

# CITY OF MILPITAS

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## INSPECTION CHECKLIST

### PIPELINE INSPECTION PROCEDURES

Following are guidelines for inspecting pressurized and gravity flow pipelines:

	Code Requirements	Code section	Req'd
<b>A. PRIOR TO BEGINNING CONSTRUCTION</b>			
1.	Check to be sure that the contractor has the final approved plans signed by the Engineer.		
2.	Check to be sure the contractor has notified USA and USA has marked the areas in which construction is to be performed.		
3.	Check to be sure that the contractor has all the required submittals and shop drawings, and these have been satisfactorily reviewed by the City Project Engineer.		
4.	Check for advance posting of "No Parking" signs if needed.		
5.	Check the approved traffic control and drive the lane closures and or detours to be sure they work, verify driveways are not obstructed and verify that the contractor is not using private property, for detours or material storage.		
6.	Check the materials to be installed for conformance with approved submittals and shop drawings. Note: If outside inspection, for compaction testing or certification is required, for material, be sure this is arranged in advance.		
7.	Check the bore log and soil report for poor ground conditions and high water table		
8.	A Daily Inspection Report is to be completed daily.		
<b>B. TRENCHING</b>			
1.	The pipeline must be staked for line and grade prior to the start of the trenching operation. The inspector to review elevations staked for compliance with the plans.		
2.	All required SWPPP measures must be in place prior to the start of the trenching operation.		
3.	Check to see that the trench is centered on the plan centerline and that the trench width conforms to the specification requirements, before the contractor saw cuts the pavement.		
4.	During the trenching operation check continuously to ensure the specified trench width is maintained.		
5.	Check for stockpiles or heavy equipment near the edges of the trench, which may cause the trench to collapse.		
6.	Check to be sure that all loose material in the bottom of the trench is removed prior to placement of pipe bedding. If the trench bottom has unstable material, overexcavation and stabilization may be required if not addressed in the specifications		
7.	If the trench section is 5 feet (1.5 meters) or deeper vertical, shoring is to be used. A Cal/OSHA permit is required. As alternative to shoring, the trench can be benched, vee'd, or a combination of vertical and vee'd (only if in a non-paved area where there is no traffic).		
	a. Be cautious of non-cohesive materials, disturbed ground, or filled ground. Extra shoring or solid shoring will be required.		
	b. Provide extra sheeting where there is water or seepage.		
	c. Provide extra sheeting if there is vibration or load from nearby traffic.		

**INSPECTION CHECKLIST**  
**PIPELINE INSPECTION PROCEDURES(Cont'd)**

	Code Requirements	Code section	Req'd
	<b>C. DEWATERING</b>		
	Water is a problem that is often encountered in trenching operations. The project specifications must be followed when dewatering is necessary. Check with the foreman to verify the crew understands the discharge procedures and the equipment is available if pumping is required. Water should not be pumped to the storm drain system. Make sure no silt or sand is pumped with the dewatering.		
	<b>D. EXISTING UTILITIES</b>		
	Invariably during a trenching operation existing utilities are encountered. It is the responsibility of the contractor to protect any utilities he encounters. Also there should be minimum clearances between the new construction and existing utilities as specified in the project specifications. Any unforeseen utilities or other substructures that are found must be reported to the engineer. Note on the record drawings any utilities or substructures that are uncovered during construction.		
	<b>E. LINE AND GRADE</b>		
	A licensed surveyor must place grade stakes and check alignment. All grade stakes must be checked by the inspector to determine that none have been disturbed and that the offset is sufficient to preserve the stakes during the contractor's operation.		
	<b>F. PIPE BEDDING</b>		
	The bottom of the trench must be a firm surface free from loose material and thoroughly compacted prior to placing bedding material. If the trench bottom is excessively wet or spongy, this unsuitable material must be reported to the engineer prior to being removed and replaced with imported material as specified in the project specifications.		
	<b>G. PIPE LAYING</b>		
	The Inspector must check the following while pipe is being laid:		
1.	The line and grade of the trench according to the cut sheet.		
2.	Observe the pipe while being laid to be sure the pipe has full bearing and is fully into the pipe bedding and is centered in the trench.		
3.	Check each pipe length for cracks or imperfections.		
4.	Ensure the pipe ends are clean.		
5.	Ensure that each pipe joint is pushed to the home mark (Bell & Spigot).		
6.	Do a final check of the pipeline prior to allowing backfill.		
	<b>H. TENCH BACKFILL</b>		
	Initial Backfill is called bedding and includes backfill material to 12" above the pipe. Anything up to one (1) foot over the pipe should be placed and compacted by hand using the specified backfill material. Trench backfill starts one (1) foot over the top of the pipe. Compaction equipment can be used at this point (see Standard drawing 220). During the backfill operation the Inspector should check for the following:		
1.	Prior to beginning the backfill check the extent of cave-ins under any hard surface that may be present.		
2.	Ensure that existing utilities are marked on the pavement surface and are backfilled carefully so that they are protected during the backfill operation.		
3.	Check that the specified backfill material is being used.		

**INSPECTION CHECKLIST**  
**PIPELINE INSPECTION PROCEDURES(Cont'd)**

Code Requirements		Code section	Req'd
4.	Insure the testing agency performing compaction tests, tests every 25-50 feet at the beginning on each lift, until a passing compaction method is established. Thereafter testing can be random as determined by the Special Inspector. In the event of failed tests, re-compaction and re-testing should be accomplished immediately if possible, or at least by the following day.		
5.	Backfill should be placed in lifts according to the method of compaction specified.		
6.	After placing and compacting the trench backfill material, a minimum section of 1" to 4" of temporary asphalt must be placed and compacted as a temp. driving surface.		
7.	Temporary asphalt must be maintained until such time that testing and flushing is completed, upon completion of testing and flushing, temporary asphalt can be removed and replaced with permanent asphalt in accordance with Standard Drawing 222 or the project specifications.		
<b>I. TESTING AND FLUSHING</b>			
1.	The pipeline must be flushed upon completion of construction. In the case of a sewer line it must be balled and/or mandrelled if plastic. Material flushed from the line must be trapped and removed, from the pipeline, at the downstream manhole.		
2.	The pipeline must be tested from manhole to manhole after the ball and flush procedure. Either a low pressure air test or a hydrostatic Leakage test shall be used.		
3.	Testing of a pressurized water line must be done in accordance with the technical provisions of the project specifications or, in the case of encroachment permits or other small projects, at water 225psi, per City of Milpitas Standard Specifications.		
4.	Chlorinating and bacteriological testing of a waterline must be performed in accordance with the project specifications after flushing is completed.		
5.	The contractor should submit a testing schedule and procedures.		
6.	Upon completion of the testing the contractor must submit test results.		
7.	Video tape line if required by the specifications		

**NOTE: There are four major areas in pipeline construction that can lead to failure:  
1) incorrect pipe grade 2) poor joints 3) poor compaction 4) poor records/record drawings.**