**Section 601 of the Standard Specifications is hereby revised for this project to include the following:**

**Add the following to Table 601-1:**

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **Concrete Class** | **Required Field Compressive Strength (psi)** | **Air Content: % Range (Total)** | **Slump** | **Maximum Water/Cementitious** **Material Ratio:** |
| **DF** | 4500 at 28 days | 4 - 8 | +/- 2” of Form 1373 Slump | w/cm on Form 1373 |

**Add the following to subsection 601.02**

**Class DF** concrete is a macro fiber-reinforced concrete. Additional requirements are:

1. The concrete mix shall include approved macro or hybrid polyolefin fibers at a minimum dosage of 4 lb/cy or the minimum dosage specified on the Department’s Approved Product List (APL), whichever is greater.
2. The unrestrained shrinkage shall not exceed 0.050 percent at 28 days when tested by CP-L 4103.
3. The mix shall either have a permeability not exceeding 2,500 coulombs at an age of not more than 56 days when tested per ASTM C1202 or have a surface resistivity of at least 12 kΩ-cm at 28 days using AASHTO T358.
4. The mix may use an OG with a nominal maximum aggregate size of at least 3/4 inch.
5. The mix shall have a nominal maximum aggregate size of at least 3/4 inch if an OG is not used.
6. When used in slip forming, an edge slump less than 6 mm (0.25 in.) and less than 30 percent surface voids (ranking of 2 or less) is required. The box test is described in CP 63.
7. Shrinkage reducing admixtures may be incorporated into the mix.
8. An expansive cement additive may be added to an ASTM C150 Type I/II cement and fly ash to produce an ASTM C845 Type K cement. The proportion of the expansive cement additive will be determined by testing the cementitious material blend per ASTM C806. The blended material shall have an expansion of 0.04 to 0.10 percent at 7 days when tested per ASTM C806. When an expansive cement is used, the w/cm ratio shall be 0.45 to 0.55 and the expansion of the laboratory trial mix shall be 0.05 to 0.09 percent at 7 days when tested per ASTM C878.