March 27, 2019

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

RE: ALLWEST Project No. 118-014G7
Mass Grading Report
Atlas Waterfront Park – Phase 1 – Commercial Lot 13
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 Park – Phase 1, Commercial Lot 13 at 3074 W Seltice Way in Coeur d'Alene, Idaho. The purpose of our services was to test the in situ dry density of the structural fill placed for conformance with project specifications. The attached report presents the results of the field testing and observation.

FIELD TESTING AND OBSERVATION

The construction consisted of filling portions of Phase 1 Commercial Lot 13 of the project site, and earthwork correction of the existing native soil and unsuitable fill. The project area was graded to variable grades (unfinished) because a proposed subterranean garage structure is planned. A photograph of the graded commercial lot is provided.

We observed the placement and performed density tests on the structural fill placed between April and November 2018, as part of the I-90 material import, and structural fill placed as part of the Atlas Waterfront Park Phase 1. 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 is the map showing the approximated density test locations included in Appendix A. Attached are a tabulation of the field density test results in Appendix B.

Photograph. View to the west of rough graded commercial lot 13.

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 dated February 8, 2019.

REPORT LIMITATIONS

This report has been prepared to assist the planning and design of the proposed Atlas Waterfront Park – Phase 1 Commercial Lot 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

Prepared by:

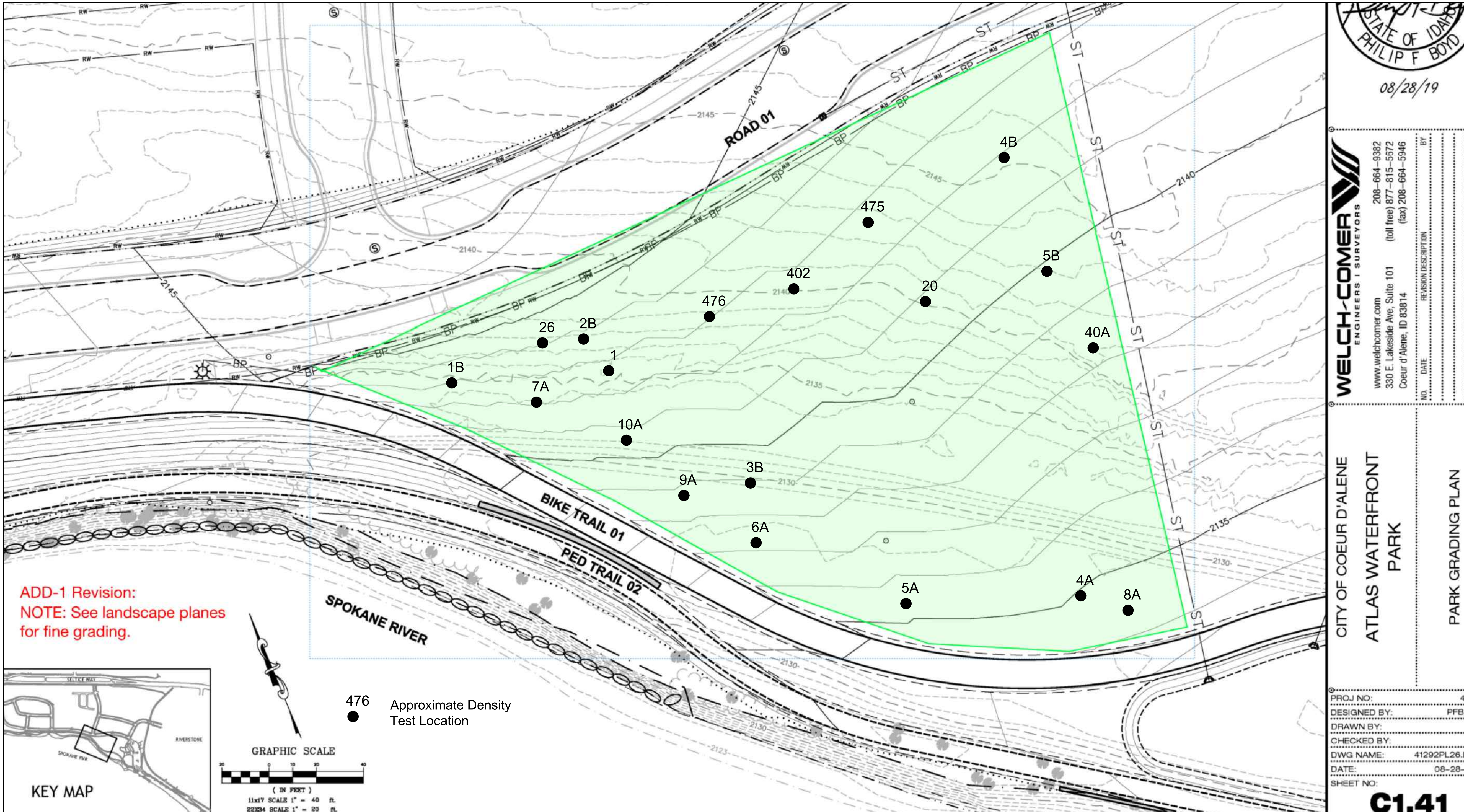
Scott A. Marshall, P.G.
Senior Engineering Geologist

Reviewed by:

James Thomasson, P.E.
Senior Geotechnical Engineer

Appendix A – Figure 1, Commercial Lot 13 - Density Test Location Map
Appendix B – Field Density Test Reports for Soils

Appendix A



ALLWEST

690 W Capstone Court
Hayden, Idaho 83835
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FIGURE 1, COMMERCIAL LOT 13 - DENSITY TEST LOCATION MAP			
PROJECT:	118-014G7 Atlas Waterfront - Phase 1		
LOCATION:	3074 W Seltice Way, Coeur d'Alene, Idaho		
CLIENT NAME:	Welch Comer & Associates, Inc.		
DATE:	March 2020	SCALE:	As Indicated

Appendix B

Appendix B - Field Density Test Report for Soils

ASTM 6938

Project Name:	Atlas Waterfront Project I-90 Fill Placement			Project No.:	118-014T
Proctor Number		Soil Description	Optimum Moisture (%)	Maximum Density (pcf)	Standard/Modified
1	S118-0107	Gray sandy gravel	4.5	124.1	Modified
2	S118-0115	Brown gravel with silty sand	7.0	139.6	Modified
3	S118-0735	Light brown sand with gravel	8.0	131.0	Modified

Test Number	Test Location	Approx. Elevation	Proctor Number	Date	% Moisture	Dry Density	% Compaction	Required Compaction	Re-Test of Test No.
1	Refer to Figure 1 for approximate test location.	2155'	1	4/13/18	3.5	121.7	98	95%	
20	Refer to Figure 1 for approximate test location.	2088'	2	4/14/18	9.3	135.5	97	95%	
26	Refer to Figure 1 for approximate test location.	2157'	1	4/16/18	4.1	118.0	95	95%	
402	Refer to Figure 1 for approximate test location.	2145'	3	9/22/18	6.0	125.8	96	95%	
475	Refer to Figure 1 for approximate test location.		3	11/7/18	6.2	125.3	96	95%	
476	Refer to Figure 1 for approximate test location.		3	11/7/18	5.5	125.9	96	95%	

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DAILY PROJECT FIELD REPORT

Project: Atlas Waterfront Construction						Project #: 118-014T1
Project Address: West Seltice Way, Coeur d'Alene, ID						
Permit #:					Date: 3/18/2020	Page 1 of 2
Report #:	Technician: Adam Hessenkemper				Weather: Sunny	
Type of Testing / Inspection: Soils Density Testing						
Deficiencies Noted:	X	No		Yes	If yes, explain below	
Deficiencies Corrected:		Yes	Date of Corrected Report(s):			
Reported To: Eugene				of LaRiviere		

Narrative:
ALLWEST arrived on site as requested to perform soils density testing on structural fill placed within the proposed commercial lot and In front of the observation concrete retaining wall located at the east end of the site off of Trail 07.

Placement and compaction operations for the commercial lot was shut down before the first lift of the day was complete. I was informed that the area did not need to be completely filled with structural fill due to the proposed subterranean parking garage that may be constructed. The current elevation is approximately 1 to 5 feet (south to north) below planned subgrade elevation; based off the approved plans that indicate this area is greenspace.

Density tests performed appeared to be in general conformance with project requirements. Please refer to Field Density Test Report for test results and locations.

Additionally, I observed the placement of bottom course boulders for the construction of Rockery Wall #5 located east of the parking lot. The boulders placed had a minimum width of 4 feet and were placed with the long axis perpendicular to the wall orientation. The contractors appeared to stabilize each boulder through chinking and bucket tamping. Voids appeared to be minimized given the rock type and shape. A 4-inch perforated drain pipe was placed at the back of the drain rock fill zone.

The first 30 feet of the wall from north to south will have one(1) course and the next 45 feet will have two(2) courses. The remaining section of the wall will be composed of shorter boulders that will be constructed in 3 courses.

Technician:	Received By:
This report shall be considered preliminary until reviewed and countersigned by the ALLWEST Project Manager	Reviewed By: Scott A. Marshall

Employee Type	Activity	Hours	Miles	Equipment	
ST	COMPT	7.5	11	Equipment / Consumables Used	Nuclear Densometer
				Equipment / Consumables Used	
				Equipment / Consumables Used	
Field Samples Obtained					

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Field Density Test Report for Soils

ASTM D 6938 / AASHTO T 310

Report #: ______________________

Project Name: Atlas Waterfront Construction			Project #: 118-014T1
Date: 3/18/2020	Weather: Sunny	Test Method: ASTM D 6938	Gauge: 23854
Location: Commercial Lot, Trail 7 Retaining wall (fromt)		Technician: Adam Hessenkemper	Calib. Date: 03/17/20
Contractor: LaRiviere		M.S.: 653	D.S.: 1865

	Proctor Number & Soil Description	Optimum Moisture	Maximum Density	Standard/Modified
1	S119-0636: Brown Sand with Gravel	8.2	134.5	Modified
2				
3				

Elevation Legend SG = Finished Subgrade, SB = Finished Sub-base Course, FB = Finished Base Course, LG = Finished Lot Grade, FTG = Finished Footing Grade, AC = Finished Asphalt Grade, FG = Finished Grade. ("+ / -" preceeding any elevation indicates above/below indicated elevation element)

Test Number	Test Location	Elevation	Proctor Number	Probe Depth	% Moisture	Dry Density	% Compaction	Required Compaction	Re-Test of Test No.
1B	Commercial Lot, Waypoint 223	+1'	1	8	6.3	127.6	95	95%	
2B	Commercial Lot, Waypoint 224	+6.5'	1	8	7.1	128.9	96	95%	
3B	Commercial Lot, Waypoint 225	+6'	1	8	7.0	130.2	97	95%	
4B	Commercial Lot, Waypoint 226	SG	1	8	7.2	127.9	95	95%	
5B	Commercial Lot, Waypoint 227	SG	1	8	7.4	129.5	96	95%	
6	Pedestrian Trail, Waypoint 222	+1	1	8	7.3	128.4	95	95%	
7	Trail 07 Retaining Wall, Waypoint 220	-4'	1	8	6.9	130.1	97	95%	
8	Trail 07 Retaining Wall, Waypoint 221	-4'	1	8	6.8	130.6	97	95%	
9	Trail 07 Retaining Wall, Waypoint 228	-3'	1	8	6.5	130.9	97	95%	
10	Trail 07 Retaining Wall, Waypoint 229	-3'	1	8	6.2	128.1	95	95%	
11	Trail 07 Retaining Wall, Waypoint 230	-1.5'	1	8	6.4	128.4	95	95%	
12	Trail 07 Retaining Wall, Waypoint 231	-1.5'	1	8	6.3	129.9	97	95%	
13	Sanitary Sewer Service Trench for.Pump House, ~ 120' east of Bathrooms	-3'	1	8	7.1	130.2	97	95%	

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DAILY PROJECT FIELD REPORT

Project: Atlas Waterfront Construction				Project #: 118-014T1	
Project Address: West Seltice Way, Coeur d'Alene, ID					
Permit #:				Date: 3/17/2020	Page 1 of 2
Report #:	Technician: Adam Hessenkemper			Weather: Sunny	
Type of Testing / Inspection:	Soils Density Testing		Concrete Sample Pick Up		
Deficiencies Noted:	X	No		Yes	If yes, explain below
Deficiencies Corrected:		Yes	Date of Corrected Report(s):		
Reported To: Eugene			of LaRiviere		

Narrative:
ALLWEST arrived on site as requested to observe the compaction of oversized, non-density testable crushed concrete placed as structural fill within the proposed commercial lot. Upon arrival, the contractors were transporting crushed concrete to the fill area.

One lift of crushed concrete was placed, with a lift thickness of 1 to 1.5 feet. This lift was concentrated within the southern half of the lot and about 3 to 5 feet below finished subgrade elevation. The natural moisture content appeared adequate. I observed a large vibratory smooth drum roller make four(4) passes in two directions. The soil appeared firm and unyielding following the compactive effort.

In addition, density tests were conducted on 3/4" base rock placed within the picnic pads located along the eastern pedestrian trail. One test was conducted in the thickened edge and one on the top pad.

Density tests performed appeared to be in general conformance with project requirements. Please refer to Field Density Test Report for test results and locations.

Concrete cylinders from a pour on 03/16/2020 were collected and transported back to the lab for final cure. The cure box appeared undisturbed.

Technician:	Received By:
This report shall be considered preliminary until reviewed and countersigned by the ALLWEST Project Manager	Reviewed By: PRELIMINARY REPORT

Employee Type	Activity	Hours	Miles	Equipment	
ST	COMPT	6.5	11	Equipment / Consumables Used	Nuclear Densometer
CT	SP	0.5		Equipment / Consumables Used	
				Equipment / Consumables Used	

Field Samples Obtained

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DAILY PROJECT FIELD REPORT

Project: Atlas Waterfront Construction					Project #: 118-014T1	
Project Address: West Seltice Way, Coeur d'Alene, ID						
Permit #:					Date: 3/16/2020	Page 1 of 2
Report #:	Technician: Adam Hessenkemper				Weather: Sunny	
Type of Testing / Inspection: Soils Density Testing						
Deficiencies Noted:	X	No		Yes	If yes, explain below	
Deficiencies Corrected:		Yes	Date of Corrected Report(s):			
Reported To: Eugene				of LaRiviere		

Narrative:
ALLWEST arrived on site as requested to perform soils density testing on structural fill placed within the proposed commercial lot. Upon arrival, the contractors were in the process of preparing the subgrade soils to receive structural fill. The unsuitable soil appeared to have been adequately removed, with a maximum removal depth of approximately 8 feet. Removal limits were determined by the contractors, which appeared to be 1-4 feet beyond survey stakes indicating the proposed perimeters. ALLWEST has not been provided with structural or civil plans regarding the development of the proposed commercial lot.

The subgrade soil consisted of previously compacted sand with silt and gravel from the I-90 fill placement. I observed a vibratory smooth drum roller make multiple passes over the subgrade until it appeared firm. Structural fill was being generated from a stockpile left from excavating the footings of the western rockery wall. The material consisted of silty sand with gravel. Once the stockpile was exhausted, an existing stockpile of sand and gravel located in the staging area was used. A vibratory smooth drum roller was utilized for compaction efforts and the natural moisture content appeared sufficient.

In addition, Density tests were conducted in subgrade soils for Rockery Wall #5. Following density tests I observed the contractors placed geofabric over the subgrade. The fabric was cut in sections and overlapped by a minimum of one(1) foot. The fabric was pulled over the back cut and stakes in place. I then observed the compaction of foundation stone, which was placed at a minimum of one(1) foot thick. The material appeared firm and unyielding following six compactive passes with a double drum roller.

Density tests performed appeared to be in general conformance with project requirements. Please refer to Field Density Test Report for test results. Test locations were marked using a hand held GPS unit. Noted elevation indicates approximate fill depth at the mentioned location.

Technician:	Received By:
This report shall be considered preliminary until reviewed and countersigned by the ALLWEST Project Manager	Reviewed By: Scott A. Marshall

Employee Type	Activity	Hours	Miles	Equipment	
ST	COMPT	8	11	Equipment / Consumables Used	Nuclear Densometer
				Equipment / Consumables Used	
				Equipment / Consumables Used	
Field Samples Obtained					

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Field Density Test Report for Soils

ASTM D 6938 / AASHTO T 310

Report #: ______________________

Project Name: Atlas Waterfront Construction		Project #: 118-014T1
Date: 3/16/2020	Weather: Sunny	Test Method: ASTM D 6938	Gauge: 23854
Location: Commercial Lot Structural Fill	Technician: Adam Hessenkemper	Calib. Date: 03/16/20
Contractor: LaRiviere	M.S.: 656	D.S.: 1860

Proctor Number & Soil Description		Optimum Moisture	Maximum Density	Standard/Modified
1	S120-0030 Brown Sandy Gravel with Silt	6.6	139.5	D1557
2	S120-0096 Brown/Gray Sand with Silt and Gravel	8.1	133.6	D1557
3	S120-0004 Poorly Graded Sand with Silt and Gravel	6.7	140.7	D1557

Elevation Legend SG = Finished Subgrade, SB = Finished Sub-base Course, FB = Finished Base Course, LG = Finished Lot Grade, FTG = Finished Footing Grade, AC = Finished Asphalt Grade, FG = Finished Grade. ("+ / -" preceeding any elevation indicates above/below indicated elevation element)

Test Number	Test Location	Elevation	Proctor Number	Probe Depth	% Moisture	Dry Density	% Compaction	Required Compaction	Re-Test of Test No.
1	Rockery Wall Subgrade, ~25' south of north end	SG	3	6	5.6	134.2	95	95%	
2	Rockery Wall Subgrade, ~125' south of north end	SG	3	6	5.8	133.8	95	95%	
3	Rockery Wall Subgrade, ~225' south of north end	SG	3	6	6.0	134.6	96	95%	
4A	Commercial Lot, Waypoint 198	+1.5'	1	8	8.3	133.4	96	95%	
5A	Commercial Lot, Waypoint 200	+1.5'	1	8	8.1	134.3	96	95%	
6A	Commercial Lot, Waypoint 201	+1.5'	1	8	8.0	133.9	96	95%	
7A	Commercial Lot, Waypoint 202	+3'	1	8	9.0	133.6	96	95%	
8A	Commercial Lot, Waypoint 214	+3	1	8	9.1	134.5	96	95%	
9A	Commercial Lot, Waypoint 215	+4.5'	2	8	9.1	130.2	97	95%	
10A	Commercial Lot, Waypoint 216	+4.5'	2	8	9.0	128.4	96	95%	

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