

McQueen Road Settlement Investigation/Repairs ST2311.401

Final Report

Project Scope: The scope of this project included shoring existing asphalt around manhole with steel plates for safety concerns, removal/replacement of asphalt, curb & gutter, sidewalk, provide traffic control, and exploratory investigation into the cause of settlement of the roadway on McQueen Road south of Queen Creek Road.

Prime Contractor:	Achen-Gardner Construction
Original Contract Price:	T&M NTE \$90,360.54
Final Price:	\$353,122.54
Notice to Proceed Date:	June 6, 2023
Completion Date:	July 24, 2023

Settlement Root Cause: Prior to excavation exploratory bores were taken in three locations within the settlement zone adjacent to the existing sewer line. Two were in the roadway and one was in the landscape area between the roadway and the canal to the west. These areas were selected to be within the backfill zone of the sewer line but not directly on top of the line. Multiple samples were taken at various depths from surface to 30-ft deep. The bores showed the material to be native and varied from firm to very loose in consistency. See Appendix A for bore logs. During excavation, the backfill material above the sewer line was found to be very loose with very little compaction. Trash and construction debris was also found in the backfill material. No water leaks were found in the settlement zone. The root cause of the settlement was determined to be the poor compaction of the native backfill material placed during the construction of the 42-in sewer line.

Project Summary: The City solicited Achen-Gardner Construction to investigate and repair the settlement of the roadway and curb and gutter over an existing 30-ft deep 42-in sewer line. Achen-Gardner removed a portion of the center median south of the settlement area to allow traffic into the northbound lanes then excavated the sewer trench line to a depth of approximately 24 feet. The original backfill material was replaced with compacted ABC. Approximately 950cy of material was removed and replaced with approximately 1,230 tons of ABC. 87-ft of curb and gutter and 522-SF of sidewalk in the settlement zone were removed and replaced at the correct grade. During backfill operations, the flattop of the existing sewer manhole in the settlement zone was rotated at the City's request to allow for easier future access. The roadway was repaved with approximately 460sy of 2-2in lifts of 231517g ¾" EVAC PG 70-10 and 1-2in lift of 331517G ½" EVAC PG 70-10 asphalt. The center median with brick pavers was then replaced. The center median included 188-LF of single curb and bullnose replacement. The work zone was then cleaned and opened to traffic.

Quantities:

Excavation	Approximately 730 CY
AB Backfill	1,230 Tons
Curb & Gutter	87 LF
Sidewalk	522 SF
Asphalt	460 SY
Striping	30-LF Yellow, 150-LF White 4" Equivalent

Project Time: The project took 49 calendar days to complete with no major delays in the project. Achen-Gardner completed restoration on July 7, 2023. Final striping was completed on July 24, 2023.

Project Safety: Due to the depth of the excavation, the City and Achen-Gardner determined that it would be unsafe to allow traffic next to the excavation. Traffic was reduced to one lane in each direction and southbound traffic was detoured to the northbound number one lane on the opposite side of the median island and a section of the median island south of the work zone at Appleby was removed to allow traffic back into the southbound lanes.

Quality Control: QC testing was provided by QT and QA testing was provided by ACS. QA/QC tests were provided for density testing of backfill, concrete testing, and asphalt testing. ABC backfill was compacted to a minimum specified density of 95% and 100% at the top two feet of the subgrade. See Appendix B for QA test results and Appendix C for QA asphalt and concrete test results. See Appendix E for QC test reports sorted by date.

This Report was prepared by:



Roger Teske, PE

Dibble CM

Appendix A

Bore Logs



NORTH
N.T.S.



PROJECT NUMBER: 2301570

FIGURE 1

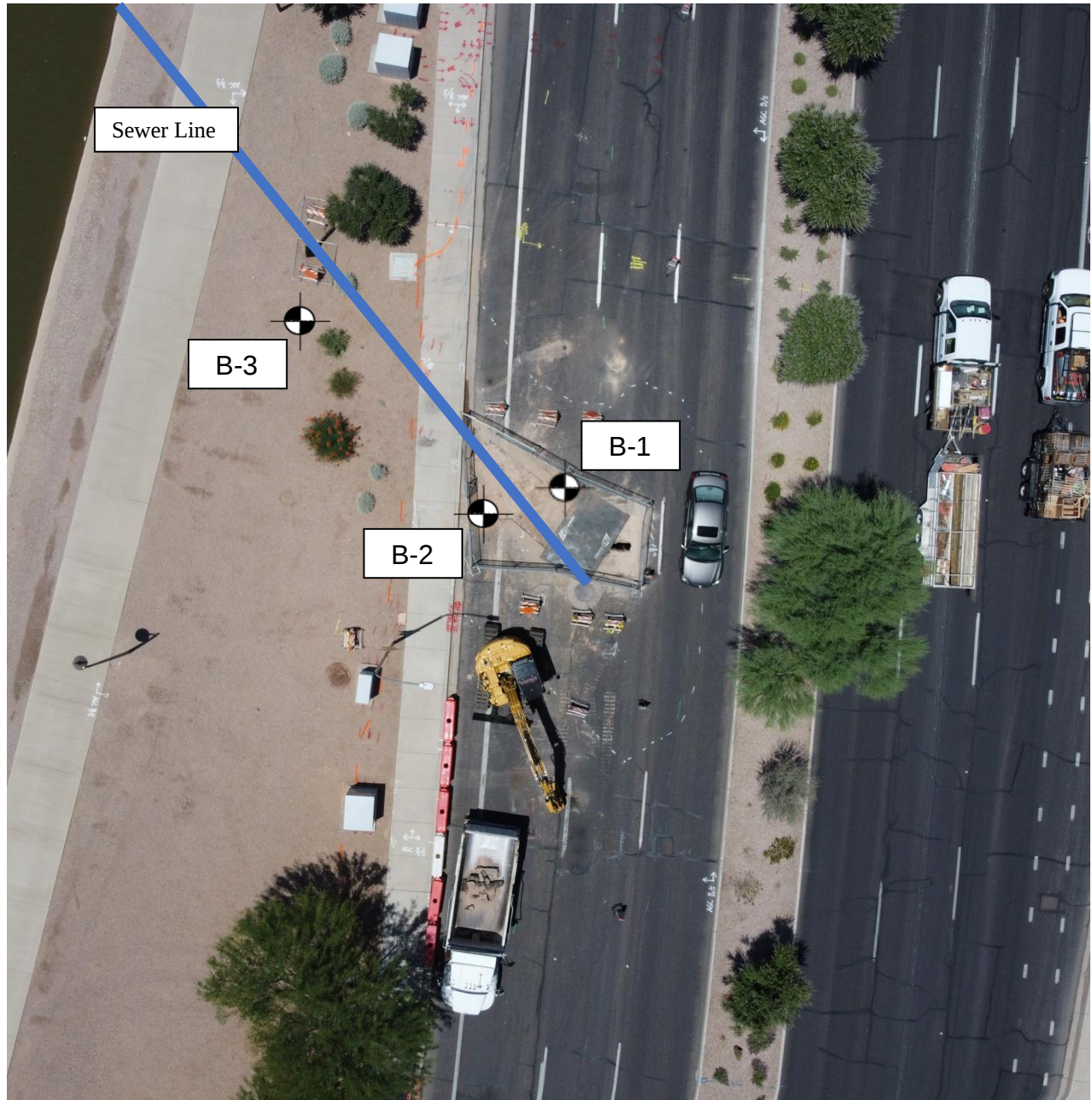
ACS SERVICES LLC

2235 W BROADWAY RD
MESA, ARIZONA 85202
(480) 968-0190

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VICINITY MAP

McQueen Rd Investigation
McQueen Rd & Queen Creek Rd SB Lane
Chandler, AZ. 85286



NORTH
N.T.S. ↑

PROJECT NUMBER: 2301570

FIGURE 2

ACS SERVICES LLC
2235 W BROADWAY RD
MESA, ARIZONA 85202
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**SITE PLAN & APPROXIMATE
BORING LOCATIONS**
McQueen Rd Investigation
McQueen Rd & Queen Creek Rd SB Lane
Chandler, AZ. 85286

ACS SERVICES LLC

BORING B-1

Client: Dibble CM
Project: McQueen Road Investigation
Address: McQueen Rd, south of Queen Creek Rd, SB lane Chandler, AZ
Date: 6/7/2023
Project No. 2301570
Type of Boring: 7.875 inch Hollow Stem Auger
Field Engineer: Ben Rief
Location: See Site Map

Depth (Feet)	Sample	Sample Type	Blows per 6"	Moisture %	Dry Density (PCF)	USCS Soil Class	Coordinates: 33° 15' 26.13" N, 111° 49' 26.96" W Ground Elevation: 1221 feet Remarks: Approximately 10 feet north of existing manhole
							Description of Subsurface Conditions
1		B				SC	Brown clayey SAND with gravel, Damp, Loose, Medium to Low PI
2							
3							
4							
5	X	S	5	10.9		SC-SM	Brown, Silty, clayey SAND with gravel, Damp, Loose, PI of 5
6	X		4				
7			2				
8							
9							Brown, Clayey SAND with gravel, Slightly Damp, Moderately Dense, Medium to Low PI
10	X	S	8			SC	
11	X		6				
12			7				
13							Brown, Sandy CLAY trace gravel, Slightly Damp, Firm Consistency, Medium PI
14							
15	X	S	4			CL	
16	X		6				
17							Brown, Sandy CLAY with gravel, Slightly Damp, Soft Consistency, Medium PI
18							
19							
20	X		2			CL	
	X		1				
	X		2				

Groundwater		
Depth	Time	Date
N/A		

SAMPLE TYPE	
	B - Bulk Sample
	S - 2" O.D. 1.38" I.D. Split Spoon Sample
	U - 3" O.D. 2.42" I.D. Ring Sample

ACS SERVICES LLC

BORING B-1

Client: Dibble CM
Project: McQueen Road Investigation
Address: McQueen Rd, south of Queen Creek Rd, SB lane Chandler, AZ
Date: 6/7/2023
Project No. 2301570
Type of Boring: 7.875 inch Hollow Stem Auger
Field Engineer: Ben Rief
Location: See Site Map

Depth (Feet)	Sample	Sample Type	Blows per 6"	Moisture %	Dry Density (PCF)	USCS Soil Class	Remarks:
							Description of Subsurface Conditions
21	×		2				
22							
23							
24							
25	×	S	3			CL	Brown, Sandy CLAY some gravel, Slightly Damp, Firm Consistency, Medium PI
26	×		1				
27	×		4				
28							
29							
30	×	S	8	1.7		SC	Brown, Clayey SAND with gravel, Slightly Damp, Moderately Dense, PI of 9
31	×		10				Terminated Auger at 29.0 ft, STP at 30.5 ft, Backfilled Boring with Auger Cuttings
32							
33							
34							
35							
36							
37							
38							
39							
40							

Groundwater		
Depth	Time	Date
N/A		

SAMPLE TYPE	
■	B - Bulk Sample
×	S - 2" O.D. 1.38" I.D. Split Spoon Sample
▬	U - 3" O.D. 2.42" I.D. Ring Sample

ACS SERVICES LLC

BORING B-2

Client: Dibble CM
Project: McQueen Road Investigation
Address: McQueen Rd, south of Queen Creek Rd, SB lane Chandler, AZ
Date: 6/7/2023
Project No. 2301570
Type of Boring: 7.875 inch Hollow Stem Auger
Field Engineer: Ben Rief
Location: See Site Map

Depth (Feet)	Sample	Sample Type	Blows per 6"	Moisture %	Dry Density (PCF)	USCS Soil Class	Coordinates: 33° 15' 26.06" N, 111° 49' 27.13" W Ground Elevation: 1221 feet Remarks: Approximately 18 feet north west of existing manhole
							Description of Subsurface Conditions
1		B				SC	Brown, Clayey SAND with gravel, Damp, Loose, Medium PI
2							
3							
4							
5	X	S	4	10.9		SC-SM	Brown, Silty, clayey SAND with gravel, Slightly Damp, Moderately Dense PI of 5
6	X		3				
7			5				
8							
9							Brown, Clayey SAND trace gravel, Slightly damp, Moderately Dense, Medium PI
10	X	S	3			SC	
11	X		5				
12			5				
13							Brown, Clayey SAND with gravel, Slightly Damp, Very Loose, Medium PI
14							
15	X	S	3			SC	
16	X		1				
17			1				Brown, SAND with clay, Slightly Damp, Very Loose, Medium PI
18							
19							
20	X		3			SC	
	X		1				
	X		1				

Groundwater		
Depth	Time	Date
N/A		

SAMPLE TYPE	
	B - Bulk Sample
	S - 2" O.D. 1.38" I.D. Split Spoon Sample
	U - 3" O.D. 2.42" I.D. Ring Sample

ACS SERVICES LLC

BORING B-2

Client: Dibble CM
Project: McQueen Road Investigation
Address: McQueen Rd, south of Queen Creek Rd, SB lane Chandler, AZ
Date: 6/7/2023
Project No.: 2301570
Type of Boring: 7.875 inch Hollow Stem Auger
Field Engineer: Ben Rief
Location: See Site Map

Depth (Feet)	Sample	Sample Type	Blows per 6"	Moisture %	Dry Density (PCF)	USCS Soil Class	Remarks:
							Description of Subsurface Conditions
21	X		1				
22							
23							
24							
25	X	S	5			SC	Brown, SAND with clay and gravel, Slightly Damp, Moderately Dense Medium PI
26	X		6				
27	X		7				
28							
29							
30	X	S	5	1.7		SC	Brown, Clayey SAND with gravel, Slightly Damp, Moderately Dense PI of 9
31	X		4				
32			6				Terminated Auger at 29.0 ft, STP at 30.5 ft, Backfilled Boring with Auger Cuttings
33							
34							
35							
36							
37							
38							
39							
40							

Groundwater		
Depth	Time	Date
N/A		

SAMPLE TYPE	
☐	B - Bulk Sample
☒	S - 2" O.D. 1.38" I.D. Split Spoon Sample
☐	U - 3" O.D. 2.42" I.D. Ring Sample

ACS SERVICES LLC

BORING B-3

Client: Dibble CM
Project: McQueen Road Investigation
Address: McQueen Rd, south of Queen Creek Rd, SB lane Chandler, AZ
Date: 6/7/2023
Project No. 2301570
Type of Boring: 7.875 inch Hollow Stem Auger
Field Engineer: Ben Rief
Location: See Site Map

Depth (Feet)	Sample	Sample Type	Blows per 6"	Moisture %	Dry Density (PCF)	USCS Soil Class	Coordinates: 33° 15' 26.35" N, 111° 49' 27.49" W Ground Elevation: 1221 feet Remarks: Approximately 65 feet north west of existing manhole, and approximately 35 feet east of canal. In landscaped gravel
							Description of Subsurface Conditions
1		B				SC	Brown, Clayey SAND, Slightly Damp, Loose, Medium PI
2							
3							
4							
5	X	S	2			CL	
6	X		1				
7			1				Brown, Sandy CLAY with gravel, Slightly Damp, Soft Consistency, Medium PI
8							
9							
10	X	S	3			CL	
11	X		2				
12			2				
13							Brown, Sandy CLAY with gravel, Slightly Damp, Firm Consistency, Medium PI
14							
15	X	S	12			CL	
16	X		25				
17	X		34			SC	
18							
19							Brown, Clayey SAND with gravel, Slightly Damp, Very Dense, PI of 9
20	X						
	X						
			20			CL	Brown, Sandy CLAY, Slightly Damp, Hard Consistency, Medium PI
			42				
			50/4				Terminated Auger at 19.0 ft, STP at 20.5 ft, Backfilled Boring with Auger Cuttings

Groundwater

Depth	Time	Date
N/A		

SAMPLE TYPE

- ☐ B - Bulk Sample
- ☒ S - 2" O.D. 1.38" I.D. Split Spoon Sample
- ☐ U - 3" O.D. 2.42" I.D. Ring Sample

ACS SERVICES LLC

Laboratory Soil Test Results

ACS PROJECT # 2301570

ACS Lab # 23-3328-2

Client: Dibble CM

Project Name: McQueen Road Investigation

Project Address: McQueen Rd, south of Queen Creek Rd

Project City Chandler

Sample Location: B-1,2 @ 4.0-5.5

Material Type: Native

Supplier: -

Sample Date: 6/7/2023

Sampled By: Ben Rief

Test Date: 6/16/2023

Tested By: Maylo Corella

Reviewed By: Charles Nault

Sieve Analysis (ASTM C-139 / AASHTO T-27)

Sieve Size	% Retained	% Passed	Specs
6"	0	100	
3"	0	100	
2 1/2"	0	100	
2"	0	100	
1 1/2"	0	100	
1"	4	96	
3/4"	1	95	
1/2"	6	89	
3/8"	3	85	
1/4"	4	81	
#4	3	78	
#8	6	72	
#10	1	71	
#16	5	66	
#30	8	58	
#40	5	53	
#50	7	46	
#100	10	36	
#200	7	28.8	

Liquid Limit
(AASHTO T-89)

23

Plastic Limit
(AASHTO T-90)

18

Plasticity Index
(AASHTO T-90)

5

Moisture Content
(AASHTO T-255)

10.9

Fractured Faces
(ARIZ 212)

Soluble Salts
(ARIZ 237)

USCS Soil
Classification

SC-SM

Group Name (ASTM D2487)

Silty, clayey SAND with gravel

Andrew Jamrogiewicz

Project Manager

Andrew Jamrogiewicz

Signature

ACS SERVICES LLC

Laboratory Soil Test Results

ACS PROJECT # 2301570
ACS Lab # 23-3328-3
Client: Dibble CM
Project Name: McQueen Road Investigation
Project Address: McQueen Rd, south of Queen Creek Rd
Project City: Chandler
Sample Location: B-1,2 @ 29.0-30.5, B-3 @ 14.0-15.5

Material Type: Native
Supplier: -
Sample Date: 6/7/2023
Sampled By: Ben Rief
Test Date: 6/16/2023
Tested By: Maylo Corella
Reviewed By: Charles Nault

Sieve Analysis (ASTM C-139 / AASHTO T-27)

Sieve Size	% Retained	% Passed	Specs
6"	0	100	
3"	0	100	
2 1/2"	0	100	
2"	0	100	
1 1/2"	0	100	
1"	0	100	
3/4"	1	99	
1/2"	1	97	
3/8"	2	96	
1/4"	2	94	
#4	1	93	
#8	3	90	
#10	1	90	
#16	3	87	
#30	7	80	
#40	7	74	
#50	7	67	
#100	16	51	
#200	11	39.9	

Liquid Limit
(AASHTO T-89) 25

Plastic Limit
(AASHTO T-90) 16

Plasticity Index
(AASHTO T-90) 9

Moisture Content
(AASHTO T-255) 1.7

Fractured Faces
(ARIZ 212)

Soluble Salts
(ARIZ 237)

USCS Soil
Classification SC

Group Name (ASTM D2487)

Clayey SAND with gravel

Andrew Jamrogiewicz

Project Manager

Andrew Jamrogiewicz

Signature

ACS Services LLC

Maximum Dry Density & Optimum Moisture

☒ AASHTO T-99 | ☐ AASHTO T-180 | ☐ ASTM D-698 | ☐ ASTM D-1557

ACS Project # 2301570
 ACS Lab # 23-3328-1
 Client Name: Dibble CM
 Project Name: McQueen Road Investigation
 Project Address: McQueen Rd, south of Queen Creek Rd
 Project City: Chandler

Material Type: Native
 Material Supplier: -
 Sample Date: 6/7/2023
 Sampled By: Ben Rief
 Date Tested: 6/16/2023
 Tested By: Fernando Montero
 Reviewed By: Dylan Ward

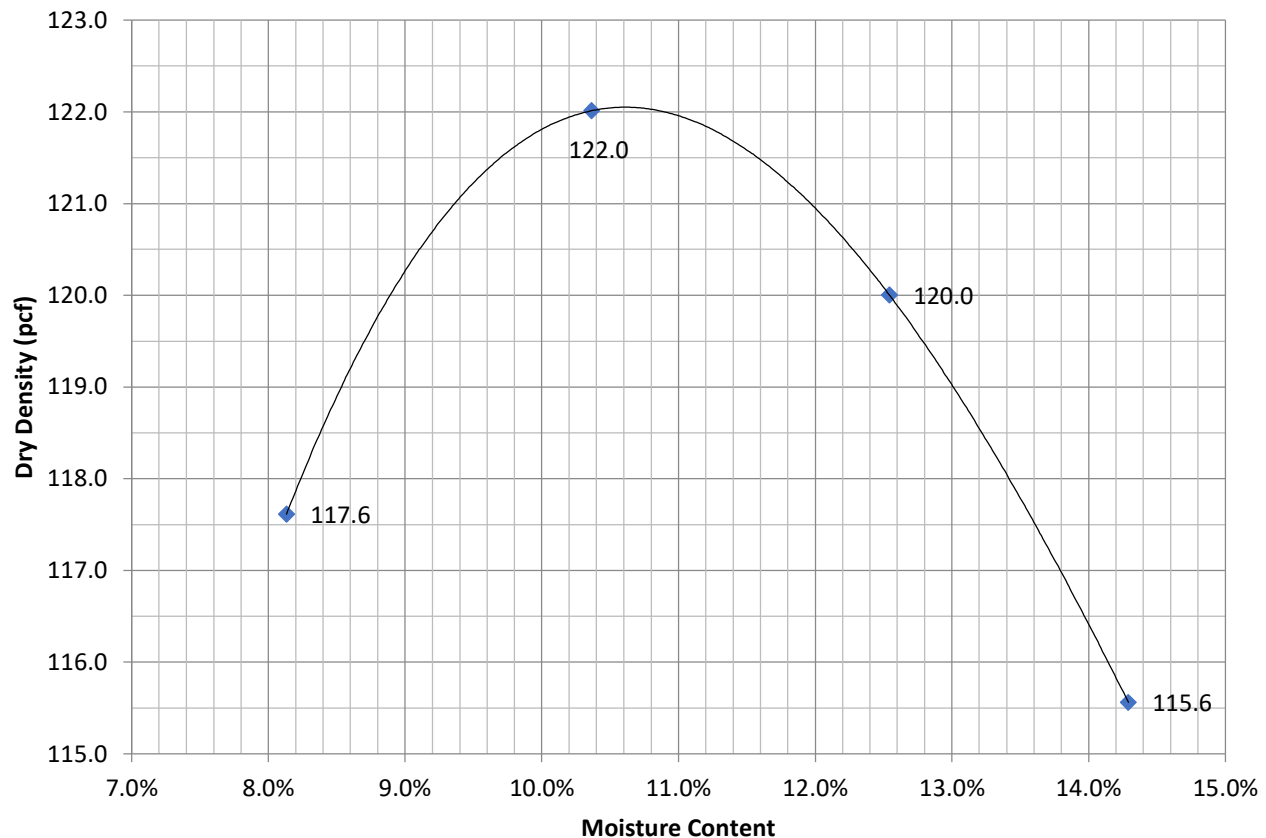
Sample Location: B-3 @ 0.0-5.0

Method:

☐ A ☐ B
☐ C ☐ D

Dry Density	117.6	122.0	120.0	115.6
Moisture Content	8.1%	10.4%	12.5%	14.3%

Uncorrected Dry Density	122.1	Uncorrected Moisture Content	10.6
% Rock	24	% Passing	76
Rock Corrected Dry Density	130.3	Rock Corrected Moisture Content	8.5
Specific Gravity of Oversize Aggregate	2.650		



Andrew Jamrogiewicz

Project Manager

ACS Services LLC

Swell / Settlement Potential of Soils

ASTM D4546-03

ACS Project # **2301570**
 ACS Lab # **23-3328-1**
 Client Name: **Dibble CM**
 Project Name: **McQueen Road Investigation**
 Project Address: **McQueen Rd, south of Queen Creek Rd**
 Project City: **Chandler**
 Sample Source: **B-3 @ 0.0-5.0**

Material Type: **Native**
 Sample Date: **6/7/2023**
 Sampled By: **Ben Rief**
 Laboratory Test Date: **6/15/2023**
 Laboratory Test By: **Fernando Montero**
 Reviewed By: **Charles Nault**

Ring Mold Information

Ring Weight (g)	40.5
Ring Height (in)	1.000
Ring Diameter (in)	2.421
Ring Area (in ²)	4.604

Weight Used in Swell Test

Load Weight:	100 psf
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Dial Readings During Test

Time Elapsed	Dial Reading (0.001")
0 (w/ seating pressure)	0.000
0 (w/ load applied)	0.000
30 Seconds	0.000
1 Minute	0.001
2 Minutes	0.002
4 Minutes	0.004
8 Minutes	0.005
15 Minutes	0.006
30 Minutes	0.007
1 Hour	0.007
2 Hours	0.007
4 Hours	0.007
8 Hours	0.007
15 Hours	0.007
24 Hours	0.007

Test Method: ☐ A ☐ B ☒ C
Standard Proctor Information

Maximum Dry Density:	122.1	pcf
Optimum Moisture Content:	10.6	%

Specimen Preparation

95% of Maximum Dry Density:	116.0	pcf
-2% of Optimum Moisture Content:	8.6	%
Wet Density of Sample:	126.0	pcf
Test Weight (Wet):	152.1	g
Test Weight (Dry):	140.1	g
Moisture Sample (Wet):	110.2	g
Moisture Sample (Dry):	102.3	g
Sample Moisture Content:	7.7	%
Sample Weight (In situ):	150.9	g
Additional Moisture Needed:	1.2	ml
Ring Weight:	40.5	g
Total Weight Ring + Sample:	192.6	g
Initial Sample Saturation:	51	%

Specimen Test Data Post-Swell Test

Initial Specimen Height:		in	Final Wet Weight
Final Specimen Height:		in	
Final Specimen Weight:		g	Final Dry Weight
Final Specimen Moisture Content:		%	
Final Sample Saturation:		%	

Swell / Settlement Potential Results

Load at Inundation (ksf)	
% Strain Before Inundation:	
% Strain After Inundation:	
Percent Heave:	

Correction Factor

Calibration Correction Factor	NONE
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Corrected Swell

0.7

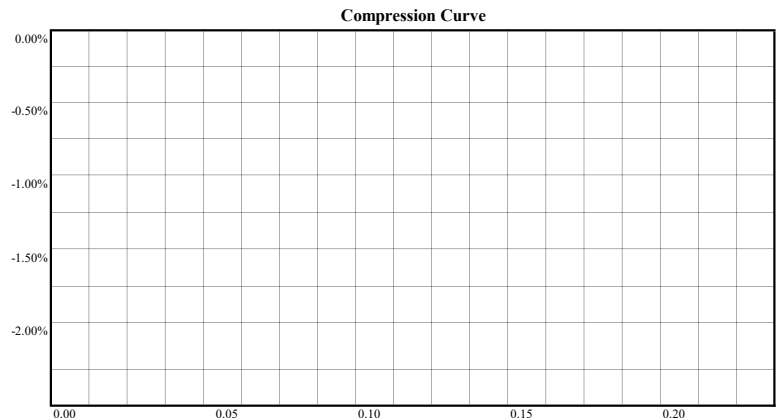
Andrew Jamrogiewicz

Project Manager

Andrew Jamrogiewicz

Signature

Strain (%)



Applied Load (ksf)

Appendix B

ABC QA Density Reports

ACS Services LLC

Maximum Dry Density & Optimum Moisture

☒ AASHTO T 99 ☐ AASHTO T 180 | ☐ ASTM D698 | ☐ ASTM D1557

ACS Project #	2301570	Material Type:	ABC
ACS Lab #	23-3347	Material Supplier:	Gila River Sand & Rock
Client Name:	Dibble CM	Sample Date:	6/16/2023
Project Name:	McQueen Road Investigation	Sampled By:	Joe Flores
Project Address:	McQueen Road, south of Queen Creek Road	Date Tested:	6/21/2023
Project City:	Chandler	Tested By:	Fernando Montero
		Reviewed By:	Dylan Ward

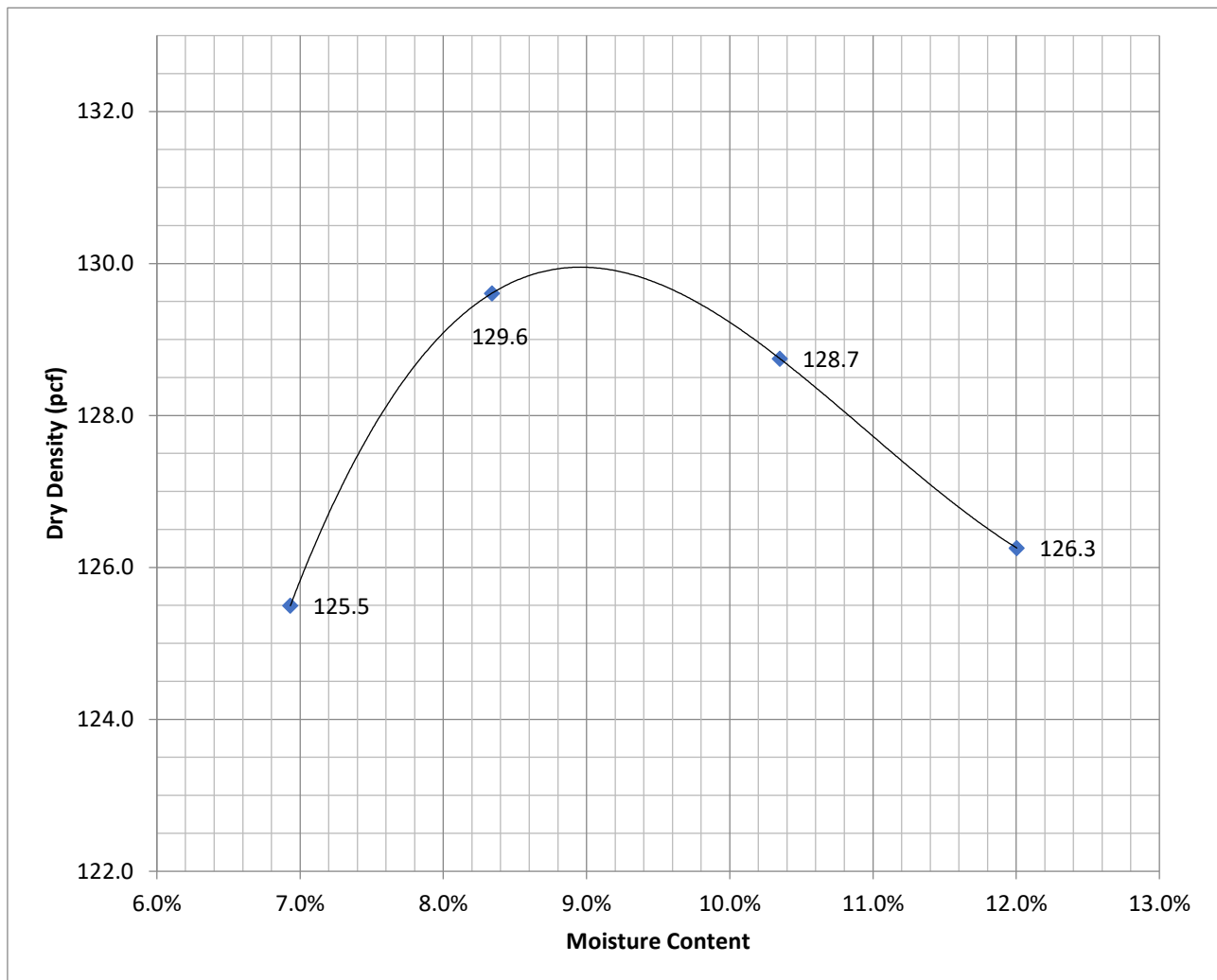
Sample Location: On Site Stockpile

Method:

☐ A ☐ B
☒ C ☐ D

Dry Density	125.5	129.6	128.7	126.3
Moisture Content	6.9%	8.3%	10.4%	12.0%

Uncorrected Dry Density	129.9	Uncorrected Moisture Content	9.0
Specific Gravity of Oversize Aggregate	2.600		



[Signature]

7/3/2023

Project Manager

FIELD DENSITY REPORT

[illegible]

COMPACTION EQUIPMENT USED (X):			LAB #	UNCORRECTED MOISTURE CONTENT (%)	UNCORRECTED DRY DENSITY (PCF)	ROCK %	OPTIMUM MOISTURE CONTENT (%)	MAXIMUM DRY DENSITY (PCF)
☐ VIBRATORY	☐ SHEEPSFOOT	☐ SMOOTH STEEL DRUM						
☐ NON VIBRATORY	☐ BRICKFOOT	☐ WALK BEHIND STEEL DRUM	23-3347	9.0%	129.9	12.0%	7.5%	131.8
☐ VIBRATORY PLATE	☐ BULLDOZER	☐ OTHER:						
☒ JUMPING JACK	☐ RUBBER TIRED							

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ACS SERVICES LLC

FIELD DENSITY REPORT

ACS PROJECT #	2301570	DATE OF TESTING	Monday, June 19, 2023			
CLIENT NAME	Dibble CM	ACS FIELD TECH.	Julie Berry			
PROJECT NAME	McQueen Road Investigation	GEN. TEST LOCATION	road repair backfill			
PROJECT ADDRESS	McQueen Road south of queen creek	GAUGE SERIAL NO.	29918			
PROJECT CITY	Chandler	STANDARD COUNTS	DEN.	1699	MOIST.	686

			FIELD OBSERVATIONS					QUALITY CONTROL RESULTS							
TEST NO.	LOCATION	ELEV. (SEE DEF. BELOW)	WET DENSITY (PCF)	MOISTURE CONTENT (%)	DRY DENSITY (PCF)	ROCK %	ROCK CORRECTED MAX. DENSITY		MOISTURE %		COMPACTION %		PASS / FAIL	LAB #	COMMENT (SEE BELOW FOR CODES)
							MOIST %	DRY DEN	SPEC	ACTUAL	SPEC	ACTUAL			
1	Road repair backfill	86.0	134.1	7.3	126.9	6%	8.5	130.8	6.5-10.5	7.3	95+	97.0%	Pass	23-3347	2A
2															
3															
4															
5															
6															
7															
8															
9															
10															

* NOTE: 100.0 ELEVATION EQUALS AT GRADE PER COMMENT CODE

COMPACTION EQUIPMENT USED (X):			LAB #	UNCORRECTED MOISTURE CONTENT (%)	UNCORRECTED DRY DENSITY (PCF)	ROCK %	OPTIMUM MOISTURE CONTENT (%)	MAXIMUM DRY DENSITY (PCF)
☐ VIBRATORY	☒ SHEEPSFOOT	☐ SMOOTH STEEL DRUM						
☐ NON VIBRATORY	☐ BRICKFOOT	☐ WALK BEHIND STEEL DRUM	23-3347	9.0%	129.9	6.0%	8.5%	130.8
☐ VIBRATORY PLATE	☐ BULLDOZER	☐ OTHER:						
☐ JUMPING JACK	☐ RUBBER TIRED							

TEST LOCATION ESTABLISHED BY:		DEPTH OR ELEVATION OF TEST LOCATION ESTABLISHED BY:		TEST CONDUCTED ON:		COMMENT CODES:	
☐ GRID LINES	☒ ESTIMATION	☐ SURVEY	☒ ESTIMATION	☐ FULL TIME BASIS	☒ INTERMITTENT BASIS	1 = FILL MAT'L 2 = BACKFILL 3 = BASE CRSE 4 = SUBBASE 5 = SOIL CMNT 6 = SUBGRADE 7 = OTHER	A = TEST RESULTS COMPLY WITH SPECIFICATIONS B = COMPACTION % DOES NOT COMPLY WITH SPECS C = RETEST OF PREVIOUS TEST D = MOISTURE IN EXCESS OF SPECIFICATION E = MOISTURE BELOW SPECS
☐ CONTROL PTS.	☐ CONTRACTOR	☐ GRADE STAKES	☐ CONTRACTOR				
<u>jeffry Donkersley</u> ACS PROJECT MANAGER		 SIGNATURE		<u>7/20/2023</u> DATE			

ACS SERVICES LLC

FIELD DENSITY REPORT

ACS PROJECT #	2301570	DATE OF TESTING	Tuesday, June 20, 2023			
CLIENT NAME	Dibble CM	ACS FIELD TECH.	B. Danilich			
PROJECT NAME	McQueen Road Investigation	GEN. TEST LOCATION	Sinkhole backfill			
PROJECT ADDRESS	McQueen Rd south of Queen Creek Rd	GAUGE SERIAL NO.	15518			
PROJECT CITY	Chandler	STANDARD COUNTS	DEN.	1818	MOIST.	683

			FIELD OBSERVATIONS						QUALITY CONTROL RESULTS							
TEST NO.	LOCATION	ELEV. (SEE DEF. BELOW)	WET DENSITY (PCF)	MOISTURE CONTENT (%)	DRY DENSITY (PCF)	ROCK %	ROCK CORRECTED MAX. DENSITY		MOISTURE %		COMPACTION %		PASS / FAIL	LAB #	COMMENT (SEE BELOW FOR CODES)	
							MOIST %	DRY DEN	SPEC	ACTUAL	SPEC	ACTUAL				
1	in sidewalk alignment	97.0	133.9	7.2	124.9	0%	9.0	129.9	7.0-11.0	7.2	95	96.2%	Pass	23-3347	2A	
2	in sidewalk alignment	95.0	137.0	7.4	127.6	0%	9.0	129.9	7.0-11.0	7.4	95	98.2%	Pass	23-3347	2A	
3	in sidewalk alignment	93.0	135.1	7.5	125.7	0%	9.0	129.9	7.0-11.0	7.5	95	96.7%	Pass	23-3347	2A	
4	at bottom of abandoned MH	86.0	137.4	7.2	128.2	0%	9.0	129.9	7.0-11.0	7.2	95	98.7%	Pass	23-3347	2A	
5																
6																
7																
8																
9																
10																

* NOTE: 100.0 ELEVATION EQUALS AT GRADE PER COMMENT CODE

COMPACTION EQUIPMENT USED (X):			LAB #	UNCORRECTED MOISTURE CONTENT (%)	UNCORRECTED DRY DENSITY (PCF)	ROCK %	OPTIMUM MOISTURE CONTENT (%)	MAXIMUM DRY DENSITY (PCF)
☐ VIBRATORY	☒ SHEEPSFOOT	☐ SMOOTH STEEL DRUM						
☐ NON VIBRATORY	☐ BRICKFOOT	☐ WALK BEHIND STEEL DRUM	23-3347	9.0%	129.9	0.0%	9.0%	129.9
☐ VIBRATORY PLATE	☐ BULLDOZER	☐ OTHER:						
☐ JUMPING JACK	☐ RUBBER TIRED							

TEST LOCATION ESTABLISHED BY:		DEPTH OR ELEVATION OF TEST LOCATION ESTABLISHED BY:		TEST CONDUCTED ON:	COMMENT CODES:	
☐ GRID LINES	☒ ESTIMATION	☐ SURVEY	☒ ESTIMATION	☐ FULL TIME BASIS	1 = FILL MAT'L 2 = BACKFILL 3 = BASE CRSE 4 = SUBBASE 5 = SOIL CMNT 6 = SUBGRADE 7 = OTHER	A = TEST RESULTS COMPLY WITH SPECIFICATIONS B = COMPACTION % DOES NOT COMPLY WITH SPECS C = RETEST OF PREVIOUS TEST D = MOISTURE IN EXCESS OF SPECIFICATION E = MOISTURE BELOW SPECS
☐ CONTROL PTS.	☐ CONTRACTOR	☐ GRADE STAKES	☐ CONTRACTOR	☐ INTERMITTENT BASIS		
Jeffry Donkersley ACS PROJECT MANAGER		 SIGNATURE		7/20/2023 DATE		

ACS SERVICES LLC

FIELD DENSITY REPORT

ACS PROJECT #	2301570	DATE OF TESTING	Monday, June 26, 2023			
CLIENT NAME	Dibble Cm	ACS FIELD TECH.	Robert L			
PROJECT NAME	Mcqueen Road Investigation	GEN. TEST LOCATION	S bound lane of Mcqueen and Queen Creek			
PROJECT ADDRESS	Mcqueen road South of Queen creek road	GAUGE SERIAL NO.	15339			
PROJECT CITY	Chandler	STANDARD COUNTS	DEN.	1540	MOIST.	678

			FIELD OBSERVATIONS						QUALITY CONTROL RESULTS						
TEST NO.	LOCATION	ELEV. (SEE DEF. BELOW)	WET DENSITY (PCF)	MOISTURE CONTENT (%)	DRY DENSITY (PCF)	ROCK %	ROCK CORRECTED MAX. DENSITY		MOISTURE %		COMPACTION %		PASS / FAIL	LAB #	COMMENT (SEE BELOW FOR CODES)
							MOIST %	DRY DEN	SPEC	ACTUAL	SPEC	ACTUAL			
1	33.257315,-111.824121	100.0	143.1	7.1	133.6	7%	8.4	131.8	6.4-10.4	7.1	100	101.4%	Pass	23-3347	3A
2	33.257250,-111.824129	100.0	143.6	6.9	134.3	7%	8.4	131.8	6.4-10.4	6.9	100	101.9%	Pass	23-3347	3A
3															
4															
5															
6															
7															
8															
9															
10															

* NOTE: 100.0 ELEVATION EQUALS AT GRADE PER COMMENT CODE

COMPACTION EQUIPMENT USED (X):			LAB #	UNCORRECTED MOISTURE CONTENT (%)	UNCORRECTED DRY DENSITY (PCF)	ROCK %	OPTIMUM MOISTURE CONTENT (%)	MAXIMUM DRY DENSITY (PCF)
☐ VIBRATORY	☐ SHEEPSFOOT	☐ SMOOTH STEEL DRUM						
☐ NON VIBRATORY	☐ BRICKFOOT	☐ WALK BEHIND STEEL DRUM	23-3347	9.0%	129.9	7.4%	8.4%	131.8
☐ VIBRATORY PLATE	☐ BULLDOZER	☐ OTHER:						
☐ JUMPING JACK	☐ RUBBER TIED							

TEST LOCATION ESTABLISHED BY:		DEPTH OR ELEVATION OF TEST LOCATION ESTABLISHED BY:		TEST CONDUCTED ON:		COMMENT CODES:	
☐ GRID LINES	☐ ESTIMATION	☐ SURVEY	☐ ESTIMATION	☐ FULL TIME BASIS		1 = FILL MAT'L	A = TEST RESULTS COMPLY WITH SPECIFICATIONS
☐ CONTROL PTS.	☐ CONTRACTOR	☐ GRADE STAKES	☐ CONTRACTOR	☐ INTERMITTENT BASIS		2 = BACKFILL	B = COMPACTION % DOES NOT COMPLY WITH SPECS
						3 = BASE CRSE	C = RETEST OF PREVIOUS TEST
						4 = SUBBASE	D = MOISTURE IN EXCESS OF SPECIFICATION
						5 = SOIL CMNT	E = MOISTURE BELOW SPECS
						6 = SUBGRADE	
						7 = OTHER	
Jeffrey Donkersley				7/20/2023			
ACS PROJECT MANAGER		SIGNATURE		DATE			

Appendix C

Asphalt and Concrete QA Test Reports

ACS SERVICES LLC**Physical Properties of Asphaltic Concrete**

ACS JOB # 2301570
ACS Lab # 23-3497
Client Dibble CM
Project Name McQueen Road Investigation
Project Address McQueen Road, south of Queen Creek Road
Project City Chandler
Sample Location McQueen Road Backfill Patch; Southbound
2" Base Lift, 44 Tons, Temperature 283 °F
Remarks laboratory Compaction Temperature 293-302 °F

Material Type 3/4 EVAC PG 70-10
Asphalt Supplier Vulcan - 5223
Product Code 231517G
Date of Extraction 06/27/23
Date of Lab Test 06/28/23
Lab Tested By Fernando Montero
Reviewed By Dylan Ward

SIEVE ANALYSIS**AASHTO T30**

<u>Sieve Size</u> <u>inches / mm</u>	<u>% Passing</u>	<u>Mix Design</u> <u>Targets</u>	<u>Production</u> <u>Tolerances</u>
2" / 50		231517G	231517G
1 1/2" / 37.5			
1" / 25	100	100	100
3/4" / 19	99	96	89-100
1/2" / 12.5	87	85	79-91
3/8" / 9.5	77		
1/4" / 6.3	61		
#4 / 4.75	50		
#8 / 2.36	36	30	24-36
#10 / 2.00	33		
#16 / 1.18	26		
#30 / 0.600	18		
#40 / 0.425	14	12	8-16
#50 / 0.300	11		
#100 / 0.150	6		
#200 / 0.075	3.7	3.9	1.9-5.9

ADDITIONAL TESTING

<u>Physical Properties</u>	<u>Test Results</u>	<u>Mix Design</u> <u>Production</u> <u>Tolerances</u>
Asphalt content (% by weight of total sample) AASHTO T308	4.9	4.1-4.9
Moisture Content of Bituminous Mixtures (%) AASHTO T329	0.08	
Maximum Theoretical Density - Rice (pcf) AASHTO T209	155.2	
Bulk Density of Asphalt - Marshall (pcf) AASHTO T166	N/V	
Average of Gyratory Density at Ndesign (pcf) AASHTO T312	146.5	
Percent Air Voids in Mix (%) AASHTO T269	5.6	2.8-6.2
Marshall Stability (lbs)	N/V	
Marshall Flow (0.01 in)	N/V	

N/V = No Value. Was not tested or is not applicable

Notes & Observations:

Final oil content does not factor in a correction factor

THE SERVICES REFERRED TO HEREIN WERE PERFORMED IN ACCORDANCE WITH THE ASTM / AASHTO OR OTHER LOCAL STANDARD AS APPLICABLE FOR THIS PROJECT. THESE RESULTS RELATE ONLY TO THE CONDITIONS OBSERVED OR THE SAMPLE(S) TESTED AS REFERENCED. ACS SERVICES LLC MAKES NO OTHER WARRANTY OR REPRESENTATION, EXPRESSED OR IMPLIED.

Reviewed by:

Project Manager

7/3/2023

ACS SERVICES LLC**Physical Properties of Asphaltic Concrete**

ACS JOB # 2301570
ACS Lab # 23-3498
Client Dibble CM
Project Name McQueen Road Investigation
Project Address McQueen Road, south of Queen Creek Road
Project City Chandler
Sample Location McQueen Road Backfill Patch; Southbound
1.5" Aurface Lift, 41.81 Tons, Temperature 292 °F
Remarks Laboratory Compaction Temperature 293-302 °F

Material Type 1/2 EVAC PG 70-10
Asphalt Supplier Vulcan - 5223
Product Code 331517G
Date of Extraction 06/27/23
Date of Lab Test 06/28/23
Lab Tested By Fernando Montero
Reviewed By Dylan Ward

SIEVE ANALYSIS**AASHTO T30**

<u>Sieve Size</u> <u>inches / mm</u>	<u>% Passing</u>	<u>Mix Design</u> <u>Targets</u>	<u>Production</u> <u>Tolerances</u>
2" / 50		331517G	331517G
1 1/2" / 37.5			
1" / 25	100		
3/4" / 19	100	100	100
1/2" / 12.5	96	97	90-100
3/8" / 9.5	81	84	78-90
1/4" / 6.3	59		
#4 / 4.75	48		
#8 / 2.36	36	33	27-39
#10 / 2.00	33		
#16 / 1.18	27		
#30 / 0.600	19		
#40 / 0.425	15	12	8-16
#50 / 0.300	12		
#100 / 0.150	7		
#200 / 0.075	5.0	4.0	2-6

ADDITIONAL TESTING

<u>Physical Properties</u>	<u>Test Results</u>	<u>Mix Design</u> <u>Production</u> <u>Tolerances</u>
Asphalt content (% by weight of total sample) AASHTO T308	4.78	4.6-5.4
Moisture Content of Bituminous Mixtures (%) AASHTO T329	0.04	
Maximum Theoretical Density - Rice (pcf) AASHTO T209	154.4	
Bulk Density of Asphalt - Marshall (pcf) AASHTO T166	N/V	
Average of Gyratory Density at Ndesign (pcf) AASHTO T312	147.4	
Percent Air Voids in Mix (%) AASHTO T269	4.6	2.8-6.2
Marshall Stability (lbs)	N/V	
Marshall Flow (0.01 in)	N/V	

N/V = No Value. Was not tested or is not applicable

Notes & Observations:

Final oil content does not factor in a correction factor

THE SERVICES REFERRED TO HEREIN WERE PERFORMED IN ACCORDANCE WITH THE ASTM / AASHTO OR OTHER LOCAL STANDARD AS APPLICABLE FOR THIS PROJECT. THESE RESULTS RELATE ONLY TO THE CONDITIONS OBSERVED OR THE SAMPLE(S) TESTED AS REFERENCED. ACS SERVICES LLC MAKES NO OTHER WARRANTY OR REPRESENTATION, EXPRESSED OR IMPLIED.

Reviewed by:


Project Manager

7/3/2023

ACS SERVICES LLC

Laboratory Testing for Compressive Strength

Project # 2301570 **Date Sampled:** Wednesday, June 21, 2023
ACS Lab # 23-3443 **Sampled By:** Fernando Montero
Client: Dibble CM **Address:** McQueen Road, south of Queen Creek Road
Project Name: McQueen Road Investigation **City:** Chandler

Sample Location: Sidewalk on SB side of S McQueen Rd 70' S of Paseo Trail **Set** 1
☒ Concrete (ASTM C-39, C-31, C-143; AASHTO T-22, T-23, T-119) ☐ Grout (ASTM C-1019-09, C-31, C-143; AASHTO T-22, T-23, T-119)
☐ Mortar (ASTM C-109/C-109-08) ☐ Slurry (ASTM D4832-10)
☒ 4 x 8 Cylinders ☐ 6 x 12 Cylinders ☐ 2 x 4 Cylinders ☐ 2 x 2 Cube ☐ Prism ☐ Other:

FIELD RESULTS

Supplier & Plant # Arizona Materials - Sagaton - 11 **Product Code / Mix ID#** 13004 **Load Size:** 11.0 c.y.
Material Ticket # 1964221 **Truck #** 406 **Type/Agg Size:** # of Cyl/Prisms: 4
Time Batched: 9:25 AM **Time Sampled:** 9:55 AM **Time in Mixer** 30 **Pour End Time:**
Supplier Design Strength: 3000 psi at 28 days **Project Strength Spec:** 3000 psi at 28 days

AASHTO/ASTM	Project Specs
-	Air Temp. (°F)
T309/C1064	Conc. Temp. (°F) 60-90
T119/C143	Slump (in.)
T121/C138	Unit Weight (pcf)
-	-
Air Content (%)	
T196/C173	Volumetric
T152/C231	Pressure

Field Equipment ID #'s

AASHTO/ASTM	Field Test Results
-	Air Temp. (°F)
T309/C1064	Conc. Temp. (°F) 84
T119/C143	Slump (in.) 5 1/4
T121/C138	Unit Weight (pcf)
-	Weather Conditon
Air Content (%)	
T196/C173	Volumetric
T152/C231	Pressure

Admixture Added? ☐ Yes ☒ No **if yes:** _____
Water Added? ☐ Yes ☒ No **Gallons Added:** - **Authorized By:** _____
Concrete Sampled In _____
Sample Storage: _____ **Curing - Max Temp (°F):** _____
Location: _____ **Curing - Min Temp (°F):** _____
Notes & Remarks: _____
ACS Observed the Placement of - **Cubic Yards of Material Placed By** -

LAB TEST RESULTS

Picked Up By: Fernando Montero **Date Delivered to Lab:** 06/22/23 **Micrometer/Caliper ID #** ACSDC-02
Checked In By: Brandy Whinery **Date Checked In:** 06/26/23 **Comp. Machine ID#** CG1800730
Curing Method: Temperature and Humidity Controlled Fog Room
Condition of Cylinders Received:

Type of Fracture:		(1) Cone	(2) Cone & Split	(3) Columnar	(4) Shear	(5) Side Fracture	(6) Pointed End				
Date Tested	Specimen	Age	Pads or Cap	Average Diameter Average Width x Length	Area	Max Load (lbs)	Fracture Type	Tested By	Reviewed By	Comp. Strength (Psi or Mpa)	% of Strength
6/28/23	1	7	Pads	4.00	12.57	36999	2	Fernando Montero	Dylan Ward	2940	98%
7/19/23	2	28	Pads	4.00	12.57	55748	3	Fernando Montero	Dylan Ward	4440	148%
7/19/23	3	28	Pads	4.00	12.57	53392	2	Fernando Montero	Dylan Ward	4250	142%
	4	H						28-Day Average		4345	145%

Reviewed By Jeffrey Donkersley

Signature & Date of Final Issue  7/20/2023

*The test results for the concrete specimens only relate to the sample location seen at the top of this page which our technician observed the placement
 **The concrete test results shall not be reproduced, except in full without prior written approval



Project Number	23071.00	Concrete Sample Id	C-031410	
Project Name	McQueen Emergency Repair Project	Material / Specification	C30	MAG 340
Client Name	Achen-Gardner Construction	Material Description	3000 psi Concrete	
Client Project Number		Project Section / Activity	Project-wide	02
Sampled By	Ivan Celaya	Project Test No.	C30-1	
Structure		Date / Time	6/21/2023	10:00
Sub-Structure Portion	Sidewalk	Mix Design	13004	
Lot Identifier	N/A	Supplier	AZ Materials	
Reference Line	McQueen	Plant Number	Sacaton-11	
Sample Location	N/A 37'RT	Placement / Load No.	CP-009849	1
		Truck No	406	
		Ticket No	1964221	
		Batch Qty (cy)	11.00	
		Batch Time	9:25 AM	
		Start Time	9:52 AM	
		Finish Time	10:15 AM	
		Time in Mixer (minutes)	50	
		Water Added (gallons)	0	
		Approved By†		

	TEST RESULT	SPEC
Slump, inches (ASTM C143)	6.5"	3" - 5"
Air Content, % (ASTM C231)		
Concrete Temp, °F (ASTM C1064)	80	60 - 90
Ambient Temp, °F	90	
Unit Weight (lbs/ft³) (ASTM C138)		
Relative Yield (%) (ASTM C138)		
w/c Ratio		

Initial Curing Environment: Immersed in Water

COMPRESSIVE STRENGTH TEST RESULTS (ASTM C39)

Required Strength: 3000 psi

Cylinder Number	Test Age	Date Tested	Cylinder Diameter (in)	Area (in²)	Maximum Load (lbs)	Compressive Strength (psi)	Capping Method	Type Of Fracture	Tested By
1	7 days	06/28/23	4.01	12.63	34380	2720	C1231	4	Jessica Pena-Melroy
2	28 days	07/19/23							
3	28 days	07/19/23							
4	56 days	08/16/23							

28 Day Avg:

Remarks

SPECIFICATION STATUS

Load Number	Test	Result	Spec	Status
Load #1 - Ticket #1964221	Slump	7	3 - 5	FAIL

* Denotes average 28-day compressive strength is below required strength.

† Denotes name of P.E. or his designee who accepts responsibility for the contents of this report, technical or otherwise.

The test results contained herein relate only to the items inspected or tested and this report shall not be reproduced, except in full, without the prior written approval of Quality Testing, LLC.

Appendix D

QC Test Reports



Achen-Gardner Construction
550 S. 79th Street
Chandler, AZ 85226
Attention:
Phone: (480) 940-1300, FAX

6/21/2023

Subject: Contractor Quality Control Testing Summary
McQueen Emergency Repair Project
QT Project No. 23071.00

Report No. 1 - For Period 6/10/2023 thru 6/16/2023

This report includes test data for construction materials sampling and testing performed on the above referenced project during the reporting period. Included, if applicable, are the field density test summaries, individual field density tests, concrete placement summaries and compressive strength information, soils and aggregate test summaries, individual soil and aggregate test data and bituminous tests.

Daily diaries from each technician who performed materials testing and/or inspection services during the reporting period are also included in this report.

If there are any questions, please do not hesitate to call me at (480) 496-2000.

Sincerely,

A handwritten signature in blue ink, appearing to read 'Jaye Richardson'.

Jaye Richardson
Quality Testing, LLC
Project Supervisor

cc: darriaga@achen.com
cc: dbroderick@achen.com



PROJECT FIELD DENSITY SUMMARY

Project No. **23071.00**
 Project Name **McQueen Emergency Repair Project**
 Client **Achen-Gardner Construction**
 Client Project No.

Date of Report **June 21, 2023**
 Report Period **6/10/2023 to 6/16/2023**
 Page **1 of 1**

SECTION: 01 Project-wide

PROJECT ACTIVITY: Soils (01) SPECIFICATION SECTION: MAG 601

TRENCH BACKFILL (TB)

TEST ID		TEST LOCATION		LABORATORY PROCTOR			FIELD TEST DATA									
TEST NO LOG NO	TEST DATE	LOCATION DESCRIPTION	ELEV LIFT NO	LAB ID	MAX DENS	OPT MOIST	TEST DEPTH	% ROCK	ADJ MAX	ADJ OPT	WET DENS	% MOIST	DRY DENS	% COMP	SPEC	PASS FAIL
TB-3 FD-027240	06/16/23	McQueen N/A, 34 LT	78 1	1-Pt	119.1	12.8	10"	11.5	122.5	11.4	126.6	10.1	115.0	94	95	FAIL
Tested By: Ivan Celaya		Comments:											Approved By†: Jaye Richardson 6/20/2023			
TB-3A FD-027240	06/16/23	McQueen N/A, 34 LT	78 1	1-Pt	119.1	12.8	6"	11.5	122.5	11.4	128.8	10.5	116.6	95	95	PASS
Tested By: Ivan Celaya		Comments:											Approved By†: Jaye Richardson 6/19/2023			
TB-4 FD-027241	06/16/23	McQueen N/A, 33 LT	80 2	9778	127.3	8.3	10"	8.6	127.3	8.3	128.2	6.6	120.3	95	95	PASS
Tested By: Ivan Celaya		Comments:											Approved By†: Jaye Richardson 6/19/2023			
TB-5 FD-027242	06/16/23	McQueen N/A, 34 LT	82 3	9778	127.3	8.3	10"	8.6	127.3	8.3	129.7	6.3	122.0	96	95	PASS
Tested By: Ivan Celaya		Comments:											Approved By†: Jaye Richardson 6/19/2023			

FSG = Finished Subgrade
 TOP = Top of Pipe

† Denotes name of P.E. or his designee who accepts responsibility for the contents of this report, technical or otherwise.

The test results contained herein relate only to the items inspected or tested and this report shall not be reproduced, except in full, without the prior written approval of Quality Testing, LLC.



SOIL & AGGREGATE SAMPLE SUMMARY

Sample Id **S-009778**

Project No. 23071.00	Project Name McQueen Emergency Repair Project					Project Number(s)	
Sampled By Ivan Celaya	Sample Date 6/15/2023	Logged By Ivan Celaya	Date Logged 6/15/2023	Released By Jaye Richardson	Release Date 6/15/2023	Approved By† Jaye Richardson	Date Approved 6/17/2023
Material Source		Sampled From Stock pile		Reference Line McQueen		Station N/A	Offset 29 LT
Remarks ABC proctor							

Sample Intended Uses

Material Code	Material Description	Project Activity	Activity Description
SG	Subgrade	01	Soils
SG3	Subgrade (MAG Curb, Gutter, Sidewalks)	01	Soils
TB	Trench Backfill	01	Soils

Specifications

Material Code	Spec Section	Test Property	Lower Limit	Upper Limit
---------------	--------------	---------------	-------------	-------------

SPECIFICATION STATUS

Sample In Compliance With Referenced Specifications

TEST RESULTS

USCS Classification (ASTM D2487):

AASHTO Classification (AASHTO M145): A-1-a (2)

Compaction Characteristics of Soil

AASHTO T99 Method D

Maximum Dry Density, pcf	Optimum Moisture, %
127.3	8.3

Tested By: Marco Solano 6/15/2023

† Denotes name of P.E. or his designee who accepts responsibility for the contents of this report, technical or otherwise.

The test results contained herein relate only to the items inspected or tested.

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Project Name McQueen Emergency Repair Project
Client Name: Achen-Gardner Construction
Activity: 01 Soils

QT Project Number: 23071.00
Client Project Number:
Work Element: Trench Backfill

Material Info:

Material Code: TB

Material Description: Trench Backfill

Test Data:

Test Method: 232b

Weight of Mold & Soil (lbs): 13.10

Wet Density: (pcf) 112.2

Weight of Mold (lbs): 9.36

Moisture Content: (%) 11.7

Weight of Compacted Soil (lbs): 3.74

Test Location:

Reference Line: McQueen

Sampled From: Stock pile

Station:

Elevation (ft): 92

Offset: 29 LT

Lift Number:

One-Point Results

One Point Id	Date Tested	Curve Letter	Percent From Curve	Above / Below	Max Dry Density (pcf)	Optimum Moisture (%)	Tested By
P-0001009	6/14/23	J	10%	Below	119.1	12.8	Ivan Celaya

Approved By†: Jaye Richardson

† Denotes name of P.E. or his designee who accepts responsibility for the contents of this report, technical or otherwise.



DIR ID DIR-0064533		Inspection Date 06/14/2023		Technician Name Ivan Celaya			Page Number Page 1 of 2	
QT Project Number 23071.00		Project Name McQueen Emergency Repair Project						
Client Achen-Gardner Construction				Client Project Number			Client Contact Name	
Owner Agency COC			Owner Project Number		Temperature 90-100F	Sky Condition Clear	Wind Calm	Precipitation None
Arrive Time 11:30:00	Leave Time 12:30:00	Hrs On Project 1.00	Travel Hours 0.00	Offsite Hrs 0.00	Total Hrs 1.00	Begin Mileage 16010	End Mileage 16041	Project Mileage 31
Activity Number 01		Activity Description Soils				Structure		Work Element
Brief Description of Operation Sample pick up						Plans Sheet Reference N/A		Specification Reference N/A
Section Project-wide		Reference Line McQueen		Stations N/A to N/A		Offsets 29.00L		Roadway Direction
Equipment Description			Quantity	Hours	Comment			
Activity Details - Arrived on site to collect native soil sample from trech at McQueen - Collected 1 5 gallon bucket of soil from approximately 8 feet dow from grade - Delivered sample to QT lab for proctor testing								
Project Communications								
General Comments								



DIR ID	Inspection Date	Technician Name	Page Number
DIR-0064533	06/14/2023	Ivan Celaya	Page 2 of 2
QT Project Number	Project Name		
23071.00	McQueen Emergency Repair Project		

Photo: Picture 1

Comments: Trench hole on McQueen



Photo: Picture 2

Comments: soil sample collected for proctor





DIR ID DIR-0064566		Inspection Date 06/15/2023		Technician Name Ivan Celaya			Page Number Page 1 of 2	
QT Project Number 23071.00		Project Name McQueen Emergency Repair Project						
Client Achen-Gardner Construction				Client Project Number		Client Contact Name		
Owner Agency COC			Owner Project Number		Temperature 90-100F	Sky Condition Clear	Wind Calm	Precipitation None
Arrive Time 09:00:00	Leave Time 10:00:00	Hrs On Project 1.00	Travel Hours 0.00	Offsite Hrs 0.00	Total Hrs 1.00	Begin Mileage 16041	End Mileage 16105	Project Mileage 64
Activity Number 01		Activity Description Soils			Structure		Work Element	
Brief Description of Operation AB sample					Plans Sheet Reference N/A		Specification Reference N/A	
Section Project-wide		Reference Line McQueen		Stations N/A		Offsets 29.00L		Roadway Direction
Equipment Description			Quantity	Hours	Comment			
Activity Details - Arrived on site to collect AB sample from stock piles at McQueen - Collected 2 5 gallon bucket of AB from stock piles - Delivered sample to QT lab for proctor testing								
Project Communications								
General Comments								



DIR ID DIR-0064566	Inspection Date 06/15/2023	Technician Name Ivan Celaya	Page Number Page 2 of 2
QT Project Number 23071.00	Project Name McQueen Emergency Repair Project		

Photo: Picture 1

Comments: Collected AB sample from stock piles





DIR ID DIR-0064677	Inspection Date 06/16/2023	Technician Name Ivan Celaya	Page Number Page 1 of 3
QT Project Number 23071.00	Project Name McQueen Emergency Repair Project		
Client Achen-Gardner Construction		Client Project Number	Client Contact Name
Owner Agency COC	Owner Project Number	Temperature 90-100F	Sky Condition Clear
Arrive Time 11:00:00	Leave Time 14:00:00	Hrs On Project 3.00	Wind Calm
	Travel Hours 0.00	Offsite Hrs 0.00	Precipitation None
	Total Hrs 3.00	Begin Mileage 16165	End Mileage 16188
			Project Mileage 23
Activity Number 01	Activity Description Soils	Structure	Work Element Trench Backfill
Brief Description of Operation Compaction test		Plans Sheet Reference N/A	Specification Reference N/A
Section Project-wide	Reference Line McQueen	Stations N/A to N/A	Offsets 35.00L
			Roadway Direction
Equipment Description	Quantity	Hours	Comment
Activity Details - Arrived on site for Trench backfill density and moisture test on southbound lanes on McQueen between Queen Creek & Ocotillo in Chandler - The contractor Achen-Garner has on going backfill for trench - The contrator excavated trench to 22 feet below grade to find solid native material before backfill 1 density test was performed on native material to verify area was solid and stable before backfill with AB material Please refer to density log FD-027240 - The contractor conniued with AB material backfill using an excavator with bucket to placed AB material into trech and used an sheetfoot attachment to roll and compact material into placed. Native and AB materuals were process with water before backfill - I performed 2 densuty and moisture test on AB bacjfill please refer to density logs FD-027241-FD-027242 for test results - Test results were communicated to crew and city inspector on site			
Project Communications			
General Comments			



DIR ID DIR-0064677	Inspection Date 06/16/2023	Technician Name Ivan Celaya	Page Number Page 2 of 3
QT Project Number 23071.00	Project Name McQueen Emergency Repair Project		

Photo: Picture 1

Comments: Placing backfill materials in to trench on McQueen road



Photo: Picture 2

Comments: rolling and compacting backfill materials in to trench on McQueen road



Photo: Picture 3

Comments: Density and moisture test on backfill materials in to trench on McQueen road



DIR ID DIR-0064677	Inspection Date 06/16/2023	Technician Name Ivan Celaya	Page Number Page 3 of 3
QT Project Number 23071.00	Project Name McQueen Emergency Repair Project		



Photo: Picture 4

Comments: Excavation on trench on McQueen road





Achen-Gardner Construction
550 S. 79th Street
Chandler, AZ 85226
Attention:
Phone: (480) 940-1300, FAX

6/26/2023

Subject: Contractor Quality Control Testing Summary
McQueen Emergency Repair Project
QT Project No. 23071.00

Report No. 2 - For Period 6/17/2023 thru 6/23/2023

This report includes test data for construction materials sampling and testing performed on the above referenced project during the reporting period. Included, if applicable, are the field density test summaries, individual field density tests, concrete placement summaries and compressive strength information, soils and aggregate test summaries, individual soil and aggregate test data and bituminous tests.

Daily diaries from each technician who performed materials testing and/or inspection services during the reporting period are also included in this report.

If there are any questions, please do not hesitate to call me at (480) 496-2000.

Sincerely,

A handwritten signature in blue ink, appearing to read 'Jaye Richardson'.

Jaye Richardson
Quality Testing, LLC
Project Supervisor

cc: darriaga@achen.com
cc: dbroderick@achen.com



PROJECT FIELD DENSITY SUMMARY

Project No. **23071.00**
Project Name **McQueen Emergency Repair Project**
Client **Achen-Gardner Construction**
Client Project No.

Date of Report **June 26, 2023**
Report Period **6/17/2023 to 6/23/2023**
Page **1 of 3**

SECTION: 01 Project-wide

PROJECT ACTIVITY: Soils (01) SPECIFICATION SECTION: MAG 601

AGGREGATE BASE (AB)

TEST ID		TEST LOCATION		LABORATORY PROCTOR			FIELD TEST DATA									
TEST NO LOG NO	TEST DATE	LOCATION DESCRIPTION	ELEV LIFT NO	LAB ID	MAX DENS	OPT MOIST	TEST DEPTH	% ROCK	ADJ MAX	ADJ OPT	WET DENS	% MOIST	DRY DENS	% COMP	SPEC	PASS FAIL
AB-1 FD-027413	06/22/23	McQueen N/A, 12 LT	99 12	9778	127.3	8.3	10"	8.8	127.3	8.3	138.9	8.0	128.6	101	100	PASS
Tested By: Ivan Celaya		Comments:											Approved By†: Jaye Richardson 6/22/2023			
AB-2 FD-027414	06/22/23	McQueen N/A, 30 LT	99 12	9778	127.3	8.3	10"	8.8	127.3	8.3	138.1	8.1	127.8	100	100	PASS
Tested By: Ivan Celaya		Comments:											Approved By†: Jaye Richardson 6/22/2023			

SUBGRADE (MAG CURB, GUTTER, SIDEWALKS) (SG3)

TEST ID		TEST LOCATION		LABORATORY PROCTOR			FIELD TEST DATA									
TEST NO LOG NO	TEST DATE	LOCATION DESCRIPTION	ELEV LIFT NO	LAB ID	MAX DENS	OPT MOIST	TEST DEPTH	% ROCK	ADJ MAX	ADJ OPT	WET DENS	% MOIST	DRY DENS	% COMP	SPEC	PASS FAIL
SG3-1 FD-027283	06/20/23	McQueen N/A, 37 LT	97 5	9778	127.3	8.3	10"	9.1	127.3	8.3	133.8	7.6	124.3	98	95	PASS
Tested By: Ivan Celaya		Comments: Test under sidewalk											Approved By†: Jaye Richardson 6/20/2023			
SG3-2 FD-027289	06/20/23	McQueen N/A, 36 LT	95 3	9778	127.3	8.3	10"	9.1	127.3	8.3	135.6	8.3	125.2	98	95	PASS
Tested By: Ivan Celaya		Comments:											Approved By†: Jaye Richardson 6/20/2023			
SG3-3 FD-027290	06/20/23	McQueen N/A, 36 LT	93 1	9778	127.3	8.3	10"	9.1	127.3	8.3	135.9	9.9	123.7	97	95	PASS
Tested By: Ivan Celaya		Comments:											Approved By†: Jaye Richardson 6/20/2023			
SG3-4 FD-027410	06/21/23	McQueen N/A, 38 LT	99 8	9778	127.3	8.3	10"	10.1	129.5	7.6	138.2	7.6	128.4	99	95	PASS
Tested By: Ivan Celaya		Comments:											Approved By†: Jaye Richardson 6/22/2023			
SG3-5 FD-027415	06/20/23	McQueen N/A, 37 LT	98 8	9778	127.3	8.3	10"	9.1	127.3	8.3	134.7	8.1	124.6	98	95	PASS
Tested By: Ivan Celaya		Comments:											Approved By†: Jaye Richardson 6/22/2023			

TRENCH BACKFILL (TB)

TEST ID		TEST LOCATION		LABORATORY PROCTOR			FIELD TEST DATA									
TEST NO LOG NO	TEST DATE	LOCATION DESCRIPTION	ELEV LIFT NO	LAB ID	MAX DENS	OPT MOIST	TEST DEPTH	% ROCK	ADJ MAX	ADJ OPT	WET DENS	% MOIST	DRY DENS	% COMP	SPEC	PASS FAIL
TB-6 FD-027275	06/19/23	McQueen See , Remarks LT	86 1	9778	127.3	8.3	12"		127.3	8.3	133.9	4.9	127.6	100	95	PASS

FSG = Finished Subgrade
TOP = Top of Pipe

† Denotes name of P.E. or his designee who accepts responsibility for the contents of this report, technical or otherwise.

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**PROJECT FIELD DENSITY SUMMARY**

Project No. **23071.00**
 Project Name **McQueen Emergency Repair Project**
 Client **Achen-Gardner Construction**
 Client Project No.

Date of Report **June 26, 2023**
 Report Period **6/17/2023 to 6/23/2023**
 Page **2 of 3**

PROJECT ACTIVITY: Soils (01) SPECIFICATION SECTION: MAG 601

TRENCH BACKFILL (TB)

TEST ID		TEST LOCATION		LABORATORY PROCTOR			FIELD TEST DATA									
TEST NO LOG NO	TEST DATE	LOCATION DESCRIPTION	ELEV LIFT NO	LAB ID	MAX DENS	OPT MOIST	TEST DEPTH	% ROCK	ADJ MAX	ADJ OPT	WET DENS	% MOIST	DRY DENS	% COMP	SPEC	PASS FAIL
Tested By: Fernando Munoz		Comments: McQueen Settlement Repair, SB side of RD										Approved By†: Jaye Richardson 6/20/2023				
TB-7 FD-027276	06/19/23	McQueen See , Remarks LT	88 2	9778	127.3	8.3	12"		127.3	8.3	134.4	5.0	128.0	101	95	PASS
Tested By: Fernando Munoz		Comments: McQueen Settlement Repair, SB side of RD										Approved By†: Jaye Richardson 6/20/2023				
TB-8 FD-027277	06/19/23	McQueen See , Remarks LT	88 3	9778	127.3	8.3	12"		127.3	8.3	135.7	5.9	128.1	101	95	PASS
Tested By: Fernando Munoz		Comments: McQueen Settlement Repair, SB side of RD										Approved By†: Jaye Richardson 6/20/2023				
TB-9 FD-027278	06/19/23	McQueen See , Remarks LT	86 2	9778	127.3	8.3	12"		127.3	8.3	137.0	6.9	128.2	101	95	PASS
Tested By: Fernando Munoz		Comments: McQueen Settlement Repair, SB side of RD										Approved By†: Jaye Richardson 6/20/2023				
TB-10 FD-027279	06/19/23	McQueen See , Remarks LT	90 4	9778	127.3	8.3	12"		127.3	8.3	132.5	4.6	126.7	100	95	PASS
Tested By: Fernando Munoz		Comments: McQueen Settlement Repair, SB side of RD										Approved By†: Jaye Richardson 6/20/2023				
TB-11 FD-027291	06/20/23	McQueen N/A, 30 LT	86 1	9778	127.3	8.3	10"	9.1	127.3	8.3	136.3	7.3	127.0	100	95	PASS
Tested By: Ivan Celaya		Comments:										Approved By†: Jaye Richardson 6/20/2023				
TB-12 FD-027292	06/20/23	McQueen N/A, 30 LT	88 2	9778	127.3	8.3	10"	9.1	127.3	8.3	139.0	9.2	127.3	100	95	PASS
Tested By: Ivan Celaya		Comments:										Approved By†: Jaye Richardson 6/20/2023				
TB-13 FD-027293	06/20/23	McQueen N/A, 30 LT	90 3	9778	127.3	8.3	10"	9.1	127.3	8.3	136.0	9.2	124.5	98	95	PASS
Tested By: Ivan Celaya		Comments:										Approved By†: Jaye Richardson 6/20/2023				
TB-14 FD-027294	06/20/23	McQueen N/A, 31 LT	92 4	9778	127.3	8.3	10"	9.5	127.3	8.3	134.2	7.6	124.7	98	95	PASS
Tested By: Ivan Celaya		Comments:										Approved By†: Jaye Richardson 6/20/2023				
TB-15 FD-027295	06/20/23	McQueen N/A, 30 LT	94 5	9778	127.3	8.3	10"	9.1	127.3	8.3	136.9	8.1	126.6	100	95	PASS
Tested By: Ivan Celaya		Comments:										Approved By†: Jaye Richardson 6/20/2023				

FSG = Finished Subgrade
 TOP = Top of Pipe

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PROJECT FIELD DENSITY SUMMARY

Project No. **23071.00**
 Project Name **McQueen Emergency Repair Project**
 Client **Achen-Gardner Construction**
 Client Project No.

Date of Report **June 26, 2023**
 Report Period **6/17/2023 to 6/23/2023**
 Page **3 of 3**

PROJECT ACTIVITY: Soils (01) SPECIFICATION SECTION: MAG 601

TRENCH BACKFILL (TB)

TEST ID		TEST LOCATION		LABORATORY PROCTOR			FIELD TEST DATA									
TEST NO LOG NO	TEST DATE	LOCATION DESCRIPTION	ELEV LIFT NO	LAB ID	MAX DENS	OPT MOIST	TEST DEPTH	% ROCK	ADJ MAX	ADJ OPT	WET DENS	% MOIST	DRY DENS	% COMP	SPEC	PASS FAIL
TB-16 FD-027297	06/20/23	McQueen N/A, 30 LT	95 6	9778	127.3	8.3	10"	9.1	127.3	8.3	137.3	8.1	127.0	100	95	PASS
Tested By: Ivan Celaya		Comments:											Approved By†: Jaye Richardson 6/20/2023			
TB-26 FD-027404	06/20/23	McQueen N/A, 32 LT	97 8	9778	127.3	8.3	10"	9.1	127.3	8.3	133.3	7.4	124.1	98	95	PASS
Tested By: Ivan Celaya		Comments:											Approved By†: Jaye Richardson 6/22/2023			
TB-27 FD-027405	06/20/23	McQueen N/A, 25 LT	94 6	9778	127.3	8.3	10"	9.1	127.3	8.3	134.4	8.9	123.4	97	95	PASS
Tested By: Ivan Celaya		Comments:											Approved By†: Jaye Richardson 6/22/2023			
TB-28 FD-027406	06/20/23	McQueen N/A, 20 LT	96 7	9778	127.3	8.3	10"	9.1	127.3	8.3	136.0	7.0	127.1	100	95	PASS
Tested By: Ivan Celaya		Comments:											Approved By†: Jaye Richardson 6/22/2023			
TB-29 FD-027407	06/20/23	McQueen N/A, 18 LT	97 8	9778	127.3	8.3	10"	9.1	127.3	8.3	138.2	9.5	126.2	99	95	PASS
Tested By: Ivan Celaya		Comments:											Approved By†: Jaye Richardson 6/22/2023			
TB-30 FD-027408	06/21/23	McQueen N/A, 17 LT	93 5	9778	127.3	8.3	10"	10.1	129.5	7.6	131.2	7.7	121.8	94	95	FAIL
Tested By: Ivan Celaya		Comments:											Approved By†: Jaye Richardson 6/22/2023			
TB-30A FD-027408	06/22/23	McQueen N/A, 17 LT	93 5	9778	127.3	8.3	6"	10.2	129.5	7.6	133.8	7.2	124.8	96	95	PASS
Tested By: Ivan Celaya		Comments:											Approved By†: Jaye Richardson 6/22/2023			
TB-31 FD-027409	06/21/23	McQueen N/A, 19 LT	95 8	9778	127.3	8.3	10"	10.1	129.5	7.6	132.5	7.0	123.8	96	95	PASS
Tested By: Ivan Celaya		Comments:											Approved By†: Jaye Richardson 6/22/2023			

FSG = Finished Subgrade
 TOP = Top of Pipe

† Denotes name of P.E. or his designee who accepts responsibility for the contents of this report, technical or otherwise.

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DIR ID DIR-0064727	Inspection Date 06/19/2023	Technician Name Fernando Munoz	Page Number Page 1 of 4
QT Project Number 23071.00	Project Name McQueen Emergency Repair Project		
Client Achen-Gardner Construction		Client Project Number	Client Contact Name
Owner Agency COC	Owner Project Number	Temperature 90-100F	Sky Condition Clear
Wind Calm	Precipitation None		
Arrive Time 05:45:00	Leave Time 14:15:00	Hrs On Project 8.50	Travel Hours 0.00
Offsite Hrs 0.00	Total Hrs 8.50	Begin Mileage 90405	End Mileage 90527
Project Mileage 122			
Activity Number 01	Activity Description Soils	Structure	Work Element Backfill
Brief Description of Operation Compaction testing		Plans Sheet Reference N/A	Specification Reference N/A
Section Project-wide	Reference Line McQueen	Column Lines McQueen LN 1	Roadway Direction
Equipment Description	Quantity	Hours	Comment
Activity Details			
Compaction testing- • Upon arrival, I spoke with Achen-Gardener superintendent concerning operations of the day. • Achen crew working on emergency repair on the SB side of McQueen Rd between Germann & Queen Creek Rd. • Observed crew process stockpile of material using a CAT backhoe with a water truck. • Achen using a CAT 315 to backfill AB material and to use a sheep's foot attachment to compact material in place. • Observed crew use a CAT 335F to remove any debris/native material from trench prior to placement of AB. • I standardized my nuclear gauge prior to testing. • Observed Achen transport trench box so I can climb down to record density test. • I put on a harness and recorded the first test of the day. (Refer to FD-027275 for results). • Achen crew breaking down box using CAT 315. • ACS tester (Julie) onsite recording density test. • A total of 5 density tests were taken and recorded. (Refer to FD-027275, FD-027276, FD-027277, FD-027278, and FD-027279 for results). • Test results were reported to Dibble inspector prior to departure.			
Project Communications			
General Comments			



DIR ID DIR-0064727	Inspection Date 06/19/2023	Technician Name Fernando Munoz	Page Number Page 2 of 4
QT Project Number 23071.00	Project Name McQueen Emergency Repair Project		

Photo: 1

Comments: Density testing for backfill



Photo: 2

Comments: Ongoing backfill operation



Photo: 3

Comments: Achen using CAT 315 with sheep's foot attachment to compact material in place



DIR ID DIR-0064727	Inspection Date 06/19/2023	Technician Name Fernando Munoz	Page Number Page 3 of 4
QT Project Number 23071.00	Project Name McQueen Emergency Repair Project		



Photo: 4

Comments: Achen crew transporting trench box so I can test



Photo: 5

Comments: Crew breaking down trench box



DIR ID DIR-0064727	Inspection Date 06/19/2023	Technician Name Fernando Munoz	Page Number Page 4 of 4
QT Project Number 23071.00	Project Name McQueen Emergency Repair Project		



Photo: 6

Comments: Crew using CAT 335F to remove debris and native material





DIR ID DIR-0064752	Inspection Date 06/20/2023	Technician Name Ivan Celaya	Page Number Page 1 of 3
QT Project Number 23071.00	Project Name McQueen Emergency Repair Project		
Client Achen-Gardner Construction		Client Project Number	Client Contact Name
Owner Agency COC	Owner Project Number	Temperature 90-100F	Sky Condition Clear
Wind Calm	Precipitation None		
Arrive Time 07:00:00	Leave Time 14:30:00	Hrs On Project 7.50	Travel Hours 0.00
Offsite Hrs 0.00	Total Hrs 7.50	Begin Mileage 16228	End Mileage 16250
Project Mileage 22			
Activity Number 01	Activity Description Soils	Structure	Work Element Trench Backfill
Brief Description of Operation Compaction test		Plans Sheet Reference N/A	Specification Reference N/A
Section Project-wide	Reference Line McQueen	Stations N/A to N/A	Offsets 30.00L to 37.00L
Roadway Direction			
Equipment Description	Quantity	Hours	Comment
Activity Details - Arrived on site for Trench backfill density and moisture test on southbound lanes on McQueen between Queen Creek & Ocotillo in Chandler - The contractor Achen-Garner has on going backfill for trench, manhole back fill and sidewalk subgrade backfill - The contractor excavated trench to 22 feet below grade to find solid native material before backfill continues to backfill up to grade - The contractor continued with AB material backfill using an excavator with bucket to place AB material into trench and used a sheetpile attachment to roll and compact material into place. AB material was processed with water before backfill - I performed density and moisture test on AB backfill please refer to density logs FD-027283-FD-027415 for test results - Test results were communicated to crew and city inspector on site			
Project Communications			
General Comments			



DIR ID DIR-0064752	Inspection Date 06/20/2023	Technician Name Ivan Celaya	Page Number Page 2 of 3
QT Project Number 23071.00	Project Name McQueen Emergency Repair Project		

Photo: Picture 1

Comments: Rolling and compacting for trench and manhole backfill on McQueen road



Photo: Picture 3

Comments: Rolling and compacting for trench and manhole backfill on McQueen road



Photo: Picture 3

Comments: Rolling and compacting for trench and manhole backfill on McQueen road



Quality Testing, LLC
175 S Hamilton Place, Bldg 6, #114
Gilbert, AZ 85233
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www.qt-corp.com

PROJECT DAILY INSPECTION RECORD

DIR ID	Inspection Date	Technician Name	Page Number
DIR-0064752	06/20/2023	Ivan Celaya	Page 3 of 3
QT Project Number	Project Name		
23071.00	McQueen Emergency Repair Project		





DIR ID DIR-0064787	Inspection Date 06/21/2023	Technician Name Ivan Celaya	Page Number Page 1 of 5
QT Project Number 23071.00	Project Name McQueen Emergency Repair Project		
Client Achen-Gardner Construction		Client Project Number	Client Contact Name
Owner Agency COC	Owner Project Number	Temperature 90-100F	Sky Condition Clear
Wind Calm	Precipitation None		
Arrive Time 08:30:00	Leave Time 11:30:00	Hrs On Project 3.00	Travel Hours 0.00
Offsite Hrs 0.00	Total Hrs 3.00	Begin Mileage 16300	End Mileage 16327
Project Mileage 27			
Activity Number 01	Activity Description Soils	Structure	Work Element Trench Backfill
Brief Description of Operation Compaction test		Plans Sheet Reference N/A	Specification Reference N/A
Section Project-wide	Reference Line McQueen	Stations N/A to N/A	Offsets 12.00L to 37.00L
Roadway Direction			
Equipment Description	Quantity	Hours	Comment
Activity Details			
- Arrived on site for Trench backfill density and moisture test on southbound lanes on McQueen between Queen Creek & Ocotillo in Chandler - The contractor Achen-Garner has on going backfill for trench, manhole back fill and sidewalk subgrade backfill - The contractor excavated trench to 22 feet below grade to find solid native material before backfill continues to backfill up to grade - The contractor continued with AB material backfill using an excavator with bucket to place AB material into trench and used a sheetpile attachment to roll and compact material into place. AB material was processed with water before backfill - I performed 3 density and moisture test on AB backfill please refer to density logs FD-027408 to FD-027410 for test results - Test results were communicated to crew and city inspector on site			



DIR ID DIR-0064787	Inspection Date 06/21/2023	Technician Name Ivan Celaya		Page Number Page 2 of 5	
QT Project Number 23071.00	Project Name McQueen Emergency Repair Project				
Activity Number 02	Activity Description Concrete		Structure		Work Element Sidewalk
Brief Description of Operation Concrete placement			Plans Sheet Reference N/A		Specification Reference N/A
Section Project-wide	Reference Line McQueen	Stations N/A to N/A		Offsets 37.00L	Roadway Direction
Equipment Description		Quantity	Hours	Comment	
Activity Details • Arrived on site to sample and test concrete for sidewalk on McQueen road • The contractor Placed 3000 PSI MAG A 13004 mix • I collected a sample from first load side by side with QA technician • Checked concrete temperature and time, performed a slump test and cast 1 set of 4-4x8 cylinders • Please refer to concrete placement CP-009849 for test results					
Project Communications					
General Comments					



DIR ID DIR-0064787	Inspection Date 06/21/2023	Technician Name Ivan Celaya	Page Number Page 3 of 5
QT Project Number 23071.00	Project Name McQueen Emergency Repair Project		

Photo: Picture 1

Comments: Sidewalk subgrade density test



Photo: Picture 2

Comments: AB backfill on south bund lanes on McQueen road



Photo: Picture 3

Comments: Sidewalk subgrade prior to concrete placement



DIR ID DIR-0064787	Inspection Date 06/21/2023	Technician Name Ivan Celaya	Page Number Page 4 of 5
QT Project Number 23071.00	Project Name McQueen Emergency Repair Project		



Photo: Picture 4

Comments: Placing concrete for sidewalk on south bund lanes on McQueen road



Photo: Picture 5

Comments: Rolling and compaction for backfill on south bund lanes on McQueen road



DIR ID DIR-0064787	Inspection Date 06/21/2023	Technician Name Ivan Celaya	Page Number Page 5 of 5
QT Project Number 23071.00	Project Name McQueen Emergency Repair Project		



Photo: Picture 6

Comments: Density and moisture test for backfill on south bund lanes on McQueen road





DIR ID DIR-0064863	Inspection Date 06/22/2023	Technician Name Ivan Celaya	Page Number Page 1 of 3					
QT Project Number 23071.00	Project Name McQueen Emergency Repair Project							
Client Achen-Gardner Construction				Client Project Number			Client Contact Name	
Owner Agency COC			Owner Project Number		Temperature 90-100F	Sky Condition Clear	Wind Calm	Precipitation None
Arrive Time 11:00:00	Leave Time 12:00:00	Hrs On Project 1.00	Travel Hours 0.00	Offsite Hrs 0.00	Total Hrs 1.00	Begin Mileage 16347	End Mileage 16370	Project Mileage 23
Activity Number 01	Activity Description Soils				Structure		Work Element Aggregate Base	
Brief Description of Operation Compaction test					Plans Sheet Reference N/A		Specification Reference N/A	
Section Project-wide	Reference Line McQueen		Stations N/A to N/A		Offsets 12.00L to 30.00L		Roadway Direction	
Equipment Description			Quantity	Hours	Comment			
Activity Details - Arrived on site for Trench backfill density and moisture test on southbound lanes on McQueen between Queen Creek & Ocotillo in Chandler - The contractor Achen-Garner has on going aggregate base compaction - The contrator excavated trench to 22 feet below grade to find solid native material before backfill continues to backfill up to grade - The contractor conniued with AB material backfill using an excavator with bucket to placed AB material into trech and used an sheetfoot attachment to roll and compact material into placed. AB material was process with water before backfill - I performed 2 densuty and moisture test on AB 1' foot under grade please refer to density logs FD-027413 to FD-027414 for test results - Test results were communicated to crew and city inspector on site								
Project Communications								
General Comments								



DIR ID DIR-0064863	Inspection Date 06/22/2023	Technician Name Ivan Celaya	Page Number Page 2 of 3
QT Project Number 23071.00	Project Name McQueen Emergency Repair Project		

Photo: Picture 1

Comments: Compacting aggregate base on south bound lanes on McQueen road



Photo: Picture 2

Comments: Compaction test for aggregate base on south bound lanes on McQueen road



Photo:

Comments:



DIR ID DIR-0064863	Inspection Date 06/22/2023	Technician Name Ivan Celaya	Page Number Page 3 of 3
QT Project Number 23071.00	Project Name McQueen Emergency Repair Project		



Photo:

Comments:





CONCRETE TRUCK LOG REPORT

QT Project No:	23071.00	Project Name:	McQueen Emergency Repair Project		
Client:	Achen-Gardner Construction	Project No(s):		Placement Id:	CP-009849
Mix Design:	13004	Material Code:	C30	Placement Date:	6/21/2023
Mix Description:	MAG-A 3000PSI	Section:	Project-wide	Structure:	
Supplier:	AZ Materials	Project Activity:	711702	Sub-Structure:	Sidewalk
Technician:	Ivan Celaya	Lot Number:	N/A	Reference Line:	McQueen
Reviewed By:	Jaye Richardson	Placement Qty (CY):	11	Station / Offset:	N/A, 37

Remarks:

SPECIFICATION STATUS

Load Number	Test	Result	Spec	Status
Load #1 - Ticket #1964221	Slump	7	3 - 5	FAIL

TRUCK LOG

Load Number	Ticket Number	Truck Number	Batch Size (CY)	Accum Total (CY)	Batch Time	Begin Unload	Finish Unload	Time In Mixer (min)	Slump (in)	Unit Weight (lb/ft³)	% Air Content	Ambient Temp (°F)	Concrete Temp (°F)	Water Added (Gal)	Strength Set Id	Sampled By	Sample Date
1	1964221	406	11	11	09:25	09:52	10:15	50	6.5			90	80	0	C-031410	Ivan Celaya	6/21/23

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Achen-Gardner Construction
550 S. 79th Street
Chandler, AZ 85226
Attention:
Phone: (480) 940-1300, FAX

7/6/2023

Subject: Contractor Quality Control Testing Summary
McQueen Emergency Repair Project
QT Project No. 23071.00

Report No. 3 - For Period 6/24/2023 thru 6/30/2023

This report includes test data for construction materials sampling and testing performed on the above referenced project during the reporting period. Included, if applicable, are the field density test summaries, individual field density tests, concrete placement summaries and compressive strength information, soils and aggregate test summaries, individual soil and aggregate test data and bituminous tests.

Daily diaries from each technician who performed materials testing and/or inspection services during the reporting period are also included in this report.

If there are any questions, please do not hesitate to call me at (480) 496-2000.

Sincerely,

A handwritten signature in blue ink, appearing to read 'Jaye Richardson'.

Jaye Richardson
Quality Testing, LLC
Project Supervisor

cc: darriaga@achen.com
cc: dbroderick@achen.com



PROJECT FIELD DENSITY SUMMARY

Project No. **23071.00**
Project Name **McQueen Emergency Repair Project**
Client **Achen-Gardner Construction**
Client Project No.

Date of Report **July 6, 2023**
Report Period **6/24/2023 to 6/30/2023**
Page **1 of 1**

SECTION: 01 Project-wide

PROJECT ACTIVITY: Soils (01) SPECIFICATION SECTION: SP Items 10 - 13

AGGREGATE BASE (AB)

TEST ID		TEST LOCATION		LABORATORY PROCTOR			FIELD TEST DATA									
TEST NO LOG NO	TEST DATE	LOCATION DESCRIPTION	ELEV LIFT NO	LAB ID	MAX DENS	OPT MOIST	TEST DEPTH	% ROCK	ADJ MAX	ADJ OPT	WET DENS	% MOIST	DRY DENS	% COMP	SPEC	PASS FAIL
AB-3 FD-027485	06/26/23	33.25737 N 111.82412 W	99 2	9778	127.3	8.3	8"	8.5	127.3	8.3	136.5	6.0	128.8	101	100	PASS
Tested By: Ivan Celaya		Comments:											Approved By†: Jaye Richardson 6/26/2023			
AB-4 FD-027486	06/26/23	33.25724 N 111.82412 W	99 2	9778	127.3	8.3	8"	8.5	127.3	8.3	138.8	6.2	130.7	103	100	PASS
Tested By: Ivan Celaya		Comments:											Approved By†: Jaye Richardson 6/26/2023			

FSG = Finished Subgrade
TOP = Top of Pipe

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CONCRETE COMPRESSIVE STRENGTH HISTORY

AASHTO T22, ASTM C39, ARIZ 314

Project Number **McQueen Emergency Repair Project**

Project Name **23071.00**

Client **Achen-Gardner Construction**

Client Project Number

Report Date **Jul 6, 2023**

Report Period **6/24/2023 to 6/30/2023**

Page **Page 1 of 1**

Section Project-wide

3000 psi Concrete (C30)

Sample Id	Specimen Type	Size	Project Sample	Placement Description	Location	Date Cast	Date Tested	Age	Strength (psi)	Tested By
C-031410	Cylinder	4x8	C30-1	Sidewalk	McQueen N/A 37	06/21/2023	06/28/2023	7	2720	Jessica Pena-Melroy

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Project Number	23071.00	Concrete Sample Id	C-031410	
Project Name	McQueen Emergency Repair Project	Material / Specification	C30	MAG 340
Client Name	Achen-Gardner Construction	Material Description	3000 psi Concrete	
Client Project Number		Project Section / Activity	Project-wide	02
Sampled By	Ivan Celaya	Project Test No.	C30-1	
Structure		Date / Time	6/21/2023	10:00
Sub-Structure Portion	Sidewalk	Mix Design	13004	
Lot Identifier	N/A	Supplier	AZ Materials	
Reference Line	McQueen	Plant Number	Sacaton-11	
Sample Location	N/A 37'RT	Placement / Load No.	CP-009849	1
		Truck No	406	
		Ticket No	1964221	
		Batch Qty (cy)	11.00	
		Batch Time	9:25 AM	
		Start Time	9:52 AM	
		Finish Time	10:15 AM	
		Time in Mixer (minutes)	50	
		Water Added (gallons)	0	
		Approved By†		

	TEST RESULT	SPEC
Slump, inches (ASTM C143)	6.5"	3" - 5"
Air Content, % (ASTM C231)		
Concrete Temp, °F (ASTM C1064)	80	60 - 90
Ambient Temp, °F	90	
Unit Weight (lbs/ft³) (ASTM C138)		
Relative Yield (%) (ASTM C138)		
w/c Ratio		

Initial Curing Environment: Immersed in Water

COMPRESSIVE STRENGTH TEST RESULTS (ASTM C39)

Required Strength: 3000 psi

Cylinder Number	Test Age	Date Tested	Cylinder Diameter (in)	Area (in²)	Maximum Load (lbs)	Compressive Strength (psi)	Capping Method	Type Of Fracture	Tested By
1	7 days	06/28/23	4.01	12.63	34380	2720	C1231	4	Jessica Pena-Melroy
2	28 days	07/19/23							
3	28 days	07/19/23							
4	56 days	08/16/23							

28 Day Avg:

Remarks

SPECIFICATION STATUS

Load Number	Test	Result	Spec	Status
Load #1 - Ticket #1964221	Slump	7	3 - 5	FAIL

* Denotes average 28-day compressive strength is below required strength.

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BITUMINOUS SAMPLE SUMMARY OF TEST PROPERTIES

Sample Identification **B-04573**
 Lot - Sample Number **1 - 1**
 Project Number **23071.00**
 Project Name **McQueen Emergency Repair Project**
 Client Project Number
 Owner Project Number

Material Code **19**
 Description **19 mm or 3/4" AC**
 Specification **SP Item 15 - 16**
 Item Number **03**
 Mix Design No. **231517G**
 Mix Designation **3/4"EVAC**
 Material Source **Vulcan Materials**

Sampled By / Date **Ivan Celaya 6/27/2023**
 Approved By† / Date **Jaye Richardson 7/3/2023**

Sampled From **Sample plate**
 Reference Line **McQueen oad**
 Station Location **N/A, 24 LT**

Remarks

SIEVE ANALYSIS

AASHTO T30

SIEVE SIZE		% PASS	SPEC
US	(mm)		
3"	75	100	
2 1/2"	63	100	
2"	50	100	
1 1/2"	38	100	
1"	25	100	100
3/4"	19.0	87*	89 - 103
1/2"	12.5	73	
3/8"	9.5	63*	79 - 91
1/4"	6.3	48	
#4	4.75	39	
#8	2.36	28	24 - 36
#10	2.00	26	
#16	1.18	21	
#30	0.600	15	
#40	0.425	12	8 - 16
#50	0.300	9	
#100	0.150	5	
#200	0.075	3.1	1.9 - 5.9

AC BINDER CONTENT

AASHTO T308

SPEC

Binder Content, Pb	4.35	%	4.08-4.97
Calibration Factor	-0.11		

THEORETICAL MAXIMUM DENSITY (RICE)

AASHTO T209

Maximum SpG, Gmm	2.488	
Rice Density, lb/ft³	155.0	lb/ft³

MARSHALL COMPACTION

SPEC

Bulk SpG, Gmb		%	
Bulk Density, lb/ft³		lb/ft³	
Stability, lbs		lbs	
Flow, 0.01 inch		.01 in	

GYRATORY COMPACTION

AASHTO T312

SPEC

Bulk SpG, Gmb @ N _{max}	2.342	
Relative Density (to Gmm)		
@ N _{initial}	83.4	
@ N _{design}	92.8	
@ N _{maximum}	94.1	

VOLUMETRIC ANALYSIS

AASHTO T269

SPEC

Gmb @ N _{design}		
MA in Mix, Pma		%
Admixture in mix, Pmx		%
Volume of Aggregate, Vag		
Volume of Admixture, Vmx		
Effective AC, Pbe		%
Volume of Eff. Asphalt, Vbe		
Voids in MA, VMA		%
Effective Voids, EV	7.2	%
Voids Filled, VF		%

* Denotes a test property which is outside of specification limits.

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BITUMINOUS SAMPLE SUMMARY OF TEST PROPERTIES

Sample Identification **B-04578**
 Lot - Sample Number **2 - 1**
 Project Number **23071.00**
 Project Name **McQueen Emergency Repair Project**
 Client Project Number
 Owner Project Number

Material Code **12**
 Description **12.5 mm or 1/2" AC**
 Specification **SP Item 14**
 Item Number **03**
 Mix Design No. **331517G**
 Mix Designation **1/2" EVAC**
 Material Source **Vulcan Materials**

Sampled By / Date **Ivan Celaya 6/27/2023**
 Approved By† / Date **Jaye Richardson 7/3/2023**

Sampled From **Sample plate**
 Reference Line **McQueen Road**
 Station Location **, 25 LT**

Remarks

SIEVE ANALYSIS

AASHTO T30

SIEVE SIZE		% PASS	SPEC
US	(mm)		
3"	75	100	
2 1/2"	63	100	
2"	50	100	
1 1/2"	38	100	
1"	25	100	
3/4"	19.0	100	100
1/2"	12.5	95	90 - 100
3/8"	9.5	80	78 - 90
1/4"	6.3	61	
#4	4.75	48	
#8	2.36	34	27 - 39
#10	2.00	32	
#16	1.18	26	
#30	0.600	19	
#40	0.425	15	8 - 16
#50	0.300	12	
#100	0.150	7	
#200	0.075	4.5	2.0 - 6.0

AC BINDER CONTENT

AASHTO T308

SPEC

Binder Content, Pb	4.69	%	4.58-5.47
Calibration Factor			

THEORETICAL MAXIMUM DENSITY (RICE)

AASHTO T209

Maximum SpG, Gmm	2.488	
Rice Density, lb/ft³	155.0	lb/ft³

MARSHALL COMPACTION

SPEC

Bulk SpG, Gmb		%	
Bulk Density, lb/ft³		lb/ft³	
Stability, lbs		lbs	
Flow, 0.01 inch		.01 in	

GYRATORY COMPACTION

AASHTO T312

SPEC

Bulk SpG, Gmb @ N _{max}	2.330	
Relative Density (to Gmm)		
@ N _{initial}	81.4	
@ N _{design}	91.0	
@ N _{maximum}	93.7	

VOLUMETRIC ANALYSIS

AASHTO T269

SPEC

Gmb @ N _{design}		
MA in Mix, Pma		%
Admixture in mix, Pmx		%
Volume of Aggregate, Vag		
Volume of Admixture, Vmx		
Effective AC, Pbe		%
Volume of Eff. Asphalt, Vbe		
Voids in MA, VMA		%
Effective Voids, EV	9.0	%
Voids Filled, VF		%

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ASPHALT NUCLEAR DENSITIES BY IN PLACE VOIDS

Project Number	23071.00	Client	Achen-Gardner Construction
Project Name	McQueen Emergency Repair Project	Client Project Number	
Section	Project-wide		
Mix Designation	231517G	Material Code	19 mm or 3/4" AC
Mix Description	3/4"EVAC	Supplier	Vulcan Materials

Test Number	Lot Number	Test Date	Wet Density	Max Density	In Place Voids	Lower Limit	Upper Limit	Gauge Number	Tested By	Reviewed By†
AD-009384	1	6/27/2023	141.6	155.0	8.6	3.0	8.0	4872	Ivan Celaya	Jaye Richardson

Location: McQueen , 8 LT

AD-009385	1	6/27/2023	142.3	155.0	8.1	3.0	8.0	4872	Ivan Celaya	Jaye Richardson
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Location: McQueen , 25 LT

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ASPHALT NUCLEAR DENSITIES BY IN PLACE VOIDS

Mix Designation **331517G** Material Code **12.5 mm or 1/2" AC**
Mix Description **1/2" EVAC** Supplier **Vulcan Materials**

Test Number	Lot Number	Test Date	Wet Density	Max Density	In Place Voids	Lower Limit	Upper Limit	Gauge Number	Tested By	Reviewed By†
AD-009386	2	6/27/2023	140.5	155.0	9.3	4.0	8.0	4872	Ivan Celaya	Jaye Richardson

Location: McQueen , 4 LT

AD-009387	2	6/27/2023	141.3	155.0	8.8	4.0	8.0	4872	Ivan Celaya	Jaye Richardson
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Location: McQueen , 18

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DIR ID DIR-0065003	Inspection Date 06/26/2023	Technician Name Ivan Celaya	Page Number Page 1 of 2					
QT Project Number 23071.00	Project Name McQueen Emergency Repair Project							
Client Achen-Gardner Construction				Client Project Number			Client Contact Name	
Owner Agency COC			Owner Project Number		Temperature 90-100F	Sky Condition Clear	Wind Calm	Precipitation None
Arrive Time 08:30:00	Leave Time 10:00:00	Hrs On Project 1.50	Travel Hours 0.00	Offsite Hrs 0.00	Total Hrs 1.50	Begin Mileage 16599	End Mileage 16640	Project Mileage 41
Activity Number 01	Activity Description Soils				Structure		Work Element Aggregate Base	
Brief Description of Operation Compaction test					Plans Sheet Reference N/A		Specification Reference N/A	
Section Project-wide	Reference Line McQueen		Stations N/A to N/A		Offsets 0.00L to 37.00L		Roadway Direction	
Equipment Description			Quantity	Hours	Comment			
Activity Details - Arrived on site for aggregate density and moisture test on southbound lanes on McQueen between Queen Creek & Ocotillo in Chandler - The contractor Achen-Garner has on going aggregate base compaction - The contrator excavated trench to 22 feet below grade to find solid native material before backfill continues to backfill up to grade - The contractor placed AB material backfill using an excavator with bucket to placed AB material into trech and used an sheetfoot attachment and a double steel roller to compact material into placed. - I performed 2 densuty and moisture test on AB on final grade please refer to density logs FD-027485 to FD-027486 for test results - Test results were communicated to crew and city inspector on site								
Project Communications								
General Comments								



DIR ID DIR-0065003	Inspection Date 06/26/2023	Technician Name Ivan Celaya	Page Number Page 2 of 2
QT Project Number 23071.00	Project Name McQueen Emergency Repair Project		

Photo: Picture 1

Comments: Final grade (aggregate base) southbounds lanes on McQueen road between Ocotillo & Queen Creek road





DIR ID DIR-0065024	Inspection Date 06/27/2023	Technician Name Ivan Celaya	Page Number Page 1 of 3					
QT Project Number 23071.00	Project Name McQueen Emergency Repair Project							
Client Achen-Gardner Construction				Client Project Number			Client Contact Name	
Owner Agency COC			Owner Project Number		Temperature 90-100F	Sky Condition Clear	Wind Calm	Precipitation None
Arrive Time 05:30:00	Leave Time 12:30:00	Hrs On Project 7.00	Travel Hours 0.00	Offsite Hrs 0.00	Total Hrs 7.00	Begin Mileage 16640	End Mileage 16696	Project Mileage 56
Activity Number 03	Activity Description HMA				Structure		Work Element AC Paving	
Brief Description of Operation Asphalt placement					Plans Sheet Reference N/A		Specification Reference N/A	
Section Project-wide	Reference Line McQueen		Stations		Offsets 0.00L to 41.00L		Roadway Direction	
Equipment Description			Quantity	Hours	Comment			
Activity Details - Arrived on site to sample and test compaction for asphalt placement on southbound lanes on McQueen road - The contractor placed asphalt for 41' x 89' x 6" thick patch on south bounds lanes on McQueen road between Queen Creek & Ocotillo road - The contractor placed 2-2" lifts of 3/4" mix 231517G from Gomez Vulcan plant - The contractor placed 1-2" lifts of 1/2" mix 331517G from Gomez Vulcan plant - The contractor used a combo steel drum with rubber tires in the back CAT CC34B roller to break down and finish compaction on asphalt - Rolling pattern was done by contractor - I sampled both mixes placed today side by side with QA technician on site - Verified compaction reached the required percentage on both bottom and top lifts refer to HMA Lots HMA-002334 & HMA-002335								
Project Communications								
General Comments								



DIR ID DIR-0065024	Inspection Date 06/27/2023	Technician Name Ivan Celaya	Page Number Page 2 of 3
QT Project Number 23071.00	Project Name McQueen Emergency Repair Project		

Photo: Picture 1

Comments: Placing asphalt on southbound lanes on McQueen road



Photo: Picture 2

Comments: Rolling and compacting top lift on asphalt placed on southbound lanes on McQueen road



Photo: Picture 3

Comments: Rolling and compacting bottom lift on asphalt placed on southbound lanes on McQueen road



DIR ID DIR-0065024	Inspection Date 06/27/2023	Technician Name Ivan Celaya	Page Number Page 3 of 3
QT Project Number 23071.00	Project Name McQueen Emergency Repair Project		



Photo: Picture 4

Comments: Density testfor top lift on asphalt placed on southbound lanes on McQueen road





Project Number	23071.00	Concrete Sample Id	C-031410	
Project Name	McQueen Emergency Repair Project	Material / Specification	C30	MAG 340
Client Name	Achen-Gardner Construction	Material Description	3000 psi Concrete	
Client Project Number		Project Section / Activity	Project-wide	02
Sampled By	Ivan Celaya	Project Test No.	C30-1	
Structure		Date / Time	6/21/2023	10:00
Sub-Structure Portion	Sidewalk	Mix Design	13004	
Lot Identifier	N/A	Supplier	AZ Materials	
Reference Line	McQueen	Plant Number	Sacaton-11	
Sample Location	N/A 37'RT	Placement / Load No.	CP-009849	1
		Truck No	406	
		Ticket No	1964221	
		Batch Qty (cy)	11.00	
		Batch Time	9:25 AM	
		Start Time	9:52 AM	
		Finish Time	10:15 AM	
		Time in Mixer (minutes)	50	
		Water Added (gallons)	0	
		Approved By†		

	TEST RESULT	SPEC
Slump, inches (ASTM C143)	6.5"	3" - 5"
Air Content, % (ASTM C231)		
Concrete Temp, °F (ASTM C1064)	80	60 - 90
Ambient Temp, °F	90	
Unit Weight (lbs/ft³) (ASTM C138)		
Relative Yield (%) (ASTM C138)		
w/c Ratio		

Initial Curing Environment: Immersed in Water

COMPRESSIVE STRENGTH TEST RESULTS (ASTM C39)

Required Strength: 3000 psi

Cylinder Number	Test Age	Date Tested	Cylinder Diameter (in)	Area (in²)	Maximum Load (lbs)	Compressive Strength (psi)	Capping Method	Type Of Fracture	Tested By
1	7 days	06/28/23	4.01	12.63	34380	2720	C1231	4	Jessica Pena-Melroy
2	28 days	07/19/23							
3	28 days	07/19/23							
4	56 days	08/16/23							

28 Day Avg: 0

Remarks

SPECIFICATION STATUS

Load Number	Test	Result	Spec	Status
Load #1 - Ticket #1964221	Slump	7	3 - 5	FAIL

* Denotes average 28-day compressive strength is below required strength.

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Appendix E

Photos



