

SECTION 00555 - POST-TENSIONING

(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 00555 of the Standard Specifications modified as follows:

00555.00 Scope - Replace the paragraph that begins "This Work consists of ..." with the following paragraph:

This Work consists of post-tensioning cast-in-place and precast concrete by furnishing, placing and tensioning stressing steel according to details shown and specified. This Work also includes furnishing and installing any items necessary for the stressing system used including, but not limited to, anchorage assemblies, ducts and grout for pressure grouting. Concrete that is to be stressed by the post-tensioning method is referred to as a member.

00555.03 Anchorage Devices - Replace the paragraph that begins "Secure all post-tensioned stressing ..." with the following paragraph:

Secure all post-tensioned stressing steel at the ends by means of approved permanent type anchorage devices. Design anchorage devices according to the current AASHTO LRFD Bridge Design Specifications. Identify post-tensioning anchorage systems as either "Normal Anchorage Devices" or "Special Anchorage Devices" as defined in the AASHTO LRFD Bridge Design Specifications. Provide anchorage devices that meet all testing and construction requirements of the AASHTO LRFD Bridge Design Specifications and the AASHTO LRFD Bridge Construction Specifications. Equip all anchorages with a permanent fiber reinforced plastic grout cap that encloses the whole wedge plate. Provide a grout cap that is vented, bolted to the anchorage and rated for a minimum pressure of 145 psi. Seal the grout cap to the anchor plate using either a neoprene gasket or epoxy bonding agent.

00555.12 Tendon Grout - Replace the paragraph that begins "For grouting post-tensioning ducts ..." with the following paragraph:

For grouting post-tensioning ducts, furnish a commercial, prepackaged, thixotropic tendon grout meeting the requirements of 02080.50. Label each grout bag with application, mixing and pumping instructions, lot number, date of manufacture and shelf life. A grout expiration date may be used in lieu of the date of manufacture and shelf life. Tendon grout is rejected if the shelf life or expiration date has been exceeded.

00555.13(a) Flow Cone - Replace the bullet that begins "When thoroughly mixed, the ..." with the following bullet:

- When thoroughly mixed, the efflux time of grout is the time to fill a 1 Liter container that is placed directly under the flow cone. Ensure the efflux time of the grout immediately after mixing is between 5 and 30 seconds.

00555.13(b) Bleed – Replace the paragraph that begins "Determine bleed resistance according ..." with the following paragraph:

Determine bleed resistance according to ASTM C940 or ASTM C1741 and the PTI *Specification for Grouting of Post-Tensioned Structures M55.1*, modified as follows:

00555.20 Certified Calibrated Jacking Equipment - Replace the bullet that begins "A pressure gauge with an ..." with the following bullet:

- A pressure gauge with an accurate reading dial at least 6 inches in diameter and of such capacity that the final pressure reading is in the upper half of its range. Calibrate each jack and its gauge as a unit with the cylinder extension in the approximate position used at final jacking force, and provide a calibration chart certified by an independent testing agency; or

Replace the bullet that begins "A certified, calibrated load ..." with the following bullet:

- A certified, calibrated load cell with an indicator where the stressing force in the tendon may be determined, and with a range such that the lower 10 percent of the manufacturer's rated capacity will not be used in determining the jacking stress.

Replace the paragraph that begins "Adjustment or repair of jacks, gauges ..." with the following paragraph:

Adjustment or repair of jacks, gauges, or load cell after certification is cause for rejection.

00555.21 Grouting Equipment - Replace the bullet that begins "Equipment which will ..." with the following bullet:

- Equipment that will accurately measure solids and liquids to be batched.

Replace the paragraph that begins "Provide standby water ..." with the following paragraph:

Provide standby water flushing Equipment that:

00555.40 Required Submittals - Replace the title of this subsection with "**Submittals**".

Replace the paragraph that begins "Furnish reinforcement Working Drawings ..." with the following paragraph:

Provide reinforcement Working Drawings that are compatible with the approved Post-Tensioning System Working Drawings.

00555.41(a) General - Replace this subsection, except for the subsection number and title, with the following:

Make ducts mortar-tight and place them accurately at the locations shown or as directed. Provide positive, metallic, mortar-tight connection joints between sections of rigid duct that do not permit angle changes at the joints. Use waterproof tape at connections.

00555.41(c) Repair - Replace this subsection, except for the subsection number and title, with the following:

Before placing concrete, repair all holes or openings in the ducts. Holes less than 1/4 inch may be repaired by several wraps of waterproof tape. Repair holes larger than 1/4 inch with a split metal sleeve that overlaps itself by 3 inches, extends at least 3 inches on either side of the hole, is sealed with waterproof tape, and is secured to the duct. Cut out indentations that cannot be repaired and repair as above for holes larger than 1/4 inch.

00555.42(a) General - Replace the paragraph that begins "Protect stressing steel ..." with the following paragraph:

Protect stressing steel against physical damage and rust or other corrosion at all times until grouted. A corrosion inhibitor may be used. Stressing steel that has sustained physical damage, detrimental rust, pitting or other results of corrosion at any time is rejected. Stressing steel with only light rust is acceptable if rust spots can be removed by rubbing or scraping with the fingernail and only light streaks of rust remain.

00555.42(e) Measuring Prestressing Force - Replace the paragraph that begins "Conduct tensioning so the ..." with the following paragraph:

Conduct tensioning so the tension being applied and the elongation of the stressing steel may be measured at any time. Keep a record of gauge pressures, load cell reading and elongations. Provide a copy of the record to the Engineer when requested.

00555.43(c) Grouting Procedure - Replace the bullet that begins "Inject grout at any other ..." with the following bullet:

- Inject grout at any other vent that has been, or is ready to be, closed as long as a one-way flow of grout is maintained. If this procedure is used, fit the vent used for injection with a mechanical shutoff valve.

(Use the following subsection .80 to list the estimated quantities of materials. Select the type of material used. Delete the language in purple parentheses that does not apply and delete all purple parentheses. Obtain the information from the Bridge Designer.)

00555.80 Measurement - Add the following sentence to the end of this subsection:

The estimated quantity of prestressing steel, based on the use of (1/2 Inch 7-wire prestressing strands)(prestressed bars)(cables), is _____ pounds.

00555.90 Payment - Replace the paragraph that begins "Payment will be payment ..." with the following paragraph:

Payment will be payment in full for furnishing and placing all Materials, and for providing all Equipment, labor, and Incidentals necessary to complete the Work as specified.

