TABLE OF CONTENTS

	Page
INTRODUCTION	1
BEFORE THE WAVE EQUATION	1
THE WAVE EQUATION ANALYSIS	2
Wave Equation Theory	2
Wave Equation-Dynamic Formula Comparison	3
Wave Equation Applications	7
Wave Equation Limitations	13
DYNAMIC TESTING WITH THE PILE DRIVING ANALYZER	13
The Pile Driving Analyzer Equipment	13
Wave Propagation and Proportionality	14
Wave Speed Determination	18
Soil Resistance Effects on Stress Wave Traces	19
Case Method Capacity Prediction	22
Hammer Performance and Energy Transfer	28
Downward Traveling and Upward Traveling Force Waves	33
Evaluation of Driving Stresses	37
Pile Damage and Integrity Evaluations	39
Soil Behavior and Response	42
CAPWAP ANALYSES	47
CAPWAP-Static Loading Test Correlations	54
RADAR TECHNOLOGY FOR HAMMER PERFORMANCE EVALUATIONS	57
Single Acting Air/Stream Hammers	61
Differential and Double Acting Air/Steam Hammers	63
Radar Problem Solving Capabilities	64
Radar Limitations	66
SUMMARY	66
REFERENCES	67