35W Replacement Bridge and Sustainability

October 28, 2009
Footings

- 60 Percent Pozzolan
- 200 mm slump
- Air entrained
- RCP
- Shrinkage
- Strength at 28 days (lab cure) 62.0 MPa
- Cooling tubes installed
<table>
<thead>
<tr>
<th>Piers</th>
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<tbody>
<tr>
<td>- 82 Percent Pozzolan</td>
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<tr>
<td>- 200 mm slump</td>
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<tr>
<td>- Air entrained</td>
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<tr>
<td>- RCP</td>
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<td>- Shrinkage</td>
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<tr>
<td>- Strength at 28 days (lab cure) 58.6 MPa</td>
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</tbody>
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Strength gain for ITF4136/4156 Ultra Low Heat

Strength Gain for Ultra Low Heat Mixes held at approx 100 F

ITF 4136
Predicted strength at 72 hours 2700 psi
Time to 2500 psi 68 hours

Time, Hours

Strength, psi

Depth
Superstructure

- 30 Percent Pozzolan
- 200 mm slump
- Air entrained
- RCP
- Shrinkage
- Modulus of Elasticity
- Strength at 28 days (lab cure) 48.3 MPa
Strength and Shrinkage Strain for ITF 6136

Compressive Strength, psi

Shrinkage Strain, percent

Log. (Compressive Strength, psi)
Log. (Shrinkage Strain, percent)

\[ y = 1444.9 \ln(x) + 2156.4 \]

\[ y = -0.009 \ln(x) - 0.005 \]
Photocatalytic Monument

- Slump Flow 76 cm
- VSI of 1
- 415 Kg/m³ TX Active Cement
- 28 day strength 55 MPa
Overall CO₂ reduction more than 50% over traditional Mn/DOT concrete