GRADE FOR ITEM #7 (NOT SHOWN ON DRAWING FOR CLARITY)
46	1	12"	**OPTIONAL** RETAINED MECHANICAL JOINT SOLID SLEEVE (SHORT PATTERN)

Regulator Specifications

The regulator valve shall be a pressure reducing/pressure sustaining surge control valve of the globe type manufactured by Cla-Val Company (Series 94, CWD Reg.) or OVC Control Valves (Model No: 127-25).
The strainers shall be of the type manufactured by Ross Valve (Model No: 10B/10C).
The pressure reducing valve body and strainer body shall be either cast iron or ductile iron having a working pressure of minimum 250 psi.
All components of the pressure reducing valve assembly shall also have a minimum 250 psi working pressure rating.
The flanges of the pressure reducing valve, strainer, valves and connecting pieces shall have a working pressure of 250 psi with dimensions and drilling of all end flanges conforming to the American 125 lb. Cast Iron Flange Standard. Flanges shall be plain face with a smooth finish.

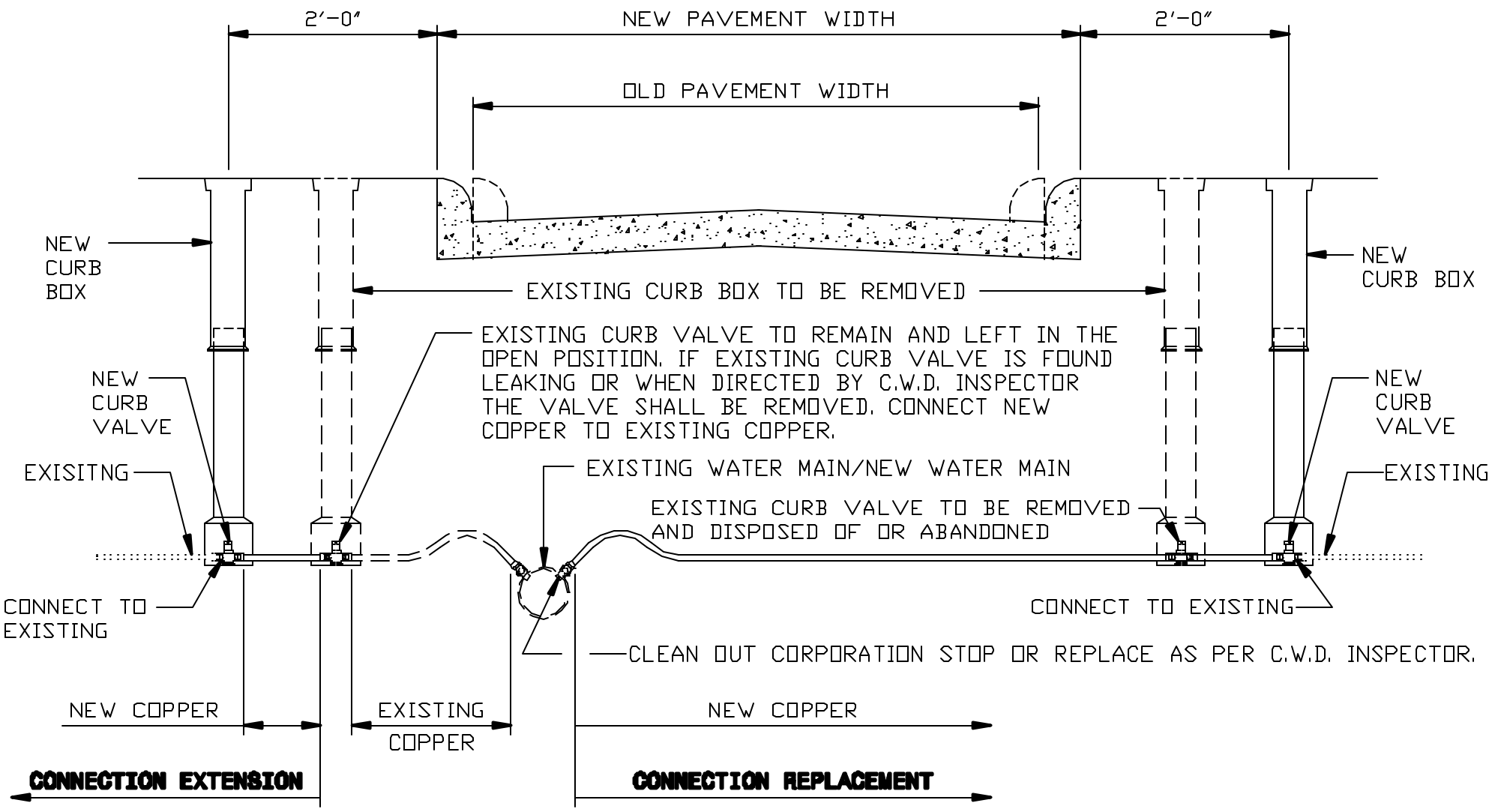
(SEE DRAWING No. 12REG)

8-4-2008

CLEVELAND DIVISION OF WATER CONSTRUCTION STANDARDS

SEE ALSO SERVICE CONNECTION REQUIREMENTS FOR MORE INFORMATION

Service Connection Details

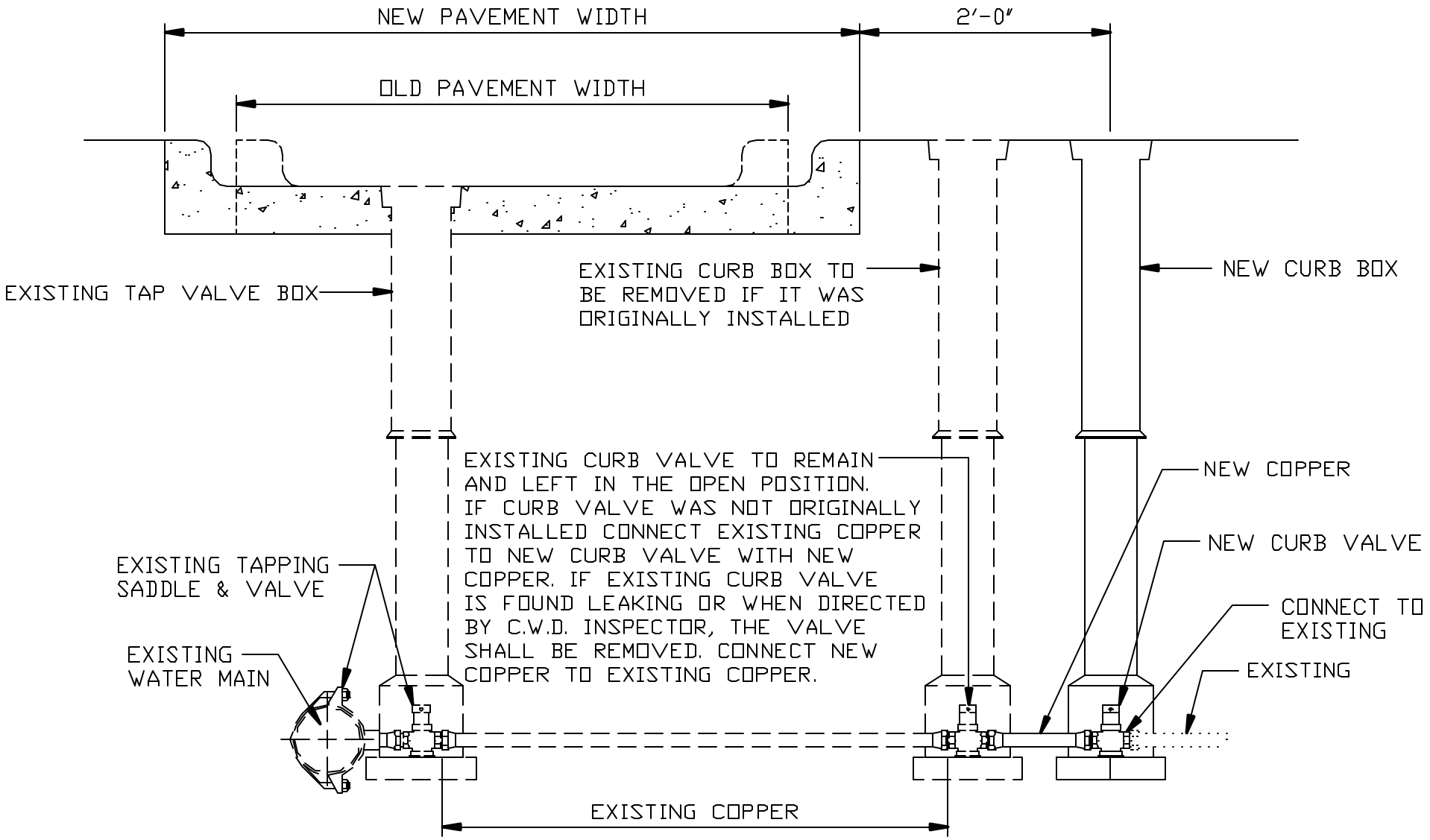


NOTE: IF EXISTING SERVICE CONNECTION IS FOUND TO BE GALVANIZED OR LEAD REPLACE FROM CORPORATION STOP TO CURB VALVE.

WATER SERVICE CONNECTION EXTENSION OR REPLACEMENT FOR 1" & SMALLER

- NOT TO SCALE -

STD-C01	DATE: 5-11-98	BY: RSK



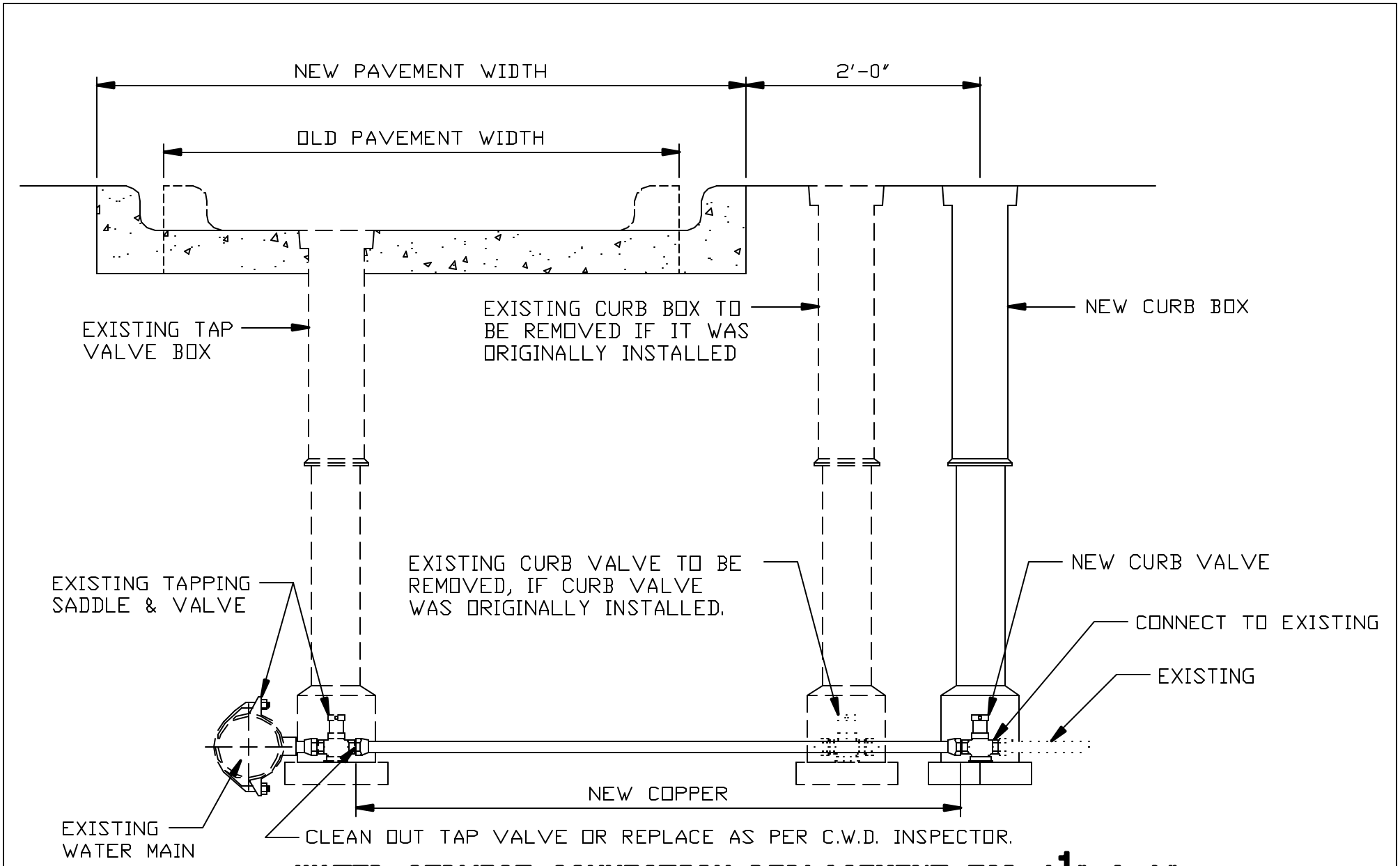
NOTE: IF EXISTING SERVICE CONNECTION IS FOUND TO BE GALVANIZED OR LEAD REPLACE FROM TAP VALVE TO CURB VALVE.

WATER SERVICE CONNECTION EXTENSION FOR $1\frac{1}{2}$" & 2"

- NOT TO SCALE -

STD-C02

DATE: 10-1-97 | BY: RSK

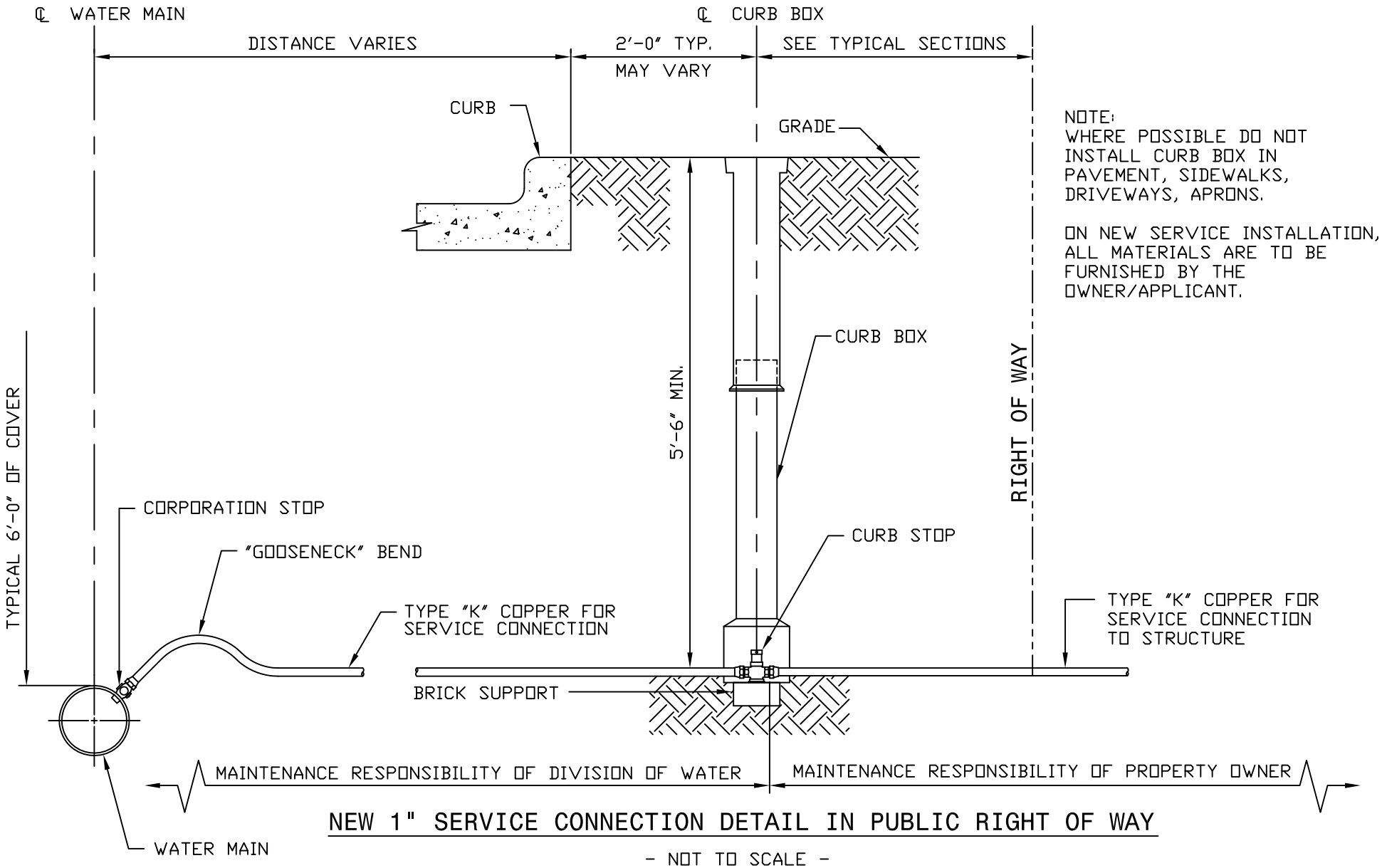


WATER SERVICE CONNECTION REPLACEMENT FOR $1\frac{1}{2}$" & 2"

– NOT TO SCALE –

STD-C03

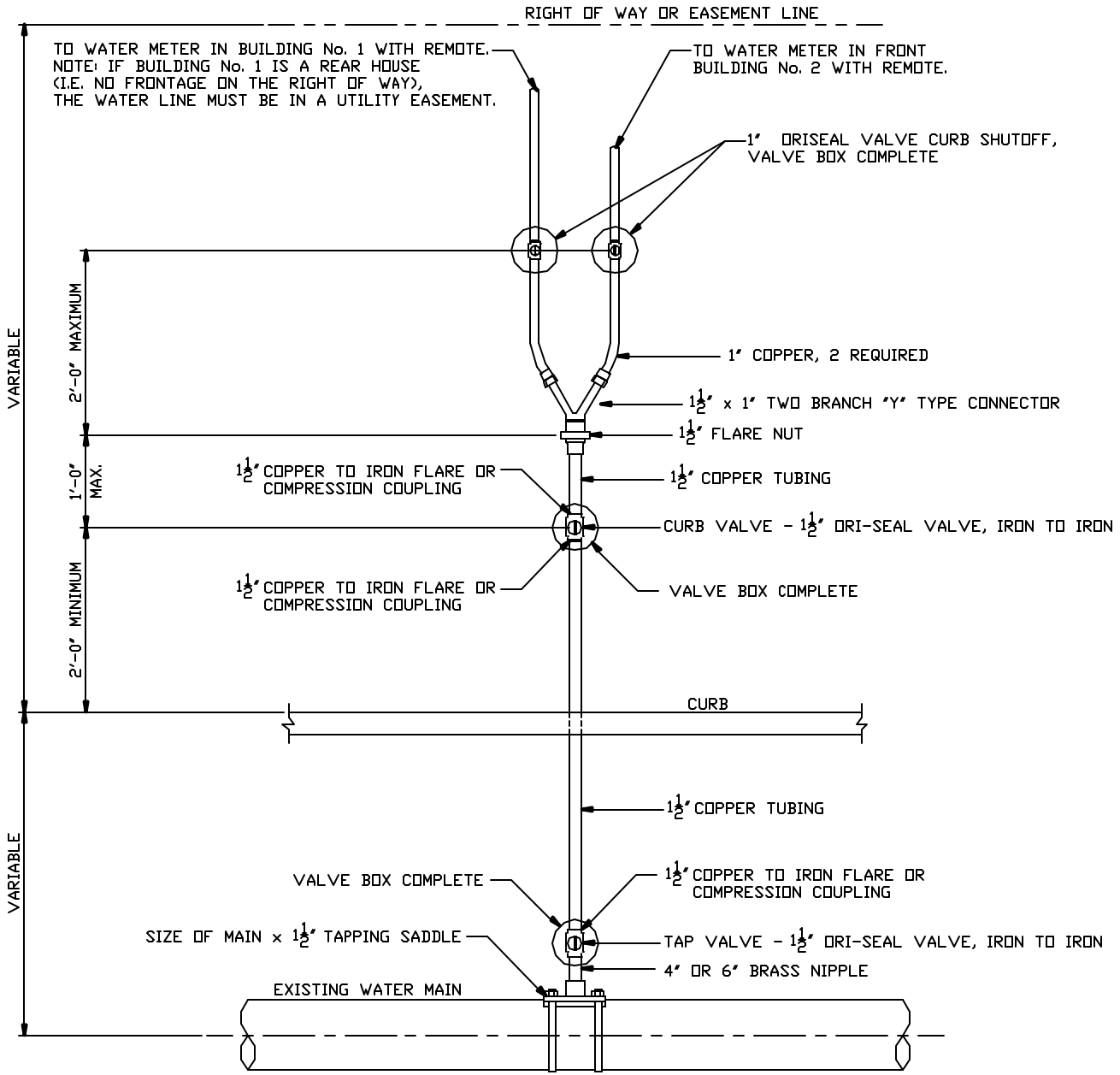
DATE: 10-1-97 | BY: RSK



NEW 1" SERVICE CONNECTION DETAIL IN PUBLIC RIGHT OF WAY

- NOT TO SCALE -

STD-C04	DATE: 8-1-2011	BY: RSK



MATERIAL LIST

(1) - 1½" x 1" TWO BRANCH "Y" TYPE CONNECTOR

(2) - 1" ORISEAL VALVE CURB SHUTOFF

(1) - 1½" ORI-SEAL CURB VALVE, IRON TO IRON

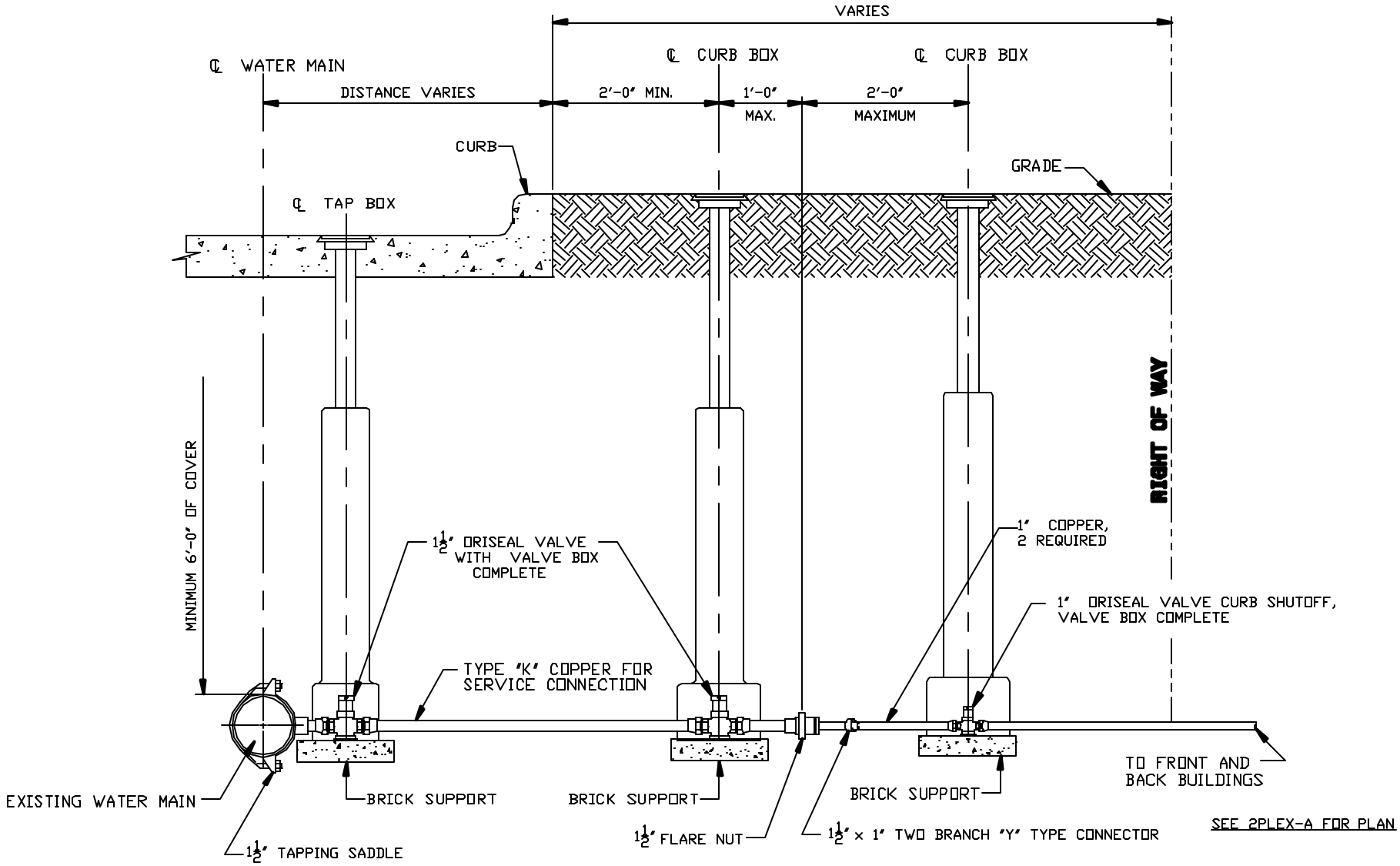
(3) - VALVE BOX COMPLETE

SEE 2PLEX-B FOR PROFILE

TWO-PLEX SETTING FOR REMOTE REGISTER METER AT BUILDING

STD-C05

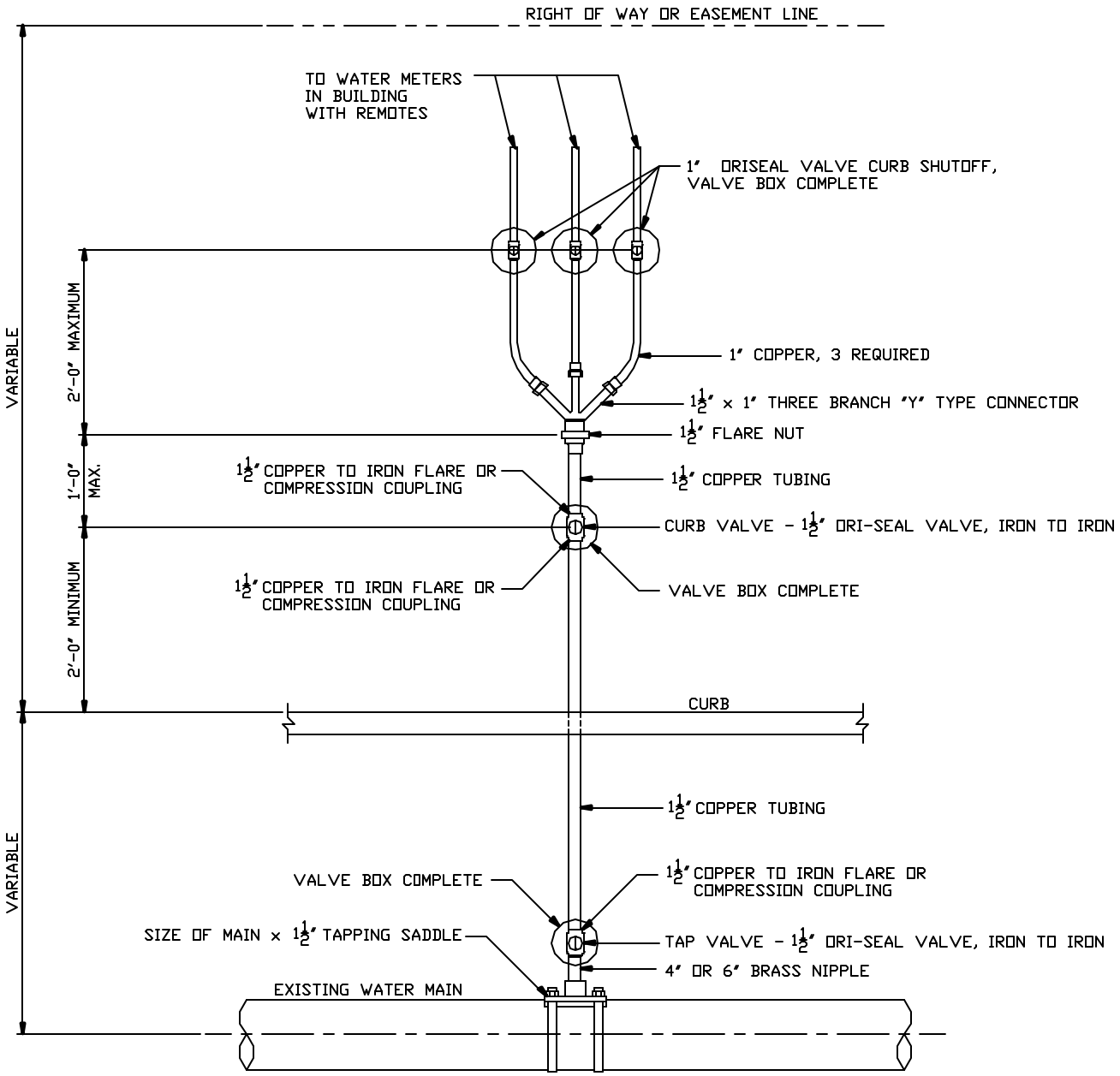
DATE: 10-1-97 | BY: RSK



TWO-PLEX SETTING FOR REMOTE REGISTER METER AT BUILDING

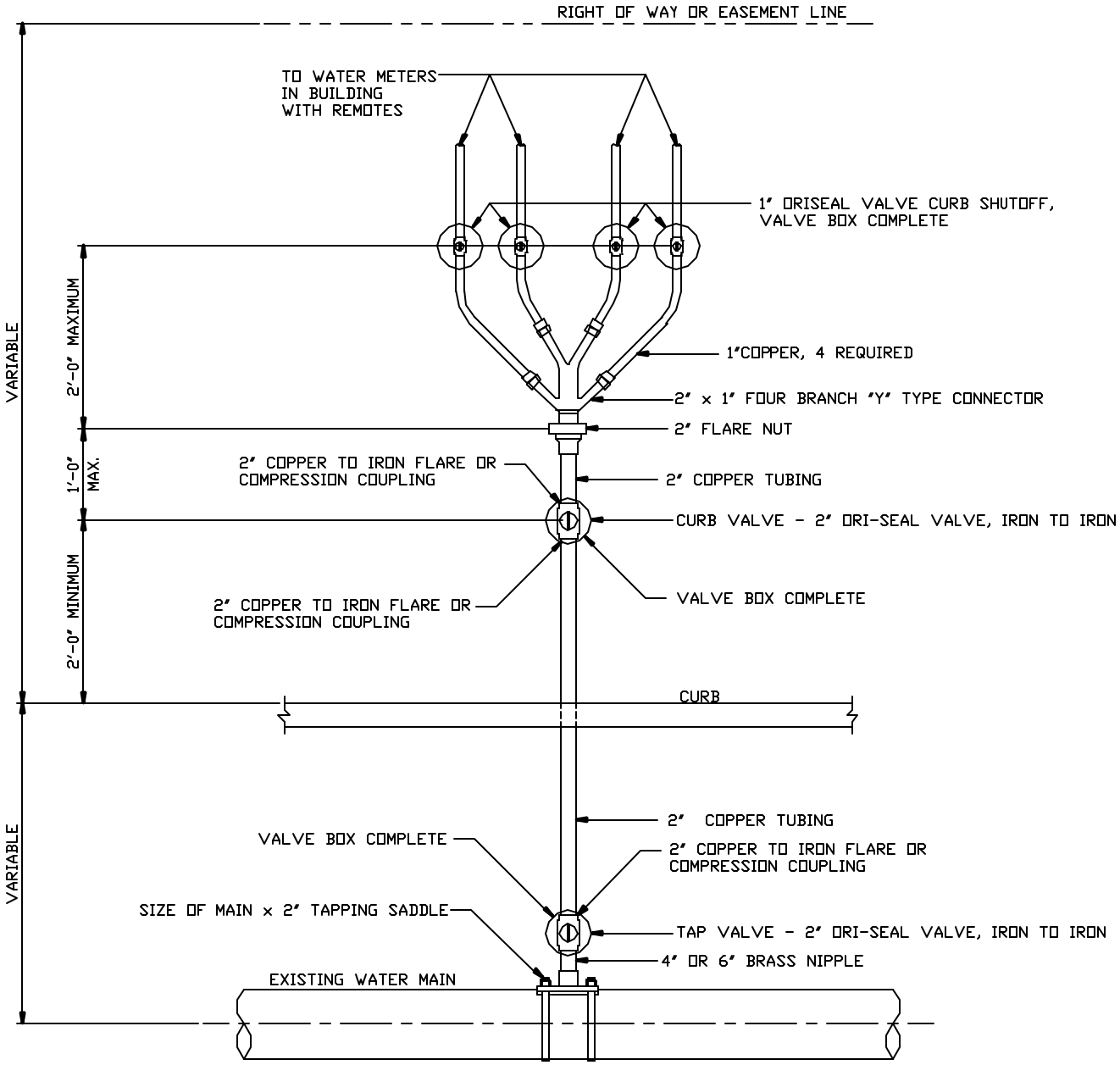
- NOT TO SCALE -

STD-C06	DATE: 10-1-97	BY: RSK



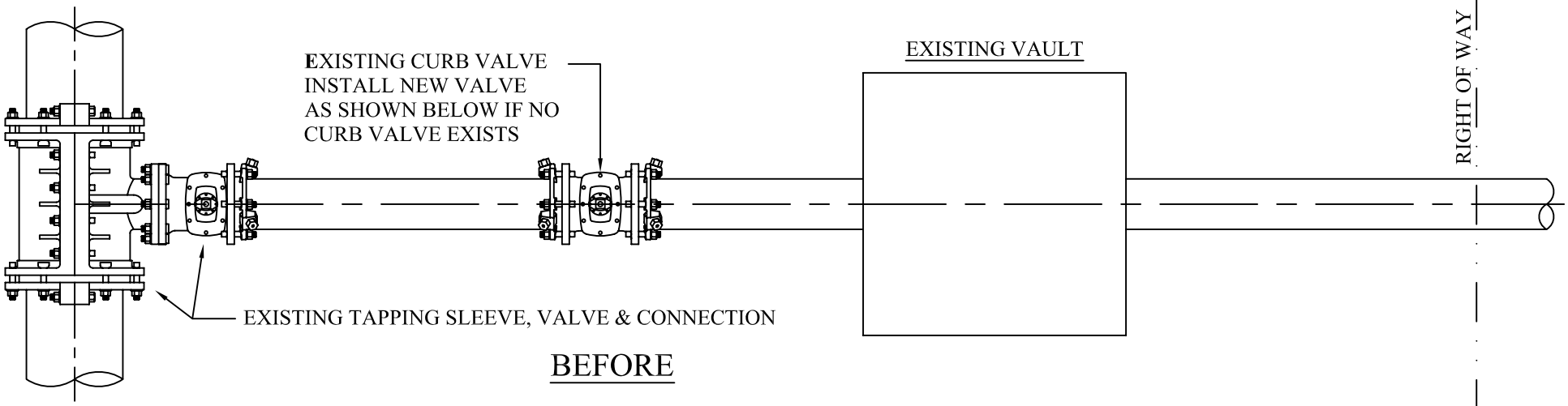
THREE-PLEX SETTING FOR REMOTE REGISTER METER AT BUILDING

STD-C07	DATE: 10-1-97	BY: RSK

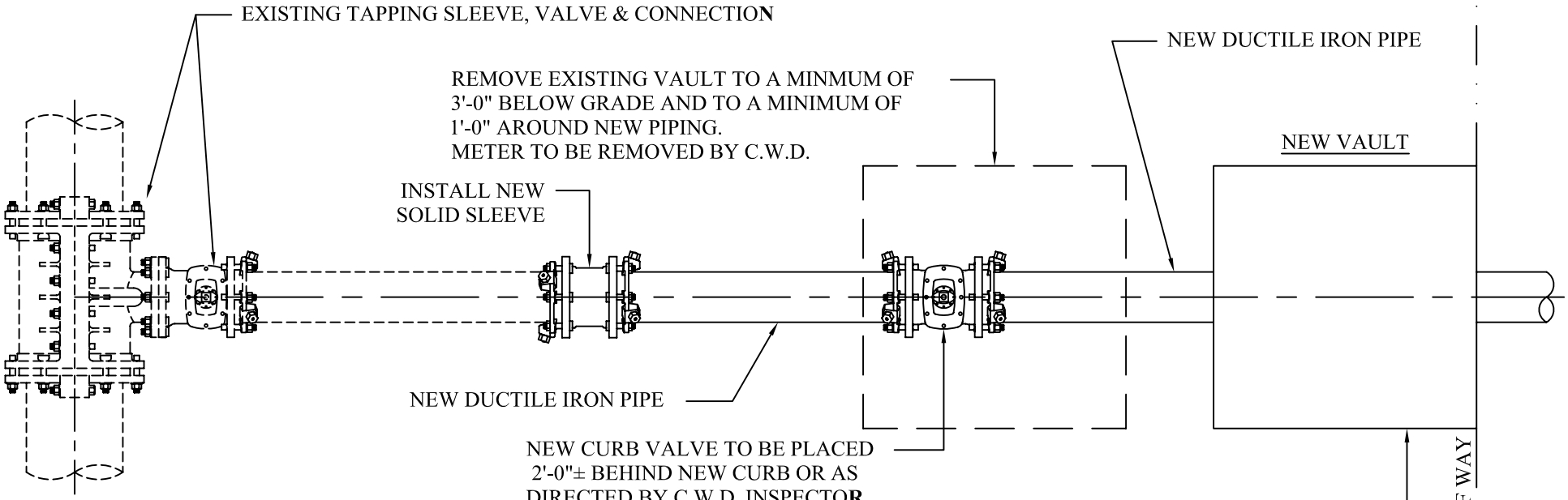


FOUR-PLEX SETTING FOR REMOTE REGISTER METER AT BUILDING

STD-C08	DATE: 10-1-97	BY: RSK



BEFORE



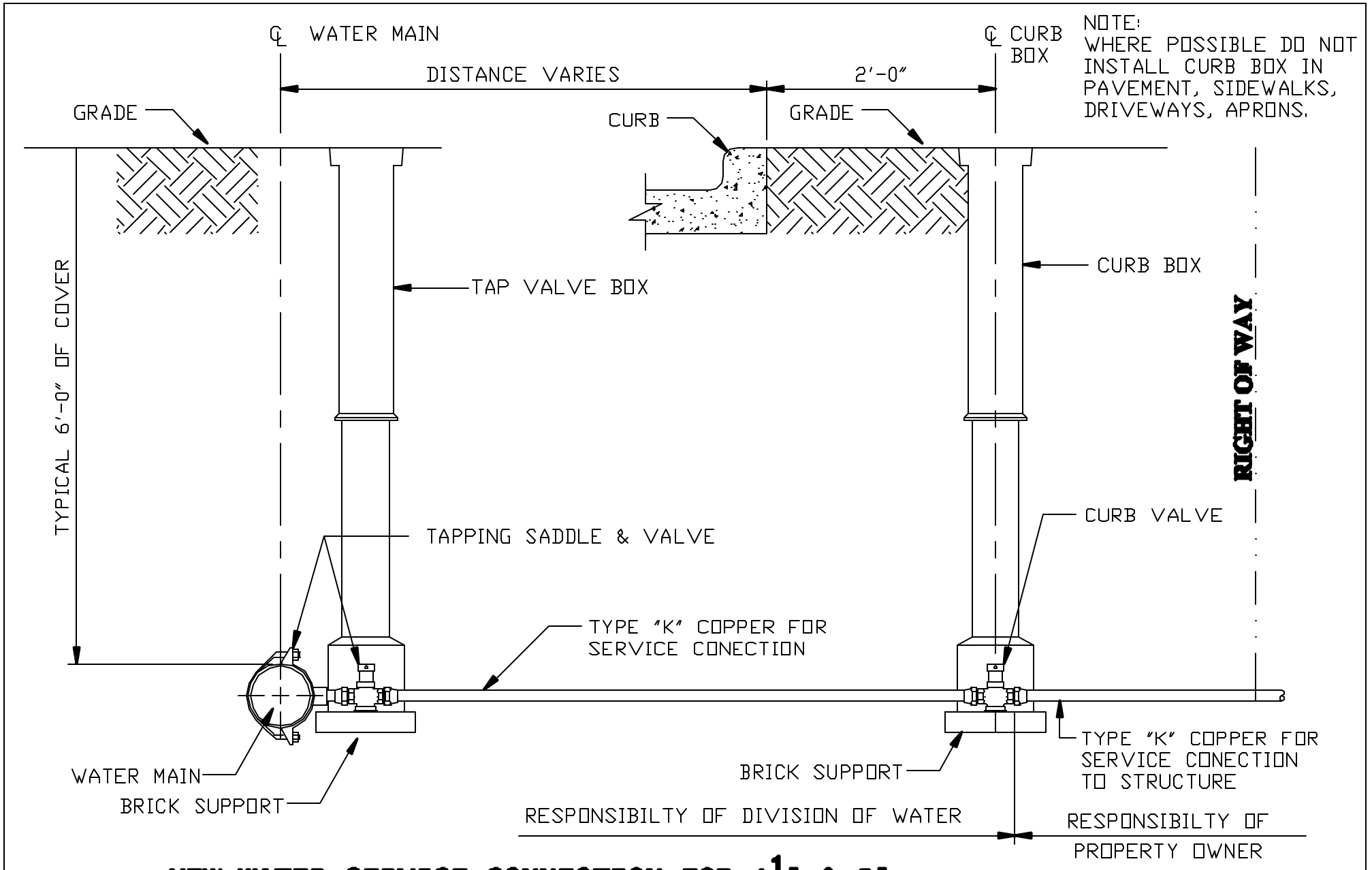
AFTER

EXTEND 3" & LARGER CONNECTION

- NOT TO SCALE -

STD-C09

DATE: 9-16-1998 | BY: RSK

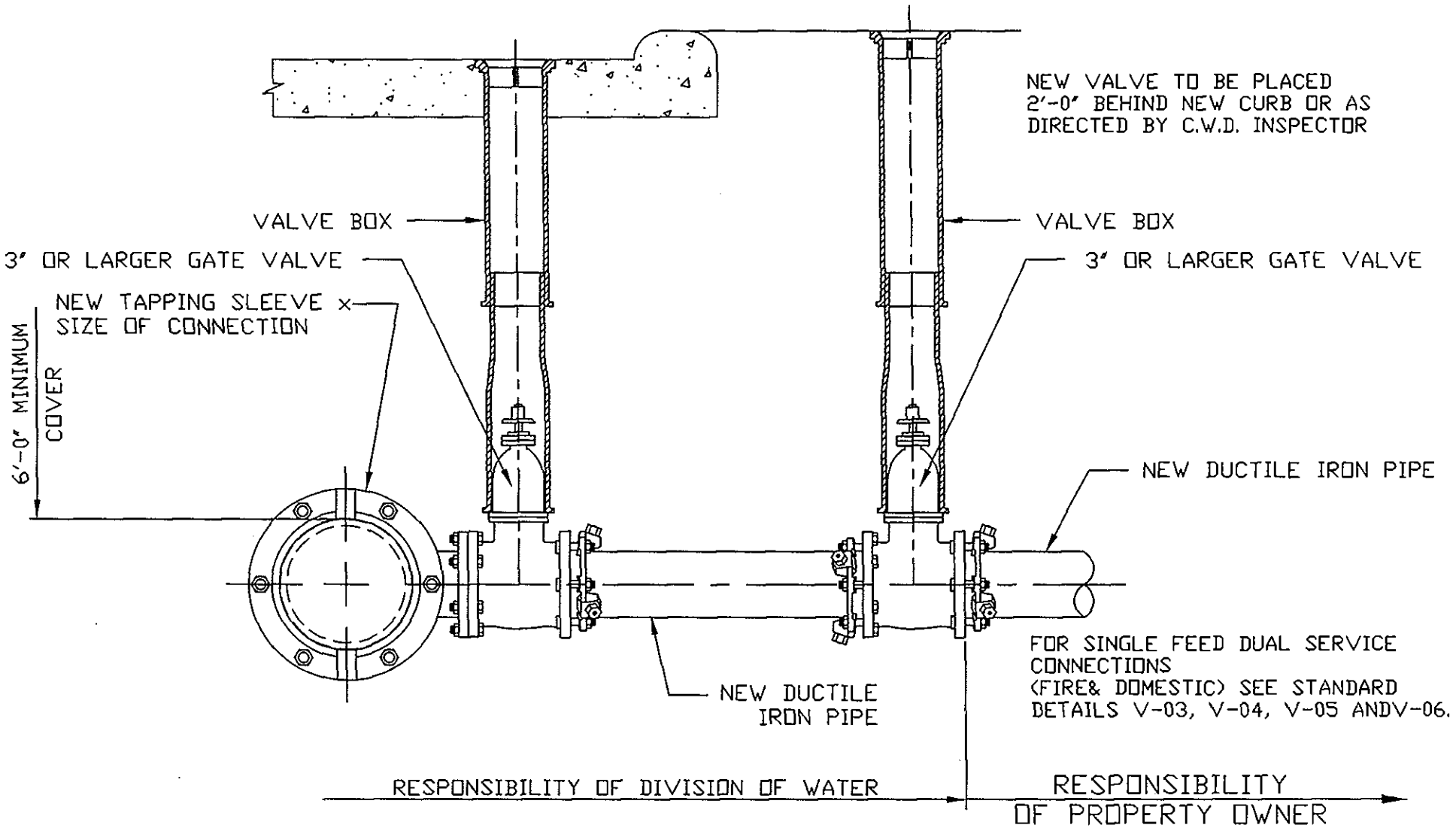


NEW WATER SERVICE CONNECTION FOR $1\frac{1}{2}$" & 2"

STD-C10

- NOT TO SCALE -

DATE: 6-21-2000 | BY: RSK

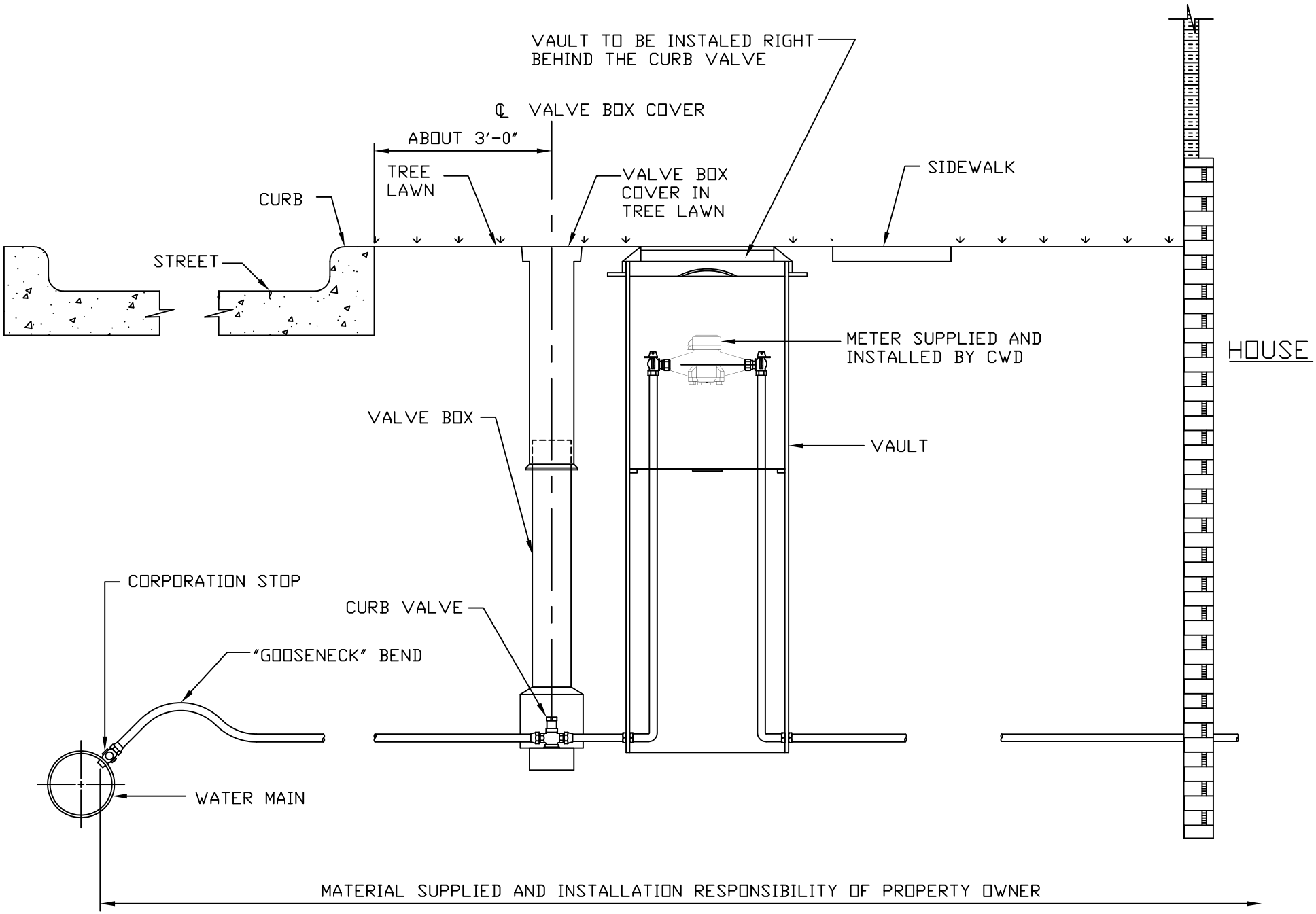


3" AND LARGER CONNECTION

- NOT TO SCALE -

STD-C11

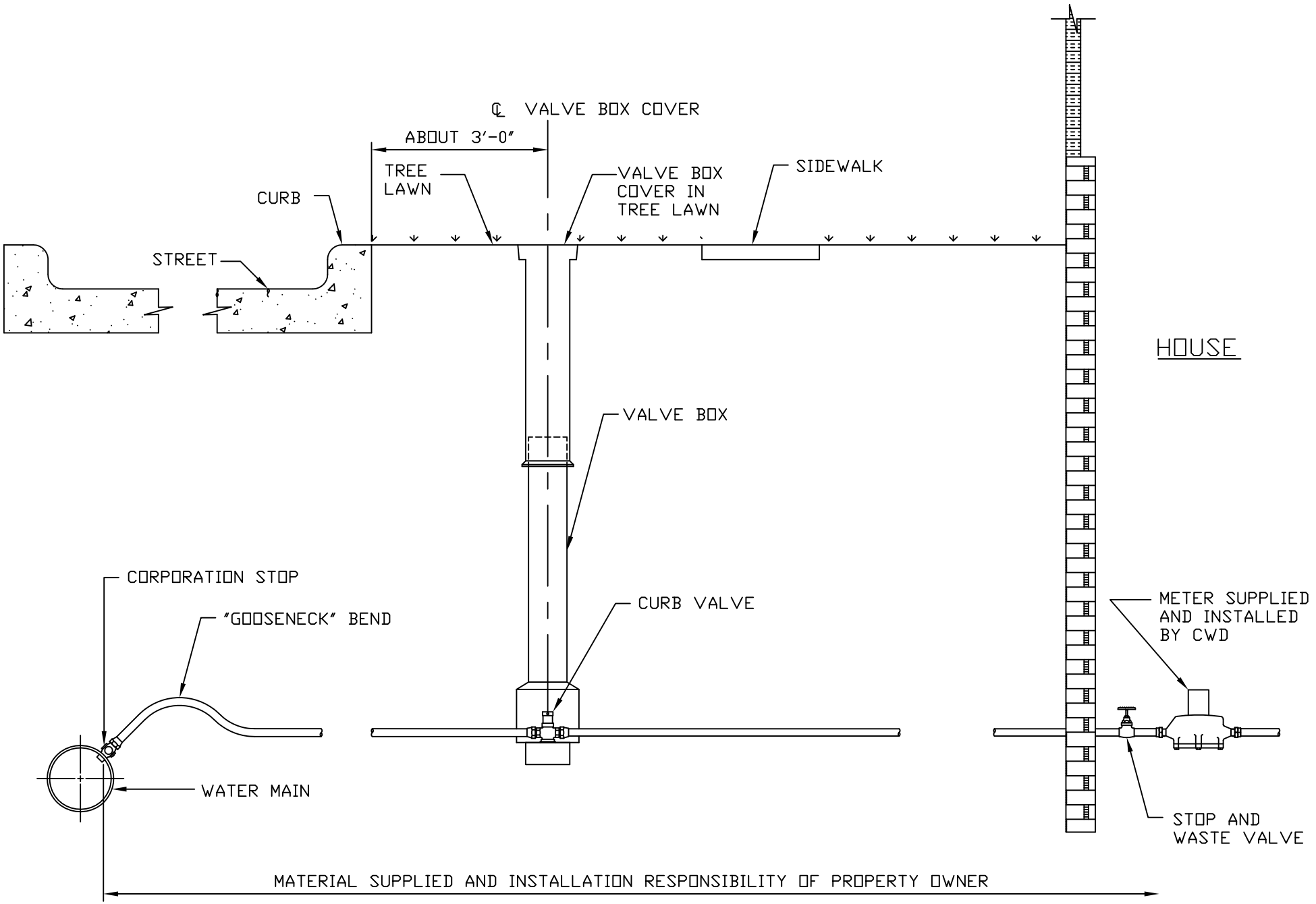
DATE: 9-23-2008 | BY: RSK



RESIDENTIAL SERVICE CONNECTION INSTALLATION DETAIL WITH METER IN VAULT

- NOT TO SCALE -

STD-C14	DATE: 9-28-2011	BY: RSK



RESIDENTIAL SERVICE CONNECTION INSTALLATION DETAIL WITH METER IN HOUSE

- NOT TO SCALE -

STD-C15

DATE: 9-28-2011 | BY: RSK

MATERIAL REQUIRED FOR INSTALLATION OF 1" CONNECTION FOR DOMESTIC SUPPLY

REQUIRED	SIZE	DESCRIPTION
1	1”	COPPER TO IRON FLARE CORPORATION STOP
1	1”	COPPER TO COPPER OR COPPER TO IRON FLARE CURB STOP
Xft	1"	TYPE K COPPER TUBING
2	#2	ADJUSTABLE VALVE BOX TOP
2	#2	ADJUSTABLE VALVE BOX COVER
2	#2	ADJUSTABLE VALVE BOX BOTTOM

*SOM MEAN SIZE OF MAIN

SEE DRAWING STD-V01 & STD-V02

NOTE:
A CONTINUOUS LENGTH OF COPPER IS TO BE USED BETWEEN THE CORPORATION STOP AND THE CURB STOP

8-23-2011

MATERIAL REQUIRED FOR INSTALLATION

1-1/2" CONNECTION FOR DOMESTIC SUPPLY OR FIRE PROTECTION CONNECTION

ALTERNATE #1

REQUIRED	SIZE	DESCRIPTION
1	SOM x 1-1/2"	STRAP SADDLE
1	1-1/2" x 6"	BRASS NIPPLE
2	1-1/2"	(IRON TO IRON) BALL TYPE VALVE
2	1-1/2"	CAST IRON COMPRESSED UNION (MALE)
X#FT	1-1/2"	COPPER TUBING
2	#2	ADJUSTABLE VALVE BOX TOP
2	#2	ADJUSTABLE VALVE BOX COVER
2	#2	ADJUSTABLE VALVE BOX BOTTOM

ALTERNATE #2

REQUIRED	SIZE	DESCRIPTION
1	SOM x 1-1/2"	STRAP SADDLE
2	1-1/2" x 6"	BRASS NIPPLE
2	1-1/2"	BALL TYPE VALVES - IRON TO IRON
2	1-1/2"	COMPRESSION UNION COPPER TO IRON, MALE
X#FT	1-1/2"	COPPER TUBING
2	#2	ADJUSTABLE VALVE BOX TOP
2	#2	ADJUSTABLE VALVE BOX COVER
2	#2	ADJUSTABLE VALVE BOX BOTTOM
2		STATIONARY ROD

NOTE: STATIONARY RODS (EXTENSION RODS) – FOR USE WHEN CORPORATION AND OR CURB VALVE ARE DEEPER THAN 7 FEET.

*SOM MEAN SIZE OF MAIN

SEE DRAWING STD-V01 & STD-V02

NOTE: IF CONNECTION IS TO BE LONGER THAN TWENTY FEET, ONE ADDITIONAL 1-1/2" STREAMLINE COUPLING (COPPER TO COPPER) IS TO BE ADDED FOR EACH ADDITIONAL TWENTY FOOT LENGTH OR EACH PORTION (20'-0") OVER THE INITIAL TWENTY FEET OR COMPRESSION 3 PART UNION, (COPPER TO COPPER).

8-25-2011

MATERIAL REQUIRED FOR INSTALLATION

2" CONNECTION FOR DOMESTIC SUPPLY OR FIRE PROTECTION CONNECTION

ALTERNATE #1

REQUIRED	SIZE	DESCRIPTION
1	SOM x 2"	STRAP SADDLE
1	2" x 6"	BRASS NIPPLE
2	2"	(IRON TO IRON) BALL TYPE VALVE
2	2"	CAST IRON COMPRESSED UNION (MALE)
X#FT	2"	COPPER TUBING
2	#2	ADJUSTABLE VALVE BOX TOP
2	#2	ADJUSTABLE VALVE BOX COVER
2	#2	ADJUSTABLE VALVE BOX BOTTOM

ALTERNATE #2

REQUIRED	SIZE	DESCRIPTION
1	SOM x 2"	STRAP SADDLE
2	2" x 6"	BRASS NIPPLE
2	2"	BALL TYPE VALVES - IRON TO IRON
2	2"	COMPRESSION UNION COPPER TO IRON, MALE
X# FT	2"	COPPER TUBING
2	#2	ADJUSTABLE VALVE BOX TOP
2	#2	ADJUSTABLE VALVE BOX COVER
2	#2	ADJUSTABLE VALVE BOX BOTTOM
2		STATIONARY ROD

NOTE: STATIONARY RODS (EXTENSION RODS) – FOR USE WHEN CORPORATION AND OR CURB VALVE ARE DEEPER THAN 7 FEET.

*SOM MEAN SIZE OF MAIN

SEE DRAWING STD-V01 & STD-V02

NOTE: IF CONNECTION IS TO BE LONGER THAN TWENTY FEET, ONE ADDITIONAL 2" STREAMLINE COUPLING (COPPER TO COPPER) IS TO BE ADDED FOR EACH ADDITIONAL TWENTY FOOT LENGTH OR EACH PORTION (20'-0") OVER THE INITIAL TWENTY FEET OR COMPRESSION 3 PART UNION, (COPPER TO COPPER).

8-25-2011

MATERIALS REQUIRED FOR INSTALLATION

3" CONNECTION FOR DOMESTIC SUPPLY OR FIRE PROTECTION CONNECTION

REQUIRED	SIZE	DESCRIPTION
1	SOM x 3"	TAPPING SLEEVE - (SQUARE SEAL OR MECHANICAL JOINT)
1	3"	CAST IRON TAP VALVE WITH MECHANICAL JOINT OUTLET
1	3"	CAST IRON GATE VALVE WITH MECHANICAL JOINT ENDS
2	#2	ADJUSTABLE VALVE BOX TOP
2	#2	ADJUSTABLE VALVE BOX COVER
2	#2	ADJUSTABLE VALVE BOC BOTTOM
X#FT	3"	DUCTILE IRON CLASS 52 CEMENT LINED PIPE
1	3"	CONNECTION PIECE, FLANGE & BELL OR
1	3"	CONNECTION PIECE, FLANGE & SPIGOT OR
1	3"	FLANGED COUPLING ADAPTER

*SOM MEANS SIZE OF MAIN

SEE DRAWING STD-V01 & STD-V02

10-1-97

MATERIALS REQUIRED FOR INSTALLATION

4" CONNECTION FOR DOMESTIC SUPPLY OR FIRE PROTECTION CONNECTION

REQUIRED	SIZE	DESCRIPTION
1	SOM x 4"	TAPPING SLEEVE - (SQUARE SEAL OR MECHANICAL JOINT)
1	4"	CAST IRON TAP VALVE WITH MECHANICAL JOINT OUTLET
1	4"	CAST IRON GATE VALVE WITH MECHANICAL JOINT ENDS
2	#2	ADJUSTABLE VALVE BOX TOP
2	#2	ADJUSTABLE VALVE BOX COVER
2	#2	ADJUSTABLE VALVE BOC BOTTOM
X#FT	4"	DUCTILE IRON CLASS 52 CEMENT LINED PIPE
1	4"	CONNECTION PIECE, FLANGE & BELL OR
1	4"	CONNECTION PIECE, FLANGE & SPIGOT OR
1	4"	FLANGED COUPLING ADAPTER

*SOM MEANS SIZE OF MAIN

SEE DRAWING STD-V01 & STD-V02

10-1-97

MATERIALS REQUIRED FOR INSTALLATION

6" CONNECTION FOR DOMESTIC SUPPLY OR FIRE PROTECTION CONNECTION

REQUIRED	SIZE	DESCRIPTION
1	SOM x 6"	TAPPING SLEEVE - (SQUARE SEAL OR MECHANICAL JOINT)
1	6"	CAST IRON TAP VALVE WITH MECHANICAL JOINT OUTLET
1	6"	CAST IRON GATE VALVE WITH MECHANICAL JOINT ENDS
2	#2	ADJUSTABLE VALVE BOX TOP
2	#2	ADJUSTABLE VALVE BOX COVER
2	#2	ADJUSTABLE VALVE BOC BOTTOM
X#FT	6"	DUCTILE IRON CLASS 52 CEMENT LINED PIPE
1	6"	CONNECTION PIECE, FLANGE & BELL OR
1	6"	CONNECTION PIECE, FLANGE & SPIGOT OR
1	6"	FLANGED COUPLING ADAPTER

*SOM MEANS SIZE OF MAIN

SEE DRAWING STD-V01 & STD-V02

10-1-97

MATERIALS REQUIRED FOR INSTALLATION

8" CONNECTION FOR DOMESTIC SUPPLY OR FIRE PROTECTION CONNECTION

REQUIRED	SIZE	DESCRIPTION
1	SOM x 8"	TAPPING SLEEVE - (SQUARE SEAL OR MECHANICAL JOINT)
1	8"	CAST IRON TAP VALVE WITH MECHANICAL JOINT OUTLET
1	8"	CAST IRON GATE VALVE WITH MECHANICAL JOINT ENDS
2	#2	ADJUSTABLE VALVE BOX TOP
2	#2	ADJUSTABLE VALVE BOX COVER
2	#2	ADJUSTABLE VALVE BOC BOTTOM
X#FT	8"	DUCTILE IRON CLASS 52 CEMENT LINED PIPE
1	8"	CONNECTION PIECE, FLANGE & BELL OR
1	8"	CONNECTION PIECE, FLANGE & SPIGOT OR
1	8"	FLANGED COUPLING ADAPTER

*SOM MEANS SIZE OF MAIN

SEE DRAWING STD-V01 & STD-V02

10-1-97

MATERIALS REQUIRED FOR INSTALLATION

10" CONNECTION FOR DOMESTIC SUPPLY OR FIRE PROTECTION CONNECTION

REQUIRED	SIZE	DESCRIPTION
1	SOM x 10"	TAPPING SLEEVE - (SQUARE SEAL OR MECHANICAL JOINT)
1	10"	CAST IRON TAP VALVE WITH MECHANICAL JOINT OUTLET
1	10"	CAST IRON GATE VALVE WITH MECHANICAL JOINT ENDS
2	#2	ADJUSTABLE VALVE BOX TOP
2	#2	ADJUSTABLE VALVE BOX COVER
2	#2	ADJUSTABLE VALVE BOC BOTTOM
X#FT	10"	DUCTILE IRON CLASS 52 CEMENT LINED PIPE
1	10"	CONNECTION PIECE, FLANGE & BELL OR
1	10"	CONNECTION PIECE, FLANGE & SPIGOT OR
1	10"	FLANGED COUPLING ADAPTER

*SOM MEANS SIZE OF MAIN

SEE DRAWING STD-V01 & STD-V02

8-23-2011

MATERIALS REQUIRED FOR INSTALLATION

12" CONNECTION FOR DOMESTIC SUPPLY OR FIRE PROTECTION CONNECTION

REQUIRED	SIZE	DESCRIPTION
1	SOM x 12"	TAPPING SLEEVE - (SQUARE SEAL OR MECHANICAL JOINT)
1	12"	CAST IRON TAP VALVE WITH MECHANICAL JOINT OUTLET
1	12"	CAST IRON GATE VALVE WITH MECHANICAL JOINT ENDS
2	#2	ADJUSTABLE VALVE BOX TOP
2	#2	ADJUSTABLE VALVE BOX COVER
2	#2	ADJUSTABLE VALVE BOC BOTTOM
X#FT	12"	DUCTILE IRON CLASS 52 CEMENT LINED PIPE
1	12"	CONNECTION PIECE, FLANGE & BELL OR
1	12"	CONNECTION PIECE, FLANGE & SPIGOT OR
1	12"	FLANGED COUPLING ADAPTER

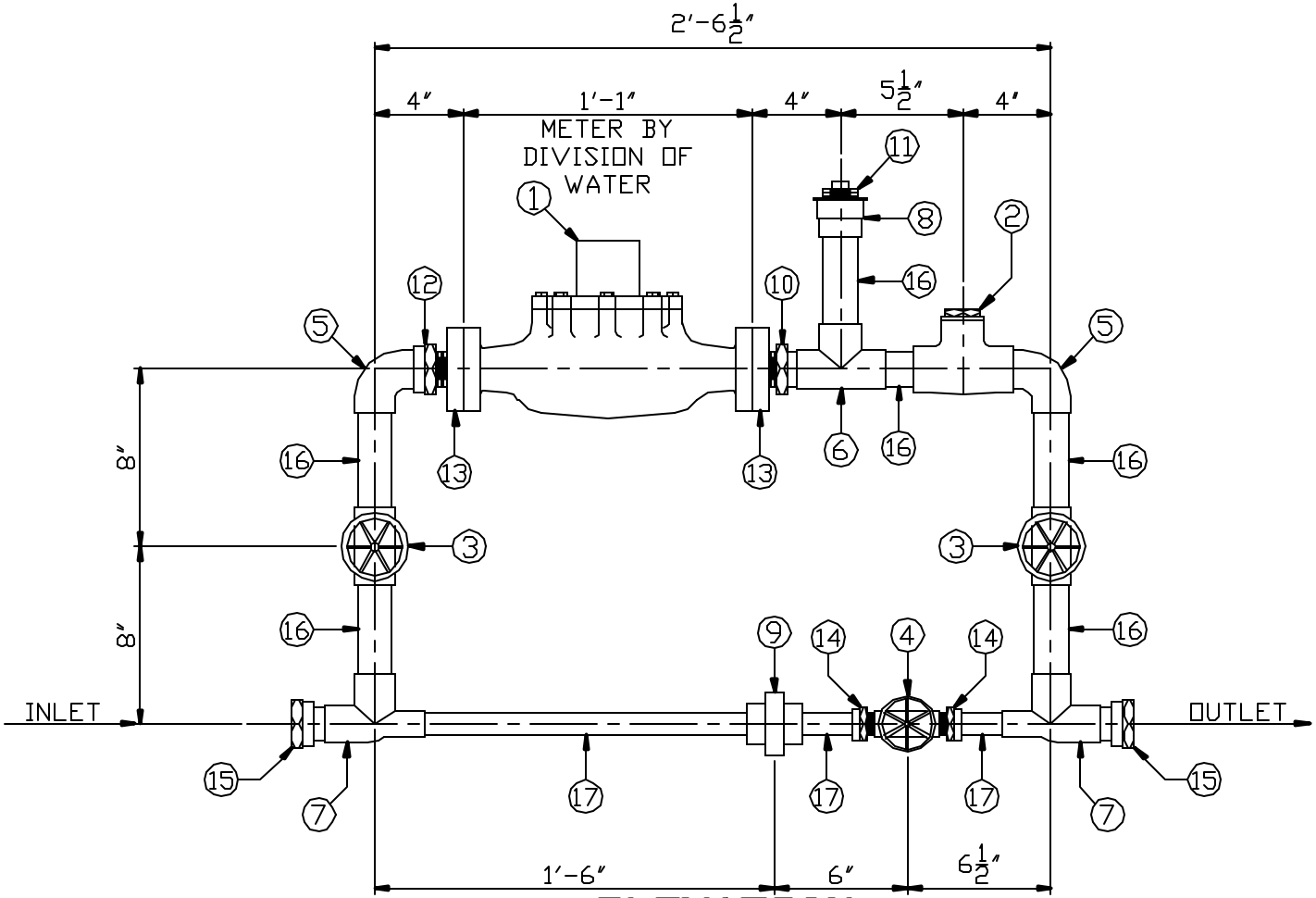
*SOM MEANS SIZE OF MAIN

SEE DRAWING STD-V01 & STD-V02

10-1-97

CLEVELAND DIVISION OF WATER CONSTRUCTION STANDARDS

Meter Settings



ELEVATION

ITEM ④ TO BE SET AN AN ANGLE WITH LOCK AND CABLE.

NOTE:
MINOR VARIATIONS IN THE OVERALL LENGTH ARE TO BE EXPECTED DEPENDING ON THE TEE'S, VALVES, AND CHECK VALVES SUPPLIED.
ADJUSTMENTS TO THE BYPASS (ITEM 17) WILL BE MADE BY THE DIVISION OF WATER AS NEEDED.
ALL BOLTS AND GASKETS BY SUPPLIER.

STANDARD DETAILS

DEPARTMENT OF PUBLIC UTILITIES
DIVISION OF WATER
CLEVELAND, OHIO

SUBJECT STANDARD 1½″ METER SETTING WITH 1½″ METER FOR VAULTS

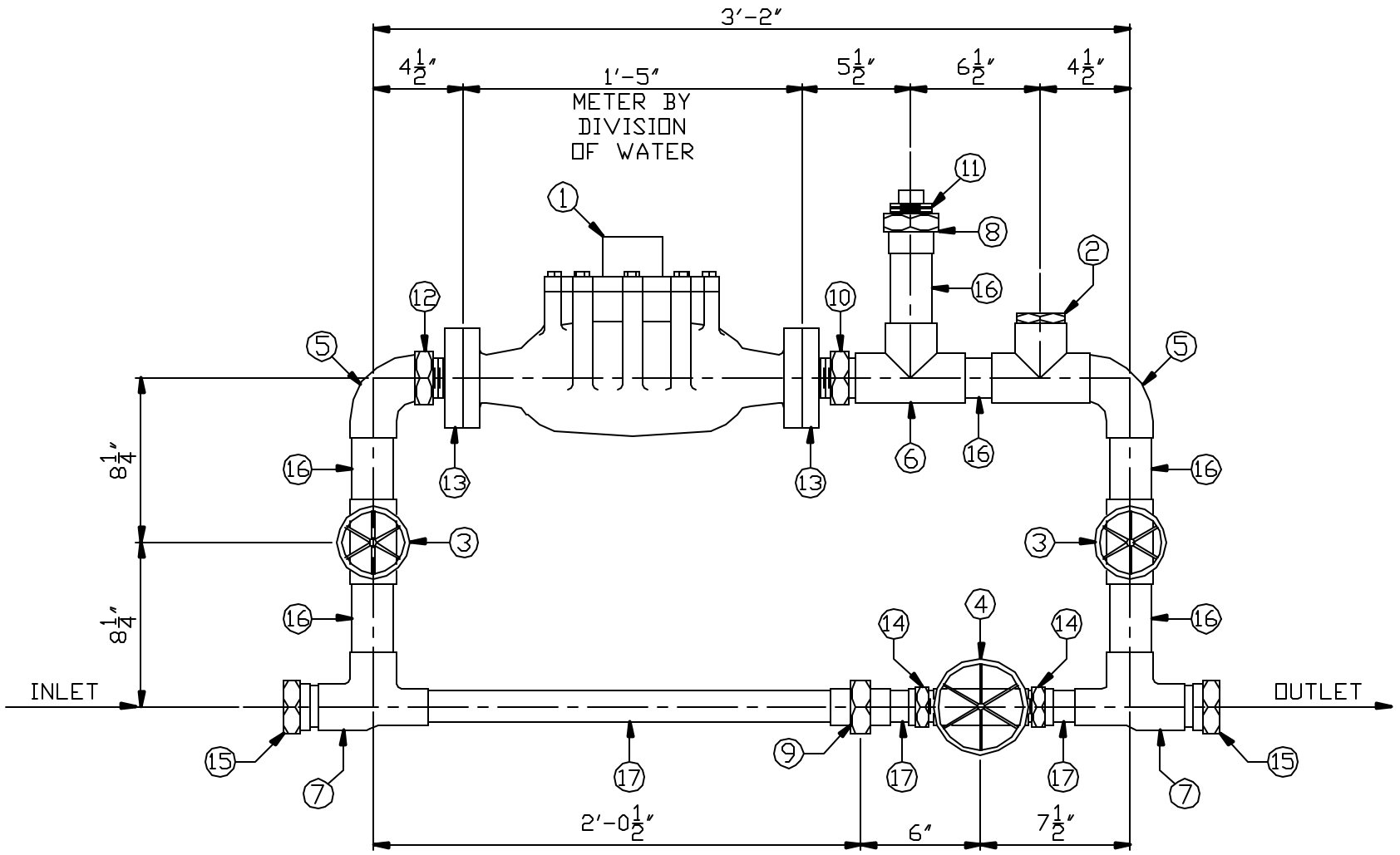
DRAWN BY RSK	-SCALE-	STD-M01
DATE 10-1-1997	3″ = 1′-0″	
CHECKED BY MJS DATE 10-1-97		

MATERIALS REQUIRED FOR INSTALLATION

STANDARD 1-1/2” METER SETTING WITH 1-1/2” METER

ITEM	REQ’D	SIZE	DESCRIPTION
1	1	1-1/2”	METER BY C.W.D.
2	1	1-1/2”	STREAMLINE SWING CHECK VALVE, COPPER TO COPPER
3	2	1-1/2”	STREAMLINE HAND WHEEL GATE VALVES
4	1	1”	STREAMLINE O.S. & Y. GATE VALVE
5	2	1-1/2”	STREAMLINE STREET ELBOW, COPPER TO COPPER
6	1	1-1/2”	STREAMLINE TEE, COPPER TO COPPER
7	2	1-1/2” x 1” x 1-1/2”	STREAMLINE TEE, COPPER TO IRON, FEMALE
8	1	1-1/2”	STREAMLINE COUPLING, COPPER TO IRON, FEMALE
9	1	1”	STREAMLINE UNION, COPPER TO COPPER
10	1	1-1/2”	STREAMLINE COUPLING, COPPER TO IRON, MALE
11	1	1-1/2”	BRASS SCREW PLUG
12	1	1-1/2”	STREAMLINE COUPLING, COPPER TO IRON, FEMALE
13	2	1-1/2”	OVAL FLANGES, FEMALE
14	2	1”	STREAMLINE COUPLING, COPPER TO IRON, FEMALE
15	2	1-1/2”	STREAMLINE COUPLING, COPPER TO IRON, FEMALE
16	37”	1-1/2”	COPPER TUBING – HARD
17	30”	1”	COPPER TUBING - HARD
18	1lb.		SPECIAL SOLDER

(SEE DRAWING No. STD-M01 and STD-V01).
12-10-98



ELEVATION

ITEM (4) TO BE AT AN ANGLE WITH LOCK AND CABLE.

NOTE:
MINOR VARIATIONS IN THE OVERALL LENGTH ARE TO BE EXPECTED DEPENDING ON THE TEE'S, VALVES, AND CHECK VALVES SUPPLIED.
ADJUSTMENTS TO THE BYPASS (ITEM 17) WILL BE MADE BY THE DIVISION OF WATER AS NEEDED.
ALL BOLTS AND GASKETS BY SUPPLIER.

STANDARD DETAILS

DEPARTMENT OF PUBLIC UTILITIES
DIVISION OF WATER
CLEVELAND, OHIO

SUBJECT STANDARD 2″ METER SETTING
WITH 2″ METER FOR VAULTS

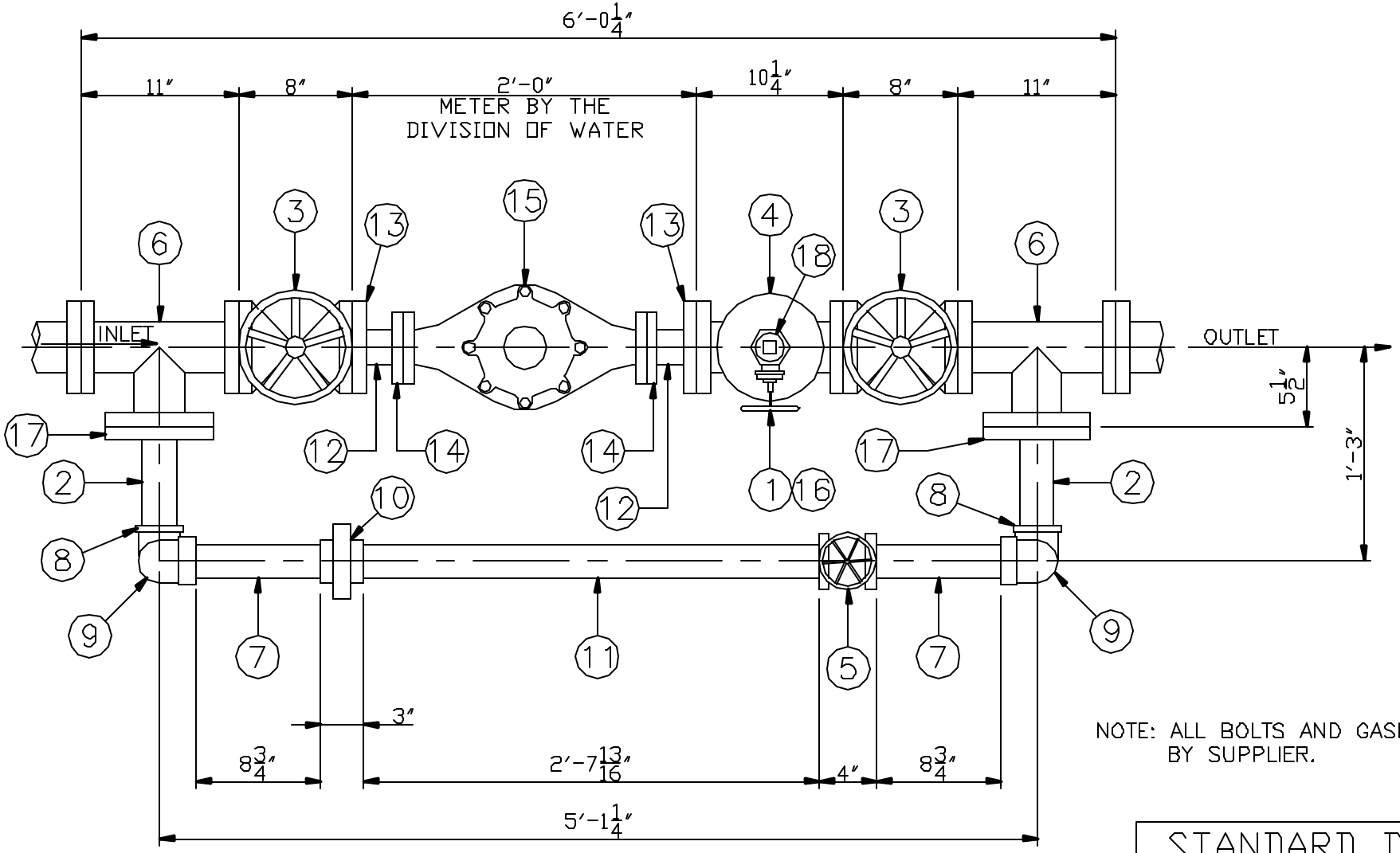
DRAWN BY RSK	-SCALE-	STD-M02
DATE 10-1-1997	3″ = 1′-0″	
CHECKED BY MJS DATE 10-1-97		

MATERIALS REQUIRED FOR INSTALLATION

STANDARD 2” METER SETTING WITH 2” METER

ITEM	REQ’D	SIZE	DESCRIPTION
1	1	2”	METER BY C.W.D.
2	1	2”	STREAMLINE SWING CHECK VALVE, COPPER TO COPPER
3	2	2”	STREAMLINE HAND WHEEL GATE VALVES
4	1	1-1/2”	STREAMLINE O.S. & Y. GATE VALVE
5	2	2”	STREAMLINE STREET ELBOW, COPPER TO COPPER
6	1	2”	STREAMLINE TEE, COPPER TO COPPER
7	2	2” x 1-1/2” x 2”	STREAMLINE TEE, COPPER TO IRON, FEMALE
8	1	2”	STREAMLINE COUPLING, COPPER TO IRON, FEMALE
9	1	1-1/2”	STREAMLINE UNION, COPPER TO COPPER
10	1	2”	STREAMLINE COUPLING, COPPER TO IRON, MALE
11	1	2”	BRASS SCREW PLUG
12	1	2”	STREAMLINE COUPLING, COPPER TO IRON, FEMALE
13	2	2”	OVAL FLANGES, FEMALE
14	2	1-1/2”	STREAMLINE COUPLING, COPPER TO IRON, FEMALE
15	2	2”	STREAMLINE COUPLING, COPPER TO IRON, FEMALE
16	37”	2”	COPPER TUBING – HARD
17	30”	1-1/2”	COPPER TUBING – HARD
18	1lb.		SPECIAL SOLDER

(SEE DRAWING No. STD-M02 and STD-V01).
12-10-98



PLAN

NOTE:
MINOR VARIATIONS IN THE OVERALL LENGTH ARE TO BE EXPECTED DEPENDING ON THE TEE'S, VALVES, AND CHECK VALVES SUPPLIED.
ADJUSTMENTS TO THE BYPASS (ITEM No. 11) WILL BE MADE BY THE DIVISION OF WATER AS NEEDED.

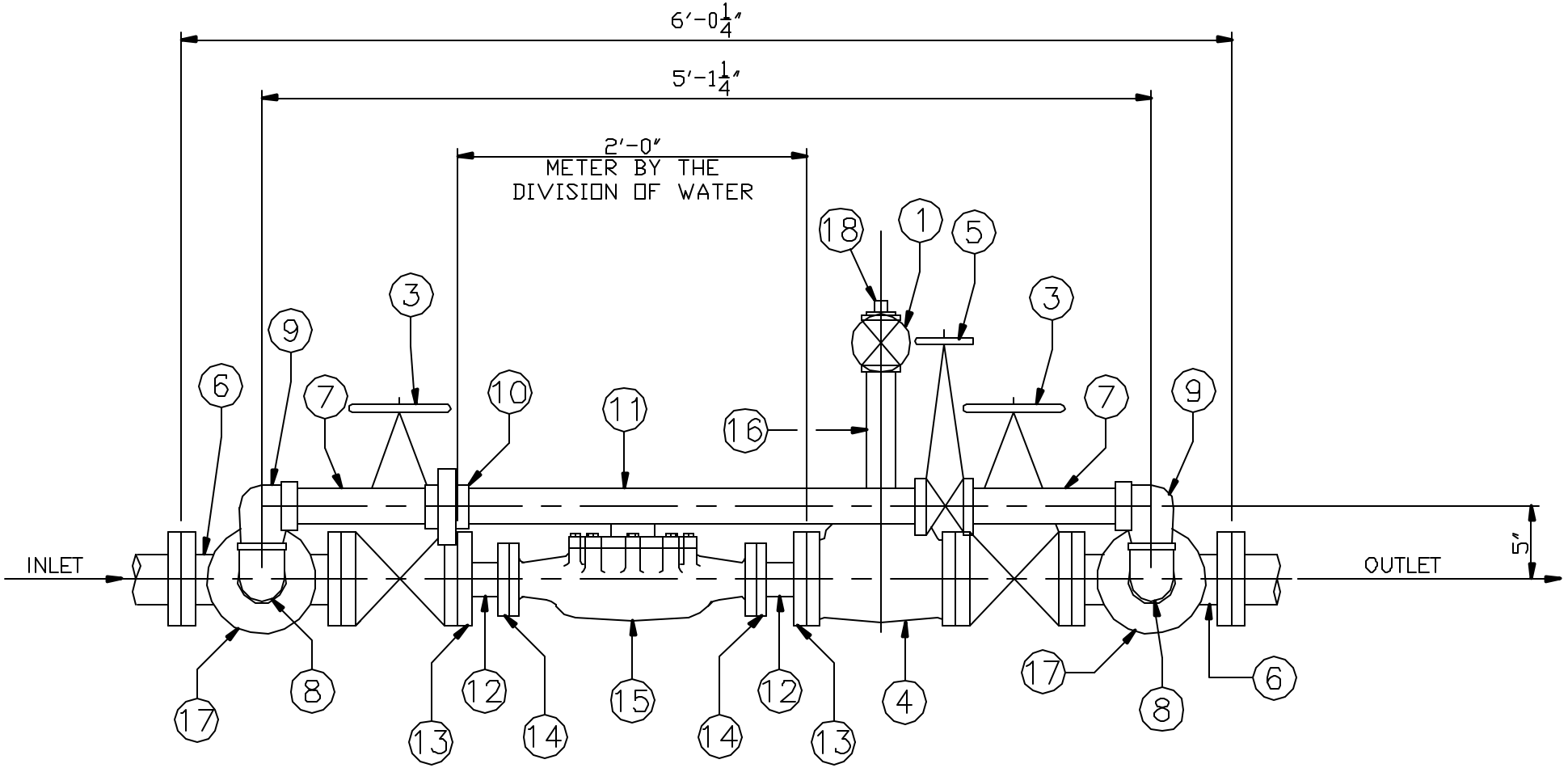
NOTE: ALL BOLTS AND GASKETS BY SUPPLIER.

STANDARD DETAILS

DEPARTMENT OF PUBLIC UTILITIES
DIVISION OF WATER
CLEVELAND, OHIO

SUBJECT STANDARD 3" METER SETTING WITH 2" METER FOR VAULTS

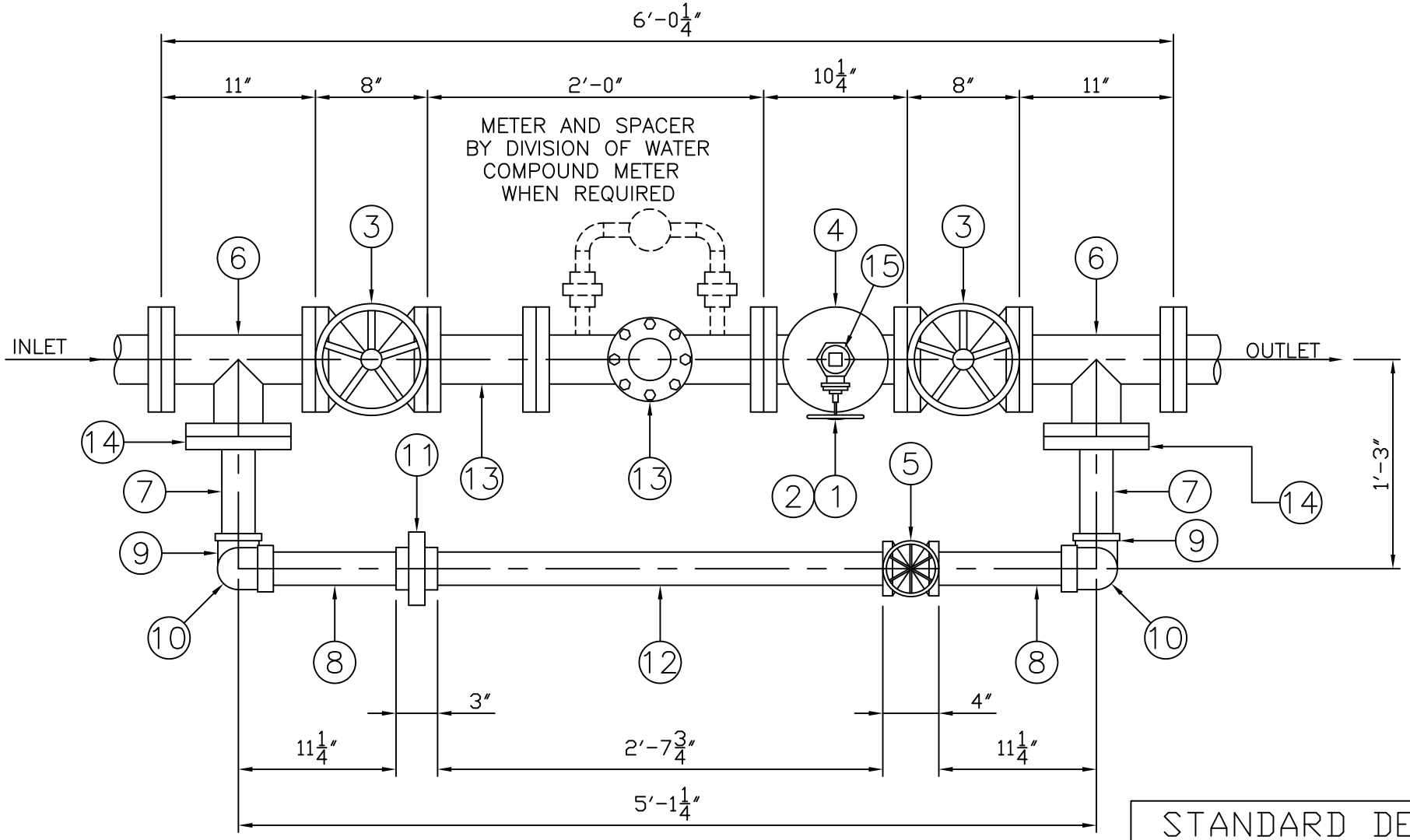
DRAWN BY RSK	-SCALE- 3/16" = 1"	STD-M04
DATE 10-1-1997		
CHECKED BY MJS DATE 10-1-97		



ELEVATION

NOTE: ALL BOLTS AND GASKETS
BY SUPPLIER.

STANDARD DETAILS		
DEPARTMENT OF PUBLIC UTILITIES DIVISION OF WATER CLEVELAND, OHIO		
SUBJECT STANDARD 3" METER SETTING WITH 2" METER FOR VAULTS		
DRAWN BY RSK DATE 10-1-1997 CHECKED BY NJS DATE 10-1-97	-SCALE- 3/16" = 1"	STD-M05



PLAN

NOTE: ALL BOLTS AND GASKETS
BY SUPPLIER

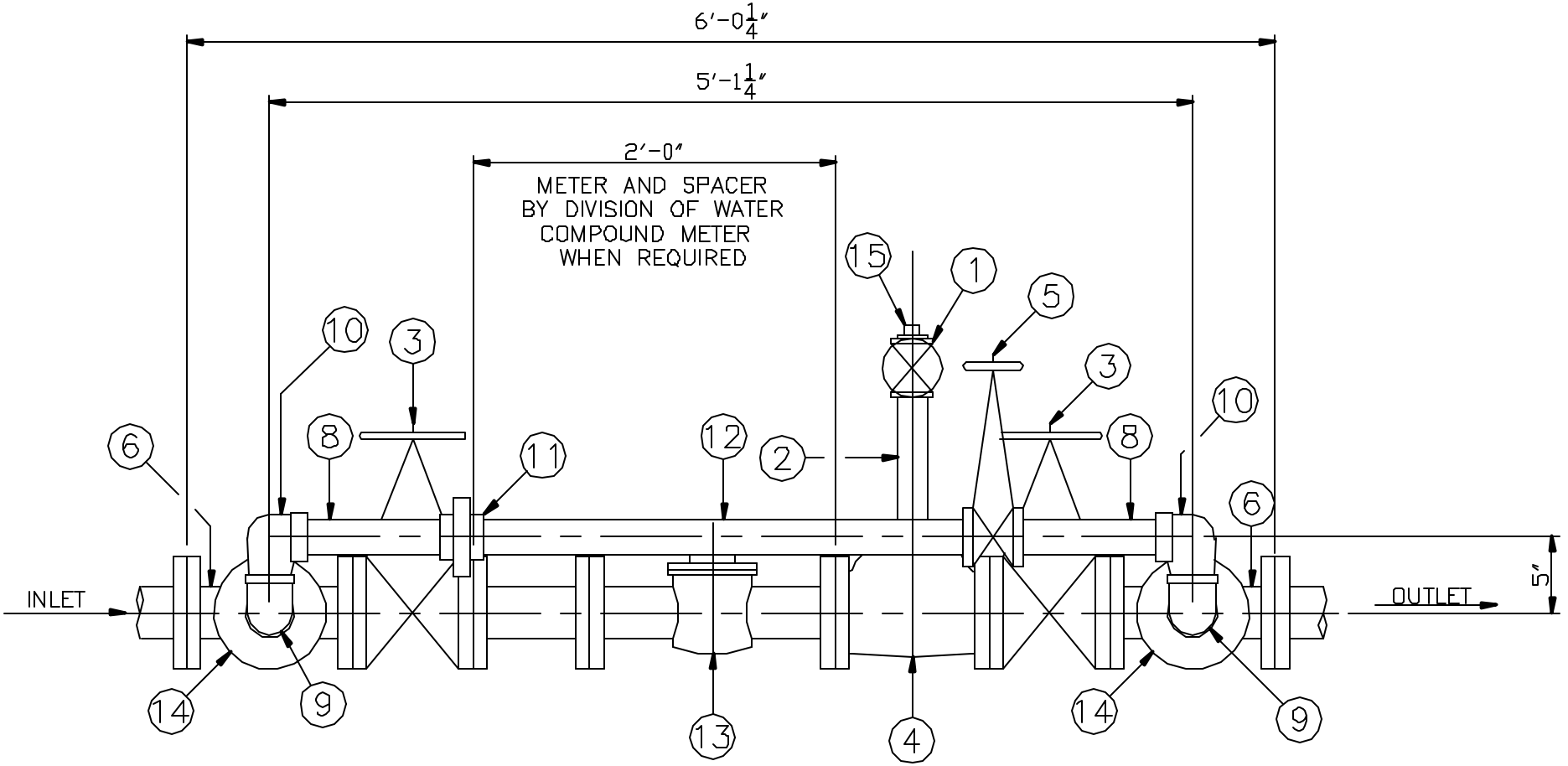
NOTE:
MINOR VARIATIONS IN THE OVERALL LENGTH ARE TO BE EXPECTED DEPENDING ON THE TEE'S, VALVES, AND CHECK VALVES SUPPLIED.
ADJUSTMENTS TO THE BYPASS (ITEM No. 12) WILL BE MADE BY THE DIVISION OF WATER AS NEEDED.

STANDARD DETAILS

DEPARTMENT OF PUBLIC UTILITIES
DIVISION OF WATER
CLEVELAND, OHIO

SUBJECT STANDARD 3" METER SETTING
WITH 3" METER FOR VAULTS

DRAWN BY RSK	-SCALE- 3/16" = 1"	STD-M06
DATE 10-1-1997		
CHECKED BY MJS DATE 10-1-97		



ELEVATION

NOTE: ALL BOLTS AND GASKETS
BY SUPPLIER

STANDARD DETAILS

DEPARTMENT OF PUBLIC UTILITIES
DIVISION OF WATER
CLEVELAND, OHIO

SUBJECT STANDARD 3" METER SETTING
WITH 3" METER FOR VAULTS

DRAWN BY RSK	-SCALE-	STD-M07
DATE 10-1-1997	3/16" = 1"	
CHECKED BY NJS DATE 10-1-97		

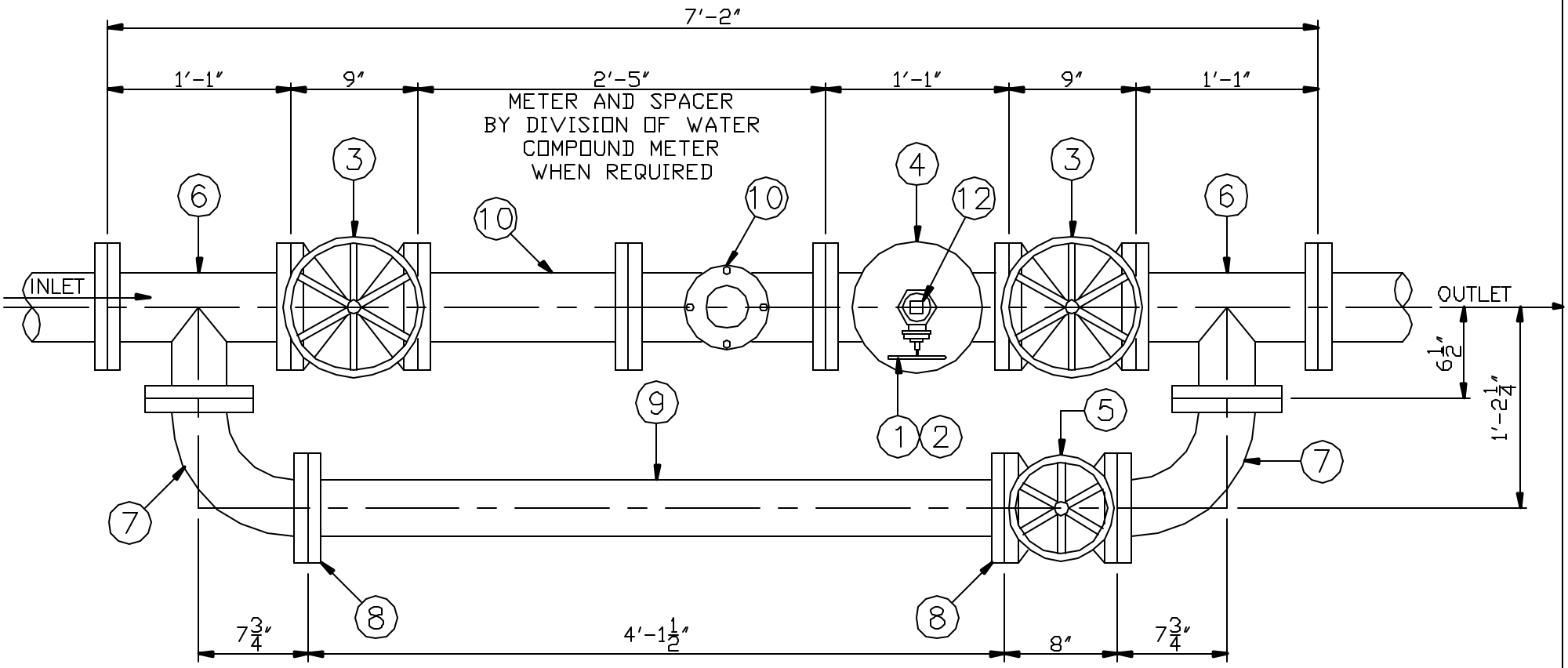
MATERIAL REQUIRED FOR INSTALLATION

STANDARD 3" METER SETTING WITH 3" METER - FLANGED

ITEM	Req'd	SIZE	DESCRIPTION
1	1	2"	HAND WHEEL GATE VALVE, SCREWED
2	1	2" x 10"	BRASS NIPPLE
3	2	3"	HAND WHEEL GATE VALVES, FLANGED
4	1	3"	SWING GATE CHECK VALVE, FLANGED
5	1	2"	O.S.Y. VALVE, SCREWED
6	2	3" x 3" x 3"	TEE, FLANGED
7	2	2" x 6"	GALVANIZED NIPPLES
8	2	2" x 10"	GALVANIZED NIPPLE
9	2	2"	GALVANIZED ELBOWS-90 DEG.
10	2	2"	GALVANIZED STREET ELBOWS
11	1	2"	GALVANIZED UNION, MALE TO FEMALE
12	36"	2"	GALVANIZED PIPE, EXTRA HEAVY
13	1	3"	TURBINE METER OR COMPOUND METER METER & SPACER PROVIDED BY C.W.D.)
14	2	3"	BLIND FLANGES, DRILLED & TAPPED FOR 2" x 6" NIPPLES
15	1	2"	BRASS PLUG
16	10	3"	RING GASKETS
17	40	5/8" x 2-1/2"	MACHINE BOLTS
18	2	5/8" x 3"	STUD BOLTS
19	42	5/8"	HEX BOLTS

(SEE DRAWING STD-M06 & STD-M07 & STD-V01).

11-19-98



PLAN

NOTE:
ALL BOLTS AND GASKETS
BY SUPPLIER.

NOTE:
MINOR VARIATIONS IN THE OVERALL LENGTH ARE TO BE EXPECTED DEPENDING ON THE TEE'S, VALVES, AND CHECK VALVES SUPPLIED.
ADJUSTMENTS TO THE BYPASS (ITEM No. 9) WILL BE MADE BY THE DIVISION OF WATER AS NEEDED.

STANDARD DETAILS

DEPARTMENT OF PUBLIC UTILITIES
DIVISION OF WATER
CLEVELAND, OHIO

SUBJECT STANDARD 4" METER SETTING
WITH 4" METER FOR VAULTS

DRAWN BY RSK	-SCALE- 3/16" = 1"	STD-M08
DATE 10-1-1997		
CHECKED BY MJS DATE 10-1-97		

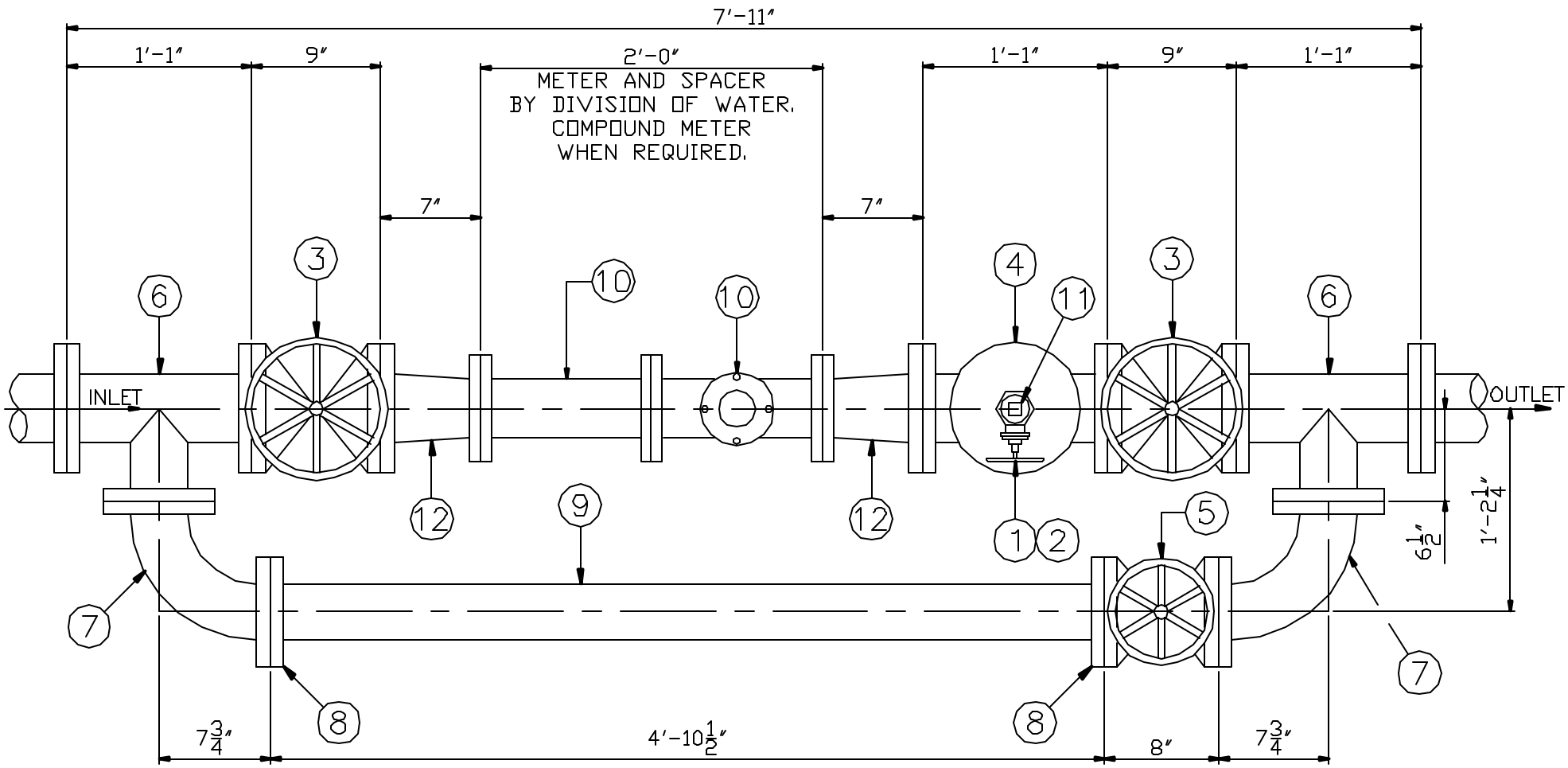
MATERIALS REQUIRED FOR INSTALLATION

STANDARD 4" METER SETTING WITH 4" METER

ITEM	REQ'D	SIZE	DESCRIPTION
1	1	2"	HAND WHEEL GATE VALVE,SCREWED
2	1	2" x 10"	BRASS NIPPLE
3	2	4"	HAND WHEEL GATE VALVES, FLANGED
4	1	4"	SWING CHECK VALVE, FLANGED
5	1	3"	O.S.Y. VALVE, FLANGED
6	2	4" x 3"	CAST IRON TEES, FLANGED
7	2	3"	CAST IRON ELBOWS, FLANGED LONG RADIUS
8	2	3" x 7-1/2"	CAST IRON FLANGE, 4 HOLE
9	5 FT.	3"	GALVANIZED PIPE, EXTRA HEAVY
10	1	4"	TURBINE METER OR COMPOUND METER (METER & SPACER PROVIDED BY C.W.D)
11	1	2"	BRASS PLUG
12	8	4"	FLANGE GASKETS
13	5	3"	FLANGE GASKETS
14	64	5/8" x 3"	MACHINE BOLTS
15	20	5/8" X 2-1/2"	MACHINE BOLTS
16	6	5/8" x 3-1/2"	STUD BOLTS
17	90	5/8"	HEX NUTS

(SEE DRAWING No. STD-M08 & STD-V01).

11-19-98



PLAN

NOTE:
ALL BOLTS AND GASKETS
BY SUPPLIER.

NOTE:

MINOR VARIATIONS IN THE OVERALL LENGTH ARE TO BE EXPECTED DEPENDING ON THE TEE'S, VALVES, AND CHECK VALVES SUPPLIED.

ADJUSTMENTS TO THE BYPASS (ITEM No. 9) WILL BE MADE BY THE DIVISION OF WATER AS NEEDED.

STANDARD DETAILS		
DEPARTMENT OF PUBLIC UTILITIES DIVISION OF WATER CLEVELAND, OHIO		
SUBJECT STANDARD 4" METER SETTING WITH 3" METER FOR VAULTS		
DRAWN BY RSK DATE 5-18-1998 CHECKED BY MJS DATE 5-18-98	-SCALE- 3/16" = 1"	STD-M09

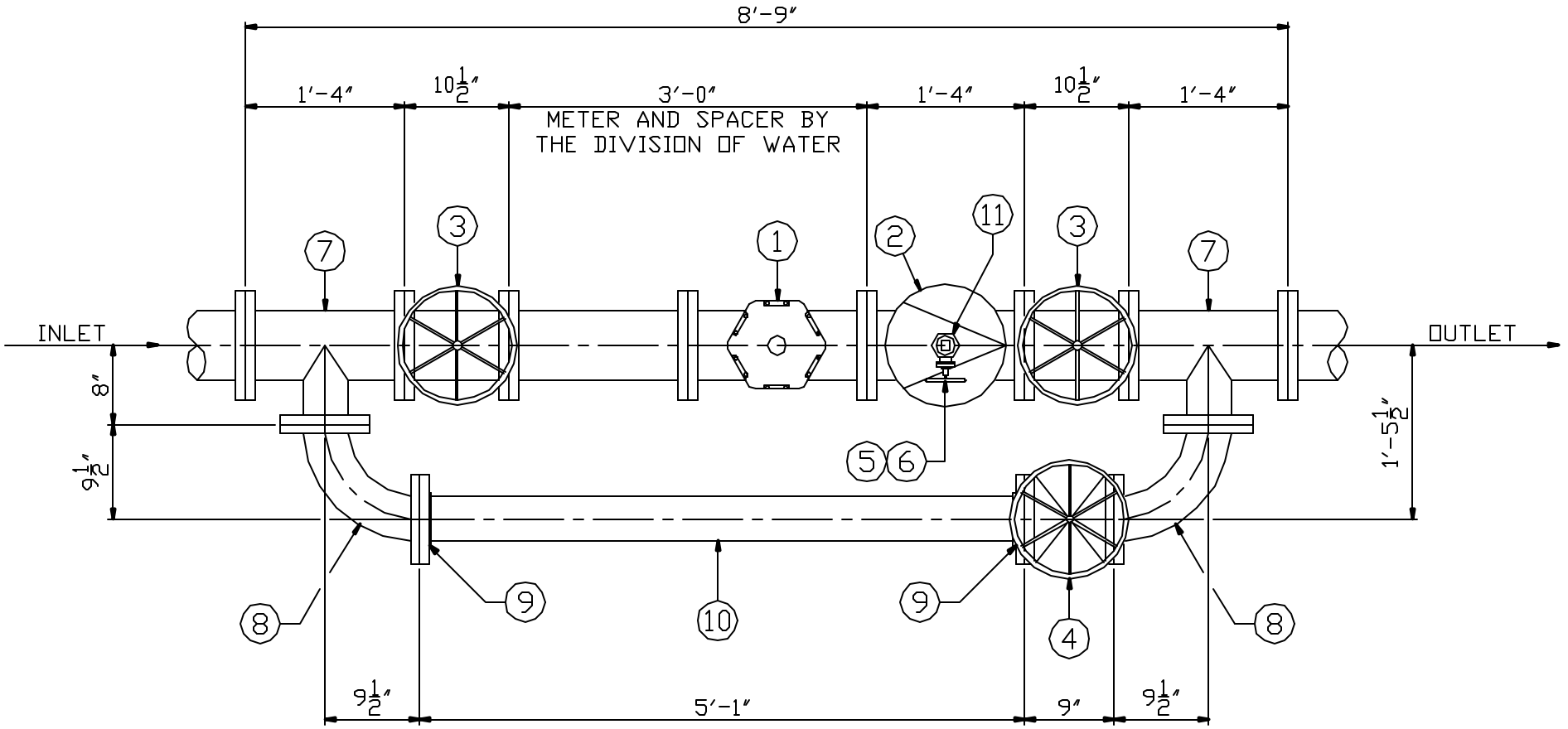
MATERIALS REQUIRED FOR INSTALLATION

STANDARD 4" METER SETTING WITH 3" METER

ITEM	REQ'D	SIZE	DESCRIPTION
1	1	2"	HAND WHEEL GATE VALVE,SCREWED
2	1	2" x 10"	BRASS NIPPLE
3	2	4"	HAND WHEEL GATE VALVES, FLANGED
4	1	4"	SWING CHECK VALVE, FLANGED
5	1	3"	O.S.Y. VALVE, FLANGED
6	2	4" x 3"	CAST IRON TEES, FLANGED
7	2	3"	CAST IRON ELBOWS, FLANGED LONG RADIUS
8	2	3" x 7-1/2"	CAST IRON FLANGE, 4 HOLE
9	58-1/2"	3"	GALVANIZED PIPE, EXTRA HEAVY
10	1	3"	TURBINE METER OR COMPOUND METER METER & SPACER PROVIDED BY C.W.D)
11	1	2"	BRASS PLUG
12	2	4" x 3"	CAST IRON CONCENTRIC REDUCER, FLANGED
13	7	4"	FLANGE GASKETS
14	7	3"	FLANGE GASKETS
15	56	5/8" x 3"	MACHINE BOLTS
16	24	5/8" x 2-1/2"	MACHINE BOLTS
17	8	5/8" x 3-1/2"	STUD BOLTS
18	88	5/8"	HEX NUTS

(SEE DRAWING No. STD-M09 & STD-V01).

11-19-98



PLAN

NOTE:
ALL BOLTS AND GASKETS BY SUPPLIER.

MINOR VARIATIONS IN THE OVERALL LENGTH ARE TO BE EXPECTED DEPENDING ON THE TEE'S, VALVES, AND CHECK VALVES SUPPLIED.
ADJUSTMENTS TO THE BYPASS (ITEM No. 10) WILL BE MADE BY THE DIVISION OF WATER AS NEEDED.

STANDARD DETAILS		
DEPARTMENT OF PUBLIC UTILITIES DIVISION OF WATER CLEVELAND, OHIO		
SUBJECT STANDARD 6″ METER SETTING WITH 6″ METER FOR VAULTS		
DRAWN BY RSK	-SCALE-	STD-M10
DATE 4-26-2005	1-1/2″ = 1′-0″	
CHECKED BY ___ DATE ___		

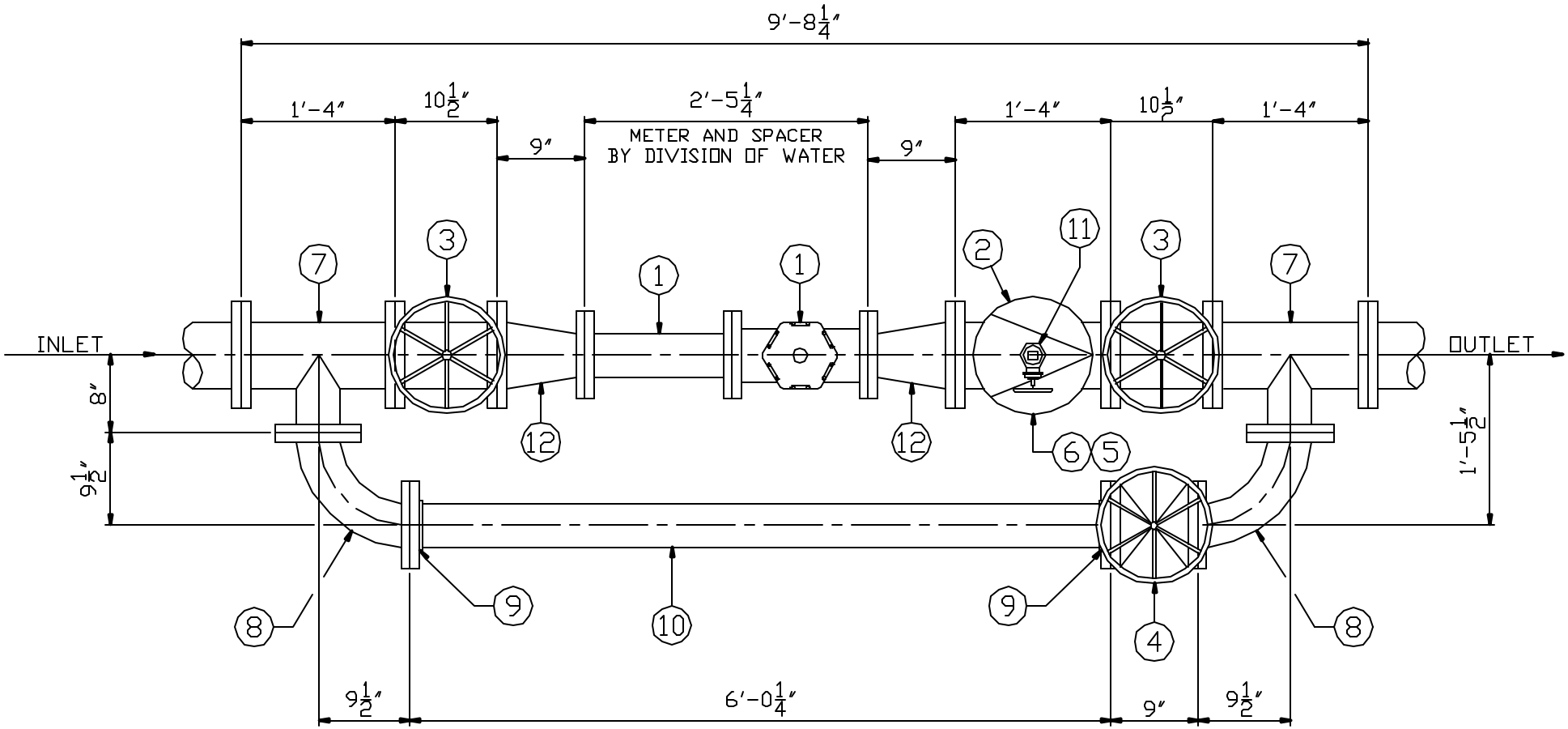
MATERIALS REQUIRED FOR INSTALLATION

STANDARD 6" METER SETTING WITH 6" METER

ITEM	REQ'D	SIZE	DESCRIPTION
1	1	6"	TURBINE OR COMPOUND METER (BY C.W.D.)
2	1	6"	SWING CHECK VALVE, FLANGED
3	2	6"	HAND WHEEL GATE VALVES, FLANGED
4	1	4"	O.S.Y. VALVE, FLANGED
5	1	2"	HAND WHEEL GATE VALVE, SCREWED
6	1	2"	BRASS PLUG
7	2	6" x 4"	CAST IRON TEES, FLANGED
8	2	4"	CAST IRON ELBOWS,FLANGED LR
9	2	4" x 9"	CAST IRON FLANGE, 8 HOLE
10	70"	4"	GALVANIZED PIPE, EXTRA HEAVY
11	1	2" x 10"	BRASS NIPPLE
12	8	6"	FLANGE GASKETS
13	5	4"	FLANGE GASKETS
14	64	3/4" x 3-1/2	MACHINE BOLTS
15	40	5/8" X 3"	MACHINE BOLTS
16	8	3/4" x 4"	STUD BOLTS
17	72	3/4"	HEX NUTS
18	40	5/8"	HEX NUTS

(SEE DRAWING No. STD-M10 & STD-V01).

4-26-2005



PLAN

NOTE:
ALL BOLTS AND GASKETS BY SUPPLIER.

MINOR VARIATIONS IN THE OVERALL LENGTH ARE TO BE EXPECTED DEPENDING ON THE TEE'S, VALVES, AND CHECK VALVES SUPPLIED.
ADJUSTMENTS TO THE BYPASS (ITEM No. 10) WILL BE MADE BY THE DIVISION OF WATER AS NEEDED.

STANDARD DETAILS		
DEPARTMENT OF PUBLIC UTILITIES DIVISION OF WATER CLEVELAND, OHIO		
SUBJECT STANDARD 6″ METER SETTING WITH 4″ METER FOR VAULTS		
DRAWN BY RSK DATE 5-18-1998 CHECKED BY MJS DATE 5-18-98	-SCALE- 1-1/2″ = 1′-0″	STD-M11

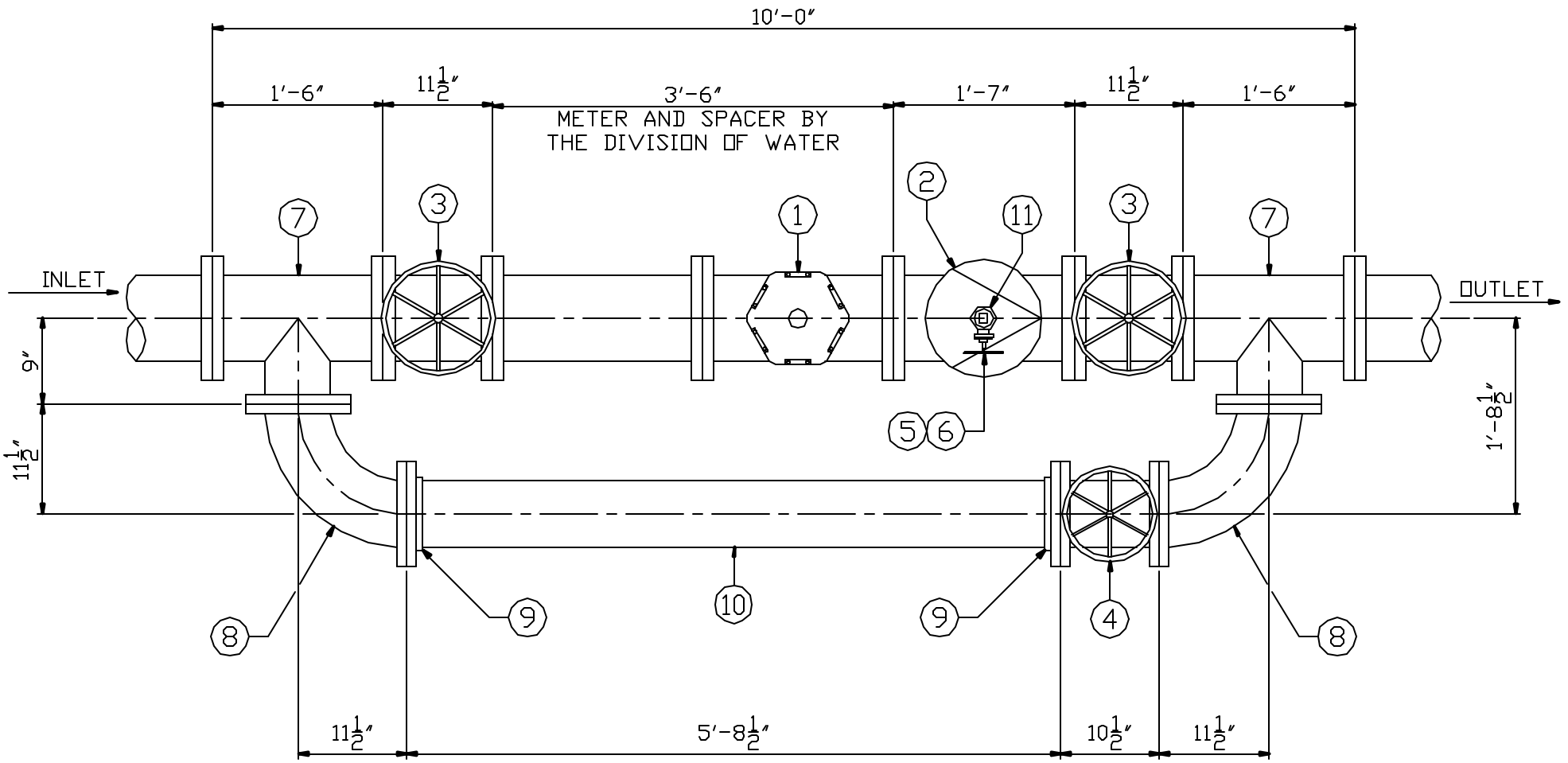
MATERIALS REQUIRED FOR INSTALLATION

STANDARD 6" METER SETTING WITH 4" METER

ITEM	REQ'D	SIZE	DESCRIPTION
1	1	4"	TURBINE OR COMPOUND METER (METER AND SPACER BY C.W.D.)
2	1	6"	SWING CHECK VALVE, FLANGED
3	2	6"	HAND WHEEL GATE VALVES, FLANGED
4	1	4"	O.S.Y. VALVE, FLANGED
5	1	2"	HAND WHEEL GATE VALVE, SCREWED
6	1	2"	BRASS PLUG
7	2	6" x 4"	CAST IRON TEES, FLANGED
8	2	4"	CAST IRON ELBOWS,FLANGED LR
9	2	4" x 9"	CAST IRON FLANGE, 8 HOLE
10	72-1/4"	4"	GALVANIZED PIPE, EXTRA HEAVY
11	1	2" x 10"	BRASS NIPPLE
12	2	6" x 4"	CAST IRON CONCENTRIC REDUCER, FLANGED
13	8	6"	FLANGE GASKETS
14	7	4"	FLANGE GASKETS
15	56	3/4" x 3-1/2"	MACHINE BOLTS
16	56	5/8" X 3"	MACHINE BOLTS
17	8	3/4" x 4"	STUD BOLTS
18	64	3/4"	HEX NUTS
19	56	5/8"	HEX NUTS

(SEE DRAWING No. STD-M11 & STD-V01).

11-19-98



PLAN

NOTE: ALL BOLTS AND GASKETS BY SUPPLIER.

MINOR VARIATIONS IN THE OVERALL LENGTH ARE TO BE EXPECTED DEPENDING ON THE TEE'S, VALVES, AND CHECK VALVES SUPPLIED.

ADJUSTMENTS TO THE BYPASS (ITEM No. 10) WILL BE MADE BY THE DIVISON OF WATER AS NEEDED.

STANDARD DETAILS

DEPARTMENT OF PUBLIC UTILITIES
DIVISION OF WATER
CLEVELAND, OHIO

SUBJECT STANDARD 8″ METER SETTING
WITH 8″ METER FOR VAULTS

DRAWN BY RSK	-SCALE-	STD-M12
DATE 10-1-1997	1-1/2″ = 1′-0″	
CHECKED BY MJS DATE 10-1-97		

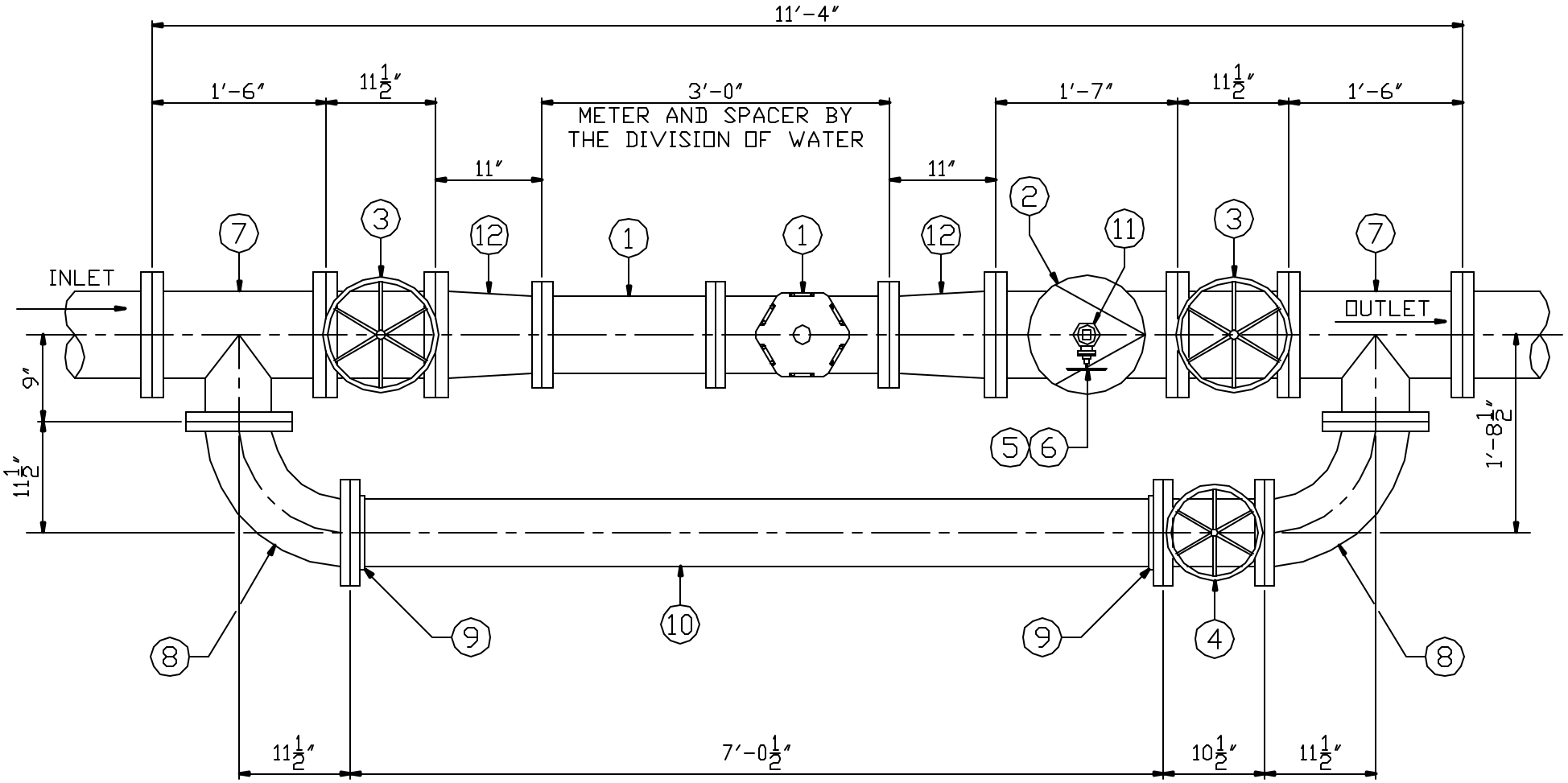
MATERIALS REQUIRED FOR INSTALLATION

STANDARD 8" METER SETTING WITH 8" METER

ITEM	REQ'D	SIZE	DESCRIPTION
1	1	8"	TURBINE OR COMPOUND METER (BY C.W.D.)
2	1	8"	SWING CHECK VALVE, FLANGED
3	2	8"	HAND WHEEL GATE VALVES, FLANGED
4	1	6"	O.S.Y. VALVE, FLANGED
5	1	2"	HAND WHEEL GATE VALVE, SCREWED
6	1	2"	BRASS PLUG
7	2	8" x 6"	CAST IRON TEES, FLANGED
8	2	6"	CAST IRON ELBOWS,FLANGED LR
9	2	6" x 11"	CAST IRON FLANGE, 8 HOLE
10	72"	6"	GALVANIZED PIPE, EXTRA HEAVY
11	1	2" x 10"	BRASS NIPPLE
12	5	8"	FLANGE GASKETS
13	5	6"	FLANGE GASKETS
14	104	3/4" x 3-1/2"	MACHINE BOLTS
15	8	3/4" x 4-1/4"	STUD BOLTS
16	112	3/4"	HEX NUTS

(SEE DRAWING No. STD-M12 & STD-V01).

11-19-98



PLAN

NOTE: ALL BOLTS AND GASKETS BY SUPPLIER.

MINOR VARIATIONS IN THE OVERALL LENGTH ARE TO BE EXPECTED DEPENDING ON THE TEE'S, VALVES, AND CHECK VALVES SUPPLIED.

ADJUSTMENTS TO THE BYPASS (ITEM No. 10) WILL BE MADE BY THE DIVISON OF WATER AS NEEDED.

STANDARD DETAILS

DEPARTMENT OF PUBLIC UTILITIES
DIVISION OF WATER
CLEVELAND, OHIO

SUBJECT STANDARD 8″ METER SETTING WITH 6″ METER FOR VAULTS

DRAWN BY RSK	-SCALE-	STD-M13
DATE 4-26-2005	1-1/2″ = 1′-0″	
CHECKED BY ____ DATE ____		

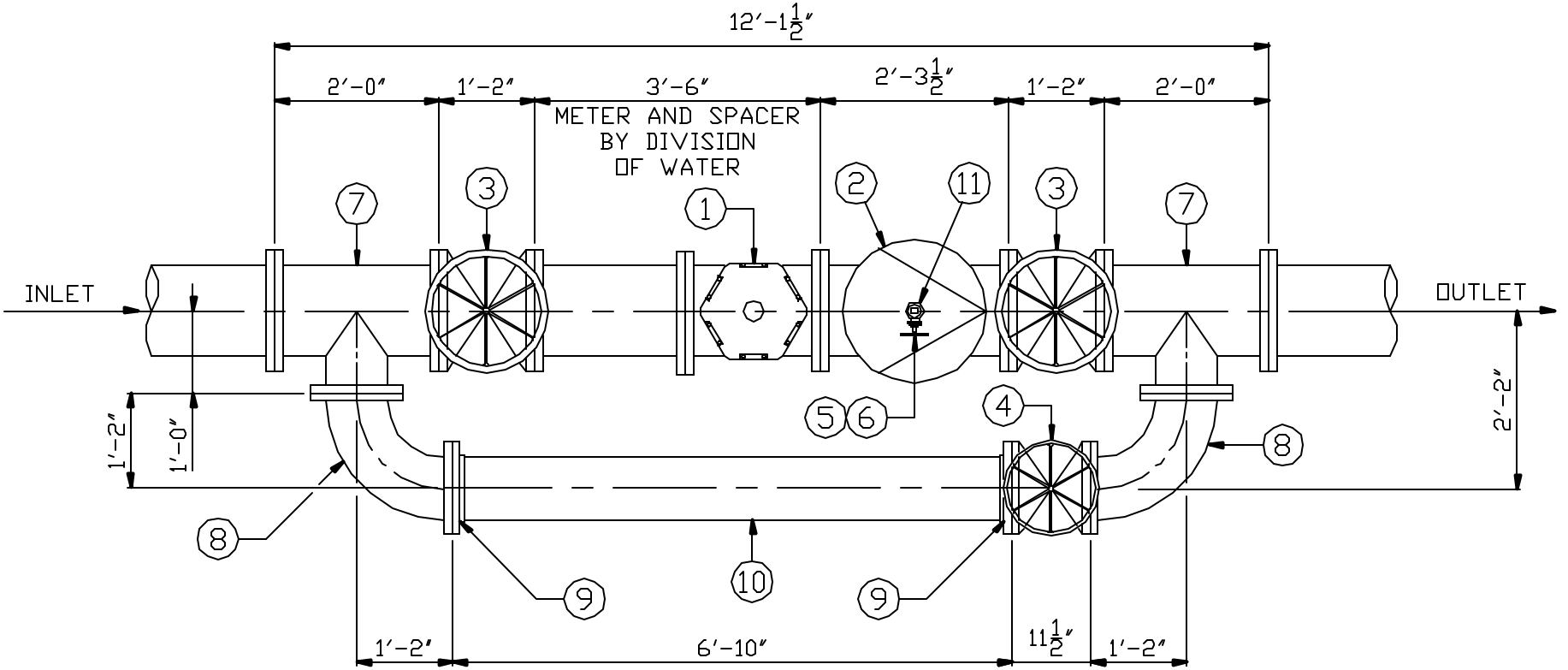
MATERIALS REQUIRED FOR INSTALLATION

STANDARD 8" METER SETTING WITH 6" METER

ITEM	REQ'D	SIZE	DESCRIPTION
1	1	6"	TURBINE OR COMPOUND METER (METER AND SPACER BY C.W.D.)
2	1	8"	SWING CHECK VALVE, FLANGED
3	2	8"	HAND WHEEL GATE VALVES, FLANGED
4	1	6"	O.S.Y. VALVE, FLANGED
5	1	2"	HAND WHEEL GATE VALVE, SCREWED
6	1	2"	BRASS PLUG
7	2	8" x 6"	CAST IRON TEES, FLANGED
8	2	6"	CAST IRON ELBOWS,FLANGED LR
9	2	6" x 11" DIA.	CAST IRON FLANGE, 8 HOLE
10	90"	6"	GALVANIZED PIPE, EXTRA HEAVY
11	1	2" x 10"	BRASS NIPPLE
12	2	8" x 6"	CAST IRON CONCENTRIC REDUCER, FLANGED
13	7	8"	FLANGE GASKETS
14	7	6"	FLANGE GASKETS
15	120	3/4" x 3-1/2"	MACHINE BOLTS
16	8	3/4" x 4-1/4"	STUD BOLTS
17	128	3/4"	HEX NUTS

(SEE DRAWING No. STD-M13 & STD-V01).

4-26-2005



PLAN

NOTE:
ALL BOLTS AND GASKETS BY SUPPLIER.

NOTE:
MINOR VARIATIONS IN THE OVERALL LENGTH ARE TO BE EXPECTED DEPENDING ON THE TEE'S, VALVES, AND CHECK VALVES SUPPLIED.
ADJUSTMENTS TO THE BYPASS (ITEM No. 10) WILL BE MADE BY THE DIVISION OF WATER AS NEEDED.

STANDARD DETAILS

DEPARTMENT OF PUBLIC UTILITIES
DIVISION OF WATER
CLEVELAND, OHIO

SUBJECT STANDARD 12″ METER SETTING WITH 12″ METER FOR VAULTS

DRAWN BY RSK
DATE 10-1-1997
CHECKED BY MJS DATE 10-1-97

-SCALE- 1″ = 1′-0″

STD-M14

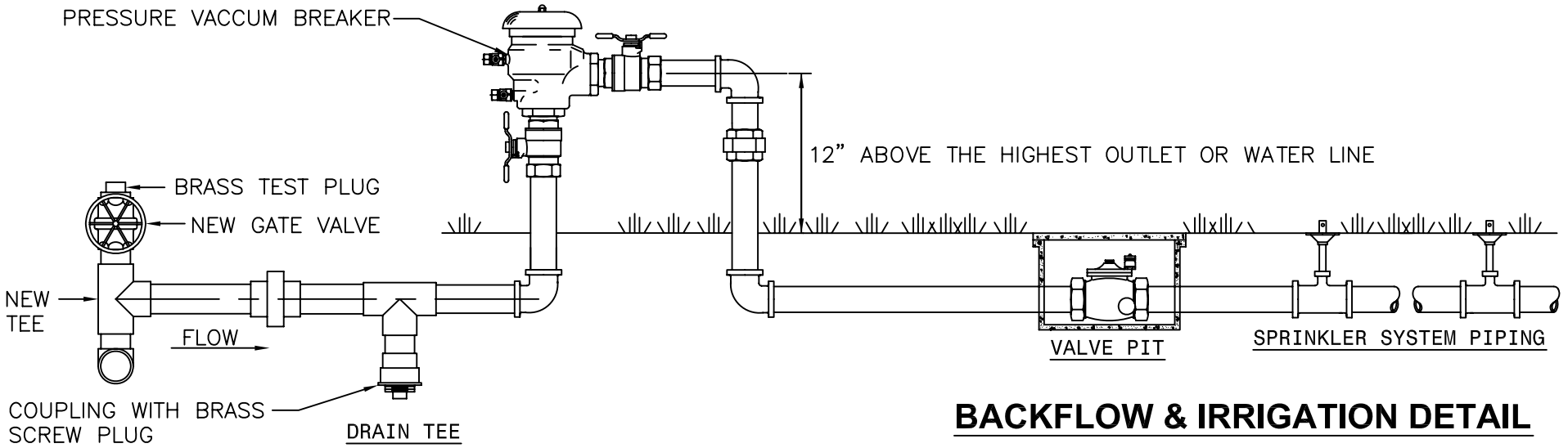
MATERIALS REQUIRED FOR INSTALLATION

STANDARD 12" METER SETTING WITH 12" METER

ITEM	REQ'D	SIZE	DESCRIPTION
1	1	12"	TURBINE METER
2	1	12"	SWING CHECK VALVE, FLANGED
3	2	12"	HAND WHEEL GATE VALVES, FLANGED
4	1	8"	O.S.Y. VALVE, FLANGED
5	1	2"	HAND WHEEL GATE VALVE, SCREWED
6	1	2"	BRASS PLUG
7	2	12" x 8"	CAST IRON TEES, FLANGED
8	2	8"	CAST IRON ELBOWS,FLANGED LR
9	2	8" x 13-1/2"	CAST IRON FLANGE, 8 HOLE
10	82"	8"	GALVANIZED PIPE, EXTRA HEAVY
11	1	2" x 10"	BRASS NIPPLE
12	8	12"	FLANGE GASKETS
13	5	8"	FLANGE GASKETS
14	96	7/8" x 4"	MACHINE BOLTS
15	40	3/4" X 3-1/2"	MACHINE BOLTS
16	8	7/8" x 4-3/4"	STUD BOLTS
17	40	3/4"	HEX NUTS
18	104	7/8"	HEX NUTS

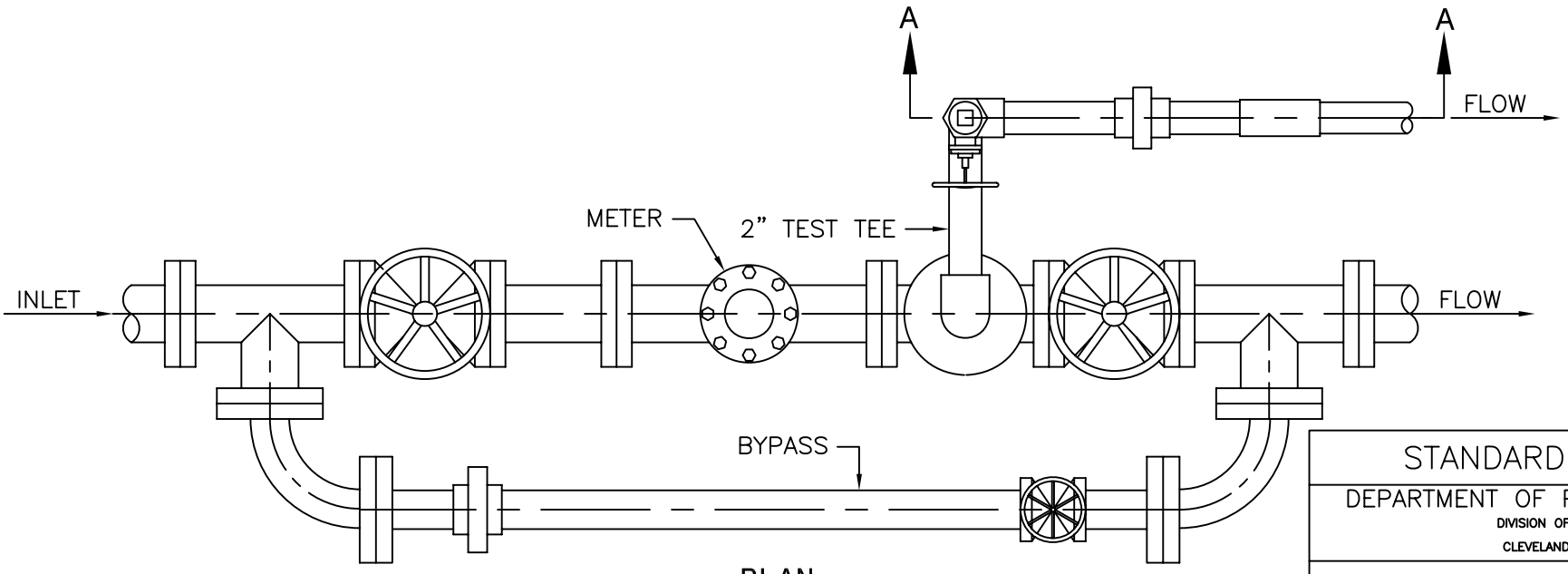
(SEE DRAWING No. STD-M14 & STD-V01).

3-6-2009



BACKFLOW & IRRIGATION DETAIL

SECTION A-A



PLAN

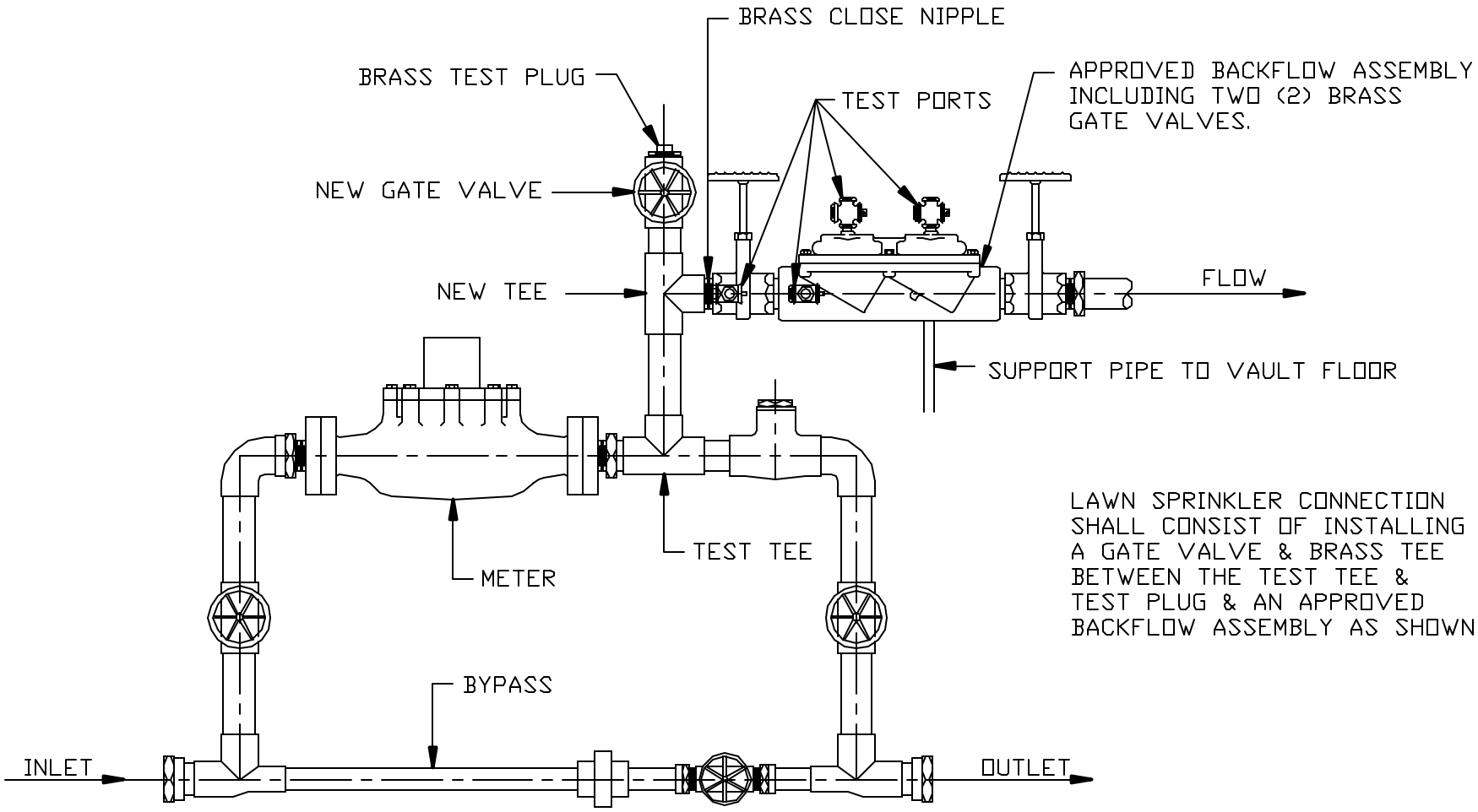
* FOR TYPE AND MODEL OF BACKFLOW DEVICE REQUIRED CONTACT THE BACKFLOW UNIT AT (216) 664-3944.

STANDARD DETAILS

DEPARTMENT OF PUBLIC UTILITIES
DIVISION OF WATER
CLEVELAND, OHIO

SUBJECT
TYPICAL 3", 4", 6" AND 8" METER SETTINGS WITH 1", 1½" OR 2" LAWN SPRINKLER CONNECTION

DRAWN BY RSK	SCALE NONE	STD-M15
DATE 1-4-2010		
CHECKED BY ____ DATE ____		



LAWN SPRINKLER CONNECTION SHALL CONSIST OF INSTALLING A GATE VALVE & BRASS TEE BETWEEN THE TEST TEE & TEST PLUG & AN APPROVED BACKFLOW ASSEMBLY AS SHOWN

ELEVATION

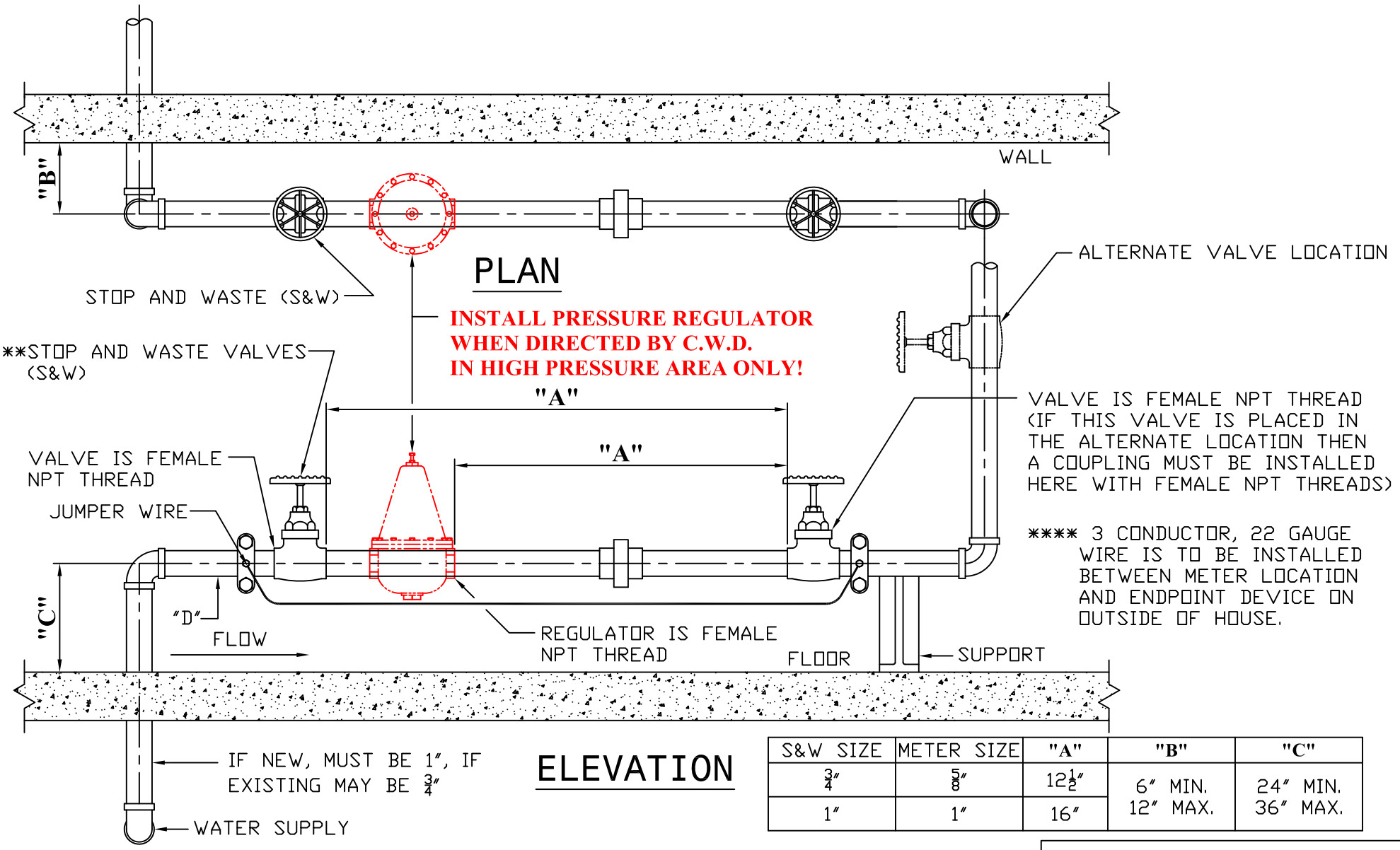
* FOR TYPE AND MODEL OF BACKFLOW DEVICE REQUIRED CONTACT THE BACKFLOW UNIT AT (216) 664-3944.

STANDARD DETAILS

DEPARTMENT OF PUBLIC UTILITIES
DIVISION OF WATER
CLEVELAND, OHIO

SUBJECT TYPICAL 1½" AND 2" METER SETTING
WITH 1" AND 1½" LAWN SPRINKLER CONNECTION

DRAWN BY RSK	SCALE NONE	STD-M16
DATE 10-1-1997		
CHECKED BY MJS DATE 10-1-97		



S&W SIZE	METER SIZE	"A"	"B"	"C"
3/4"	5/8"	12 1/2"	6" MIN. 12" MAX.	24" MIN. 36" MAX.
1"	1"	16"		

* NOTE: IF METER SIZE IS REDUCED FROM THE INCOMING LINE SIZE, THE APPROPRIATE REDUCTION SHOULD TAKE PLACE AT POINT "D".

** BALL VALVES MAY BE USED IN PLACE OF STOP AND WASTE VALVES.

*** IF WATER SERVICE IS FOR ANYTHING OTHER THAN A SINGLE OR 2 FAMILY HOUSE, A BACKFLOW PREVENTION DEVICE IS REQUIRED. FOR TYPE AND MODEL OF BACKFLOW DEVICE REQUIRED CONTACT THE WATER BACKLFOW UNIT AT 216-664-3944.

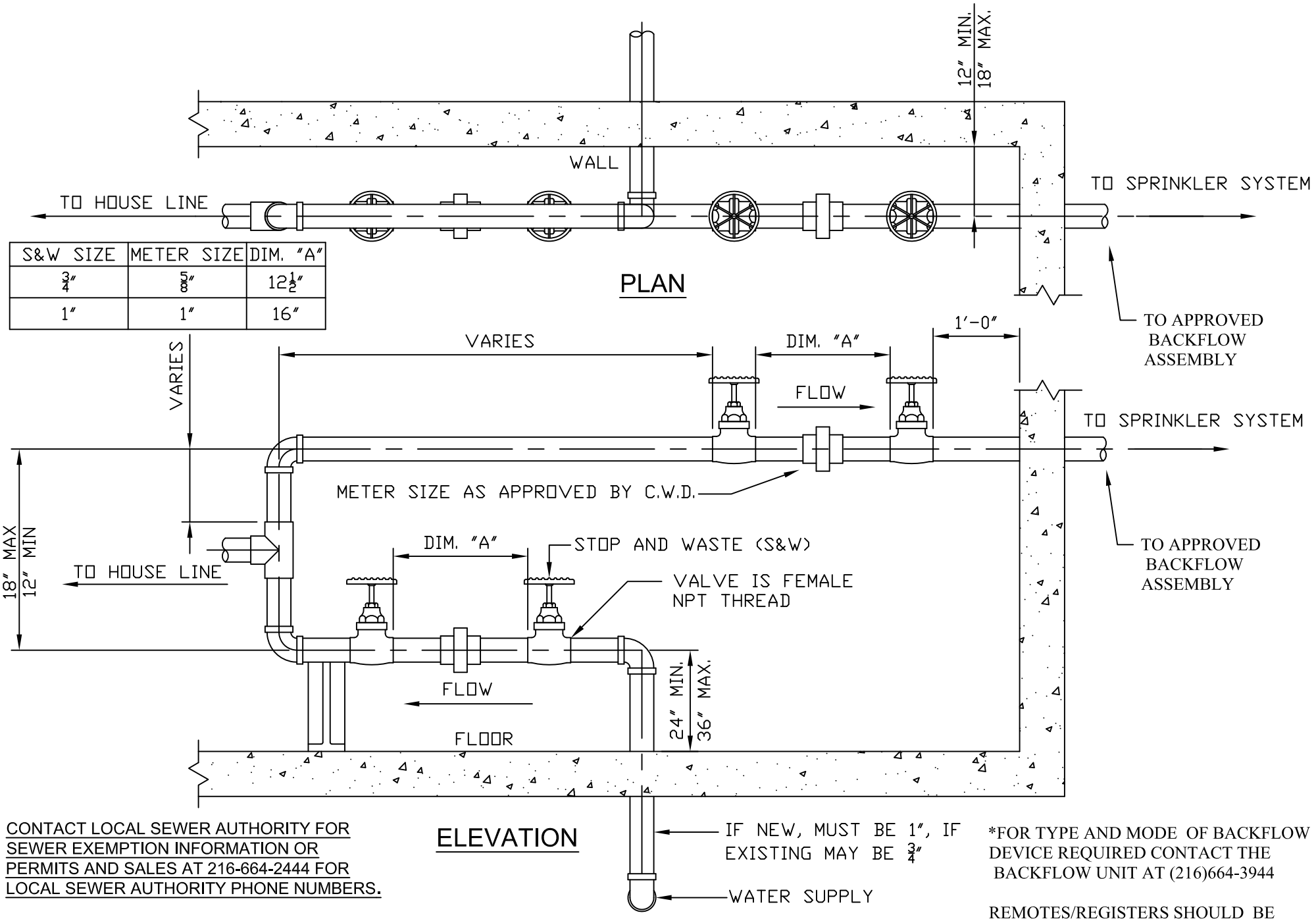
STANDARD DETAILS

DEPARTMENT OF PUBLIC UTILITIES
DIVISION OF WATER
CLEVELAND, OHIO

SUBJECT APPROVED INSIDE BUILDING METER SETTINGS FOR 5/8", 1" METERS

DRAWN BY RSK
DATE 2-4-2013
CHECKED BY ___ DATE ___
-SCALE- NONE

STD-M17



S&W SIZE	METER SIZE	DIM. "A"
¾"	⅝"	12½"
1"	1"	16"

CONTACT LOCAL SEWER AUTHORITY FOR SEWER EXEMPTION INFORMATION OR PERMITS AND SALES AT 216-664-2444 FOR LOCAL SEWER AUTHORITY PHONE NUMBERS.

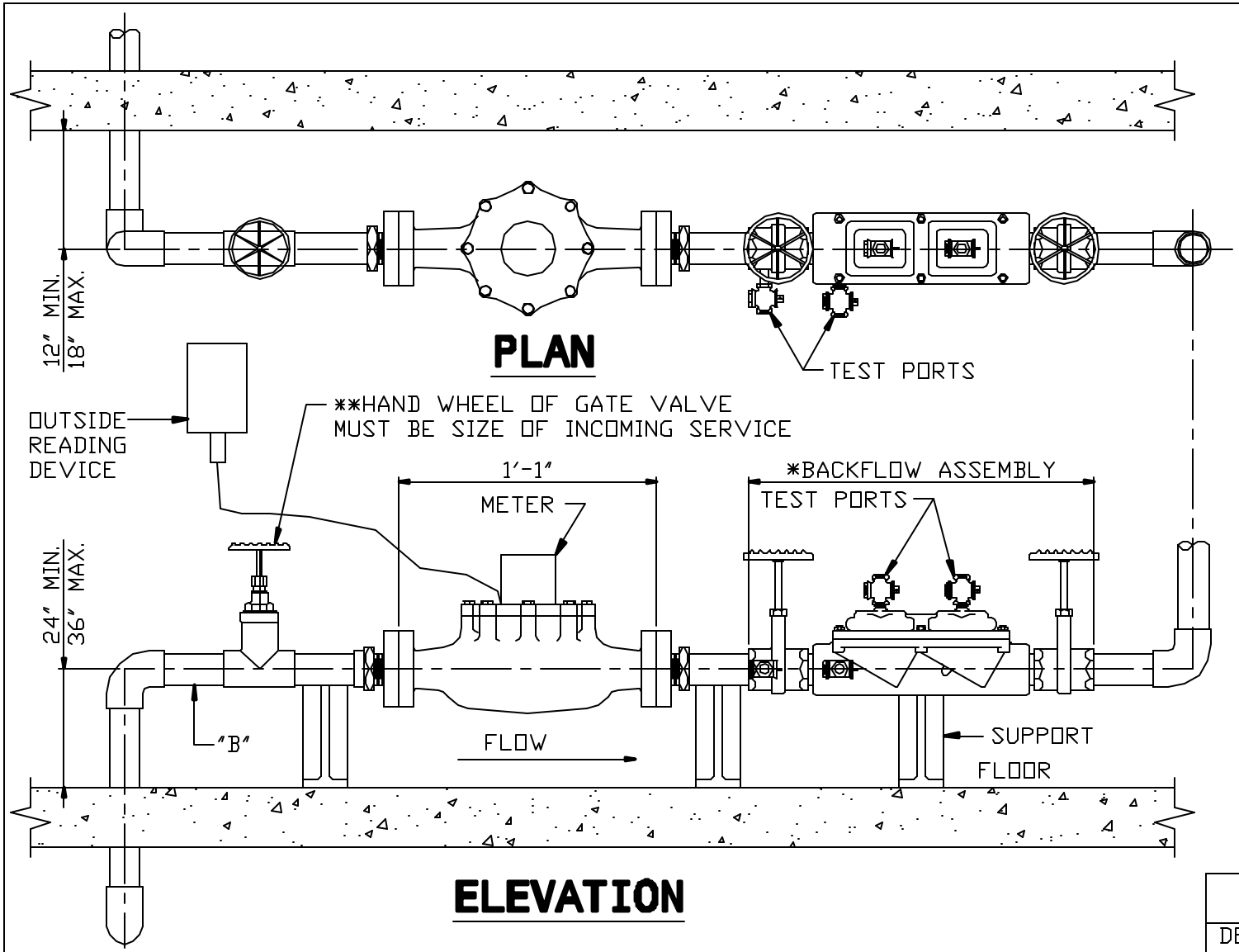
*FOR TYPE AND MODE OF BACKFLOW DEVICE REQUIRED CONTACT THE BACKFLOW UNIT AT (216)664-3944

REMOTES/REGISTERS SHOULD BE SIDE BY SIDE ON EXTERNAL WALL

APPROVED INSIDE BUILDING METER SETTING FOR ⅝", 1" METERS FOR SEWER EXEMPTION, RESIDENTIAL ONLY

STD-M18

DATE: 12-3-2012



PLAN

ELEVATION

* FOR TYPE AND MODEL OF BACKFLOW DEVICE REQUIRED CONTACT THE BACKFLOW UNIT AT (216) 664-3944.

NOTE: IF METER SIZE IS REDUCED FROM INCOMING LINE SIZE, THE APPROPRIATE REDUCTION SHOULD TAKE PLACE AT POINT "B".

** BALL VALVES MAY BE USED IN PLACE OF HAND WHEEL GATE VALVES.

STANDARD DETAILS

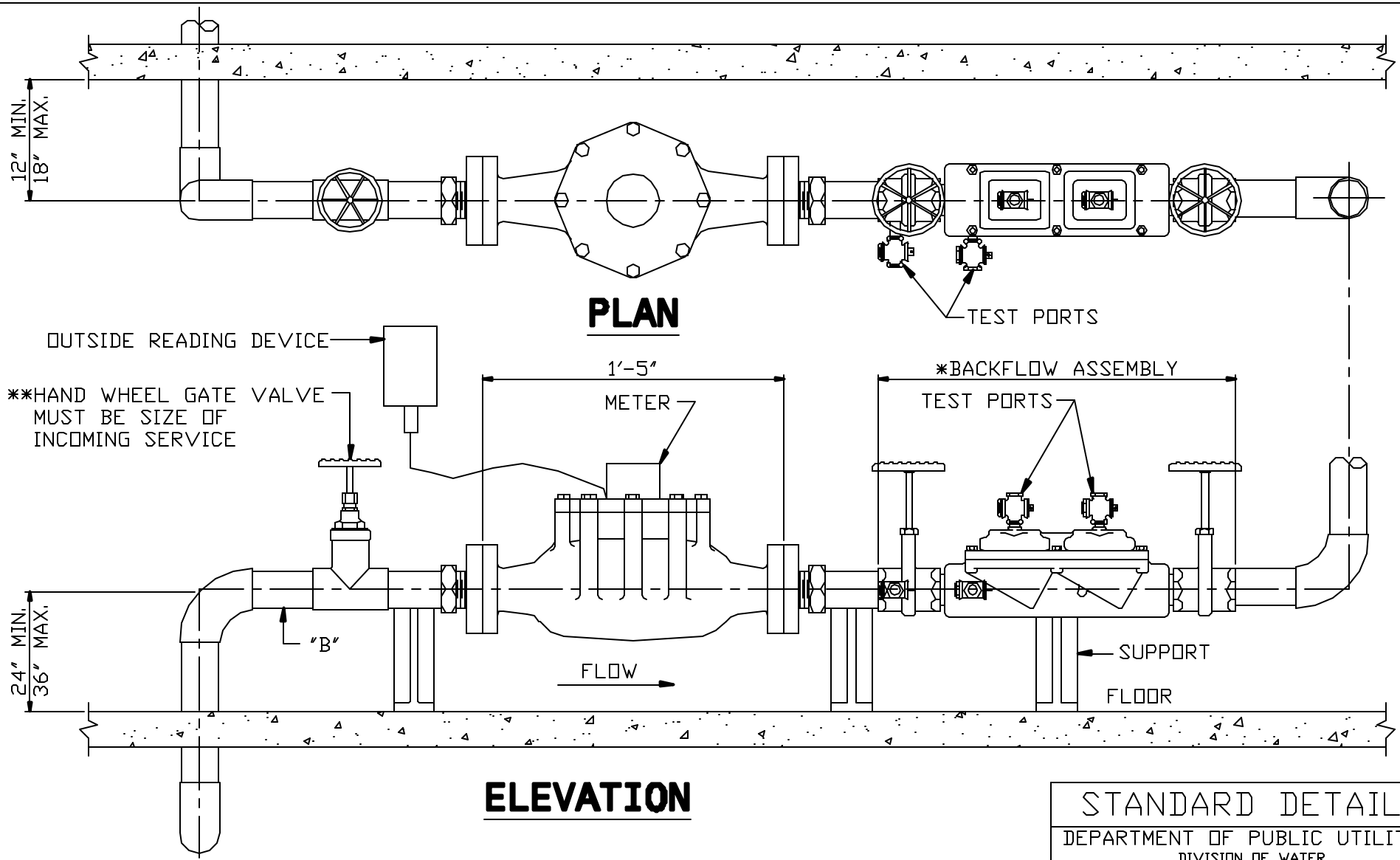
DEPARTMENT OF PUBLIC UTILITIES
DIVISION OF WATER
CLEVELAND, OHIO

SUBJECT APPROVED INSIDE BUILDING METER

SETTING FOR $1\frac{1}{2}$" METER & BACKFLOW ASSEMBLY

DRAWN BY RSK	SCALE 3" = 1'-0"
DATE 10-1-1997	
CHECKED BY MJS DATE 10-1-97	

STD-M20



* FOR TYPE AND MODEL OF BACKFLOW DEVICE REQUIRED CONTACT THE BACKFLOW UNIT AT (216) 664-3944.

NOTE: IF METER SIZE IS REDUCED FROM THE INCOMING LINE SIZE, THE APPROPIATE REDUCTION SHOULD TAKE PLACE AT POINT "B".

** BALL VALVES MAY BE USED IN PLACE OF HAND WHEEL GATE VALVES.

STANDARD DETAILS

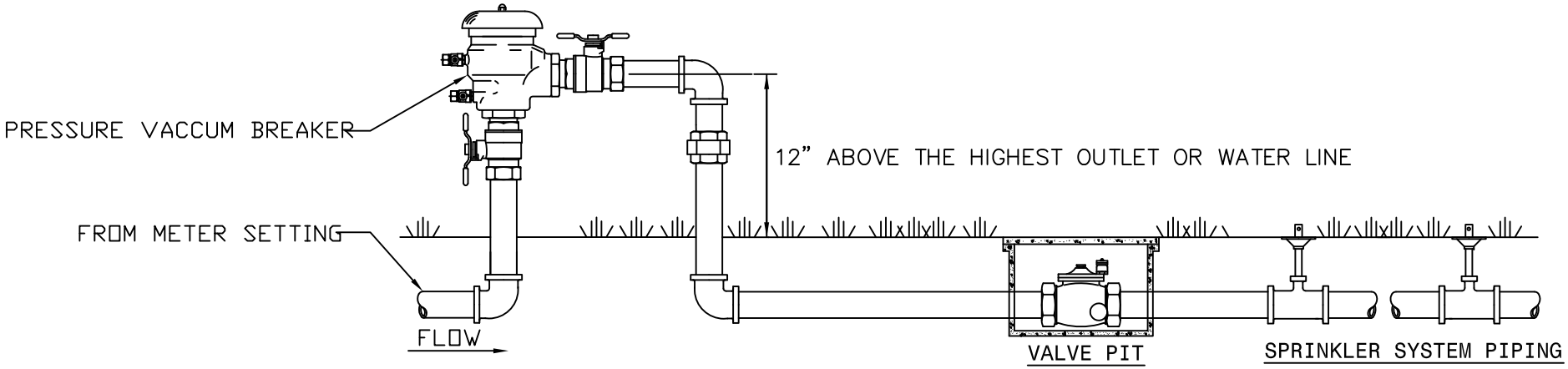
DEPARTMENT OF PUBLIC UTILITIES
DIVISION OF WATER
CLEVELAND, OHIO

SUBJECT APPROVED INSIDE BUILDING METER

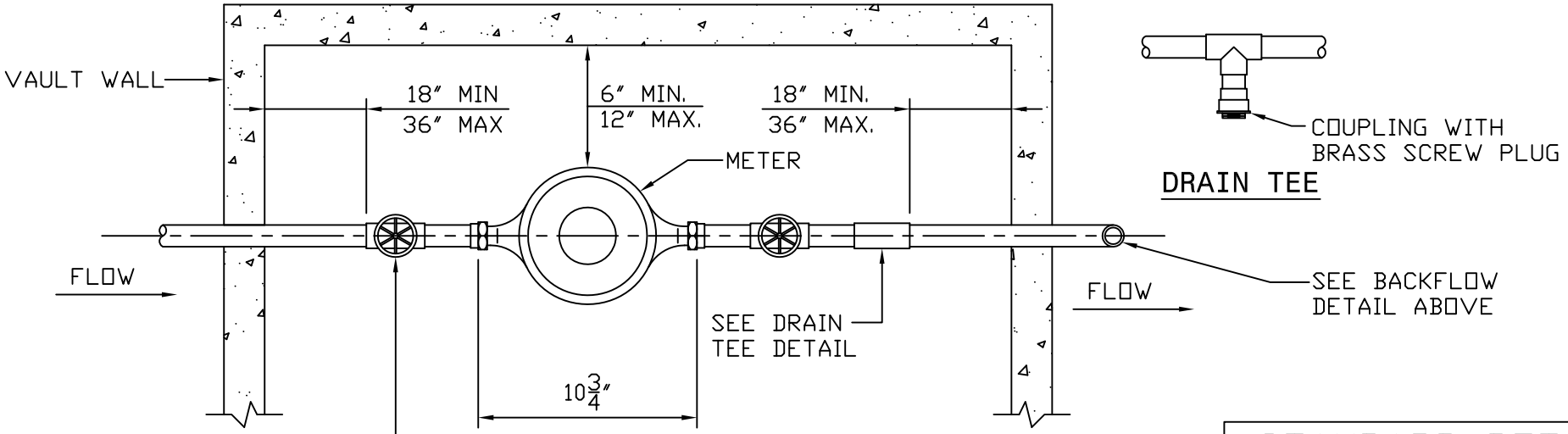
SETTING FOR 2" METER & BACKFLOW ASSEMBLY

DRAWN BY RSK
DATE 10-1-97
CHECKED BY MJS DATE 10-1-97
SCALE 3" = 1'-0"

STD-M22



BACKFLOW & IRRIGATION DETAIL



PLAN

DRAIN TEE

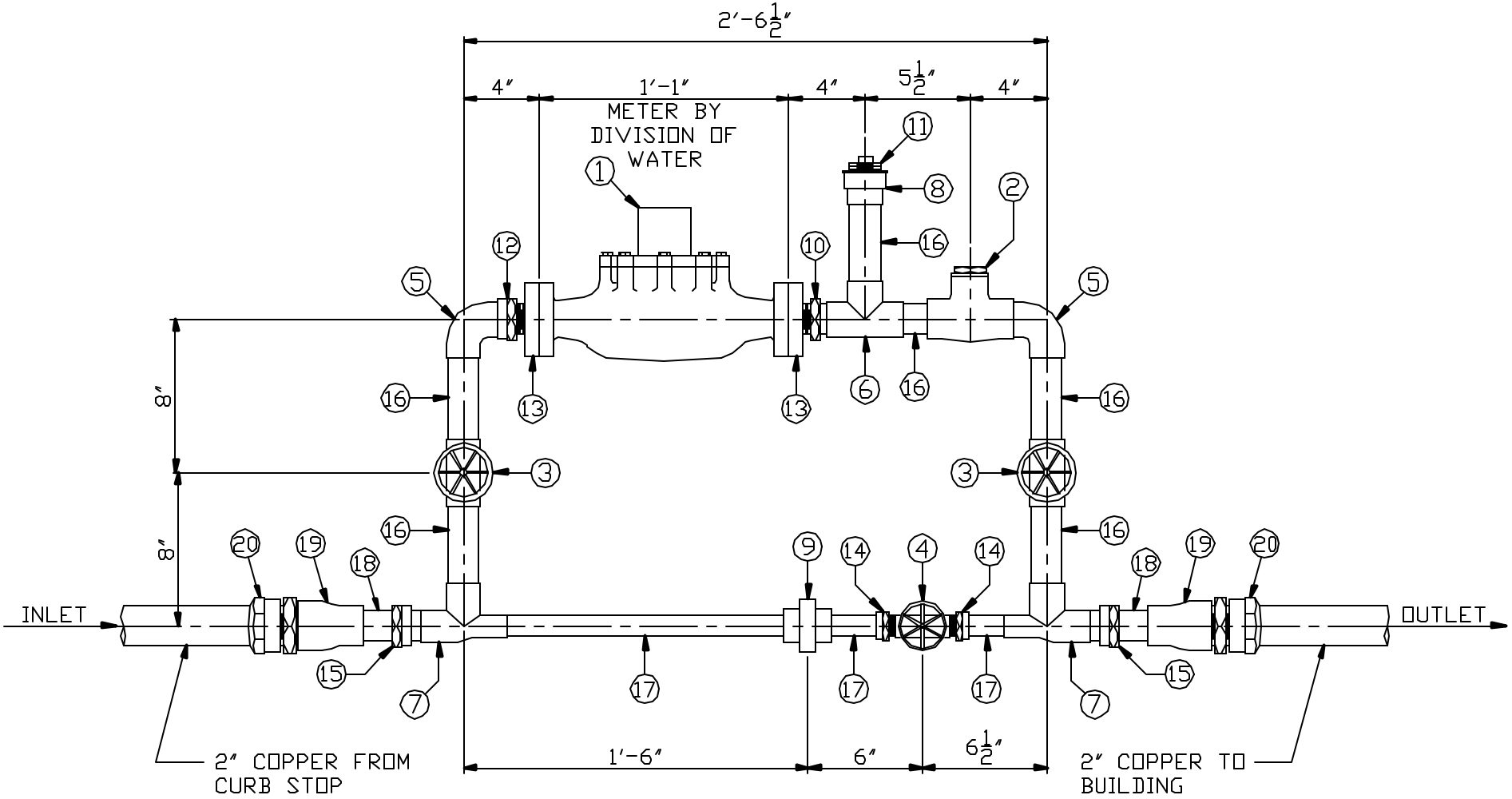
* ADDTIONAL DRAIN VALVES OR CONTROL VALVES MAY BE PLACED DOWNSTREAM OF BACKFLOW PREVENTOR.

STANDARD DETAILS

DEPARTMENT OF PUBLIC UTILITIES
DIVISION OF WATER
CLEVELAND, OHIO

SUBJECT APPROVED 1" METER SETTING FOR
1" METER & BACKFLOW ASSEMBLY FOR VAULTS
* "LAWN IRRIGATION ONLY"

DRAWN BY RSK	-SCALE-	STD-M24
DATE 8-22-2012	NONE	
CHECKED BY ___ DATE ___		



ELEVATION

ITEM ④ TO BE SET AN AN ANGLE WITH LOCK AND CABLE.

NOTE:
MINOR VARIATIONS IN THE OVERALL LENGTH ARE TO BE EXPECTED DEPENDING ON THE TEE'S, VALVES, AND CHECK VALVES SUPPLIED.
ADJUSTMENTS TO THE BYPASS (ITEM 17) WILL BE MADE BY THE DIVISION OF WATER AS NEEDED.
ALL BOLTS AND GASKETS BY SUPPLIER.

STANDARD DETAILS

DEPARTMENT OF PUBLIC UTILITIES
DIVISION OF WATER
CLEVELAND, OHIO

SUBJECT STANDARD 1½″ METER SETTING WITH 1½″ METER IN VAULT FOR 2″ CONNECTION

DRAWN BY RSK	-SCALE-
DATE 1-12-1999	3″ = 1′-0″
CHECKED BY MJS DATE 1-12-99	

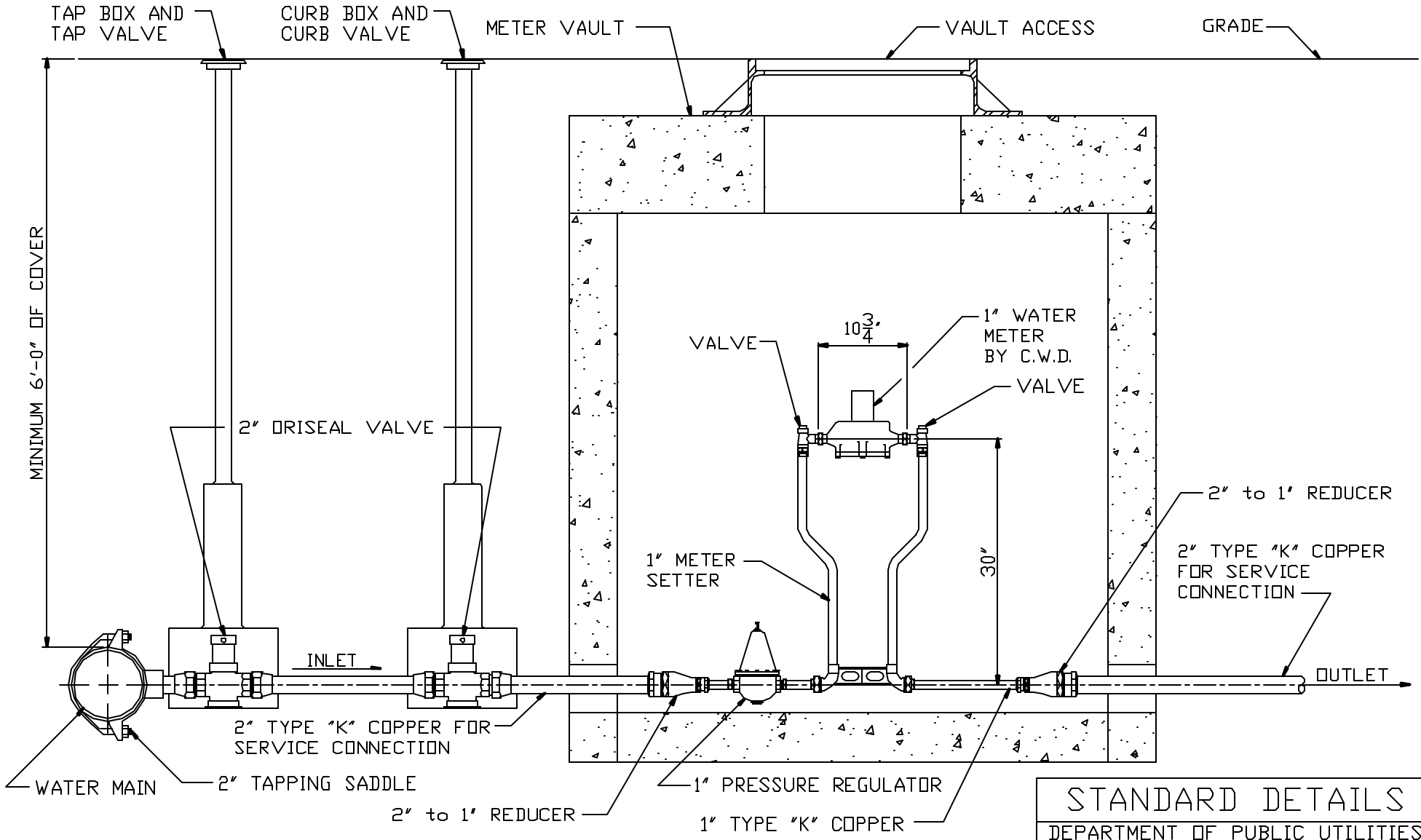
STD-M25

MATERIALS REQUIRED FOR INSTALLATION

STANDARD 1-1/2” METER SETTING WITH 1-1/2” METER FOR 2” CONNECTION

ITEM	REQ’D	SIZE	DESCRIPTION
1	1	1-1/2”	METER BY C.W.D.
2	1	1-1/2”	STREAMLINE SWING CHECK VALVE, COPPER TO COPPER
3	2	1-1/2”	STREAMLINE HAND WHEEL GATE VALVES
4	1	1”	STREAMLINE O.S. & Y. GATE VALVE
5	2	1-1/2”	STREAMLINE STREET ELBOW, COPPER TO COPPER
6	1	1-1/2”	STREAMLINE TEE, COPPER TO COPPER
7	2	1-1/2” x 1” x 1-1/2”	STREAMLINE TEE, COPPER TO IRON, FEMALE
8	1	1-1/2”	STREAMLINE COUPLING, COPPER TO IRON, FEMALE
9	1	1”	STREAMLINE UNION, COPPER TO COPPER
10	1	1-1/2”	STREAMLINE COUPLING, COPPER TO IRON, MALE
11	1	1-1/2”	BRASS SCREW PLUG
12	1	1-1/2”	STREAMLINE COUPLING, COPPER TO IRON, FEMALE
13	2	1-1/2”	OVAL FLANGES, FEMALE
14	2	1”	STREAMLINE COUPLING, COPPER TO IRON, FEMALE
15	2	1-1/2”	STREAMLINE COUPLING, COPPER TO IRON, FEMALE
16	37”	1-1/2”	COPPER TUBING – HARD
17	30”	1”	COPPER TUBING – HARD
18	2	1-1/2”	BRASS CLOSE NIPPLE
19	2	2” x 1-1/2”	BRASS REDUCER COUPLING
20	2	2”	COMPRESSION COUPLING, COPPER TO IRON, MALE
21	1lb.		SPECIAL SOLDER

(SEE DRAWING No. STD-M25 and STD-V01).
1-12-1999



1" METER SETTER 30" HIGH:
MUELLER Cat. No. B2404FD WITH H-14222 COUPLING FOR FLARE CONNECTION
OR H-14227 COUPLING FOR COMPRESSION CONNECTION.
FORD 70 SERIES COPPER SETTER Cat. No. VV74-30 WITH FLARED OR COMPRESSION CONNECTION.

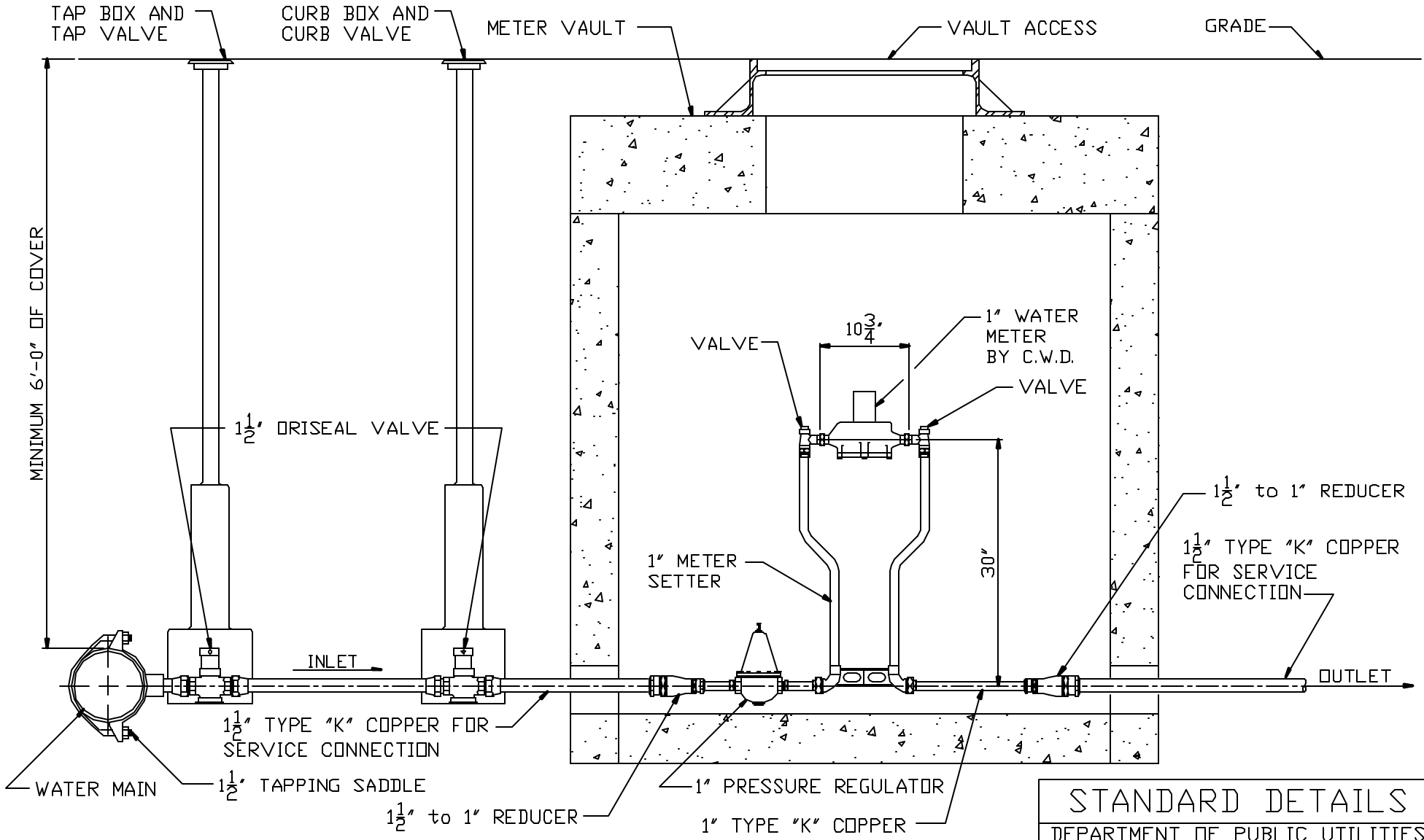
CONNECTION REDUCER: (2) 2" COMPRESSION COUPLING COPPER TO IRON MALE,
(2) 2" x 1" REDUCER COUPLING BRASS, (2) 1" COMPRESSION COUPLING COPPER TO IRON MALE.

STANDARD DETAILS

DEPARTMENT OF PUBLIC UTILITIES
DIVISION OF WATER
CLEVELAND, OHIO

SUBJECT STANDARD 1" METER SETTING WITH
1" REGULATOR FOR 2" CONNECTION IN VAULT

DRAWN BY RSK	-SCALE-	STD-M26
DATE 1-12-1999	1/2" = 1'-0"	
CHECKED BY MJS DATE 1-12-99		



1" METER SETTER 30" HIGH:
MUELLER Cat. No. B2404FD WITH H-14222 COUPLING FOR FLARE CONNECTION
OR H-14227 COUPLING FOR COMPRESSION CONNECTION.
FORD 70 SERIES COPPER SETTER Cat. No. VV74-30 WITH FLARED OR COMPRESSION CONNECTION.

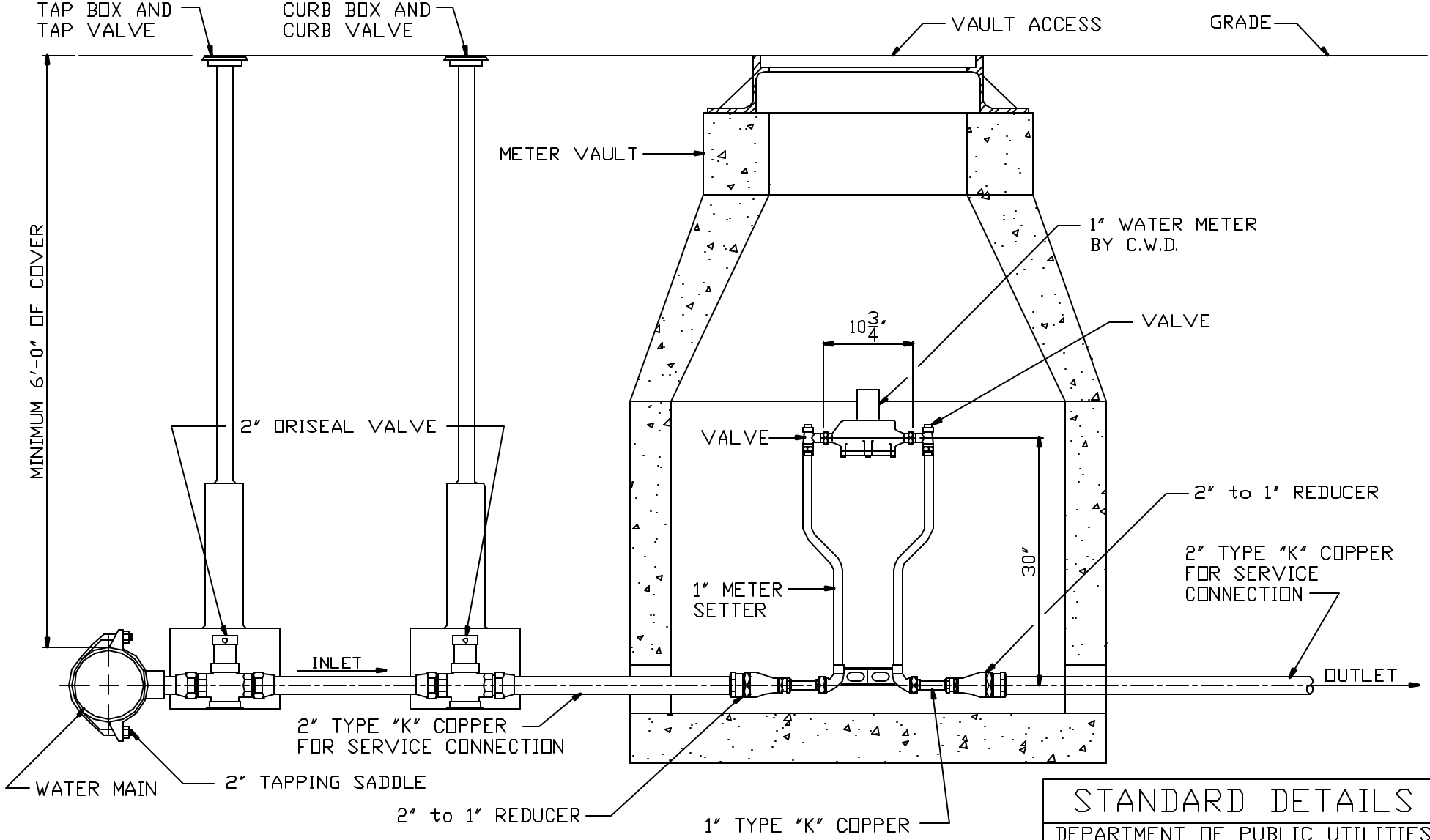
CONNECTION REDUCER: (2) 1½" COMPRESSION COUPLING COPPER TO IRON MALE,
(2) 1½" x 1" REDUCER COUPLING BRASS, (2) 1" COMPRESSION COUPLING COPPER TO IRON MALE.

STANDARD DETAILS

DEPARTMENT OF PUBLIC UTILITIES
DIVISION OF WATER
CLEVELAND, OHIO

SUBJECT STANDARD 1" METER SETTING WITH
1" REGULATOR FOR 1½" CONNECTION IN VAULT

DRAWN BY RSK	-SCALE-	STD-M27
DATE 1-12-1999	1½" = 1'-0"	
CHECKED BY MJS DATE 1-12-99		



1" METER SETTER 30" HIGH:
MUELLER Cat. No. B2404FD WITH H-14222 COUPLING FOR FLARE CONNECTION
OR H-14227 COUPLING FOR COMPRESSION CONNECTION.
FORD 70 SERIES COPPER SETTER Cat. No. VV74-30 WITH FLARED OR COMPRESSION CONNECTION.

CONNECTION REDUCER: (2) 2" COMPRESSION COUPLING COPPER TO IRON MALE,
(2) 2" x 1" REDUCER COUPLING BRASS, (2) 1" COMPRESSION COUPLING COPPER TO IRON MALE.

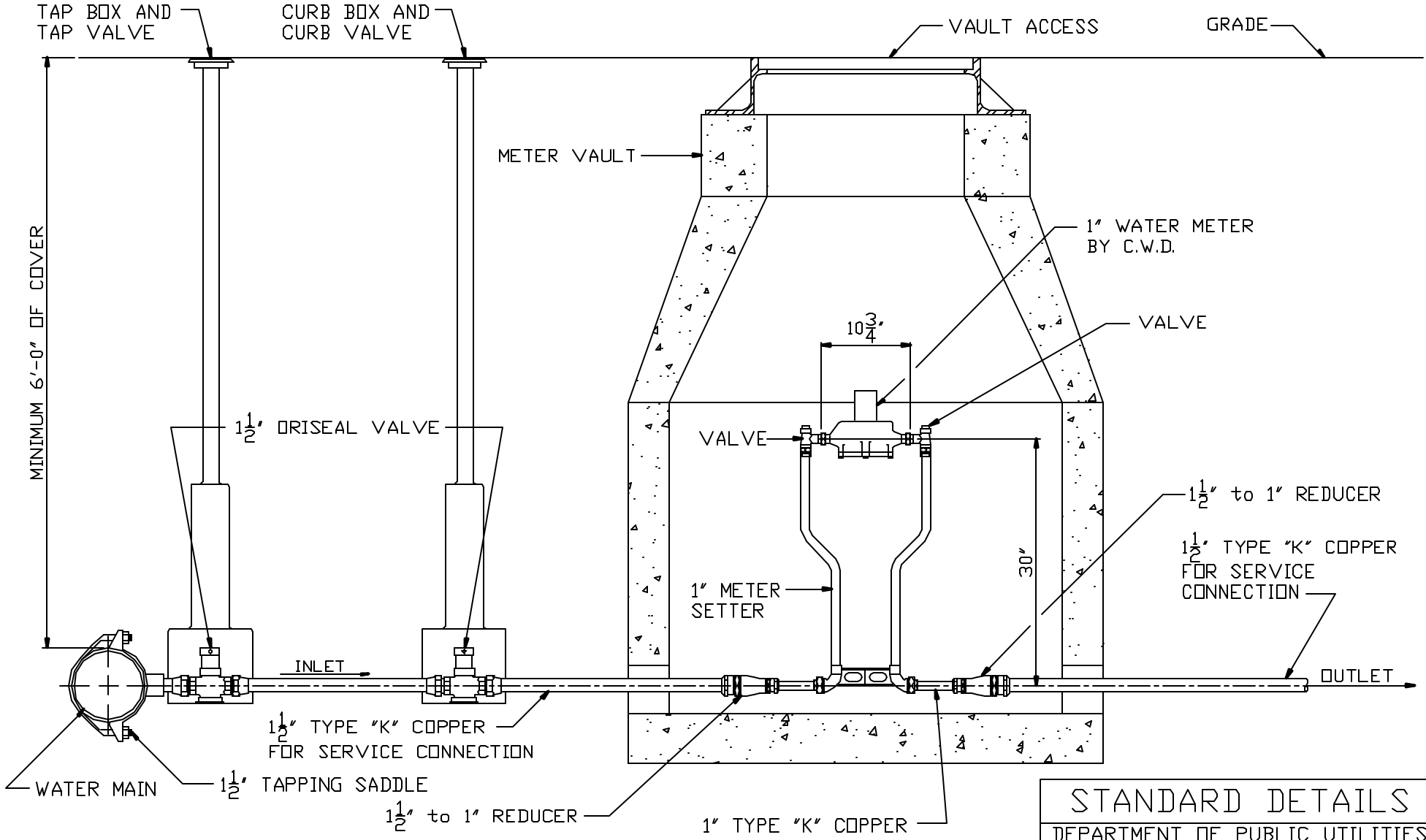
STANDARD DETAILS

DEPARTMENT OF PUBLIC UTILITIES
DIVISION OF WATER
CLEVELAND, OHIO

SUBJECT STANDARD 1" METER SETTING

FOR 2" CONNECTION IN VAULT

DRAWN BY RSK	-SCALE-	STD-M28
DATE 1-12-1999	1/2" = 1'-0"	
CHECKED BY MJS DATE 1-12-99		



1" METER SETTER 30" HIGH:
MUELLER Cat. No. B2404FD WITH H-14222 COUPLING FOR FLARE CONNECTION
OR H-14227 COUPLING FOR COMPRESSION CONNECTION.
FORD 70 SERIES COPPER SETTER Cat. No. VV74-30 WITH FLARED OR COMPRESSION CONNECTION.

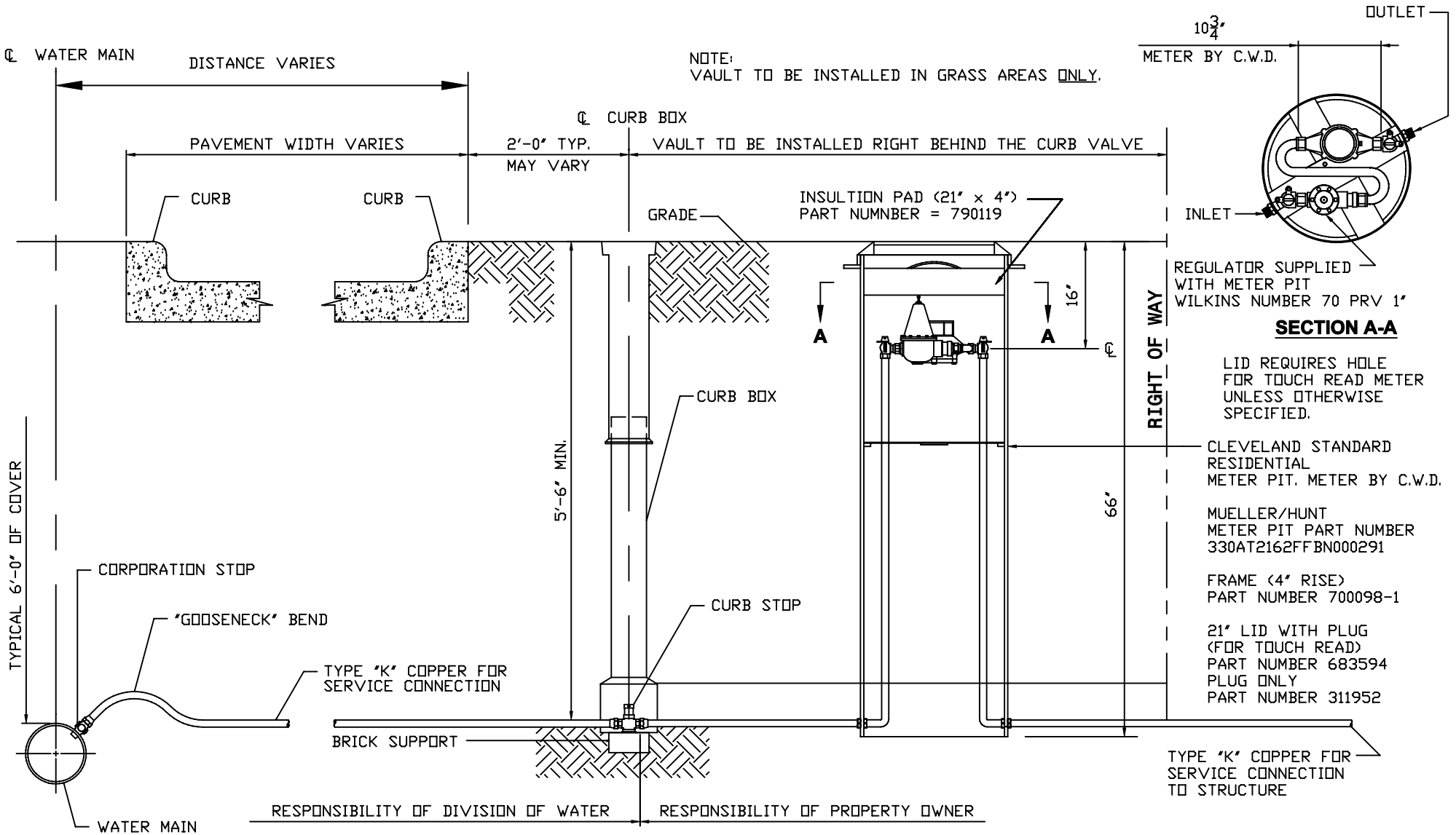
CONNECTION REDUCER: (2) 1 1/2" COMPRESSION COUPLING COPPER TO IRON MALE,
(2) 1 1/2" x 1" REDUCER COUPLING BRASS, (2) 1" COMPRESSION COUPLING COPPER TO IRON MALE.

STANDARD DETAILS

DEPARTMENT OF PUBLIC UTILITIES
DIVISION OF WATER
CLEVELAND, OHIO

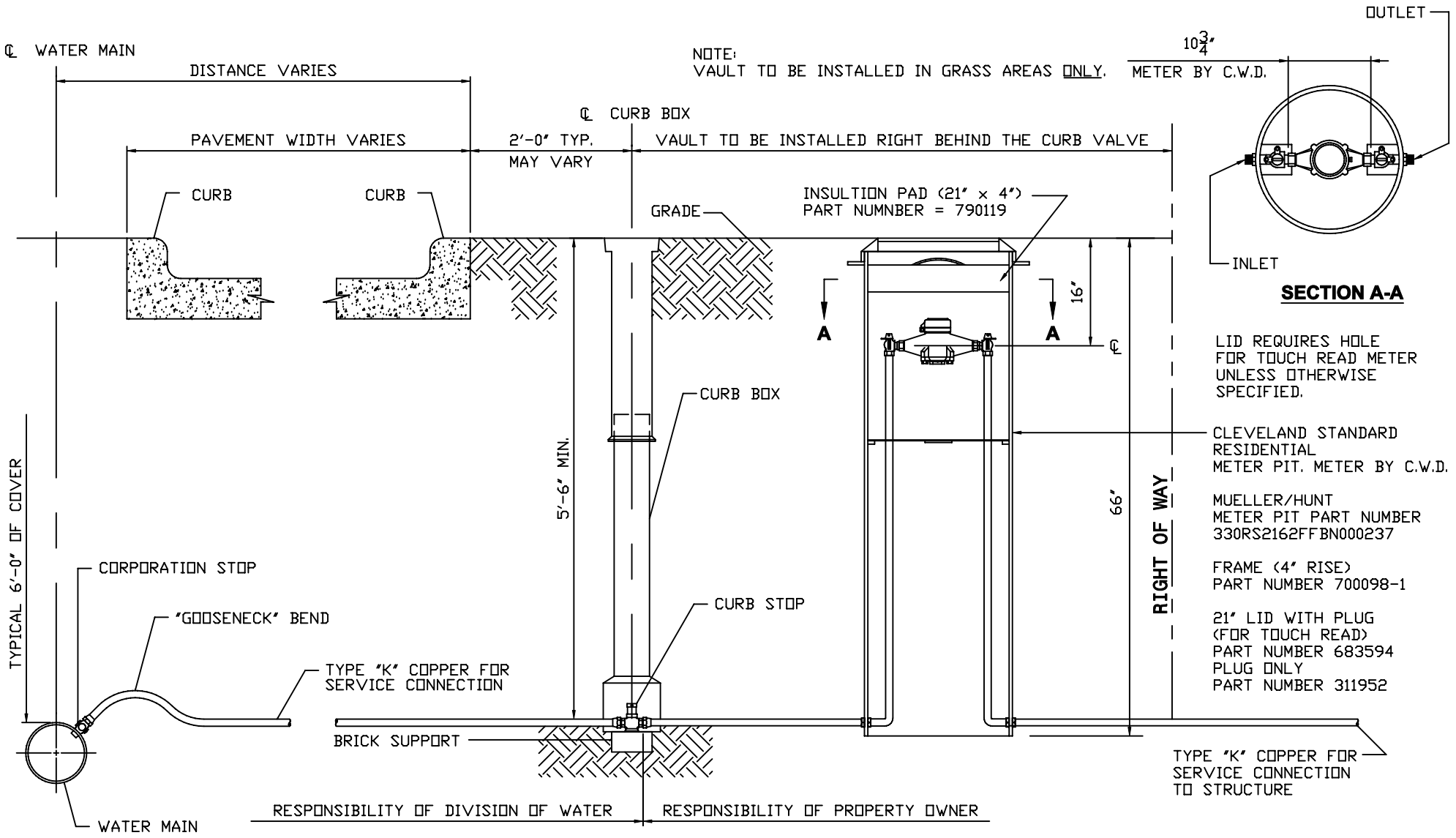
SUBJECT STANDARD 1" METER SETTING
FOR 1 1/2" CONNECTION IN VAULT

DRAWN BY RSK	-SCALE-	STD-M29
DATE 1-12-1999	1 1/2" = 1'-0"	
CHECKED BY MJS DATE 1-12-99		



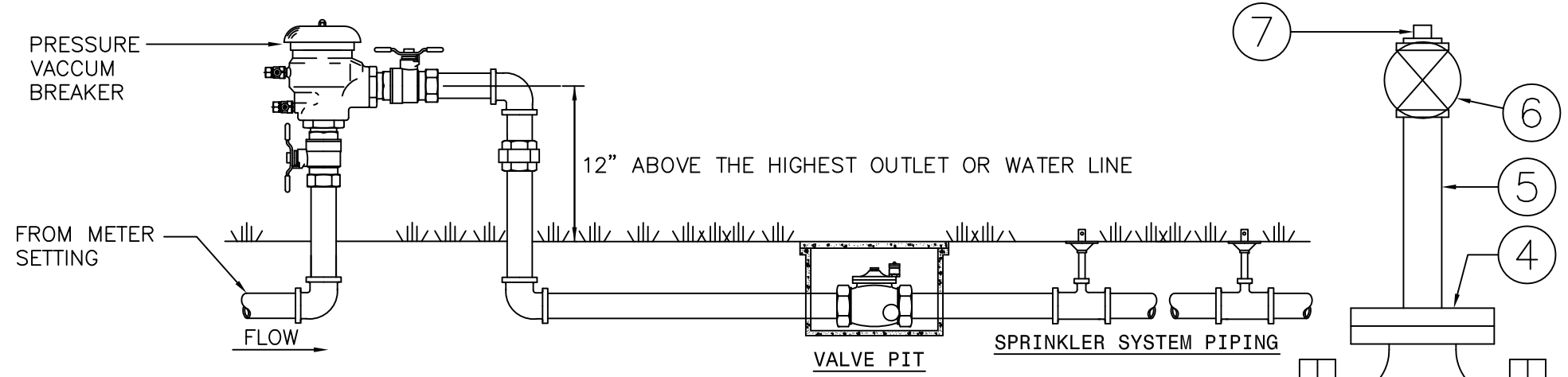
NEW 1" SERVICE CONNECTION WITH CLEVELAND STANDARD METER PIT WITH REGULATOR DETAIL IN PUBLIC RIGHT OF WAY

- NOT TO SCALE -

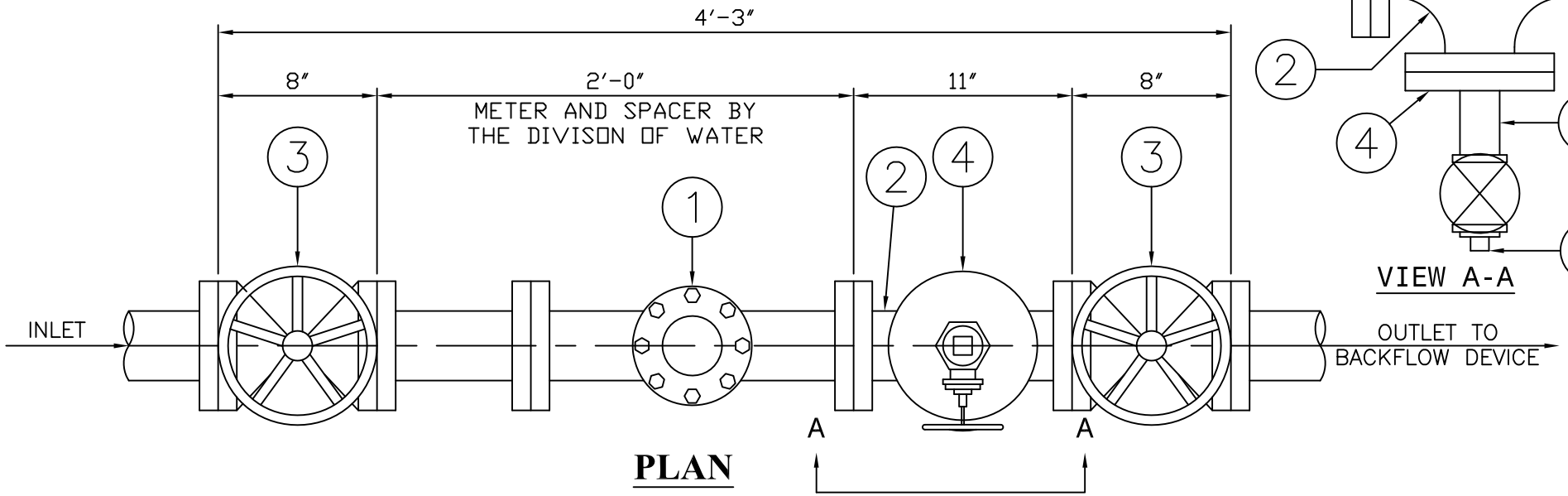


NEW 1" SERVICE CONNECTION WITH CLEVELAND STANDARD METER PIT IN PUBLIC RIGHT OF WAY

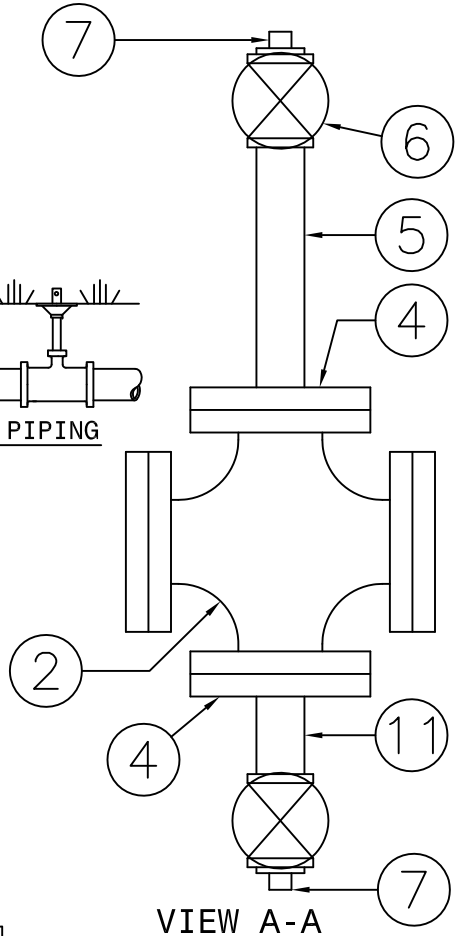
- NOT TO SCALE -



BACKFLOW & IRRIGATION DETAIL



PLAN



VIEW A-A

3" IRRIGATION METER SETTING WITH 3" METER FOR VAULTS

NOTE: ALL BOLTS AND GASKETS BY SUPPLIER.
MINOR VARIATIONS IN THE OVERALL LENGTH ARE TO BE EXPECTED DEPENDING ON THE VALVES AND TEE SUPPLIED.

* ADDTIONAL DRAIN VALVES OR CONTROL VALVES MAY BE PLACED DOWNSTREAM OF BACKFLOW PREVENTOR.

STD-M33

DATE: 8-22-2012 | BY: RSK

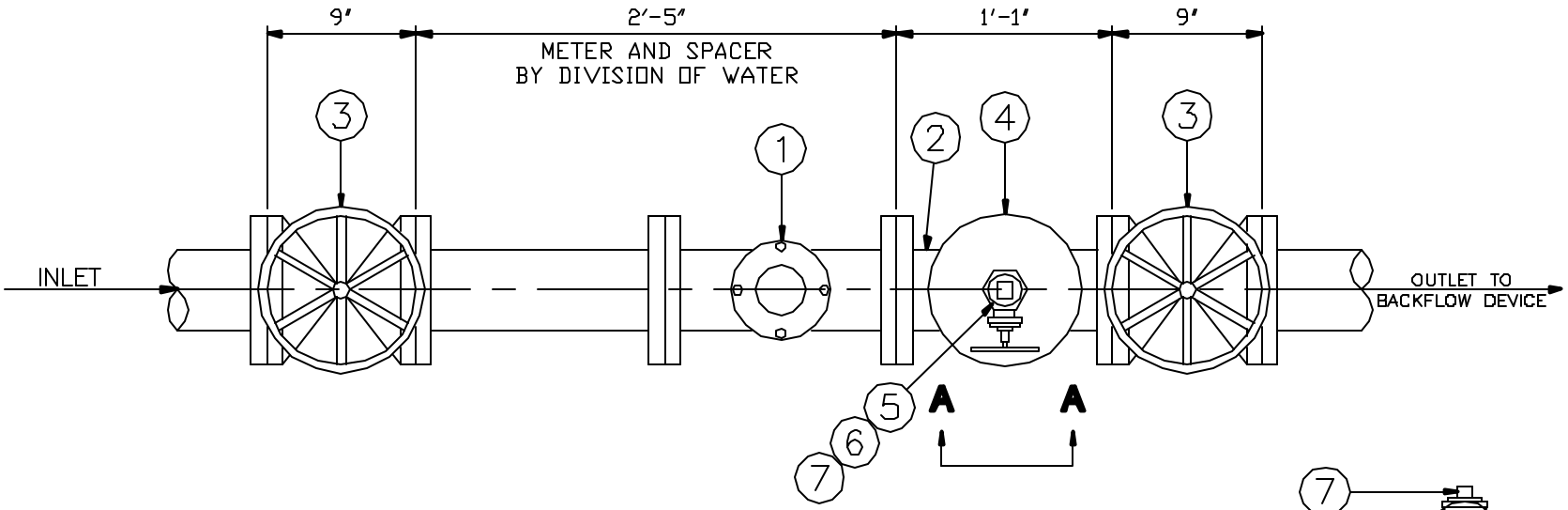
MATERIAL REQUIRED FOR INSTALLATION

3" IRRIGATION METER SETTING WITH 3" METER - FLANGED

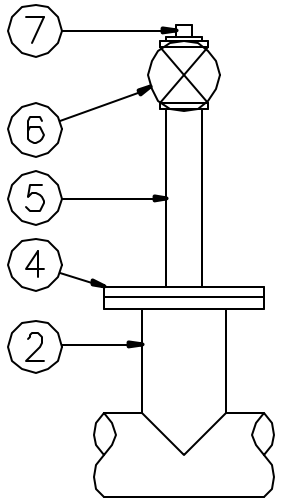
ITEM	Req'd	SIZE	DESCRIPTION
1	1	3"	TURBINE METER & SPACER (PROVIDED BY C.W.D.)
2	1	3" x 3" x 3" x 3"	CROSS, FLANGED
3	2	3"	HAND WHEEL GATE VALVES, FLANGED
4	2	3"	BLIND FLANGES, DRILLED & TAPPED FOR 2" BRASS NIPPLE
5	1	2" x 10"	BRASS NIPPLE
6	2	2"	HAND WHEEL GATE VALVE, SCREWED
7	2	2"	BRASS PLUG
8	8	3"	RING GASKETS
9	32	5/8" x 2-1/2"	MACHINE BOLTS
10	32	5/8"	HEX NUTS
11	1	2" x 6"	BRASS NIPPLE

(SEE DRAWING STD-M33 & STD-V01).

8-22-2012



PLAN



VIEW A-A

4" IRRIGATION METER SETTING WITH 4" METER FOR VAULTS

NOTE: ALL BOLTS AND GASKETS BY SUPPLIER.

MINOR VARIATIONS IN THE OVERALL LENGTH ARE TO BE EXPECTED DEPENDING ON THE VALVES AND TEE SUPPLIED.

FOR TYPE AND MODEL OF BACKFLOW DEVICE REQUIRED CONTACT THE BACKFLOW UNIT AT (216) 664-3944.

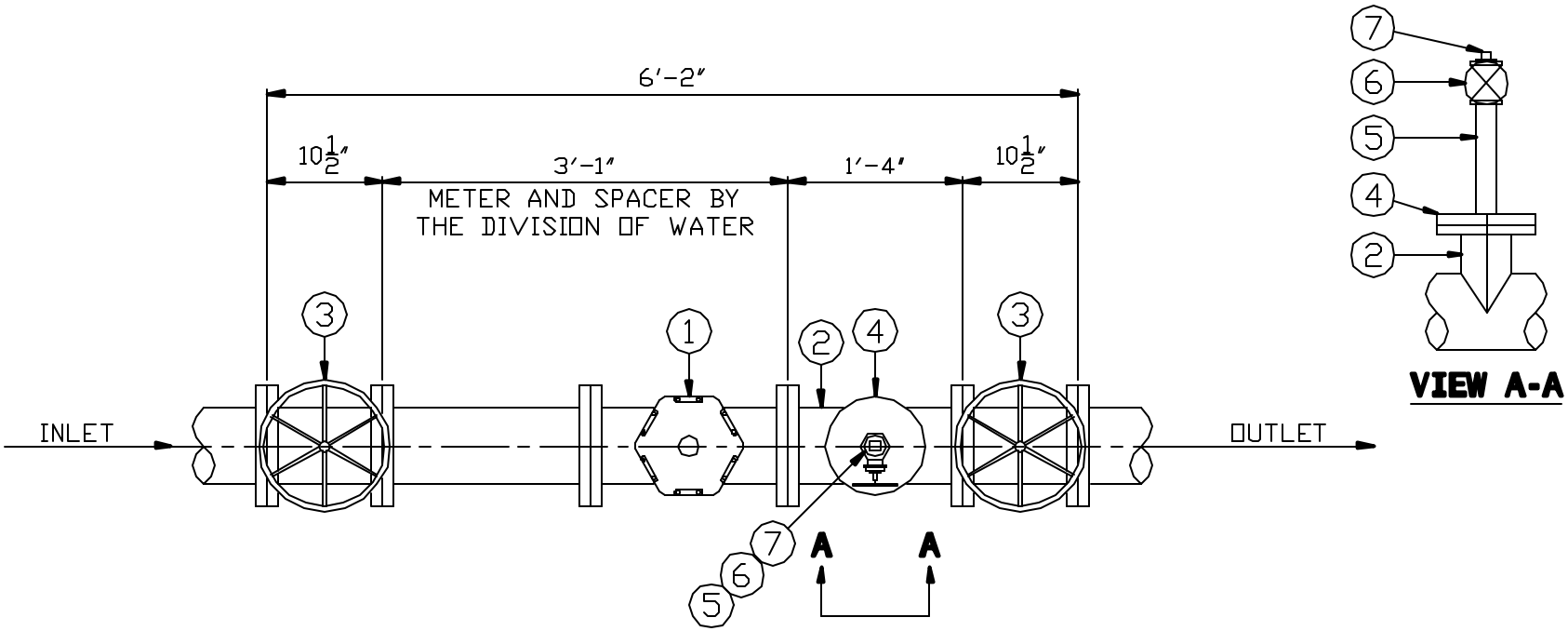
MATERIAL REQUIRED FOR INSTALLATION

4" IRRIGATION METER SETTING WITH 4" METER - FLANGED

ITEM	Req'd	SIZE	DESCRIPTION
1	1	4"	TURBINE METER & SPACER (PROVIDED BY C.W.D.)
2	1	4" x 4" x 4"	TEE, FLANGED
3	2	4"	HAND WHEEL GATE VALVES, FLANGED
4	1	4"	BLIND FLANGES, DRILLED & TAPPED FOR 2" BRASS NIPPLE
5	1	2" x 10"	BRASS NIPPLE
6	1	2"	HAND WHEEL GATE VALVE, SCREWED
7	1	2"	BRASS PLUG
8	7	4"	RING GASKETS
9	56	5/8" x 3"	MACHINE BOLTS
10	56	5/8"	HEX BOLTS

(SEE DRAWING STD-M34 & STD-V01).

4-19-2000



PLAN

6" IRRIGATION METER SETTING WITH 6" METER FOR VAULTS

NOTE: ALL BOLTS AND GASKETS BY SUPPLIER.

MINOR VARIATIONS IN THE OVERALL LENGTH ARE TO BE EXPECTED DEPENDING ON THE VALVES AND TEE SUPPLIED.

FOR TYPE AND MODEL OF BACKFLOW DEVICE REQUIRED CONTACT THE BACKFLOW UNIT AT (216) 664-3944.

SIZE THE METER VAULT ACCORDINGLY WITH THE BACKFLOW DEVICED USED.

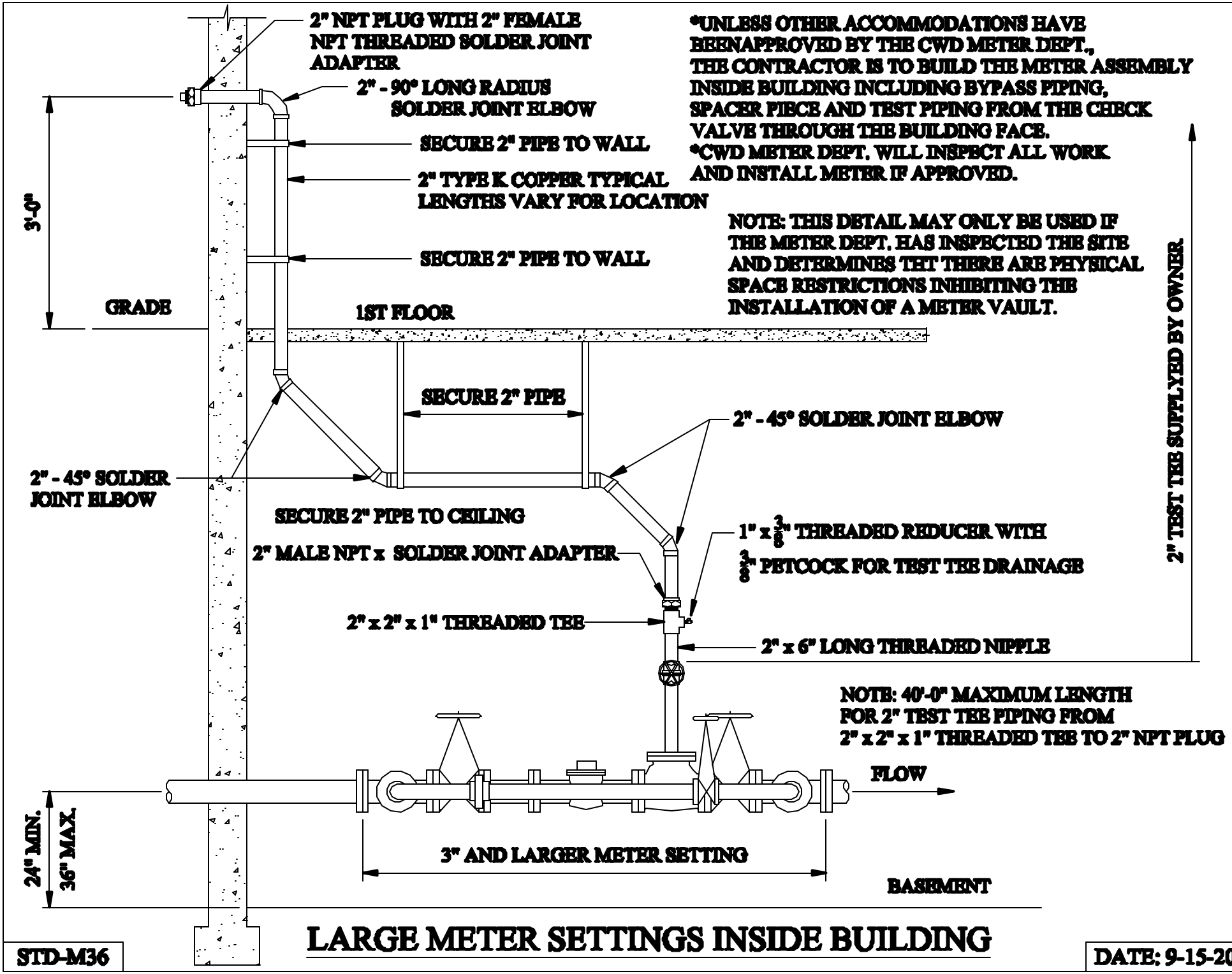
MATERIAL REQUIRED FOR INSTALLATION

6" IRRIGATION METER SETTING WITH 6" METER - FLANGED

ITEM	Req'd	SIZE	DESCRIPTION
1	1	6"	TURBINE METER & SPACER (PROVIDED BY C.W.D.)
2	1	6" x 6" x 6"	TEE, FLANGED
3	2	6"	HAND WHEEL GATE VALVES, FLANGED
4	1	6"	BLIND FLANGES, DRILLED & TAPPED FOR 2" BRASS NIPPLE
5	1	2" x 10"	BRASS NIPPLE
6	1	2"	HAND WHEEL GATE VALVE, SCREWED
7	1	2"	BRASS PLUG
8	7	6"	RING GASKETS
9	56	3/4" x 3-1/2"	MACHINE BOLTS
10	56	3/4"	HEX BOLTS

(SEE DRAWING STD-M35 & STD-V01).

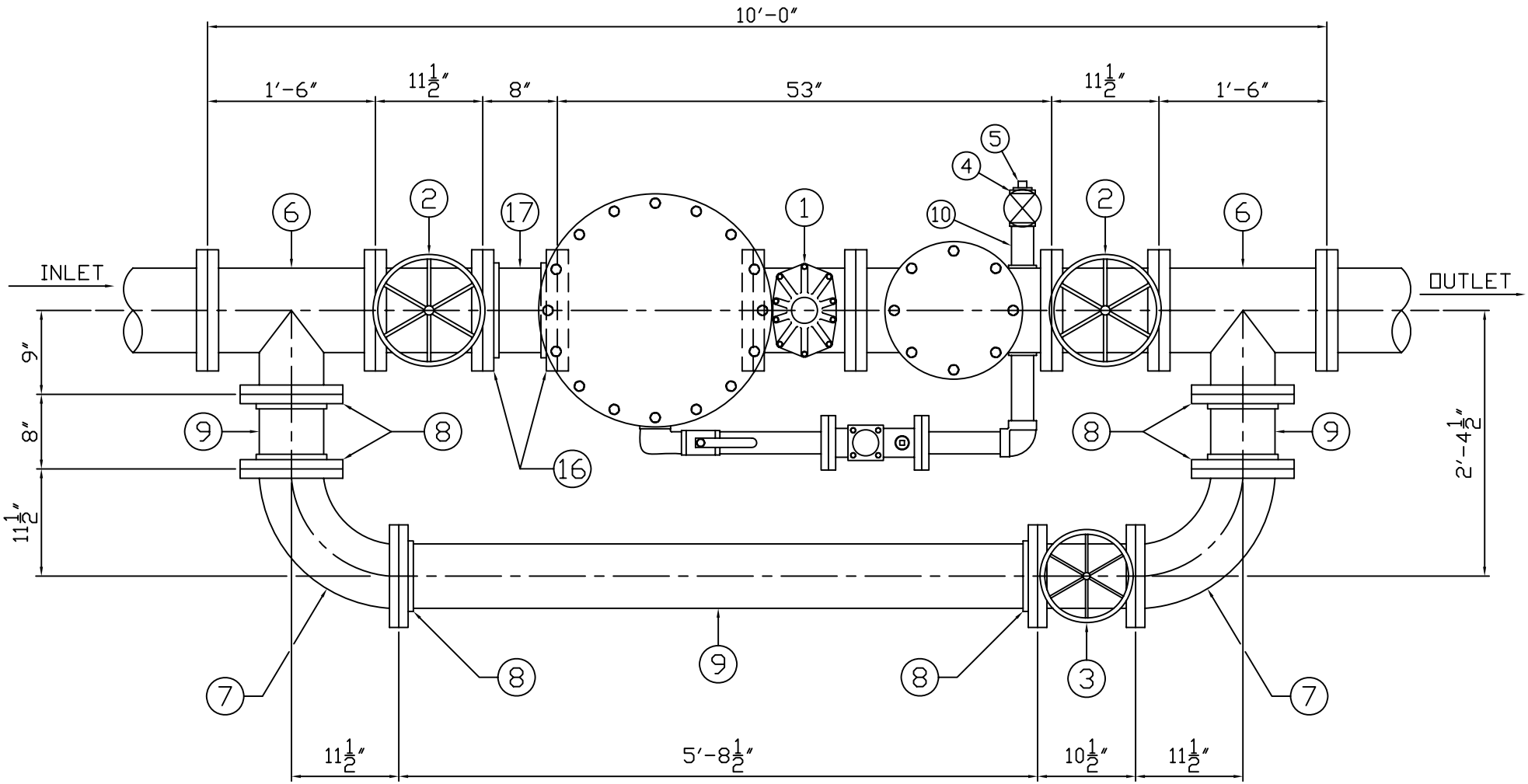
4-19-2000



LARGE METER SETTINGS INSIDE BUILDING

STD-M36

DATE: 9-15-2004



PLAN

NOTE: ALL BOLTS AND GASKETS BY SUPPLIER.

MINOR VARIATIONS IN THE OVERALL LENGTH ARE TO BE EXPECTED DEPENDING ON THE TEE'S, VALVES, AND CHECK VALVES SUPPLIED.

ADJUSTMENTS TO THE BYPASS (ITEM No. 10) WILL BE MADE BY THE DIVISON OF WATER AS NEEDED.

STANDARD DETAILS		
DEPARTMENT OF PUBLIC UTILITIES DIVISION OF WATER CLEVELAND, OHIO		
SUBJECT FM APPROVED 8″ COMPOUND METER ASSEMBLY FOR VAULT BADGER MODEL FSAA-01 OR APPROVED		
DRAWN BY RSK DATE 5-25-2001 CHECKED BY ___ DATE ___	-SCALE- 1-1/2″ = 1′-0″	STD-M37

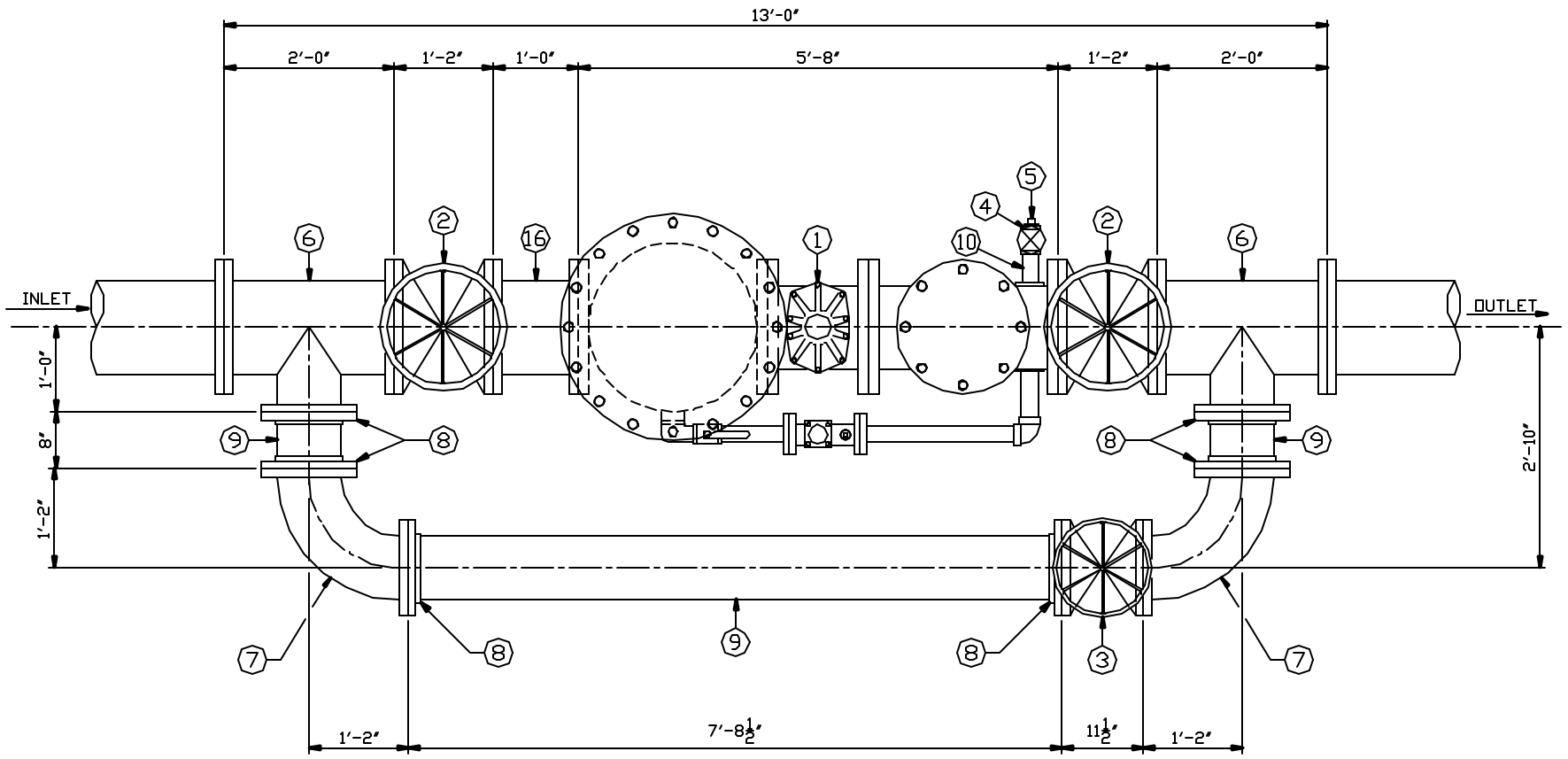
MATERIALS REQUIRED FOR INSTALLATION

FM APPROVED 8" COMPOUND METER ASSEMBLY FOR VAULT

ITEM	REQ'D	SIZE	DESCRIPTION
1	1	8"	FM APPROVED COMPOUND METER ASSEMBLY (BY CONTRACTOR)
2	2	8"	HAND WHEEL GATE VALVES, FLANGED
3	1	6"	O.S.Y. VALVE, FLANGED
4	1	2"	HAND WHEEL GATE VALVE, SCREWED
5	1	2"	BRASS PLUG
6	2	8" x 6"	CAST IRON TEES, FLANGED
7	2	6"	CAST IRON ELBOWS,FLANGED LR
8	6	6" x 11"	CAST IRON FLANGE, 8 HOLE
9	85"	6"	GALVANIZED PIPE, EXTRA HEAVY
10	1	2" x 4-1/2"	BRASS NIPPLE
11	7	8"	FLANGE GASKETS
12	7	6"	FLANGE GASKETS
13	112	3/4" x 3-1/2"	MACHINE BOLTS
14	8	3/4" x 4-1/4"	STUD BOLTS
15	120	3/4"	HEX NUTS
16	2	8" x 13-1/2"	CAST IRON FLANGE, 8 HOLE
17	8"	8"	GALVANIZED PIPE, EXTRA HEAVY

(SEE DRAWING No. STD-M37 & STD-V01).

5-25-2001



PLAN

NOTE: ALL BOLTS AND GASKETS BY SUPPLIER.

MINOR VARIATIONS IN THE OVERALL LENGTH ARE TO BE EXPECTED DEPENDING ON THE TEE'S, VALVES, AND CHECK VALVES SUPPLIED.
ADJUSTMENTS TO THE BYPASS (ITEM No. 10) WILL BE MADE BY THE DIVISON OF WATER AS NEEDED.

STANDARD DETAILS

DEPARTMENT OF PUBLIC UTILITIES
DIVISION OF WATER
CLEVELAND, OHIO

SUBJECT FM APPROVED 12″ COMPOUND METER ASSEMBLY FOR VAULT

DRAWN BY RSK
DATE 6-25-2004
CHECKED BY ___ DATE ___

-SCALE- 1″ = 1′-0″

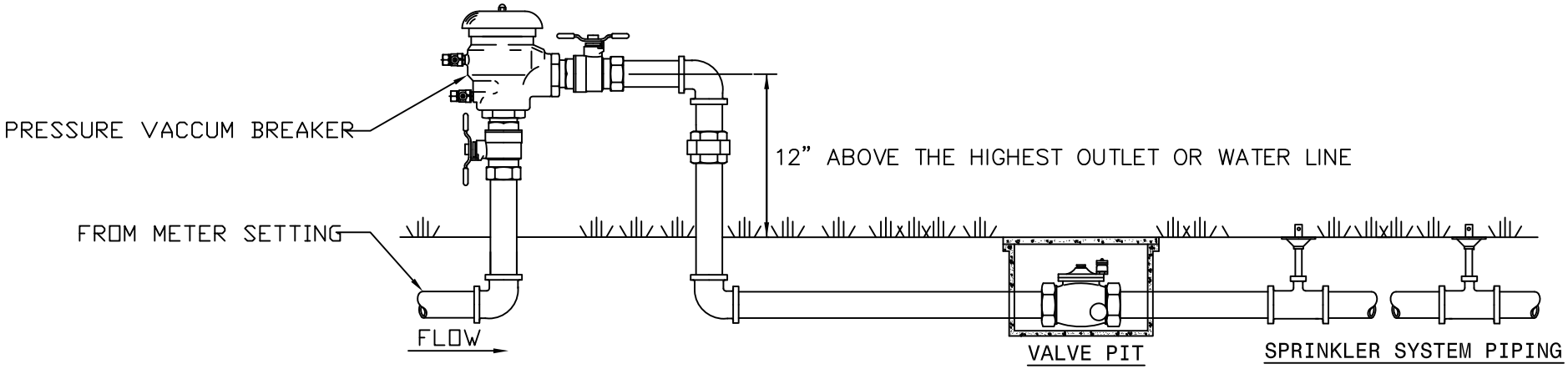
STD-M39

MATERIALS REQUIRED FOR INSTALLATION

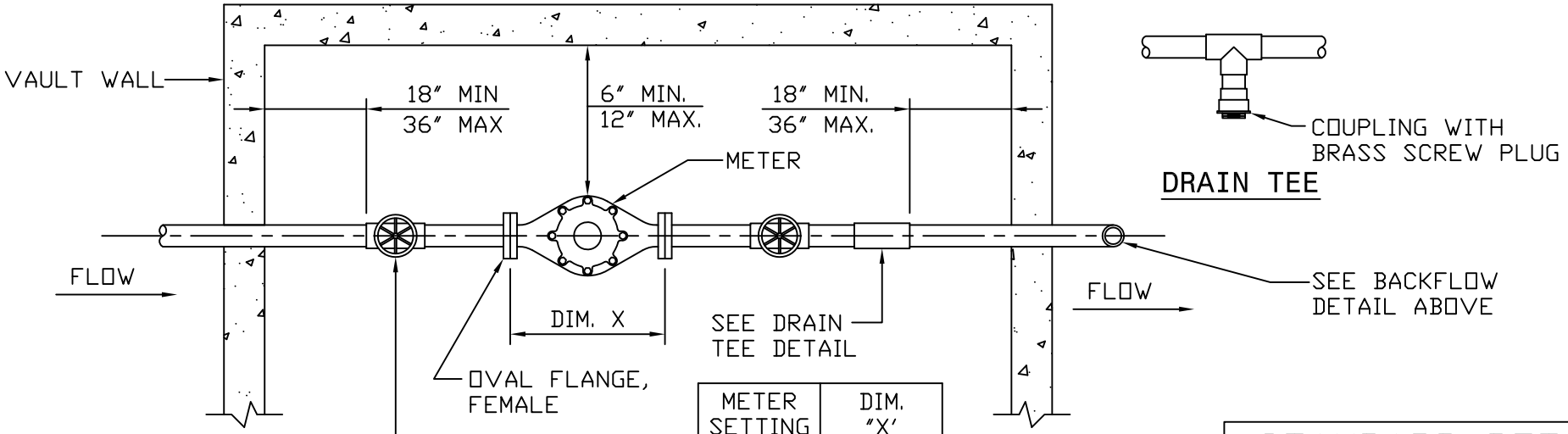
FM APPROVED 12" COMPOUND METER ASSEMBLY FOR VAULT

ITEM	REQ'D	SIZE	DESCRIPTION
1	1	12"	FM APPROVED COMPOUND METER ASSEMBLY (BY CONTRACTOR)
2	2	12"	HAND WHEEL GATE VALVES, FLANGED
3	1	8"	O.S.Y. VALVE, FLANGED
4	1	2"	HAND WHEEL GATE VALVE, SCREWED
5	1	2"	BRASS PLUG
6	2	12" x 8"	CAST IRON TEES, FLANGED
7	2	8"	CAST IRON ELBOWS,FLANGED LR
8	6	8" x 13-1/2"	CAST IRON FLANGE, 8 HOLE
9	110"	8"	GALVANIZED PIPE, EXTRA HEAVY
10	1	2" x 4-1/2"	BRASS NIPPLE
11	7	12"	FLANGE GASKETS
12	7	8"	FLANGE GASKETS
13	84	7/8" x 4"	MACHINE BOLTS
14	8	7/8" x 4-3/4"	STUD BOLTS
15	100	7/8"	HEX NUTS
16	1	12" x 12"	LONG FLANGED DUCTILE IRON PIPE
17	56	3/4" x 3-1/2"	MACHINE BOLTS
18	56	3/4"	HEX NUTS

(SEE DRAWING No. STD-M39 & STD-V01)
6-25-2004



BACKFLOW & IRRIGATION DETAIL



PLAN

DRAIN TEE

METER SETTING	DIM. "X"
1½"	1'-1"
2"	1'-5"

* ADDTIONAL DRAIN VALVES OR CONTROL VALVES MAY BE PLACED DOWNSTREAM OF BACKFLOW PREVENTOR.

STANDARD DETAILS

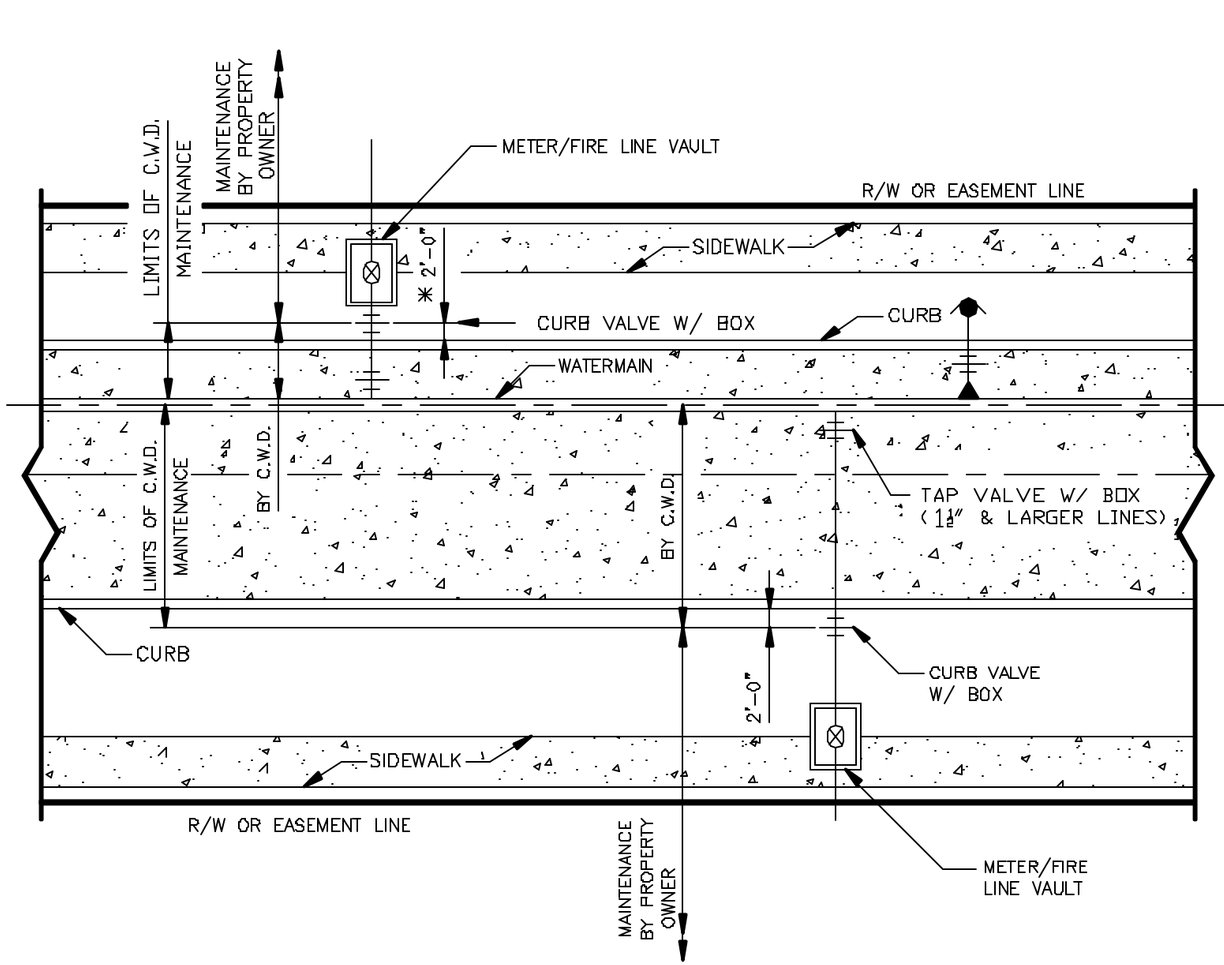
DEPARTMENT OF PUBLIC UTILITIES
DIVISION OF WATER
CLEVELAND, OHIO

SUBJECT APPROVED 1½" & 2" METER SETTINGS FOR 1½" & 2" METER & BACKFLOW ASSEMBLY FOR VAULTS * "LAWN IRRIGATION ONLY"

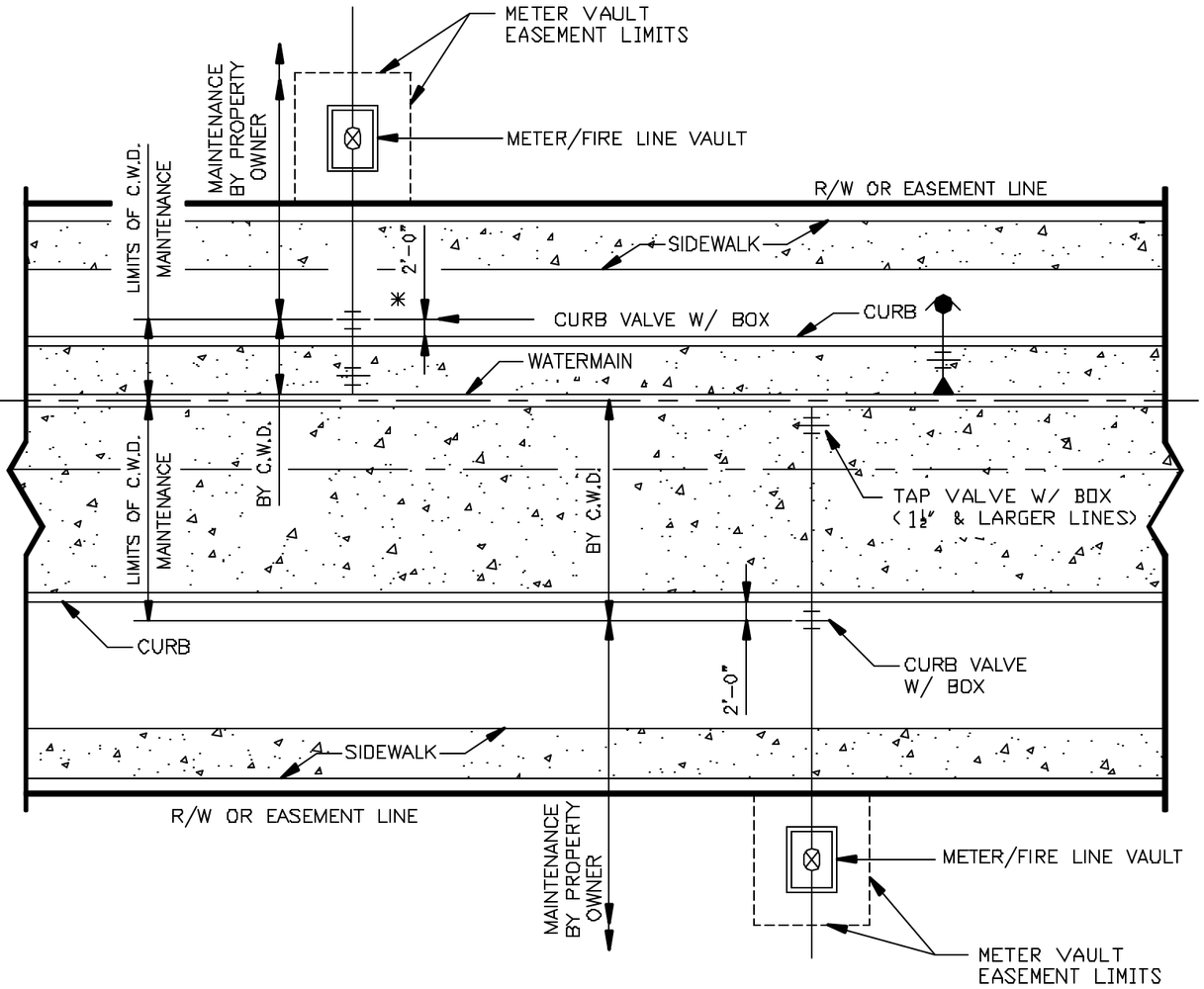
DRAWN BY RSK	-SCALE-	STD-M40
DATE 8-22-2012	NONE	
CHECKED BY ___ DATE ___		

CLEVELAND DIVISION OF WATER CONSTRUCTION STANDARDS

VAULT ARRAIGNMENT DETAILS



1. VAULT INSTALLATION WITHIN WATER MAIN EASEMENT OR DEDICATED R/W



2. VAULT INSTALLATION IN PRIVATE PROPERTY

VAULT AND CURB VALVE ARRANGEMENT

1. ALL DOMESTIC SERVICE CONNECTIONS (THAT IS ALL CONNECTIONS USED FOR DRINKING, SANITATION OR IRRIGATION PURPOSES) UTILIZING A VAULT FOR THE PLACEMENT OF THE METER SHALL MATCH ONE OF THE TWO STANDARD DRAWINGS ABOVE.
2. IF ONLY THE BACKFLOW PREVENTION DEVICE FOR THE FIRE SERVICE CONNECTION IS TO BE PLACED IN A VAULT (THAT IS THE DOMESTIC SERVICE CONNECTION WILL BE METERED INSIDE THE BUILDING WITH A REMOTE REGISTER), THEN THAT VAULT MAY BE PLACED AS SHOWN IN DRAWING No. 2 ABOVE AND A METER VAULT EASEMENT WILL NOT BE REQUIRED.
3. SINGLE FAMILY RESIDENTIAL DOMESTIC SERVICE CONNECTIONS IN EASEMENTS, WITHOUT METERVAULTS, SHALL HAVE THE CURB VALVE PLACED NO MORE THAN FIVE (5) FEET FROM THE MAIN. THE CURB VALVE WILL STILL MARK THE CHANGE IN RESPONSIBILITY FOR MAINTENANCE.
4. VAULT AND VAULT COVERS SHALL BE PLACED OUTSIDE OF SIDEWALKS AND DRIVEWAYS WHEN POSSIBLE. VAULT COVERS IN PAVEMENT SHALL BE FLUSH TO THE SURFACE.

* 5. IN THE CASE WHEN THE WATERMAIN IS IN THE TREE LAWN IN A DEDICATED RIGHT OF WAY, NOT UNDER THE PAVEMENT, THE SHORT SIDE SHALL HAVE THE CURB VALVE 3'-0" FROM THE WATERMAIN.

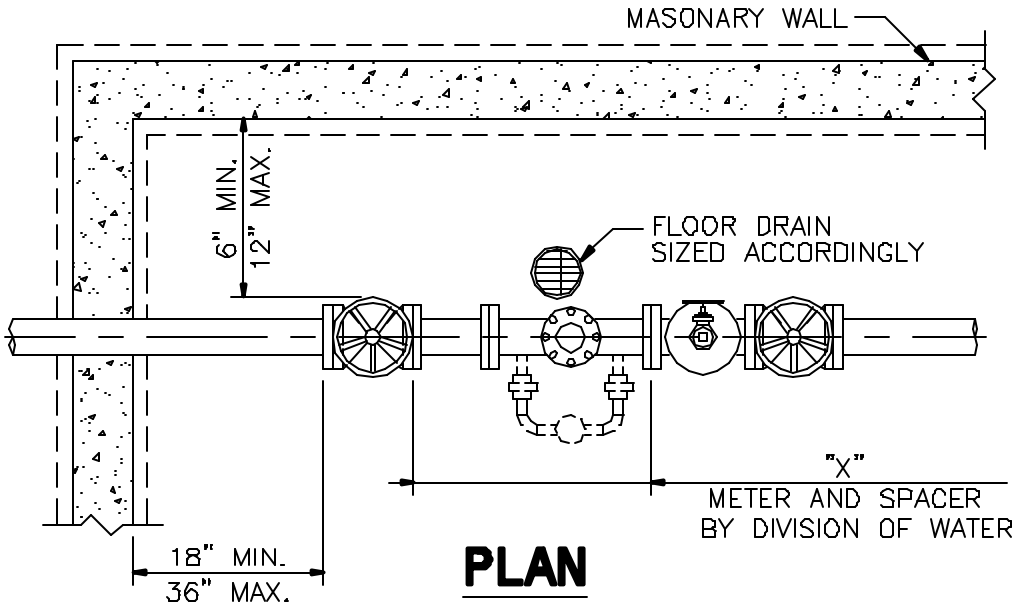
REVISIONS		
No.	DATE	BY

STANDARD DETAILS

DEPARTMENT OF PUBLIC UTILITIES
DIVISION OF WATER
CLEVELAND, OHIO

SUBJECT VAULT AND VALVE ARRANGEMENT

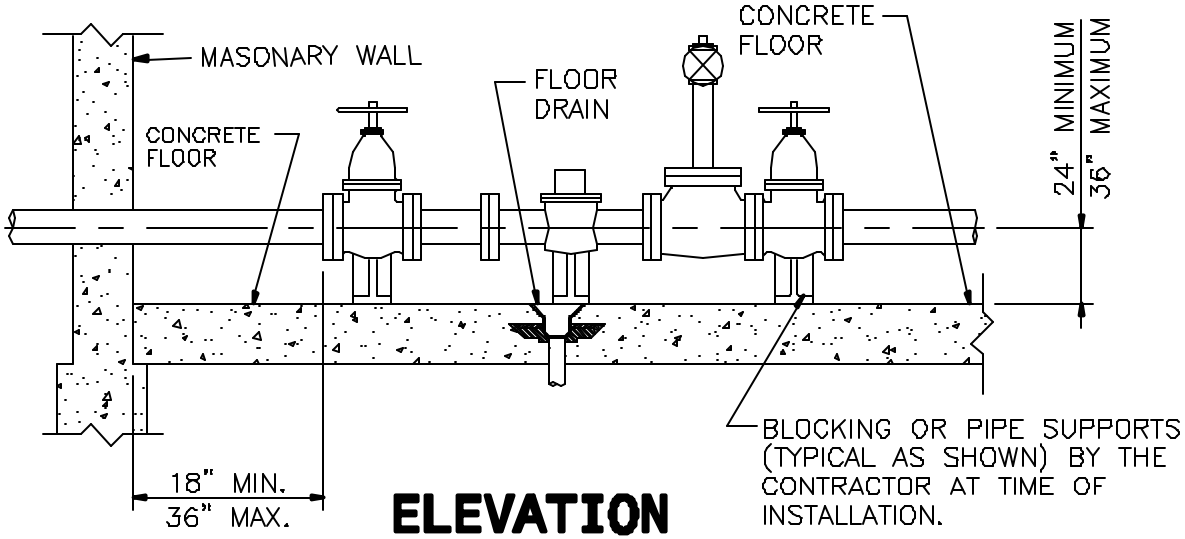
DRAWN BY RSK | -SCALE- NONE | STD-V01
DATE 10-1-97
CHECKED BY MJS DATE 10-1-97



PLAN

SIZE	DIM. "X"
3"	2'-0" WITH 2" DISPLACEMENT METER
3"	2'-0" WITH TURBINE METER AND COMPOUND METER
4"	2'-5" WITH TURBINE METER AND COMPOUND METER
6"	3'-1" WITH COMPOUND METER AND TURBINE METER
8"	3'-6" WITH COMPOUND METER AND TURBINE METER
12"	3'-6" WITH TURBINE METER

NOTE: FOR MATERIAL REQUIRED CONSULT ASSOCIATED MATERIAL LIST FOR STANDARD METER SETTINGS FOR VAULTS AND DELETE MATERIAL FOR THE BYPASS, I.E. (1) O.S.&Y. VALVE, (2) ELBOWS, (2) TEES, GALVANIZED PIPE, GASKETS AND BOLTS.



ELEVATION

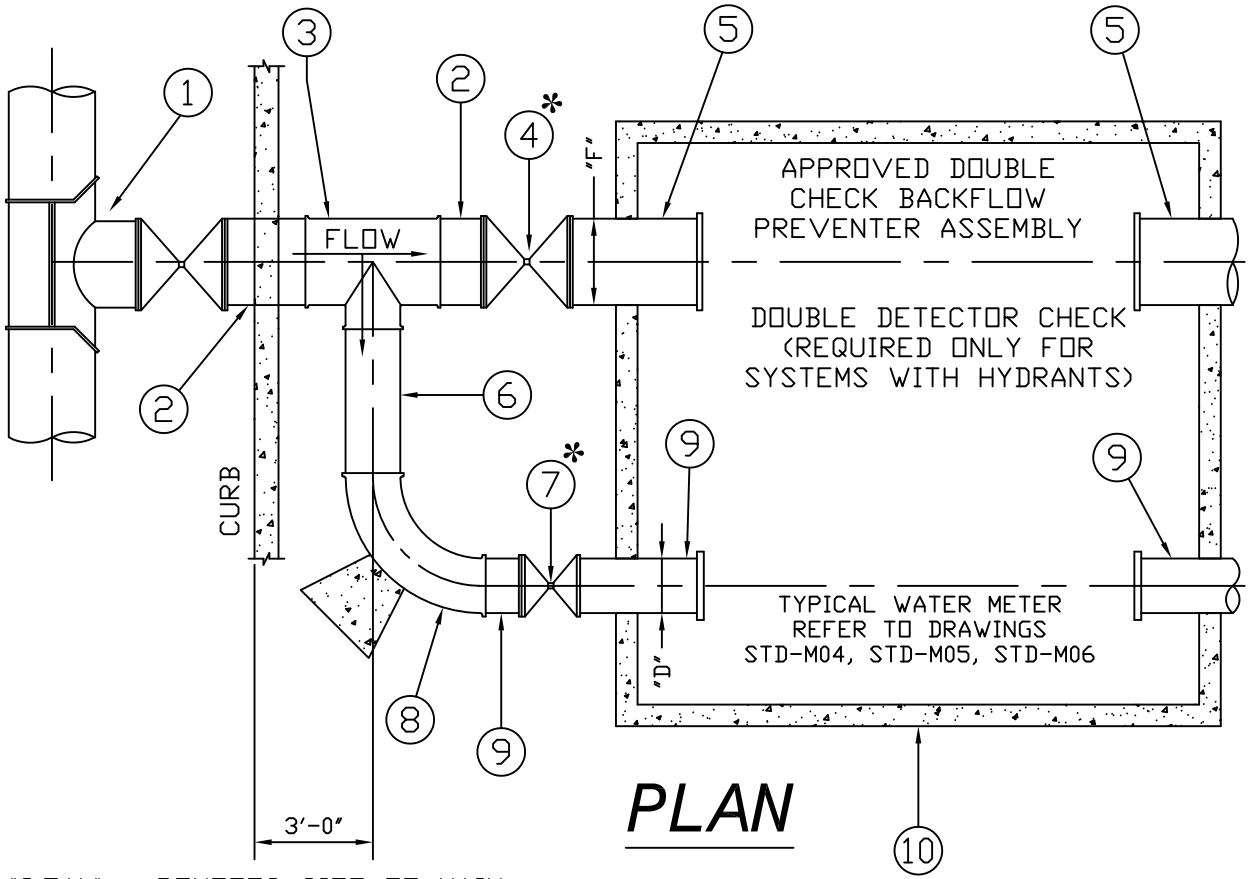
STANDARD DETAILS

DEPARTMENT OF PUBLIC UTILITIES
DIVISION OF WATER
CLEVELAND, OHIO

SUBJECT TYPICAL METER SETTINGS
3" METER SETTING AND LARGER
FOR INSIDE BUILDINGS

DRAWN BY RSK
DATE 10-1-1997
CHECKED BY MJS DATE 10-1-97
-SCALE- NONE

STD-V02



PLAN

1. (1) S.O.M. x FIRE LINE ("F") SIZED MECHANICAL JOINT BRANCH SLEEVE AND "F" SQUARE HEAD GATE TAP VALVE WITH RETAINED MECHANICAL JOINT OUTLET AND VALVE BOX COMPLETE.
2. X FEET "F" DUCTILE IRON CLASS 52 CEMENT LINED PLAIN END x PLAIN END PIPE (CUT TO SUIT). (IF PIPE IS LONGER THAN 1 PIPE LENGTH, THEN THE PIPE IS TO HAVE TYPE II BOLTLESS RESTRAINED PUSH-ON JOINTS.
3. (1) "F" x "F" x "D" DUCTILE IRON CLASS 350 CEMENT LINED RETAINED MECHANICAL JOINT TEE. *
4. (1) "F" RETAINED MECHANICAL JOINT, SQUARE HEAD GATE VALVE WITH VALVE BOX COMPLETE.
5. X FEET "F" PLAIN END x FLANGED DUCTILE IRON CLASS 52 CEMENT LINED PIPE (CUT TO SUIT).
6. X FEET "D" PLAIN END x PLAIN END DUCTILE IRON CLASS 52 CEMENT LINED PIPE (CUT TO SUIT).
7. (1) - "D" RETAINED MECHANICAL JOINT SQUARE HEAD GATE VALVE WITH VALVE BOX COMPLETE.
8. (1) - "D" RETAINED MJ x MJ DUCTILE IRON CLASS 350 CEMENT LINED 90° BEND WITH CONCRETE PIER.
9. X FEET "D" PLAIN END x FLANGED END DUCTILE IRON CLASS 52 CEMENT LINED PIPE (CUT TO SUIT).
10. (1) - APPROVED PRE-CAST COMBINATION VAULT.

*** CURB VALVES MUST BE LOCATED IN THE RIGHT OF WAY BUT MAY NOT BE LOCATED IN THE PAVEMENT/ROADWAY.**

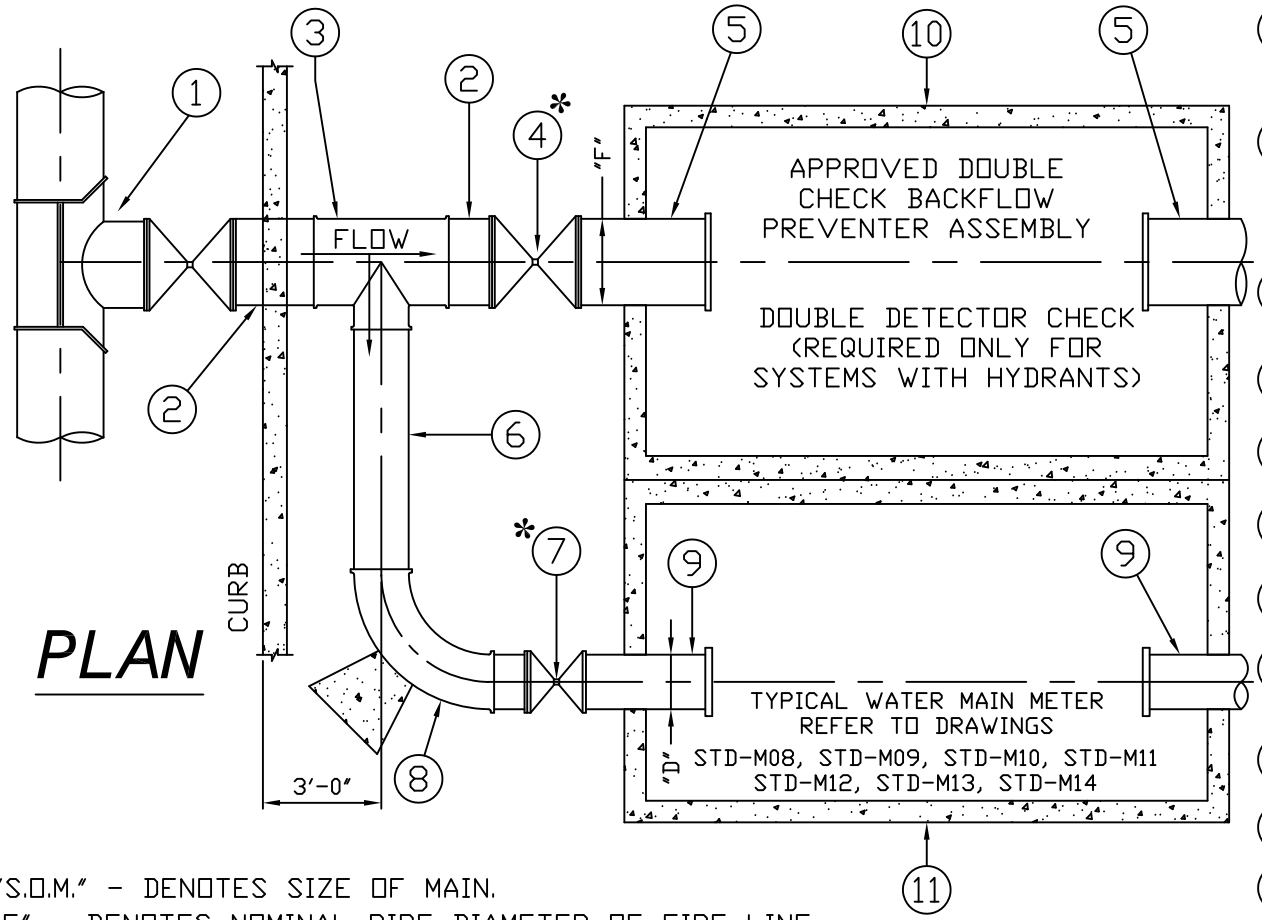
"S.O.M." - DENOTES SIZE OF MAIN.
"F" - DENOTES NOMINAL PIPE DIAMETER OF FIRE LINE.
"D" - DENOTES NOMINAL PIPE DIAMETER OF DOMESTIC LINE.
* MAY SUBTITUTE "F" x "F" x "F" DUCTILE IRON CLASS 350 CEMENT LINED RETAINED MECHANICAL JOINT TEE AND "F" x "D" DUCTILE IRON CLASS 350 CEMENT LINED RETAINED MECHANICAL JOINT PLAIN END x PLAIN END REDUCER FOR ITEM .
- VAULTS MUST ALSO BE COMPLIANT WITH NFPA 13, UNLESS OTHERWISE DIRECTED BY THE LOCAL FIRE DEPARTMENT. SEE FIGURE A.16.12 - "TYPICAL CITY WATER PIT" IN NFPA 13 (2019 EDITION). ALL FIRELNES MUST BE APPROVED BY THE LOCAL FIRE DEPARTMENT
- METERS IN VAULTS MUST BE ABLE TO BE READ FROM ABOVE WITHOUT ENTRY. IF NO CLEAR LINE OF SITE TO THE METER CAN BE ACHIEVED BY PLACEMENT OF THE ACCESS MANHOLE, AS DETERMINED BY THE DIVISION OF WATER CONTRACTOR MAY ORDER PRECAST MANHOLE WITH VIEWING PORT OPENING OR CORE OPENING ONSITE. ALL TRAFFIC BEARING AND NON-TRAFFIC BEARING VAULTS MUST MAINTAIN THEIR DESIGNED STRUCTURAL INTEGRITY AND CASTING SHALL BE SECURE FOR ROAD TRAFFIC. CONTRACTOR IS REQUIRED TO CALL THE PERMITS AND SALES UNIT OF THE DIVISION OF WATER AT 216-664-2444 EXT. 75209 FOR INSPECTION OF ANY VAULT SET.

STANDARD DETAILS

DEPARTMENT OF PUBLIC UTILITIES
DIVISION OF WATER
CLEVELAND, OHIO

SUBJECT SINGLE FEED/COMBINATION VAULT
DOMESTIC - FIRELINE CONNECTION
3" DOMESTIC/4"-8" FIRELINE

DRAWN BY RSK	-SCALE- NONE	STD-V03
DATE:2-25-2009		
CHECKED BY ___ DATE ___		



(1) S.O.M. x FIRE LINE ("F") SIZED MECHANICAL JOINT BRANCH SLEEVE AND "F" SQUARE HEAD GATE TAP VALVE WITH RETAINED MECHANICAL JOINT OUTLET AND VALVE BOX COMPLETE.

(2) X FEET "F" DUCTILE IRON CLASS 52 CEMENT LINED PLAIN END x PLAIN END PIPE (CUT TO SUIT). (IF PIPE IS LONGER THAN 1 PIPE LENGTH, THEN THE PIPE IS TO HAVE TYPE II BOLTLESS RESTRAINED PUSH-ON JOINTS.

(3) (1) "F" x "F" x "D" DUCTILE IRON CLASS 350 CEMENT LINED RETAINED MECHANICAL JOINT TEE. *

(4) (1) "F" RETAINED MECHANICAL JOINT, SQUARE HEAD GATE VALVE WITH VALVE BOX COMPLETE.

(5) X FEET "F" PLAIN END x FLANGED DUCTILE IRON CLASS 52 CEMENT LINED PIPE (CUT TO SUIT).

(6) X FEET "D" PLAIN END x PLAIN END DUCTILE IRON CLASS 52 CEMENT LINED PIPE (CUT TO SUIT).

(7) (1) - "D" RETAINED MECHANICAL JOINT SQUARE HEAD GATE VALVE WITH VALVE BOX COMPLETE.

(8) (1) - "D" RETAINED MJ x MJ DUCTILE IRON CLASS 350 CEMENT LINED 90° BEND WITH CONCRETE PIER.

(9) X FEET "D" PLAIN END x FLANGED END DUCTILE IRON CLASS 52 CEMENT LINED PIPE (CUT TO SUIT).

(10) (1) - APPROVED PRE-CAST FIRELINE VAULT.

(11) (1) - APPROVED PRE-CAST DOMESTIC VAULT.

* **CURB VALVES MUST BE LOCATED IN THE RIGHT OF WAY BUT MAY NOT BE LOCATED IN THE PAVEMENT/ROADWAY.**

"S.O.M." - DENOTES SIZE OF MAIN.

"F" - DENOTES NOMINAL PIPE DIAMETER OF FIRE LINE.

"D" - DENOTES NOMINAL PIPE DIAMETER OF DOMESTIC LINE.

* MAY SUBTITUTE "F" x "F" x "F" DUCTILE IRON CLASS 350 CEMENT LINED RETAINED MECHANICAL JOINT TEE AND "F" x "D" DUCTILE IRON CLASS 350 CEMENT LINED RETAINED MECHANICAL JOINT PLAIN END x PLAIN END REDUCER FOR ITEM (3).

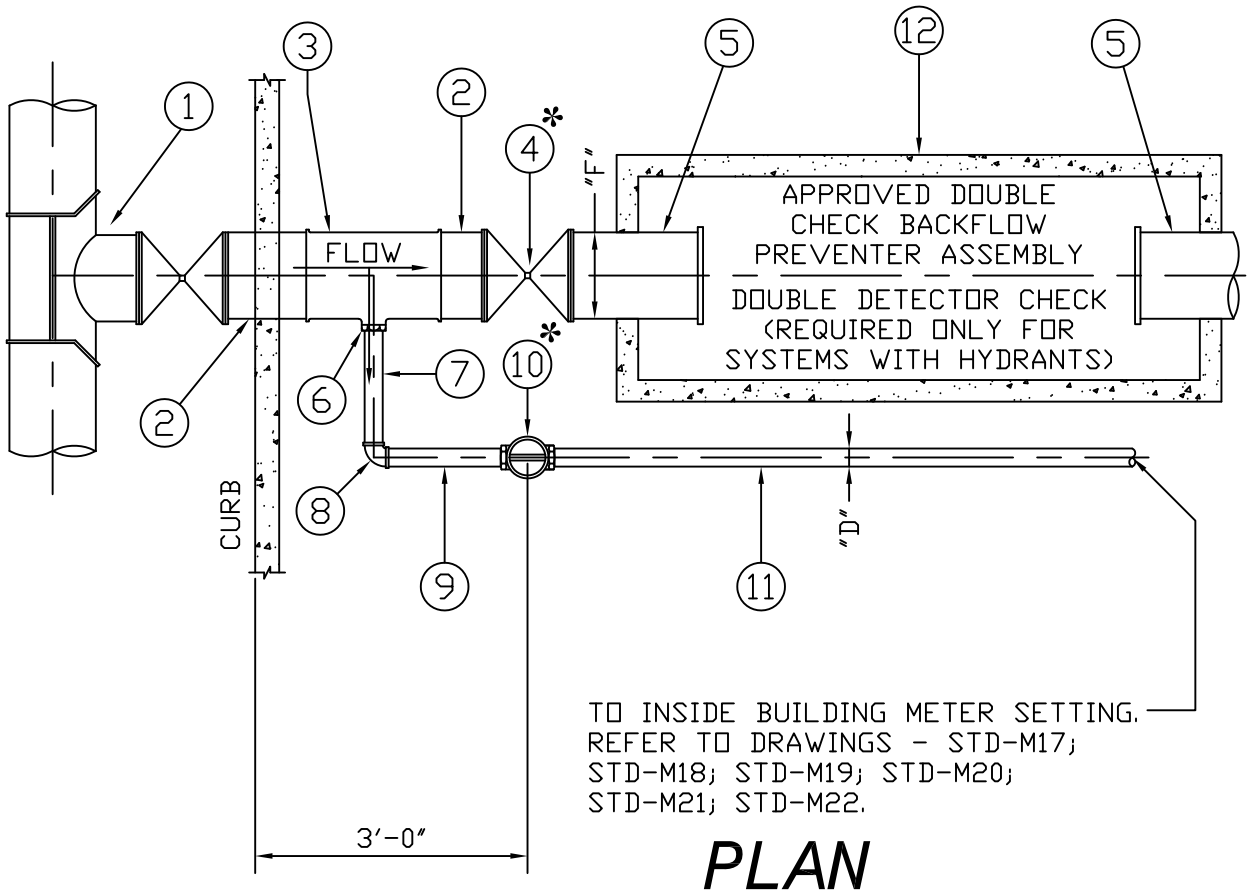
- VAULTS MUST ALSO BE COMPLIANT WITH NFPA 13, UNLESS OTHERWISE DIRECTED BY THE LOCAL FIRE DEPARTMENT. SEE FIGURE A.16.12 - "TYPICAL CITY WATER PIT" IN NFPA 13 (2019 EDITION). ALL FIRELNES MUST BE APPROVED BY THE LOCAL FIRE DEPARTMENT
- METERS IN VAULTS MUST BE ABLE TO BE READ FROM ABOVE WITHOUT ENTRY. IF NO CLEAR LINE OF SITE TO THE METER CAN BE ACHIEVED BY PLACEMENT OF THE ACCESS MANHOLE, AS DETERMINED BY THE DIVISION OF WATER CONTRACTOR MAY ORDER PRECAST MANHOLE WITH VIEWING PORT OPENING OR CORE OPENING ONSITE. ALL TRAFFIC BEARING AND NON-TRAFFIC BEARING VAULTS MUST MAINTAIN THEIR DESIGNED STRUCTURAL INTEGRITY AND CASTING SHALL BE SECURE FOR ROAD TRAFFIC. CONTRACTOR IS REQUIRED TO CALL THE PERMITS AND SALES UNIT OF THE DIVISION OF WATER AT 216-664-2444 EXT. 75209 FOR INSPECTION OF ANY VAULT SET.

STANDARD DETAILS

DEPARTMENT OF PUBLIC UTILITIES
DIVISION OF WATER
CLEVELAND, OHIO

SUBJECT SINGLE FEED/SEPARATE VAULTS
DOMESTIC - FIRELINE CONNECTION
4"-12" DOMESTIC/4"-12" FIRELINE

DRAWN BY RSK	-SCALE-	STD-V04
DATE 2-25-2009	NONE	
CHECKED BY ___ DATE ___		



PLAN

1. (1) S.O.M. x FIRE LINE ("F") SIZED MECHANICAL JOINT BRANCH SLEEVE AND "F" SQUARE HEAD GATE TAP VALVE WITH RETAINED MECHANICAL JOINT OUTLET AND VALVE BOX COMPLETE.
2. X FEET "F" DUCTILE IRON CLASS 52 CEMENT LINED PLAIN END x PLAIN END PIPE (CUT TO SUIT). (IF PIPE IS LONGER THAN 1 PIPE LENGTH, THEN THE PIPE IS TO HAVE TYPE II BOLTLESS RESTRAINED PUSH-ON JOINTS.
3. (1) "F" x "F" x "D" DUCTILE IRON CLASS 350 CEMENT LINED RETAINED MECHANCAL JOINT TAPPED TEE WITH CONCRETE PIER.
4. (1) "F" RETAINED MECHANICAL JOINT. SQUARE HEAD GATE VALVE WITH VALVE BOX COMPLETE.
5. X FEET "F" PLAIN END x FLANGED DUCTILE IRON CLASS 52 CEMENT LINED PIPE (CUT TO SUIT).
6. OPTIONAL (1)-THREADED REDUCING BUSHING
7. X FEET "D" THREADED END x THREADED END TYPE "K" COPPER.
8. (1)-THREADED BRASS 90° ELBOW.
9. X FEET "D" THREADED END x THREADED END TYPE "K" COPPER.
10. (1)-"D" THREADED TYPE ORISEAL CURB VALVE WITH VALVE BOX COMPLETE.
11. X FEET "D" TYPE "K" COPPER PIPE (CUT TO SUIT).
12. (1)-APPROVED PRE-CAST FIRELINE VAULT.

* **CURB VALVES MUST BE LOCATED IN THE RIGHT OF WAY**

"S.O.M." - DENOTES SIZE OF MAIN.

"F" - DENOTES NOMINAL PIPE DIAMETER OF FIRE LINE

"D"- DENOTES NOMINAL PIPE DIAMETER OF DOMESTIC LINE

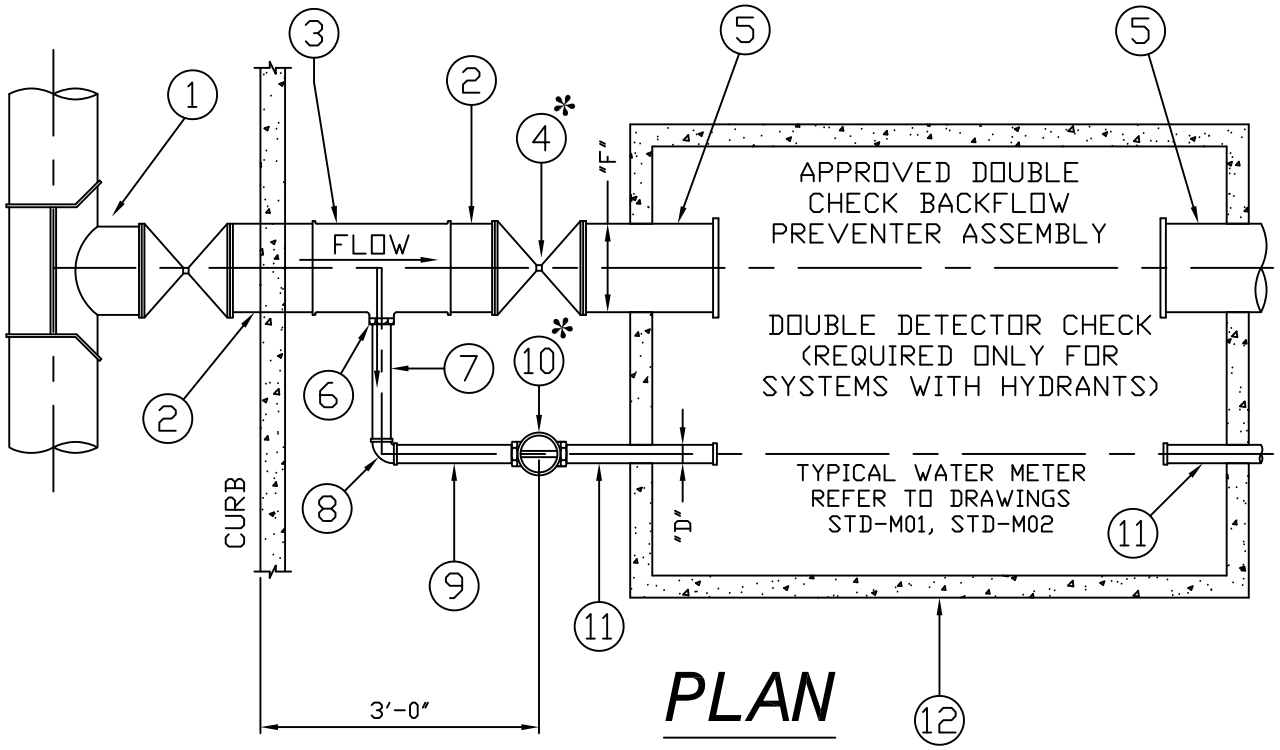
VAULTS MUST ALSO BE COMPLIANT WITH NFPA 13, UNLESS OTHERWISE DIRECTED BY THE LOCAL FIRE DEPARTMENT. SEE FIGURE A.16.12 - "TYPICAL CITY WATER PIT" IN NFPA 13 (2019 EDITION). ALL FIRELNES MUST BE APPROVED BY THE LOCAL FIRE DEPARTMENT

STANDARD DETAILS

DEPARTMENT OF PUBLIC UTILITIES
DIVISION OF WATER
CLEVELAND, OHIO

SUBJECT SINGLE FEED/SINGLE VAULT FOR FIRELINE CONNECTION/DOMESTIC CONNECTION WITH REMOTE METER/ 1"-2" DOMESTIC/4"-12" FIRELINE

DRAWN BY RSK	-SCALE- NONE	STD-V05
DATE 11-16-2009		
CHECKED BY ___ DATE ___		



PLAN

1. (1) S.O.M. x FIRE LINE ("F") SIZED MECHANICAL JOINT BRANCH SLEEVE AND "F" SQUARE HEAD GATE TAP VALVE WITH RETAINED MECHANICAL JOINT OUTLET AND VALVE BOX COMPLETE.
2. X FEET "F" DUCTILE IRON CLASS 52 CEMENT LINED PLAIN END x PLAIN END PIPE (CUT TO SUIT). (IF PIPE IS LONGER THAN 1 PIPE LENGTH, THEN THE PIPE IS TO HAVE TYPE II BOLTLESS RESTRAINED PUSH-ON JOINTS.
3. (1) "F" x "F" x "D" DUCTILE IRON CLASS 350 CEMENT LINED RETAINED MECHANCAL JOINT TAPPED TEE WITH CONCRETE PIER.
4. (1) "F" RETAINED MECHANICAL JOINT. SQUARE HEAD GATE VALVE WITH VALVE BOX COMPLETE.
5. X FEET "F" PLAIN END x FLANGED DUCTILE IRON CLASS 52 CEMENT LINED PIPE (CUT TO SUIT).
6. OPTIONAL (1)-THREADED REDUCING BUSHING
7. X FEET "D" THREADED END x THREADED END TYPE "K" COPPER.
8. (1)-THREADED BRASS 90° ELBOW.
9. X FEET "D" THREADED END x THREADED END TYPE "K" COPPER.
10. (1)-"D" THREADED TYPE ORISEAL CURB VALVE WITH VALVE BOX COMPLETE.
11. X FEET "D" TYPE "K" COPPER PIPE (CUT TO SUIT).
12. (1)-APPROVED PRE-CAST FIRELINE VAULT.

✻ **CURB VALVES MUST BE LOCATED IN THE RIGHT OF WAY**

"S.O.M." - DENOTES SIZE OF MAIN.
"F" - DENOTES NOMINAL PIPE DIAMETER OF FIRE LINE.
"D" - DENOTES NOMINAL PIPE DIAMETER OF DOMESTIC LINE.

- VAULTS MUST ALSO BE COMPLIANT WITH NFPA 13, UNLESS OTHERWISE DIRECTED BY THE LOCAL FIRE DEPARTMENT. SEE FIGURE A.16.12 - "TYPICAL CITY WATER PIT" IN NFPA 13 (2019 EDITION). ALL FIRELNES MUST BE APPROVED BY THE LOCAL FIRE DEPARTMENT
- METERS IN VAULTS MUST BE ABLE TO BE READ FROM ABOVE WITHOUT ENTRY. IF NO CLEAR LINE OF SITE TO THE METER CAN BE ACHIEVED BY PLACEMENT OF THE ACCESS MANHOLE, AS DETERMINED BY THE DIVISION OF WATER CONTRACTOR MAY ORDER PRECAST MANHOLE WITH VIEWING PORT OPENING OR CORE OPENING ONSITE. ALL TRAFFIC BEARING AND NON-TRAFFIC BEARING VAULTS MUST MAINTAIN THEIR DESIGNED STRUCTURAL INTEGRITY AND CASTING SHALL BE SECURE FOR ROAD TRAFFIC. CONTRACTOR IS REQUIRED TO CALL THE PERMITS AND SALES UNIT OF THE DIVISION OF WATER AT 216-664-2444 EXT. 75209 FOR INSPECTION OF ANY VAULT SET.

STANDARD DETAILS

DEPARTMENT OF PUBLIC UTILITIES
DIVISION OF WATER
CLEVELAND, OHIO

SUBJECT SINGLE FEED/COMBINATION VAULT
DOMESTIC - FIRELINE CONNECTION
1"-2" DOMESTIC/4"-8" FIRELINE

DRAWN BY RSK	-SCALE-	STD-V06
DATE 11-16-2009	NONE	
CHECKED BY ___ DATE ___		