

**CONSTRUCTION INSPECTION CHECKLISTS**

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**Water and Wastewater Pipelines  
General Construction Inspection Checklist**

Inspection of public construction is a control exercised by a governmental agency in regards to the materials and workmanship used by contractors in the performance of their work. The purpose of inspection is to observe and document compliance with the plans, specifications and other requirements of contracts, purchase orders and permits for public construction, including compliance with the pertinent provisions of orders, regulations and laws of the Agency and the State and Federal government. It is essential that the Inspector be well versed with all of the Contract Documents, and reread them from time to time to insure complete familiarity with all provisions and requirements. Although the means and methods of construction are solely the responsibility of the contractors, Inspectors should have a thorough knowledge and understanding of industry standard techniques, common procedures, and applicable building codes.

The following checklists are intended to be used as a general guide by Inspectors monitoring the construction of Department projects. These checklists are not intended to cover every aspect of each unique project.

**Project Inspector’s General Checklist**

Prior to the start of the project, the Inspector shall ensure he/she has a copy of the following information:

**1. Review of Contract Documents, including:**

- \_\_\_\_\_ 1. Contract Drawings – maintain two sets - one for field use and one for as-built drawings.
- \_\_\_\_\_ 2. Complete copy of Contract, HRPDC Specifications, City Specifications, and Project Specifications.
- \_\_\_\_\_ 3. Contract Addenda.
- \_\_\_\_\_ 4. Supplemental Drawings.
- \_\_\_\_\_ 5. Traffic control requirements.
- \_\_\_\_\_ 6. Special phasing or sequence.
- \_\_\_\_\_ 7. Unusual methods and materials.
- \_\_\_\_\_ 8. Utility conditions.
- \_\_\_\_\_ 9. Encroachments, obstructions, removals.
- \_\_\_\_\_ 10. Soil and boring data (may or may not be part of the Contract Documents).
- \_\_\_\_\_ 11. Approved shop drawings and other required submittals.
- \_\_\_\_\_ 12. Permit requirements from other Agencies.
- \_\_\_\_\_ 13. Notice to proceed letter.

2. **Additional information to review:**

- \_\_\_\_\_ 14. Water and sewer intersection drawings.
- \_\_\_\_\_ 15. Minutes of all meetings (pre-construction, progress, special meetings, etc.)
- \_\_\_\_\_ 16. Project correspondence including Requests for Information and responses.
- \_\_\_\_\_ 17. Progress schedule.
- \_\_\_\_\_ 18. Schedule of values.
- \_\_\_\_\_ 19. Applicable Daily Reports and records.
- \_\_\_\_\_ 20. Door Hangers.

3. **Be familiar with actual site conditions.**

- \_\_\_\_\_ 21. Perform a site survey – photograph or videotape proposed construction area.
- \_\_\_\_\_ 22. Note existing conditions of the project site and adjoining property.
- \_\_\_\_\_ 23. Note vehicular traffic and pedestrian problems.
- \_\_\_\_\_ 24. Note utility interferences.
- \_\_\_\_\_ 25. Note existing drainage conditions.
- \_\_\_\_\_ 26. Note laydown areas.

4. **Review Project Issues with Design Engineer**

- \_\_\_\_\_ 27. Apparent or possible problem areas.
- \_\_\_\_\_ 28. Interpretation of unclear or ambiguous Contract Documents.
- \_\_\_\_\_ 29. Apparent plan errors or omissions.
- \_\_\_\_\_ 30. Clarification of any unusual materials and methods.

5. **Review Project Issues with Contractor (if not covered at pre-construction conference)**

- \_\_\_\_\_ 31. Contractor's organization.
- \_\_\_\_\_ 32. Subcontractors.
- \_\_\_\_\_ 33. Important job conditions.
- \_\_\_\_\_ 34. Construction safety – Contractor is solely responsible for jobsite safety!
- \_\_\_\_\_ 35. Public safety concerns.
- \_\_\_\_\_ 36. Construction methods and procedures.
- \_\_\_\_\_ 37. Sequence of construction.
- \_\_\_\_\_ 38. Coordination and communication procedures during construction.
- \_\_\_\_\_ 39. Construction inspection procedures.
- \_\_\_\_\_ 40. Sampling and testing procedures during construction.

6. **Maintain Accurate and Complete Records and Reports.**

- \_\_\_\_\_ 41. Maintain current daily reports
- \_\_\_\_\_ 42. Log job progress and status
- \_\_\_\_\_ 43. Report special conditions and events
- \_\_\_\_\_ 44. Log important jobsite conversations or phone conversations
- \_\_\_\_\_ 45. Maintain orderly filing system
- \_\_\_\_\_ 46. Measurements of completed work to verify monthly pay requests
- \_\_\_\_\_ 47. Emergency phone numbers from contractor.
- \_\_\_\_\_ 48. System for collecting select fill and stone tickets on a daily basis.

**Sewage Pumping Stations  
Construction Inspection Checklist**

**1. General Requirements**

- \_\_\_\_\_ 1. Review General Inspection Checklist.
- \_\_\_\_\_ 2. Are existing utilities located and marked at the site by Miss Utility or determined by potholing at frequent intervals?
- \_\_\_\_\_ 3. Is access to private or public property impeded?
- \_\_\_\_\_ 4. Are temporary bridges or other means of access required?
- \_\_\_\_\_ 5. Are street closures authorized?
- \_\_\_\_\_ 6. Have all interested agencies (i.e. police, fire, property owners, etc.) been properly notified?
- \_\_\_\_\_ 7. Are temporary traffic signs and/or barricades installed properly and at the proper locations?
- \_\_\_\_\_ 8. Has the Contractor provided for the control of surface drainage?
- \_\_\_\_\_ 9. Are Operation and Maintenance manuals and as-built drawings complete?
- \_\_\_\_\_ 10. Are building, electrical, and other permit inspections complete?
- \_\_\_\_\_ 11. Has operator training been provided?
- \_\_\_\_\_ 12. Have all spare parts been provided?
- \_\_\_\_\_ 13. Have all manufacturers' certificates been provided?

**2. Electrical**

- \_\_\_\_\_ 14. Is the power system 3 phases or 1 phase?
- \_\_\_\_\_ 15. If 3 phase, is grounded neutral provided?
- \_\_\_\_\_ 16. Voltage Readings:
  - a. Between phases: L1/L2 \_\_\_\_\_ L1/L3 \_\_\_\_\_ L2/L3 \_\_\_\_\_
  - b. High phase to ground \_\_\_\_\_
  - c. Other legs to ground \_\_\_\_\_
- \_\_\_\_\_ 17. High Leg (L3) is connected to motor only and not to any auxiliary circuits?
- \_\_\_\_\_ 18. Do Latches on control panel work smoothly?
- \_\_\_\_\_ 19. Are switches non-sparking?
- \_\_\_\_\_ 20. Does the equipment meet NEC requirements for Class 1, Div. 1 locations where necessary?
- \_\_\_\_\_ 21. Is a secure external disconnect switch located above ground?
- \_\_\_\_\_ 22. All switches operate properly?
- \_\_\_\_\_ 23. Is motor control room adequate for maintenance?

- \_\_\_\_\_ 24. Has the short circuit and coordination study been completed and protective devices adjusted in accordance with the results of the study?
- \_\_\_\_\_ 25. Does all electrical equipment have UL labels?
- \_\_\_\_\_ 26. Are wires provided with identification tags?
- \_\_\_\_\_ 27. Does standby power system operate correctly in both the test and power failure modes?
- \_\_\_\_\_ 28. Do all pump lockouts automatically reset after the return of power following a power failure event?

**3. Valves**

- \_\_\_\_\_ 29. Check valves
  - \_\_\_\_\_ a. Do clappers swing freely?
  - \_\_\_\_\_ b. Does packing leak?
  - \_\_\_\_\_ c. Are springs adjusted properly?
- \_\_\_\_\_ 30. Gate valves
  - \_\_\_\_\_ a. Do valves open and close freely?
  - \_\_\_\_\_ b. Does packing leak?

**4. Pump and Motor Controls**

- \_\_\_\_\_ 31. Breaker switches operate properly?
  - \_\_\_\_\_ a. No. 1 pump
  - \_\_\_\_\_ b. No. 2 pump
  - \_\_\_\_\_ c. Control Circuit
  - \_\_\_\_\_ d. Other
- \_\_\_\_\_ 32. Hand-off-automatic switches
  - \_\_\_\_\_ a. No. 1 pump hand position operates
  - \_\_\_\_\_ b. No. 2 pump hand position operates
- \_\_\_\_\_ 33. Amperage
  - \_\_\_\_\_ a. Name plate rating (amps)
  - \_\_\_\_\_ b. No. 1 motor \_\_\_\_\_
  - \_\_\_\_\_ c. Amps actually pulled by No. 1 motor \_\_\_\_\_
  - \_\_\_\_\_ d. Name plate rating (amps) No. 2 motor \_\_\_\_\_
  - \_\_\_\_\_ e. Amps actually pulled by No. 2 motor \_\_\_\_\_
- \_\_\_\_\_ 34. Automatic Operation
  - \_\_\_\_\_ a. No. 1 pump operates on lead control switch?
  - \_\_\_\_\_ b. No. 2 pump operates on lag control switch?
  - \_\_\_\_\_ c. No. 2 pump operates on lead control switch?
  - \_\_\_\_\_ d. No. 1 pump operates on lag control switch?
  - \_\_\_\_\_ e. Lead pump turns on at elevation \_\_\_\_\_
  - \_\_\_\_\_ f. Lag pump turns on at elevation \_\_\_\_\_
  - \_\_\_\_\_ g. Lag pump turns off at elevation \_\_\_\_\_
- \_\_\_\_\_ 35. Alarm Signals
  - \_\_\_\_\_ a. Pump overload trip?

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- b. Wet well high water?
- c. Wet well low water?
- d. Dry pit high water?
- e. Main power supply?
- f. Auxiliary power supply?
- g. Pump failure to discharge?
- h. Restore to Normal?
- i. Low Battery?

**5. Pumps and Motors**

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- 36. Packing or seals
  - a. Does packing leak excessively?
  - b. Are gland bolts finger tight?
  - c. Is water visible in seal filter?
  - d. Do seals leak
  - e. Is leakage at packing draining off to sump properly?
- 37. Operation
  - a. Are pump mounting bolts tight?
  - b. Does air release valve work?
  - c. Is flexible coupling tight?
    - 1. To motor shaft?
    - 2. To pump shaft?
  - d. Are pumps running quietly?
    - 1. No. 1
    - 2. No. 2
  - e. Are motors running quietly?
    - 1. No. 1
    - 2. No. 2
  - f. Is excessive vibration noticed?
    - 1. No. 1
    - 2. No. 2

**6. Pump Room**

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- 38. Is the lighting adequate and shielded?
- 39. Is the station sufficiently clean?
- 40. Is lifting equipment installed properly?
- 41. Can lifting equipment access all equipment?
- 42. Does sump pump run when float is lifted?
- 43. Is screen around sump pump in place?
- 44. Does sump pump operate properly?
- 45. Does sump pump discharge water to wet well?
- 46. Is interior pipe bracing installed?
- 47. Are valve operators easily accessible from pump room floor or stair landing?

- \_\_\_\_\_ 48. Are appropriate backflow preventers on potable water supply?
- \_\_\_\_\_ 49. Do ventilating fans operate properly?

**7. Wet Well**

- \_\_\_\_\_ 50. Does the cover locks and unlocks properly?
- \_\_\_\_\_ 51. Is a gasket provided and in place?
- \_\_\_\_\_ 52. Are all metals in the wet well stainless steel?
- \_\_\_\_\_ 53. Is there adequate access for manlifts?
- \_\_\_\_\_ 54. Is the specified wet well coating properly applied to the interior of the wet well?

**8. Miscellaneous Considerations**

- \_\_\_\_\_ 55. Is major equipment installed with adequate access for maintenance?
- \_\_\_\_\_ 56. Are flow-measuring and pressure recording devices properly installed?
- \_\_\_\_\_ 57. Is station security system operating properly?
- \_\_\_\_\_ 58. Are remote SCADA system alarms operating correctly?
- \_\_\_\_\_ 59. Has all landscaping and architectural work been completed?

**Sewer Installation  
Construction Inspection Checklist**

1. **General Requirements**

- \_\_\_\_\_ 1. Check plan requirements:
  - a. Existing utilities and other substructures
  - b. Pipe and fitting materials
  - c. Bedding requirements
  - d. Traffic control requirements
  - e. Bypass pumping requirements
- \_\_\_\_\_ 2. Are existing utilities located and marked at the site by Miss Utility or determined by potholing at frequent intervals? (Simply calling Miss Utility is not acceptable the utilities must be marked.)
- \_\_\_\_\_ 3. Is access to private or public property impeded? Are temporary bridges or other means of access required?
- \_\_\_\_\_ 4. Are street closures authorized? Have all interested agencies (i.e. police, fire, property owners, etc.) been properly notified?
- \_\_\_\_\_ 5. Are temporary traffic signs and/or barricades installed properly and at the proper locations?
- \_\_\_\_\_ 6. Has the Contractor provided for the control of surface drainage?

2. **Pipe Materials – Delivery, Storage and Handling**

- \_\_\_\_\_ 7. Are materials on site in accordance with approved Shop Drawings?
- \_\_\_\_\_ 8. Was the pipe and/or fittings carefully removed from truck and kept under control at all times in a secure area?
- \_\_\_\_\_ 9. If handling the pipe with a crane, is a suitable sling being used around the pipe? Note: Under no condition pass the sling through the pipe.
- \_\_\_\_\_ 10. Are suitable blocking and stakes installed to prevent pipe from rolling?
- \_\_\_\_\_ 11. Are gaskets for pipe joints stored in a cool place and protected from light, sunlight, heat, oil, or grease until installed?
- \_\_\_\_\_ 12. Are gaskets showing any signs of checking, weathering or other deterioration?

3. **Excavation, Trenching, and Backfill – (Excavation Support and Trench Safety are the sole responsibility of the Contractor and under no circumstances shall the Inspector specify or comment on the excavation support used by the Contractor. The Inspector shall contact the Lead Inspector if there are any concerns with the methods employed by the Contractor.)**

- \_\_\_\_\_ 13. Check for maximum trench width. Is it in accordance with the Standard Details?
- \_\_\_\_\_ 14. Did the excavation expose any unusual conditions requiring consideration by the Engineer?
- \_\_\_\_\_ 15. Are line and grade control being maintained satisfactorily? Is a laser level being used?
- \_\_\_\_\_ 16. Do actual soil conditions agree with plan? Is shoring method adequate for actual trench condition?
- \_\_\_\_\_ 17. Is spoil bank clear of trench? Is it encroaching into required traffic lanes or private property?
- \_\_\_\_\_ 18. Is there any evidence of movement of adjacent improvements or structures? (Separation cracks, settlement, etc.)
- \_\_\_\_\_ 19. Have property owners been notified if work encroaches on private property?
- \_\_\_\_\_ 20. Is the subgrade firm? Is it granular or will imported bedding material be required?
- \_\_\_\_\_ 21. Check trench for evidence of unconsolidated fill. (If in the trench bottom, it may require additional excavation. If located above pipe invert, it may require additional mechanical compaction.)
- \_\_\_\_\_ 22. Is temporary support of existing utilities and improvements being provided? In event of damage, are owners promptly notified?
- \_\_\_\_\_ 23. All loose soil removed from the trench?
- \_\_\_\_\_ 24. Is groundwater encountered? If so, are efforts being made to obtain a dry trench bottom?
- \_\_\_\_\_ 25. Is the discharge from dewatering pumps in compliance with regulatory requirements?
- \_\_\_\_\_ 26. Is a dry trench bottom unachievable due to improper or insufficient use of all known methods of trench dewatering? If so, has the Supervisor been contacted?
- \_\_\_\_\_ 27. Is backfill material as specified and approved in shop drawing?
- \_\_\_\_\_ 28. Is material free of foreign debris and not frozen?
- \_\_\_\_\_ 29. Is backfill being installed in lifts and compacted as specified in the Contract Documents?
- \_\_\_\_\_ 30. Is final landscaping or pavement installed as specified in the Contract Documents?

4. **Pipe Laying – General**

- \_\_\_\_\_ 31. Is pipe being handled and installed in accordance with the manufacturer's recommendations and approved shop drawings?
- \_\_\_\_\_ 32. Is each pipe checked for damage before lowering into trench?
- \_\_\_\_\_ 33. Is the required concrete cradle or granular bedding material and thickness provided? Shaped to cradle the pipe?
- \_\_\_\_\_ 34. Is pipe being installed in a straight line between manholes?
- \_\_\_\_\_ 35. Are all bells pointing ahead?
- \_\_\_\_\_ 36. Is a laser being used to maintain line and grade and each pipe checked for alignment? Is some other acceptable means being used at a minimum of every 100 l.f.?
- \_\_\_\_\_ 37. Are adjustments to bring pipe to line and grade made by scraping away or filling in select fill material under the body of the pipe as recommended by the manufacturer?
- \_\_\_\_\_ 38. Are the faces of the spigot ends and the bells of pipes brought into fair contact and the pipe firmly and completely shoved home?
- \_\_\_\_\_ 39. As the work progresses, is the interior of pipelines kept clean of all dirt and superfluous materials?
- \_\_\_\_\_ 40. Are pipes closed off with bulkheads, plugs, or other suitable means when pipe laying is not in progress?
- \_\_\_\_\_ 41. Are bell holes excavated for each joint as required to permit the joint to be properly made and allow the barrel of the pipe to have full bearing throughout its length?
- \_\_\_\_\_ 42. Are bell holes thoroughly tamped with select fill material following the making of each joint?
- \_\_\_\_\_ 43. Are pipe cuts for valves and fittings cut at 90 degrees, ground smooth, and rough edges removed?

5. **Ductile Iron Pipe Installation – Rubber Gasket Joints**

- \_\_\_\_\_ 44. Are the surfaces with which the rubber gasket comes in contact properly cleaned and prepared prior to assembly of the joint?
- \_\_\_\_\_ 45. Is the gasket placed in the socket with the large round end entering first so that the groove fits over the bead in the seat?
- \_\_\_\_\_ 46. Is a thin film of lubricant applied to the inside surface of the gasket that will come in contact with the entering pipe?
- \_\_\_\_\_ 47. Is sufficient force exerted on the entering pipe so that its plain end is moved past the gasket until it makes contact with the base of the socket to make the joint?
- \_\_\_\_\_ 48. Is pipe lined with “Sewpercoat” or “Protecto 401”?

6. **PVC Pipe Installation**

- \_\_\_\_\_ 49. Is the sealing surface of the pipe spigot end, the pipe bell, the coupler or fitting, and the gasket properly cleaned before assembly?

- \_\_\_\_\_ 50. Is gasket properly lubricated?
- \_\_\_\_\_ 51. Is pipe spigot end fully homed after jointing?
- \_\_\_\_\_ 52. For pipe 12” and smaller only – are any bends in accordance with the manufacturer’s recommendations and guidelines?

7. **Miscellaneous Considerations**

- \_\_\_\_\_ 53. Are appurtenances (i.e. fittings, services, valves, and hydrants) installed in accordance with manufacturer’s recommendations and the Contract Documents?
- \_\_\_\_\_ 54. Is the line properly cleaned prior to testing?
- \_\_\_\_\_ 55. Is the line properly tested in accordance with the Contract Documents?

**Pipeline Rehabilitation  
Construction Inspection Checklist**

**General Requirements**

- \_\_\_\_\_ 1. Check Contract Documents for the following:
  - a. Existing utilities and other substructures
  - b. Pipe and fitting materials
  - c. Traffic control requirements
  - d. Bypass pumping requirements
- \_\_\_\_\_ 2. Are existing utilities located and marked at the site by Miss Utility or determined by potholing at frequent intervals?
- \_\_\_\_\_ 3. Is access to private or public property impeded? Are temporary bridges or other means of access required?
- \_\_\_\_\_ 4. Are street closures authorized? Have all interested agencies (i.e. Department of Public Works, police, fire, property owners, etc.) been properly notified?
- \_\_\_\_\_ 5. Are temporary traffic signs and/or barricades installed properly and at the proper locations?
- \_\_\_\_\_ 6. Has the Contractor provided for the control of surface drainage?
- \_\_\_\_\_ 7. Does the contractor's project safety program address confined space safety?
- \_\_\_\_\_ 8. Have sewer users been notified if service will be interrupted?
- \_\_\_\_\_ 9. Are contact persons and telephone numbers available for both Department personnel and contractor personnel?
- \_\_\_\_\_ 10. Have manufacturer's recommendations for installation (where applicable) been submitted and approved?
- \_\_\_\_\_ 11. Have measurements been made by the Contractor to verify length and diameter of pipe prior to ordering of material?

**Point Repair**

- \_\_\_\_\_ 12. Has a pre-installation video been made and reviewed?
- \_\_\_\_\_ 13. Is bypass pumping required? If so, is the bypass setup in accordance with the Contract Documents and approved shop drawing?
- \_\_\_\_\_ 14. Is repair pit excavation in accordance with the Contract Documents?
- \_\_\_\_\_ 15. Is the sewer pipe used in the repair in accordance with the Contract Documents and approved shop drawings?

- \_\_\_\_\_ 16. Is the bottom of the trench reshaped and compacted (appropriate bedding material brought in if necessary) so that the grade for the new pipe will match existing?
- \_\_\_\_\_ 17. Are the existing and new pipe ends cut flush in order to mate properly?
- \_\_\_\_\_ 18. Is an approved watertight coupling installed properly to connect the existing and new pipe?
- \_\_\_\_\_ 19. Are service connections properly reestablished?
- \_\_\_\_\_ 20. Has the post-rehabilitation video been made and reviewed?

**Cured-in-Place Pipe (CIPP) Liner Installation**

- \_\_\_\_\_ 21. Has a pre-installation video been made and reviewed?
- \_\_\_\_\_ 22. Has the existing pipeline been adequately cleaned of all debris and obstructions such as solids, dropped joints, intruding service connections, collapsed pipes or roots? Is recleaning required?
- \_\_\_\_\_ 23. Have the necessary point repairs been made?
- \_\_\_\_\_ 24. Is the lubricant proposed for inversion process compatible with the Hampton Roads Sanitation District's wastewater treatment plant operations and pretreatment program?
- \_\_\_\_\_ 25. Is bypass pumping required? If so, is the bypass setup in accordance with the Contract Documents and approved shop drawing?
- \_\_\_\_\_ 26. Has a test section been pulled through the existing pipeline to ensure that the liner will fit?
- \_\_\_\_\_ 27. In the event of insertion being delayed after impregnation, is the Contractor properly storing the liner at a temperature of less than 30° F for use when conditions allow?
- \_\_\_\_\_ 28. Is the folded liner being passed down a suitably reinforced column or chute into the pipe to be lined?
- \_\_\_\_\_ 29. Is the Contractor using a suitable heat source to heat the water in the liner quickly and evenly?
- \_\_\_\_\_ 30. Are the initial cure and post-cure temperatures being maintained in the liner for the appropriate time in accordance with the manufacturer's recommendations?
- \_\_\_\_\_ 31. Is the Contractor maintaining a curing log?
- \_\_\_\_\_ 32. Is the installed liner free from defects that could affect future performance of the pipeline?
- \_\_\_\_\_ 33. Has the liner and connection in manhole been properly sealed in accordance with manufacturer's recommendations?
- \_\_\_\_\_ 34. Has any annular space in the liner to manhole connection been properly grouted?
- \_\_\_\_\_ 35. Are the house connections re-established with the installed liner prior to grouting?

- \_\_\_\_\_ 36. Has the Contractor take the required number of representative coupons to be tested? Are the coupons properly marked?
- \_\_\_\_\_ 37. Is the pushing or pulling force on the liner being continuously monitored during insertion?
- \_\_\_\_\_ 38. Has the post-rehabilitation video been made and reviewed?

**Fold-in-Form Liner Installation**

- \_\_\_\_\_ 39. Has a pre-installation video been made and reviewed?
- \_\_\_\_\_ 40. Has the existing pipeline been adequately cleaned of all debris and obstructions such as solids, dropped joints, intruding service connections, collapsed pipes or roots? Is recleaning required?
- \_\_\_\_\_ 41. Have the necessary point repairs been made?
- \_\_\_\_\_ 42. Is bypass pumping required? If so, is the bypass setup in accordance with the Contract Documents and approved shop drawing?
- \_\_\_\_\_ 43. Is the folded liner pipe properly heated and prepared prior to insertion into host pipe?
- \_\_\_\_\_ 44. Is the pipe pulled through at a constant speed in accordance with the manufacturer's recommendations?
- \_\_\_\_\_ 45. Are the appropriate fittings installed at each end for the pressurized steam to enter the liner pipe?
- \_\_\_\_\_ 46. Is the manufacturer's recommended temperature and pressure being maintained for the recommended time?
- \_\_\_\_\_ 47. After the liner is completely rounded, is the pipe cooled according to manufacturer's recommendations?
- \_\_\_\_\_ 48. Is the liner properly cut and sealed at each manhole?
- \_\_\_\_\_ 49. Are service connections properly reestablished?
- \_\_\_\_\_ 50. Has the post-rehabilitation video been made and reviewed?

**Sliplining**

- \_\_\_\_\_ 51. Has a pre-installation video been made and reviewed?
- \_\_\_\_\_ 52. Has the existing pipeline been adequately cleaned of all debris and obstructions such as solids, dropped joints, intruding service connections, collapsed pipes or roots? Is recleaning required?
- \_\_\_\_\_ 53. Have the necessary point repairs been made?
- \_\_\_\_\_ 54. Is bypass pumping required? If so, is the bypass setup in accordance with the Contract Documents and approved shop drawing?
- \_\_\_\_\_ 55. Are access pits of sufficient size and constructed in accordance with the Contract Documents and manufacturer's recommendations?

- \_\_\_\_\_ 56. Does the sliplining material conform to the Contract Documents and approved shop drawings?
- \_\_\_\_\_ 57. Is the Contractor following the manufacturer's recommended installation procedure?
- \_\_\_\_\_ 58. Has the liner and connection in manhole been properly sealed in accordance with manufacturer's recommendations?
- \_\_\_\_\_ 59. Has any annular space in the liner to manhole connection been properly grouted?
- \_\_\_\_\_ 60. Are the house connections properly re-established?

**Chemical Grout Repair**

- \_\_\_\_\_ 61. Has a pre-installation video been made and reviewed?
- \_\_\_\_\_ 62. Has the existing pipeline been adequately cleaned of all debris and obstructions such as solids, dropped joints, intruding service connections, collapsed pipes or roots? Is recleaning required?
- \_\_\_\_\_ 63. Have the necessary point repairs been made?
- \_\_\_\_\_ 64. Is bypass pumping required? If so, is the bypass setup in accordance with the Contract Documents and approved shop drawing?
- \_\_\_\_\_ 65. Does the grouting equipment comply with the Contract Documents and the approved shop drawing?
- \_\_\_\_\_ 66. Has the grouting successfully been tested on a sample piece above ground?
- \_\_\_\_\_ 67. Does the grout chemical comply with the Contract Documents and approved shop drawings?
- \_\_\_\_\_ 68. Is the grout pot life carefully checked and is grout only applied within the manufacturer's recommended timeframe?
- \_\_\_\_\_ 69. Are the tests completed and documented for each joint in accordance with the Contract Documents?

### Construction Checklist for Manholes

#### General Requirements

- \_\_\_\_\_ 1. Review Contract Documents and the Special Provisions.
- \_\_\_\_\_ 2. Does the contractor's project safety program address excavation support?
- \_\_\_\_\_ 3. Have sewer users been notified if service will be interrupted?
- \_\_\_\_\_ 4. Are contact persons and telephone numbers available for both Department personnel and contractor personnel?
- \_\_\_\_\_ 5. Have manhole shop drawings and manufacturer's recommendations for installation (where applicable) been submitted and approved?

#### Manhole Installation

- \_\_\_\_\_ 6. Has the manhole been inspected for direction and sizes of openings, cleanliness, joints, and handling damage and cracks?
- \_\_\_\_\_ 7. Is the excavation in the correct location and of sufficient size for the manhole and for working room? Are the sides properly sloped back or shored?
- \_\_\_\_\_ 8. Is the manhole bedding prepared as specified in the Standard Details?
- \_\_\_\_\_ 9. Is the manhole bedding at the proper grade prior to installation of manhole?
- \_\_\_\_\_ 10. Are lift holes plugged from the outside with non-shrink grout after being lowered into place?
- \_\_\_\_\_ 11. Are manhole sections being placed and joined in accordance with manufacturer's recommendations for a watertight joint? Is pre-formed joint sealer installed in accordance with manufacturer's recommendations?
- \_\_\_\_\_ 12. Are pipes being joined to the manhole in accordance with Standard Details and manufacturer's recommendations?
- \_\_\_\_\_ 13. Do pipe and pipe joints at the manhole provide for flexibility as required?
- \_\_\_\_\_ 14. Are pipe stubs required and installed accurately? Are they properly sealed with a watertight plug or cap?
- \_\_\_\_\_ 15. Check channels and shelves for dimension, slope, and finish. Are they in accordance with the Contract Documents?

- \_\_\_\_\_ 16. Is the proper backfill material installed in accordance with the Contract Documents and manufacturer's recommendations?
- \_\_\_\_\_ 17. Is the top of the manhole brought to proper grade for receiving frame and cover in accordance with the Standard Details?
- \_\_\_\_\_ 18. Check frames and covers for compliance. Does cover seat in frame properly without rocking? Inner cover required? Locking cover required?
- \_\_\_\_\_ 19. Is approved chemical resistant coating properly applied in accordance with manufacturer's recommendations?

**Pressure Pipe Installation  
Construction Inspection Checklist**

**1. General Requirements**

- \_\_\_\_\_ 1. Check Contract Documents for the following:
  - a. Existing utilities and other substructures
  - b. Pipe and fitting materials
  - c. Bedding requirements
  - d. Traffic control requirements
  - e. Bypass pumping requirements
- \_\_\_\_\_ 2. Are existing utilities located and marked at the site by Miss Utility or determined by potholing at frequent intervals? (Simply calling Miss Utility is not acceptable the utilities must be marked.)
- \_\_\_\_\_ 3. Is access to private or public property impeded? Are temporary bridges or other means of access required?
- \_\_\_\_\_ 4. Are street closures authorized? Have all interested agencies (i.e. police, fire, property owners, etc.) been properly notified?
- \_\_\_\_\_ 5. Are temporary traffic signs and/or barricades installed properly and at the proper locations?
- \_\_\_\_\_ 6. Has the Contractor provided for the control of surface drainage?
- \_\_\_\_\_ 7. Has the project been properly laid out in approved shop drawings?

**2. Pipe Materials – Delivery, Storage and Handling**

- \_\_\_\_\_ 8. Are materials on site in accordance with approved Shop Drawings?
- \_\_\_\_\_ 9. Was the pipe and/or fittings carefully removed from truck and kept under control at all times in a secure area?
- \_\_\_\_\_ 10. Was the pipe and/or fittings dropped, bumped, dragged, pushed, or moved in any way that may cause damage to the pipe or coating.
- \_\_\_\_\_ 11. If handling the pipe with a crane, is a suitable sling being used around the pipe? Note: Under no conditions can the sling pass through the pipe.
- \_\_\_\_\_ 12. Are suitable blocking and stakes installed to prevent pipe from rolling?
- \_\_\_\_\_ 13. Are gaskets for pipe joints stored in a cool place and protected from light, sunlight, heat, oil, or grease until installed?
- \_\_\_\_\_ 14. Are gaskets showing any signs of checking, weathering or other deterioration?

3. **Excavation, Trenching, and Backfill – (Excavation Support and Trench Safety are the sole responsibility of the Contractor and under no circumstances shall the Inspector supervise, direct, provide comment, or otherwise control the Contractor regarding excavation support. The Inspector shall immediately contact the Lead Inspector if there are any concerns with the methods employed by the Contractor.)**

- \_\_\_\_\_ 15. Check for minimum and maximum trench width. Is it in accordance with the Standard Details?
- \_\_\_\_\_ 16. Did the excavation expose any unusual conditions requiring consideration by the Design Engineer?
- \_\_\_\_\_ 17. Are line and grade control being maintained satisfactorily?
- \_\_\_\_\_ 18. Do actual soil conditions agree with plan? Is shoring method adequate for actual trench condition?
- \_\_\_\_\_ 19. Is spoil bank clear of trench? Is it encroaching into required traffic lanes or private property?
- \_\_\_\_\_ 20. Is there any evidence of movement of adjacent improvements, utilities or structures? (Separation cracks, settlement, etc.)
- \_\_\_\_\_ 21. Have property owners been notified if work encroaches on private property?
- \_\_\_\_\_ 22. Is the subgrade firm? Is the subgrade as specified in the Contract Documents or will imported bedding material be required?
- \_\_\_\_\_ 23. Check trench for evidence of unconsolidated fill. (Additional excavation may be required if located in the trench bottom; additional compaction may be required if located above the pipe invert.
- \_\_\_\_\_ 24. Is temporary support of existing utilities and improvements being provided? In event of damage, are owners promptly notified?
- \_\_\_\_\_ 25. All loose soil removed from the trench?
- \_\_\_\_\_ 26. Is groundwater encountered? If so, is the trench bottom kept dry?
- \_\_\_\_\_ 27. Is the discharge from dewatering pumps in compliance with regulatory requirements?
- \_\_\_\_\_ 28. Is a dry trench bottom unachievable due to improper or insufficient use of all known methods of trench dewatering? If so, has the Supervisor been contacted?
- \_\_\_\_\_ 29. Does backfill material meet that specified in the Contract Documents and approved in shop drawing?
- \_\_\_\_\_ 30. Is backfill material free of foreign debris and not frozen?
- \_\_\_\_\_ 31. Is backfill being installed in lifts and compacted as specified in the Contract Documents?
- \_\_\_\_\_ 32. Is final landscaping or pavement installed as specified in the Contract Documents?

4. **Pipe Laying – General**

- \_\_\_\_\_ 33. Is pipe handled and installed in accordance with the manufacturer's recommendations and approved shop drawings?

- \_\_\_\_\_ 34. Is each pipe checked for damage before lowering into trench?
- \_\_\_\_\_ 35. Are the required concrete cradle or granular bedding material and thickness provided? Shaped to cradle the pipe?
- \_\_\_\_\_ 36. For pipelines intended for gravity flow, did pipeline laying begin at the low end of a run and proceed upgrade?
- \_\_\_\_\_ 37. Are all bells pointing ahead?
- \_\_\_\_\_ 38. Is each pipe checked for alignment and grade?
- \_\_\_\_\_ 39. Are adjustments to bring pipe to line and grade made by scraping away or filling in select fill material under the body of the pipe as recommended by the manufacturer?
- \_\_\_\_\_ 40. Are the faces of the spigot ends and the bells of pipes brought into fair contact and the pipe firmly and completely shoved home?
- \_\_\_\_\_ 41. As the work progresses, is the interior of pipeline kept clean of all dirt and superfluous materials?
- \_\_\_\_\_ 42. Are pipes closed off with bulkheads, plugs, or other suitable means when pipe laying is not in progress?
- \_\_\_\_\_ 43. Are bell holes excavated for each joint as required to permit the joint to be properly made and allow the barrel of the pipe to have full bearing throughout its length?
- \_\_\_\_\_ 44. Are bell holes thoroughly tamped with select fill material following the making of each joint?
- \_\_\_\_\_ 45. Are pipe cuts for valves and fittings cut at 90 degrees, ground smooth, and rough edges removed?
- \_\_\_\_\_ 46. Are joint restraints installed at locations identified in the Contract Documents?
- \_\_\_\_\_ 47. Are cement mortar lined joints being properly sealed as specified in the Contract Documents?

**5. Ductile Iron Pipe Installation – Mechanical Joints**

- \_\_\_\_\_ 48. FOR ALL DUCTILE IRON PIPE IN SEWER FORCE MAINS – IS THE PIPE LINED WITH “SEWPERCOAT” OR “PROTECTO 401”?
- \_\_\_\_\_ 49. Is the spigot properly centered in the bell?
- \_\_\_\_\_ 50. Are the surfaces with which the rubber gasket comes in contact properly cleaned and prepared prior to assembly of the joint?
- \_\_\_\_\_ 51. Are the gaskets lubricated just prior to installation?
- \_\_\_\_\_ 52. Are the nuts tightened with a torque wrench to the appropriate torque so that the gland is brought up toward the pipe evenly?
- \_\_\_\_\_ 53. Are bolts properly sealed with a bituminous coating?

**6. Ductile Iron Pipe Installation – Rubber Gasket Joints**

- \_\_\_\_\_ 54. Are the surfaces with which the rubber gasket comes in contact properly cleaned and prepared prior to assembly of the joint?
- \_\_\_\_\_ 55. Is the gasket placed in the socket with the large round end entering first so that the groove fits over the bead in the seat?

- \_\_\_\_\_ 56. Is a thin film of approved lubricant applied to the inside surface of the gasket that will come in contact with the entering pipe?
- \_\_\_\_\_ 57. Is sufficient force exerted on the entering pipe so that its plain end is moved past the gasket until it makes contact with the base of the socket to make the joint?
- \_\_\_\_\_ 58. For restrained joints - Are locking segments and retainer gland locked and installed according to manufacturer's instructions? Note: Larger diameter pipes may have more locking segments and retainer glands, all must be securely locked and installed.

7. **PVC Pipe Installation**

- \_\_\_\_\_ 59. Is the sealing surface of the pipe spigot end, the pipe bell, the coupler or fitting, and the gasket properly cleaned before assembly?
- \_\_\_\_\_ 60. Is gasket properly lubricated?
- \_\_\_\_\_ 61. Is pipe spigot end fully homed after jointing?
- \_\_\_\_\_ 62. For pipe 12" and smaller only – are any bends in the pipe less than manufacturer's recommendations?
- \_\_\_\_\_ 63. Is the appropriate tracer wire and non-metallic tape being installed?

8. **Miscellaneous Considerations**

- \_\_\_\_\_ 64. Are appurtenances (i.e. fittings, services, valves, and hydrants) installed in accordance with manufacturer's recommendations and the Contract Documents?
- \_\_\_\_\_ 65. Is the pipe properly cleaned prior to testing?
- \_\_\_\_\_ 66. Is the pipe properly tested in accordance with the Contract Documents?
- \_\_\_\_\_ 67. For potable water – Has the pipe been properly disinfected in accordance with the Contract Documents?
- \_\_\_\_\_ 68. Following disinfection, is highly chlorinated water disposed of in accordance with environmental regulations?

**Large Diameter Pressure Pipe (>16") Installation  
Construction Inspection Checklist**

**General Requirements – Follow the checklist for Pressure Pipe Installation, with the following additions:**

- \_\_\_\_\_ 1. Is the equipment being used to handle the pipe adequate for this intended use and does it have the required capacity to lift and maneuver the pipe?
- \_\_\_\_\_ 2. Is pipe stored properly with substantial blocking to prevent rolling?
- \_\_\_\_\_ 3. Is the subgrade firm? Is the subgrade as specified in the Contract Documents or will imported bedding material be required?
- \_\_\_\_\_ 4. Are the required concrete cradle or granular bedding material and thickness provided? Shaped to cradle the pipe?
- \_\_\_\_\_ 5. Are bell holes excavated for each joint as required to permit the joint to be properly made and allow the barrel of the pipe to have full bearing throughout its length?
- \_\_\_\_\_ 6. Are adjustments to bring pipe to line and grade made by scraping away or filling in select fill material under the body of the pipe as recommended by the manufacturer?
- \_\_\_\_\_ 7. Are the faces of the spigot ends and the bells of pipes brought into fair contact and the pipe firmly and completely shoved home?
- \_\_\_\_\_ 8. Is the equipment used to home the pipe appropriate and recommended by the pipe manufacturer?
- \_\_\_\_\_ 9. Are bell holes thoroughly tamped with select fill material following the making of each joint?
- \_\_\_\_\_ 10. For restrained joints - Are locking segments and retainer gland locked and installed according to manufacturer's instructions? Note: Larger diameter pipes may have more locking segments and retainer glands, all must be securely locked and installed.
- \_\_\_\_\_ 11. Prior to backfill, is the bituminous coating (or corrosion resistant liner or system) properly intact after laying the pipe?