



February 23, 2021

Mr. Phil Boyd  
Welch, Comer and Associates, Inc.  
350 E. Kathleen Drive  
Coeur d'Alene, Idaho 83814

**RE: ALLWEST Project No. 118-014G8  
Mass Grading Report  
Atlas Waterfront Project  
3074 West Seltice Way  
Coeur d'Alene, Idaho**

Mr. Boyd,

**ALLWEST** has completed the authorized compaction testing of the structural fill placed within Atlas Waterfront Project at 3074 West Seltice Way in Coeur d'Alene, Idaho. The purpose of our services was to test the in-situ density of the structural fill placed for conformance with project specifications. The attached report presents the results of the field testing and observation with regard to mass grading. This report does not include density tests for underground utility placement. Additionally, a separate mass grading report for the Atlas Waterfront Project dated March 6, 2019 covers the fill placed from April to November of 2018.

### **FIELD TESTING AND OBSERVATION**

The construction consisted of filling portions of Phase 1, Phase 2, and Phase 3 of the project site, and earthwork correction of the existing native soil and uncontrolled fill. The project area was graded to a rough finish.

We observed the placement and performed density tests on the structural fill placed between December 2019 and November 2020. The material was excavated and placed from onsite sources. All tests and/or retests met or exceeded our recommended minimum compaction requirements of 95 percent of the maximum dry density determined in accordance with ASTM D1557 procedure. Attached are four maps showing the approximated density test locations included in Appendix A. Attached are a tabulation of the field density test results in Appendix B.

## RESULTS AND OBSERVATIONS

Based on our observations and field testing, it is our opinion that the structural fill placed has been adequately compacted. It is also our opinion that the fill is suitable for support of the anticipated foundation loads as described in our Preliminary Geotechnical Evaluations for Phase 1 and 3 dated February 1, 2019, and Phase 2 dated February 8, 2019.

## REPORT LIMITATIONS

This report has been prepared to assist the planning and design of the proposed Atlas Waterfront Project – Phase 1, Phase 2, and Phase 3 south of W. Seltice Way in Coeur d'Alene, Idaho. Reliance by any party other than the addressee is prohibited without the written authorization of ALLWEST. Our services consist of professional opinions and conclusions made in accordance with generally accepted geotechnical engineering principles and practices in the local area at the time this report was prepared. This acknowledgement is in lieu of all warranties, express or implied.

We appreciate the opportunity to work with you on this project. If you have any questions or need additional information, please do not hesitate to call us at (208) 762-4721.

Sincerely,  
**ALLWEST**



**Scott A. Marshall, P.G.**  
Senior Engineering Geologist



**Samuel Sommers, P.E.**  
Engineering Services Manager

Appendix A – Density Test Location Key Map, Density Test Location Maps (11)

Appendix B – Field Density Test Report for Soils

Appendix C – Laboratory Test Results



## **Appendix A**

### **Density Test Location Key Map, Density Test Location Maps (11)**





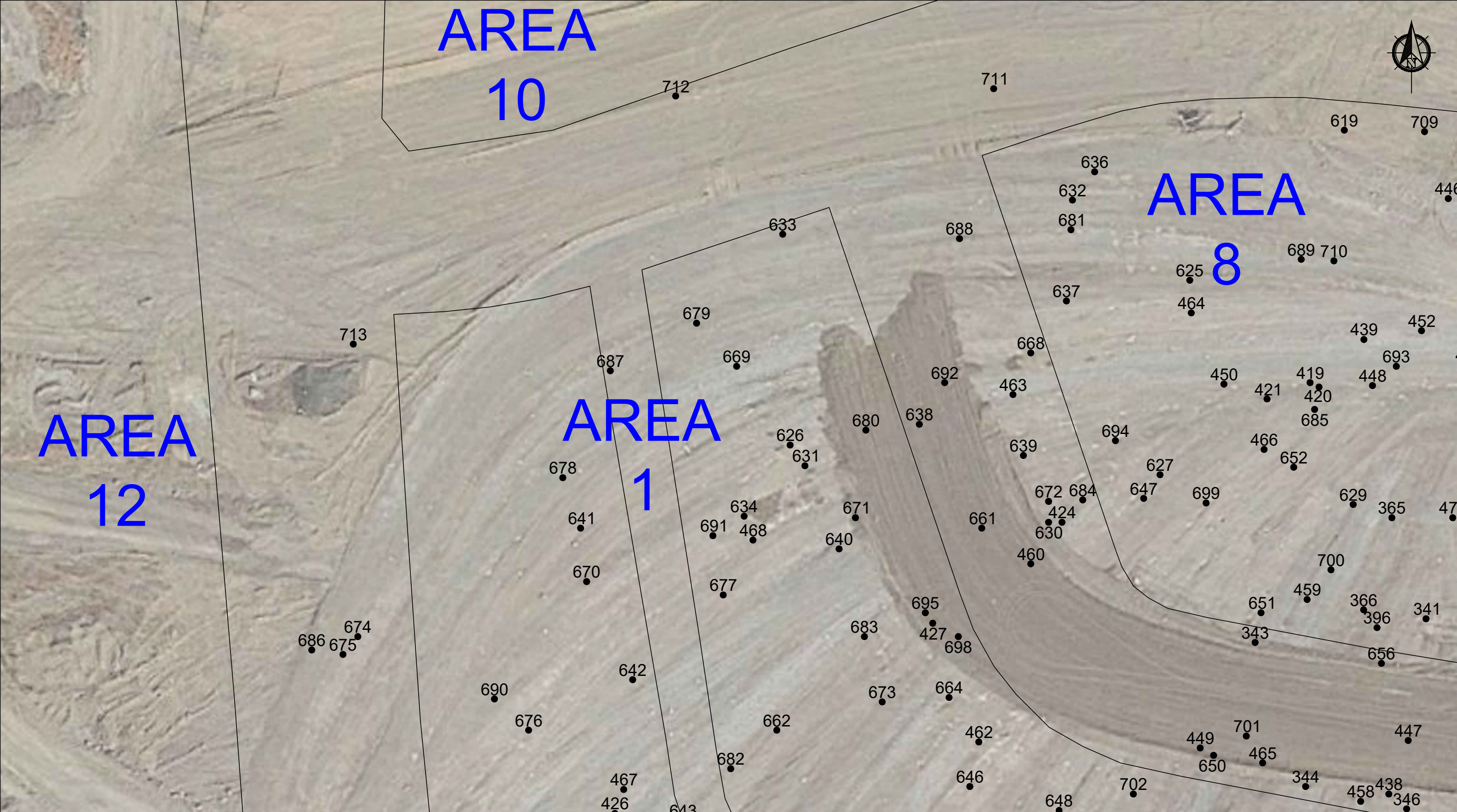


690 W Capstone Court  
Hayden, Idaho 83835  
(208) 762-4721  
[www.allwesttesting.com](http://www.allwesttesting.com)

**FIGURE A1 - DENSITY TEST LOCATION KEY MAP**

PROJECT:	118-014G8 ATLAS PHASE 1- GRADING		
LOCATION:	3074 W SELTICE WAY, COEUR D'ALENE, IDAHO		
CLIENT NAME:	WELCH COMER AND ASSOCIATES, INC		
DATE:	FEBRUARY 2021	SCALE:	NOT TO SCALE





690 W Capstone Court  
Hayden, Idaho 83835  
(208) 762-4721  
www.allwesttesting.com

FIGURE A2 - DENSITY TEST LOCATION MAP

PROJECT:	118-014G8 ATLAS PHASE 1 - GRADING		
LOCATION:	3074 W SELTICE WAY, COEUR D'ALENE, IDAHO		
CLIENT NAME:	WELCH COMER AND ASSOCIATES, INC		
DATE:	FEBRUARY 2021	SCALE:	NOT TO SCALE



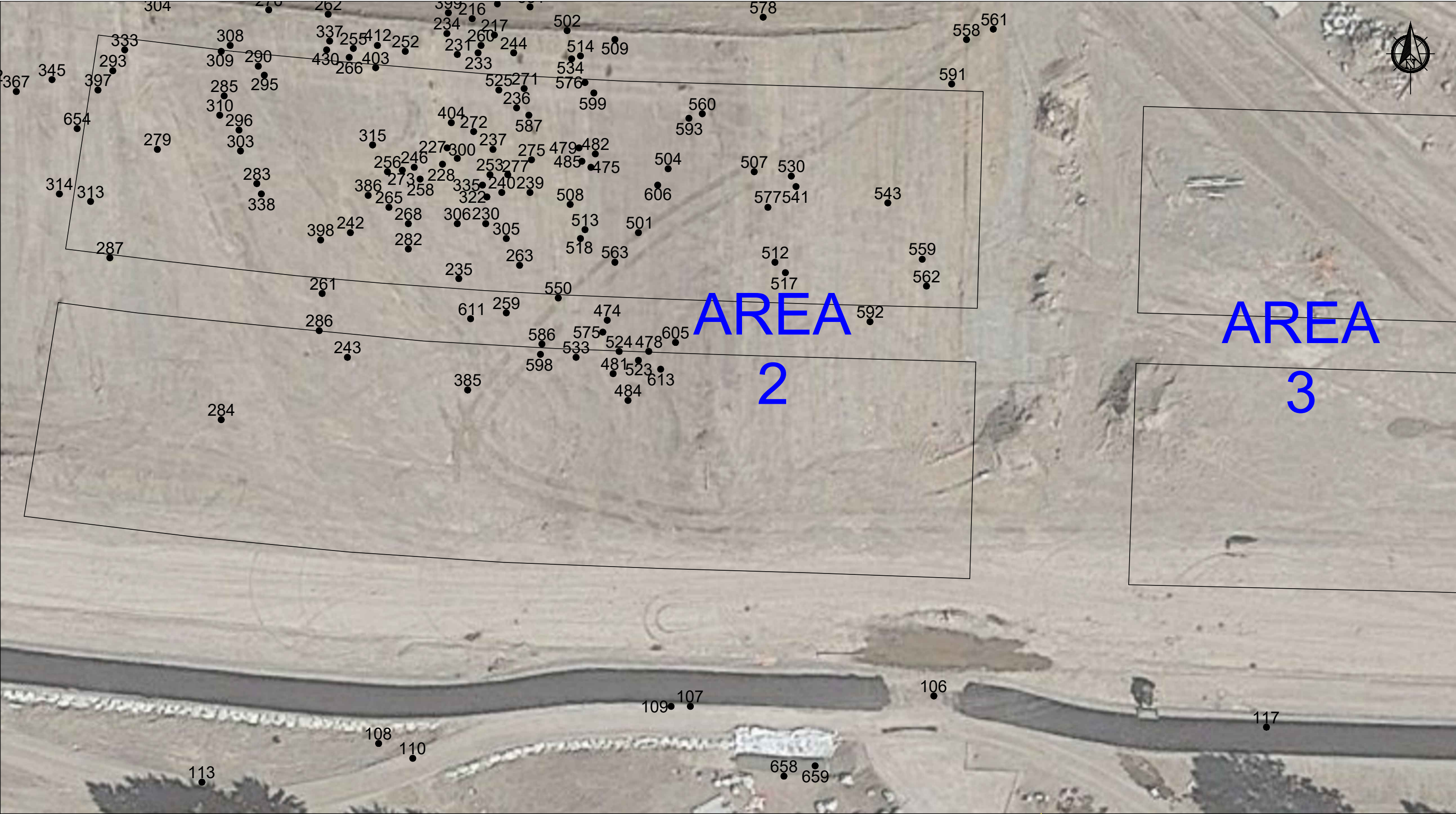


690 W Capstone Court  
Hayden, Idaho 83835  
(208) 762-4721  
[www.allwesttesting.com](http://www.allwesttesting.com)

FIGURE A3 - DENSITY TEST LOCATION MAP

PROJECT:	118-014G8 ATLAS PHASE 1 - GRADING		
LOCATION:	3074 W SELTICE WAY, COEUR D'ALENE, IDAHO		
CLIENT NAME:	WELCH COMER AND ASSOCIATES, INC		
DATE:	FEBRUARY 2021	SCALE:	NOT TO SCALE



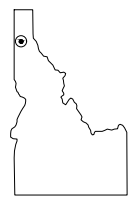
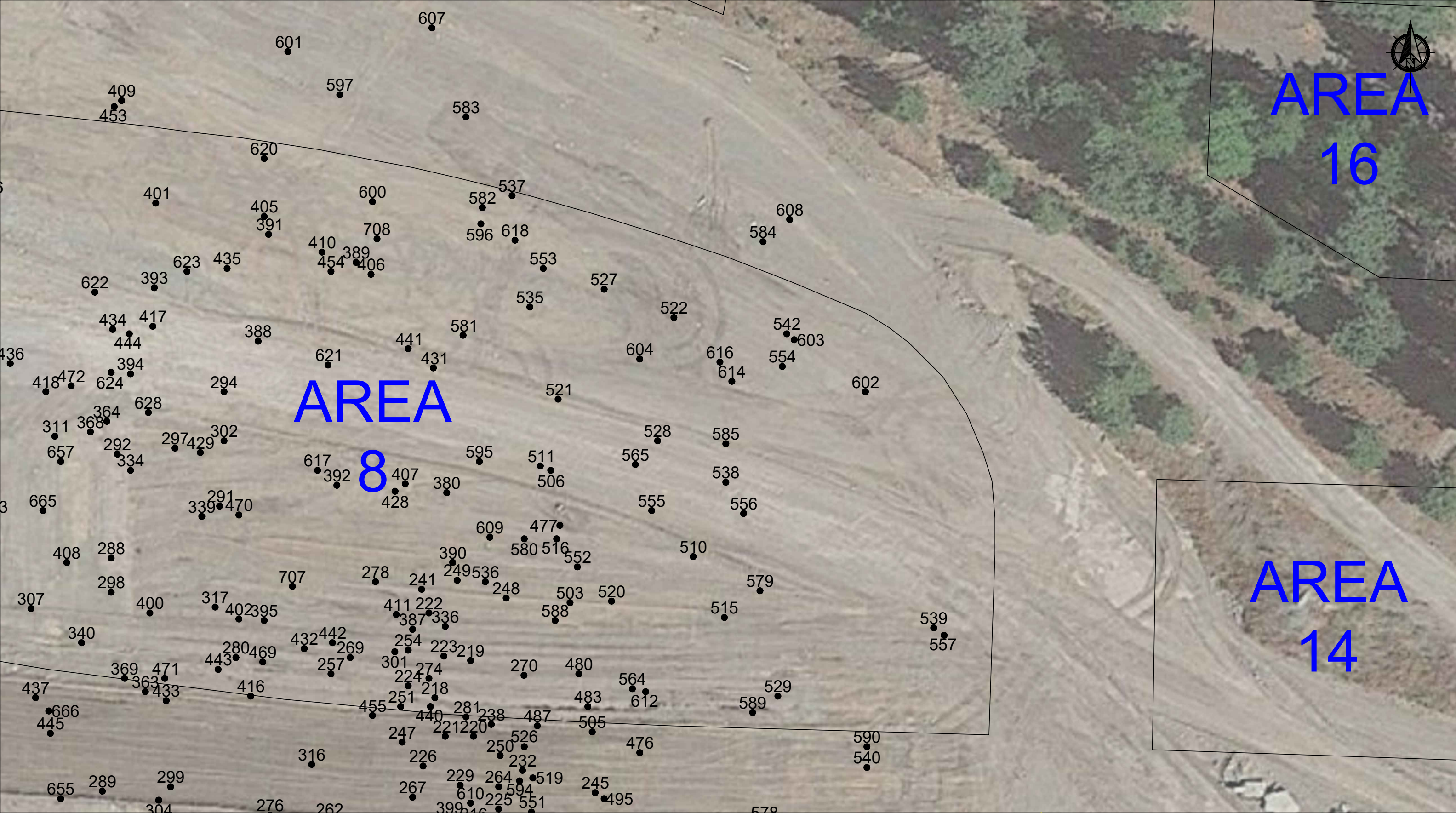


690 W Capstone Court  
Hayden, Idaho 83835  
(208) 762-4721  
www.allwesttesting.com

FIGURE A4- DENSITY TEST LOCATION MAP

PROJECT:	118-014G8 ATLAS PHASE 1 - GRADING		
LOCATION:	3074 W SELTICE WAY, COEUR D'ALENE, IDAHO		
CLIENT NAME:	WELCH COMER AND ASSOCIATES, INC		
DATE:	FEBRUARY 2021	SCALE:	NOT TO SCALE





690 W Capstone Court  
Hayden, Idaho 83835  
(208) 762-4721  
www.allwesttesting.com

FIGURE A5- DENSITY TEST LOCATION MAP

PROJECT:	118-014G8 ATLAS PHASE 1 - GRADING		
LOCATION:	3074 W SELTICE WAY, COEUR D'ALENE, IDAHO		
CLIENT NAME:	WELCH COMER AND ASSOCIATES, INC		
DATE:	FEBRUARY 2021	SCALE:	NOT TO SCALE





690 W Capstone Court  
Hayden, Idaho 83835  
(208) 762-4721  
[www.allwesttesting.com](http://www.allwesttesting.com)

**FIGURE A6- DENSITY TEST LOCATION MAP**

PROJECT:	118-014G8 ATLAS PHASE 1 - GRADING		
LOCATION:	3074 W SELTICE WAY, COEUR D'ALENE, IDAHO		
CLIENT NAME:	WELCH COMER AND ASSOCIATES, INC		
DATE:	FEBRUARY 2021	SCALE:	NOT TO SCALE





690 W Capstone Court  
Hayden, Idaho 83835  
(208) 762-4721  
[www.allwesttesting.com](http://www.allwesttesting.com)

FIGURE A7- DENSITY TEST LOCATION MAP

PROJECT:	118-014G8 ATLAS PHASE 1 - GRADING		
LOCATION:	3074 W SELTICE WAY, COEUR D'ALENE, IDAHO		
CLIENT NAME:	WELCH COMER AND ASSOCIATES, INC		
DATE:	FEBRUARY 2021	SCALE:	NOT TO SCALE





690 W Capstone Court  
Hayden, Idaho 83835  
(208) 762-4721  
www.allwesttesting.com

FIGURE A8- DENSITY TEST LOCATION MAP

PROJECT:	118-014G8 ATLAS PHASE 1 - GRADING		
LOCATION:	3074 W SELTICE WAY, COEUR D'ALENE, IDAHO		
CLIENT NAME:	WELCH COMER AND ASSOCIATES, INC		
DATE:	FEBRUARY 2021	SCALE:	NOT TO SCALE





690 W Capstone Court  
Hayden, Idaho 83835  
(208) 762-4721  
[www.allwesttesting.com](http://www.allwesttesting.com)

FIGURE A9- DENSITY TEST LOCATION MAP

PROJECT:	118-014G8 ATLAS PHASE 1 - GRADING		
LOCATION:	3074 W SELTICE WAY, COEUR D'ALENE, IDAHO		
CLIENT NAME:	WELCH COMER AND ASSOCIATES, INC		
DATE:	FEBRUARY 2021	SCALE:	NOT TO SCALE





690 W Capstone Court  
Hayden, Idaho 83835  
(208) 762-4721  
[www.allwesttesting.com](http://www.allwesttesting.com)

FIGURE A10- DENSITY TEST LOCATION MAP

PROJECT:	118-014G8 ATLAS PHASE 1 - GRADING		
LOCATION:	3074 W SELTICE WAY, COEUR D'ALENE, IDAHO		
CLIENT NAME:	WELCH COMER AND ASSOCIATES, INC		
DATE:	FEBRUARY 2021	SCALE:	NOT TO SCALE





690 W Capstone Court  
Hayden, Idaho 83835  
(208) 762-4721  
[www.allwesttesting.com](http://www.allwesttesting.com)

FIGURE A11-DENSITY TEST LOCATION MAP

PROJECT:	118-014G8 ATLAS PHASE 1 - GRADING		
LOCATION:	3074 W SELTICE WAY, COEUR D'ALENE, IDAHO		
CLIENT NAME:	WELCH COMER AND ASSOCIATES, INC		
DATE:	FEBRUARY 2021	SCALE:	NOT TO SCALE





690 W Capstone Court  
Hayden, Idaho 83835  
(208) 762-4721  
[www.allwesttesting.com](http://www.allwesttesting.com)

FIGURE A12-DENSITY TEST LOCATION MAP

PROJECT:	118-014G8 ATLAS PHASE 1 - GRADING		
LOCATION:	3074 W SELTICE WAY, COEUR D'ALENE, IDAHO		
CLIENT NAME:	WELCH COMER AND ASSOCIATES, INC		
DATE:	FEBRUARY 2021	SCALE:	NOT TO SCALE



## **Appendix B**

### **Field Density Test Report for Soils**





## Appendix B - Field Density Test Report for Soils

ASTM 6938

Project Name: Atlas Waterfront Project						Project No.: 118-014T				
Proctor Number		Soil Description		Optimum Moisture (%)		Maximum Density (pcf)		Standard/Modified		
1	S119-0346	WSDOT Crushed Surfacing Top Course		10.4		136.1		Modified		
2	S119-0957	Brown Sand with Silt		9.2		128.9		Modified		
3	S119-0959	Brown Sand with Gravel		8.6		134.4		Modified		
4	S119-0978	Crushed Concrete		Oversized (Relative Density)			N/A			
5	S120-0030	Brown Sandy Gravel with Silt		6.6		139.5		Modified		
6	S120-0096	Brown-Gray Sand with Silt and Gravel		8.1		133.6		Modified		
7	S118-0735	Light Brown Sand with Gravel		8.0		131.0		Modified		
8	S118-0115	Brown and Gray Sandy Gravel		7.0		139.6		Modified		
9	S118-0150	Silty Sand with Gravel		7.8		133.1		Modified		
12	S120-0453	Poorly-Graded Sand and Gravel with Silt		6.6		135.7		Modified		
Test Number	Test Location		Approx. Elevation (ft)	Proctor Number	Date	% Moisture	Dry Density	% Compaction	Required Compaction	Re-Test of Test No.
1	Refer to Figures A2 through A12 for approximate test location.		2.5' BG	7	12/16/19	7.0	125.3	96	95%	
2	Refer to Figures A2 through A12 for approximate test location.		6.5' BG	7	12/16/19	6.8	124.9	95	95%	
3	Refer to Figures A2 through A12 for approximate test location.		7' BG	7	12/16/19	7.3	126.7	97	95%	
4	Refer to Figures A2 through A12 for approximate test location.		5' BG	7	12/16/19	7.5	126.4	96	95%	
5	Refer to Figures A2 through A12 for approximate test location.		8' BG	7	12/16/19	6.6	128.0	98	95%	
6	Refer to Figures A2 through A12 for approximate test location.		7.5' BG	7	12/16/19	5.9	127.4	97	95%	
7	Refer to Figures A2 through A12 for approximate test location.		3.5' BG	7	12/16/19	6.3	126.1	96	95%	
8	Refer to Figures A2 through A12 for approximate test location.		6' BG	7	12/16/19	6.6	126.9	97	95%	
9	Refer to Figures A2 through A12 for approximate test location.		6' BG	7	12/16/19	6.1	130.0	99	95%	
10	Refer to Figures A2 through A12 for approximate test location.		7' BG	7	12/16/19	6.4	127.0	97	95%	
11	Refer to Figures A2 through A12 for approximate test location.		3' BG	7	12/16/19	6.3	127.5	97	95%	
12	Refer to Figures A2 through A12 for approximate test location.		7' BG	7	12/16/19	7.0	125.1	95	95%	
13	Refer to Figures A2 through A12 for approximate test location.		4' BG	7	12/16/19	6.7	125.9	96	95%	
14	Refer to Figures A2 through A12 for approximate test location.		5.5' BG	7	12/17/19	5.2	128.0	98	95%	
15	Refer to Figures A2 through A12 for approximate test location.		6' BG	7	12/17/19	6.2	127.2	97	95%	
16	Refer to Figures A2 through A12 for approximate test location.		7' BG	8	12/17/19	6.7	133.9	96	95%	
17	Refer to Figures A2 through A12 for approximate test location.		5' BG	7	12/17/19	5.8	126.4	96	95%	
18	Refer to Figures A2 through A12 for approximate test location.		2.5' BG	7	12/17/19	4.5	125.6	96	95%	
19	Refer to Figures A2 through A12 for approximate test location.		5' BG	7	12/17/19	5.9	125.9	96	95%	
20	Refer to Figures A2 through A12 for approximate test location.		4' BG	7	12/17/19	6.4	127.0	97	95%	
21	Refer to Figures A2 through A12 for approximate test location.		5.5' BG	7	12/17/19	7.0	124.9	95	95%	
22	Refer to Figures A2 through A12 for approximate test location.		5' BG	8	12/17/19	6.9	132.9	95	95%	



## Appendix B - Field Density Test Report for Soils

ASTM 6938

Project Name: Atlas Waterfront Project						Project No.: 118-014T				
Proctor Number		Soil Description		Optimum Moisture (%)		Maximum Density (pcf)		Standard/Modified		
1	S119-0346	WSDOT Crushed Surfacing Top Course		10.4		136.1		Modified		
2	S119-0957	Brown Sand with Silt		9.2		128.9		Modified		
3	S119-0959	Brown Sand with Gravel		8.6		134.4		Modified		
4	S119-0978	Crushed Concrete		Oversized (Relative Density)			N/A			
5	S120-0030	Brown Sandy Gravel with Silt		6.6		139.5		Modified		
6	S120-0096	Brown-Gray Sand with Silt and Gravel		8.1		133.6		Modified		
7	S118-0735	Light Brown Sand with Gravel		8.0		131.0		Modified		
8	S118-0115	Brown and Gray Sandy Gravel		7.0		139.6		Modified		
9	S118-0150	Silty Sand with Gravel		7.8		133.1		Modified		
12	S120-0453	Poorly-Graded Sand and Gravel with Silt		6.6		135.7		Modified		
Test Number	Test Location		Approx. Elevation (ft)	Proctor Number	Date	% Moisture	Dry Density	% Compaction	Required Compaction	Re-Test of Test No.
23	Refer to Figures A2 through A12 for approximate test location.		2' BG	8	12/17/19	6.5	134.2	96	95%	
24	Refer to Figures A2 through A12 for approximate test location.		4' BG	7	12/17/19	7.5	126.3	96	95%	
25	Refer to Figures A2 through A12 for approximate test location.		3.5' BG	7	12/17/19	6.4	124.9	95	95%	
26	Refer to Figures A2 through A12 for approximate test location.		2' BG	8	12/17/19	6.4	133.8	96	95%	
27	Refer to Figures A2 through A12 for approximate test location.		2' BG	8	12/17/19	8.0	134.7	96	95%	
28	Refer to Figures A2 through A12 for approximate test location.		3' BG	7	12/17/19	7.6	125.7	96	95%	
29	Refer to Figures A2 through A12 for approximate test location.		4.5' BG	7	12/17/19	7.0	126.0	96	95%	
30	Refer to Figures A2 through A12 for approximate test location.		6' BG	7	12/17/19	7.1	127.1	97	95%	
31	Refer to Figures A2 through A12 for approximate test location.		5' BG	7	12/17/19	7.0	125.8	96	95%	
32	Refer to Figures A2 through A12 for approximate test location.		5' BG	8	12/17/19	8.6	133.2	95	95%	
33	Refer to Figures A2 through A12 for approximate test location.		2.5' BG	7	12/17/19	5.1	127.7	97	95%	
34	Refer to Figures A2 through A12 for approximate test location.		3' BG	7	12/17/19	6.3	125.4	96	95%	
35	Refer to Figures A2 through A12 for approximate test location.		2' BG	7	12/17/19	9.7	125.6	96	95%	
36	Refer to Figures A2 through A12 for approximate test location.		4' BG	8	12/17/19	6.2	135.7	97	95%	
37	Refer to Figures A2 through A12 for approximate test location.		1.5' BG	7	12/17/19	7.4	128.0	98	95%	
38	Refer to Figures A2 through A12 for approximate test location.		1.5' BG	7	12/17/19	9.6	127.0	97	95%	
39	Refer to Figures A2 through A12 for approximate test location.		2.5' BG	7	12/17/19	6.2	128.4	98	95%	
40	Refer to Figures A2 through A12 for approximate test location.		2' BG	8	12/17/19	7.2	133.7	96	95%	
41	Refer to Figures A2 through A12 for approximate test location.		3' BG	7	12/17/19	6.2	130.0	99	95%	
42	Refer to Figures A2 through A12 for approximate test location.		4' BG	7	12/17/19	5.4	127.4	97	95%	
43	Refer to Figures A2 through A12 for approximate test location.		3' BG	7	12/17/19	7.0	126.0	96	95%	
44	Refer to Figures A2 through A12 for approximate test location.		2' BG	8	12/17/19	7.3	135.1	97	95%	



## Appendix B - Field Density Test Report for Soils

ASTM 6938

Project Name: Atlas Waterfront Project						Project No.: 118-014T				
Proctor Number		Soil Description		Optimum Moisture (%)		Maximum Density (pcf)		Standard/Modified		
1	S119-0346	WSDOT Crushed Surfacing Top Course		10.4		136.1		Modified		
2	S119-0957	Brown Sand with Silt		9.2		128.9		Modified		
3	S119-0959	Brown Sand with Gravel		8.6		134.4		Modified		
4	S119-0978	Crushed Concrete		Oversized (Relative Density)			N/A			
5	S120-0030	Brown Sandy Gravel with Silt		6.6		139.5		Modified		
6	S120-0096	Brown-Gray Sand with Silt and Gravel		8.1		133.6		Modified		
7	S118-0735	Light Brown Sand with Gravel		8.0		131.0		Modified		
8	S118-0115	Brown and Gray Sandy Gravel		7.0		139.6		Modified		
9	S118-0150	Silty Sand with Gravel		7.8		133.1		Modified		
12	S120-0453	Poorly-Graded Sand and Gravel with Silt		6.6		135.7		Modified		
Test Number	Test Location		Approx. Elevation (ft)	Proctor Number	Date	% Moisture	Dry Density	% Compaction	Required Compaction	Re-Test of Test No.
45	Refer to Figures A2 through A12 for approximate test location.		2' BG	8	12/17/19	6.7	134.2	96	95%	
46	Refer to Figures A2 through A12 for approximate test location.		2' BG	8	12/17/19	6.5	133.7	96	95%	
47	Refer to Figures A2 through A12 for approximate test location.		1.5' BG	8	12/17/19	5.6	132.9	92	95%	
48	Refer to Figures A2 through A12 for approximate test location.		1.5' BG	7	12/17/19	8.0	127.8	98	95%	
49	Refer to Figures A2 through A12 for approximate test location.		6' BG	7	12/18/19	6.8	127.4	97	95%	
50	Refer to Figures A2 through A12 for approximate test location.		5' BG	7	12/18/19	6.2	127.3	97	95%	
51	Refer to Figures A2 through A12 for approximate test location.		4' BG	7	12/18/19	6.0	127.0	97	95%	
52	Refer to Figures A2 through A12 for approximate test location.		3' BG	7	12/18/19	6.7	126.1	96	95%	
53	Refer to Figures A2 through A12 for approximate test location.		2.3' BG	4	12/23/19	9.3	114.3	na	na	
54	Refer to Figures A2 through A12 for approximate test location.		2' BG	4	12/23/19	10.0	114.1	na	na	
55	Refer to Figures A2 through A12 for approximate test location.		1' BG	4	12/23/19	8.7	116.1	na	na	
56	Refer to Figures A2 through A12 for approximate test location.		1.5' BG	4	12/23/19	9.6	115.2	na	na	
57	Refer to Figures A2 through A12 for approximate test location.		1' BG	4	12/23/19	10.2	113.6	na	na	
58	Refer to Figures A2 through A12 for approximate test location.		2' BG	4	12/23/19	10.4	114.5	na	na	
59	Refer to Figures A2 through A12 for approximate test location.		2.5' BG	4	12/23/19	9.1	115.7	na	na	
60	Refer to Figures A2 through A12 for approximate test location.		2' BG	4	12/23/19	8.9	114.3	na	na	
61	Refer to Figures A2 through A12 for approximate test location.		2.5' BG	4	12/23/19	8.7	117.1	na	na	
62	Refer to Figures A2 through A12 for approximate test location.		2.5' BG	4	12/23/19	9.6	113.8	na	na	
63	Refer to Figures A2 through A12 for approximate test location.		2' BG	4	12/23/19	11.0	115.6	na	na	
64	Refer to Figures A2 through A12 for approximate test location.		1.5' BG	4	12/23/19	10.2	114.7	na	na	
65	Refer to Figures A2 through A12 for approximate test location.		1.5' BG	4	12/23/19	10.4	111.3	na	na	
66	Refer to Figures A2 through A12 for approximate test location.		1.5' BG	4	12/23/19	9.9	113.7	na	na	



## Appendix B - Field Density Test Report for Soils

ASTM 6938

Project Name: Atlas Waterfront Project						Project No.: 118-014T				
Proctor Number		Soil Description		Optimum Moisture (%)		Maximum Density (pcf)		Standard/Modified		
1	S119-0346	WSDOT Crushed Surfacing Top Course		10.4		136.1		Modified		
2	S119-0957	Brown Sand with Silt		9.2		128.9		Modified		
3	S119-0959	Brown Sand with Gravel		8.6		134.4		Modified		
4	S119-0978	Crushed Concrete		Oversized (Relative Density)			N/A			
5	S120-0030	Brown Sandy Gravel with Silt		6.6		139.5		Modified		
6	S120-0096	Brown-Gray Sand with Silt and Gravel		8.1		133.6		Modified		
7	S118-0735	Light Brown Sand with Gravel		8.0		131.0		Modified		
8	S118-0115	Brown and Gray Sandy Gravel		7.0		139.6		Modified		
9	S118-0150	Silty Sand with Gravel		7.8		133.1		Modified		
12	S120-0453	Poorly-Graded Sand and Gravel with Silt		6.6		135.7		Modified		
Test Number	Test Location		Approx. Elevation (ft)	Proctor Number	Date	% Moisture	Dry Density	% Compaction	Required Compaction	Re-Test of Test No.
67	Refer to Figures A2 through A12 for approximate test location.		1.5' BG	4	12/23/19	10.8	113.9	na	na	
68	Refer to Figures A2 through A12 for approximate test location.		1.5' BG	4	12/23/19	11.3	114.0	na	na	
69	Refer to Figures A2 through A12 for approximate test location.		SG	4	12/24/19	8.4	134.6	na	na	
70	Refer to Figures A2 through A12 for approximate test location.		1' BG	4	12/24/19	7.8	129.8	na	na	
71	Refer to Figures A2 through A12 for approximate test location.		1' BG	4	12/24/19	9.1	132.6	na	na	
72	Refer to Figures A2 through A12 for approximate test location.		1' BG	4	12/24/19	8.3	128.4	na	na	
73	Refer to Figures A2 through A12 for approximate test location.		SG	4	12/24/19	8.0	134.7	na	na	
74	Refer to Figures A2 through A12 for approximate test location.		SG	4	12/24/19	8.4	135.6	na	na	
75	Refer to Figures A2 through A12 for approximate test location.		SG	4	12/24/19	0.4	128.6	na	na	
76	Refer to Figures A2 through A12 for approximate test location.		SG	4	12/24/19	8.2	131.7	na	na	
77	Refer to Figures A2 through A12 for approximate test location.		SG	4	12/24/19	8.9	132.8	na	na	
87	Refer to Figures A2 through A12 for approximate test location.		SG	3	12/30/19	7.9	129.3	96	95%	
88	Refer to Figures A2 through A12 for approximate test location.		SG	3	12/30/19	7.1	130.2	97	95%	
89	Refer to Figures A2 through A12 for approximate test location.		SG	3	12/30/19	8.3	128.7	96	95%	
90	Refer to Figures A2 through A12 for approximate test location.		2' BG	4	12/30/19	9.7	114.6	na	na	
91	Refer to Figures A2 through A12 for approximate test location.		2' BG	4	12/30/19	9.9	15.3	na	na	
92	Refer to Figures A2 through A12 for approximate test location.		1.5' BG	4	12/30/19	9.9	114.7	na	na	
93	Refer to Figures A2 through A12 for approximate test location.		3.5' BG	4	12/30/19	10.1	116.1	na	na	
94	Refer to Figures A2 through A12 for approximate test location.		3.5' BG	4	12/30/19	9.8	115.8	na	na	
95	Refer to Figures A2 through A12 for approximate test location.		SG	4	1/2/20	10.0	117.8	na	na	
96	Refer to Figures A2 through A12 for approximate test location.		2' BG	4	1/2/20	9.1	118.9	na	na	
98	Refer to Figures A2 through A12 for approximate test location.		2' BG	4	1/2/20	9.4	116.1	na	na	



## Appendix B - Field Density Test Report for Soils

ASTM 6938

Project Name: Atlas Waterfront Project						Project No.: 118-014T				
Proctor Number		Soil Description		Optimum Moisture (%)		Maximum Density (pcf)		Standard/Modified		
1	S119-0346	WSDOT Crushed Surfacing Top Course		10.4		136.1		Modified		
2	S119-0957	Brown Sand with Silt		9.2		128.9		Modified		
3	S119-0959	Brown Sand with Gravel		8.6		134.4		Modified		
4	S119-0978	Crushed Concrete		Oversized (Relative Density)			N/A			
5	S120-0030	Brown Sandy Gravel with Silt		6.6		139.5		Modified		
6	S120-0096	Brown-Gray Sand with Silt and Gravel		8.1		133.6		Modified		
7	S118-0735	Light Brown Sand with Gravel		8.0		131.0		Modified		
8	S118-0115	Brown and Gray Sandy Gravel		7.0		139.6		Modified		
9	S118-0150	Silty Sand with Gravel		7.8		133.1		Modified		
12	S120-0453	Poorly-Graded Sand and Gravel with Silt		6.6		135.7		Modified		
Test Number	Test Location		Approx. Elevation (ft)	Proctor Number	Date	% Moisture	Dry Density	% Compaction	Required Compaction	Re-Test of Test No.
99	Refer to Figures A2 through A12 for approximate test location.		SG	4	1/2/20	10.0	115.9	na	na	
100	Refer to Figures A2 through A12 for approximate test location.		3' BG	4	1/2/20	9.0	116.3	na	na	
101	Refer to Figures A2 through A12 for approximate test location.		5' BG	4	1/2/20	8.3	115.8	na	na	
102	Refer to Figures A2 through A12 for approximate test location.		1' BG	4	1/2/20	9.9	118.0	na	na	
103	Refer to Figures A2 through A12 for approximate test location.		SG	4	1/2/20	9.4	114.9	na	na	
104	Refer to Figures A2 through A12 for approximate test location.		4' BG	4	1/2/20	8.9	117.5	na	na	
105	Refer to Figures A2 through A12 for approximate test location.		3' BG	4	1/2/20	9.5	115.8	na	na	
106	Refer to Figures A2 through A12 for approximate test location.		1,5' BG	4	1/3/20	9.1	115.9	na	na	
107	Refer to Figures A2 through A12 for approximate test location.		2' BG	4	1/3/20	9.7	115.8	na	na	
108	Refer to Figures A2 through A12 for approximate test location.		2' BG	4	1/3/20	9.5	117.4	na	na	
109	Refer to Figures A2 through A12 for approximate test location.		1' BG	4	1/3/20	10.0	115.2	na	na	
110	Refer to Figures A2 through A12 for approximate test location.		SG	4	1/3/20	10.2	116.3	na	na	
111	Refer to Figures A2 through A12 for approximate test location.		SG	4	1/3/20	9.6	116.1	na	na	
112	Refer to Figures A2 through A12 for approximate test location.		SG	4	1/3/20	9.7	118.1	na	na	
113	Refer to Figures A2 through A12 for approximate test location.		1' BG	4	1/3/20	9.5	116.4	na	na	
115	Refer to Figures A2 through A12 for approximate test location.		2' BG	4	1/3/20	9.4	116.3	na	na	
116	Refer to Figures A2 through A12 for approximate test location.		2' BG	4	1/3/20	8.9	117.4	na	na	
117	Refer to Figures A2 through A12 for approximate test location.		4' BG	4	1/3/20	9.6	115.6	na	na	
118	Refer to Figures A2 through A12 for approximate test location.		1' BG	4	1/3/20	10.0	116.6	na	na	
119	Refer to Figures A2 through A12 for approximate test location.		1' BG	4	1/3/20	9.1	115.1	na	na	
120	Refer to Figures A2 through A12 for approximate test location.		4' BG	4	1/3/20	8.7	114.9	na	na	
121	Refer to Figures A2 through A12 for approximate test location.		SG	4	1/3/20	9.4	118.2	na	na	



## Appendix B - Field Density Test Report for Soils

ASTM 6938

Project Name: Atlas Waterfront Project						Project No.: 118-014T				
Proctor Number		Soil Description		Optimum Moisture (%)		Maximum Density (pcf)		Standard/Modified		
1	S119-0346	WSDOT Crushed Surfacing Top Course		10.4		136.1		Modified		
2	S119-0957	Brown Sand with Silt		9.2		128.9		Modified		
3	S119-0959	Brown Sand with Gravel		8.6		134.4		Modified		
4	S119-0978	Crushed Concrete		Oversized (Relative Density)			N/A			
5	S120-0030	Brown Sandy Gravel with Silt		6.6		139.5		Modified		
6	S120-0096	Brown-Gray Sand with Silt and Gravel		8.1		133.6		Modified		
7	S118-0735	Light Brown Sand with Gravel		8.0		131.0		Modified		
8	S118-0115	Brown and Gray Sandy Gravel		7.0		139.6		Modified		
9	S118-0150	Silty Sand with Gravel		7.8		133.1		Modified		
12	S120-0453	Poorly-Graded Sand and Gravel with Silt		6.6		135.7		Modified		
Test Number	Test Location		Approx. Elevation (ft)	Proctor Number	Date	% Moisture	Dry Density	% Compaction	Required Compaction	Re-Test of Test No.
122	Refer to Figures A2 through A12 for approximate test location.		2' BG	4	1/3/20	9.9	117.4	na	na	
123	Refer to Figures A2 through A12 for approximate test location.		4' BG	4	1/3/20	10.3	117.9	na	na	
124	Refer to Figures A2 through A12 for approximate test location.		3' BG	4	1/3/20	9.1	115.9	na	na	
130	Refer to Figures A2 through A12 for approximate test location.		2' BG	4	1/16/20	8.9	120.1	na	na	
131	Refer to Figures A2 through A12 for approximate test location.		1' BG	4	1/16/20	9.1	117.4	na	na	
132	Refer to Figures A2 through A12 for approximate test location.		SG	4	1/16/20	8.4	118.6	na	na	
133	Refer to Figures A2 through A12 for approximate test location.		SG	4	1/16/20	7.6	116.9	na	na	
134	Refer to Figures A2 through A12 for approximate test location.		SG	4	1/16/20	8.3	117.6	na	na	
138	Refer to Figures A2 through A12 for approximate test location.		SG	9	1/20/20	5.3	130.7	98	95%	
139	Refer to Figures A2 through A12 for approximate test location.		SG	7	1/20/20	7.5	125.2	96	95%	
140	Refer to Figures A2 through A12 for approximate test location.		SG	7	1/20/20	7.4	124.4	95	95%	
141	Refer to Figures A2 through A12 for approximate test location.		SG	7	1/20/20	7.1	126.3	96	95%	
142	Refer to Figures A2 through A12 for approximate test location.		SG	7	1/20/20	7.6	125.3	96	95%	
143	Refer to Figures A2 through A12 for approximate test location.		SG	7	1/20/20	6.4	126.3	96	95%	
144	Refer to Figures A2 through A12 for approximate test location.		SG	9	1/20/20	6.4	129.8	98	95%	
145	Refer to Figures A2 through A12 for approximate test location.		SG	9	1/20/20	6.7	28.3	96	95%	
146	Refer to Figures A2 through A12 for approximate test location.		SG	9	1/20/20	6.1	130.4	98	95%	
147	Refer to Figures A2 through A12 for approximate test location.		SG	9	1/20/20	6.0	130.0	98	95%	
148	Refer to Figures A2 through A12 for approximate test location.		SG	9	1/20/20	5.9	129.4	97	95%	
159	Refer to Figures A2 through A12 for approximate test location.		SG	2	2/4/20	7.5	124.6	97	95%	
160	Refer to Figures A2 through A12 for approximate test location.		3' BG	2	2/4/20	6.8	125.0	97	95%	
161	Refer to Figures A2 through A12 for approximate test location.		2' BG	2	2/4/20	7.3	123.8	96	95%	



## Appendix B - Field Density Test Report for Soils

ASTM 6938

Project Name: Atlas Waterfront Project						Project No.: 118-014T				
Proctor Number		Soil Description		Optimum Moisture (%)		Maximum Density (pcf)		Standard/Modified		
1	S119-0346	WSDOT Crushed Surfacing Top Course		10.4		136.1		Modified		
2	S119-0957	Brown Sand with Silt		9.2		128.9		Modified		
3	S119-0959	Brown Sand with Gravel		8.6		134.4		Modified		
4	S119-0978	Crushed Concrete		Oversized (Relative Density)			N/A			
5	S120-0030	Brown Sandy Gravel with Silt		6.6		139.5		Modified		
6	S120-0096	Brown-Gray Sand with Silt and Gravel		8.1		133.6		Modified		
7	S118-0735	Light Brown Sand with Gravel		8.0		131.0		Modified		
8	S118-0115	Brown and Gray Sandy Gravel		7.0		139.6		Modified		
9	S118-0150	Silty Sand with Gravel		7.8		133.1		Modified		
12	S120-0453	Poorly-Graded Sand and Gravel with Silt		6.6		135.7		Modified		
Test Number	Test Location		Approx. Elevation (ft)	Proctor Number	Date	% Moisture	Dry Density	% Compaction	Required Compaction	Re-Test of Test No.
162	Refer to Figures A2 through A12 for approximate test location.		2' BG	2	2/4/20	7.4	122.9	95	95%	
163	Refer to Figures A2 through A12 for approximate test location.		2' BG	2	2/4/20	8.1	125.3	97	95%	
164	Refer to Figures A2 through A12 for approximate test location.		1.5' BG	2	2/4/20	7.3	124.1	96	95%	
165	Refer to Figures A2 through A12 for approximate test location.		1.5' BG	2	2/4/20	6.9	122.7	95	95%	
174	Refer to Figures A2 through A12 for approximate test location.		SG	8	2/27/19	5.5	132.3	95	95%	
175	Refer to Figures A2 through A12 for approximate test location.		SG	8	2/27/19	5.1	134.7	96	95%	
176	Refer to Figures A2 through A12 for approximate test location.		SG	8	2/27/19	5.4	133.6	96	95%	
177	Refer to Figures A2 through A12 for approximate test location.		SG	8	2/27/19	4.9	135.1	97	95%	
178	Refer to Figures A2 through A12 for approximate test location.		SG	8	2/27/19	4.5	132.9	95	95%	
179	Refer to Figures A2 through A12 for approximate test location.		1.5' ABG	5	3/16/20	8.3	133.4	96	95%	
180	Refer to Figures A2 through A12 for approximate test location.		1.5' ABG	5	3/16/20	8.1	134.3	96	95%	
181	Refer to Figures A2 through A12 for approximate test location.		1.5' ABG	5	3/16/20	8.0	133.9	96	95%	
182	Refer to Figures A2 through A12 for approximate test location.		3' ABG	5	3/16/20	9.0	133.6	96	95%	
183	Refer to Figures A2 through A12 for approximate test location.		3' ABG	5	3/16/20	9.1	134.5	96	95%	
184	Refer to Figures A2 through A12 for approximate test location.		4.5' ABG	6	3/16/20	9.1	130.2	97	95%	
185	Refer to Figures A2 through A12 for approximate test location.		4.5' ABG	6	3/16/20	9.0	128.4	96	95%	
204	Refer to Figures A2 through A12 for approximate test location.		4' BG	3	3/18/20	6.9	130.1	97	95%	
205	Refer to Figures A2 through A12 for approximate test location.		4' BG	3	3/18/20	6.8	130.6	97	95%	
206	Refer to Figures A2 through A12 for approximate test location.		1' BG	3	3/18/20	7.3	128.4	95	95%	
207	Refer to Figures A2 through A12 for approximate test location.		1' BG	3	3/18/20	6.3	127.6	95	95%	
208	Refer to Figures A2 through A12 for approximate test location.		6.5' ABG	3	3/18/20	7.1	128.9	96	95%	
209	Refer to Figures A2 through A12 for approximate test location.		6' ABG	3	3/18/20	7.0	130.2	98	95%	



## Appendix B - Field Density Test Report for Soils

ASTM 6938

Project Name: Atlas Waterfront Project						Project No.: 118-014T				
Proctor Number		Soil Description		Optimum Moisture (%)		Maximum Density (pcf)		Standard/Modified		
1	S119-0346	WSDOT Crushed Surfacing Top Course		10.4		136.1		Modified		
2	S119-0957	Brown Sand with Silt		9.2		128.9		Modified		
3	S119-0959	Brown Sand with Gravel		8.6		134.4		Modified		
4	S119-0978	Crushed Concrete		Oversized (Relative Density)			N/A			
5	S120-0030	Brown Sandy Gravel with Silt		6.6		139.5		Modified		
6	S120-0096	Brown-Gray Sand with Silt and Gravel		8.1		133.6		Modified		
7	S118-0735	Light Brown Sand with Gravel		8.0		131.0		Modified		
8	S118-0115	Brown and Gray Sandy Gravel		7.0		139.6		Modified		
9	S118-0150	Silty Sand with Gravel		7.8		133.1		Modified		
12	S120-0453	Poorly-Graded Sand and Gravel with Silt		6.6		135.7		Modified		
Test Number	Test Location		Approx. Elevation (ft)	Proctor Number	Date	% Moisture	Dry Density	% Compaction	Required Compaction	Re-Test of Test No.
210	Refer to Figures A2 through A12 for approximate test location.		SG	3	3/18/20	7.2	127.9	95	95%	
211	Refer to Figures A2 through A12 for approximate test location.		SG	3	3/18/20	7.4	129.5	96	95%	
212	Refer to Figures A2 through A12 for approximate test location.		3' BG	3	3/18/20	6.5	130.9	97	95%	
213	Refer to Figures A2 through A12 for approximate test location.		3' BG	3	3/18/20	6.2	128.1	95	95%	
214	Refer to Figures A2 through A12 for approximate test location.		1.5' BG	3	3/18/20	6.4	128.4	95	95%	
215	Refer to Figures A2 through A12 for approximate test location.		1.5' BG	3	3/18/20	6.3	129.9	97	95%	
216	Refer to Figures A2 through A12 for approximate test location.		BG	2	6/10/20	12.9	121.9	95	95%	
217	Refer to Figures A2 through A12 for approximate test location.		BG	10	6/10/20	8.8	128.3	95	95%	
218	Refer to Figures A2 through A12 for approximate test location.		BG	10	6/10/20	8.2	129.8	96	95%	
219	Refer to Figures A2 through A12 for approximate test location.		BG	10	6/10/20	8.8	122.1	90	95%	
220	Refer to Figures A2 through A12 for approximate test location.		BG	10	6/10/20	7.2	128.9	95	95%	
221	Refer to Figures A2 through A12 for approximate test location.		BG	2	6/10/20	9.9	122.4	95	95%	
222	Refer to Figures A2 through A12 for approximate test location.		BG	10	6/10/20	7.9	28.4	95	95%	
223	Refer to Figures A2 through A12 for approximate test location.		BG	10	6/10/20	9.2	128.4	95	95%	
224	Refer to Figures A2 through A12 for approximate test location.		BG	10	6/10/20	9.7	128.8	95	95%	
225	Refer to Figures A2 through A12 for approximate test location.		BG	10	6/10/20	7.7	129.8	96	95%	
226	Refer to Figures A2 through A12 for approximate test location.		BG	10	6/10/20	10.7	129.3	95	95%	
227	Refer to Figures A2 through A12 for approximate test location.		BG	2	6/10/20	7.2	124.4	97	95%	
228	Refer to Figures A2 through A12 for approximate test location.		BG	10	6/10/20	9.4	129.9	96	95%	
229	Refer to Figures A2 through A12 for approximate test location.		BG	2	6/10/20	6.3	122.9	95	95%	
230	Refer to Figures A2 through A12 for approximate test location.		BG	2	6/10/20	8.1	122.7	95	95%	
231	Refer to Figures A2 through A12 for approximate test location.		BG	2	6/10/20	7.5	123.8	96	95%	



## Appendix B - Field Density Test Report for Soils

ASTM 6938

Project Name: Atlas Waterfront Project						Project No.: 118-014T				
Proctor Number		Soil Description		Optimum Moisture (%)		Maximum Density (pcf)		Standard/Modified		
1	S119-0346	WSDOT Crushed Surfacing Top Course		10.4		136.1		Modified		
2	S119-0957	Brown Sand with Silt		9.2		128.9		Modified		
3	S119-0959	Brown Sand with Gravel		8.6		134.4		Modified		
4	S119-0978	Crushed Concrete		Oversized (Relative Density)			N/A			
5	S120-0030	Brown Sandy Gravel with Silt		6.6		139.5		Modified		
6	S120-0096	Brown-Gray Sand with Silt and Gravel		8.1		133.6		Modified		
7	S118-0735	Light Brown Sand with Gravel		8.0		131.0		Modified		
8	S118-0115	Brown and Gray Sandy Gravel		7.0		139.6		Modified		
9	S118-0150	Silty Sand with Gravel		7.8		133.1		Modified		
12	S120-0453	Poorly-Graded Sand and Gravel with Silt		6.6		135.7		Modified		
Test Number	Test Location		Approx. Elevation (ft)	Proctor Number	Date	% Moisture	Dry Density	% Compaction	Required Compaction	Re-Test of Test No.
232	Refer to Figures A2 through A12 for approximate test location.		BG	10	6/10/20	10.5	128.5	95	95%	
233	Refer to Figures A2 through A12 for approximate test location.		BG	2	6/10/20	10.0	121.9	95	95%	
234	Refer to Figures A2 through A12 for approximate test location.		BG	2	6/10/20	11.9	122.7	95	95%	
235	Refer to Figures A2 through A12 for approximate test location.		BG	2	6/10/20	8.6	122.2	95	95%	
236	Refer to Figures A2 through A12 for approximate test location.		BG	2	6/10/20	9.6	128.8	95	95%	
237	Refer to Figures A2 through A12 for approximate test location.		BG	10	6/10/20	13.4	124.0	95	95%	
238	Refer to Figures A2 through A12 for approximate test location.		BG	2	6/10/20	12.3	129.6	96	95%	
239	Refer to Figures A2 through A12 for approximate test location.		BG	10	6/10/20	10.2	124.2	96	95%	
240	Refer to Figures A2 through A12 for approximate test location.		BG	2	6/10/20	10.7	124.5	96	95%	
241	Refer to Figures A2 through A12 for approximate test location.		BG	2	6/10/20	9.0	123.6	97	95%	
242	Refer to Figures A2 through A12 for approximate test location.		BG	2	6/10/20	12.2	123.6	96	95%	
243	Refer to Figures A2 through A12 for approximate test location.		BG	2	6/10/20	6.6	128.3	96	95%	
244	Refer to Figures A2 through A12 for approximate test location.		BG	2	6/10/20	9.0	130.2	95	95%	
245	Refer to Figures A2 through A12 for approximate test location.		BG	10	6/10/20	9.1	129.0	96	95%	
246	Refer to Figures A2 through A12 for approximate test location.		BG	10	6/10/20	9.0	128.7	95	95%	
247	Refer to Figures A2 through A12 for approximate test location.		BG	10	6/10/20	12.0	128.5	95	95%	
248	Refer to Figures A2 through A12 for approximate test location.		BG	10	6/10/20	13.3	129.2	95	95%	
249	Refer to Figures A2 through A12 for approximate test location.		BG	10	6/10/20	11.0	129.4	95	95%	
250	Refer to Figures A2 through A12 for approximate test location.		BG	10	6/10/20	11.6	129.2	95	95%	
251	Refer to Figures A2 through A12 for approximate test location.		BG	10	6/10/20	11.6	129.4	95	95%	
252	Refer to Figures A2 through A12 for approximate test location.		BG	10	6/10/20	8.9	129.1	95	95%	
253	Refer to Figures A2 through A12 for approximate test location.		BG	10	6/10/20	8.9	128.3	95	95%	



## Appendix B - Field Density Test Report for Soils

ASTM 6938

Project Name: Atlas Waterfront Project						Project No.: 118-014T				
Proctor Number		Soil Description		Optimum Moisture (%)		Maximum Density (pcf)		Standard/Modified		
1	S119-0346	WSDOT Crushed Surfacing Top Course		10.4		136.1		Modified		
2	S119-0957	Brown Sand with Silt		9.2		128.9		Modified		
3	S119-0959	Brown Sand with Gravel		8.6		134.4		Modified		
4	S119-0978	Crushed Concrete		Oversized (Relative Density)			N/A			
5	S120-0030	Brown Sandy Gravel with Silt		6.6		139.5		Modified		
6	S120-0096	Brown-Gray Sand with Silt and Gravel		8.1		133.6		Modified		
7	S118-0735	Light Brown Sand with Gravel		8.0		131.0		Modified		
8	S118-0115	Brown and Gray Sandy Gravel		7.0		139.6		Modified		
9	S118-0150	Silty Sand with Gravel		7.8		133.1		Modified		
12	S120-0453	Poorly-Graded Sand and Gravel with Silt		6.6		135.7		Modified		
Test Number	Test Location		Approx. Elevation (ft)	Proctor Number	Date	% Moisture	Dry Density	% Compaction	Required Compaction	Re-Test of Test No.
254	Refer to Figures A2 through A12 for approximate test location.		BG	10	6/10/20	7.7	128.9	95	95%	
255	Refer to Figures A2 through A12 for approximate test location.		BG	10	6/10/20	7.0	130.4	95	95%	
256	Refer to Figures A2 through A12 for approximate test location.		2130	10	6/11/20	8.6	128.9	95	95%	
257	Refer to Figures A2 through A12 for approximate test location.		2131	10	6/11/20	7.2	128.8	95	95%	
258	Refer to Figures A2 through A12 for approximate test location.		2135	10	6/11/20	7.1	128.4	95	95%	
259	Refer to Figures A2 through A12 for approximate test location.		2135	10	6/11/20	7.0	129.2	95	95%	
260	Refer to Figures A2 through A12 for approximate test location.		2132	10	6/11/20	7.2	128.5	95	95%	
261	Refer to Figures A2 through A12 for approximate test location.		2132	10	6/11/20	9.7	129.8	96	95%	
262	Refer to Figures A2 through A12 for approximate test location.		2132	10	6/11/20	8.4	129.0	96	95%	
263	Refer to Figures A2 through A12 for approximate test location.		2135	10	6/11/20	8.2	130.2	96	95%	
264	Refer to Figures A2 through A12 for approximate test location.		2135	10	6/11/20	7.4	128.5	95	95%	
265	Refer to Figures A2 through A12 for approximate test location.		2134.5	10	6/11/20	8.3	128.6	95	95%	
266	Refer to Figures A2 through A12 for approximate test location.		2133	10	6/11/20	8.3	128.9	95	95%	
267	Refer to Figures A2 through A12 for approximate test location.		2135.5	10	6/11/20	6.6	129.8	96	95%	
268	Refer to Figures A2 through A12 for approximate test location.		2135.5	10	6/11/20	9.7	129.5	95	95%	
269	Refer to Figures A2 through A12 for approximate test location.		2135	10	6/11/20	9.9	128.3	95	95%	
270	Refer to Figures A2 through A12 for approximate test location.		2133	10	6/11/20	7.0	128.7	95	95%	
271	Refer to Figures A2 through A12 for approximate test location.		2134	10	6/11/20	6.2	130.4	96	95%	
272	Refer to Figures A2 through A12 for approximate test location.		2135	10	6/11/20	5.5	129.0	95	95%	
273	Refer to Figures A2 through A12 for approximate test location.		2134	10	6/11/20	6.7	128.9	95	95%	
274	Refer to Figures A2 through A12 for approximate test location.		2136	10	6/11/20	7.1	128.4	95	95%	
275	Refer to Figures A2 through A12 for approximate test location.		2136	10	6/11/20	6.5	130.3	96	95%	

## Appendix B - Field Density Test Report for Soils

ASTM 6938

Project Name: Atlas Waterfront Project						Project No.: 118-014T				
Proctor Number		Soil Description		Optimum Moisture (%)		Maximum Density (pcf)		Standard/Modified		
1	S119-0346	WSDOT Crushed Surfacing Top Course		10.4		136.1		Modified		
2	S119-0957	Brown Sand with Silt		9.2		128.9		Modified		
3	S119-0959	Brown Sand with Gravel		8.6		134.4		Modified		
4	S119-0978	Crushed Concrete		Oversized (Relative Density)			N/A			
5	S120-0030	Brown Sandy Gravel with Silt		6.6		139.5		Modified		
6	S120-0096	Brown-Gray Sand with Silt and Gravel		8.1		133.6		Modified		
7	S118-0735	Light Brown Sand with Gravel		8.0		131.0		Modified		
8	S118-0115	Brown and Gray Sandy Gravel		7.0		139.6		Modified		
9	S118-0150	Silty Sand with Gravel		7.8		133.1		Modified		
12	S120-0453	Poorly-Graded Sand and Gravel with Silt		6.6		135.7		Modified		
Test Number	Test Location		Approx. Elevation (ft)	Proctor Number	Date	% Moisture	Dry Density	% Compaction	Required Compaction	Re-Test of Test No.
276	Refer to Figures A2 through A12 for approximate test location.		2135	10	6/11/20	5.8	128.6	95	95%	
277	Refer to Figures A2 through A12 for approximate test location.		2134	10	6/11/20	5.1	128.8	95	95%	
278	Refer to Figures A2 through A12 for approximate test location.		2134	10	6/11/20	6.9	128.6	95	95%	
279	Refer to Figures A2 through A12 for approximate test location.		2135	10	6/11/20	7.0	130.2	96	95%	
280	Refer to Figures A2 through A12 for approximate test location.		2136	10	6/15/20	7.4	132.5	98	95%	
281	Refer to Figures A2 through A12 for approximate test location.		2135	10	6/15/20	10.5	128.8	95	95%	
282	Refer to Figures A2 through A12 for approximate test location.		2134	2	6/15/20	6.0	123.4	96	95%	
283	Refer to Figures A2 through A12 for approximate test location.		2134	2	6/15/20	6.9	122.3	95	95%	
284	Refer to Figures A2 through A12 for approximate test location.		2135	10	6/15/20	7.0	127.1	95	95%	
285	Refer to Figures A2 through A12 for approximate test location.		2136	2	6/15/20	7.3	124.0	96	95%	
286	Refer to Figures A2 through A12 for approximate test location.		2134	10	6/15/20	6.8	133.5	98	95%	
287	Refer to Figures A2 through A12 for approximate test location.		2134	2	6/15/20	8.7	124.7	97	95%	
288	Refer to Figures A2 through A12 for approximate test location.		2134	2	6/15/20	7.7	122.4	95	95%	
289	Refer to Figures A2 through A12 for approximate test location.		2136	10	6/15/20	6.2	131.7	97	95%	
290	Refer to Figures A2 through A12 for approximate test location.		2135	2	6/15/20	6.8	126.8	98	95%	
291	Refer to Figures A2 through A12 for approximate test location.		2134	10	6/15/20	7.0	131.5	97	95%	
292	Refer to Figures A2 through A12 for approximate test location.		2134	10	6/17/20	10.8	134.3	99	95%	
293	Refer to Figures A2 through A12 for approximate test location.		2135	10	6/17/20	7.2	130.5	96	95%	
294	Refer to Figures A2 through A12 for approximate test location.		2135	10	6/17/20	9.4	132.3	97	95%	
295	Refer to Figures A2 through A12 for approximate test location.		2135	10	6/17/20	6.1	129.0	95	95%	
296	Refer to Figures A2 through A12 for approximate test location.		2135	10	6/17/20	6.5	130.7	96	95%	
297	Refer to Figures A2 through A12 for approximate test location.		2136	10	6/17/20	7.1	134.2	99	95%	



## Appendix B - Field Density Test Report for Soils

ASTM 6938

Project Name: Atlas Waterfront Project						Project No.: 118-014T				
Proctor Number		Soil Description		Optimum Moisture (%)		Maximum Density (pcf)		Standard/Modified		
1	S119-0346	WSDOT Crushed Surfacing Top Course		10.4		136.1		Modified		
2	S119-0957	Brown Sand with Silt		9.2		128.9		Modified		
3	S119-0959	Brown Sand with Gravel		8.6		134.4		Modified		
4	S119-0978	Crushed Concrete		Oversized (Relative Density)			N/A			
5	S120-0030	Brown Sandy Gravel with Silt		6.6		139.5		Modified		
6	S120-0096	Brown-Gray Sand with Silt and Gravel		8.1		133.6		Modified		
7	S118-0735	Light Brown Sand with Gravel		8.0		131.0		Modified		
8	S118-0115	Brown and Gray Sandy Gravel		7.0		139.6		Modified		
9	S118-0150	Silty Sand with Gravel		7.8		133.1		Modified		
12	S120-0453	Poorly-Graded Sand and Gravel with Silt		6.6		135.7		Modified		
Test Number	Test Location		Approx. Elevation (ft)	Proctor Number	Date	% Moisture	Dry Density	% Compaction	Required Compaction	Re-Test of Test No.
298	Refer to Figures A2 through A12 for approximate test location.		2136	10	6/17/20	7.4	128.3	95	95%	
299	Refer to Figures A2 through A12 for approximate test location.		2136	10	6/17/20	8.9	128.4	95	95%	
300	Refer to Figures A2 through A12 for approximate test location.		2136	2	6/17/20	7.4	123.8	96	95%	
301	Refer to Figures A2 through A12 for approximate test location.		2136	2	6/17/20	5.9	127.1	99	95%	
302	Refer to Figures A2 through A12 for approximate test location.		2137	10	6/17/20	6.7	133.8	99	95%	
303	Refer to Figures A2 through A12 for approximate test location.		2137	10	6/17/20	7.7	129.3	95	95%	
304	Refer to Figures A2 through A12 for approximate test location.		2137	10	6/17/20	6.3	128.7	95	95%	
305	Refer to Figures A2 through A12 for approximate test location.		2136	10	6/17/20	6.7	131.6	97	95%	
306	Refer to Figures A2 through A12 for approximate test location.		2136	10	6/17/20	7.8	130.2	96	95%	
307	Refer to Figures A2 through A12 for approximate test location.		2137	10	6/17/20	8.2	128.6	95	95%	
308	Refer to Figures A2 through A12 for approximate test location.		2137	10	6/17/20	5.3	130.1	96	95%	
309	Refer to Figures A2 through A12 for approximate test location.		2136	10	6/17/20	5.5	128.5	95	95%	
310	Refer to Figures A2 through A12 for approximate test location.		2137	10	6/17/20	7.5	130.6	96	95%	
311	Refer to Figures A2 through A12 for approximate test location.		2136	10	6/18/20	7.5	128.9	95	95%	
312	Refer to Figures A2 through A12 for approximate test location.		2136	10	6/18/20	8.4	129.2	95	95%	
313	Refer to Figures A2 through A12 for approximate test location.		2136	10	6/18/20	5.8	128.4	95	95%	
314	Refer to Figures A2 through A12 for approximate test location.		2137	10	6/18/20	7.2	132.3	97	95%	
315	Refer to Figures A2 through A12 for approximate test location.		2137	10	6/18/20	6.0	132.6	98	95%	
316	Refer to Figures A2 through A12 for approximate test location.		2137	10	6/18/20	5.6	128.9	95	95%	
317	Refer to Figures A2 through A12 for approximate test location.		2137	10	6/18/20	7.7	128.0	95	95%	
318	Refer to Figures A2 through A12 for approximate test location.		2137	10	6/18/20	6.4	130.0	96	95%	
319	Refer to Figures A2 through A12 for approximate test location.		2138	2	6/18/20	4.4	121.9	95	95%	

## Appendix B - Field Density Test Report for Soils

ASTM 6938

Project Name: Atlas Waterfront Project						Project No.: 118-014T				
Proctor Number		Soil Description		Optimum Moisture (%)		Maximum Density (pcf)		Standard/Modified		
1	S119-0346	WSDOT Crushed Surfacing Top Course		10.4		136.1		Modified		
2	S119-0957	Brown Sand with Silt		9.2		128.9		Modified		
3	S119-0959	Brown Sand with Gravel		8.6		134.4		Modified		
4	S119-0978	Crushed Concrete		Oversized (Relative Density)			N/A			
5	S120-0030	Brown Sandy Gravel with Silt		6.6		139.5		Modified		
6	S120-0096	Brown-Gray Sand with Silt and Gravel		8.1		133.6		Modified		
7	S118-0735	Light Brown Sand with Gravel		8.0		131.0		Modified		
8	S118-0115	Brown and Gray Sandy Gravel		7.0		139.6		Modified		
9	S118-0150	Silty Sand with Gravel		7.8		133.1		Modified		
12	S120-0453	Poorly-Graded Sand and Gravel with Silt		6.6		135.7		Modified		
Test Number	Test Location		Approx. Elevation (ft)	Proctor Number	Date	% Moisture	Dry Density	% Compaction	Required Compaction	Re-Test of Test No.
320	Refer to Figures A2 through A12 for approximate test location.		2138	2	6/18/20	4.9	122.0	95	95%	
321	Refer to Figures A2 through A12 for approximate test location.		2138	10	6/18/20	9.1	128.5	95	95%	
322	Refer to Figures A2 through A12 for approximate test location.		2138	10	6/18/20	7.6	128.6	95	95%	
323	Refer to Figures A2 through A12 for approximate test location.		2138	2	6/18/20	7.1	125.9	98	95%	
324	Refer to Figures A2 through A12 for approximate test location.		2138	10	6/18/20	6.7	128.5	95	95%	
325	Refer to Figures A2 through A12 for approximate test location.		2138	10	6/18/20	5.8	128.5	95	95%	
326	Refer to Figures A2 through A12 for approximate test location.		2138	10	6/18/20	9.7	130.1	96	95%	
327	Refer to Figures A2 through A12 for approximate test location.		2138	10	6/18/20	6.6	133.2	98	95%	
328	Refer to Figures A2 through A12 for approximate test location.		2138	2	6/18/20	8.7	125.4	97	95%	
329	Refer to Figures A2 through A12 for approximate test location.		2138	10	6/18/20	10.0	130.2	96	95%	
330	Refer to Figures A2 through A12 for approximate test location.		2138	10	6/18/20	6.5	128.5	95	95%	
331	Refer to Figures A2 through A12 for approximate test location.		2139	10	6/18/20	6.4	131.9	97	95%	
332	Refer to Figures A2 through A12 for approximate test location.		2139	2	6/19/20	6.6	125.8	98	95%	
333	Refer to Figures A2 through A12 for approximate test location.		2139	2	6/19/20	5.4	125.6	97	95%	
334	Refer to Figures A2 through A12 for approximate test location.		2139	2	6/19/20	4.8	123.5	96	95%	
335	Refer to Figures A2 through A12 for approximate test location.		2139	10	6/19/20	5.2	131.5	97	95%	
336	Refer to Figures A2 through A12 for approximate test location.		2139	2	6/19/20	5.1	122.8	95	95%	
337	Refer to Figures A2 through A12 for approximate test location.		2139	10	6/19/20	9.4	128.6	95	95%	
338	Refer to Figures A2 through A12 for approximate test location.		2139	10	6/19/20	9.4	129.0	95	95%	
339	Refer to Figures A2 through A12 for approximate test location.		2141	10	6/19/20	10.1	129.8	96	95%	
340	Refer to Figures A2 through A12 for approximate test location.		2141	10	6/19/20	8.2	128.9	95	95%	
341	Refer to Figures A2 through A12 for approximate test location.		2141	10	6/19/20	8.7	131.2	97	95%	



## Appendix B - Field Density Test Report for Soils

ASTM 6938

Project Name: Atlas Waterfront Project						Project No.: 118-014T				
Proctor Number		Soil Description		Optimum Moisture (%)		Maximum Density (pcf)		Standard/Modified		
1	S119-0346	WSDOT Crushed Surfacing Top Course		10.4		136.1		Modified		
2	S119-0957	Brown Sand with Silt		9.2		128.9		Modified		
3	S119-0959	Brown Sand with Gravel		8.6		134.4		Modified		
4	S119-0978	Crushed Concrete		Oversized (Relative Density)			N/A			
5	S120-0030	Brown Sandy Gravel with Silt		6.6		139.5		Modified		
6	S120-0096	Brown-Gray Sand with Silt and Gravel		8.1		133.6		Modified		
7	S118-0735	Light Brown Sand with Gravel		8.0		131.0		Modified		
8	S118-0115	Brown and Gray Sandy Gravel		7.0		139.6		Modified		
9	S118-0150	Silty Sand with Gravel		7.8		133.1		Modified		
12	S120-0453	Poorly-Graded Sand and Gravel with Silt		6.6		135.7		Modified		
Test Number	Test Location		Approx. Elevation (ft)	Proctor Number	Date	% Moisture	Dry Density	% Compaction	Required Compaction	Re-Test of Test No.
342	Refer to Figures A2 through A12 for approximate test location.		2142	10	6/19/20	10.4	129.1	95	95%	
343	Refer to Figures A2 through A12 for approximate test location.		2142	10	6/19/20	10.2	129.6	96	95%	
344	Refer to Figures A2 through A12 for approximate test location.		FBC	1	6/22/20	4.8	129.0	95	95%	
345	Refer to Figures A2 through A12 for approximate test location.		FBC	1	6/22/20	5.7	129.9	95	95%	
346	Refer to Figures A2 through A12 for approximate test location.		FBC	1	6/22/20	5.8	129.0	95	95%	
347	Refer to Figures A2 through A12 for approximate test location.		FBC	1	6/22/20	5.7	129.1	95	95%	
348	Refer to Figures A2 through A12 for approximate test location.		FBC	1	6/22/20	6.4	129.2	95	95%	
349	Refer to Figures A2 through A12 for approximate test location.		FBC	1	6/22/20	4.7	130.4	96	95%	
350	Refer to Figures A2 through A12 for approximate test location.		FBC	1	6/22/20	4.8	129.4	95	95%	
351	Refer to Figures A2 through A12 for approximate test location.		FBC	1	6/22/20	5.3	128.9	95	95%	
352	Refer to Figures A2 through A12 for approximate test location.		FBC	1	6/22/20	5.8	129.4	95	95%	
353	Refer to Figures A2 through A12 for approximate test location.		FBC	1	6/22/20	6.2	128.8	95	95%	
354	Refer to Figures A2 through A12 for approximate test location.		FBC	1	6/22/20	6.1	129.3	95	95%	
355	Refer to Figures A2 through A12 for approximate test location.		FBC	1	6/22/20	4.9	129.0	98	95%	
356	Refer to Figures A2 through A12 for approximate test location.		FBC	1	6/22/20	5.5	129.4	99	95%	
357	Refer to Figures A2 through A12 for approximate test location.		2141	10	6/22/20	6.2	133.6	98	95%	
358	Refer to Figures A2 through A12 for approximate test location.		2141	10	6/22/20	6.4	128.9	95	95%	
359	Refer to Figures A2 through A12 for approximate test location.		2142	10	6/22/20	7.7	128.7	95	95%	
360	Refer to Figures A2 through A12 for approximate test location.		2142	10	6/22/20	6.2	131.7	97	95%	
361	Refer to Figures A2 through A12 for approximate test location.		2142	10	6/22/20	6.6	128.5	95	95%	
362	Refer to Figures A2 through A12 for approximate test location.		2142	10	6/22/20	8.4	132.0	97	95%	
363	Refer to Figures A2 through A12 for approximate test location.		2142	10	6/22/20	6.1	128.8	95	95%	

## Appendix B - Field Density Test Report for Soils

ASTM 6938

Project Name: Atlas Waterfront Project						Project No.: 118-014T				
Proctor Number		Soil Description		Optimum Moisture (%)		Maximum Density (pcf)		Standard/Modified		
1	S119-0346	WSDOT Crushed Surfacing Top Course		10.4		136.1		Modified		
2	S119-0957	Brown Sand with Silt		9.2		128.9		Modified		
3	S119-0959	Brown Sand with Gravel		8.6		134.4		Modified		
4	S119-0978	Crushed Concrete		Oversized (Relative Density)			N/A			
5	S120-0030	Brown Sandy Gravel with Silt		6.6		139.5		Modified		
6	S120-0096	Brown-Gray Sand with Silt and Gravel		8.1		133.6		Modified		
7	S118-0735	Light Brown Sand with Gravel		8.0		131.0		Modified		
8	S118-0115	Brown and Gray Sandy Gravel		7.0		139.6		Modified		
9	S118-0150	Silty Sand with Gravel		7.8		133.1		Modified		
12	S120-0453	Poorly-Graded Sand and Gravel with Silt		6.6		135.7		Modified		
Test Number	Test Location		Approx. Elevation (ft)	Proctor Number	Date	% Moisture	Dry Density	% Compaction	Required Compaction	Re-Test of Test No.
364	Refer to Figures A2 through A12 for approximate test location.		2142	10	6/22/20	7.2	129.6	96	95%	
365	Refer to Figures A2 through A12 for approximate test location.		2142	10	6/22/20	8.4	129.3	95	95%	
366	Refer to Figures A2 through A12 for approximate test location.		2142	10	6/22/20	8.4	124.0	99	95%	
367	Refer to Figures A2 through A12 for approximate test location.		2142	10	6/22/20	7.9	129.5	95	95%	
368	Refer to Figures A2 through A12 for approximate test location.		2142	10	6/22/20	7.3	129.0	95	95%	
369	Refer to Figures A2 through A12 for approximate test location.		2142	10	6/22/20	6.3	128.7	95	95%	
370	Refer to Figures A2 through A12 for approximate test location.		2142	10	6/22/20	6.8	129.5	95	95%	
371	Refer to Figures A2 through A12 for approximate test location.		2143	10	6/23/20	6.8	129.8	96	95%	
372	Refer to Figures A2 through A12 for approximate test location.		2143	2	6/23/20	8.6	122.3	95	95%	
373	Refer to Figures A2 through A12 for approximate test location.		2143	2	6/23/20	7.5	132.1	97	95%	
374	Refer to Figures A2 through A12 for approximate test location.		2143	2	6/23/20	7.5	128.5	95	95%	
375	Refer to Figures A2 through A12 for approximate test location.		2142	2	6/23/20	8.3	130.0	96	95%	
376	Refer to Figures A2 through A12 for approximate test location.		2140	2	6/23/20	5.1	128.5	95	95%	
377	Refer to Figures A2 through A12 for approximate test location.		FB	1	6/23/20	9.0	134.0	98	95%	
378	Refer to Figures A2 through A12 for approximate test location.		FB	1	6/23/20	7.5	132.7	98	95%	
379	Refer to Figures A2 through A12 for approximate test location.		FB	1	6/23/20	7.7	132.7	98	95%	
380	Refer to Figures A2 through A12 for approximate test location.		FB	1	6/23/20	6.8	132.0	97	95%	
381	Refer to Figures A2 through A12 for approximate test location.		2140	10	6/23/20	8.1	130.7	96	95%	
382	Refer to Figures A2 through A12 for approximate test location.		2140	2	6/23/20	7.5	121.9	95	95%	
383	Refer to Figures A2 through A12 for approximate test location.		2140	2	6/23/20	9.0	122.2	95	95%	
384	Refer to Figures A2 through A12 for approximate test location.		2141	10	6/23/20	7.6	133.1	98	95%	
385	Refer to Figures A2 through A12 for approximate test location.		2142	10	6/25/20	6.2	128.5	95	95%	



## Appendix B - Field Density Test Report for Soils

ASTM 6938

Project Name: Atlas Waterfront Project						Project No.: 118-014T				
Proctor Number		Soil Description		Optimum Moisture (%)		Maximum Density (pcf)		Standard/Modified		
1	S119-0346	WSDOT Crushed Surfacing Top Course		10.4		136.1		Modified		
2	S119-0957	Brown Sand with Silt		9.2		128.9		Modified		
3	S119-0959	Brown Sand with Gravel		8.6		134.4		Modified		
4	S119-0978	Crushed Concrete		Oversized (Relative Density)			N/A			
5	S120-0030	Brown Sandy Gravel with Silt		6.6		139.5		Modified		
6	S120-0096	Brown-Gray Sand with Silt and Gravel		8.1		133.6		Modified		
7	S118-0735	Light Brown Sand with Gravel		8.0		131.0		Modified		
8	S118-0115	Brown and Gray Sandy Gravel		7.0		139.6		Modified		
9	S118-0150	Silty Sand with Gravel		7.8		133.1		Modified		
12	S120-0453	Poorly-Graded Sand and Gravel with Silt		6.6		135.7		Modified		
Test Number	Test Location		Approx. Elevation (ft)	Proctor Number	Date	% Moisture	Dry Density	% Compaction	Required Compaction	Re-Test of Test No.
386	Refer to Figures A2 through A12 for approximate test location.		2141	10	6/25/20	6.3	128.7	95	95%	
387	Refer to Figures A2 through A12 for approximate test location.		2143	10	6/25/20	6.7	128.6	95	95%	
388	Refer to Figures A2 through A12 for approximate test location.		2141	10	6/25/20	7.9	129.0	95	95%	
389	Refer to Figures A2 through A12 for approximate test location.		2142	10	6/25/20	6.5	128.7	95	95%	
390	Refer to Figures A2 through A12 for approximate test location.		2142	10	6/25/20	6.5	128.8	95	95%	
391	Refer to Figures A2 through A12 for approximate test location.		2141	10	6/25/20	5.2	132.4	98	95%	
392	Refer to Figures A2 through A12 for approximate test location.		2141	10	6/25/20	6.3	131.1	97	95%	
393	Refer to Figures A2 through A12 for approximate test location.		2141	10	6/25/20	7.8	129.3	95	95%	
394	Refer to Figures A2 through A12 for approximate test location.		2141	10	6/25/20	6.8	131.6	97	95%	
395	Refer to Figures A2 through A12 for approximate test location.		2141	10	6/25/20	7.9	132.4	98	95%	
396	Refer to Figures A2 through A12 for approximate test location.		2142	10	6/25/20	7.2	133.8	99	95%	
397	Refer to Figures A2 through A12 for approximate test location.		2143	10	6/26/20	6.5	129.9	96	95%	
398	Refer to Figures A2 through A12 for approximate test location.		2142	10	6/26/20	7.4	129.4	95	95%	
399	Refer to Figures A2 through A12 for approximate test location.		2141	10	6/26/20	7.2	134.1	99	95%	
400	Refer to Figures A2 through A12 for approximate test location.		2141	10	6/26/20	8.7	129.3	95	95%	
401	Refer to Figures A2 through A12 for approximate test location.		2143	10	6/29/20	5.8	134.5	99	95%	
402	Refer to Figures A2 through A12 for approximate test location.		2142	2	6/29/20	5.5	124.3	96	95%	
403	Refer to Figures A2 through A12 for approximate test location.		2142	2	6/29/20	6.9	122.4	95	95%	
404	Refer to Figures A2 through A12 for approximate test location.		2142	10	6/29/20	5.9	128.7	95	95%	
405	Refer to Figures A2 through A12 for approximate test location.		2143	10	6/29/20	7.3	133.0	98	95%	
406	Refer to Figures A2 through A12 for approximate test location.		2142	10	6/29/20	7.6	131.8	97	95%	
407	Refer to Figures A2 through A12 for approximate test location.		2141	10	6/29/20	8.7	128.6	95	95%	

## Appendix B - Field Density Test Report for Soils

ASTM 6938

Project Name: Atlas Waterfront Project						Project No.: 118-014T				
Proctor Number		Soil Description		Optimum Moisture (%)		Maximum Density (pcf)		Standard/Modified		
1	S119-0346	WSDOT Crushed Surfacing Top Course		10.4		136.1		Modified		
2	S119-0957	Brown Sand with Silt		9.2		128.9		Modified		
3	S119-0959	Brown Sand with Gravel		8.6		134.4		Modified		
4	S119-0978	Crushed Concrete		Oversized (Relative Density)			N/A			
5	S120-0030	Brown Sandy Gravel with Silt		6.6		139.5		Modified		
6	S120-0096	Brown-Gray Sand with Silt and Gravel		8.1		133.6		Modified		
7	S118-0735	Light Brown Sand with Gravel		8.0		131.0		Modified		
8	S118-0115	Brown and Gray Sandy Gravel		7.0		139.6		Modified		
9	S118-0150	Silty Sand with Gravel		7.8		133.1		Modified		
12	S120-0453	Poorly-Graded Sand and Gravel with Silt		6.6		135.7		Modified		
Test Number	Test Location		Approx. Elevation (ft)	Proctor Number	Date	% Moisture	Dry Density	% Compaction	Required Compaction	Re-Test of Test No.
408	Refer to Figures A2 through A12 for approximate test location.		2141	10	6/29/20	6.7	128.2	95	95%	
409	Refer to Figures A2 through A12 for approximate test location.		2141	10	6/29/20	10.7	128.6	95	95%	
410	Refer to Figures A2 through A12 for approximate test location.		2141	10	6/29/20	7.7	131.8	97	95%	
411	Refer to Figures A2 through A12 for approximate test location.		2142	10	6/29/20	7.7	129.7	96	95%	
412	Refer to Figures A2 through A12 for approximate test location.		2142	10	6/29/20	8.3	128.5	95	95%	
413	Refer to Figures A2 through A12 for approximate test location.		2142	10	6/29/20	7.6	133.3	98	95%	
414	Refer to Figures A2 through A12 for approximate test location.		2142	10	6/29/20	7.1	129.3	95	95%	
415	Refer to Figures A2 through A12 for approximate test location.		2142	10	6/29/20	7.4	131.7	97	95%	
416	Refer to Figures A2 through A12 for approximate test location.		2142	10	6/29/20	7.2	130.6	96	95%	
417	Refer to Figures A2 through A12 for approximate test location.		BG	1	6/30/20	4.8	129.5	95	95%	
418	Refer to Figures A2 through A12 for approximate test location.		BG	1	6/30/20	6.0	129.4	95	95%	
419	Refer to Figures A2 through A12 for approximate test location.		BG	1	6/30/20	5.2	131.0	96	95%	
420	Refer to Figures A2 through A12 for approximate test location.		BG	1	6/30/20	5.2	129.7	95	95%	
421	Refer to Figures A2 through A12 for approximate test location.		2142	10	7/1/20	5.2	128.6	95	95%	
422	Refer to Figures A2 through A12 for approximate test location.		2142	10	7/1/20	7.0	134.7	99	95%	
423	Refer to Figures A2 through A12 for approximate test location.		2142	10	7/1/20	6.4	130.2	96	95%	
424	Refer to Figures A2 through A12 for approximate test location.		2143	10	7/1/20	6.1	129.0	95	95%	
425	Refer to Figures A2 through A12 for approximate test location.		2143	10	7/1/20	6.9	128.5	95	95%	
426	Refer to Figures A2 through A12 for approximate test location.		2145	10	7/2/20	7.2	129.1	95	95%	
427	Refer to Figures A2 through A12 for approximate test location.		2144	2	7/2/20	8.5	122.0	95	95%	
428	Refer to Figures A2 through A12 for approximate test location.		2144	10	7/2/20	6.1	128.8	95	95%	
429	Refer to Figures A2 through A12 for approximate test location.		2145	10	7/2/20	9.8	130.3	96	95%	



## Appendix B - Field Density Test Report for Soils

ASTM 6938

Project Name: Atlas Waterfront Project						Project No.: 118-014T					
Proctor Number		Soil Description		Optimum Moisture (%)		Maximum Density (pcf)		Standard/Modified			
1	S119-0346	WSDOT Crushed Surfacing Top Course		10.4		136.1		Modified			
2	S119-0957	Brown Sand with Silt		9.2		128.9		Modified			
3	S119-0959	Brown Sand with Gravel		8.6		134.4		Modified			
4	S119-0978	Crushed Concrete		Oversized (Relative Density)			N/A				
5	S120-0030	Brown Sandy Gravel with Silt		6.6		139.5		Modified			
6	S120-0096	Brown-Gray Sand with Silt and Gravel		8.1		133.6		Modified			
7	S118-0735	Light Brown Sand with Gravel		8.0		131.0		Modified			
8	S118-0115	Brown and Gray Sandy Gravel		7.0		139.6		Modified			
9	S118-0150	Silty Sand with Gravel		7.8		133.1		Modified			
12	S120-0453	Poorly-Graded Sand and Gravel with Silt		6.6		135.7		Modified			
Test Number	Test Location			Approx. Elevation (ft)	Proctor Number	Date	% Moisture	Dry Density	% Compaction	Required Compaction	Re-Test of Test No.
430	Refer to Figures A2 through A12 for approximate test location.			2144	10	7/2/20	6.0	128.5	95	95%	
431	Refer to Figures A2 through A12 for approximate test location.			2145	10	7/2/20	6.6	128.6	95	95%	
432	Refer to Figures A2 through A12 for approximate test location.			2144	10	7/2/20	6.0	128.8	95	95%	
433	Refer to Figures A2 through A12 for approximate test location.			2144	10	7/2/20	5.7	126.5	95	95%	
434	Refer to Figures A2 through A12 for approximate test location.			2146	10	7/2/20	6.6	128.6	95	95%	
435	Refer to Figures A2 through A12 for approximate test location.			2144	10	7/2/20	8.2	131.4	97	95%	
436	Refer to Figures A2 through A12 for approximate test location.			2147	10	7/2/20	7.7	129.3	95	95%	
437	Refer to Figures A2 through A12 for approximate test location.			2144	10	7/2/20	7.2	132.3	97	95%	
438	Refer to Figures A2 through A12 for approximate test location.			2145	2	7/2/20	7.6	125.2	97	95%	
439	Refer to Figures A2 through A12 for approximate test location.			2144	2	7/2/20	7.3	126.3	98	95%	
440	Refer to Figures A2 through A12 for approximate test location.			2145	10	7/2/20	7.7	129.1	95	95%	
441	Refer to Figures A2 through A12 for approximate test location.			2144	10	7/7/20	7.0	129.2	95	95%	
442	Refer to Figures A2 through A12 for approximate test location.			2146	10	7/7/20	6.4	129.1	95	95%	
443	Refer to Figures A2 through A12 for approximate test location.			2147	2	7/7/20	5.6	122.4	95	95%	
444	Refer to Figures A2 through A12 for approximate test location.			2145	2	7/7/20	5.6	122.4	95	95%	
445	Refer to Figures A2 through A12 for approximate test location.			2144	2	7/7/20	6.8	123.2	96	95%	
446	Refer to Figures A2 through A12 for approximate test location.			FBC	1	7/7/20	5.7	135.1	99	95%	
447	Refer to Figures A2 through A12 for approximate test location.			FBC	1	7/7/20	5.2	130.1	96	95%	
448	Refer to Figures A2 through A12 for approximate test location.			2145	10	7/7/20	7.3	129.0	95	95%	
449	Refer to Figures A2 through A12 for approximate test location.			2145	10	7/7/20	7.7	129.6	96	95%	
450	Refer to Figures A2 through A12 for approximate test location.			2145	10	7/7/20	7.1	129.8	96	95%	
451	Refer to Figures A2 through A12 for approximate test location.			2145	10	7/7/20	8.4	129.6	96	95%	

## Appendix B - Field Density Test Report for Soils

ASTM 6938

Project Name: Atlas Waterfront Project						Project No.: 118-014T				
Proctor Number		Soil Description		Optimum Moisture (%)		Maximum Density (pcf)		Standard/Modified		
1	S119-0346	WSDOT Crushed Surfacing Top Course		10.4		136.1		Modified		
2	S119-0957	Brown Sand with Silt		9.2		128.9		Modified		
3	S119-0959	Brown Sand with Gravel		8.6		134.4		Modified		
4	S119-0978	Crushed Concrete		Oversized (Relative Density)			N/A			
5	S120-0030	Brown Sandy Gravel with Silt		6.6		139.5		Modified		
6	S120-0096	Brown-Gray Sand with Silt and Gravel		8.1		133.6		Modified		
7	S118-0735	Light Brown Sand with Gravel		8.0		131.0		Modified		
8	S118-0115	Brown and Gray Sandy Gravel		7.0		139.6		Modified		
9	S118-0150	Silty Sand with Gravel		7.8		133.1		Modified		
12	S120-0453	Poorly-Graded Sand and Gravel with Silt		6.6		135.7		Modified		
Test Number	Test Location		Approx. Elevation (ft)	Proctor Number	Date	% Moisture	Dry Density	% Compaction	Required Compaction	Re-Test of Test No.
452	Refer to Figures A2 through A12 for approximate test location.		2145	10	7/7/20	6.4	128.5	95	95%	
453	Refer to Figures A2 through A12 for approximate test location.		2146	10	7/7/20	9.5	128.6	95	95%	
454	Refer to Figures A2 through A12 for approximate test location.		2146	10	7/7/20	8.0	129.3	95	95%	
455	Refer to Figures A2 through A12 for approximate test location.		2145	10	7/8/20	7.5	128.6	95	95%	
456	Refer to Figures A2 through A12 for approximate test location.		2146	10	7/8/20	6.5	128.7	95	95%	
457	Refer to Figures A2 through A12 for approximate test location.		2140	10	7/8/20	7.2	128.5	95	95%	
458	Refer to Figures A2 through A12 for approximate test location.		2147	10	7/8/20	7.3	128.8	95	95%	
459	Refer to Figures A2 through A12 for approximate test location.		2145	10	7/8/20	5.6	129.7	96	95%	
460	Refer to Figures A2 through A12 for approximate test location.		2146	10	7/8/20	5.3	128.6	95	95%	
461	Refer to Figures A2 through A12 for approximate test location.		2146	10	7/8/20	6.7	132.4	98	95%	
462	Refer to Figures A2 through A12 for approximate test location.		2148	10	7/8/20	6.9	131.5	97	95%	
463	Refer to Figures A2 through A12 for approximate test location.		2147	10	7/8/20	8.5	129.5	95	95%	
464	Refer to Figures A2 through A12 for approximate test location.		2131	10	7/9/20	8.0	134.0	99	95%	
465	Refer to Figures A2 through A12 for approximate test location.		2130	10	7/9/20	7.4	131.7	97	95%	
466	Refer to Figures A2 through A12 for approximate test location.		2130	10	7/9/20	7.5	130.9	96	95%	
467	Refer to Figures A2 through A12 for approximate test location.		2131	10	7/9/20	8.1	132.9	98	95%	
468	Refer to Figures A2 through A12 for approximate test location.		2131	10	7/9/20	6.1	130.6	96	95%	
469	Refer to Figures A2 through A12 for approximate test location.		2130	10	7/9/20	5.3	134.8	99	95%	
470	Refer to Figures A2 through A12 for approximate test location.		2131	10	7/9/20	5.8	129.0	95	95%	
471	Refer to Figures A2 through A12 for approximate test location.		2132	10	7/9/20	5.5	134.2	99	95%	
472	Refer to Figures A2 through A12 for approximate test location.		2130	10	7/9/20	5.7	134.8	99	95%	
473	Refer to Figures A2 through A12 for approximate test location.		2132	10	7/9/20	5.9	134.9	99	95%	



## Appendix B - Field Density Test Report for Soils

ASTM 6938

Project Name: Atlas Waterfront Project						Project No.: 118-014T				
Proctor Number		Soil Description		Optimum Moisture (%)		Maximum Density (pcf)		Standard/Modified		
1	S119-0346	WSDOT Crushed Surfacing Top Course		10.4		136.1		Modified		
2	S119-0957	Brown Sand with Silt		9.2		128.9		Modified		
3	S119-0959	Brown Sand with Gravel		8.6		134.4		Modified		
4	S119-0978	Crushed Concrete		Oversized (Relative Density)			N/A			
5	S120-0030	Brown Sandy Gravel with Silt		6.6		139.5		Modified		
6	S120-0096	Brown-Gray Sand with Silt and Gravel		8.1		133.6		Modified		
7	S118-0735	Light Brown Sand with Gravel		8.0		131.0		Modified		
8	S118-0115	Brown and Gray Sandy Gravel		7.0		139.6		Modified		
9	S118-0150	Silty Sand with Gravel		7.8		133.1		Modified		
12	S120-0453	Poorly-Graded Sand and Gravel with Silt		6.6		135.7		Modified		
Test Number	Test Location		Approx. Elevation (ft)	Proctor Number	Date	% Moisture	Dry Density	% Compaction	Required Compaction	Re-Test of Test No.
474	Refer to Figures A2 through A12 for approximate test location.		2132	10	7/9/20	7.8	129.9	96	95%	
475	Refer to Figures A2 through A12 for approximate test location.		2131	10	7/9/20	10.7	128.6	95	95%	
476	Refer to Figures A2 through A12 for approximate test location.		2133	10	7/9/20	8.6	134.1	99	95%	
477	Refer to Figures A2 through A12 for approximate test location.		2131	10	7/9/20	4.5	129.9	96	95%	
478	Refer to Figures A2 through A12 for approximate test location.		2132	2	7/9/20	6.9	125.3	97	95%	
479	Refer to Figures A2 through A12 for approximate test location.		2131	10	7/9/20	6.5	132.8	98	95%	
480	Refer to Figures A2 through A12 for approximate test location.		2132	10	7/9/20	7.9	133.1	98	95%	
481	Refer to Figures A2 through A12 for approximate test location.		2132	10	7/9/20	8.7	128.5	95	95%	
482	Refer to Figures A2 through A12 for approximate test location.		2132	10	7/9/20	6.1	128.9	95	95%	
483	Refer to Figures A2 through A12 for approximate test location.		2134	2	7/9/20	10.5	123.2	96	95%	
484	Refer to Figures A2 through A12 for approximate test location.		2134	10	7/9/20	6.3	135.0	99	95%	
485	Refer to Figures A2 through A12 for approximate test location.		2133	10	7/9/20	6.6	128.6	95	95%	
501	Refer to Figures A2 through A12 for approximate test location.		2134	10	7/9/20	6.6	128.8	95	95%	
502	Refer to Figures A2 through A12 for approximate test location.		2135	9	7/10/20	8.6	131.1	99	95%	
503	Refer to Figures A2 through A12 for approximate test location.		2134	9	7/10/20	10.5	139.3	98	95%	
504	Refer to Figures A2 through A12 for approximate test location.		2134	9	7/10/20	8.7	129.9	98	95%	
505	Refer to Figures A2 through A12 for approximate test location.		2135	9	7/10/20	10.2	128.9	97	95%	
506	Refer to Figures A2 through A12 for approximate test location.		2135	9	7/10/20	9.4	129.2	98	95%	
507	Refer to Figures A2 through A12 for approximate test location.		2135	9	7/10/20	9.5	129.6	98	95%	
508	Refer to Figures A2 through A12 for approximate test location.		2135	9	7/10/20	11.9	128.5	97	95%	
509	Refer to Figures A2 through A12 for approximate test location.		2135	9	7/10/20	10.9	128.5	97	95%	
510	Refer to Figures A2 through A12 for approximate test location.		2136	9	7/10/20	10.5	129.2	98	95%	

## Appendix B - Field Density Test Report for Soils

ASTM 6938

Project Name: Atlas Waterfront Project						Project No.: 118-014T				
Proctor Number		Soil Description		Optimum Moisture (%)		Maximum Density (pcf)		Standard/Modified		
1	S119-0346	WSDOT Crushed Surfacing Top Course		10.4		136.1		Modified		
2	S119-0957	Brown Sand with Silt		9.2		128.9		Modified		
3	S119-0959	Brown Sand with Gravel		8.6		134.4		Modified		
4	S119-0978	Crushed Concrete		Oversized (Relative Density)			N/A			
5	S120-0030	Brown Sandy Gravel with Silt		6.6		139.5		Modified		
6	S120-0096	Brown-Gray Sand with Silt and Gravel		8.1		133.6		Modified		
7	S118-0735	Light Brown Sand with Gravel		8.0		131.0		Modified		
8	S118-0115	Brown and Gray Sandy Gravel		7.0		139.6		Modified		
9	S118-0150	Silty Sand with Gravel		7.8		133.1		Modified		
12	S120-0453	Poorly-Graded Sand and Gravel with Silt		6.6		135.7		Modified		
Test Number	Test Location		Approx. Elevation (ft)	Proctor Number	Date	% Moisture	Dry Density	% Compaction	Required Compaction	Re-Test of Test No.
511	Refer to Figures A2 through A12 for approximate test location.		2136	9	7/10/20	9.7	129.2	98	95%	
512	Refer to Figures A2 through A12 for approximate test location.		2136	9	7/10/20	11.0	128.2	97	95%	
513	Refer to Figures A2 through A12 for approximate test location.		2136	9	7/10/20	10.0	128.6	97	95%	
514	Refer to Figures A2 through A12 for approximate test location.		2136	9	7/10/20	10.0	129.3	98	95%	
515	Refer to Figures A2 through A12 for approximate test location.		2136	9	7/10/20	10.6	128.5	97	95%	
516	Refer to Figures A2 through A12 for approximate test location.		2136	9	7/10/20	10.6	130.0	98	95%	
517	Refer to Figures A2 through A12 for approximate test location.		2135	9	7/13/20	7.9	130.5	99	95%	
518	Refer to Figures A2 through A12 for approximate test location.		2135	9	7/13/20	7.7	128.9	97	95%	
519	Refer to Figures A2 through A12 for approximate test location.		2135	9	7/13/20	7.0	130.3	98	95%	
520	Refer to Figures A2 through A12 for approximate test location.		2135	9	7/13/20	55.9	128.8	97	95%	
521	Refer to Figures A2 through A12 for approximate test location.		2136	9	7/13/20	7.2	131.0	99	95%	
522	Refer to Figures A2 through A12 for approximate test location.		2136	10	7/13/20	7.5	124.8	99	95%	
523	Refer to Figures A2 through A12 for approximate test location.		2136	10	7/13/20	7.9	124.4	99	95%	
524	Refer to Figures A2 through A12 for approximate test location.		2136	10	7/13/20	7.9	129.8	96	95%	
525	Refer to Figures A2 through A12 for approximate test location.		2136	10	7/13/20	7.7	129.3	95	95%	
526	Refer to Figures A2 through A12 for approximate test location.		2136	10	7/13/20	5.9	132.3	97	95%	
527	Refer to Figures A2 through A12 for approximate test location.		2136	10	7/13/20	6.8	129.5	95	95%	
528	Refer to Figures A2 through A12 for approximate test location.		2136	10	7/13/20	6.6	128.9	95	95%	
529	Refer to Figures A2 through A12 for approximate test location.		2137	10	7/14/20	7.0	134.1	99	95%	
530	Refer to Figures A2 through A12 for approximate test location.		2137	10	7/14/20	6.9	128.5	95	95%	
531	Refer to Figures A2 through A12 for approximate test location.		2137	10	7/14/20	6.9	129.3	95	95%	
532	Refer to Figures A2 through A12 for approximate test location.		2137	10	7/14/20	6.4	131.6	97	95%	



## Appendix B - Field Density Test Report for Soils

ASTM 6938

Project Name: Atlas Waterfront Project						Project No.: 118-014T				
Proctor Number		Soil Description		Optimum Moisture (%)		Maximum Density (pcf)		Standard/Modified		
1	S119-0346	WSDOT Crushed Surfacing Top Course		10.4		136.1		Modified		
2	S119-0957	Brown Sand with Silt		9.2		128.9		Modified		
3	S119-0959	Brown Sand with Gravel		8.6		134.4		Modified		
4	S119-0978	Crushed Concrete		Oversized (Relative Density)			N/A			
5	S120-0030	Brown Sandy Gravel with Silt		6.6		139.5		Modified		
6	S120-0096	Brown-Gray Sand with Silt and Gravel		8.1		133.6		Modified		
7	S118-0735	Light Brown Sand with Gravel		8.0		131.0		Modified		
8	S118-0115	Brown and Gray Sandy Gravel		7.0		139.6		Modified		
9	S118-0150	Silty Sand with Gravel		7.8		133.1		Modified		
12	S120-0453	Poorly-Graded Sand and Gravel with Silt		6.6		135.7		Modified		
Test Number	Test Location		Approx. Elevation (ft)	Proctor Number	Date	% Moisture	Dry Density	% Compaction	Required Compaction	Re-Test of Test No.
533	Refer to Figures A2 through A12 for approximate test location.		2137	10	7/14/20	7.9	129.2	95	95%	
534	Refer to Figures A2 through A12 for approximate test location.		2137	10	7/14/20	6.1	130.4	96	95%	
535	Refer to Figures A2 through A12 for approximate test location.		2137	10	7/14/20	5.6	133.9	99	95%	
536	Refer to Figures A2 through A12 for approximate test location.		2137	1	7/14/20	4.5	132.0	97	95%	
537	Refer to Figures A2 through A12 for approximate test location.		2137	1	7/14/20	6.1	134.9	99	95%	
538	Refer to Figures A2 through A12 for approximate test location.		2137	10	7/14/20	8.0	132.7	98	95%	
539	Refer to Figures A2 through A12 for approximate test location.		2137	10	7/14/20	5.8	129.9	96	95%	
540	Refer to Figures A2 through A12 for approximate test location.		2137	10	7/14/20	8.3	128.8	95	95%	
541	Refer to Figures A2 through A12 for approximate test location.		2137	10	7/14/20	7.0	129.7	96	95%	
542	Refer to Figures A2 through A12 for approximate test location.		2138	10	7/14/20	7.1	131.6	97	95%	
543	Refer to Figures A2 through A12 for approximate test location.		2137	10	7/14/20	6.7	129.1	95	95%	
544	Refer to Figures A2 through A12 for approximate test location.		2137	10	7/14/20	7.5	128.6	95	95%	
545	Refer to Figures A2 through A12 for approximate test location.		2137	10	7/14/20	7.1	128.7	95	95%	
546	Refer to Figures A2 through A12 for approximate test location.		2137	10	7/14/20	8.1	129.9	96	95%	
547	Refer to Figures A2 through A12 for approximate test location.		2137	10	7/14/20	7.8	134.6	99	95%	
548	Refer to Figures A2 through A12 for approximate test location.		2137	10	7/14/20	6.3	129.0	95	95%	
549	Refer to Figures A2 through A12 for approximate test location.		FBC	8	7/14/20	4.8	132.9	95	95%	
550	Refer to Figures A2 through A12 for approximate test location.		FBC	8	7/14/20	4.2	133.7	96	95%	
551	Refer to Figures A2 through A12 for approximate test location.		FBC	8	7/14/20	5.4	133.2	95	95%	
552	Refer to Figures A2 through A12 for approximate test location.		FBC	8	7/14/20	6.0	134.3	96	95%	
553	Refer to Figures A2 through A12 for approximate test location.		FBC	8	7/14/20	5.1	133.3	95	95%	
554	Refer to Figures A2 through A12 for approximate test location.		FBC	8	7/14/20	7.3	133.1	95	95%	

## Appendix B - Field Density Test Report for Soils

ASTM 6938

Project Name: Atlas Waterfront Project						Project No.: 118-014T				
Proctor Number		Soil Description		Optimum Moisture (%)		Maximum Density (pcf)		Standard/Modified		
1	S119-0346	WSDOT Crushed Surfacing Top Course		10.4		136.1		Modified		
2	S119-0957	Brown Sand with Silt		9.2		128.9		Modified		
3	S119-0959	Brown Sand with Gravel		8.6		134.4		Modified		
4	S119-0978	Crushed Concrete		Oversized (Relative Density)			N/A			
5	S120-0030	Brown Sandy Gravel with Silt		6.6		139.5		Modified		
6	S120-0096	Brown-Gray Sand with Silt and Gravel		8.1		133.6		Modified		
7	S118-0735	Light Brown Sand with Gravel		8.0		131.0		Modified		
8	S118-0115	Brown and Gray Sandy Gravel		7.0		139.6		Modified		
9	S118-0150	Silty Sand with Gravel		7.8		133.1		Modified		
12	S120-0453	Poorly-Graded Sand and Gravel with Silt		6.6		135.7		Modified		
Test Number	Test Location		Approx. Elevation (ft)	Proctor Number	Date	% Moisture	Dry Density	% Compaction	Required Compaction	Re-Test of Test No.
555	Refer to Figures A2 through A12 for approximate test location.		2137	10	7/15/20	8.3	128.8	95	95%	
556	Refer to Figures A2 through A12 for approximate test location.		2137	10	7/15/20	6.6	128.6	95	95%	
557	Refer to Figures A2 through A12 for approximate test location.		2137	10	7/15/20	6.5	128.5	95	95%	
558	Refer to Figures A2 through A12 for approximate test location.		2138	10	7/15/20	9.1	130.1	96	95%	
559	Refer to Figures A2 through A12 for approximate test location.		2138	10	7/15/20	7.7	133.3	98	95%	
560	Refer to Figures A2 through A12 for approximate test location.		2137	10	7/15/20	5.9	128.5	95	95%	
561	Refer to Figures A2 through A12 for approximate test location.		2137	10	7/15/20	7.1	128.9	95	95%	
562	Refer to Figures A2 through A12 for approximate test location.		2137	10	7/15/20	5.6	128.5	95	95%	
563	Refer to Figures A2 through A12 for approximate test location.		2137	10	7/15/20	6.5	128.6	95	95%	
564	Refer to Figures A2 through A12 for approximate test location.		2137	10	7/15/20	7.0	132.0	97	95%	
565	Refer to Figures A2 through A12 for approximate test location.		2137	10	7/15/20	7.3	129.0	95	95%	
566	Refer to Figures A2 through A12 for approximate test location.		2137	10	7/20/20	6.3	132.2	97	95%	
567	Refer to Figures A2 through A12 for approximate test location.		2137	10	7/20/20	4.8	134.0	99	95%	
568	Refer to Figures A2 through A12 for approximate test location.		2137	10	7/20/20	5.5	130.4	96	95%	
569	Refer to Figures A2 through A12 for approximate test location.		2137	10	7/20/20	5.9	128.8	95	95%	
570	Refer to Figures A2 through A12 for approximate test location.		2137	10	7/20/20	4.6	132.0	97	95%	
571	Refer to Figures A2 through A12 for approximate test location.		FBC	1	7/21/20	5.3	135.8	100	95%	
572	Refer to Figures A2 through A12 for approximate test location.		FBC	1	7/21/20	7.1	132.4	97	95%	
573	Refer to Figures A2 through A12 for approximate test location.		FBC	1	7/21/20	5.7	134.4	99	95%	
574	Refer to Figures A2 through A12 for approximate test location.		FBC	1	7/21/20	4.7	135.0	99	95%	
575	Refer to Figures A2 through A12 for approximate test location.		FBC	1	7/21/20	4.6	130.0	96	95%	
576	Refer to Figures A2 through A12 for approximate test location.		FBC	1	7/21/20	5.3	133.6	98	95%	



## Appendix B - Field Density Test Report for Soils

ASTM 6938

Project Name: Atlas Waterfront Project						Project No.: 118-014T				
Proctor Number		Soil Description		Optimum Moisture (%)		Maximum Density (pcf)		Standard/Modified		
1	S119-0346	WSDOT Crushed Surfacing Top Course		10.4		136.1		Modified		
2	S119-0957	Brown Sand with Silt		9.2		128.9		Modified		
3	S119-0959	Brown Sand with Gravel		8.6		134.4		Modified		
4	S119-0978	Crushed Concrete		Oversized (Relative Density)			N/A			
5	S120-0030	Brown Sandy Gravel with Silt		6.6		139.5		Modified		
6	S120-0096	Brown-Gray Sand with Silt and Gravel		8.1		133.6		Modified		
7	S118-0735	Light Brown Sand with Gravel		8.0		131.0		Modified		
8	S118-0115	Brown and Gray Sandy Gravel		7.0		139.6		Modified		
9	S118-0150	Silty Sand with Gravel		7.8		133.1		Modified		
12	S120-0453	Poorly-Graded Sand and Gravel with Silt		6.6		135.7		Modified		
Test Number	Test Location		Approx. Elevation (ft)	Proctor Number	Date	% Moisture	Dry Density	% Compaction	Required Compaction	Re-Test of Test No.
577	Refer to Figures A2 through A12 for approximate test location.		FBC	1	7/21/20	7.1	134.6	99	95%	
578	Refer to Figures A2 through A12 for approximate test location.		FBC	1	7/21/20	4.9	135.5	100	95%	
579	Refer to Figures A2 through A12 for approximate test location.		FBC	1	7/21/20	5.0	129.6	95	95%	
580	Refer to Figures A2 through A12 for approximate test location.		2139	10	7/21/20	6.1	134.8	99	95%	
581	Refer to Figures A2 through A12 for approximate test location.		2140	10	7/21/20	7.9	135.1	100	95%	
582	Refer to Figures A2 through A12 for approximate test location.		2140	10	7/21/20	8.8	133.6	98	95%	
583	Refer to Figures A2 through A12 for approximate test location.		2140	10	7/21/20	8.1	129.6	96	95%	
584	Refer to Figures A2 through A12 for approximate test location.		2141	10	7/21/20	8.2	134.3	99	95%	
585	Refer to Figures A2 through A12 for approximate test location.		2141	10	7/21/20	7.4	131.4	97	95%	
586	Refer to Figures A2 through A12 for approximate test location.		2142	10	7/21/20	9.4	129.2	95	95%	
587	Refer to Figures A2 through A12 for approximate test location.		2142	10	7/21/20	7.6	128.8	95	95%	
588	Refer to Figures A2 through A12 for approximate test location.		2142	10	7/21/20	8.3	134.1	99	95%	
589	Refer to Figures A2 through A12 for approximate test location.		2142	10	7/21/20	8.9	133.7	99	95%	
590	Refer to Figures A2 through A12 for approximate test location.		2141	10	7/21/20	9.0	134.6	99	95%	
591	Refer to Figures A2 through A12 for approximate test location.		2139	10	7/22/20	5.3	129.1	95	95%	
592	Refer to Figures A2 through A12 for approximate test location.		2139	10	7/22/20	5.3	132.4	98	95%	
593	Refer to Figures A2 through A12 for approximate test location.		2142	10	7/22/20	8.1	130.7	96	95%	
594	Refer to Figures A2 through A12 for approximate test location.		2142	10	7/22/20	5.5	130.4	96	95%	
595	Refer to Figures A2 through A12 for approximate test location.		2141	10	7/22/20	5.5	128.5	95	95%	
596	Refer to Figures A2 through A12 for approximate test location.		2141	10	7/22/20	9.6	129.2	95	95%	
597	Refer to Figures A2 through A12 for approximate test location.		2141	10	7/22/20	9.2	128.6	95	95%	
598	Refer to Figures A2 through A12 for approximate test location.		2140	10	7/22/20	9.1	129.6	96	95%	

## Appendix B - Field Density Test Report for Soils

ASTM 6938

Project Name: Atlas Waterfront Project						Project No.: 118-014T					
Proctor Number		Soil Description		Optimum Moisture (%)		Maximum Density (pcf)		Standard/Modified			
1	S119-0346	WSDOT Crushed Surfacing Top Course		10.4		136.1		Modified			
2	S119-0957	Brown Sand with Silt		9.2		128.9		Modified			
3	S119-0959	Brown Sand with Gravel		8.6		134.4		Modified			
4	S119-0978	Crushed Concrete		Oversized (Relative Density)		N/A					
5	S120-0030	Brown Sandy Gravel with Silt		6.6		139.5		Modified			
6	S120-0096	Brown-Gray Sand with Silt and Gravel		8.1		133.6		Modified			
7	S118-0735	Light Brown Sand with Gravel		8.0		131.0		Modified			
8	S118-0115	Brown and Gray Sandy Gravel		7.0		139.6		Modified			
9	S118-0150	Silty Sand with Gravel		7.8		133.1		Modified			
12	S120-0453	Poorly-Graded Sand and Gravel with Silt		6.6		135.7		Modified			
Test Number	Test Location			Approx. Elevation (ft)	Proctor Number	Date	% Moisture	Dry Density	% Compaction	Required Compaction	Re-Test of Test No.
599	Refer to Figures A2 through A12 for approximate test location.			2140	10	7/22/20	5.9	129.2	95	95%	
600	Refer to Figures A2 through A12 for approximate test location.			2141	10	7/22/20	7.5	131.5	97	95%	
601	Refer to Figures A2 through A12 for approximate test location.			2142	10	7/22/20	9.1	130.4	96	95%	
602	Refer to Figures A2 through A12 for approximate test location.			2145	10	7/22/20	6.6	130.2	96	95%	
603	Refer to Figures A2 through A12 for approximate test location.			2140	10	7/22/20	6.5	129.2	95	95%	
604	Refer to Figures A2 through A12 for approximate test location.			2140	10	7/22/20	5.3	128.6	95	95%	
605	Refer to Figures A2 through A12 for approximate test location.			2145	10	7/23/20	5.7	134.5	99	95%	
606	Refer to Figures A2 through A12 for approximate test location.			2146	10	7/23/20	6.0	134.4	99	95%	
607	Refer to Figures A2 through A12 for approximate test location.			2142	10	7/23/20	5.7	135.1	100	95%	
608	Refer to Figures A2 through A12 for approximate test location.			2142	10	7/23/20	7.3	129.4	95	95%	
609	Refer to Figures A2 through A12 for approximate test location.			2142	10	7/23/20	9.3	133.1	98	95%	
610	Refer to Figures A2 through A12 for approximate test location.			2140	10	7/23/20	5.9	129.1	95	95%	
611	Refer to Figures A2 through A12 for approximate test location.			2140	10	7/23/20	6.1	128.6	95	95%	
612	Refer to Figures A2 through A12 for approximate test location.			2146	10	7/23/20	6.4	131.6	97	95%	
613	Refer to Figures A2 through A12 for approximate test location.			2142	10	7/23/20	6.2	132.0	97	95%	
614	Refer to Figures A2 through A12 for approximate test location.			2143	10	7/23/20	5.7	128.5	95	95%	
615	Refer to Figures A2 through A12 for approximate test location.			2142	10	7/23/20	7.9	129.1	95	95%	
616	Refer to Figures A2 through A12 for approximate test location.			2141	10	7/23/20	6.8	129.1	95	95%	
617	Refer to Figures A2 through A12 for approximate test location.			2142	10	7/23/20	4.9	129.0	95	95%	
618	Refer to Figures A2 through A12 for approximate test location.			2141	10	7/23/20	5.4	129.1	95	95%	
619	Refer to Figures A2 through A12 for approximate test location.			2142	10	7/23/20	5.2	128.5	95	95%	
620	Refer to Figures A2 through A12 for approximate test location.			2142	10	7/23/20	6.5	128.7	95	95%	



## Appendix B - Field Density Test Report for Soils

ASTM 6938

Project Name: Atlas Waterfront Project						Project No.: 118-014T					
Proctor Number		Soil Description		Optimum Moisture (%)		Maximum Density (pcf)		Standard/Modified			
1	S119-0346	WSDOT Crushed Surfacing Top Course		10.4		136.1		Modified			
2	S119-0957	Brown Sand with Silt		9.2		128.9		Modified			
3	S119-0959	Brown Sand with Gravel		8.6		134.4		Modified			
4	S119-0978	Crushed Concrete		Oversized (Relative Density)			N/A				
5	S120-0030	Brown Sandy Gravel with Silt		6.6		139.5		Modified			
6	S120-0096	Brown-Gray Sand with Silt and Gravel		8.1		133.6		Modified			
7	S118-0735	Light Brown Sand with Gravel		8.0		131.0		Modified			
8	S118-0115	Brown and Gray Sandy Gravel		7.0		139.6		Modified			
9	S118-0150	Silty Sand with Gravel		7.8		133.1		Modified			
12	S120-0453	Poorly-Graded Sand and Gravel with Silt		6.6		135.7		Modified			
Test Number	Test Location			Approx. Elevation (ft)	Proctor Number	Date	% Moisture	Dry Density	% Compaction	Required Compaction	Re-Test of Test No.
621	Refer to Figures A2 through A12 for approximate test location.			2142	10	7/23/20	6.1	134.5	99	95%	
622	Refer to Figures A2 through A12 for approximate test location.			2145	10	7/27/20	7.7	134.0	99	95%	
623	Refer to Figures A2 through A12 for approximate test location.			2145	10	7/27/20	5.6	135.1	100	95%	
624	Refer to Figures A2 through A12 for approximate test location.			2151	10	7/28/20	7.8	134.2	99	95%	
625	Refer to Figures A2 through A12 for approximate test location.			2147	10	7/28/20	8.8	128.5	95	95%	
626	Refer to Figures A2 through A12 for approximate test location.			2145	10	7/28/20	9.6	132.0	97	95%	
627	Refer to Figures A2 through A12 for approximate test location.			2148	10	7/28/20	7.5	128.9	95	95%	
628	Refer to Figures A2 through A12 for approximate test location.			2147	10	7/28/20	6.5	134.0	99	95%	
629	Refer to Figures A2 through A12 for approximate test location.			2146	10	7/28/20	8.2	128.5	95	95%	
630	Refer to Figures A2 through A12 for approximate test location.			2149	10	7/28/20	8.1	128.8	95	95%	
631	Refer to Figures A2 through A12 for approximate test location.			2146	10	7/28/20	9.4	130.8	96	95%	
632	Refer to Figures A2 through A12 for approximate test location.			2146	10	7/28/20	7.9	132.0	97	95%	
633	Refer to Figures A2 through A12 for approximate test location.			2145	10	7/28/20	9.3	131.3	97	95%	
634	Refer to Figures A2 through A12 for approximate test location.			2145	10	7/28/20	7.6	134	99	95%	
635	Refer to Figures A2 through A12 for approximate test location.			2145	10	7/28/20	6.9	133.5	98	95%	
636	Refer to Figures A2 through A12 for approximate test location.			2147	10	7/28/20	6.1	129.9	96	95%	
637	Refer to Figures A2 through A12 for approximate test location.			2151	10	7/28/20	5.6	133.1	98	95%	
638	Refer to Figures A2 through A12 for approximate test location.			2152	10	7/28/20	7.6	130.8	96	95%	
639	Refer to Figures A2 through A12 for approximate test location.			2145	10	7/28/20	9.0	130.3	96	95%	
640	Refer to Figures A2 through A12 for approximate test location.			2153	10	7/29/20	5.0	134.1	99	95%	
641	Refer to Figures A2 through A12 for approximate test location.			2153	10	7/29/20	6.2	135.0	99	95%	
642	Refer to Figures A2 through A12 for approximate test location.			2150	10	7/29/20	6.1	133.6	98	95%	

## Appendix B - Field Density Test Report for Soils

ASTM 6938

Project Name: Atlas Waterfront Project						Project No.: 118-014T				
Proctor Number		Soil Description		Optimum Moisture (%)		Maximum Density (pcf)		Standard/Modified		
1	S119-0346	WSDOT Crushed Surfacing Top Course		10.4		136.1		Modified		
2	S119-0957	Brown Sand with Silt		9.2		128.9		Modified		
3	S119-0959	Brown Sand with Gravel		8.6		134.4		Modified		
4	S119-0978	Crushed Concrete		Oversized (Relative Density)			N/A			
5	S120-0030	Brown Sandy Gravel with Silt		6.6		139.5		Modified		
6	S120-0096	Brown-Gray Sand with Silt and Gravel		8.1		133.6		Modified		
7	S118-0735	Light Brown Sand with Gravel		8.0		131.0		Modified		
8	S118-0115	Brown and Gray Sandy Gravel		7.0		139.6		Modified		
9	S118-0150	Silty Sand with Gravel		7.8		133.1		Modified		
12	S120-0453	Poorly-Graded Sand and Gravel with Silt		6.6		135.7		Modified		
Test Number	Test Location		Approx. Elevation (ft)	Proctor Number	Date	% Moisture	Dry Density	% Compaction	Required Compaction	Re-Test of Test No.
643	Refer to Figures A2 through A12 for approximate test location.		219	10	7/29/20	7.0	132.8	98	95%	
644	Refer to Figures A2 through A12 for approximate test location.		2148	10	7/29/20	6.7	129.3	95	95%	
645	Refer to Figures A2 through A12 for approximate test location.		2149	10	7/29/20	4.7	131.7	97	95%	
646	Refer to Figures A2 through A12 for approximate test location.		2145	10	7/29/20	7.1	129.0	95	95%	
647	Refer to Figures A2 through A12 for approximate test location.		2145	10	7/29/20	5.7	128.8	95	95%	
648	Refer to Figures A2 through A12 for approximate test location.		2144	10	7/29/20	4.2	130.6	96	95%	
649	Refer to Figures A2 through A12 for approximate test location.		2144	10	7/29/20	8.4	128.9	95	95%	
650	Refer to Figures A2 through A12 for approximate test location.		2147	10	7/29/20	7.2	134.5	99	95%	
651	Refer to Figures A2 through A12 for approximate test location.		2150	10	7/29/20	5.0	135.1	100	95%	
652	Refer to Figures A2 through A12 for approximate test location.		2144	10	7/30/20	8.2	128.6	95	95%	
653	Refer to Figures A2 through A12 for approximate test location.		2144	10	7/30/20	6.5	131.1	97	95%	
654	Refer to Figures A2 through A12 for approximate test location.		2146	10	7/30/20	6.6	134.2	99	95%	
655	Refer to Figures A2 through A12 for approximate test location.		2148	10	7/30/20	8.5	133.4	98	95%	
656	Refer to Figures A2 through A12 for approximate test location.		2149	10	7/30/20	7.5	128.8	95	95%	
657	Refer to Figures A2 through A12 for approximate test location.		2144	10	7/30/20	4.6	134.8	99	95%	
658	Refer to Figures A2 through A12 for approximate test location.		2144	10	7/30/20	8.0	132.6	98	95%	
659	Refer to Figures A2 through A12 for approximate test location.		2145	10	7/30/20	5.4	129.1	95	95%	
660	Refer to Figures A2 through A12 for approximate test location.		2148	10	7/30/20	8.6	135.0	99	95%	
661	Refer to Figures A2 through A12 for approximate test location.		2150	10	7/30/20	7.1	128.5	95	95%	
662	Refer to Figures A2 through A12 for approximate test location.		FBC	10	7/30/20	7.1	132.2	97	95%	
663	Refer to Figures A2 through A12 for approximate test location.		FBC	10	7/30/20	5.7	129.2	95	95%	
664	Refer to Figures A2 through A12 for approximate test location.		FBC	10	7/30/20	5.1	129.0	95	95%	



## Appendix B - Field Density Test Report for Soils

ASTM 6938

Project Name: Atlas Waterfront Project						Project No.: 118-014T				
Proctor Number		Soil Description		Optimum Moisture (%)		Maximum Density (pcf)		Standard/Modified		
1	S119-0346	WSDOT Crushed Surfacing Top Course		10.4		136.1		Modified		
2	S119-0957	Brown Sand with Silt		9.2		128.9		Modified		
3	S119-0959	Brown Sand with Gravel		8.6		134.4		Modified		
4	S119-0978	Crushed Concrete		Oversized (Relative Density)			N/A			
5	S120-0030	Brown Sandy Gravel with Silt		6.6		139.5		Modified		
6	S120-0096	Brown-Gray Sand with Silt and Gravel		8.1		133.6		Modified		
7	S118-0735	Light Brown Sand with Gravel		8.0		131.0		Modified		
8	S118-0115	Brown and Gray Sandy Gravel		7.0		139.6		Modified		
9	S118-0150	Silty Sand with Gravel		7.8		133.1		Modified		
12	S120-0453	Poorly-Graded Sand and Gravel with Silt		6.6		135.7		Modified		
Test Number	Test Location		Approx. Elevation (ft)	Proctor Number	Date	% Moisture	Dry Density	% Compaction	Required Compaction	Re-Test of Test No.
665	Refer to Figures A2 through A12 for approximate test location.		2149	10	7/30/20	8.1	128.7	95	95%	
666	Refer to Figures A2 through A12 for approximate test location.		2146	10	7/30/20	7.8	131.1	97	95%	
667	Refer to Figures A2 through A12 for approximate test location.		2145	10	7/30/20	5.6	133.5	98	95%	
668	Refer to Figures A2 through A12 for approximate test location.		2147	10	7/30/20	7.1	128.8	95	95%	
669	Refer to Figures A2 through A12 for approximate test location.		2147	10	7/30/20	8.2	132.0	97	95%	
670	Refer to Figures A2 through A12 for approximate test location.		2145	10	7/30/20	6.5	134.2	99	95%	
671	Refer to Figures A2 through A12 for approximate test location.		2144	10	7/30/20	6.0	132.8	98	95%	
672	Refer to Figures A2 through A12 for approximate test location.		2150	10	8/3/20	5.2	131.6	97	95%	
673	Refer to Figures A2 through A12 for approximate test location.		2150	10	8/3/20	4.4	135.6	100	95%	
674	Refer to Figures A2 through A12 for approximate test location.		2146	10	8/3/20	4.2	128.5	95	95%	
675	Refer to Figures A2 through A12 for approximate test location.		218	10	8/3/20	4.2	129.6	96	95%	
676	Refer to Figures A2 through A12 for approximate test location.		2148	10	8/3/20	4.6	129.8	96	95%	
677	Refer to Figures A2 through A12 for approximate test location.		2146	10	8/3/20	5.9	128.5	95	95%	
678	Refer to Figures A2 through A12 for approximate test location.		2143	10	8/4/20	7.3	133.2	98	95%	
679	Refer to Figures A2 through A12 for approximate test location.		2144	10	8/4/20	6.6	136.0	100	95%	
680	Refer to Figures A2 through A12 for approximate test location.		2149	10	8/4/20	6.9	129.3	95	95%	
681	Refer to Figures A2 through A12 for approximate test location.		2149	10	8/4/20	5.7	133.5	98	95%	
682	Refer to Figures A2 through A12 for approximate test location.		2149	10	8/4/20	6.2	130.1	96	95%	
683	Refer to Figures A2 through A12 for approximate test location.		2148	10	8/4/20	6.5	128.9	95	95%	
684	Refer to Figures A2 through A12 for approximate test location.		2148	10	8/4/20	8.0	129.0	95	95%	
685	Refer to Figures A2 through A12 for approximate test location.		2147	10	8/4/20	7.0	129.6	96	95%	
686	Refer to Figures A2 through A12 for approximate test location.		2149	10	8/4/20	6.1	128.4	95	95%	

## Appendix B - Field Density Test Report for Soils

ASTM 6938

Project Name: Atlas Waterfront Project						Project No.: 118-014T				
Proctor Number		Soil Description		Optimum Moisture (%)		Maximum Density (pcf)		Standard/Modified		
1	S119-0346	WSDOT Crushed Surfacing Top Course		10.4		136.1		Modified		
2	S119-0957	Brown Sand with Silt		9.2		128.9		Modified		
3	S119-0959	Brown Sand with Gravel		8.6		134.4		Modified		
4	S119-0978	Crushed Concrete		Oversized (Relative Density)			N/A			
5	S120-0030	Brown Sandy Gravel with Silt		6.6		139.5		Modified		
6	S120-0096	Brown-Gray Sand with Silt and Gravel		8.1		133.6		Modified		
7	S118-0735	Light Brown Sand with Gravel		8.0		131.0		Modified		
8	S118-0115	Brown and Gray Sandy Gravel		7.0		139.6		Modified		
9	S118-0150	Silty Sand with Gravel		7.8		133.1		Modified		
12	S120-0453	Poorly-Graded Sand and Gravel with Silt		6.6		135.7		Modified		
Test Number	Test Location		Approx. Elevation (ft)	Proctor Number	Date	% Moisture	Dry Density	% Compaction	Required Compaction	Re-Test of Test No.
687	Refer to Figures A2 through A12 for approximate test location.		2153	10	8/4/20	6.6	130.4	96	95%	
688	Refer to Figures A2 through A12 for approximate test location.		2155	10	8/4/20	7.6	132.4	98	95%	
689	Refer to Figures A2 through A12 for approximate test location.		2146	10	8/5/20	7.1	135.2	100	95%	
690	Refer to Figures A2 through A12 for approximate test location.		2153	10	8/5/20	8.8	131.0	97	95%	
691	Refer to Figures A2 through A12 for approximate test location.		2154	10	8/5/20	4.1	134.9	99	95%	
692	Refer to Figures A2 through A12 for approximate test location.		2154	10	8/5/20	6.2	131.4	97	95%	
693	Refer to Figures A2 through A12 for approximate test location.		2146	10	8/5/20	6.5	134.9	99	95%	
694	Refer to Figures A2 through A12 for approximate test location.		2148	10	8/5/20	5.9	134.1	99	95%	
695	Refer to Figures A2 through A12 for approximate test location.		2151	10	8/5/20	5.7	134.7	99	95%	
696	Refer to Figures A2 through A12 for approximate test location.		2151	10	8/5/20	6.1	134.7	99	95%	
697	Refer to Figures A2 through A12 for approximate test location.		2150	10	8/5/20	7.2	134.0	99	95%	
698	Refer to Figures A2 through A12 for approximate test location.		2148	10	8/5/20	5.4	128.6	95	95%	
699	Refer to Figures A2 through A12 for approximate test location.		2146	10	8/5/20	4.1	132.3	97	95%	
700	Refer to Figures A2 through A12 for approximate test location.		2146	10	8/5/20	4.8	128.8	95	95%	
701	Refer to Figures A2 through A12 for approximate test location.		2148	10	8/5/20	8.0	131.5	97	95%	
702	Refer to Figures A2 through A12 for approximate test location.		2150	10	8/5/20	6.2	129.2	95	95%	
703	Refer to Figures A2 through A12 for approximate test location.		2147	10	8/5/20	6.1	133.9	99	95%	
704	Refer to Figures A2 through A12 for approximate test location.		2145	10	8/5/20	5.0	132.0	97	95%	
705	Refer to Figures A2 through A12 for approximate test location.		2145	10	8/5/20	3.9	128.7	95	95%	
706	Refer to Figures A2 through A12 for approximate test location.		2146	10	8/5/20	5.2	129.0	95	95%	
707	Refer to Figures A2 through A12 for approximate test location.		BG	10	11/17/20	8.1	128.9	95	95%	
708	Refer to Figures A2 through A12 for approximate test location.		BG	10	11/17/20	8.1	132.5	98	95%	



## Appendix B - Field Density Test Report for Soils

ASTM 6938

Project Name: Atlas Waterfront Project					Project No.: 118-014T					
Proctor Number		Soil Description		Optimum Moisture (%)	Maximum Density (pcf)		Standard/Modified			
1	S119-0346	WSDOT Crushed Surfacing Top Course		10.4	136.1		Modified			
2	S119-0957	Brown Sand with Silt		9.2	128.9		Modified			
3	S119-0959	Brown Sand with Gravel		8.6	134.4		Modified			
4	S119-0978	Crushed Concrete		Oversized (Relative Density)			N/A			
5	S120-0030	Brown Sandy Gravel with Silt		6.6	139.5		Modified			
6	S120-0096	Brown-Gray Sand with Silt and Gravel		8.1	133.6		Modified			
7	S118-0735	Light Brown Sand with Gravel		8.0	131.0		Modified			
8	S118-0115	Brown and Gray Sandy Gravel		7.0	139.6		Modified			
9	S118-0150	Silty Sand with Gravel		7.8	133.1		Modified			
12	S120-0453	Poorly-Graded Sand and Gravel with Silt		6.6	135.7		Modified			
Test Number	Test Location		Approx. Elevation (ft)	Proctor Number	Date	% Moisture	Dry Density	% Compaction	Required Compaction	Re-Test of Test No.
709	Refer to Figures A2 through A12 for approximate test location.		BG	10	11/17/20	7.9	130.1	96	95%	
710	Refer to Figures A2 through A12 for approximate test location.		BG	10	11/17/20	8.2	131.7	97	95%	
711	Refer to Figures A2 through A12 for approximate test location.		BG	10	11/17/20	7.7	129.7	96	95%	
712	Refer to Figures A2 through A12 for approximate test location.		BG	10	11/17/20	8.0	131.4	97	95%	
713	Refer to Figures A2 through A12 for approximate test location.		BG	10	11/17/20	8.1	133.4	98	95%	

Notes:

ABG = Above Bottom Grade

BG = Below Grade

SG = Subgrade

FBC = Finished Base Coarse

**This test report shall not be reproduced except in full without the permission of ALLWEST Testing & Engineering, Inc.**

690 W. Capstone Ct. • Hayden, ID 83835 • Phone (208) 762-4721 • Fax (208) 762-0942

[www.allwesttesting.com](http://www.allwesttesting.com)

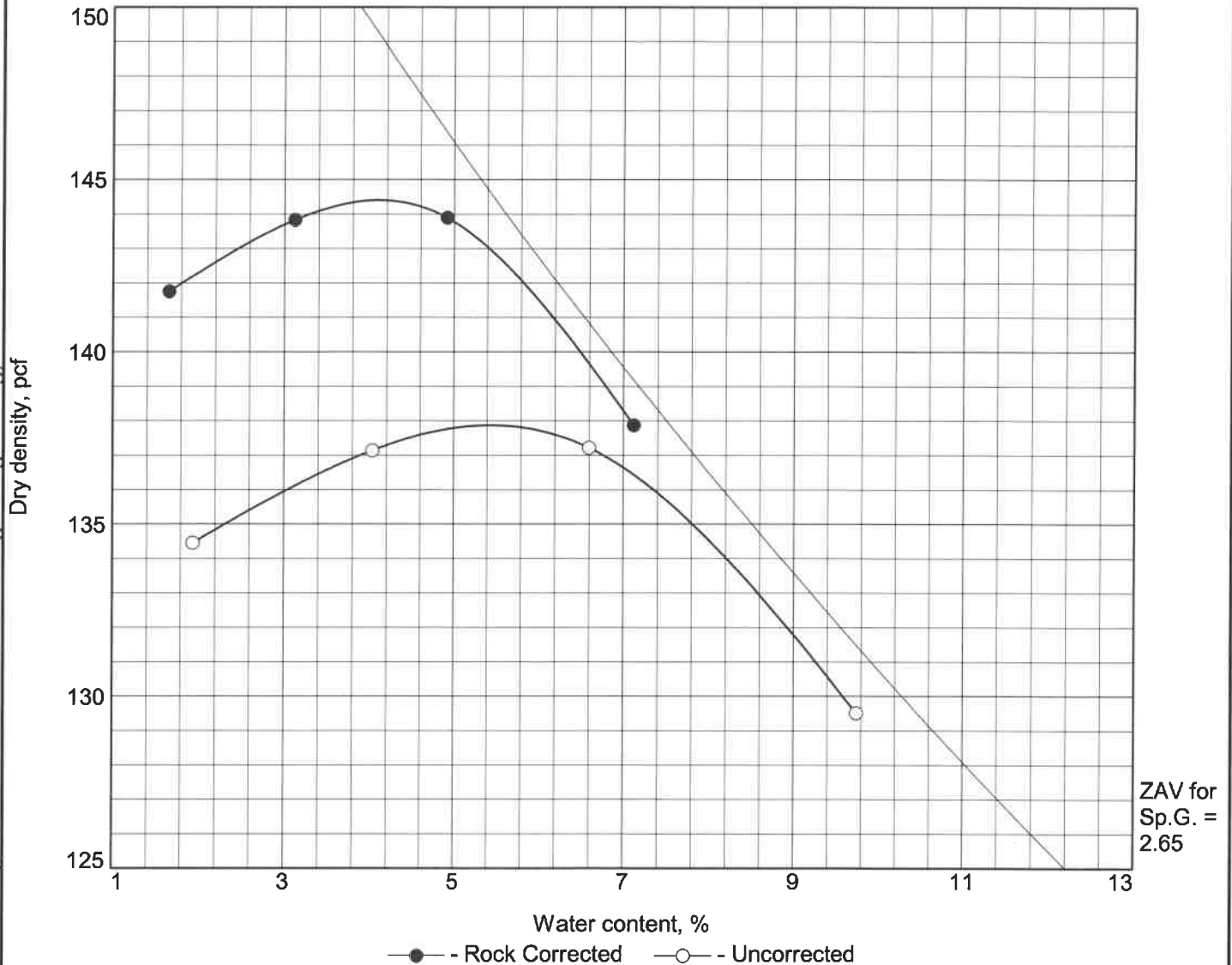
## **Appendix C**

# **Laboratory Test Results**





# Moisture Density Curve



Test specification: ASTM D 1557 Method C Modified  
ASTM D4718-15 Oversize Corr. Applied to Each Test Point

Elev/ Depth	Classification		Nat. Moist.	Sp.G.	LL	PI	% > 3/4 in.	% < No.200
	USCS	AASHTO						
0 to -4'	GP-GM	A-1-a		2.6	NV	NP	30	12

ROCK CORRECTED TEST RESULTS	UNCORRECTED	MATERIAL DESCRIPTION
Maximum dry density = 144.4 pcf	137.9 pcf	poorly graded gravel with silt and sand
Optimum moisture = 4.1 %	5.4 %	

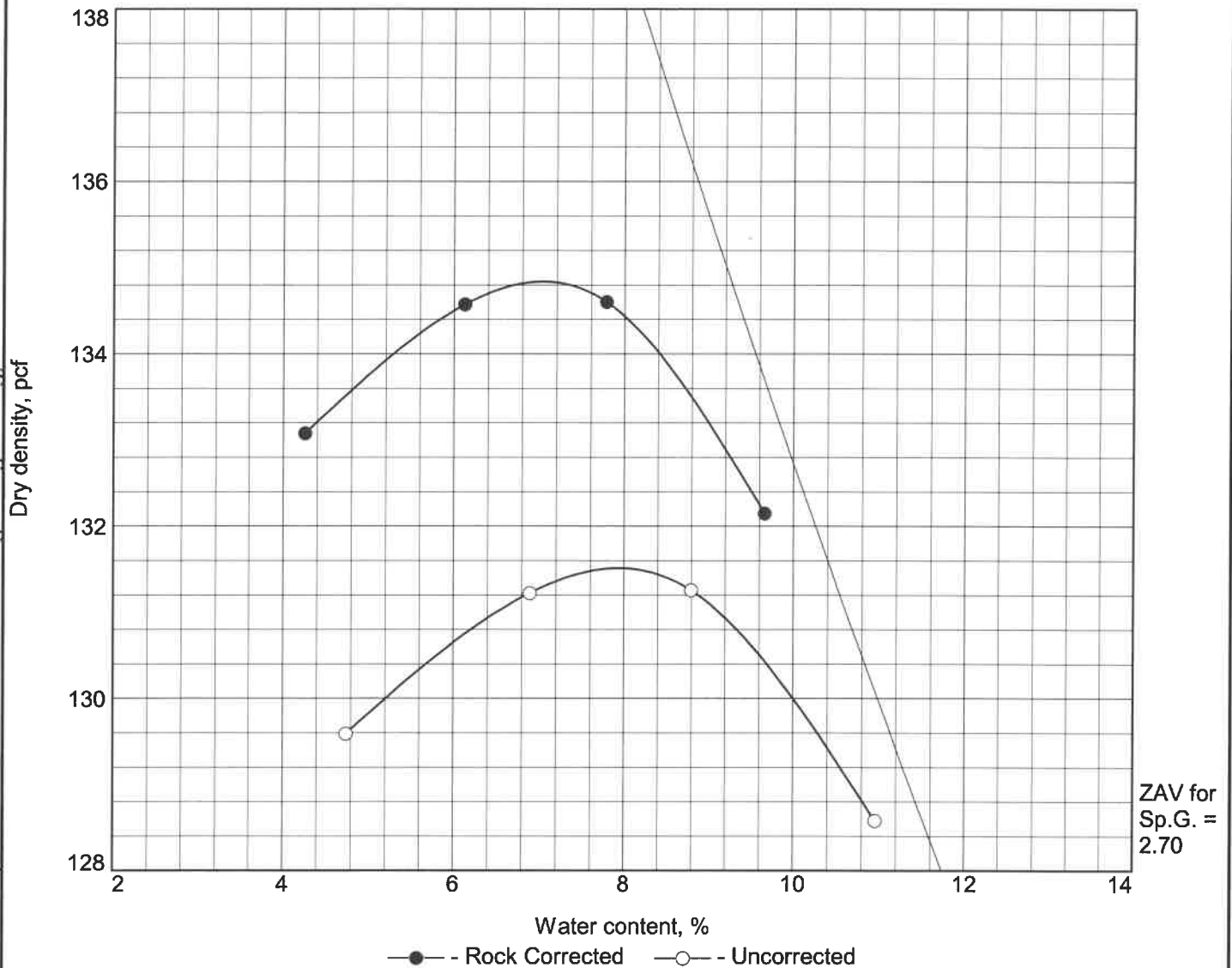
<b>Project No.</b> 118-014T1 <b>Client:</b> T. Lariviere Equipment & Excavating <b>Project:</b> Atlas Waterfront Construction <b>Date:</b> 12/9/19 <b>Location:</b> STA 203+00 Bike Trail 1 <b>Sample Number:</b> S119-0943	<b>Remarks:</b> Sampled By: C.Williams Sample Date: 12/6/19
<b>ALLWEST TESTING &amp; ENGINEERING</b> Hayden, ID	<b>Checked By:</b>

Tested By: Scott Wilken

Checked By: Noah White

This test report shall not be reproduced except in full without the permission of ALLWEST Testing & Engineering, Inc.

# Moisture Density Curve



Test specification: ASTM D 1557 Method C Modified  
ASTM D4718-15 Oversize Corr. Applied to Each Test Point

Elev/ Depth	Classification		Nat. Moist.	Sp.G.	LL	PI	% > 3/4 in.	% < No.200
	USCS	AASHTO						
0 to -4'	GM	A-1-b		2.6	NV	NP	13	17

ROCK CORRECTED TEST RESULTS	UNCORRECTED	MATERIAL DESCRIPTION
Maximum dry density = 134.8 pcf	131.5 pcf	Processed Fill dark brown/grey silty gravel with sand
Optimum moisture = 7.0 %	7.9 %	

**Project No.** 118-014T1    **Client:** T. Lariviere Equipment & Excavating  
**Project:** Atlas Waterfront Construction  
**Date:** 12/9/19  
**Loc.:** STA 201+50 - 205+00 Bike Trail 1    **Sample No.:** S119-0944

**Remarks:**  
 Sampled By: C.Williams  
 Sample Date: 12/6/19

**ALLWEST TESTING & ENGINEERING**

Hayden, ID

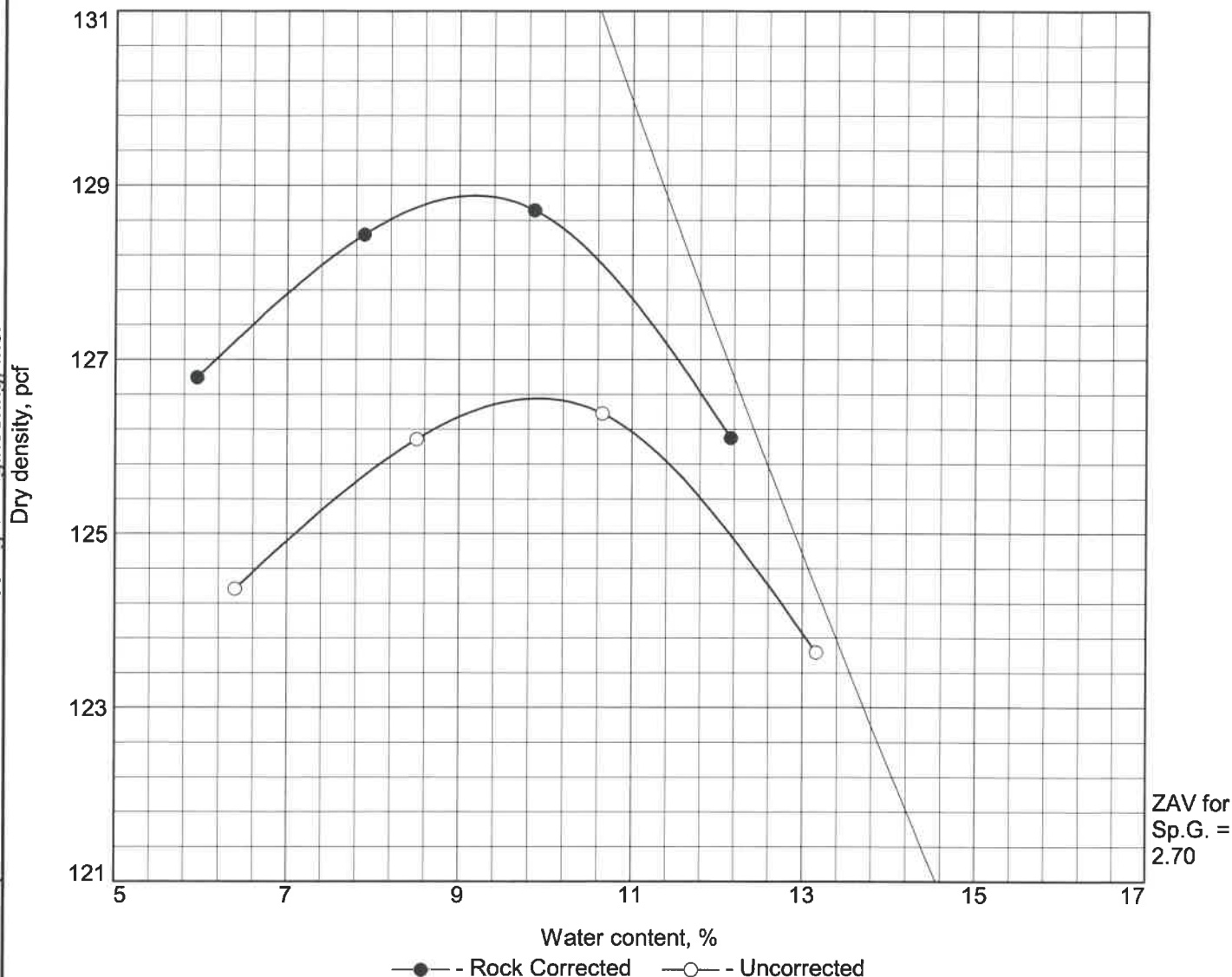
Checked By:

Tested By: Scott Wilken

Checked By: Noah White

This test report shall not be reproduced except in full without the permission of ALLWEST Testing & Engineering, Inc.

# Moisture Density Curve



Test specification: ASTM D 1557 Method B Modified  
ASTM D4718-15 Oversize Corr. Applied to Each Test Point

Elev/ Depth	Classification		Nat. Moist.	Sp.G.	LL	PI	% > 3/8 in.	% < No.200
	USCS	AASHTO						
				2.6			8.2	

ROCK CORRECTED TEST RESULTS	UNCORRECTED	MATERIAL DESCRIPTION
Maximum dry density = 128.9 pcf	126.6 pcf	Brown Sand with Silt
Optimum moisture = 9.2 %	9.9 %	

**Project No.** 118-014T1    **Client:** T. Lariviere Equipment & Excavating  
**Project:** Atlas Waterfront Construction  
**Date:** 12/10/19  
**Location:** STA 200+75, High Cut    **Sample Number:** S119-0957

**Remarks:**  
 Sampled By: A.Hessenkemper  
 Sample Date: 12/10/19

**ALLWEST TESTING & ENGINEERING**

Hayden, ID

Checked By:

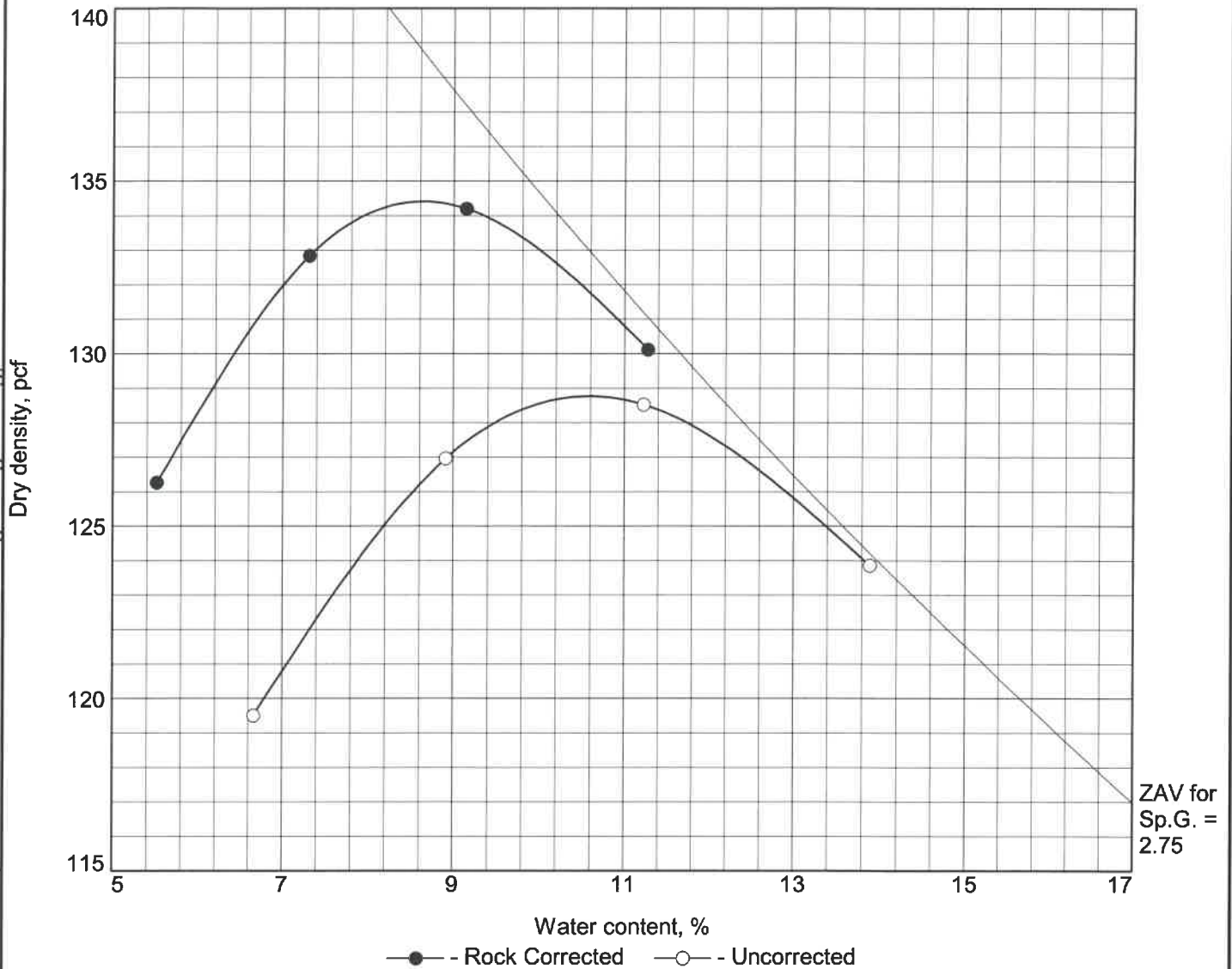
Tested By: Noah White

Checked By: Chris McKissen

This test report shall not be reproduced except in full without the permission of ALLWEST Testing & Engineering, Inc.



# Moisture Density Curve



Test specification: ASTM D 1557 Method C Modified  
ASTM D4718-15 Oversize Corr. Applied to Each Test Point

Elev/ Depth	Classification		Nat. Moist.	Sp.G.	LL	PI	% > 3/4 in.	% < No.200
	USCS	AASHTO						
				2.6			20.3	

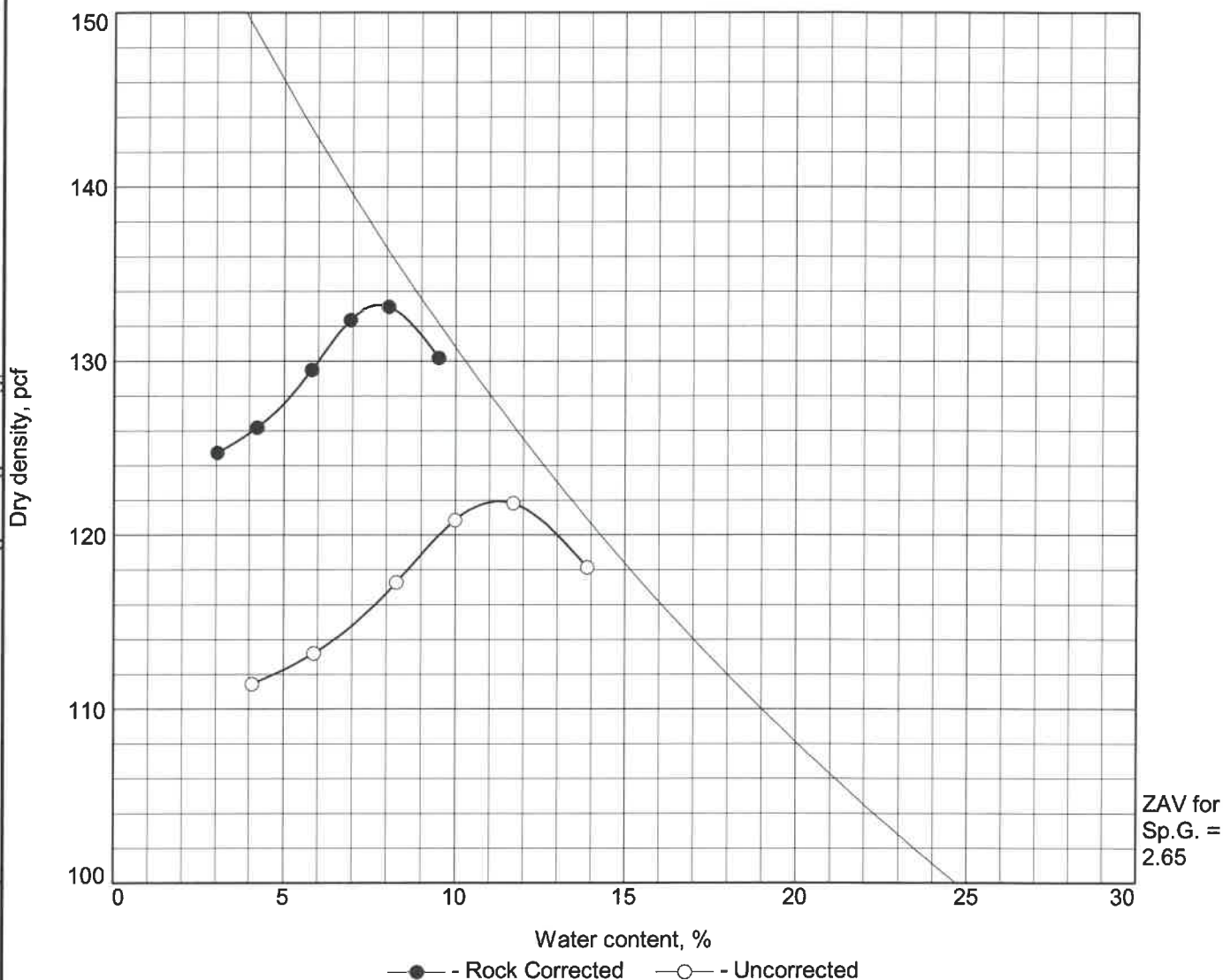
ROCK CORRECTED TEST RESULTS		UNCORRECTED	MATERIAL DESCRIPTION
Maximum dry density = 134.4 pcf		128.8 pcf	
Optimum moisture = 8.6 %		10.6 %	
<b>Project No.</b> 118-014T1 <b>Client:</b> T. Lariviere Equipment & Excavating <b>Project:</b> Atlas Waterfront Construction <b>Date:</b> 12/11/19 <b>Location:</b> STA 321+00 <b>Sample Number:</b> S119-0959 <b>ALLWEST TESTING &amp; ENGINEERING</b> <b>Hayden, ID</b>			<b>Remarks:</b> Sampled By: A.Hessenkemper Sample Date: 12/11/19 Checked By: <i>[Signature]</i>

Tested By: Noah White

Checked By: Chris McKissen

This test report shall not be reproduced except in full without the permission of ALLWEST Testing & Engineering, Inc.

# Moisture Density Curve



Test specification: ASTM D 698-12 Method C Standard  
ASTM D4718-15 Oversize Corr. Applied to Each Test Point

Elev/ Depth	Classification		Nat. Moist.	Sp.G.	LL	PI	% > 3/4 in.	% < No.200
	USCS	AASHTO						
				2.6			34	

ROCK CORRECTED TEST RESULTS	UNCORRECTED	MATERIAL DESCRIPTION
Maximum dry density = 133.2 pcf	121.9 pcf	Crushed concrete
Optimum moisture = 7.8 %	11.3 %	

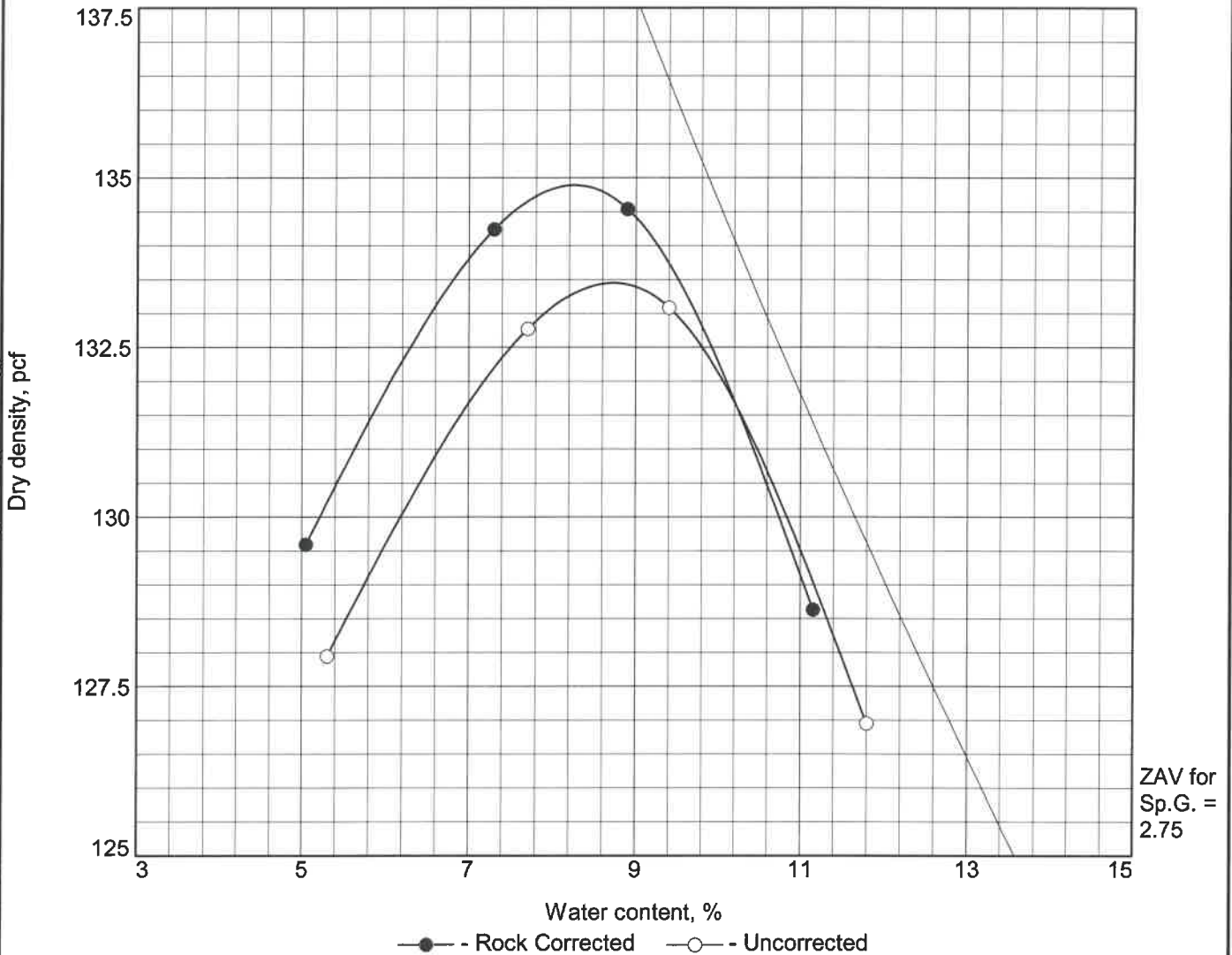
<b>Project No.</b> 118-014T1 <b>Client:</b> T. Lariviere Equipment & Excavating <b>Project:</b> Atlas Waterfront Construction <b>Date:</b> 12/31/19 <b>Location:</b> Onsite stockpile <b>Sample Number:</b> S119-0978 <b>ALLWEST TESTING &amp; ENGINEERING</b> <b>Hayden, ID</b>	<b>Remarks:</b> Sampled by: Adam Hessenkemper Sample Date: 12/23/19  Checked By: <i>[Signature]</i>
---	---

Tested By: Scott W/Curtis W

Checked By: Chris McKissen

This test report shall not be reproduced except in full without the permission of ALLWEST Testing & Engineering, Inc.

# Moisture Density Curve



Test specification: ASTM D 698-12 Method C Standard  
ASTM D4718-15 Oversize Corr. Applied to Each Test Point

Elev/ Depth	Classification		Nat. Moist.	Sp.G.	LL	PI	% > 3/4 in.	% < No.200
	USCS	AASHTO						
	SM	A-1-b			NV		6	13

ROCK CORRECTED TEST RESULTS	UNCORRECTED	MATERIAL DESCRIPTION
Maximum dry density = 134.9 pcf	133.4 pcf	silty sand with gravel
Optimum moisture = 8.3 %	8.7 %	

<b>Project No.</b> 118-014T1 <b>Client:</b> T. Lariviere Equipment & Excavating <b>Project:</b> Atlas Waterfront Construction <b>Date:</b> <b>Loc.:</b> Middle Stockpile in Phase 3 of Atlas <b>Sample No.:</b> S119-0982	<b>Remarks:</b> Sampled by: Adam H. Sample Date: 12/30/19
<b>ALLWEST TESTING &amp; ENGINEERING</b> Hayden, ID	
Checked By: <i>[Signature]</i>	

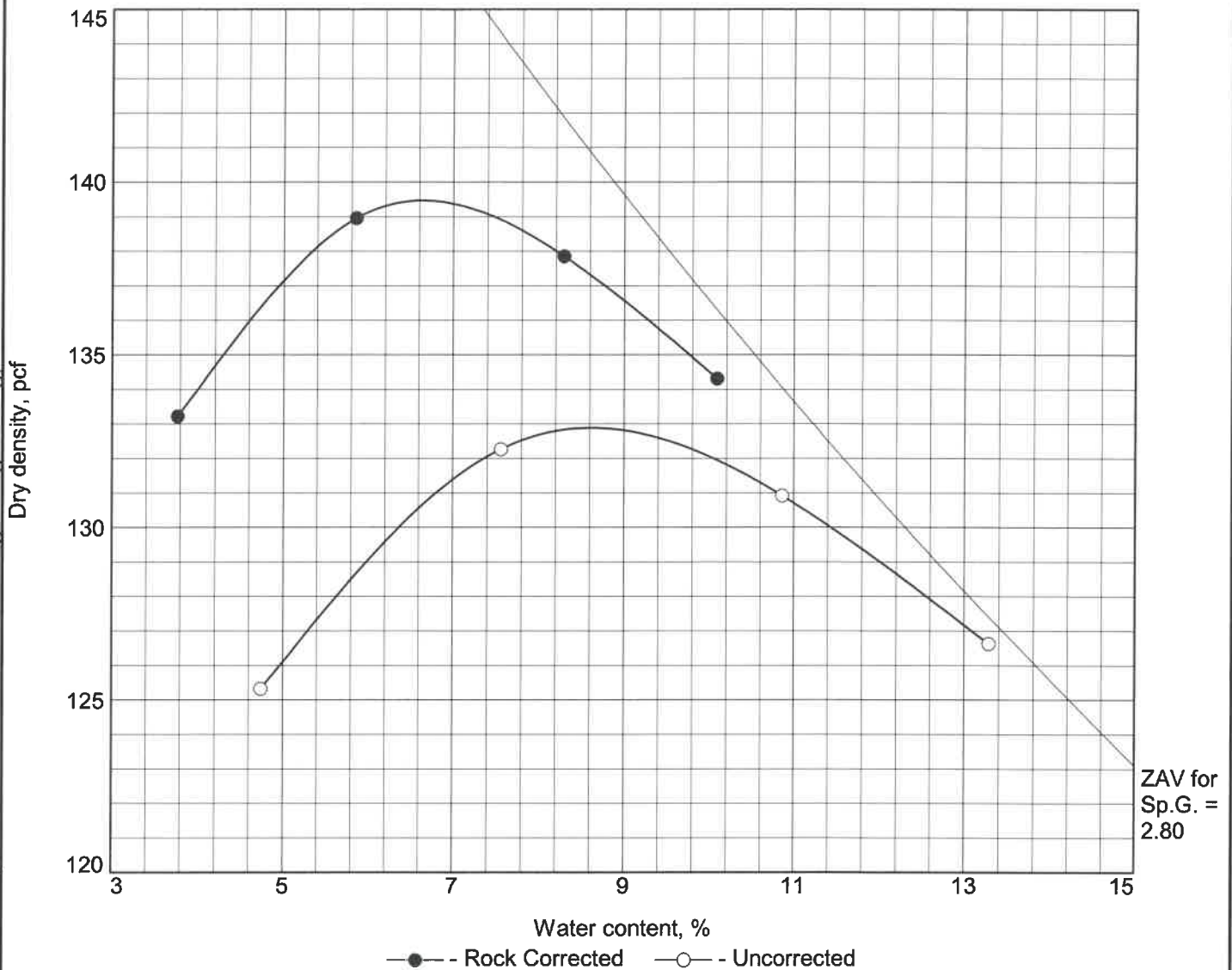
Tested By: Curtis Williams

Checked By: Chris McKissen

This test report shall not be reproduced except in full without the permission of ALLWEST Testing & Engineering, Inc.



# Moisture Density Curve



Test specification: ASTM D 1557 Method C Modified  
ASTM D4718-15 Oversize Corr. Applied to Each Test Point

Elev/ Depth	Classification		Nat. Moist.	Sp.G.	LL	PI	% > 3/4 in.	% < No.200
	USCS	AASHTO						
				2.6			26	

ROCK CORRECTED TEST RESULTS	UNCORRECTED	MATERIAL DESCRIPTION
Maximum dry density = 139.5 pcf	132.9 pcf	Brown Sandy Gravel with Silt
Optimum moisture = 6.6 %	8.6 %	

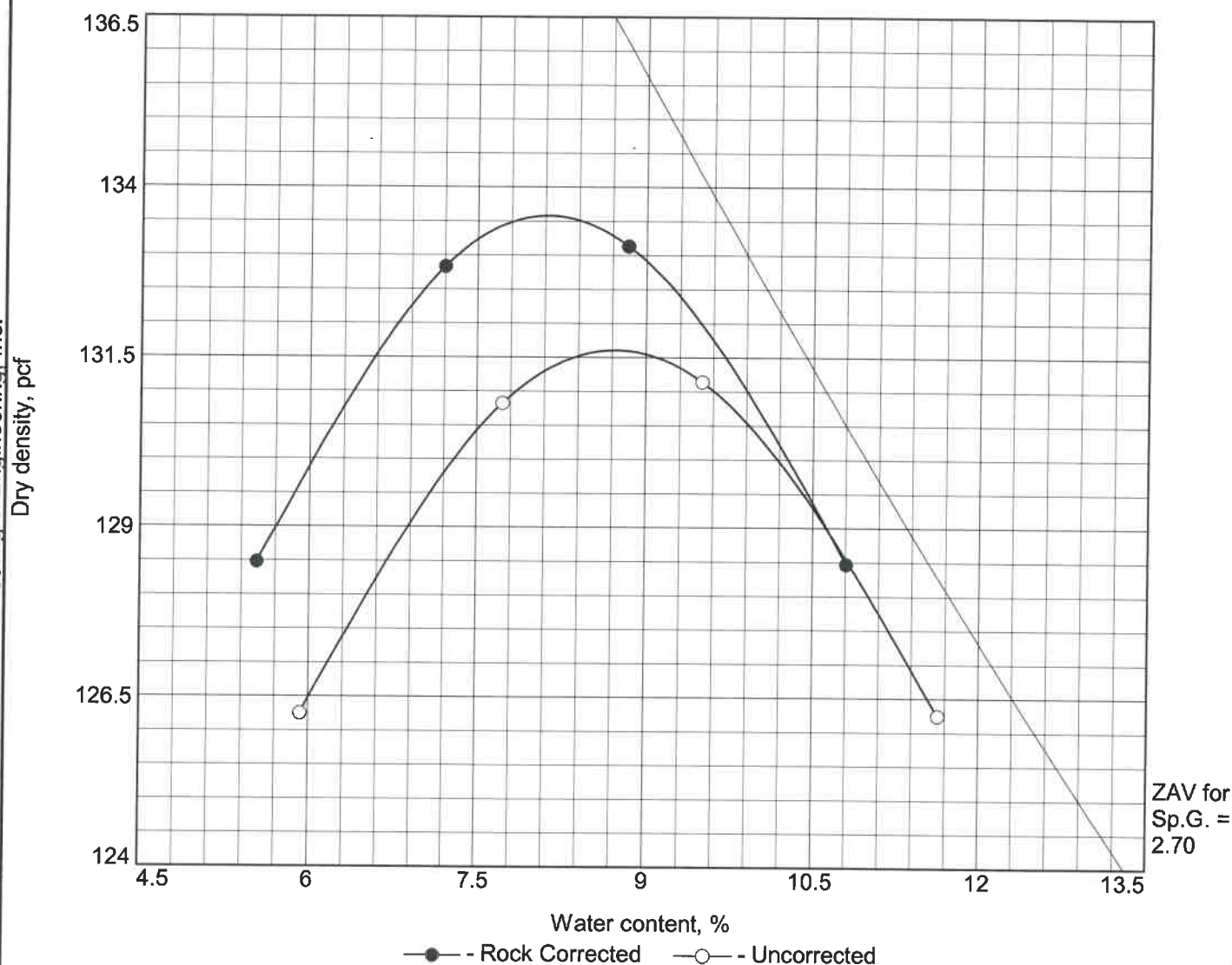
<b>Project No.</b> 118-014T1 <b>Client:</b> T. Lariviere Equipment & Excavating <b>Project:</b> Atlas Waterfront Construction <b>Date:</b> 2/6/20 <b>Location:</b> Wall #1 Backfill <b>Sample Number:</b> S120-0030 <b>ALLWEST TESTING &amp; ENGINEERING</b> <b>Hayden, ID</b>	<b>Remarks:</b> Sampled By: A.Hessenkemper Sample Date: 2/5/20  Checked By: <i>ay</i>
---	---

Tested By: Noah White

Checked By: Chris McKissen

This test report shall not be reproduced except in full without the permission of ALLWEST Testing & Engineering, Inc.

# Moisture Density Curve



Test specification: ASTM D 1557 Method C Modified  
 ASTM D4718-15 Oversize Corr. Applied to Each Test Point

Elev/ Depth	Classification		Nat. Moist.	Sp.G.	LL	PI	% > 3/4 in.	% < No.200
	USCS	AASHTO						
				2.6			7.8	

ROCK CORRECTED TEST RESULTS	UNCORRECTED	MATERIAL DESCRIPTION
Maximum dry density = 133.6 pcf	131.6 pcf	Brown/Gray Sand with Silt and Gravel
Optimum moisture = 8.1 %	8.7 %	

Project No. 118-014T1 Client: T. Lariviere Equipment & Excavating  
 Project: Atlas Waterfront Construction  
 Date: 3/11/20  
 Loc.: Staging Area, Existing Stockpile Sample No.: S120-0096

**ALLWEST TESTING & ENGINEERING**

Hayden, ID

Remarks:  
 Sampled By: A.Hessenkemper  
 Sample Date: 3/11/20

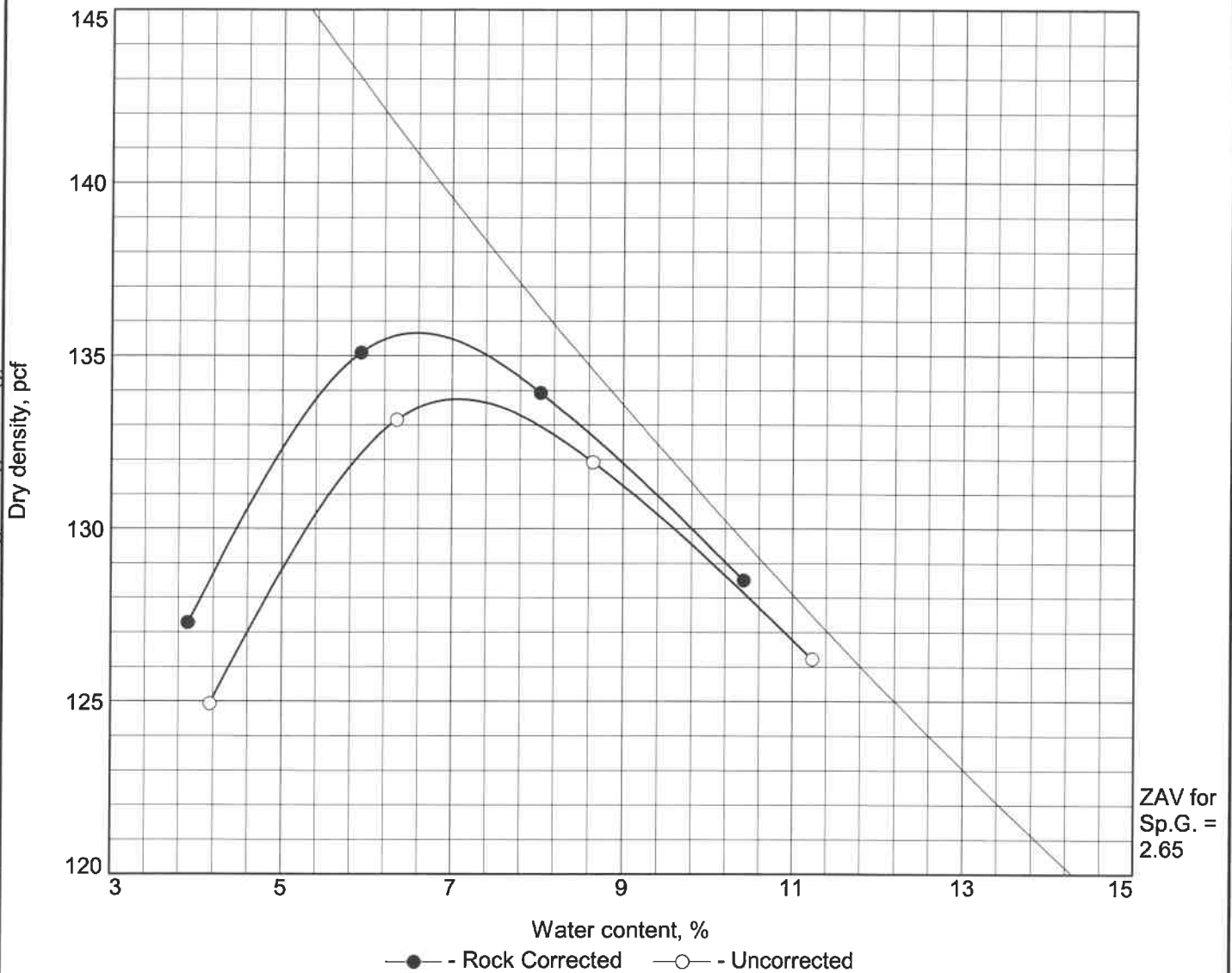
Checked By:

Tested By: Adam Hessenkemper

Checked By: Noah White

This test report shall not be reproduced except in full without the permission of ALLWEST Testing & Engineering, Inc.

# Moisture Density Curve



This test report shall not be reproduced except in full without the permission of ALLWEST Testing & Engineering, Inc.

Tested By: Christian Krieger

Checked By: Noah White