

GENERAL SEWER SPECIFICATIONS

ALL CONNECTIONS TO THE TOWN OF RICHMOND SEWER SYSTEM MUST ADHERE TO SECTION 5, SANITARY SEWER STANDARDS, OF THE TOWN OF RICHMOND PUBLIC IMPROVEMENTS STANDARDS & SPECIFICATIONS. A REPRESENTATIVE OF THE TOWN OF RICHMOND PUBLIC WORKS DEPARTMENT SHALL WITNESS ALL CONNECTIONS AND WORK PERFORMED ON EXISTING SEWER INFRASTRUCTURE. THE FOLLOWING ARE APPLICABLE SUBSECTIONS OF SECTION 5.

5.2 MATERIALS

B. POLYVINYL CHLORIDE PIPE (PVC) FOR GRAVITY SEWERS

PVC SEWER PIPE SHALL CONFORM IN ALL RESPECTS TO THE LATEST REVISION OF ASTM SPECIFICATIONS D-3034 OR F679, TYPE PSM, POLYVINYL CHLORIDE (PVC) SEWER PIPE AND FITTINGS, SDR35. WALL THICKNESS OF ALL PVC PIPE SHALL MEET ASTM SPECIFICATIONS FOR SDR35 PIPE. ALL PIPE AND FITTINGS SHALL BE CLEARLY MARKED AS FOLLOWS:

MANUFACTURER'S NAME AND TRADEMARK  
NOMINAL PIPE SIZE  
MATERIAL DESIGNATION 12454C PVC OR 12364C PVC  
LEGEND TYPE PSM SDR35 PVC SEWER PIPE" OR  
"PS 46 PVC SEWER PIPE"  
DESIGNATION ASTM D-3034 OR F679

JOINTS SHALL BE PUSH-ON TYPE USING ELASTOMERIC GASKETS AND SHALL CONFORM TO ASTM F-477 AND D-3212. THE GASKETS SHALL BE FACTORY INSTALLED.

THE PIPE SHALL BE FURNISHED IN NOMINAL 13-FOOT LENGTHS. SUFFICIENT NUMBERS OF SHORT LENGTHS AND FULL MACHINE FITTINGS SHALL BE PROVIDED FOR USE AT MANHOLES, CHIMNEYS, AND CONNECTIONS. ALL CONNECTIONS WILL REQUIRE THE USE OF MANUFACTURED FITTINGS. FIELD FABRICATED, SADDLE-TYPE CONNECTIONS WILL NOT BE CONSIDERED ACCEPTABLE.

ANY PIPE OR FITTING HAVING A CRACK OR OTHER DEFECT OR WHICH HAS RECEIVED A SEVERE BLOW SHALL BE MARKED REJECTED AND REMOVED AT ONCE FROM THE WORK SITE.

ALL FIELD CUTS ARE TO BE MADE WITH SAW AND 90 DEGREE MITER BOX. BEVEL THE CUT END TO THE SAME AS THE FACTORY BEVEL AND REMOVE ALL INTERIOR BURRS. MEASURE AND PLACE A HAWKING MARK ON THE PIPE BEFORE ASSEMBLING. THE PIPE INSTALLED UNDER THIS SPECIFICATION SHALL BE INSTALLED SO THAT THE INITIAL DEFLECTION, MEASURED AS DESCRIBED BELOW, SHALL BE LESS THAN 5%.

DEFLECTION TESTS SHALL BE PERFORMED ON ALL FLEXIBLE PIPE AFTER THE FINAL BACKFILL HAS BEEN IN PLACE FOR AT LEAST 30 DAYS. THE DEFLECTION TEST SHALL BE RUN USING A RIGID BALL OR MANDREL HAVING A DIAMETER EQUAL TO 95 PERCENT OF THE INSIDE DIAMETER OF THE PIPE. NO MECHANICAL PULLING DEVICES SHALL BE USED DURING THE DEFLECTION TESTS. ALL PIPE NOT MEETING THE DEFLECTION TEST SHALL BE RE-EXCAVATED AND REPLACED AT THE CONTRACTOR'S EXPENSE.

THE MANHOLE WATER STOP GASKET AND STAINLESS STEEL CLAMP ASSEMBLY MUST BE APPROVED BY THE TOWN PRIOR TO THE INSTALLATION OF ANY PIPE.

THE CONTRACTOR WILL SUBMIT CERTIFICATION THAT THE MATERIALS OF CONSTRUCTION HAVE BEEN SAMPLED, TESTED, INSPECTED, AND MEET ALL THE REQUIREMENTS INCLUDING WALL THICKNESS IN ACCORDANCE WITH ASTM D3034 OR ASTM F679 FOR ALL PIPE AND FITTINGS TO BE INCLUDED IN THE PROJECT WORK.

PVC PIPE SHALL NOT BE INSTALLED WHEN THE TEMPERATURE DROPS BELOW 32 DEGREES FAHRENHEIT OR GOES ABOVE 100 DEGREES FAHRENHEIT. DURING COLD WEATHER, THE FLEXIBILITY AND IMPACT RESISTANCE OF PVC PIPE IS REDUCED. EXTRA CARE IS REQUIRED WHEN HANDLING PVC PIPE DURING COLD WEATHER.

PVC PIPE SHALL NOT BE STORED OUTSIDE AND EXPOSED TO PROLONGED PERIODS OF SUNLIGHT, AS PIPE DISCOLORATION AND REDUCTION IN PIPE IMPACT STRENGTH WILL OCCUR. CANALS OR OTHER OPAQUE MATERIAL SHALL BE USED TO COVER PVC PIPE STORED ONSITE.

5.3 CONSTRUCTION METHODS

A. EXCAVATIONS

EXCAVATIONS SHALL BE MADE TO A POINT AT LEAST 6" BELOW THE PIPE INVERT TO ACCOMMODATE THE BEDDING MATERIAL. ALL EXCAVATIONS, ARE TO BE KEPT DRY WHILE PIPE IS BEING LAID AND UNTIL EACH JOINT AND PIPE HAS BEEN INSPECTED BY THE TOWN AND APPROVAL GIVEN TO COMMENCE BACKFILLING OPERATIONS.

B. LAYING SEWER PIPE

THE BELL END OF THE PIPE SHALL FACE UPGRADE AT ALL TIMES AND BE PLACED IN SUCH A POSITION AS TO MAKE THE INVERT EVEN WHEN THE SUCCEEDING SECTION IS INSPECTED. WHERE REQUIRED BY ADVERSE GRADING CONDITIONS, THE CONTRACTOR SHALL FILL ANY GULLY TO MAKE A SUITABLE BEDDING FOR THE SEWER PIPE. THE FILL SHALL BE MECHANICALLY COMPACTED TO A 95 PERCENT DRY DENSITY BY THE AASHTO-T-99 METHOD A (STANDARD PROCTOR) TEST, UPON WHICH THE 6" OF BEDDING MATERIAL SHALL BE PLACED.

ANY PIPE WHICH IS NOT LAID TO GRADE AND ALIGNMENT SHALL BE RE-LAID TO THE SATISFACTION OF THE TOWN. THE BEDDING MATERIAL SHALL BE PLACED AND COMPACTED ON EACH SIDE OF THE PIPE TO A HEIGHT EQUAL TO ONE-HALF THE PIPE DIAMETER AND FOR THE FULL WIDTH OF THE EXCAVATED TRENCH AND AS SHOWN ON THE ACCEPTED PLANS.

BEDDING MATERIALS SHALL BE AS FOLLOWS:

PVC GRAVITY PIPE - 3/4"-1 1/2" CRUSHED STONE  
PVC FORCE MAIN - SAND OR GRAVEL

C. BACKFILL

BACKFILL SHALL CONSIST OF APPROVED MATERIAL PLACED IN 6" LAYERS WITH EACH LAYER BEING THOROUGHLY COMPACTED TO NOT LESS THAN 95 PERCENT OF MAXIMUM DRY DENSITY AS DETERMINED BY THE AASHTO-T-99 STANDARD PROCTOR BY MEANS APPROVED BY THE TOWN. NO STONES IN EXCESS OF 3" IN DIAMETER SHALL BE PLACED WITHIN 1' OF THE OUTSIDE OF THE PIPE. PARTICULAR PRECAUTIONS SHALL BE TAKEN IN PLACEMENT AND COMPACTON OF THE BACKFILL MATERIAL IN ORDER NOT TO DAMAGE AND/OR BREAK THE PIPE. THE BACKFILL SHALL BE BROUGHT UP EVENLY ON BOTH SIDES OF THE PIPE FOR ITS FULL LENGTH.

WALKING OR WORKING ON THE COMPLETED PIPELINE, EXCEPT AS MAY BE NECESSARY IN TAMPING OR BACKFILLING, SHALL NOT BE PERMITTED UNTIL THE TRENCH HAS BEEN BACKFILLED TO A HEIGHT OF AT LEAST 2' ON THE TOP OF THE PIPES. DURING CONSTRUCTION, ALL OPENINGS TO THE PIPELINES SHALL BE PROTECTED FROM THE ENTERING OF EARTH OR OTHER MATERIALS.

I. SEWER SERVICE CONNECTIONS

WHERE REQUIRED ON THE PLANS, SEWER SERVICE CONNECTIONS FOR ONE HOUSE SHALL BE CONSTRUCTED OF 6" PIPE FROM THE MAIN TO THE EDGE OF THE RIGHT-OF-WAY AND A MINIMUM OF 4" PIPE FROM THE RIGHT-OF-WAY TO THE HOUSE OF THE TYPE MATERIAL SPECIFIED UNDER THIS SECTION. THE PIPE SHALL BE LAID AND ITS JOINTS MADE AS REQUIRED FOR SEWER CONSTRUCTION IN THIS SPECIFICATION.

OPEN ENDS OF PIPES SHALL BE PROPERLY SEALED TO PREVENT DAMAGE AND INTRUSION OF FOREIGN MATTER WHERE HOOKUP TO THE BUILDING SEWER IS NOT COINCIDENT WITH SEWER MAIN CONSTRUCTION. ADDITIONALLY, THE CONTRACTOR WILL PROVIDE A STABLE, TEMPORARY MARKER APPROVED BY THE ENGINEER FROM THE SEWER SERVICE INVERT UP TO 6" ABOVE THE FINISHED GRADE AND SEATED SECURELY INTO THE GROUND FOR EASE IN RELOCATING THE END OF SEWER SERVICE CONNECTION FOR HOOKING UP THE BUILDING SEWER. ALL CONNECTIONS WITH SUBSURFACE FIXTURES, MUST INSTALL A BACKWATER VALVE.

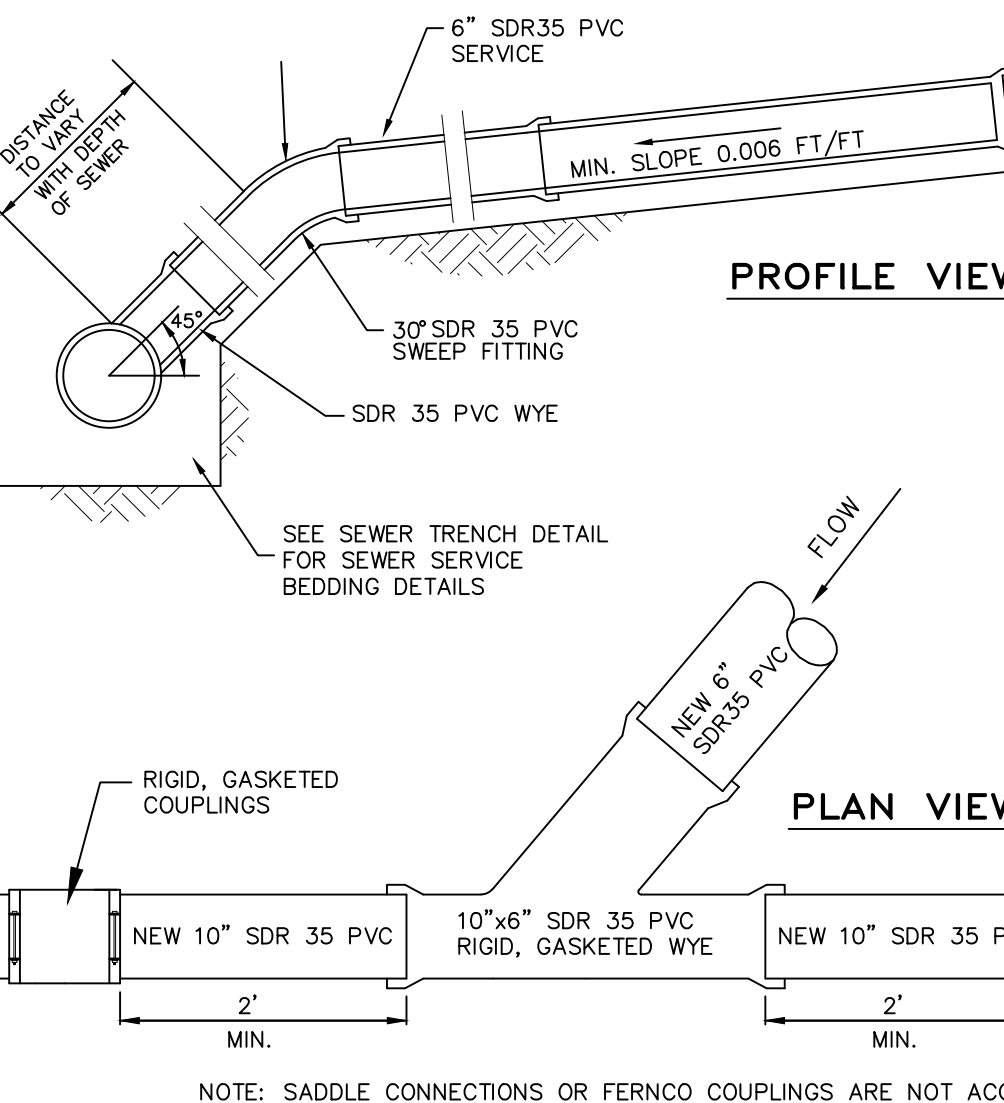
IN THE CASE OF RECONNECTION OF EXISTING SERVICES, SUCH RECONNECTIONS WILL BE MADE ONLY AFTER THE NEW SEWER MAIN HAS BEEN COMPLETED, TESTED, AND ACCEPTED. THE EXCAVATION, BEDDING MATERIAL, INSTALLATION, AND BACKFILL FOR SERVICE CONNECTIONS SHALL BE SAME AS FOR SEWER MAINS.

J. SEWER PIPE INSTALLATION

CLEANOUTS FOR GRAVITY SEWERS AND FORCE MAINS SHALL BE PROVIDED AT LOCATIONS INDICATED ON THE PLANS OR AS DIRECTED BY THE TOWN. CLEANOUT FRAMES AND COVERS SHALL BE OF TOUGH GRAY CAST IRON. CASTINGS SHALL BE TRUE TO PATTERN AND FREE FROM FLAWS.

THE BEARING SURFACE OF CLEANOUT FRAMES AND COVERS AGAINST EACH OTHER SHALL BE MACHINED TO GIVE CONTINUOUS CONTACT THROUGHOUT THEIR CIRCUMFERENCE. ALL IRON CASTINGS SHALL BE THOROUGHLY CLEANED AND THEN COATED WITH HOT COAL TAR BEFORE BEING DELIVERED.

- ALL WORK AND MATERIALS SHALL BE APPROVED BY AND IN ACCORDANCE WITH THE LATEST VERMONT AGENCY OF TRANSPORTATION STANDARD SPECIFICATIONS FOR CONSTRUCTION, THE MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES, THE TOWN OF RICHMOND REQUIREMENTS, THE WRITTEN TECHNICAL SPECIFICATIONS, AND THESE PLANS.
- THE CONTRACTOR SHALL CONTACT ALL UTILITIES BEFORE EXCAVATION TO VERIFY THE LOCATION OF ANY UNDERGROUND LINES. THE CONTRACTOR SHALL NOTIFY "DIGSAFE" AT 1-800-225-4977 PRIOR TO ANY EXCAVATION.
- UTILITIES INFORMATION SHOWN HEREON WERE OBTAINED FROM BEST AVAILABLE SOURCES AND MAY OR MAY NOT BE EITHER ACCURATE OR COMPLETE. THE CONTRACTOR SHALL VERIFY THE EXACT LOCATION OF EXISTING UTILITIES AND SHALL BE RESPONSIBLE FOR ANY DAMAGE TO ANY UTILITY, PUBLIC OR PRIVATE, SHOWN OR NOT SHOWN HEREON. THE CONTRACTOR SHALL CONNECT OR RECONNECT ALL UTILITIES TO THE NEAREST SOURCE THROUGH COORDINATION WITH UTILITY OWNER.
- THE CONTRACTOR SHALL BE RESPONSIBLE FOR DEMOLITION AND REMOVAL OF ALL EXISTING VEGETATION, PAVEMENT AND STRUCTURES NECESSARY TO CONSTRUCT THIS PROJECT UNLESS OTHERWISE NOTED ON THESE PLANS. THE CONTRACTOR SHALL REMOVE ALL EXCESS MATERIAL, DEBRIS AND TRASH FROM THE SITE UPON COMPLETION OF CONSTRUCTION, UNLESS OTHERWISE DIRECTED BY THE ENGINEER.
- THE CONTRACTOR SHALL BE RESPONSIBLE AT HIS OWN EXPENSE FOR ENSURING THAT THE DUST CREATED AS A RESULT OF CONSTRUCTION DOES NOT CREATE A NUISANCE OR A SAFETY HAZARD. WHERE AND WHEN DEEMED NECESSARY BY THE ENGINEER, THE CONTRACTOR SHALL BE REQUIRED TO WET SECTIONS OF THE CONSTRUCTION AREA WITH WATER, APPLY CALCIUM CHLORIDE OR SWEEP ASPHALT ROADS WITH A POWER BROOM AS DUST CONTROL.
- ANY SURFACES, LINES, OR STRUCTURES WHICH HAVE BEEN DAMAGED BY THE CONTRACTOR'S OPERATIONS SHALL BE RESTORED TO THE CONDITION AT LEAST EQUAL TO THAT IN WHICH THEY WERE FOUND IMMEDIATELY PRIOR TO THE BEGINNING OF OPERATIONS.
- THE DESIGN ON THESE PLANS SHALL BE INSPECTED BY O'LEARY-BURKE CIVIL ASSOCIATES, P.L.C. OF ESSEX JUNCTION, VERMONT, TO ENSURE COMPLIANCE WITH THE APPROVED PLANS AND REQUIREMENTS. O'LEARY-BURKE WAIVES ANY AND ALL RESPONSIBILITY AND LIABILITY FOR PROBLEMS THAT MAY ARISE FROM THE FAILURE OF THE CONTRACTOR TO FOLLOW THESE PLANS, SPECIFICATIONS AND THE DESIGN INTENT THAT THE PLANS CONVEY, AND FROM FAILURE TO HAVE BEEN NOTIFIED TO INSPECT THE WORKS AND TESTS IN PROGRESS.



NOTE: SADDLE CONNECTIONS OR FERNCO COUPLINGS ARE NOT ACCEPTED.

SANITARY SEWER SERVICE CONNECTION

ALL CONNECTIONS TO THE TOWN OF RICHMOND WATER SYSTEM MUST ADHERE TO SECTION 4, WATER DISTRIBUTION STANDARDS, OF THE TOWN OF RICHMOND PUBLIC IMPROVEMENTS STANDARDS & SPECIFICATIONS. A REPRESENTATIVE OF THE TOWN OF RICHMOND PUBLIC WORKS DEPARTMENT SHALL WITNESS ALL CONNECTIONS AND WORK PERFORMED ON EXISTING WATER INFRASTRUCTURE. THE FOLLOWING ARE APPLICABLE SUBSECTIONS OF SECTION 4.

4.4 WATER SERVICE CONNECTION

A. GENERAL REQUIREMENTS

THE CONTRACTOR SHALL INSTALL 3/4" - 2" COPPER SERVICES AS INDICATED ON THE CONTRACT DRAWINGS OR AS DIRECTED BY THE TOWN. EACH SERVICE SHALL CONSIST OF A CORPORATION, CURBSTOP, COPPER TUBING, AND A CURB BOX WITH SERVICE ROD. CORPORATION SHALL BE ATTACHED TO THE DUCTILE IRON PIPE BY MEANS OF A DIRECT TAP AND TO PVC PIPE THROUGH THE USE OF AN APPROVED SADDLE.

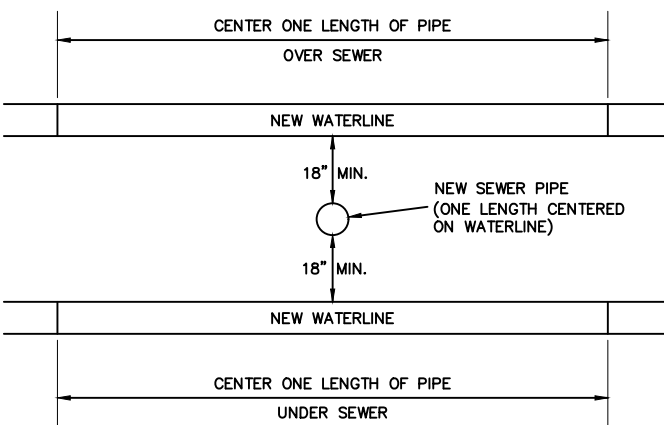
B. CORPORATIONS

CORPORATIONS SHALL BE WATERWORKS BRASS AND MANUFACTURED IN ACCORDANCE WITH APPLICABLE AWWA STANDARDS. CORPORATIONS SHALL HAVE MUELLER H-15009 OR H-15200 CURB STOP OR EQUAL AT THE INLET AND A COMPRESSION-TYPE FITTING AT THE OUTLET. BOTH INLET AND OUTLET SHALL BE OF THE SAME SIZE.

CORPORATIONS SHALL BE DIRECTLY TAPPED INTO DUCTILE IRON PIPE LARGER THAN 2" IN DIAMETER. IN NO OTHER INSTANCE, EXCEPT WHEN A TAPPING SLEEVE AND VALVE IS USED, SHALL A TAP BE MADE WITHOUT A CORPORATION. CORPORATIONS SHALL BE MUELLER H5009 OR AT THE INLET AND A COMPRESSION-TYPE FITTING AT THE OUTLET. BOTH INLET AND OUTLET SHALL BE OF THE SAME SIZE.

C. CURBSTOPS

CURBSTOPS SHALL BE A QUARTER-TURN, PLUG-TYPE VALVE WITH AN "O" RING-TYPE SEAL AND MANUFACTURED OF WATERWORKS BRASS IN ACCORDANCE WITH APPLICABLE AWWA STANDARDS. THE CURBSTOP SHALL OPEN LEFT AND HAVE A POSITIVE STOP. NO CURBSTOP SHALL HAVE THE ABILITY TO DRAIN THE SERVICE LINE. BOTH INLET AND OUTLET OF THE CURBSTOP SHALL HAVE COMPRESSION-TYPE FITTINGS. THE TEE HEAD OF THE CURBSTOP SHALL HAVE PROVISION FOR THE CONNECTION OF A SERVICE ROD. CURBSTOPS SHALL BE MUELLER H-1504-2 OR EQUAL.

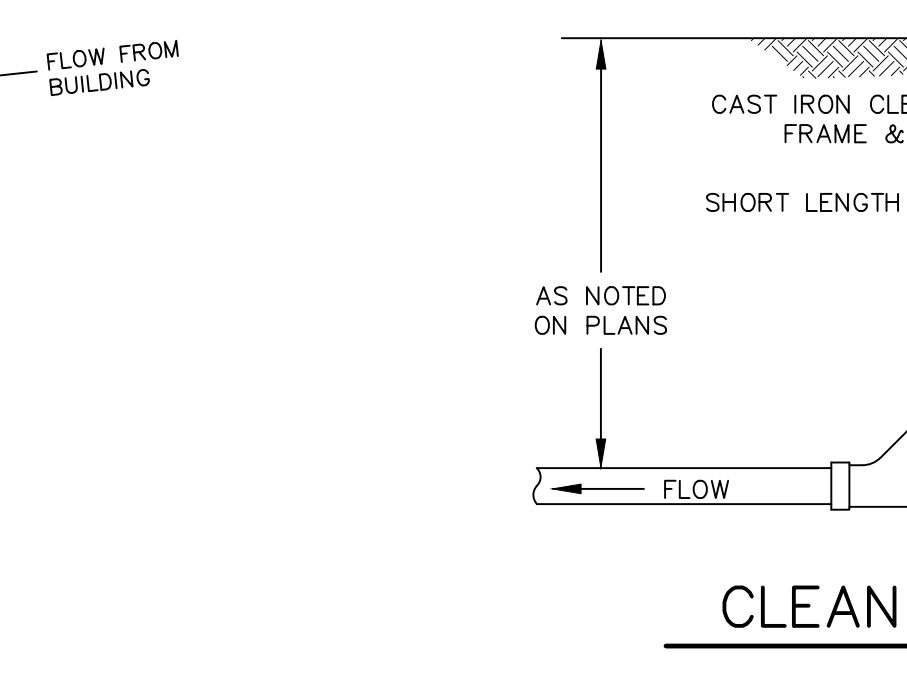


SEWER/WATER SEPARATION DETAIL FOR CROSSINGS

NTS

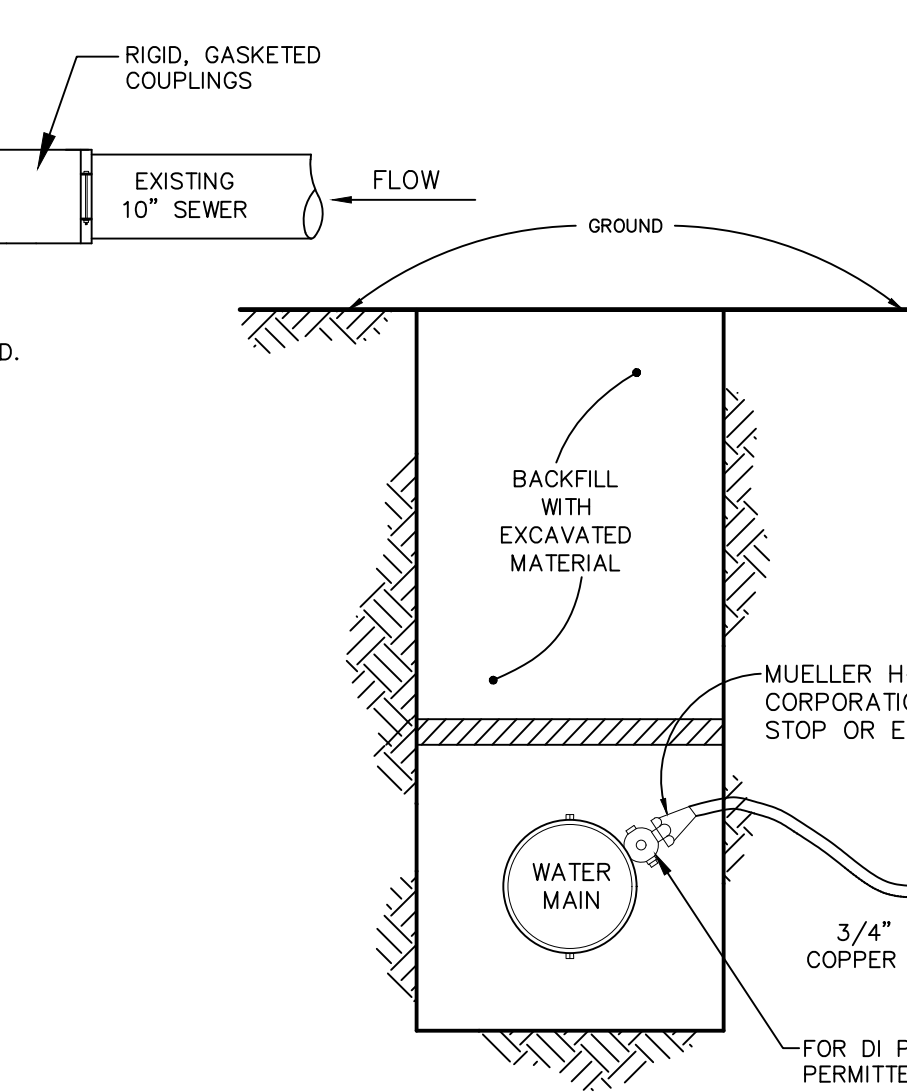
GENERAL WATER SPECIFICATIONS

- ALL WORK AND MATERIALS SHALL BE APPROVED BY AND IN ACCORDANCE WITH THE LATEST VERMONT AGENCY OF TRANSPORTATION STANDARD SPECIFICATIONS FOR CONSTRUCTION, THE MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES, THE TOWN OF RICHMOND REQUIREMENTS, THE WRITTEN TECHNICAL SPECIFICATIONS, AND THESE PLANS.
- THE CONTRACTOR SHALL CONTACT ALL UTILITIES BEFORE EXCAVATION TO VERIFY THE LOCATION OF ANY UNDERGROUND LINES. THE CONTRACTOR SHALL NOTIFY "DIGSAFE" AT 1-800-225-4977 PRIOR TO ANY EXCAVATION.
- UTILITIES INFORMATION SHOWN HEREON WERE OBTAINED FROM BEST AVAILABLE SOURCES AND MAY OR MAY NOT BE EITHER ACCURATE OR COMPLETE. THE CONTRACTOR SHALL VERIFY THE EXACT LOCATION OF EXISTING UTILITIES AND SHALL BE RESPONSIBLE FOR ANY DAMAGE TO ANY UTILITY, PUBLIC OR PRIVATE, SHOWN OR NOT SHOWN HEREON. THE CONTRACTOR SHALL CONNECT OR RECONNECT ALL UTILITIES TO THE NEAREST SOURCE THROUGH COORDINATION WITH UTILITY OWNER.
- THE CONTRACTOR SHALL BE RESPONSIBLE FOR DEMOLITION AND REMOVAL OF ALL EXISTING VEGETATION, PAVEMENT AND STRUCTURES NECESSARY TO CONSTRUCT THIS PROJECT UNLESS OTHERWISE NOTED ON THESE PLANS. THE CONTRACTOR SHALL REMOVE ALL EXCESS MATERIAL, DEBRIS AND TRASH FROM THE SITE UPON COMPLETION OF CONSTRUCTION, UNLESS OTHERWISE DIRECTED BY THE ENGINEER.
- THE CONTRACTOR SHALL BE RESPONSIBLE AT HIS OWN EXPENSE FOR ENSURING THAT THE DUST CREATED AS A RESULT OF CONSTRUCTION DOES NOT CREATE A NUISANCE OR A SAFETY HAZARD. WHERE AND WHEN DEEMED NECESSARY BY THE ENGINEER, THE CONTRACTOR SHALL BE REQUIRED TO WET SECTIONS OF THE CONSTRUCTION AREA WITH WATER, APPLY CALCIUM CHLORIDE OR SWEEP ASPHALT ROADS WITH A POWER BROOM AS DUST CONTROL.
- ANY SURFACES, LINES, OR STRUCTURES WHICH HAVE BEEN DAMAGED BY THE CONTRACTOR'S OPERATIONS SHALL BE RESTORED TO THE CONDITION AT LEAST EQUAL TO THAT IN WHICH THEY WERE FOUND IMMEDIATELY PRIOR TO THE BEGINNING OF OPERATIONS.
- THE DESIGN ON THESE PLANS SHALL BE INSPECTED BY O'LEARY-BURKE CIVIL ASSOCIATES, P.L.C. OF ESSEX JUNCTION, VERMONT, TO ENSURE COMPLIANCE WITH THE APPROVED PLANS AND REQUIREMENTS. O'LEARY-BURKE WAIVES ANY AND ALL RESPONSIBILITY AND LIABILITY FOR PROBLEMS THAT MAY ARISE FROM THE FAILURE OF THE CONTRACTOR TO FOLLOW THESE PLANS, SPECIFICATIONS AND THE DESIGN INTENT THAT THE PLANS CONVEY, AND FROM FAILURE TO HAVE BEEN NOTIFIED TO INSPECT THE WORKS AND TESTS IN PROGRESS.



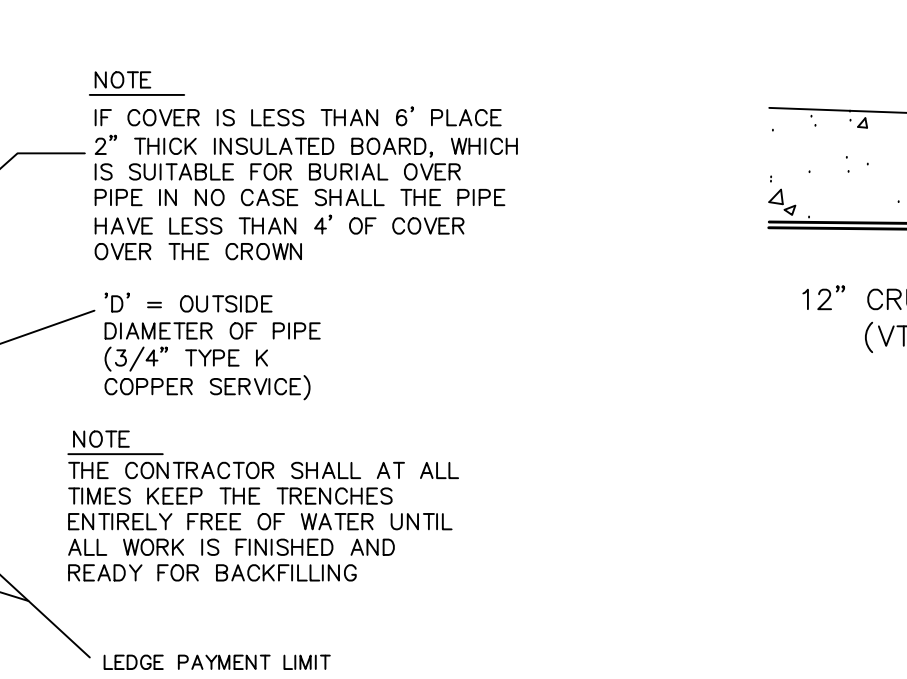
CLEANOUT DETAIL

NTS



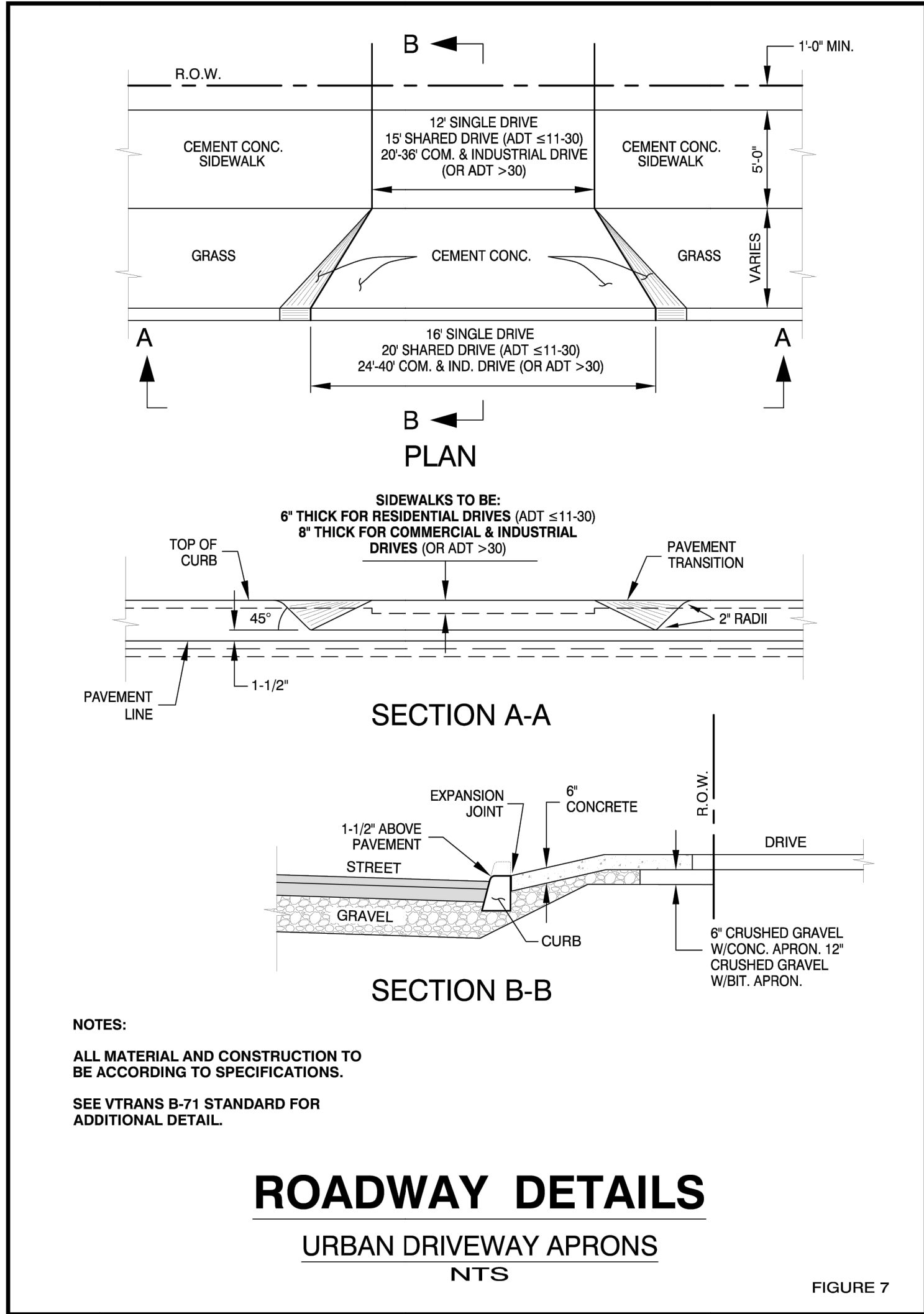
WATER SERVICE TRENCH DETAIL

NTS



DRIVEWAY SECTION

NTS



NOTES:

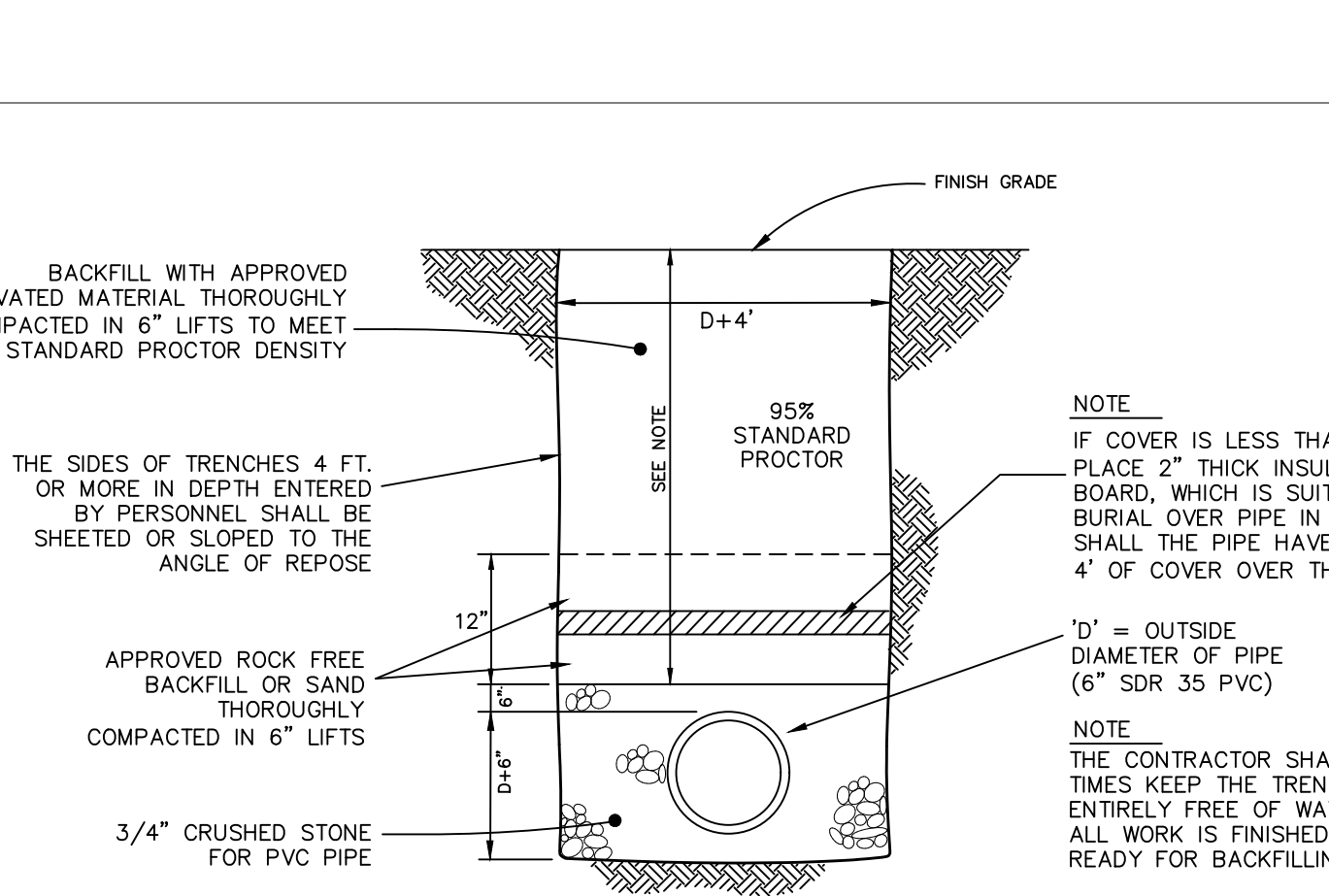
ALL MATERIAL AND CONSTRUCTION TO BE ACCORDING TO SPECIFICATIONS.

SEE VTRANS B-71 STANDARD FOR ADDITIONAL DETAIL.

ROADWAY DETAILS

URBAN DRIVEWAY APRONS

FIGURE 7



SEWER SERVICE TRENCH DETAIL

NTS

DATE	REVISION	BY
SURVEY	JRF	01/15/25
DESIGN	OBCA	JOB# 2025-51
DRAWN	BBP	FILE S3
CHECKED	OBCA	PLAN SHEET #
SCALE	N.T.S.	2

THE CONTRACTOR SHALL NOTIFY "DIGSAFE" AT 1-888-DIG-SAFE PRIOR TO ANY EXCAVATION.

**30 BROWNS COURT**

BROWNS COURT RICHMOND, VT

**CONSTRUCTION DETAILS**

13 CORPORATE DRIVE  
ESSEX, VT  
PHONE: 878-9880  
FAX: 878-9889  
E-MAIL: obca@olearyburke.com