

Appendix P

Testing Requirements

Low Air Testing Requirements:

- Pre-testing is highly encouraged to avoid failures and the resulting fine(s).
- Contractor shall provide all equipment necessary to complete the test.
- All sewer laterals must be tied into the main and stubbed up above grade at the lot.
- Testing cannot be performed until road base is in or 10' or more of cover is provided over all sewer being tested.
- Sufficient personnel and equipment must be provided and available to ensure quick turnaround between sections being tested.
- All sewer lines 6" and larger shall be tested, this includes single laterals, sewer mains, etc.
- The time required for each test shall be per the below table with ZERO allowable loss:

Diameter	100'	150'	200'	250'	300'	350'	400'
6"	7:00	N/A	N/A	N/A	N/A	N/A	N/A
8"	7:00	7:00	7:00	7:00	7:00	7:00	7:00
10"	7:00	7:00	7:00	7:00	9:00	9:00	12:00
12"	7:00	7:00	9:00	11:00	15:00	18:00	21:00
15"	7:00	9:00	12:00	15:00	18:00	21:00	24:00
18"	9:00	12:00	15:00	18:00	21:00	24:00	27:00
24"	12:00	15:00	18:00	21:00	24:00	27:00	30:00

CCTV Testing Requirements:

- Pre-testing is highly encouraged to avoid failures and the resulting fine(s).
- Contractor shall provide all equipment necessary to complete the test.
- Testing cannot be performed until road base is in or 10' or more of cover is provided over all sewer being tested.
- All lines must be cleaned via 'jet & vac'. No discharge into the existing sanitary system is permitted.
- Each section of main between manholes shall have a single and separate video labeled with the following:
 - o Toho Project Name
 - o Starting Manhole Number and Ending Manhole Number that correspond to the Toho approved drawings
 - o Testing company and camera operator
 - o Date Tested
- A visual gauge shall be attached to the front of the camera with clear depth markings in 0.5" increments. This gauge shall be measured w/ a ruler or tape measure at the beginning of each section being recorded prior to the camera being lowered into the manhole.
- A steady stream of water shall be visible in all videos.
- Videos shall be shot in the upstream direction.
- Camera operator shall stop and pan all joints and all laterals.
- Bellies or dips that exceed one inch (1") in depth shall be cause for rejection of the work and must be excavated and re-laid prior to acceptance.
- If an existing downstream blockage or hindrance is obstructing proper video review, the contractor shall be required to notify and coordinate with Toho staff to determine how to proceed.
 - o Videos taken with known downstream issues that cause rejection of newly installed lines will not be accepted
- Contractor shall provide to Toho two (2) USB thumb drives. Website uploads and DVD copies shall only be accepted as ancillary submittals.
- Contractor shall provide to Toho the full written report for all mains captured on video.

Mandrel Testing:

- Mandrel testing must be witnessed in person by the Toho inspector.
- Mandrel shall be pulled between manholes, no tests shall be permitted thru a manhole.
- A rigid ball or mandrel not less than 95% of the size of the ID of the pipe is required:
 - o 8" SDR35 – 7.92" ID, 7.5" mandrel MINIMUM diameter (5% allowable deflection)
 - o 8" SDR26 – 7.75" ID, 7.4" mandrel MINIMUM diameter (5% allowable deflection)
 - o 10" SDR35 – 9.9" ID, 9.4" mandrel MINIMUM diameter (5% allowable deflection)
 - o 10" SDR26 – 9.7" ID, 9.2" mandrel MINIMUM diameter (5% allowable deflection)
- Mandrel must be pulled by hand. No mechanical assistance is permitted per FDEP.

Spark Testing:

- Pre-testing is highly encouraged to avoid failures and the resulting fine(s).
- All lined manholes and structures shall be spark tested with a Toho inspector present. Spark tests performed during installation, without the Toho inspector present, are not acceptable.
- Contractor shall provide all equipment necessary to complete the test.
- Contractor will be required to demonstrate to the Toho inspector that the equipment being used can adequately perform the testing without providing false readings.

Line Pigging:

- All mains 4" and larger shall require pigging.
- Contractor shall provide all equipment necessary to complete the test.
- Pigs shall be one nominal size larger than the main being cleaned.
- Inspector shall witness all pigs being installed.
- Pigs shall be new or nearly new and unaltered. The inspector has full discretion to require a pig be replaced prior to installing.
- Only metered jumper connections are allowed for source water pressure, opening existing valves to any extent is strictly prohibited.
- Mains should be flushed through the jumper a minimum of 5 minutes after the pig has exited the main.

Hydrostatic Pressure Testing Requirements:

- Pre-testing is highly encouraged to avoid failures and the resulting fine(s).
- Contractor shall provide all equipment necessary to complete the test.
- Tests shall be between valves w/ a separate gauge on each section.
- Pressure differential of at least 10psi between adjoining sections must be provided.
- Zero allowable loss of pressure over a minimum of 2 hours.
- If air is in the line, it must be evacuated before the test can continue.
- If HDPE pipe is being tested, a minimum of 2 pump-up and discharge cycles must occur prior to scheduling final testing with the inspector.
- If pressure is lost within the first 15 minutes, the inspector can, at their discretion, restart the test.
- If pressure loss occurs after the first 15 minutes, the test will be failed and must be rescheduled after payment of the fine.

Marker Tape, Locate Ball, Tracer Wire Verification:

- Pre-testing is highly encouraged to avoid failures and the resulting fine(s).
- Marker Tape, Locate Ball, and Tracer Wire verification must be witnessed in person by the Toho inspector.
- Contractor shall provide all equipment necessary to verify marker tape, locate ball, and tracer wire (where applicable) verification.