

1.0 GENERAL

1.1 Scope

1.1.1 The work shall consist of soil and hydrated lime uniformly mixed, moistened, compacted, finished and cured in accordance with these specifications and it shall conform to the lines, grades, thickness and typical cross-section shown on the plans or as designated by the Engineer.

1.2 Related Sections

- 1.2.1 Section 02110 - Excavation
- 1.2.2 Section 02120 – Embankments
- 1.2.3 Section 02155 - Geotextiles
- 1.2.4 Section 02210 – Subdrainage Sand
- 1.2.5 Section 02220 - Subbase

2.0 PRODUCTS

2.1 Hydrated Lime

2.1.1 Shall be of an approved brand and shall conform to the requirements of [ASTM C110](#).

2.2 Water

2.2.1 Shall be free from substances deleterious to the hardening of the lime-soil mixture.

2.3 Soil

2.3.1 Shall consist of an approved material in the area to be stabilized.

3.0 EXECUTION

3.1 Construction

3.1.1 Lime modified subgrade may be constructed with any machine or combination of machines that will produce results that meet the requirements of the specification with regard to pulverization, lime application, mixing, water application, compaction, finishing and curing.

3.1.2 The Contractor shall prepare the area to be paved by grading and shaping as required to construct the subgrade courses in conformance with the lines, grades, cross-section and depth as shown on the plans. Lime modified subgrade shall be constructed in lifts not exceeding 150 mm compacted depth. Unsuitable soil shall be removed by the Contractor and replaced with suitable soil approved by the Engineer.

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- 3.1.3 The quantity of earth material required for one (1) lift shall be pulverized prior to the addition of lime. Pulverization shall continue until all lumps of soil have been reduced to a dimension of not more than 50 mm when measured in any direction.
 - 3.1.4 Lime shall be applied to the prepared surface in the dry or slurry form, uniformly over the surface at the rate designated by the Engineer. The rate shall be generally four percent (4%) hydrated lime by weight of the dry soil. The rate of application shall be controlled within \pm one-half ($\pm 1/2$) of one percent (1%). The average application rate shall neither be consistently high or low of required rate.
 - 3.1.5 Lime shall not be applied when the wind velocity is greater than 25 kilometres per hour, unless a higher limit is approved by the Engineer.
 - 3.1.6 Immediately following application of the lime, it shall be mixed with the soil to the full depth of the lift being treated. Rotary action mechanical mixers shall be used.
 - 3.1.7 The lime and soil shall be dry-mixed by one (1) complete pass of the mixing unit. After dry mixing, water shall be added by means of pressure distributing equipment, to at least five (5) percent over optimum moisture content of the modified soil.
 - 3.1.8 After initial mixing, the lime-treated layer shall be shaped and lightly compacted.
 - 3.1.9 The subgrade surface shall be trimmed to ± 20 mm vertically and 100 mm horizontally. The average level of the finished grade shall neither be consistently high or low from the designed grade.
 - 3.1.10 The lime-soil mixture shall cure for a period **required and** specified by the Engineer.
 - 3.1.11 Mixing and pulverization shall continue until the lime is uniformly distributed throughout the soil. The number of passes required shall be as directed by the Engineer. The lime-treated layer shall be maintained within the specified moisture range until mixing has been completed.
 - 3.1.12 The lime-soil mixture shall be compacted to a minimum **ninety-eight percent (98%)** of the maximum Standard Proctor dry density as determined by **ASTM D698**.
 - 3.1.13 After final compaction, the surface shall be smooth and free from cracks, ridges and loose material.
 - 3.1.14 Before approval by the Engineer, the subgrade shall be true to cross-section and grade and shall conform to the density specified. Field density and moisture content tests will be made by the Engineer or his representative to ensure that the material is being compacted to the moisture content and

density specified. All soft, spongy or yielding spots, and all organic or other objectionable matter shall be entirely removed and the space refilled with suitable compactable material.

- 3.1.15 After preparing the subgrade as above specified, it shall be the Contractor's responsibility to maintain the required density at his expense, and all unnecessary traffic must be kept off. Should it be found necessary to haul over the prepared subgrade, all cuts, ruts and breaks in the surface of the subgrade so resulting shall be repaired in a manner satisfactory to the Engineer.
- 3.1.16 Proof-roll the subgrade with available construction equipment or optional vehicle as approved by the Engineer.