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ATASCADERO MUTUAL WATER COMPANY

Specifications
and
Details

AMWC SPECIFICATIONS
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PART 1 - GENERAL PROVISIONS

SECTION 100 - GENERAL REQUIREMENTS AND SCOPE

100-1 AMWC Specifications and Details - The Atascadero Mutual Water Company (AMWC) Specifications and Details provide the minimum standard for the design, construction, type of materials, and the preparation of plans for any water facility improvement that is to be offered to AMWC for operation and maintenance.

100-2 Waterworks Standards - Any item that is not included in the AMWC Specifications and Details shall be designed and constructed in conformance with the latest editions of the California Waterworks Standards, and the American Water Works Association Standards (the "AWWA Standards").

100-3 Specifications for Public Works Construction - Any item that is not included in the AMWC Specifications and Details, the California Waterworks Standards, or the AWWA Standards shall be constructed in conformance with the Standard Specifications for Public Works Construction (the "Standard Specifications") or as directed by AMWC.

100-4 Precedence of Standards - In the event of a conflict between the AMWC Specifications and Details, the California Water Works Standards, the AWWA Standards, and the Standard Specifications, the most stringent, in the sole opinion of AMWC, shall prevail.

100-5 Authority of General Manager - The General Manager has the authority to interpret, waive, or revise these standards and details when conditions warrant as an Administrative Policy rather than a Board Policy. These standards and details are subject to change without notice.

SECTION 101 - DEFINITIONS AND ABBREVIATIONS

101-1 Definitions - Under the AMWC Specifications and Details, the following definitions apply:

California Waterworks Standards	California Administrative Code, Title 22, Division 4, Chapter 16
Consultant:	Entity that prepares and submits plans for Improvements on behalf of Developer for review and approval by AMWC.
Contractor:	Entity hired by Developer to furnish the labor, materials, tools, equipment, and incidentals to construct the Improvements.

Developer:	Shareholder, or entity that is duly authorized to represent Shareholder, who is responsible for the design and construction of Improvements.
Entity:	Individual, corporation, partnership, limited liability company, joint venture, or government
Improvement:	Any water supply or distribution facility that is to be constructed by Developer and offered to AMWC for operation and maintenance.
Shareholder:	Entity that owns property within the AMWC service area as recorded with the San Luis Obispo County Assessor's Office.
Standard Specifications:	Standard Specifications for Public Works Construction ("Greenbook"), 2000 edition, published by Building News Incorporated, 1612 South Clementine Street, Anaheim, CA 92802, (714) 517-0970

101-2 Abbreviations - Under the AMWC Specifications and Details, the following abbreviations apply:

AC:	asbestos cement
ADD:	average daily demand
AFD:	City of Atascadero Fire Department
AMWC:	Atascadero Mutual Water Company or designated representative
AWWA:	American Water Works Association
CDF:	California Department of Forestry
DI:	ductile iron
FIP:	female iron pipe
gpm:	gallons per minute
gpcd:	gallons per capita per day

gpd:	gallons per day
MDD:	maximum daily demand (2 times ADD)
MIP:	male iron pipe
PHD:	peak hour demand (4 times ADD)
psig:	pounds per square inch gauge
PE:	polyethylene
PVC:	polyvinyl chloride
sch:	schedule

SECTION 102 - RESPONSIBILITIES OF THE CONTRACTOR

102-1 Public Convenience and Safety – It is the responsibility of the Contractor to provide for the safety of traffic and the public in conformance with the provisions in Section 7-10, "Public Convenience and Safety," of the Standard Specifications.

102-2 Labor – Only competent workers shall be employed on the construction of the Improvements. Any person employed by the Contractor who is found in AMWC's sole opinion to be incompetent, intemperate, troublesome, disorderly, or otherwise objectionable, or who fails or refuses to perform the work properly and acceptably, shall be immediately removed from working on the Improvements and shall not be reemployed on the construction of the Improvements.

102-3 Safety Orders – It is the responsibility of the Contractor to comply with the provisions of all safety orders issued by the State Division of Industrial Safety and with the provisions of all other applicable laws, ordinances, and regulations.

102-3.1 Asbestos Cement Pipe - Asbestos cement (AC) pipe is present in the AMWC system and may be encountered by the Contractor. The Contractor shall handle, modify, demolish, remove, haul and dispose of AC pipe in conformance with all local, State and Federal regulations, including all reporting and record keeping requirements for asbestos-containing materials. Contractor shall have an employee with a current asbestos cement pipe handling certification on the site at all times who will be in control of all asbestos cement pipe handling operations performed by the Contractor.

102-4 Contractor's License – Contractors of any water supply facility that is to be offered to AMWC for operation and maintenance shall possess a current Class A Engineering Contractor's license.

SECTION 103 - CONTROL OF THE WORK

103-1 Plans & Specifications - The Contractor shall keep a copy of the plans approved by AMWC for the Improvements at the work site at all times to which AMWC shall have access at all times.

103-2 Line and Grade - All work required for the Improvements shall conform to the lines, elevations, and grades shown on the plans approved by AMWC. Changes in the line and grade will require a revision to the approved plans in accordance with the provisions of these specifications.

103-3 Inspection - The Improvements are subject to inspection and approval by AMWC. AMWC shall inspect each phase of construction of the Improvements, as AMWC considers necessary. The Contractor shall contact AMWC a minimum of two (2) working days in advance of an inspection being required to request and schedule an inspection. Each phase of any and all Improvements constructed to the AMWC Specifications and Details must first be inspected, tested, and approved by AMWC prior to the Contractor proceeding with subsequent phases in accordance with Part 4 - Construction Guidelines, of these specifications. Any Improvement or phase of construction of an Improvement done without inspection by AMWC is subject to rejection.

SECTION 104 - ACCEPTANCE OF IMPROVEMENTS

104-1 Final Inspection - The Improvements will be inspected by AMWC for acceptance within five (5) working days of receipt of the Developer's written assertion that the Improvements are complete.

104-1.1 Final Submittals - At the completion of construction and prior to the final inspection of the Improvements, the Developer shall submit the following items to AMWC:

1. Soil Testing and Compaction Reports
2. Material Compliance Reports
3. Pressure and leakage testing results
4. Bacteriological testing results
5. Record Drawings
6. Other documentation required by AMWC to determine satisfactory completion of the Improvements.

104-2 Defects & Deficiencies - AMWC will provide written notice to Developer as to any observed defects or deficiencies in the Improvements. The Developer shall remedy the defects or deficiencies before acceptance of the Improvements by AMWC. The Developer shall proceed to correct such defects or deficiencies upon notification from AMWC. The Developer shall notify AMWC upon correction of the defects or

deficiencies. AMWC will re-inspect the Improvements within two (2) working days after receipt of notification that re-inspection is desired.

104-3 Acceptance - If, in the sole opinion of AMWC, the Improvements have been completed and are ready for acceptance, AMWC will so accept the completed Improvements by providing written notice to the Developer. The notice from AMWC will reflect the date when the Improvements were completed. Such acceptance of the Improvements by AMWC shall not constitute or be deemed an admission, express or implied, by AMWC that the Improvements have been designed or completed in accordance with Developer's, Contractor's and/or Consultant's responsibilities or that the Improvements are adequate for any particular purpose.

104-4 Guarantee - Without limiting or waiving any of AMWC's other rights, all Improvements shall be guaranteed by the Developer and the Contractor against any and all defects or claims of any kind for a period of one (1) year from the date the Improvements were accepted by AMWC. The Developer shall replace or repair any work in a manner satisfactory to AMWC after written notice to do so from AMWC and within the time specified in the notice. If the Developer fails to make such replacement or repairs within the time specified in the notice, AMWC may perform this work and the Developer shall be liable for the cost thereof.

104-5 Indemnification - Developer, Contractor, Consultant, and Shareholder agree to indemnify, defend (with counsel acceptable to AMWC), and hold AMWC and its officers, directors, employees and agents, harmless from and against any and all claims, demands, damages, costs and liabilities, including, but not limited to, interest, penalties and reasonable attorneys' fees, expenses and court costs, arising out of, related to, or arising directly or indirectly from the design, construction, or claimed inadequacy of the Improvements constructed by Developer, except for any claims, demands, damages, costs or liabilities resulting from the sole negligence or willful misconduct of AMWC, its officers, directors, employees or agents. The Developer, Contractor, Consultant, and Shareholder shall provide AMWC with the fullest indemnification, defense, and hold harmless rights allowed under the law.

PART 2 - WATER SYSTEM IMPROVEMENT DESIGN

SECTION 200 - PREPARATION OF PLANS

200-1 General Requirements - When required by AMWC and before beginning construction on any Improvement to be operated and maintained by AMWC, the Developer shall submit plans for the Improvements to AMWC for review and approval. The Developer or Contractor shall provide AMWC with a set of the approved plans signed by all agencies and utilities before starting construction of any Improvement.

200-2 No Vested Right – Approval of the plans by AMWC does not give the Developer a vested right in the details and standards used for construction of the Improvements. All Improvements shall be constructed to the most current details and standards adopted by AMWC.

200-3 Dedications & Easements - The plans shall show any dedications and easements to AMWC required for the Improvements. The Developer shall provide recorded copies of the dedications and easements to AMWC before starting construction of the Improvements.

200-4 Decorative Pavement - The Developer shall enter into an agreement with AMWC that requires all future Shareholders to replace, at its cost and expense, any stamped or colored Portland cement or asphalt concrete, concrete pavers, interlocking pavers, or other surfacing material other than asphalt concrete (collectively referred to as "Decorative Paving") that may be used as paving over the Improvements. AMWC's sole responsibility will be to backfill, compact, place and compact aggregate base, and pave with asphalt concrete any trench or excavation that may result from AMWC's placement, operation, inspection, repair, replacement, alteration, and removal of the Improvements or during AMWC's attempts to access the Improvements.

200-5 Plan Approval Exceptions - Any feature shown on the plans that does not conform to, or is in conflict with, Federal or State law, AMWC policies and procedures, City ordinances or resolutions, or generally accepted engineering practices is specifically excepted from approval by AMWC even if such feature is overlooked in the review of the plans by AMWC. These features shall be corrected by the Developer at its expense prior to acceptance of the Improvements by AMWC.

200-6 Design Responsibility - Conformance of the design with applicable standards and laws is the sole responsibility of the Developer and/or Consultant. Approval of the plans by AMWC does not relieve the Developer and/or Consultant of this responsibility.

200-7 Plan Alterations - There shall be no alterations made to a set of plans approved by AMWC unless such alterations are approved by AMWC. The procedure for revising approved plans shall be as follows:

1. The Developer shall show the revision on a copy of the approved plans. The extent and nature of the proposed revision shall be clearly and legibly shown. The Developer shall submit two copies of the plans showing the proposed revision to AMWC for review and approval. A numerical identifier shall be provided to reference the proposed revision.

2. When a proposed revision is approved by AMWC, AMWC will initial both copies of plans showing the revision. AMWC will return one copy of plans showing the approved revision to the Developer.

3. Before final acceptance of the improvements by AMWC, the Developer shall provide a reproducible mylar copy of the as-built plans. The as-built plans shall show all approved revisions.

200-8 Plan Details - All features, existing and proposed, that may affect the design, construction, operation, and maintenance of the Improvements shall be shown on the plans. Topographic features to be shown on the plans shall include, but not be limited to: water mains and appurtenances; edges of pavement; sidewalks, curb & gutter; subsurface facilities such as sanitary sewer mains and laterals, storm drains, culverts, gas mains and services, electrical, cable, and fiber optics; structures such as houses, sheds, and fences; trees (with drip lines); drainage ditches; utility poles; all other features that may affect design, operation and maintenance of the water system..

200-8.1 Water Facilities - Plans for the Improvements shall show all existing and proposed water facilities including but not limited to mains, fire hydrants, blow-offs, valves, services, air-vacs, cross-connection devices, and other appurtenances.

200-8.2 AMWC Notes - Plans for the Improvements shall contain the current AMWC Notes on file with AMWC with any additions required by AMWC.

SECTION 201 - WATER MAIN DESIGN

201-1 Layout of Water Mains - The layout of water mains shall conform to AMWC policies (see Appendix A), and §64626 and §64630 of the California Waterworks Standards. Water mains shall be laid out in segmented grids and loops so that pressures throughout the system tend to become equalized under varying rates and locations of flow and to improve reliability.

201-1.1 AMWC Master Plan - Water main layout, design, and main diameter shall be compatible with the ultimate development of the service area and the AMWC Master Plan.

201-1.2 Minimum Cover - Water mains shall have no less than 36-inches of cover over the top of the pipe measured from the finished grade. For staged construction, cover shall be measured from the future or ultimate finished grade. A minimum of 18-inches of cover shall be maintained over water mains during construction.

201-1.3 Maximum Cover - Water mains shall have no more than 48-inches cover over the top of the pipe measured from the finished grade unless otherwise approved by AMWC.

201-1.4 Separation – Water mains that parallel other utilities (gas, phone, cable, electrical, storm drains, etc.) shall maintain a horizontal separation of no less than four (4) feet clear. Water mains that cross other utilities shall maintain a vertical separation of no less than one (1) foot clear.

201-1.4.1 Sewer/Water Separation - Separation between water mains and sewer mains, leach fields, and septic tanks shall conform to §64630 of the California Waterworks Standards.

201-2 Location of Water Mains - Water mains and other Improvements shall be constructed within Colony rights-of-way or rights-of-way dedicated for use by the public unless otherwise approved by the AMWC Board of Directors.

201-2.1 Water Mains on Private Property - Construction of water mains or other Improvements on private access roads or on private property to serve single family residential development will require approval from the AMWC Board of Directors.

201-2.1.1 Easements - When a water main or other Improvement is constructed outside of Colony rights-of-way or rights-of-way dedicated for use by the public, the Developer shall dedicate an easement to AMWC for the construction, operation, and maintenance of the Improvements. The minimum width of the easement shall be 15-feet wide or as directed by AMWC. The AMWC Board of Directors shall approve the general form of the easement.

201-2.2 Minimum Water Main Size and Length of Run - The minimum diameter and length of run of water mains shall conform to AMWC Board Policy No. 1.3.3, Main Installation: Minimum Pipe Size Standard (see Appendix A), and §64628 of the California Waterworks Standards.

201-2.3 Operating Pressure - Improvements shall be designed to maintain the following minimum operating pressures and maximum velocities under all of the following demand conditions:

1. Average Daily Demand (ADD) - minimum pressure of 35 psig and flow velocities less than 5 feet per second (fps)
2. Peak Hour Demand (PHD) - minimum pressure of 30 psig and flow velocities less than 10 fps where PHD = 4xADD
3. Maximum Daily Demand (MDD) plus Fire Flow - minimum residual pressure of 20 psig and flow velocities less than 10 fps where MDD = 2xADD

201-2.4 Developer Responsibilities -The Developer is responsible for designing and constructing water mains and other Improvements that will deliver water at the pressures and flows required by the AMWC Standards and Details, the California Waterworks Standards, and the requirements of the AFD and CDF. Improvements constructed by the Developer that do not meet said requirements shall be modified, replaced, or reconstructed by the Developer at no expense to AMWC.

SECTION 202 - DESIGN OF APPURTENANCES

202-1 Service Connections - Services shall be installed in conformance with the AMWC Details. The location of all service lines and meters shall be approved by AMWC and shall conform to AMWC Administrative Policy No. 1.3.4, Meter Installation and Location Standards (see Appendix A).

202-1.1 Layout - Service lines shall be installed perpendicular to the main with no horizontal bends or curves. The Developer shall establish meter locations to keep service lines perpendicular to the main and to keep service line lengths to a minimum.

202-1.2 Separation – Service lines that parallel other utilities (gas, phone, cable, electrical, storm drains, etc.) shall maintain a horizontal separation of no less than two (2) feet clear. Service lines that cross other utilities shall maintain a vertical separation of no less than six (6) inches clear.

202-1.3 Boring and Sleeving - AMWC may require the Developer to bore beneath paved services for the installation of water service piping. One-inch PE water service piping installed by boring shall be sleeved if the boring passes through material that has a high potential to scratch or gouge the PE pipe when it is pulled through the bore hole.

202-1.4 Booster Pumps - The Developer is responsible for designing, constructing, operating, and maintaining a private booster pump downstream of the water meter if the pressure at the meter does not meet the pressure and flow requirements of the Developer at the project site. The Developer shall install a cross-connection device between the water meter and the private booster pump in accordance with these standards. The Developer should install a low-pressure shut-off switch on the pump in the event suction pressure is lost at the booster pump due to a water main break or other disruption of water service. The Shareholder is responsible for repairing any damage to the private booster pump that may result from any temporary loss of pressure at the water meter.

202-1.5 Pressure-Regulating Valves - The Developer is responsible for designing, constructing, operating, and maintaining a private pressure-regulating valve downstream of the water meter if pressure at the meter exceeds the maximum pressure required by the Uniform Plumbing Code or the Developer.

202-1.6 Water Service Size - The Developer is responsible for determining the size of water service needed to adequately deliver water at the pressures and flows needed to serve a particular project or property. AMWC is not responsible for assuring that the size of the water service selected by the Developer will provide water at any particular rate of flow or pressure to the project location. The Developer may use the following table to select the appropriate size water service for the intended use. The maximum intermittent flow shown in the table is intended for fire flows and not for landscape irrigation flows. Landscape irrigation flows should not exceed the maximum continuous flow shown in the table.

WATER METER CAPACITIES

Meter Size (inches)	Meter Type	Flow Range, Continuous (gpm)	Flow, Maximum Intermittent* (gpm)
5/8	Multi-Jet	1/4 – 10	20
3/4	Multi-Jet	1/2 - 15	30
1	Multi-Jet	3/4 - 25	50

1-1/2	Multi-Jet	1-1/2 - 50	100
2	Floating Ball	1/2 – 160	200
3	Floating Ball	1/2 - 400	500
4	Floating Ball	3/4 - 800	1000
6	Floating Ball	1-1/2 – 1600	2000
*max flow for short periods at infrequent intervals per AWWA - not intended for landscape irrigation flows			

If AMWC determines that the actual flow through the water meter selected by the Developer and/or Shareholder exceeds the maximum continuous flow shown in the table, the Developer and/or Shareholder shall upgrade the water meter to a size appropriate for the actual use. The cost and expense for upgrading the water meter shall be borne by the Developer and/or Shareholder including any additional connection fees that may be due.

202-1.7 Cross-connections - The Developer shall design, install, operate, and maintain a cross-connection device for the prevention of back-flow from fire suppression systems, private wells, private booster stations, and other sources of water or potential contamination into the AMWC system. The County Health Department shall approve the type and manufacturer of the device installed. Cross-connection devices for the prevention of back-flow into the AMWC system shall be installed in conformance with the California Regulations Relating to Cross-Connections (Title 17, Group 4, California Administrative Code).

202-1.7.1 Cross-connection Inspection -The Shareholder is responsible for having the initial installation of the cross-connection device inspected by the County Health Department. AMWC will discontinue water service to the property if AMWC does not receive an inspection report from the County Health Department within 30-days of the date AMWC installs the water service. After the initial inspection by the County Health Department, the Shareholder is responsible to have the cross-connection device inspected annually by a certified cross-connection device inspector. AMWC will discontinue water service to properties with failed cross-connection devices or properties that do not submit adequate evidence that a certified inspector performed the required annual inspection of the cross-connection device.

202-1.8 Easements - The Developer and/or Shareholder is responsible for providing private utility easements for the construction of the private service lines between the water meter and the project site.

202-1.9 Fire Hydrants - Fire hydrants shall be installed in conformance with the AMWC Details. The minimum diameter of the pipe connecting the fire hydrant to the main shall be six (6) inches, with an auxiliary gate valve installed at the main. Hydrant laterals shall be constructed perpendicular to the water main and have no horizontal bends.

202-1.10 Location - Fire hydrants shall be placed near street intersections, whenever possible, and shall be located to minimize the potential of damage by traffic. Hydrants shall be located in the right of way, shall be at least eight (8) feet from

driveway approach aprons, and shall be at least three (3) feet clear of anything that would obstruct the operation of the hydrant.

202-1.11 Spacing - Fire hydrants shall be spaced at 500 foot intervals measured along the street frontage.

202-2 Anchor and Thrust Blocks - Concrete anchor blocks and thrust blocks shall be provided at all vertical and horizontal bends greater than 5-degrees. Thrust and anchor blocks shall also be provided at the end of plugged mains, behind tees and fire hydrants, and behind crosses that have valves configured in such a manner the crosses can be used as tees.

202-3 Blow-offs - All dead-end mains shall be provided with a blow-off or other acceptable means of flushing such as a fire hydrant or air/vacuum release valve. Blow-off shall also be installed at low-points in water mains and at other locations as directed by AMWC. Blow-offs shall not discharge into sanitary sewers.

202-4 Air/vacuum release valves – Air/vacuum release valves (air-vacs) shall be installed in the water system at all points where it is likely that air pockets may form such as the end of water mains or high points in water mains. Air-vacs shall be installed at locations where they are not subject to traffic damage, shall be located at least eight (8) feet from driveway approach aprons, and shall be at least three (3) feet clear of anything that would obstruct the operation and maintenance of the air-vac.

SECTION 203 - WATER DUTY FACTORS

203-1 Residential Duty Factors - The Consultant shall use the following table of minimum water-duty factors for the design of Improvements that serve residential developments.

Land Use Designation	Use per capita (gpcd)	Persons per unit	Units per acre	Water Duty Factor (gpd/acre)
Rural Residential (RR)	180	3.5	0.40	252
Rural Estate (RE)	180	3.5	0.40	252
Suburban Estate (SE)	180	3.5	0.40	252
Single Family Residential (SFR)				
SFR-Z	180	3.0	1.00	540
SFR-Y	180	2.8	2.00	1,008
SFR-X	180	2.3	4.00	1,656
Medium Density Residential (MDR)	180	2.3	10.00	4,140
High Density Residential (HDR)	180	2.3	16.00	6,624

203-2 Mixed-use and Non-residential Duty Factors - The following table provides the minimum water duty factors to be used for the design of Improvements that serve non-residential developments:

Land Use Designation	Water Duty Factor (gpd/acre)
General Commercial (GC)	1,350
Downtown (D)	1,350
Mixed Use (MU)	1,350
Commercial Recreation (CREC)	2,000
Service Commercial (SC)	1,350
Commercial Park (CPK)	1,350
Industrial (IND)	2,100
Public Facilities (PUB)	2,000
Public Recreation (REC)	2,000
Open Space (OS)	2,000

203-3 Fire Flow - Fire flows to be used for the design of the Improvements shall be obtained from the City of Atascadero Fire Department for projects within the Atascadero City limits or the CDF for projects within the county portion of the AMWC service area. The fire protection agency is the final authority on establishing fire flow requirements for a project. In all cases, a 20-psig residual pressure must be maintained under fire flow plus maximum daily demand conditions.

203-4 Peaking Factors - The water duty factors listed in these specifications are based on average usage. Water demand fluctuates according to the time of year and time of day. The Improvements shall have adequate capacity to accommodate these fluctuations in demand by the application of a peaking factor.

203-4.1 Maximum Daily Demand - A peaking factor of 2.0 represents the ratio of the maximum daily demand (MDD) to the average daily demand (ADD) and shall be used to estimate the maximum daily demand.

203-4.2 Peak Hour Demand - A peaking factor of 4.0 represents the ratio of the peak hour demand (PHD) to the average daily demand (ADD) and shall be used to estimate the peak hour demand.

PART 3 - MATERIALS

SECTION 300 - GENERAL REQUIREMENTS

300-1 Approved Materials - Approved materials and water system components are listed on AMWC Detail No. 100. Components by manufacturers other than those listed on AMWC Detail No. 100 will not be accepted.

300-2 Water Mains & Appurtenances - All materials used in the construction of water mains and appurtenances shall be as specified in the AMWC Details and shall conform to AWWA Standards, latest revision.

300-3 Rock Materials - All sand, crushed rock, aggregate base, gravel, and stone used in the construction of the Improvements shall conform to the provisions of Section 200, Rock Materials, of the Standard Specifications.

300-4 Concrete Materials - All concrete and related materials used in the construction of the Improvements shall conform to the provisions of Section 201, Concrete, Mortar, and Related Materials, of the Standard Specifications.

300-5 Asphalt Concrete - All asphalt concrete and related materials used in the construction of the improvements shall conform to the provisions of Section 203, Bituminous Material, of the Standard Specifications.

PART 4 - CONSTRUCTION GUIDELINES

SECTION 400 - GENERAL REQUIREMENTS

400-1 Construction Methods - All methods used by the Contractor to construct the Improvements shall be in accordance with AWWA Standards, and Part 3, Construction Methods, of the Standard Specifications.

SECTION 401 - CONNECTION TO EXISTING MAINS

401-1 Inspection - The Contractor shall perform all connections to existing mains in the presence of AMWC. When any connections are to be made to an existing main, the Contractor shall expose the existing main by hand-excavating (potholing) to determine the pipe's size, material, and exact location. AMWC shall inspect the existing pipe before any connection is made. The Contractor will make any adjustments in line or grade that may be necessary to accomplish the intent of the plans.

401-2 Hot-tapping - All hot-tapping of existing water mains shall be performed by AMWC. Mains of equal size shall not be hot-tapped and will require a shutdown and a tee to be cut into the existing main. The Developer shall pay all fees required by AMWC for hot tapping of water mains in advance of AMWC performing the hot tap.

401-3 Operation of Valves - Only AMWC personnel shall operate valves on existing water mains. Contractors shall not operate any valves on existing water mains. Valves connecting new water mains to the existing system shall remain closed and the new main shall remain isolated from the existing AMWC system until the new mains are accepted by AMWC. A connection to the AMWC system does not constitute acceptance of the Improvements by AMWC.

401-4 Preparation - Connections to existing water mains shall be made only after complete and satisfactory preparation for such work has been made and approved by AMWC in order that the shutdown can be accomplished in the shortest amount of time possible. All materials required for the connection shall be at the site and approved by AMWC.

401-5 Notification – All work that requires a disruption of water service shall be approved in advance by AMWC. AMWC shall be notified at least four (4) working days in advance of all work that will require a disruption of water service in order that AMWC may notify its customers. No disruption of water service will be permitted on Mondays, Fridays, weekends, holidays, or the day before a holiday. In general, the timing of shutdowns shall be approved by AMWC and made at times when there will be the least interruption of service. AMWC may require after-hours or nighttime shutdowns to minimize the disruption of service to its customers.

SECTION 402 - EXCAVATION

402-1 Alignment and Grade - The Contractor shall lay all pipes for water mains at the lines and grades shown on the plans approved by AMWC. The Contractor shall change the line and grade of the pipes only when approved by AMWC.

402-1.1 Placement of Appurtenances - The Contractor shall install all fittings, valves, air-vacs, services, and hydrants at the locations shown on the plans approved by AMWC with valve and hydrant stems properly set. The axis of fittings shall align with the longitudinal axis of the pipe.

402-2 Trench Excavation - The Contractor shall excavate trenches in conformance with AMWC Detail Nos. 200 and 201, and in conformance with Section 306-1.1, Trench Excavation, of the Standard Specifications.

402-2.1 Preparation of Trench Bottom - The Contractor shall excavate the trench bottom in a manner that will provide a firm, stable, and uniform support for the full length of the pipe. The Contractor shall not use blocking to change pipe grade or intermittently support the pipe across excavated sections. The Contractor shall excavate holes at each pipe joint to accommodate the pipe bell, permit pipe assembly, and allow proper support of the pipe.

402-2.2 Rock Conditions - The Contractor shall remove all rocks, boulders, cobbles, and large stones from the sides and bottom of the excavation to provide at least 6-inches clear for the placement of sand bedding on each side of and below all pipes and appurtenances.

402-2.3 Previous Excavations - If the trench passes over a sewer or other previous excavation, the Contractor shall compact the trench bottom to provide support equal to that of the undisturbed native soil adjacent to the previous excavation.

402-2.4 Unstable Subgrade - Where an unstable subgrade condition exists that, in the opinion of AMWC, cannot adequately support the pipe, the Contractor shall excavate an additional depth from the trench bottom. The Contractor shall backfill the

over-excavated trench to the foundation grade of the pipe with sand bedding material and compact the backfill to the required density.

402-2.5 De-watering - Where running or standing water occurs in the trench, the Contractor shall remove the water by pumps. The Contractor shall keep the trench free from water during pipe installation operations by suitable means until the pipe has been installed, bedded, backfilled, and compacted to a height sufficient to prevent pipe flotation and contamination/siltation

402-2.6 Excavated Material - Excavated material shall be placed in a manner that will not obstruct roadways, sidewalks or driveways for extended periods. Hydrants, vaults, valve boxes, water meters, and other appurtenances shall remain unobstructed and accessible.

402-2.7 Inspection - Trench excavations shall be inspected by AMWC prior to the placement of the bedding and pipe.

SECTION 403 - PIPE INSTALLATION

403-1 Examination of Material - The Contractor shall inspect all pipe and appurtenances for defects before installation in the trench. Any defective, damaged, or unsound material shall be marked by the Contractor and held for inspection by AMWC who may prescribe corrective repairs or reject the material. Any defective material installed by the Contractor, even after inspected by AMWC, will be removed and replaced by the Contractor at the Contractor's expense.

403-2 Precautions - Proper equipment, tools, and facilities shall be provided and used by the Contractor for the safe execution of the work. All pipe and appurtenances shall be lowered carefully into the trench using suitable equipment and methods to prevent damage to the material. Under no circumstances shall the Contractor roll, drop, or dump pipe or appurtenances into the trench.

403-3 Pipe Bedding - Bedding material shall be placed beneath and around the pipe in conformance with AMWC Detail Nos. 200 and 201. Bedding material shall be placed on trench bottoms so that the pipe is supported for the full length of the barrel. The bedding material shall be densified either by jetting or mechanical compaction. The subgrade on which bedding is placed shall be firm and unyielding

403-3.1 Material - Bedding material shall be screened sand. One hundred percent (100%) of the sand used for pipe bedding shall pass through a No. 4 sieve.

403-3.2 Inspection - The bedding material beneath the pipe shall be inspected by AMWC prior to placement of the pipe in the trench. The bedding and material surrounding the pipe and above the pipe shall be inspected by AMWC before backfilling the trench.

403-4 Pipe Laying - As each length of pipe is placed in the trench, the joint shall be assembled and the pipe brought to the required line and grade as shown on the plans approved by AMWC. The pipe and joint shall be uniformly supported and secured in

place with the bedding material. The pipe shall be laid with the bell end pointing in the direction of work progress.

403-4.1 Pipe Cleaning - Before lowering the pipe into position in the trench, all dirt and foreign matter that cannot be removed by normal flushing shall be cleaned by mechanical means. AMWC shall determine when mechanical cleaning is required. During pipe laying operations, no debris, hand tools, clothing, or other materials shall be placed in the pipe. The Contractor shall swab all fittings and pipe with a chlorine solution before installing. The Contractor shall keep the pipe clean during and after installation.

403-4.2 Interrupted Operations - When laying operations are left unattended, interrupted, terminated at the end of a day, or when conditions exist that may cause contamination, the pipe ends shall be sealed temporarily to prevent the entry of water, debris, small animals, and similar types of contamination. The Contractor shall take precautions to prevent flotation of the sealed pipe during work stoppages.

403-4.3 Inspection - The pipe shall be inspected by AMWC before it being laid in the trench. The Contractor shall not use pipe rejected by AMWC in the work.

403-5 Pipe Joining - Pipe joints shall be assembled under conditions that ensure clean mating and sealing surfaces by using proper equipment, materials and procedures in accordance with the recommendations published by the manufacturer. All gasketed joints shall be the push-on type unless otherwise approved by AMWC.

403-5.1 Joint Preparation - The sealing surfaces of the pipe spigot end, the pipe bell, the coupler or fitting, and the elastomeric gaskets shall be cleaned immediately before assembly. Factory-installed gaskets should not be removed for cleaning. The joint shall be free of dirt, sand, grit, grease, or any foreign material. When assembling gasketed joints, an approved lubricant shall be applied as specified by the pipe manufacturer. Damage to the gaskets may result from the use of improper lubricants.

403-5.2 Field Cuts - When pipe is cut in the field, the cut shall provide a smooth end at a right angle to the longitudinal axis of the pipe. Pipe spigot ends shall be de-burred, beveled, and re-marked with an insertion line. The length and angle of the field bevels shall match the factory bevels. To ensure the proper engagement of the sealing gasket with the pipe spigot when connecting shallow-depth bells (such as those on certain cast-iron fittings and valves), the factory bevel shall be cut off and de-burred to provide a square-cut end with only a slight outer bevel.

403-6 Trench Backfill - Trenches shall be backfilled and compacted by the Contractor in conformance with the AMWC Detail Nos. 200 and 201 and in conformance with Section 306-1.3, Backfill and Densification, of the Standard Specifications.

403-6.1 Native Material - Native material for backfill of trenches shall only be used with the prior approval of AMWC. Native material used for backfill shall have all organic material, rubbish, debris, and other objectionable material removed. Rocks, stones, cobbles or other irreducible material greater than 4-inches in any dimension will not be permitted in the backfill.

403-6.1.1 Soils Testing - If AMWC does approve the use of native material for backfill, the Developer shall have compaction tests performed by a registered soil's engineer and submit the test results to AMWC prior to trench resurfacing operations.

403-6.2 Mechanical Compaction - Backfill shall be mechanically compacted by means of tamping, sheep's foot roller, pneumatic tire, vibrating rollers, or other mechanical tampers. Impact-type pavement breakers (stompers) shall not be used for the compaction of trench backfill over or adjacent to pipes. Backfill shall be placed in horizontal layers no more than 8-inches thick. Each layer shall be evenly spread, moistened (or dried, if necessary), and then tamped or rolled until the specified relative compaction has been attained.

403-6.3 Jetted Backfill - Jetting will be permitted only if the backfill soil has a minimum sand equivalent of 15. Jetting shall be accomplished by the use of a jet pipe with a minimum diameter of 1/2 inch to which a hose is attached carrying a continuous supply of water at a minimum pressure of 40 psig. The lift of backfill shall not that which can be readily densified by jetting, but in no case shall the undensified lift exceed 15 feet.

403-7 Appurtenances - Appurtenances include but are not limited to fittings, valves, hydrants, blow-offs, air-vacs, and service connections.

403-7.1 Fittings and Valves - Fittings and valves shall be provided and installed as shown on the plans approved by AMWC. Valves shall be placed with the operating stem vertical. The pipe shall not carry the full weight of valves and fittings. Such appurtenances shall be provided with individual concrete support. All valves shall be anchored for thrust and torque.

403-7.2 Hydrants - Hydrants shall be installed as shown on the plans approved by AMWC. The full weight of hydrants shall not be carried by the pipe. Hydrants, fittings, branch tees, and auxiliary valves shall be provided with concrete support. All hydrants shall stand plumb, shall be properly located and orientated in accordance with the approved plans, and shall be set to the proper elevation.

403-7.3 Blow-offs and Air-vacs - Blow-offs and air-vacs shall be installed as shown on the plans approved by AMWC and in conformance with the AMWC details.

403-7.4 Service Connections - Service connections shall be installed as shown on the plans approved by AMWC and in conformance with the AMWC details. Service piping shall be installed perpendicular to the water main. Connections to the mains shall be by saddle tapping - AMWC does not permit the direct tapping of water mains.

403-7.4.1 Time of Installation - Service lines from the water main to the meter shall normally be installed at the time the main is constructed by the Developer to avoid frequent cutting of the street. If connection fees for these services are not paid at the time of installation, the Developer shall enter into a Deferred Connection Fees agreement with AMWC.

403-7.4.2 Connections to Existing Mains - Only AMWC personnel are permitted to make service connections to existing water mains.

403-8 Trench Resurfacing - Trenches shall be resurfaced in conformance with AMWC Detail Nos. 200 and 201 and in conformance with Section 306-1.5, Trench Resurfacing, of the Standard Specifications.

403-8.1 Temporary Resurfacing - Unless permanent pavement is placed immediately, temporary bituminous resurfacing (cold-mix), a minimum of two (2) inches thick, shall be placed wherever excavations are made through pavement, sidewalks or driveways. Temporary resurfacing shall be maintained in accordance with Section 306-1.5.1, Temporary Resurfacing, of the Standard Specifications.

403-8.2 Permanent Resurfacing - All surface improvements damaged or removed as a result of the Contractor's operations shall be reconstructed by the Contractor in conformance with Section 306-1.5.2, Permanent Resurfacing, of the Standard Specifications.

SECTION 404 - TESTING AND DISINFECTION

404-1 Cleaning - The Contractor shall ensure that the water main is clean in conformance with AWWA Standard No. 651, Disinfecting Water Mains, before filling, flushing, disinfecting, and testing the installed water main. All cleaning of water mains performed by the Contractor shall be in the presence of AMWC.

404-2 Filling - While venting all air, the Contractor shall slowly fill water mains with potable water at a maximum velocity of one (1) foot per second (fps). Precautions shall be taken to prevent entrapping air in the lines. All filling operations performed by the Contractor shall be in the presence of AMWC.

404-3 Disinfection - The Contractor shall disinfect all water mains and appurtenances in conformance with AWWA Standard 651, Disinfecting Water Mains. The Contractor shall disinfect water mains and appurtenances before the system is pressure tested whenever testing against a closed valve.

404-4 Flushing – All lines shall be flushed from blow-offs and dead ends at a minimum velocity of 3 fps. A minimum of three changes of treated water shall be used in flushing operations. Valves shall be closed slowly to prevent excessive surges while maintaining positive pressure at all time throughout the new line. Water from flushing operations shall be de-chlorinated and shall be discharged without causing erosion damage, nuisance, or interruption of traffic. All flushing operations performed by the Contractor shall be in the presence of AMWC.

404-5 Bacteriological Testing - Bacteriological testing shall be performed by AMWC twenty four (24) hours after the water main has been flushed.

404-5.1 Re-testing - The Contractor shall reimburse AMWC for all labor, material, equipment, and laboratory costs incurred by AMWC associated with the re-testing water mains that fail the initial round of bacteriological testing.

404-6 Hydrostatic and Leakage Testing - The Contractor shall perform pressure and leakage tests simultaneously after filling and flushing the main and appurtenances. All services, fire hydrants, valves, blow-offs, air-vacs, and other appurtenances shall be installed prior to pressure testing the water main. Water mains shall be tested after the

roadways and/or the site have been brought to subgrade and the trench backfilled and compacted, and before permanent trench resurfacing. The Contractor shall ensure that thrust blocking or other types of restraining systems will provide adequate restraint prior to applying the test pressure to the pipeline. All main line and auxiliary valves on the water main being tested shall be readily accessible to AMWC in order to verify the open/closed status of the valves.

404-6.1 Test Apparatus - The Contractor shall furnish all apparatus required for the hydrostatic and leakage tests, including gauges, pumps, pipes, connections, and an accurate means for measuring the quantity of water that must be supplied to the main to maintain the test pressure.

404-6.2 Filling - The Contractor shall fill each section of the water main tested with potable water and expel all air from the main and appurtenances. After the system has been filled with water and all air expelled, all valves controlling the section of water main to be tested shall be closed and allowed to set for at least twenty four (24) hours.

404-6.3 Test Pressure - The Contractor shall subject the water main and appurtenances to a hydrostatic test pressure of 150% of the working pressure at the point of test or 200 psig whichever is greater. After bringing the water main to the appropriate test pressure, the Contractor shall disconnect the test pump from the water main and the pump shall remain disconnected from the water main for the entire duration of the test. All pressure testing performed by the Contractor shall be in the presence of AMWC.

404-6.4 Test Duration - The duration of the hydrostatic test shall be no less than two (2) hours.

404-6.5 Leakage - Leakage is the quantity of water that must be supplied into the section of water main being tested to maintain the pressure within five (5) psig of the specified leak-test pressure, after the pipe has been filled with water and the air in the pipeline has been expelled. The allowable leakage in the section of water main being tested shall not exceed the volume calculated by the following formula during the 2-hour pressure test period. No installation will be accepted by AMWC if the leakage is greater than the allowable.

$$Q = \frac{LD(P)^{0.5}}{148{,}000}$$

where: **Q** = quantity of make-up water (gallons/hour)
L = Length of pipe being tested (ft)
D = nominal diameter of pipe (inches)
P = average test pressure (psi)

404-6.6 Inspection - The Contractor shall perform all hydrostatic and leakage testing of water mains in the presence of AMWC. The Contractor shall repair, remove, or replace all defective elements (pipe, fittings, valves, hydrants, services, blow-offs, air-vacs, etc.) discovered during the testing procedure. The Contractor shall repeat the testing procedures until the Improvements conform to the pressure and leakage test requirements set forth in these standards.

404-6.7 Re-testing - The Contractor shall reimburse AMWC for all labor, material, and equipment costs incurred by AMWC associated with the re-testing water mains that fail the initial round of hydrostatic and leakage testing.

Appendix A

AMWC Policies &
AMWC Standard
Construction Notes

1.3.3 Main Installation: Minimum Pipe Size Standard (BP)

July 12, 1995
_____ Approved

POLICY

The following are the minimum main installation size standards.

A) In general main line extensions shall be no less than 8 inch in size.

B) Installation of 6 inch main lines shall only be approved when one of the following conditions exist:

1.) Main is a dead end line less than 500 feet with no more than one fire hydrant.

2.) Main is a looped line less than 1,500 feet in length with 2 hydrants or less.

3.) Main is a looped line less than 1,000 feet with 3 hydrants or less.

4.) A qualified registered engineer has calculated and certified that fire flows will be provided at two fire hydrants at the same time of no less than 1,000 gpm on the line, and engineer provides calculations proving such to AMWC, and there is little chance that the main will ever be extended (as to be determined by AMWC).

C) If a main extension will result in a temporary dead end but is planned as a future loop, and there is no guarantee of the loop being completed in the near future, the main will be considered to be a dead end.

D) Line size shall be no less than indicated on the AMWC master plan.

E) The incremental cost of pipe for main lines over 10" in diameter will be paid by AMWC unless the pipe line size above 10" is for the primary purpose of serving a developer's tract.

F) The above standards establish a minimum size and shall not be considered to be the correct design size. Line sizes larger than 6 or 8 inches will be required when either AMWC or engineering indicates that it is needed to provide the necessary fire flows, reliability, or circulation.

BACKGROUND

Previous AMWC policy required main extensions to meet the following standards:

A) Minimum line size is to be 6”
B) Line size to be as indicated on the master plan
C) The incremental cost of pipe for any line size about 8” shall be paid by AMWC

ADDITIONAL INFORMATION

MASTER PLAN INFORMATION:

The 1993 Master plan identified 16 pipelines in the Main and Random Oaks zones that do not have sufficient fire flow (1000 gpm) because of dead end line flow loss. These lines represent 30,000 lineal feet of line.

Most of these deficiencies would not exist if the lines had been installed to meet the proposed standards. Many of the other deficiencies would have been eliminated if looping had been provided when feasible. The remaining deficiencies would have been substantially improved by use of the proposed standards.

FIRE PLANNING GUIDELINES:

Atascadero Fire Department has provided AMWC with guidelines it is using to determine line size. These standards only allow 6 inch lines when:

Dead end less than 500 feet with one fire hydrant.
Loop less than 1,500 feet with 2 hydrants or less.
Loop less than 1,000 feet with 3 hydrants or less.

TITLE 22 INFORMATION: (EXCERPTS)
Title 22, Section 64628, (California Waterworks Standards)states:

Layout of Water Mains (64626)

A. Water mains should be laid out only in segmented grids and loops and should be located within streets. Dead-end mains shall be installed only if:
    1. Looping or gridding is impractical due to topography, geology, pressure zone boundaries, unavailability of easements or locations of users; or
    2. The main is to be extended in the near future and the planned extension will eliminate the dead-end conditions.

Minimum Water Main Diameter and Length of Run (64628)

B. Dead-end water mains exceeding 1,000 feet (300 meters) in length shall be constructed of pipe with a nominal inside diameter of at least 6 inches (150 mm),
C. Dead-end water mains exceeding 2,000 feet (600 meters) in length shall be constructed of pipe with a nominal inside diameter of at least 8 inches (200 mm).
D. The requirements of (a), (b), and (c) shall not apply to water main installations meeting one of the following criteria:
    1. The installation is designed under the direction of a qualified registered engineer to meet the requirements of Section 664566.

    (note: Section 664566 refers to fire flows and line pressures.)

CONCLUSION

The previous standards resulted in many deficient fire flows which are now being considered for improvement by AMWC at substantial cost to AMWC rate payers. The present standards would have greatly reduced the number of deficient fire flow mains in the present system.

1.3.4 Meter Installation & Location Standards (AP)

November 7, 2002
_____ Approved

GENERAL DESCRIPTION

The primary purpose of this policy is to establish the proper procedures and standards for locating, marking and installing water meters. Meters shall be located so that they are readily accessible for reading, are not subject to damage from traffic, do no create a hazard to pedestrians, and are not subject to being obscured by landscaping, parked vehicles, loose dirt, rock and debris.

The task of confirming the location of water meters and installing the meters in conformance with Atascadero Mutual Water Company (AMWC) standards, policies and procedures shall be performed only by trained personnel under the general supervision of the Superintendent.

STANDARDS & PROCEDURES

Location – The customer is responsible for providing an acceptable location for the meter. The location shall conform in all respects to the standards, policies and procedures of Atascadero Mutual Water Company (AMWC). AMWC will attempt to install the meter at the location preferred by the customer as long as it complies with AMWC standards, policies and procedures. If the meter location is found to be unacceptable, AMWC will notify the customer to arrange for the meter to be installed at a different location. **The customer shall not trench to the proposed meter location until the location is approved by AMWC.**

Marking – a placard will be given to the customer at the time of payment for the water meter. The placard will identify the customer name, service address and the meter order number. The customer shall post the placard at the proposed meter location.

Notification – The customer shall call the AMWC Administrative Office after the placard is posted to initiate a service order for installation of the meter. If the placard is not posted at the time AMWC reviews the proposed meter location, the customer may incur additional installation charges.

To ensure conformance with AMWC standards, all work required at the proposed site of the meter shall be completed by the customer prior to notifying AMWC. Such work may include, but not be limited to, excavation or fill to finish grade, relocation of fences, removal of landscaping, and construction of retaining structures.

Multiple Meter Installation – If more than one meter is being installed, the customer shall be responsible for plumbing the meters to the correct service address. The customer will be given a copy of the AMWC Construction Standards for Water Meter Locations.

Installation Schedule – AMWC will normally install meters within 7 working days after notification by the customer that the placard has been posted at the site. The 7 working days includes 2 to 3 working days for locating subsurface facilities in the vicinity of the proposed meter location. Meters that are to be installed in meter vaults that have been pre-set will normally be installed within 2 working days. Installation times are measured from the day the customer notifies AMWC that the placard has been posted at the proposed meter location. If the meter location is not acceptable, additional installation time may be required.

Cancellation – If AMWC does not receive notification that the proposed meter location has been marked with the placard within 60 days from payment of fees, the meter order will be cancelled and the customer will be refunded any fees paid, less expenses incurred by AMWC. Future meter application fees will be at the rates in effect at the time received.

Meter Size – The customer is responsible for determining the meter size needed to provide water at adequate pressures and flows.

Pressure Regulators or Booster Pumping Equipment– The customer is responsible for determining whether a privately maintained pressure regulator or booster pump is needed downstream of the meter to deliver water at the required pressures and flows. The customer is responsible for installing and maintaining such devices.

Backflow Prevention Devices – Backflow prevention devices are required for properties with existing wells, properties with booster pumps, fire service connections, landscape irrigation meters, and wherever the potential exists for cross-contamination of the community's water supply, as determined by AMWC. The customer is responsible for installing the backflow prevention device. Backflow prevention devices are to be installed downstream of, and as near as practicable to, the meter.

Backflow prevention devices are to be approved by the San Luis Obispo County Health Department. A current list of approved devices is available from the Health Department. AMWC may provide the customer with a list of backflow devices that have been approved by the County. The list provided by AMWC may not be current and is provided as a convenience only. The customer has the sole responsibility to determine that the County Health Department has approved the backflow prevention device to be installed.

Backflow prevention devices are to be inspected by the County of San Luis Obispo Health Department. The customer is responsible for arranging an inspection of the backflow prevention device and for submitting a copy of the County's backflow prevention device inspection report to AMWC within thirty (30) days of the meter or service being installed by AMWC. If the inspection report is not received by AMWC within thirty (30) calendar days, **WATER SERVICE TO THE PROPERTY WILL BE DISCONTINUED** without further notice. Water service will be restored only after the inspection report is received.

1.5.1 Shareholders Responsibilities (BP)

January 1, 1996
_____ Approved

POLICY

AMWC provides water service to shareholders within the service area of AMWC. As a condition of service, each shareholder must abide by the policies, rates, bylaws, and regulations of Atascadero Mutual Water Company.

Shareholders must purchase a water meter to establish water service at a parcel within the service area. Proof of ownership and identification may be required to verify service is being properly established. Shareholders are the recipients of water service and are responsible for the cost of all services provided by AMWC including the water used through their meter, whether used by the shareholder, tenant, contractor, agent, or through unexplained loss.

Shareholders are not to allow water obtained through their service to be used outside the service area of AMWC.

Shareholders are not to allow water obtained though their service to be used to serve other parcels.

The shareholder is responsible for the payment of any bill for services provided at their parcel. The shareholder is responsible for any damage to AMWC property, service, or equipment serving their parcel whether caused by shareholder, tenant, contractor, agent, or through unexplained loss. This includes damage to the meter, valves, or lock-off equipment. Costs of collection for amounts due to AMWC including attorney fees and additional collection costs will be added to a shareholders account.

Any unpaid bill for any service provided by AMWC may be transferred to a current service location owned by the shareholder for collection. On a monthly basis, a bill will be mailed to the shareholder for water services. All bills are due 30 days from the "service to" i.e., meter reading date. If a bill is unpaid after 30 days it is subject to applicable late payment charges and shut off processes.

A duplicate copy of the bill may be requested by the shareholder to be mailed to an agent or tenant for a monthly "Duplicate Billing Fee." This service includes sending out duplicate shut off notices.

Any charges for services from AMWC incurred by a shareholder while owning a parcel of land served shall become the personal liability of the shareholder even after such time as they cease to be a shareholder.

PURPOSE

The purpose of this policy is to define the responsibilities of shareholders to the Atascadero Mutual Water Company. This is in addition to the bylaws and other regulations approved by the Board of Directors.

BACKGROUND

Atascadero Mutual Water Company was founded in 1913 as a non-profit corporation to provide water service to shareholders within the service area. In order to comply with the rules and regulations pertaining to mutual water companies and to avoid designation as a public utility, AMWC is required to serve only shareholders. This policy defines the responsibilities of the shareholders including the payment for the cost of providing that service.

AMWC STANDARD NOTES

1. ALL WATER DISTRIBUTION FACILITIES SHALL BE CONSTRUCTED IN CONFORMANCE WITH ATASCADERO MUTUAL WATER COMPANY (AMWC) STANDARDS AND POLICIES AND THE STANDARD SPECIFICATIONS FOR PUBLIC WORKS CONSTRUCTION, LATEST EDITION.

2. IN THE EVENT OF A DISCREPANCY BETWEEN THE AMWC STANDARD SPECIFICATIONS, DETAILS AND NOTES AND THE NOTES AND DETAILS SHOWN ON THESE PLANS, THE AMWC STANDARD SPECIFICATIONS, DETAILS, AND NOTES SHALL PREVAIL.

3. ALL MATERIALS AND CONSTRUCTION METHODS SHALL CONFORM TO ATASCADERO MUTUAL WATER COMPANY STANDARDS AND THE STANDARD SPECIFICATIONS FOR PUBLIC WORKS CONSTRUCTION, LATEST EDITION.

4. SEPARATION OF WATER MAINS AND SEWER MAINS SHALL BE IN CONFORMANCE WITH THE PROVISIONS IN TITLE 22 OF THE HEALTH AND SAFETY CODE.

5. WATER MAINS AND APPURTENANCES SHALL BE CONSTRUCTED IN CONFORMANCE WITH THE PROVISIONS IN SECTION 306, UNDERGROUND CONDUIT CONSTRUCTION, OF THE STANDARD SPECIFICATIONS FOR PUBLIC WORKS CONSTRUCTION, LATEST EDITION.

6. WATER MAINS AND APPURTENANCES SHALL BE TESTED IN CONFORMANCE WITH THE PROVISIONS IN SECTION 306-1.4, TESTING PIPELINES, OF THE STANDARD SPECIFICATIONS FOR PUBLIC WORKS CONSTRUCTION, LATEST EDITION. ALL SERVICES, FIRE HYDRANTS, VALVES, BLOW-OFFS, AIR-VACS AND OTHER APPURTENANCES SHALL BE INSTALLED PRIOR TO PRESSURE TESTING THE WATER MAIN.

7. TRENCHES SHALL BE RESURFACED IN CONFORMANCE WITH CITY OF ATASCADERO STANDARDS AND THE PROVISIONS IN SECTION 306-1.5, TRENCH RESURFACING, OF THE STANDARD SPECIFICATIONS FOR PUBLIC WORKS CONSTRUCTION INCLUDING TEMPORARY SURFACING.

8. WATER MAINS AND APPURTENANCES SHALL BE DISINFECTED IN CONFORMANCE WITH AMERICAN WATER WORKS ASSOCIATION STANDARD C651, DISINFECTING WATER MAINS. NO CONNECTIONS TO EXISTING WATER MAINS WILL BE PERMITTED UNTIL THE NEW WATER MAIN IS SUCCESSFULLY TESTED AND DISINFECTED.

9. ATASCADERO MUTUAL WATER COMPANY SHALL BE NOTIFIED AT LEAST 48 HOURS IN ADVANCE OF ALL WORK THAT WILL REQUIRE A DISRUPTION OF WATER SERVICE. NO DISRUPTION OF WATER SERVICE WILL BE PERMITTED ON MONDAYS, FRIDAYS, WEEKENDS OR HOLIDAYS.

10. CONCRETE THRUST OR ANCHOR BLOCKS SHALL BE PROVIDED AT ALL VERTICAL BENDS, HORIZONTAL BENDS, AT THE END OF PLUGGED MAINS, BEHIND TEES AND BEHIND FIRE HYDRANTS.

11. ATASCADERO MUTUAL WATER COMPANY SHALL BE NOTIFIED AT LEAST 24 HOURS PRIOR TO STARTING ANY WORK ON THE WATER DISTRIBUTION FACILITIES.

12. NO CHANGES SHALL BE MADE TO THE WATER DISTRIBUTION FACILITIES SHOWN ON THESE PLANS WITHOUT PRIOR APPROVAL OF ATASCADERO MUTUAL WATER COMPANY.

13. NO CONSTRUCTION SHALL BE STARTED ON THE WATER DISTRIBUTION FACILITIES WITHOUT PLANS APPROVED BY ATASCADERO MUTUAL WATER COMPANY. ATASCADERO MUTUAL WATER COMPANY WILL NOT INSPECT THE WORK WITHOUT APPROVED PLANS. CONSTRUCTION PERFORMED WITHOUT APPROVED PLANS AND WITHOUT INSPECTION BY ATASCADERO MUTUAL WATER MAY NOT BE ACCEPTED.

14. ASBESTOS CEMENT (AC) PIPE IS PRESENT IN THE AMWC SYSTEM AND MAY BE ENCOUNTERED BY THE CONTRACTOR. IT SHALL BE THE CONTRACTOR'S SOLE RESPONSIBILITY TO HANDLE, MODIFY, DEMOLISH, REMOVE, HAUL AND DISPOSE OF AC PIPE IN CONFORMANCE WITH ALL LOCAL, STATE AND FEDERAL REGULATIONS INCLUDING ALL REPORTING AND RECORD KEEPING REQUIREMENTS FOR ASBESTOS-CONTAINING MATERIALS.

AMWC DETAILS

MATERIALS

DETAIL NO. 100	APPROVED MATERIALS

WATER MAINS

DETAIL NO. 200	TRENCH DETAIL FOR UNPAVED AREAS
DETAIL NO. 201	TRENCH DETAIL FOR PAVED STREETS
DETAIL NO. 210	WATER VALVE ASSEMBLY
DETAIL NO. 220	FIRE HYDRANTS
DETAIL NO. 221	FIRE HYDRANT LOCATION
DETAIL NO. 230	ANCHOR BLOCK DETAIL
DETAIL NO. 231	THRUST BLOCK DETAIL
DETAIL NO. 240	MAIN REPAIR DETAIL
DETAIL NO. 241	VALVE OR TEE CUT-IN DETAIL

WATER SERVICES

DETAIL NO. 300	WATER METER LOCATION
DETAIL NO. 301	WATER SERVICE NOTES
DETAIL NO. 310	WATER SERVICE CONNECTION FOR 5/8” – 1”
DETAIL NO. 320	WATER SERVICE CONNECTION FOR 1-1/2” – 2”
DETAIL NO. 330	MANIFOLD ASSEMBLY
DETAIL NO. 331	4” MANIFOLD ASSEMBLY
DETAIL NO. 340	END OF MAIN SERVICE DETAIL (IF NO BLOW-OFF REQUIRED)

APPURTENANCES

DETAIL NO. 400	AIR AND VACUUM RELEASE VALVE, 6" & 8" MAINS
DETAIL NO. 401	AIR AND VACUUM RELEASE VALVE, 10" & 12" MAINS
DETAIL NO. 402	AIR AND VACUUM RELEASE VALVE COVER & PAD DETAILS
DETAIL NO. 410	BLOW-OFF ASSEMBLY
DETAIL NO. 420	DOUBLE-CHECK DETECTOR ASSEMBLY

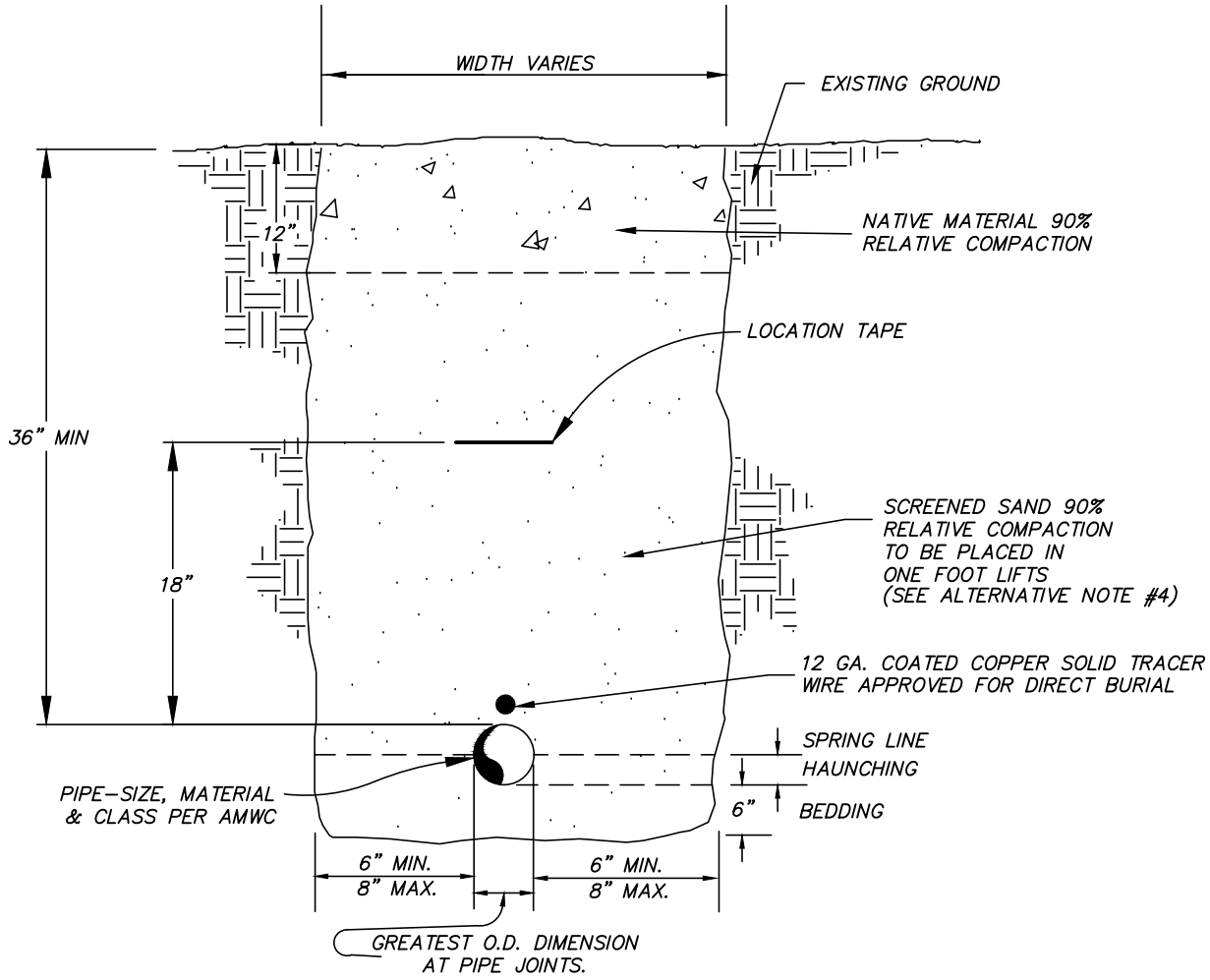
SYSTEM COMPONENT	*MANUFACTURER*	*PART NO.*
ADAPTER, 2" MPT x COMPRESSION	FORD JAMES JONES	C-87-77 J-2640
ADAPTER, INSTA-TITE, 1" MPT	MUELLER FORD	H-15426 C86-44-UB-NL
ADAPTER, INSTA-TITE, 1" FIP	MUELLER FORD	H-15456 C16-44-U-NL
AIR-VACUUM RELEASE VALVE, I"	ARI	D-040-C 1"
AIR-VACUUM RELEASE VALVE, 2"	ARI	D-040-C 2"
AIR-VACUUM VALVE ENCLOSURE	PIPE LINE PRODCUTS	VCAS 1830, SANDSTONE
ANGLE STOP, 5/8"	MUELLER FORD	H-14265
ANGLE STOP, 1"	MUELLER FORD	H-14266 E1537-1
ANGLE STOP, 1-1/2"	JAMES JONES	J-1527-F
ANGLE STOP, 2"	JAMES JONES FORD	J-1527-F BFA13-777W
BALL VALVE, 2", FPTxFPT	FORD	B11-777-NL
BALL VALVE, 2", MPTxFPT	FORD	B81-777, 300 PSI
BALL VALVE, ANGLE, 1", FPTxFPT	FORD	BA11-444W
BALL VALVE, ANDLE, 2", FPTxMPT	FORD	BA11-777W
CORP STOP, 1", MPTxMPT	MUELLER FORD	H-10012 FB500-4-NL
CORP STOP, 1", MPTxFPT	FORD	FBI700-4-NL
CORP STOP, 2", MPTxMPT	JAMES JONES FORD	J-1943 FB500-7
CUSTOMER VALVE, 3/4"	JAMES JONES FORD	J-1908 B13-332-HT-34-NL
CUSTOMER VALVE, 1"	JAMES JONES FORD	J-1908 B13-444W-NL
CUSTOMER VALVE, 1-1/2"	JAMES JONES FORD	J-1913 BF13-666W
CUSTOMER VALVE, 2"	JAMES JONES FORD	J-1913 BF13-787W

APPROVED: JBN REVISIONS: REV. 12/31/08 JBN REV. 03/12/09 JBN REV. 08/18/11 JBN REV. 7/17/24 NCE	ATASCADERO MUTUAL WATER CO. SINCE 1913	APPROVED MATERIALS	DETAIL NO. 100

Fire Hydrant, dry barrel	Mueller	Centurion A-423
Fire Hydrant, wet barrel	Clow	950 or 960
Gate Valve, resilient wedge	Mueller American Flow Control	2300 Series 2500
Meter Box, ⅝" & 1" meters	Christy	Fibrelyte (FL 12 Box) no mouse holes
Meter Box, 1½" & 2" meters	Christy	Fibrelyte (FL 36T Box 12) no mouse holes
Meter Box Lid, ⅝" & 1" meters	Christy	Fibrelyte (FL 12-D)
Meter Box Lid, 1½" & 2" meters	Christy	Fibrelyte (FL 36-D)
Meter Bushing, Long	Ford	A24-NL
Meter Bushing, Short	Ford	A34-NL
Service Saddle, AC pipe	James Jones	JJ-979 IP
Service Saddle, DI/AC pipe	Ford	202B IP
Service Saddle, C-900 PVC pipe	Ford James Jones	202BS IP J969, 2 band, IP
Tapping Sleeve, 6" & 8" AC	Mueller	H-619
Tapping Sleeve, 10" AC and larger	Romac	FTS 420 w/ SS bolts
Valve Box & Cover	Christy	G-5
Vent Cap, Stainless Mesh, 1" MPT	Christy's	VCM1.20
Vent Cap, Stainless Mesh, 2" MPT	Christy's	VCM2.20
Wire Connector	Copperhead Snakebite	3WB-01

Notes:

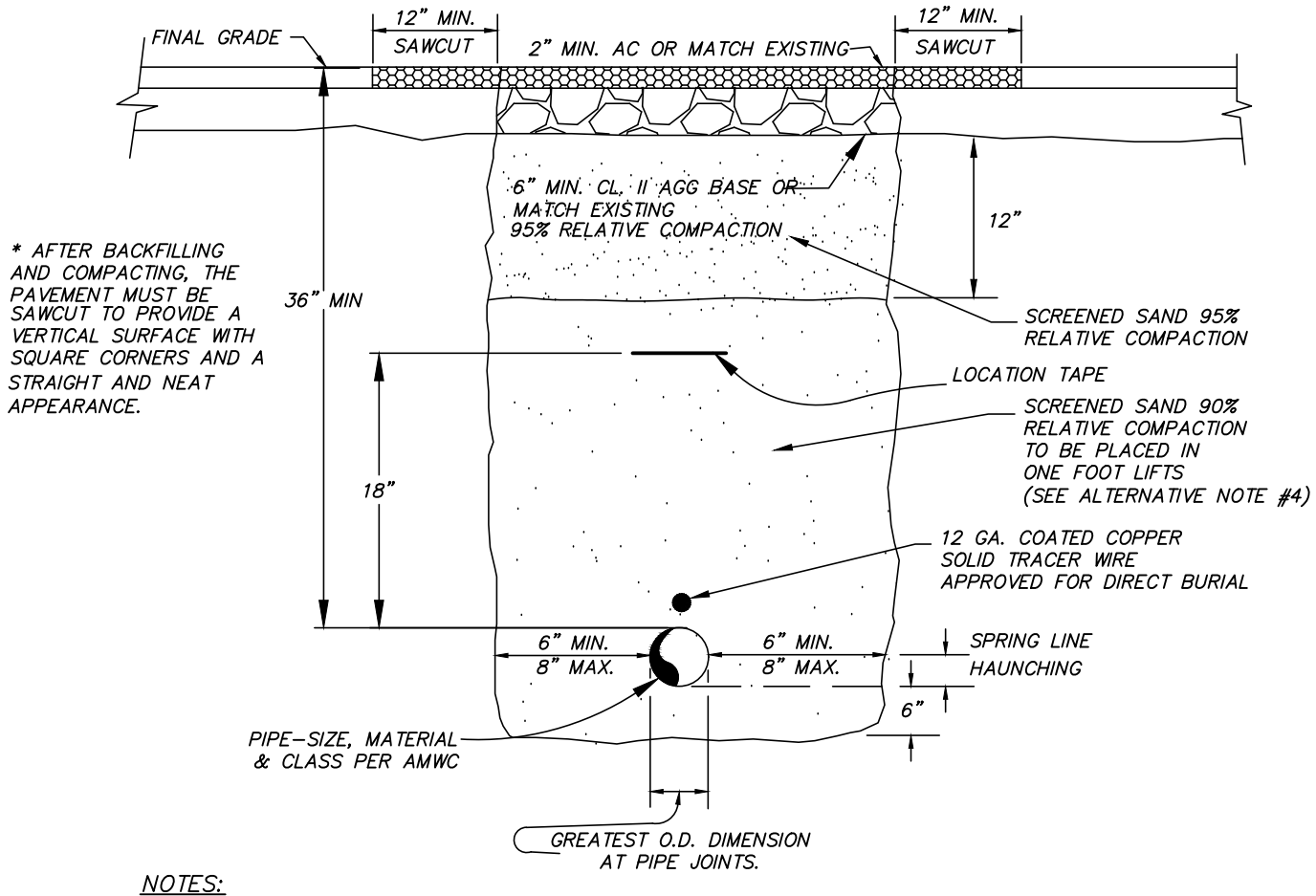
1. All brass fittings shall be no-lead or low-lead per USEPA requirements
2. FPT = Female Pipe Thread; MPT = Male Pipe Thread



NOTES:

1. TRENCH SHALL BE BACKFILLED WITH SCREENED SAND(SEE NOTE 6), LEVELED, AND COMPACTED WITHIN ONE FOOT OF FINISH GRADE, THEN BACKFILLED WITH NATIVE MATERIAL, COMPACTED TO 90%, AND LEVELED TO ORIGINAL ELEVATION.
2. ALL OVER-EXCAVATED MATERIAL SHALL BE REPLACED WITH SCREENED SAND AND COMPACTED TO 90%.
3. BEDDING MATERIAL SHALL BE MECHANICALLY COMPACTED TO 90% PRIOR TO PLACEMENT OF PIPE.
4. AS AN ALTERNATIVE METHOD, WITH APPROVAL BY A.M.W.C., TRENCH SHALL BE BACKFILLED A MINIMUM OF 12" ABOVE THE TOP OF THE PIPE WITH SCREENED SAND (SEE NOTE 6), LEVELED AND COMPACTED TO 90%. THEN BACKFILLED WITH NATIVE MATERIAL, COMPACTED TO 90%, AND LEVELED TO ORIGINAL ELEVATION.
5. WHEN P.V.C. IS USED, PIPE SHALL BE BACKFILLED TO THE SPRING LINE AND COMPACTED TO 90% PRIOR TO COMPLETING INITIAL BACKFILL.
6. SCREENED SAND SHALL PASS 100 % THROUGH # 4 SIEVE AND SHALL HAVE A SAND EQUIVALENT VALUE OF NOT LESS THAN 20.
7. REVEGETATE WHEN NECESSARY AND CLEANUP AND FINISH TO ORIGINAL STATE.
8. PIPE SIZE, TYPE, AND PRESSURE RATING SHALL BE APPROVED BY A.M.W.C.

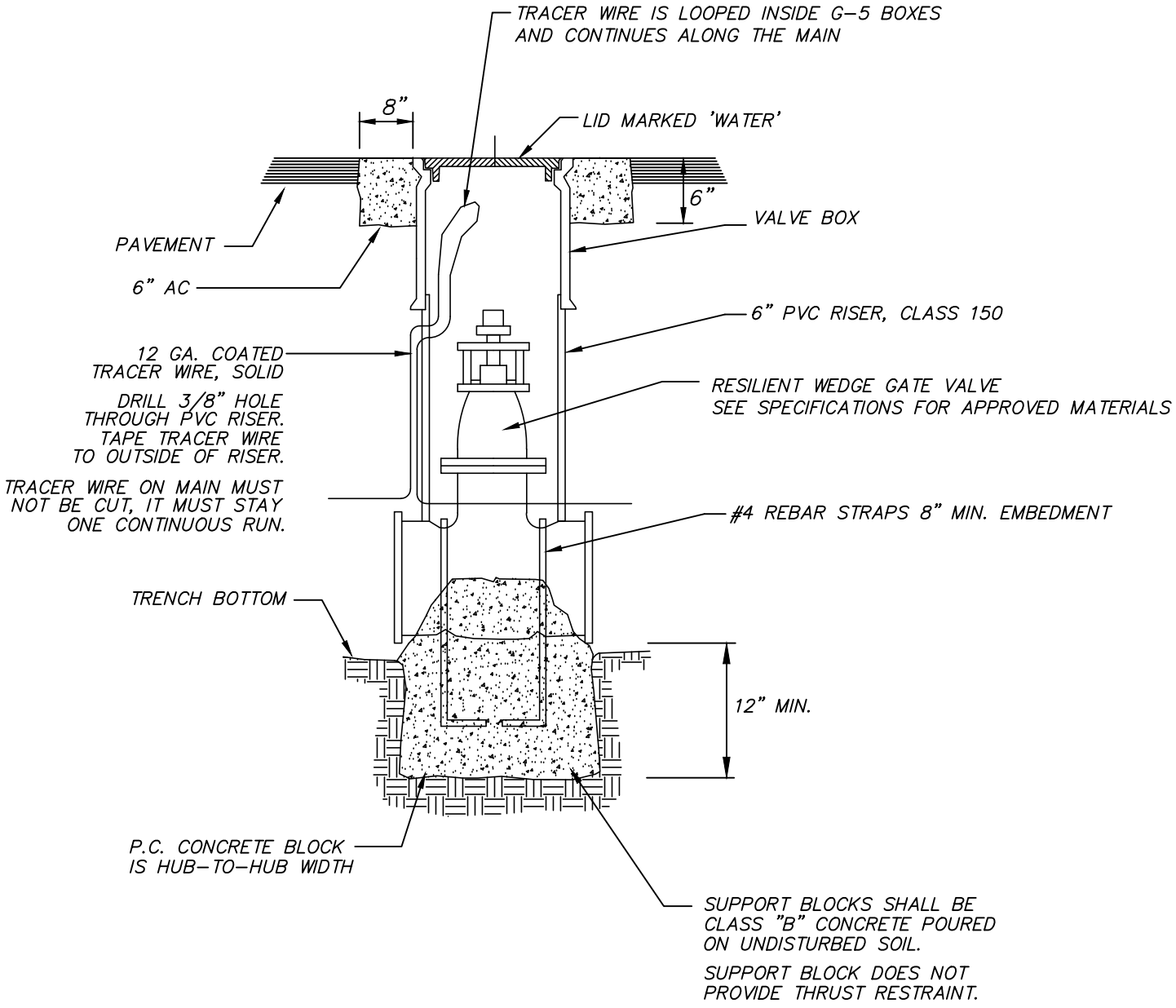
APPROVED: JBN			DETAIL NO.
REVISIONS: REV. 10/31/04 JBN		TRENCH DETAIL UNPAVED AREAS	200
	REV. 12/31/08 JBN		
	REV. 5/20/11 JBN		
10/31/04	REV. 1/15/20 MCZ		



NOTES:

1. TRENCH SHALL BE BACKFILLED WITH SCREENED SAND (SEE NOTE 7), LEVELED, AND COMPACTED TO 90% UP TO PAVEMENT SUBGRADE.
2. ALL OVER–EXCAVATED MATERIAL SHALL BE REPLACED WITH SCREENED SAND AND COMPACTED TO 90%.
3. BEDDING MATERIAL SHALL BE MECHANICALLY COMPACTED TO 90% PRIOR TO PLACEMENT OF PIPE.
4. AS AN ALTERNATIVE METHOD, WITH APPROVAL BY A.M.W.C., TRENCH SHALL BE BACKFILLED A MINIMUM OF 12" ABOVE THE TOP OF THE PIPE WITH SCREENED SAND (SEE NOTE 6), LEVELED AND COMPACTED TO 90%. THEN BACKFILLED WITH NATIVE MATERIAL, COMPACTED TO 90%, AND BACKFILLED TO STRUCTURAL SECTION SUBGRADE.
5. REPLACEMENT PAVEMENT SHALL BE "IN KIND" OR AS REQUIRED BY AGENCY ENGINEER.
6. PIPE SHALL BE BACKFILLED TO THE SPRING LINE AND COMPACTED TO 90% PRIOR TO COMPLETING INITIAL BACKFILL.
7. SCREENED SAND SHALL PASS 100 % THROUGH # 4 SIEVE AND SHALL HAVE A SAND EQUIVALENT VALUE OF NOT LESS THAN 20.
8. PIPE SIZE, TYPE, AND PRESSURE RATING SHALL BE APPROVED BY A.M.W.C.
9. ALL TRENCHES WITHIN THE TRAVELLED WAY SHALL BE TEMPORARILY PAVED WITH 2" MIN. COLD MIX AC UNTIL PERMANENT TRENCH PAVING IS COMPLETED.
10. ALL SLURRY FROM SAWCUTTING SHALL BE VACUUMED AND REMOVED FROM JOB SITE.

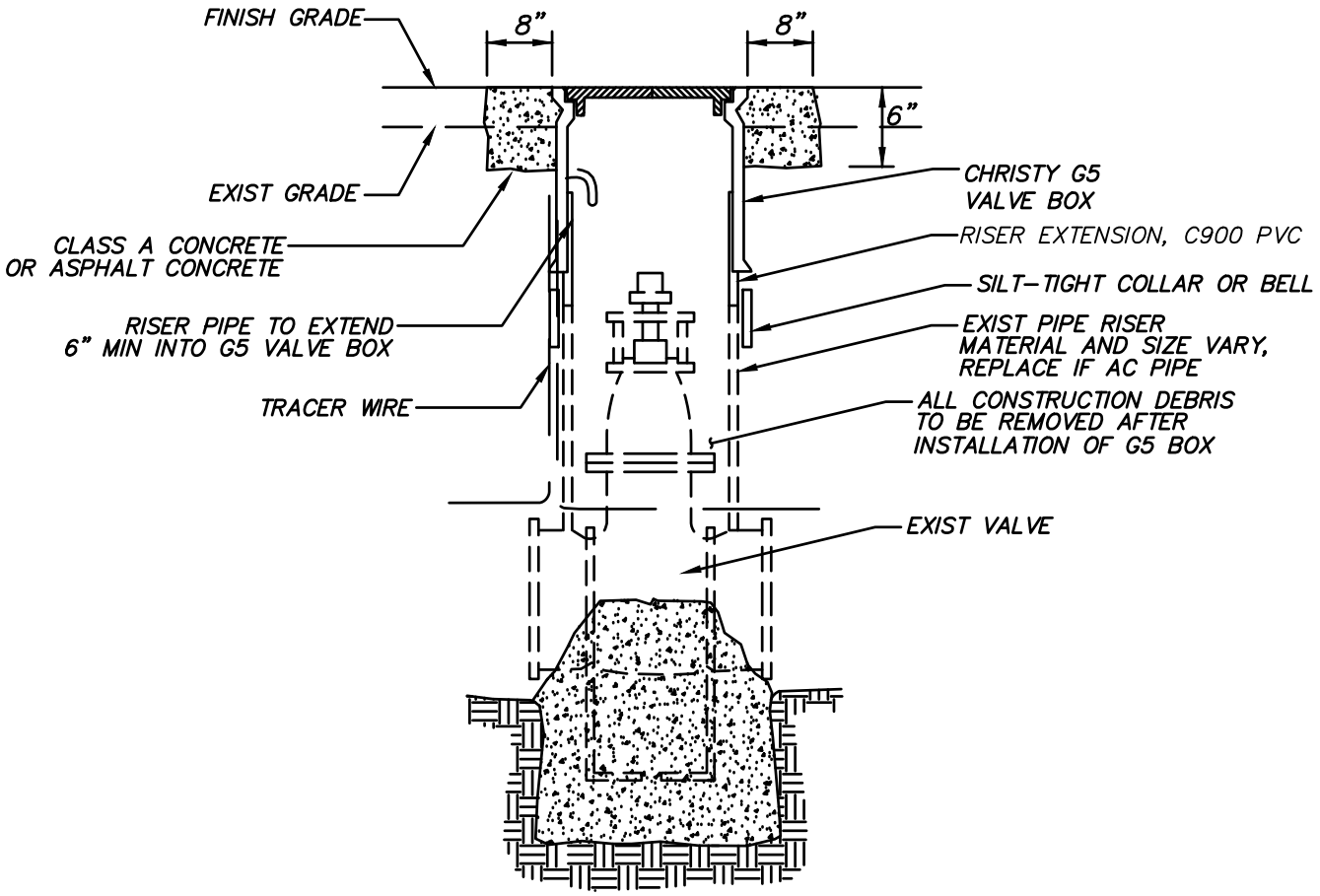
APPROVED: JBN			DETAIL NO.
REVISIONS: REV. 10/31/04 JBN		TRENCH DETAIL PAVED STREETS	201
	REV. 12/31/08 JBN		
	REV. 5/20/11 JBN		
10/31/04	REV. 1/15/20 MCZ		



NOTES:

1. SEE DETAIL NO. 100 FOR APPPROVED MATERIALS.
2. IN UNPAVED AREAS, CONCRETE COLLAR SHALL BE A MINIMUM OF 2" ABOVE FINISH GRADE.
3. IF A REPAIR ON TRACER WIRE IS NEEDED USE CONNECTOR COPPERHEAD SNAKEBITE WATER PROOF ITEM #3WB-01

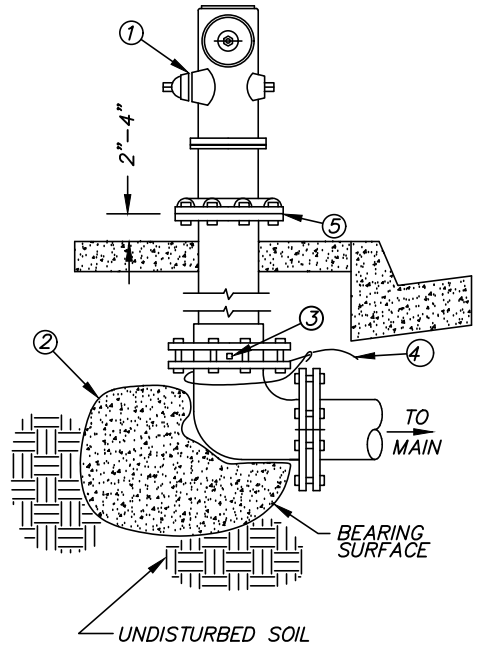
APPROVED: JBN		ATASCADERO MUTUAL WATER CO. SINCE 1913	DETAIL NO.
REVISIONS:	REV. 10/31/04 JBN	WATER VALVE ASSEMBLY	210
	REV. 12/31/08 JBN		
	REV. 5/20/11 JBN		
10/31/04	REV. 1/15/20 MCZ		



NOTES:

1. IF VALVE BOX IS LOWERED, PIPE RISER SHALL BE TRIMMED IN A MANNER THAT LEAVES A STRAIGHT, SMOOTH AND SQUARE EDGE
2. EXIST ASBESTOS CEMENT (AC) PIPE RISERS SHALL BE REPLACED WITH C900 PVC PIPE
3. AC PIPE SHALL BE REMOVED, HANDLED, AND STORED IN A MANNER THAT DOES NOT SUBJECT IT TO CRUSHING, CREATE DUST, OR OTHERWISE CREATE FRIABLE MATERIAL.
4. AC PIPE SHALL BE WRAPPED IN 6-MIL PLASTIC SHEETING, SEALED WITH DUCT TAPE, AND STORED AT THE WORK SITE IN A PROTECTED LOCATION UNTIL AMWC CAN TAKE POSSESSION OF IT.
5. PROMPTLY NOTIFY AMWC OF ANY AC PIPE STORED AT THE WORK SITE.
6. COLLARS OR BELL-ENDS SHALL BE OF A SIZE COMPATIBLE TO THE EXISTING PIPE RISER AND SHALL PROVIDE A SILT-TIGHT-SEAL.
7. PIPE DIAMETER OF RISER EXTENSIONS SHALL MATCH EXISTING.
8. PIPE FOR VALVE RISERS SHALL NOT BE SPLIT OR MODIFIED IN SUCH A WAY AS TO ALLOW SILT TO INFILTRATE INTO THE VALVE RISER.

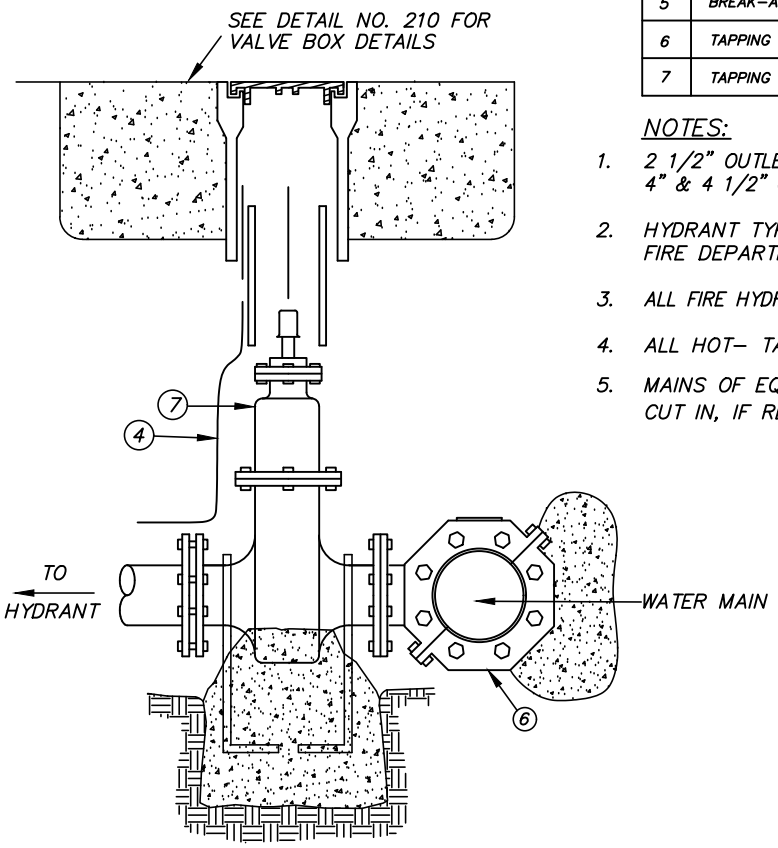
APPROVED: JBN REVISIONS: REV. 10/25/19 MCZ 10/25/19	ATASCADERO MUTUAL WATER CO. SINCE 1913	WATER VALVE BOX ADJUSTMENT	DETAIL NO. 211



APPLICATION	OUTLETS	
	2 1/2"	4 1/2"
RESIDENTIAL	2	1
COMMERCIAL	2	1
MULTIFAMILY	2	1

NOTE: 4" OUTLET REQUIRED BY CALFIRE IN COUNTY

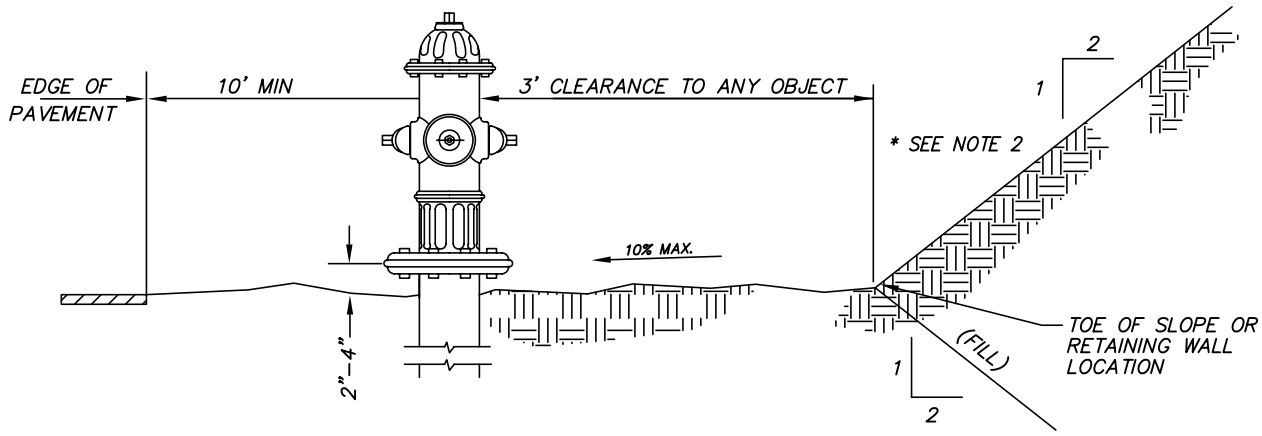
MATERIALS SEE DETAIL NO. 100 FOR APPROVED MATERIALS		
ITEM	COMPONENT	NOTES
1	FIRE HYDRANT	SEE APPLICATION TABLE; SEE DETAIL NO. 109 FOR LOCATION DETAILS
2	THRUST BLOCK	SEE DETAIL NO. 116
3	PLUG	INSTALL ON DRY BARREL HYDRANTS
4	12 GA. TRACER WIRE	CONNECT TO MAIN TRACER WIRE W/ COPPERHEAD SNAKEBITE CONNECTOR, #3WB-01
5	BREAK-AWAY BOLTS, 5/8" x 3"	FILL WITH SILICONE
6	TAPPING SLEEVE	SPLIT IN SWIVEL GLAND SHALL BE OFFSET FROM SPLIT IN TAPPING SLEEVE BY ONE BOLT POSITION
7	TAPPING VALVE	SEE DETAIL NO. 110 FOR VALVE DETAILS



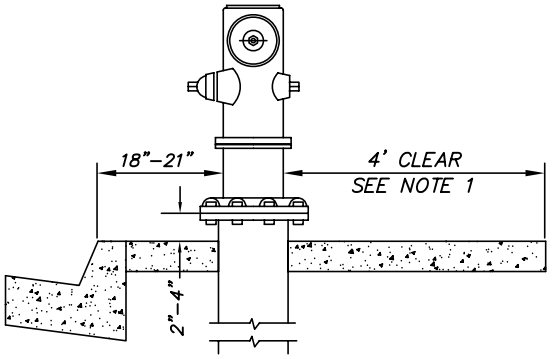
NOTES:

1. 2 1/2" OUTLETS SHALL BE NATIONAL STANDARD HOSE THREAD. 4" & 4 1/2" OUTLETS SHALL BE NATIONAL STANDARD PUMPER THREAD.
2. HYDRANT TYPE AND LOCATION TO BE APPROVED BY AMWC AND ATASCADERO FIRE DEPARTMENT OR CDF.
3. ALL FIRE HYDRANTS TO BE WET BARREL, UNLESS OTHERWISE REQUIRED BY AMWC.
4. ALL HOT- TAPPING OF EXISTING MAINS SHALL BE BY AMWC.
5. MAINS OF EQUAL SIZE SHALL NOT BE HOT-TAPPED. TEE SHALL BE CUT IN, IF REQUIRED BY AMWC.

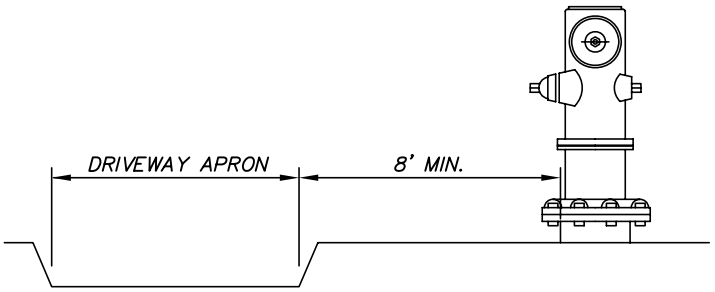
APPROVED: JBN			DETAIL NO.
REVISIONS:	REV. 10/31/04 JBN	FIRE HYDRANTS	220
	REV. 12/31/08 JBN		
	REV. 5/20/11 JBN		
10/31/04	REV. 1/15/20 MCZ		



FIRE HYDRANT LOCATION WITHOUT SIDEWALK



FIRE HYDRANT LOCATION WITH SIDEWALK



FIRE HYDRANT LOCATION AT DRIVEWAY

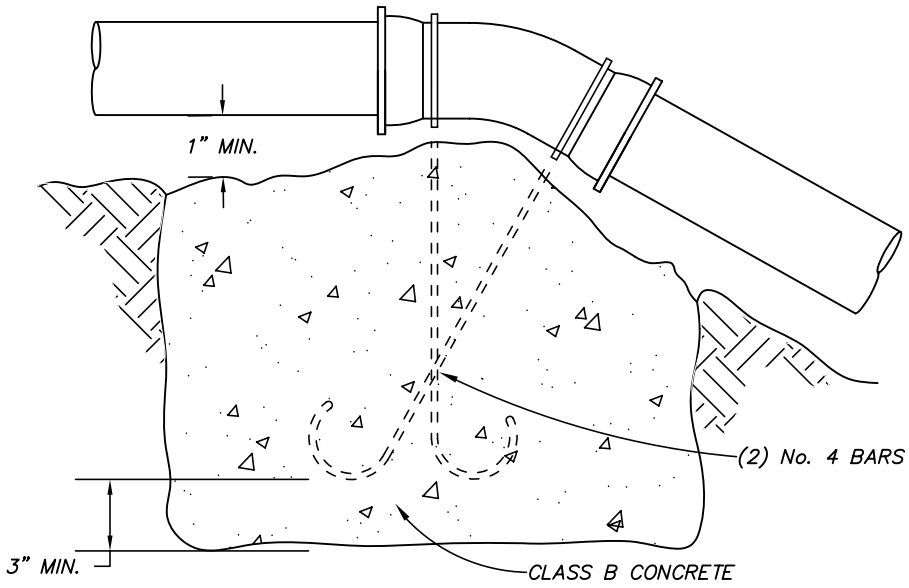
NOTES:

1. FOR INTEGRAL SIDEWALKS OF LESS THAN 6' WIDTH, HYDRANT SHALL BE PLACED BEHIND SIDEWALK AND BE 12" CLEAR OF SIDEWALK.
2. RETAINING WALL MAY BE REQUIRED FOR CLEARANCE.
3. FIRE HYDRANTS SHALL BE A MINIMUM OF 6 FEET CLEAR FROM DRIVEWAY APPROACHES OR OTHER TRAFFIC HAZARDS.
4. HYDRANT LOCATION TO BE APPROVED BY AMWC ON PLANS AND IN FIELD.
5. FIRE HYDRANTS SHALL BE IN THE RIGHT-OF-WAY UNLESS OTHERWISE APPROVED BY AMWC.
6. HYDRANT LATERALS SHALL BE PERPENDICULAR TO THE MAIN LINE.

APPROVED: JBN	ATASCADERO MUTUAL WATER CO. SINCE 1913	DETAIL NO.
REVISIONS: REV. 10/31/04 JBN	A.M.W.C. FIRE HYDRANT LOCATION	221
REV. 12/31/08 JBN		
REV. 5/20/11 JBN		
10/31/04		

NOTES:

1. CONCRETE BLOCK SHOULD BE APPROX. EQUAL IN ALL DIMENSIONS.
2. ALL BOLTED FLANGED ITEMS SHALL HAVE 30 MIL PLASTIC WRAP AND TAPED COVERING BOLTS AND FITTINGS.
3. DUCTILE IRON PIPE SHALL BE USED WHEN REQUIRED BY AMWC.

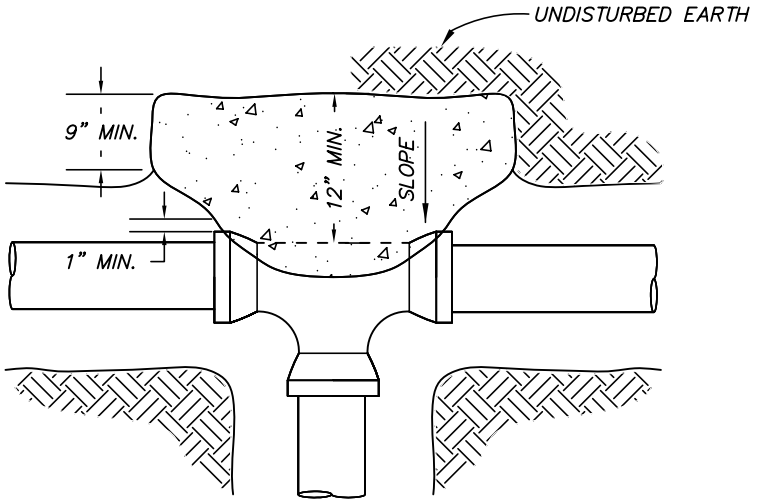


	MIN. CONCRETE VOLUMES		
PIPE SIZE	11–1/4° BEND	22–1/2° BEND	45° BEND
12"	1 CY	3 CY	6 CY
10"	1 CY	2 CY	4 CY
8"	0.5 CY	1 CY	2 CY

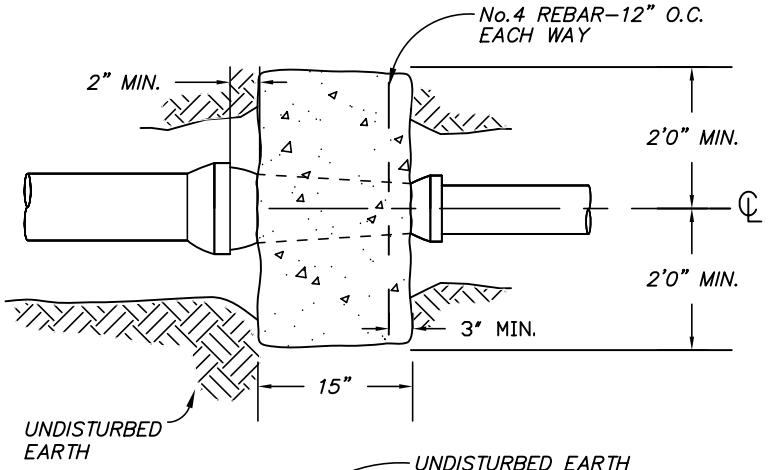
APPROVED: JBN REVISIONS: REV. 10/31/04 JBN REV. 12/31/08 JBN REV. 5/20/11 JBN 10/31/04	ATASCADERO MUTUAL WATER CO. SINCE 1913	ANCHOR BLOCK DETAIL

DETAIL NO.

230



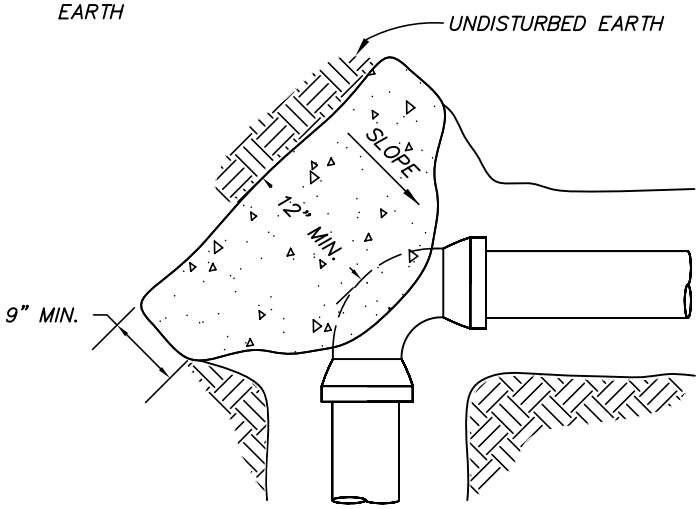
PIPE SIZE	BEARING SIZE
12"	15 S.F.
10"	11 S.F.
8"	7 S.F.
6"	4 S.F.
4"	2 S.F.



REDUCER SIZE		
LARGE END	SMALL END	BEARING END
12"	8"	9 S.F.
12"	10"	5 S.F.
8"	6"	4 S.F.

NOTES:

1. BEARING AREA SHALL BE AGAINST UNDISTURBED SOIL.
2. ALL BOLTS AND FITTINGS SHALL BE COVERED AND TAPED WITH PLASTIC WRAP, 30 MIL.
3. CONCRETE SHALL BE CLASS B, 5–SACK.



	BEARING AREA			
PIPE SIZE	11–1/4° BEND	22–1/2° BEND	45° BEND	90° BEND
12"	3 S.F.	6 S.F.	12 S.F.	21 S.F.
10"	2 S.F.	4 S.F.	8 S.F.	15 S.F.
8"	2 S.F.	3 S.F.	5 S.F.	10 S.F.
6"	1 S.F.	2 S.F.	3 S.F.	4 S.F.
4"	1 S.F.	1 S.F.	1 S.F.	2 S.F.

APPROVED: JBN

REVISIONS: REV. 10/31/04 JBN

REV. 12/31/08 JBN

REV. 5/20/11 JBN

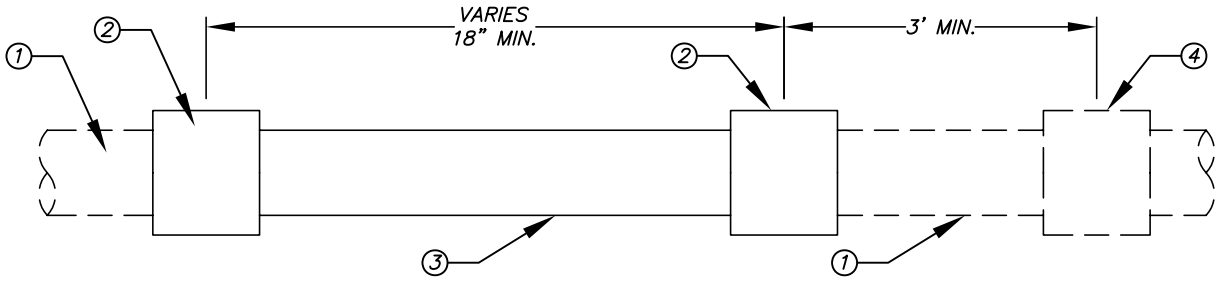
10/31/04

ATASCADERO MUTUAL WATER CO. SINCE 1913

THRUST BLOCK DETAIL

DETAIL NO.

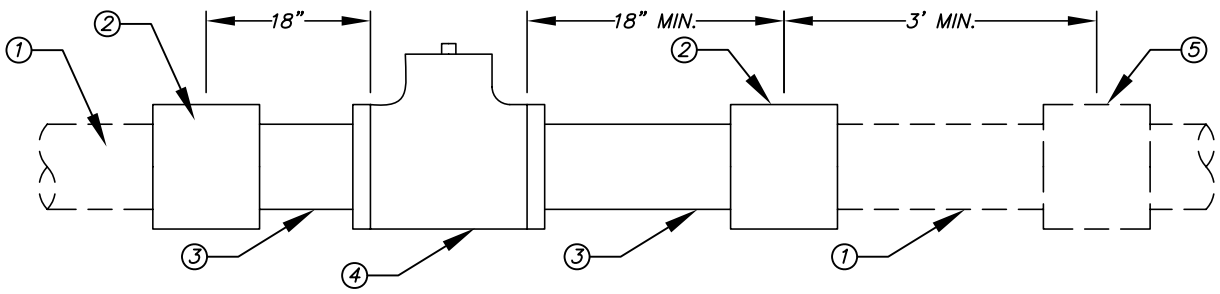
231



NOTES:

1. EXIST PIPE DIA. VARIES
2. ROMAC COUPLING, ULTRA 501
3. PVC PIPE, DIA. AND CLASS TO MATCH EXIST.
4. EXIST COUPLING OR BELL
   IF EXISTING PIPE IS DIP OR C-900 THEN DIP MJxMJ SLEEVES MAY BE USED IN PLACE OF THE ROMAC ULTRA 501 WITH APPROPRIATE MJ GLANDS. MJ RETAINING GLANDS MAY BE REQUESTED BY AMWC

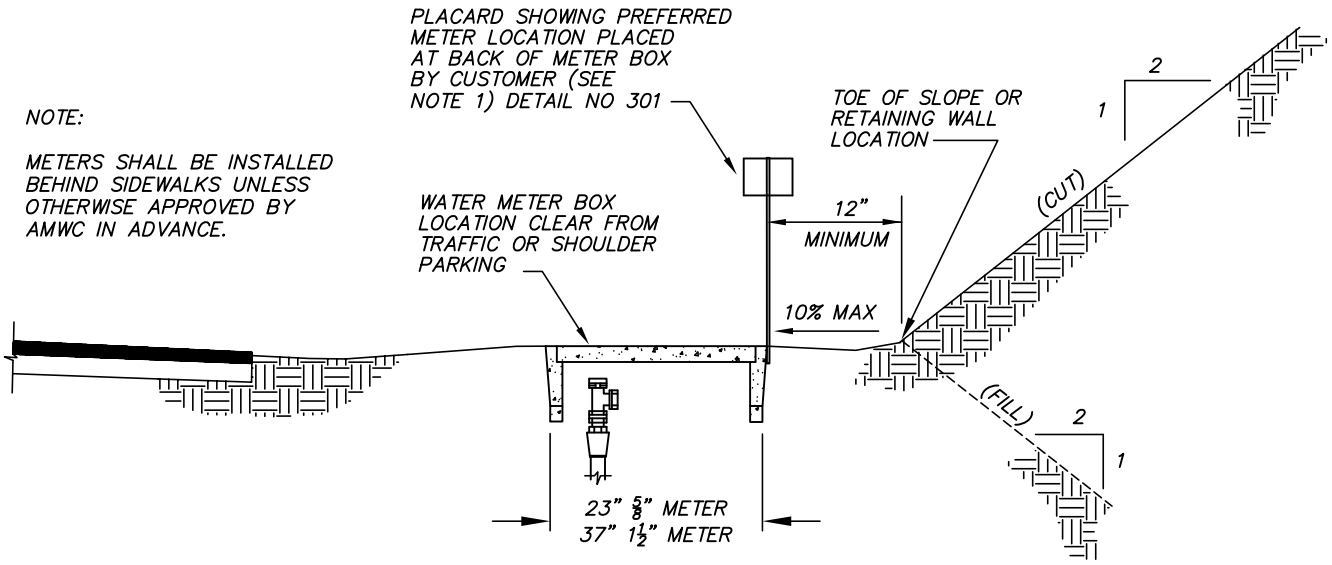
APPROVED: JBN REVISIONS: REV. 5/20/11 JBN 05/20/11	ATASCADERO MUTUAL WATER CO. SINCE 1913	MAIN REPAIR DETAIL	DETAIL NO. 240

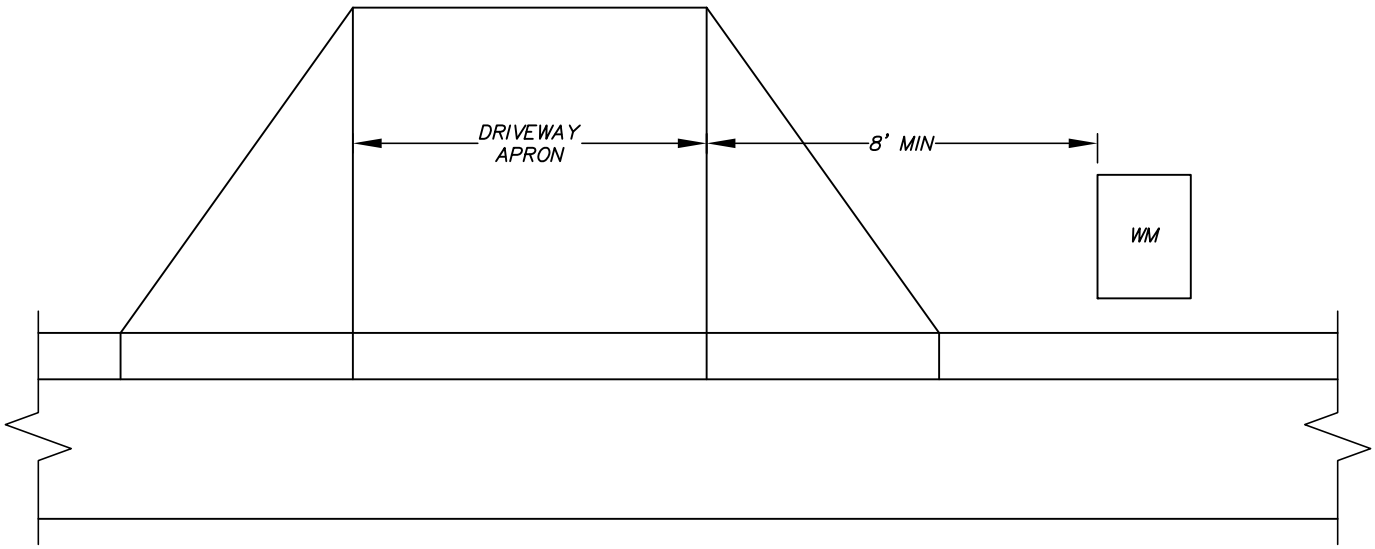


NOTES:

1. EXIST PIPE DIA. VARIES
2. ROMAC COUPLING, ULTRA 501
3. PVC PIPE, DIA. AND CLASS TO MATCH EXIST.
4. GATE VALVE OR TEE. GATE VALVE SHALL BE EITHER PUSH-ON (PO) OR MECHANICAL JOINT (MJ). TEES SHALL BE POxPOxFLANGE OR MJxMJxFLANGE.
5. EXIST COUPLING OR BELL
   IF EXISTING PIPE IS DIP OR C-900 THEN DIP MJxMJ SLEEVES MAY BE USED IN PLACE OF THE ROMAC ULTRA 501 WITH APPROPRIATE MJ GLANDS. MJ RETAINING GLANDS MAY BE REQUESTED BY AMWC

APPROVED: JBN REVISIONS: REV. 5/20/11 JBN 05/20/11	ATASCADERO MUTUAL WATER CO. SINCE 1913	VALVE OR TEE CUT-IN DETAIL	DETAIL NO. 241





APPROVED: JBN REVISIONS: REV. 10/31/04 JBN REV. 12/31/08 JBN REV. 5/20/11 JBN 10/31/04	ATASCADERO MUTUAL WATER CO. SINCE 1913	A.M.W.C. WATER METER LOCATION	DETAIL NO. 300

NOTES:

1. A.M.W.C. WILL ATTEMPT TO INSTALL METERS AT A LOCATION PREFERRED BY THE CUSTOMER AS LONG AS IT COMPLIES WITH A.M.W.C. STANDARDS.

2. METERS SHALL BE INSTALLED INSIDE THE RIGHT OF WAY. THE WATER SERVICE PIPE SHALL BE PERPENDICULAR TO THE MAIN.

3. NORMAL METER LOCATIONS WILL BE NEAR THE PARCEL'S DRIVEWAY ENTRANCE BUT OTHER LOCATIONS MAY BE ACCEPTABLE.

4. METERS SHALL BE INSTALLED WHERE IT IS PROTECTED FROM TRAFFIC, EROSION, SOIL SLIPPAGE, SURFACE WATER OR GROUND WATER.

5. METER SHALL NOT BE ON A SLOPE GREATER THAN 10 PERCENT.

6. METER SHALL BE PLACED IN A LOCATION WHERE IT WILL BE EASY TO READ (INCLUDING ACCESS, LANDSCAPING, AND POTENTIAL AUTOMOBILE PARKING) NOT CREATE A HAZARD TO PEDESTRIANS OR OTHERS, AND BE AT LEAST 6' FROM ANY BUILDING

7. FUTURE CONDITIONS SHOULD BE ANTICIPATED AND METERS WILL NOT BE INSTALLED WHERE ANY PROBLEMS ARE EXPECTED TO EXIST IN THE FUTURE.

8. THE METER BOX LOCATION CANNOT BE IN A DRIVEWAY OR SUBJECT TO TRAFFIC LOADING.

METER ADJUSTMENT/RELOCATION NOTES:

9. WATER SERVICE LINE PIPING SHALL NOT BE PINCHED OR SQUEEZED IN THE PROCESS OF ADJUSTING AN EXISTING WATER SERVICE. THE WATER SERVICE SHALL BE TURNED OFF AT THE CORPORATION STOP TO ALLOW FOR THE ADJUSTMENT OR RELOCATION OF THE WATER SERVICE.

10. WATER SERVICE PIPING SHALL NOT BE SPLICED TO ALLOW FOR THE HORIZONTAL OR VERTICAL ADJUSTMENT OR RELOCATION OF A WATER SERVICE. IF THE WATER SERVICE PIPING REQUIRES LENGTHENING TO ACCOMMODATE THE NEW SERVICE LOCATION OR GRADE, THE WATER SERVICE PIPING SHALL BE REPLACED FROM THE CORPORATION STOP TO THE NEW SERVICE LOCATION

11. IF AN EXISTING WATER SERVICE IS TO BE MOVED SUCH THAT THE HORIZONTAL ALIGNMENT OF THE LATERAL IS NOT WITHIN 5 DEGREES OF BEING PERPENDICULAR WITH THE WATER MAIN, THE EXISTING WATER SERVICE SHALL BE ABANDONED BY CUTTING AND CAPPING IT AT THE WATER MAIN AND A NEW SERVICE SHALL BE INSTALLED IN CONFORMANCE WITH THESE STANDARDS.

CUSTOMER RESPONSIBILITY:

12. CUSTOMERS ARE RESPONSIBLE FOR PROVIDING AN ACCEPTABLE LOCATION FOR THE PLACEMENT OF THE METER. THE CUSTOMER MAY HAVE TO INSTALL FACILITIES TO COMPLY WITH THESE STANDARDS.

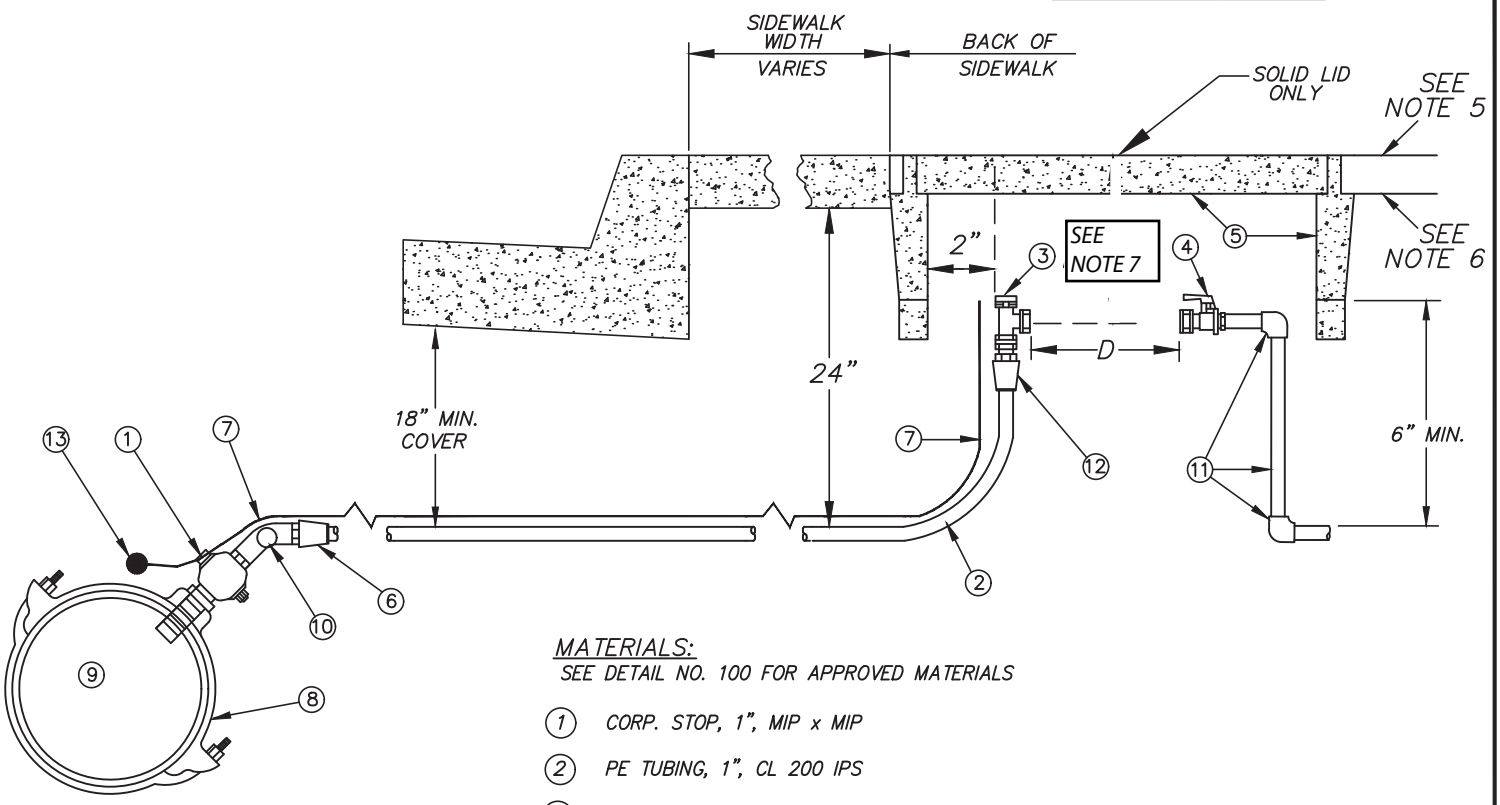
13. THE CUSTOMER IS RESPONSIBLE FOR BEING AWARE THAT THE FOLLOWING ITEMS CAN EFFECT WATER FLOW: SERVICE LINE LENGTH, SERVICE LINE SIZE, MINIMUM AND MAXIMUM PRESSURE AT MAIN, METER SIZE, AND METER LOCATION. THE CUSTOMER MUST MAKE SURE THE SUBSEQUENT WATER FLOW AND PRESSURE MEET CUSTOMER'S REQUIREMENTS AT THE HOUSE SITE. A PRESSURE READING OF THE NEAREST WATER SERVICE LOCATION OR HYDRANT MAY BE REQUESTED FROM A.M.W.C. THE AVAILABLE PRESSURE MAY EITHER REQUIRE ADDITIONAL PUMPING EQUIPMENT (LOW PRESSURE) OR A PRESSURE REGULATOR (HIGH PRESSURE) AT THE CUSTOMER'S SIDE OF THE METER. RESPONSIBILITY TO INSTALL AND MAINTAIN THESE FACILITIES ARE THE CUSTOMER'S.

14. IF THE CONDITIONS WARRANT, THE CUSTOMER IS RESPONSIBLE FOR THE INSTALLATION AND MAINTENANCE OF A BACKFLOW PREVENTION DEVICE. FOR EXAMPLE A DEVICE WOULD BE REQUIRED IF A RESIDENTIAL SITE HAD A WELL, HOT TUB, SWIMMING POOL, WATER PUMP, OR ELEVATED STORAGE TANK. COMMERCIAL REQUIREMENTS ARE BASED ON THE TYPE OF BUSINESS AND OTHER CONDITIONS.

15. AT THE TIME OF PAYMENT AND APPLICATION FOR A METER THE CUSTOMER WILL BE GIVEN A PLACARD TO POST ON THEIR PROPERTY AT THEIR PREFERRED METER SITE. IF MORE THAN ONE METER IS BEING INSTALLED MAKE SURE THE PLACEARD FOR EACH ADDRESS IS PROPERLY STAKED AND PLUMBED TO THE CORRECT HOUSE. IF THE SITE IS UNACCEPTABLE, A.M.W.C. WILL NOTIFY THE CUSTOMER TO ARRANGE FOR THE METER TO BE INSTALLED AT A DIFFERENT LOCATION.

APPROVED: JBN REVISIONS: REV. 10/31/04 JBN REV. 12/31/08 JBN REV. 5/20/11 JBN 10/31/04	ATASCADERO MUTUAL WATER CO. SINCE 1913	A.M.W.C. WATER METER NOTES
DETAIL NO.		
301		

METER SIZE	D
5/8" & 3/4"	7 1/2"
1"	11"



MATERIALS:

SEE DETAIL NO. 100 FOR APPROVED MATERIALS

1. CORP. STOP, 1", MIP x MIP
2. PE TUBING, 1", CL 200 IPS
3. ANGLE STOP, 1" (USE BUSHING AS REQUIRED)
4. CUSTOMER VALVE, 1"
5. METER BOX
6. ADAPTER, INSTATITE, MIP
7. USE #12 GA. COATED SOLID COPPER TRACER WIRE FROM CORP. TO ANGLE STOP ON ALL SERVICES OR TO MAIN IF WIRE EXISTS.
8. SERVICE SADDLE
9. WATER MAIN
10. SWING JOINT, ((2) 90° ST ELBOWS), 1" BRASS
11. PIPE, 1", SCH. 40 PVC
12. ADAPTER, INSTATITE, MIP
13. COPPER HEAD SNAKEBITE WATERPROOF CONNECTOR ITEM # 3WB-01. DO NOT CUT WIRE ALONG WATER MAIN.

NOTES:

1. SEE DETAIL 300 FOR METER BOX LOCATION.
2. ALL TAPS IN EXISTING WATER MAINS SHALL BE MADE BY A.M.W.C.
3. SWING JOINT SHALL BE USED AS REQUIRED TO ELIMINATE STRESS ON PE PIPE.
4. AMWC SHALL INSPECT INSTALLATION PRIOR TO CONTRACTOR PLACING BACKFILL.
5. FINISH GRADE IN UNPAVED AREAS SUBJECT TO FOOT TRAFFIC.
6. FINISH GRADE IN UNPAVED AREAS NOT SUBJECT TO FOOT TRAFFIC.
7. 6" MIN - 11" MAX TOP OF METER LID TO CENTERLINE OF METER

APPROVED:

REVISIONS: REV. 10/31/04 JBN
REV. 12/31/08 JBN
REV. 5/20/11 JBN
REV. 5/26/11 JGW
REV. 1/15/20 MCZ

2/23/98

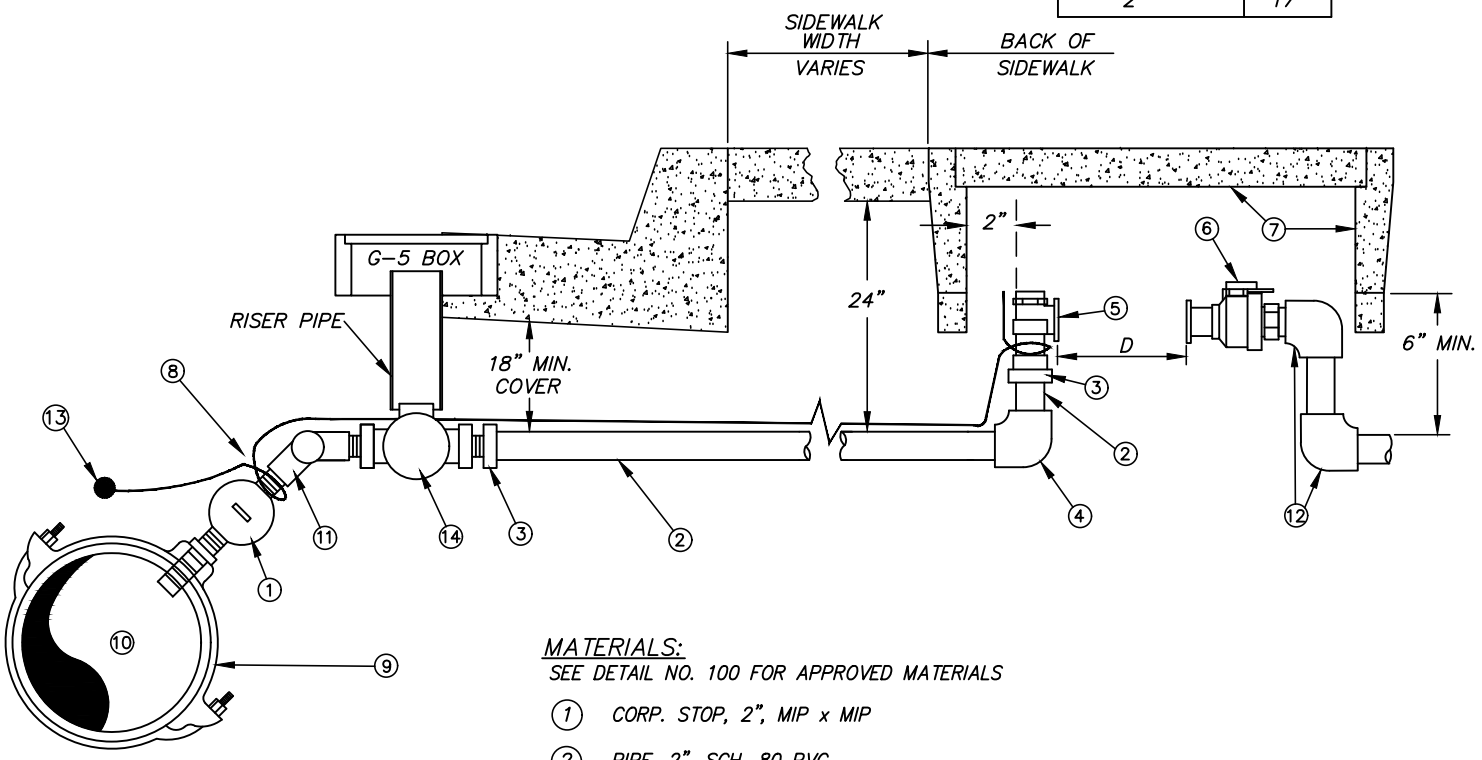
ATASCADERO MUTUAL WATER CO. SINCE 1913

WATER SERVICE CONNECTION 5/8" – 1"

DETAIL NO.

310

METER SIZE	D
1 1/2"	13"
2"	17"



WATER MAIN

NOTES:

1. ALL SCH. 80 PVC TO BE SOLVENT WELDED
2. SEE DETAIL 300 FOR METER BOX LOCATION.
3. ALL TAPS IN EXISTING WATER MAINS SHALL BE MADE BY A.M.W.C.
4. SWING JOINT SHALL BE USED AS REQUIRED TO ELIMINATE STRESS ON PE PIPE.
5. A.M.W.C. SHALL INSPECT INSTALLATION PRIOR TO CONTRACTOR PLACING BACKFILL.

MATERIALS:

SEE DETAIL NO. 100 FOR APPROVED MATERIALS

(1) CORP. STOP, 2", MIP x MIP

(2) PIPE, 2", SCH. 80 PVC

(3) ADAPTER, MIP x COMPRESSION

(4) 90° ELBOW, 2", SCH. 80 PVC

(5) ANGLE STOP, 1 1/2" OR 2"

(6) CUSTOMER VALVE, 1 1/2" OR 2"

(7) METER BOX

(8) USE #14 GA. COATED SOLID COPPER TRACER WIRE FROM CORP. TO ANGLE STOP ON ALL SERVICES OR TO MAIN IF WIRE EXISTS. SEE CONNECTION DETAIL.

(9) SERVICE SADDLE

(10) WATER MAIN.

(11) 45° ELBOW, 2" BRASS

(12) PIPE TO MATCH METER SIZE, SCH. 40 PVC

(13) COPPER HEAD SNAKEBITE WATERPROOF CONNECTOR ITEM # 3WB-01. DO NOT CUT WIRE ALONG WATER MAIN.

(14) 1/4 TURN 300 PSI MIPxFIP BALL VALVE CURB STOP.

APPROVED: JBN

REVISIONS: REV. 10/31/04 JBN
REV. 12/31/08 JBN
REV. 5/20/11 JBN
REV. 5/26/11 JGW
REV. 1/15/20 MCZ

10/31/04

ATASCADERO MUTUAL WATER CO. SINCE 1913

WATER SERVICE CONNECTION 1 1/2"-2"

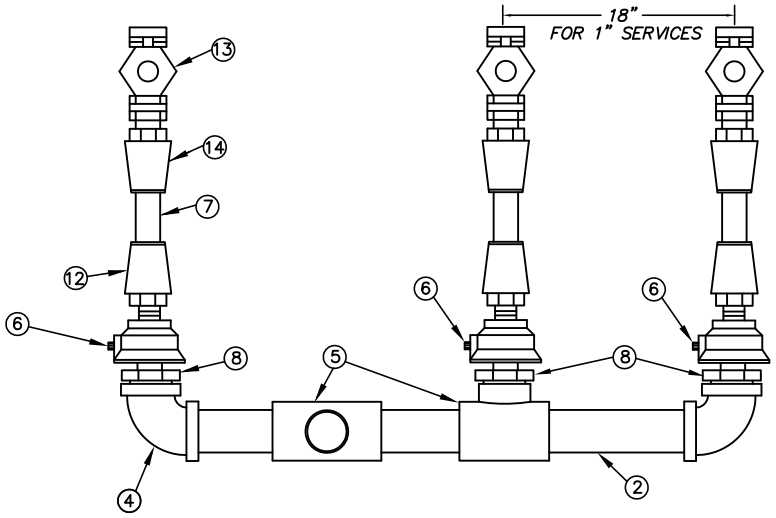
DETAIL NO.

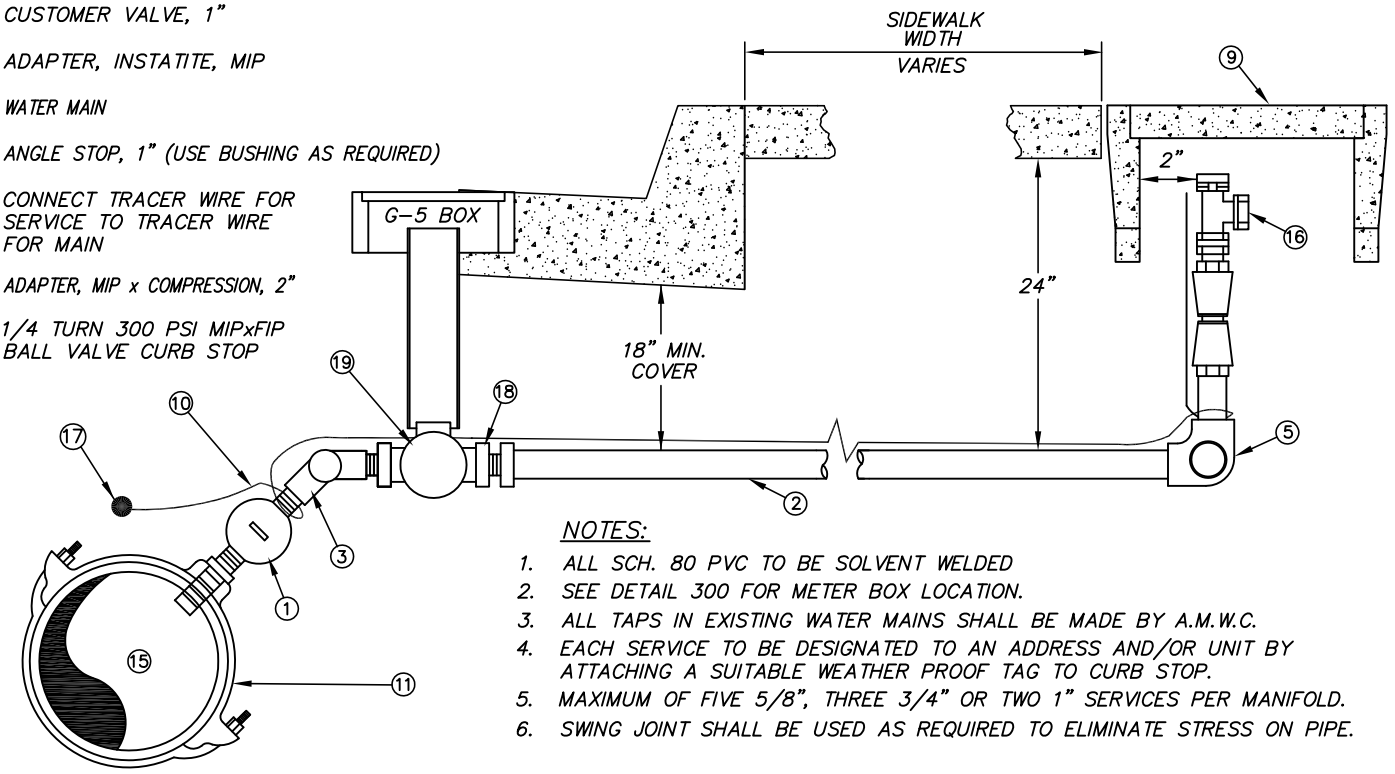
320

MATERIALS:

SEE DETAIL NO. 100 FOR APPROVED MATERIALS

1. CORP. STOP, 2", MIP x MIP
2. PIPE, 2", SCH. 80 P.V.C.
3. 45° ELBOW OR SWING JOINT (90° ST ELBOW & 90° ELBOW), 2", BRASS
4. 90° ELBOW SCH 80 SLIP x SLIP
5. TEE, 2", SCH. 80 PVC
6. CORP. STOP, 1", MIP x MIP
7. PE TUBING, 1" CL 200 IPS
8. 2"x 1" SCH. 80 PVC BUSHING 2" SLIP x 1" THD. (IPS) OR NIBCO 2"x 1" FIP BUSHING SCH. 80
9. METER BOX
10. USE #12 GA. COATED SOLID COPPER TRACER WIRE FROM CORP. TO ANGLE STOP ON ALL SERVICES OR TO MAIN IF WIRE EXISTS. SEE CONNECTION DETAIL.
11. SERVICE SADDLE
12. ADAPTOR, INSTATITE, FIP
13. CUSTOMER VALVE, 1"
14. ADAPTER, INSTATITE, MIP
15. WATER MAIN
16. ANGLE STOP, 1" (USE BUSHING AS REQUIRED)
17. CONNECT TRACER WIRE FOR SERVICE TO TRACER WIRE FOR MAIN
18. ADAPTER, MIP x COMPRESSION, 2"
19. 1/4 TURN 300 PSI MIPxFIP BALL VALVE CURB STOP





NOTES:

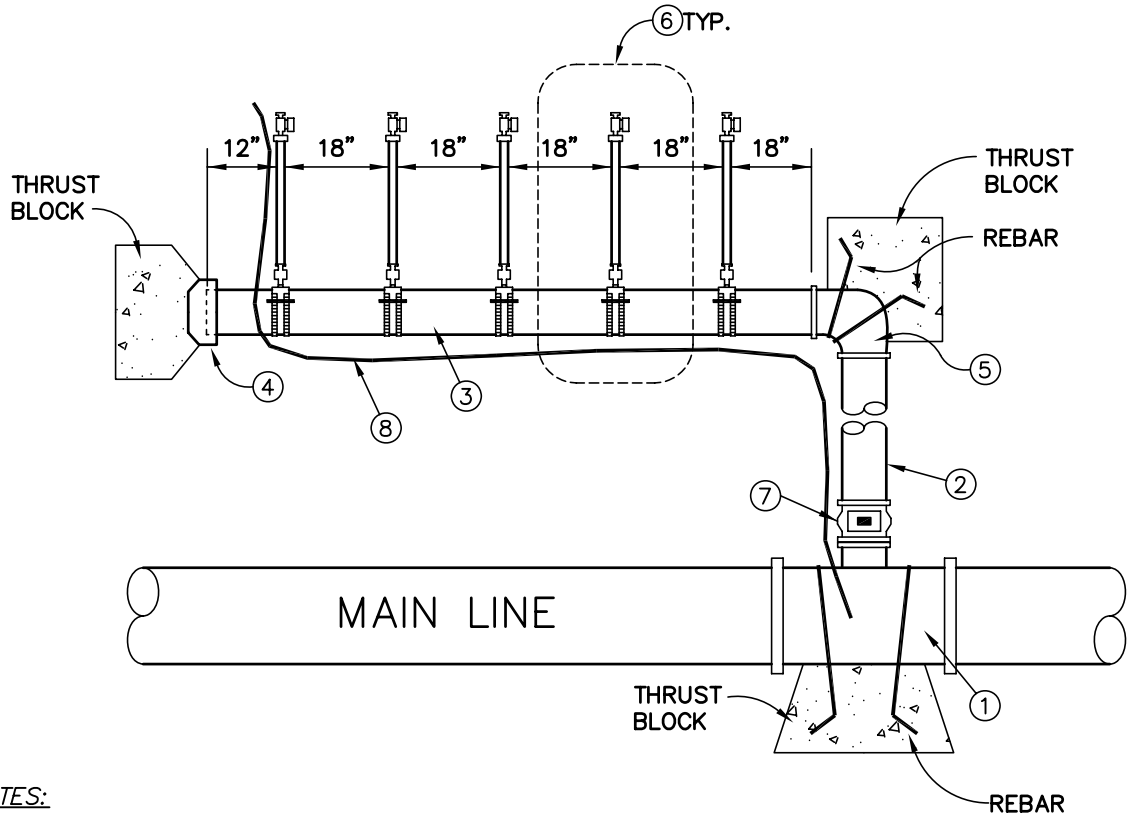
1. ALL SCH. 80 PVC TO BE SOLVENT WELDED
2. SEE DETAIL 300 FOR METER BOX LOCATION.
3. ALL TAPS IN EXISTING WATER MAINS SHALL BE MADE BY A.M.W.C.
4. EACH SERVICE TO BE DESIGNATED TO AN ADDRESS AND/OR UNIT BY ATTACHING A SUITABLE WEATHER PROOF TAG TO CURB STOP.
5. MAXIMUM OF FIVE 5/8", THREE 3/4" OR TWO 1" SERVICES PER MANIFOLD.
6. SWING JOINT SHALL BE USED AS REQUIRED TO ELIMINATE STRESS ON PIPE.

WATER MAIN

APPROVED: REVISIONS: REV. 10/31/04 JBN REV. 12/31/08 JBN REV. 5/20/11 JBN REV. 5/26/11 JGW 10/31/04	ATASCADERO MUTUAL WATER CO. SINCE 1913	MANIFOLD ASSEMBLY	DETAIL NO. 330

MATERIALS:

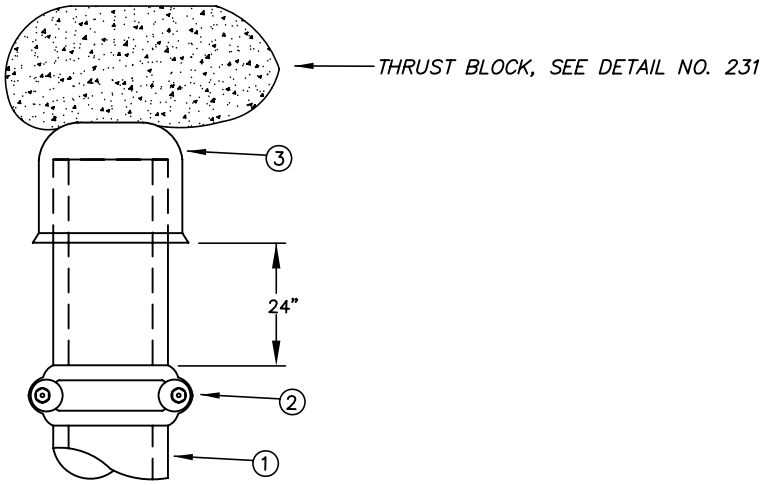
1. TAPPING SLEEVE
2. PIPE, P.V.C., CL 150, 4"
3. PIPE, D.I., 4"
4. CAP, MJ, MEGALUG®, 4"
5. EL, MJ x MJ, MEGALUG®, 4"
6. WATER SERVICE PER DETAIL No. 104
7. GATE VALVE, MJ x FL, 4"
8. CONNECT SERVICE TRACER WIRE TO MAIN



NOTES:

1. SEE DETAIL No. 300 FOR METER BOX LOCATION.
2. ALL TAPS IN EXISTING MAIN SHALL BE MADE BY A.M.W.C.
3. MAXIMUM OF (25) 5/8", (15) 3/4", OR (10) 1" SERVICES PER MANIFOLD.
4. ALL D.I. PIPES & FITTINGS SHALL BE POLY WRAPPED AND TAPED WITH 10 MIL POLY TAPE.

APPROVED: JBN 11/12/08	ATASCADERO MUTUAL WATER CO. SINCE 1913	4" MANIFOLD	DETAIL NO.
REVISIONS: JBN 12/31/08			
REV. 5/20/11 JBN			331
REV. 5/26/11 JGW			
11/12/08			



MATERIALS:

SEE DETAIL NO. 100 FOR APPROVED MATERIALS

(1) WATER MAIN.

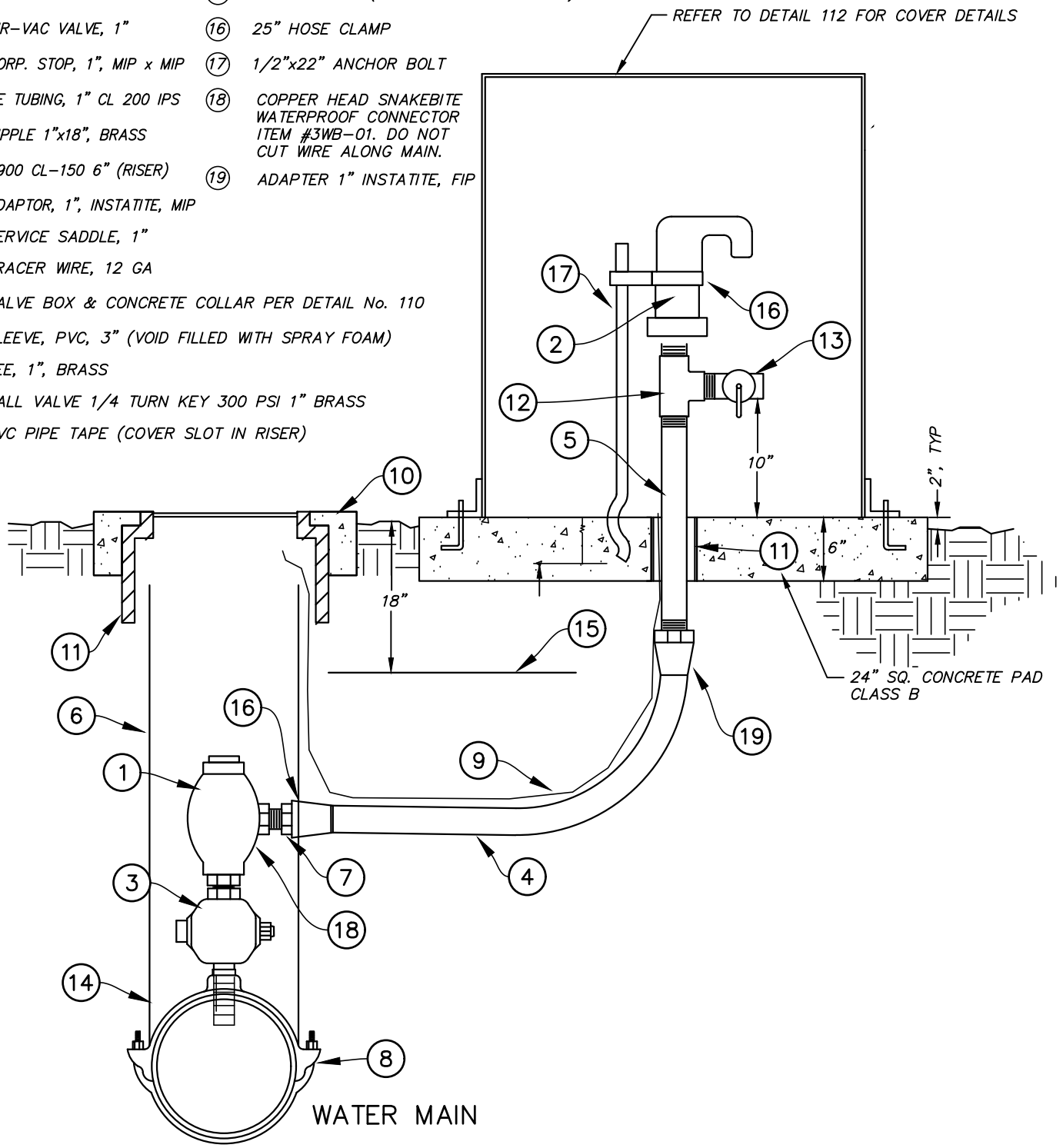
(2) BLOW OFF

(3) WATER MAIN END CAP

APPROVED: JBN REVISIONS: REV. 10/31/04 JBN REV. 12/31/08 JBN REV. 5/20/11 JBN REV. 5/26/11 JGW 10/31/04	ATASCADERO MUTUAL WATER CO. SINCE 1913	END OF MAIN SERVICE DETAIL (IF NO BLOWOFF REQUIRED)	DETAIL NO. 340

MATERIALS:
SEE DETAIL NO. 100 FOR APPROVED MATERIALS

1. ANGLED BALL VALVE 1"
2. AIR-VAC VALVE, 1"
3. CORP. STOP, 1", MIP x MIP
4. PE TUBING, 1" CL 200 IPS
5. NIPPLE 1"x18", BRASS
6. C900 CL-150 6" (RISER)
7. ADAPTOR, 1", INSTATITE, MIP
8. SERVICE SADDLE, 1"
9. TRACER WIRE, 12 GA
10. VALVE BOX & CONCRETE COLLAR PER DETAIL No. 110
11. SLEEVE, PVC, 3" (VOID FILLED WITH SPRAY FOAM)
12. TEE, 1", BRASS
13. BALL VALVE 1/4 TURN KEY 300 PSI 1" BRASS
14. PVC PIPE TAPE (COVER SLOT IN RISER)
15. TRACER TAPE (ONLY ON OPEN TRENCH)
16. 25" HOSE CLAMP
17. 1/2"x22" ANCHOR BOLT
18. COPPER HEAD SNAKEBITE WATERPROOF CONNECTOR ITEM #3WB-01. DO NOT CUT WIRE ALONG MAIN.
19. ADAPTER 1" INSTATITE, FIP

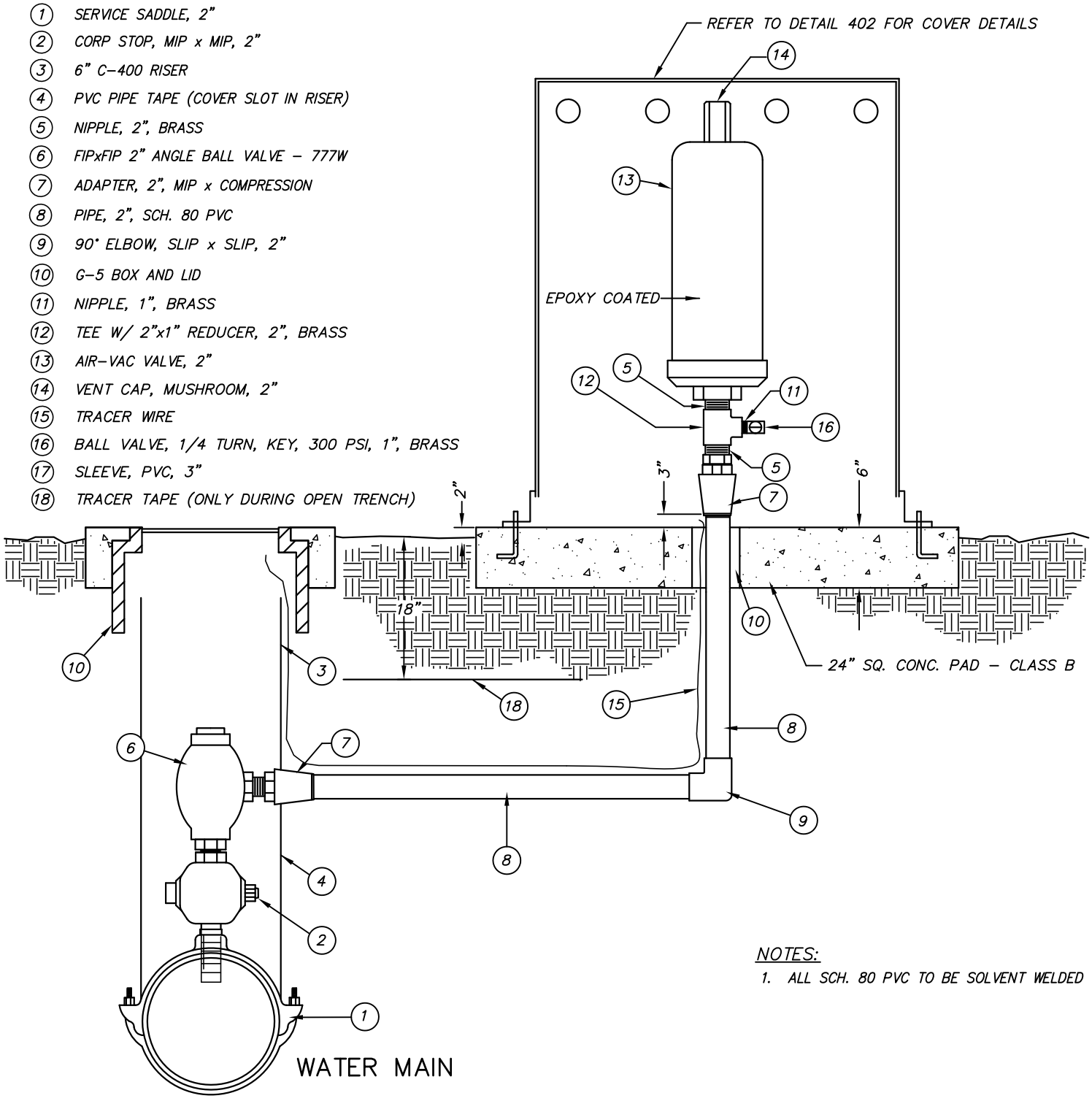


APPROVED: JBN	ATASCADERO MUTUAL WATER CO. SINCE 1913	1" AIR AND VACUUM RELEASE VALVE 6" & 8" WATER MAINS
REVISIONS: REV. 12/31/08 JBN		DETAIL NO.
REV. 05/20/11 JBN		400
REV. 07/18/24 NCE		
10/31/04		

MATERIALS:

SEE DETAIL NO. 100 FOR APPROVED MATERIALS

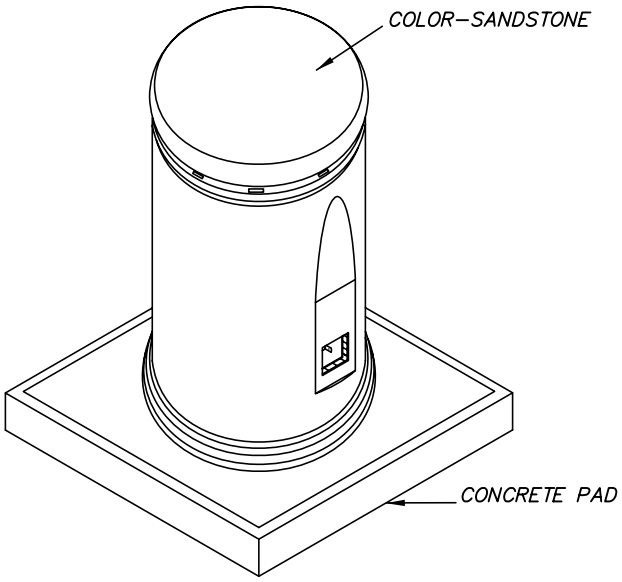
1. SERVICE SADDLE, 2"
2. CORP STOP, MIP x MIP, 2"
3. 6" C-400 RISER
4. PVC PIPE TAPE (COVER SLOT IN RISER)
5. NIPPLE, 2", BRASS
6. FIPxFIP 2" ANGLE BALL VALVE - 777W
7. ADAPTER, 2", MIP x COMPRESSION
8. PIPE, 2", SCH. 80 PVC
9. 90° ELBOW, SLIP x SLIP, 2"
10. G-5 BOX AND LID
11. NIPPLE, 1", BRASS
12. TEE W/ 2"x1" REDUCER, 2", BRASS
13. AIR-VAC VALVE, 2"
14. VENT CAP, MUSHROOM, 2"
15. TRACER WIRE
16. BALL VALVE, 1/4 TURN, KEY, 300 PSI, 1", BRASS
17. SLEEVE, PVC, 3"
18. TRACER TAPE (ONLY DURING OPEN TRENCH)

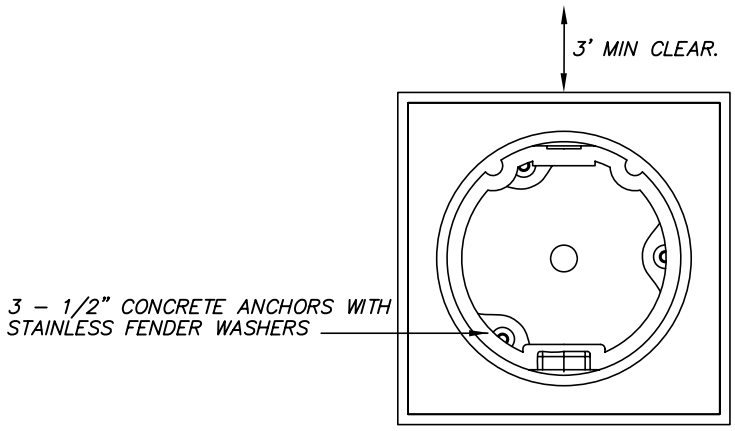


NOTES:

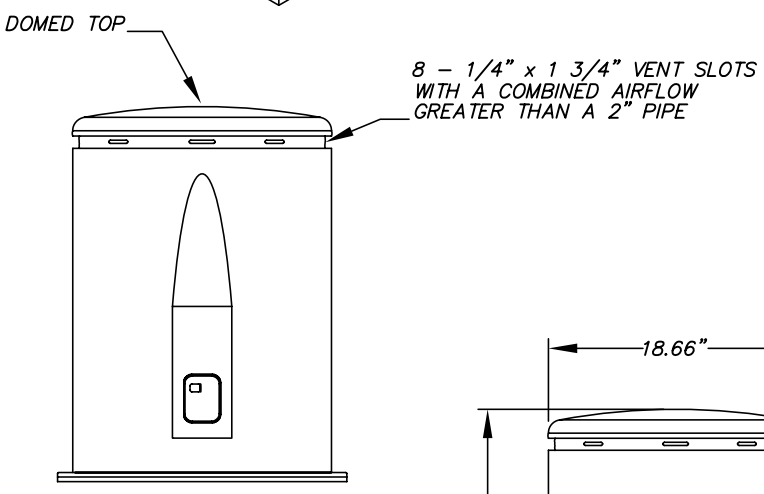
1. ALL SCH. 80 PVC TO BE SOLVENT WELDED

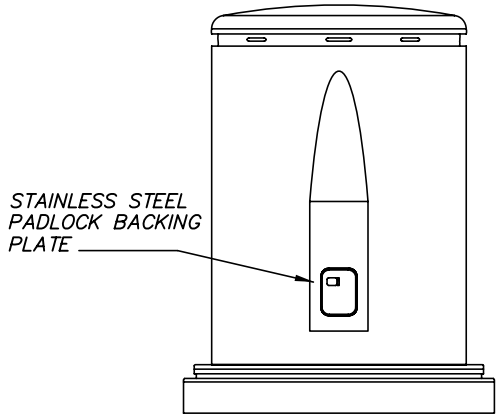
APPROVED: JBN		2" AIR AND VACUUM RELEASE VALVE 10" & LARGER WATER MAINS	DETAIL NO.
REVISIONS: REV. 10/31/04 JBN	ATASCADERO MUTUAL WATER CO. SINCE 1913		401
REV. 12/31/08 JBN			
REV. 03/12/09 JBN			
10/31/04 REV. 5/20/11 JBN			



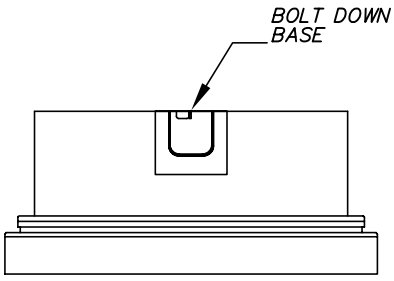


TOP VIEW

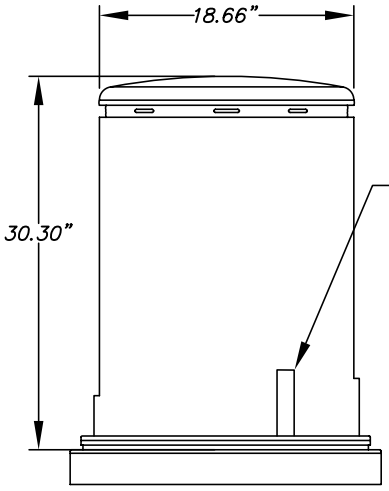




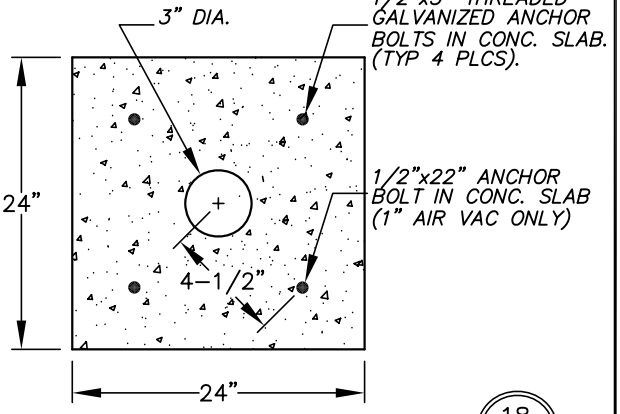
FRONT VIEW



FRONT VIEW
(OPENED)



SIDE VIEW

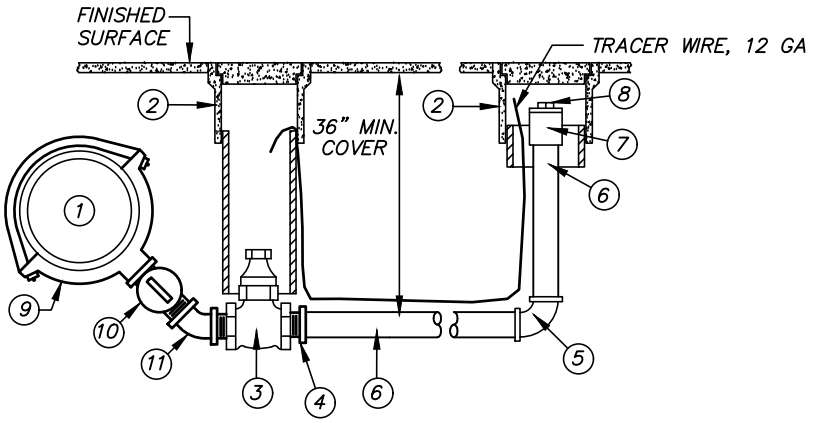


PLAN VIEW

ENCLOSURE IS REMOVABLE WITH A BOLT DOWN BASE AND REMOVABLE COVER. COVER & BASE TO BE MANUFACTURED FROM 3/16" WALL POLYETHYLENE HAVING UV STABILIZERS AND SHALL LOCK TO BASE WITH AN INTEGRAL AUTO–LATCH AND PADLOCK HASP. COVER TO BE PIPELINE PRODUCTS MODEL VCAS–1830–TN OR APPROVED AS EQUAL.

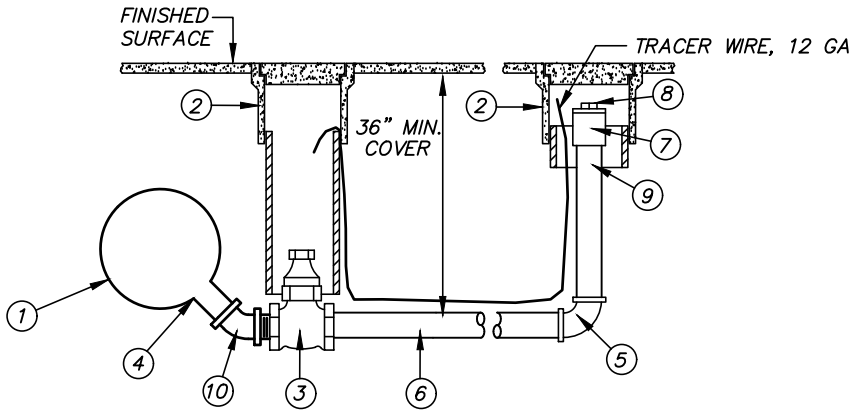
18 LBS

APPROVED: JBN 11/12/08 REVISIONS: JBN 12/31/08 REV. 5/20/11 JBN	ATASCADERO MUTUAL WATER CO. SINCE 1913	**AIR AND VACUUM RELEASE VALVE COVER & PAD DETAILS**	DETAIL NO. 402



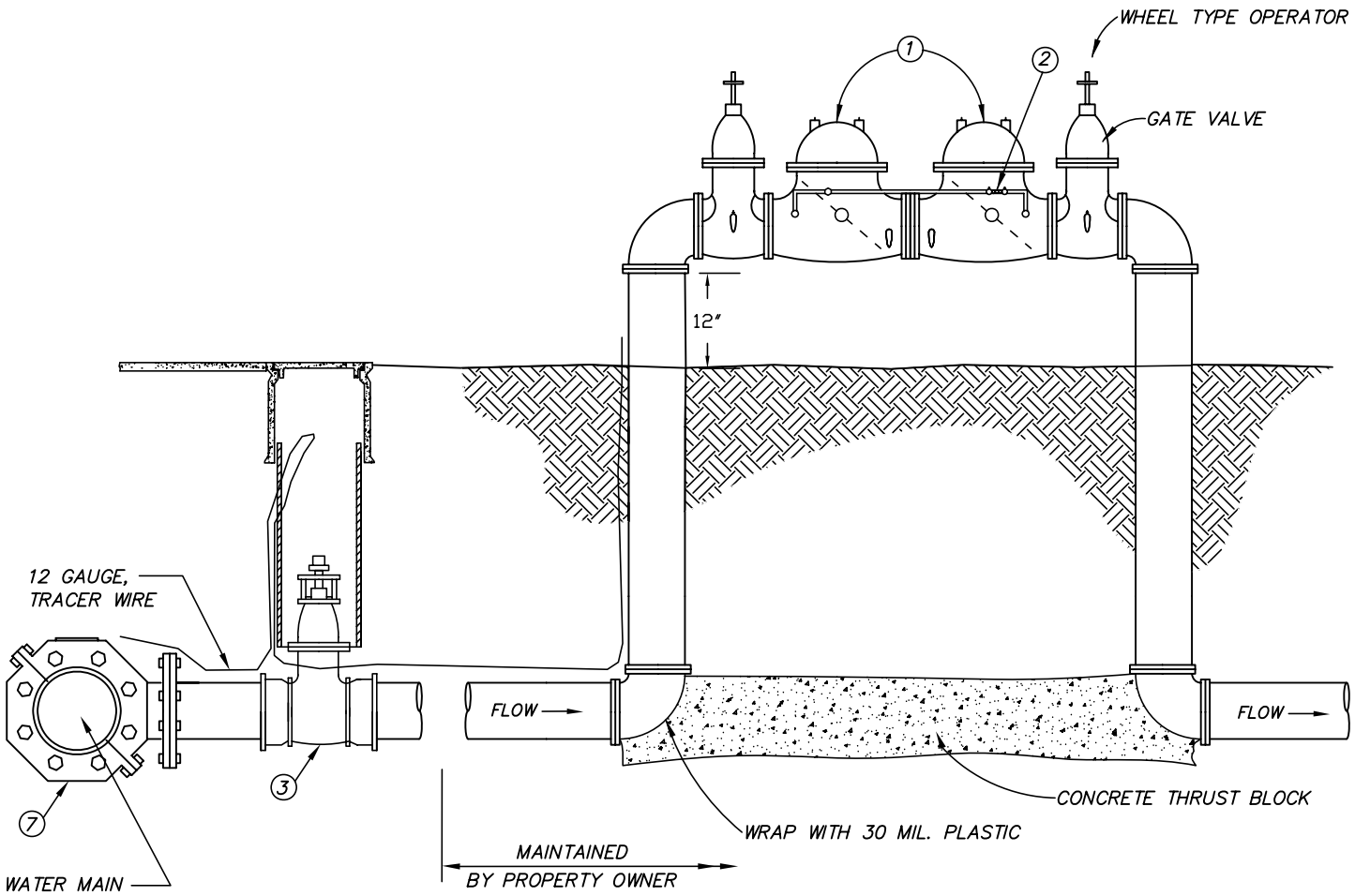
MATERIALS SEE SPECIFICATIONS FOR APPROVED MATERIALS	
ITEM	COMPONENT
1.	WATER MAIN
2.	G–5 BOX
3.	2" BALL VALVE, MPT x FPT
4.	2" ADAPTER, MPT x PACK JOINT
5.	2" 90 EL, SCHED 80 PVC, SLIP
6.	2" PIPE, SCHED 80 PVC
7.	2" ADAPTER, FPT x PACK JOINT, BRASS
8.	2" PLUG, BRASS
9.	SERVICE SADDLE
10.	2" CORPORATION STOP
11.	2" 45 EL, FPT x FPT, BRASS

APPROVED: JBN			DETAIL NO.
REVISIONS:	REV. 10/31/04 JBN	2" BLOWOFF ASSEMBLY (FOR MAINS 8" AND SMALLER)	410
	REV. 12/31/08 JBN		
	REV. 05/20/11 JBN		
10/31/04	REV. 07/18/24 NCE		



MATERIALS SEE SPECIFICATIONS FOR APPROVED MATERIALS	
ITEM	COMPONENT
1.	WATER MAIN
2.	G–5 BOX
3.	4" GATE VALVE, FL x MJ
4.	4" TEE, FL X MJ
5.	4" 90 EL, FL x MJ
6.	4" PIPE, CLASS 200, C900 PVC
7.	4" x 2" ADAPTER, FL x FPT
8.	2" PLUG, BRASS
9.	4" SPOOL, DI
10.	4" 45 EL, FL x FL

APPROVED: JBN			DETAIL NO.
REVISIONS:	REV. 10/31/04 JBN	4" BLOWOFF ASSEMBLY (FOR MAINS 10" OR LARGER)	412
	REV. 12/31/08 JBN		
	REV. 12/31/08 JBN		
10/31/04	REV. 7/18/24 NCE		



NOTES:

1. DOUBLE CHECK VALVE ASSEMBLY WITH OUTSIDE SCREW & YOKE (O.S. & Y.) VALVES.
2. DETECTOR METER ASSEMBLY WITH DOUBLE CHECK VALVE ASSEMBLY OR APPROVED EQUAL. METER SHALL READ GALLONS.
3. VALVE ASSEMBLY PER DETAIL NO. 210.
4. ALL FLANGED FITTINGS WHICH ARE BURIED SHALL HAVE PLASTIC WRAP, 30 MIL.
5. ALL FIRE LINE CONNECTIONS ARE REQUIRED TO HAVE A DETECTOR CHECK, ASSEMBLY FOR A BACKFLOW DEVICE.
6. DETECTOR METER ACCESS SHALL BE PROVIDED IF ASSEMBLY IS COVERED. METERS DAMAGED BY FREEZING SHALL BE REPLACED BY THE PROPERTY OWNER.
7. TAPPING SLEEVE. IF REQUIRED BY AMWC, A TEE SHALL BE CUT INTO THE MAIN.

APPROVED: JBN REVISIONS: REV. 10/31/04 JBN REV. 12/31/08 JBN REV. 5/20/11 JBN REV. 5/26/11 JGW 10/31/04	ATASCADERO MUTUAL WATER CO. SINCE 1913	DOUBLE–CHECK DETECTOR ASSEMBLY	DETAIL NO. 420