

SANITARY SEWER CONSTRUCTION GENERAL NOTES

1. THE CITY'S PUBLIC WORKS – UTILITY DIVISION DEPARTMENT SHALL BE NOTIFIED PRIOR TO BEGINNING ANY SEWER CONSTRUCTION. (386) 676–3220
2. ALL GRAVITY SANITARY SEWER LINES SHALL BE A MINIMUM OF 8" IN DIAMETER. SERVICE LATERALS SHALL BE A MINIMUM OF 4" DIAMETER (RESIDENTIAL) OR A MINIMUM OF 6" DIAMETER (COMMERCIAL)
3. ALL SANITARY SEWER LINES SHALL BE PVC SDR 26, IN PLACES WHERE A MINIMUM COVER OF 4.0' CANNOT BE MAINTAINED, C-900 GREEN PVC DR-25, CLASS 100 OR CONCRETE ENCASEMENT SHALL BE USED.
4. MINIMUM ALLOWABLE SANITARY SEWER SLOPES ALLOWED ARE:
8" PIPE 0.40%
10" PIPE 0.30%
12" PIPE 0.22%
5. SEWER LINE CONSTRUCTION SHALL BE ACCOMPLISHED BY THE USE OF A LASER INSTRUMENT.
6. THE CONTRACTOR SHALL AT ALL TIMES, DURING PIPE LAYING, DEWATER THE GROUND SUFFICIENTLY TO KEEP THE GROUNDWATER ELEVATION A MINIMUM OF 6" BELOW THE PIPE BEING LAID WITHIN THE AREA OF THE TRENCH.
7. ALL PIPES SHALL BE LAID ON A FIRM FOUNDATION. SOFT OR SPONGY BEDDING FOR PIPES WILL NOT BE ACCEPTED. ANY UNSUITABLE MATERIAL SHALL BE REMOVED AND REPLACED WITH A DRY, COMPACTED, GRANULAR MATERIAL SATISFACTORY TO THE CITY.
8. TRENCHES SHALL BE BACKFILLED WITH CLEAN GRANULAR MATERIAL IN 8. MAX. 1' LIFTS WITH A MINIMUM COMPACTION OF 98 PERCENT (ASSHTO–T180) IN PAVED AREAS AND 90 PERCENT IN UNPAVED AREAS.
9. IT SHALL BE THE CONTRACTOR'S RESPONSIBILITY TO ENSURE THAT TRENCH COMPACTION IS PROVIDED AT POINTS 1 FOOT ABOVE THE PIPE AND AT 1 FOOT VERTICAL INTERVALS TO FINISH GRADE, AT A MINIMUM SAMPING OF EVERY 300 FEET, AND TO FURNISH COPIES OF TEST REPORTS PROMPTLY TO THE CITY INSPECTOR.
10. EXCAVATION AND BACKFILL: THE CONTRACTOR SHALL PROVIDE ADEQUATE SHEETING AND BRACING OF EXCAVATION WORK OR USE OF TRENCH BOX IN ORDER TO PROVIDE FOR THE SAFETY OF WORKMEN, AS WELL AS REPRESENTATIVES OF THE CITY, THE DESIGN ENGINEER, AND THE DEVELOPER.
11. THE CONTRACTOR SHALL INSTALL A METALLIZED FOIL LOCATER TAPE, OR SIMILAR DEVICE AS MAY BE APPROVED BY THE CITY FOR THE FULL LENGTH OF ALL PVC WATER, RECLAIMED WATER AND SEWAGE FORCE MAINS. THIS PIPE LOCATER AID SHALL BE INSTALLED (15) INCHES BELOW FINISHED GRADE OR AS DIRECTED BY THE MANUFACTURER AND IS IN ADDITION TO THE LOCATER WIRE REQUIRED IN THE UTILITY PIPE LOCATION MATERIALS DETAIL (MISCELLANEOUS DETAILS SECTION – M10).
12. MANHOLES SHALL BE LOCATED AT INTERVALS NOT EXCEEDING 400 FEET.
13. MANHOLE RIMS SHALL MATCH FLUSH WITH THE FINISH GRADE ELEVATION IN PAVED AREAS AND A MINIMUM OF 0.2 FEET ABOVE GRADE IN UNPAVED AREAS.

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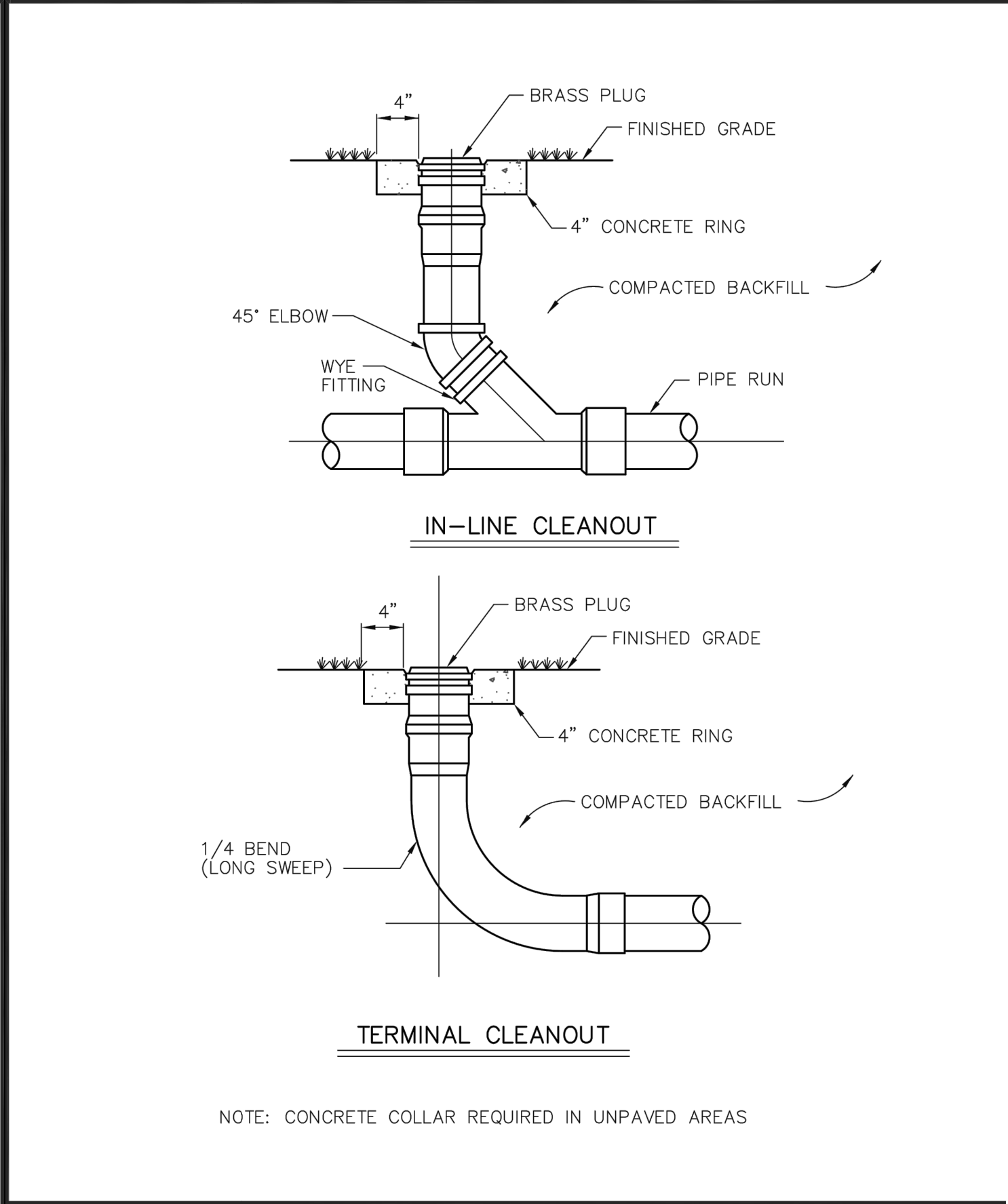
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14. THE CONTRACTOR SHALL CONSTRUCT SANITARY SEWER MANHOLES IN SUCH A WAY THAT SEWER LINES DO NOT INTERSECT SEALED JOINTS BETWEEN SECTIONS OF THE MANHOLE.
15. RUBBER BOOTS AND STAINLESS STEEL BANDS SHALL BE UTILIZED IN THE CONNECTION OF THE SEWER MAIN TO THE MANHOLES (SEE RUBBER BOOT AND PRECAST JOINT CONNECTION DETAIL).
16. DOGHOUSE TYPE MANHOLES ARE NOT PERMITTED WITHIN THE CITY OF ORMOND BEACH
17. INDIVIDUAL SANITARY SERVICE CONNECTORS ON NEW CONSTRUCTION SHALL NOT BE CONNECTED DIRECTLY INTO MANHOLES, BUT TO SEWER MAIN LINES BY USE OF WYE CONNECTIONS.
18. FOR SINGLE FAMILY HOMES, SINGLE FOUR INCH SEWER SERVICES SHALL BE CONSTRUCTED AT EACH LOT OR UNIT AND LOCATED ON THE DOWNSTREAM SIDE OF THE LOT CENTER LINE. THESE SERVICES SHALL BE EXTENDED 4 FEET ABOVE GROUND AT THE PROPERTY LINE WITH A PVC RISER AND PLUG BEING EASILY VISIBLE FROM THE ROAD. RUBBER SEAL FITTINGS TO BE USED ON ALL LINES, NO GLUED JOINTS.
19. FOR MULTI-FAMILY AND COMMERCIAL SITES, SIX INCH MINIMUM SEWER SERVICES AND CLEANOUTS SHALL BE PROVIDED AS APPROVED BY THE CITY.
20. SANITARY SEWER LATERALS LONGER THAN 70 FEET, MEASURED FROM THE SEWER MAIN TO THE RIGHT-OF-WAY LINE MAY BE APPROVED ON A CASE BY CASE BASIS. SUCH LATERALS SHALL BE D.I.P. EPOXY LINED OR C-900 PVC.
21. SANITARY SEWER MANHOLES WHICH HAVE SEWER FORCE MAINS DISCHARGING DIRECTLY INTO THEM, OR ANY MANHOLE WITHIN 200 FEET OF A LIFT STATION, SHALL BE FIBERGLASS OR PVC LINED. RETRO-FITTING OF MANHOLES WITH LINERS SHALL BE REQUIRED WHEN NEW CONNECTIONS SUCH AS THIS ARE MADE. LINING SHALL BE AGRI-SURE-GRIP, RAVEN, SEMPERCOAT, GREEN MONSTER, OR PRE-APPROVED EQUAL.
22. SEE CHART ON DETAIL INDEX S-1C FOR FORCE MAIN AND REUSE PIPE SIZE AND MATERIALS.
23. THE CITY OF ORMOND BEACH REQUIRES THE DEVELOPER TO TELEVIEW ALL SANITARY SEWER MAIN LINES AND LATERALS PRIOR TO FINAL ACCEPTANCE, AND RESERVES THE RIGHT TO REQUEST WATER AND AIR TESTING.
24. ALL SEWER MAINS PRIOR TO ACCEPTANCE BY THE CITY SHALL BE TELEVIEWED BY A REPUTABLE COMPANY THAT ENGAGES IN THIS TYPE OF WORK. THE DVD SHALL BE NON-STOP WITH AUDIO DESCRIBING WHAT IS BEING REVIEWED. WRITTEN DVD LOGS DESCRIBING THE CONDITION OF THE LINES SHALL ACCOMPANY HE DVD SUBMISSION TO THE CITY.
25. CONTRACTORS SHALL BE REQUIRED TO TELEVIEW ALL SEWER MAINS AND LATERAL LINES IN THE PRESENCE OF CITY PERSONNEL AND PROVIDE TWO COPIES OF THE DVD ALONG WITH WRITTEN LOGS TO THE CITY. ANY DEFECTS NOTED SHALL BE CORRECTED PRIOR TO ACCEPTANCE BY THE CITY.

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26. ALL MANHOLES CONSTRUCTED IN SIDE YARDS, BACKYARDS, AND EASEMENTS OFF THE RIGHT-OF-WAY SHALL BE OUTFITTED WITH FIBERGLASS LINERS OR OTHER TYPES OF LINERS OR COATINGS APPROVED BY THE CITY. IN ADDITION THE CITY MAY REQUIRE LINERS OR COATINGS TO BE INSTALLED IN OTHER AREAS WHERE THE PUBLIC UTILITY DEPARTMENTS BELIEVE THE NEED IS JUSTIFIED. 27. ALL SEWER LINES WHICH ARE CONSTRUCTED OFF PUBLIC RIGHTS-OF-WAY WITHIN SIDEYARDS, BACKYARDS, AND OTHER POORLY ACCESSIBLE AREAS SHALL BE CONSTRUCTED OF C-900 PVC, OR EPOXY LINED DUCTILE IRON PIPE. ABSOLUTELY NO USE OF PLASTIC STYRENE FITTINGS SHALL BE ALLOWED. 28. SEWER LATERAL LOCATIONS SHALL BE MARKED ALONG THE OUTSIDE OF THE CURB WITH A SAW CUT V, OR BY A METAL TAB SET INTO THE PAVEMENT. 29. EZ-WRAP PLASTIC, AS MANUFACTURED BY PRESS-SEAL GASKET CORPORATION OR APPROVED EQUAL, SHALL BE USED ON THE OUTSIDE OF ALL MANHOLE AND WET WELL JOINTS. APPLY ONE LAYER OF 9" WRAP CENTERED ON EACH JOINT. A CITY INSPECTOR SHALL PERSONALLY INSPECT ALL JOINT SEALS PRIOR TO BACKFILLING OPERATIONS. 30. ALL PROPOSED SEWER MAINS, 4" OR GREATER, SHALL BE FLUSHED AND CLEANED WITH A POLY PIG IN ACCORDANCE WITH LATEST AWWA STANDARDS AND THE FLORIDA DEPARTMENT OF ENVIRONMENTAL PROTECTION REQUIREMENTS. 31. ALL SEWER MAINS SHALL HAVE A MINIMUM COVER OF 36 INCHES AND A MAXIMUM DEPTH OF 19' TO ANY MANHOLE OR WETWELL. IN SPECIAL CASES WHERE IT IS IMPOSSIBLE OR INAPPROPRIATE TO PROVIDE ADEQUATE COVER, DUCTILE IRON CLASS 300 OR CONCRETE ENCASEMENT MAY BE USED AS APPROVED BY THE CITY. 32. SEWER SYSTEMS SHALL BE PRESSURE TESTED AT 100 PSI STATIC PRESSURE FOR A PERIOD OF 2 HOURS PER AWWA STANDARDS. TESTS SHALL BE CONDUCTED BEFORE FINAL PAYING AND IN THE PRESENCE OF THE CITY'S INSPECTOR. 33. DURING CONSTRUCTION, CONTRACTOR SHALL ISOLATE NEW SANITARY SEWER CONSTRUCTION FROM EXISTING SANITARY SEWER MAINS. THIS ISOLATION MAY BE BY INSTALLATION OF A BLADDER/PLUG PLACED AT POINT OF CONNECTION OR BY OTHER METHODS. THE PURPOSE OF THIS ISOLATION IS TO ENSURE SURFACE WATER IS NOT RELEASED TO THE TREATMENT PLANT. SURFACE WATER SHALL BE REMOVED PRIOR TO THE BLADDER BEING REMOVED.		
FORCE MAIN & REUSE MAIN STANDARDS		
DIAMETER	MATERIAL	STANDARD
2" - 4"	PVC 1120 / SDR 21	ASTM D 2241
> 4" - 12"	PVC 1120 / CLASS 100	AWWA C 900
14" - 36" (16" - 24" ——— DR = 18) (30" - 36" ——— DR = 21)	PVC 1120	AWWA C 905
ALL SIZES	HDPE (DIPS) DR 13.5	ASTM F 714

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- THE CITY'S PUBLIC UTILITIES DEPARTMENT SHALL BE NOTIFIED PRIOR TO BEGINNING ANY WATER SYSTEM CONSTRUCTION. - DEWATERING SHALL BE PROVIDED TO KEEP GROUNDWATER ELEVATION A MINIMUM OF 6 INCHES BELOW WATER MAIN BEING LAID. - ALL WATER MAINS SHALL BE LAID ON A FIRM FOUNDATION WITH ALL UNSUITABLE MATERIAL (MUCK, ROCK, COQUINA, ETC.) REMOVED AND REPLACED WITH CLEAN GRANULAR MATERIAL. - TRENCHES SHALL BE BACKFILLED WITH CLEAN GRANULAR MATERIAL IN MAX. 1' LIFTS WITH A MINIMUM COMPACTION OF 98 PERCENT (AASHTO-T180) IN PAVED AREAS AND 90 PERCENT IN UNPAVED AREAS. - IT SHALL BE THE CONTRACTOR'S RESPONSIBILITY TO ENSURE THAT TRENCH COMPACTION TESTS BE PROVIDED AT POINTS 1 FOOT ABOVE THE PIPE AND AT 1 FOOT VERTICAL INTERVALS TO FINISH GRADE, AT A MINIMUM SPACING OF EVERY 300 FEET, AND TO FURNISH COPIES OF TEST REPORTS PROMPTLY TO THE CITY INSPECTOR. - METALLIZED PIPE LOCATION TAPE SHALL BE LOCATED 15 INCHES BELOW FINISHED GRADE OR AS SPECIFIED BY MANUFACTURER FOR ALL PVC LINES. MARKER TAPE SHALL BE USED ON ALL DUCTILE IRON PIPE. - WATER SERVICES (SINGLE 1") SHALL BE POLYETHYLENE TUBING (BLUE IN COLOR) ; POLYBUTYLENE SHALL NOT BE ALLOWED. - ALL WATER SERVICE ENDINGS SHALL BE MARKED WITH 4" X 4" LUMBER (PRESSURE TREATED) EXTENDING 4 FEET ABOVE GRADE, WITH WATER SERVICES SECURED 24" ABOVE THE GROUND. WIRE TIES SHALL BE USED TO SECURE THE CURB STOPS TO SUPPORT POSTS. - WATER VALVES SHALL BE PLACED AT ALL STREET INTERSECTIONS AND AT MAXIMUM SPACING OF 500 FEET. - AT ALL WATER MAIN TEES AND CROSSES, VALVES SHALL BE INSTALLED ON ALL LEGS EXCEPT ONE.	- APPROVED WATER VALVE TYPES ARE THE FOLLOWING: - STANDARD GATE VALVES LESS THAN 48" DIAMETER RESILIENT SEAT GATE VALVES (AWWA C-509 OR C-515). - MECHANICAL TAPPING SLEEVE SHALL BE STAINLESS STEEL. (AWWA C - 509)
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12. ALL WATER VALVE BOXES SHALL BE ADJUSTED TO FINISH GRADE AND THE LIDS PAINTED BLUE TO MAKE THEM PLAINLY VISIBLE.	
13. WATER VALVES SHALL BE COMPLETELY OPENED BY THE CONTRACTOR UPON FINAL ACCEPTANCE OF NEW WATER SYSTEMS IN THE PRESENCE OF UTILITY DEPARTMENT PERSONNEL.	
14. HYDRANTS SHALL BE PLACED AT 500 FEET MAXIMUM SPACING IN RESIDENTIAL DEVELOPMENTS AND AT 300 FEET MAXIMUM SPACING IN BUSINESS AND INDUSTRIAL DEVELOPMENTS. ALL WATER MAIN TO WHICH HYDRANTS ARE CONNECTED SHALL BE 8 INCHES MINIMUM.	
15. ALL FIRE HYDRANTS SHALL BE CONSTRUCTED TO MAKE THEM EASILY ACCESSIBLE TO FIRE PERSONNEL IN CASE OF FIRE. THE MAIN NOZZLE CONNECTION SHOULD ALWAYS FACE THE STREET AND BE 18"-24" ABOVE GRADE.	
16. AS STANDARD PRACTICE, WATER MAINS SHALL BE INSTALLED 4 FEET OFF THE BACK OF CURB OR AS APPROVED BY THE CITY.	
17. ALL WATER MAINS SHALL BE NSF-APPROVED FOR POTABLE WATER USE, AND SHALL HAVE A MINIMUM COVER OF 36 INCHES. IN SPECIAL CASES WHERE IT IS IMPOSSIBLE OR INAPPROPRIATE TO PROVIDE ADEQUATE COVER, DUCTILE IRON CLASS 350 MAY BE USED AS APPROVED BY THE CITY.	
18. ALL NEWLY CONSTRUCTED WATER MAINS SHALL BE FLUSHED, CLEANED WITH A POLY PIG, PRESSURE TESTED, DISINFECTED AND BACTERIOLOGICALLY CLEARED FOR SERVICE IN ACCORDANCE WITH LATEST AWWA STANDARDS AND THE FLORIDA DEPARTMENT OF ENVIRONMENTAL PROTECTION REQUIREMENTS.	
19. WATER MAINS SHALL BE AWWA C-900 CL 150, OR D.I.P. CLASS 350 STANDARD CEMENT LINED.	
20. UPON CONSTRUCTION COMPLETION AND ACCEPTANCE OF THE SYSTEM, IT SHALL BE THE DESIGN ENGINEER'S RESPONSIBILITY TO ENSURE THAT THE SYSTEM IS PROPERLY CERTIFIED AND ACCEPTED BY THE HEALTH DEPARTMENT, AND THAT <u>CERTIFIED AS-BUILT DRAWINGS</u> (24"x36") ARE PROVIDED TO THE CITY PRIOR TO PAVING AND ANY USE OF THE SYSTEM. PROVIDE THREE (3) BLUELINE COPIES, ONE (1) MYLAR OF AS-BUILT DRAWINGS AND A DIGITAL COPY.	
21. MEGALUG OR EQUIVALENT, RESTRAINED JOINT SYSTEM MAY BE USED ON ALL RESTRAINED FITTINGS, VALVES, ETC. MINIMUM DEPTH OF BURY ON PIPES NOT MEETING REQUIRED COVER REQUIREMENTS SHALL FOLLOW THE MOST RECENT DIPRA THRUST RESTRAINT DESIGN GUIDELINES.	
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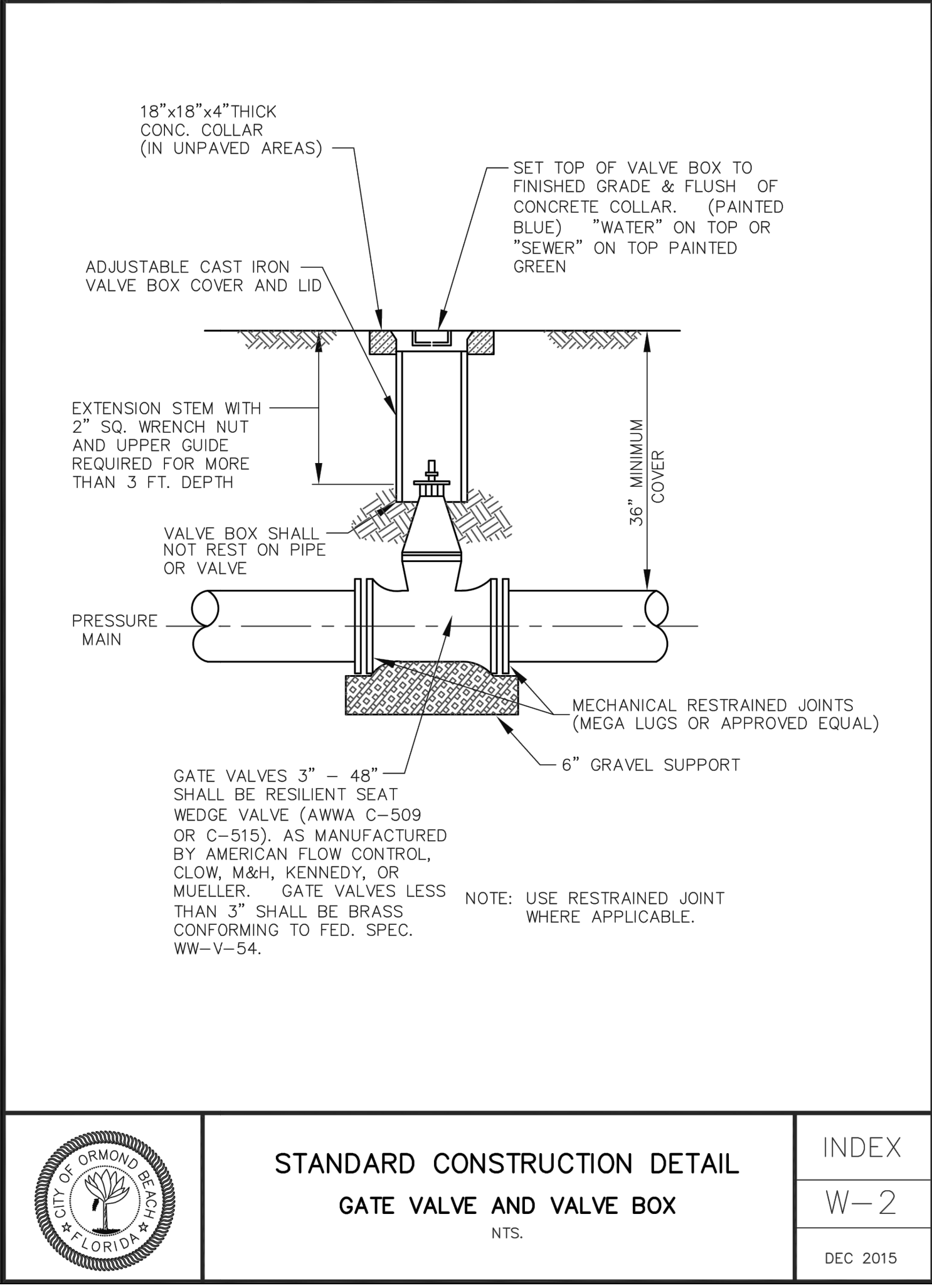
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22. WATER SYSTEMS SHALL BE PRESSURE TESTED AT 150 PSI STATIC PRESSURE FOR A PERIOD OF 2 HOURS PER AWWA STANDARDS. TESTS SHALL BE CONDUCTED BEFORE FINAL PAVING AND IN THE PRESENCE OF THE CITY'S INSPECTOR.
23. ALL WATER SERVICES SHALL BE MARKED WITH A "A" SAW CUT INTO THE CURB OR BY METAL TABS SET INTO THE PAVEMENT.
24. ALL WATER VALVES AND BLOW-OFFS SHALL BE MARKED WITH AN "X" SAW CUT INTO THE CURB OR BY METAL TABS SET INTO THE PAVEMENT. LOCATION OF METAL TABS IN INCHES FROM EDGE OF PAVEMENT SHALL EQUAL DISTANCE IN FEET FROM EDGE OF PAVEMENT TO VALVE.
25. UNIFLANGE 1300 SERIES PIPE RESTRAINTS AS MANUFACTURED BY FORD OR APPROVED EQUAL MAY BE USED AS APPROPRIATE FOR RESTRAINING IN-LINE PRESSURE PIPE EACH SIDE OF PIPE JOINT. AS REQUIRED BY RESTRAINT TABLE.
26. TRACING WIRE SHALL BE INSTALLED IN ACCORDANCE WITH UTILITY PIPE LOCATION MATERIALS DETAIL.
27. NO GALVANIZED PIPE, FITTINGS, ETC. ARE ACCEPTED.
28. ALL WATER METERS SHALL BE INSTALLED AT THE RIGHT OF WAY LINE ONLY REGARDLESS OF SIZE.
29. SUBMIT ASSEMBLY CERTIFICATION FOR ALL BACKFLOW PREVENTERS TO THE CITY'S ENGINEERING DEPARTMENT BEFORE FINAL INSPECTION.
30. PIPING FOR RAW WATER SHALL BE OLIVE GREEN FOR ABOVE GROUND PIPING, BURIED PVC PIPING SHALL BE BLUE WITH WHITE COLOR BACKGROUND LOCATOR TAPE PLACED DIRECTLY ON TOP OF THE PIPE AND AT 12" TO 18" ABOVE THE PIPE. THE TAPE SHALL CONTINUOUSLY READ "CAUTION - RAW WATER MAIN BURIED BELOW" OR WHITE WITH LOCATOR TAPE PLACED 12" TO 18" ABOVE THE TOP OF THE PIPE.
31. SEE CHART BELOW FOR WATER MAIN SIZE AND MATERIALS.

M A T E R I A L S		
DIAMETER	MATERIAL	STANDARD
2" - 4"	PVC 1120 / SDR 21	ASTM D 2241
> 4" - 12"	PVC DR-18	AWWA C 900
> 4" - 12" DEDICATED FIRE LINE	PVC DR-14	AWWA C 900
14" - 36" (16" - 24" DR - 18) (30" - 36" DR - 21)	PVC 1120	AWWA C 905
ALL SIZES	HDPE DIPS DR 11	ASTM F 714

NOTE: PVC PIPE COLOR SHALL BE BLUE FOR POTABLE WATER MAINS, BLUE WITH WHITE LOCATOR TAPE OR WHITE WHITE LOCATOR TAPE FOR RAW WATER MAIN.

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TODD ORIE WAREHOUSE/STORAGE
ORMOND BEACH, FLORIDA

Details

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DESIGNER KAB	FILE 1816	DATE 11-20-2020
DRAWN BY ETB	PROJECT 1816	SCALE As Noted

SHEET
C006