

SANITARY SEWER NOTES

A. Products

1. Materials: All materials shall be new, of first quality, manufactured in the United States (or Public Utilities Department approved equivalent), and shall conform to the appropriate ASTM and/or AWWA standard, latest revision.
2. Fittings: All fittings and materials shall be inspected by the City Utilities Department after delivery and prior to being installed.
  - A. All forcemain fittings shall be rated for not less than 150 psi working pressure.
3. Polyvinyl Chloride (PVC) Gravity Sewer Pipe:
  - A. Provide ring-tight gravity sewer pipe and fittings to meet or exceed the requirements of ASTM D 3034 SDR26. Pipe shall be dyed green. Bell shall consist of an integral wall section with a solid cross-section rubber ring.
  - B. PVC gravity sewer pipe and fittings eighteen inches (18") and larger shall meet or exceed the requirements of ASTM F674. Pipe shall be dyed green.
4. Ductile Iron Gravity Sewer Pipe: Ductile Iron is NOT acceptable for gravity sewer lines within the City of Lake Wales, unless otherwise approved by the Public Utilities Director.
5. Sanitary Sewer Manholes:
  - A. Sewer manholes shall be constructed in accordance with the City's standard details. Excavation shall be made in accordance with applicable sections of these specifications.
  - B. Concrete manholes shall be constructed of 4,000 pound, Type II Acid Resistant Concrete. Pre-cast manholes shall be in accordance with ASTM C478. For pre-cast manholes, all joints between manhole sections shall be sealed with two concentric rings of preformed plastic sealing compound, installed in accordance with manufacturer's recommendations. The sealing compound shall be "Ram-Nek" as manufactured by K.T. Snyder Co., or equal.
  - C. Pre-cast concrete manholes shall have a minimum wall thickness of eight inches (8"). Cast-in-place manholes shall have a minimum wall thickness of eight inches (8").
  - D. Manholes shall have channel inverts accurately and smoothly formed for each connecting pipe. The channel shall have a smooth "U" shape with the bottom conforming to the radius of the sewer pipe and a total depth equal to 75% of the pipe diameter. Channel inverts may be constructed of half pipe with finished surfaces shaped as shown on the detail. Use of brick or concrete block to form the invert is NOT acceptable.
  - E. Only one exiting pipe shall be allowed per manhole.
  - F. The bench should be sloped no less than 1/2 inch per foot (40mm/m) (4 percent). No lateral sewer, service connection, or drop manhole pipe shall discharge onto the surface of the bench.
  - G. When the manhole is completed, the frame and cover of dimensions shown shall be set in place in mortar. In paved and upaved areas, the top of cover shall be flush with the finished grade.
  - I. Interior and exterior of all manholes shall receive ConSeal CS-55 coating at 4 mil thickness, unless otherwise determined by the Director of Public Utilities.
  - J. Backfill shall be made in accordance with applicable sections of these plans.
  - K. All connections of pipes to manholes shall be made utilizing resilient pipe connectors.
  - L. The contractor shall install drop manhole connections when the difference in elevation of the incoming sewer invert and the manhole invert exceeds two feet (2'), or when directed by the Public Utilities Director. The difference in elevation shall be measured from the invert of the incoming pipe to the invert at the center of the manhole. Drop connections shall be PVC pipe, backfilled in six inch (6") and compacted by hand tampers.
  - M. All castings for manhole covers and other purposes shall conform to specifications of the ASTM, Designation A-48-74 for Class 30 gray iron. The castings shall be true pattern in form and dimensions, free from pouring faults, sponginess, cracks, blow-holes, and other defects in position affecting their strength and value for the service intended.
  - N. Manhole frames and covers shall have the words "CITY OF LAKE WALES" and "SANITARY SEWER" cast thereon. Minimum clear opening of the cover shall be thirty-six inches (36"). Cover shall weigh not less than 150 pounds. Circular covers must fit the frames in any position. Contact surfaces of both frames and covers shall be machined and any tendency to rattle, as determined by test before or after installation, will be sufficient cause for rejection of the frames and cover.
  - O. Where required, watertight frames and covers shall be Neenah Foundry Figure No. R-1916F, or equal, with rubber gasket.
  - P. Manhole cover shall be equipped with inflow protection cover.
6. Ductile Iron Force Main:
  - A. Ductile iron is NOT acceptable for force mains within the City of Lake Wales utility service area.
7. Polyvinyl Chloride (PVC) Force Main:
  - A. All PVC force mains four inch (4") diameter and greater shall be C900 (DR)18.
  - B. Each length should be clearly labeled to allow identification and specification conformance. Force main pipe shall be green in color.
8. Valves:
  - A. Plug valves and butterfly valves are not authorized for use within the City of Lake Wales collection system.
  - B. Additional information for valves can be found in the Sanitary Preferred Items list.
9. Air Relief Valves:
 

Valves are to be A.R.I 2" NPT D25 NYLON3 150PSI USA. The combination Air Valves shall be fitted with stainless steel hardware and tapping saddle.
10. Valve Operators:
  - A. Provide two inch (2") AWWA operating nut for all valves.
  - B. All operators to open by turning counter clockwise.

11. Valve Boxes:

Boxes shall be cast iron of standard design with adjustable drop section to fit disc or cover over valve. Interior diameter shall be not less than five inches (5"), with cast iron cover marked "SEWER". Boxes shall be Glow F2454, or equal. Valve box shall be set in twenty four inch (24") circular concrete, six inch (6") thick.

12. Steel Pipe Sleeves and Carrier Pipe:

All construction projects requiring steel sleeves shall conform to the minimum Florida Department of Transportation (F.D.O.T.) requirements for roadway crossings. Railroad crossings shall conform to railroad requirements. The following casing sizes shall be used for the corresponding carrier pipes:

CARRIER PIPE (Normal O.D.)	STEEL CASING (Required Dia.)
4"	8"
6"	12"
8"	16"
10"	18"
12"	24"
16"	30"
20"	36"

13. Tracer Wire:

- A. Shall be green-coated #10 gauge copper head high strength (HS) solid tracer and installed on all force mains and gravity sewer lines. Trace wire shall be taped to the top of pipe and stubbed up outside of valve box in a P200 NFG test box. Trace wire is required on all non-metallic pipe.
- B. Caution tape is to be laid eighteen inches (18") above pipe and is to be marked as sewer. The tape should be three inches (3") in width.
- C. The trace wire testing is to be completed by a certified continuity technician.

B. CONNECTIONS TO EXISTING SYSTEM

1. Connections to existing gravity sewer mains
 

Shall be made only after 48 hour notice to the Utilities Permit Coordinator. A watertight plug shall be installed to prevent any discharge to existing sewers until the City has accepted the completion of all tests and inspections and the new system.
2. Connections to existing force mains
 

Shall be made only after 48 hour notice to the Utilities Permit Coordinator. All tapping sleeves, valves and fittings shall be provided by the contractor. Valves shall be locked shut until all tests and inspections are complete and the City has accepted the new system. All connections shall be made by the contractor using HOT TAP method with a stainless steel sleeve.

C. GENERAL INSTALLATION

1. Preparation: Remove scale and dirt, on inside and outside, before assembly.
2. General
  - A. Trenches shall be maintained in a dry condition at all times unless otherwise approved by the Public Utilities Director.
  - B. Maintain six feet (6') minimum, ten feet (10') preferable, horizontal separation; vertical separation of water main from sewer piping in accordance with State requirements.
  - C. NO trees are to be planted within twenty five feet (25') of a sanitary sewer line or service main.
  - D. The trench shall be dug so that the pipe can be laid to the alignment and depth required, and it shall be excavated only so far in advance of pipe laying as permitted by the Public Utilities Director. The trench shall be so braced and drained that the workmen may work therein safely and efficiently.
  - E. All excavations deeper than three feet (3') shall be dewatered as required to maintain the water level at a minimum of two feet (2') below the excavation throughout excavation, bedding, and backfilling. Discharges of dewatering pumps shall be conveyed to natural drainage channels, drains, or storm sewers. Contractor shall treat discharge as required to prevent violations of state water quality standards.
  - F. Pipe trench shall be prepared in accordance with pipe manufacturer recommendations.
  - G. The following are minimum trench widths measured at the horizontal centerline of the pipe without undercutting.
 

Pipe Size	Minimum Trench Width
8"	24"
10"	26"
12"	30"
  - H. Bell holes shall be provided at each joint to permit the jointing to be made properly.
3. Sheeting and Bracing
  - A. During construction, the side slopes of all the excavations shall be maintained at an inclination no steeper than two horizontal to one vertical. Vehicles shall be at least five feet (5') away from the top of slope. If site conditions do not permit such side slopes, excavation shall be performed using trench boxes.
  - B. Open-cut trenches shall be braced as required by any governing Federal and State Laws and municipal ordinances, and as may be necessary to protect life, property, or the work. Comply with the Florida Trench Safety Act and the related OSHA requirements of 29CFR.S.1926.650 Part P.
4. Handling Material
 

A. All pipe and accessories shall be loaded and unloaded by lifting with hoists or skidding in a manner that will avoid shock or damage. Under no circumstances will such materials be dropped. Pipe handled on skidways shall not be skidded or rolled against pipe already on the ground.

D. GRAVITY SEWER CONSTRUCTION

1. Trenching and backfill shall be in accordance with the pipe manufacturer recommendations.
2. Gravity sewers shall be laid to exact line and grade by the use of a laser beam. Sewers will be inspected with a light at each manhole when the line is completed and backfill has been placed to a depth of one-foot (1') over the pipe. Backfill may be completed only after approval of each section is given for alignment and grade. Faulty sections of sewer lines rejected by the City shall be removed and re-laid by the contractor at his own expense.

E. GRAVITY SEWER TESTING

1. Televising Lines

Each gravity sanitary sewer, upon completion, or at such time as the Public Utilities Director may direct, is to be cleaned, tested, and inspected. All repairs or alterations shown necessary by these tests shall be made; all broken or cracked pipe removed; all excessive infiltration stopped; all deposits in pipe and manholes removed and the sewer left clean, true to line and grade, and ready for use.

Before final acceptance, gravity sewer lines shall be televised by a contractor with qualifications suitable to the City. Each line will be recorded using a DVD/CD recorder. Each run will be clearly labeled showing the manholes and with a counter indicating the lineal number of feet run from the reference point. DVD/CD shall be in color and shall include inspection of all newly installed laterals. The original DVD/CD shall be provided to the City.

Any pipe that holds water shall be cause for rejection of the installation. The following requirements for televising the gravity sewer must be met prior to acceptance by the City of Lake Wales.

- A. All gravity sewer lines to be cleaned using high pressure flusher trucks prior to being televised with a closed circuit television camera. Flusher truck should vacuum any dirt and debris, along with cleaning water, out of manhole for disposal elsewhere.
- B. Any debris remaining in the line shall be a cause for canceling the television inspection.
- C. Within 24 hours of start of TV inspection, verify contractor adds enough water to upstream manhole to cause water to flow into downstream manhole. This is to ensure that all sags in sewer line are filled with water prior to start of construction.
- D. Starting at uppermost reach, each line segment to be televised from downstream manhole to upstream manhole to allow better inspection of service connections.
- E. At start of each line segment, inspection camera is turned on and panned around to show identifying landmarks to positively identify manhole being televised. Once camera starts recording, ensure that the camera is not turned off until the inspection is complete.
- F. After showing identifying landmarks, camera to be lowered into the manhole and positioned into the downstream end of the segment being inspected.
- G. The camera is to be towed behind a 1/2" target gauge and mandrel. The gauge is used to judge the depth of any sags or bellies in the line and mandrel is used to measure pipe deflection.
- H. Verify the camera does not travel at a rate greater than thirty feet (30') per minute. All service wyes to be thoroughly inspected.
- I. Ensure that there is NO leakage (infiltration) at any pipe joint or at connections to manholes. Any infiltration shall be grounds for failing the inspection.
- J. Any line segments that require repairs to be re-televised prior to final acceptance.
- K. Gravity sewers will also be tested or gauged to determine the amount of infiltration or exfiltration.

**CITY OF LAKE WALES**  
301 W CENTRAL AVE. LAKE WALES, FLORIDA 33853



ISSUE CODE	A PRELIMINARY	B DESIGN
C BIDS	D CONSTRUCTION	E APPROVAL
DESIGN:	SCALE: N.T.S.	
CHK'D BY:	DATE:	
DRAWN BY:	ENGR.	
DRAWING TITLE		
<b>SEWER NOTES</b>		
AREA	JOB NO.	
CITY--OF--LAKE--WALES		
SHEET	<b>1 OF 2</b>	REV. -

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MODIFIED	ROS	06-17-24