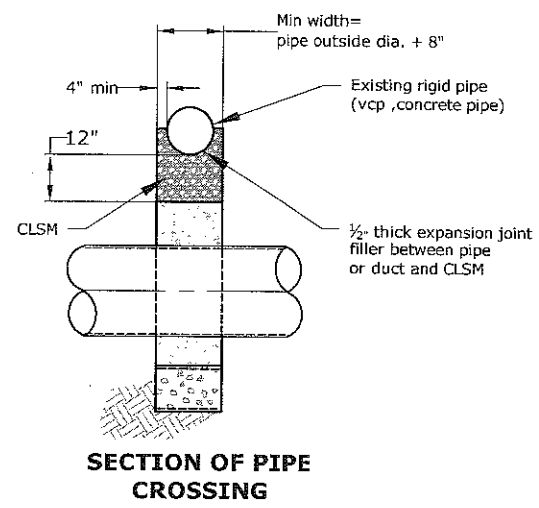
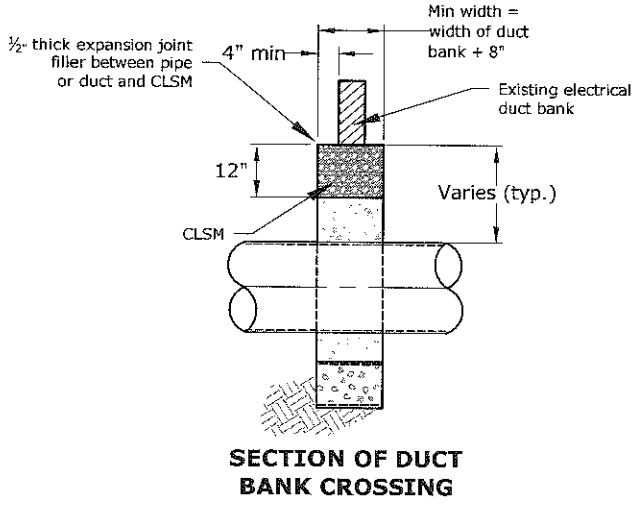
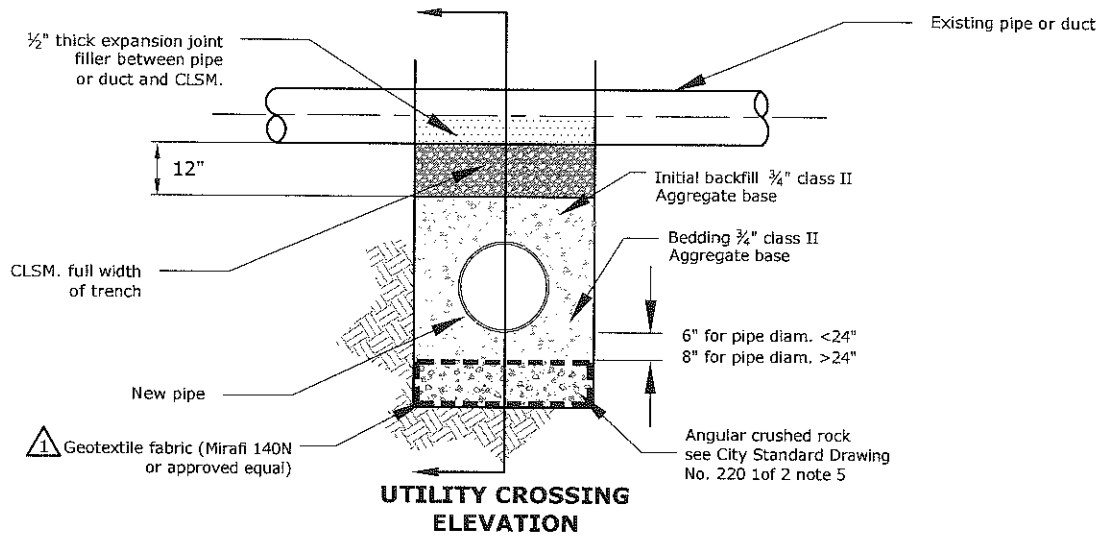


**NOTES:**

NOT TO SCALE

1. This detail applies to all pipes 4" nominal diameter and greater.
2. Trench width shall not be more than 18" wider than the largest outside diameter of the pipe. There shall be a minimum of 6" clearance between the pipe and trench wall on either side of the pipe outside diameter.
3. Trench bedding and backfill material shall be 3/4" Class II Aggregate Base (AB) in accordance with Caltrans standard specifications, latest edition. Native material, sand or "pea gravel" type materials are not permitted as trench backfill.
4. Backfill compaction requirements for Class II Aggregate Base (AB) trench backfill shall be:
  - A. 95% relative compaction within street Right-of-Way as determined by ASTM designation D1557-91.
  - B. 90% relative compaction outside street Right-of-Way as determined by ASTM designation D1557-91.
  - C. Compaction by water ponding or jetting is not permitted.
- ⚠ 5. Where groundwater or unstable soil is encountered, trench shall be over excavated of unstable soils. Mirafi 140N or equal stabilization fabric shall be placed onto the exposed subgrade and back filled with approximately 18 inches of 1/2" - 3/4" angular crushed rock or larger rocks as necessary to form a stable foundation or equivalent. Stabilization fabric shall be wrapped around crushed rock as indicated in detail above.
6. Trenches shall not be left open overnight. All trenches shall be backfilled by the end of the work period. The exceptions are trenches of less than a pipe length at special locations such as the connection point for the next day's work, a freshly poured manhole base, crossing with a waterline that is being pressure tested or other conditions deemed by the engineer where it can be plated. The trench must be sheeted, braced, or shored in (in compliance with CAL/OSHA requirements for excavations and trenches) in addition to the plating (traffic rated in streets/driveways). No trench shall be left with lip depression greater than one inch in the traffic area.
7. When city water, sewer, or storm drain lines are constructed in easements between or adjacent to subdivision lots, a two inch slab of 4 sack portland cement and separation material shall be place on top of bedding material for the entire length and width of the trench.
8. Prior to construction, a permit for construction must be obtained from Engineering Division.

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PUBLIC WORKS DIRECTOR / CITY ENGINEER		



**NOTES:**

NOT TO SCALE

1. The contractor shall submit shop drawings on preformed expansion joint filler, filler shall comply with ASTM D994 or ASTM D1751.
2. Backfill to be brought up uniformly on both sides of utility support.
3. Underground utility supports are to be provided where excavation and backfill is performed beneath a rigid pipe (VCP, concrete, electrical duct bank, etc.). Controlled Low-Strength Material (CLSM) shall be used to fill in the approximate one foot vertical space underneath the rigid pipe where it is impractical to compact Aggregate Base backfill.
4. Existing pipe or duct will be firmly supported during installation of new pipe and utility support.
5. Form the sides of utility support which cross trench.
6. CLSM shall consist of a mixture of Portland cement, water, fine aggregate and chemical admixtures. Fly ash shall not be permitted in mixes intended for trench backfill. CLSM shall be proportioned to produce a 28 day compressive strength of 50 to 150 pounds per square inch. An accelerating admixture shall be used to produce a fast setting flowable mixture.

<b>CITY OF MILPITAS, ENGINEERING DIVISION</b>		<b>TRENCH CONSTRUCTION</b>	<b>STANDARD DRAWING</b>
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