

**PANAMA CANAL AUTHORITY**  
**DEPARTMENT OF ENGINEERING AND PROGRAMS MANAGEMENT**  
**GEOLOGICAL FIELD LOG**

**BORING CCMT-6**

**PROJECT: CONTROL CENTER - MARINE TRAFFIC**

PAGE 1 OF 6

**LOCATION:** BALBOA REACH - EAST BANK - WEST COROZAL

**NORTHING:** 993032.558 m

**STATION:** 69K + 657.34 m

**CORE RECOVERY:** 85%

**START DATE:** 10/June/2011

**GEOLOGIST:** M. J. Lacerda

**CHECKED BY:** Pastora Franceschi S.

**EASTING:** 656233.764 m

**OFFSET:** 267.79 m E

**COMPLET. DATE:** 13/June/2011

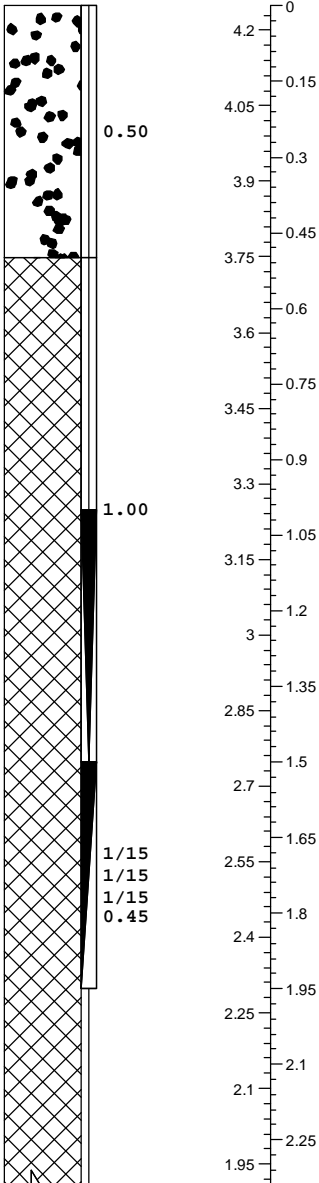
**GROUND ELEVATION:** 4.248 m

**TOTAL DEPTH:** 12.60 m

**INCLINATION:** Vertical

**LOGGER:** M. J. Lacerda

**DRILLER:** Jorge English

SOIL SYMBOLS, SAMPLERS, FIELD TEST DATA AND CORE RUN	ELEVATION	DEPTH	DESCRIPTION OF MATERIAL	DISCONTINUITY	DRILLING CHARACTERISTICS	qu MPa	CORE RECOV (%)	RQD (%)
	(meters)	(meters)						
		0	0.00 m ASPHALT AND CONCRETE.		Drilled with HW single tube, diamond shoe and water.			
		0.15						
		0.3						
		0.45						
		0.6	0.50 m FILL, OC-1 to RH-5, low consistency to very hard rock, high to low plasticity, moderate water content, consists of clay, silt, sand, angular rock fragments up to 60 mm in length and organic material. Color: brown mottled with dark gray and cream.		Pushed and drilled dry with HQ single tube.		40%	-
		0.75						
		0.9						
		1.05						
		1.2	C.R.=66%		NOTE: H.P. is the hydraulic pressure on drill head necessary to cause core barrel to penetrate the soil, measured in PSI (Pounds per square inch).			
		1.35						
		1.5						
		1.65						
		1.8	1.50 m FILL, OC-1, very low to low consistency, high to low plasticity, high to low dry strength, moderate water content, consists of clay, silt, sand, very hard, RH-5, angular rock fragments up to 20 mm in diameter, organic material. Color: brown mottled with dark gray and cream.		From 1.50 m to 1.95 m: SPT #1 - N=2		35%	-
		1.95						
		2.1						
		2.25						
		2.4	C.R.=78%		NOTE: SPT's were taken with a standard 2 in. split spoon & a 140-lbs. safety hammer dropped 30 inches for each blow		78%	-
		2.55						
		2.7						
		2.85						
		3			1.95 m - 2.90 m Pushed dry with HQ single tube. H.P. 0 PSI.			
		3.15						
		3.3						
		3.45						

*This hole was drilled by ACP with drill rig CS-1000-P4 from Atlas Copco.*

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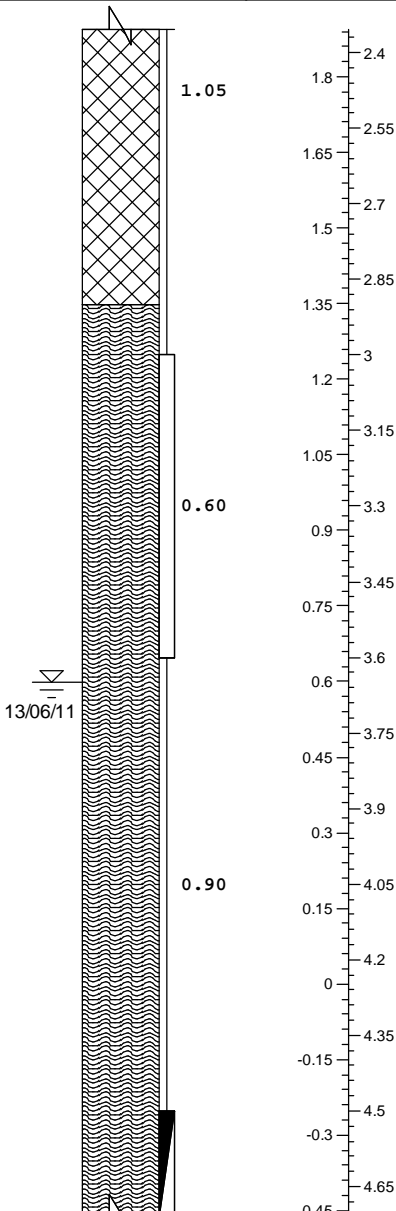
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**DRILLER:** Jorge Inglish

SOIL SYMBOLS, SAMPLERS, FIELD TEST DATA AND CORE RUN	ELEVATION	DEPTH	DESCRIPTION OF MATERIAL	DISCONTINUITY	DRILLING CHARACTERISTICS	qu MPa	CORE RECOV (%)	RQD (%)
	(meters)							
 <p>13/06/11</p>	1.05	2.4	<p>2.90 m</p> <p>PACIFIC MUCK, OC-1, very low consistency, high plasticity, high dry strength, moderate water content, consists of clay, silt, sand, vegetation roots, semi-decayed wood fragments, organic material, fossiliferous shell debris. Color: black and dark gray.</p> <p>C.R.=93%</p> <p>3.00 m</p> <p>PACIFIC MUCK, as above.</p> <p>C.R.=68%</p>		Undisturbed thin wall Shelby tube. H.P. 0 PSI		81%	-
	0.60	3					68%	-
	0.90	3.3						
		3.6	<p>4.50 m</p> <p>PACIFIC MUCK, as above.</p> <p>C.R.=100%</p>		From 4.50 m to 4.95 m: SPT #2 - N=1			

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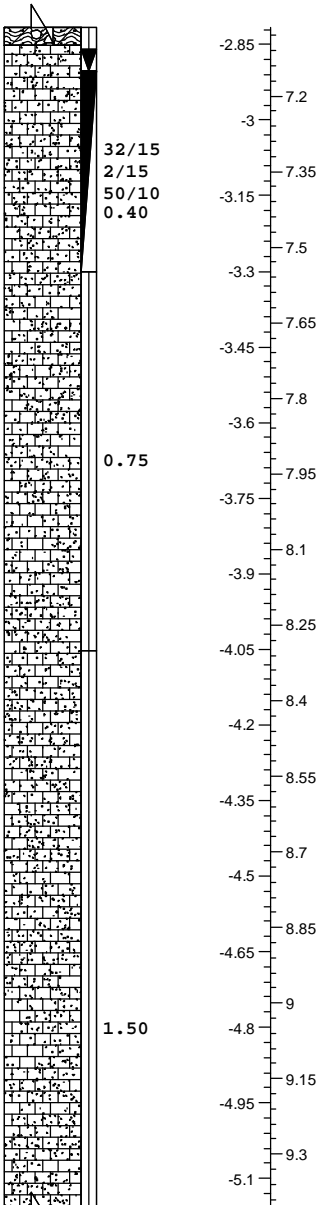
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**INCLINATION:** Vertical

**LOGGER:** M. J. Lacerda

**DRILLER:** Jorge English

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	(meters)							
		-2.85	7.10 m - TOP OF LA BOCA FM AND TOP OF SOUND ROCK		From 7.15 m to 7.55 m: SPT #3 - N=52.		100%	-
		-3.00	SANDSTONE, Calcareous, RH-3, medium hard rock, moderate strength, moderate to wide jointing, joints are planar, rough, unfilled, massive, locally exhibits 30° thin bedding, fine to medium grained, water-laid, contains quartz and calcite crystals, carbonaceous and fossiliferous debris, scattered sub-rounded rock fragments up to 2 mm in diameter. Color: light gray.		Drilled with HQ double tube, diamond bit and water.		87%	-
		-3.15	C.R.=93% RQD=79% 7.15 m SANDSTONE, Calcareous, as above.					
		-3.30			Drilled with HQ double tube, diamond bit and water.		100%	100%

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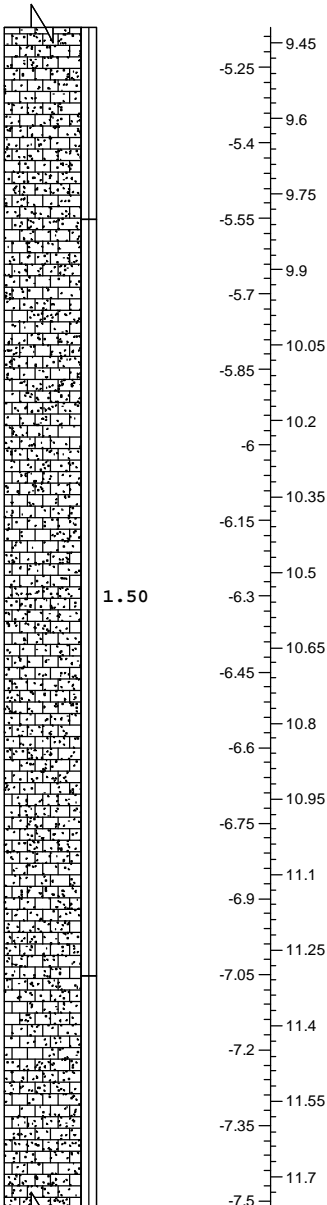
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**LOGGER:** M. J. Lacerda

**DRILLER:** Jorge English

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	(meters)							
		9.45	<p>From 9.80 m to 10.25 m: SANDSTONE, Calcareous, very close jointing, joints are planar, rough, un- filled, exhibits 30° bedding, parts through bedding, material is clayey, weathered, iron stained and oxidized.</p>		<p>Drilled with HQ double tube, diamond bit and water.</p>		95%	100%
		-5.25						
		-9.6						
		-5.4						
		-9.75						
		-5.55						
		-9.9						
		-5.7						
		-10.05						
		-5.85						
		-10.2						
		-6						
		-10.35						
		-6.15						
		-10.5						
		-6.3						
		-10.65						
		-6.45						
		-10.8						
		-6.6						
		-10.95						
		-6.75						
		-11.1						
		-6.9						
		-11.25						
		-7.05						
		-11.4						
		-7.2						
		-11.55						
		-7.35						
		-11.7						
		-7.5						
			<p>10.25 m Sandstone, Calcareous, as from depth 7.15 m to 9.80 m.</p>		<p>Drilled with HQ double tube, diamond bit and water.</p>		87%	60%

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# KEY TO SYMBOLS

Symbol Description

Symbol Description

## Strata symbols

 Standard penetration test



Concrete Slab



Pushed dry with casing.



Fill



Undisturbed thin wall  
Shelby tube



Pacific Muck



Pacific Muck and Overburden



Sandstone, Calcareous

## Misc. Symbols



Boring continues



Core Recovered



Water table during  
drilling



Length of Casing

## Soil Samplers



Rock core



Pushed and drilled dry with  
casing

## Notes:

1. The Top of Sound Rock in all the borings of the Panama Canal Authority, ACP, means the depth where fresh rock starts. Fresh rock is defined as the rock surface that has not been subjected to or altered by surface weathering. Unweathered rock is synonymous with sound or fresh rock.

2. The C.R.% and the RQD% at the end of each material unit means the total core recovery and the quality of the rock recovered per material unit, given as a percentage.

3. qu values in this log were obtained from the standard Unconfined Compressive Strength tests performed in the Soil Laboratory of the ACP and from Point Load Tests where indicated.