



**ENTECH**  
ENGINEERING, INC.

505 ELKTON DRIVE  
COLORADO SPRINGS, CO 80907  
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September 15, 2020

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

Attn: Mark Sherwood

Re: Cement Stabilized Subgrade Results - Laboratory Testing  
Forest Lakes Filing No. 5  
El Paso county of Colorado

Ref: Pavement Recommendations Report by Entech Engineering, Inc., dated September 15, 2020, Entech Job No. 201782.

Dear Mr. Sherwood:

As requested, personnel of Entech Engineering, Inc. have performed strength testing on two sets of three soil/cement composite samples for the above reference project. Testing was performed on soil samples prepared with 2% and 4% Portland Cement Type 1/2, from Martin Marietta, near Pueblo, Colorado.

A compression strength of 160 psi is recommended for cement stabilized subgrade. The 5-day average strength value of the 2% mix was 209 psi. The 5-day average strength value of the 4% mix was 243 psi. A 2% mix is recommended based on the laboratory test results. A summary of the testing results is attached.

Pending the results of the field density testing, microfracturing of the stabilized subgrade may be required. Soil strengths in excess 200 psi require microfracturing.

We trust this has provided you with the information you required. If you have any questions or need additional information, please do not hesitate to contact us.

Respectfully Submitted,

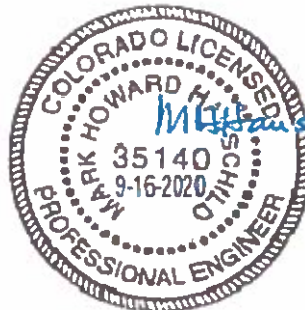
ENTECH ENGINEERING, INC.

Daniel P. Stegman

DPS/bs

Encl.

Entech Job No. 201782  
AProjects/2020/201782 cssr - lab



Reviewed by:

Mark H. Hauschild, P.E.  
Senior Engineer

**SUMMARY OF CTS TEST RESULTS**  
**LAB TESTING**

CLIENT FLRD #5  
 PROJECT FOREST LAKES, FILING 5  
 FIELD SAMPLE ID TB-7 @ 0-3'  
 SOIL ADDITIVE TYPE I/II CEMENT

JOB NO 201782  
 DATE 9/15/20  
 BY BL

<b>ADDITIVE %</b>	<b>WATER %</b>	<b>DENSITY (dry)</b>	<b>AGE (days)</b>	<b>STRENGTH (psi)</b>
2	6.8	127.1	5	199
2	6.8	126.6	5	216
2	6.8	127.4	5	211
<b>AVERAGE:</b>				<b>209</b>
4	6.8	127.2	5	249
4	6.8	127.0	5	252
4	6.8	126.8	5	230
<b>AVERAGE:</b>				<b>243</b>

**CURING METHOD**

100° HUMIDIFIED OVEN