



# Department of Transportation

**Rapid City Region Office**

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May 6, 2013

## **ADDENDUM NO. 2**

RE: 090 E-451 & 090E-452, Lawrence & Pennington Counties, PCN i2w4 & i2wh  
May 14, 2013 Rapid City Region Office Informal Letting

### **TO WHOM IT MAY CONCERN:**

The following addenda to the plans shall be inserted and made part of your proposal for the referenced project.

#### **PROPOSAL:**

- No change.

#### **PLANS:**

- Replace sheet 6 of the plans with the attached revised sheet dated 5/6/13. The first paragraph under "Retrofitting Tie Bars (Stitching)" was revised. The drilling requirements were changed.

Sincerely,

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John Rehorst  
Region Design Engineer

**REPAIR TYPE A SPALL**

Included in the estimate of quantities is 10 sqft of "Repair Type A Spall". The estimated number of locations is 20.

Locations and size (length or width) of concrete spall repair areas are subject to change in the field, at the discretion of the Engineer, at no additional cost to the state. The minimum dimension of the repair area shall be 6". Payment will be based on actual area replaced.

The concrete patching material shall be packaged, dry, rapid-hardening cementitious mortar or concrete materials conforming to the requirements of ASTM C 928, Type R-3 and shall contain no chloride ions. Concrete patching material as per Section 390.2.B.3 of the Supplemental Specifications will not be allowed.

Grout for bonding the concrete patching material to the existing concrete shall consist of equal parts by weight of Portland Cement and sand, mixed with sufficient water to form a thick slurry. A grout admixture shall be added to the grout mixture in accordance with the manufacturer's recommendations. Grout admixture shall be a one component acrylic bonding additive. The additive shall be one of the grout admixtures from the Approved Products List, or an approved equal.

Grout shall be applied on all of the existing concrete surfaces within the removal area immediately prior to placement of the concrete patching material. The grout shall be scrubbed into the surface with a stiff bristle brush in a thin and uniform coat. Care shall be taken to ensure that excess grout does not collect in low areas, that the grout is confined only to the immediate area in which concrete patching material is to be placed, and that the rate of application is limited to an amount such that the grout will be covered with concrete patching material before the grout dries.

The patching product may be extended with aggregate as recommended by the manufacturer. The aggregate extender shall meet the requirements of Section 820 of the Standard Specifications. Section 820.2 D shall not apply to the aggregate extender. The Contractor's supplier of the patching product shall provide a concrete mix design, including all additives, to meet a minimum compressive strength of 4000 psi in six hours. This mix design shall be performed with the materials that will be used on the project.

The spall repair locations may be opened to traffic once the patch material has obtained a compressive strength of 4000 psi.

The Contractor shall provide test results to the Engineer to verify that the suppliers mix design is acceptable prior to beginning work. If the suppliers mix design is not satisfactory, the Contractor shall provide the Department with a mix design that meets the requirement prior to beginning work.

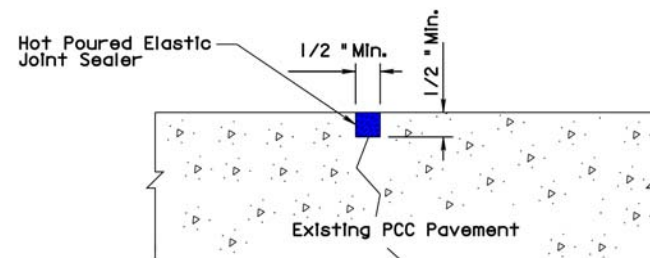
**SEAL RANDOM CRACKS IN PCC PAVEMENT**

The groove shall be formed with a saw or router designed for that purpose. The maximum width of the routed reservoir shall not be greater than 3/4" and over sawing will not be allowed.

Random cracks wider than 1/2 inch will not require widening. A blocking medium maybe used in the crack, so that the depth of sealant matches the width.

Sealing Random Cracks shall be done in accordance with Sec. 380.3 R of the Standard Specifications.

All costs associated with this work shall be incidental to the contract unit price per foot "Seal Random Cracks in PCC Pavement".



**TABLE OF REPAIR OF LONGITUDINAL CRACKS (Exit 8, i2w4)**

Distance from North End of PCCP	Lane	Tie Bar Retrofit, Stitching	Seal Random Cracks in PCC Pavement
		Each	Ft
310 to 360	SB	50	50
450 to 530	SB	80	80
700 to 780	NB	80	80
	<b>Total</b>	<b>210</b>	<b>210</b>

Rev. 5/6/13

**RETROFITTING TIE BARS (STITCHING)**

The Contractor shall install No. 5 epoxy coated deformed tie bars into drilled holes in the existing concrete pavement. An epoxy resin adhesive must be used to anchor the steel bar in the drilled hole. A rotary drill or other approved drill shall be used that will not damage the concrete surface. The diameter of the disturbed surface from drilling shall be less than 2 inches. A rigid frame or mechanical device will be required to guide the drill to ensure the proper angle of the steel bars in the drilled holes.

The steel bars shall be cut to the specified length by sawing and shall be free from burring or other deformations. Shearing will not be permitted.

Epoxy resin adhesive shall be of the type intended for horizontal applications, and shall conform to the requirements of ASTM C 881, Type IV, Grade 3 (equivalent to AASHTO M235, Type IV, Grade 3).

The diameter of the drilled holes in the existing concrete pavement for the steel bars shall not be less than 1/8 inch nor more than 3/8 inch greater than the overall diameter of the steel bar. The holes shall be drilled at an angle alternating from opposite sides of the joint to produce a cross-stitching pattern. The drilled holes shall be blown out with compressed air using a device that will reach to the back of the hole to ensure that all debris or loose material has been removed prior to epoxy injection. Damage to pavement shall be repaired to the satisfaction of the Engineer at the Contractor's expense.

Mix the epoxy resin as recommended by the manufacturer and apply by an injection method approved by the Engineer. If an epoxy pump is utilized, it shall be capable of metering the components at the manufacturers designated rate and be equipped with an automatic shut-off. The pump shall shut-off when any of the components are not being metered at the designated rate. Fill the drilled holes sufficiently with epoxy prior to the insertion of the tie bar such that the epoxy will be level with the top of the concrete pavement after insertion of the tie bar. Rotate the steel bar during installation to eliminate voids and ensure complete bonding of the bar. Insertion of the bars by the dipping method will not be allowed. The top of the drilled hole shall be filled with epoxy or excess epoxy removed such that the epoxy is level with the existing pavement.

No bars shall be installed within 15" of an existing transverse contraction joint. Any bars not functioning or damaged shall be repaired or replaced at the Contractor's expense.

Cost for the epoxy resin adhesive, tie bars, drilling of holes, debris or loose material removal, applying the adhesive, installing the tie bars into the drilled holes and all other items incidental to the installation of the tie bars shall be included in the contract unit price per each for "Tie Bar Retrofit, Stitching".