



**ASTM D6938 In-Place Density and Water Content of Soil and
Soil-Aggregate by Nuclear Methods (Shallow Depth)**

**Project: FTW 405 Range Control
Fort Wainwright, AK
Client: Cornerstone General Contractors**

**Project #: 2025-091
Date: August 10, 2026
Area Tested: Electric trench/Stationary Infantry Target**

Material / Source:

**Pitrun/ Range pit 143.8
Existing silt w/ sand/ Existing 107.5**

**Gauge: Instrotek 3500
Operator: Wayne Harding**

Ser: # 898

Test #	Soil Type	Test Depth(in)	Lift Elev	Location	Wet Density	% Moist.	Dry Density	Max Density	Percent Density	Required Density
1	Existing	12"	2	Section 1A 100 Electric Trench Backfill STA:11+21	108.9	19.3	91.3	107.5	84.9%	Approx. 79.5%
2	Existing	12"	2	Section 1A 100 Electric Trench Backfill STA:9+03	107.4	25.5	85.6	107.5	79.6%	Approx. 79.5%
3	Existing	12"	2	Section 1A 100 Electric Trench Backfill STA:6+37	115.1	20.6	95.4	107.5	88.8%	Approx. 79.5%
4	Existing	12"	1	Section 1B 300 Electric Trench backfill STA:12+10	93.5	5.7	88.5	107.5	82.3%	Approx. 76.9%
5	Existing	12"	1	Section 1B 300 Electric Trench backfill STA:14+76	103.8	17.5	88.3	107.5	82.2%	Approx. 76.9%
6	Existing	12"	1	Section 1B 300 Electric Trench backfill STA:9+09	103.5	18.1	87.6	107.5	81.5%	Approx. 76.9%
7	PR	6"	1	500M P-09 S.I.T. (See map)	145.3	5.7	137.5	143.8	95.6%	95%
8	PR	6"	1	500M P-09 S.I.T. (See map)	145.8	5.4	138.3	143.8	96.2%	95%
9	PR	6"	2	500M P-09 S.I.T. (See map)	144.7	4.8	138.1	143.8	96.0%	95%
10	PR	6"	2	500M P-09 S.I.T. (See map)	142.0	3.7	136.9	143.8	95.2%	95%
11	PR	6"	1	500M P-08 S.I.T. (See map)	144.0	5.2	136.9	143.8	95.2%	95%
12	PR	6"	1	500M P-08 S.I.T. (See map)	144.0	5.2	136.9	143.8	95.2%	95%
13	PR	6"	1	500M P-08 S.I.T. (See map)	143.8	5.0	137.0	143.8	95.2%	95%



**ASTM D6938 In-Place Density and Water Content of Soil and
Soil-Aggregate by Nuclear Methods (Shallow Depth)**

Project: FTW 405 Range Control
Fort Wainwright, AK
Client: Cornerstone General Contractors

Project #: 2025-091
Date: August 10, 2026
Area Tested: Electric trench/Stationary Infantry Target

Material / Source:

Pitrun/ Range pit **143.8**
Existing silt w/ sand/ Existing **107.5**

Gauge: Instron 3500**Ser: # 898****Operator: Wayne Harding**

Test #	Soil Type	Test Depth(in)	Lift Elev	Location	Wet Density	% Moist.	Dry Density	Max Density	Percent Density	Required Density
14	PR	6"	1	500M P-07 S.I.T. (See map)	142.4	3.2	138.0	143.8	96.0%	95%
15	PR	6"	1	500M P-07 S.I.T. (See map)	143.2	3.0	139.0	143.8	96.7%	95%
16	PR	6"	1	500M P-07 S.I.T. (See map)	142.6	3.9	137.2	143.8	95.4%	95%
17	PR	6"	1	500M P-06 S.I.T. (See map)	147.4	5.0	140.4	143.8	97.6%	95%
18	PR	6"	1	500M P-06 S.I.T. (See map)	144.7	4.3	138.7	143.8	96.5%	95%
19	PR	6"	1	500M P-06 S.I.T. (See map)	145.6	4.7	139.1	143.8	96.7%	95%
20	PR	6"	2	500M P-08 S.I.T. (See map)	145.4	6.3	136.8	143.8	95.1%	95%
21	PR	6"	2	500M P-08 S.I.T. (See map)	145.1	4.1	139.4	143.8	96.9%	95%
22	PR	6"	2	500M P-08 S.I.T. (See map)	143.4	4.3	137.5	143.8	95.6%	95%
23	Existing	12"	1	Section 3A 500M Electric Trench backfill STA:19+23	102.8	23.9	83.0	107.5	77.2%	Approx. 75.4%
24	Existing	12"	1	Section 3A 500M Electric Trench backfill STA:16+91	102.7	25.9	81.6	107.5	75.9%	Approx. 75.4%
25	Existing	12"	1	Section 3A 500M Electric Trench backfill STA:14+15	101.8	18.7	85.8	107.5	79.8%	Approx. 75.4%
26	Existing	12"	1	Section 3A 500M Electric Trench backfill STA:11+08	98.6	19.9	82.2	107.5	76.5%	Approx. 75.4%
27	PR	6"	2	500M P-07 S.I.T. (See map)	146.9	5.5	139.2	143.8	96.8%	95%
28	PR	6"	2	500M P-07 S.I.T. (See map)	145.8	5.4	138.3	143.8	96.2%	95%

**ASTM D6938 In-Place Density and Water Content of Soil and
Soil-Aggregate by Nuclear Methods (Shallow Depth)****Project: FTW 405 Range Control
Fort Wainwright, AK
Client: Cornerstone General Contractors****Project #: 2025-091
Date: August 10, 2026
Area Tested: Electric trench/Stationary Infantry Target****Material / Source:****Pitrun/ Range pit 143.8
Existing silt w/ sand/ Existing 107.5****Gauge: Instrotek 3500
Operator: Wayne Harding****Ser: # 898**

Test #	Soil Type	Test Depth(in)	Lift Elev	Location	Wet Density	% Moist.	Dry Density	Max Density	Percent Density	Required Density
29	PR	6"	2	500M P-07 S.I.T. (See map)	145.4	4.9	138.6	143.8	96.4%	95%
30	PR	6"	2	500M P-06 S.I.T. (See map)	143.8	4.8	137.2	143.8	95.4%	95%
31	PR	6"	2	500M P-06 S.I.T. (See map)	144.7	3.9	139.3	143.8	96.8%	95%
32	PR	6"	2	500M P-06 S.I.T. (See map)	144.1	4.6	137.8	143.8	95.8%	95%
33	PR	6"	1	500M P-10 S.I.T. (See map)	142.3	3.4	137.6	143.8	95.7%	95%
34	PR	6"	1	500M P-10 S.I.T. (See map)	142.2	3.9	136.9	143.8	95.2%	95%
35	PR	6"	2	500M P-09 S.I.T. (See map)	148.4	6.4	139.5	143.8	97.0%	95%
36	PR	6"	2	500M P-09 S.I.T. (See map)	144.2	4.8	137.6	143.8	95.7%	95%
37	PR	6"	2	500M P-08 S.I.T. (See map)	147.0	6.2	138.4	143.8	96.3%	95%
38	PR	6"	2	500M P-08 S.I.T. (See map)	146.3	6.0	138.0	143.8	96.0%	95%
39	PR	6"	2	500M P-08 S.I.T. (See map)	144.3	5.3	137.0	143.8	95.3%	95%
40	PR	6"	2	500M P-10 S.I.T. (See map)	143.3	4.5	137.1	143.8	95.4%	95%
41	PR	6"	2	500M P-10 S.I.T. (See map)	143.7	4.3	137.8	143.8	95.8%	95%
42	PR	6"	3	500M P-07 S.I.T. (See map)	148.3	4.7	141.6	143.8	98.5%	95%
43	PR	6"	3	500M P-07 S.I.T. (See map)	144.8	4.9	138.0	143.8	96.0%	95%
44	PR	6"	3	500M P-07 S.I.T. (See map)	143.6	3.7	138.5	143.8	96.3%	95%
45	PR	6"	3	500M P-06 S.I.T. (See map)	148.0	4.4	141.8	143.8	98.6%	95%
46	PR	6"	3	500M P-06 S.I.T. (See map)	143.3	4.1	137.7	143.8	95.7%	95%
47	PR	6"	3	500M P-06 S.I.T. (See map)	143.0	3.6	138.0	143.8	96.0%	95%

**ASTM D6938 In-Place Density and Water Content of Soil and
Soil-Aggregate by Nuclear Methods (Shallow Depth)****Project: FTW 405 Range Control
Fort Wainwright, AK
Client: Cornerstone General Contractors****Project #: 2025-091
Date: August 10, 2026
Area Tested: Electric trench/Stationary Infantry Target****Material / Source:****Pitrun/ Range pit 143.8
Existing silt w/ sand/ Existing 107.5****Gauge: Instrotek 3500
Operator: Wayne Harding****Ser: # 898**

Test #	Soil Type	Test Depth(in)	Lift Elev	Location	Wet Density	% Moist.	Dry Density	Max Density	Percent Density	Required Density
48	PR	6"	3	500M P-10 S.I.T. (See map)	146.8	5.3	139.4	143.8	96.9%	95%
49	PR	6"	3	500M P-10 S.I.T. (See map)	145.4	5.2	138.2	143.8	96.1%	95%
50	PR	4"	4	500M P-06 S.I.T. (See map)	151.0	5.3	143.4	143.8	99.7%	95%
51	PR	4"	4	500M P-06 S.I.T. (See map)	144.7	3.6	139.7	143.8	97.1%	95%
52	PR	4"	4	500M P-06 S.I.T. (See map)	146.6	4.0	141.0	143.8	98.0%	95%

Stationary Infantry Target

- | | | |
|---------------------------|---------------|--------------|
| • SIT @ Lanes 1-4, 9-10 | Approx 250 sf | 2 tests/Lift |
| • SIT @ Lanes 5-8 | Approx 310 sf | 3 tests/Lift |
| • Widened SIT @ Lanes 5-8 | Approx 375 sf | 3 tests/Lift |

Lift: 1
Date: 8/10/26

500M
P-09

.7

8

Sit @ Lanes 1-4,9-10

500M
P-08

.12 .11

.13

SIT @ Lanes 5-8

500M
P-07

.14

.15 .16

Widened SIT @ Lanes 5-8

Lift: 2
Date: 8/10/26

500M
P-09

9

10

Sit @ Lanes 1-4,9-10

500M
P-08

.20

.21 .22

SIT @ Lanes 5-8

500M
P-07

.27

.28

.29

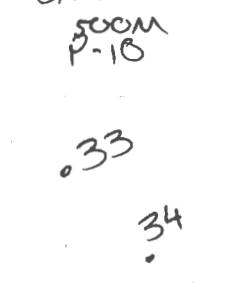
Widened SIT @ Lanes 5-8

Mark exact location of each density test (ASTM D6938)

Stationary Infantry Target

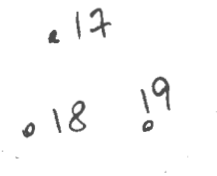
- | | | |
|---------------------------|---------------|--------------|
| • SIT @ Lanes 1-4, 9-10 | Approx 250 sf | 2 tests/Lift |
| • SIT @ Lanes 5-8 | Approx 310 sf | 3 tests/Lift |
| • Widened SIT @ Lanes 5-8 | Approx 375 sf | 3 tests/Lift |

Lift: 1
Date: 8/10/26



SIT @ Lanes 1-4,9-10

500M
P-06

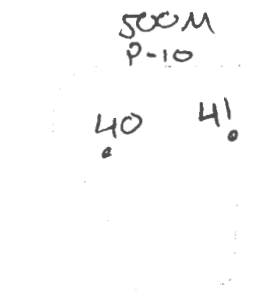


SIT @ Lanes 5-8

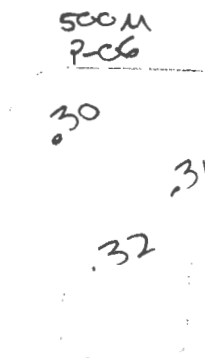


Widened SIT @ Lanes 5-8

Lift: 2
Date: 8/10/26



SIT @ Lanes 1-4,9-10



SIT @ Lanes 5-8



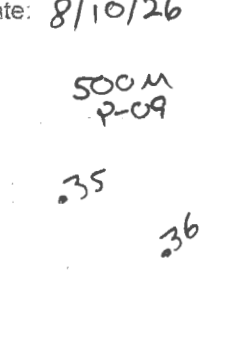
Widened SIT @ Lanes 5-8

Mark exact location of each density test (ASTM D6938)

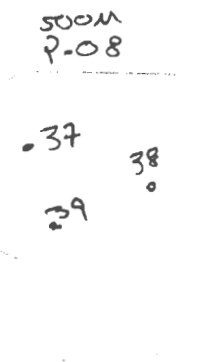
Stationary Infantry Target

- | | | |
|---------------------------|---------------|--------------|
| • SIT @ Lanes 1-4, 9-10 | Approx 250 sf | 2 tests/Lift |
| • SIT @ Lanes 5-8 | Approx 310 sf | 3 tests/Lift |
| • Widened SIT @ Lanes 5-8 | Approx 375 sf | 3 tests/Lift |

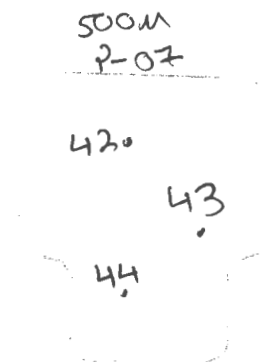
Lift: 3
Date: 8/10/26



Sit @ Lanes 1-4,9-10

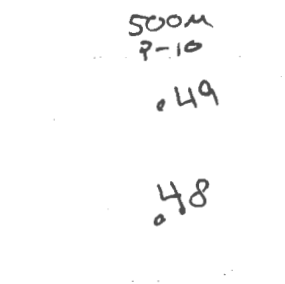


SIT @ Lanes 5-8

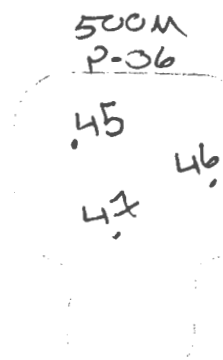


Widened SIT @ Lanes 5-8

Lift: 3
Date: 8/10/26



Sit @ Lanes 1-4,9-10



SIT @ Lanes 5-8



Widened SIT @ Lanes 5-8

Mark exact location of each density test (ASTM D6938)

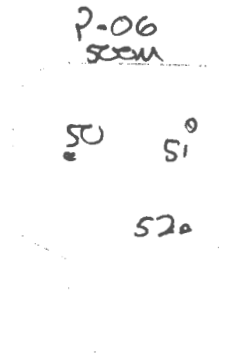
Stationary Infantry Target

• SIT @ Lanes 1-4, 9-10	Approx 250 sf	2 tests/Lift
• SIT @ Lanes 5-8	Approx 310 sf	3 tests/Lift
• Widened SIT @ Lanes 5-8	Approx 375 sf	3 tests/Lift

Lift: 4
Date: 8/6/26



SIT @ Lanes 1-4,9-10



SIT @ Lanes 5-8



Widened SIT @ Lanes 5-8

Lift:
Date:



SIT @ Lanes 1-4,9-10



SIT @ Lanes 5-8



Widened SIT @ Lanes 5-8

Mark exact location of each density test (ASTM D6938)