Make this Section a part of the Standard Specifications:

"SECTION 313 - CONTROLLED LOW STRENGTH MATERIAL (CLSM) FOR UTILITIES AND STRUCTURES

313.01 Description. This work includes furnishing and placing a CLSM as backfill material in utility trenches and other works where firm support is needed for pavements and structural elements.

313.02 Materials. CLSM is a mixture of portland cement, aggregate, and water. The Contractor shall proportion the CLSM to produce a backfill material that is self-compacting and capable of being excavated later with hand tools. The proportions of the CLSM shall:

(a) produce a uniform, flowable mixture that is essentially self-leveling when placed;

(b) have a 28-day compressive strength of approximately 50 psi to 150 psi; and

(c) conform to Section 601 - Structural Concrete.

Aggregates shall be from a source acceptable to the Engineer and conform to Subsection 703.01 - Fine Aggregate for Concrete. The Contractor may use aggregates that are different from Subsection 703.01 - Fine Aggregates for Concrete subject to acceptance by the Engineer. Aggregate shall stay in suspension in the CLSM to the extent required for proper flow.

313.03 Construction Requirements.

(A) Placement. Before placing any CLSM, thoroughly check the trench sides and bottom for cracks, voids, or other defects that may cause the flowable backfill to flow away from the trench. Plug or repair these defects. Do not place any flowable fill until the Engineer inspects the trench.

Place the CLSM to the designated fill line or as specified by the Engineer without vibration or other means of compaction. Provide sufficient mixing capacity to allow the CLSM to be placed without interruption.

Backfill the trenches to full depth minus the pavement thickness as shown in the contract or as specified by the Engineer. In pavement trenches, fill the pavement trenches so that the top of the flowable fill will not be beyond or higher than the bottom of any treated pavement structure.

The mixture shall fill all voids during the backfill operation. When drainage layers such as permeable bases and permeable separators are present, restore the drainage layers as part of the pavement structure.

When backfilling pipe culverts, secure the pipes within the backfill area by means of straps, soil anchors, or other means of restraints. Inform the Engineer of the proposed method of holding the culvert at the plan grade.

Seal the conduits as necessary to prevent grout getting into the conduits.

Place the CLSM by chute, pumping, or other methods acceptable by the Engineer. During placement operations around manholes and in utility trenches, place the CLSM evenly to avoid dislocating any conduits due to fluid pressure from the flowable fill. Place in stages as necessary to prevent uplift of unanchored conduits.

Pave or restore the pavement section no earlier than 8 hours after backfilling unless otherwise allowed by the Engineer. Protect the backfill material from traffic during the period before restoration of the pavement section.

Curing of the CLSM is not necessary.

(B) Acceptance. Proportion and place the CLSM as specified herein. In general, the strength desired is the maximum hardness that can be excavated at a later date using conventional excavating equipment. Submit a manufacturer's certification of the CLSM and include the unconfined 28 day compressive strengths. The material certification shall include the actual test data for each mixture used.

313.04 Method of Measurement. The Engineer will not measure CLSM for payment.

313.05 Basis of Payment. The Engineer will not pay for CLSM separately and will consider the cost for CLSM as included in the contract prices of either Section 206C - Excavation and Backfill for Drainage Facilities or 609 –Curb and Gutter. The cost is for the work prescribed in this section and the contract documents."

END OF SECTION 313