



Date: May 22, 2018

Project: Boerne Visitors Center
Project Number: 20-1730

To: Paul Barwick
City of Boerne

CC: Bidders

This Addendum forms a part of the Contract Documents and modifies the original Bidding Documents dated 4-13-18. Acknowledge receipt of this Addendum in the space provided on the Bid Form. Failure to do so may subject the Bidder to disqualification.

ANSWERS TO GENERAL QUESTIONS

1. Section 02243, LIME STABILIZED SUBGRADE is missing in the Specifications. [see attachment]
2. Detail 7/A8.1-Top of thinset stone matches top of door trim.

END OF BOERNE VISITORS CENTER – Addendum #4

Attachments: 1 page – Addendum #4 Narrative
Specification Section 02243

SECTION 02243 - LIME STABILIZED SUB-GRADE

PART 1 GENERAL

1.01 SECTION INCLUDES

This item specifies the addition of lime, mixing and compacting of the mixed material for subgrade.

1.02 RELATED SECTIONS

A. Section 02223 - EXCAVATING, BACKFILLING, AND COMPACTING FOR PAVEMENTS

1.03 MEASUREMENT AND PAYMENT

Lime stabilization of subgrade shall be measured and paid for by square yard of surface area to the lines shown on the plans and to the depth and at the percentage of lime (by dry solids weight) specified. The unit price bid per square yard shall include full compensation for supplying the lime, for all mixing, shaping, compacting, and for all incidentals necessary to complete the work.

1.04 REFERENCES

The applicable provisions of the following standards shall apply as if written here in their entirety:

ASTM	American Society for Testing of Materials
AASHTO	American Association of State Highway and Transportation Officials
Tx-DOT	Texas Department of Transportation – Standard Specifications for Construction of Highways, Streets and Bridges.
OSHA	Occupational Safety and Health Administration

1.05 SUBMITTALS

Weight Certificates from public scale for lime delivered in trucks.

1.06 QUALITY ASSURANCE

Contractor shall provide a completed course of treated subgrade material containing a consistent lime mixture, having no loose or segregated areas, of uniform density and moisture, well compacted to its full depth and having a smooth surface adequate for placing additional subbase, base or surface courses. The Contractor shall be responsible for regulating the sequence of the work, for processing a sufficient quantity of material to provide a full depth as shown on the plans, using the appropriate amount of lime, maintaining the work and performing any reworking of the courses if necessary to meet the requirements.

1.07 DELIVERY, STORAGE, AND HANDLING

- A. Hydrated lime shall be stored and handled in closed, waterproof containers until immediately before distribution. Hydrated lime bags must be stored in waterproof buildings and protected against ground dampness. If storage bins are used, they must be completely enclosed.
- B. If lime is delivered in bags, then each bag must have the manufacturer's certified weight. Bags that vary more than five percent (5%) from the Manufacturer's weight can be rejected. The average weight of the bags in any shipment, as calculated by weighing fifty (50) bags at random, shall not be less than the manufacturer's certified weight.
- C. If lime is furnished in trucks, each truck shall have the certified weight from public scales or the Contractor must supply a set of standard platform truck scales or hopper scales at a location approved by the Engineer. The scales shall meet the criteria of TxDOT Item 520.

1.08 PROJECT CONDITIONS

Mixing of the lime-treated subgrade shall not be performed when the atmospheric temperature is forty (40) degrees Fahrenheit and falling, or when the weather indicates that within the next twenty-four (24) hours the weather will fall below forty (40) degrees Fahrenheit. Mixing shall also not occur when it is foggy or raining, or when the soil or subgrade is frozen.

PART 2 PRODUCTS

2.01 MATERIALS AND/OR EQUIPMENT

- A. Lime: The lime shall meet the requirements of TxDOT Item 264 for Type A - Hydrated Lime, Type B - Commercial Lime Slurry or Type C - Quicklime, Grade DS or S. Type C - Grade S, Quicklime shall not be used for dry placing.
- B. Water: Water that is used for mixing or curing shall be free of acid, alkali, oil, salt, vegetable, sugar and other substances that may be injurious to the finished product. Water shall be tested and must meet the requirements in AASHTO T-26. If water is used that is known to be of potable quality, then no testing is required.
- C. Equipment: The equipment necessary for performing the work shall be on the project site prior to the beginning of construction operations. All machinery, tools and equipment shall be maintained in acceptable working condition. The Contractor shall conduct his operations in a workmanlike manner and shall use approved methods in performing the work.

PART 3 EXECUTION

3.01 PREPARATION

The subgrade shall be shaped to the sections, lines and grades shown on the plans, prior to applying lime.

3.02 ERECTION/INSTALLATION/APPLICATION AND/OR CONSTRUCTION

- A. Lime may only be spread on areas where the mixing operations will be completed on the same working day. The application and mixing of lime with the material shall be accomplished by either "Dry Placing" or "Slurry Placing". Hydrated lime that has been exposed to open air for six (6) hours or more or to excessive loss due to washing or blowing will not be accepted for payment.
1. Dry Placing. Spreading of the lime shall be accomplished by an approved spreader or by bag distribution at the rates specified on the plans. The lime shall be distributed at a uniform rate and in such a way as to minimize the scattering by wind. No application of lime shall occur when the wind conditions are in such a manner that blowing lime becomes objectionable to traffic and adjacent property owners. Quick lime may be spread by approved distributor or by motorized grader to achieve uniform distribution. The material shall be sprinkled until the proper moisture content has been established.
 2. Slurry Placing. The lime shall be mixed with water in approved distributor trucks and distributed as a thin water suspension or slurry. The required rate of lime distribution shall be achieved by successive passes over a measured area until the proper lime content and moisture have been obtained. On steep slopes, prevent runoff of slurry.
- B. Mixing. The subgrade material, lime and required water shall be thoroughly mixed and blended by an approved pulverizing mixer to the depth specified on the plans. Mixing shall proceed until a homogenous, friable mixture is obtained such that after removal on non-slaking material, 100 percent of the material passes the 1-3/4" sieve and a minimum of 85 percent passes the 3/4" sieve. If Type C - Grade DS Quicklime is used, moist cure the material for two (2) to seven (7) days and remix to the above required gradation.
- C. Compaction. The mixture shall be compacted after final mixing and not later than three (3) calendar days after final mixing unless approved by the Engineer. The material shall be aerated or sprinkled as necessary in order to achieve optimum moisture. If the total thickness of the material cannot be mixed in one mixing, then the previously mixed material shall be bladed to a windrow from the area to be treated and the lime mixing for the next layer will begin. The first layer of treated material shall not be mixed with the underlying material. Compaction of the mixture shall begin at the bottom and continue for the entire depth until a uniform compaction to not less than 95% of Standard Proctor Density at $\pm 2\%$ of optimum moisture content as determined by ASTM D-698 is achieved, unless otherwise specified by the Geo-Technical Engineer.

- D. Finishing, Curing and Preparation for Surfacing. After the final layer or course of subbase or base has been compacted, it shall be brought to the required lines and grades in compliance with the typical sections. Completed sections shall be finished and rolled with a pneumatic roller or other suitable roller light enough to prevent hair cracking. Moist curing for the completed section shall be a minimum of seven (7) days before any other course is placed or traffic is permitted unless otherwise approved by the Engineer. Moist curing shall be accomplished by sprinkling with water to prevent the surface from drying out or by addition of an asphalt material to retain moisture in the subbase or base. Layers on which the subbase sets up sufficiently to prevent unacceptable damage from traffic, may be opened up to traffic two (2) days after completion. If treated material is required to be sealed or covered by other courses of material, then such seal or course shall be applied within fourteen (14) days after compaction unless otherwise directed by the Engineer.

3.03 REPAIR / RESTORATION

The course surface shall be maintained in a smooth condition, free from ruts and undulations, until it is accepted and/or another course is laid. If the material should lose the required stability, density and finish for any reason, before the work is accepted or the next course is placed, then it shall be recompact and refinished at the expense of the Contractor.

3.04 FIELD QUALITY CONTROL

- A. Testing Agency and Quality Control: Refer to Section 01400 – QUALITY CONTROL
- B. Compaction and Density Testing shall be as described and outlined in the applicable Technical Specification SECTION – 02221, 02222 or 02223.

END OF SECTION