

LESSON 9

TOPIC 3

Construction Monitoring and Quality Assurance

North Carolina Design Phase Load Test Programs

Projects 1994-1999	Project Cost \$ (Bid)	Test Cost \$ (Bid)	Estimated Savings and (%)
Neuse River	92,998,000	310,000	10,500,000 (11)
New River	16,457,000	276,000	850,000 (5)
Chowan River	33,923,000	375,000	1,357,000 (4)
Oregon Inlet	122,800,000	1,155,000	1,200,000 (1)
Croatian Sound	88,963,000	998,000	1,800,000 (2)

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North Carolina Design Phase Load Test Programs

■ **Benefits to Project Design**

- *Reduction in length*
- *Increase in capacity*
- *Reduced number of piles*
- *Driveability, jetting, and set-up evaluated*
- *Improved special provisions*

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North Carolina Design Phase Load Test Programs

■ Benefits to Project Construction

- *Improved special provisions*
- *Restructured pay items*
- *Eliminated unsatisfactory alternates*
- *Established dynamic test criteria*
- *Established pile equipment requirements*
- *Reduced potential claims*

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North Carolina Design Phase Load Test Programs

■ Benefits of new technology verified....

- *Pile driving analyser*
- *Osterberg cell axial test*
- *Statnamic axial & lateral test*
- *Integrity test procedures*

**....and applied to reduce the costs of
subsequent test programs**

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SOILS AND FOUNDATIONS WORKSHOP

STUDENT EXERCISE NO. 10 Static Load Test

Objective:

Determine the failure load for the static load test plot shown below. Plot both the elastic line and Davisson failure line for a 14" square prestressed concrete pile 35 feet in length and an F'_c of 5,000 psi (MODULUS OF ELASTICITY of 4,000 ksi).

STATIC LOAD TEST
14" SQUARE PRESTRESSED CONCRETE PILE

