

ITEM 15

POLYURETHANE STABILIZATION / LIFTING OF PAVEMENTS

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ITEM 15

POLYURETHANE STABILIZATION / LIFTING OF PAVEMENTS

15.1 DESCRIPTION

This work shall consist of lifting or stabilizing pavement as required to repair settlements and/or provide sub-grade soil compaction by furnishing and injecting polyurethane material beneath the pavement at locations shown on the plans or as directed by the **AGENCY**.

15.2 MATERIAL REQUIREMENTS

- The material shall be a two-part, closed cell, water-insensitive, high density polyurethane system.
- The material shall have a free rise density of 3.6 – 4.2 lbs/cubic ft.
- The material shall have a minimum compressive strength of 50 psi per ASTM 1621.
- The material shall have a minimum tensile strength of 50 psi per ASTM 1623.
- The material shall reach 90% compressive strength in 15 minutes.
- The material used shall be a polyurethane-forming mixture, having a water insoluble diluent, which permits the formation of polyurethanes in water.
- The material shall be environmentally safe in its cured state.

The above characteristics shall be supplied to the **AGENCY** by the manufacturer.

15.3 EQUIPMENT REQUIREMENTS

The **CONTRACTOR** shall provide at a minimum, the following equipment:

- A truck or trailer-mounted pumping unit capable of controlling the rate of flow of material through holes or injection tubes to required depths. The pumping unit shall measure the amount of material injected.
- Equipment capable of maintaining proper pressure, temperature, and proportionate mixing of the polyurethane component materials per manufacturer recommendations.
- Drilling equipment capable of preparing 5/8" to 3/4" diameter injection holes through the pavement
- Monitoring equipment capable of measuring pavement slab movement at the surface of the pavement to verify that the injected area has been properly raised.
- All other equipment necessary to execute the work including but not limited to light plants, electric generators, compressors, heaters, hoses, containers, valves and gauges.

15.4 CONSTRUCTION REQUIREMENTS

- The contractor shall submit a work plan to mitigate frozen subgrade or base course.

- Pre-injection, target, and post-injection pavement profiles shall be provided by the Contractor to the satisfaction of the **AGENCY**.
- The **CONTRACTOR** shall be responsible for the location and spacing of drilled holes.
- Existing joints shall be evaluated and, if needed, saw cut to allow concrete slabs to move. The material shall be injected at the proper locations, depth and rate to attain the desired profile and/or densification of the sub-grade soils.
- Continuous attention to monitoring equipment by the **CONTRACTOR** is required during injection to assure that the desired profile has been attained.
- Holes shall be patched with polyurethane or other material as specified by the **AGENCY**.
- **CONTRACTOR** shall remove and properly dispose of all residues from the operation.
- Any pavement blowouts, excessive lifting, or pavement damage as a result of the **CONTRACTOR's** work shall be replaced or repaired by the **CONTRACTOR** at the Contractor's expense, to the satisfaction of the **AGENCY**. The **CONTRACTOR** shall repair any movement greater than 1/4" vertically in injected areas within two years at no cost to the **AGENCY**.

15.5 BASIS OF PAYMENT

Traffic control shall not be paid separately, but shall be included in the work.

Necessary sawing shall not be paid separately, but shall be included with the work.

Payment shall be made based on:

- The pounds of injected polyurethane material used and accepted by the **AGENCY**.
- or
- Area adjusted
- or
- Lump Sum

<u>Item</u>	<u>Description</u>	<u>Payment</u>
15.5-1	Injected Polyurethane Material	\$ / pound
15.5-2	Area adjusted using Polyurethane	\$ / square ft.
15.5-3	Adjustment using Polyurethane	Lump Sum