

SUMMARY OF TEST REPORT

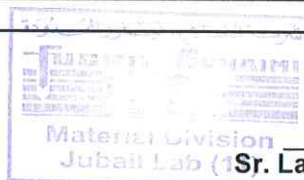
Client	A.H. Al Marhoon & Bros. Co.	Job No.	SA08-3012
Project	Concrete Batch Plant, Rahima	Lab No.	12502
Material	3/4" (20 mm) Coarse Aggregate	Date Sampled	06 Jan 2016
Source	Al Osais, Abuhadriya (Sampled by FSL)	Date Reported	21 Jan 2016

Properties:

Properties Tested	Test Method	Results	SCECO Specs.
Sieve analysis	ASTM C-136	See Attached	--
Material finer than No. 200 sieve %	ASTM C-117	0.6	5.0 Max.
Clay lumps & friable particles %	ASTM C-142	0.4	1.0 Max.
Los Angeles Abrasion	ASTM C-131		
Loss at 100 revolutions %		8.7	--
Loss at 500 revolutions %		31.9	35 Max.
Ratio 100/500 rev.		0.27	0.25 max
Magnesium sulfate soundness loss (5 cycles) %	ASTM C-88	8.9	18 Max.
Specific gravity and absorption	ASTM C-127		
Apparent		2.628	--
SSD basis		2.584	--
Dry basis		2.558	--
Absorption		1.1	2.5 max
Acid soluble chloride, %	ASTM C 114		
(Cl), %		0.02	0.03 max
(NaCl), %		0.024	
Acid soluble sulphate	BS-812 Part 118	-	
(SO ₃), %		0.9	
(SO ₄), %		0.9	0.5 max
Flakiness index	BS-812	7.63	30 Max.
Elongation index	BS-812	9.7	45 Max.
Coal & lignite	ASTM C-123	NIL	0.5 Max.

Remarks:

Tested By: CBB Reviewed By: Imran Ahmed
CTTA # : 0428 . CTTA # : 0556



Sr. Laboratory Supervisor
Muhammad Nawaz CTTA # 0037



Certificate # 3512.05

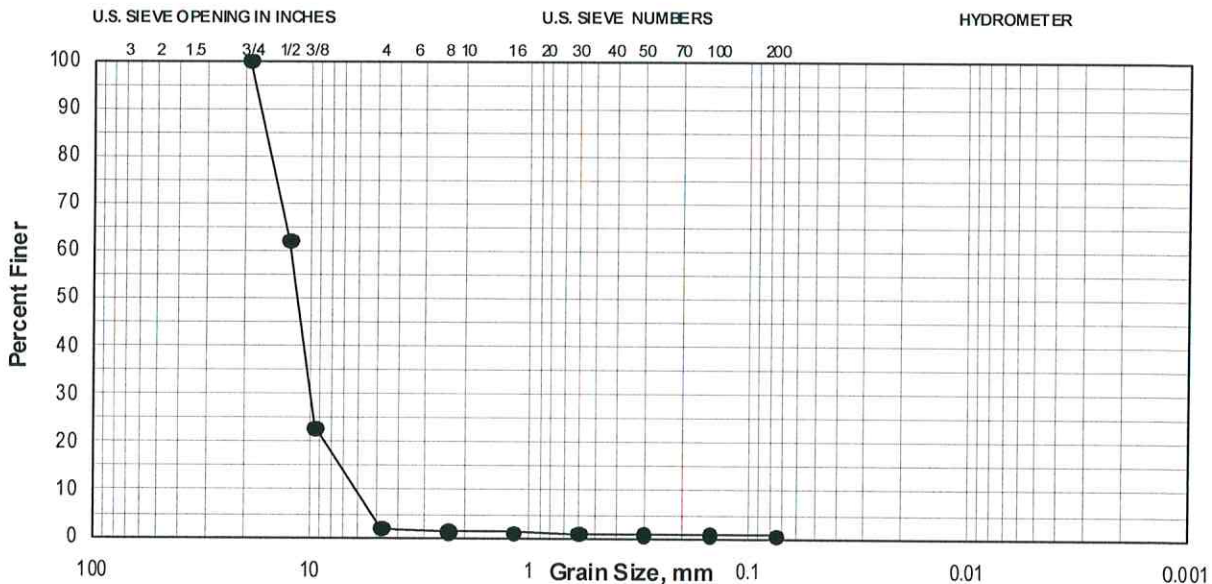
Construction Materials Testing Laboratory Jubail Branch

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PARTICLE SIZE ANALYSIS TEST REPORT

Client	A.H. Al Marhoon & Bros. Co.	Job No.	SA08-3012
Project	Concrete Batch Plant, Rahima	Lab No.	12502
Material	3/4" (20 mm) Coarse Aggregate	Date Sampled	06 Jan 2016
Source	Al Osais, Abuhadriya (Sampled by FSL)	Date Tested	10-11 Jan 2016
Method	ASTM C-136/117	Date Reported	21 Jan 2016



Gravel		Sand			Silt or Clay
Coarse	fine	Coarse	medium	fine	

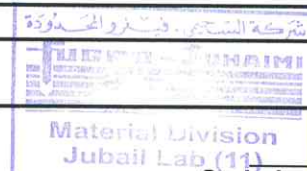
Description of Sand / Gravel Particles:

Shape	Hardness	Specific Gravity

Sieve Size Inch(mm)	Passing %	Specification	Properties Tested		
			Item	Description	Result
1 (25.0 mm)					
3/4 (19 mm)	100				
1/2 (12.5 mm)	62.1				
3/8 (9.5 mm)	23				
#4 (4.75 mm)	2.0				
#8 (2.36 mm)	1.3				
#16 (1.18 mm)	1.1				
#30 (0.600 mm)	1				
#50 (0.300 mm)	0.9				
#100 (0.150 mm)	0.8				
#200 (0.075 mm)	0.6				

Remarks	
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Tested By: CBB Reviewed By: Imran Ahmed
CTTA # : 0428 CTTA # : 0556



Sr. Laboratory Supervisor
Muhammad Nawaz CTTA # 0037

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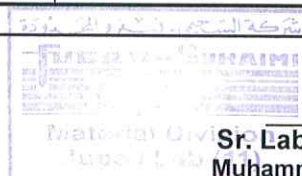
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SUMMARY OF TEST REPORT

Client	A.H. Al Marhoon & Bros. Co.	Job No.	SA08-3012
Project	Concrete Batch Plant, Rahima	Lab No.	12503
Material	3/8" (10- mm) Coarse Aggregate	Date Sampled	06 Jan 2016
Source	Al Osais, Abuhadriya (Sampled by FSL)	Date Reported	21 Jan 2016

Properties:

Properties Tested	Test Method	Results	SCECO Specs.
Sieve analysis	ASTM C-136	See Attached	--
Material finer than No. 200 sieve %	ASTM C-117	1.2	5.0 Max.
Clay lumps & friable particles %	ASTM C-142	0.6	1.0 Max.
Los Angeles Abrasion	ASTM C-131		
Loss at 100 revolutions %		8.5	--
Loss at 500 revolutions %		32.8	35 Max.
Ratio 100/500 rev.		0.26	0.25 max
Magnesium sulfate soundness loss (5 cycles) %	ASTM C-88	14.7	18 Max.
Specific gravity and absorption	ASTM C-127		
Apparent		2.623	--
SSD basis		2.567	--
Dry basis		2.532	--
Absorption		1.4	2.5 max
Acid soluble chloride, %	ASTM C 114		
(Cl), %		0.016	0.03 max
(NaCl), %		0.019	
Acid soluble sulphate	BS-812 Part 118		
(SO ₃), %		0.102	
(SO ₄), %		0.102	0.5 max
Flakiness index	BS-812	7.8	30 Max.
Elongation index	BS-812	10.2	45 Max.
Coal & lignite	ASTM C-123	NIL	0.5 Max.

Remarks:Tested By: CBB
CTTA # : 0428Reviewed By: Imran Ahmed
CTTA # : 0556**Sr. Laboratory Supervisor**
Muhammad Nawaz CTTA # 0037

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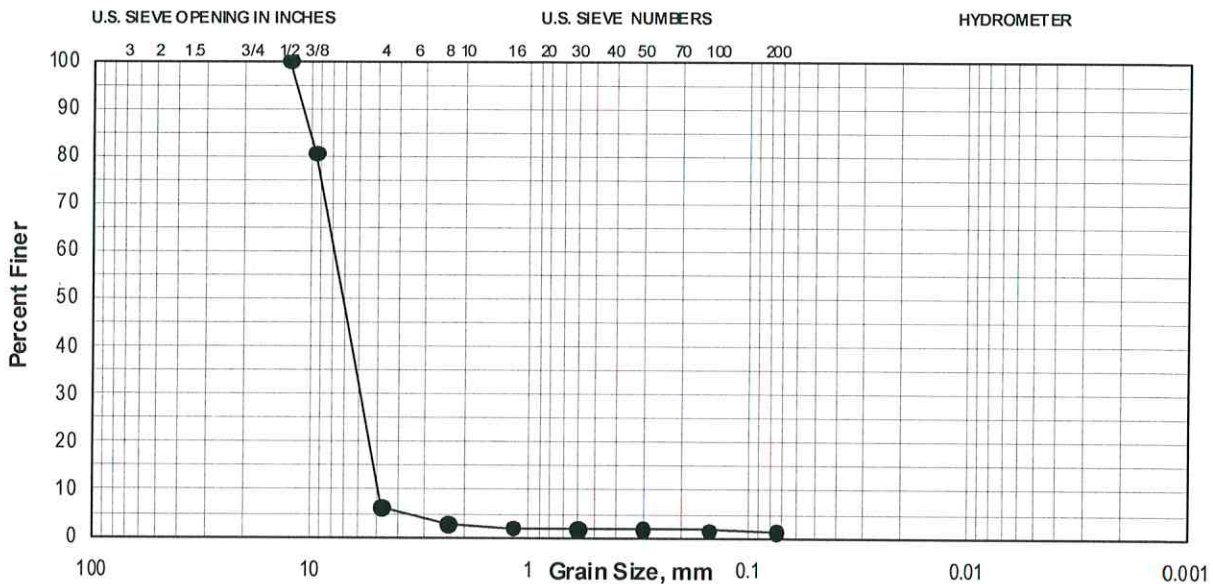


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PARTICLE SIZE ANALYSIS TEST REPORT

Client	A.H. Al Marhoon & Bros. Co.	Job No.	SA08-3012
Project	Concrete Batch Plant, Rahima	Lab No.	12503
Material	3/8" (10 mm) Coarse Aggregate	Date Sampled	06 Jan 2016
Source	Al Osais, Abuhadriya (Sampled by FSL)	Date Tested	10-11 Jan 2016
Method	ASTM C-117/136	Date Reported	21 Jan 2016



Gravel		Sand			Silt or Clay
Coarse	fine	Coarse	medium	fine	

Description of Sand / Gravel Particles:

Shape	Hardness	Specific Gravity

Sieve Size Inch(mm)	Passing %	Specification	Properties Tested		
			Item	Description	Result
3/4 (19.0 mm)	100				
1/2 (12.5 mm)	80.6				
3/8 (9.5 mm)	6.4				
#4 (4.75 mm)	2.8				
#8 (2.36 mm)	2.0				
#16 (1.18 mm)	1.9				
#30 (0.600 mm)	1.7				
#50 (0.300 mm)	1.6				
#100 (0.15 mm)	1.2				
#200 (75 mm)	1.2				

Remarks

Tested By: CBB Reviewed By: Imran Ahmed
CTTA # : 0428 CTTA # : 0556Sr. Laboratory Supervisor
Muhammad Nawaz CTTA # 0037



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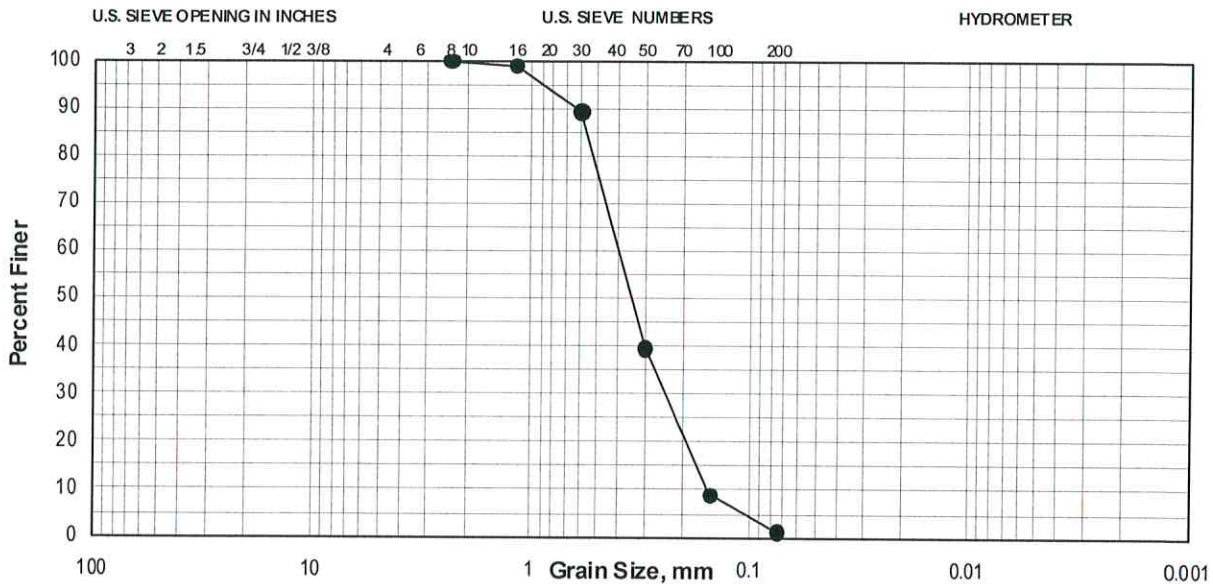
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PARTICLE SIZE ANALYSIS TEST REPORT

Client	A.H. Al Marhoon & Bros. Co.	Job No.	SA08-3012
Project	Concrete Batch Plant, Rahima	Lab No.	12504
Material	Sand	Date Sampled	06 Jan 2016
Source	Baladiyah, Jubail (Sampled by FSL)	Date Tested	10-11 Jan 2016
Method	ASTM C-117/136	Date Reported	21 Jan 2016



Gravel		Sand			Silt or Clay
Coarse	fine	Coarse	medium	fine	

Description of Sand / Gravel Particles:

Shape	Hardness	Specific Gravity

Sieve Size Inch(mm)	Passing %	Specification	Properties Tested		
			Item	Description	Result
#8 (2.36 mm)	100				
#16 (1.18 mm)	98.9				
#30 (0.600 mm)	89.4				
#50 (0.300 mm)	39.5				
#100 (0.15 mm)	9.1				
#200 (0.075 mm)	1.2				

Remarks	
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Tested By: CBB Reviewed By: Imran Ahmed
CTTA # : 0428 CTTA # : 0556



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SUMMARY OF TEST REPORT

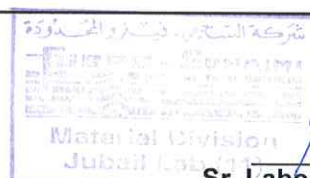
Client	A.H. Al Marhoon & Bros. Co.	Job No.	SA08-3012
Project	Concrete Batch Plant, Rahima	Lab No.	12504
Material	Dune Sand	Date Sampled	06 Dec 2015
Source	Baladiyah, Jubail (Sampled by FSL)	Date Reported	21 Jan 2016

Properties:

Properties Tested	Test Method	Results	SCECO Specs.
Sieve analysis	ASTM C-136	See Attached	--
Material finer than No. 200 sieve %	ASTM C-117	1.2	2.0 Max.
Clay lumps & friable particles %	ASTM C-142	N/A	2.0 Max.
Magnesium sulfate soundness loss (5 cycles) %	ASTM C-88	5.7	15 Max.
Specific gravity and absorption	ASTM C-127		
Apparent		2.669	--
SSD basis		2.626	--
Dry basis		2.600	--
Absorption		1.0	1.0 max
Acid soluble chloride, %	ASTM C 114		
(Cl), %		0.008	0.05 max
(NaCl), %		0.0096	
Acid soluble sulphate	BS-812 Part 118		
(SO ₃), %		0.287	0.4 Max
(SO ₄), %		0.287	
Organic impurities	ASTM C-40	Light then std.	

Remarks: Not applicable: Material is finer than test size i.e. retained on Sieve No.16 hence the test is not applicable

Tested By: CBB Reviewed By: Imran Ahmed
CTTA # : 0428 CTTA # : 0556



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TEST REPORT FOR CHEMICAL ANALYSIS ON WATER

Client	A.H. Al Marhoon & Bros. Co.	Report Date	21 Jan 2016
Project	Concrete Batch Plant, Rahima	Job No.	SA08-3012
Source	Sampled by FSL	Lab No.	12505/7382
Sample Location	From Batch Plant	Sampled by	Sampled by FSL

Fugro-Suhaimi Ltd. (FSL) has performed chemical analysis on a water sample based on client request. The testing was carried out in accordance with the relevant ASTM and APHA Methods. The results and pertinent information are as follows:

Test results

Serial No.	Determination	Test Results	SCECO Specs.
1.	pH	7.25	7 – 8.5
2.	Chloride as Cl ⁻ , ppm	92.17	300 max
3.	Sulfate as SO ₃ , ppm	12.0	300 max
4.	Total Dissolved Solids- TDS, ppm	140.5	500 max

Remarks: Test results indicate compliance with the SCECO Standard 71-SMSS-5, Rev.4.

Tested By: CBB
CTTA # : 0428

Reviewed By: WN
CTTA # : -




Sr. Laboratory Supervisor
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