

Research Results Summary

Development of Procedures for Utilizing Pit Proctors in the FDOT Construction Process for Construction of Pavement Base Materials February 2005

Objectives

Currently, a density criterion for base material is determined by laboratory proctor testing of materials delivered to the project site. Obtaining the results of the laboratory proctor test requires from 3 to 4 days. Successive work operations may be held up until the proctor values are available. The objective of this project was to determine the feasibility of establishing a proctor value for the mine to be used in lieu of the project laboratory proctor.

Findings

The FDOT currently collects and maintains records of proctors test taken at all mines. Sampling frequency is from 1 to 8 times per month. A review of the historical proctor test values for 69 mines indicates that typically 50% of the proctor values are within 2 – 4 lbs. of the mean. Using the 95 percentile value from the previous 12 month production period for a mine provides quality assurance against the month to month variability. On average the contractor would be required to achieve a density value 2- 4 lbs higher than the project laboratory proctor density. See attached data plots.

Recommendations

Establish a pit proctor value at the 95 percentile value for the previous 12 month period of production. Allow the contractor the option of using the pit proctor in lieu of the project laboratory proctor. Test the process on pilot projects prior to general implementation. Note that no additional FDOT or producer testing is required at the mines.

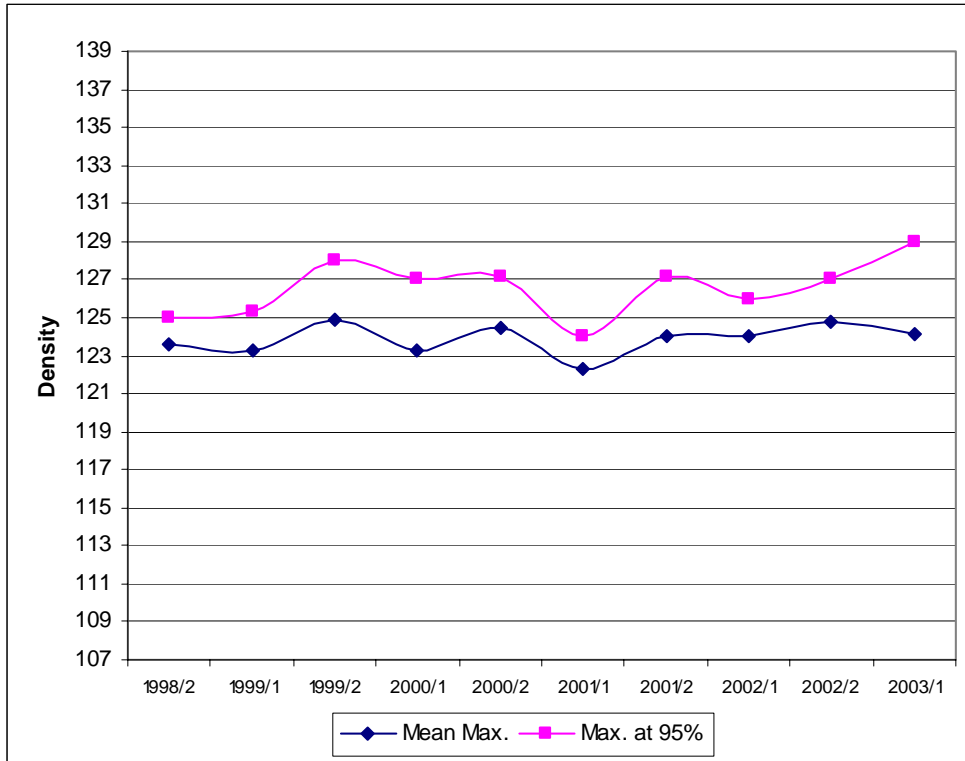
Benefits

- Improved production efficiency and construction cost savings
- Reduced testing costs
- Reduced construction time

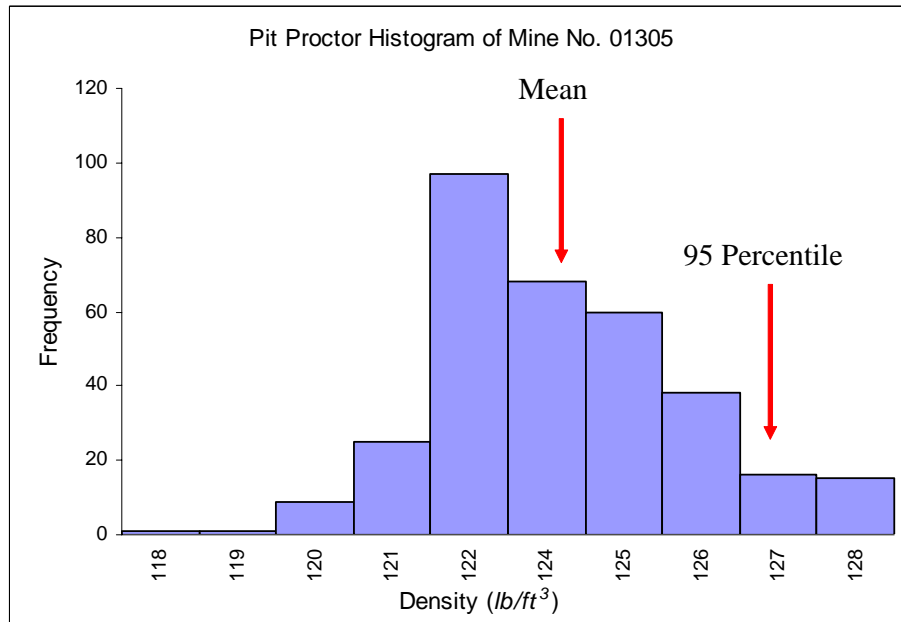
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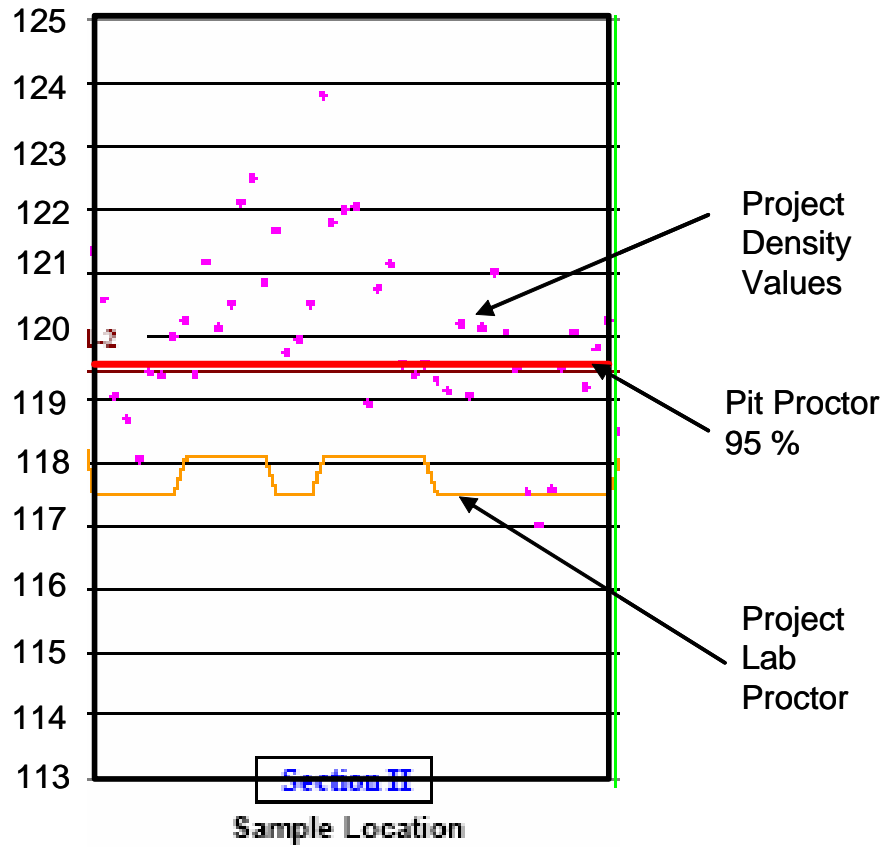
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Plot of Typical Pit Proctor Mean Value and the 95 Percentile Value



Typical Frequency Histogram of Pit Proctor Values



Typical Comparison of Field Test Values to Pit Proctor Value