

**PENNICHUCK EAST UTILITY, INC.
STANDARD AGREEMENT**

AGREEMENT made this 10th day of November, 2009 ("Effective Date") by and between **R. J. Moreau Communities, LLC** ("the "Developer") having a business address of 22 Eastman Drive, Bedford, NH 03110 and **Pennichuck East Utility, Inc.**, (the "Water Company") having a business address of 25 Manchester Street, Merrimack, New Hampshire 03054.

WHEREAS, the Parties previously executed a written standard agreement on January 4, 2007, under the same substantial terms and conditions setout herein below but were unable to conclude the transaction and the prior Agreement was terminated; and

WHEREAS circumstances have now changed to the extent that the Tilton Northfield Water District Commissioners have now voted on, officially authorized and approved a resolution releasing its own franchise rights over the Premises and supporting the acquisition of franchise rights for Pennichuck East Utility, Inc. over the Premises as defined herein below.

WHEREAS, Developer represents that it is still the owner in fee simple of a certain parcel or parcels of land, free and clear of all encumbrances, unless otherwise noted herein, consisting of approximately 58.76 acres situated at or off Route 3, Tilton, New Hampshire, otherwise as referenced in a deed dated October 17, 2005, and recorded in the Belknap County Registry of Deeds at Book 2232, Page 0100, and known as Winnisquam Village Condominiums as further described in a plan titled "Water Distribution Plan, Winnisquam Village Condominium". by Holden Engineering & Surveying, Inc., dated October 6, 2005 and last revised on November 17, 2005, comprised of 6 sheets (hereinafter referred to as the "Plan"). the Plan (notably the first three sheets) and above referenced deed attached hereto as Exhibit A, hereinafter the "Premises" (See also for further reference the Condominium Site Plan, recorded

in the Belknap County Registry of Deeds in Drawer L , Plan No. , and a plan entitled: "Lot Line Adjustment Plan, DAWW, LLC & County Lake Resort LLC, Tilton, NH" by Holden Engineering & Surveying, Inc., dated August 8, 2003, revised through November 11, 2003, recorded in Drawer L46, Plan No. 26 through 30, at the Belknap County Registry of Deeds); and

WHEREAS, Developer hereby represents that it has not made any changes it has not disclosed to the Water Company to the existing water supply and distribution system since the date the Developer completed its construction, and Water Company completed its inspection, of said system through the Effective Date of this Agreement on the Premises ("Existing System"), consisting inter alia of, and not limited to, water wells, a pump station, pumping equipment, pipelines, from main to end, all fittings, valves, release valves, hydrants, valve boxes, service boxes, electronics, thrust blocks, backfill materials, road restoration materials and any other appurtenances and equipment required to operate the proposed pump station and water main extension as well as any other related equipment, (the "Equipment"), to provide water service with a design flow of 25,800 gpd to 86 condominiums located or to be located on the Premises (the "Project"), as well as prospective future customers located or to be located on the Premises or beyond the Premises, and

WHEREAS, Developer desires that the Water Company provide water service to the Project and own the Project; and

WHEREAS, in order to permit the Water Company to provide water service to the Project, Developer is willing to convey to the Water Company (i) all necessary easements and/or real property interests, free and clear of all encumbrances (except as set forth in Exhibit D attached "Exceptions" if any) the conveyance to include a Use and Access Easement on. under

and across the Premises for purposes of, maintaining and or expanding the Equipment, such as a wells, pump station, as well as construction, repair, maintenance and replacement of the Equipment by easement deed in form attached hereto as Exhibit "E" and a Well Head Protective Easement, containing all required use restrictions protecting the wells and water supply, in the form attached hereto and incorporated herein as Exhibit F, (all the real property interests herein called the "Easements"), to be shown on an easement plan in a recordable format as set forth hereinbelow, and (ii) the Equipment by Bill of Sale containing warranty covenants in the form attached hereto as Exhibit G, and

WHEREAS, the Easements and the Equipment are sometimes hereinafter referred to as the "System".

NOW THEREFORE, in consideration of the mutual covenants contained herein and other good and valuable consideration, the parties hereto agree as follows:

1. Cost. The Water Company shall pay the Developer an investment credit in the amount of Four Hundred Fifty Dollars (\$450.00) per meter installed (up to 86 meters) for the Existing System as well as any new planned construction or installations of build-outs of the Equipment and/or Existing System that Developer may make in the future (hereinafter referred to collectively as "Build-outs"). No investment credit by the Water Company shall be paid to the Developer or otherwise made by Water Company for the Existing System until a Closing has occurred for the Existing System in accordance with Section 9 of this Agreement. No investment credit by the Water Company shall be paid to the Developer or otherwise made by Water Company for any Build-out until an Acceptance has occurred for said Build-out in accordance with the provisions of Sections 3 and 9 of this Agreement. At the Closing for the

Existing System, as defined in Section 9, the Water Company shall reimburse the Developer for meters already set in occupied units and which comply with the terms and specifications set forth herein. After the Acceptance of any Build-outs in accordance with the provisions of Sections 3 and 9 of this Agreement, the Water Company shall further pay the Developer an investment credit equal to Four Hundred Fifty Dollars (\$450.00) per meter set by Water Company during the previous month within the Project, for a period of up to five (5) years from the execution of this Agreement. The total investment credit to be paid by Water Company under this Agreement is limited to the meters set by the Water Company for 86 units.

2. Adequacy of Equipment for Existing System; No Irrigation Supply.

Developer hereby represents and warrants that it has not made any changes it has not disclosed to the Water Company to the water supply source, Equipment and System from the time the Existing System was developed and built by Developer, and inspected by the Water Company, through the Effective Date of this Agreement. Developer also represents it is neither aware of nor been apprised of, in any manner, any violations of state or federal law or regulation relating to the System, or that the System, water source or Equipment is not in good standing with said authorities, prior to the Effective Date of this Agreement. Developer makes no other representations or warranties as to the Existing System, the design, the installation, the Equipment, the water source, supply, quality and quantity or that all as designed, built and inspected meets the Water Company's criteria or governmental criteria, or that it meets any minimum standards, or that it meets applicable laws, or that it meets the Water Company's design specifications in Exhibit B, or that it meets water supply standards for quality or quantity and/or all Preliminary Design Specifications. However, Developer hereby agrees to guarantee

the Equipment for the Existing System for a period of one (1) year from the Closing for the Existing System. Developer shall be responsible to make repairs and/or to replace any of said Equipment that fails or is deficient promptly, as reasonably required by the Water Company, and/or any government authority, should this Section be violated during the one year period after Closing for the Existing System. This representation and guarantee will, and is intended to, survive Closing, and failure by Developer to comply with this Section will be a condition of Default under this Section 2 and under Section 11. Water Company shall further specifically be entitled to reimbursement of the Water Company's costs expended to make any repairs, or replace any Equipment, that Developer failed to make and/or replace. Water Company shall also specifically be entitled to reformation or rescission of this contract, without any reimbursements in any form to Developer, for a failure by Developer to comply with this Section or to honor its guarantees and representations hereunder regarding the Existing System.

The Water Company will not be responsible after the Closing under this Agreement to supply any water for irrigation purposes. The Developer hereby represents that it has developed a separate source of water, through the installation of one wash well and that Developer intends to install additional wash wells, for the sole purpose of irrigation, which will not have any negative impact on the System's source of supply, and which will be located outside of any well protective area required by NH DES. The Water Company hereby represents and acknowledges that the installation of said wash well(s) by Developer as a separate source of water for irrigation is acceptable to the Water Company. Notwithstanding said acceptance by the Water Company, should at any time the Water Company or the New Hampshire Department of Environmental Services, or other appropriately empowered State agency, determine that the irrigation of the

Development is having negative impact on the System's source of supply, then the Water Company shall have the authority to require irrigation of the Development to cease, or otherwise place reasonable limitations on irrigation, at its sole discretion, until the negative impact can be corrected. The Developer or any successor in interest thereto, will cause a permanent restriction to be placed in the deeds of any units proposed, or to be sold, in the subdivision/development, and/or in any home owners association documents or condominium documents applicable thereto authorizing the Water Company or its successors in interest to restrict irrigation use as described above. Proof of such restrictions will be required at the Closing as defined in Section 9. This requirement will and is intended to survive such Closing.

3. Design Work and Meter Installation, Additional Build-outs. As-built plans of the System, including both the distribution system as defined below in this Section and the pump house, are required, with an electronic version in auto-cad format, at least 10 days prior to Closing for the Existing System and upon final build out of the System. System design plans, signed or certified by the appropriate engineer or architect and subject to Water Company's review and approval, are also required prior to Closing for the Existing System.

Developer agrees to pay a fee to Water Company of \$3.00 per foot of water main for inspection and review of any additional Build-out(s) of the System, not already constructed as of the Effective Date of this Agreement, to insure that said Build-out(s) are consistent with (i) Water Company's minimum specifications set forth in Exhibit B, and (ii) all local, state and federal statutes and regulations for community water systems including without limitations all requirements set by the NH Department of Environmental Services ("NH DES"), and (iii) any

design package provided to the New Hampshire Water Supply Engineering Bureau under Developer's application for design approval under project # 996082, approved for 86 units with a design flow of 25,800 gpd (hereinafter the "Preliminary Design Specifications"), which Preliminary Design Specifications is incorporated herein by reference, and (iv) the design approval letter issued by NH DES being attached hereto as Exhibit C, and (v) all other specifications defined in the Plan, which are incorporated herein by reference. Said fee shall be due from Developer within thirty (30) days of receipt of a bill from Water Company after completion of the inspection. Developer hereby further agrees to guarantee the Equipment for any Build-outs for a period of one (1) year from the date of acceptance for any said Build-outs by Water Company (herein referred to as "Acceptance"). Developer shall be responsible to make repairs and/or to replace any of said Equipment that fails or is deficient promptly, as reasonably required by the Water Company, and/or any government authority, should this Section be violated during the one year period after Acceptance of the associated Build-out(s). These representations, warranties and guarantees will, and are intended to, survive said Build-out Acceptance, and failure by Developer to comply with this Section will be a condition of Default under this Section 3 and under Section 11. Water Company shall further specifically be entitled to reimbursement of the Water Company's costs expended to make any repairs, or replace any Equipment associated with a Build-out, that Developer failed to make and/or replace. Water Company shall also specifically be entitled to reformation or rescission of this contract, without any reimbursements in any form to Developer, for a failure by Developer to comply with this Section or to honor its guarantees and representations hereunder regarding any Build-outs.

Water meters for units shall be provided and installed by Water Company immediately

after Acceptance of any Build-outs. Water Company's costs relating to the meters will be the responsibility of the Water Company. Cellar valves and associated fitting costs for the Existing System and/or any Build-outs shall, however, be the responsibility of the Developer, or its successor in interest, and must be in place prior to installation of the meter by Water Company or no investment credit shall be due and Water Company will not be required to service said unit.

4. Inspection. The Water Company, prior to and during installation, and prior to the Acceptance of any Build-out(s), will inspect the future Equipment and/or System Build-out(s) to confirm their design, installation and condition are in accordance with the Water Company's minimum specifications incorporated herein by reference as Exhibit B, Preliminary Design Specifications, Water Company's Distribution System design plans if applicable, such other Distribution System design plans as may be applicable, and local, state and federal laws and regulations for community water systems and water main installations as defined herein; provided, however, that any such inspection by the Water Company shall not in any way void, supersede, replace and/or otherwise affect or be considered in lieu of the Developer's warranties, representations and/or guarantees made to the Water Company under this Agreement. Developer will supply Water Company with all system design plans not completed by Water Company, including an electronic version in auto-cad format at least 10 days prior to any planned construction and installation of any additional Build-out(s), for approval and for use in the any inspections. Water Company shall have the right to on site review, open access to the construction site to observe construction and installation of any additional Build-out(s), as Water Company deems necessary. Developer will supply notice of planned construction or installation of any additional Build-out(s), to Water Company, at least 72 hours prior to the

construction or installation of any additional Build-out(s), via email or facsimile to Donald L. Ware, President, of Water Company, to allow for inspection.

In the event the Water Company, in its sole discretion, determines that any said planned construction and installation of any additional Build-out(s) of the Equipment and System as a whole is not in accordance with said minimum specifications set forth in Exhibit B, Preliminary Design Specifications, Water Company's design plans, as applicable, any other design plans supplied by Developer, and/or applicable local, state or federal standard, law or regulation the Water Company may request in writing or via email to _____ or to Developer at the address listed herein above, that Developer correct the deficiency. Upon notice, in writing, of the unacceptable deficiency to Developer, Developer will have 180 days to rectify the unacceptable deficiency. Should Developer be unable to or unwilling to rectify the unacceptable condition during that period, then, Water Company shall have the right to declare a Default hereunder, and to terminate this Agreement, and/or any obligation Water Company may have (if any) regarding the Acceptance of any future Equipment or System Build-outs, by written notice to the Developer without the Water Company having any further liability and/or obligations to the Developer.

5. Survey. Developer will also supply Water Company with a survey plan completed and stamped by a certified licensed surveyor in a recordable format showing any and all Easements on the Premises for the System to be conveyed at the Closing for the Existing System, the well locations and main locations as-built, and containing a metes and bounds description of the Premises, as such is required by the NH Public Utilities Commission (hereinafter "NH PUC"). The survey plan for the System will be supplied to Water Company

within 45 days of the execution of this Agreement to allow such plan to be filed with the NH PUC as part of the approval process referenced in Section 7 below, and prior to said Closing. At Water Company's option the survey plan will be incorporated by reference into the Easements and recorded at the Closing for the Existing System by the Developer.

6. Lienholders' Consent to Agreement. On or before any Closing as defined in Section 9, and/or any Acceptance of any Build-out(s) by Water Company pursuant to the terms of this Agreement, the Developer shall deliver to the Water Company evidence of the agreement by all mortgagees and other lien holders having a lien or security interest ("Lien") in all or any portion of the System to release or subordinate its/their Lien with respect to the Easements and System. At the Closing for the Existing System, and/or upon Acceptance by Water Company of any Build-out(s), the Developer shall deliver to Water Company in a form acceptable to Water Company releases or subordination of all Liens, duly executed by such lien holders and/or secured parties, with respect to the Easements and the Equipment ("Releases or Subordinations").

7. Approval of Public Utilities Commission.

The Parties recognize the obligation of the Water Company to purchase the System hereunder is subject to review and approval of the NH PUC. Both Parties agree to use their best efforts to seek and obtain approval from the NH PUC for the Water Company to operate the System under the Water Company's Pennichuck East Utility ("PEU") customer rate as applicable at the time of approval. Should the Water Company be unable to obtain approval in a reasonable amount of time despite its good faith efforts to do so, it shall have the right at its sole discretion to terminate the Agreement without having any further liability and/or obligations to

the Developer.

In the event of termination pursuant to this Section neither party shall have any further obligation to the other.

8. Representations, Warranties and Agreements.

a. Representation and Warranties

In addition to any other warranties, representations and/or guarantees made by the Developer pursuant to the terms of this Agreement, the Developer also represents and warrants at the time of the Closing of the Existing System and/or the Acceptance of any Build-outs (a) that then, and for 1 year thereafter, the well head protective radius area or areas (the "Well Field Land") and all areas of encumbrance under the Easements are part of the Premises and that the Well Head Protective Easement or Easements have been approved in writing by the NH DES, a copy to be supplied the Water Company; (b) that it knows of no hazardous waste site or pollution source existing on the Premises, adjacent to the Premises or which may reasonably threaten the Premises at anytime in the future, and that the System is, and will be at the time of said Closing, in good standing with all Federal State and Local governmental agencies, with no current or pending violations; (c) that it has the requisite power and authority to enter into this Agreement, and to take all action or actions contemplated by the Agreement; and (d) that the Developer has good and marketable title to the Equipment and the Premises, free and clear of all encumbrances except for the Exceptions relating to said Closing and/or Acceptance, and will have good and marketable title thereto, subject to said Exceptions (other than the Liens subordinated), at the time of transfer to the Water Company of title to the System; (e) that Developer further

represents and warrants that it has obtained any and all governmental approvals and certificates of registration required by applicable law for the transfer of the Easements and Equipment to the Water Company and the offering for sale and sale of all of the proposed units on the Premises, and (f) the Developer further warrants all parts of the Equipment only for a period of one (1) year after the Closing of the Existing System and/or only for a period of one (1) year after the Acceptance of any Equipment related to a Build-out.

b. Title Insurance

The Developer agrees that at least five days prior to Closing of the Existing System, Developer shall deliver to the Water Company at Developer's cost (i) a Title Insurance Policy in a form and amount satisfactory to the Water Company with respect to the Easements for the System, addressed to the Water Company, as well as a opinion to corporate authority. The amount of the Title Insurance Policy required by Water Company in a minimum amount of One Hundred Thousand Dollars (\$100,000.00) for each incident to reflect potential damage a title issue could cause to Water Company, and the cost of any necessary takings litigation that could be necessitated by such title flaw. The Title Insurance Policy and opinion letter as to corporate authority shall insure that Developer can convey (or upon recordation of the Releases or Subordinations. will be able to convey) good and marketable title to the Easements, and/or restrictive covenants contained in the well head protection document, and the Equipment, subject only to the Exceptions relating to said Closing (and the Liens subordinated), and (ii) at or before said Closing the Developer will deliver to the Water Company the related Releases or Subordinations fully executed and in form for recordation.

c. Assignment of Warranties

Developer agrees to execute at or prior to any Closing for the Existing System and/or any Build-outs an assignment of all warranties, as well as any approvals and certificates which require assignment, in a form acceptable to Water Company, an example of which is attached hereto as Exhibit "H".

d. Intent for Section to Survive the Closing or any Acceptance

Recognizing the parties intend for there to be a Closing for the Existing System and Acceptance(s) for any future Build-outs, the Developer agrees that any and all of its representations, warranties and guarantees set forth above in Section 8(a) and/or in any other provisions of this Agreement, and the obligations and indemnities set forth in Sections 11 and 12, shall survive any said Closing and/or Acceptance(s).

9. Closing; Acceptance. Subject to the satisfactory inspection of the Equipment and the System by the Water Company that the representations and warranties contained herein are true and in effect, within 30 days after satisfaction of the provisions of Sections 2, 3 (first paragraph only), 5, 6 and 7, on terms acceptable to the Water Company, as provided herein above, and at the sole option of Water Company no later than one (1) year from the date of execution of this Agreement, there shall be a closing ("Closing") for the System at a mutually agreed time and place at which the Developer shall convey to the Water Company good and marketable title free and clear of all encumbrances, except the Exceptions (other than the Liens unless subordinated), to the Easements (and/or real property interests) for the System by Easement Deeds, and to the Existing System Equipment by Bill of Sale, in the forms attached as Exhibits "D", "E", "F" and "G", respectively, and shall satisfy all of its obligations hereunder. Time is of essence in this Agreement. If Developer is unable to perform its obligations under

this Agreement at Closing it will be in Default, pursuant to Section 11.

Subject to the satisfactory inspection of any additional Build-out(s) of the Equipment and the System by the Water Company that the representations and warranties contained herein are true and in effect, within 30 days after satisfaction of the provisions of Sections 2 (second paragraph only), 3, 4, 5, 6 and 7, on terms acceptable to the Water Company, as provided herein above, and at the sole option of Water Company no later than one (1) year from the date of completion of any said Build-out(s), there shall be an Acceptance of said Build-out(s) at a mutually agreed time and place at which the Developer shall convey to the Water Company good and marketable title free and clear of all encumbrances, except for any Exceptions for said Build-out(s) (other than the Liens unless subordinated) and the additional Build-out Equipment by Bill of Sale, in the forms attached as Exhibits "D" and "G", respectively, and shall satisfy all of its obligations hereunder. Time is of essence in this Agreement. If Developer is unable to perform its obligations under this Agreement at said Acceptance it will be in Default, pursuant to Section 11.

10. Additional Documents to be Delivered at Closing. At or prior to the Closing of the Existing System hereunder, in addition to the documents otherwise referred to in this Agreement, Developer shall deliver to Water Company the following documents.

- a) Copies of any and all business records pertaining to the System and Developer's operation thereof including but not limited to financial records (including purchase orders or bills of sale for the Equipment, cost of construction figures, System service records, and filings with the NH PUC and NH DES.
- b) Recorded copies of any and all Condominium Documents or Home Owners

Association documents, and/or proof of the irrigation restrictions referenced in Section 2 of this Agreement.

- c) Such other and further documents as are required by rules and regulations or orders of the NH PUC, NH DES or any other local, state or federal agency, together with any other documents required in the opinion of Water Company's counsel, to convey the Existing System and/or any Build-outs to Water Company with free and clear title.
- d) The vote of Developers members or Shareholders, authorizing Developer to enter into this Agreement and/or any mutually agreed upon amendments hereto, and to take all of the actions contemplated hereby.
- e) A certificate of Good Standing from the New Hampshire Secretary of State with regard to Developer's entity status.

At or prior to the Acceptance of any Build-outs hereunder, in the event any of the above referenced documents and/or any related circumstances, conditions and/or votes specified in this Section 10 have changed, Developer shall deliver to Water Company a copy of any and all amended and restated documents that reflect said changes.

11. Default. In the event that Developer defaults in any of its representations, warranties and/or obligations hereunder, then Water Company may declare a breach of contract, without any further liability and/or obligations to the Developer, and may enforce its rights in any proceeding at law or in equity, including, without limitation, reimbursement of all of its out-of-pocket expenses incurred in connection herewith, specifically including but not limited too, (i) all laboratory testing costs, internal employee costs, reasonable attorneys fees related to this

transaction and reasonable attorneys fees incurred in any action to enforce its rights hereunder, and (ii) any and all fines, penalties, costs, modifications, upgrades, etc. to the Project, including without limitation any reasonable attorneys fees, imposed, required and/or mandated by any local, state and/or federal government entity or agency on the Water Company to bring the Project into compliance with any local, state and/or federal laws, regulations and/or ordinances as a result of the Developer's default and/or breach of any of its warranties, guarantees or representations under this Agreement.

12. **Indemnity.** The Developer agrees herein to indemnify Water Company, Water Company's parent corporation (Pennichuck Corporation), their directors, officers, agents, employees, contractors and assigns, and hold them harmless from any and all liabilities, costs, demands, claims, causes of action, penalties, fines, judgments, damages (including consequential damages), losses, legal fees, incurred in connection with, resulting from, relating in any way to, or in connection with, a breach of a representation, warranty or obligation of Developer to Water Company under this Agreement, including specifically but not limited to any breach of any federal, state or local statutes, laws, ordinances and/or environmental standards, statutes, laws and/or regulations by the Developer, its directors, officers, employees, agents, contractors and/or assigns which occurred prior to the Closing date and/or any Acceptance date hereunder.

13. **Assignment.** Neither the Developer nor the Water Company may assign this Agreement and/or any of their rights and/or obligations hereunder to any third party without first obtaining the prior written consent of the other party; provided, however, that the Water Company may assign this Agreement and any of its rights and/or obligations hereunder to any third party which acquires all or substantially all of the assets and/or stock of the Water

Company and/or the parent company of the Water Company, Pennichuck Corporation, as a result of (i) a taking by means of eminent domain by said third party, or (ii) the settlement of any eminent domain litigation or action between said third party and the Water Company, Pennichuck Corporation and/or another subsidiary of Pennichuck Corporation, and/or (iii) the merger and/or acquisition of the Water Company and/or Pennichuck Corporation with said third party. In the case of any assignment made pursuant to this Section, the assignee assumes all rights and obligations of assignor under said agreement, and agrees to perform all agreements, covenants and undertakings of assignor set forth in the Agreement.

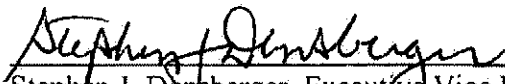
14. Execution, Governing Law, etc. This Agreement may be executed in any number of counterpart originals, each of which shall be an original for all purposes and all of which shall constitute one and the same instrument. This Agreement is to be governed by and construed under the laws of the State of New Hampshire and this Agreement shall be binding upon and inure to the benefit of the parties hereto and their respective successors and assigns and may be canceled, modified or amended only by written instrument executed by the parties hereto.

15. Entire Agreement. The terms of this Agreement constitute the entire agreement between the parties and no statements, oral or written, made by anyone have been relied upon by any party or shall bind any party unless expressly incorporated herein.

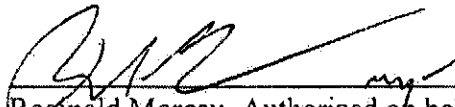
IN WITNESS WHEREOF, the parties have executed this Agreement as of the Effective Date first written above.

PENNICHUCK EAST UTILITY, INC.

By Its Executive Vice President

By: 
Stephen J. Densberger, Executive Vice President

R. J. MOREAU COMMUNITIES, LLC,

By: 
Reginald Moreau, Authorized on behalf
of R. J. Moreau Communities, LLC, as its owner

STATE OF NEW HAMPSHIRE
COUNTY OF Hillsborough

On this the 10 day of November, 2009, before me, the undersigned officer, personally appeared Stephen J. Densberger, who acknowledged himself to be the Executive Vice President of **Pennichuck East Utility, Inc.**, and acknowledged that he, as such officer being authorized so to do, executed the same on behalf of said corporation for the purposes therein contained.

Karen Giotas
Justice of the Peace/Notary Public

KAREN GIOTAS
Notary Public - New Hampshire
My Commission Expires December 12, 2011

STATE OF NEW HAMPSHIRE
COUNTY OF Hillsborough

On this the 30th day of September, 2009, before me personally appeared Reginald Moreau, who acknowledged himself to be the owner of **R. J. Moreau Communities, LLC**, and acknowledged that he being authorized so to do, executed the same on behalf of said Company for the purposes therein contained.



Diane Marie Bedard
Justice of the Peace/Notary Public

APPENDIX

Exhibit A –Plan titled “Water Distribution Plan, Winnisquam Village Condominium” and Deed,

Book 2232, Page 0100

Exhibit B – PEU, Inc. Minimum Specifications

Exhibit C - Preliminary Design Specifications and Approval Letter from NH DES

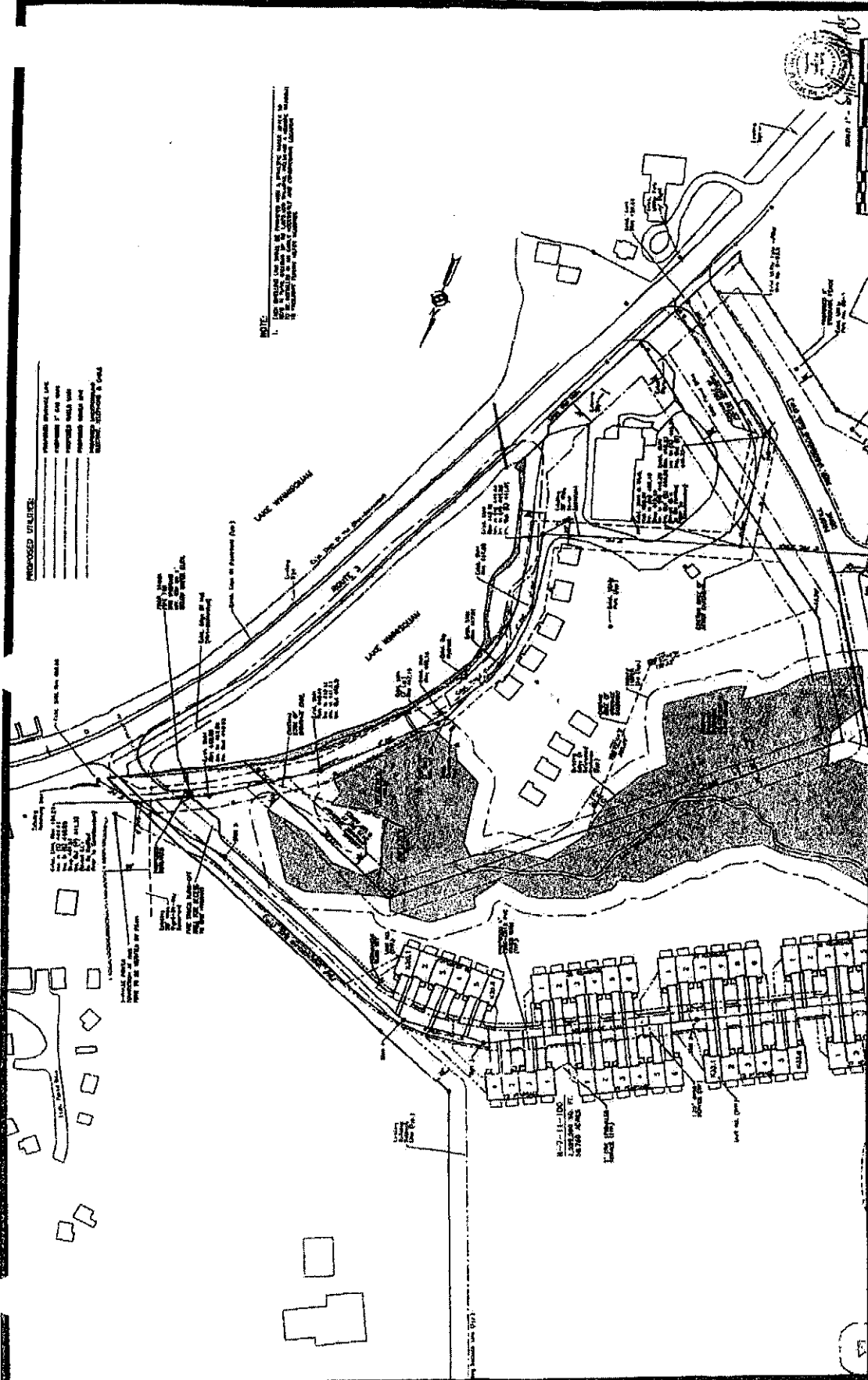
Exhibit D – Exceptions

Exhibit E – Use and Access Easement

Exhibit F – Well Head Protective Declaration

Exhibit G – Bill of Sale

Exhibit H – Assignment of Warranties



NOTE:
1. THE SHOWN LOT AREA IS BASED ON A PRELIMINARY SURVEY OF THE SITE. THE ACTUAL LOT AREA MAY VARY SLIGHTLY FROM THE SHOWN LOT AREA DUE TO FIELD MEASUREMENTS AND SURVEYING TECHNIQUES.

PROPOSED UTILITIES

UTILITIES	LOCATION	DEPTH	DIAMETER	LENGTH	NOTES
WATER	LOT 1	4'-0"	12"	100'	NEW
SEWER	LOT 2	4'-0"	12"	100'	NEW
GAS	LOT 3	4'-0"	12"	100'	NEW
ELECTRIC	LOT 4	4'-0"	12"	100'	NEW
TELEPHONE	LOT 5	4'-0"	12"	100'	NEW

HOLDEN ENGINEERING & SURVEYING, INC.

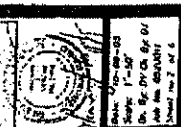
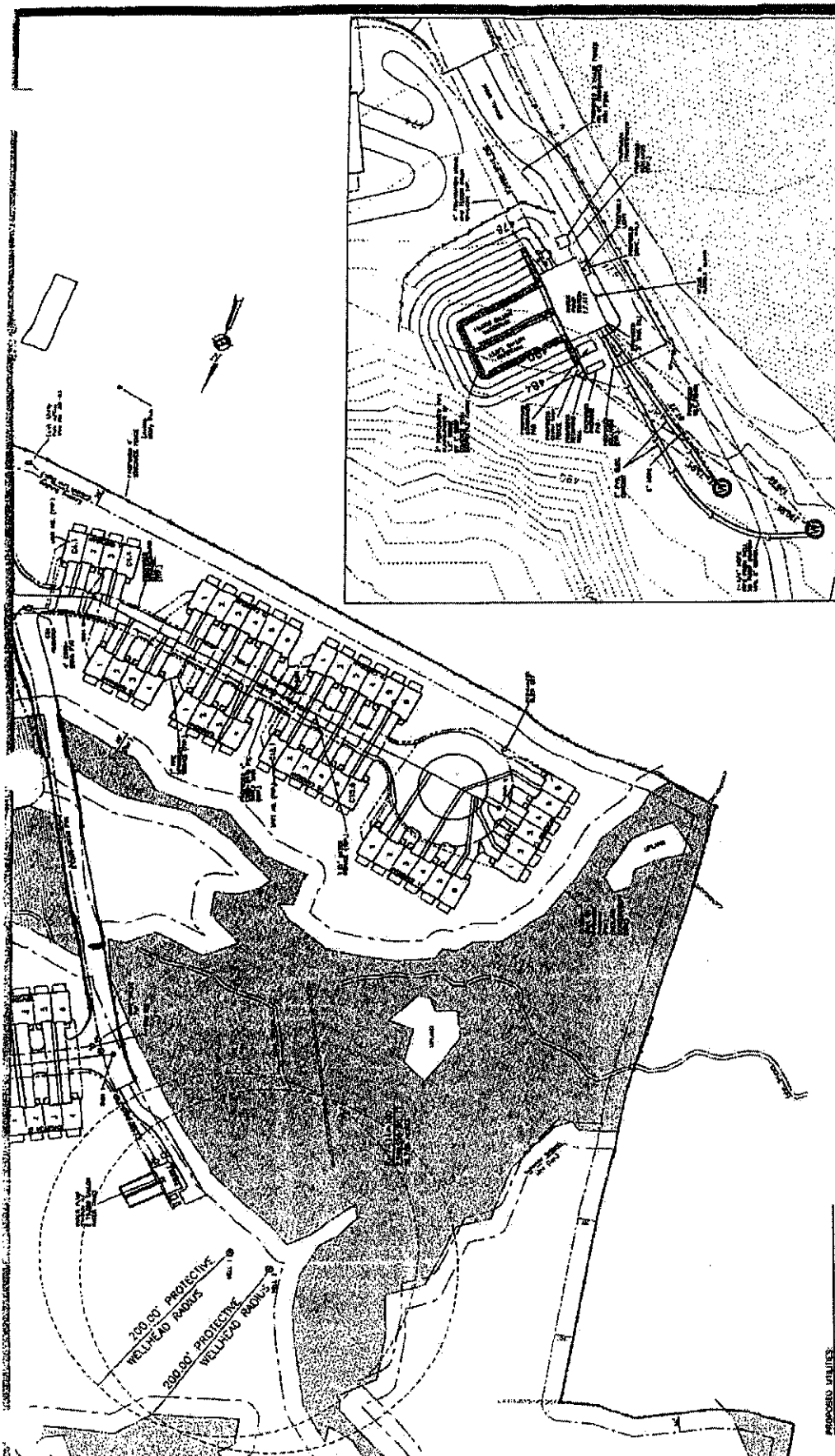
1000 Main Street, Suite 200
Concord, NH 03301
Tel: 603-225-1234
Fax: 603-225-5678
www.holden-engineering.com

WATER DISTRIBUTION PLAN

WINNISQUAM VILLAGE CONDOMINIUM

REI LAND IMPROVEMENT CO. LLC - TILTON, NH

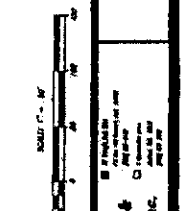
Project No.	10-08-05
Sheet No.	1 of 5
Scale	1" = 50'
Drawn By	J. R. Holden
Check By	J. R. Holden
Date	10/10/05



WATER DISTRIBUTION AREA PLAN

DATE	10-20-03
SCALE	1"=50'
BY	DR. J. P. O'NEILL, JR.
CHECKED	DR. J. P. O'NEILL, JR.
APPROVED	DR. J. P. O'NEILL, JR.

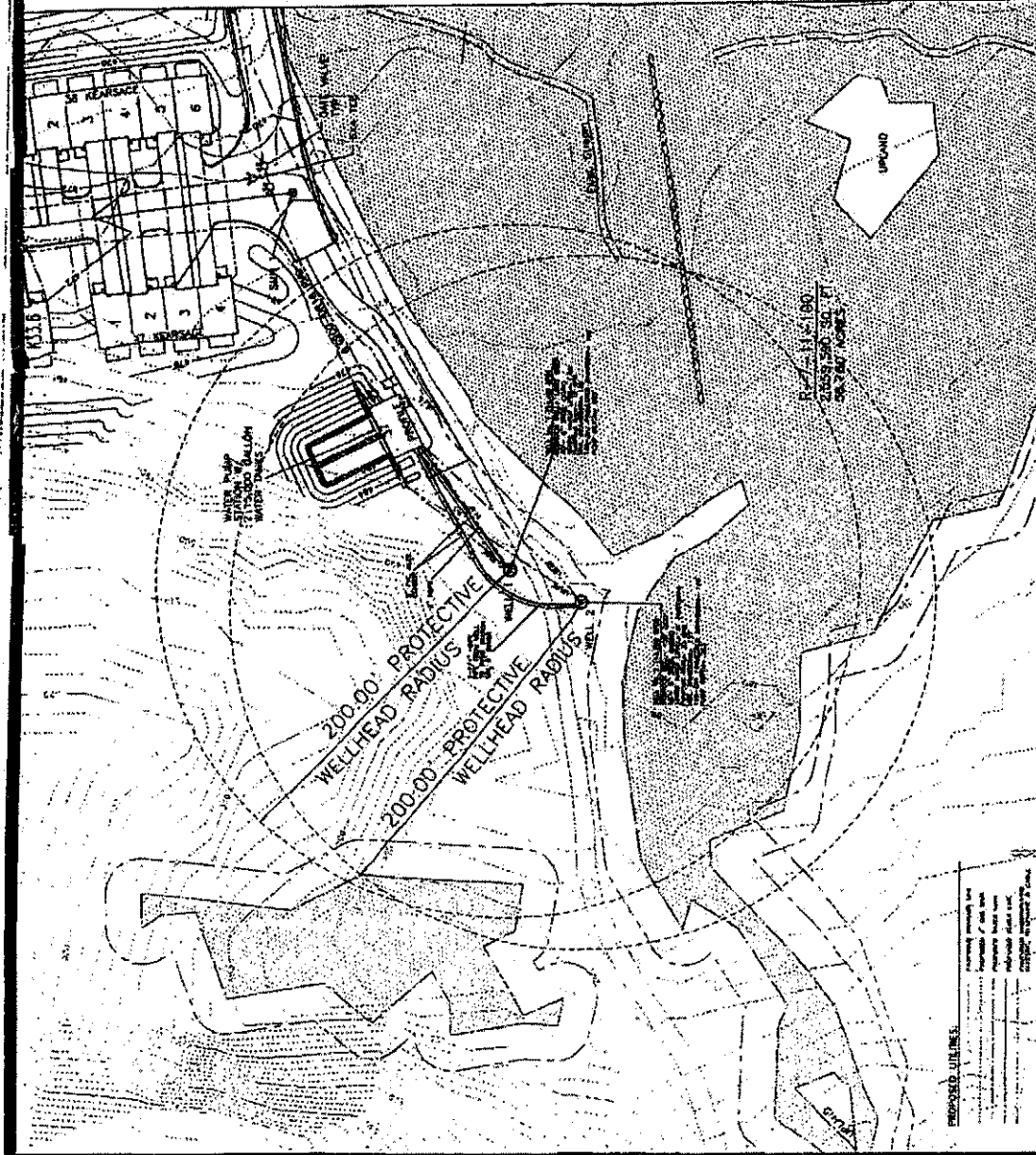
WATER DISTRIBUTION PLAN
 WINNISQUAM VILLAGE CONDOMINIUM
 REI LAND IMPROVEMENT CO. LLC - TILTON, NH



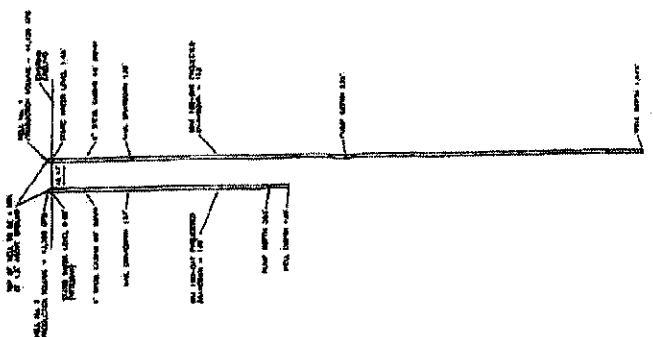
HOLDEN ENGINEERING & SURVEYING, Inc.

2000 Main Street
 Tilton, NH 03090
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THIS SURVEY WAS MADE BY ME OR UNDER MY CLOSE PERSONAL SUPERVISION AND TO THE BEST OF MY KNOWLEDGE AND BELIEF IT COMES INTO ACCORDANCE WITH THE REQUIREMENTS OF THE SURVEYING ACT OF 1990, AS AMENDED, AND THE RULES OF THE BOARD OF SURVEYING, ENGINEERING AND LAND SURVEYING.



WELL PROFILE
SCALE: 1"=10'

PROPOSED OUTLINE:
☐ EXISTING
☐ PROPOSED
☐ EXISTING AND PROPOSED
☐ EXISTING AND PROPOSED
☐ EXISTING AND PROPOSED

WELL DETAIL PLAN
 WINNISQUAM VILLAGE CONDOMINIUM
 REI LAND IMPROVEMENT CO. LLC. - TILTON, NH

HOLDEN ENGINEERING & SURVEYING, INC.

Date: 10-05-05
 Scale: 1"=30'
 By: [Signature]
 Job No: 050505
 Sheet No: 2 of 2

REVISIONS

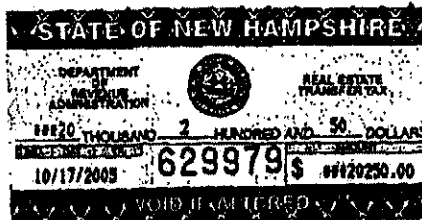
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Wadleigh, Starr & Peters
95 Market Street
Manchester, NH 03101

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2005 OCT 17 PM 2:55
REGISTRY OF DEEDS
BELKNAP COUNTY
Register



WARRANTY DEED

DAWW, LLC, a New Hampshire limited liability company with a principal place of business at 37 Westech Drive, Tyngsboro, Massachusetts 01879, for consideration paid grants to R.J. Moreau Communities, LLC, a New Hampshire limited liability company with a principal place of business at 22 Eastman Avenue, Bedford, New Hampshire 03110, with WARRANTY COVENANTS, the following:

A certain tract or parcel of land situated on the westerly sideline of Route 3 in Tilton, County of Belknap, State of New Hampshire, and shown as Tract R-7-11-1, on plan entitled: "Lot Line Adjustment Plan DAWW, LLC & Country Lake Resort LLC, Tilton, NH" by Holden Engineering & Surveying, Inc., dated August 8, 2003, revised through November 11, 2003, recorded in Drawer L46, Plan No. 28 thru 30, Belknap County Registry of Deeds (the "Plan"), which tract is more particularly bounded and described as follows:

Beginning at a point on the westerly line of Route 3, so-called, said point being the most easterly corner of land now or formerly of James R. & Mary Lou Sevigny, said point also being the most southerly corner of the herein described premises; thence

North 22° 41' 01" West, by the said land now or formerly of James R. & Mary Lou Sevigny, 10.53 feet to an iron pipe; thence

North 53° 31' 26" West, by the said land now or formerly of James R. & Mary Lou Sevigny, 208.40 feet to a rebar; thence

North 81° 31' 46" West, by the said land now or formerly of James R. & Mary Lou Sevigny, 189.70 feet to a drill hole at the end of a stone wall; thence

Westerly, by the said stone wall at said land now or formerly of James R. & Mary Lou Sevigny, by the following courses:

North 81° 14' 06" West, 103.99 feet to a drill hole; thence

North 81° 20' 33" West, 331.88 feet to a point; thence

North 69° 47' 16" West, 22.34 feet to a point; thence

North 75° 45' 48" West, 21.26 feet to a point; thence

North 82° 25' 36" West, 46.01 feet to a point; thence

North 89° 30' 43" West, 70.89 feet to a point; thence

North 80° 39' 01" West, 71.75 feet to an iron pipe at land now or formerly of Elaine Dalzell; thence

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Northerly, by the said land now or formerly of Elaine Dalzell, by the following courses:

North 04° 37' 26" West, partly by stone wall, 87.54 feet to a point; thence
North 02° 51' 41" West, 238.58 feet to a point; thence
North 10° 15' 07" West, 63.49 feet to a point; thence
North 06° 13' 38" West, by a stone wall, 78.24 feet to a point; thence
North 08° 42' 24" West, by a stone wall, 208.19 feet to a drill hole at a corner of
stone walls; thence

Westerly, by a stone wall at said land now or formerly of Elaine Dalzell, by the following
courses:

South 76° 09' 36" West, 39.82 feet to a point; thence
South 88° 54' 19" West, 42.35 feet to a point; thence
South 84° 03' 48" West, 62.96 feet to a point; thence
South 73° 39' 03" West, 35.94 feet to a point; thence
South 83° 51' 05" West, 56.98 feet to a corner of stone walls; thence

Northerly, by a stone wall at said land now or formerly of Elaine Dalzell, by the following
courses:

North 07° 55' 48" West, 67.60 feet to a point; thence
North 12° 29' 08" West, 60.86 feet to a point; thence
North 10° 45' 30" West, 22.59 feet to a point; thence
North 03° 52' 29" West, 38.73 feet to a point; thence
North 17° 00' 28" West, 17.82 feet to a point; thence
North 03° 52' 39" West, 44.99 feet to a point; thence
North 06° 33' 20" West, 150.48 feet to a point; thence

Northerly, by a fence at said land now or formerly of Elaine Dalzell, by the following
courses:

North 05° 55' 02" East, 180.52 feet to a point; thence
North 03° 08' 00" West, 119.77 feet to a point; thence
North 02° 58' 47" West, 84.00 feet to a point; thence
North 14° 09' 24" West, 61.59 feet to a point; thence
North 07° 45' 03" West, 102.56 feet to a point; thence
North 10° 58' 14" West, 182.28 feet to a point on the Tilton-Sanborn Town
Line and land now or formerly of the Shiraz Limited Partnership; thence

North 58° 27' 46" East, by the said Tilton-Sanborn Town Line and land now or
formerly of Shiraz Limited Partnership, 1,388.17 feet to a point at land now or formerly of
the Dalton Revocable Trust; thence

Easterly, by a wire fence at said land now or formerly of the Dalton Revocable Trust, by
the following courses:

South 18° 00' 25" East, 340.62 feet to a point; thence
South 16° 20' 26" East, 88.51 feet to a point; thence
South 21° 33' 43" East, 193.55 feet to a point; thence
South 21° 37' 09" East, 130.49 feet to a point; thence
South 20° 55' 36" East, 229.18 feet to a rebar at the northeast corner of land now
or formerly of 814 Laconia Road Trust; thence

BK 2232PG0099

South 70° 53' 29" West, by the said land now or formerly of 814 Laconia Road Trust, 377.00 feet to a rebar; thence

South 20° 04' 48" East, by the said land now or formerly of 814 Laconia Road Trust, 415.62 feet to a rebar; thence

South 66° 19' 34" East, by the said land now or formerly of 814 Laconia Road Trust, 105.72 feet to a rebar; thence

South 66° 19' 34" East, by the said land now or formerly of 814 Laconia Road Trust, 423.24 feet to a point at land of the State of New Hampshire; thence

South 63° 48' 04" West, by the said land of the State of New Hampshire, 115.95 feet to a point; thence

South 59° 04' 05" West, by the said land of the State of New Hampshire, 34.14 feet to the most easterly corner of land now or formerly of WCLC, LLC; thence

North 66° 19' 34" West, by the said land now or formerly of WCLC, LLC, 229.27 feet to a stone bound; thence

South 50° 47' 44" West, by the said land now or formerly of WCLC, LLC, 547.09 feet to a stone bound; thence

South 31° 09' 32" East, by the said land now or formerly of WCLC, LLC, 149.44 feet to a stone bound; thence

South 53° 31' 26" East, by the said land now or formerly of WCLC, LLC, 380.98 feet to a drill hole at the said westerly line of Route 3; thence

South 28° 47' 23" West, by the said westerly line of Route 3, 155.00 feet to the point of beginning.

Containing 58.760 acres according to said Plan.

Together with a sewer easement and drainage easements over Tract R-7-11 as shown on said Plan.


Subject to a sewer easement and an access and parking easement to the benefit of Tract R-7-11 as shown on said Plan.

For title reference see Deed of GDLD, LLC recorded in the Belknap County Registry of Deeds at Book 1662, Page 697.

Executed this 17 day of October, 2005.

DAWW, LLC

By:


William J. LeTendre, Duty Authorized Member

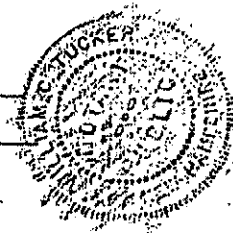
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STATE OF NEW HAMPSHIRE
COUNTY OF HILLSBOROUGH

The foregoing instrument was acknowledged before me this 17th day of October, 2005, by William D. LeTendre, Duty Authorized Member of DAWW, LLC, a New Hampshire limited liability company, on behalf of the company.



Notary Public/Justice of the Peace
My Commission Expires: _____



WILLIAM C. TUCKER
Notary Public - New Hampshire
My Commission Expires March 6, 2007

43710-46811 Deed DAWW-Moreau

BM2232PG0101

PENNICHUCK WATER WORKS, INC.

&

PENNICHUCK EAST UTILITIES, INC.

TECHNICAL SPECIFICATIONS



PENNICHUCK WATER WORKS, INC.

Four Water Street P.O. Box 448
Nashua, New Hampshire 03061-0448
Tel. (603) 882-5191 Fax. (603) 882-4125
www.pennichuck.com

March, 2004

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INTRODUCTION

These Technical Specifications will govern all work performed in the Pennichuck Water Works distribution systems.

The specifications contained herein and inspection fees charged by Pennichuck Water Works are in accordance with Pennichuck Water Work's tariff as provided by the New Hampshire Public Utilities Commission.

Pennichuck Water Works technical specifications do not supplant the contractor's obligation to comply with the Department of Labor, and Occupational Safety and Health Administration regulations. Construction site safety is the contractor's responsibility.

Questions regarding Pennichuck Water Works specifications should be directed to the Pennichuck Water Works field inspector.



CONTACT DIG SAFE 72 HOURS
PRIOR TO CONSTRUCTION

GENERAL OWNER RESPONSIBILITIES

SCOPE

The party (Owner) or agent of the party proposing to perform construction in the Pennichuck Distribution System and who executes the appropriate paperwork with Pennichuck Water Works, Inc. to allow the same, shall furnish all water pipe, hydrant, assemblies, valves and valve boxes, fittings, couplings, sand backfill, concrete thrust blocking, labor, tools, and equipment necessary to lay and join all pipe in accordance with the specifications herein. All construction shall conform to the design provided by the Pennichuck Water Works Engineering Services Department. All contracts, deposits, applications, and easements will be finalized before the Pennichuck Water Works Engineering Services Department will design the water system and schedule inspection. Prior to job start, all main and service materials and area of land to be developed will be subject to inspection by a Pennichuck Water Works Engineering Services Department Inspector. All work related to services and inspections provided by Pennichuck Water Works will be subject to fees and will be the responsibility of the Owner. The Owner is responsible for obtaining and using the most recent technical specification. The most recent version is available on www.pennichuck.com in the engineering section.

Pennichuck Water Works Engineering Services Department shall be notified one week prior to the start of the project to schedule inspection.

NOTES REGARDING MATERIALS

All materials are subject to the Pennichuck Water Works field inspector's approval.

When the quality of any material is questioned, it will be the Owner's responsibility to prove to the field inspector's satisfaction that the materials in question comply with the Pennichuck Water Works requirements.

Materials that in the field inspector's opinion, are damaged, mishandled, or defective shall be removed from the job site.

Materials which have been rejected by the Pennichuck Water Works field inspector shall be immediately removed from the construction site.

SECTION 1

Water Main Materials and Installation

- A. General
- B. Product Specifications
- C. Product Delivery, Storage and Handling
- D. Product Installation
- E. Product Testing

A. General -

1. **Materials of construction** - All water mains 6" and over in diameter shall be constructed with Ductile Iron water main meeting or exceeding the product specifications below. 4" diameter water mains shall be constructed with either C900 PVC or Ductile Iron that meets or exceeds the product specifications below.
2. **Materials sizing** - All water mains shall be sized by the Engineering Services group of Pennichuck Water Works.
3. **Utility Separation** - All water mains and appurtenances shall be separated from other utilities and septic fields in accordance with the New Hampshire Code of Administrative Rules Env-WS 1000 and Env-Ws 372 section 9. **Furthermore, the separation shall be in accordance with Detail A-1 in the Standard Details.**
4. **In the absence of a recognized and/or approved industry standard for such hardware, Pennichuck's field inspectors will be the final judge as to the acceptability of miscellaneous hardware used in the installation of water mains.**

B. Product Specifications -

1. Ductile Iron Water Main

- a. Ductile iron water main shall conform to AWWA Standard C-151- 91 and be double cement lined and sealed coated to meet AWWA Standard C-104-90. Joints shall be push on and shall conform to AWWA C-111-90.
- b. Interior seal coat shall be at least 2 mils thick and shall conform to AWWA C-104-90.
- c. Exterior of pipe shall be petroleum asphaltic coated with a minimum of 4 mils dry film thickness.
- d. Class 52 wall thickness, 4" diameter through 10" diameter inclusive.
- e. Class 51 wall thickness, 12" & 16" diameter.
- f. Class 50 wall thickness, 20" diameter and larger.
- g. Nominal laying length shall average no less than 18 ft. per pipe.

2. PVC PIPE

- a. Small diameter (4") PVC shall conform to AWWA Standard C-900.
- b. Pipe shall meet or exceed DR-18-150 psi working pressure standards.
- c. Pipe shall be of the push on type with rubber gaskets.
- d. Pipe shall be 20' 0" nominal length.

3. Ductile Iron Mechanical Joint Fittings

- a. All mechanical joint ductile iron fittings 3" through 24" shall be compact ductile iron class 350 in accordance with AWWA/ANSI - C-153/A-21.53-94 and shall be cement lined in accordance with AWWA/ANSI C-104/A-21.40-90 or be fusion bonded meeting or exceeding ANSI/AWWA C116/A21.16-98 standards.
- b. Interior seal coated with a minimum of 4 mils dry film thickness in accordance with AWWA C104-90. Exterior petroleum asphaltic coated with a minimum of 4 mils dry film thickness.
- c. Mechanical joint nuts and bolts shall be Cor-Ten unless otherwise specified.
- d. All fittings shall be supplied with "Megalug accessories" unless otherwise specified.
- e. Pennichuck Water Works prohibits the use of cast iron fittings.
- f. PWW prohibits the use of fittings not manufactured in the U.S.A.

4. Mechanical Joint Resilient Wedge Gate Valves

- a. Acceptable valves are:
 - i. American Flow Control Model 2500 resilient wedge valve
 - ii. Mueller A-2360 resilient wedge gate valve
 - iii. U.S. Pipe Metroseal
 - iv. AVK series 2500 resilient wedge valve
 - v. M&H series 4067 resilient wedge valve
 - vi. Clow F-6100 resilient wedge valve

For 4" through 12" diameter sizes inclusive. The use of any valves other than those mentioned above will require prior written approval from Pennichuck Water Works.

- b. All valve body and bonnet bolts shall be high strength stainless steel.
- c. The valve stem shall be non-rising stem. The operating nut shall be 2" square. *(See page 29 for a list of valve opening position by City/Town)*
- d. Supply with M.J. accessories per the Mechanical Joint section of these specifications.

- e. Valves shall have all internal and external surfaces shop coated with a high performance, two-part, heat-curable, NSF 61 approved, thermosetting epoxy to a minimum of 10 mils dft thickness.

5. Mechanical Joint Butterfly Valves

- a. Acceptable valves as manufactured by:

- i. M & H
- ii. Mueller
- iii. Pratt Groundhog

For 16" through 24" diameter sizes inclusive. The use of any valves other than those mentioned above will require prior written approval from Pennichuck Water Works.

- b. All valve body and bonnet bolts shall be high strength stainless steel.
- c. The valve stem shall be "open-right." and be non-rising. The operating nut shall be 2" square.
- d. Supply with M.J. accessories per the Mechanical Joint section of these specifications.
- e. Valves shall have all internal and external surfaces shop coated with a high performance, two-part, heat-curable, NSF 61 approved, thermosetting epoxy to a minimum of 10 mils dft thickness.

6. Ductile Iron Couplings

- a. Acceptable coupling shall either be solid Mechanical joint style or straight and transition type couplings shall be constructed entirely of ductile iron.
- b. Acceptable products are:
 - i. Romac 501 Coupling
 - ii. Smith Blair 441 Coupling
 - iii. Ford FC-1
- c. M.J. couplings shall be provided with M.J. accessories per the Mechanical Joint section of these specifications.

7. Mechanical Joint Tapping Sleeves

- a. Tapping sleeve shall be a mechanical joint, split sleeve with outlet flange conforming to AWWA C-110 Sect. 10-14 with drilling recessed for tapping valve.
- b. The sleeve must be of ductile iron construction and include a $\frac{3}{4}$ " F.I.P. threaded test plug in the body of the sleeve.
- c. The side rubber gaskets shall be rectangular in cross-section and fit into grooved channels in the casting. These gaskets shall extend the entire length of the sleeve and shall not require cutting or trimming to match M.J. end gaskets.
- d. Sleeves shall be furnished with standard accessories including: glands, gaskets, and Cor-Ten T-bolts and nuts or equivalent. All flange bolts shall be 316 stainless steel.
- e. Interior and exterior to be bituminous coated with a minimum 4 mils dry film thickness.

8. Stainless Steel Tapping Sleeves (Wrap Around Style)

- a. Acceptable products are:
 - i. Romac
 - ii. Ford
- b. Tapping sleeves shall be manufactured of 304 stainless steel. The flange connection to the valve shall be manufactured of ductile iron and shall be welded to the stainless steel neck.
- c. All nuts, bolts and washers shall be of 304 stainless steel.
- d. Provide a $\frac{3}{4}$ " test plug of 304 stainless steel in the body of the sleeve for pressure testing before tapping the pipe.
- e. Stainless steel tapping sleeves may not be used on transite pipe and cast iron and may only be used on DI Pipe where the tap size is $\frac{1}{2}$ or less of the diameter of the pipe being tapped.

9. Tapping Valves

- a. Tapping valves shall meet the specifications for mechanical joint resilient seat wedge valves except one end of the valve shall be equipped with a flange for attaching to the tapping sleeve's flange.
- b. Tapping valves must be capable of accepting a full-size tapping cutter.

10. Valve Boxes

- a. All Valve boxes shall be manufactured in the U.S.A.
- b. Valve boxes shall be cast iron, two piece, sliding type with a top flange and a minimum inside shaft diameter of 5".
- c. The bottom section shall be 36" long, unless otherwise specified on the plans, and provided with belled (*buffalo*) base in accordance with Detail A-9 in the Standard Details.
- d. The top section shall be 26" long and designed to slide over the base section in accordance with Detail A-9 in the Standard Details.
- e. The cover shall be a heavy 2" drop type, non-tilting cast/ductile iron unit that is recessed in the box top to prevent plow breakage. The cover shall be provided with two pick holes for easy removal and have the word "WATER" clearly cast into the cover.
- f. All valve box components shall be coated with a bituminous coating in accordance with AWWA C110-87.
- g. Valve boxes for 2" valves shall be constructed in accordance with Detail A-12 in the Standard Details.

11. Grip Ring Pipe Retainers

- a. Use in conjunction with mechanical joint fittings where specified. Grip ring to be manufactured by Romac Industries Inc.
- b. Grip ring and special M.J. glands shall be manufactured of ductile iron conforming to ASTM A536-80.
- c. Special M.J. glands shall be painted yellow to differentiate them from standard M.J. glands.

12. Megalug Retainers

- a. Use in conjunction with Mechanical joint fittings where specified.
- b. Install in place of standard M.J. gland.
- c. Joint flexibility must be retained after the joint is completed.
- d. Megalugs to be manufactured of ductile iron conforming to ASTM A536-80.
- e. Dimensions of Megalug must allow use with standard M.J. Bell and "T" head bolts.
- f. Megalug must restrain up to 250 psi of working pressure with a 2:1 safety factor.
- g. Twist off nuts shall be used to insure proper actuation of the restraining lugs.

13. Fire Hydrants

- systems
- systems
- a. Acceptable products are as follows:
 - i. Mueller Super Centurian 200 Main Valve opening 41/2" in all PWW
 - ii. U.S. Pipe Metropolitan 250(M-94) Main valve opening 51/4" in all PWW
 - b. All hydrants will be provided for 6' depths of bury.
 - c. All hydrants shall be equipped with working drain holes.
 - d. All hydrants shall be equipped with breakaway flanges.
 - e. All hydrants shall be equipped with a pentagon operating-nut. (See section 5, page 28 for hydrant opening direction.)
 - f. All hydrants shall be painted as follows:
 - i. Primer - Benjamin Moore Rust Inhibitive Yellow
SN 65163 65268
 - ii. Finish - Impervo Sun Yellow, SN 13312 51R20 1055

14. Gravel Aggregate for around Main

- a. Bank run gravel shall be a granular material, well graded from fine to coarse with a maximum size of 6" and shall meet or exceed the NHDOT specifications for Gravel Aggregate, item 304.20 of the NHDOT specification, obtained from approved natural deposits and unprocessed except for the removal of unacceptable material and stones larger than the maximum size permitted. It shall not contain vegetation, masses or roots, or individual roots more than 18" long or more than 1/2" in diameter. It shall be substantially free from loam and other organic matter, clay, and other fine or harmful substances.

15. Sand

- a. Aggregate for sand shall be sand of hard durable particles free from vegetable matter, lumps or balls of clay and other deleterious substances. The gradation shall meet the grading requirements of the following table:

Sieve Designation	Percent by Weight Passing Square Mesh Sieve
3/8 inch	85 - 100
No. 200	0 - 5

16. Common Borrow

- a. Inorganic natural soils and/or rock, not having more than 5% by weight passing the No. 200 sieve.
- b. Maximum stone size 6" and material well graded throughout entire site range.
- c. Free from roots, leaves, and other organic materials.
- d. Free of ice or frost and no aggregations of soil particles frozen.
- e. Moisture content of borrow within plus or minus 4% optimum moisture content at the borrow source.

C. Product Delivery, Storage and Handling-

- 1. All pipe shall be shipped with lifts separated by work separators such that pipe to pipe contact is prevented during the transit and/or storage of the pipe.
- 2. Care shall be taken during the loading, trucking, unloading and handling of all pipe and fittings so as not to damage the materials or surrounding area. Pipe and fittings shall not be dropped directly from the truck to the ground. The Contractor is responsible for any pipe or fittings damaged during delivery, handling or storage. All damaged materials will be removed from the site immediately.
- 3. Pipe may not be strung along the line of work unless approved by a Pennichuck Water Works Engineer or Inspector. Materials must be stored in such a manner that it does not obstruct driveways, sidewalks, etc.

D. Product Installation-

1. Ductile Iron Water Main

- a. **Ductile iron water main shall be bedded and installed in accordance with Detail A-2 in the Standard Details.**
- b. Thoroughly clean the groove and bell socket and insert the gasket, making sure that it faces the proper direction and that it is correctly seated.
- c. After cleaning dirt or foreign material from the plain end, apply lubricant supplied by the pipe manufacturer in accordance with their recommendations. The lubricant is supplied in sterile cans and every effort shall be made to keep it sterile.
- d. Plain end must be beveled; square or sharp edges may damage or dislodge the gasket and cause a leak. The plain end of field cut pipe must be beveled with a heavy file, grinder or pipe saw to remove all sharp edges. Recoat all cut ends with bitumastic when used for push-on joint.
- e. Push the plain end into the bell of the pipe. Keep the pipe straight while pushing. Make deflection after the joint is assembled.
- f. Pipe can be pushed into the bell socket with a long bar, a pipe jack, lever puller or backhoe. The pipe supplier may provide a pipe jack or lever puller on a rental

basis. A timber header should be used between the pipe and jack or backhoe bucket to avoid damage to the pipe.

- g. Foreign material shall be prevented from entering the pipe while it is being placed in the trench. No debris, tools, clothing, or other material (or people) shall be placed in the pipe at any time.
- h. Pipe placement. As each length of pipe is placed in the trench, the joint shall be assembled and the pipe brought to correct line and grade. The pipe shall be placed on wood blocking set on grade about 18" behind the bell prior to backfilling.
- i. Direction of bells. It is common practice to lay pipe with the bells facing the direction in which work is progressing.
- j. Temporary pipe plugs. At times when work is not in progress, the open end of the pipes shall be closed by means of a watertight plug or other means acceptable to Pennichuck Water Works. When practical, the plug shall remain in place until the trench is pumped completely dry. Care must be taken to prevent pipe floatation should the trench fill with water.
- k. Maximum cumulative (horizontal and vertical planes) pipe deflection is listed below:

Pipe Size (DIA)	Deflection Angle (in)	Maximum Allowable Offset (in)*
3 - 12	4	15
16+	3.2	12
20+	2.4	9

* For 18' pipe lengths.

Any deviation in joint deflection in excess of the above stated amount must be approved by Pennichuck Water Works.

- l. All water mains shall be installed with a minimum cover of 5' 0".
- m. Install release valve as detailed on the plans at all high points on the pipeline. If a high point is created by the Contractor at a point other than those designated on the plans, the Contractor shall install a release valve at said high point. **The release valve shall be installed in accordance with Details A-3 and A-4 in the Standard Details.**
- n. A release valve shall be installed at the end of each dead end main. The size of the release valve shall be as designated on the plans or as specified by Pennichuck. **The release valve shall be installed in accordance with Details A-3 and A-4 in the Standard Details. The dead end main shall be installed in accordance with Details A-8 and A-8A in the Standard Details.**
- o. Backfill to be installed in accordance with Detail A-2 in the Standard Details.

2. Small diameter PVC

- a. Small diameter PVC water main shall be bedded and installed in accordance with Detail A-2 in the Standard Details.

- b. The installation of small diameter water main shall be the same as that of ductile iron water main with the following exceptions:
 - i. No deflection may be taken in the joint of the pipe. Any change in direction with this type of pipe shall be accomplished by "arcing" the pipe.
 - ii. The water main shall be installed directly on grade, with the grade being established by shaping 6" of sand bedding to the barrel of the pipe with the bell hole excavated into the sand bedding.
 - iii. All small diameter PVC pipe shall be installed with a 10 gauge tracer wire as manufactured by BMS, Division of Ablestar Corp., Avon, MA or equivalent.
 - iv. Cut pipe shall be beveled prior to installation in a push-on joint, but no bitumastic coating is required on the cut pipe.
 - v. **Direct tapping of Small diameter PVC is not allowed. Tapping saddles shall be used for all taps on small diameter PVC water mains. Tapping saddles shall be as specified in Section 2 - Water Service Materials & Installation.**
- c. All water mains shall be installed with a minimum cover of 5' 0".
- d. Install release valve as detailed on the plans at all high points on the pipeline. If a high point is created by the Contractor at a point other than those designated on the plans, the Contractor shall install a release valve at said high point. **The release valve shall be installed in accordance with detail A-5 in the Standard Details.**
- e. A release valve shall be installed at the end of each dead end main. The size of the release valve shall be as designated on the plans or as specified by Pennichuck. **The release valve shall be installed in accordance with Detail A-5 in the Standard Details. The dead end main shall be installed in accordance with Details A-8 and A-8A in the Standard Details.**
- f. Backfill to be installed in accordance with Detail A-2 in the Standard Details.

3. Ductile Iron Mechanical Joint Fittings

- a. All fittings shall be inspected prior to installation to ensure the gasket seats are free of excess coating. Excess coating, if present, shall be manually removed so as to ensure proper seal of gasket, however, all bare metallic surfaces created as the result of removing the excess coating shall be re-coated with similar material to prohibit corrosion.
- b. Fittings shall be placed, supported and installed in strict accordance with the manufacturers instructions and as directed by Pennichuck Water Works. All bolted joints shall be torqued as follows:
 - i. Mechanical Joint 4"-24" Diameter Pipe - ¾" bolts torqued to 75 to 90 ft.-lbs.

- c. After bolts are inserted and made finger tight, tighten diametrically opposite nuts progressively and uniformly around joint with properly calibrated torque wrench to the values as specified above.
- d. Back up bends, tees, and other fittings in pipelines buried in ground with Class A concrete thrust blocks placed against undisturbed earth unless otherwise specified. A layer of 4 mil poly shall be placed between the concrete and the fitting. **See Standard Details A-6, A-7, A-8, and A-10 for Thrust Block installation details.**
- e. **Unless otherwise specified, all M.J. joints shall be installed with grip rings or Megalug retainers.**
- f. Maximum cumulative (horizontal and vertical planes) deflection per joint shall not exceed the angles listed below:

Joint Size (in.)	Deflection Angle (degrees)
3 - 4	6.4
6	5.6
8 - 12	4.0
16	2.8
20	2.4
24	1.6

Any deviation in joint deflection in excess of the above stated amount must be approved by Pennichuck Water Works.

4. Mechanical Joint Wedge Gates and Butterfly Valves

- a. The valve body shall be set level such that the operator is plumb with the vertical plane which is perpendicular to the ground surface.
- b. The valve joints shall be assembled in accordance with the installation requirements for mechanical joint fittings as defined above. All joint bolts shall be torqued using a calibrated torque wrench in accordance with the manufacturers specifications.
- c. Care shall be taken to ensure that the fusion-bonded epoxy coated exterior is not damaged. Any damaged areas shall be repaired by the contractor in accordance with the manufacturers recommendation at the sole expense of the contractor.
- d. All valves shall be restrained on both sides by means of threaded rods to the nearest fitting if length is less than 10'. If length is greater than 10', use grip ring retainer or Megalug retainer glands on both sides of the valve. The rods used shall be stainless steel. **The size and location of the rods shall be installed in accordance with Detail A-6 in the Standard Details.**
- e. All valves shall be installed complete with valve box and cover. **Install valve box and cover in accordance with Detail A-9 in the Standard Details.**

5. Ductile Iron Couplings

- a. Clean pipe ends for distance of 12" each side.
- b. Use soapy water or non-toxic gasket lubricant on pipe.

- c. Slip follower and gasket over each pipe to distance of 6 inches from end, place middle ring on pipe end until centered over joint. Use reference marks to determine exact center location.
- d. Insert other pipe end into middle ring and bring to proper position in relation to pipe laid.
- e. Press gaskets and followers into middle ring flares.
- f. After bolts are inserted and nuts made finger-tight, tighten diametrically opposite nuts by use of torque wrench to set torque between 65 and 75 ft.-lb.

6. Mechanical Joint, Stainless Steel Tapping Sleeves and Valve

- a. Install in strict accordance with the manufacturers instructions. Pressure test sleeve and valve with air at a minimum of 50 psi prior to beginning tap. While the sleeve is under pressure from the air test liberally spray the tapping sleeve and valve with a soapy water solution. Make up all body bolts to torques specified by the manufacturer.
- b. Provide thrust blocking at the back of the tapping sleeve in accordance with the plans. The size and location of the thrust block shall be determined based on the application.
- c. Install the tapping sleeve such that the flanged face of the sleeve is plumb with the vertical plane.
- d. Install the tapping valve in accordance with the manufactures specifications. The mechanical joint outlet of the valve shall be made up in accordance with the specifications regarding mechanical joints. **The sleeve and valve shall be installed in accordance with Detail A-21 in the Standard Details.**
- e. The coupon from the valve tap shall be supplied to Pennichuck Water Works after the tap.

7. Valve Boxes and Covers

- a. Valve boxes shall be installed concentric to the operating nut and plumb with the vertical plane. The belled base section shall be placed on blocking in such a way that no additional loading is transferred to the valve.
- b. Longer valve box bottoms and/or tops will be specified as required for water mains at depths that exceed the limitations of the above specified valve box.
- c. Valve boxes located in traveled ways shall be left flush with the pavement or gravel shoulder unless otherwise specified. Valve boxes located in other non-paved areas shall be left flush with finish grade unless otherwise specified.
- d. **Install valve box and cover in accordance with Detail A-9 in the Standard Details.**

8. Grip Ring Pipe Retainer

- a. Clean pipe to remove as much dirt and corrosion as possible from the surface.
- b. Slide the gland, Grip Ring, and M.J. gasket on to pipe end. Make sure the tapered side of the Grip Ring faces the gland.
- c. Insert the pipe end into the M.J. fitting.
- d. Slide the gasket into the M.J. bell pocket as far as possible. The gland (and Grip Ring) may be used to tap the gasket into place if required.
- e. Slide the Grip Ring up the pipe until its face is against the M.J. gasket.
- f. Slide the gland up the pipe until it engages the Grip Ring.
- g. Install T-bolts in the M.J. fitting and gland. Tighten hand tight.
- h. Using a torque wrench, tighten the nuts to 75-90 ft-lb. Care must be taken to assure that the flanges of the gland and M.J. fitting remain parallel. This can be done by alternating side-to-side while tightening. Wait 10 minutes and re-torque.

9. Megalug Retainers

- a. Follow execution specifications for mechanical joint fittings.
- b. Once gland is made up in accordance with step "a", proceed to tighten. Twist off lugs on restraining lugs in a diametric pattern. Twist lugs until each one is in contact with the pipe before completing tightening. Tighten heads in a diametric pattern until all heads have twisted off the nut.

10. Fire Hydrants

- a. **Install Fire Hydrants in accordance with Detail A-10 in the Standard Details.**
- b. All fire hydrants are to be installed on a 6" water main branch. If the Hydrant is within 10' of the hydrant valve rod the hydrant to the valve with two 3/4" stainless steel rods. If the Hydrant is more than 10' from the hydrant valve then install the hydrant with a Megalug or a grip ring retainer.
- c. All fire hydrants shall be installed with a hydrant valve attached to an anchor tee off the water main.
- d. Hydrant must be installed plumb with the vertical.
- e. All hydrants must be installed with breakaway coupling located between 6" and 12" of the finished grade surrounding the hydrant.
- f. All hydrant bases to be installed in 2' by 2' by 2' cube of 1-1/2" crushed stone to allow for free draining of the hydrant. A layer of 6 mil poly or geotech fabric shall be laid on the top surface of the stone before completing the backfilling of the hydrant.
- g. Backfill around the hydrant from the ground surface to 1' above the top of the hydrant shoe shall be with select common borrow.

11. Gravel Aggregate

- a. The bank run gravel shall be spread in layers of uniform thickness not exceeding 12" before compaction and moistened or allowed to dry as directed. Then it shall be thoroughly compacted by means of suitable power driven tampers or other power driven equipment.

12. Sand

- a. The sand shall be spread in layers of uniform thickness not exceeding 8" before compaction and moistened or left in natural state as directed. Then it shall be thoroughly compacted by means of suitable power driven tampers or other power driven compaction equipment.

13. Common Borrow

- a. Spread selected borrow in layers of uniform thickness not exceeding 12" before compaction and moistened or allowed to dry as directed. Compact thoroughly by means of suitable power driven tampers or other power driven equipment.

E. Product Testing-

1. Pressure and Leakage Testing

- a. All water mains and fire services shall be subjected to pressure and leakage testing in accordance with the latest version of AWWA standard C-600. Allowable leakage for each section of water main tested shall be compared against the chart attached at the back this specification section in order to determine the acceptability of the test.
- b. The Contractor shall hire a testing company who is acceptable to Pennichuck Water Works to complete the required pressure and leakage test. The tester shall submit certified leakage testing results in writing to Pennichuck Water Works for each section of main tested. The tester shall be approved by Pennichuck Water Works prior to initiating the pressure test. Pennichuck Water Works shall be notified a minimum of 24 hours in advance prior to any pressure and leakage testing. **Pressure and leakage testing must be completed in the presence of a Pennichuck Water Works inspector unless otherwise arranged.**
- c. The pipe to be tested shall be filled with water from Pennichuck Water Works distribution system and all air shall be expelled from the water main through the use of hydrants, air releases, services and blowoffs located at the high points. If temporary air releases are installed by the contractor they shall be removed and plugged with a brass plug upon the successful completion of the pressure test.
- d. If a section of main fails pressure and leakage testing, the Contractor shall locate, uncover, and repair or replace the defective section of pipe, fitting, valve or joint at no additional expense to Pennichuck Water Works. The Contractor's tester shall then conduct additional pressure and leakage testing until satisfactory test results are achieved.

2. Flushing and Disinfection

- a. The Contractor shall conduct flushing operations using methods and procedures conforming to AWWA C651. The Contractor shall flush the water main under the direction of Pennichuck Water Works' inspector. Flushing may be required during the late evening hours if it is determined that flushing will result in off colored water to Pennichuck Water Works existing customers.
- b. The Contractor shall conduct disinfection operations using methods and procedures conforming to AWWA C651. The residual at the end of the disinfection procedure shall exceed 25 ppm. The chlorinated water shall set in the main for 24 hours. At the end of the 24 hour period, a chlorine residual shall be taken from the main and it must exceed 10 ppm or the main shall be rechlorinated. The chlorinated water shall be flushed from the main upon completion of the chlorination process and a bacteriological sample shall be taken from the main once the chlorine residual of the water being discharged from the main has dropped below 1.5 ppm.
- c. Samples from the disinfected main will be taken by Pennichuck Water Works or an approved outside vendor and will be run through Pennichuck Water Works lab. If the sample does not pass then the Contractor shall perform additional flushing and disinfection operations until such time as a good bacteria test is achieved. Additional flushing and disinfection operations shall be run at the Contractor's expense. Bacteriological tests will be run by Pennichuck Water Works at a cost of \$15.00 per test to the Contractor.
- d. The Contractor shall supply suitable sampling taps at the end of the disinfected water main for the purpose of bacteriological testing. The Contractor shall remove these taps and plug the water main with a brass corporation plug upon successful completion of the main disinfection.
- e. All costs associated with flushing and disinfecting the water main shall be borne by the Contractor.

Allowable Leakage per 1000 ft. of Pipeline*-gph

Average Test Pressure	NOMINAL PIPE DIAMETER - INCHES															
	(PSI)															
	3	4	6	8	10	12	14	16	18	20	24	30	36	42	48	54
450	.48	.64	.95	1.27	1.59	1.91	2.23	2.55	2.87	3.18	3.82	4.78	5.73	6.69	7.64	8.60
400	.45	.60	.90	1.20	1.50	1.80	2.10	2.40	2.70	3.00	3.60	4.50	5.41	6.31	7.21	8.11
350	.42	.56	.84	1.12	1.40	1.69	1.97	2.25	2.53	2.81	3.37	4.21	5.06	5.90	6.74	7.58
300	.39	.52	.78	1.04	1.30	1.56	1.82	2.08	2.34	2.60	3.12	3.90	4.68	5.46	6.24	7.02
275	.37	.50	.75	1.00	1.24	1.49	1.74	1.99	2.24	2.49	2.99	3.73	4.48	5.23	5.98	6.72
250	.36	.47	.71	.95	1.19	1.42	1.66	1.90	2.14	2.37	2.85	3.56	4.27	4.99	5.70	6.41
225	.34	.45	.68	.90	1.13	1.35	1.58	1.80	2.03	2.25	2.70	3.38	4.05	4.73	5.41	6.03
200	.32	.43	.64	.85	1.06	1.28	1.48	1.70	1.91	2.12	2.55	3.19	3.82	4.46	5.09	5.73
175	.30	.40	.59	.80	.99	1.19	1.39	1.59	1.79	1.98	2.38	2.98	3.58	4.17	4.77	5.36
150	.28	.37	.55	.74	.92	1.10	1.29	1.47	1.66	1.84	2.21	2.76	3.31	3.86	4.41	4.97
125	.25	.34	.50	.67	.84	1.01	1.18	1.34	1.51	1.68	2.01	2.52	3.02	3.53	4.03	4.53
100	.23	.30	.45	.60	.75	.90	1.05	1.20	1.35	1.50	1.80	2.25	2.70	3.15	3.60	4.05

End Section 1

SECTION 2

Water Service Materials and Installation

- A. General
- B. Product Specifications
- C. Product Installation
- D. Product Testing

A. General -

1. Materials of Construction
 - a. Main to Stop - Materials for this portion of the service shall be 1" or greater Type K copper as determined by PWW.
 - b. Stop to House - All water services shall be of either 1" or greater Type K copper, 1 1/4" or greater 200 psi Copper tube size polyethylene meeting or exceeding the product specifications below. Size to be determined by PWW.
2. Materials sizing - All water services shall be sized by the Engineering Services Department of Pennichuck Water Works, Inc.
3. Utility Separation - All water services shall be separated from other utilities and septic fields in accordance with the New Hampshire Code of Administrative Rules Env-WS 1000 and Env-Ws 372 section 9. Furthermore, the separation shall be in accordance with Detail A-11 in the Standard Details.
4. In the absence of a recognized and/or approved industry standard for such hardware. Pennichuck Water Works field inspectors will be the final judge as to the acceptability of miscellaneous hardware used in the installation of water services.

B. Product Specifications -

1. Small diameter PVC
 - a. Small diameter (1 1/4", 1-1/2" and 2") PE shall conform to for SD, 200 psi PE pressure class pipe.
 - b. Pipe shall be manufactured with a PVC resin conforming to ASTM D1784.
 - c. Pipe shall be of the push-on type with rubber gaskets in conformance with ASTM D1869.
 - d. Pipe shall be 20' 0" nominal length.

2. Copper Tubing

- a. All copper tubing shall be type "K" and shall conform to the latest revision of AWWA C-800.
- b. Copper tubing shall be of the soft, coiled type and shall conform with ASTM B-88.

3. Polyethylene Tubing

- a. All polyethylene tubing shall conform to the latest revision of ASTM-D2737.
- b. Polyethylene tubing shall be "copper tube size - CTS" and shall be rated for 200 psi at 73.4 F.

4. Stainless Steel Pipe Inserts

- a. Inserts shall be manufactured for use with CTS polyethylene and shall be manufactured of 304 stainless steel.

5. Corporations

- a. Acceptable Corporations are as manufactured by:
 - i. Mueller 300 corporation with 110 compression couplings
 - ii. Ford w/ "T" Compression nut
 - iii. Cambridge brass series 202 compression coupling
- b. Corporations shall have a Teflon coated ball stop.
- c. Corporations shall have a CC inlet thread and a compression outlet.
- d. **Plug style corporations are not acceptable.**

6. Curb Valves

- a. Acceptable Curb valves are as manufactured by:
 - i. Mueller 300 Curb valve with 110 compression couplings
 - ii. Ford w/ "T" Compression nut
 - iii. Cambridge brass series 301 compression coupling
- b. Curb stops shall have a Teflon coated quarter turn ball stop.
- c. No drain holes are allowed on curb stops.
- d. **Plug style curb stops are not acceptable.**

7. Tapping Saddles

- a. Acceptable tapping saddles are:
 - i. Mueller DE2s epoxy coated, double stainless steel strap
 - ii. Ford FS202 epoxy coated, double stainless steel strap

- iii. Romac Style 202N nylon coated, double stainless steel strap
- iv. Smith Blair 317 nylon coated, double stainless steel strap

8. Service Boxes

- a. Service box shall be of an arch style pattern with a 5' to 6' slide type adjustable riser, unless otherwise specified on the plans. Minimum I.D. on the service box shall be 1.0'.
- b. Service box shall be supplied with a plug style cover. The cover shall be cast or ductile iron and shall screw onto the service box riser. The cover shall have "WATER" integrally cast into the cover.
- c. Service box shall be provided with a 1/2" dia. by 30" long 304 stainless steel service box rod. A brass or stainless steel cotter pin shall be provided to secure the service box rod to the curb stop.
- d. All service box components shall be coated with a bituminous coating in accordance with AWWA C110-87.
- e. **Service Boxes for 2" curb valves shall be constructed and installed in accordance with Detail A-12 in the Standard Details.**
- f. **Service boxes shall be manufactured in the U.S.A.**

9. Brass Goods

- a. All brass goods shall be manufactured from 85-5-5-5 ASTM B62 brass.
- b. Brass goods shall be supplied with iron pipe threads or compression couplings. Acceptable compression brass goods are as manufactured by Mueller, McDonald and Ford (T style only). All other brass goods must be pre-approved.
- c. All brass goods shall be rated for a minimum working pressure of 150 psig.

C. Product Installation -

1. Small Diameter PVC

- a. **Small diameter PVC water services shall be bedded and installed in accordance with Detail A-2 in the Standard Details.**
- b. The installation of small diameter water services shall be the same as that of ductile iron water main with the following exceptions:
 - i. No deflection may be taken in the joint of the pipe. Any change in direction with this type of pipe shall be accomplished by "arcing" the pipe.
 - ii. The water service shall be installed directly on grade, with the grade being established by shaping 6" of sand bedding to the barrel of the pipe with the bell hole excavated into the sand bedding.

- iii. All small diameter PVC pipe shall be installed with a 10 gauge tracer wire as manufactured by BMS, Division of Ablestar Corp., Avon, MA or equivalent.
- iv. Cut pipe shall be beveled prior to installation in a push on joint.

2. Copper Tubing

- a. **Copper tubing water services shall be bedded and installed in accordance with Detail A-2 in the Standard Details.**
- b. Copper tubing shall be installed with brass compression fittings that meet the specifications for these fittings as detailed in the Service pipe section of these specifications. **The use of soldered fittings underground prior to Pennichuck Water Works meter is prohibited.**
- c. No crimping tools may be used on copper tubing.
- d. If copper becomes kinked or egg shaped in its installation, the use of that section of copper containing the kink or egg shape will be disallowed. Final decision as to the acceptability of a "kink" or a section of "egg shaped" pipe shall be made by Pennichuck Water Works.

3. Polyethylene Tubing

- a. **Polyethylene tubing water services shall be bedded and installed in accordance with Detail A-2 in the Standard Details.**
- b. All polyethylene tubing shall be installed with a 10 gauge tracer wire as manufactured by BMS, Division of Ablestar Corp., Avon, MA or equivalent.
- c. Polyethylene tubing shall be joined with stainless steel insert stiffeners and brass compression couplings that meet the specifications for these fittings as detailed in the Service pipe section of these specifications. **The use of plastic friction inserts with stainless steel clamps is prohibited.**

4. Stainless steel Inserts/Compression Couplings

- a. Stainless steel inserts shall be sized for the pipe in which they are used. In no case shall an insert be inserted into a line by overlapping the steel ends of the insert.
- b. The insert shall be installed such that 1/2 of the insert is in each section of the pipe being connected.
- c. The compression coupling shall be centered over the connection point of the pipes being joined. The coupling shall be tightened in accordance with the manufacturers recommendations. Do not overtighten the coupling.

5. Corporations

- a. Corporations shall be installed on all water services at the service tap into the water main.
- b. Corporations may be direct tapped into ductile iron water main as follows:

<u>Tap Size</u>	<u>Main Sizes which may be direct tapped</u>
1"	6" and up
2"	16" and up

- c. Corporations which can not be direct tapped must be tapped through a tapping saddle or a brass compression tee with a threaded branch.

6. Curb Valves

- a. 1" valves shall be installed with a service box.
- b. 2" curb valves shall be installed with a gate box top and a five foot section of 4" schedule 40 PVC pipe in accordance with Detail A-12 in the Standard Details.
- c. Curb valves shall be installed as close as practicable to 1' of the edge of the municipal ROW within the municipal ROW.
- d. Curb valves shall be installed with the operator plumb and vertical.
- e. Curb valves shall be set on a 2"x6"x12" piece of pressure treated blocking or a flat rock of similar dimensions.
- f. If the water main is constructed of PVC or Transite, install Mueller 300 insulated curb stop in accordance with Detail A-19 in the Standard Details.

7. Service Boxes

- a. Service box bases shall be centered over the curb stop ball valve and shall be plumb and vertical in all directions. The box bottom shall be placed on the same blocking or flat surface as the curb stop.
- b. Service box tops shall be magnetized and painted florescent blue. The box top shall be flush with the existing finished grade.
- c. Service box rod shall be stainless steel, minimum of 1/2" diameter, and a minimum length of 36".
- d. Service boxes installed in sidewalks, drives or pavement shall be installed inside a gate box top in accordance with Detail A-13 in the Standard Details.
- e. Maintain a minimum of a 4' clearance in all directions from curb box to other utilities, structures, appurtenances or obstructions.

D. Product Testing -

1. Pressure Testing

- a. All water services must be visually inspected by a Pennichuck inspector Prior to backfilling. The corporation, curb valve and any couplings must be left exposed for the test. The test shall involve pressuring the service and visually inspecting each joint along the service to insure that there is no leakage.

End Section 2

SECTION 3

Water Meters

- A. General
- B. Product Installation

A. General -

1. Pennichuck Water Works supplies and installs 5/8" to 1" meters at its expense. The cost of supplying and installing any fittings, valves or meter horns required for the meter installation will be at the owners expense.
2. Pennichuck Water Works supplies all domestic meters 1 1/2" or larger at its expense. The owner shall pay for the expense of installation in accordance with the meter installation as shown in Detail A-25 in the Standard Details.
3. The owner shall supply and install all meters utilized for combined fire and domestic service at their cost in accordance with the meter installation as shown in Detail A-27 in the Standard Details. The cost of supplying and installing any fittings, valves or meter horns required for the meter installation will be at the owners expense.

B. Product Installation -

1. The meter can only be installed in a warm (continually above 45° F), clean, dry and accessible location. The location provided for the meter shall be in accordance with Detail A-14 in the Standard Details.
2. Where meters are installed in buildings constructed on a slab on grade the service entrance shall be in accordance with Detail A -15 in the Standard Details.
3. Remote meters are to be installed with each meter. The remote reader cable will be installed by Pennichuck Water Works during the setting of the meter. The remote meter must be installed on the outside of the building near the electric meter or at a location pre-approved by Pennichuck Water Works.
If the remote meter wire must be run behind sheetrock or within any finished wall then it is the owners responsibility to have their contractor install remote meter wire provided by Pennichuck Water Works.
Pennichuck Water Works can not set the meter until the remote wire has been installed.
4. The remote meter will be installed by Pennichuck Water Works at a height of 42" above the finished grade. No plants or bushes shall be planted in the area of the remote reader, which will inhibit access to the remote reader.

End Section 3

SECTION 4

Terms of Warranty on Installation

A. General -

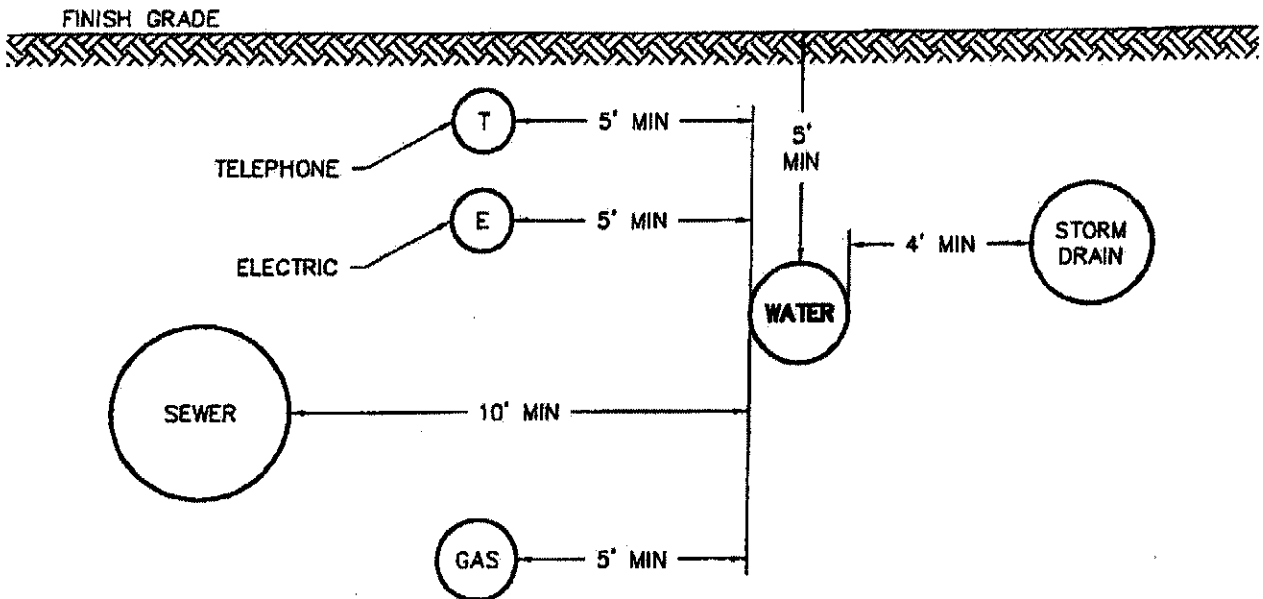
1. The Owner will be held responsible for the repair of any service or main leaks up to one (1) year after the successful pressure testing and disinfection has been accepted by the Pennichuck Water Works Engineering Services Department.
2. The Owner will have the opportunity to make repairs at his cost under the direction of Pennichuck Water Works field inspector, or any leaks will be repaired by Pennichuck Water Works and the cost of such repairs will be at the owner's expense.
3. The Owner will be responsible for the repair or correction of trench settlement. Pennichuck Water Works retains the right to repair the settlement and the cost of repairs will be charged to the Owner.

End Section 4

SECTION 5

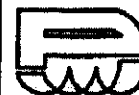
Gate Valve & Hydrant Opening Direction by City/Town

Amherst Village District	Open right
Amherst Bon Terrain	Open Left
Amherst Souhegan	Open Left
Atkinson	Open Left
Bedford	Open Right
Derry	Call PWW
Hooksett	Open Left
Litchfield	Open Left
Londonderry	Open Left
Londonderry (Springwood Hills)	Open Right
Milford	Open Right
Nashua	Open Right
Pelham	Open Left
Pittsfield	Open Left
Plaistow	
**Twin Ridge	Open Right
**Rolling Hills	Open Left
**Sweet Hill	Open Right
Raymond	Open Left
Salem (Autumn Woods)	Open Right
Windham	Open Left

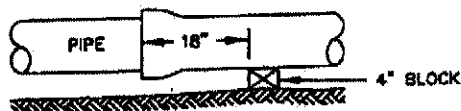
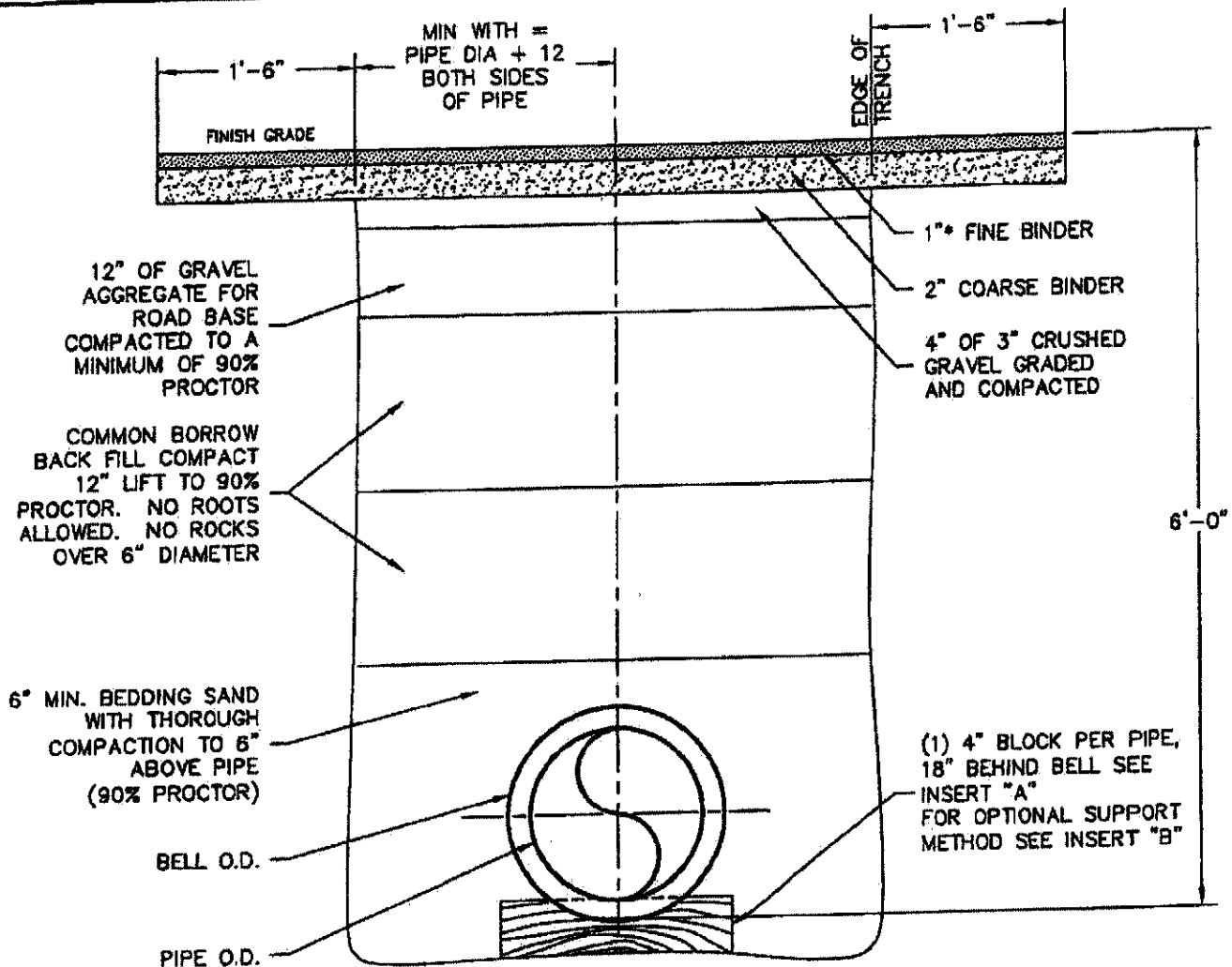


NOTES:

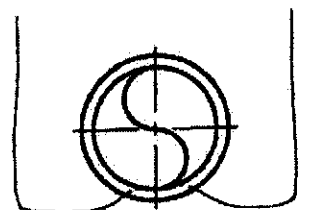
1. ALL MATERIALS AND INSTALLATION PROCEDURES WILL CONFORM TO P.W.W. TECHNICAL SPECIFICATIONS.
2. ALL WATER MAIN SHOULD HAVE A MINIMUM DEPTH OF 5' FROM TOP OF PIPE TO FINISH GRADE.
3. SEE DETAIL A-2 FOR TRENCH DETAIL.
4. SEE DETAIL A-11 FOR OUTSIDE SERVICE ENTRANCE DETAIL.



DETAIL A-1
TYPICAL UTILITY SEPARATION
(MAIN) DETAIL
 PENNICHUCK WATER WORKS, INC.
 REV: 5-01 SCALE: NTS



INSERT "A"

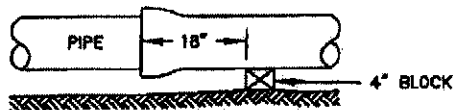
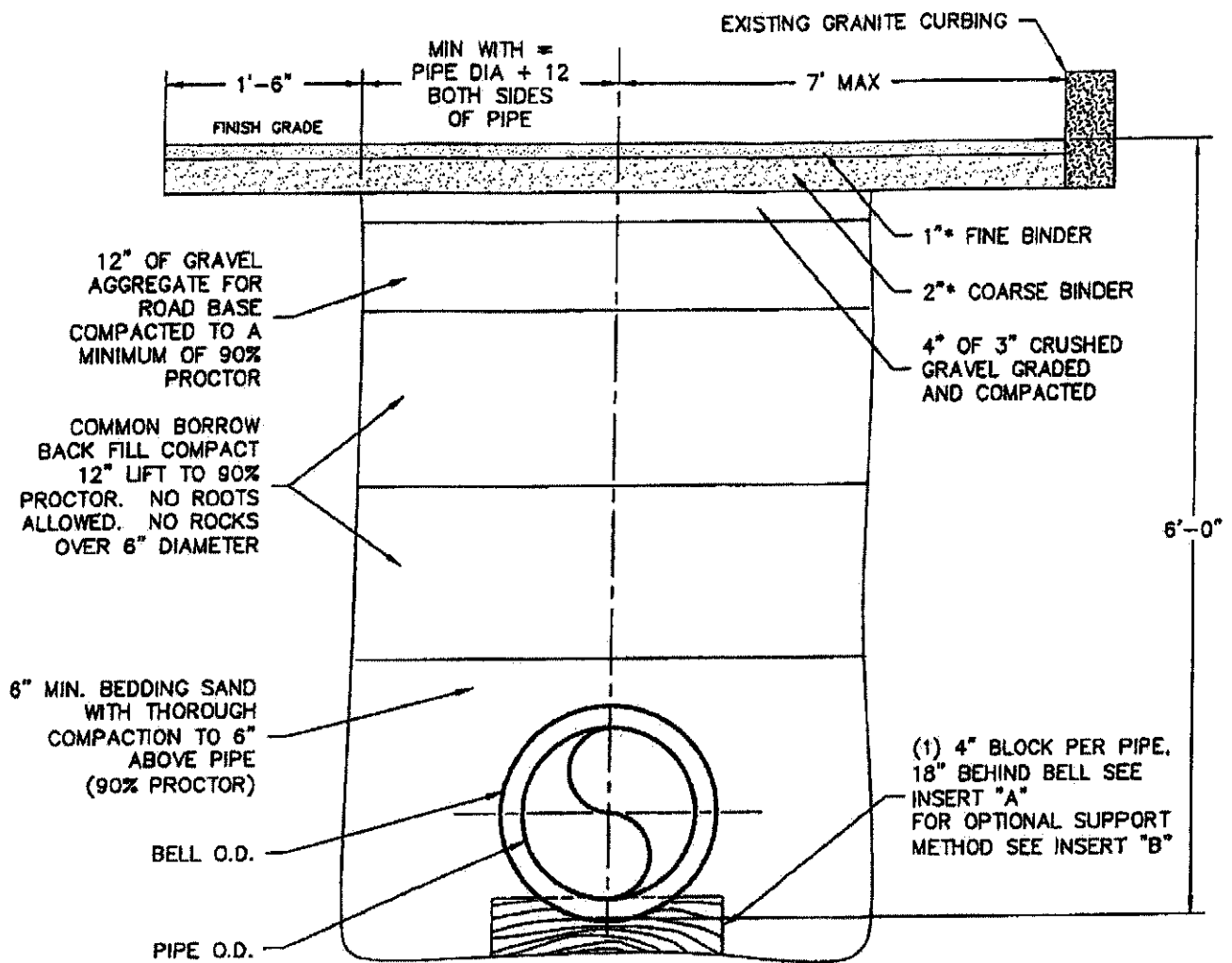


INSERT "B" OPTIONAL ONLY WHEN
SOIL CONDITIONS ARE
EQUAL TO 8" MIN.
BEDDING SAND WITH
THOROUGH COMPACTION

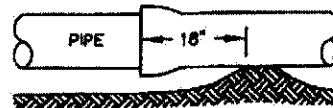
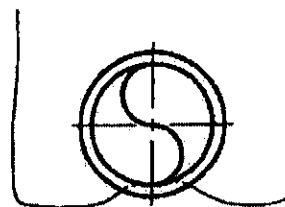
* QUANTITIES OF PAVEMENT CHANGE
TO 4" OF COARSE BINDER PLACED IN
2 LIFTS AND 2" OF FINE BINDER FOR
ALL TYPE 1 TRENCHES LOCATED ON
BROAD AND AMHERST STREETS.



DETAIL A-2A
TYPICAL TRENCH TYPE 1 DETAIL
PENNICHUCK WATER WORKS, INC.
REV: 2-01 SCALE: NTS



INSERT "A"



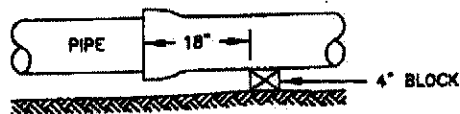
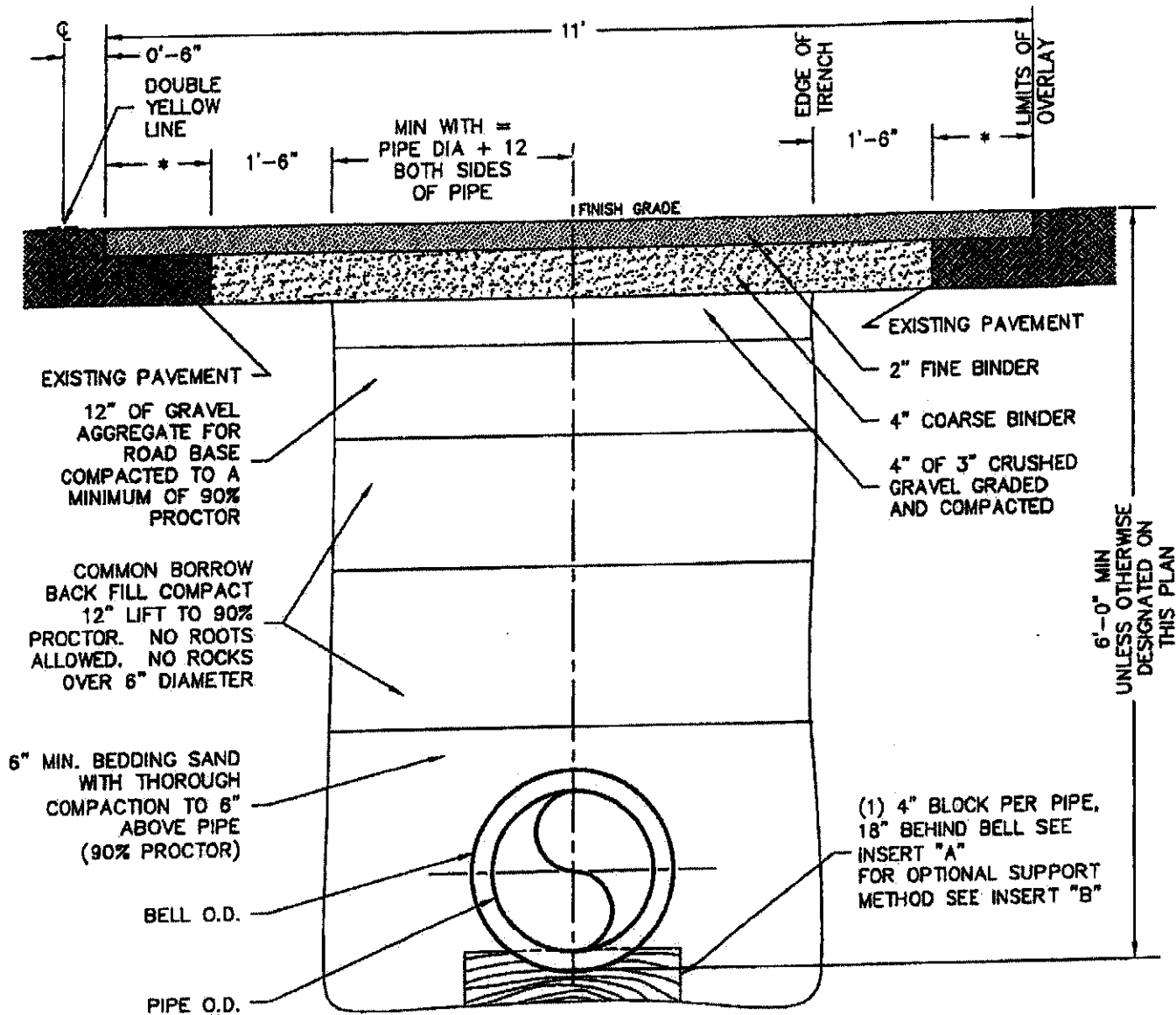
INSERT "B"

OPTIONAL ONLY WHEN
SOIL CONDITIONS ARE
EQUAL TO 6" MIN.
BEDDING SAND WITH
THOROUGH COMPACTION

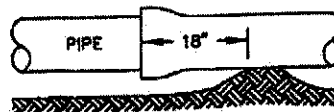
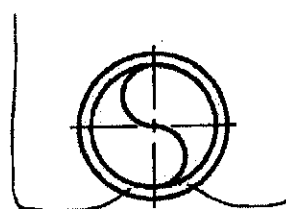
* QUANTITIES OF PAVEMENT CHANGE
TO 4" OF COARSE BINDER PLACED IN
2 LIFTS AND 2" OF FINE BINDER FOR
ALL TYPE 1 TRENCHES LOCATED ON
BROAD AND AMHERST STREETS.



DETAIL A-2B
TYPICAL TRENCH TYPE 2 DETAIL
PENNICHUCK WATER WORKS, INC.
REV: 2-01 SCALE: NTS



INSERT "A"



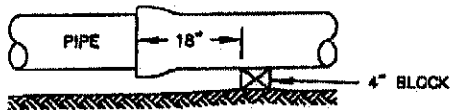
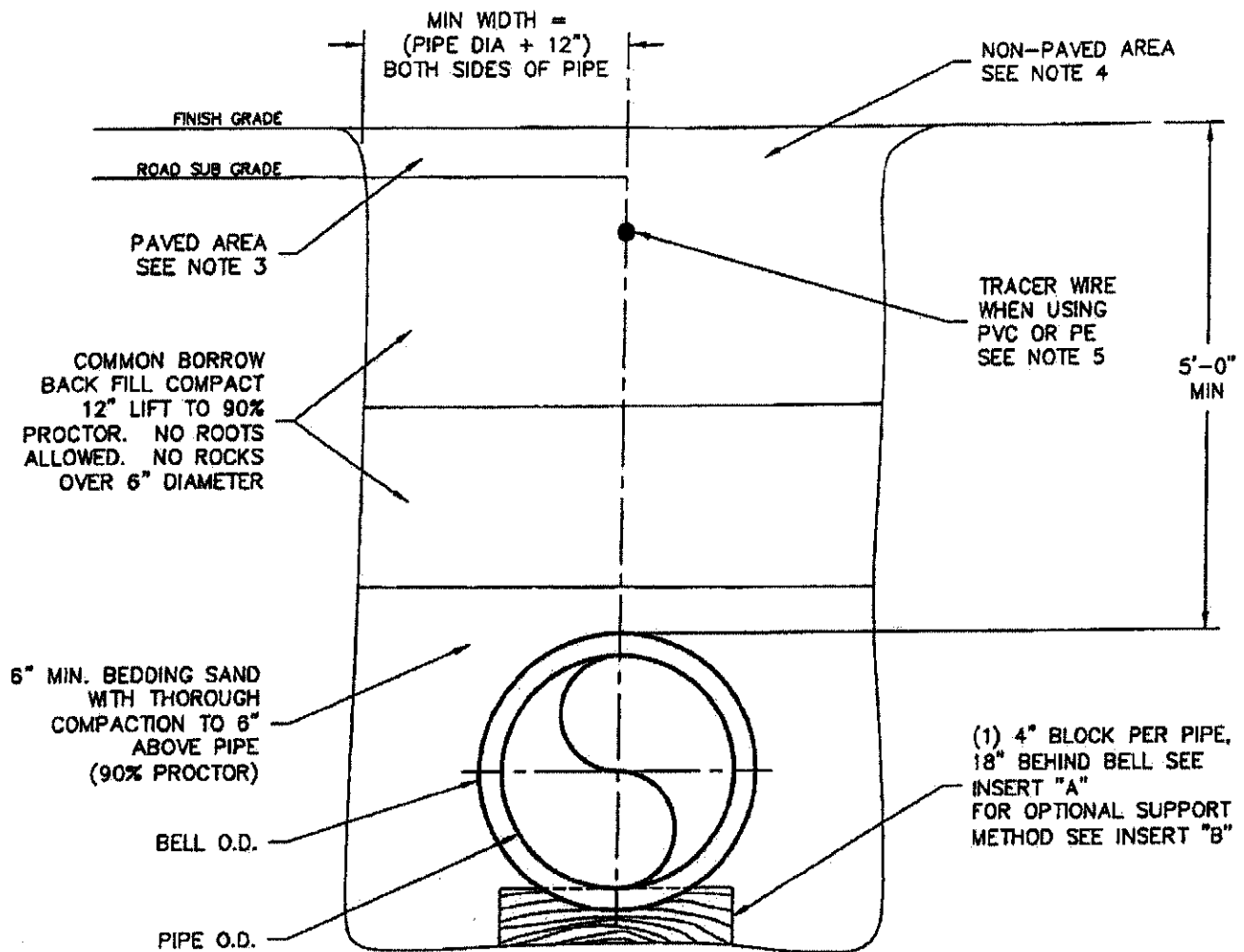
INSERT "B"

OPTIONAL ONLY WHEN SOIL CONDITIONS ARE EQUAL TO 6" MIN. BEDDING SAND WITH THOROUGH COMPACTION.

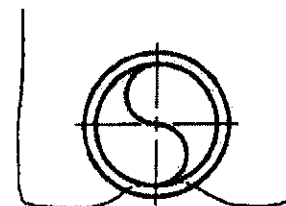
* REMOVE 2" OF EXISTING PAVEMENT IN THESE AREAS BY GRINDING. OVERLAY WIDTH SHOWN.



DETAIL A-2C
TYPICAL TRENCH TYPE 3 DETAIL
PENNICHUCK WATER WORKS, INC.
REV: 2-01 SCALE: NTS



INSERT "A"



INSERT "B"

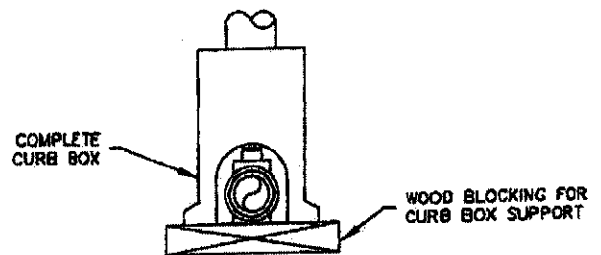
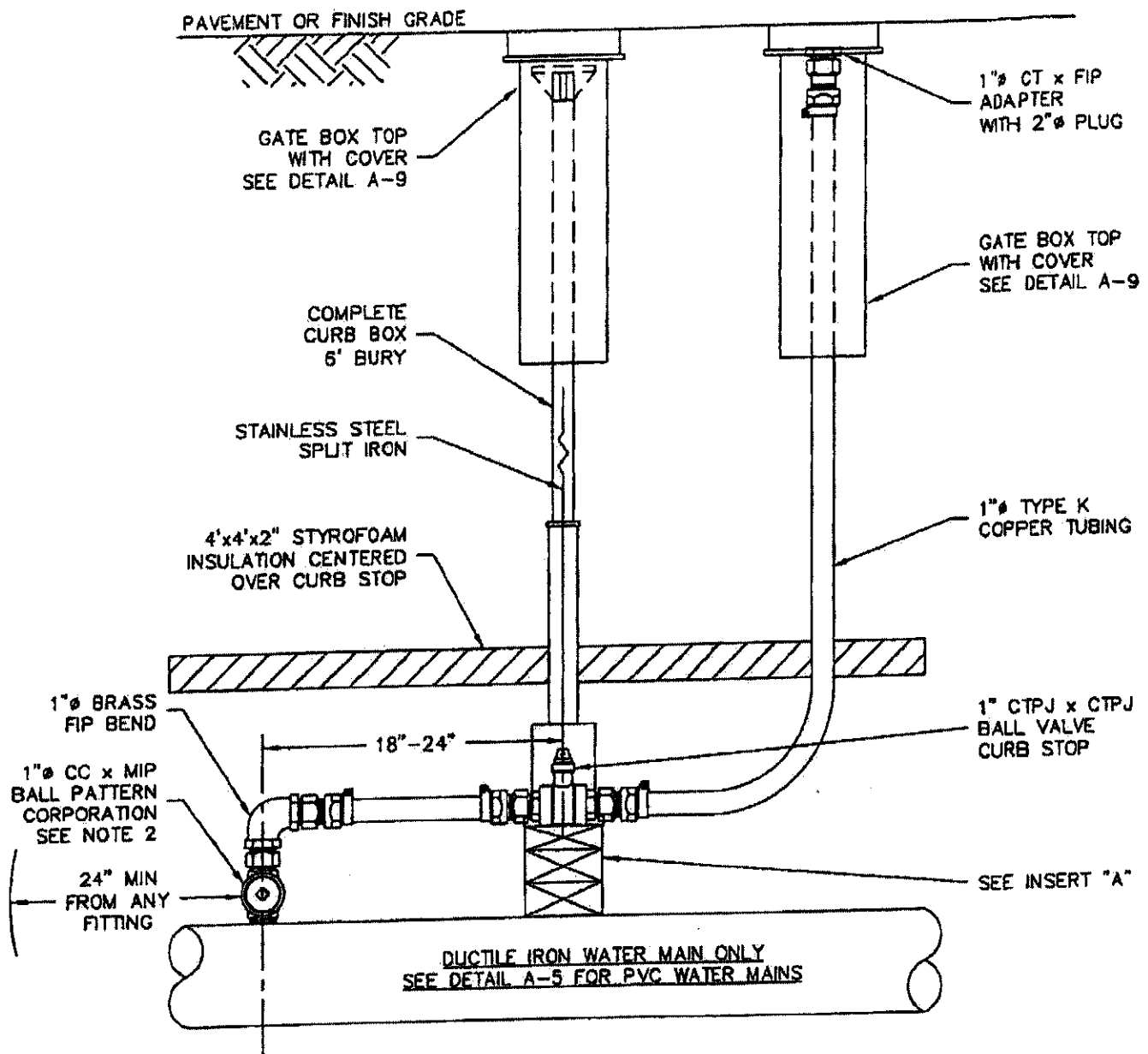
OPTIONAL ONLY WHEN
SOIL CONDITIONS ARE
EQUAL TO 8" MIN.
BEDDING SAND WITH
THOROUGH COMPACTION

NOTES:

1. ALL MATERIALS AND INSTALLATION PROCEDURES WILL CONFORM TO P.W.W. TECHNICAL SPECIFICATIONS.
2. ALL PIPE SHOULD HAVE A MINIMUM DEPTH OF 5' FROM TOP OF PIPE TO FINISH GRADE.
3. REQUIREMENTS FOR SUBBASE AND BASE MATERIAL TYPE ARE TO BE IN ACCORDANCE WITH LOCAL AUTHORITY HAVING LOCAL JURISDICTION IN PAVED AREAS.
4. REQUIREMENTS FOR GRAVEL, LOAM AND/OR SEED ARE TO BE IN ACCORDANCE WITH LOCAL AUTHORITY HAVING LOCAL JURISDICTION IN NON-PAVED AREAS.
5. 10 GAUGE TRACER WIRE AS MANUFACTURED BY BMS, DIVISION OF ALBESTAR CORP., AVON, MA OR EQUIVALENT.

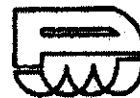


DETAIL A-2
TYPICAL TRENCH DETAIL
PENNICHUCK WATER WORKS, INC.
REV: 5-01 SCALE: NTS

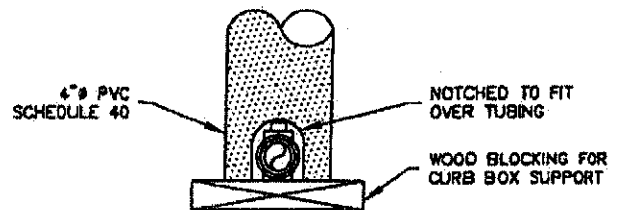
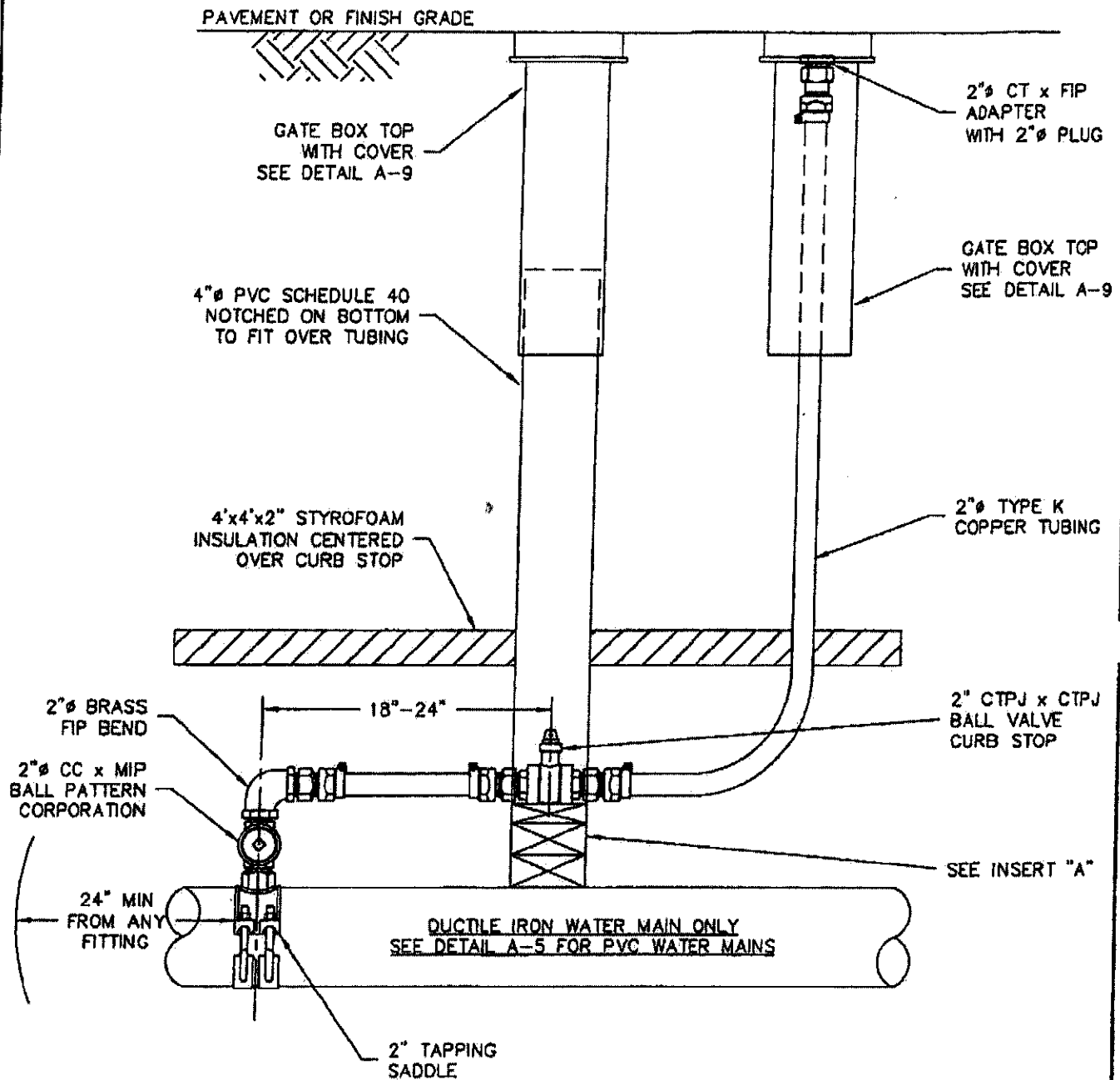


NOTES:

1. ALL MATERIALS AND INSTALLATION PROCEDURES WILL CONFORM TO P.W.W. TECHNICAL SPECIFICATIONS.
2. WATER MAIN MAY BE DIRECT TAPPED WHEN IT IS 6" OR LARGER DUCTILE IRON.
3. SEE DETAIL A-5 FOR INSTALLATION ON PVC WATER MAINS.



DETAIL A-3
**TYPICAL 1" RELEASE VALVE
 INSTALLATION ON DUCTILE IRON**
 PENNICHUCK WATER WORKS, INC.
 REV: 5-01 SCALE: NTS



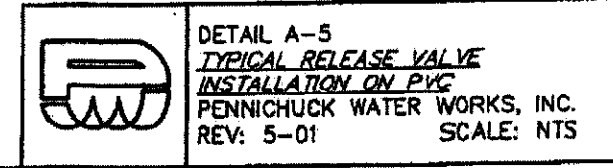
INSERT "A"

NOTES:


1. ALL MATERIALS AND INSTALLATION PROCEDURES WILL CONFORM TO P.W.W. TECHNICAL SPECIFICATIONS.
2. WATER MAIN MAY BE DIRECT TAPPED WHEN IT IS 16" OR LARGER DUCTILE IRON.
3. SEE DETAIL A-5 FOR INSTALLATION ON PVC WATER MAINS.



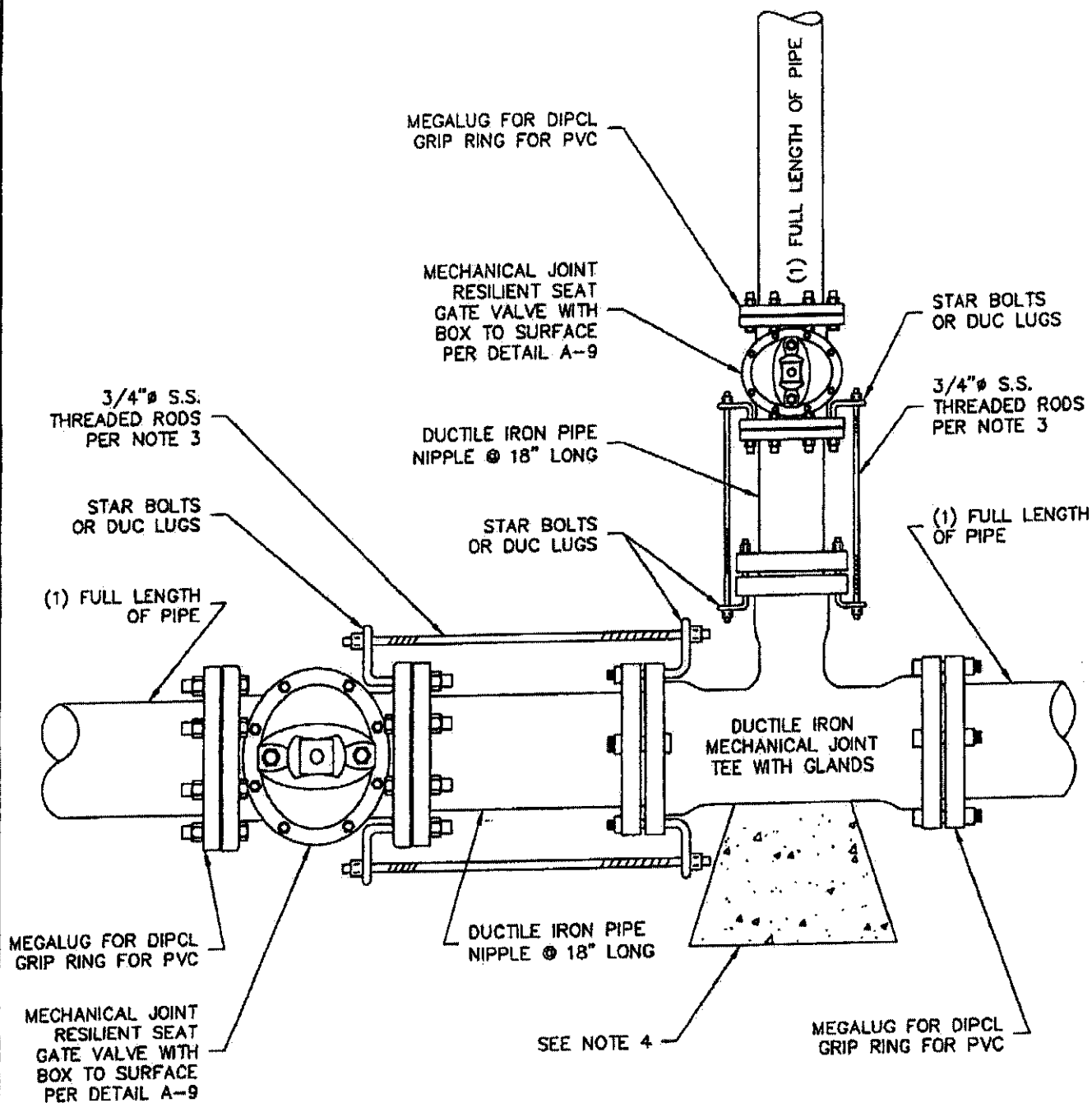
DETAIL A-4
**TYPICAL 2" RELEASE VALVE
 INSTALLATION ON DUCTILE IRON**
 PENNICHUCK WATER WORKS, INC.
 REV: 5-01 SCALE: NTS



1. ALL MATERIALS AND INSTALLATION PROCEDURES WILL CONFORM TO P.W.W. TECHNICAL SPECIFICATIONS.
2. IF TAPPING SADDLE IS 1", SEE DETAIL A-3 FOR SIZE OF FITTINGS AND APPROPRIATE GATE BOX TYPE.
3. IF TAPPING SADDLE IS 2", SEE DETAIL A-4 FOR SIZE OF FITTINGS AND APPROPRIATE GATE BOX TYPE
4. SEE DETAILS A-3 AND A-4 FOR INSTALLATION ON DUCTILE IRON WATER MAINS.



DETAIL A-5
TYPICAL RELEASE VALVE
INSTALLATION ON PVC
 PENNICHUCK WATER WORKS, INC.
 REV: 5-01 SCALE: NTS

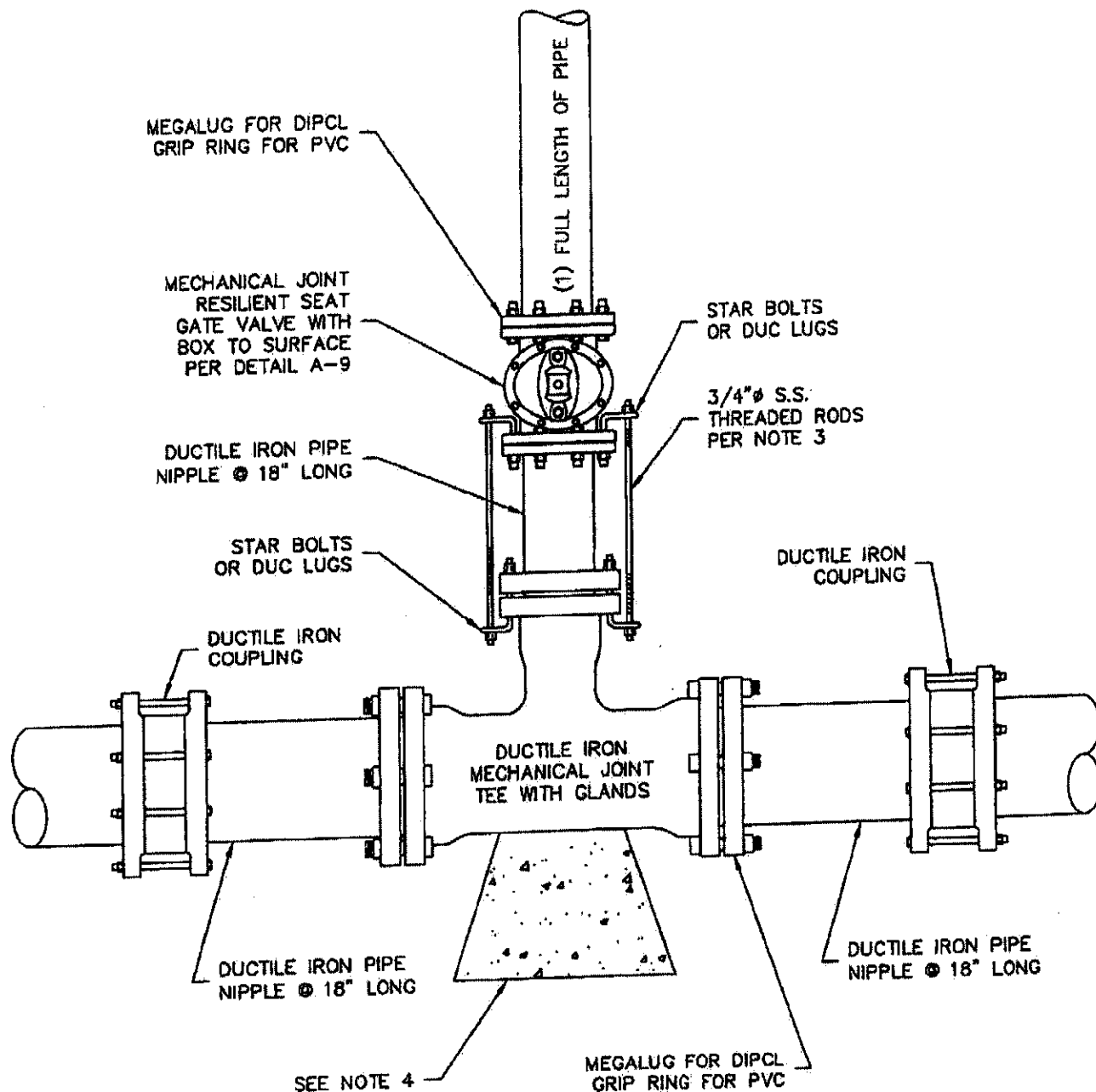


NOTES:

1. ALL MATERIAL AND INSTALLATION PROCEDURES WILL CONFORM TO P.W.W. TECHNICAL SPECIFICATIONS.
2. ALL PIPE SHOULD HAVE A MINIMUM DEPTHS OF 5' FROM TOP OF PIPE TO FINISH GRADE.
3. 3/4" S.S. RODS SHALL BE USED IN CONJUNCTION WITH REQUIRED S.S. NUTS. RODS ARE TO BE ATTACHED TO FITTINGS WITH EITHER STAR BOLTS OR DUC LUGS.
10" FITTING OR SMALLER = (2) 3/4" S.S. RODS & ASSOC. HARDWARE.
12" FITTING OR LARGER = (4) 3/4" S.S. RODS & ASSOC. HARDWARE.
4. MIN 3'x3'x3' PRE CAST CONCRETE THRUST BLOCK MAY BE USED WITH P.W.W. APPROVAL OR CONCRETE THRUST BLOCK POURED AGAINST UNDISTURBED EARTH - SIZE TO BE BASED ON SIZE OF FITTING AND PRESSURE IN WATER MAIN. SEE DETAIL A-7.



DETAIL A-6
TYPICAL TEE INSTALLATION
 PENNICHUCK WATER WORKS, INC.
 REV: 5-01 SCALE: NTS

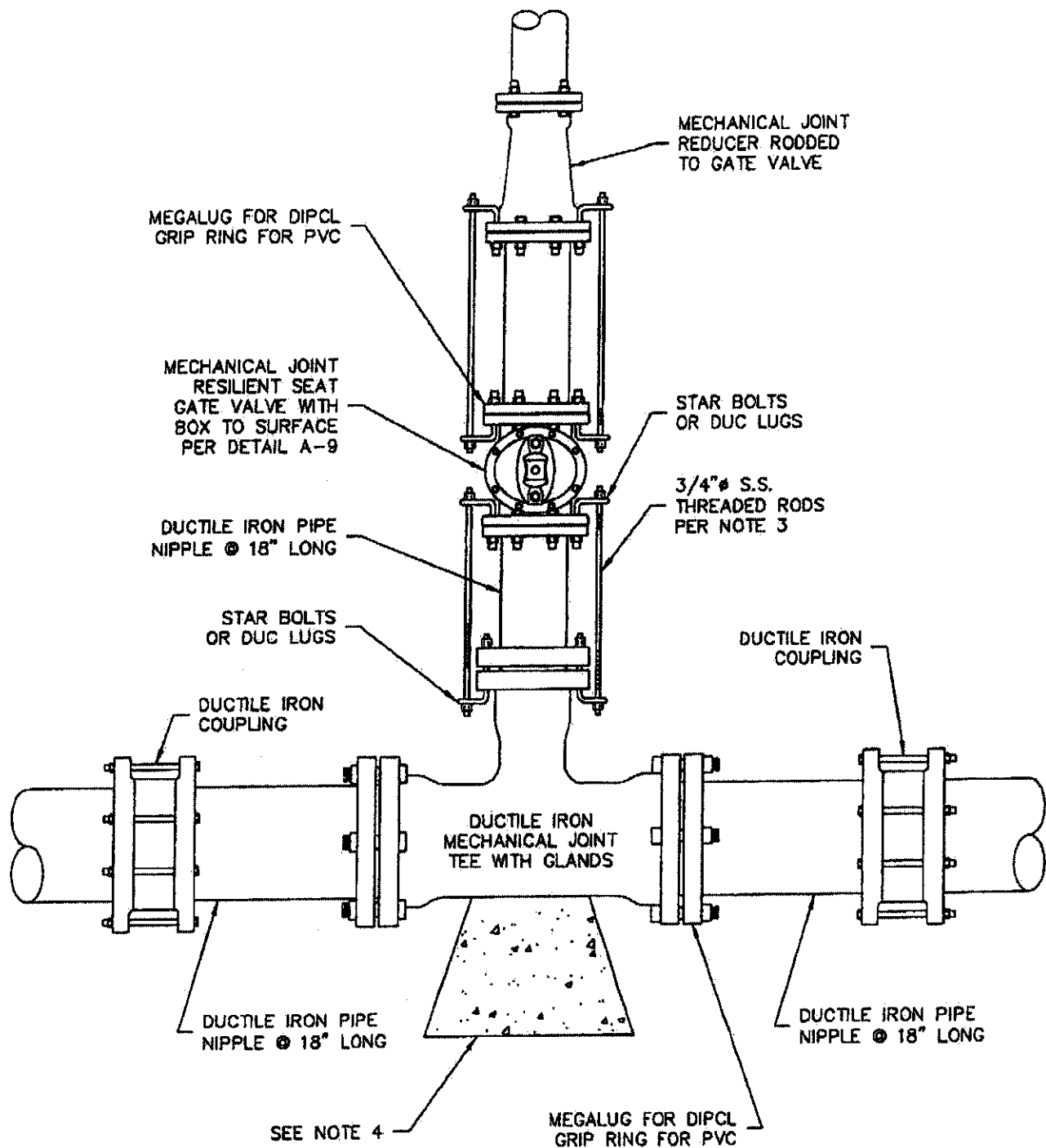


NOTES:

1. ALL MATERIAL AND INSTALLATION PROCEDURES WILL CONFORM TO P.W.W. TECHNICAL SPECIFICATIONS.
2. ALL PIPE SHOULD HAVE A MINIMUM DEPTHS OF 5' FROM TOP OF PIPE TO FINISH GRADE.
3. 3/4" S.S. RODS SHALL BE USED IN CONJUNCTION WITH REQUIRED S.S. NUTS. RODS ARE TO BE ATTACHED TO FITTINGS WITH EITHER STAR BOLTS OR DUC LUGS.
10" FITTING OR SMALLER = (2) 3/4" S.S. RODS & ASSOC. HARDWARE.
12" FITTING OR LARGER = (4) 3/4" S.S. RODS & ASSOC. HARDWARE.
4. MIN 3'x3'x3' PRE CAST CONCRETE THRUST BLOCK MAY BE USED WITH P.W.W. APPROVAL OR CONCRETE THRUST BLOCK POURED AGAINST UNDISTURBED EARTH - SIZE TO BE BASED ON SIZE OF FITTING AND PRESSURE IN WATER MAIN. SEE DETAIL A-7.



DETAIL A-6A
**TYPICAL TEE INSTALLATION
 ON EXISTING MAIN**
 PENNICHUCK WATER WORKS, INC.
 REV: 8-01 SCALE: NTS



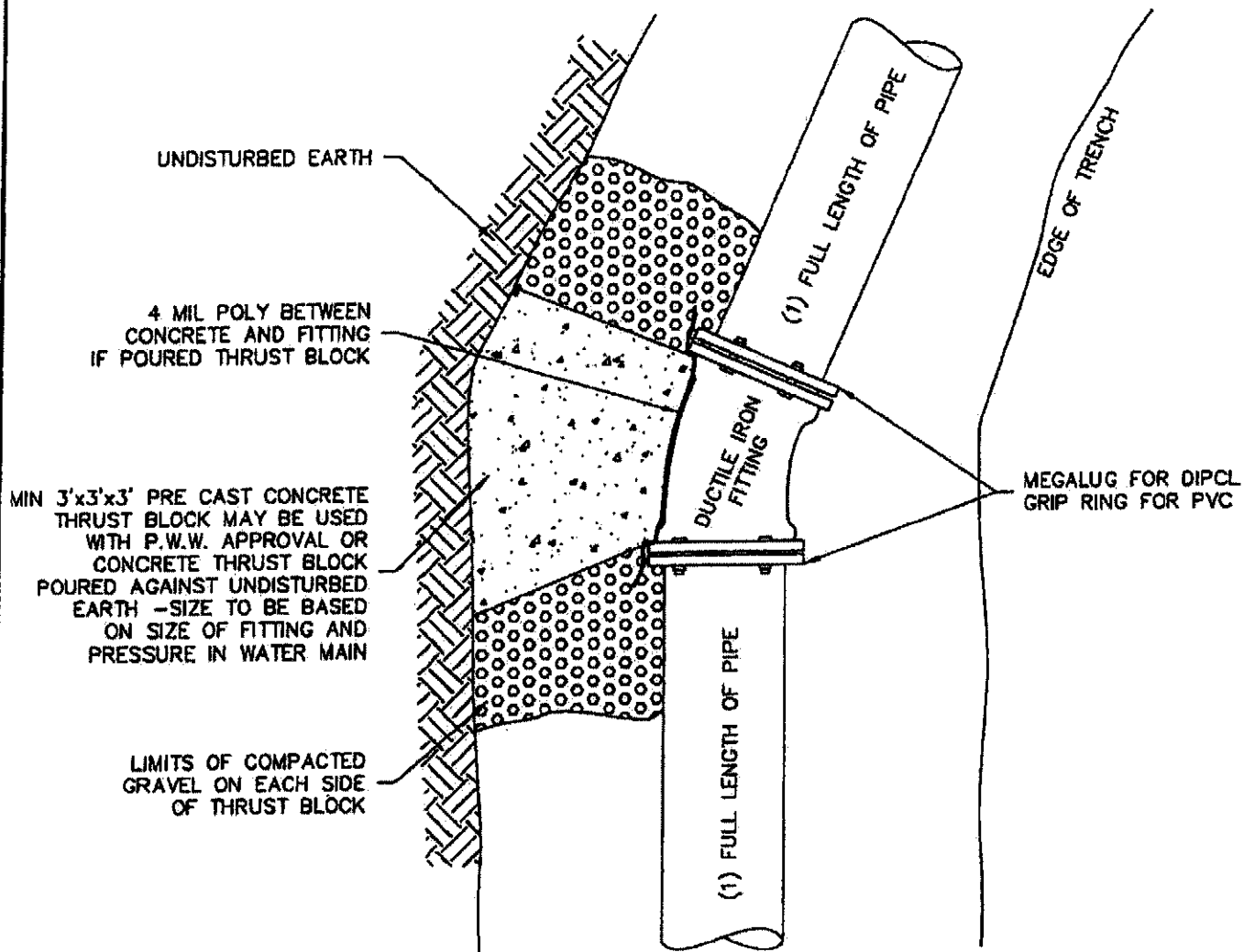
NOTES:

1. ALL MATERIAL AND INSTALLATION PROCEDURES WILL CONFORM TO P.W.W. TECHNICAL SPECIFICATIONS.
2. ALL PIPE SHOULD HAVE A MINIMUM DEPTHS OF 5' FROM TOP OF PIPE TO FINISH GRADE.
3. 3/4" S.S. RODS SHALL BE USED IN CONJUNCTION WITH REQUIRED S.S. NUTS. RODS ARE TO BE ATTACHED TO FITTINGS WITH EITHER STAR BOLTS OR DUC LUGS.
10" FITTING OR SMALLER = (2) 3/4" S.S. RODS & ASSOC. HARDWARE.
12" FITTING OR LARGER = (4) 3/4" S.S. RODS & ASSOC. HARDWARE.
4. MIN 3'x3'x3' PRE CAST CONCRETE THRUST BLOCK MAY BE USED WITH P.W.W. APPROVAL OR CONCRETE THRUST BLOCK POURED AGAINST UNDISTURBED EARTH - SIZE TO BE BASED ON SIZE OF FITTING AND PRESSURE IN WATER MAIN. SEE DETAIL A-7.



DETAIL A-6B
TYPICAL TEE INSTALLATION
ON EXISTING MAIN

PENNICHUCK WATER WORKS, INC.
REV: 8-01 SCALE: NTS

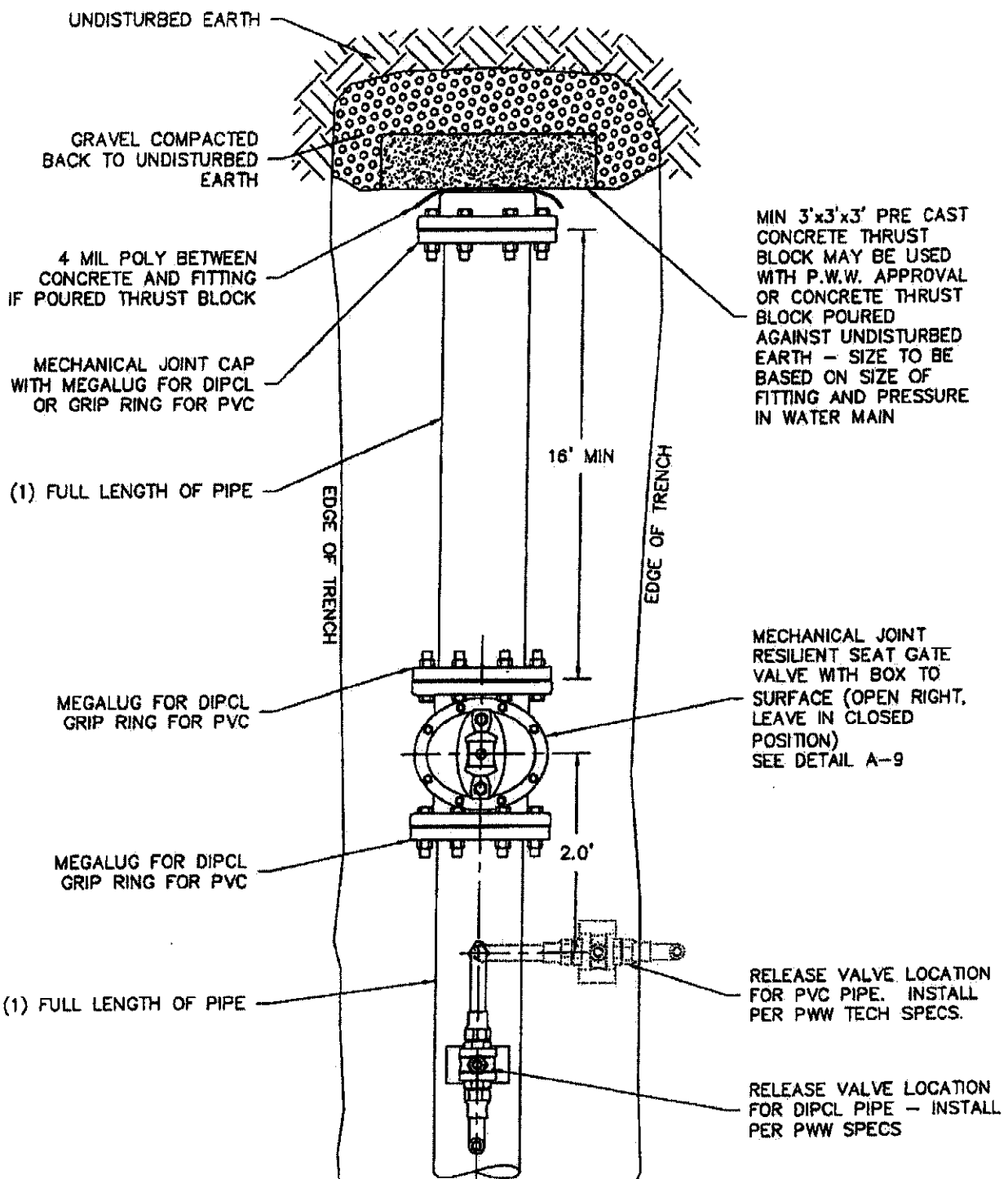


NOTES:

1. ALL MATERIAL AND INSTALLATION PROCEDURES WILL CONFORM TO P.W.W. TECHNICAL SPECIFICATIONS.
2. ALL PIPE SHOULD HAVE A MINIMUM DEPTHS OF 5' FROM TOP OF PIPE TO FINISH GRADE.
3. 3/4" S.S. RODS SHALL BE USED IN CONJUNCTION WITH REQUIRED S.S. NUTS. RODS ARE TO BE ATTACHED TO FITTINGS WITH EITHER STAR BOLTS OR DUC LUGS.
10" FITTING OR SMALLER - (2) 3/4" S.S. RODS & ASSOC. HARDWARE.
12" FITTING OR LARGER - (4) 3/4" S.S. RODS & ASSOC. HARDWARE.
4. MIN 3'x3'x3' PRE CAST CONCRETE THRUST BLOCK MAY BE USED WITH P.W.W. APPROVAL OR CONCRETE THRUST BLOCK POURED AGAINST UNDISTURBED EARTH - SIZE TO BE BASED ON SIZE OF FITTING AND PRESSURE IN WATER MAIN.



DETAIL A-7
**TYPICAL THRUST BLOCK BEHIND
 FITTINGS INSTALLATION**
 PENNICHUCK WATER WORKS, INC.
 REV: 5-01 SCALE: NTS

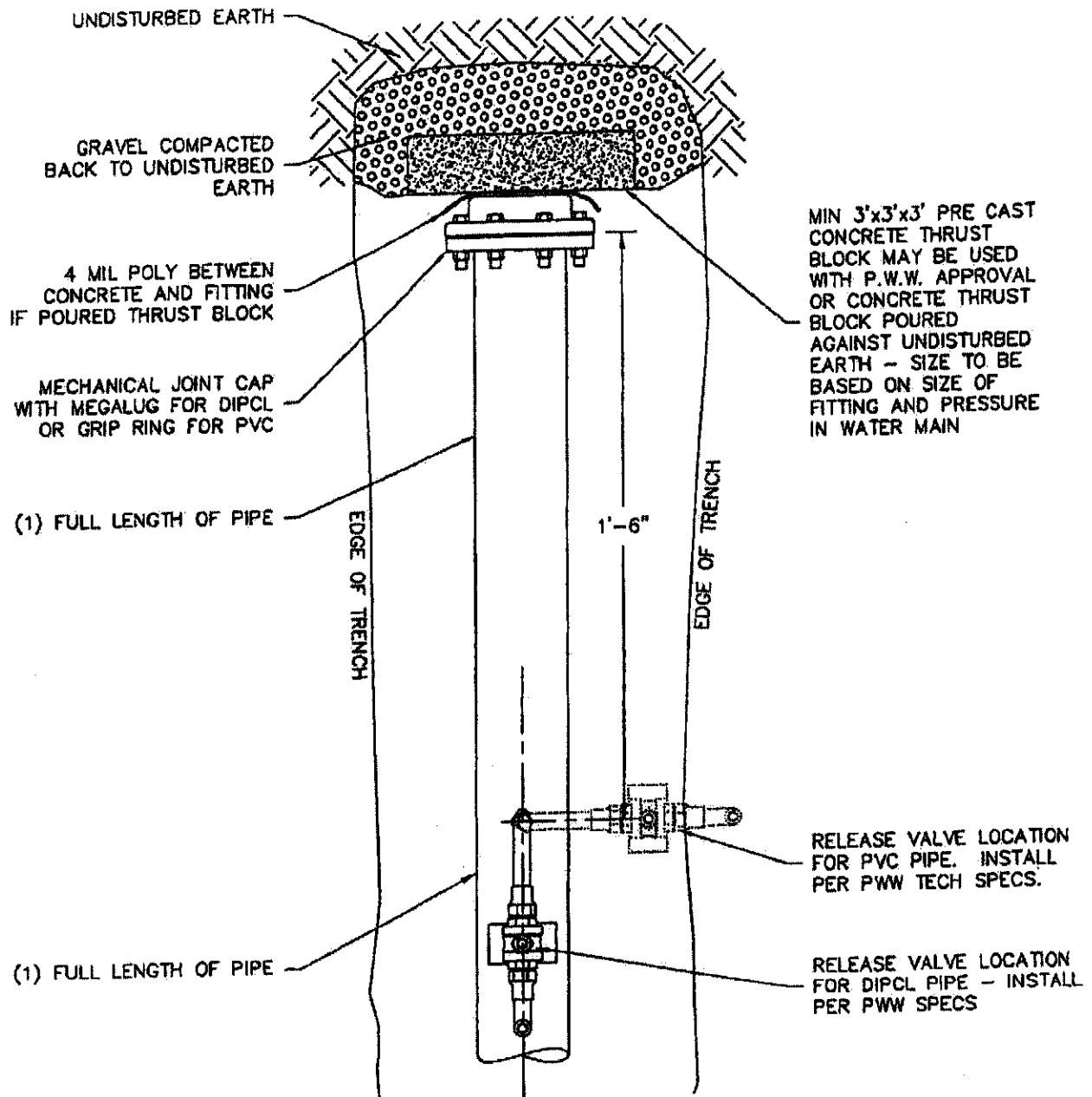


NOTES:

1. ALL MATERIALS AND INSTALLATION PROCEDURES WILL CONFORM TO P.W.W. TECHNICAL SPECIFICATIONS.
2. ALL PIPE SHOULD HAVE A MINIMUM DEPTH OF 5' FROM TOP OF PIPE TO FINISH GRADE.



DETAIL A-8
**TYPICAL END OF MAIN
 INSTALLATION**
 PENNICHUCK WATER WORKS, INC.
 REV: 5-01 SCALE: NTS

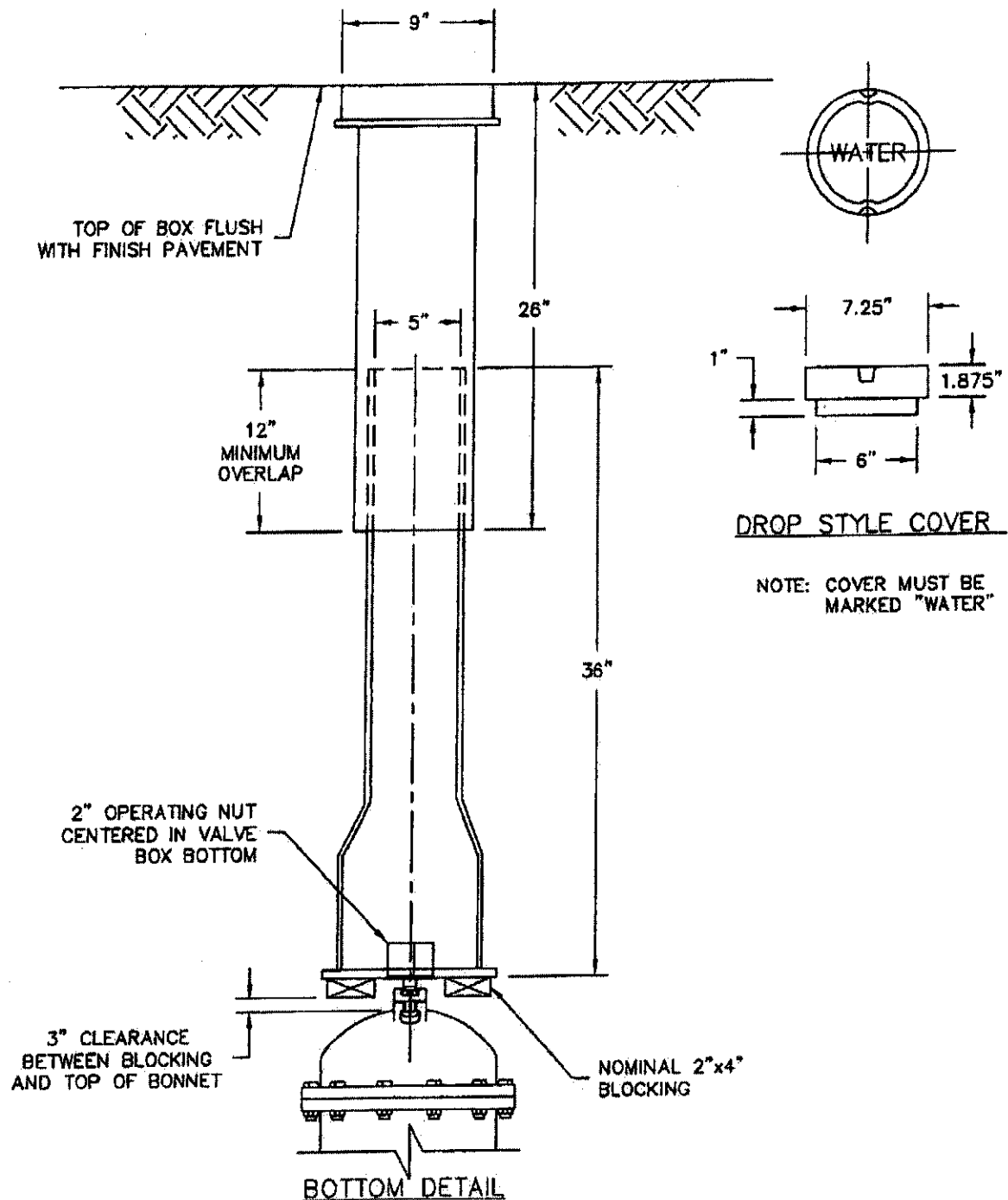


NOTES:

1. ALL MATERIALS AND INSTALLATION PROCEDURES WILL CONFORM TO P.W.W. TECHNICAL SPECIFICATIONS.
2. ALL PIPE SHOULD HAVE A MINIMUM DEPTH OF 5' FROM TOP OF PIPE TO FINISH GRADE.



DETAIL A-8A
TYPICAL END OF MAIN
INSTALLATION
 PENNICHUCK WATER WORKS, INC.
 REV: 5-01 SCALE: NTS

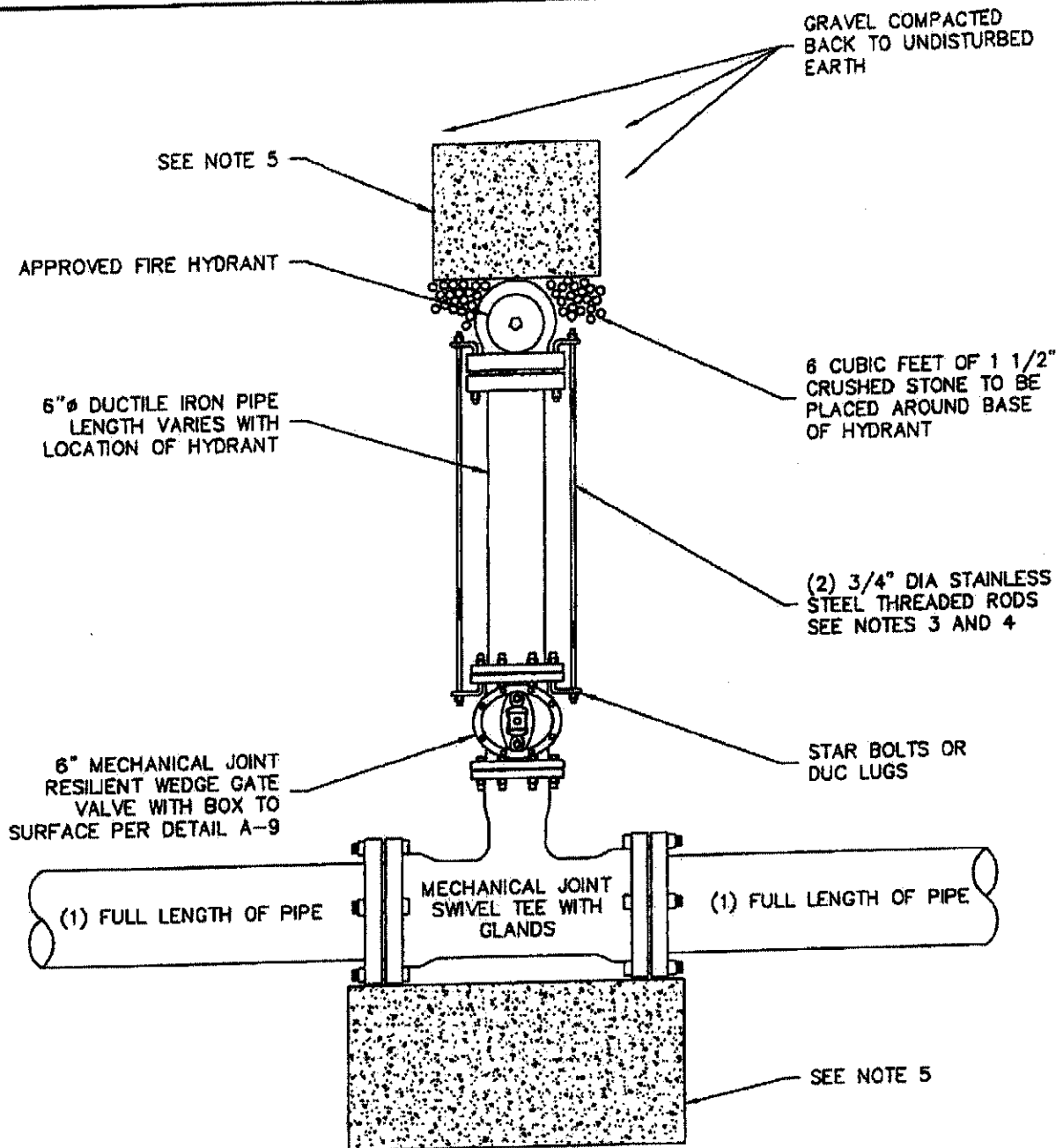


NOTES:

1. ALL MATERIALS AND INSTALLATION PROCEDURES WILL CONFORM TO P.W.W. TECHNICAL SPECIFICATIONS.
2. ALL PIPE SHOULD HAVE A MINIMUM DEPTH OF 5' FROM TOP OF PIPE TO FINISH GRADE.



DETAIL A-9
TYPICAL VALVE BOX DETAIL
 PENNICHUCK WATER WORKS, INC.
 REV: 5-01 SCALE: NTS

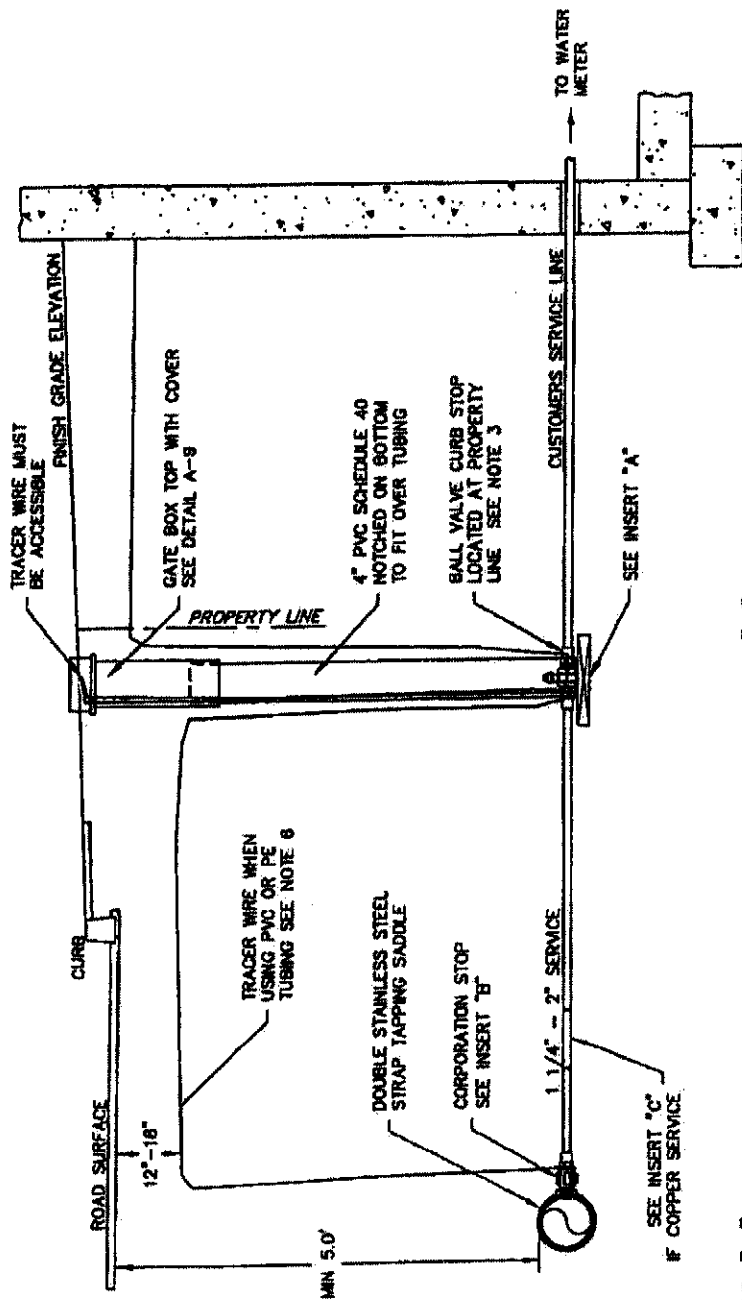


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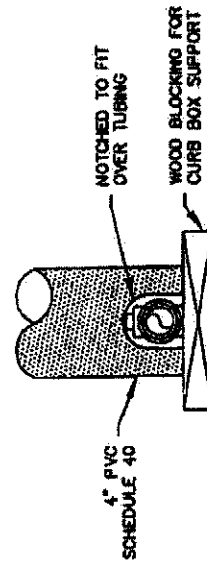
1. ALL MATERIAL AND INSTALLATION PROCEDURES WILL CONFORM TO P.W.W. TECHNICAL SPECIFICATIONS.
2. ALL PIPE SHOULD HAVE A MINIMUM DEPTHS OF 5' FROM TOP OF PIPE TO FINISH GRADE.
3. 3/4" S.S. RODS SHALL BE USED IN CONJUNCTION WITH REQUIRED S.S. NUTS. RODS ARE TO BE ATTACHED TO FITTINGS WITH EITHER STAR BOLTS OR DUC LUGS.
10" FITTING OR SMALLER = (2) 3/4" S.S. RODS & ASSOC. HARDWARE.
12" FITTING OR LARGER = (4) 3/4" S.S. RODS & ASSOC. HARDWARE.
4. WHEN DISTANCE FROM WATER MAIN TO HYDRANT IS MORE THAN 10' SUBSTITUTE MEGALUGS (OR GRIP RINGS) IN LIEU OF THREADED RODS.
5. MIN 3'x3'x3' PRE CAST CONCRETE THRUST BLOCK MAY BE USED WITH P.W.W. APPROVAL OR CONCRETE THRUST BLOCK POURED AGAINST UNDISTURBED EARTH - SIZE TO BE BASED ON SIZE OF FITTING AND PRESSURE IN WATER MAIN. SEE DETAIL A-7.



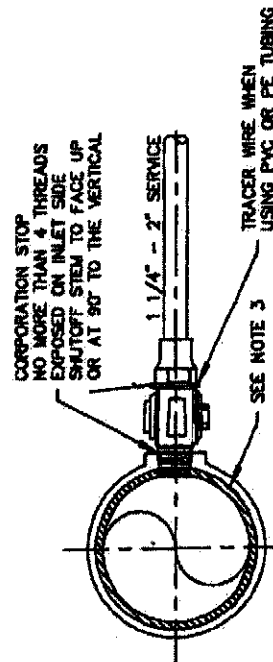
DETAIL A-10
TYPICAL HYDRANT INSTALLATION
 PENNICHUCK WATER WORKS, INC.
 REV: 5-01 SCALE: NTS



INSERT "A"

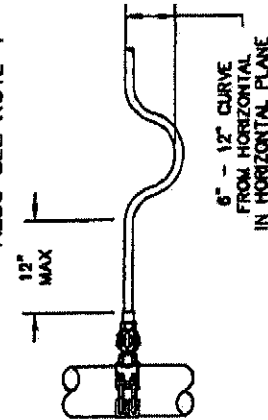


INSERT "B"



INSERT "C"

COPPER SERVICE ONLY
ALSO SEE NOTE 4

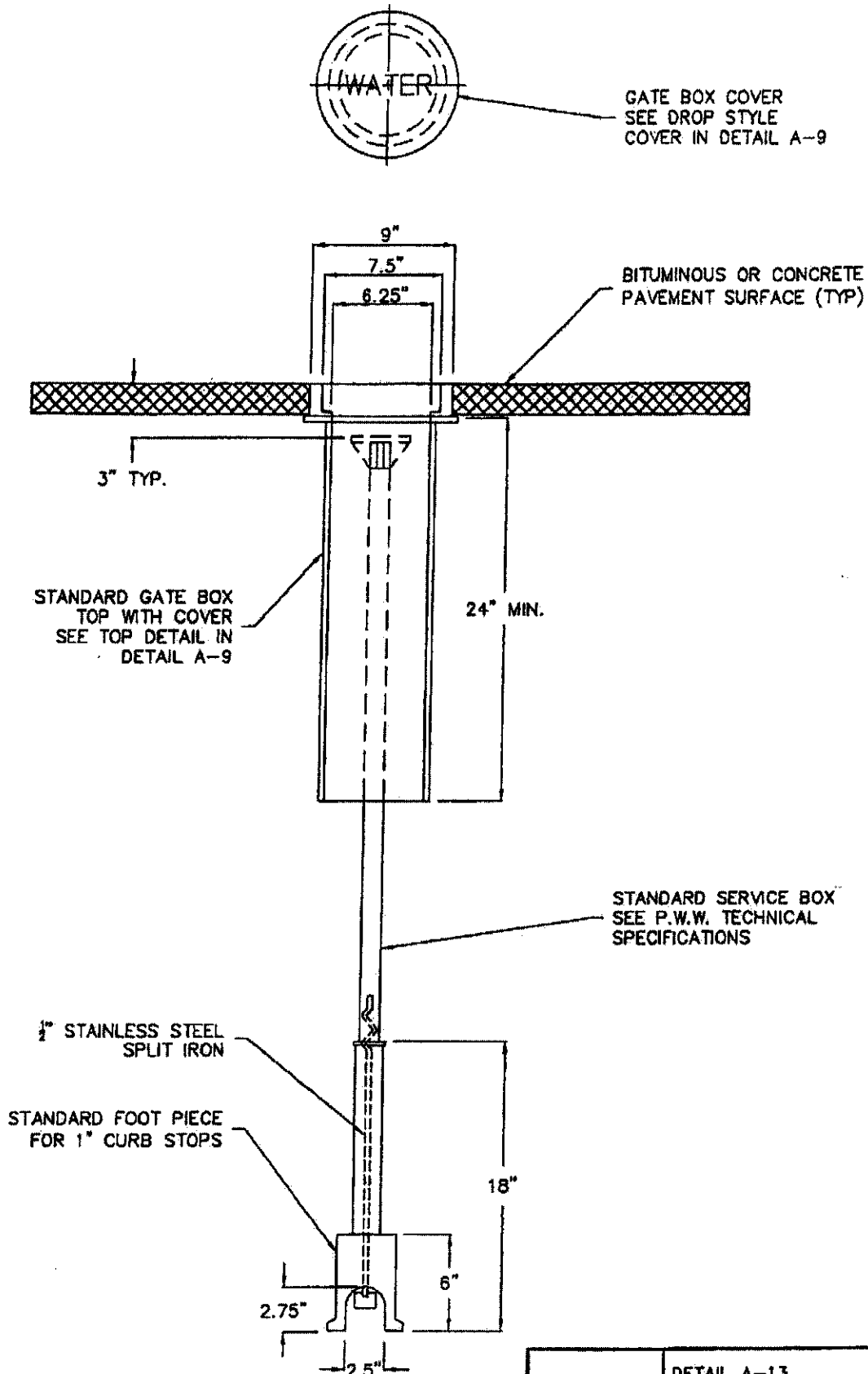


NOTES:

1. ALL MATERIALS AND INSTALLATION PROCEDURES WILL CONFORM TO P.W.W. TECHNICAL SPECIFICATIONS.
2. ALL PIPE SHOULD HAVE A MINIMUM DEPTH OF 5' FROM TOP OF PIPE TO FINISH GRADE.
3. IF WATER MAIN IS PVC OR TRANSITE, A DOUBLE STAINLESS STEEL STRAP TAPPING SADDLE MUST BE USED TO CONNECT THE CORPORATION TO THE WATER MAIN.
4. IF WATER MAIN IS PVC OR TRANSITE, AND THE NEW WATER SERVICE IS COPPER THEN SEE DETAIL A-19.
5. IF WATER MAIN IS A FIRE SERVICE, THEN SEE DETAIL A-24.
6. 10 GAUGE TRACER WIRE AS MANUFACTURED BY BMS, DIVISION OF ALBESTAR CORP., AVON, MA OR EQUIVALENT.



DETAIL A-12
TYPICAL 1 1/4" - 2" SERVICE &
VALVE BOX INSTALLATION DETAIL
PENNICHUCK WATER WORKS, INC.
REV: 5-01
SCALE: NTS



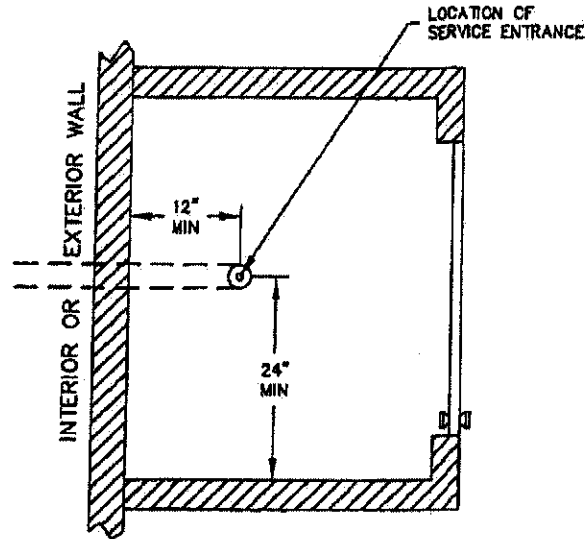
NOTE:
ALL MATERIALS AND INSTALLATION
PROCEDURES WILL CONFORM TO
P.W.W. TECHNICAL SPECIFICATIONS.



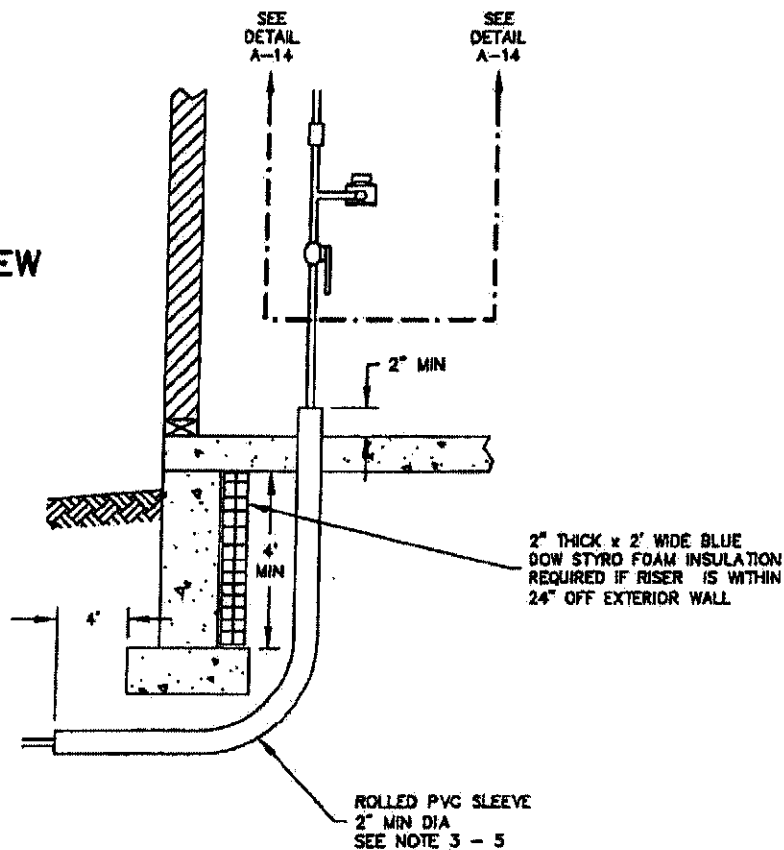
DETAIL A-13
**TYPICAL SERVICE BOX DETAIL
IN PAVED AREAS**
PENNICHUCK WATER WORKS, INC.
REV: 5-01 SCALE: NTS

SCALE: NTS

TOP VIEW



SIDE VIEW

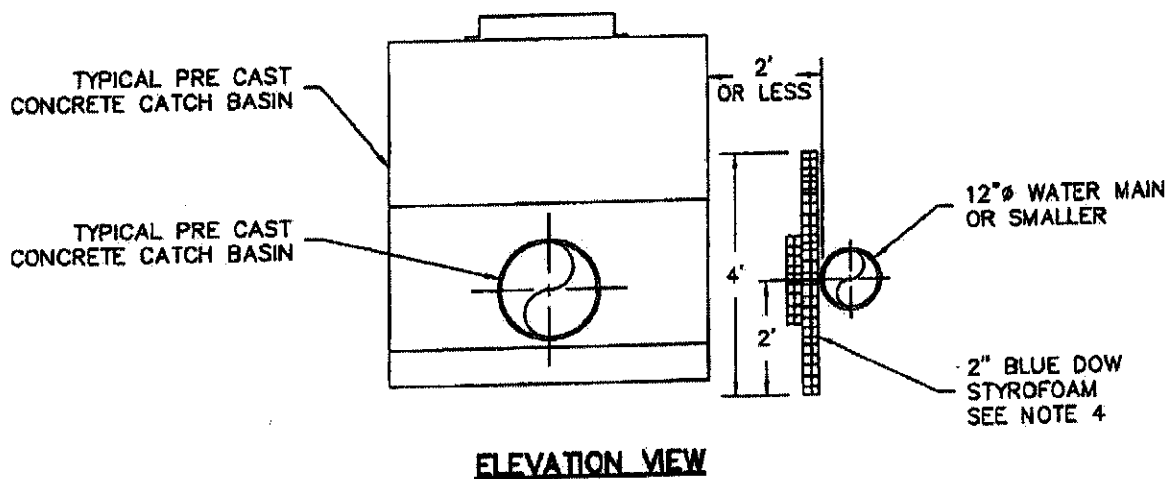
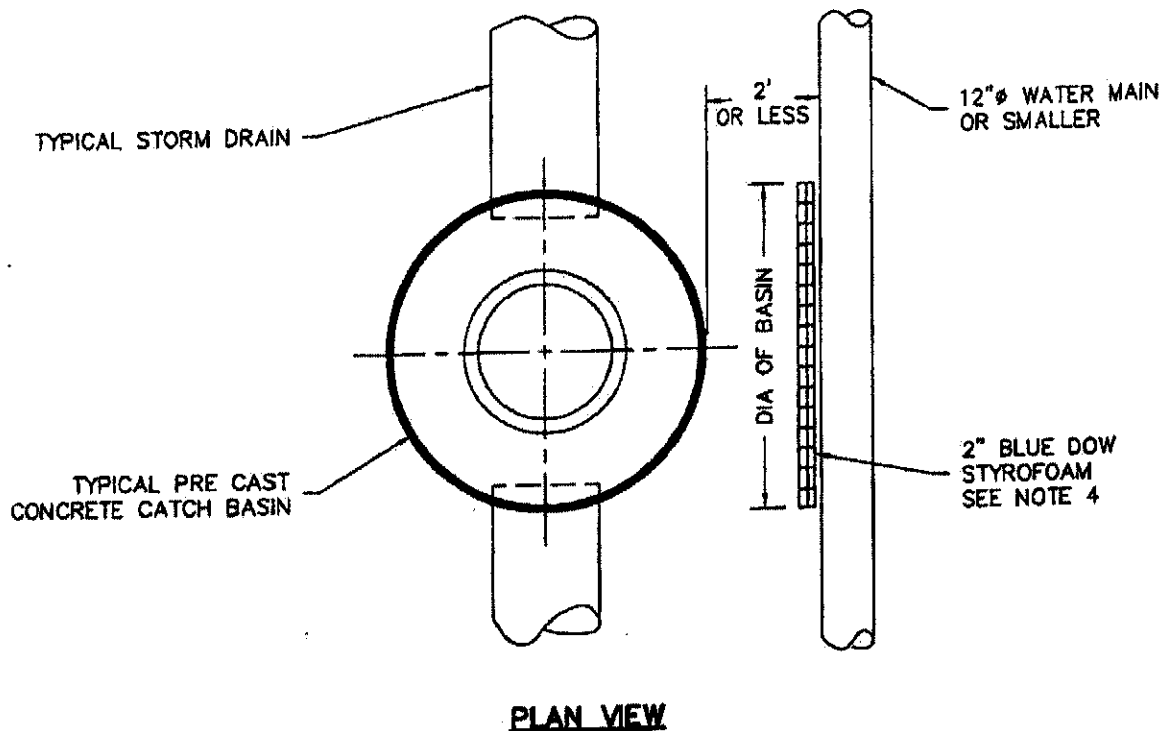


NOTES:

1. ALL MATERIALS AND INSTALLATION PROCEDURES WILL CONFORM TO P.W.W. TECHNICAL SPECIFICATIONS.
2. ALL WATER SERVICES IN SLAB CONSTRUCTION BUILDINGS MUST BE INSTALLED IN PVC PIPE SLEEVES AS SHOWN.
3. NOTES 4 THROUGH 8 ON DETAIL A-14 ALSO APPLY.
4. SLEEVE IS TO EXTEND 4" BEYOND THE EXTERIOR LINE OF THE FOUNDATION WALL WITH ONE CONTINUOUS PIECE OF SLEEVE.
5. ON SLEEVES GREATER THAN 2" IN DIAMETER, SOLVENT WELDED JOINTS WILL BE ACCEPTABLE. HOWEVER, MANUFACTURED BENDS WILL NOT BE ACCEPTABLE.
6. A CLOSET OR UTILITY ROOM MUST BE PROVIDED.

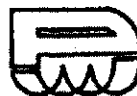


DETAIL A-15
TYPICAL SLAB CONSTRUCTION
 PENNICHUCK WATER WORKS, INC.
 REV: 5-01 SCALE: NTS



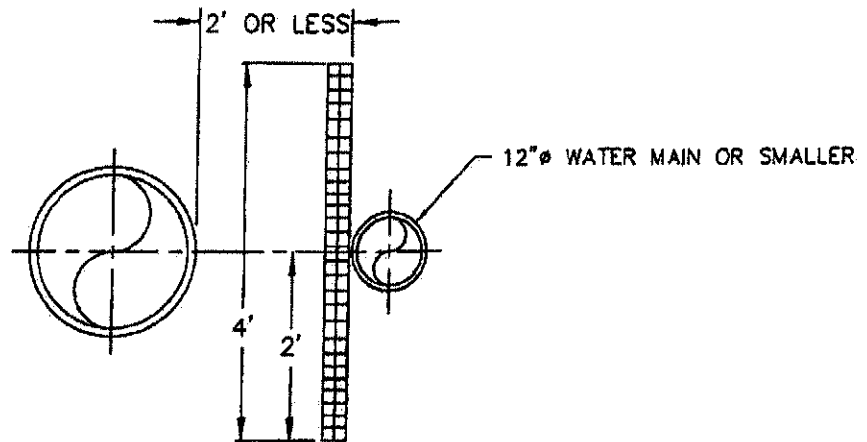
NOTES:

1. ALL MATERIALS AND INSTALLATION PROCEDURES WILL CONFORM TO P.W.W. TECHNICAL SPECIFICATIONS.
2. ALL PIPE SHOULD HAVE A MINIMUM DEPTH OF 5' FROM TOP OF PIPE TO FINISH GRADE.
3. P.W.W., INC. RESERVES THE RIGHT TO MODIFY INSULATION REQUIREMENTS AS NECESSARY BASED ON FIELD CONDITIONS, ETC.
4. ALL BUTT JOINT SEAMS TO BE OVERLAPPED WITH 1' PIECE OF INSULATION CENTERED OVER SEAM.

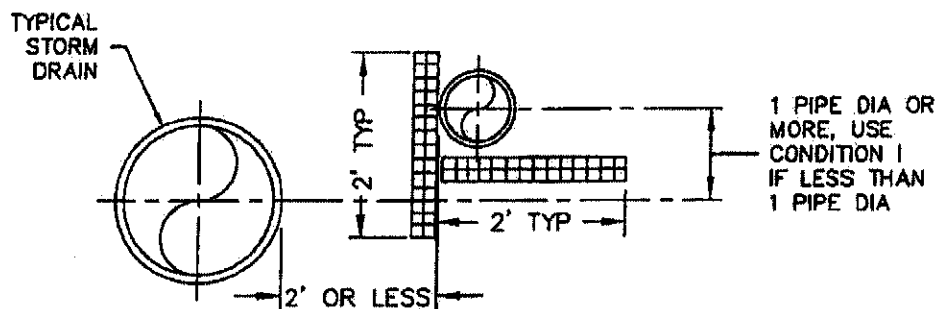


DETAIL A-16
**TYPICAL CATCH BASIN
 INSULATION DETAIL**
 PENNICHUCK WATER WORKS, INC.
 REV: 5-01 SCALE: NTS

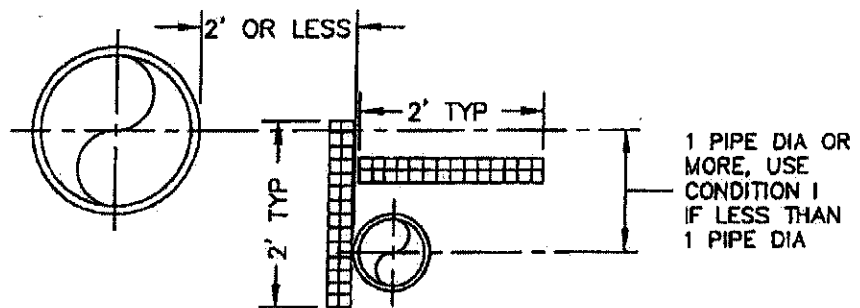
CONDITION I



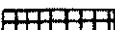
CONDITION II



CONDITION III

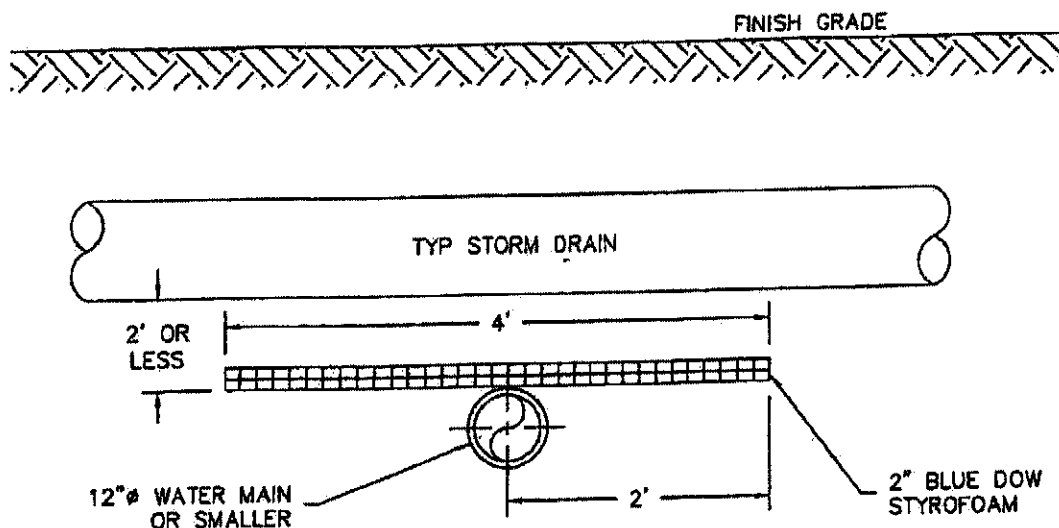


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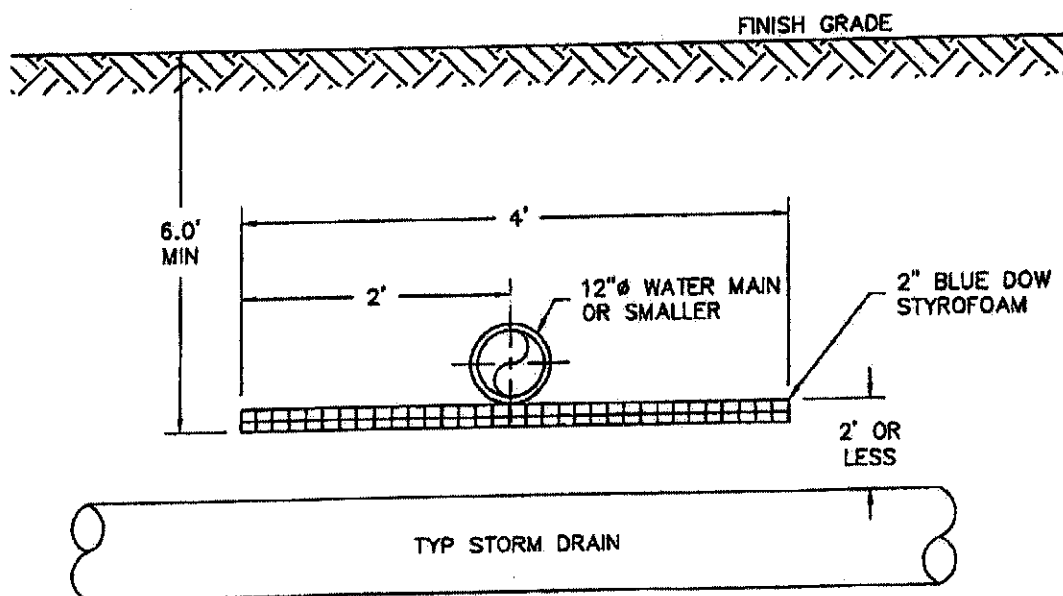
1. ALL MATERIALS AND INSTALLATION PROCEDURES WILL CONFORM TO P.W.W. TECHNICAL SPECIFICATIONS.
2. ALL PIPE SHOULD HAVE A MINIMUM DEPTH OF 5' FROM TOP OF PIPE TO FINISH GRADE.
3. P.W.W., INC. RESERVES THE RIGHT TO MODIFY INSULATION REQUIREMENTS AS NECESSARY BASED ON FIELD CONDITIONS, ETC.
4. INSULATION TO BE RUN HORIZONTALLY AS LONG AS CONDITIONS I, II, OR III ABOVE EXIST. ALL BUTT JOINT SEAMS TO BE OVERLAPPED WITH 1' PIECE OF INSULATION CENTERED OVER SEAM.
5.  - 1.5" (MIN) BLUE DOW STYROFOAM



DETAIL A-17
STORM DRAIN / WATER MAIN
PARALLEL RUNS - ELEVATION VIEW
 PENNICHUCK WATER WORKS, INC.
 REV: 5-01 SCALE: NTS



CONDITION I



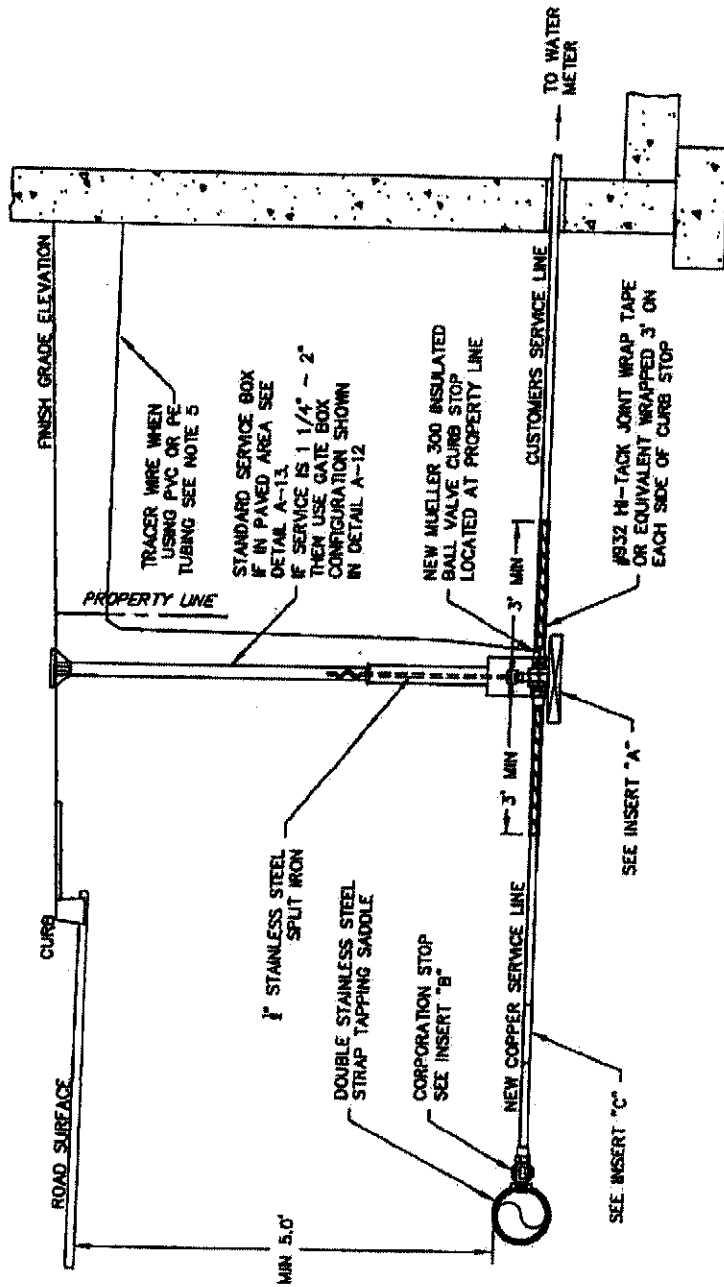
CONDITION II

NOTES:

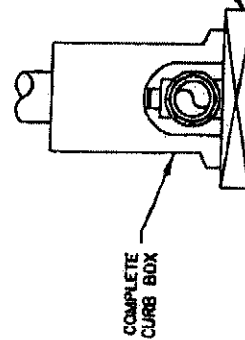
1. PENNICHUCK WATER WORKS, INC. RESERVES THE RIGHT TO MODIFY INSULATION REQUIREMENTS AS NECESSARY BASED ON FIELD CONDITIONS, ETC.
2. THE LENGTH OR WIDTH OF INSULATION SHALL EXTEND 1 STORM DRAIN PIPE DIAMETER BEYOND THE EDGE OF STORM DRAIN PIPE IN EACH DIRECTION OR A MINIMUM OF 2' BEYOND THE CENTERLINE OF THE STORM DRAIN PIPE, WHICHEVER IS GREATER.
3. ALL BUTT JOINT SEAMS TO BE OVERLAPPED WITH A 1' PIECE OF INSULATION CENTERED OVER SEAM.



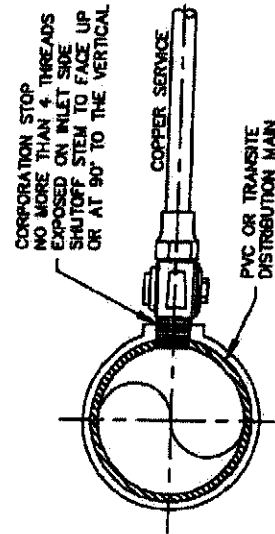
DETAIL A-18
 STORM DRAIN / WATER MAIN
 INTERSECTING RUNS - ELEV. VIEW
 PENNICHUCK WATER WORKS, INC.
 REV: 5-01 SCALE: NTS



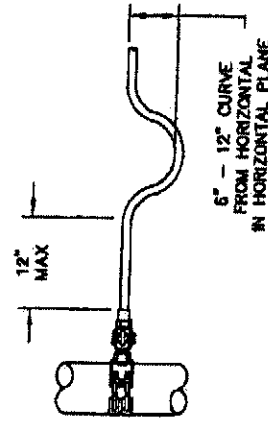
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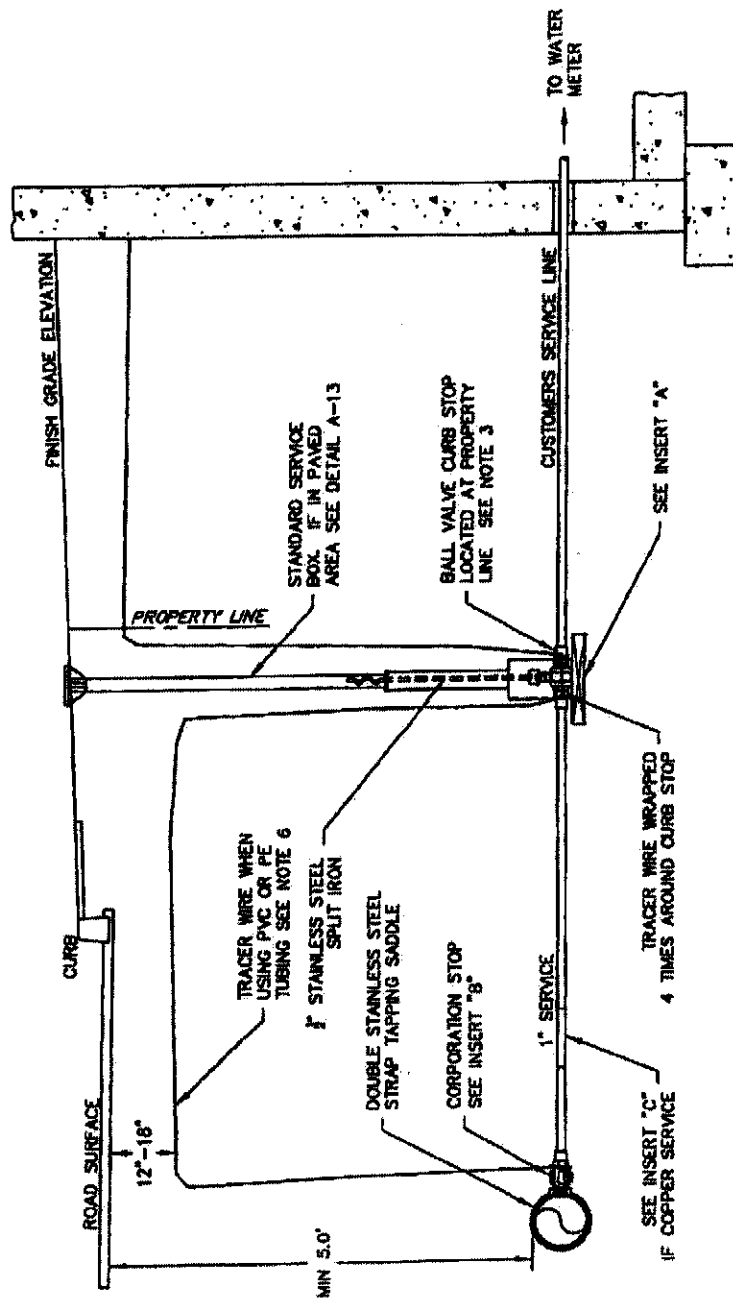


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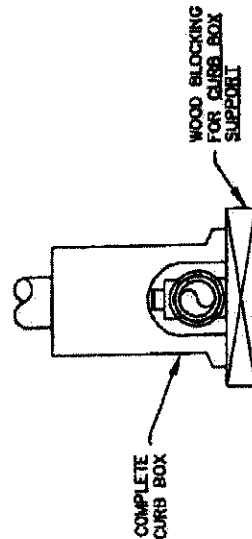
1. ALL MATERIALS AND INSTALLATION PROCEDURES WILL CONFORM TO P.W. TECHNICAL SPECIFICATIONS.
2. ALL PIPE SHOULD HAVE A MINIMUM DEPTH OF 5' FROM TOP OF PIPE TO FINISH GRADE.
3. A DOUBLE STAINLESS STEEL STRAP TAPPING SADDLE MUST BE USED TO CONNECT THE CORPORATION TO THE WATER MAIN.
4. IF WATER MAIN IS A FIRE SERVICE, THEN SEE DETAIL A-24.
5. 10 GAL. TRACER WIRE AS MANUFACTURED BY BMS, DIVISION OF ALBESTAR CORP., AVON, MA. & EQUIVALENT



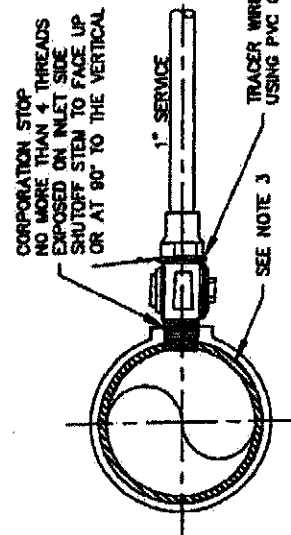
DETAIL A-19
**TYPICAL COPPER SERVICE
 ON PVC AND TRANSITE MAINS**
 PENNICHUCK WATER WORKS,
 REV: 5-01
 SCALE:



INSERT "A"

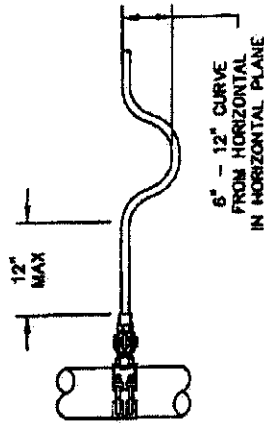


INSERT "B"



INSERT "C"

COPPER SERVICE ONLY
ALSO SEE NOTE 4

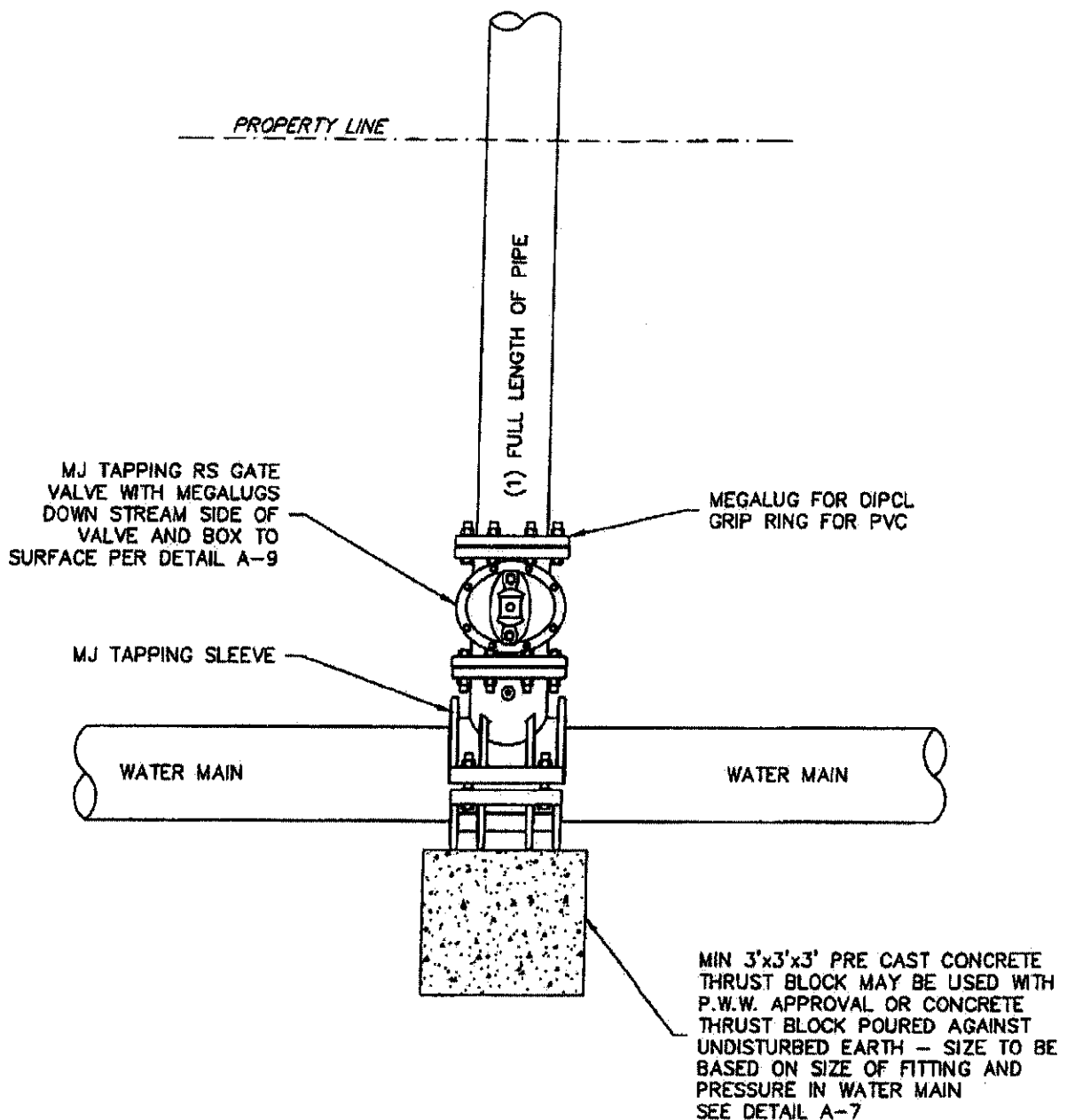


NOTES:

1. ALL MATERIALS AND INSTALLATION PROCEDURES WILL CONFORM TO P.W.W. TECHNICAL SPECIFICATIONS.
2. ALL PIPE SHOULD HAVE A MINIMUM DEPTH OF 5' FROM TOP OF PIPE TO FINISH GRADE.
3. IF WATER MAIN IS PVC OR TRANSITE, A DOUBLE STAINLESS STEEL STRAP TAPPING SADDLE MUST BE USED TO CONNECT THE CORPORATION TO THE WATER MAIN.
4. IF WATER MAIN IS PVC OR TRANSITE, AND THE NEW WATER SERVICE IS COPPER THEN SEE DETAIL A-19.
5. IF WATER MAIN IS A FIRE SERVICE, THEN SEE DETAIL A-24.
6. 10 GAUGE TRACER WIRE AS MANUFACTURED BY BWS, DIVISION OF ALBESTAR CORP., AVON, MA OR EQUIVALENT.



DETAIL A-20
TYPICAL 1" SERVICE AND
VALVE BOX INSTALLATION DETAIL
PENNICHUCK WATER WORKS, INC.
REV: 5-01 SCALE: NTS

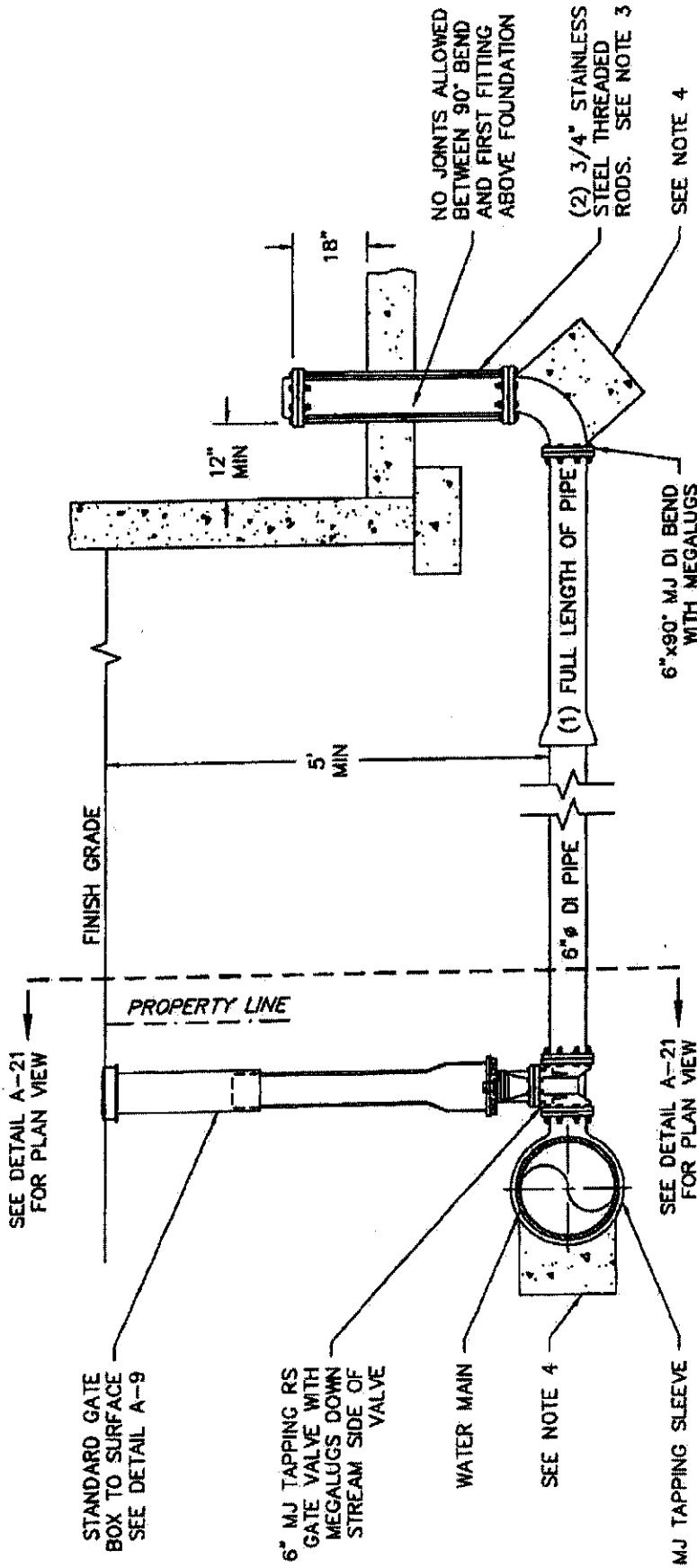


NOTES:

1. ALL MATERIALS AND INSTALLATION PROCEDURES WILL CONFORM TO P.W.W. TECHNICAL SPECIFICATIONS.
2. ALL PIPE SHOULD HAVE A MINIMUM DEPTH OF 5' FROM TOP OF PIPE TO FINISH GRADE.
3. SEE DETAIL A-22 FOR CROSS-SECTIONAL VIEW.

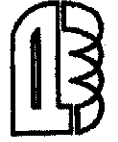


DETAIL A-21
**TYPICAL LARGE SERVICE AND/OR
 TAPPING SLEEVE DETAIL**
 PENNICHUCK WATER WORKS, INC.
 REV: 5-01 SCALE: NTS

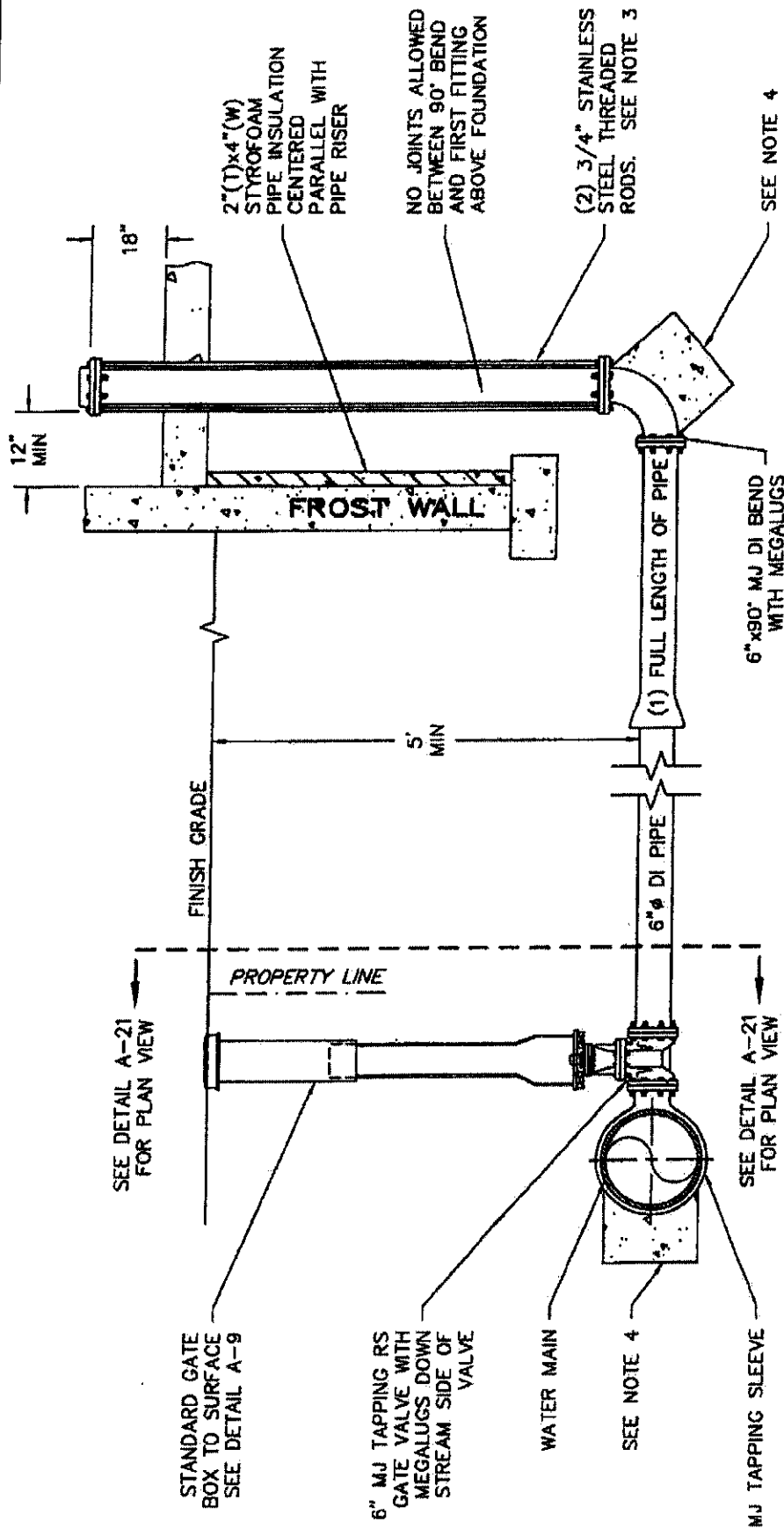


NOTES:

1. ALL MATERIALS AND INSTALLATION PROCEDURES WILL CONFORM TO P.W.W. TECHNICAL SPECIFICATIONS.
2. ALL PIPE SHOULD HAVE A MINIMUM DEPTH OF 5' FROM TOP OF PIPE TO FINISH GRADE.
3. 3/4" S.S. RODS SHALL BE USED IN CONJUNCTION WITH REQUIRED S.S. NUTS. RODS ARE TO BE ATTACHED TO FITTINGS WITH EITHER STAR BOLTS OR DUC LUGS. 10" FITTING OR SMALLER = (2) 3/4" S.S. RODS & ASSOC. HARDWARE. 12" FITTING OR LARGER = (4) 3/4" S.S. RODS & ASSOC. HARDWARE.
4. MIN 3'x3'x3' PRE CAST CONCRETE THRUST BLOCK MAY BE USED WITH P.W.W. APPROVAL OR CONCRETE THRUST BLOCK POURED AGAINST UNDISTURBED EARTH - SIZE TO BE BASED ON SIZE OF FITTING AND PRESSURE IN WATER MAIN. SEE DETAIL A-7.
5. SEE DETAIL A-23 FOR FIRE SERVICE INSTALLATION WITH SLAB FOUNDATIONS.



DETAIL A-22
TYPICAL FIRE SERVICE
INSTALLATION DETAIL
PENNICHUCK WATER WORKS, INC.
REV: 5-01
SCALE: NTS

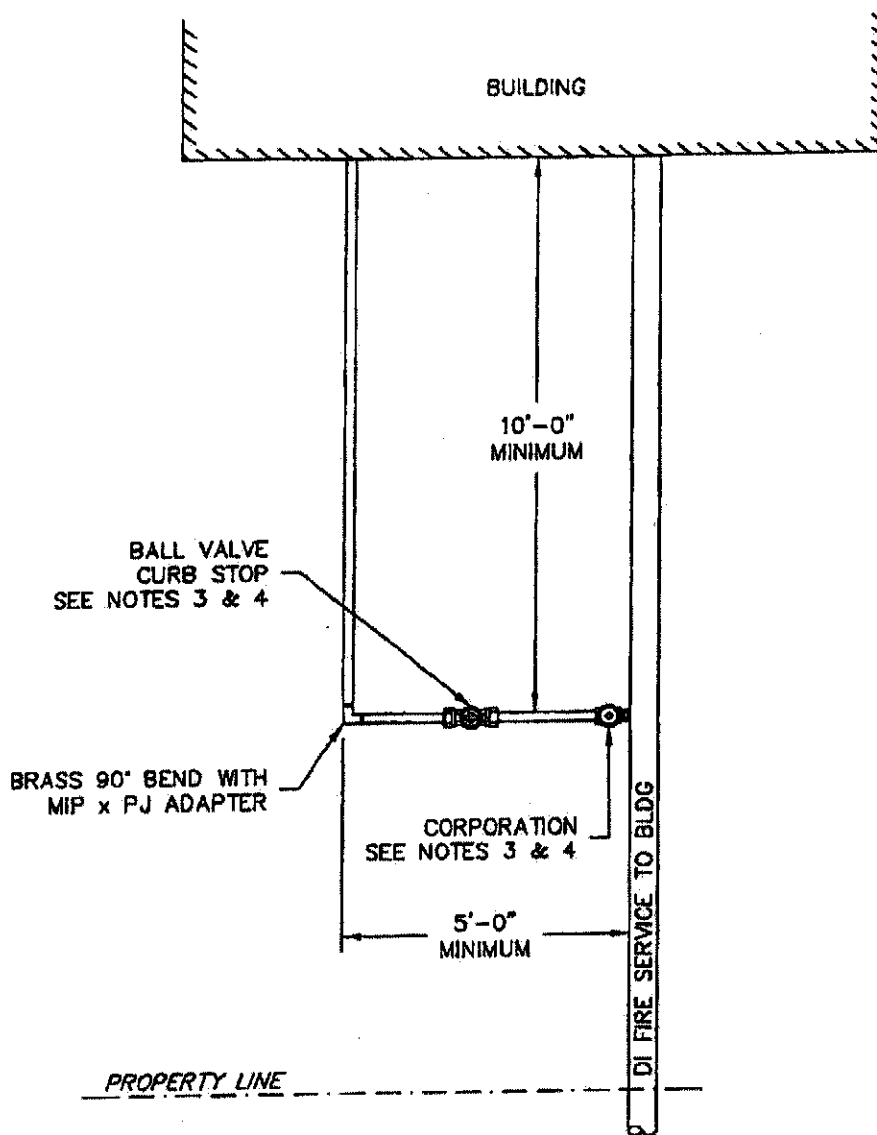


NOTES:

1. ALL MATERIALS AND INSTALLATION PROCEDURES WILL CONFORM TO P.W.W. TECHNICAL SPECIFICATIONS.
2. ALL PIPE SHOULD HAVE A MINIMUM DEPTH OF 5' FROM TOP OF PIPE TO FINISH GRADE.
3. 3/4" S.S. RODS SHALL BE USED IN CONJUNCTION WITH REQUIRED S.S. NUTS. RODS ARE TO BE ATTACHED TO FITTINGS WITH EITHER STAR BOLTS OR DUC LUGS. 10" FITTING OR SMALLER = (2) 3/4" S.S. RODS & ASSOC. HARDWARE. 12" FITTING OR LARGER = (4) 3/4" S.S. RODS & ASSOC. HARDWARE.
4. MIN 3'x3' PRE CAST CONCRETE THRUST BLOCK MAY BE USED WITH P.W.W. APPROVAL OR CONCRETE THRUST BLOCK POURED AGAINST UNDISTURBED EARTH - SIZE TO BE BASED ON SIZE OF FITTING AND PRESSURE IN WATER MAIN. SEE DETAIL A-7.
5. SEE DETAIL A-22 FOR FIRE SERVICE INSTALLATION WITH STANDARD FOUNDATIONS.



DETAIL A-23
 TYPICAL FIRE SERVICE INSTALLATION
 DETAIL WITH SLAB FOUNDATIONS
 PENNICHUCK WATER WORKS, INC.
 REV: 5-01 SCALE: NT

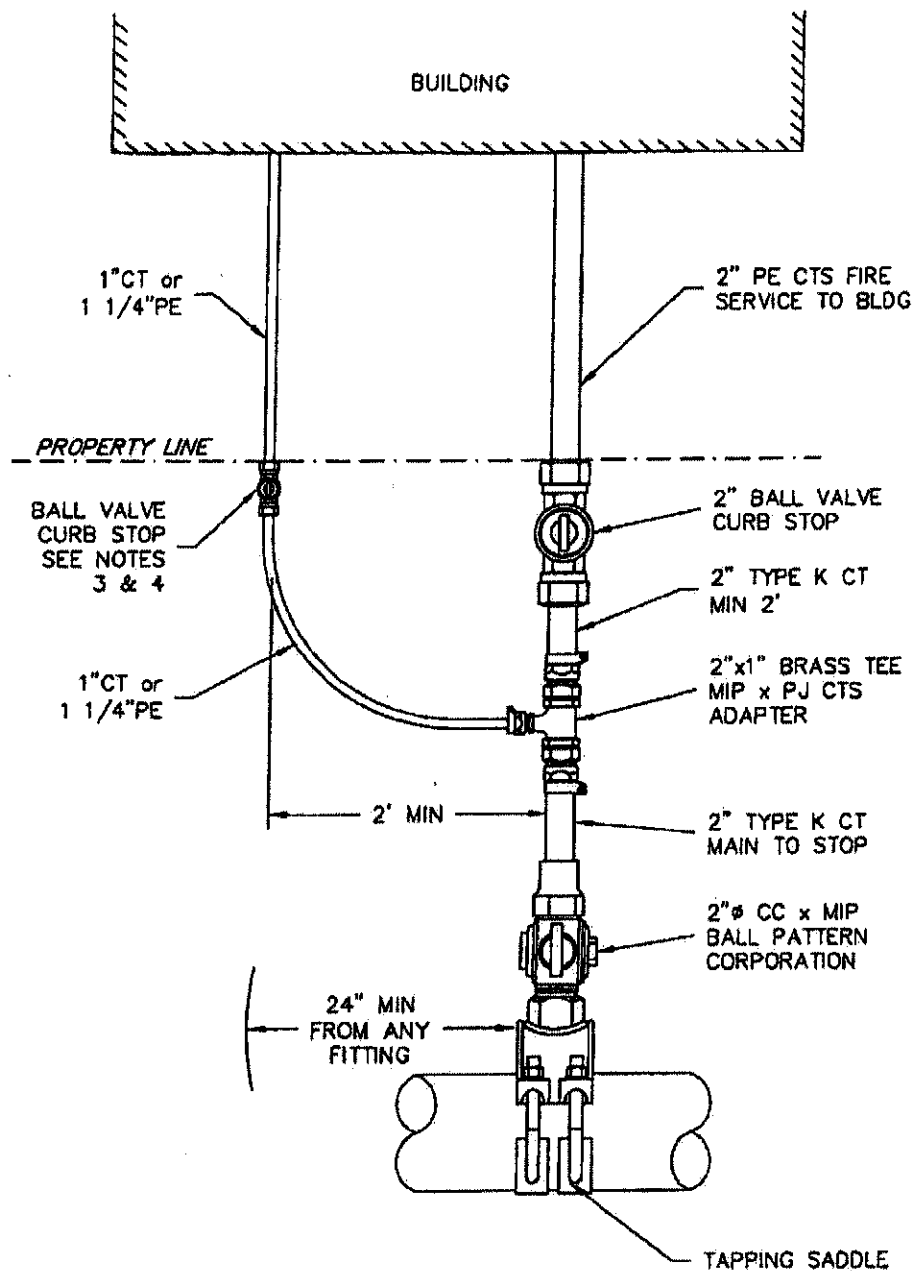


NOTES:

1. ALL MATERIALS AND INSTALLATION PROCEDURES WILL CONFORM TO P.W.W. TECHNICAL SPECIFICATIONS.
2. ALL PIPE SHOULD HAVE A MINIMUM DEPTH OF 5' FROM TOP OF PIPE TO FINISH GRADE.
3. SEE DETAIL A-20 FOR 1" SERVICE AND VALVE BOX INSTALLATION DETAIL.
4. SEE DETAIL A-12 FOR 1 1/4" - 2" SERVICE AND VALVE BOX INSTALLATION DETAIL.
5. SEE DETAIL A-11 FOR OUTSIDE SERVICE ENTRANCE PLAN VIEW.



DETAIL A-24
TYPICAL DOMESTIC SERVICE TAPPED
OFF FIRE SERVICE
 PENNICHUCK WATER WORKS, INC.
 REV: 5-01 SCALE: NTS

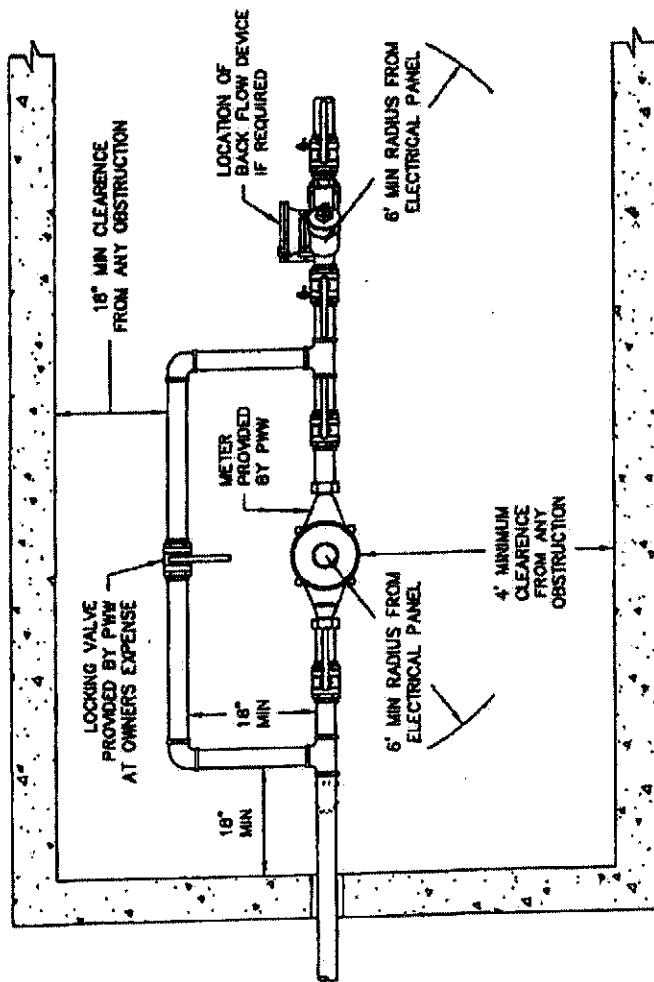


NOTES:

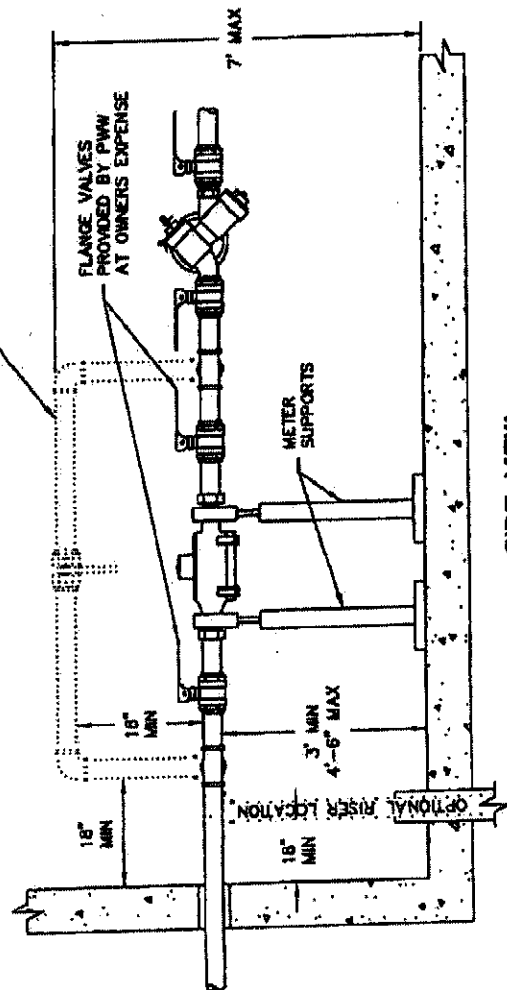
1. ALL MATERIALS AND INSTALLATION PROCEDURES WILL CONFORM TO P.W.W. TECHNICAL SPECIFICATIONS.
2. ALL PIPE SHOULD HAVE A MINIMUM DEPTH OF 5' FROM TOP OF PIPE TO FINISH GRADE.
3. SEE DETAIL A-20 FOR 1" SERVICE AND VALVE BOX INSTALLATION DETAIL.
4. SEE DETAIL A-12 FOR 1 1/4" - 2" SERVICE AND VALVE BOX INSTALLATION DETAIL.
5. SEE DETAIL A-11 FOR OUTSIDE SERVICE ENTRANCE PLAN VIEW.



DETAIL A-24A
**TYPICAL DOMESTIC SERVICE TAPPED
 OFF FIRE SERVICE**
 PENNICHUCK WATER WORKS, INC.
 REV: 6-07 SCALE: NTS



TOP VIEW



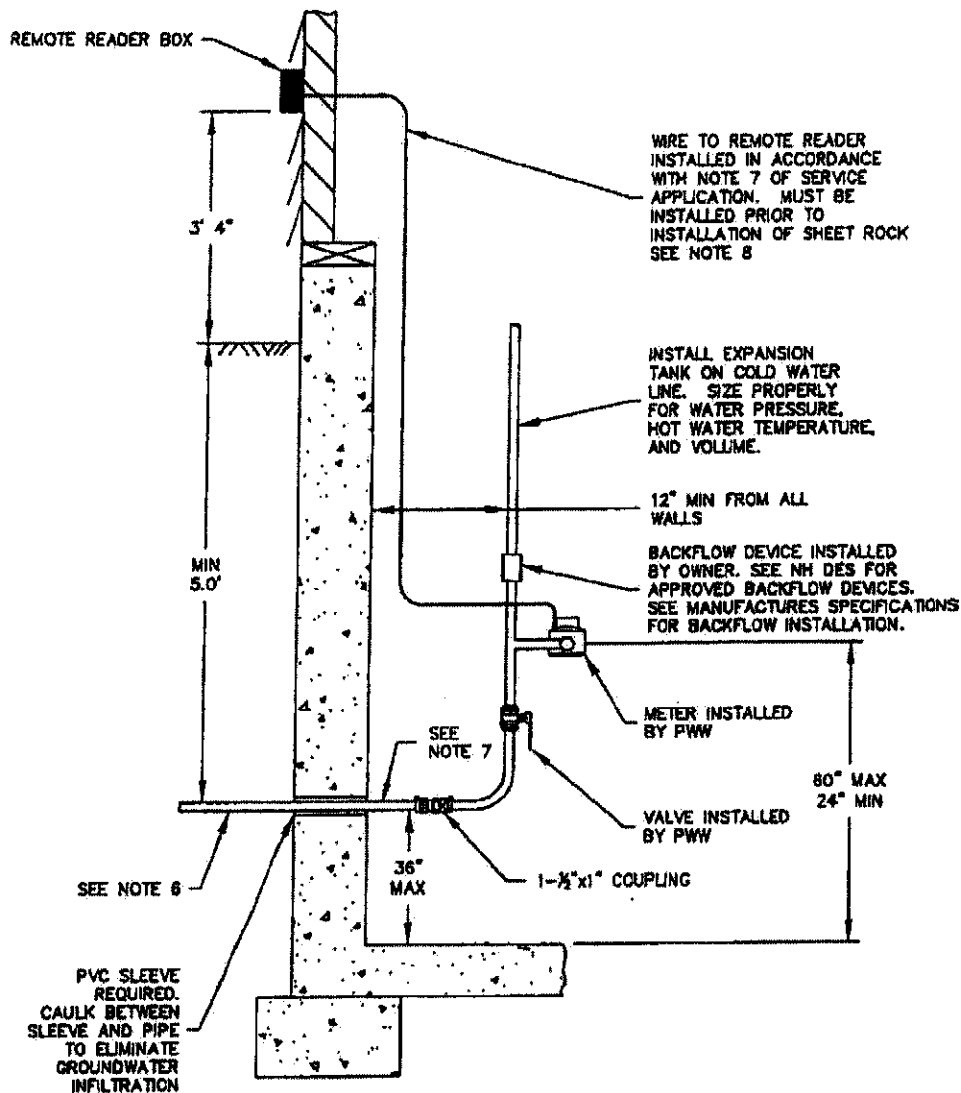
SIDE VIEW

NOTES:

1. ALL MATERIALS AND INSTALLATION PROCEDURES WILL CONFORM TO P.W.W. TECHNICAL SPECIFICATIONS.
2. PRV WHEN NECESSARY WILL BE INSTALLED AND PURCHASED BY OWNER OR CONTRACTOR.
3. 1 1/2" METER = 13" LAYING LENGTH.
4. 2" METER = 17" LAYING LENGTH.
5. SEE DETAIL A-27 FOR COMBINED FIRE AND DOMESTIC SERVICE ENTRANCE DETAIL.
6. ANY ELECTRICAL PANEL MUST MAINTAIN A 6' MINIMUM RADIUS FROM METER AND BACK FLOW.



DETAIL A-25
 1 1/2" THROUGH 2" SERVICE
 ENTRANCE DETAIL
 PENNICHUCK WATER WORKS, INC.
 REV: 5-01 SCALE: NTS

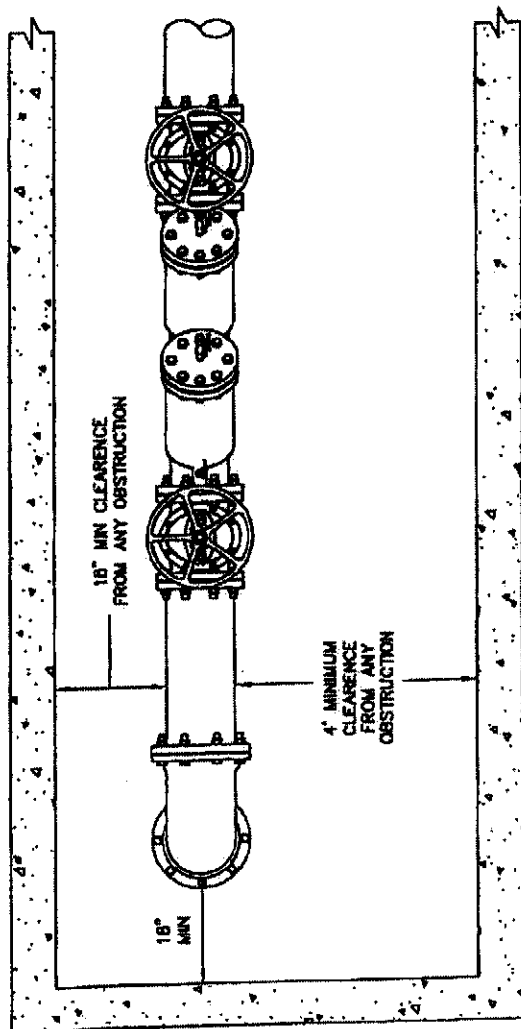


NOTES:

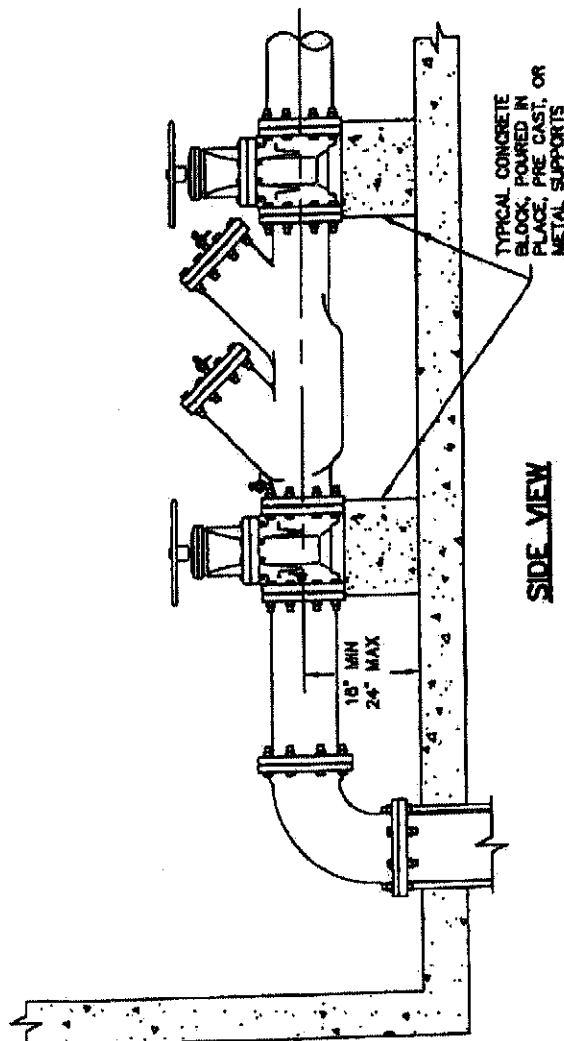
1. ALL MATERIALS AND INSTALLATION PROCEDURES WILL CONFORM TO P.W.W. SPECIFICATIONS.
2. SEE STEP 7 ON SERVICE APPLICATION.
3. INSTALLATION UNDER FOOTING OR THROUGH FOUNDATION WALL AT OWNER'S EXPENSE.
4. OWNER MUST PROVIDE A CLEAN, DRY ACCESSIBLE AND WARM (CONTINUALLY ABOVE 45°F) LOCATION FOR THE WATER METER.
5. OUTSIDE READER MUST BE LOCATED ADJACENT TO DRIVEWAY.
6. SERVICE LINE FROM STREET, SIZE & MATERIALS TO BE APPROVED BY P.W.W. ONLY TYPE "K" COPPER TUBING OR 200 PSIG RATED CTS POLYETHYLENE TUBING ARE ACCEPTABLE FOR SERVICE LINES. SAND TO BE USED FOR BACK FILL FOR A MINIMUM OF 6" ABOVE AND BELOW THE SERVICE LINE.
7. PROVIDE A MINIMUM OF 24" OF STRAIGHT COPPER AT SERVICE ENTRANCE INSIDE OF BUILDING TO ALLOW FOR INSTALLATION OF P.W.W. METER AND VALVES.
8. METER WIRE TO BE 22 AWG 3-STRAND (BLACK/RED/GREEN COLOR CODE) SOLID STRAND CABLE AVAILABLE FROM:
ACT SERVICES, INC.
916 PLEASANT STREET
SUITE 3A
NORWOOD, MA 02082
TEL. (781) 255-0978



DETAIL A-25A
TYPICAL 1" SERVICE METER
INSTALLATION
PENNICHUCK WATER WORKS, INC.
REV: 3-03 SCALE: NTS



TOP VIEW



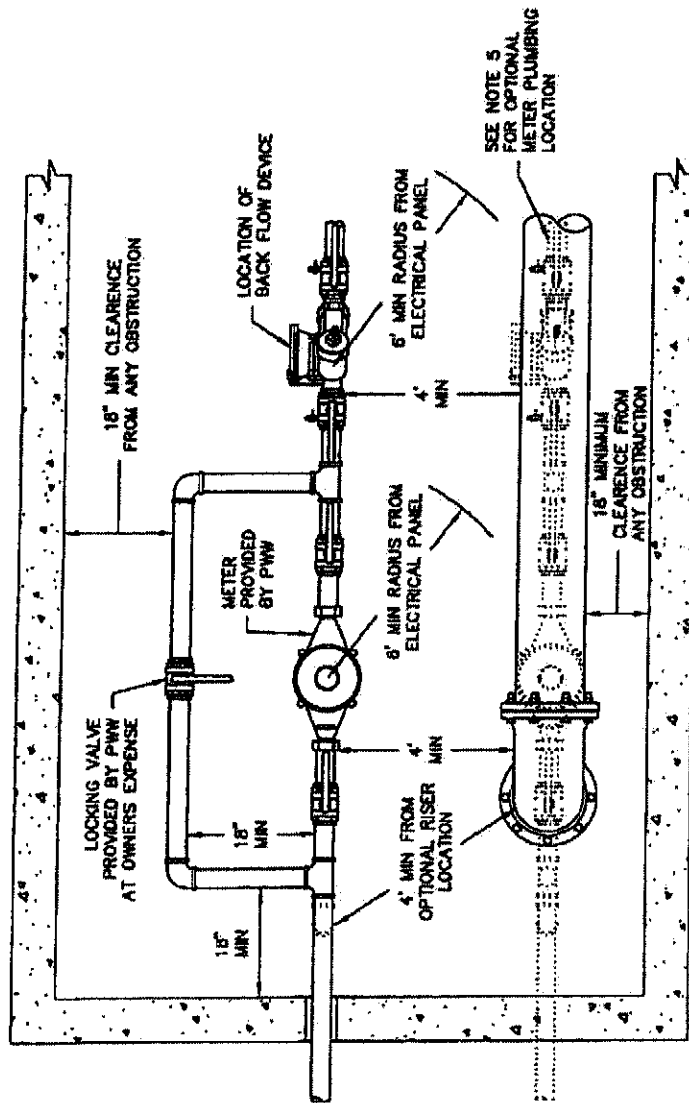
SIDE VIEW

NOTES:

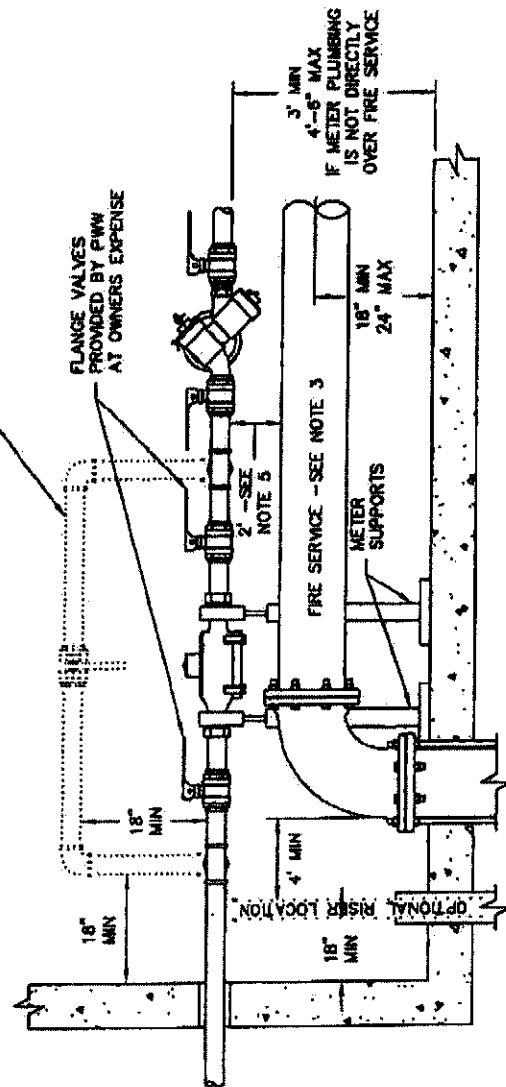
1. ALL MATERIALS AND INSTALLATION PROCEDURES WILL CONFORM TO P.W.W. TECHNICAL SPECIFICATIONS.
2. BACK FLOW PREVENTOR REQUIRED ON ALL FIRE SERVICES. TYPE AND LOCATION SUBJECT TO P.W.W. APPROVAL.
3. SEE DETAIL A-27 FOR COMBINED FIRE AND DOMESTIC SERVICE ENTRANCE DETAIL.



DETAIL A-26
FIRE SERVICE ENTRANCE DETAIL
 PENNICHUCK WATER WORKS, INC.
 REV: 05-01 SCALE: NTS



TOP VIEW



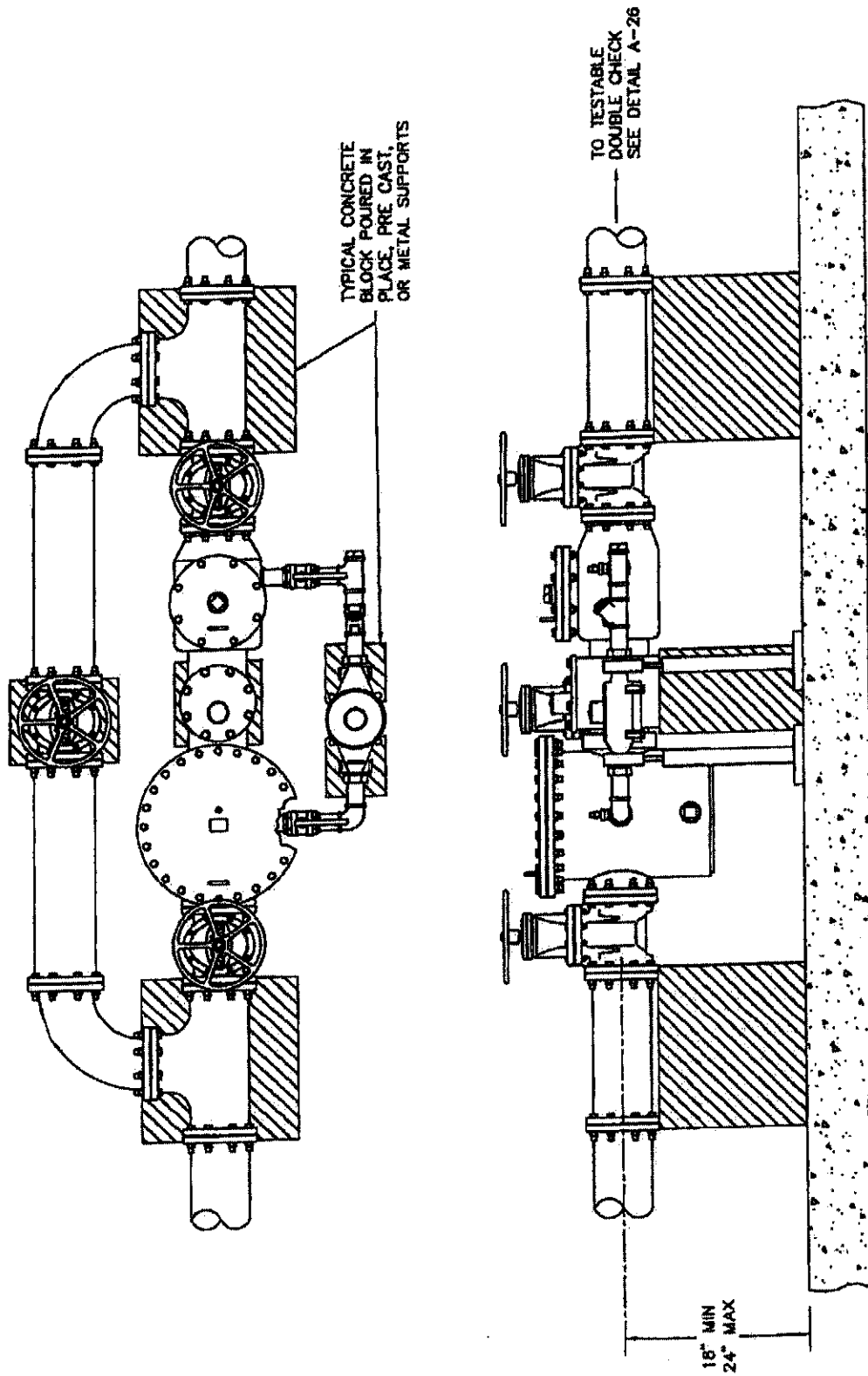
SIDE VIEW

NOTES:

1. ALL MATERIALS AND INSTALLATION PROCEDURES WILL CONFORM TO P.W.W. TECHNICAL SPECIFICATIONS.
2. PRV WHEN NECESSARY WILL BE INSTALLED AND PURCHASED BY OWNER OR CONTRACTOR.
3. BACK FLOW PREVENTOR REQUIRED ON ALL FIRE SERVICES. TYPE AND LOCATION SUBJECT TO P.W.W. APPROVAL. SEE DETAIL A-26.
4. ANY ELECTRICAL PANEL MUST MAINTAIN A 6" MINIMUM RADIUS FROM METER AND BACK FLOW.
5. METER PLUMBING MAY BE INSTALLED DIRECTLY OVER THE FIRE SERVICE PROVIDED THAT 2' CLEARANCE IS MAINTAINED AND 4' MINIMUM CLEARANCE FROM ANY OBSTRUCTION IS ALSO MAINTAINED.
6. 1 1/2" METER = 13" LAYING LENGTH.
7. 2" METER = 17" LAYING LENGTH.



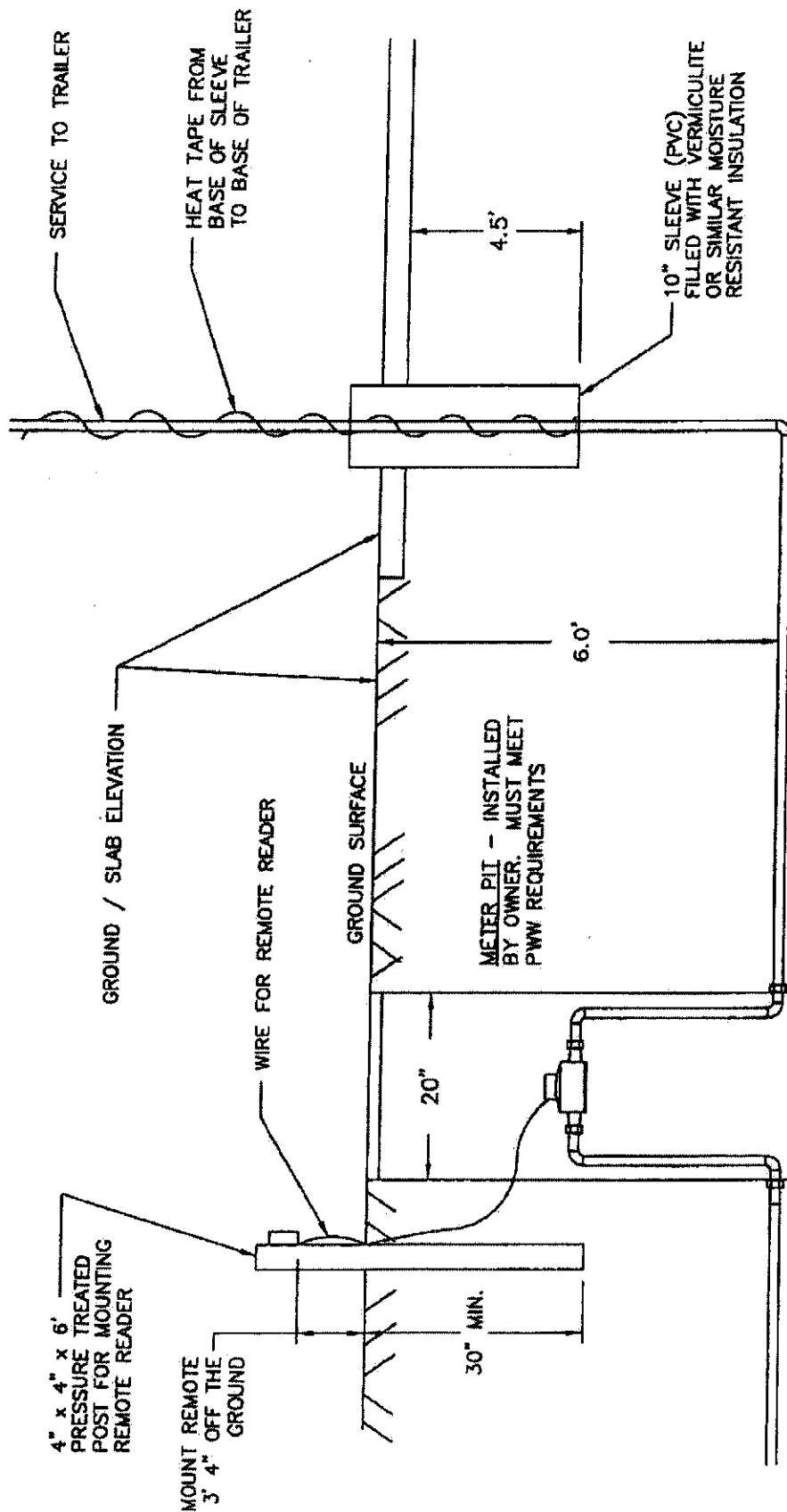
DETAIL A-27
**COMBINED FIRE AND DOMESTIC
 SERVICE ENTRANCE DETAIL**
 PENNICHUCK WATER WORKS, INC.
 REV: 05-01 SCALE: 1"



NOTES:
1. ALL MATERIALS AND INSTALLATION PROCEDURES WILL CONFORM TO P.W.W. TECHNICAL SPECIFICATIONS.

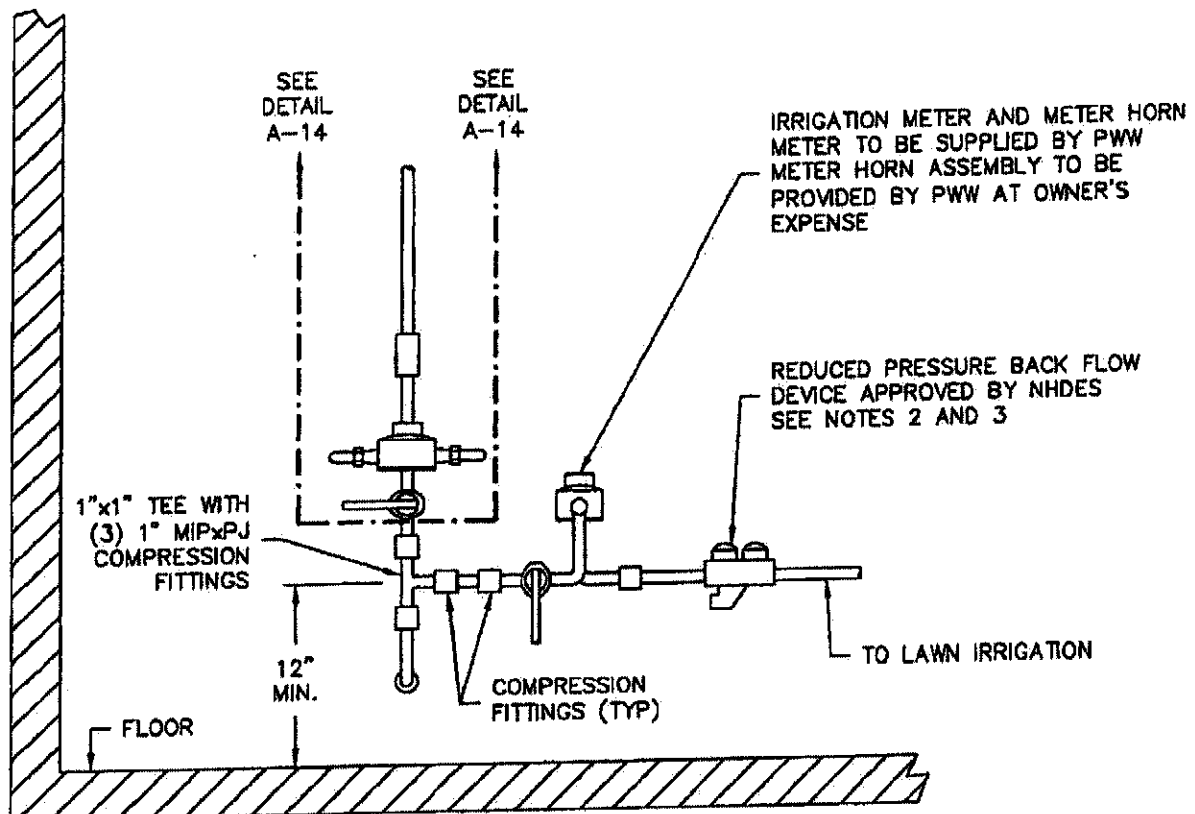


DETAIL A-28
TYPICAL FIRE SERVICE
WITH YARD HYDRANTS
PENNICHUCK WATER WORKS, INC.
REV: 05-01 SCALE: NTS



DETAIL A-29
 TYPICAL MANUFACTURED HOUSING
 OR SLAB SERVICE ENTRANCE
 PENNICHUCK WATER WORKS, INC.
 REV: 5-01 SCALE: N



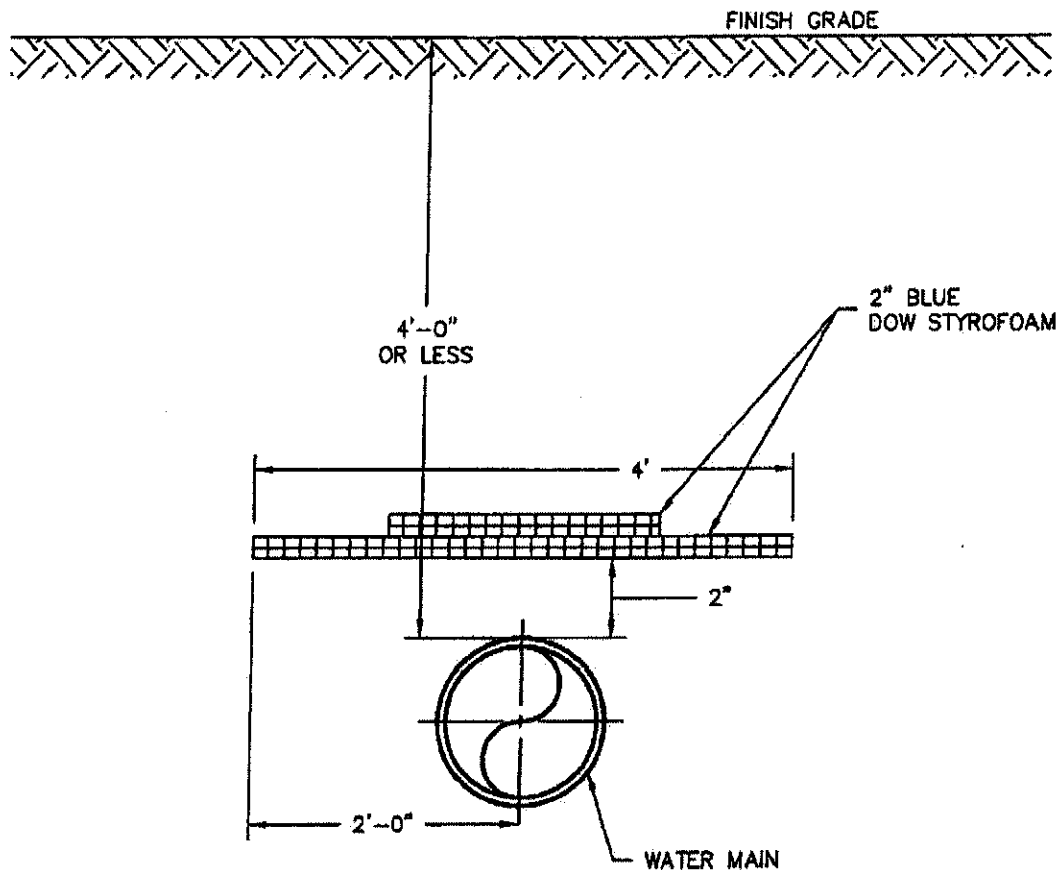


NOTES:

1. ALL MATERIALS AND INSTALLATION PROCEDURES WILL CONFORM TO P.W.W. TECHNICAL SPECIFICATIONS.
2. REDUCED PRESSURE BACK FLOW DEVICE MUST BE INSTALLED OUTSIDE WHERE SERVICE EXITS HOUSE, OR A POSITIVE DRAIN BE INSTALLED IN BASEMENT.
3. A PRESSURE VACUUM BREAKER CAN BE INSTALLED INSTEAD OF A REDUCED PRESSURE BACK FLOW DEVICE, PROVIDED THE PRESSURE VACUUM BREAKER IS INSTALLED A MINIMUM OF 18" HIGHER THAN THE HIGHEST SPRINKLER HEAD.



DETAIL A-30
DOMESTIC IRRIGATION SERVICE
METER INSTALLATION
PENNICHUCK WATER WORKS, INC.
REV: 5-01 SCALE: NTS

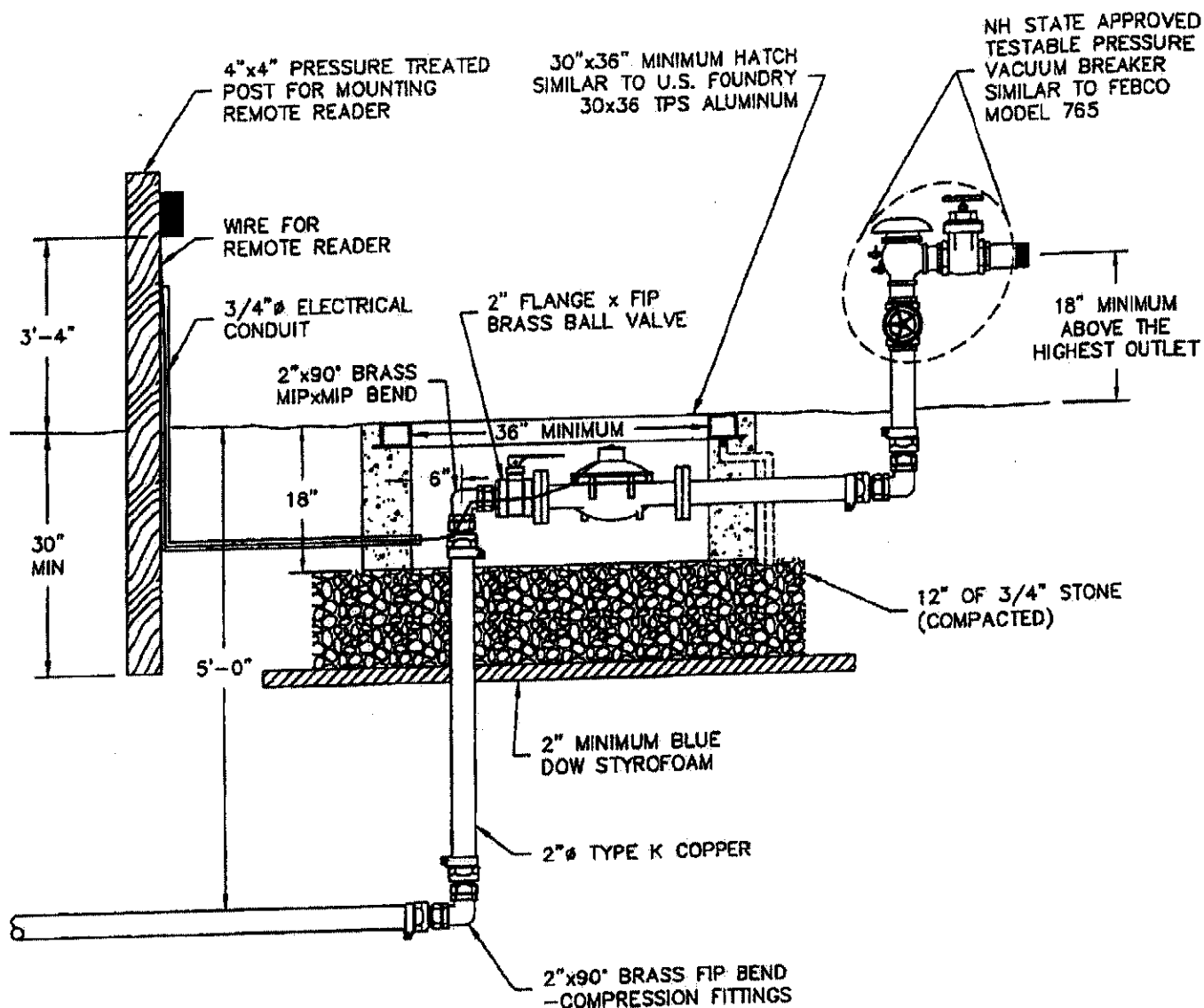


NOTES:

1. ALL MATERIALS AND INSTALLATION PROCEDURES WILL CONFORM TO P.W.W. TECHNICAL SPECIFICATIONS.
2. ALL PIPE SHOULD HAVE A MINIMUM DEPTH OF 5' FROM TOP OF PIPE TO FINISH GRADE.
3. P.W.W., INC. RESERVES THE RIGHT TO MODIFY INSULATION REQUIREMENTS AS NECESSARY BASED ON FIELD CONDITIONS, ETC.
4. ALL BUTT JOINT SEAMS TO BE OVERLAPPED WITH 2" PIECE OF INSULATION CENTERED OVER SEAM.

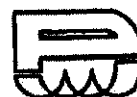


DETAIL A-31
 TYPICAL INSULATION DETAIL FOR
 LESS THAN 4'-0" OF COVER
 PENNICHUCK WATER WORKS, INC.
 REV: 5-01 SCALE: NTS

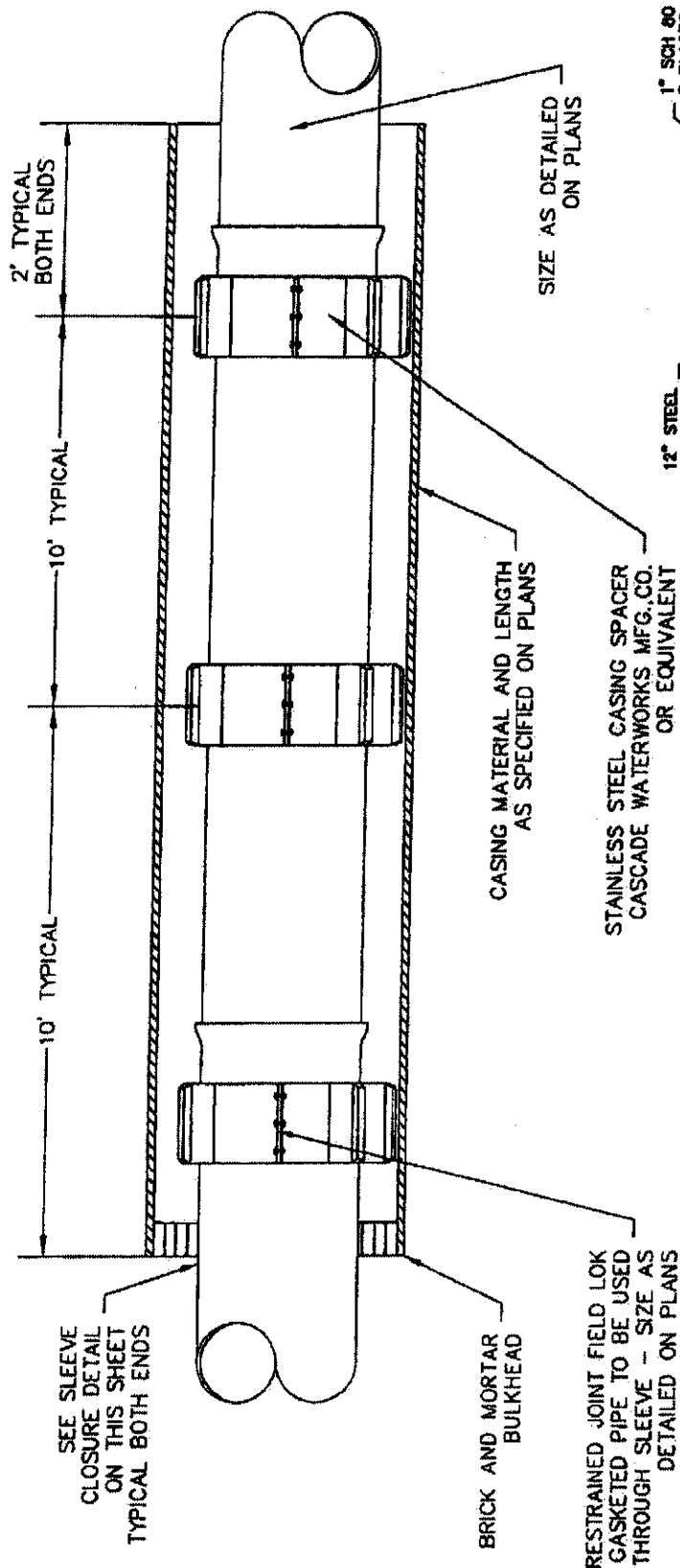


NOTES:

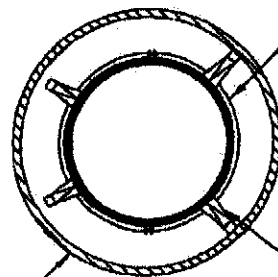
1. ALL MATERIALS AND INSTALLATION PROCEDURES WILL CONFORM TO P.W.W. TECHNICAL SPECIFICATIONS.
2. ALL PIPE SHOULD HAVE A MINIMUM DEPTH OF 5' FROM TOP OF PIPE TO FINISH GRADE.
3. PRV WHEN NECESSARY WILL BE INSTALLED AND PURCHASED BY OWNER OR CONTRACTOR.
4. METER WIRE TO BE 22 AWG 3-STRAND (BLACK/RED/GREEN COLOR CODE) SOLID STAND CABLE AVAILABLE FROM:
ACT SERVICES, INC.
916 PLEASANT STREET
SUITE 3A
NORWOOD, MA 02062
TEL. (781) 255-0978



DETAIL A-32
TYPICAL SHALLOW 2" IRRIGATION
METER PIT DETAIL
PENNICHUCK WATER WORKS, INC.
REV: 5-01 SCALE: NTS



1/2" ϕ THICK STEEL SLEEVE
OR SDR35 PVC SLEEVE
OR SDR21 HDPE
SIZE AS DETAILED ON PLANS



STAINLESS STEEL
CASING SPACER
CASCADE WATERWORKS MFG.CO.
OR EQUIVALENT

DIPCL PIPE ASSEMBLY WITH FIELD
LOK GASKET JOINT RESTRAINTS
THROUGHOUT THE SLEEVED PORTION
OF THE PIPE

12" STEEL SLEEVE

1" SCH 80 PVC PIPE
2 PLACES

GEOTECHNICAL FILTER
FABRIC

6" D.I. PIPE

GEOTECHNICAL FILTER
FABRIC

FILTER FABRIC
OVERLAP 6" MIN

1/2" STONE FILL AREA

CENTERING COLLAR

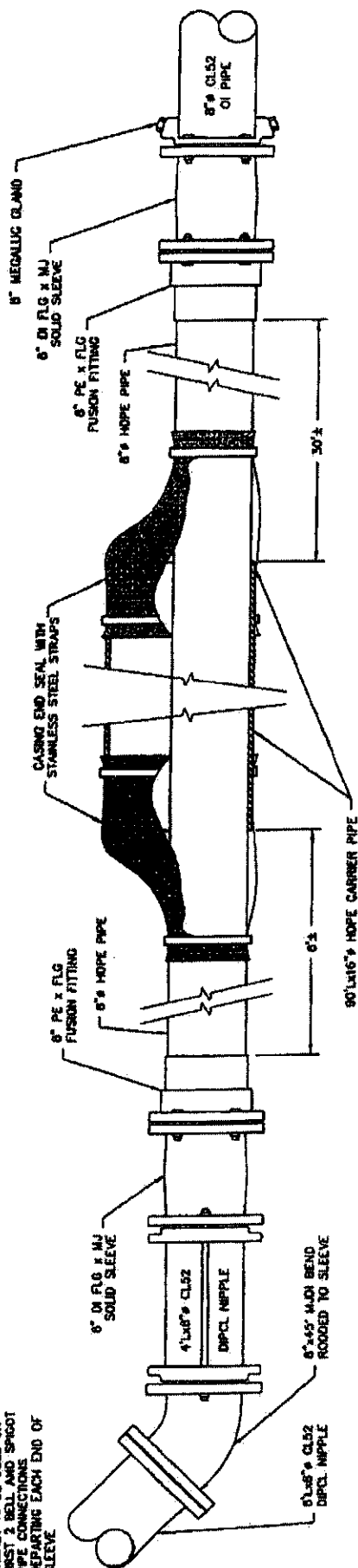
BRICK & MORTAR BULKHEAD



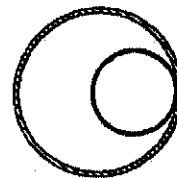
DETAIL A
TYPICAL SLEEVE DETAIL

PENNICHUCK WATER WORKS, INC.
REV: 10-01 SCALE: 1"

NOTE:
FIELD LOK® RESTRAINT JOINT
GASKET TO BE USED ON
FIRST 2 BELL AND SPIGOT
PIPE CONNECTIONS
DEPARTING EACH END OF
SLEEVE

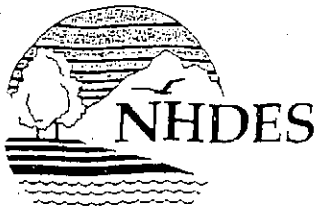


NOTE:
FIELD LOK® RESTRAINT JOINT
GASKET TO BE USED ON
FIRST 2 BELL AND SPIGOT
PIPE CONNECTIONS
DEPARTING EACH END OF
SLEEVE



DETAIL B
TYPICAL SLEEVE DETAIL
DL 10.1E

PENNICHUCK WATER WORKS, INC.
REV: 10-01 SCALE: NTS



The State of New Hampshire
Department of Environmental Services



Michael P. Nolin
Commissioner

January 6, 2006

PROVENCHER ENGINEERING
6 WASSERMAN HEIGHTS
MERRIMACK, NH 03054

Attn: Donald A. Provencher, P.E.

Subject: CWS TILTON; Winnisquam Village Condominiums - Project # 996082

Dear Mr. Provencher:

Our office has reviewed and hereby approves the plans and specifications, dated October 2005, for the proposed 'Winnisquam Village Condominiums' public water supply system to be located on Route 3 in the Town of Tilton.

The water supply system's new wells have the following location/descriptions: Bedrock Well 1, 88' Northwest of the Pumphouse and Bedrock Well 2, 128' West of the Pumphouse. The permitted production volumes for the wells are 14,400 and 43,200 gallons, respectively. The water quality samples numbered 509-612 and 509-616, which were taken on September 21, 2005, will be assigned to these sources.

The total number of 2-bedroom units approved is 86 and the approved design flow for the proposed water supply system at this time is 25,800 gallons per day.

Please be advised that this approval shall lapse four years from the date of this letter, if construction of the water supply system has not started. In addition, if construction of the water supply system has started at that time, but the water supply system has not begun operation; the water system's design will have to meet all then current design criteria prior to its start-up.

All construction of the water supply system is to be in accordance with NH Administrative Rule Env-Ws 372.21, 372.22, 372.23, 372.24, 372.25, and 372.32 (*Design Standards for Small Community Water Systems*). This approval is also subject to the following conditions:

1. Fuels and other regulated contaminants shall not be stored, nor shall septic tanks and leach fields, buildings, roadways, parking lots, etc. be located, within the wells' 200 foot protective radius areas as shown on the site plan. The top of each well casing must be at least one foot above the final finished grade.
2. A sampling tap shall be installed for each water supply source in order to sample each source's water quality individually. The sampling taps should be located on

each incoming source line prior to its entry to the first on-line storage tank. They should be located at least 12 inches above the floor or finished grade.

3. Each water supply source shall have a water meter installed on the incoming source line prior to its entry to the storage tanks which shall be read at least once every 30 days.
4. In accordance with Env-Ws 390.04 (*Water Conservation Rules*) and the water supply system's water conservation plan, each of the water system's residential service connections shall have a water meter installed which shall be read at least once every 90 days.
5. The water supply system shall be capable of an immediate connection of a chemical feed pump for the metered application of a disinfectant. An injection tap shall be installed on the source waterline prior to its entry to the first on-line storage tank and an electrical outlet, interconnected with the electrical circuit for the well pumps, shall be provided.
6. Each well shall have an appropriately sized tube for electronic drawdown probes or alternate provisions permanently installed in the wells which shall allow determination of the static and drawdown water levels.
7. The atmospheric storage tanks shall be equipped with a capped filler pipe (lockable, if on the exterior) to accommodate tank truck water delivery.
8. A certified operator, with the required grade(s), shall be retained in accordance with Env-Ws 367 (*Certification of Water Works Operators*) to be in responsible charge of the water supply system.
9. The water system's sources shall be wired to operate either simultaneously or to automatically alternate between pumping cycles in order to be sampled together as a blended sample.
19. All construction of the water distribution system is to be in accordance with Env-Ws 372.32 and the Water Distribution System Construction Guide that is enclosed with this letter. All piping material, valves, etc. shall conform to the most recent revision of the appropriate American Water Works Association (AWWA) Specifications. Where such a specification does not exist for the pipe size being used, the minimum pressure rating for the pipe shall be 200 psi and the pipe shall conform to the requirements of American Society for Testing and Materials

21. A copy of the water supply system's operation and maintenance manual, in accordance with Env-Ws 360.05 and Env-Ws 371.11, must be available prior to the water system's initial date of start-up.
22. A copy of the water supply system's emergency plan, in accordance with Env-Ws 360.15, must be available prior to the water system's initial date of start-up. The water system is required to review and update the emergency plan on an annual basis as needed. A copy of the emergency plan must also be submitted to DES every six years during the month of March.
23. At such time as the project is constructed and is ready for occupancy, the owner must contact this office (271-2513) to arrange for a system inspection and the system's water sampling schedule in accordance with Env-Ws 372.34.

Please be aware that it is possible to obtain waivers from a portion of the chemical sampling requirements by implementing a wellhead protection program. The cost savings associated with these waivers can be significant.

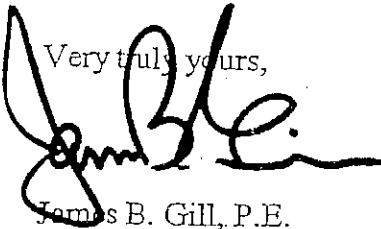
The first steps are to estimate the wellhead protection area and develop a preliminary contamination source inventory that describes existing and potential contamination sources (PCS) in the area. Existing contamination sources are sites where it is known that hazardous substances have been released to the environment. PCSs are sites where chemicals are handled, stored, or produced. Following these steps, what remains is the management of the PCSs that you have already identified in your wellhead protection area. This would require that you provide the appropriate people with the information about best management practices for handling chemicals, hazardous materials, and other substances so their activities do not result in groundwater contamination. We urge you to complete this final step, both to realize cost savings and to protect this valuable source of drinking water.

The Water Supply Engineering Bureau (WSEB) staff, at 271-7017, is available to assist you in implementing a wellhead protection program and obtaining the appropriate chemical sampling waivers that are available.

If you have any questions concerning this letter, please contact this office at (603) 271-2949 or by e-mail at jeill@des.state.nh.us.

Winnisquam Village Condominiums
Donald A. Provencher, P.E.
January 6, 2006
Page 5 of 5

Very truly yours,



James B. Gill, P.E.
Small Water Systems Section
Water Supply Engineering Bureau

enclosure

cc: New Hampshire Public Utilities Commission
A. Clark - WVCA
Subsurface Systems Bureau - NHDES
K. Riel - NHDES
D. Morgan, P.G. - NHDES (via e-mail)
B. Gauthier - NHDES
D. McDonnell - NHDES



The State of New Hampshire
Department of Environmental Services

Michael P. Nolin
Commissioner



November 21, 2005

Allan Clark
REI Land Development
763 Chestnut Street
Manchester, New Hampshire 03104

Subject: CWS TILTON: Winnisquam Village Condos; EPA ID: New System
New Bedrock Wells, 1, 2; NHDES #996082

Dear Mr. Clark:

The purpose of this letter is to conditionally approve the subject wells for Winnisquam Village Condos in Tilton. This decision is based on a review of materials submitted to meet the requirements of New Hampshire Administrative Rules Env-Ws 390 & 378, *Water Conservation and Site Selection of Small Production Wells for Community Water Systems*. Approval is subject to the following.

Water Conservation:

The October 2005 Water Conservation Plan (WCP) for the subject water system is approved as proposed. Please note that the WCP referenced operational guidelines for a turf irrigation system, if such a system were to be installed at the development in the future. However, the source capacity estimates provided with the Preliminary and Final Well Siting Reports did not include an adequate assessment of volume requirements for this type of non-residential water use. If such a system is installed and an estimate of its volume requirements plus the drinking water system requirements exceeds the Permitted Production Volume (PPV) noted below, the system owner must request an increased PPV in accordance with Env-Ws 378.22.

The Plan shall be implemented at system start-up. Every three years from the date of this letter the water system shall supply the New Hampshire Department of Environmental Services (NHDES) with documentation of compliance with the plan. This information shall be supplied on a form provided by NHDES and shall include contact information for the water system owner and the person responsible for carrying out the tasks of the plan, all data relating to leak detection, water use audits, and meter reading, if applicable, and the dates these tasks were performed.

Conditions of Well Siting Approval:

- Total coliform bacteria were detected in the water withdrawn from Bedrock Well 1 (BRW 1). Upon connection of the new well to the water system, but prior to serving customers, disinfect the well per the requirements of Water Well Board Rule We 602.03, and provide water quality sampling results that indicate total coliform bacteria is absent from the well.
- Toluene was detected in the water withdrawn from BRW 1. Upon connection of the new well to the water system, but prior to serving customers, provide water quality sampling results that indicate toluene is absent from the water withdrawn from the well.
- If toluene is not absent from the water withdrawn from BRW 1, you must submit sampling results on a monthly basis until the concentration of this constituent drops below detection limits. If the

concentration of toluene increases, then the source of contamination must be identified and controlled or an alternate supply of water must be developed.

- Water quality sample results for total coliform bacteria and toluene must be submitted to Diana Morgan at Water Supply Engineering Bureau.

Within 60 days of receipt of this letter an emergency plan must be prepared for the water system in accordance with New Hampshire Administrative Rule Env-Ws 360.14. This plan must continue to be updated and submitted to New Hampshire Department of Environmental Services in March once every 6 years. This regulation also requires the plan to be reviewed annually by the system and updated as needed. Additionally, the plan will be a checklist item during each sanitary survey and lack of one will be a survey deficiency. Guidance documents and other emergency planning information are available at the following website: <http://www.des.state.nh.us/wseb/EmergencyPlanning/index.asp>. You may contact Johnna McKenna at 603-271-7017 or jmckenna@des.state.nh.us for more information or assistance in completing emergency planning for your water system.

A copy of this letter should be kept on file with the water system's records for future reference and as an aid to meeting the NHDES source water protection requirements.

Please note that the well must be connected to a distribution system in accordance with Env-Ws 372, *Design Standards for Small Public Drinking Water Systems*. Contact Jim Gill at 271-2949 for further information about system design and connection requirements for new community water systems.

Source Specifications:

Well Number	Well Status	Permitted Production Volume	Sanitary Protective Area Radius	Wellhead Protective Area Radius	Source Description
BRW 1	New Well on New System	14,400 gallons	200 feet	3,600 feet	BRW 1, 128' W of pumphouse
BRW 2	New Well on New System	43,200 gallons	200 feet	3,600 feet	BRW 2, 88' W of pumphouse

The previous table outlines the specifications for the new wells. The Permitted Production Volume is the maximum volume that may be pumped from a well in any 24-hour period. The PPVs for the wells are as shown above. The combined volume for the system may not exceed 57,600 gallons in any 24-hour period. This volume includes water designated for irrigation water use.

The sanitary protective areas for the new wells are circles, centered on each well, with the radii listed above. The sanitary protective areas shall remain in a natural state and under the water system's control at all times. Please note that NHDES may initiate enforcement action if the system does not maintain the SPAs in a natural state.

The Wellhead Protection Areas for the new wells are circles, centered on each well, with the radii shown above. This is the area within which educational materials must be periodically distributed as part of the wellhead protection program. The first round of educational materials must be distributed within 90 days of system startup.

Allan Clark
Winnisquam Village Condos/Tilton
November 21, 2005
Page 3 of 3

Chemical Monitoring Program:

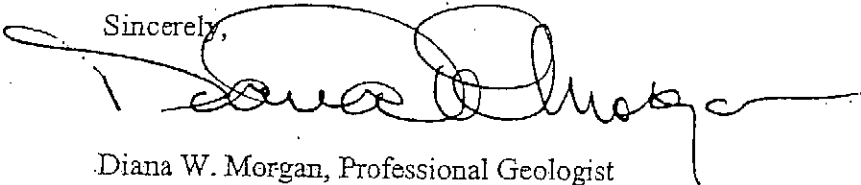
Well Number	Well Status	Laboratory Name and Sample Numbers
BRW 1	New Well on New System	Granite State Analytical: 509-612-2, 3, 4, 5
BRW 2	New Well on New System	Granite State Analytical: 509-616-1, 2, 3, 4

The September 21, 2005 water quality sample results for the new wells will be forwarded to the NHDES Chemical Monitoring Program. The sample identification numbers are listed in the table above. Chemical Monitoring staff will be contacting you shortly with a Master Sampling schedule. You must add sampling taps to the new wells and you must contact staff so that the schedule will accurately reflect the correct sampling locations.

If you have any questions about the Chemical Monitoring requirements, contact Allyson Gourley at 271-0655 or by email at agourley@des.state.nh.us. Please note that NHDES may initiate enforcement action if the system fails to implement a chemical monitoring program that includes the new well.

If you have any questions about this approval or any other well siting issues feel free to call me at 271-2947 or email me at dmorgan@des.state.nh.us.

Sincerely,



Diana W. Morgan, Professional Geologist
Water Supply Engineering Bureau

Cc: Allyson Gourley, Laurie Cullerot, Johnna McKenna, NHDES
Kimon Koulet, LRPC

Electronic Copies:
Jim Gill, Kevin Riel, Deb McDonnell, Ben Gauthier, NHDES

EXHIBIT D

EXCEPTIONS

There are no Exceptions noted at this time.

EXHIBIT E

USE AND ACCESS EASEMENT DEED

KNOW ALL PERSONS BY THESE PRESENTS, that, R. J. Moreau Communities, LLC, a New Hampshire Limited Liability Company, having a business address of 22 Eastman Drive, Bedford, New Hampshire 03110, (hereinafter called the "Grantor"), for consideration paid, grants to **Pennichuck East Utility, Inc.**, a New Hampshire Corporation having its principal place of business at 25 Manchester Street, Merrimack, New Hampshire 03054, and its successors and assigns forever (hereinafter called the "Grantee"), with WARRANTY COVENANTS, the perpetual and exclusive right and easement more particularly described below, over, under and across a certain tract of land in the town of Tilton, County of Rockingham, State of New Hampshire, and more particularly bounded and described as follows (the "Land").

(GRANTOR TO SUPPLY DESCRIPTION AND PLAN REF.)

The above-granted right and easement is more particularly described as:

The perpetual and exclusive right to lay, construct, install, operate, maintain, repair, replace and remove underground pipes, ducts, conduits, and such pumping equipment, pumphouses, storage facilities and foundations and enclosures for the same, and such meters, meter horns, readout devices and other appurtenances wherever located on the Land, as the Grantee may from time to time desire for water distribution purposes, extending to and installed within the buildings or structures on the Land in order to provide water service to the Land, and to customers beyond the Land and other than the Grantor. Meaning and intending at a minimum to convey an easement ten feet (10') on either side of the water mains and twenty (20') feet, from the outside walls of the pump house, wherever laid or built respectively.

This conveyance shall include the right of access from, to and across said Land for all purposes in connection with the exercise of the within granted rights and easement; the right to excavate, trench, and backfill by men or machines and temporarily to place excavated earth and other material on said Land, provided that the said Land shall be restored by the Grantee to substantially the condition in which it was immediately prior to such access, excavation, trenching, and backfilling; the right to trim, cut down and remove bushes, trees and other plant growth on the Land as and to such extent as in the judgment of the Grantee is necessary for any of the above purposes; the right to go upon the Land when working on side lines and associated equipment; and the right, to be exercised only for temporary periods when continuity of service

requires, to install temporary above-ground lines over and across said Land to provide service to buildings thereon.

The Grantor, for itself and its successors and assigns, covenants and agrees (i) that they will not erect or maintain, or permit to be erected or maintained, any permanent building or structure of any kind or nature upon the Land, or plant or permit to be planted any trees, over said underground pipes and other equipment and (ii) that they shall not alter the grade of the Land as such grade exists at the time of the installation of the pipes and other equipment referred to above.

The Grantor further covenants and agrees, for itself and its successors and assigns, that in the event of excavation or grading by Grantor which in the good faith opinion of the Grantee might materially disturb, dislocate, damage or endanger said pipes or other equipment, the Grantor will install reasonable shoring or bear the expense of its installation at reasonable locations specified by the Grantee or its representatives, and in the event of any damage to said pipes or other equipment as a result of such excavation or grading, the Grantor will pay the cost of repair to, or replacing of, said pipes or other equipment as the case may be.

Grantee will not unreasonably withhold its consent to Grantor's request from time to time for changes in the location of said pipes or other equipment, provided that Grantor shall pay for the costs of such changes, and provided also that such changes shall not materially interfere with the use and operation of the water systems which are the subject hereof.

IN WITNESS WHEREOF, **R. J. Moreau Communities, LLC** has caused this Easement Deed to be executed in its name and behalf by _____, its _____, being hereunto duly authorized this _____ day of _____, 2009.

R. J. Moreau Communities, LLC

By:

Reginald Moreau, Authorized on behalf
of R. J. Moreau Communities, LLC, as its owner

STATE OF NEW HAMPSHIRE
COUNTY OF _____

On this the _____ day of _____, 2009, before me, the undersigned officer, personally appeared Reginald Moreau who acknowledged himself to be the member/manager of R. J. Moreau Communities, LLC, and acknowledged that he being authorized so to do, executed the same on behalf of said Limited Liability Company for the purposes therein contained.

Justice of the Peace/Notary Public
My commission expires:

SUBORDINATION

FOR VALUE RECEIVED, _____, holder of a Mortgage, Security Agreement, Lease Assignment and Financing Statement from _____ to _____, dated _____ and recorded in the Merrimack County Registry of Deeds at Book _____, Page _____ (the "Mortgage"), hereby subordinates the Mortgage to the within Easement Deed, the Mortgage to otherwise remain in full force and effect.

Date: _____

Witness

By: _____
Its:

STATE OF NEW HAMPSHIRE
COUNTY OF _____, SS.

Before me, the undersigned officer, personally appeared _____, who acknowledged him to be the _____ of _____ and that he being authorized to do so, executed the same on behalf of said Company for the purposes therein contained.

Witness my hand and official seal, this ____ day of _____, 2009.

Justice of the Peace/Notary Public
My commission expires:

**PUBLIC WATER SUPPLY WELL PROTECTIVE
RADIUS AREA EASEMENT**

Declaration made as of _____, 2009, by **R. J. Moreau Communities, LLC**, a New Hampshire Limited Liability Company having a business address of 22 Eastman Drive, Bedford New Hampshire (hereinafter the "Declarant").

WITNESSETH:

WHEREAS, the Declarant is the owner of certain property located in Tilton, Merrimack County, New Hampshire, known as **Winnisquam Village Condominiums Community Water System**, as shown on the plan entitled Water Distribution Plan, Winnisquam Village Condominium, Tilton, New Hampshire, dated October 6, 2005 and last revised on November 17, 2005, and prepared by Holden Engineering & Surveying, Inc, and recorded in the Belknap County Registry of Deeds as Plan No. _____ (the "Plan"), containing a total of 86 condominium units, together with roadways and other common areas:

WHEREAS, it is contemplated that water service to the subdivision will be supplied by a series of ____ wells located therein and the common area of the subdivision as shown on the Plan to be owned and operated by **Pennichuck East Utility, Inc.**, or another "municipal" water supplier; and

WHEREAS, it is necessary for the protection of the water quality of such wells to provide a protective well radius area around such wells.

NOW THEREFORE, for value received, Declarant hereby declares a protective well radius area around each well from the head of the well as built, and as shown on the Plan. This protective radius is 200 feet from Well "_____", and 200 feet from Well "_____".

The purpose of this easement is to establish a protective area to prevent contamination of the aforementioned water supply well(s). Hereafter, and for so long as the well(s) is (are) used for a source of public water supply, the area of the above-described easement shall be kept in a

natural state. No use of the area shall be permitted which could directly or indirectly degrade the quality of the aforementioned well(s) water. Uses that would be prohibited include:

Transportation corridors.

Underground utilities or structures, except those that are associated with portable water, electricity or communication.

The storage, handling, transport, treatment, or disposal of the following:

Domestic or industrial wastewater.

Hazardous or regulated substances such as pesticides, gas and oil, and other chemicals.

Hazardous or solid wastes.

Fertilizers.

Any other use that the New Hampshire Department of Environmental Services determines would be detrimental to water quality.

No change in use of the area of the protective easement may be undertaken without approval from the New Hampshire Department of Environmental Services, which approval shall not be unreasonably withheld.

The Declarant and their successors in interest shall retain full ownership interests in the area of the protective easement and reserve all rights and uses therein except as may be contrary or detrimental to the purposes of this Declaration.

The easement declared herein is for the benefit of the public and as such may be enforced by the **Pennichuck East Utility, Inc., Pennichuck Water Works, Inc., Pittsfield Aqueduct Company, Inc.**, or (other owner of the water system), Declarant, and the Winnisquam Village Condominiums, if any, on behalf of the residents of the homes.

Subject to all easements, liens, restrictions and other matters of record.

EXECUTED, this _____ day of _____, 2009.

R. J. Moreau Communities, LLC

By:

Reginald Moreau, Authorized on behalf
of R. J. Moreau Communities, LLC, as its owner

STATE OF NEW HAMPSHIRE
COUNTY OF ROCKINGHAM

On this the _____ day of _____, 2009, before me, the undersigned personally appeared Reginald Moreau, who acknowledged himself to be the owner of **R. J. Moreau Communities, LLC**, and acknowledged that he being authorized so to do, executed the same on behalf of said Limited Liability Company for the purposes therein contained.

Justice of the Peace/Notary Public
My commission expires:

EXHIBIT G

BILL OF SALE

KNOW ALL MEN BY THESE PRESENTS **R. J. Communities, LLC** (hereinafter "Developer"), a New Hampshire Limited Liability Company having a business address of 22 Eastman Drive, Bedford, New Hampshire, (hereinafter "Seller"), for consideration paid, receipt of which is hereby acknowledged, hereby sells, assigns and conveys unto the **Pennichuck East Utility, Inc.**, a New Hampshire Corporation having its principal place of business at 25 Manchester Street, Merrimack, New Hampshire 03054 (hereinafter "Water Company") and its successors and assigns, certain equipment constituting a water distribution system, consisting inter alia of, and not limited to, a pump station, pumping equipment, franchise rights, storage tanks, pipelines, from main to end, all fittings, valves, release valves, hydrants, valve boxes, service boxes, electronics, thrust blocks, backfill materials, road restoration materials and any other appurtenances and equipment required to install the proposed pump station and water main extension as well as any other related equipment, as further defined and set forth in the Preliminary Design Specifications, as defined in the Standard Agreement executed between the Parties, and "_____"), incorporated herein in their entirety by reference as Exhibit 1, (all of the above described property to be hereinafter the "Equipment").

TO HAVE AND TO HOLD the Equipment to the Water Company and its successors and assigns to their use and benefit. And, the Seller, for itself and its successors and assigns, that at the time of the delivery hereof it is the lawful owner of the Equipment, and is possessed thereof in its own right and has full power and lawful authority to sell and convey the same in the manner aforesaid; and that said property is free and clear of all and every encumbrance whatsoever.

And, the Seller, for itself and its successors and assigns, shall and will warrant and defend the same to the Water Company and its successors and assigns against the lawful claims and demands of any and all person or persons whomsoever.

And, the Seller has put the Water Company in possession of the Equipment by delivering to it this Bill of Sale.

Seller will, from time to time, execute and deliver such further instruments of conveyance and transfer and take such other action as may be reasonably requested by Water Company to vest in Water Company all of Seller's right, title and interest in and to the Equipment.

IN WITNESS WHEREOF, _____, has caused this Bill of Sale to be executed in its name and behalf by Reginald Moreau, **R. J. Moreau Communities, LLC**, its owner _____, being hereunto duly authorized this ____ day of _____, 2009.

By: **R. J. Moreau Communities, LLC**

Reginald Moreau, Authorized on behalf
of R. J. Moreau Communities, LLC, as its owner

STATE OF
COUNTY OF

On this the ____ day of _____, 2009, before me personally appeared, Reginald Moreau, who acknowledged himself to be the owner of R. J. Moreau Communities, LLC, and that he being authorized so to do, executed the foregoing instrument for the purposes therein contained.

Notary Public/Justice of the Peace
My Commission Expires: _____

EXHIBIT H

Assignment of Warranties

R. J. Moreau Communities, LLC, (“Assignor”), a New Hampshire Limited Liability Company having a business address of 22 Eastman Drive, New Hampshire 03110, hereby assigns any warranties, or other rights, titles or interests they hold in any of the equipment, as defined in the Standard Agreement, its Exhibit F, the Bill of Sale, executed on _____, and the as built plans supplied by _____, dated _____ all incorporated in their entirety herein by reference (the “System”), executed between Assignor and **Pennichuck East Utility, Inc.** (the “Water Company”), to the Water Company, pursuant to the terms of the Standard Agreement. This assignment includes all rights, title or interest to the specific warranties referenced below, as well as any other warranties, known or unknown to the parties at the date of execution.

Assignor further indicates that it has made a diligent search of it’s records and all related records available to them, and the warranties listed below include all known warranties relative to said Equipment, the original warranty documents and related documentation being also delivered in hand and physically transferred to the Water Company’s possession on today’s date under separate title:

- 1.
- 2.
- 3.
- 4.
- 5.

Executed this _____ th day of _____, 2009.

By: **R. J. Moreau Communities, LLC**

Reginald Moreau, Authorized on behalf
of R. J. Moreau Communities, LLC, as its owner

STATE OF NEW HAMPSHIRE
COUNTY OF _____

On this the _____ day of _____, 2009, personally appeared Reginald Moreau, duly authorized on behalf of **R. J. Moreau Communities, LLC**, as its owner, and made oath that the above statements made by him are true.

Notary Public/Justice of the Peace