

Carlson Testing, Inc.

Bend Office (541) 330-9155
Geotechnical Office (503) 601-8250
Eugene Office (541) 345-0289
Salem Office (503) 589-1252
Tigard Office (503) 684-3460

May 16, 2023
B2301430.CTI

American Sprinklers, Inc.
Attn: Rocky Hegele
7950 N. Lone Pine Road
Terrebonne, Oregon 97760

Re: American Sprinklers, Inc. (Misc. 2023)
LA Abrasion Testing – 3/4"-0 Aggregate Base (SAR Pit)

As requested we have completed testing on a sample of 3/4"-0 Aggregate Base material that was sampled from the pit stockpile and submitted to our laboratory on April 21, 2023 by your representative. The material is from the SAR Pit source. The following is the test data:

ABRASION – AASHTO T96:

Percent Loss to Abrasion @ 500 Revs. = 15.3%*

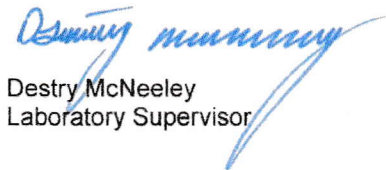
* The percentage of loss was determined by using grading "B".

ODOT Aggregate Base Specification: 35.0% Maximum

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If there are any further questions regarding this matter, please do not hesitate to contact this office.

Respectfully Submitted,
CARLSON TESTING, INC.



Destry McNeeley
Laboratory Supervisor

CC: No report distribution per Client request

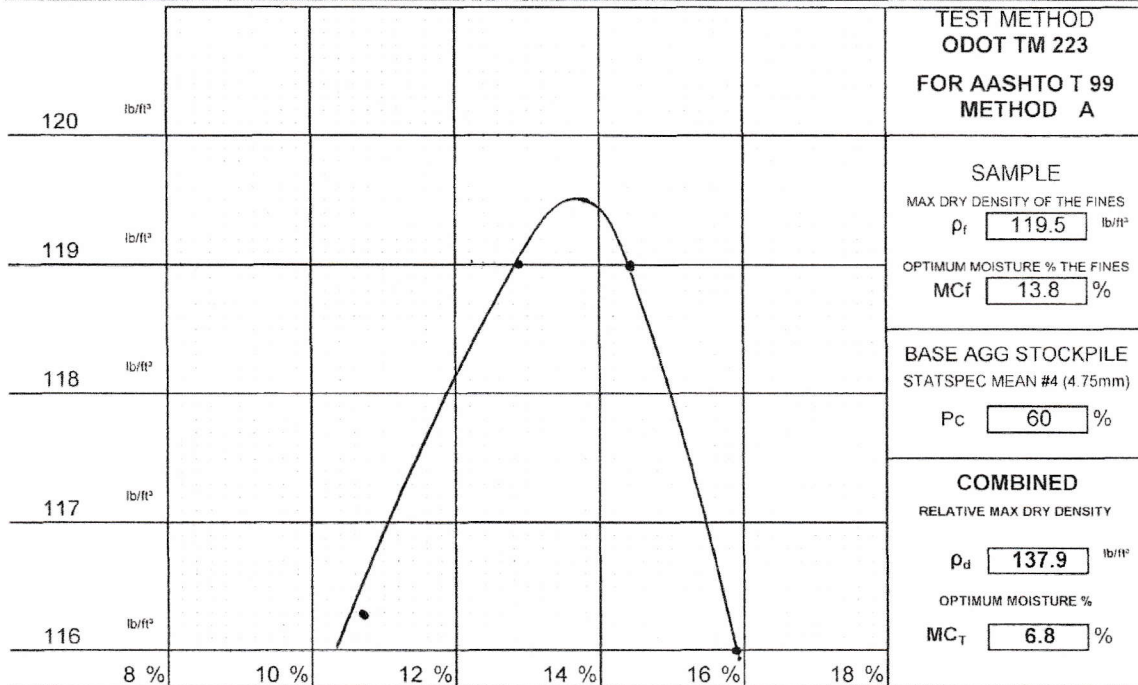
CTI/B2301430.1 TLB

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MAXIMUM DENSITY OF AGGREGATE BASE MATERIALS English (E) or Metric (M)

PROJECT NAME (SECTION) AMERICAN SPRINKLERS, INC. (MISC. 2023)				CONTRACT NUMBER ---	
CONTRACTOR OR SUPPLIER AMERICAN SPRINKLERS			PROJECT MANAGER ---		BID ITEM NUMBER ---
SOURCE NAME SAR PIT			SOURCE NUMBER ---		MATERIAL SIZE 3/4"-0
TEST NO.	DATE 5/15/2023	TIME	SAMPLED AT PIT STOCKPILE	MATERIAL DESCRIPTION AGGREGATE BASE	TO BE USED IN VARIOUS



TEST NO.	MASS OF MOLD AND MATERIALS (grams)	MASS OF MOLD (grams)	(M) MASS OF WET MATERIAL	(WD) WET DENSITY lb/ft ³	OVEN MOISTURE % AASHTO T255 / 265				(D) DRY DENSITY lb/ft ³	MOLD FACTOR
					Pan Tare (t)	WET(a)	DRY(b)	% M (m)		
1	6041.6	4095.5	1946.1	128.7	414.4	2357.5	2169.6	10.7	116.3	0.06614 4" MOLD = 0.06614 101.6mm MOLD = 1.090 WD = (M) x MOLD FACTOR
2	6127.7	4095.5	2032.2	134.4	410.9	2434.1	2203.6	12.9	119	
3	6153.1	4095.5	2057.6	136.1	409.7	2449.0	2192.9	14.4	119	
4	6127.0	4095.5	2031.5	134.4	484.0	2479.5	2206.3	15.9	116	
5										OVEN MOISTURE % (m) = $\frac{(a) - (b)}{(b) - (t)}$ X100 (D) = $\frac{(WD)}{(m) + 100}$ X100
6										
7										
8										

AASHTO T85	Oven Dry Mass (A)	SSD Mass (B)	Weight in Water (C)	Gsb (A) / [(B)-(C)]	Gsb SSD (B) / [(B)-(C)]	Gsa (A) / [(A)-(C)]	ABSORPTION [(B-A)/A] x 100
SPECIFIC GRAVITY OF COARSE AGGREGATE	3122.5	3189.9	2048.8	2.736	2.795	2.908	2.2

ODOT TM 223
COARSE PARTICLE CORRECTION $P_f = 100 - P_c$ $k = G_{sb} \times 62.4$ $MCC = \text{ABSORPTION OR MOISTURE}$

$$100 / ((P_f / \rho_t) + (P_c / (k \times 0.9))) = \rho_d$$

$$100 / ((40 / 119.5) + (60 / 153.7)) = \rho_d$$

$$100 / ((0.33473) + (0.39037)) = 137.9$$

$$((MCC \times P_f) + (MCC \times P_c)) / 100 = MCC_T$$

$$((13.8 \times 40) + (2.2 \times 60)) / 100 = MCC_T$$

$$((552) + (132.0)) / 100 = 6.8$$

<input checked="" type="checkbox"/> QUALITY CONTROL	<input type="checkbox"/> INDEPENDENT ASSURANCE
CERTIFIED TECHNICIAN (PLEASE PRINT) AND CARD NUMBER DESTROY MCNEELEY #51370	COMPANY NAME CARLSON TESTING, INC.
SIGNATURE <i>Destroy McNeely</i>	DATE 5/17/23

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FIELD WORKSHEET FOR AGGREGATE

English (E) or Metric (M)

PROJECT NAME (SECTION) 4R EQUIPMENT (MISC 2022)				CONTRACT NUMBER -	
CONTRACTOR OR SUPPLIER 4R EQUIPMENT			PROJECT MANAGER -		BID ITEM NUMBER -
SOURCE NAME SAR PIT			SOURCE NUMBER -		MATERIAL SIZE 3/4"-0
TEST NO.	DATE 4/3/2022	TIME	SAMPLED AT FINAL BELT	TO BE USED IN VARIOUS	

SIEVE SIZE	SPECS. LIMITS	SIEVE ANALYSIS AASHTO T27/11							FM CUMULATIVE % RETAINED
		MASS 1	MASS 2	MASS 3	MASS 4	TOTAL MASS	% RET	% PASS	
						0.0		0.0	100
						0.0		0.0	100
						0.0		0.0	100
						0.0		0.0	100
1"	100	0.0				0.0		0.0	100
3/4"	90-100	0.0				0.0		0.0	100
1/2"		1082.6				1082.6		19.7	80
3/8"	55-75	818.4				818.4		14.9	65
1/4"	40-60	981.3				981.3		17.8	48
#4		486.4				486.4		8.8	39
#8		853.7				853.7		15.5	23
#10	*	136.0				136.0		2.5	21
						0.0		0.0	20.8
PAN	---	1146.2				1146.2		20.8	

B = INITIAL DRY MASS: 5502.8 D = MASS AFTER SIEVING: 5504.6

SIEVE SIZE	SPECS. LIMITS	FRACTURE % METHOD 2 AASHTO T 335				ELONGATED PIECES	
		FRAC MASS (F)	QUESTIONABLE MASS (Q)	NON FRAC MASS (N)	INDIVIDUAL FRAC %	TEST MASS	ELONG MASS

SET 176			
1	2	3	Sample
4.9	4.7		Clay
3.7	3.7		Sand
76	79		S.E.
AVG.	78	SPEC	30min
PAN TARE		632.3	
WET MASS & PAN		6269.6	
DRY MASS & PAN		6135.1	
AFTER WASH DRY MASS & PAN		6135.1	

C = AFTER WASH DRY MASS & PAN - PAN B = DRY MASS & PAN - PAN DRY WET WAQTC AASHTO T-27/T11
 A = WET MASS & PAN - PAN RESULT SPEC Round Square Rectangle 12" Size

Fracture % Method 1	T 335	
Wood Waste TM225		0.00 %
CleanessValue	TM 227	
Flat & Elongated	TM 229	
Fineness Modulus	T 27/T11	
MOISTURE % = ((A-B) / B) X 100	2.4%	N/A
SIEVE LOSS % = ((C-D) / C) X 100	0.0%	+/- 0.3
(No10 / 1/4") x 100	44%	*40-60

REMARKS
 ODOT 3/4"-0 Aggergagte Base Specification Shown Above.

<input checked="" type="checkbox"/> QUALITY CONTROL	<input type="checkbox"/> VERIFICATION	INDEPENDENT ASSURANCE	
CERTIFIED TECHNICIAN (PLEASE PRINT) AND CARD NUMBER Destry McNeeley #51370		COMPANY NAME Carlson Testing, Inc.	SIGNATURE <i>Destry McNeeley</i> DATE 4/15/22