Performed for:	AE Com			Location:	KoOlina
Project:	Waimanalo Gulch			Job No.: 239-011	
Sample:	OPS-01			Constant Head Test	
Performed by:	BT			Date of test:	8.18.10
wt of mold =	10.60	lbs.			
wt of mold+soil =	13.75	lbs.			
diameter =	4	inches -->	10.16	cm	
area =	81.07	sq. cm			
length =	4.563	inches -->	11.59	cm	
volume =	939.64	cu. cm			
mass soil =	3.15	lbs. -->	1428.82	g	
		sq. cm			
% Void	35.00	Dry Density -->	1.52	g/cu. cm	
% over 3/4" removed	0.00				

Trial Number	1	2	3	4	5	6
elapsed time (sec)	60	120	180	360	480	600
Water Volume (mL)	8	15	21	44	52	59
Δh of water (cm)	96.52	96.52	96.52	96.52	96.52	96.52
temp (deg C)	25	25	25	25	25	25
unit wt. of water	0.9970	0.9970	0.9970	0.9970	0.9970	0.9970
viscosity of water	9.045	9.045	9.045	9.045	9.045	9.045
coefficient of permeability	1.185E-02	1.111E-02	1.037E-02	1.086E-02	9.627E-03	8.739E-03

average	**1.04E-02**	**cm/s**

*sample lightly tamped in

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PERMEABILITY CONSTANT HEAD

Performed for:	AE Com			Location:	KoOlina
Project:	Waimanalo Gulch			Job No.: 239-011	
Sample:	OPS-02			Constant Head Test	
Performed by:	BT			Date of test:	8.18.10
wt of mold =	10.60	lbs.			
wt of mold+soil =	13.30	lbs.			
diameter =	4	inches -->	10.16	cm	
area =	81.07	sq. cm			
length =	4.563	inches -->	11.59	cm	
volume =	939.64	cu. cm			
mass soil =	2.70	lbs. -->	1224.70	g	
		sq. cm			
% Void	35.00	Dry Density -->	1.30	g/cu. cm	
% over 3/4" removed	0.00				

Trial Number	1	2	3	4	5	6
elapsed time (sec)	5	10	20	30	45	60
Water Volume (mL)	115	191	373	530	803	1016
Δh of water (cm)	96.52	96.52	96.52	96.52	96.52	96.52
temp (deg C)	25	25	25	25	25	25
unit wt. of water	0.9970	0.9970	0.9970	0.9970	0.9970	0.9970
viscosity of water	9.045	9.045	9.045	9.045	9.045	9.045
coefficient of permeability	2.044E+00	1.697E+00	1.657E+00	1.570E+00	1.586E+00	1.505E+00

average	**1.68E+00**	**cm/s**

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PERMEABILITY CONSTANT HEAD

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SIEVE TEST ANALYSIS

SAMPLE #: OPS-01

Project: Waimanalo Gulch
Location: Ko Olina
Soil Desc.: Well graded sand w/ silt
USCS: SW-SM

Job #: 10239-011
Depth: n/a
Tested By: BT
Test Date: 8/20/10

Weight of Sample+Tare (g): 797.4
Weight Tare (g): 14.1
Weight of Water (g): 0
Percent Water: 0%
Total Dry Sample Weight (g): 797.4

Screen Size #	3/4	3/8	4	10	40	60	100	200
in mm	19	9.5	4.75	2	0.425	0.25	0.15	0.075
Sieve Weight (g)	497.8	490.4	471.6	426.6	352.4	320.7	351.5	297.1
Wt. Sieve + Soil (g)	497.8	496.6	568.2	581.2	638.1	394.9	407.4	344.5
Soil on Sieve (g)	0	6.2	96.6	154.6	285.7	74.2	55.9	47.4
% Stopped at Filter	0	0.79152	12.3324	19.737	36.4739	9.47274	7.136474	6.05132
% Passing Filter	**100**	**99.2085**	**86.876**	**67.139**	**30.6651**	**21.1924**	**14.05592**	**8.0046**

#200 washed

GRAIN SIZE ANALYSIS

Project: Waimanalo Gulch
Sample: OPS-01
Job No.: 10239-011
Depth: N/A

Soil Classification: Well graded sand w/ silt

UCSC: SW-SM

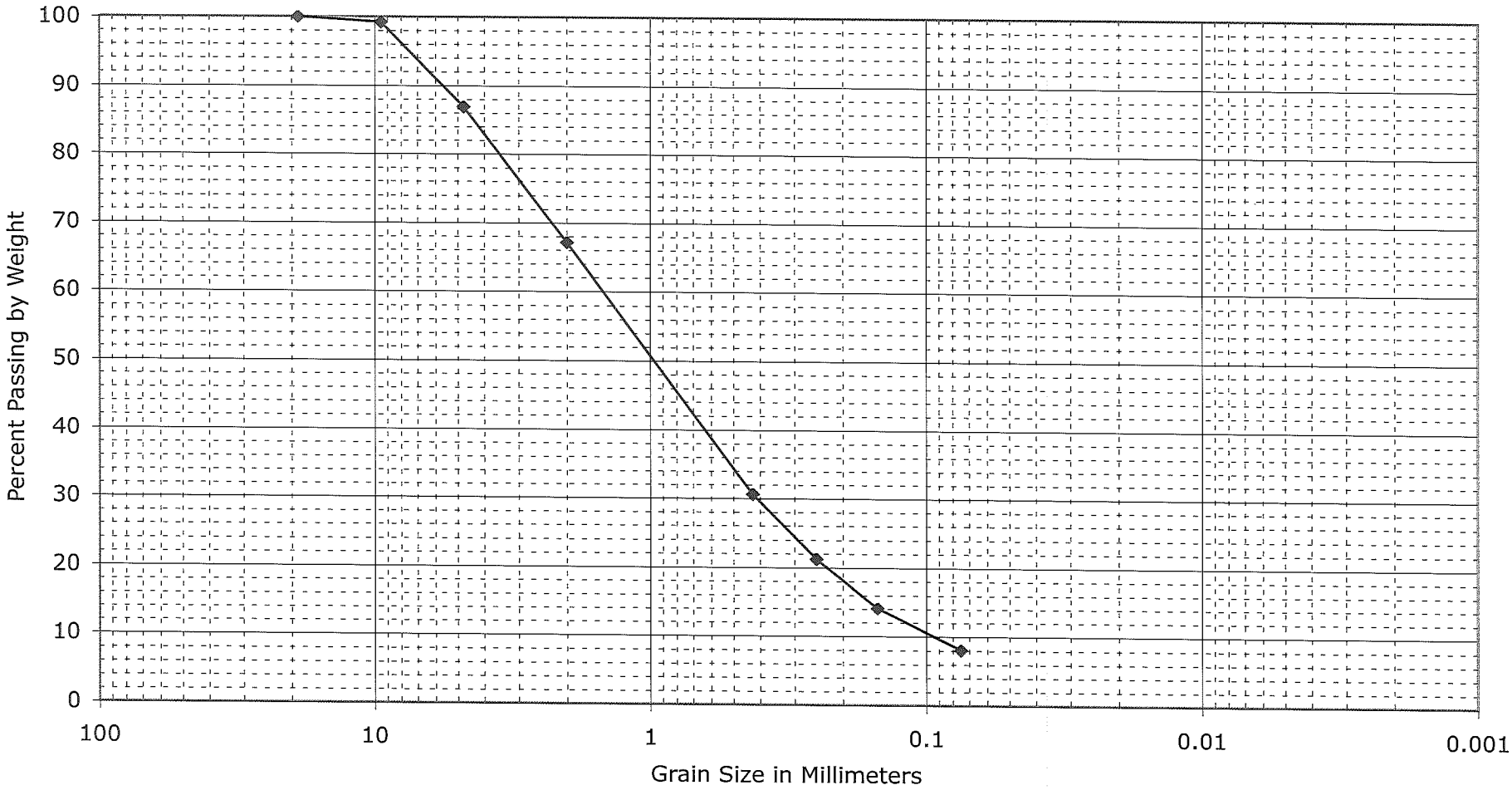

Figure:

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SIEVE TEST ANALYSIS

SAMPLE #: OPS-02

Project: AE Com
Location: Waimanalo Gulch LF
Soil Desc.: Poorly graded gravel
USCS: GP

Job #: 10239-011
Depth: N/A
Tested By: BT
Test Date: 8/20/10

Weight of Sample+Tare (g): 1262.5
Weight Tare (g): 14.3
Weight of Water (g): 0
Percent Water: 0%
Total Dry Sample Weight (g): 1262.5

Screen Size #	2	1 1/2	3/4	4	10	40	60	100	200
in mm	50	37.5	19	4.75	2	0.425	0.25	0.15	0.075
Sieve Weight (g)	540.5	508	497.8	471.6	426.6	352.4	320.9	351.5	297.1
Wt. Sieve + Soil (g)	540.5	658.9	1374.4	669.6	426.6	355.1	321.8	354.5	301.3
Soil on Sieve (g)	0	150.9	876.6	198	0	2.7	0.9	3	4.2
% Stopped at Filter	0	12.0894	70.2291	15.8628	0	0.21631	0.0721	0.240346	0.33648
% Passing Filter	**100**	**87.9106**	**17.6815**	**1.81862**	**1.81862**	**1.60231**	**1.5302**	**1.289857**	**0.95337**

GRAIN SIZE ANALYSIS

Project: AE Com
Job: 10239-011
Sample: OPS-02
Depth: NA

Soil Classification: Poorly graded gravel

UCSC: GP

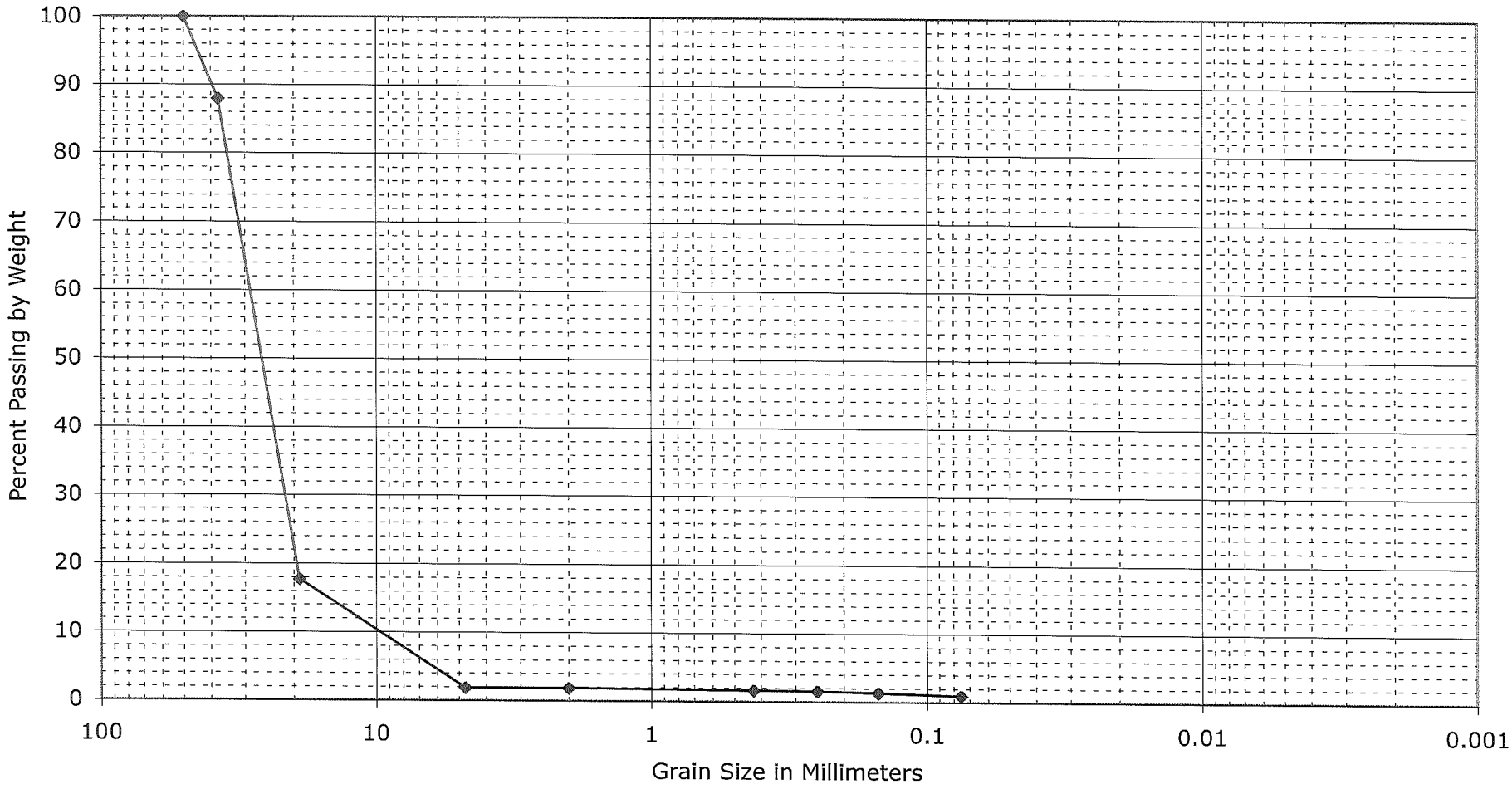

Figure:

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