PILING ANALYSIS WAVE EQUATION COMPUTER PROGRAM UTILIZATION MANUAL

SUMMARY REPORT

of

Research Report Number 33-11

Project 2-5-62-33

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Cooperative Research Program of the
Texas Transportation Institute and the Texas Highway Department
In Cooperation with the

U. S. Department of Transportation, Federal Highway Administration,
Bureau of Public Roads

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TEXAS TRANSPORTATION INSTITUTE

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Piling Analysis Wave Equation Computer Program Utilization Manual

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Thomas C. Edwards Assistant Research Engineer

This manual describes the utilization of the computer program for the application of the one-dimensional wave equation to the investigation of a pile during driving. The program is based upon a procedure developed by E. A. L. Smith. 1

The program can be used to obtain the following information for one blow of the pile driver's ram for any specified soil resistance:

- 1. Stresses in the pile.
- 2. Displacement of the pile (penetration).
- 3. Estimating static load capacity of the pile from pile driver blow count. This capacity is the static resistance at the time of driving and does not reflect soil set-up.

The program is valuable in that system parameters heretofore ignored (in pile driving formulas) can be included and their effects investigated. It makes possible an engineering evaluation of driving equipment and pile type, rather than relying only upon experience and judgment.

^{&#}x27;Smith, E. A. L., "Pile Driving Analysis by the Wave Equation," Journal of the Soil Mechanics and Foundations Division, **Proceedings of the American Society of Civil Engineers,** Proceedings Paper 2574, SM 4, August, 1960, pp. 35-61.