

## 213-R-698 FLOWABLE BACKFILL

(Adopted 09-19-19)

The Standard Specifications are revised as follows:

SECTION 213, BEGIN LINE 3, INSERT AS FOLLOWS:

**213.01 Description**

This work shall consist of placing flowable backfill in trenches for pipe structures, culverts, utility cuts, other work extending under pavement locations, cavities beneath slopewalls and other locations in accordance with 105.03.

Flowable backfill will be classified as either removable or non-removable. *Wherever type 5, non-removable flowable backfill is specified, type 4, removable backfill may be substituted, following notification to the Engineer.*

SECTION 213, BEGIN LINE 28, INSERT AS FOLLOWS:

**213.03 Flowable Backfill Mix Design**

*The Contractor may either design their own flowable backfill mix or may choose to use one of the four standard mix designs shown in 213.03(a).*

*If the flowable backfill is being placed around a pipe, the mix shall contain a minimum of 150 lbs/cu yd of fly ash.*

**(a) Standard Flowable Backfill Mix**

*The following two type 4, removable flowable backfill mixes and two type 5, non-removable flowable backfill mixes may be used. The final mix results may vary due to variations in cement and other materials. The Contractor shall be responsible for the performance of the flowable backfill and the mix shall meet the mix criteria in accordance with 213.04, and the minimum spread and blow counts in accordance with 213.07.*

Component	Removable		Non-Removable	
	Type 4-1	Type 4-2	Type 5-1	Type 5-2
Cement Content, lbs/cu yd	50	50	85	100
Fly Ash, lbs/cu yd	0	150	0	150
Fine Aggregate, lbs/cu yd	2,900	2,125	2,870	2,085
Water, lbs/cu yd	500	400	500	400
Entrained Air, %	0 - 10	15 - 35	0 - 10	15 - 35

**(b) Contractor - Designed Flowable Backfill Mix**

The Contractor shall submit a flowable backfill mix design, FBMD, to the DTE a minimum of seven days prior to the trial batch. The FBMD will be accepted in accordance with 213.04. The FBMD shall be submitted in a format acceptable to the DTE and shall include the following:

SECTION 213, BEGIN LINE 82, INSERT AS FOLLOWS:

**213.05 Flowable Backfill Trial Batch**

**(a) For Standard Flowable Backfill Mix**

*If one of the four standard flowable backfill mix designs in 213.03(a) is used, a trial batch will not be required. The Contractor may still choose to perform a trial batch in accordance with 213.05(b), if desired.*

***(b) For Contractor - Designed Flowable Backfill Mixes***

A trial batch shall be produced by the Contractor and will be tested by the Department to verify that the FBMD meets the flowable backfill mix criteria. The Department will verify the classification of the mix as either removable or non-removable from the results of the trial batch. The flowable backfill shall be batched within the proportioning tolerances of 508.02(b). The Department will determine the test results and provide them to the Contractor. The trial batch shall be of sufficient quantity to allow the Department to perform all required tests from the same batch.

SECTION 213, BEGIN LINE 150, INSERT AS FOLLOWS:

**213.08 Method of Measurement**

Flowable backfill will be measured by the cubic yard of the type specified as computed from the neat line limits shown on the plans. If neat line limits are not shown on the plans, the volume in cubic yards of flowable backfill furnished and placed will be computed from the nominal volume of each batch and a count of the batches. Unused and wasted flowable backfill will be estimated and deducted. Drilled holes will be measured by the number of holes drilled.

*If removable flowable backfill is approved for use in lieu of non-removable flowable backfill, it will be measured by the cubic yard as non-removable flowable backfill.*

**213.09 Basis of Payment**

The accepted quantities of flowable backfill will be paid for at the contract unit price per cubic yard for the type specified, furnished and placed. Holes drilled in the pavement will be paid for at the contract unit price per each.

*If removable flowable backfill is approved for use in lieu of non-removable flowable backfill shown on the plans, it will be paid for as non-removable flowable backfill. Substitutions by the Contractor shall be at no additional cost to the Department.*

---