

## **WSDOT to Brief Media on Second Round of Pontoon Construction**

### **Local News**

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ABERDEEN, Wash. - Crews are building a second set of pontoons for the new State Route 520 bridge, and the media today will tour the construction facility in Aberdeen.

During the briefing and tour, the Washington State Department of Transportation will explain how recommendations from an expert review panel are being incorporated into this round of pontoon construction.

During construction of the last round of pontoons, unexpected cracking and spalling of concrete was observed in one of the Cycle 1 pontoons. As a result, a panel of concrete and construction experts was convened to conduct an expert review of the design and construction process for the pontoons & related to the observed cracking and spalling.

The panel reviewed repairs made to the first set of pontoons in July and provided recommendations on how to improve the design and construction of these pontoons.

The Panel found the following basic causes for the cracking and spalling of the Cycle 1 pontoons:

1. The placement and location of the longitudinal post-tensioning ducts and tendons for the Type 1 pontoons

deviated from the contract drawings to such an extent that the tendon forces caused cracking and spalling

of the slabs adjacent to the end bolt beam.

2. Resistance to longitudinal post-tensioning from the interior precast concrete walls caused vertical cracking

of the bolt beam, adjacent to these precast walls.

3. End walls experienced a combination of thermal and autogenous

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concrete shrinkage, radial tension

stresses from the post-tensioning end anchorages and forces from the longitudinal post-tensioning which

led to cracking of these walls. Additionally, construction access block-outs in these end walls contributed

to the cracking.

4. Contract requirements for concrete curing and thermal control were not rigorously followed resulting in

more extensive thermal and shrinkage cracking.

5. For some concrete, water/cementitious (w/c) ratios were lower than those recommended following the

ACME project. The ACME project was a test project developed prior to pontoon construction that allowed WSDOT to test mix designs for strength and durability, test form methods for efficiency and to

expedite pontoon construction. Procedures for control of the w/c ratio on site (e.g. moisture measurements of aggregates, water added at the site) did not appear to be sufficient.

6. The long pour length for some longitudinal walls (133.9 feet in some cases) was a major cause of

the  
extent of shrinkage and associated vertical cracking in these walls. Adverse cement and concrete  
properties, curing and thermal control issues potentially added to this cracking.