Special Specification 7258
Remove and Replace Modular Joint

1. DESCRIPTION

Remove and replace a modular bridge expansion joint system.

- Item 421, “Hydraulic Cement Concrete”
- Item 422, “Concrete Superstructures”
- Item 439, “Bridge Deck Overlays.”

2. CONTRACTOR SUBMITTALS

At least 1 mo. before the start of modular joint replacement, submit to the Engineer:

- formwork details,
- manufacturer’s product information for grout and expansion anchors and other required submittals shown on the plans or requested by the Engineer relating to successful installation of a modular bridge expansion joint system.

3. CONSTRUCTION METHODS

Follow the manufacturer’s recommendations for anchorage installation, grouting operations, and other requirements shown on the plans. At the request of the Engineer, a pre-grouting meeting will be held to review grouting procedures.

Use grout and expansion anchors in strict accordance with the manufacturer’s recommendations.

Do not add admixtures including retarders to grout. The temperature of mixing water may be adjusted or ice may be added to increase working time and pot life.

Addition of water to previously mixed grout or remixing of grout will not be allowed. Do not add water quantity exceeding the manufacturer’s recommendations to the grout to increase flowability.

At least two weeks before grouting of connections, prepare a trial batch of grout to demonstrate grout properties, adequacy of equipment, and to familiarize jobsite personnel with grouting procedures.

Observation of segregation or large clumps of grout in the final trial batch will be the cause for requiring an alternate method of mixing grout.

Prepare one set of six grout cubes from the trial batch to verify that the compressive strengths required can be attained.

Demonstrate that the equipment provided for grouting is adequate for mixing the grout and grouting the support box within the pot life of the batch. A square mesh with an opening no larger than 0.5 in. must be used to filter out clumps when transferring grout from a mortar mixer to buckets.

Furnish the equipment necessary to properly perform grouting operations before actual grouting operations begin. Perform grouting operations in the presence of the Engineer. Perform grouting operations under the same weather limitations as cast-in-place concrete and as required by the manufacturer. Grout pumping will be required if support boxes cannot be grouted using buckets within the pot life established for the grout during the trial batch.

Seal forms watertight to avoid grout loss or offsets. Presoak the block out with water for a minimum of 2 hr. before grouting. After presoaking, drain the block out of all water just before placing the grout.

Deposit grout completely filling any voids. Deposit grout from the low side to the high side. When insufficient pressure is available to completely fill the void under the support box, the final portion of grout may be placed from the high side. Care must be taken to prevent introducing air into previously placed grout by monitoring placement, grout flow, and rate of pour.

Cure exposed grout surfaces in accordance with manufacturer's recommendations.

Determine the compressive strength of the grout using grout cubes prepared and tested in accordance with ASTM C109. Prepare a minimum of six cubes per side. Grout failing to meet the minimum required compressive strength will be cause for removal of the joint and grout, and re-grouting of the support boxes by means approved by the Engineer.

Place the joint according to the requirements shown on the plans.

4. MEASUREMENT

This Item will be measured by each modular joint removed and replaced.

5. PAYMENT

The work performed and materials furnished in accordance with this Item and measured as provided under “Measurement” will be paid for at the unit price bid by each “Remove and Replace Modular Joint” of the size (minimum total movement capacity) specified. This price is full compensation for removing the old joint; preparing the block out, removing and reinstalling of bridge rail within the limits of the joint; installing the new joint, grouting the new joint, recasting the block out; and materials, services, labor, tools, equipment, and incidentals.