<table>
<thead>
<tr>
<th>Specifications</th>
<th>Testing Requirement</th>
<th>Method of Verification</th>
<th>Completed</th>
<th>Initial</th>
<th>Comments</th>
</tr>
</thead>
<tbody>
<tr>
<td>Utility Excavation and Backfill (Section 11), Embankment (Section 14)</td>
<td>Contractor shall provide proper(s). Compaction test (massive and density) shall be taken per Standard Specifications. <strong>NOTE</strong>: Testing reports shall be provided at the pre-paying meeting.</td>
<td>Compaction testing – to be taken a minimum of every 200' horizontally and 3' vertically. <strong>NOTE</strong>: If material changes in the field, contact testing agency to provide new pre-cast test for material being used.</td>
<td>yes / no</td>
<td>E</td>
<td>N/A</td>
</tr>
<tr>
<td>Granular Mixture - Base Course, and gravel cushion (Section 20)</td>
<td>Undercut or scarify roadway embankment per Geotechnical Report recommendations. Final sub-grade compaction</td>
<td>Discuss the proposed means and methods with City Observer prior to construction. City Observer shall verify.</td>
<td>yes / no</td>
<td>E</td>
<td>N/A</td>
</tr>
<tr>
<td>SCHEDULE A PRE-PAVING MEETING PRIOR TO PLACING ANY ASPHALT OR PORTLAND CEMENT CONCRETE</td>
<td></td>
<td>Call City Observer to schedule. Observer shall verify sub-grade through proof rolling or other means.</td>
<td>yes / no</td>
<td>E</td>
<td>N/A</td>
</tr>
<tr>
<td>Portland Cement Concrete Pavement (Section 49), Concrete curb and Gutter (Section 69), Concrete Sidewalk (Section 65)</td>
<td>For sidewalk and curb and gutter, a minimum of one test shall be performed per each day of pouring, as directed.</td>
<td>Testing shall include slump, air content, 7 day strength (minimum 1 cylinder), 28 day strength (minimum 2 cylinders). Provide results to City Observer prior to project acceptance.</td>
<td>yes / no</td>
<td>E</td>
<td>N/A</td>
</tr>
<tr>
<td></td>
<td>For concrete pavement, a minimum of one test shall be performed per 250 LF of pavement or as directed.</td>
<td>Testing shall include slump, air content, 7 day strength (minimum 1 cylinder), 28 day strength (minimum 2 cylinders). Provide results to City Observer prior to project acceptance.</td>
<td>yes / no</td>
<td>E</td>
<td>N/A</td>
</tr>
<tr>
<td>Asphalt Concrete (Section 31)</td>
<td>Mix design</td>
<td>Submit a mix design from the batch plant with a standard density (Marshall)</td>
<td>yes / no</td>
<td>E</td>
<td>N/A</td>
</tr>
<tr>
<td></td>
<td>Compaction testing</td>
<td>Perform minimum of one (1) non-destructive (nuclear gauge) test per 200 tons of asphalt or as directed.</td>
<td>yes / no</td>
<td>E</td>
<td>N/A</td>
</tr>
<tr>
<td>Water Piping Systems (Section 8)</td>
<td>High end and low end chloride - wait at least 24 hrs but no more than 48 hours to flush the line after the high end concentration is confirmed. The high end concentration is 25 ppm min. After flushing the concentration shall be no higher than the prevailing system concentration or 1 ppm.</td>
<td>Call City Observer to observe and confirm chloride concentration. Discuss the method and location of flushing. City Observer shall confirm the low end chloride concentration.</td>
<td>yes / no</td>
<td>E</td>
<td>N/A</td>
</tr>
<tr>
<td></td>
<td>Pressure testing (main and large diameter private lines) - test line at 100% of the normal working pressure or the maximum pressure for the class of pipe for a minimum of 2 hours.</td>
<td>Call City Observer to verify beginning pressure and start time of the test. The City Observer shall witness the pressure per Standard Specifications.</td>
<td>yes / no</td>
<td>E</td>
<td>N/A</td>
</tr>
<tr>
<td></td>
<td>Coliform bacteria test (2 tests) - performed after flushing and at least 24 hours apart</td>
<td>Provide test results to City Observer prior to project completion</td>
<td>yes / no</td>
<td>E</td>
<td>N/A</td>
</tr>
<tr>
<td>Sanitary Sewer (Section 9)</td>
<td>Cathodic test station base reading</td>
<td>Call City Observer to schedule</td>
<td>yes / no</td>
<td>E</td>
<td>N/A</td>
</tr>
<tr>
<td></td>
<td>Inspection of valves</td>
<td>Call City Observer to schedule</td>
<td>yes / no</td>
<td>E</td>
<td>N/A</td>
</tr>
<tr>
<td></td>
<td>Test tracer wire</td>
<td>Call City Observer to schedule</td>
<td>yes / no</td>
<td>E</td>
<td>N/A</td>
</tr>
<tr>
<td>Pipe Culverts (Section 58)</td>
<td>Exfiltration water or low pressure air test - per specifications</td>
<td>City Observer shall witness</td>
<td>yes / no</td>
<td>E</td>
<td>N/A</td>
</tr>
<tr>
<td></td>
<td>Manhole water or air vacuum test - performed per specs and prior to placing casting</td>
<td>City Observer shall witness</td>
<td>yes / no</td>
<td>E</td>
<td>N/A</td>
</tr>
<tr>
<td></td>
<td>Pipe deflection testing - 30 days after installation</td>
<td>Manhole test shall be performed, City Observer shall witness</td>
<td>yes / no</td>
<td>E</td>
<td>N/A</td>
</tr>
<tr>
<td></td>
<td>TV or Camera pipe, performed by City Utility Maintenance Division</td>
<td>Call City Observer to schedule</td>
<td>yes / no</td>
<td>E</td>
<td>N/A</td>
</tr>
<tr>
<td>General</td>
<td>Submit information for all materials including but not limited to: aggregate materials, pipe, fittings, appurtenances, etc.; manholes and inlets; signs and posts, erosion and sediment control items.</td>
<td>Submit all materials to the Engineer of Record. The engineer of record shall submit the materials to the City after they have approved them.</td>
<td>yes / no</td>
<td>E</td>
<td>N/A</td>
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</tbody>
</table>

**THIS LIST IS INTENDED FOR GENERAL GUIDANCE, AND IS BY NO MEANS COMPREHENSIVE. FOR DETAILS ON TESTING AND CONSTRUCTION SPECIFICATIONS REFER TO CITY OF RAPID CITY STANDARD SPECIFICATIONS FOR PUBLIC WORKS CONSTRUCTION CURRENT EDITION.**

17/7/2014