

## SECTION 00585 - EXPANSION JOINTS

*(Follow all instructions and make all edits with “Track Changes” turned on. If there are no instructions [purple text] above a subsection, paragraph, sentence, or bullet, then include it in the Project. Delete all purple text before preparing the final document. All other modifications to this Section will require ODOT Technical Resource and State Specifications Engineer approval.)*

Comply with Section 00585 of the Standard Specifications modified as follows:

*(Use the following subsection .00 when replacing a gland in existing strip seals or reconstruction of joint surfaces.)*

**00585.00 Scope** - Add the following paragraphs to the end of this subsection:

*(Use the following paragraph when replacing glands.)*

This Work also consists of replacing glands in existing strip seals.

*(Use the following paragraph when reconstructing joint surfaces.)*

This Work also includes concrete removal and reconstruction of joint surfaces and edges as shown.

**00585.01 Definitions** – Replace the paragraph that begins “Filled Joint...” with the following paragraph:

**Filled Joint** - A joint using a preformed joint filler placed prior to concrete pour. Hot applied joint sealant or poured joint seal may be placed on top of the joint filler.

Add the following paragraph after the paragraph that begins “**Filled Joint...**”

**Hot Applied Joint Seal** - A joint filled with hot applied, single component sealant.

**00585.02(b) Personnel Qualifications** - Replace this subsection, except for the subsection number and title, with the following:

At the pre-construction conference, submit the following:

- Joint installer personnel certifications(s) from the manufacturer affirming that the installers have been trained in application methods of Materials and health and safety to install Closed Joints as detailed.

- A letter from the manufacturer affirming that the technical representative is qualified to provide technical assistance regarding expansion joint installation.

*(Use the following subsection .02(d) when replacing a gland)*

Add the following subsection:

**00585.02(d) Gland Replacement** – At least 21 Calendar Days before starting Work, submit the following:

- The manufacturer's recommended gland.
- Material specifications. Published product data sheet is acceptable.
- Preparation plan for gland retainer.
- Installation procedure.

**00585.10 Materials** – Add the following Material to the Material list:

Portland Cement Concrete Repair Material.....02015

**00585.11 Concrete for Blockout Opening** – Replace this subsection with the following subsection:

**00585.11 Material for Blockout Opening** - Fill blockout openings with the same class and type of concrete used in the deck, unless otherwise shown.

For joint surface reconstruction, fill openings with Material as shown or specified. If not shown, fill openings with one of the following Materials:

- Structural polymer concrete with a minimum compressive strength of 10 ksi, a minimum tensile strength of 1 ksi, and a minimum modulus of elasticity of 2,500 ksi.
- High early strength concrete (HESC), Class HESC4000 – 3/4 inch, designed according to Section 02001. Incorporate the following:
  - Rapid hardening hydraulic cement meeting the requirements of Section 02011.
  - Aggregate meeting the requirements of Section 02690.
  - Macro fibers meeting the requirements of 02045.20.
- Portland cement concrete repair materials meeting the requirements of Section 02015.

**00585.30(b) Expansion Joint Seal Manufacturer's Representative** - Replace this subsection with the following subsection:

**00585.30(b) Expansion Joint Seal Manufacturer's Technical Representative** - Provide a manufacturer's technical representative during the Work. Prior to beginning the Work, discuss with the representative regarding the Work to be done, methods of installation, installation procedures, and required Equipment to assure correct expansion joint installation. Ensure the manufacturer's technical representative remains available for consultation until the completion and acceptance of the Work. For strip seals, the manufacturer's technical representative is required to be on-site during the Work.

**00585.42(c) Joint Preparation** - Replace the paragraph that begins "For joint replacement, remove..." with the following paragraph:

For joint replacement, remove joint material from existing joints and clean the existing joints full depth and full width as directed by the Engineer. If existing joint surfaces have spalled, cracked, or deteriorated concrete, repair as shown or directed to provide a uniform and smooth surface. Unless otherwise shown or directed, epoxy inject cracks according to Section 00538 and repair surfaces using an approved PCC repair material.

*(Use the following two paragraphs when replacing glands.)*

Add the following paragraphs to the end of this subsection:

For gland replacement in existing strip seals, remove existing gland and prepare existing joint surfaces as specified and according to the joint manufacturer's recommendations. Ensure that steel edgebeam and retainer surfaces to receive a new gland are sound, dry, clean, and frost-free at the time of joint installation.

*(Use the following two paragraphs when reconstructing joint surfaces.)*

Add the following paragraphs to the end of this subsection:

For joint surface reconstruction, remove existing joint surface as shown or specified. Prepare the concrete surface according to the manufacturer's recommendations and ICRI *Guideline No. 310.2R*. Shotblast or sandblast the final surface to a CSP 5-7.

**00585.43 Armored Corners** – Replace the title of this subsection with “**Armored Corners and Edgebeam**”

Replace the paragraph that begins "Provide joint corner armoring ..." with the following paragraph:

Provide joint corner armoring or edgebeam with anchors as shown or specified, and according to the following:

**00585.43(a) Tolerance** - Replace the paragraph that begins "Install armored corners that are straight..." with the following paragraph:

Install armored corners or edgebeams that are straight and do not deviate from a true line by more than 1/4 inch horizontal and 1/8 inch vertical over the length of the joint, nor more than 1/16 inch in either direction from a 12-foot straightedge.

**00585.43(b) Installation** - Replace the paragraph that begins "Furnish armored corners in the longest ..." with the following paragraph:

Furnish armored corners or edgebeams in the longest practical length as controlled by transportation and installation.

Replace the paragraph that begins "For new construction, install armored ..." with the following paragraph:

For new construction, install armored corners or edgebeams with anchors in preformed blockouts at least 14 Days after the deck is cast with the joint opening as shown. Support the armored corners or edgebeams securely in position before placing concrete in the joint blockout. Install the preformed seal at least 7 Days after the concrete blockouts have been cast and after the deck concrete reaches 3,000 psi.

**00585.47 Strip Seal** - Replace the bullet that begins "Use steel retainers acting ..." with the following bullet:

- Use steel retainers acting as the edgebeams according to 00585.43.

**00585.50 Control Joint** - Replace this subsection, except for the subsection number and title, with the following:

Construct Control Joints as shown. If details of the Control Joint are not shown, sawcut the surface 1 1/2 inches deep and 1/2 inch wide. Flush the sawcut thoroughly with a high-pressure water stream after the cut has been made. Before the cut dries out, blow it free of water and debris with compressed air. Fill the sawcut joint with a hot applied joint sealant from the QPL.

Add the following subsection:

**00585.51 Hot Applied Joint Seal Replacement** - Remove existing hot applied joint sealant from joint. Clean and repair joint surfaces and edges. Install hot applied joint sealant from the QPL and according to the manufacturer's recommendations.

Add the following subsection:

**00585.52 Joint for Sidewalk, Multi-Use Path, or Other Facility Intended for Pedestrian Travel** - Provide an expansion joint seal having a firm, stable, and slip resistant top surface, not more than 3/8 inch below finished surface.

For joint seals installed greater than 1/4 inch below finished surface, bevel the joint surface corners with a Slope not steeper than 1V:2H.

For Precompressed Foam Silicone Joint Seals, provide a joint seal having at least double width of the seal designed for the joint size. Install the joint seal according to the manufacturer's recommendations.

For joint openings 3 inches or wider, design and detail a steel cover plate for facilities with a Pedestrian Accessible Route, Temporary Pedestrian Accessible Route, Multi -Use Path, or other structures intended for pedestrian travel. Hot-dip galvanize the steel plate and provide a slip-resistant surface or coating. Limit the elevation change between the steel plate and deck surface with a vertical face to 1/4 inch not to exceed 1/2 inch. When the elevation change is greater than 1/4 inch, bevel the steel plate corners to a Slope not steeper than 1V:2H.

*(Use the following subsection .53 when replacing a gland.)*

Add the following subsection:

**00585.53 Gland Replacement** - Field verify existing gland cavity profile before ordering new gland and construction. Install a replacement gland in one continuous strip, extending across the full Roadway width and into curb joints without splices and according to the manufacturer's recommendations.

**00585.80 Measurement** - Replace the paragraph that begins "No measurement of ..." with the following paragraph:

No measurement of quantities will be made for joints, gland replacement for strip seals, or joint surface reconstruction. Estimated quantities of joints, gland replacement, and joint surface reconstruction are listed below. The listed quantities are based on the theoretical horizontal length from gutter line to gutter line.

Add the following to the end of the subsection:

The estimated quantities of joints are:

*(List all applicable joint types, e.g. expansion joints, control joints, or hot applied joint sealant, as the Pay Item name. Obtain information from the Bridge Designer.)*

| Structure        | Joint Type | Quantity<br>(Foot) |
|------------------|------------|--------------------|
| Bridge No. _____ |            |                    |
| Bridge No. _____ |            |                    |

The estimated quantities of gland replacements are:

| Structure        | Joint Type  | Quantity<br>(Foot) |
|------------------|-------------|--------------------|
| Bridge No. _____ | Strip Seals |                    |
| Bridge No. _____ | Strip Seals |                    |

The estimated quantities of joint surface reconstruction are:

*(List Material type for the joint surface reconstruction, i.e. structural polymer concrete, HESC, or PCC, as the Pay Item name. Obtain information from the Bridge Designer.)*

| Structure        | Material Type | Quantity<br>(Cubic Yard) |
|------------------|---------------|--------------------------|
| Bridge No. _____ |               |                          |
| Bridge No. _____ |               |                          |

*(Delete pay item(s) from the list that are not included in the Schedule of Items, but do not change the alpha characters next to the pay items. Also delete the paragraph that begins with "Item (x) includes..." for the corresponding pay item(s) that are*

*being deleted. Update the lead-in sentence to have the correct number of paragraphs listed. Select the appropriate unit of measurement, delete the one that does not apply, and delete all purple parentheses.)*

**00585.90 Payment** - Replace Pay Item (h) with the following Pay Item:

(h) Hot Applied Joint Seal Replacement..... Lump Sum

Add the following Pay Items to the Pay Item list:

(i) Gland Replacement ..... Lump Sum

(j) Removal of Existing Joint Surfaces..... Lump Sum

(k) Joint Surface Reconstruction ..... Lump Sum

Add the following (four) paragraphs after the paragraph that begins "In item (d), the....":

Item (g) includes sawcutting and hot applied joint sealant.

Item (h) includes removing existing seal material, cleaning joint, repairing joint surfaces and edges, and installing hot applied joint sealant.

Item (i) includes removing existing gland material, cleaning and repairing steel edgebeam and retainer surfaces, and furnishing and installing the new gland.

Item (j) includes removing concrete and existing armored corner or edgebeams, if applicable, for new blackout opening.

Add the following four paragraphs after the paragraph that begins "Payment will be payment....":

Elastomeric concrete nosing incorporated in the Work will be paid for according to 00584.90.

Payment for steel reinforcing will be paid for according to 00530.90.

Payment for concrete will be paid for according to 00540.90.

Modification to existing gland retainer edgebeam or expansion joint type change will be paid for according to 00195.20.

In the paragraph that begins "No separate or additional payment...", replace the bullet beginning with "elastomeric concrete ..." with the following bullet:

- structural patching material used to provide a smooth contact surface with joint seals, to provide a plane surface on which to place the steel bridging plate, or to make level surfaces between joint.

In the paragraph that begins "No separate or additional payment...", add the following bullet to the end of the bullet list:

- Furnishing and installing hot-dip galvanized steel cover plate with slip-resistant surface or coating for facilities with a Pedestrian Access Route.