

ASTM C330 TESTING OF FINE AGGREGATE



Geotechnical & Environmental Sciences Consultants

Client: Nevada Ready Mix
611 East Bonanza Road
Las Vegas, Nevada 89106

Attn: Elu Chavez

Date Tested: 2/13/2024

Sampled By: NRM

Material Description: Lightweight Medium Aggregate

Supplier: Holcim Lightweight Aggregates

Project No: 303368005

Source: Utelite Plant

Lab No: LSV-00317

Location: Utelite Plant

Sieve Analysis ASTM C136			Test Results	Spec.
Sieve Size	Percent Passing	ASTM C33 Specification		
			Specific Gravity - ACI 211.2-98	
			Bulk Specific Gravity	1.566 --
			Bulk Specific Gravity (SSD)	1.810 --
			Absorption, %	15.6 --
			Damp Loose Unit Weight - ASTM C29, PCF	67.6 --
			Dry Loose Unit Weight - ASTM C29, PCF	53.6 65 Max
			Clay Lumps and Friable Particles - ASTM C142, %	0.32 2.0 Max
			Staining Index - ASTM C641	0 < 60
			Loss on Ignition - ASTM C114, %	3.7 < 5%
			Organic Impurities - ASTM C40	<1 Innocuous < 3
1/2"	100	100	Sodium Sulfate Soundness - ASTM C88, Weighted % Loss	7 12% Max
3/8"	99	80-100	Potential Alkali Silica Reactivity (ASR) ASTM C1260	< 0.1 Innocuous < 0.1
# 4	35	5-40	Splitting Tensile Strength - ASTM C469, Average Strength, psi	410 > 330 psi
# 8	13	0-20	Compressive Strength - ASTM C39, Average Strength, psi	6840 > 4000 psi
# 16	4	0-10	Drying Shrinkage - ASTM C157, Shrinkage %	0.05 < 0.07%
# 30	2		Popouts - ASTM C151	No Popouts No Popouts
# 50	1		Fresh Concrete Density - ASTM C567, lbs./cu. ft	120.0 ---
# 100	1		Approximate Equilibrium Density - ASTM C567, lbs./cu. ft	106.1 ---
# 200	0.7	0-10	Oven Dry Density - ASTM C567, lbs./cu. Ft	103.0 ---
FM	5.45		Comments:	

Report By: T. ERBELE

Reviewed By:



Ninyo & Moore

Geotechnical & Environmental Sciences Consultants

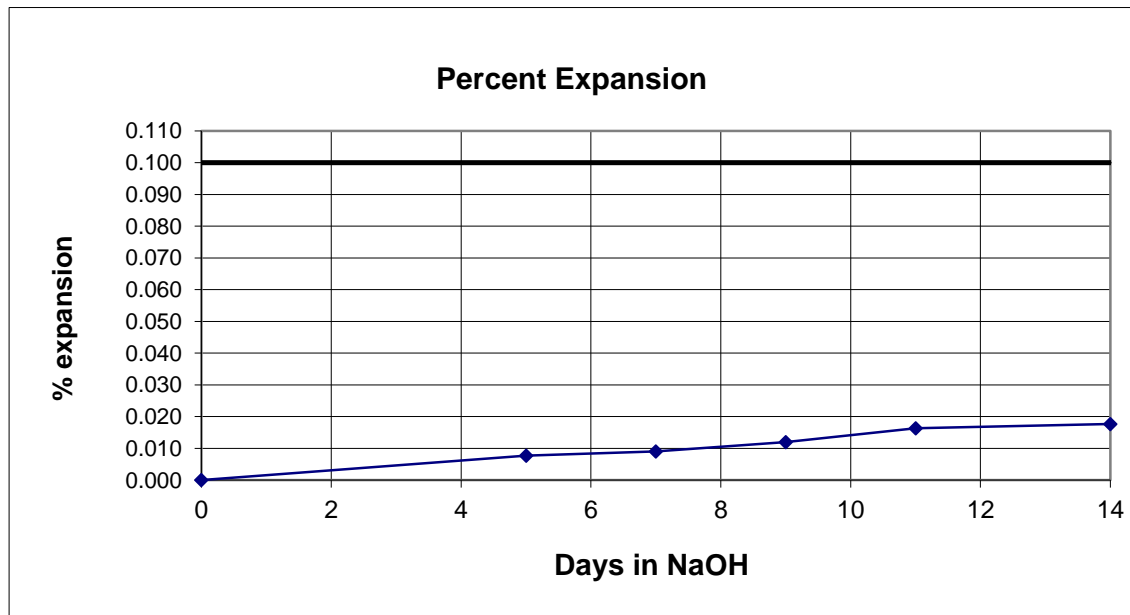
Report of Potential Alkali Reactivity of Aggregates (Mortar - Bar Method) ASTM C1260

Project:	NEVADA READY MIX	Las Vegas, Nevada	JOB #	303368005
Mix:	---	Sampled By:	Client	Date: 12/3/2023
Aggregate:	MEDIUM AGGREGATE	Batched By:	TEE	Date: 2/20/2024
Lab #:	LSV-00317	Client Lab #:	-----	PO#: -----
Sample Source: HOLCIM - UTELITE LIGHTWEIGHT AGGREGATES				
Fly Ash Replacement, % = 0.0		Water/Cement Ratio = 0.47		

Notes:

Days	Percent Expansion			
	Bar 1	Bar 2	Bar 3	Average
0	0.000	0.000	0.000	0.000
5	0.007	0.006	0.010	0.008
7	0.010	0.007	0.010	0.009
9	0.013	0.011	0.012	0.012
11	0.017	0.016	0.016	0.016
14	0.018	0.018	0.017	0.018

Reviewed By: _____



INNOCUOUS:



< .10%

**INNOCUOUS &
DELETERIOUS:**



.10% - .20%

POTENTIALLY DELETERIOUS:



> .20%

Ninyo & Moore

Geotechnical & Environmental Sciences Consultants

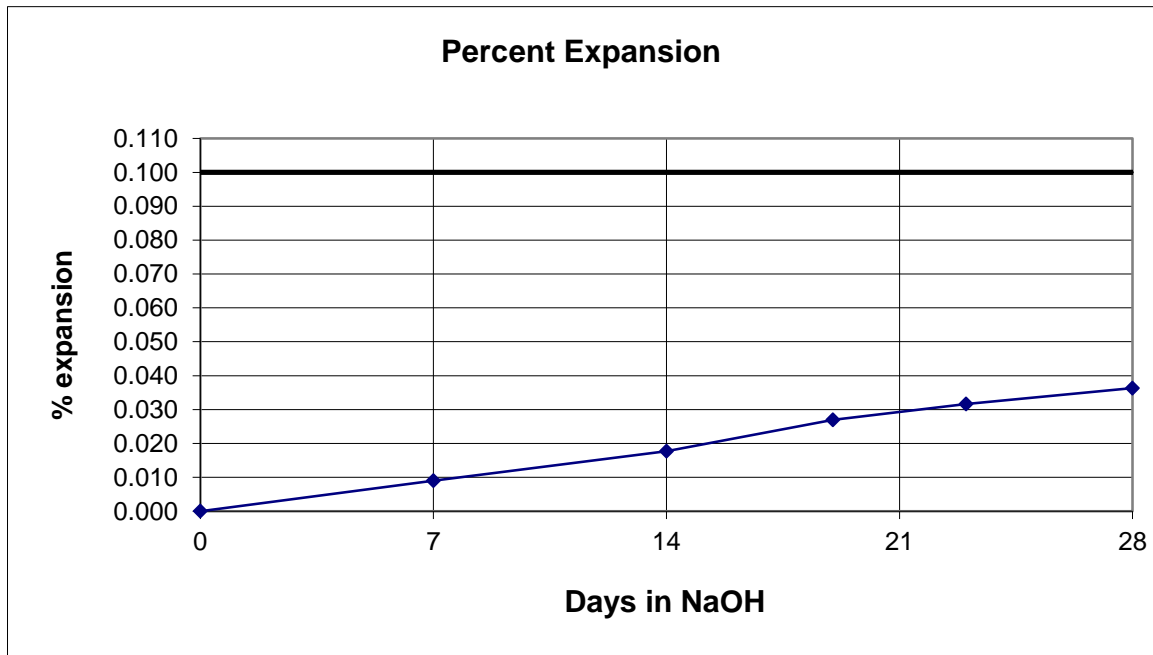
Report of Potential Alkali Reactivity of Aggregates (Mortar - Bar Method) ASTM C1260

Project:	NEVADA READY MIX	Las Vegas, Nevada	JOB #	303368005
Mix:	---	Sampled By:	Client	Date: 11/3/2023
Aggregate:	MEDIUM AGGREGATE	Batched By:	TEE	Date: 2/20/2024
Lab #:	LSV-00317	Client Lab #:	-----	PO#: -----
Sample Source: HOLCIM - UTELITE LIGHTWEIGHT AGGREGATES				
Fly Ash Replacement, % = 0.0		Water/Cement Ratio = 0.47		

Notes:

Days	Percent Expansion			
	Bar 1	Bar 2	Bar 3	Average
0	0.000	0.000	0.000	0.000
7	0.010	0.007	0.010	0.009
14	0.018	0.018	0.017	0.018
19	0.028	0.027	0.026	0.027
23	0.033	0.031	0.031	0.032
28	0.038	0.035	0.036	0.036

Reviewed By: _____



INNOCUOUS:

<.10

**INNOCUOUS &
DELETERIOUS:**

.10% - .20%

POTENTIALLY DELETERIOUS:

> .20%

COMPRESSIVE STRENGTH TEST REPORT

Sample Date: 02/15/2024 Material: Light Weight Concrete
 Size: Cylinder 4x8
 Lab No.: LSV-1585
 Project Set No.: 14
 Report No.:



Geotechnical and Environmental Sciences Consultants
 6700 Paradise Road, Suite E
 Las Vegas NV 89119
 702.433.0330 | www.ninyoandmoore.com

Client
 Nevada Ready Mix
 Attn: Elu Chavez
 611 W. Bonanza Road
 Las Vegas NV 89106

Project
 Nevada Ready Mix/Laboratory Testing
Project Number:303368005

Field Test Data

Truck No.: Ticket No.:
 Batch Time: 12:00pm
 Cast Time: 12:10pm Age (min.): 10
 Load Vol.: Cumulative Vol.: yd³ of - tot. yd³
 Water Added (gal): 0.0 Sampled From:
 Cast By: Client
 No. of Specimens: 5
 Set No.: 1 Spec. Type: Cylinder

Mix Information

Supplier: Nevada Ready Mix
 Mix No.: C330
 Product Desc.: Lightweight Concrete
 Admixtures:
 Max Agg. Size:
 Plant:

Test	Result	Specified
Temp. (F):	70	
Air Temp. (F):	70	
Slump (in):	4	
Air Content (%)	7.0	
Unit Weight (pcf):	120.0	

Environmental Conditions:

Mix Design Strength: 4000
 Specified Strength: 4000 psi @ 28 days

Compressive Strength Test Method

Sample No.	Date Tested	Age, days	Maximum Load, lb	Average Diameter or Side, in.	Surface Area, in. ²	Compressive Strength psi	Average	Fracture Type	Cure	Cap Type	Tested By
1	Feb 22	7	55510	4.00	12.57	4420		Type 3	Lab	U	Trent Erbele
2	Mar 14	28	86425	4.00	12.57	6880		Type 5	Lab	U	Trent Erbele
3	Mar 14	28	87110	4.00	12.57	6930		Type 3	Lab	U	Trent Erbele
4	Mar 14	28	84465	4.00	12.57	6720	6840	Type 5	Lab	U	Trent Erbele
5		H									

Average compressive strength @ 28 days meets specified strength: Yes No

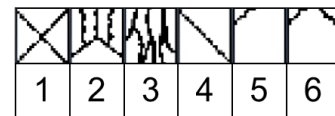
Structure Location / Placement Area:

Trial Batch

Comments:

Samples prepared and tested in accordance with:
 ASTM C31, ASTM C39, ASTM C138, ASTM C143, ASTM C172, ASTM C231,
 ASTM C511, ASTM C1064, ASTM C1231

TYPES OF FRACTURE



Reviewed By:

Trent Erbele / Lab Manager

Approved Date: 03/14/2024

SPLITTING TENSILE STRENGTH TEST REPORT

Sample Date: 02/15/2024 Material: Light Weight Concrete
Size: Cylinder 4x8
Lab No.: LSV-1585
Project Set No.: 14
Report No.:

Ninyo & Moore

Geotechnical and Environmental Sciences Consultants
6700 Paradise Road, Suite E
Las Vegas NV 89119
702.433.0330 | www.ninyoandmoore.com

Client
Nevada Ready Mix
Attn: Elu Chavez
611 W. Bonanza Road
Las Vegas NV 89106

Project
Nevada Ready Mix/Laboratory Testing
Project Number:303368005

Field Test Data

Truck No.: Ticket No.:
Batch Time: 12:00pm
Cast Time: 12:10pm Age (min.): 10
Load Vol.: Cumulative Vol.: yd³ of - tot. yd³
Water Added (gal): 0.0 Sampled From:
Cast By: Client
No. of Specimens: 8
Set No.: 1 Spec. Type: Cylinder

Mix Information

Supplier: Nevada Ready Mix
Mix No.: C330
Product Desc.: Lightweight Concrete
Admixtures:
Max Agg. Size:
Plant:

Test	Result	Specified
Temp. (F):	70	
Air Temp. (F):	70	
Slump (in):	4	
Air Content (%)	7.0	
Unit Weight (pcf):	120.0	

Environmental Conditions:

Mix Design Strength: 330
Specified Strength: 330 psi @ 28 days

Tensile Strength Test Method

Sample No.	Date Tested	Age, days	Maximum Load, lb	Average Diameter or Side, in.	Length in.	Tensile psi	Strength Average	Fracture Type	Cure	Cap Type	Tested By
1	Mar 14	28	48260	6.00	12.0	425			Lab	N	Trent Erbele
2	Mar 14	28	46230	5.98	12.0	410			Lab	N	Trent Erbele
3	Mar 14	28	46815	6.00	12.0	415			Lab	N	Trent Erbele
4	Mar 14	28	49805	6.03	12.0	440			Lab	N	Trent Erbele
5	Mar 14	28	45100	6.03	12.0	395			Lab	N	Trent Erbele
6	Mar 14	28	45955	6.00	12.0	405			Lab	N	Trent Erbele
7	Mar 14	28	47880	6.02	12.0	420			Lab	N	Trent Erbele
8	Mar 14	28	43420	6.00	12.0	385	410		Lab	N	Trent Erbele

Average compressive strength @ 28 days meets specified strength: Yes No

Structure Location / Placement Area:

Trial Batch

Comments:

Samples prepared and tested in accordance with:
ASTM C31, ASTM C496, ASTM C138, ASTM C143, ASTM C172, ASTM C231, ASTM C511, ASTM C1064

Reviewed By:



Trent Erbele / Lab Manager

Approved Date: 03/14/2024

February 29, 2024

Mr. Trent Erbele
Ninyo & Moore
6700 Paradise Rd. Suite E
Las Vegas, NV 89119

Phone:
Email: terbele@ninyoandmoore.com

Subject: **Utelite Lightweight Aggregate**
ASTM C641 Iron Staining Testing
Client Project No: 303368005
SGS TEC Services Laboratory No: 24-380

Mr. Erbele:

SGS, Testing Engineering and Consulting Services (SGS, TEC Services) is an AASHTO R18, ANS/ISO/IEC 17025:2017, and an Army Corps of Engineers accredited laboratory. SGS, TEC Services is pleased to present this report of our testing of on the aggregate samples obtained by Ninyo & Moore. One sample of coarse aggregate and one sample of fine aggregate were received in February of 2024 and identified as Utelite medium lightweight aggregate and Utelite fine lightweight aggregate.

Iron Staining

The staining testing was tested in accordance with ASTM C641-17 *Standard Test Method for Iron Staining Materials in Lightweight Concrete Aggregates*. This test method covers the testing of lightweight concrete aggregates to evaluate the potential degree of staining from iron compounds. The visual classification method was performed at the end of the test procedure in order to evaluate the extent and intensity of the stains on the filter paper. The stain index listed in ASTM C641 ranges from 0 (no stain) to 100 (very heavy stain). ASTM C331-17 states that an aggregate producing a stain index of 60 or higher shall be rejected when the deposited stain is found upon chemical analysis to contain an iron content, expressed as Fe₂O₃ equal to or greater than 1.5 mg/200 g of sample.

The fine aggregate showed no staining indicating a stain index of 0.
The coarse aggregate showed no staining indicating a stain index of 0.

We appreciate the opportunity of providing our services to you. If you have any questions pertaining to this report or need any additional information, please do not hesitate to call us.

Sincerely,

SGS, TEC SERVICES, INC.



Caleb Howard
Project Manager



Steven Maloof
Laboratory Principle/Sr. Project Manager

April 2, 2024

Mr. Trent Erbele
Ninyo & Moore
6700 Paradise Rd. Suite E
Las Vegas, NV 89119

Phone:
Email: terbele@ninyoandmoore.com

Subject: **Nevada Ready mix**
ASTM C330 Popout Testing
Client Project No: 303368005
SGS TEC Services Laboratory No: 24-585

Mr. Erbele:

SGS, Testing Engineering and Consulting Services (SGS, TEC Services) is an AASHTO R18, ANS/ISO/IEC 17025:2017, and an Army Corps of Engineers accredited laboratory. SGS, TEC Services is pleased to present this report of our testing of on the length change bar sample obtained by Ninyo & Moore. One length change bar was received in March of 2024 and identified as Nevada Ready Mix LSV-1585.

Popout Testing

The popout testing was tested in accordance with ASTM C330-23 *Standard Specification for Lightweight Aggregates for Structural Concrete*, section 9.4 and 9.5. This test method covers the testing of structural concrete with lightweight aggregate to evaluate the potential possibility of aggregate popouts. The visual inspection was performed after the sample was ran in accordance to ASTM C151. Upon visual inspection after the testing was completed, there were no popouts present. These test results pertain only to the sample tested.

We appreciate the opportunity of providing our services to you. If you have any questions pertaining to this report or need any additional information, please do not hesitate to call us.

Sincerely,

SGS, TEC SERVICES, INC.



Dean Roosa
Project Manager



Steven Maloof
Laboratory Principle/Sr. Project Manager