



Engineering Solutions		Shop Drawing Review	
Project:	Echelon	Date:	1-17-18
Submittal#	Rock 2	By:	MJS
☒ APPROVED		☐ REJECTED	
☐ APPROVED AS NOTED			

construction managers

general contractors

design builders

SUBMITTAL REVIEW

Project # 417 The Residences at Echelon

Date: January 12, 2018

Submittal Number: 31-2000-05 a
Project Backfill - Rock - Alternate

Sequence Number: 27

Subcontractor: KAT Excavation
Bart Fisher

Submit To: NSPJ Architects
Tim Hauschild

SUBMITTAL FOR APPROVAL	
Job Name/No: 417 The Residences at Echelon	
☒ REVIEWED	☐ REVISE & RESUBMIT
☐ REVIEWED& NOTED	☐ REJECTED
Submittal received for general compliance with the Contract Documents. Contractor's review does not relieve sub/vendor of responsibility for dimension, quantities, accuracy or completion of submittals or from any responsibilities required by terms and conditions of Subcontract/PO with Luke Draily Construction Co., Inc.. Sub/Vendors shall follow all manufacturer installation instructions. Installing contractor shall be responsible to coordinate with trades for hookup, supports, routing, etc.	
By: JDW	Date: _____

Sim to Submittal 31-2000-01a

This is an alternate supplier

Basic Quality Statistical Summary Report

Plant 36402-Greenwood
Product 0705-3/4" Clean (WS)
Specification 1" Clean
Period 01/01/2017 - 08/29/2017

Sieve/Test	Tests	Average	St Dev	Target	Specification
1" (25mm)	22	100	0.2	98-100\100	95-100
3/4" (19mm)	22	70	8.1	50-87\68	50-100
1/2" (12.5mm)	22	12	4.1	5-58\35	5-60
3/8" (9.5mm)	21	4	1.6		
#4 (4.75mm)	22	2	0.9	0-9\3	0-10
#8 (2.36mm)	22	2	0.7	0-4\2	0-5
#200 (75µm)	22	1.1	0.39	0-2\1	0-3
Pan	22	0.0	0.00		

Query Query Selections
Date Created 08/29/2017
Date Range 01/01/2017 - 08/29/2017
Plant Greenwood

PROCTOR TEST REPORT

Curve No.: 1 of 1

Project No.: 16-143T

Date: 12/15/2016

Project: MARTIN MARIETTA - GREENWOOD Quarry Testing

Client: MARTIN MARIETTA

Location: Greenwood Quarry -Winterset Ledge

Sample Number: Type 5 2005

Remarks:

MATERIAL DESCRIPTION

Description: Crushed limestone with fines (Type 5 2005)

Classifications -

USCS: GP-GC

AASHTO: A-1-a

Nat. Moist. =

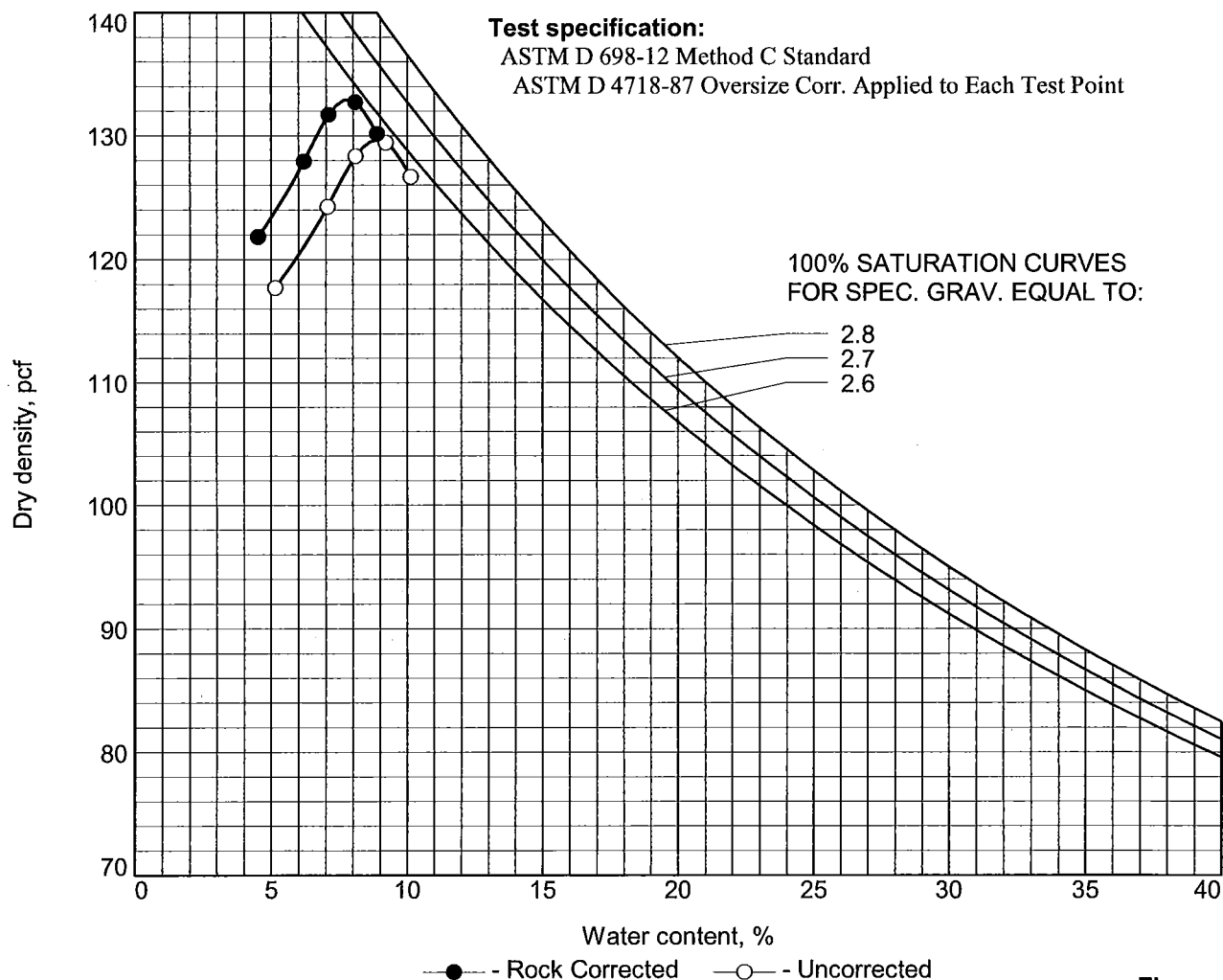
Sp.G. =

Liquid Limit = 21

Plasticity Index = 5

% < No.200 = 10.3 %

ROCK CORRECTED TEST RESULTS	UNCORRECTED
Maximum dry density = 132.9 pcf	129.7 pcf
Optimum moisture = 7.8 %	8.9 %



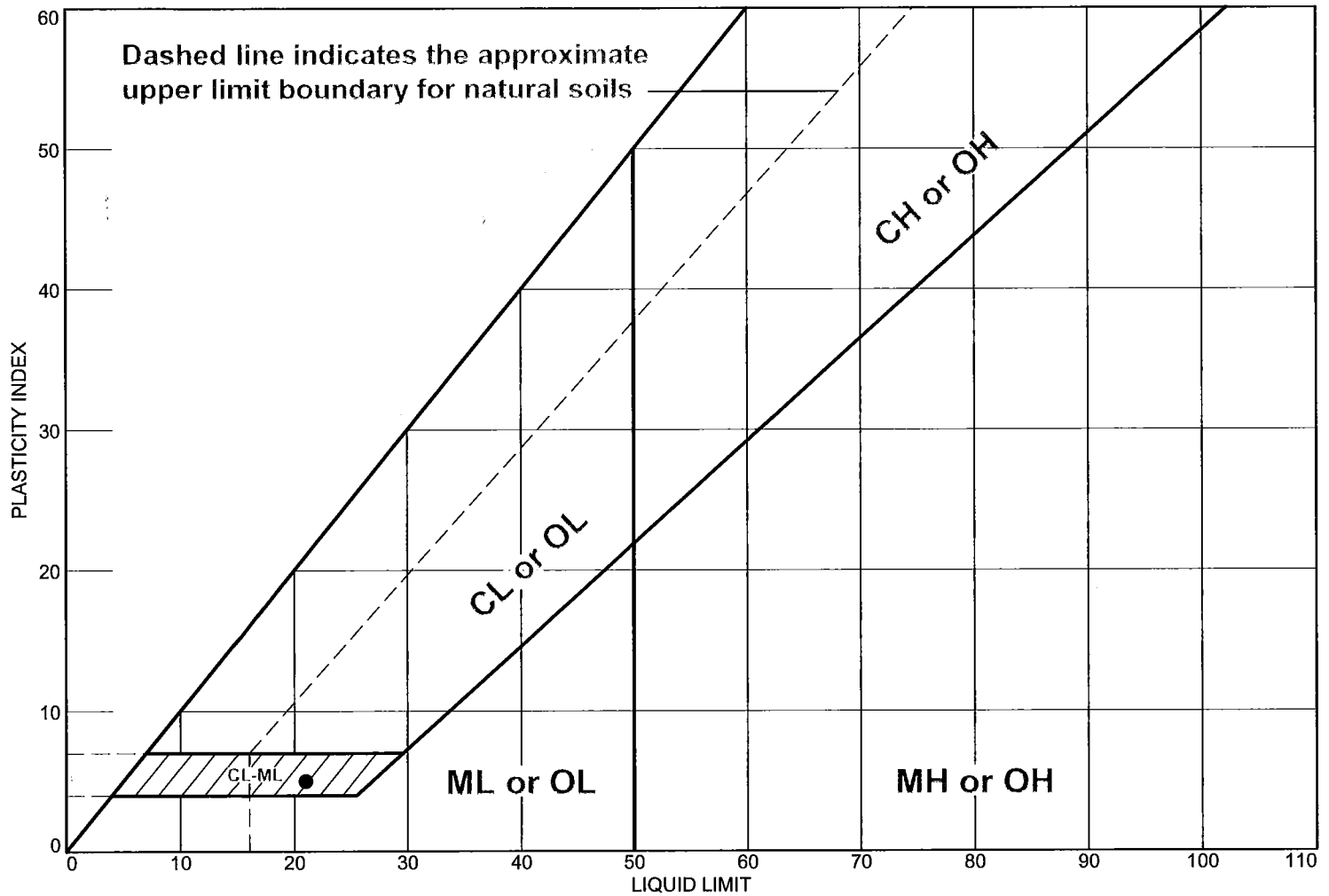
Alpha-Omega Geotech, Inc.

Figure 1 of 1

Tested By: D.B.

Checked By: T.B.

LIQUID AND PLASTIC LIMITS TEST REPORT



	MATERIAL DESCRIPTION	LL	PL	PI	%<#40	%<#200	USCS
●	Crushed limestone with fines (Type 5 2005)	21	16	5	13.7	10.3	GP-GC

Project No. 16-143T **Client:** MARTIN MARIETTA

Project: MARTIN MARIETTA - GREENWOOD Quarry Testing

● **Location:** Greenwood Quarry - Winterset Ledge **Sample Number:** Type 5 2005

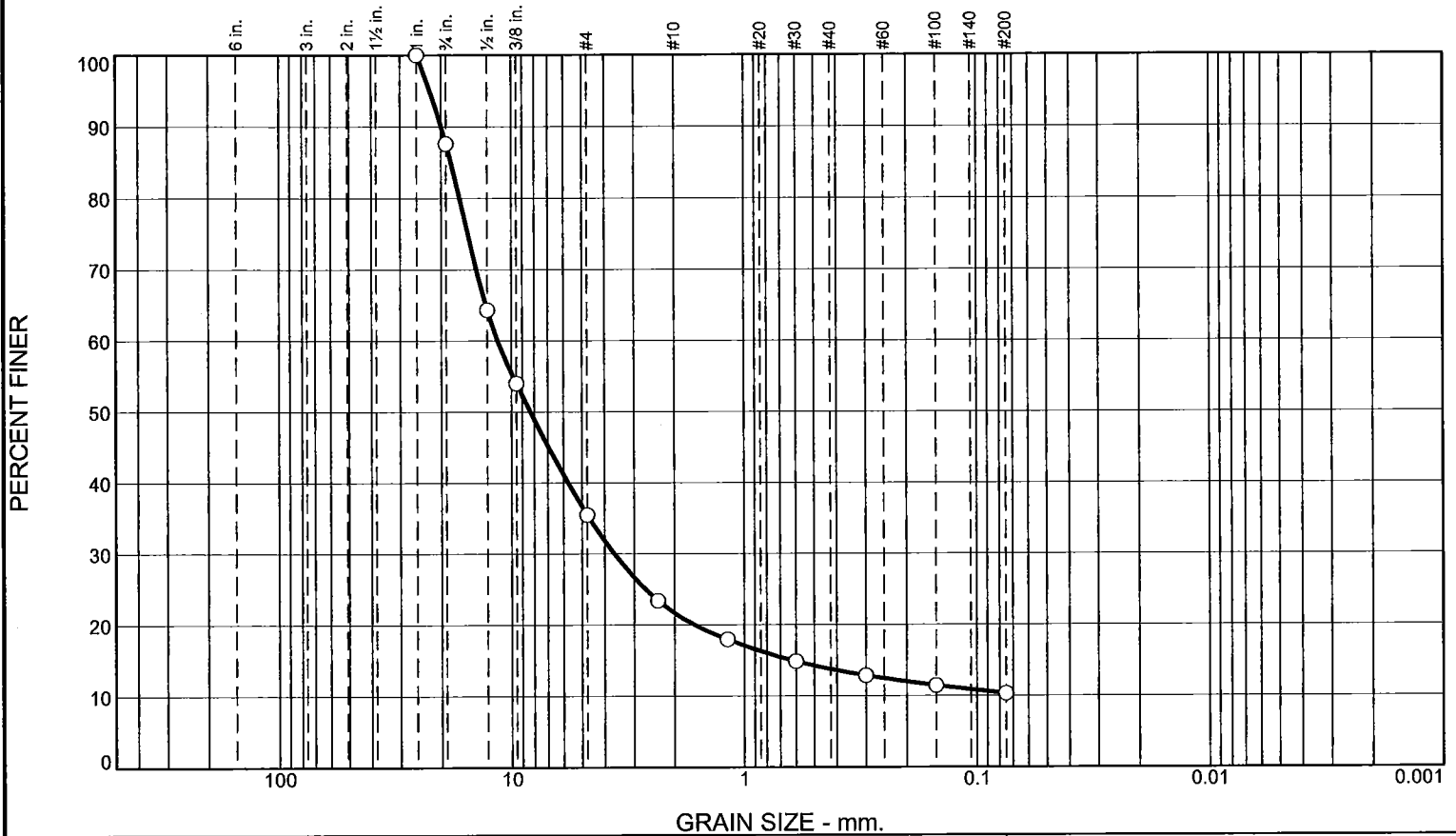
Remarks:



Figure 1 of 1

Tested By: D.B. **Checked By:** T.B.

Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0	12	53	13	8	4	10	

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
1	100	100	
.75	88		
.5	64	60 - 90	
.375	54		
#4	35	35 - 60	
#8	23		
#16	18		
#30	15	10 - 35	
#50	13		
#100	11		
#200	10	0.0 - 15	

Material Description

Crushed limestone with fines (Type 5 2005)

Atterberg Limits

PL= 16

LL= 21

PI= 5

Coefficients

D₉₀= 19.9693

D₈₅= 18.1514

D₆₀= 11.4704

D₅₀= 8.3234

D₃₀= 3.6379

D₁₅= 0.6297

D₁₀=

C_u=

C_c=

Classification

USCS= GP-GC

AASHTO= A-1-a

Remarks

Total Deleterious % (MoDOT TM-71) = 0.9

Shale % (MoDOT TM-71) = 0.9

F.M.=5.43

* MODOT Type 5 Aggregate for Base

Location: Greenwood Quarry - Winterset Ledge
Sample Number: Type 5 2005

Date: 11/22/2016



ALPHA-OMEGA GEOTECH

Client: MARTIN MARIETTA

Project: MARTIN MARIETTA - GREENWOOD Quarry Testing

Project No: 16-143T

Figure 1 of 1

Tested By: D.B.

Checked By: T.B.