Non-Destructive Testing ("NDT") Guide For Deep Foundations

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Why does the industry need an NDT Guide focused on Deep Foundations?

Improve the selection, specification, undertaking, and understanding of results of NDT testing methods.

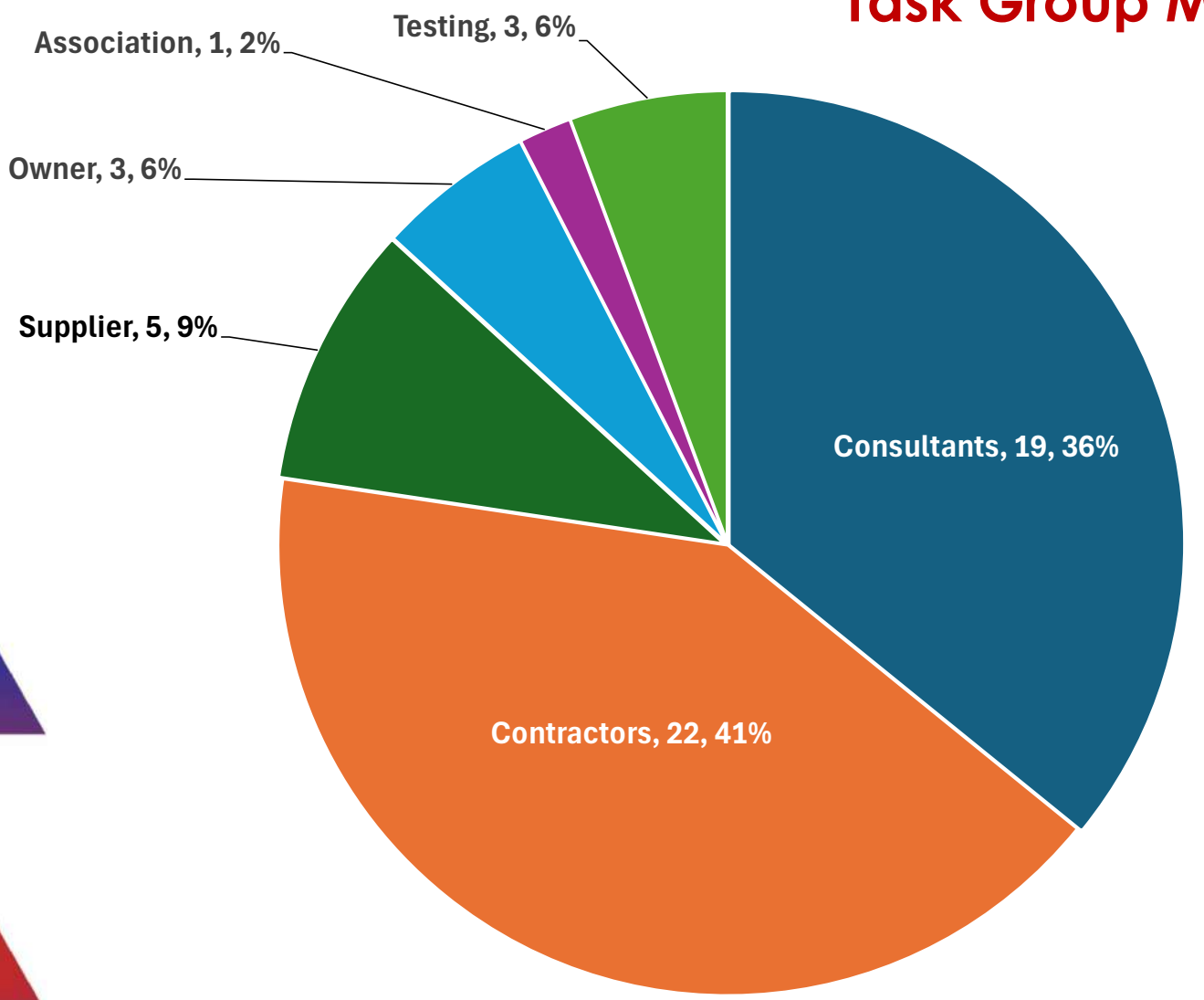
Minimize the false positive NDT results.

Prevent/Reduce potential for defects in deep foundations.

Improve awareness and acceptance.

Evaluate, Check, and Analyze conditions prior to abandoning a deep foundation with identified defects.

Task Group Members…



Task Subgroups

1. Purpose and Scope – Karsten Beckhaus
2. Design Considerations – David Graham
3. Principles of basics in non-destructive testing – Ryan Allin
4. NDT Applications – Travis Coleman
5. Evaluation and Assessment – Chris Barker
6. Acceptance Plan and Consequent Actions – Paul Axtel

Task Subgroup 1

Subgroup 1

Purpose and Scope

Members

- Karsten Beckhaus (EFFC)
- Rozbeh (Roz) B. Moghaddam
- Peter Faust (DFI)

Task Subgroup 2

Subgroup 2 – David Graham

Design Considerations

2.1 Introduction

2.2 Structural Desing Considerations

2.3 Geotechnical Desing Considerations

2.4 Summary

Members

Les	Chernauskas
Andrew	Boeckmann
BILLY	CAMP
Chris	Barker
DAVID	GRAHAM
DAVID	HARD
Matthew	Preedy
Morgan	NeSmith
Paul	Axtell

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DEEP FOUNDATIONS INSTITUTE DFI

Outstanding Issues/Debates

- State of practice vs. best practice
  - Europe vs. US
  - Desire to be objective and technology agnostic
  - No clear single path to success or failure
- Being general vs. being specific
  - Being specific is difficult to allow for all scenarios
  - Being general is not that helpful to the industry
  - No clear single path to success or failure

Task Subgroup 3

Subgroup 3 – Ryan Allin

Principles and Basics of NDT

- 3.1 Introduction to testing method Theory
- 3.2 Low-Strain Integrity Testing
  - 3.2.1-Terminology
  - 3.2.2-Method Description
  - 3.2.3-Hardware
  - 3.2.4-Codes and Standards
- 3.3 Cross-hole Sonic Logging
  - 3.3.1- 3.3.4 Same Sub-categories
- 3.4 Thermal Integrity Profiling
  - 3.4.1 - 3.4.4 Same Sub-categories
- 3.5 Gamma-gamma Logging
  - 3.5.1 - 3.5.4 Same Sub-categories

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Members

Ryan Allin
Anthony Fisher
Les Chernauskas
Greg Canivan
Dennis Sack
Joram Amir
Gerald Verbeek
Dion Denes
Simon Gudina
Greg Stokkermans

Task Subgroup 4

Subgroup 4 – Travis Coleman

NDT Applications

Members

- Travis Coleman, GRL Engineers
- Dennis Sack, Olson Engineering
- Matthias Schallert, GSP
- Onder Akcakal, Zetas
- Ryan Korth, Terracon
- Bernardo Jiminez, H Soils
- Dion Denes, FSG Geotechnics
- Justin Hansen, Braun Intertec

4 Test Methods Covered

- CSL – Cross-Hole Sonic Logging
- TIP – Thermal Integrity Profiling
- LSI (PIT) – Low Strain Integrity Testing
- Gamma-Gamma Testing

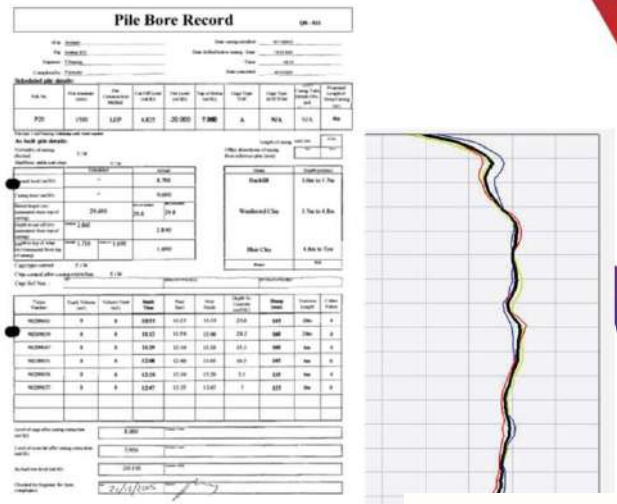
For each test method

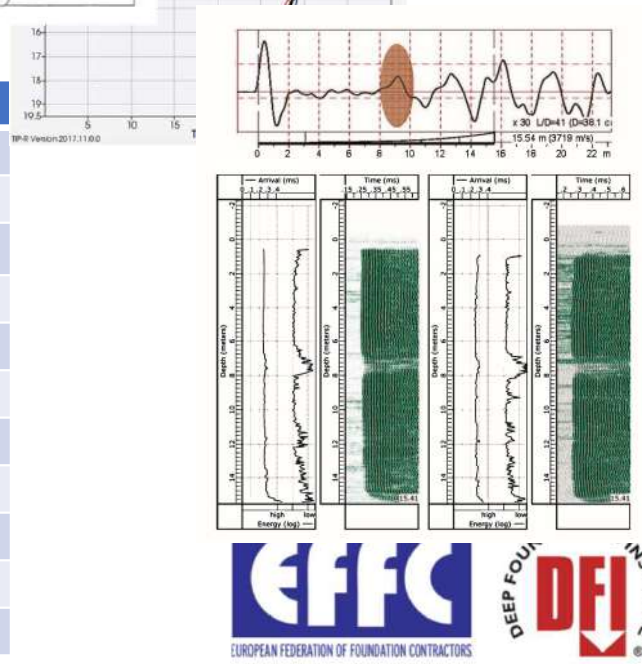
- Application
- Physical Testing Considerations
- Test Method Advantages
- Test Method Limitations
- Testing Costs (Relative)

Task Subgroup 5

Subgroup 5 – Chris Barker

Evaluation and Assessment

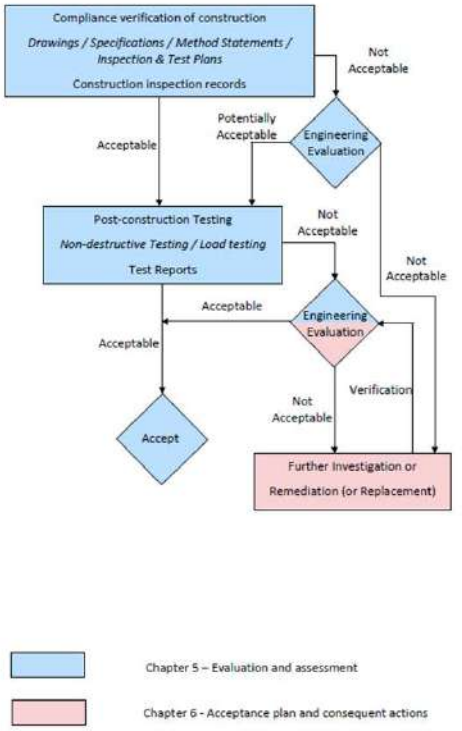




Member	Role	Region
Chris Barker (Europe Lead)	Consultant	Europe
Rozbeh Moghaddam (USA Lead)	Consultant	North America
Rayan Shamas	Consultant	North America
Andy Boeckmann	Consultant	North America
Andy Bell	Contractor	Europe
Hamed Layssi	Contractor	North America
Umesh Neupane	Client	North America
Matthias Schallert	Consultant	Europe
Morgan NeSmith	Contractor	North America
Dion Denes	Consultant	Australia
Rui Arco Marques Custodio	Contractor	North America

Evaluation and Assessment

- Good balance of contractor/consultant chapter authors.
- Seeking a common North America / Europe approach and criteria.
- Importantly not just a review of NDT testing results but a review of all records.
- Identify individual roles responsible for evaluation and assessment.
- Leads onto Chapter 6 Acceptance.



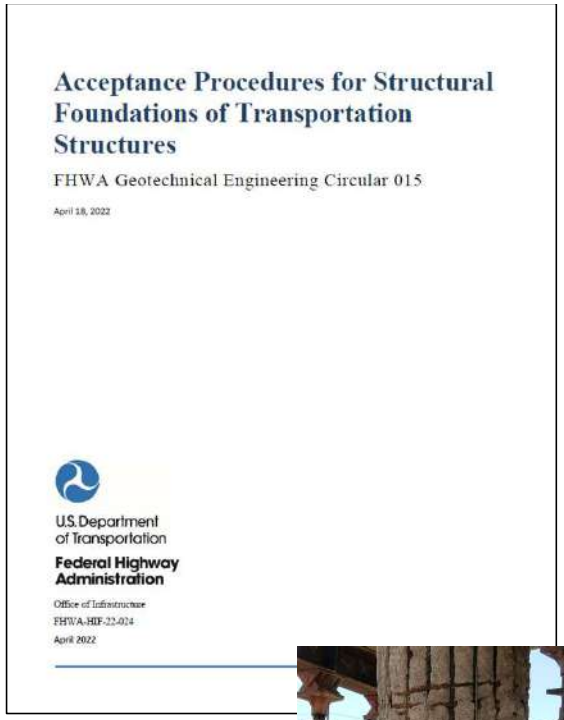
Task Subgroup 6

Subgroup 6 – Paul Axtel

Acceptance Plan and Consequences

Member	Role	Region
Paul Axtell	Consulting Engineer	North America
Billy Camp	Contractor	North America
Rudy Frizzi	Consulting Engineer	North America
Scott Jacobs	Contractor	North America
Brian Garrett	Consulting Engineer	North America
Tracy Brettmann	Contractor	North America
Chris Baker	Consulting Engineer	Europe
Luke Schuler	Contractor	North America
Rayan Shamas	Consulting Engineer	North America
Karsten Beckhaus	Contractor	Europe
Rozbeh Moghaddam	Consulting Engineer	North America
Bernardo Jimenez	Contractor	Central America
Tim Kovacs	Contractor	North America
Rui Arco	Contractor	North America
Matt Preedy	Owner	North America
Umesh Neupane	Owner	North America

- The hardest chapter
- Continuation of chapter 5
- FHWA GEC 15 (April 2022)
- Include mitigation strategies?
- A big group
- Good split of roles
- Insufficient European representation


Acceptance Procedures for Structural Foundations of Transportation Structures

FHWA Geotechnical Engineering Circular 015

April 18, 2022

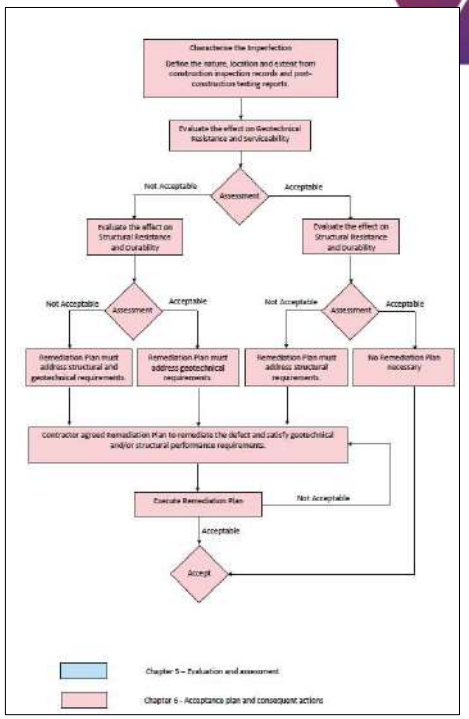
U.S. Department of Transportation

Federal Highway Administration

Office of Infrastructure

FHWA-HIF-22-024

April 2022



Thank You!

As time Permits, Questions are Welcome…

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