Rapid Impact Compaction (RIC)

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Thatcher Foundations

February 6, 2024

Background/History

- Harry Thatcher founded 1946

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Background/History

Thatcher moves HQ from Waukegan, IL to Gary, IN purchasing 30-acres constructing 4 buildings

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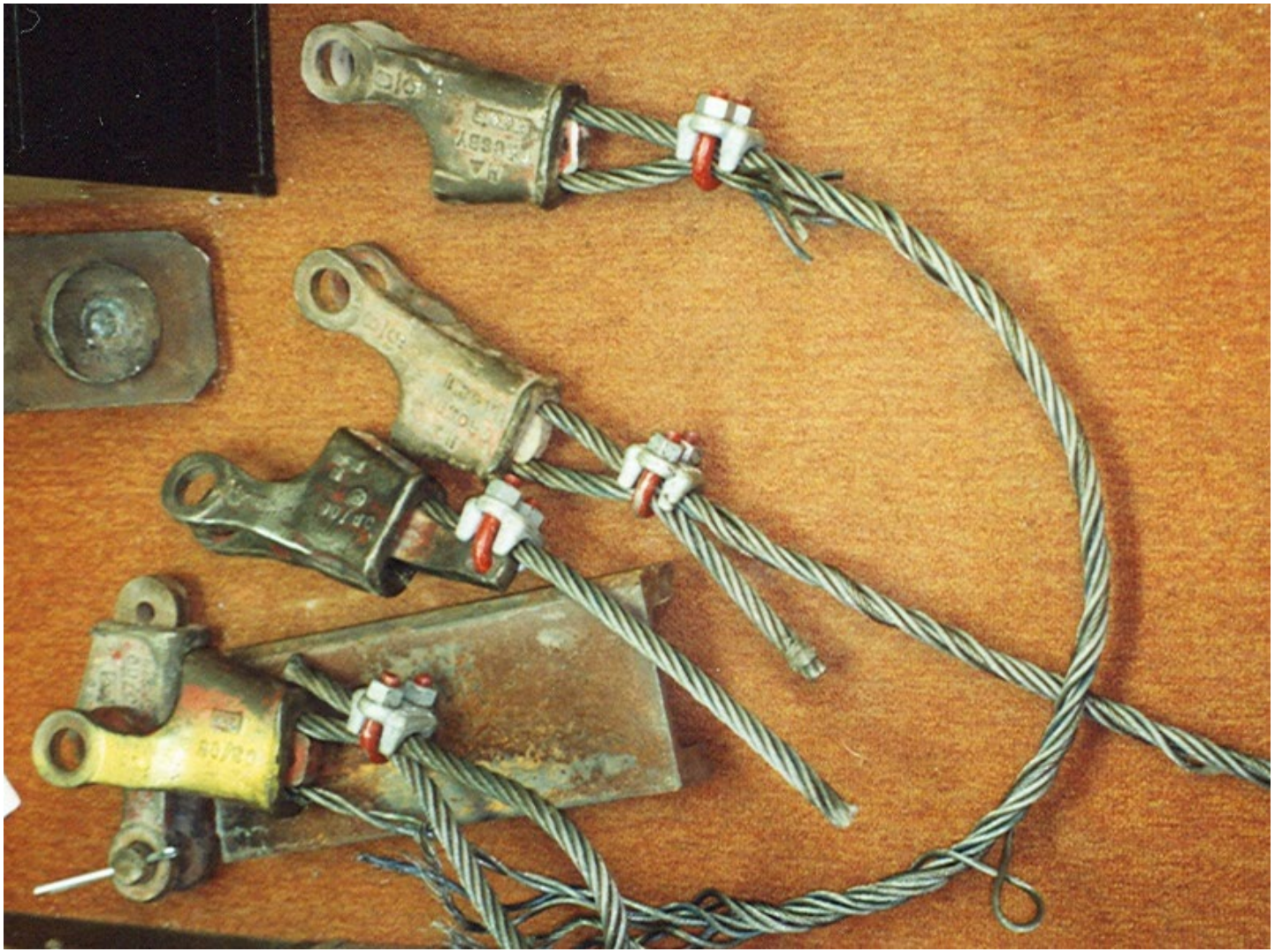
SAFETY



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2018
Specialty-Contractor
of the Year
CAF
Thatcher Foundations Inc
ASA
CHICAGO
2015
EXCELLENCE IN SAFETY
Presented to
Thatcher Foundations Inc.
GREAT LAKES CONSTRUCTION ASSOCIATION
SAFETY AWARD
Presented To
Thatcher Foundations, Inc.
In Recognition of An Outstanding Safety Record During 2020
And the Lowest Lost Workday Ratio in the Division
GLCA
Division IV 100,001 - 500,000 Hours
NWIBRT
Contractor Safety Award
for
RECOGNITION
THATCHER
FOUNDATIONS, INC.
2017

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Thatcher Foundations Core Business Areas

- Deep Foundations
- Earth Retention
- Marine Construction
- Ground Improvement (RIC)

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Types of Ground Improvement

- Stone Columns
- Rigid Inclusions
- Displacement Piles
- *Dynamic Compaction*
  - *Rapid Impact Compaction*

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What is Rapid Impact Compaction?

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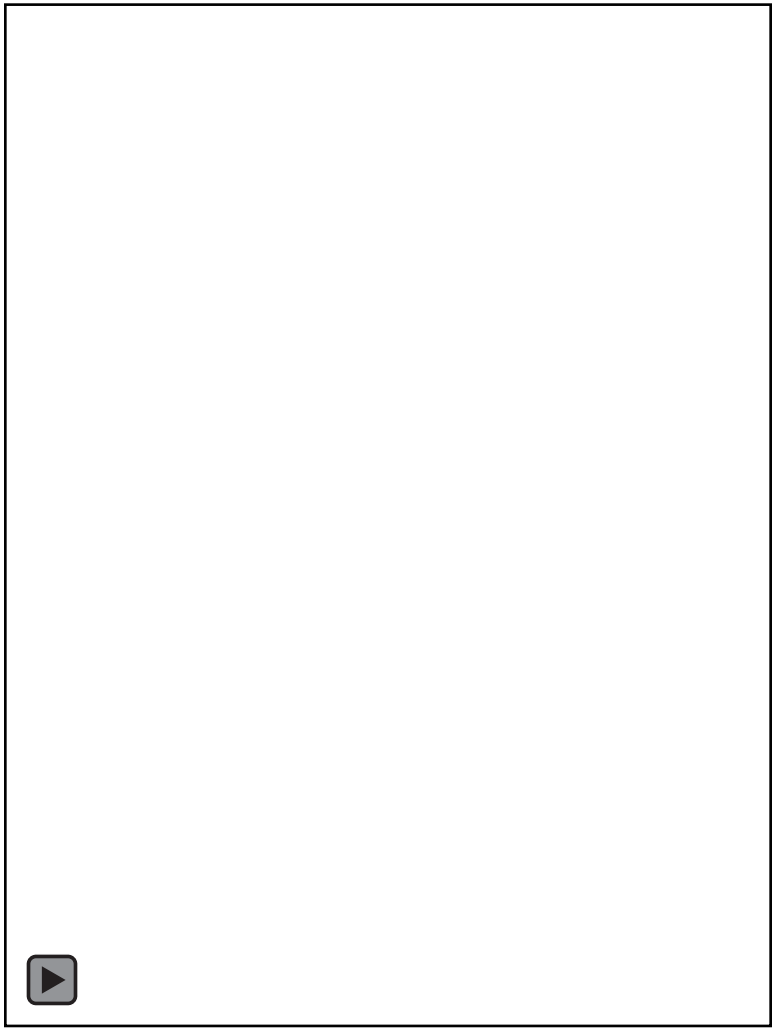
What is Rapid Impact Compaction?



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Dynamic Compaction v RIC Energy

Dynamic Weight	RIC Weight
20 tons	15 tons (max)
Drop Height	Drop Height
50 feet	10 feet
E= 2,000,000 ft-lbs	E= 300,000 ft-lbs

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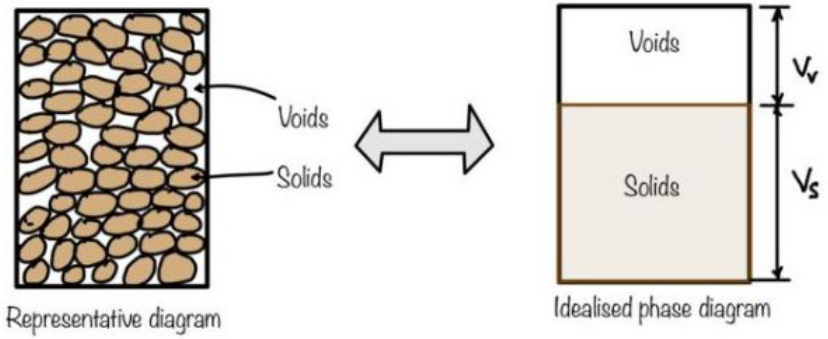
Factors That Make RIC a Viable Solution

1) Loose granular soils/fills above water table



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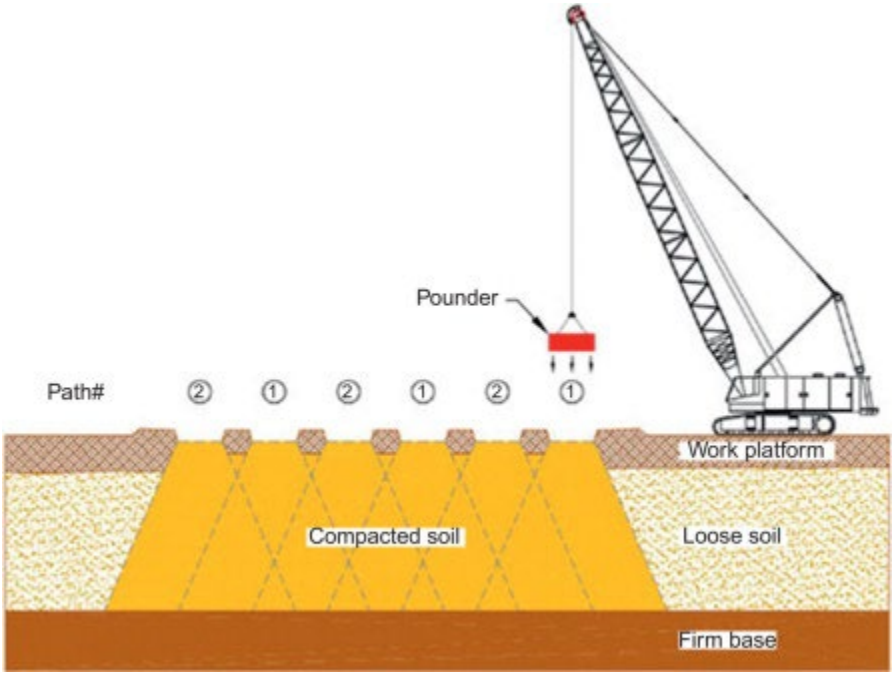
Factors That Make RIC a Viable Solution

2) Slab-on-Grade (i.e. No Basement)



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Factors That Make RIC a Viable Solution

3) Friendly Neighbors (or distant neighbors)

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Park Station

Sample Soil Boring

FLOOD Testing Laboratories, Inc.
1945 E. 87th St.
Chicago, IL 60617
Phone 773-721-2200
Fax 773-721-2206

LOG OF BORING - No. B-2
Monday, February 14, 2022

PROJECT: Park Station Lofts

CLIENT: Michaels DL3, LLC

DEPTH (FT.)	SAMPLE NUMBER	SAMPLE TYPE	LENGTH RECOV.	DESCRIPTION OF MATERIAL	DRY DENSITY LBS./CU.FT.
				ELEVATION OF SURFACE +12ft CCD	
1.0	1	SS		Loose brown sand and gravel fill with bricks and wood	
2.5					
3.5	2	SS			
5.0					
6.0	3	SS			
7.5					
8.5	4	SS			
10.0				Possible concrete slab.	
11.0				(Fill)	
				Medium dense gray silty fine sand	
13.5					
15.0	5	SS			
				(SM-ML)	
17.0				Stiff to very stiff gray silty clay	
18.5	6	SS			
20.0					
22.5	7	SS		(CL-ML)	
25.0				End of Boring.	

UNCONF. COMPRESS. STRENGTH: TSF - ○ (1 2 3 4 5)
WATER CONTENT % - □ PLASTIC LIMIT, % - X
LIQUID LIMIT, % - ▲ PLASTICITY INDEX - ■
STD PENETRATION, Blows/Ft. ⊗ (10 20 30 40 50)

WATER LEVEL: 6.5 FT. AT WD HRS. BORING STARTED: 12-June-2020
9 FT. AT AC HRS. BORING COMPLETED: 12-June-2020

- **5-story low income housing**
- **No basement**
- **Urban fill/granular with buried slab 10’ below grade**

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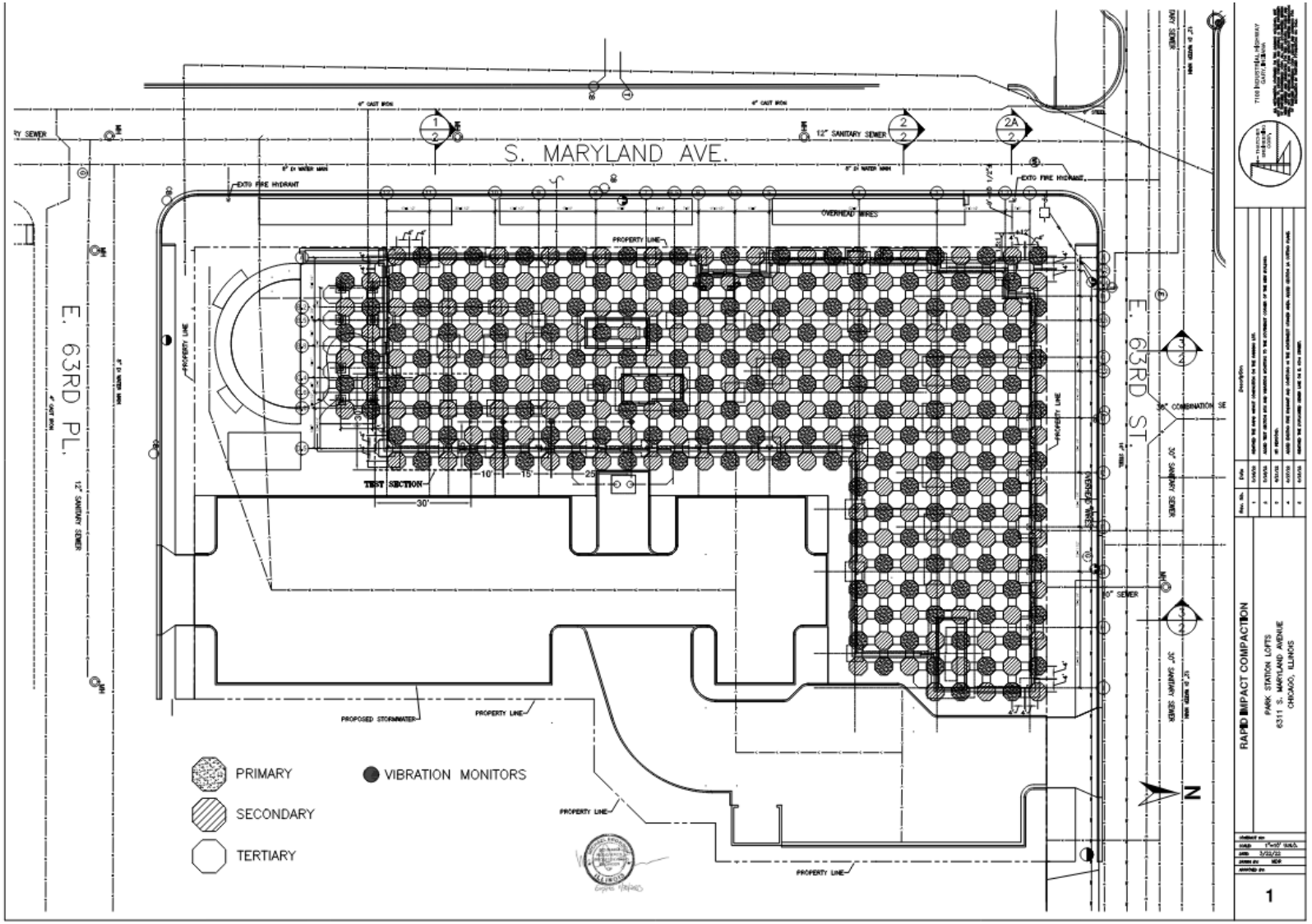
S. MARYLAND AVE.
E. 63RD PL.
E. 63RD ST.
PROPERTY LINE
OVERHEAD WIRES
EXIST. FIRE HYDRANT
12" SANITARY SEWER
8" DI WATER MAIN
4" CAST IRON
TEST SECTION
10'
15'
25'
30'
PROPOSED STORMWATER
PRIMARY
SECONDARY
TERTIARY
VIBRATION MONITORS
RAPID IMPACT COMPACTION
PARK STATION LOFTS
6311 S. MARYLAND AVENUE
CHICAGO, ILLINOIS
1

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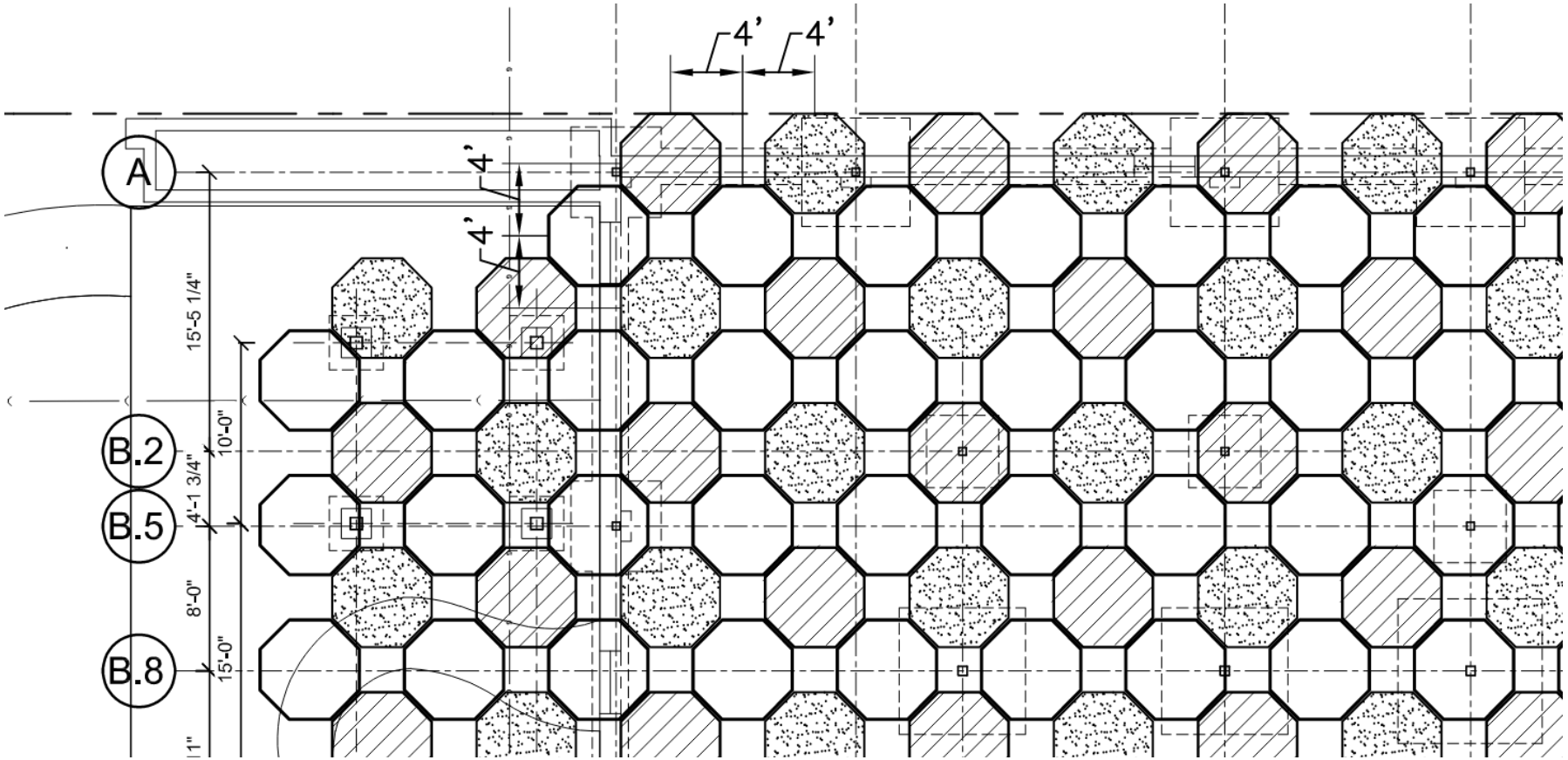

PRIMARY

SECONDARY

TERTIARY

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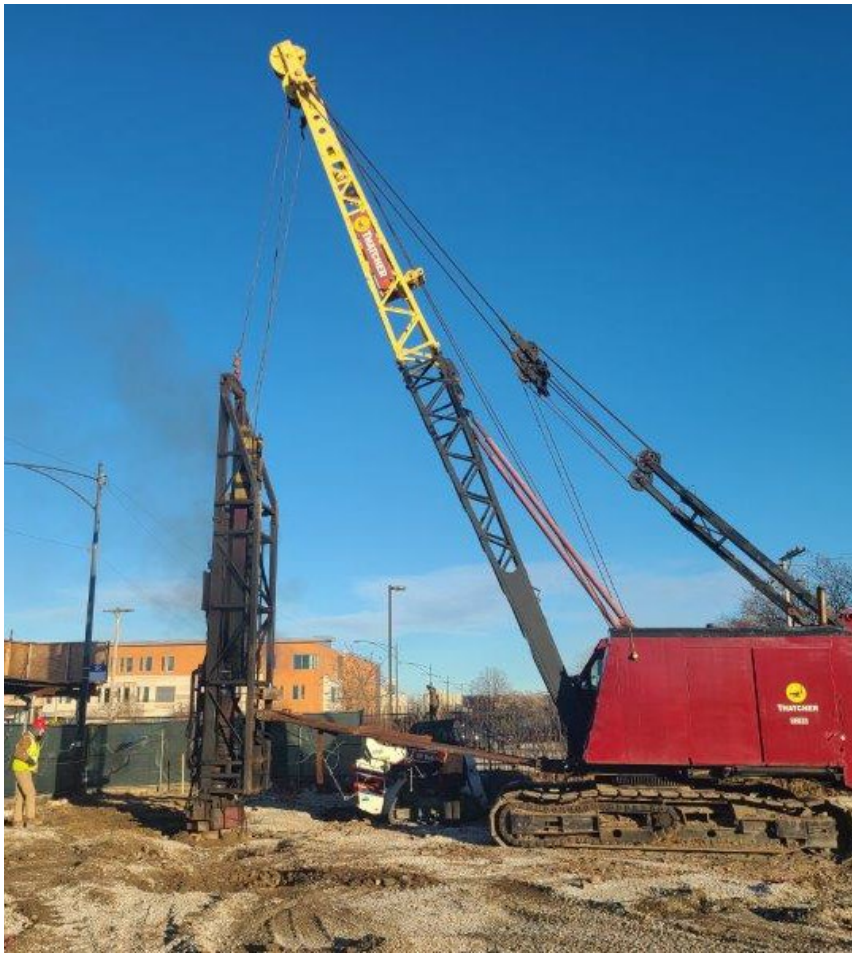
Park Station Construction



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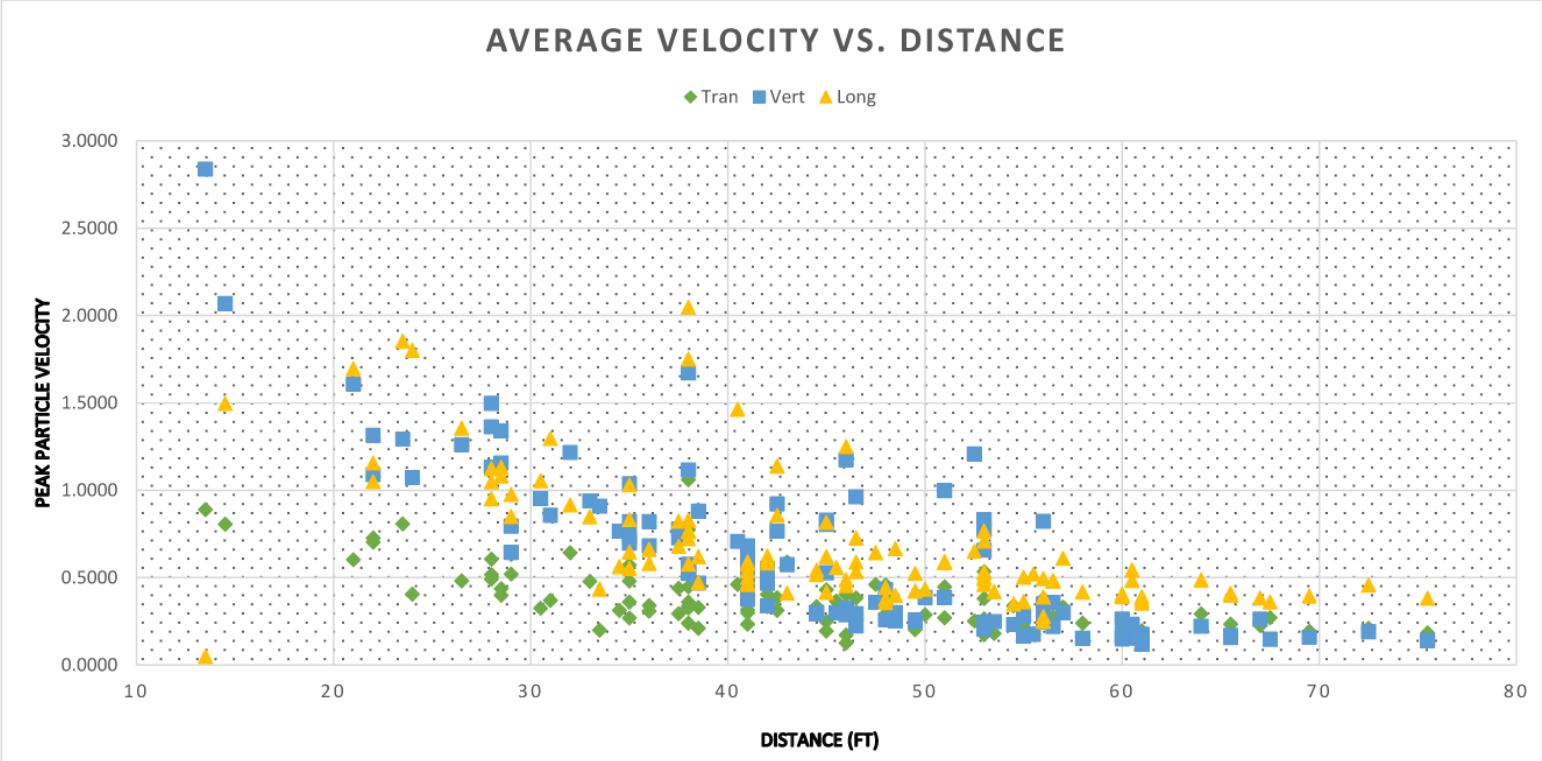
Park Station QA/QC

Vibration Monitoring



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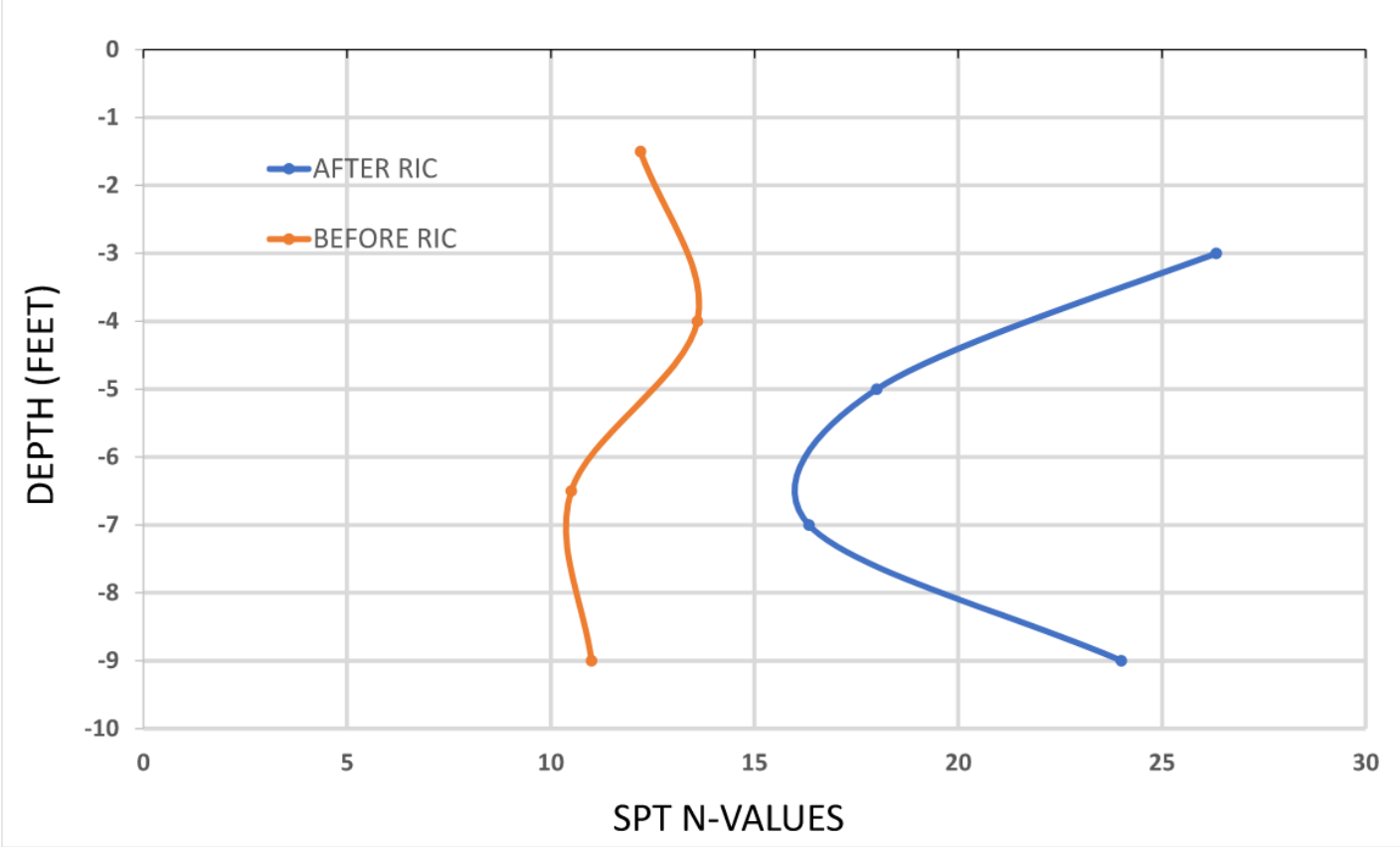
Park Station QA/QC

How to verify Compaction?



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Park Station QA/QC

- 70 loads of stone imported to the site
- Site 6” lower than when started

- Volume/lowered grade = void spaces removed
- Higher bearing pressures/less settlement

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Thank you

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