Elastizell EF (Engineered Fill) Guide Specification

SECTION 02223 – ENGINEERED FILL (EF)

PART 1 – GENERAL

1.1 DESCRIPTION

1.1.1 Work included: Provide Engineered Fill at the locations shown on the Drawings, as specified herein, and as needed for a complete and proper installation.

1.1.2 Work not included, but related to this Section: Excavation and site preparation for the Engineered Fill including retaining wall installation, drainage considerations, and related items such as dewatering, etc., if required, installation of any utilities or services within the Engineered Fill, final surface treatment and subsequent pavement.

1.2 QUALITY ASSURANCE

1.2.1 The Engineered Fill applicator shall be approved by the Engineer prior to bidding and certified by the Manufacturer of the Engineered Fill. Use skilled workmen who are experienced and familiar with the requirements and the methods for proper performance of this work.

1.2.2 The specialized batching, mixing, and placing equipment shall be automated with bulk handling equipment approved by the manufacturer. Transit mixers are not acceptable for these applications.

1.2.3 The approved applicator / manufacturer shall be regularly engaged in the placement of Engineered Fill including completion of mass fills having a minimum of 10,000 cubic meters (13,000 cubic yards) in the past five years. Engineered Fill shall have been successfully applied on ten projects that have performed satisfactorily for at least ten years.

1.3 SUBMITTALS

1.31 With their bid, the prime contractor shall declare whom they have selected to perform this work by providing the certified applicator's name as approved by the Engineer.

1.3.2 Approval by the Engineer: The approved applicator must be approved ten (10) days prior to the bid date. The applicator shall submit a project list complying with the requirements, Manufacturer approval, and reports documenting the physical properties of the Engineered Fill.

PART TWO – PRODUCTS

2.1 MATERIALS

2.1.1 Expansion Material: The expansion material shall be Elastizell EF approved in advance by the Engineer to producing Engineered Fill meeting the properties of Section 2.2.

2.1.2 Cement: Portland cement shall comply with ASTM C150, C595, or C1157. Pozzolans and other cementitious materials may be used. The Elastizell Corporation of America shall design the mix.

2.1.3 Water: Use potable water.

2.1.4 Admixtures: Admixtures may be used when specifically approved by the Manufacturer of the Engineered Fill.

2.2 PROPERTIES

The Engineered Fill shall meet the following:

	Class II	Class III	Class IV
Maximum Cast Density	480 kg/m^3 (30 pcf)	580 kg/m^3 (36 pcf)	670 kg/m^3 (42 pcf)
Minimum Compressive Strength @ 28 days	280 kPa (41 psi)	550 kPa (80 psi)	830 kPa (120 psi)
Coefficient of Permeability (cm/sec) @ 13.8 kPa (2.0 psi)	1×10^{-5}	1×10^{-5}	1×10^{-6}
Frost Heave per BRRL LR90 (250 hour exposure) 11.43 cm (4.5") high x 10.16 cm (4") diameter	<1.25 cm (0.5")	<1.25 cm (0.5")	<1.25 cm (0.5")

PART THREE – EXECUTION

3.1 SITE CONDITIONS: Examine the areas for work of this Section. The contractor shall correct conditions detrimental to timely and proper completion of the work.

3.2 PREPARATION: The installation of the Engineered Fill shall be in accordance with procedures provided by the Elastizell Corporation. The area to be filled shall not have any standing water in it prior to fill placement. Items encased in the fill shall be set and stable prior to installation.

3.3 INSTALLATION: Use automated job site batching, mixing, and placing equipment certified by the Elastizell Corporation of America. Mix the materials and convey promptly to the point of placement. Cast the Engineered Fill in lifts in such a manner to prevent segregation. The final surface finish shall be within ± 5.0 cm (0.16 foot) of plan elevation.

3.4 SAMPLING: During placement of the initial batches, check the density and adjust the mix as required to obtain the specified cast density at the point of placement. Take four (4) test specimens for each 230 cubic meters (300 cubic yards) of Engineered Fill placed or for each four (4) hours of placing.

3.5 TESTING: Test in accordance with ASTM C796 except do not oven dry the load test specimens. The specimens shall be 7.62 cm x 15.24 cm (3" x 6") cylinders covered after casting to prevent damage and loss of moisture. Moisten cure specimens for a period up to 7 days prior to a 28-day compressive strength test. Specimens may be tested at any age to monitor the compressive strength. Elastizell Corporation of America shall report test reports to the approved applicator for distribution.

PART FOUR – COMPLETION

4.1 Engineered Fill manufactured by Elastizell Corporation of America,
P.O. Box 1462, Ann Arbor, MI 48106
TEL 734 / 761-6900 & FAX 734 / 761-8016

4.2 Certified Applicator shall meet the requirements of Section 1.2.

4.3 PAYMENT: Work specified in this Section will be paid for at the contract unit prices for the quantities specified herein. The quantities measured shall be on the basis of cross sections of Engineered Fill placed within specified pay limits unless otherwise directed by the Engineer.

Item No	Item	Pay Unit
Special	Class II Engineered Fill	Cubic Meters
Special	Class III Engineered Fill	Cubic Meters
Special	Class IV Engineered Fill	Cubic Meters