



**CITY OF BURLINGTON  
DEPARTMENT OF PUBLIC WORKS**

**Water Resources Division**  
[www.burlingtonvt.gov/dpw](http://www.burlingtonvt.gov/dpw)

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MEMORANDUM

To: Engineering Ventures PC  
Fr: Martin S. Lee, PE, Water Resources Engineer  
Jenna Calvi, Stormwater Program Manager  
Re: Burlington Town Center Review of 2/10/17 Draft Design Drawings  
Date: February 21, 2017

The Public Works Water Resources Division has completed a review of the most recent draft design drawings for the Burlington Town Center development project. The 2/10/17 design drawings depicts a project that can conditionally meet the expectations of the Water Resources Division. We are requesting additional information and we do want the opportunity to review revised design drawings prior to construction. Following are the review comments related to stormwater, wastewater and water infrastructure.

**Stormwater:** While we are satisfied with the preliminary Stormwater management plan, The Stormwater Program is still awaiting the final complete Stormwater application, pending submittal to Vermont DEC. We are unable to provide more specific comments or final approval until that application is made available for review.

Based on the information we have received, as discussed in an email on February 13, the Curve Number used to model the pre-development condition of the Burlington Town Center site must be consistent throughout the application. We have requested that the pre-development condition be modeled as Meadow in good condition.

**Wastewater:** A sewer system review checklist has been completed for this project and is attached to this memo. Many of the checklist items that are not complete are due to these drawings not being final. The intent of this checklist is to provide a guidance tool which informs the development team about the City's expectations. It is expected that checklist items 1 through 11 will either be checked as "yes" or "N/A" prior to construction.

Engineering Ventures provided design wastewater flow information and the instantaneous peak wastewater flow is expected to be 579 gpm. It is recommended that the sewage wastewater flow from the building be split more equally between the sewer on Cherry Street and Bank Street. Additionally we would require that the sewer service connection to the separated sewer on Cherry Street be located at manhole MT2.10 which is approximately 100-feet west of the manhole proposed in the 2/10/17 design drawings.

Non-Discrimination

The City of Burlington will not tolerate unlawful harassment or discrimination on the basis of political or religious affiliation, race, color, national origin, place of birth, ancestry, age, sex, sexual orientation, gender identity, marital status, veteran status, disability, HIV positive status or genetic information. The City is also committed to providing proper access to services, facilities, and employment opportunities. For accessibility information or alternative formats, please contact Human Resources Department at 865-7145.

Manhole MT2.10 has a downgradient sewer line that provides more than twice as much flow capacity than the manhole proposed in the 2/10/17 design drawings.

Water: A water system review checklist has been completed for this project and is attached to this memo. As mentioned above this checklist is a guidance tool for the development review team. Please see the City's Water System Details sheet to help address checklist items 2, 3, 8, 12, 15, 16, 20, 22 and 27.

The new Pine Street block does not include a fire hydrant which leaves a distance of 400-feet between fire hydrants on this new block. The recommended distance between fire hydrants in a commercial area is 300-feet. Burlington's Fire Marshal shall provide guidance as to whether a fire hydrant is needed on the new block of Pine Street.

The size of the new water main on St. Paul Street should be a 10-inch water main to improve capacity and to provide continuity to the existing 10-inch water line on St. Paul Street. Per the review checklist, all proposed city water lines shall be C-900 and not ductile iron.

The peak flow information provided by Engineering Ventures has been used to evaluate the capacity of Burlington's water distribution system. Burlington's hydraulic model indicates that a peak water system demand of 579 gpm can be handled within our water distribution system.

Our recent hydrant flushing data indicates that each fire hydrant directly adjacent to the proposed project has the capacity to flow at a minimum of 1,000 gpm. Our City water system model shows that street level water system pressures will not drop below 20 psi (Vermont Supply Rule Standard) when the hydrants are operated. We would like the opportunity to re-evaluate our water system model when more information about project fire demands are provided.

The water system design and construction shall meet the standards of the Vermont Water Supply Rule.

**BURLINGTON DPW - WATER SYSTEM REVIEW**

water&sewer\_checklist\_revE\_011717

PROJECT: Burlington Town Center

LOCATION: Pine, St. Paul, Cherry and Bank Streets

OWNER: Devonwood Investors

ENGINEER: Engineering Ventures

DATE REC'D: February 10, 2017

DATE REV'D: Week of February 13, 2017

PLAN DATE/REV: [Click here to enter text.](#)

REV'D BY: Martin S. Lee, PE

	Yes	No	N/A	Insuff. Info
1.Are the water mains located under/adjacent to the proposed street(s)?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
2.Are the public water mains C900 pipe, 8" minimum with tracer wire?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
3.Is the depth of all water mains between 6' and 9' below grade?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
4.Does the proposed design avoid 90 degree bends?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
5.Does the proposed design include dead ends?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
6.Do new tee connections include valves on all three legs?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
7.If the mains are shown bending vertically or horizontally, do they conform to allowable pipe deflection radii?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
8.Do all mains meet horizontal and vertical separation from sewers?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
9.Are fire hydrants located every 500' residential and 300' commercial?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
10. Are there fire hydrants located within 100' of a sprinklered building?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
11. Are fire hydrants set back at least 3' from paved areas?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
12. Do fire hydrants meet City specifications?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
13. Are the fire hydrants connected to main with 6" pipe and valve?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
14. Are there hydrants at high point(s) to aid in air removal?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
15. Are there mechanical thrust restraint and thrust blocks at all fittings?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
16. Do all valves meet City specifications (open right)?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
17. Are all valves and curbstops located within City right-of-way?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
18. Are there any special easement requirements on this project?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
19. Do all valves include a valve box at grade w/covers marked "water"?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
20. Are all services up to 2" using type K copper or CTS pipe?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
21. Do all services leave water mains and enter buildings at right angles?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
22. Do the plans include a water system specifications drawing?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
23. Do the plans include water use estimates using the applicable table from the latest Vermont Environmental Standards?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
24. Is the project large enough to require Needed Fire Flow (NFF) and/or hydraulic analysis for domestic and fire flow demands, or to prove whether or not the project may have an adverse impact to existing customers?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
25. Does or should (circle one) the design include a looped water system?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
26. Do multifamily dwellings have means for separate metering?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
27. Do the plans include standards for pressure testing and disinfection?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

**BURLINGTON DPW - SEWER SYSTEM REVIEW**

water&sewer\_checklist\_revE\_011717

PROJECT: Burlington Town Center

LOCATION: Pine, St. Paul, Cherry and Bank Streets

OWNER: Devonwood Investors

ENGINEER: Engineering Ventures

DATE REC'D: February 10, 2017

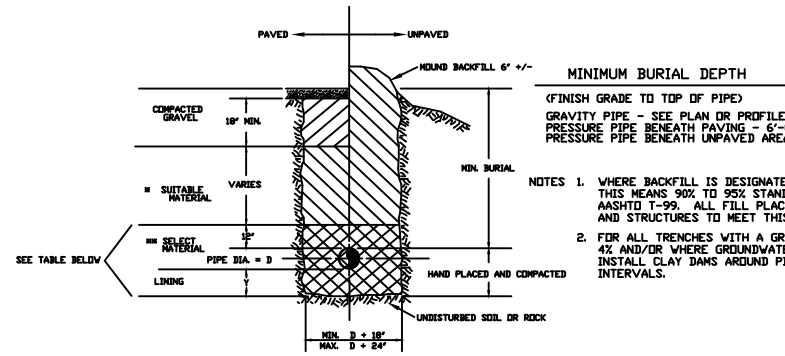
DATE REV'D: Week of February 13, 2017

PLAN DATE/REV: [Click here to enter text.](#)

REV'D BY: Martin S. Lee, PE

	Yes	No	N/A	Insuff. Info
1. Are the sewers located under the proposed street(s)?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
2. Are the sewer pipes SDR 35 PVC or approved equal?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
3. Are the pipe depth(s) between 4 ft to 8 ft, or approved?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
4. Are the sewer pipes sealed at the manholes?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
5. Do the service connections meet DPW standards?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
6. Are manholes located at changes in direction or grade?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
7. Are manholes every 400 to 600 feet, depending on sewer size?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
8. Are manholes precast w/plastic rungs and cover marked "sewer"?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
9. Do the manholes have adequate invert(s) and bench?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
10. Does the project plans include ave. and peak estimated flows?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
11. Does this project discharge into a combined sewer system?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
a. If yes, is a capacity study warranted?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
12. Does this project discharge to a pump station?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
a. If yes, is a capacity study warranted?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
b. Does the station have adequate emergency storage for this project?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
13. Does the project require construction of a new pump station?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
a. If yes, does DPW want to take it over?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
b. If the developer wants DPW to own, does the station meet State and DPW standards?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>

Station type: NA      Capacity: NA

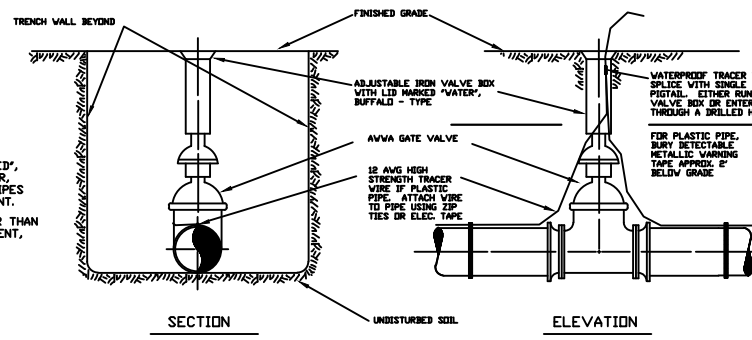


TYPICAL TRENCH DETAIL

N.T.S.

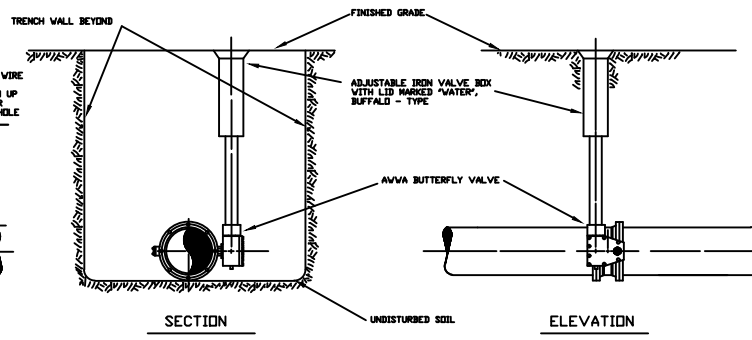
Y - DIMENSION	CONDITION & PIPE	SELECT MATERIAL	LINING
0'	DUCTILE IRON PIPE IN "ORDINARY SOIL"	TYPE I II OR III	-
6'	ALL PIPE OVER BEDROCK OR LEDGE	TYPE II OR III	SAND OR TYPE III
4'	DUCTILE IRON PIPE IN CLAY OR MUCK	TYPE II OR III	SAND
6'	PLASTIC - ALL	SAND	SAND

- \* SUITABLE MATERIAL SHALL CONTAIN NO STONES GREATER THAN 4" IN DIAMETER, NO FROZEN LUMPS, AND ONLY MINOR AMOUNTS OF CLAY OR ORGANIC MATERIAL. ALL MATERIAL TO BE PLACED IN MAXIMUM OF 12' LIFTS AND COMPACTED BEFORE PLACING NEXT LIFT.
- \* TYPE I MATERIAL SHALL BE EITHER GRAVEL OR EXCAVATED MATERIAL CONTAINING NO STONES GREATER THAN 1 1/2" IN DIAMETER, NO FROZEN MATERIAL, NO CLAY, AND NO ORGANIC MATERIAL.
- \* TYPE II MATERIAL SHALL BE CLEAN, HARD, CRUSHED OR NATURAL STONE WITH A GRADATION BY WEIGHT OF 100% PASSING A 1 1/2" SQUARE OPENING, NOT MORE THAN 25% PASSING A 3/4" SQUARE OPENING, AND NOT MORE THAN 5% PASSING A 1/2" SQUARE OPENING.
- \* TYPE III MATERIAL SHALL BE CLEAN, HARD, CRUSHED STONE FREE FROM COATINGS AND THOROUGHLY WASHED WITH A GRADATION BY WEIGHT OF 100% PASSING A 1" SQUARE OPENING AND 0 TO 5% PASSING A 1/4" SQUARE OPENING.



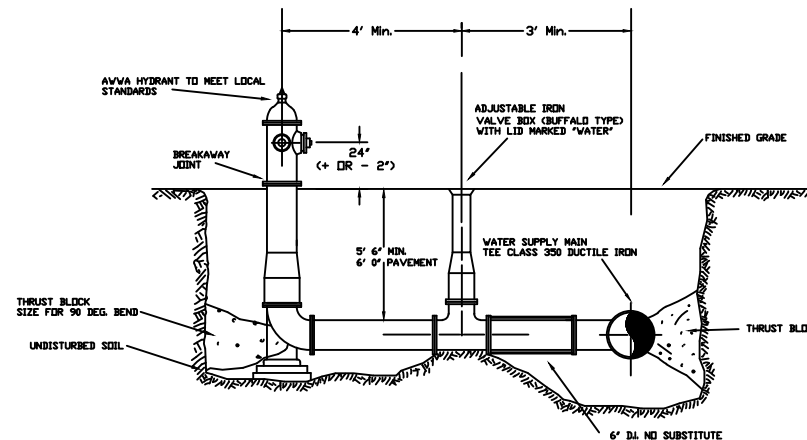
BURIED GATE VALVE DETAIL

N.T.S.



BURIED BUTTERFLY VALVE DETAIL

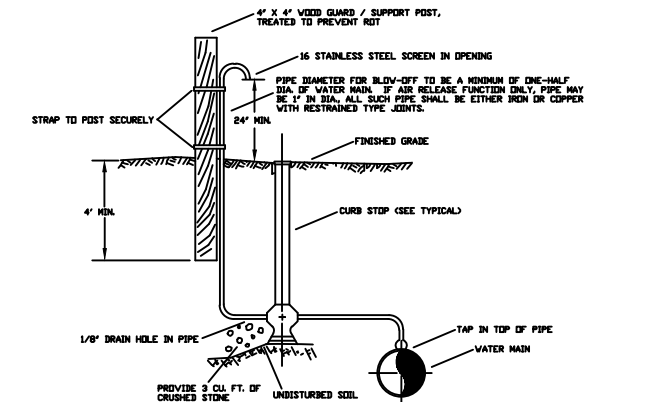
N.T.S.



TYPICAL HYDRANT INSTALLATION

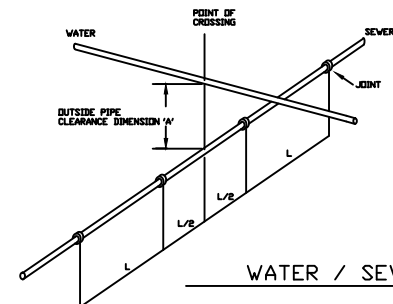
N.T.S.

- 1 ALL HYDRANT DRAINS MUST BE PLUGGED SEE SPECIFICATION NO. 8
- 2 WHERE VALVE CANNOT BE RESTRAINED TO MAIN TEE, ANCHOR VALVE AS IN BURIED GATE VALVE DETAIL
- 3 USE MEGALUG RETAINER GLANDS FOR ALL CONNECTIONS



TYPICAL AIR RELEASE / BLOW - OFF DETAIL (TYPE "B")

N.T.S.

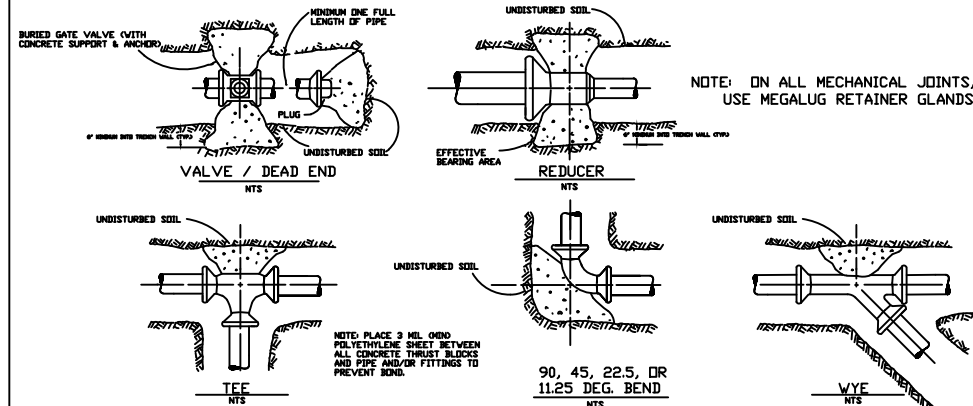


CONSTRUCTION RESTRICTIONS

- 1 IN ALL NEW CONSTRUCTION, DIMENSION "A" SHALL NEVER BE LESS THAN 18 INCHES.
- 2 WITH ALL NEW CONSTRUCTION, THE CROSSING SHALL BE ARRANGED AS SHOWN IN THIS DIAGRAM SO THAT THE SEWER JOINTS WILL BE EQUIDISTANT AND AS FAR AS POSSIBLE FROM THE WATER MAIN JOINTS.
- 3 IF THE WATER MAIN MUST PASS BENEATH THE SEWER IN NEW CONSTRUCTION, OR IT IS IMPOSSIBLE TO MAINTAIN THE 18 - INCH SEPARATION DUE TO EXISTING UTILITY OVERLAP CONSTRUCTION (ONLY), THEN ADEQUATE STRUCTURAL SUPPORT SHALL BE PROVIDED FOR THE SEWER. PLUS THE WATER MAIN OR SEWER SHALL BE COMPLETELY ENCASED IN A SEAMLESS SLEEVE CONSISTING OF A FULL OR PARTIAL LENGTH OF PIPE (e.g. SDR 35 PVC), CENTERED ON THE CROSSED UTILITY.

WATER / SEWER CROSSING DETAILS

N.T.S.



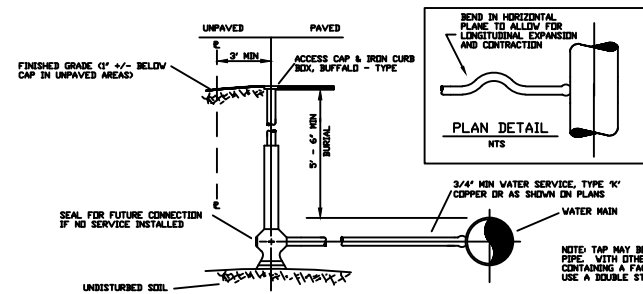
THRUST BLOCK DETAILS

N.T.S.

MINIMUM AREA OF BEARING SURFACE OF CONC. THRUST BLOCKS

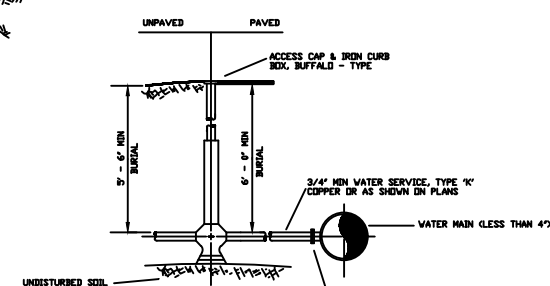
ENDS & TEES	3"			4"			6"			8"			12"			SAFE BEARING CAPACITY (PSF)			
	TOP	ELB.	TEES	TOP	ELB.	TEES	TOP	ELB.	TEES	TOP	ELB.	TEES	TOP	ELB.	TEES				
0.5	0.5	0.5	0.5	1.0	1.0	1.0	1.5	1.5	1.5	2.0	2.5	1.5	1.0	4.0	5.5	3.0	1.5	10,000	
1.0	1.0	1.0	1.5	2.0	1.0	0.5	3.0	4.0	2.0	1.0	4.5	6.5	3.5	2.0	10.0	14.0	7.5	4,000	
1.0	1.5	1.0	2.0	2.5	1.5	1.0	3.5	5.0	3.0	1.5	6.0	8.5	5.0	2.5	13.0	18.5	10.0	3,000	
1.5	2.5	1.5	1.0	2.5	3.5	2.0	1.0	5.5	7.5	4.0	2.0	9.0	13.0	7.0	3.5	20.0	27.5	15.0	2,000
3.0	4.5	2.5	1.5	5.0	7.0	4.0	2.0	10.5	15.0	8.0	4.0	18.0	25.0	14.0	7.0	39.0	55.0	30.0	1,000

MAXIMUM WATER PRESSURE = 300 PSI NOTE: REDUCER BEARING AREA = 45 DEG. BEND, LARGER PIPE



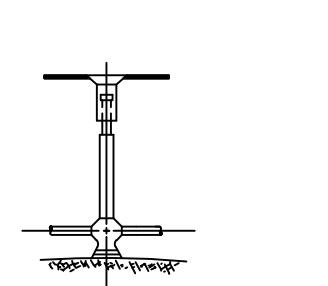
CURB STOP WITH BOX - TAPPED CONNECTION

N.T.S.



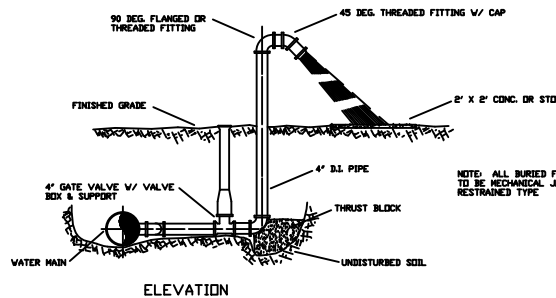
CURB STOP WITH BOX - TEE CONNECTION

N.T.S.



3/4" TO 2" CURB BOX IN PAVED AREA

N.T.S.



ELEVATION

BLOW - OFF DETAIL (TYPE "A")

N.T.S.

- NOTE: TYPICAL AIR RELEASE / BLOW - OFF (TYPE "A" OR "B") MAY BE USED TEMPORARILY DURING AND SHALL BE REMOVED AT END OF CONSTRUCTION. IF A PERMANENT AIR RELEASE, BLOW - OFF IS REQUIRED, USE HYDRANT AS DETAILED - THIS SHEET.

NOTES:

1. Before construction of any utilities or improvements, the Owner's Engineer or Contractor shall notify the Department of Public Works (DPW), IN WRITING, of his intent to proceed and shall arrange for a meeting with DPW, the Engineer, and the Contractor to discuss the project.
2. All water mains, fittings, appurtenances and other materials, and construction shall conform to all applicable AWWA, State and City codes, standards and regulations. In the case of conflict between these construction details and specifications or a code or regulation, the decision of the Vermont Department of Health or VTDEC Water Supply shall be binding.
3. All water mains, fittings, appurtenances shall be installed in a workmanlike manner. Installation shall be by the Public Works Department, unless specific approval is given by the Public Works Department for installation by the Contractor, which shall be under the general inspection of the Public Works Department. Before any water line work is commenced by the Contractor, he shall notify the Public Works Department at least two (2) days in advance of his intention to proceed.
4. Connection to an existing water main shall be done by or under the supervision of, and with the approval of the Public Works Department. It is the Contractor's responsibility to secure ALL necessary permits and permission to make the connection and to coordinate all parties involved in the process. The Public Works Department shall be notified AT LEAST twenty-four (24) hours in advance of the intended connection time.
5. An inspector employed by the Public Works Department shall be notified at least two (2) days in advance of all water line installations. Said inspector shall be on the premises for all water line installations. The cost for inspection shall be borne by the Project Owner.
6. As-Builts prepared by the Owner's Engineer are required by the Public Works Department at the time of the completion of the water system.
7. All water mains shall have horizontal and vertical distances as detailed on this drawing.
8. All public and private water mains: 1) 4' or greater shall be ductile iron, minimum class 52, double-cement lined, mechanical or push-on joint pipe; 2) less than 4' in diameter shall be type K copper. Plastic pipe will only be allowed if approved by the City Engineer. See Note 21 below for C-900 PVC pipe details.
9. All water line fittings shall be ductile iron, (AWWA C-110), cement-lined. For water lines less than 4 inches in diameter, fittings (other than valves) shall be no-lead brass.
10. All buried valves shall conform to AWWA C-504 or C-509, and be resilient wedge gate valves up to 10 inch in size, and either resilient wedge or butterfly valves for larger sizes. All gate valves shall open right (clockwise) and shall have adjustable iron valve boxes extending to the finished grade (see Typical Details).
11. Hydrants shall be in accord with AWWA C-502, 3-way post type breakaway, Mueller Centurion A-423, Kennedy K81 or American Darling B62B, with two (2) 2-1/2" nozzle and one (1) 4-1/2" steamer nozzle. Nozzle threads shall be Roxbury double-start. Hydrants shall be provided with a 6.5" bury riser. In all cases, it is the Contractor's responsibility to check with the Public Works Department to secure approval of the selected hydrant(s) and assure compatibility. All hydrant drains shall be permanently plugged, or a non-draining hydrant shall be installed. All hydrants shall be set back a minimum of three (3) feet from paved surfaces. In addition, wherever a traffic hazard appears to exist (in the opinion of the Public Works Department), the hydrant shall be protected by curbing and/or post-stanchions.
12. Curb boxes shall be Buffalo type with telescoping top and bolt-on caps.
13. All water lines and appurtenances shall be pressure and leak tested, before being placed into service, according to AWWA Standard C-600. The test pressure shall be 200 psi (+/- 5psi), measured at or near the high point in the portion of the system being tested, and the test shall be run for two (2) hours. The Public Works Department shall be given at least twenty-four (24) hours notice before the test is to be conducted, and DPW personnel shall witness the test. Allowable leakage shall be computed by the following formula:  $L = S \times D \times \sqrt{P}$ , where L = number of gallons of water leakage per hour, S = length of pipe tested in feet, D = inches of nominal pipe diameter, P = average test pressure (psi gauge). The person(s) conducting the test(s) shall, IN WRITING, certify the results to the Public Works Department.
15. All water lines, before being put into service, shall be disinfected in accordance with AWWA C-601, or as directed by the Public Works Department. Contractor shall install 1" diameter tap in water main for chlorine injection. Tap shall be located as directed by the Public Works Department. Disinfection shall be accomplished by introducing a concentration of 50 parts per million (ppm) of available chlorine into a recently-flushed water main. The disinfecting solution, after remaining in the water main for 24 hours, shall have a concentration of at least 25 ppm of chlorine. The person(s) responsible for disinfection shall certify, IN WRITING, to the Public Works Department and Vermont Department of Health that this disinfection procedure was followed and the required minimum results were obtained. Actual sampling shall be performed by Public Works Department. Contractor shall be responsible for all sampling and analysis costs.
16. Water main valves and curb stops shall be inside city right-of-way.
17. No valves, hydrants, curb stops, etc. shall be operated without prior approval by the Public Works Department.
18. All taps larger than 1" require the use of bronze saddles.
19. All brass unions and adapters shall be low-lead by Kennedy or Mueller.
20. All copper unions and adapters shall be low-lead by Mueller or Canbridge with nitrile gaskets.
21. If approved by the City Engineer, plastic water mains 4' and larger shall be AWWA C900 PVC pipe with a pressure class of 305 psi (DR14). Mains 2' or less shall conform to AWWA C901 and be HDPE CTS pipe with a pressure class of 200 psi (SDR 9). All plastic pipe will require a 12 AWG high strength copper clad steel tracer wire with blue insulation fastened directly to the top of pipe with nylon tie wraps or electrical tape. This tracer wire shall be a continuous run (no splices) between valves with ends for attaching a locating signal at every valve box, end of pipe run or every 500' of pipe, whichever is less. If no valve boxes are located within 500' of each other, a magnetized tracer box is required. Waterproof splices shall be allowed in valve boxes as per the detail on this sheet. Tracer wire, tracer boxes and wire nuts shall be manufactured by Copperhead Industries or approved equal. In addition, detectable metallic underground tape labeled "Caution Buried Water Line Below" shall be manufactured by Trumbull Industries or approved equal and buried approx. 2' below finished grade.

- Engineering Division -  
Water Details

DATE: rev date 5/14	MODIFIED: s.roy	CHECK: s.roy
SCALE: N.A.	FILE: wtrdetail_2014.dwg	DRAWN BY: F.L.I. (1986)

BURLINGTON, VT  
PUBLIC WORKS