



ENTECH
ENGINEERING, INC.

505 ELKTON DRIVE
COLORADO SPRINGS, CO 80907
PHONE (719) 531-5599
FAX (719) 531-5238

August 27, 2020

FLRD #5
2138 Flying Horse Club Drive
Colorado Springs, CO 80921

Attn: Jim Boulton

Re: Density Testing – Water
Forest Lakes Residential Development, Filing 5
Colorado Springs, Colorado
Report No. 3, Tests 22 – 98

Dear Mr. Boulton,

As requested, personnel of Entech Engineering, Inc. have performed density testing at the above referenced site.

Density testing on this site was performed on August 3 – 24, 2020. The density testing indicates that the materials have been adequately compacted at the depths and in the locations noted. Results of the density tests are enclosed with this letter.

We trust that this has provided you with the information you require. Should you have any questions or need further information, please do not hesitate to contact us.

Respectfully Submitted,

ENTECH ENGINEERING, INC.

MHH
Mark H. Hauschild, P.E.
Senior Engineer

MHH/bo

Enclosure



Entech Job No. 192273

F:\AA projects\2019\192273-FLRD #5-Forest Lakes Residential Development Filing #5-110-ConMat\192273_3cl3.doc

Client: FLRD #5	Entech Job #: 192273.3	Proctor Value Key: M = modified, ASTM D-1557
Project: Forest Lakes Residential Development, Filing 5	Tested By: S. Reardanz	S = standard, ASTM D-698
Subject: Water	Report Date: 08-26-2020	T = AASHTO, T-180

Test #	Location	Testing Date	Percent Compaction	Percent Required	Percent Moisture	Soil Type	Proctor Type/Value	Pass/Fail
22	Main, Station 5 + 25, Forest Lakes Drive, 4' below grade.	8/3/20	99	95	8.9	SM	M - 126.9 @ 8.8	<input type="checkbox"/>
23	Main, Station 5 + 00, Forest Lakes Drive, 2' below grade.	8/3/20	98	95	9.5	SM	M - 126.9 @ 8.8	<input type="checkbox"/>
24	Main, Station 4 + 80, Forest Lakes Drive, at grade.	8/3/20	98	95	8.1	SM	M - 126.9 @ 8.8	<input type="checkbox"/>
25	Main, Station 17 + 00, Mesa Top Drive, 5' below grade.	8/3/20	99	95	8.7	SM	M - 127.9 @ 9.2	<input type="checkbox"/>
26	Main, Station 16 + 80, Mesa Top Drive, 3' below grade.	8/3/20	98	95	9.3	SM	M - 127.9 @ 9.2	<input type="checkbox"/>
27	Main, Station 16 + 50, Mesa Top Drive, 1' below grade.	8/3/20	98	95	9.6	SM	M - 127.9 @ 9.2	<input type="checkbox"/>
28	Main, Station 16 + 00, Mesa Top Drive, at grade.	8/3/20	99	95	8.2	SM	M - 127.9 @ 9.2	<input type="checkbox"/>
29	Valves, Station 5 + 97, Forest Lakes Drive, 2' below grade.	8/4/20	99	95	8.8	SM	M - 126.9 @ 8.8	<input type="checkbox"/>
30	Valves, Station 5 + 97, Forest Lakes Drive, at grade.	8/4/20	98	95	9.1	SM	M - 126.9 @ 8.8	<input type="checkbox"/>
31	Main, Station 15 + 25, Forest Lakes Drive, 4' below grade.	8/5/20	99	95	8.5	SM	M - 126.9 @ 8.8	<input type="checkbox"/>

Comments:

Scope of Observation: PERIODIC; CONTRACTOR'S OR CLIENT'S REPRESENTATIVE ADVISED

All dimensions are approximate. Cl. = Centerline



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FIELD DENSITY RESULTS

Mark H. Haasechild, P.E.


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Test #	Location	Testing Date	Percent Compaction	Percent Required	Percent Moisture	Soil Type	Proctor Type/Value	Pass/Fail
32	Main, Station 15 + 50, Forest Lakes Drive, 2' below grade.	8/5/20	98	95	8.7	SM	M - 126.9 @ 8.8	<input type="checkbox"/>
33	Main, Station 15 + 65, Forest Lakes Drive, at grade.	8/5/20	97	95	7.9	SM	M - 126.9 @ 8.8	<input type="checkbox"/>
34	Valves, Station 10 + 91, Forest Lakes Drive, 2' below grade.	8/6/20	99	95	9.0	SM	M - 126.9 @ 8.8	<input type="checkbox"/>
35	Valves, Station 10 + 91, Forest Lakes Drive, at grade.	8/6/20	98	95	8.6	SM	M - 126.9 @ 8.8	<input type="checkbox"/>
36	Main, Station 12 + 00, Forest Lakes Drive, 4' below grade.	8/7/20	98	95	8.0	SM	M - 126.9 @ 8.8	<input type="checkbox"/>
37	Main, Station 12 + 25, Forest Lakes Drive, 7' below grade.	8/7/20	97	95	8.1	SM	M - 126.9 @ 8.8	<input type="checkbox"/>
38	Main, Station 12 + 40, Forest Lakes Drive, at grade.	8/7/20	98	95	7.9	SM	M - 126.9 @ 8.8	<input type="checkbox"/>
39	Service, Lot 20, 15' south of valve on Mesa Top Drive, 2' below grade.	8/17/20	98	95	6.8	SM	M - 130.4 @ 8.1	<input type="checkbox"/>
40	Service, Lot 21, 20' south of valve on Mesa Top Drive, 2' below grade.	8/17/20	96	95	7.1	SM	M - 130.4 @ 8.1	<input type="checkbox"/>
41	Service, Lot 22, 15' south of valve on Mesa Top Drive, 2' below grade.	8/17/20	95	95	6.6	SM	M - 130.4 @ 8.1	<input type="checkbox"/>

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Test #	Location	Testing Date	Percent Compaction	Percent Required	Percent Moisture	Soil Type	Proctor Type/Value	Pass/Fail
42	Service, Lot 20, 20' south of valve on Mesa Top Drive, at grade.	8/17/20	96	95	7.4	SM	M - 130.4 @ 8.1	<input type="checkbox"/>
43	Service, Lot 21, 15' south of valve on Mesa Top Drive, at grade.	8/17/20	96	95	7.5	SM	M - 130.4 @ 8.1	<input type="checkbox"/>
44	Service, Lot 22, 10' south of valve on Mesa Top Drive, at grade.	8/17/20	97	95	8.6	SM	M - 130.4 @ 8.1	<input type="checkbox"/>
45	Service, Lot 19, 10' northeast of valve on Forest Lakes Drive, 4' below grade.	8/17/20	96	95	7.6	SM	M - 130.4 @ 8.1	<input type="checkbox"/>
46	Service, Lot 18, 10' north of valve on Forest Lakes Drive, 4' below grade.	8/17/20	98	95	7.9	SM	M - 130.4 @ 8.1	<input type="checkbox"/>
47	Service, Lot 24, 15' south of valve on Forest Lakes Drive, 4' below grade.	8/17/20	98	95	8.0	SM	M - 130.4 @ 8.1	<input type="checkbox"/>
48	Service, Lot 19, 15' northeast of valve on Forest Lakes Drive, 2' below grade.	8/17/20	99	95	8.2	SM	M - 130.4 @ 8.1	<input type="checkbox"/>
49	Service, Lot 18, 15' north of valve on Forest Lakes Drive, 2' below grade.	8/17/20	97	95	7.9	SM	M - 130.4 @ 8.1	<input type="checkbox"/>
50	Service, Lot 24, 10' south of valve on Forest Lakes Drive, 2' below grade.	8/17/20	98	95	8.2	SM	M - 130.4 @ 8.1	<input type="checkbox"/>
51	Service, Lot 19, 15' northeast of valve on Forest Lakes Drive, at grade.	8/17/20	99	95	8.3	SM	M - 130.4 @ 8.1	<input type="checkbox"/>

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Test #	Location	Testing Date	Percent Compaction	Percent Required	Percent Moisture	Soil Type	Proctor Type/Value	Pass/Fail
52	Service, Lot 18, 15' north of valve on Forest Lakes Drive, at grade.	8/17/20	98	95	7.8	SM	M - 130.4 @ 8.1	<input type="checkbox"/>
53	Service, Lot 24, 15' south of valve on Forest Lakes Drive, at grade.	8/17/20	96	95	8.5	SM	M - 130.4 @ 8.1	<input type="checkbox"/>
54	Service, Lot 27, 20' south of valve on Forest Lakes Drive, 2' below grade.	8/18/20	97	95	7.4	SM	M - 130.4 @ 8.1	<input type="checkbox"/>
55	Service, Lot 14, 20' north of valve on Forest Lakes Drive, 2' below grade.	8/18/20	98	95	8.1	SM	M - 130.4 @ 8.1	<input type="checkbox"/>
56	Service, Lot 15, 15' north of valve on Forest Lakes Drive, 2' below grade.	8/18/20	97	95	8.2	SM	M - 130.4 @ 8.1	<input type="checkbox"/>
57	Service, Lot 26, 25' south of valve on Forest Lakes Drive, 2' below grade.	8/18/20	97	95	7.3	SM	M - 130.4 @ 8.1	<input type="checkbox"/>
58	Service, Lot 16, 25' north of valve on Forest Lakes Drive, 2' below grade.	8/18/20	95	95	7.5	SM	M - 130.4 @ 8.1	<input type="checkbox"/>
59	Service, Lot 25, 15' south of valve on Forest Lakes Drive, 2' below grade.	8/18/20	97	95	8.0	SM	M - 130.4 @ 8.1	<input type="checkbox"/>
60	Service, Lot 17, 25' north of valve on Forest Lakes Drive, 2' below grade.	8/18/20	97	95	7.3	SM	M - 130.4 @ 8.1	<input type="checkbox"/>
61	Service, Lot 27, 25' south of valve on Forest Lakes Drive, at grade.	8/18/20	96	95	7.5	SM	M - 130.4 @ 8.1	<input type="checkbox"/>

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Test #	Location	Testing Date	Percent Compaction	Percent Required	Percent Moisture	Soil Type	Proctor Type/Value	Pass/Fail
62	Service, Lot 14, 20' north of valve on Forest Lakes Drive, at grade.	8/18/20	96	95	7.9	SM	M - 130.4 @ 8.1	<input type="checkbox"/>
63	Service, Lot 15, 25' north of valve on Forest Lakes Drive, at grade.	8/18/20	98	95	8.6	SM	M - 130.4 @ 8.1	<input type="checkbox"/>
64	Service, Lot 26, 15' south of valve on Forest Lakes Drive, at grade.	8/18/20	97	95	7.7	SM	M - 130.4 @ 8.1	<input type="checkbox"/>
65	Service, Lot 16, 20' north of valve on Forest Lakes Drive, at grade.	8/18/20	96	95	7.5	SM	M - 130.4 @ 8.1	<input type="checkbox"/>
66	Service, Lot 25, 25' south of valve on Forest Lakes Drive, at grade.	8/18/20	97	95	8.2	SM	M - 130.4 @ 8.1	<input type="checkbox"/>
67	Service, Lot 17, 15' north of valve on Forest Lakes Drive, at grade.	8/18/20	97	95	8.1	SM	M - 130.4 @ 8.1	<input type="checkbox"/>
68	Service, Lot 13, 30' north of valve on Forest Lakes Drive, 2' below grade.	8/19/20	95	95	7.6	SM	M - 130.4 @ 8.1	<input type="checkbox"/>
69	Service, Lot 12, 25' north of valve on Forest Lakes Drive, 2' below grade.	8/19/20	97	95	8.7	SM	M - 126.9 @ 8.8	<input type="checkbox"/>
70	Service, Lot 28, 10' south of valve on Forest Lakes Drive, 2' below grade.	8/19/20	96	95	8.3	SM	M - 126.9 @ 8.8	<input type="checkbox"/>
71	Service, Lot 11, 20' north of valve on Forest Lakes Drive, 2' below grade.	8/19/20	98	95	7.9	SM	M - 126.9 @ 8.8	<input type="checkbox"/>

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Test #	Location	Testing Date	Percent Compaction	Percent Required	Percent Moisture	Soil Type	Proctor Type/Value	Pass/Fail
72	Service, Lot 13, 20' north of valve on Forest Lakes Drive, at grade.	8/19/20	97	95	7.5	SM	M - 130.4 @ 8.1	<input type="checkbox"/>
73	Service, Lot 12, 15' north of valve on Forest Lakes Drive, at grade.	8/19/20	97	95	7.9	SM	M - 126.9 @ 8.8	<input type="checkbox"/>
74	Service, Lot 28, 15' south of valve on Forest Lakes Drive, at grade.	8/19/20	97	95	8.6	SM	M - 126.9 @ 8.8	<input type="checkbox"/>
75	Service, Lot 11, 20' north of valve on Forest Lakes Drive, at grade.	8/19/20	96	95	8.1	SM	M - 126.9 @ 8.8	<input type="checkbox"/>
76	Service, Lot 7, 15' north of valve on Forest Lakes Drive, 2' below grade.	8/20/20	97	95	8.5	SM	M - 126.9 @ 8.8	<input type="checkbox"/>
77	Service, Lot 6, 20' north of valve on Forest Lakes Drive, 2' below grade.	8/20/20	97	95	7.7	SM	M - 126.9 @ 8.8	<input type="checkbox"/>
78	Service, Lot 7, 25' north of valve on Forest Lakes Drive, at grade.	8/20/20	99	95	8.3	SM	M - 126.9 @ 8.8	<input type="checkbox"/>
79	Service, Lot 6, 25' north of valve on Forest Lakes Drive, at grade.	8/20/20	97	95	8.4	SM	M - 126.9 @ 8.8	<input type="checkbox"/>
80	Service, Lot 2, 5' north of valve on Forest Lakes Drive, 2' below grade.	8/20/20	96	95	8.2	SM	M - 126.9 @ 8.8	<input type="checkbox"/>
81	Service, Lot 39, 15' south of valve on Forest Lakes Drive, 2' below grade.	8/20/20	97	95	7.7	SM	M - 126.9 @ 8.8	<input type="checkbox"/>

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Test #	Location	Testing Date	Percent Compaction	Percent Required	Percent Moisture	Soil Type	Proctor Type/Value	Pass/Fail
82	Service, Lot 2, 10' north of valve on Forest Lakes Drive, at grade.	8/20/20	98	95	8.3	SM	M - 126.9 @ 8.8	<input type="checkbox"/>
83	Service, Lot 33, 20' south of valve on Forest Lakes Drive, at grade.	8/20/20	99	95	8.8	SM	M - 126.9 @ 8.8	<input type="checkbox"/>
84	Service, Lot 30, 20' south of valve on Forest Lakes Drive, 2' below grade.	8/21/20	98	95	8.6	SM	M - 126.9 @ 8.8	<input type="checkbox"/>
85	Service, Lot 31, 15' south of valve on Forest Lakes Drive, 2' below grade.	8/21/20	98	95	9.1	SM	M - 126.9 @ 8.8	<input type="checkbox"/>
86	Service, Lot 4, 10' north of valve on Forest Lakes Drive, 2' below grade.	8/21/20	97	95	8.5	SM	M - 126.9 @ 8.8	<input type="checkbox"/>
87	Service, Lot 5, 20' north of valve on Forest Lakes Drive, 3' below grade.	8/21/20	99	95	8.2	SM	M - 126.9 @ 8.8	<input type="checkbox"/>
88	Service, Lot 5, 15' north of valve on Forest Lakes Drive, 1' below grade.	8/21/20	97	95	8.6	SM	M - 126.9 @ 8.8	<input type="checkbox"/>
89	Service, Lot 30, 25' south of valve on Forest Lakes Drive, at grade.	8/21/20	95	95	8.2	SM	M - 126.9 @ 8.8	<input type="checkbox"/>
90	Service, Lot 31, 20' south of valve on Forest Lakes Drive, at grade.	8/21/20	96	95	7.6	SM	M - 126.9 @ 8.8	<input type="checkbox"/>
91	Service, Lot 4, 15' north of valve on Forest Lakes Drive, at grade.	8/21/20	98	95	7.9	SM	M - 126.9 @ 8.8	<input type="checkbox"/>

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92	Service, Lot 5, 10' north of valve on Forest Lakes Drive, at grade.	8/21/20	97	95	8.1	SM	M - 126.9 @ 8.8	<input type="checkbox"/>
93	Service, Lot 9, 15' north of valve on Forest Lakes Drive, 2' below grade.	8/21/20	95	95	7.3	SM	M - 130.4 @ 8.1	<input type="checkbox"/>
94	Service, Lot 8, 10' north of valve on Forest Lakes Drive, 2' below grade.	8/21/20	96	95	7.5	SM	M - 130.4 @ 8.1	<input type="checkbox"/>
95	Service, Lot 9, 15' north of valve on Forest Lakes Drive, at grade.	8/21/20	96	95	7.3	SM	M - 130.4 @ 8.1	<input type="checkbox"/>
96	Service, Lot 8, 20' north of valve on Forest Lakes Drive, at grade.	8/21/20	97	95	6.9	SM	M - 130.4 @ 8.1	<input type="checkbox"/>
97	Service, Lot 1, 15' north of valve on Forest Lakes Drive, 2' below grade.	8/24/20	99	95	8.3	SM	M - 126.9 @ 8.8	<input type="checkbox"/>
98	Service, Lot 1, 20' north of valve on Forest Lakes Drive, at grade.	8/24/20	99	95	7.9	SM	M - 126.9 @ 8.8	<input type="checkbox"/>

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