



Non-Conformance Report Rev. 2

Date Submitted: Monday, July 13, 2015
 Job Name/No.: Castleton / #23456
 Piece Mark #'s: CT-NB2 (1)
 Production Date: 6/15/2015
 QA Inspector, Co.: R. Hamilton, KTA & B Girouard, HRV

➡ In response to VTAOT email of 7/7/15 rejecting our non-conformance report submitted 7/2/15 we herein offer the following additional comments to address the concerns outlined in the email. Comments are offered in **green font and underlined**. In response to VTAOT email on 7/13/15, we offer the following additional comments identified by **blue font and underlined**.

➡ After placement of the final load of concrete in unit NB2 foaming was observed at the top of the finished surface. Most of the foam was floated off of the unit during the finishing of the surface. The portion of the surface that received a rake finish has small (1/16th - 1/8th inch diameter) hemispherical indentations where the foaming occurred - see attached photo.

- ▶ The dosage of HRWR (identified as "6100" on the batch ticket) was inadvertently increased on the final load that exhibited the surface foaming - see attached tickets. The increase in water-reducer dosage reduced the viscosity of the cement paste causing a corresponding decrease in the static stability of the coarse aggregate in the concrete. As the larger coarse aggregate sinks within the depth of the placement an air pocket is created in the location that the aggregate originally was and the air pocket floats up to the surface. This is observed as foaming when a high volume of the air pockets reach the surface in a short period of time.
- ▶ The batch of concrete was checked visually before placement **by QC personnel** but was not sampled because the previous load had been tested and test cylinders for that load were made. Static stability can be difficult to interpret as concrete is flowing up through the fins of the mixer and the change in dosage of the HRWR on the batch ticket was not identified by QC or QA prior to placement. JPC QC shall verify the correct dosage rates of all loads prior to placement and changes to any admixture dosage shall be verified by sampling & testing. **Further, there shall be adequate QC personnel present at future pours to ensure that the sampling, testing, and all other qc procedures can be accomplished as required.**
- ▶ Cores from the surface of the unit were taken and evaluated for hardened air content at two locations where the subject load of concrete was placed and a third location outside of the placement of that load for comparison. **Any damage to the epoxy coating on the rebar as a result of the coring shall be touched up with two-part epoxy as provided by the rebar supplier.** Hardened air content (ASTM 457) and petrographic analysis will be performed on the cores to verify acceptability of the water-cement ratio and durability properties of the placed concrete.
- ▶ All laitance and loose material shall be removed prior to placement of the secondary poured curb. **To accomplish this action JPC proposes to abrasive blast the entire top surface of the NEXT beam with two passes of coarse grit sand at maximum pressure to remove all unsound material. Curb reinforcement shall be shielded from the sand during blasting and any damage to the epoxy coating shall be touched up prior to placement of the curb. Further, underneath the curb areas where the surface grooves will have been blasted smoother we will apply Sikadur 32 Hi Mod epoxy bonding agent prior to pouring the curb. Bonding agent shall be mixed and applied per the manufacturers' instructions - see attached data sheet.**
- ▶ **Surface treatments shall be performed at the precast plant prior to placement of the curb and delivery of the unit. They shall be supervised by JPC QC and witnessed by the QA Inspector.**

Prepared By:  Date: 7/13/15
 Benjamin L. Cota, Production Engineer

enc. Concrete Batch Tickets
 Photo of raked concrete surface at curb
 Sikadur 31 data sheet