

SPRINKLER WATER SERVICE NOTES

- SCOPE OF WORK**
Install new 4 inch underground sprinkler water service connection. Work begins 5 feet from building exterior and ends with a flanged adapter connection 12 inches inside building. Flange connection to be restrained from movement by rodding back to mechanical joint on a 4" 90° elbow, 90° elbow to be restrained from movement by rodding back to mechanical joint on a 4 inch 45° elbow. Foundation penetration shall be sealed on the interior of building with non-shrink grout and on the exterior of the building with 4000 psi ready mix concrete to provide waterproofing. See Civil drawings and specifications for connection outside building.
- CODES AND REGULATIONS**
The equipment and installation shall be in conformity with all city, state, and federal codes, laws, and regulations as well as National Fire Protection Association Standards, as follows:
A. National Fire Protection Association Standards:
NFPA 13-2002, Installation of Sprinkler Systems.
NFPA 24-2002, Installation of Private Fire Service Mains and Their Appurtenances.
B. Boca Code (BOCA) 1999.
C. Local Building Codes.
The system design and equipment furnished shall be in accordance with the specifications herein and the applicable code requirements of municipality. The Contractor shall be held strictly responsible for any violations of codes, laws, or regulations and shall make all changes in work to conform with the above without cost to the Owner.
- PIPING**
All underground pipe and fittings shall be listed for fire protection service and comply with AWWA standards. Steel piping shall not be used. Piping shall be ductile iron class 52.
- JOINTS**
Joints shall be of an approved type.
The following apply to joints used with the various types of pipe:
AWWA C111, Rubber Gasket Joints for Ductile Iron Pressure Pipe and Fittings.
AWWA C115, Flanged Ductile Iron Pipe with Threaded Flanges.
- FITTINGS**
Fittings shall be of an approved type with joints and pressure class ratings compatible with the pipe used.
Fittings shall be ductile iron with joints to specifications of the manufacturer of the particular type of pipe. Sprinkler lead-in shall terminate with flange adapter connection. The following standards apply to fittings:
AWWA C110, Ductile Iron and Gray Iron Fittings, 3-in. Through 48-in., for Water and Other Liquids.
- RESTRAINING RODS**
Restraining rods shall be 3/4 inch. Threaded sections of rods shall not be formed or bent. Rods shall

- be used in pairs. Rods shall be steel. When more than one section of rod needs to be used, rods shall be joined by approved rod couplings of malleable iron in accordance with ASIM A 197.
- CORROSION RESISTANCE OF RESTRAINTS**
After installation, rods, nuts, bolts, washers, clamps, and other restraining devices shall be cleaned and thoroughly coated with a bituminous or other acceptable corrosion-retarding material.
 - FLUSHING**
See Engineering drawings for additional flushing requirements.
Lead-in connections to system risers shall be flushed thoroughly before connection is made to system piping in order to remove foreign material that might have entered the main during the course of installation or that might have been present in existing pipe. The minimum rate of flow shall be not less than the water demand rate of the system, which is determined by the system design, or not less than that necessary to provide a velocity of 10 fps whichever is greater. For all systems the flushing operations shall be continued for sufficient time to ensure thorough cleaning. When planning the flushing operations consideration shall be given to disposal of wastewater from the test. Adequate thrust restraint shall be provided during flushing and testing.
 - TESTING**
See Engineering drawings for additional testing requirements.
a. The installing company shall furnish a Contractor's Material and Test Certificate for Underground Piping countersigned by the property owner or representative prior to requesting final approval from the authority having jurisdiction.
b. The trench shall be backfilled between joints before testing to prevent movement of pipe.
c. All new lead-in connections shall be tested hydrostatically at not less than 200 psi pressure for two hours, or at 50 psi in excess of the maximum static pressure when the maximum static pressure is in excess of 150 psi.
d. The amount of leakage in buried piping shall be measured at the specified test pressure by pumping from a calibrated container. For new pipe, the amount of leakage at the joints shall not exceed two quarts per hour per 100 gaskets or joints irrespective of pipe diameter. See Civil Engineering drawings for additional flushing and testing requirements.
e. The amount of allowable leakage specified above shall be permitted to be increased by one fluid ounce per inch valve diameter per hour for each metal sealed valve isolating the test section.
f. Tests shall be made by the contractor in the presence of the authority having jurisdiction or the representative of the owner.
g. Additives, corrosive chemicals such as sodium silicate, brine, or other chemicals shall not be used while hydrostatically testing systems or for stopping leaks.
h. All control valves shall be fully closed and opened under system water pressure to ensure proper operation.
- ACKNOWLEDGEMENT:**
This information was supplied by the Architect. We have reviewed this and made minor amendments on the note and specification to customize it for Jay Peak Resort. The purpose of this plan is to provide the contractor with a detail and specification that brings the water main into the building.

COMBINED SPRINKLER & DOMESTIC WATER SERVICE NOTES

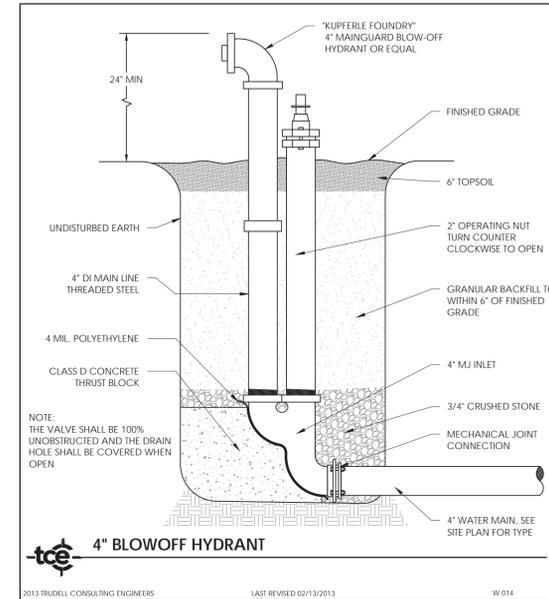
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TESTING WATER MAINS

- *ALL TESTING SHALL BE PERFORMED IN THE PRESENCE OF THE TOWN ENGINEER OR PUBLIC WORKS DEPARTMENT IF APPLICABLE OR PRIVATE OWNER/OPERATOR AND PROJECT ENGINEER (AS DESIGNATED BY OWNER). CONTRACTOR SHALL PRE-TEST SUCCESSFULLY PRIOR TO CONTACTING PROJECT ENGINEER. THE PRE-TEST IS TO ENSURE PASSING RESULTS PRIOR TO OFFICIAL TESTING OBSERVATION.
- AFTER THE PIPE HAS BEEN LAID AND 7 DAYS AFTER THE CONCRETE THRUST BLOCKS AND ANCHORS HAVE BEEN PLACED, THE WATER MAIN SHALL BE HYDROSTATICALLY TESTED ACCORDING TO THE LATEST EDITION OF THE AWWA SPECIFICATION C-600.
 - CONTRACTOR SHALL SUPPLY ALL NECESSARY APPARATUS TO PERFORM THE HYDROSTATIC TEST.
 - TEST PRESSURE SHALL BE 200 POUNDS PER SQUARE INCH OR 1.5 TIMES THE WORKING PRESSURE MEASURED AT OR NEAR THE HIGH POINT IN THE SYSTEM, WHICHEVER IS GREATER. TEST SHALL BE A MINIMUM OF 2 HOURS IN DURATION. TESTING ALLOWANCE SHALL BE DEFINED AS THE QUANTITY OF MAKEUP WATER THAT MUST BE SUPPLIED INTO THE NEWLY LAID PIPE OR ANY VALVED SECTION THEREOF TO MAINTAIN PRESSURE WITHIN 5 PSI (34.5 KPA) OF THE SPECIFIED TEST PRESSURE AFTER THE PIPE HAS BEEN FILLED WITH WATER AND THE AIR HAS BEEN EXPELLED. TESTING ALLOWANCE SHALL NOT BE MEASURED BY A DROP IN PRESSURE IN A TEST SECTION OVER A PERIOD OF TIME. REFER TO PIPE MANUFACTURERS RECOMMENDED TESTING PROCEDURE INCLUDING PIPE STABILIZATION PRIOR TO START OF TEST.
 - THE PROJECT ENGINEER AND THE MUNICIPALITY SHALL BE CONTACTED 48 HOURS PRIOR TO TESTING.
 - ALL VALVES SHOULD BE VERIFIED AS BEING OPEN OR CLOSED AS APPROPRIATE FOR THE PORTION OF THE WATER MAIN BEING TESTED.
 - ALLOWABLE LEAKAGE SHALL BE COMPUTED BY THE FORMULA: $L = (S \times D \times \sqrt{P}) / 148,000$ WHERE L IS LEAKAGE IN GALLONS PER HOUR, S IS THE LENGTH OF PIPE TESTED IN FEET, D IS THE NOMINAL DIAMETER OF THE PIPE IN INCHES AND P IS THE AVERAGE TEST PRESSURE IN POUNDS PER SQUARE INCH DURING THE TEST.
 - REPLACE AND RETEST ANY WORK FOUND TO BE DEFECTIVE AT NO EXPENSE TO OWNER.
- TESTING HYDRANTS (IF APPLICABLE)**
- AFTER TESTING THE WATER MAINS, OPEN THE HYDRANT FULLY AND FILL WITH WATER. TO PREVENT CAPS FROM BEING BLOWN OFF, VENT AIR FROM ONE OF THE CAPS WHILE IT IS BEING FILLED. WHEN ALL THE AIR HAS ESCAPED, TIGHTEN THE CAP.
 - ALLOW THE PRESSURE TO BUILD UP TO MAIN LINE PRESSURE AND CHECK FOR LEAKAGE AT FLANGES, NOZZLES AND THE OPERATING STEM.
 - CLOSE THE HYDRANT, REMOVE ONE NOZZLE CAP AND PLACE THE PALM OF YOUR HAND OVER THE OPENING. DRAINAGE SHOULD CREATE A NOTICEABLE SUCTION. IF NO SUCTION OR HYDRANT DOESN'T HAVE DRAIN, MANUALLY PUMP WATER OUT OF BARREL.
 - AT PROJECT ENGINEER DISCRETION ASSIST WITH FLOW TESTING. ENGINEER TO RECORD STATUS AND RESIDUAL PRESSURE AS WELL AS FLOW RATE.

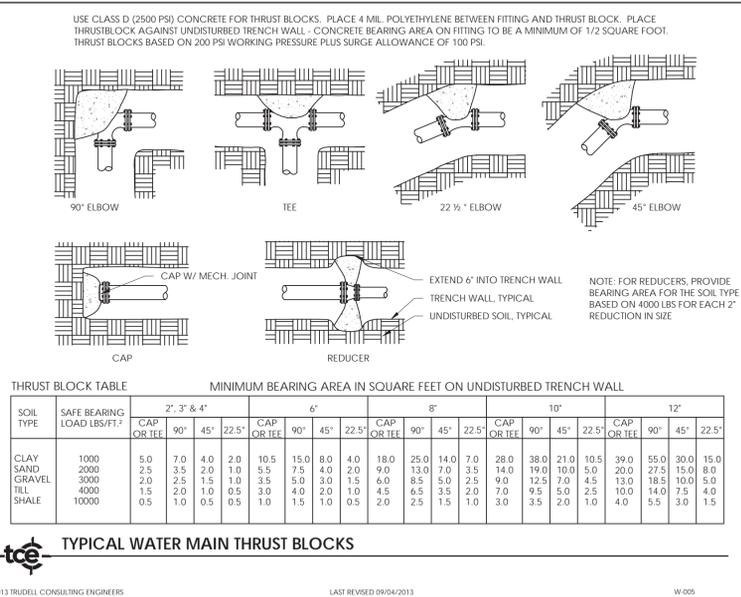
TESTING WATER MAINS AND HYDRANTS

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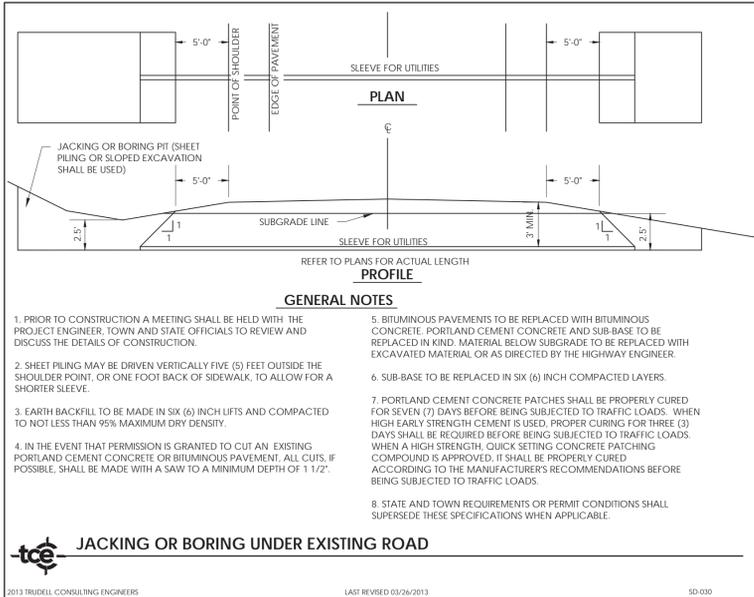
4" BLOWOFF HYDRANT

2013 TRUDELL CONSULTING ENGINEERS LAST REVISED 02/13/2013 W-014



TYPICAL WATER MAIN THRUST BLOCKS

2013 TRUDELL CONSULTING ENGINEERS LAST REVISED 09/04/2013 W-005



JACKING OR BORING UNDER EXISTING ROAD

2013 TRUDELL CONSULTING ENGINEERS LAST REVISED 03/26/2013 SD-030

CONTRACTOR'S CERTIFICATION REQUIRED

PRIOR TO THE DESIGN ENGINEER CERTIFYING THAT THE INSTALLATION HAS BEEN INSTALLED IN ACCORDANCE WITH THE PERMITTED DESIGN, THE CONTRACTOR SHALL PROVIDE A CERTIFICATION THAT THE WATER SYSTEM WAS INSTALLED AND TESTED IN ACCORDANCE WITH THE APPROVED DESIGN PLANS. STATE PERMITS REQUIRE THERE SHALL BE NO DEVIATIONS FROM THE APPROVED PLANS WITHOUT PRIOR APPROVALS. THE DESIGN ENGINEER SHALL BE NOTIFIED AND ALLOWED TO OBSERVE THE CRITICAL PHASES OF CONSTRUCTION INCLUDING ANY REQUIRED TESTS. LIKEWISE, THE DESIGN ENGINEER SHALL BE NOTIFIED OF ANY DEVIATIONS FROM THE APPROVED PLANS. SINCE THE DESIGN ENGINEER DOES NOT CUSTOMARILY OBSERVE ALL PHASES OF THE WORK OR ALL TESTING, HE MAY RELY ON THE CONTRACTOR'S CERTIFICATION AS THE BASIS FOR FINAL CERTIFICATION. THE CONTRACTOR SHALL THEREFORE SIGN AND RETURN A COPY OF THE FOLLOWING CERTIFICATION UPON COMPLETION OF THE WORK:

"I HEREBY CERTIFY THAT I HAVE INSTALLED, PROPERLY TESTED, AND SUCCESSFULLY PASSED THOSE TESTS, AND THE WATER SYSTEM(S) ARE BUILT IN ACCORDANCE WITH THE APPROVED DESIGN PLANS AND APPLICABLE PERMIT CONDITIONS."

CONTRACTOR NAME: _____
 AUTHORIZED AGENTS NAME: _____
 SIGNATURE: _____ DATE: _____

NOTE ANY DEVIATIONS FROM APPROVED PLANS HERE: _____

CONTRACTOR'S CERTIFICATION FOR POTABLE WATER SYSTEMS

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DISINFECTING WATER MAINS AND SYSTEMS

- *ALL TESTING SHALL BE PERFORMED IN THE PRESENCE OF THE TOWN ENGINEER OR PUBLIC WORKS DEPARTMENT AND PROJECT ENGINEER (AS DESIGNATED BY OWNER).
- PRIOR TO BEING PUT INTO SERVICE, WATER MAINS SHALL BE DISINFECTED ACCORDING TO THE LATEST EDITION OF AWWA SPECIFICATION C-651. THE TABLE METHOD IN AWWA STANDARD 651 IS NOT ACCEPTABLE.
 - THE NEW LINE SHALL BE FLUSHED AT A VELOCITY OF NOT LESS THAN 2.5 FEET PER SECOND (OPEN 2-1/2 INCH HYDRANT CONNECTION). FLUSH FOR A PERIOD DETERMINED BY THE PROJECT ENGINEER FOR THE LENGTH OF MAIN TO BE DISINFECTED.
 - CHLORINATION SHALL BE ACCOMPLISHED BY INTRODUCING A SODIUM HYPOCHLORITE SOLUTION FOR A RESULTANT CONCENTRATION OF GREATER THAN 25 PARTS PER MILLION OF FREE CHLORINE.
 - USING A NOZZLE AT EACH END HYDRANT, CONTROL THE RATE OF FLOW INTO THE NEW MAIN AND PROPORTIONALLY FEED THE SODIUM HYPOCHLORITE SOLUTION INTO THE MAIN. AFTER THE SOLUTION HAS REACHED ALL POINTS IN THE SYSTEM, CLOSE THE VALVE SUPPLYING WATER FROM THE EXISTING MAIN AND THE END HYDRANTS. MAINTAIN THE HEAVILY CHLORINATED WATER IN THE MAIN FOR 24 HOURS DURING WHICH TIME ALL MAIN LINE VALVES SHOULD BE OPERATED. AFTER 24 HOURS THE MINIMUM CHLORINE RESIDUAL MUST BE AT LEAST 10 PARTS PER MILLION.
 - FLUSH HEAVILY CHLORINATED WATER FROM THE LINE AND REFILL THE LINE FOR SERVICE (USE CHLORINE DIFFUSER). TAKE AND SUBMIT TWO BACTERIOLOGICAL SAMPLES (TAKEN 24 HOURS APART) OF THE WATER TO THE STATE OF VERMONT OR A STATE APPROVED TESTING LABORATORY. IF THE RESULTS ARE UNSATISFACTORY, THE DISINFECTION PROCEDURE WILL BE REPEATED UNTIL SATISFACTORY RESULTS ARE OBTAINED.
 - FINISHED WATER STORAGE STRUCTURES SHALL BE DISINFECTED IF APPLICABLE, IN ACCORDANCE WITH CURRENT AWWA STANDARD C652. TWO OR MORE SUCCESSIVE SETS OF SAMPLES, TAKEN AT 24 HOUR INTERVALS, SHALL INDICATE MICROBIOLOGICALLY SATISFACTORY WATER BEFORE THE FACILITY IS PLACED INTO OPERATION.
 - DISPOSAL OF HEAVILY CHLORINATED WATER FROM THE DISINFECTION PROCESS SHALL BE DE-CHLORINATED OR OTHERWISE HANDLED IN ACCORDANCE WITH THE REQUIREMENTS OF THE VERMONT AGENCY OF NATURAL RESOURCES.
 - THE DISINFECTION PROCEDURE (AWWA CHLORINATION METHOD 3, SECTION 4.3 C652) WHICH ALLOWS USE OF THE CHLORINATED WATER HELD IN THE STORAGE TANK FOR DISINFECTION PURPOSES IS NOT RECOMMENDED. WHEN THAT PROCEDURE IS USED, IT IS REQUIRED THAT THE INITIAL HEAVILY CHLORINATED WATER BE PROPERLY DISPOSED IN ORDER TO PREVENT RELEASE OF WATER WHICH MAY CONTAIN VARIOUS CHLORINATED ORGANIC COMPOUNDS INTO THE DISTRIBUTION SYSTEM.

DISINFECTION OF WATER SYSTEM

2013 TRUDELL CONSULTING ENGINEERS LAST REVISED 7/12/2013 WN-003



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No.	Description	Date	By
1	Final Plan Review	01/23/15	NTH
2	Local Submittal Edits	03/23/15	NTH

Use of These Drawings
 1. Unless otherwise noted, these Drawings are intended for preliminary planning, coordination with other disciplines or utilities, and/or approval from the regulatory authorities. They are not intended as construction drawings unless noted as such.

2. Only drawings specifically marked "For Construction" are intended to be used in conjunction with contract documents, specifications, owner/contractor agreements and to be fully coordinated with other disciplines, including but not limited to, the Architect. If applicable, these Drawings shall not be used for construction layout. Contact TCE for any construction surveying services or to obtain electronic data suitable for construction layout.

3. These Drawings are specific to the Project and are not transferable. As instruments of service, these drawings, and copies thereof, furnished by TCE are its exclusive property. Changes to the drawings may only be made by TCE. If errors or omissions are discovered, they shall be brought to the attention of TCE immediately.

4. By use of these drawings for construction of the Project, the Owner represents that they have reviewed, approved, and accepted the drawings and have met with all applicable parties/disciplines to insure these plans are properly coordinated with other aspects of the Project. The Owner and Architect, are responsible for any buildings shown, including an area measured a minimum five (5) feet around any building.

5. It is the User's responsibility to ensure this copy contains the most current revisions.



For Local Permitting Only

Project Title _____

Jericho Market
 364 VT Route 15 Jericho, VT

Water Details & Notes

Date: _____ 10/10/14
 Scale: _____
 Project Number: _____ 14-139
 Drawn By: _____
 Project Engineer: _____ NTH
 Approved By: _____
 Field Book: _____

C8-05

RECEIVED
 3/24/15
 PeakCM