



■ **Repair & Strengthening**

Reference Details:

Owner Washington Department of Transportation +++
General Contractor Contractor Ross Bros. & Company Inc. +++
Subcontractor DSI USA, Repair and Strengthening Business Unit, Tucker, Georgia, USA

DSI Units DSI USA, Repair and Strengthening Business Unit, Tucker, Georgia, USA

DSI Services Inspection: NDT (GPR and Impact Echo), Special drills with shut-off capabilities when in contact with metal, Videoscope and Void volume measurement with air leak compensation capabilities; Repair: Vacuum Grouting



Repair of the Trent Street Bridge, Spokane, Washington, USA

State-of-The-Art Inspection and Grouting Remediation of Post-tensioned Tendons

The Trent Street Bridge Replacement is a new cast-in-place post-tensioned concrete box girder spanning over the Trent River in Spokane, Washington. The bridge's roadway width is 72'-6" bounded by two six foot wide sidewalks. The roadway and sidewalks are supported by seven concrete cellular boxes.

There are eight webs with a thickness varying from a typical 13 inches to 24 inches in the 16 foot segment near the abutment.

The thickness of the top slab is 8.5 inches. The thickness of the bottom slab is typically 7 inches with thicker sections near the piers. The Bridge has three spans with the first span and a portion of

the second span being in a horizontally curved alignment.

The only post-tensioning systems in this bridge are four longitudinal tendons in each of its eight webs. The post-tensioning tendons are T1, T2, T3 and T4. Tendons T1 and T2 consist of 25-0.6 grade 270 low relaxation strands, while tendons T3 and T4 have 26 strands in each. All strands are in 4.5" outside diameter corrugated metal ducts.

During a routine walk-through inspection an accumulation of grout was found near the low point of Web B tendons in Span 1 inside the bridge. It was decided to carry out an investigation to assess the condition of the grout inside the ducts to look for voids and subsequently fill the voids with grout.

Scope of Work:

DSI performed an NDT inspection using Ground Penetrating Radar to detect post-tensioning ducts and steel reinforcement as well as Impact Echo Scanner to detect voids in the grouted ducts. Videoscope inspections were carried out to assess the condition of the post-tensioning strands. Volumes of voids inside the ducts were measured with State-of-The-Art equipment capable of compensating for air leaks. The grouting remediation of the post-tensioned tendons in Web B was performed using vacuum grouting. DSI successfully completed the project with the preparation of a detailed report within 6 weeks.