

**SANITARY SEWER NOTES:**

- THE PROPOSED BUILDINGS ARE TO BE SERVED BY THE CITY OF BEACON MUNICIPAL SEWER SYSTEM. INSTALLATION OF ALL COMPONENTS SHALL BE PERFORMED IN ACCORDANCE WITH THE REQUIREMENTS OF THE CITY SEWER DEPARTMENT.
- REFER TO THE DUTCHESS COUNTY DEPARTMENT OF HEALTH STANDARD NOTES FOR ADDITIONAL PERTINENT INFORMATION.
- THE DUTCHESS COUNTY DEPARTMENT OF HEALTH, CITY OF BEACON SEWER SUPERINTENDENT, AND THE CERTIFYING PROFESSIONAL ENGINEER SHALL BE NOTIFIED PRIOR TO COMMENCEMENT OF THE SEWER MAIN INSTALLATION.
- SEWER MAIN MATERIAL SHALL BE 8" DIAMETER SDR-35 PVC BELL AND SPIGOT GRAVITY SEWER PIPE, WITH GASTIGHT AND WATERTIGHT JOINTS.
- SEWER MAIN SHALL BE LAID IN STRAIGHT ALIGNMENT. MANHOLES SHALL BE CONSTRUCTED AT ALL CHANGES IN SLOPE, ALIGNMENT OR AT INTERVALS NOT EXCEEDING 400 LINEAR FEET. STRAIGHT ALIGNMENT SHALL BE VERIFIED BY DEFLECTION TESTING.
- WHERE FLEXIBLE PIPE IS USED, CONTRACTOR SHALL TEST ALL MAINLINE PIPE FOR MAXIMUM ALLOWABLE DEFLECTION OF 5% OF OUTSIDE DIAMETER. DEFLECTION TESTS SHALL BE PERFORMED USING A CIRCULAR STEEL BALL (MANDREL) ON SLED NOT LESS THAN 95% OF THE INSIDE DIAMETER SMALLER THAN ALLOWABLE INSIDE DIAMETER OF FLEXIBLE PIPE WHEN DEFLECTED A MAXIMUM OF 5% OF OUTSIDE DIAMETER. DEFLECTION TESTING OF ANY PIPE SHALL BE DONE NO SOONER THAN 30 DAYS AFTER DATE OF INSTALLATION OF PIPE SECTION UNLESS WRITTEN EXCEPTION.
- THE SEWER MAIN SHALL BE INSTALLED AND TESTED FOR EXFILTRATION PRIOR TO BEING ACCEPTED BY THE CITY. ALL NEW SANITARY SEWER GRAVITY LINES SHALL PASS A LOW PRESSURE AIR TEST IN ACCORDANCE WITH ASTM F-1417 (LATEST REVISION) AT A PRESSURE OF 3.5 PSI. THE TEST PRESSURE SHALL BE CALCULATED BY ADDING 4.0 PSI TO THE HEIGHT (IN FEET) OF GROUNDWATER ABOVE THE INVERT OF THE PIPE (CONVERTED TO PSI BY DIVIDING BY 2.31), BUT IN NO CASE SHALL IT EXCEED 9.0 PSI OR LESS THAN 3.5 PSI. THE DURATION OF THE TEST ON EACH SECTION OF MAIN IN MINUTES:SECONDS SHALL BE 3:47 FOR 8" PIPE LENGTHS UP TO 250 FEET; 2:50 FOR 6" PIPE LENGTHS UP TO 350 FEET; 1:53 FOR 4" PIPE LENGTHS UP TO 597 FEET. THE ALLOWABLE PRESSURE DROP SHALL NOT EXCEED 0.5 PSI. AIR TESTING SHALL BE PERFORMED ONLY ON PIPES BACKFILLED TO FINISHED GRADE.
- MANHOLES SHALL BE VACUUM TESTED IN ACCORDANCE WITH ASTM C-1244. IF PRESSURE DROP EXCEEDS THE SPECIFIED AMOUNT, THE NECESSARY REPAIRS OR REPLACEMENTS REQUIRED SHALL BE MADE TO REDUCE THE PRESSURE DROP TO WITHIN THE SPECIFIED LIMIT, AND THE TESTS SHALL BE REPEATED UNTIL THE REQUIREMENT IS MET.
- WHERE SEWERS ARE CONSTRUCTED OF PRESSURE-RATED PIPE AND INSTALLED WITH LESS THAN 18 INCHES VERTICAL SEPARATION FROM EXISTING OR PROPOSED WATER MAINS, SEWERS SHALL BE HYDROSTATICALLY TESTED AT 150 PSI TO ASSURE WATER TIGHTNESS. HYDROSTATIC ACCEPTANCE TESTS SHALL BE CONDUCTED AS SPECIFIED FOR TESTING WATER MAINS, EXCEPT THAT TESTING MAY BE PERFORMED WITH THE PIPE SECTION PARTIALLY BACK-FILLED.
- SERVICE LATERALS FOR LIVE/WORK UNITS SHALL BE 4" SDR 35 PVC WITH A MINIMUM SLOPE OF 2%, UNLESS OTHERWISE NOTED ON THE PLAN. SERVICE LATERALS FOR ALL OTHER BUILDINGS SHALL BE 6" SDR 35 AT A SLOPE OF 1%, UNLESS OTHERWISE NOTED ON THE PLAN.

**SANITARY SEWER TESTING NOTES:**

CONTRACTOR SHALL INSPECT AND TEST. THE INSTALLATIONS AS REQUIRED BY THE AUTHORITY HAVING JURISDICTION. IT SHALL INSPECT, TEST, ETC. THE INSTALLATIONS AS REQUIRED BY THE AUTHORITY HAVING JURISDICTION. WHEN WORK IS READY FOR TESTING AND INSPECTION. ALL TESTS AND AFTER ALL INSPECTIONS HAVE BEEN PERFORMED, EVIDENCE OF COMPLIANCE SHALL BE FORWARDED TO OWNER/ENGINEER AND THE AUTHORITY HAVING JURISDICTION PRIOR TO ACCEPTANCE.

THE CONTRACTOR SHALL TEST AND INSPECT FOR ALIGNMENT AND INFILTRATION AND EXFILTRATION OF ALL SANITARY SEWERS AND RELATED UTILITY STRUCTURES. INFILTRATION OR EXFILTRATION OF THE SANITARY SEWER SYSTEM SHALL NOT EXCEED 0.60 GAL/INCH OF INTERNAL PIPE DIAMETER PER 100' OF PIPELINE PER HOUR WITH A MAXIMUM HYDROSTATIC HEAD AT THE CENTERLINE OF THE PIPE OF 25 FT, OR AS REQUIRED BY THE AUTHORITY HAVING JURISDICTION. WHEN INFILTRATION OR EXFILTRATION OCCURS IN EXCESS OF ALLOWABLE AMOUNT, DEFECTS SHALL BE LOCATED AND REPAIRED BEFORE TESTING.

INFILTRATION LEAKAGE TESTS SHALL BE RUN ON EACH SINGLE MANHOLE-TO-MANHOLE SECTION, OR REACH, INDEPENDENTLY OF ALL OTHER MANHOLE-TO-MANHOLE SECTIONS. A PIPELINE SECTION UNDER TEST SHALL INCLUDE ALL PIPE AND FITTINGS BETWEEN THE TWO MANHOLES PLUS THE UPSTREAM MANHOLE.

EACH MANHOLE-TO-MANHOLE SECTION SHALL BE REJECTED OR ACCEPTED BASED ONLY ON RESULTS OF ITS OWN INDEPENDENT SECTION TEST AND NOT ON RESULTS OF ANY ONE TEST RUN SIMULTANEOUSLY OVER MORE THAN ONE CONSECUTIVE MANHOLE-TO-MANHOLE SECTION. THE ONLY EXCEPTION ALLOWED: ACCEPTING SEVERAL CONSECUTIVE MANHOLE-TO-MANHOLE SECTIONS BASED ON ONE COMBINED INFILTRATION TEST INDICATING ZERO INFILTRATION.

INFILTRATION TESTS SHALL BE MADE BY INSTALLING A FLOW MEASURING DEVICE IN THE DOWNSTREAM MANHOLE OF SECTION BEING TESTED. TEST DURATION SHALL BE 24 HRS, OR FOR SHORTER PERIOD, PROVIDED A STEADY STATE FLOW CONDITION HAS BEEN ACHIEVED IN THE TEST PERIOD, AND RESULTS PROJECTED TO A 24 HR PERIOD.

EXFILTRATION TESTS SHALL BE RUN ON EACH SINGLE MANHOLE-TO-MANHOLE SECTION, OR REACH, INDEPENDENTLY OF ALL OTHER MANHOLE-TO-MANHOLE SECTIONS. A PIPELINE SECTION UNDER TEST SHALL INCLUDE ALL PIPE AND FITTINGS BETWEEN THE TWO MAN-HOLES PLUS THE UPSTREAM MANHOLE.

EXFILTRATION TESTS SHALL BE MADE BY MEASURING THE DROP IN WATER ELEVATION IN THE UPSTREAM MANHOLE 24 HRS AFTER INITIAL WATER LEVEL IS RECORDED. INITIAL WATER LEVEL IN UPSTREAM MANHOLE SHALL BE 2 FEET HIGHER THAN EITHER THE TOP OF PIPE OR GROUNDWATER ELEVATION AT THE DOWNSTREAM MANHOLE. ANY MANHOLE-TO-MANHOLE SECTION UNDERGOING AN EXFILTRATION TEST MUST HAVE THE NEXT ADJACENT SECTIONS, BOTH UPSTREAM AND DOWNSTREAM, DRY AND NOT UNDER TEST. THIS PROCEDURE MINIMIZES HYDROSTATIC PRESSURE PLACED ON STOPPERS, PLUGS, AND END CAPS.

LOW PRESSURE AIR TESTING MAY BE ALLOWED IN LIEU OF EXFILTRATION TESTS ONLY. WHEN SO ALLOWED, TEST SHALL BE PERFORMED UNDER DIRECTION OF ENGINEER ACCORDING TO ASTM F1417. LOW PRESSURE AIR TEST IS A COMPARISON OF THE MEASURED TIME NECESSARY FOR ONE (1) PSIG PRESSURE DROP TO OCCUR, IF AT ALL, WITH MINIMUM ALLOWABLE TIME FOR THAT PRESSURE DROP TO OCCUR DETERMINED BY METHODS INDICATED IN ASTM F1417. IF THE ONE (1) PSIG PRESSURE DROP OCCURS FASTER THAN ALLOWABLE TIME, SECTION IS UNACCEPTABLE.

AN AIR TEST SHALL NOT BE RUN UNTIL SECTION OF LINE TO BE TESTED HAS BEEN CLEANED OF ALL FOREIGN MATERIAL BY FLUSHING AND HAS BEEN VISUALLY INSPECTED AND APPROVED BY THE ENGINEER. CERTAIN PIPE MATERIALS PRODUCE MORE CONSISTENT RESULTS WHEN INTERIOR OF PIPE IS WETTED PRIOR TO TESTING.

WHERE AIR-TESTING IS TO BE USED FOR LINE ACCEPTANCE, CORROBORATIVE HYDROSTATIC TESTING SHALL BE PERFORMED ON SEWER INSTALLATION OF THE SAME PIPE SIZE, MATERIAL, AND CONDITIONS OF INSTALLATION. SEWER SECTIONS WHICH INDICATE RATES OF AIR LOSS PER UNIT OF SURFACE AREA WHICH MOST NEARLY APPROXIMATE RATE FOR PIPELINE ACCEPTANCE SHOULD BE SELECTED FOR CORROBORATIVE TESTS. AT LEAST 3 SECTIONS ARE TO BE SO TESTED. THE PURPOSE OF THESE CORROBORATIVE TESTS IS TO PERMIT A REASONABLE ASSUMPTION THAT, IF THESE 3 TEST SECTIONS MEET THE HYDROSTATIC TEST, THE BALANCE OF PROJECT ALSO MEETS OR EXCEEDS THESE REQUIREMENTS. IF AIR TEST IS NOT SUPPORTED BY ACCEPTABLE CORROBORATIVE HYDROSTATIC TESTS, COMPLETE HYDRO-STATIC TESTING OF SEWER LINES SHALL BE REQUIRED.

WHERE FLEXIBLE PIPE IS USED, CONTRACTOR SHALL TEST ALL MAINLINE PIPE FOR MAXIMUM ALLOWABLE DEFLECTION OF 5% OF OUTSIDE DIAMETER. DEFLECTION TESTS SHALL BE PERFORMED USING A CIRCULAR STEEL BALL ON SLED 1/16-INCH IN DIAMETER SMALLER THAN ALLOWABLE INSIDE DIAMETER OF FLEXIBLE PIPE WHEN DEFLECTED A MAXIMUM OF 5% OF OUTSIDE DIAMETER. DEFLECTION TESTING OF ANY PIPE SHALL BE DONE NO SOONER THAN 30 DAYS AFTER DATE OF INSTALLATION OF PIPE SECTION UNLESS WRITTEN EXCEPTION.

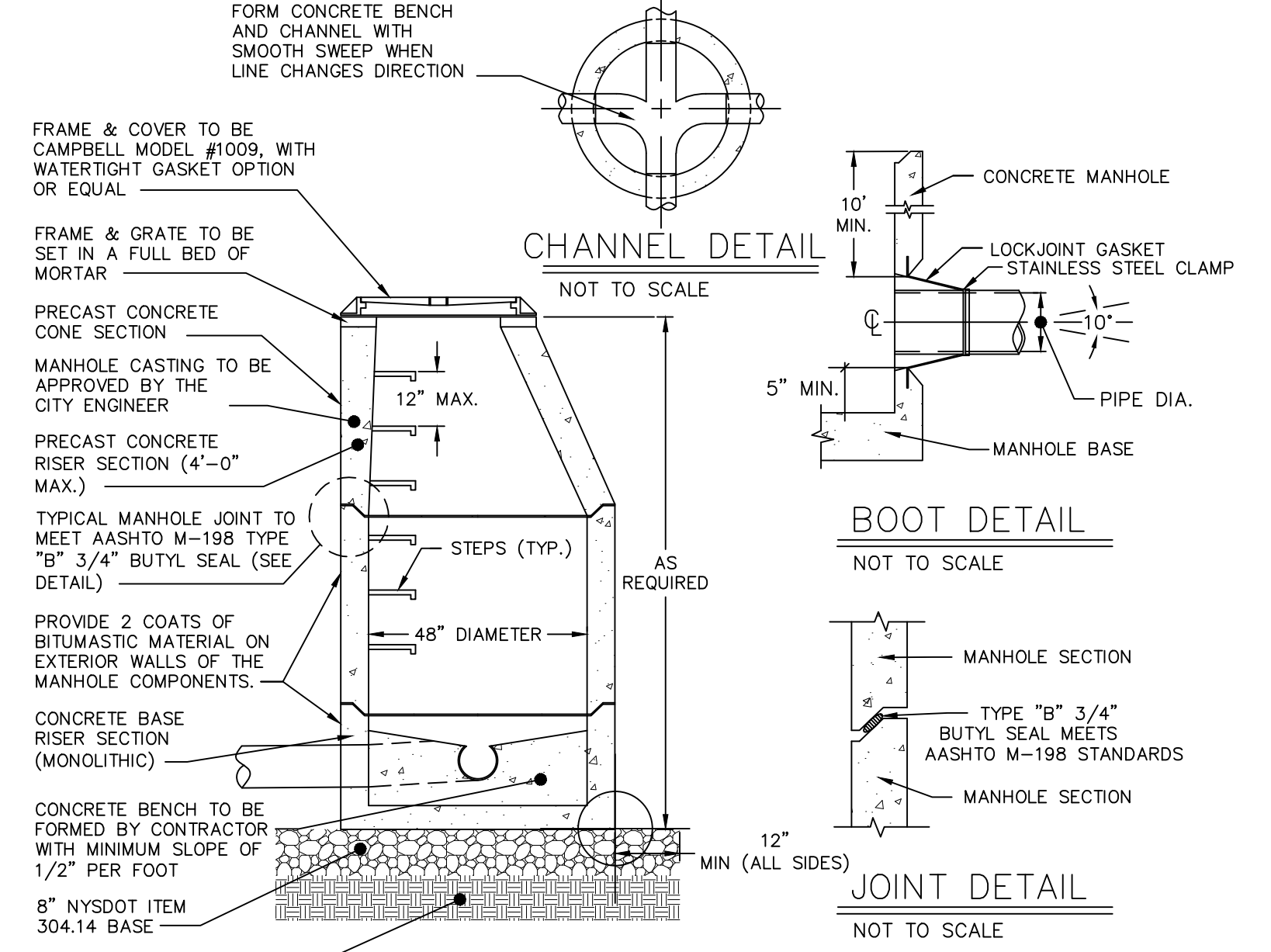
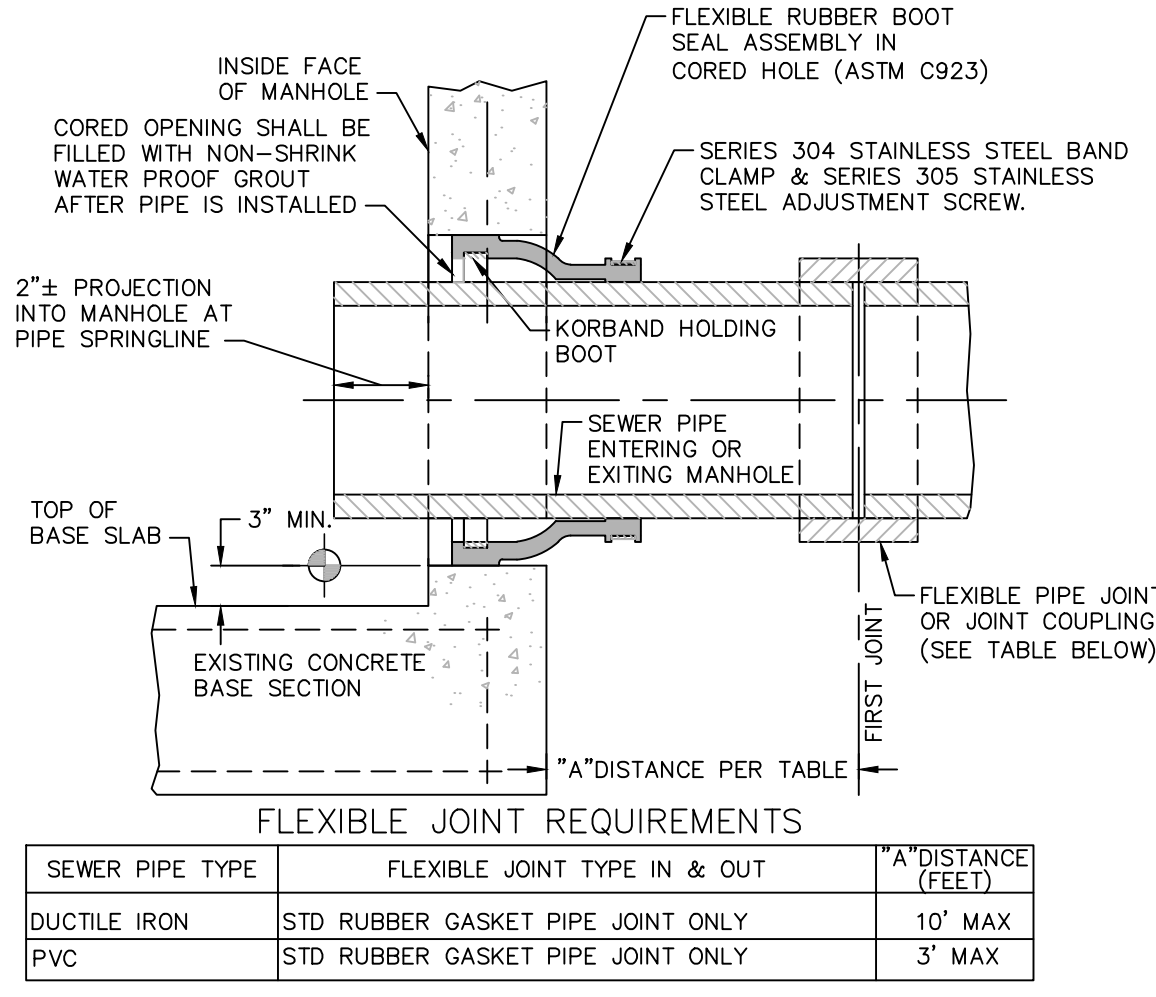
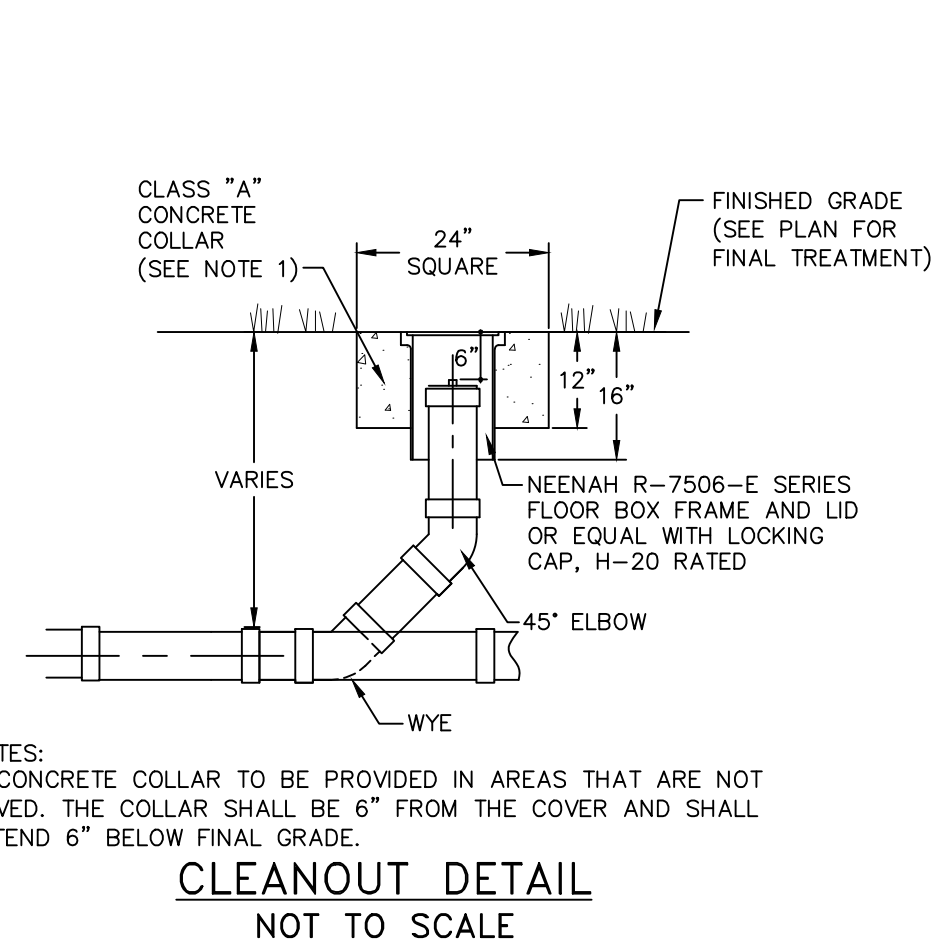
SEWERS SHALL BE LAID WITH STRAIGHT ALIGNMENT BETWEEN MANHOLES. STRAIGHT ALIGNMENT SHALL BE CHECKED EITHER USING A LASER BEAM OR LAMPING. TESTING SHALL COMPLY WITH REQUIREMENTS OF THE AUTHORITY HAVING JURISDICTION.

MANHOLES, WHICH CANNOT BE PROPERLY AIR TESTED, SHOULD BE VISUALLY INSPECTED AND LEAKAGE-TESTED USING INTERNAL OR EXTERNAL HYDROSTATIC PRESSURE. LEAKAGE TESTING SHALL COMPLY WITH REQUIREMENTS OF THE AUTHORITY HAVING JURISDICTION.

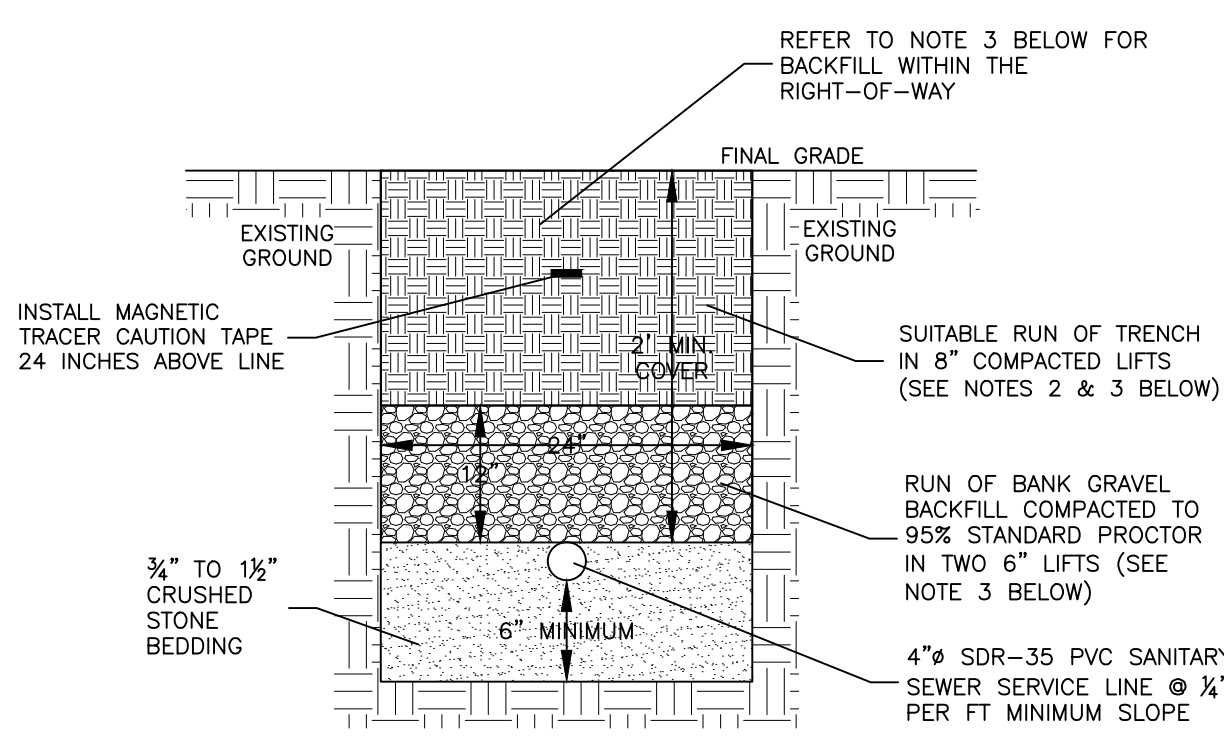
IN AREAS WHERE CONVENTIONAL TESTING IS IMPRACTICAL (I.E. AREAS DESIGNATED BY ENGINEER WHERE EXISTING SERVICES ARE TIED INTO NEW LINE IMMEDIATELY AND ANY BLOCKAGE COULD RESULT IN HEALTH PROBLEMS) NO LINES SHALL BE BACKFILLED UNTIL EACH PIPE SECTION AND CONNECTION IS INSPECTED AND APPROVED.

WHERE SEWERS ARE CONSTRUCTED OF PRESSURE-RATED PIPE AND INSTALLED WITH LESS THAN 18 INCHES VERTICAL SEPARATION FROM EXISTING OR PROPOSED WATER MAINS, SEWERS SHALL BE HYDROSTATICALLY TESTED AT 150 PSI TO ASSURE WATER TIGHTNESS. HYDROSTATIC ACCEPTANCE TESTS SHALL BE CONDUCTED AS SPECIFIED FOR TESTING WATER MAINS, EXCEPT THAT TESTING MAY BE PERFORMED WITH THE PIPE SECTION PARTIALLY BACK-FILLED.

IF THE ALLOWABLE RATE OF INFILTRATION, EXFILTRATION, OR AIR LEAKAGE IS EXCEEDED, THE CONTRACTOR SHALL LOCATE POINTS OF EXCESSIVE LEAKAGE AND SHALL PROMPTLY CORRECT, REPAIR, AND BRING SYSTEM UP TO THE STANDARD. COSTS OF ALL SUCH REPAIRS AND CORRECTIVE MEASURES, INCLUDING COSTS OF REPEATED TESTS, SHALL BE BORN BY CONTRACTOR, THE SEWER LINE SECTION (INCLUDING MANHOLES AND BUILDING SERVICES) UNDER TEST SHALL NOT BE ACCEPTED UNTIL THESE TEST CRITERIA ARE MET.

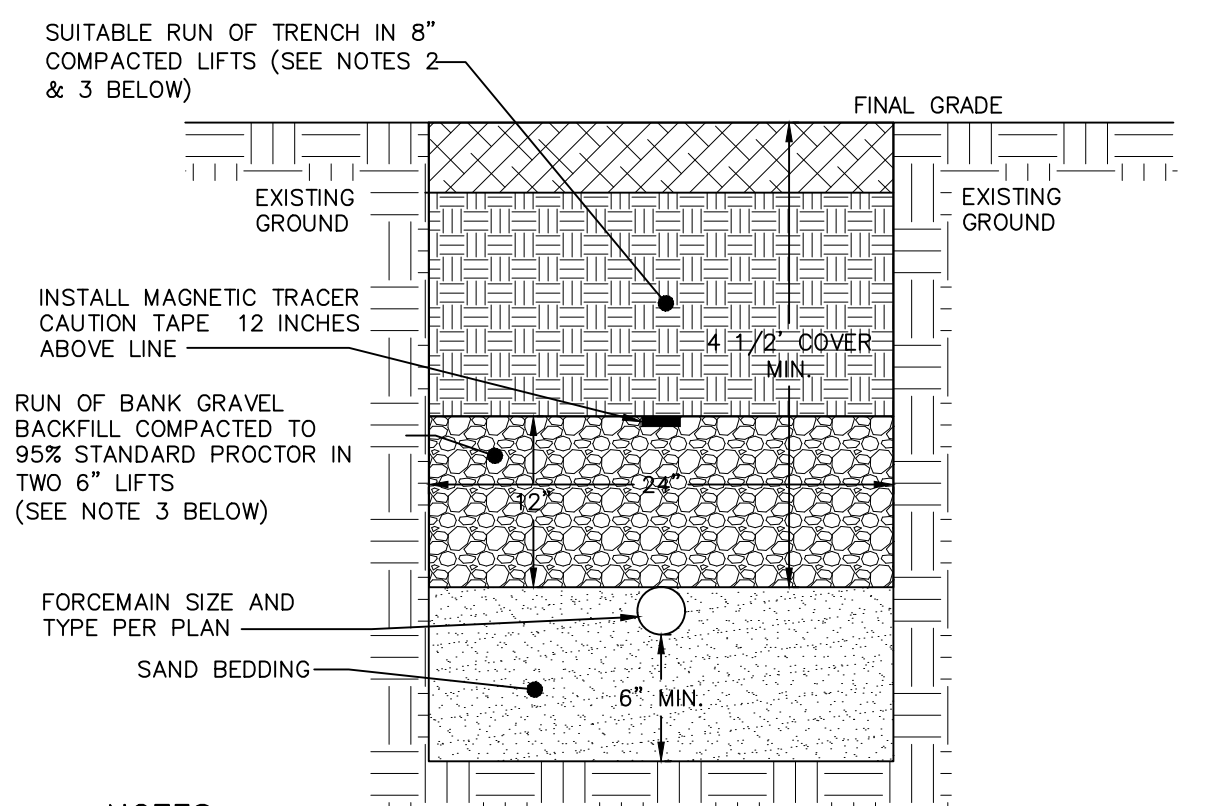


**CORED HOLE AND INSERTED BOOT DETAIL**  
NOT TO SCALE



- NOTES:**
- EXCAVATION AND TRENCHING SHALL MEET ALL OSHA REQUIREMENTS.
  - SUITABLE RUN OF TRENCH SHALL NOT INCLUDE FROZEN MATERIALS, DEBRIS, ORGANIC MATERIALS, ENLARGED PARTICLES, LARGE STONES OR OTHER UNSUITABLE MATERIALS. IF THE RUN OF TRENCH MATERIAL IS FOUND TO BE UNSUITABLE, A SUITABLE BACKFILL MATERIAL SHALL BE IMPORTED AND USED.
  - BACKFILL WITHIN THE RIGHT-OF-WAY SHALL BE NYS DOT ITEM 304.12 SUBBASE COURSE TYPE 2 FROM THE TOP OF THE PIPE TO THE BOTTOM OF THE PAVEMENT OR GRASS, PLACED IN 8" MAXIMUM LIFTS AND COMPACTED TO 95% STANDARD PROCTOR.

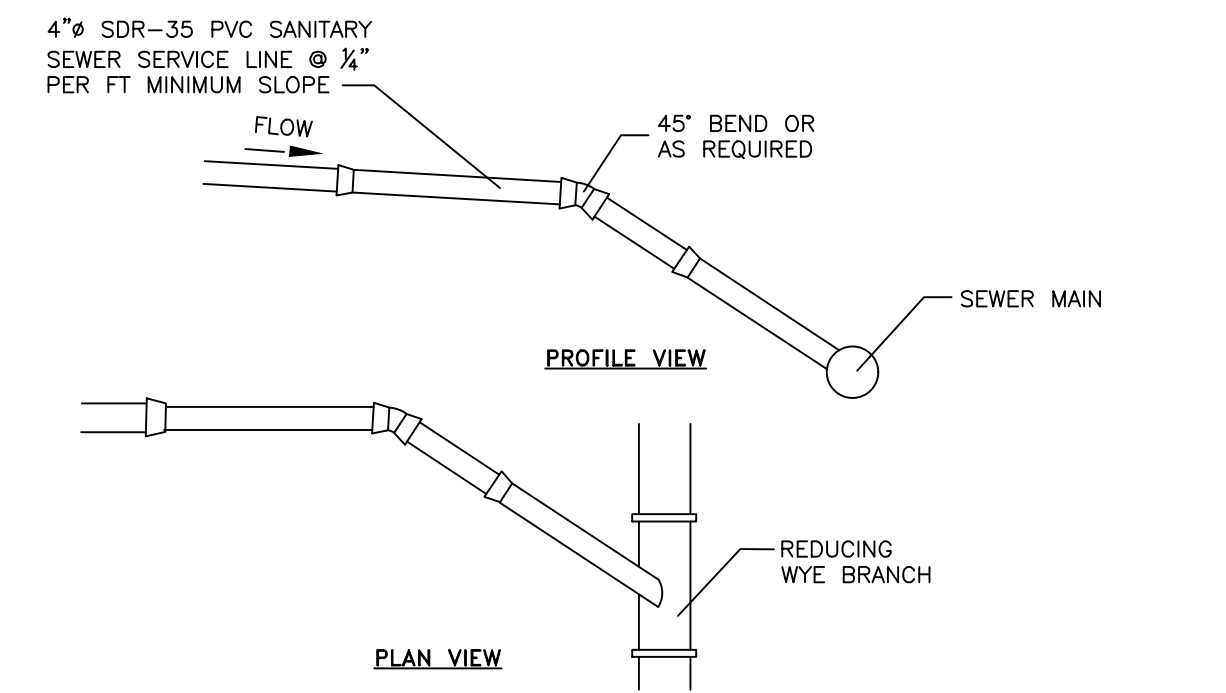
**SANITARY SEWER SERVICE LINE TRENCH DETAIL**  
NOT TO SCALE



- NOTES:**
- EXCAVATION AND TRENCHING SHALL MEET ALL OSHA REQUIREMENTS.
  - SUITABLE RUN OF TRENCH SHALL NOT INCLUDE FROZEN MATERIALS, DEBRIS, ORGANIC MATERIALS, ENLARGED PARTICLES, LARGE STONES OR OTHER UNSUITABLE MATERIALS. IF THE RUN OF TRENCH MATERIAL IS FOUND TO BE UNSUITABLE, A SUITABLE BACKFILL MATERIAL SHALL BE IMPORTED AND USED.
  - BACKFILL WITHIN THE RIGHT-OF-WAY SHALL BE NYS DOT ITEM 304.12 SUBBASE COURSE TYPE 2 FROM THE TOP OF THE PIPE TO THE BOTTOM OF THE PAVEMENT OR GRASS, PLACED IN 8" MAXIMUM LIFTS AND COMPACTED TO 95% STANDARD PROCTOR.

**SEWER FORCEMAIN TRENCH DETAIL**  
NOT TO SCALE

**PRE-CAST CONCRETE SANITARY MANHOLE DETAIL**  
NOT TO SCALE



- NOTES:**
- EXCAVATION AND TRENCHING SHALL MEET ALL OSHA REQUIREMENTS.
  - BACKFILL WITHIN THE RIGHT-OF-WAY SHALL BE NYS DOT ITEM 304.12 SUBBASE COURSE TYPE 2 FROM THE TOP OF THE PIPE TO THE BOTTOM OF THE PAVEMENT OR GRASS, PLACED IN 8" MAXIMUM LIFTS AND COMPACTED TO 95% STANDARD PROCTOR.

**SANITARY SEWER SERVICE CONNECTION DETAIL**  
NOT TO SCALE

**SEWER DETAILS**

**JUDSON ST SUBDIVISION**

JUDSON STREET & HOWLAND AVENUE  
CITY OF BEACON  
DUTCHESS COUNTY, NEW YORK  
TAX PARCELS: 6054-17-265505; 6054-14-260488 & 250484  
SCALE: AS SHOWN  
APRIL 25, 2017

**HUDSON LAND DESIGN**  
PROFESSIONAL ENGINEERING P.C.  
174 MAIN STREET  
BEACON, NEW YORK 12508  
PH: 845-440-6926 F: 845-440-6637

**JON D. BODENDORF, P.E.**  
NYS LICENSE NO. 076245  
**DANIEL G. KOHLER, P.E.**  
NYS LICENSE NO. 082716

**SEAL**

**SHEET: 5 OF 6**

DRAWN BY: AG	CHECKED BY: DGK	JOB NO.: 2008-019	
REVISIONS:			
NO.	DATE	DESCRIPTION	BY

**OWNER'S CONSENT:**  
THE UNDERSIGNED OWNER OF THE PROPERTY HEREON STATES THAT HE IS FAMILIAR WITH THIS MAP, ITS CONTENTS AND ITS LEGENDS AND HEREBY CONSENTS TO ALL SAID TERMS AND CONDITIONS AS STATED HEREON AND TO THE FILING OF THE PLAN IN THE OFFICE OF THE CLERK OF THE COUNTY OF DUTCHESS.

ARTHUR DEDOMINICIS \_\_\_\_\_ DATE \_\_\_\_\_