

ITEM 17203.80 M - CONTROLLED LOW STRENGTH MATERIAL

DESCRIPTION

Furnish and place Controlled Low Strength Material (CLSM) in a fluid condition, that sets within the required time and, after curing, remains excavatable using hand tools, at locations shown on the plans or as directed by the Engineer, in writing.

MATERIALS

Provide CLSM containing cement and water. At the Contractor's option, it may also contain fly ash, aggregate, or chemical admixtures in any proportions such that the final product meets the strength and flow consistency requirements included in this specification.

Do not place CLSM in contact with aluminum pipe, including connections, fixtures, etc., unless the aluminum has been coated with an approved primer. Do not place CLSM containing fly ash in contact with cast iron pipes.

Provide materials meeting the requirements of the following subsections:

Portland Cement, Type 1 or Type 2 : Subsection 701-01

Water : Subsection 712-01

If used, provide materials meeting the following requirements:

Aggregates : Gradation: 100% passing the 19.0 mm sieve and a maximum of 20% passing the 75 _m sieve.

Fly Ash : Test the fly ash pursuant to a testing protocol approved by NYSDEC. Provide the Engineer-In-Charge with a copy of documentation issued by NYSDEC attesting to its conformance with applicable NYSDEC rules and regulations.

Use fly ash conforming to the chemical and physical requirements for mineral admixture, Class F listed in A.S.T.M. C618 including Table 2 (except for Footnote A). Waive the loss on ignition requirement.

Chemical Admixtures : Provide admixtures that comply with Subsection 711-08. The mix may include high air generators manufactured for CLSM.

Design the CLSM mix so that it sets within the time stated in the contract documents. If no set time is required by the Department, design the set time to conform with the MPT scheme and needs of the project.

Provide CLSM having flow consistency as described under Construction Details.

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Certify that the CLSM will have a 28 day compressive strength between 275 kPa and 1030 kPa. Cast test specimens of CLSM in accordance with Materials Method 9.2.

CONSTRUCTION DETAILS

Provide all equipment for this work subject to approval of the Engineer.

Mix the materials at a stationary mixing plant which is either a continuous or a batch type plant, designed to accurately proportion either by volume or by weight, so that when the materials are incorporated in the mix, a thorough and uniform mix will result.

The mix may be transported in open haul units provided the material is placed within 30 minutes of the end of mixing. Use a rotating drum unit capable of 2 - 6 rpm. to transport material which cannot be placed within 30 minutes after the end of mixing.

In work involving quantities of CLSM less than 2 cubic meters, the Engineer may permit the Contractor to use a small construction mixer. Provide a mixer capable of mixing CLSM that has the specified compressive strength and flow consistency. Mix all components so as to produce a uniform product.

The Engineer will determine the flow consistency of the CLSM material prior to placement by using the following procedure:

- Fill a hollow plastic or metal cylinder 150 mm in length and with a 75 mm inside diameter with the CLSM and strike off the surface.
- Raise the flow cylinder 150 mm in a continuous motion without rotation.
- Immediately measure the spread of the CLSM along two diameters which are perpendicular to each other.

Place the CLSM using a method acceptable to the Engineer.

Cast three (3) specimens (cylinders) unless otherwise determined by the Regional Geotechnical Engineer. Deliver specimens to the Geotechnical Engineering Bureau for evaluation.

Acceptance Criteria:

Acceptance will be based on the following criteria:

- The CLSM has a minimum diameter of 200 mm as determined from the flow consistency test.
- The CLSM is certified to meet the strength requirements provided herein.
- The CLSM is mixed and placed using a method acceptable to the Engineer.

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METHOD OF MEASUREMENT

Payment for CLSM material will be made for the number of cubic meters of satisfactorily placed CLSM meeting the aforementioned acceptance criteria, computed between the payment lines shown on the plans or from payment lines established in writing by the Engineer.

BASIS OF PAYMENT

The unit price bid per cubic meter includes the cost of furnishing all labor, materials and equipment necessary to complete the work.

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