



PLUMMER

PRE-CONSTRUCTION PIPE ZONE COMPACTION PROOF TESTING

George I Farah, PE NW Texas Conveyance Team Leader



AGENDA

- What is Pre-Construction Pipe Zone Compaction Proof Testing?
- Why is it recommended?
- Two case studies of the procedure
- Field Test Methods
- Engineering Recommendations



WHAT IS PRE-CONSTRUCTION PIPE ZONE COMPACTION PROOF TESTING?

Definition:

“It is the pre-construction plan of pipe installation and the demonstration of the plan that establishes a baseline for pipe installation procedure”

“The Plan”: The document outlining the following:

- Material
- Equipment
- Installation Methods
- Procedure of Compaction
- Trench Box
- Deflection Testing Procedure
- Exhuming Procedure



WHY IS IT RECOMMENDED?

THE PROCESS DOCUMENTS

- A passing installation method.
- A safe procedure.
- A monitoring process for compliance with Process.
- Mitigate Contractor's staff changes.
- Document Process and mitigate changes.
- Exposes issues of installation prior to any signification pipeline construction.
- Team Building.

TWO CASE STUDIES OF THE PROCEDURE

Project A

Location: Grapevine Dog Park Site

Alignment: Onsite

Depth of Burial: 10-12 ft.

Procedure: Installed on grade, 48-inch PVC, two joints, mandrel tested only, compaction tested, exhumed pipe.

Outcome: PASSED 2ND ATTEMPT

Project B

Location: Bear Creek Golf Course

Alignment: Offsite

Depth of Burial: 5 ft.

Procedure: Installed 48-inch PVC, two joints, mandrel tested only, Compaction tested, exhumed the pipe.

Outcome: PASSED



- Trench Box Installation

PROJECT A

UCT The Underground Utilities Event



Underground Construction Technology | January 28-30, 2020 | Fort Worth, TX



PROJECT A



The Underground Utilities Event

Underground Construction Technology | January 28-30, 2020 | Fort Worth, TX



PROJECT A

UCT The Underground Utilities Event



Underground Construction Technology | January 28-30, 2020 | Fort Worth, TX



PROJECT A



The Underground Utilities Event

Underground Construction Technology | January 28-30, 2020 | Fort Worth, TX



PROJECT A

UCT The Underground Utilities Event



Underground Construction Technology | January 28-30, 2020 | Fort Worth, TX



PROJECT A



PROJECT A



The Underground Utilities Event

Underground Construction Technology | January 28-30, 2020 | Fort Worth, TX



PROJECT A

UCT The Underground Utilities Event



Underground Construction Technology | January 28-30, 2020 | Fort Worth, TX



PROJECT A

UCT The Underground Utilities Event



Underground Construction Technology | January 28-30, 2020 | Fort Worth, TX



PROJECT B

UCT The Underground Utilities Event



Underground Construction Technology | January 28-30, 2020 | Fort Worth, TX



PROJECT B



The Underground Utilities Event

Underground Construction Technology | January 28-30, 2020 | Fort Worth, TX



PROJECT B



The Underground Utilities Event

Underground Construction Technology | January 28-30, 2020 | Fort Worth, TX



PROJECT B

UCT The Underground Utilities Event



Underground Construction Technology | January 28-30, 2020 | Fort Worth, TX



PROJECT B



The Underground Utilities Event

Underground Construction Technology | January 28-30, 2020 | Fort Worth, TX



PROJECT B

UCT The Underground Utilities Event



Underground Construction Technology | January 28-30, 2020 | Fort Worth, TX



PROJECT B

UCT The Underground Utilities Event



Underground Construction Technology | January 28-30, 2020 | Fort Worth, TX



PROJECT B

UCT The Underground Utilities Event



Underground Construction Technology | January 28-30, 2020 | Fort Worth, TX



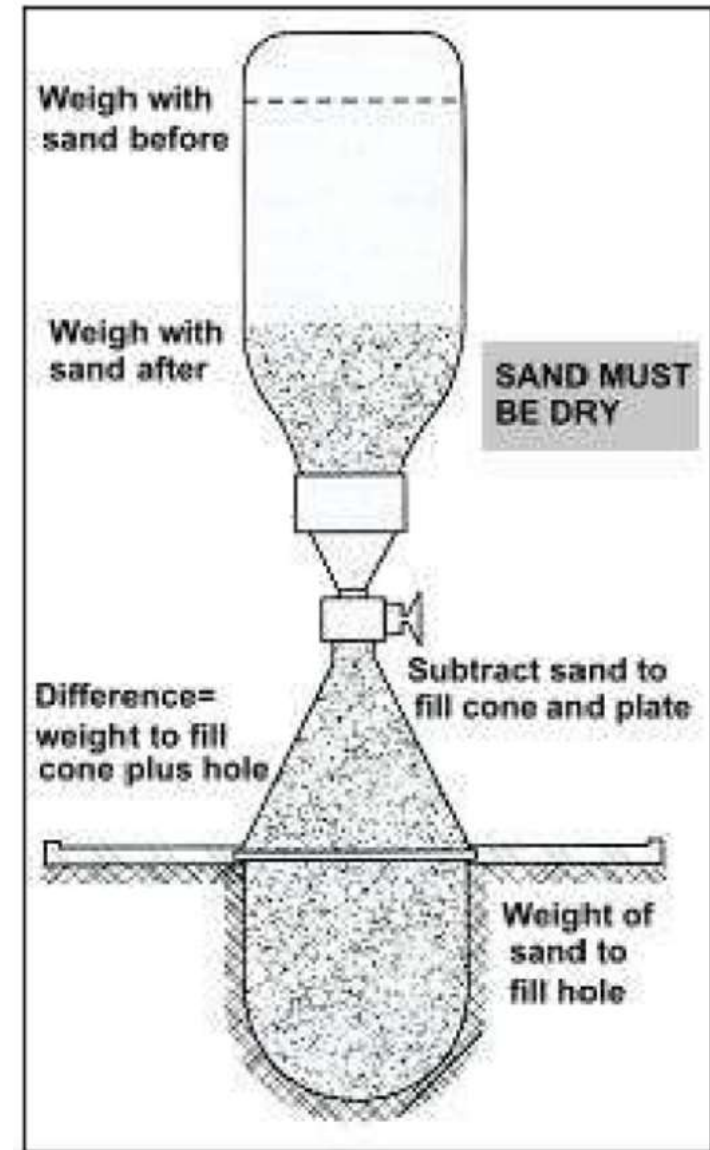
PROJECT B

FIELD TESTING OF CRUSHED ROCK

1) Sand Cone Test

ASTM D1556/D1556M

- Standard Test Method for Density and Unit Weight of Soil In Place by Sand-Cone Method.

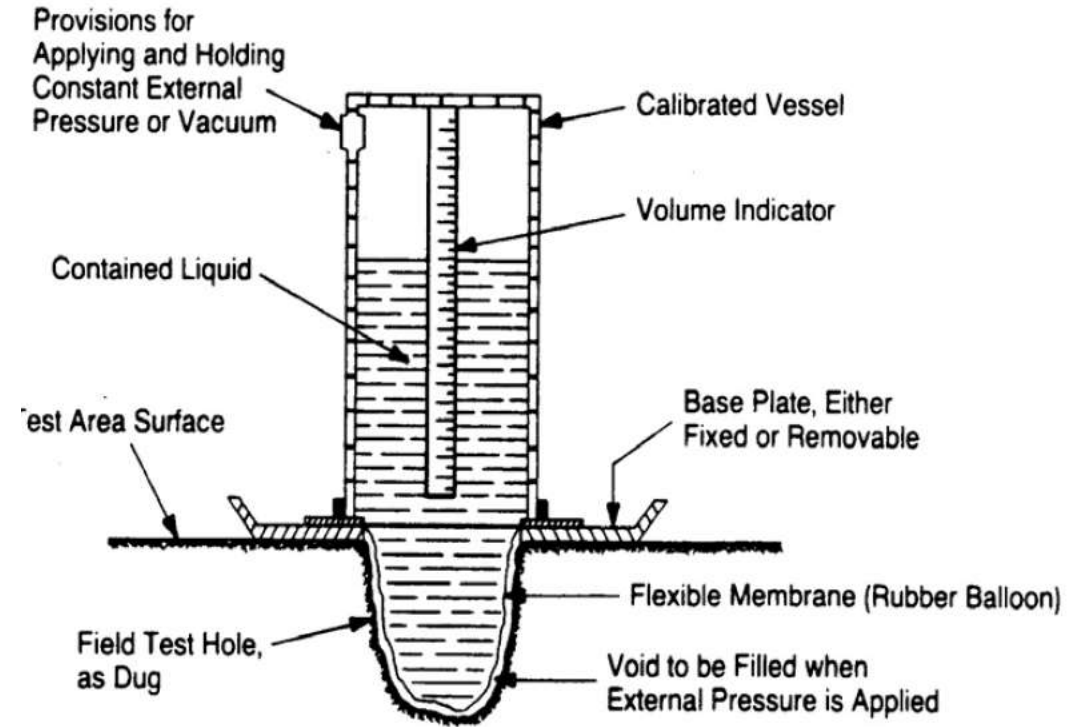


FIELD TESTING OF CRUSHED ROCK

2) Balloon Test

ASTM D2167-15

- Standard Test Method for Density and Weight of Soil in Place by the Rubber Balloon Method



FIELD TESTING OF CRUSHED ROCK

3) Nuclear Density Test

ASTM D6938-17a

- Standard Test Methods for In-Place Density and Water Content of Soils and Soil-Aggregate by Nuclear Method (Shallow Depth)





The Underground Utilities Event

Underground Construction Technology | January 28-30, 2020 | Fort Worth, TX

FIELD TESTING DENSITY TEST



FIELD TESTING DENSITY TEST





The Underground Utilities Event

Underground Construction Technology | January 28-30, 2020 | Fort Worth, TX

DEFLECTION TESTING



UCT The Underground Utilities Event



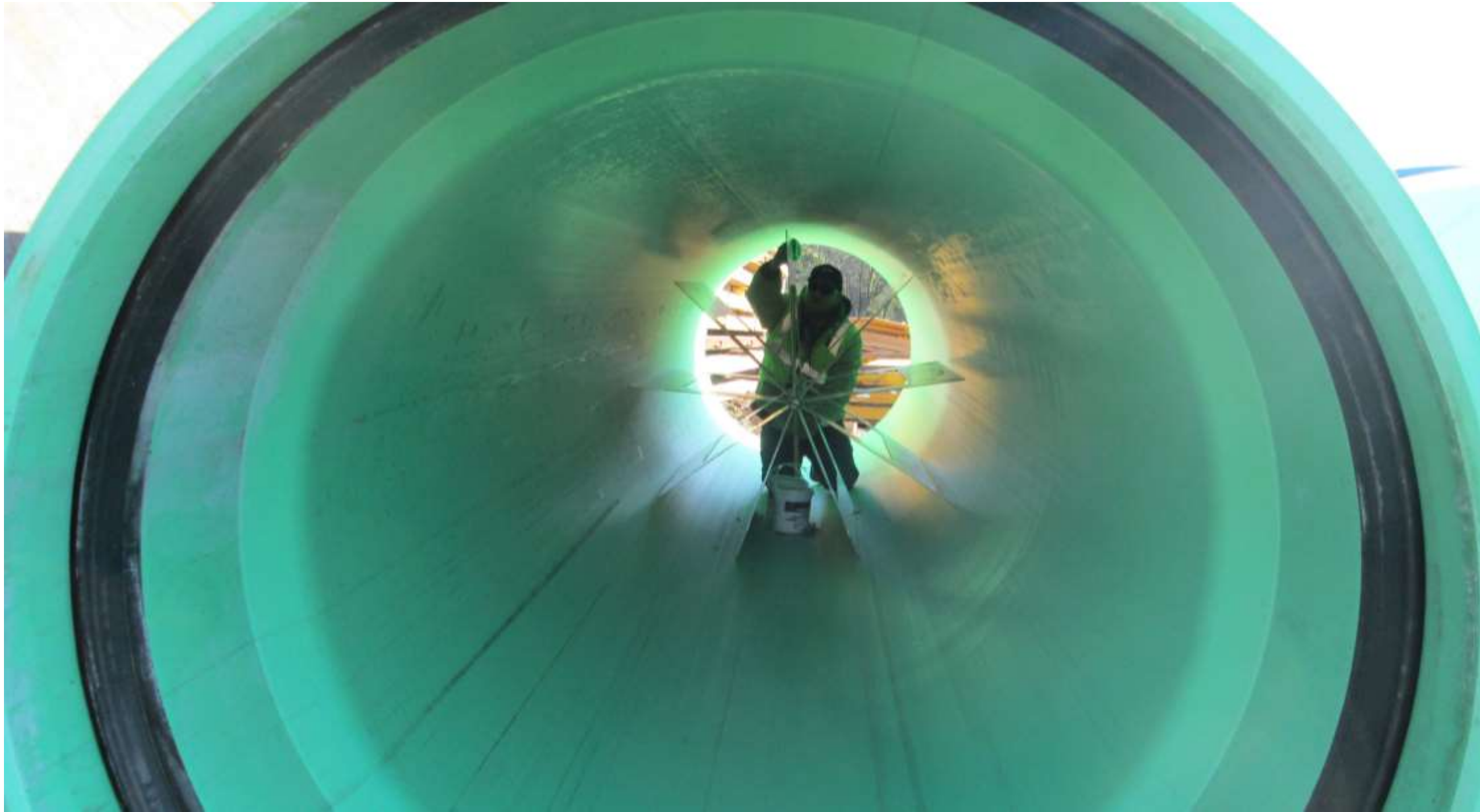
Underground Construction Technology | January 28-30, 2020 | Fort Worth, TX



UCT The Underground Utilities Event



Underground Construction Technology | January 28-30, 2020 | Fort Worth, TX





PLUMMER

QUESTIONS?

George I Farah, PE *NW Texas Conveyance Team Leader*

gfarah@plummer.com

817.806.1722