



March 23, 2001

Contracting Officer  
Naval Facilities Engineering Command  
Southwest Division  
Michelle Crook  
1220 Pacific Highway  
San Diego, CA 92132-5187

Attention: Ms. Lynn Hornecker

**Subject: Revised Boring Logs for New CERCLA Monitoring Wells  
Contract N68711-93-D-1459, Delivery Order 065,  
Removal and Remedial Actions at IRP Sites, MCAS El Toro, California**

Dear Ms. Hornecker:

Attached are two copies of the revised, final Boring Logs for the fifteen new CERCLA groundwater monitoring wells that were installed last fall. The wells that were installed (and logs included) are as follows:

03\_UGMW26A, 03\_DGMW64A, 03\_DGMW65XA  
04\_DGMW66A  
05\_UGMW27A, 05DGMW41A, 05\_DGMW67A,, 05\_DGMW68A  
07\_DBMW100A, 07\_DBMW43A  
08\_UGMW29A  
12\_DBMW48A  
18\_PS3A, 18\_BGMW101A, 18\_BGMW18A

These logs were revised to incorporate several items that were either overlooked or incorrect on the original logs that were issued January 12, 2001 (DCN SW9523). These logs also include comments and suggestions received from Daniel Swensson of Earth Tech on March 1, 2001. All of the logs included have a revision date of 3/19/01 printed on the bottom of each page to distinguish the revised documents.

A copy of these logs has been sent to Earth Tech for their use and records as well.

If you have any questions or need additional copies of the logs please let me know.

Sincerely,

William Sedlak  
Sr. Project Manager

Attachment: Boring Logs

cc: Lucreatria Holloway, SWDIV, COTR (1C/1E)  
Admin Record (1C/2E)  
OHM PMO File (1C/1E)  
Crispin Wanyoike, Earth Tech (1C/1E)  
Project File, Correspondence B.01

**OHM Remediation Services Corp.**

3347 Michelson Drive, Suite 200  
Irvine, CA 92612-1692  
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A Member of The IT Group

M60050.000956  
MCAS EL TORO  
SSIC #5090.3



# OHM Remediation Services Corp.

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## OHM TRANSMITTAL/DELIVERABLE RECEIPT

**CONTRACT N68711-93-D-1459**

**DOCUMENT CONTROL NO: SW9696**

**TO:** Contracting Officer  
Naval Facilities Engineering Command  
Southwest Division  
Michelle Crook, Code 02R1.MC  
1220 Pacific Highway  
San Diego, California 92132-5190

**Date:** 26-Mar-01

**D.O.:** 65

**Location:** MCAS EL TORO

**FROM:** \_\_\_\_\_  
James J. Franklin, Program Manager

Edwin G. Bond, Contracts Manager

**DESCRIPTION** Revised Boring Logs for New CERCLA Monitoring Wells, dated March 23,  
**OF** 2001.

**ENCLOSURE:**

**TYPE:** Contract Deliverable ( ) D. O. Deliverable (X) Request for Change ( ) Other ( )  
( \$ ) (Tech)

**VERSION:** FINAL

**REVISION** 0

**ADMIN RECORD:** Yes ( ) No (X) Category ( ) Confidential ( )

**SCHEDULED DELIVERY DATE:** 26-Mar-01 **ACTUAL DELIVERY DATE:** 26-Mar-01

**NUMBER OF COPIES SUBMITTED TO THE NAVY:** 1/O, 1/C, 1/E

[AS REQUIRED/DIRECTED BY THE (SOW)]

**COPIES TO:** SWDIV

**OHM**

**OTHER**

Name, Code

Name, Location

Name, Company, Location

Basic Contract Files, 02R1 (1C/1E)  
L. Hornecker, 06CC.LH (1C/2E)  
G. Tinker, 06CC.GT (1C)  
D. Silva, 05G.DS (AR/2E)

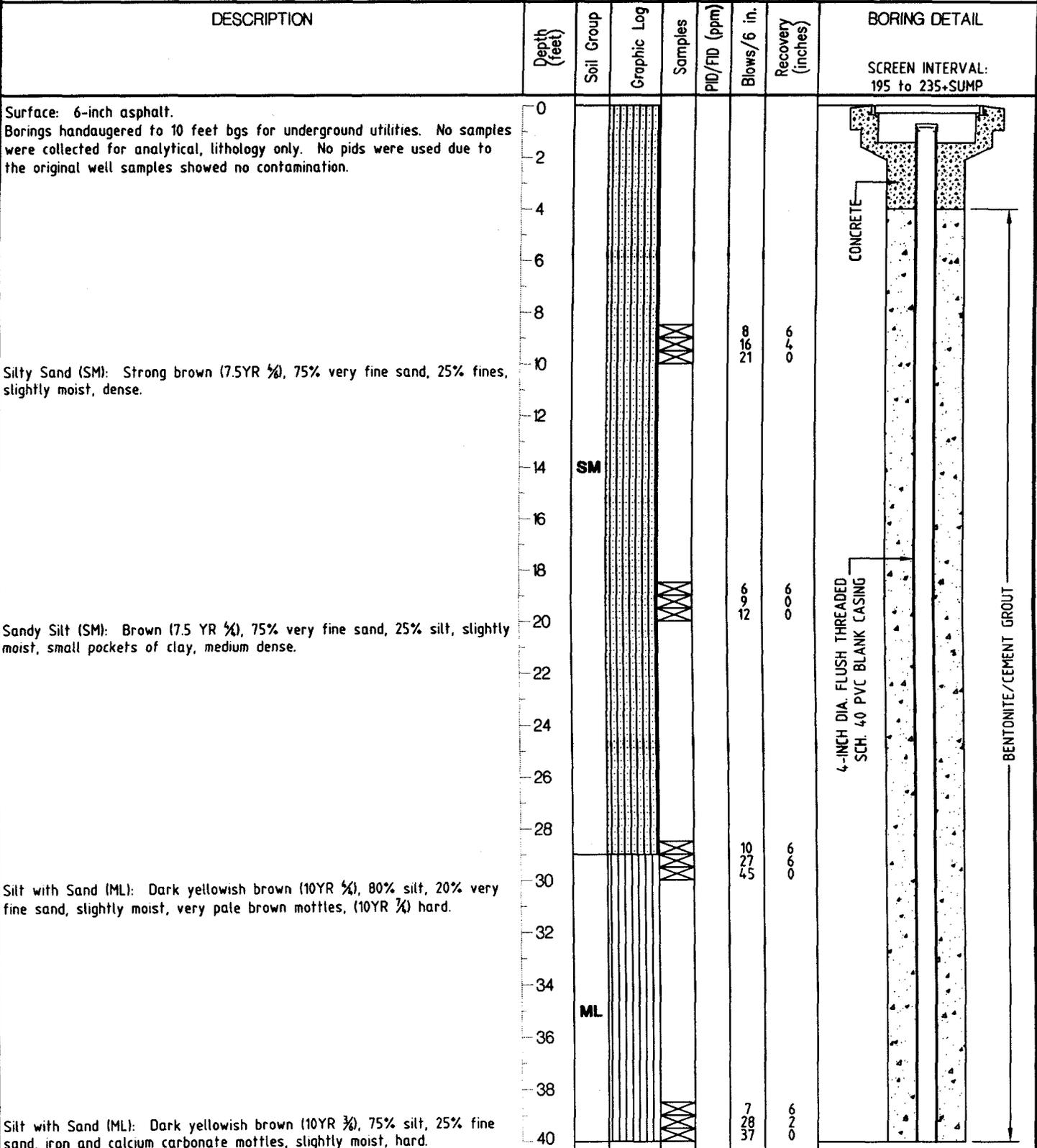
File (1C/1E)  
Chron (1C)  
W. Sedlak (1C)

C. Wanyoike, Earthtech 1E

Date/Time Received: \_\_\_\_\_ / \_\_\_\_\_

# Geologic Log of Boring 03\_UGMW26A

Project <b>MCAS, EL TORO</b>	Northing 2192723.20	Drilling Company LAYNE CHRISTENSEN CO.	
Project Number <b>918708</b>	Easting 6116542.95	Drill Rig FOREMOST AP 1000	Begin Drilling 10/4/00
Client SWDIV	TOC Elevation 421.73	Driller Pancho Gutierrez	End Drilling 10/5/00
Geologist Julie Erickson	RIM Elevation 422.14	Drill Method DWRCPH	Start time 0800
Location <b>MARINE CORPS AIR STATION</b>		DIAGRAM NOT TO SCALE	
Borehole Diameter 10 INCHES	Total Depth of Borehole 240 FEET	Depth to Water 210 FEET	



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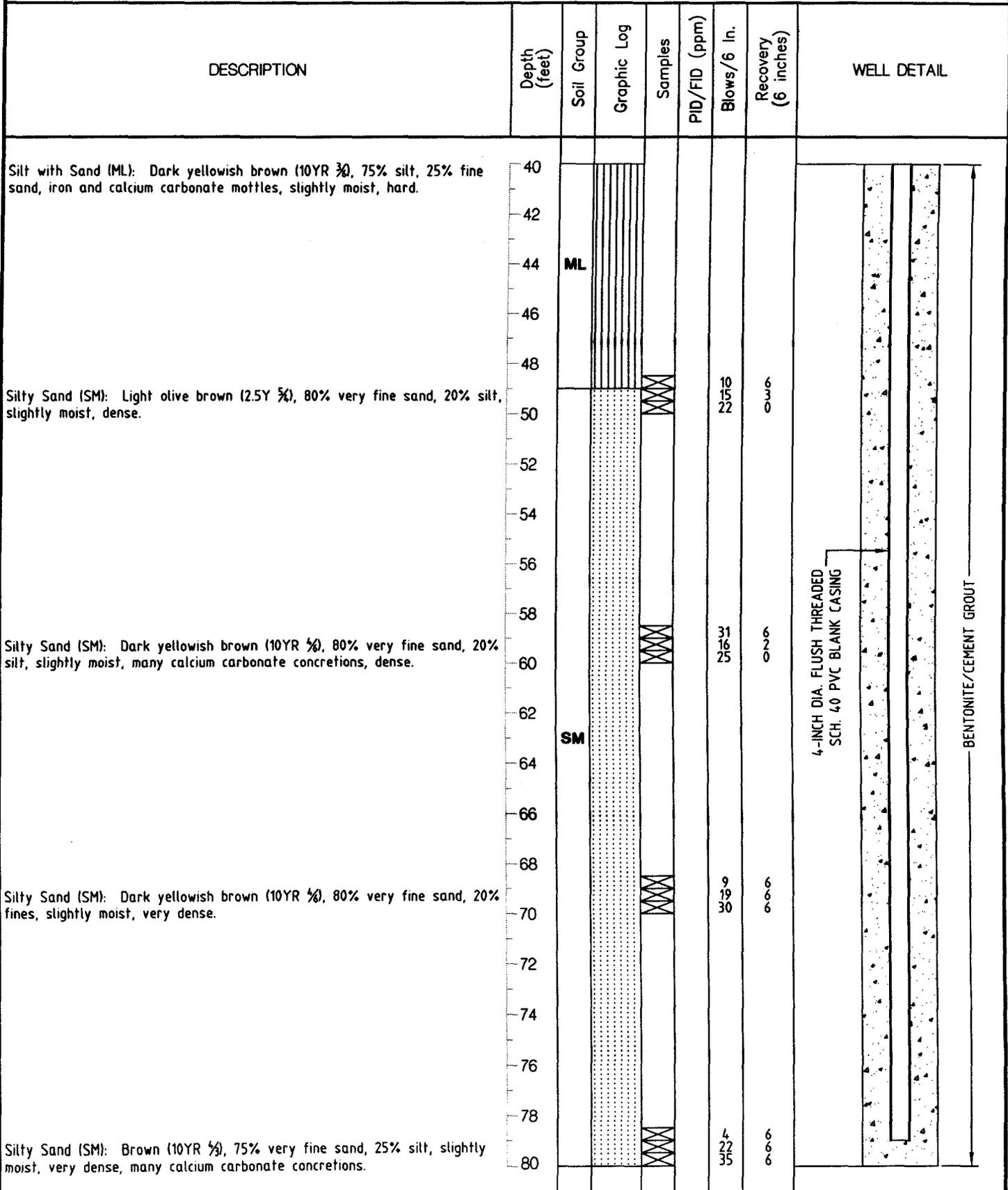


**NOTE:** This summary applies only at the location of this boring and at the time of drilling. Subsurface conditions may differ at other locations and may change at this location with the passage of time. The data presented is a simplification of actual conditions encountered.

# Geologic Log of Well 03\_UGMW26A

Project **EL TORO, MCAS**

Project No. **918708**



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**NOTE:** This summary applies only at the location of this boring and at the time of drilling. Subsurface conditions may differ at other locations and may change at this location with the passage of time. The data presented is a simplification of actual conditions encountered.

# Geologic Log of Well 03\_UGMW26A

Project **EL TORO, MCAS**

Project No. **918708**

DESCRIPTION	Depth (feet)	Soil Group	Graphic Log	Samples	PID/FID (ppm)	Blows/6 in.	Recovery (6 inches)	WELL DETAIL
Silty Sand (SM): Brown (10YR 5/3), 75% very fine sand, 25% silt, slightly moist, very dense, many calcium carbonate concretions.	80							<div style="display: flex; justify-content: space-between;"> <div style="width: 40%;"> <p>4-INCH DIA. FLUSH THREADED SCH. 40 PVC BLANK CASING</p> </div> <div style="width: 50%;"> <p>BENTONITE/CEMENT GROUT</p> </div> </div>
Silty Sand (SM): Light olive brown (10YR 5/4), 75% very fine sand, 25% silt, slightly moist, dense.	88					40	6	
	90					15	6	
	92					23	6	
	94							
	96							
	98							
Silty Sand (SM): Pale yellow (5Y 7/6), slightly moist, very dense, few iron mottles, 75% very fine sand, 25% silt horizontal, 6-inch thick layer of coarse material mixed with very fine sand up to 1-inch subangular block, very fine grained fragments, transition layer to higher sand cement.	100	SM				18	6	
	102					34	6	
	104					45	6	
	106							
	108							
Silty Sand (SM): Yellowish brown (10YR 5/6), moist, coarse fragments up to 1.5-inches in diameter, subrounded to subangular blocky very fine particle sizes, many calcium carbonate concretions.	110					10	6	
	112					15	6	
	114					27	6	
	116							
	118							
Silty Sand (SM): Yellowish brown (10YR 5/6), moist, 60% very fine sand, 40% silt, very dense.	120					11	6	
						32	6	
						44	6	

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**NOTE:** This summary applies only at the location of this boring and at the time of drilling. Subsurface conditions may differ at other locations and may change at this location with the passage of time. The data presented is a simplification of actual conditions encountered.

# Geologic Log of Well 03\_UGMW26A

Project **EL TORO, MCAS**

Project No. **918708**

DESCRIPTION	Depth (feet)	Soil Group	Graphic Log	Samples	PID/FID (ppm)	Blows/6 in.	Recovery (6 inches)	WELL DETAIL
Sand (SW): Pale yellow (5Y 7/8), 95% very fine sand, 5% fines, slightly moist.	120							<p style="text-align: center;">4-INCH DIA. FLUSH THREADED SCH. 40 PVC BLANK CASING</p> <p style="text-align: center;">BENTONITE/CEMENT GROUT</p>
Sand (SW): Pale yellow (5Y 7/8), 95% very fine sand, 5% fines, slightly moist.	122							
	124							
	126							
	128							
Sand (SW): Pale yellow (5Y 7/8), 95% very fine sand, 5% fines, slightly moist.	130	SW			15 29 43	6 6 6		
	132							
	134							
	136							
Sandy Silt (ML): Light olive brown (2.5Y 5/6), 60% silt, 40% very fine sand, hard, moist, calcium carbonate present.	138				29 37 45	6 6 6		
	140							
	142							
	144							
	146							
	148							
Silty with Sand (ML): Light olive brown (2.5Y 5/6), 85% silt, 15% very fine sand, slightly moist, faint iron mottles, hard, silt lenses, light yellowish brown.	150	ML			15 26 50/3	6 6 3		
	152							
	154							
	156							
	158							
Silt with Sand (ML): Light olive, brown (2.5Y 5/6), 75% silt, 25% very fine sand, moist, hard.	160				12 20 32	6 4 0		

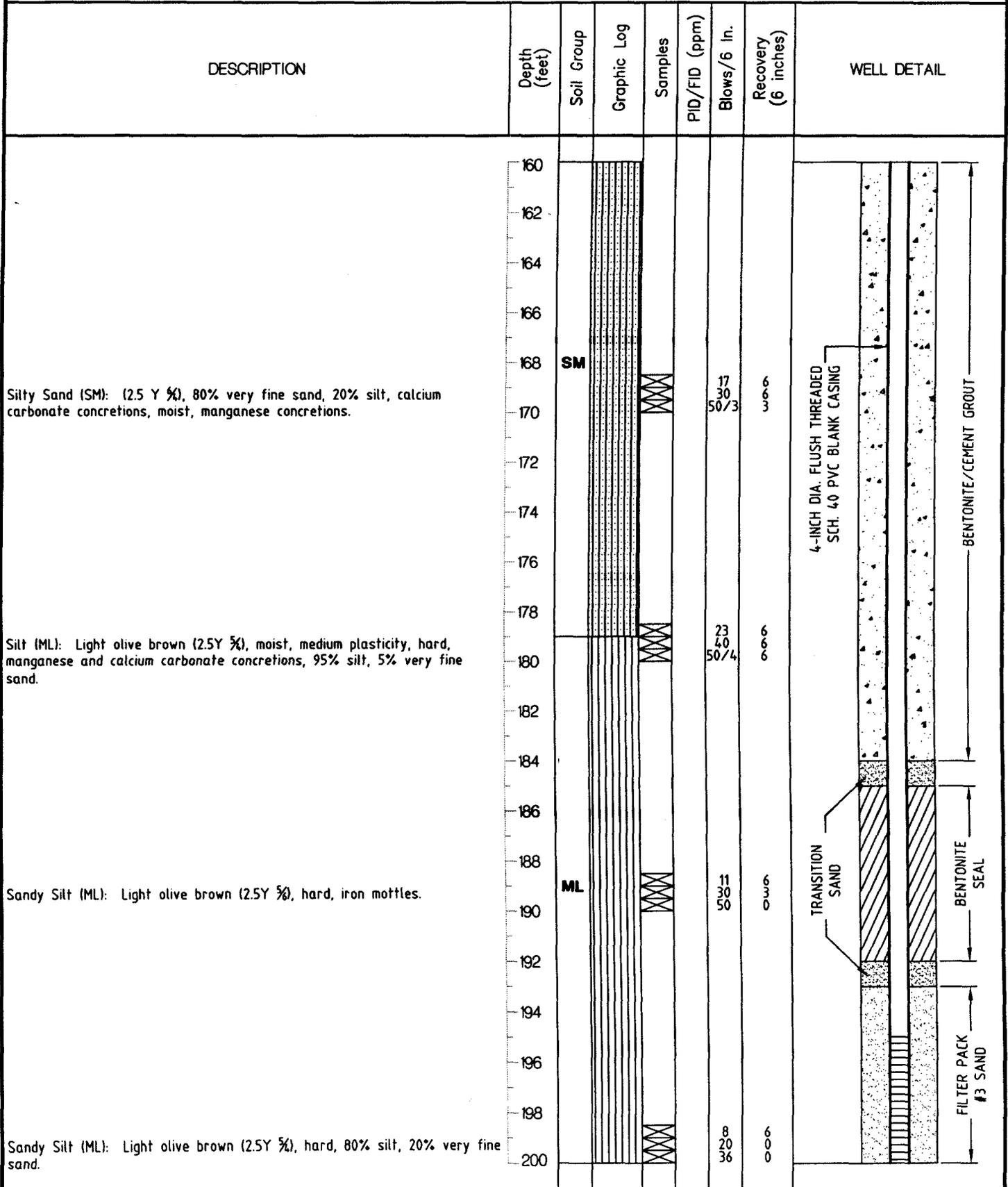
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**NOTE:** This summary applies only at the location of this boring and at the time of drilling. Subsurface conditions may differ at other locations and may change at this location with the passage of time. The data presented is a simplification of actual conditions encountered.

# Geologic Log of Well 03\_UGMW26A

Project **EL TORO, MCAS**

Project No. **918708**



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**NOTE:** This summary applies only at the location of this boring and at the time of drilling. Subsurface conditions may differ at other locations and may change at this location with the passage of time. The data presented is a simplification of actual conditions encountered.

# Geologic Log of Well 03\_UGMW26A

Project **EL TORO, MCAS**

Project No. **918708**

DESCRIPTION	Depth (feet)	Soil Group	Graphic Log	Samples	PID/FID (ppm)	Blows/6 in.	Recovery (6 inches)	WELL DETAIL
Silty Sand (SM): Light olive brown (2.5Y 5/6), wet, 40% silt, 60% very fine sand, 4-inch thick horizontal lay of fire sand, dense.	200							
	202							
	204	SM		X		9 14 23	6 6 6	
	206							
	208							
Sandy Silt (ML): Light olive brown (2.5Y 5/6), 60% silt, 40% very fine sand, moist to wet, hard.	210	ML		X		8 16 50	6 6 4	
	212							
	214					13 32 50/2	6 6 2	
	216							
	218							
Silty Sand (SM): Light olive brown (2.5Y 5/6), 70% very fine sand, 30% silt, wet, very dense. Sloughing, no more samples.	220							
Same as above (SM): Wet.	222							
	224							
	226	SM						
	228							
Same as above (SM): Wet.	230							
	232							
	234							
	236							
Same as above (SM): Wet.	238							
End of boring @ 240 feet bgs. Groundwater encountered @ 210 feet bgs. Boring was converted into a 240 feet groundwater monitoring well.	240							

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**NOTE:** This summary applies only at the location of this boring and at the time of drilling. Subsurface conditions may differ at other locations and may change at this location with the passage of time. The data presented is a simplification of actual conditions encountered.





# Geologic Log of Well 03\_DGMW64A

Project **EL TORO, MCAS**

Project No. **918708**

DESCRIPTION	Depth (feet)	Soil Group	Graphic Log	Samples	PID/FID (ppm)	Blows/6 in.	Recovery (6 inches)	WELL DETAIL	
Sand with Gravels (SW): (7.5Y 7/2), poorly sorted fine to coarse sands 70%, subangular blocky gravels 30%, very hard (R5), dry, size from 1/8 inch to 2 inches in diameter.	80	SW				5 26 30	6 6 6	<div style="display: flex; justify-content: space-between;"> <div style="width: 40%;"> <p>4-INCH DIA. FLUSH THREADED SCH. 40 PVC BLANK CASING</p> </div> <div style="width: 50%; border-left: 1px solid black; border-right: 1px solid black; padding: 0 5px;"> </div> </div>	
	82								
Same as above (SW): Slightly moist, poor recovery of soils.	84	SW				4 4 5	0 0 2		
	86								
	88								
	90								
	92								
	94								
	96								
	98								
Sand (SP): Gray (2.5Y 7/2), well sorted coarse sands, subrounded, subangular 65%, gravels 35%, subangular blocky fragments, 1/8 inch to 1 inch in diameter, dry.	100	SP				8 8 10	0 0 6		
	102								
	104								
	106								
	108								
	110								
Silty/clayey Sand (SM): Dark yellowish brown (10YR 4/4), 80% very fine sand, 10% clay, 10% silt, slightly moist, subrounded 1/2 inch in diameter, medium plasticity, dense.	110	SM				6 15 21	3 0 0		
	112								
	114								
	116								
	118	ML							
	120								

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NOTE: This summary applies only at the location of this boring and at the time of drilling. Subsurface conditions may differ at other locations and may change at this location with the passage of time. The data presented is a simplification of actual conditions encountered.

# Geologic Log of Well 03\_DGMW64A

Project **EL TORO, MCAS**

Project No. **918708**

DESCRIPTION	Depth (feet)	Soil Group	Graphic Log	Samples	PID/FID (ppm)	Blows/6 In.	Recovery (6 inches)	WELL DETAIL
Sandy Silt (ML): Light yellowish brown (10YR 6/4), 70% silt, 30% very fine sand, vertically bedded sand lenses, few manganese concretions, fine iron mottles, strong brown (7.5YR 5/8), 3 mm in diameter, slightly moist, hard.	120	ML				23	6	
	122					34	0	
Silt with Sand (ML): Light olive brown (2.5Y 5/4), 80% silt, 20% very fine sand, slightly moist, hard.	124	ML						
	126							
Silty Sand (SM): Light olive brown (2.5Y 5/4), 70% fine sand, 25% silt, 5% clay, sand contact increases at lower depth, horizontal inclusions of slightly higher clay content, brown (10YR 5/3), slightly moist, very hard.	128	SM						
	130							
Silty Sand (SM): Light yellowish brown (2.5Y 6/4), 60% sand, 30% silt, 10% clay, slightly moist, calcium carbonate concretions, very dense.	132	SM						
	134							
Silty Sand with Gravels (SM): Light yellowish brown (2.4Y 6/4), sand 60%, silt 30%, gravels 10%, very fine grained, subrounded, 1.5 inch in diameter.	136	SM						
	138							
Silty Sand (SM): Light yellowish brown (2.5Y 5/4), 70% fine sand, 25% silt, 5% clay, sand contact increases at lower depth, horizontal inclusions of slightly higher clay content, brown (10YR 5/3), slightly moist, very hard.	140	SM				11	6	
	142					44	0	
Silty Sand (SM): Light yellowish brown (2.5Y 6/4), 60% sand, 30% silt, 10% clay, slightly moist, calcium carbonate concretions, very dense.	144	SM						
	146							
Silty Sand (SM): Light yellowish brown (2.5Y 6/4), 60% sand, 30% silt, 10% clay, slightly moist, calcium carbonate concretions, very dense.	148	SM						
	150							
Silty Sand (SM): Light yellowish brown (2.5Y 6/4), 60% sand, 30% silt, 10% clay, slightly moist, calcium carbonate concretions, very dense.	152	SM				13	6	
	154					20	6	
Silty Sand with Gravels (SM): Light yellowish brown (2.4Y 6/4), sand 60%, silt 30%, gravels 10%, very fine grained, subrounded, 1.5 inch in diameter.	156	SM						
	158							
Silty Sand with Gravels (SM): Light yellowish brown (2.4Y 6/4), sand 60%, silt 30%, gravels 10%, very fine grained, subrounded, 1.5 inch in diameter.	160	SM				14	6	
	160							

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**OHM Remediation Services Corp.**

(REV 3/19/01)

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**NOTE:** This summary applies only at the location of this boring and at the time of drilling. Subsurface conditions may differ at other locations.

# Geologic Log of Well 03\_DGMW64A

Project **EL TORO, MCAS**

Project No. **918708**

DESCRIPTION	Depth (feet)	Soil Group	Graphic Log	Samples	PID/FID (ppm)	Blows/6 in.	Recovery (6 inches)	WELL DETAIL
Silty Sand with Gravels (SM): Light yellowish brown (2.4Y 6/4), sand 60%, silt 30%, gravels 10%, very fine grained, subrounded, 1.5 inch in diameter.	160					14	6	
	162					16	0	
Same as above (SM): Slightly moist.	164	<b>SM</b>				20	4	
	166							
Sandstone and Granite (GM): Very fine grained, subangular, blocky, 1 inch diameter fragments, coating of very fine Sandy Silt, light yellowish brown (2.5Y 6/4).	170					5%	0	
	172							
Gravels with Silty Sand (GM): Coarse fragments up to 1 inch in diameter, very fine grained, pale yellow (5Y 7/3), 5% soil, Silty Sand, pale olive (5Y 6/4).	176	<b>GM</b>				6	2	
	178							
	182					25	0	
	184							
	188					28	0	
	190							
	194					10	6	
	196							
	200							

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# Geologic Log of Well 03\_DGMW64A

Project **EL TORO, MCAS**

Project No. **918708**

DESCRIPTION	Depth (feet)	Soil Group	Graphic Log	Samples	PID/FID (ppm)	Blows/6 in.	Recovery (6 inches)	WELL DETAIL
Gravels with Silty Sand (GM): Coarse fragments up to 1 inch in diameter, very fine grained, pale yellow (5Y 7/3), 5% soil, Silty Sand, pale olive (5Y 6/4).	200	GM				10 6 6	6 6 6	
Silt with Sand (ML): Light yellowish brown (2.5Y 6/4), 80% silt, 15% very fine sand, 5% clay, slight plasticity, slightly moist, calcium carbonate concretions, few coarse fragments, 1/2 inch in diameter, low plasticity, very stiff.	202							
Silt with Sand (ML): Light yellowish brown (2.5Y 6/4), 80% silt, 15% very fine sand, 5% clay, slightly moist, calcium carbonate concretions, low plasticity, hard.	204							
Silt with Sand (ML): Light yellowish brown (2.5Y 6/4), 80% silt, 15% very fine sand, 5% clay, slightly moist, calcium carbonate concretions, low plasticity, hard.	206	ML				9 9 14	6 6 6	
Silt with Sand (ML): Light yellowish brown (2.5Y 6/4), 80% silt, 15% very fine sand, 5% clay, slightly moist, calcium carbonate concretions, low plasticity, hard.	208							
Silt with Sand (ML): Light yellowish brown (2.5Y 6/4), 80% silt, 15% very fine sand, 5% clay, slightly moist, calcium carbonate concretions, low plasticity, hard.	210							
Silt with Sand (ML): Light yellowish brown (2.5Y 6/4), 80% silt, 15% very fine sand, 5% clay, slightly moist, calcium carbonate concretions, low plasticity, hard.	212	ML				15 10 29	4 0 0	
Silt with Sand (ML): Light yellowish brown (2.5Y 6/4), 80% silt, 15% very fine sand, 5% clay, slightly moist, calcium carbonate concretions, low plasticity, hard.	214							
Silt with Sand (ML): Light yellowish brown (2.5Y 6/4), 80% silt, 15% very fine sand, 5% clay, slightly moist, calcium carbonate concretions, low plasticity, hard.	216							
Groundwater encountered at approximately 219 feet.	218	ML				9 16 26	6 6 6	
Sandy/clayey Silt (ML): Pale olive (5Y 6/4), 70% silt, 20% clay, 10% very fine sand, slightly moist, medium plasticity, horizontal inclusion (1/4 inch) of pale yellow (5Y 7/4) very fine Sandy Clay, hard.	220							
Sandy/clayey Silt (ML): Pale olive (5Y 6/4), 70% silt, 20% clay, 10% very fine sand, slightly moist, medium plasticity, horizontal inclusion (1/4 inch) of pale yellow (5Y 7/4) very fine Sandy Clay, hard.	222							
Silty Sand (SM): Light olive brown (2.5Y 5/4), 60% very fine sand, 40% silt, becoming gradually siltier at lower portion, low plasticity, dense.	224	SM				9 10 22	6 6 6	
Silty Sand (SM): Light olive brown (2.5Y 5/4), 60% very fine sand, 40% silt, becoming gradually siltier at lower portion, low plasticity, dense.	226							
Silty Sand (SM): Light olive brown (2.5Y 5/4), 60% very fine sand, 40% silt, becoming gradually siltier at lower portion, low plasticity, dense.	228							
Sand (SP): Pale yellow (2.5Y 7/4), 95% fine sand, 5% fines, one gray, rounded (1/4 inch), very fine grained fragment, few iron mottles, moist, dense.	230	SP				9 21 29	6 6 6	
Sand (SP): Pale yellow (2.5Y 7/4), 95% fine sand, 5% fines, one gray, rounded (1/4 inch), very fine grained fragment, few iron mottles, moist, dense.	232							
Sand (SP): Pale yellow (2.5Y 7/4), 95% fine sand, 5% fines, one gray, rounded (1/4 inch), very fine grained fragment, few iron mottles, moist, dense.	234							
Sand (SP): Pale yellow (2.5Y 7/4), 95% fine sand, 5% fines, one gray, rounded (1/4 inch), very fine grained fragment, few iron mottles, moist, dense.	236							
Sand (SP): Pale yellow (2.5Y 7/4), 95% fine sand, 5% fines, one gray, rounded (1/4 inch), very fine grained fragment, few iron mottles, moist, dense.	238	SP						
Sand (SP): Pale yellow (2.5Y 7/4), 95% fine sand, 5% fines, one gray, rounded (1/4 inch), very fine grained fragment, few iron mottles, moist, dense.	240							

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# Geologic Log of Well 03\_DGMW64A

Project **EL TORO, MCAS**

Project No. **918708**

DESCRIPTION	Depth (feet)	Soil Group	Graphic Log	Samples	PID/FID (ppm)	Blows/6 in.	Recovery (6 inches)	WELL DETAIL
<p>Sand (SP): same as above, saturated, beginning to slough, no more samples collected from this point.</p> <p>Same as above (SP): Wet.</p> <p>Same as above (SP): Wet. End of boring @ 255 feet bgs. Groundwater encountered @ 219 feet bgs. Boring was converted into a 250 feet groundwater monitoring well.</p>	240 242 244 246 248 250 252 254 256 258 260 262 264 266 268 270 272 274 276 278 280	SP						<p style="font-size: small;">4-INCH DIA. CONTINUOUS-WRAP WIRE-WOUND STAINLESS STEEL WITH 0.020 INCH SLOTS.</p> <p style="font-size: small;">4-INCH DIA. STAINLESS STEEL SUMP</p> <p style="font-size: small;">FILTER PACK #3 SAND</p>

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# Geologic Log of Well 03\_DGMW65XA

Project **EL TORO, MCAS**

Project No. **918708**

DESCRIPTION	Depth (feet)	Soil Group	Graphic Log	Samples	PID/FID (ppm)	Blows/6 In.	Recovery (6 inches)	WELL DETAIL
Silts (ML): Brown (10YR 3/3), 90% silt, 10% very fine sand, medium plastic, very stiff, very pale brown (10YR 7/3), mottles.	40	ML	[Vertical Lines]					<div style="display: flex; justify-content: space-around;"> <div style="border-left: 1px solid black; border-right: 1px solid black; width: 40%; height: 100%; position: relative;"> <span style="position: absolute; top: 50%; left: 50%; transform: translate(-50%, -50%); font-size: small;">4-INCH DIA. FLUSH THREADED SCH. 40 PVC BLANK CASING</span> </div> <div style="border-left: 1px solid black; border-right: 1px solid black; width: 40%; height: 100%; position: relative;"> <span style="position: absolute; top: 50%; left: 50%; transform: translate(-50%, -50%); font-size: small;">BENTONITE/CEMENT GROUT</span> </div> </div>
Silty Sand (SM): Dark yellowish brown (10YR 4/4), 80% very fine sand, 20% silt, medium dense.	48	SM	[Vertical Lines]	[X]		9 15	6 6	
Silty Sand (SM): Light olive brown (2.5Y 5/4), and light yellowish brown (2.5Y 7/4), horizontally interbedding lamella, medium dense, slightly moist.	58	SM	[Vertical Lines]	[X]		6 9	6 14	
Sandy Silty Clay (CL): Dark yellowish brown (10YR 3/3), very fine sandy clay, 70% silt, 30% very fine sand, slightly moist, medium plasticity, very stiff, many calcium carbonate concretions.	70	CL	[Diagonal Lines]	[X]		2 4	6 26	
Silts (ML): Strong brown (7.5YR 4/3), 90% silt, 10% very fine sand, slightly moist, medium plasticity, hard, many calcium carbonate concretions.	78	ML	[Vertical Lines]	[X]		11 18	6 34	

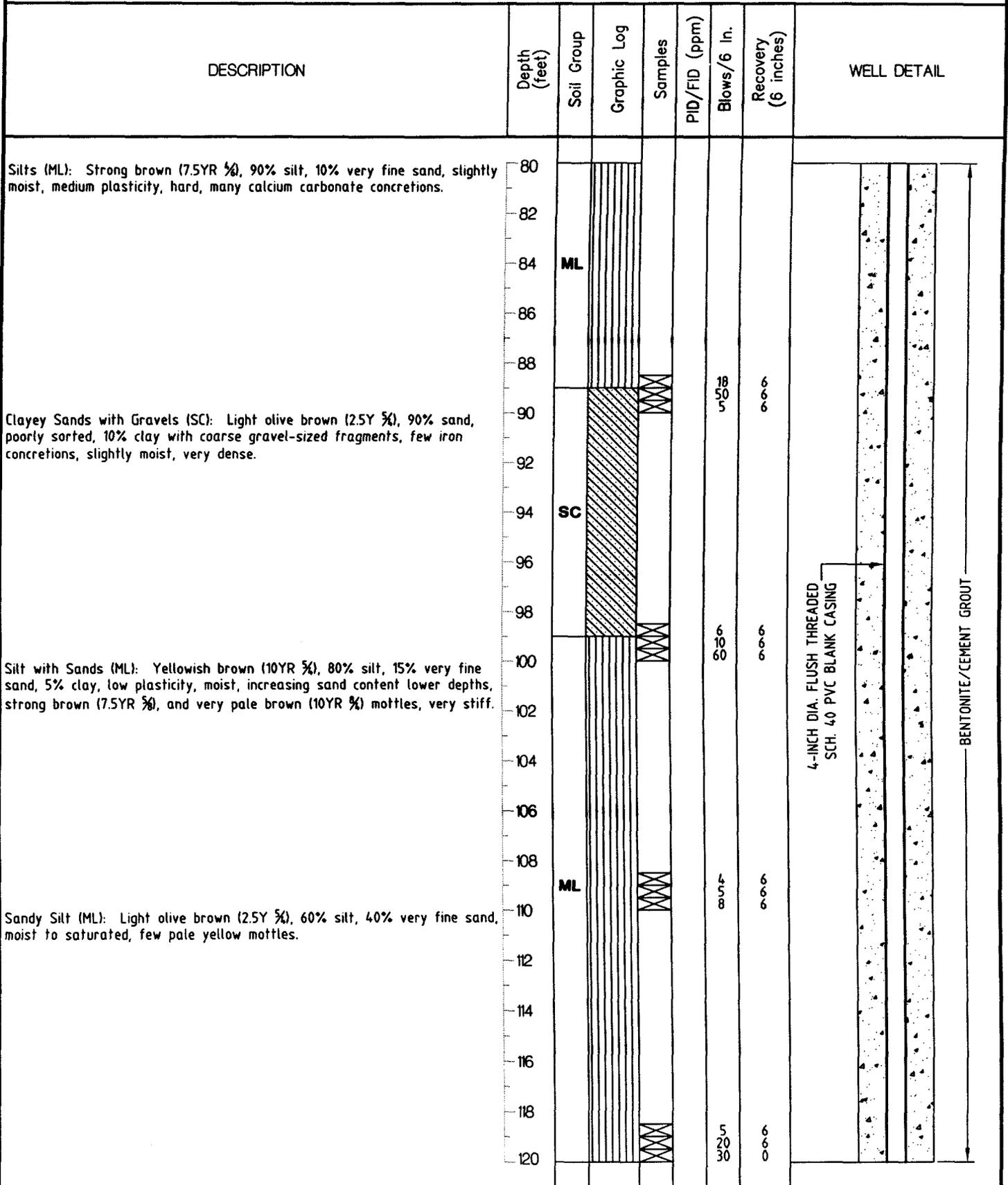
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**NOTE:** This summary applies only at the location of this boring and at the time of drilling. Subsurface conditions may differ at other locations and may change at this location with the passage of time. The data presented is a simplification of actual conditions encountered.

# Geologic Log of Well 03\_DGMW65XA

Project **EL TORO, MCAS**

Project No. **918708**



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NOTE: This summary applies only at the location of this boring and at the time of drilling. Subsurface conditions may differ at other locations and may change at this location with the passage of time. The data presented is a simplification of actual conditions encountered.

# Geologic Log of Well 03\_DGMW65XA

Project **EL TORO, MCAS**

Project No. **918708**

DESCRIPTION	Depth (feet)	Soil Group	Graphic Log	Samples	PID/FID (ppm)	Blows/6 in.	Recovery (6 inches)	WELL DETAIL
<p>Silty Sand (SP/SM): Light olive brown (2.5Y 5/6), 80% very fine sand, 10% silt, 10% clay, brown (10YR 5/3), horizontally interbedded layers of 1/2-inch thick lamella, medium plasticity, slightly moist, dense.</p>	120							
	122							
	124							
<p>Sand with Silts (SP/SM): Light olive (2.5Y 5/6), 80% sand, 15% silt, 5% clay, slightly moist, medium dense, few fine iron concretions, many 2mm calcium carbonate concretions.</p>	126							
	128					6	6	
	130					18	6	
<p>Sand with Silts (SP/SM): Light olive brown (2.5Y 5/6), 90% well sorted very fine sand, 10% silt horizontally bedded sand lenses, slightly moist, medium dense.</p>	132							
	134							
	136							
<p>Same as above (SP/SM): Moist.</p>	138							
	140	SP/SM				4	6	
	142					7	6	
	144							
	146							
	148							
	150					8	6	
	152					23	0	
	154					31	0	
	156							
	158							
	160					2	0	

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4-INCH DIA. FLUSH THREADED SCH. 40 PVC BLANK CASING

BENTONITE/CEMENT GROUT



**NOTE:** This summary applies only at the location of this boring and at the time of drilling. Subsurface conditions may differ at other locations and may change at this location with the passage of time. The data presented is a simplification of actual conditions encountered.

# Geologic Log of Well 03\_DGMW65XA

Project **EL TORO, MCAS**

Project No. **918708**

DESCRIPTION	Depth (feet)	Soil Group	Graphic Log	Samples	PID/FID (ppm)	Blows/6 In.	Recovery (6 inches)	WELL DETAIL
No sample recovery due to mechanical difficulties with the drill rig. Sample lithology was based on drill cuttings.	160	SP/SM				2	0	<p style="text-align: center;">4-INCH DIA. FLUSH THREADED SCH. 40 PVC BLANK CASING</p> <p style="text-align: center;">BENTONITE/CEMENT GROUT</p>
No sample recovery due to mechanical difficulties with the drill rig. Sample lithology was based on drill cuttings.	162	SP/SM				2	0	
	164	SP/SM						
	166	SP/SM						
	168	SP/SM						
No sample recovery due to mechanical difficulties with the drill rig. Sample lithology was based on drill cuttings.	170	SP/SM						
	172	SP/SM						
Same as above (SP/SM): Slightly moist.	174	SP/SM						
	176	SP/SM						
	178	SP/SM						
Same as above (SP/SM): Slightly moist.	180	SP/SM						
	182	SP/SM						
	184	SP/SM						
	186	SP/SM						
	188	SP/SM						
Silty Sand (SM): Light olive brown (2.5Y 5/4), 80% very fine sand, 20% silt, very dense, calcium carbonate concretions, few iron concretions.	190	SM				20 27 39	0	<p style="text-align: center;">BENTONITE SEAL</p> <p style="text-align: center;">BENTONITE SEAL</p> <p style="text-align: center;">#3 SAND</p> <p style="text-align: center;">TRANSITION SAND</p> <p style="text-align: center;">FILTER PACK</p>
	192	SM						
	194	SM						
	196	SM						
	198	SM				17 23 30	6 6 6	
	200	SM						
Silty Sand (SM): Light olive brown (2.5Y 5/4), 80% very fine sand, silt, vertically bedded layer of soil coated with calcium carbonate, low plasticity, very dense, iron mottling.		SM						

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NOTE: This summary applies only at the location of this boring and at the time of drilling. Subsurface conditions may differ at other locations and may change at this location with the passage of time. The data presented is a simplification of actual conditions encountered.

# Geologic Log of Well 03\_DGMW65XA

Project **EL TORO, MCAS**

Project No. **918708**

DESCRIPTION	Depth (feet)	Soil Group	Graphic Log	Samples	PID/FID (ppm)	Blows/6 in.	Recovery (6 inches)	WELL DETAIL
Sandy Silt (ML): Light olive brown (2.5Y 5/6), 60% silt, 40% very fine sand, horizontal inclusions of fine sand (3mm), many prominent calcium carbonate concretions, hard.	200	ML				10 25 37	6 3 0	<p style="text-align: center;">4-INCH DIA. CONTINUOUS-WRAP WIRE-WOUND STAINLESS STEEL WITH 0.020 INCH SLOTS.</p> <p style="text-align: center;">4-INCH DIA. STAINLESS STEEL SUMP</p> <p style="text-align: center;">FILTER PACK #3 SAND</p>
	202							
Sand (SW): Light yellowish brown (2.5Y 5/6), 90% fine sand, 10% fines, moist, very dense, trace subrounded coarse gravel fragments.	204	SW				11 44 50.5	6 3 0	
	206							
Silt (ML): Olive (5Y 5/6), 85% silt, 10% very fine sand, 5% clay, medium plasticity, moist, pale olive mottles, hard, few calcium carbonate concretions.	208	ML				7 9 32	6 6 6	
	210							
Sand (SP): Light yellowish brown (2.5Y 5/6), well sorted fine sands, wet, heaving sands, lithology based on soil cuttings.	212	SP						
	214							
Same as above (SP): Wet.	216	SP						
	218							
Same as above (SP): Wet.	220	SP						
	222							
	224	SP						
	226							
	228	SP						
	230							
	232	SP						
	234							
	236	SP						
	238							
	240	SP						
	242							

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**NOTE:** This summary applies only at the location of this boring and at the time of drilling. Subsurface conditions may differ at other locations and may change at this location with the passage of time. The data presented is a simplification of actual conditions encountered.





# Geologic Log of Boring 04\_DGMW66A

Project **EL TORO, MCAS** Project No. **918708**

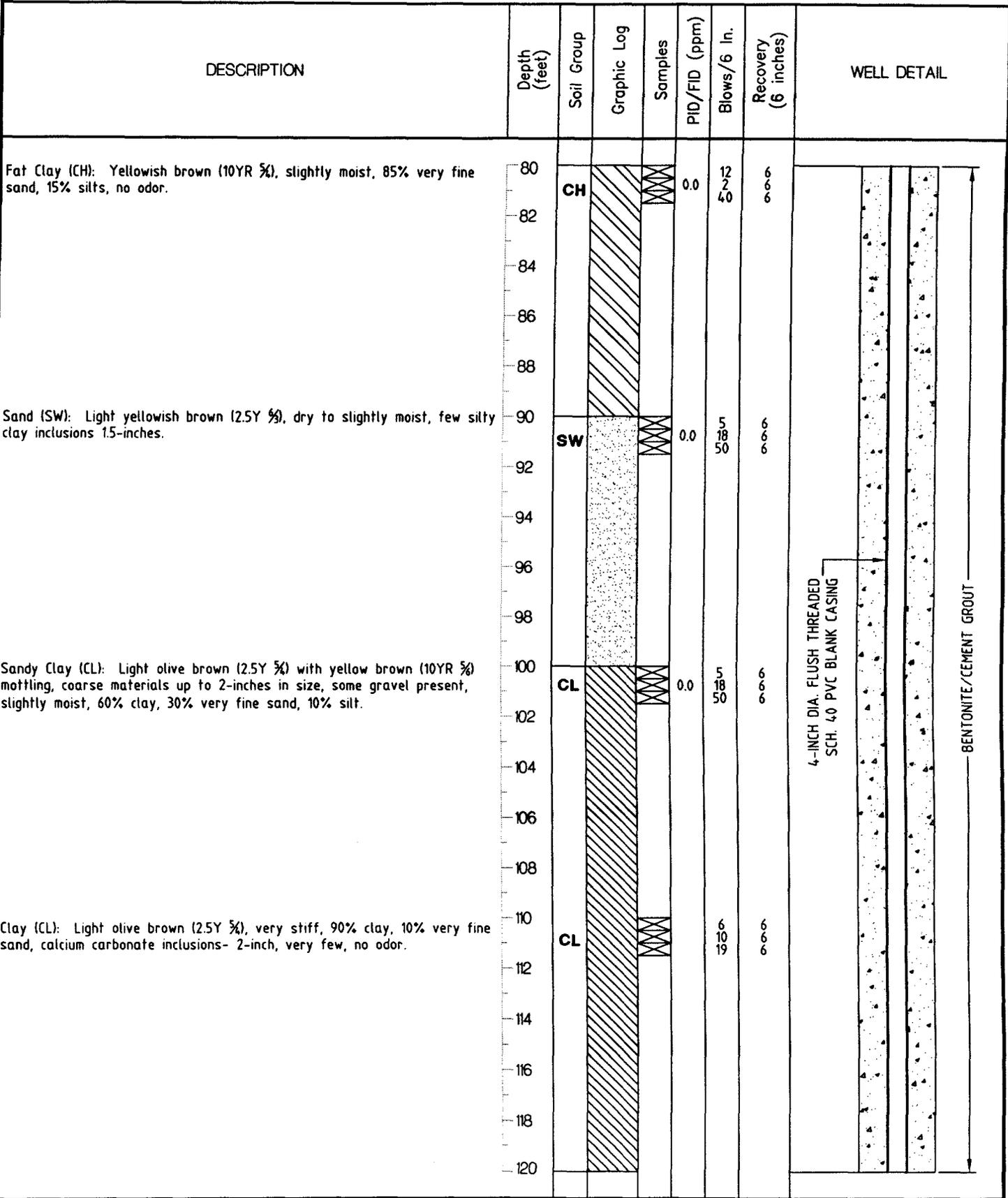
DESCRIPTION	Depth (feet)	Soil Group	Graphic Log	Samples	PID/FID (ppm)	Blows/6 In.	Recovery (6 inches)	WELL DETAIL
Fat Clay (CH): Brown (7.5YR 5/6), moist, high plasticity, very stiff, 90% clays, 10% very fine sand.	40	CH		X	0.0	6 6 6	6 6 6	<div style="display: flex; justify-content: space-around;"> <div style="border: 1px solid black; padding: 2px;">4-INCH DIA. FLUSH THREADED SCH. 40 PVC BLANK CASING</div> <div style="border: 1px solid black; padding: 2px;">BENTONITE/CEMENT GROUT</div> </div>
Fat Clay (CH): Dark yellowish brown (10YR 5/6) and fine (2.5Y 7/8), very stiff, moist, highly plastic, 90% clay, 10% sand, slightly moist.	50	CH		X		3 20	6 6 6	
Fat Clay (CH): Dark yellowish brown (10YR 5/6), 90% clay, 10% very fine sand, very stiff, slightly moist, high plasticity.	60	CH		X		5 16 20	6 6 6	
Fat Clay (CH): Dark yellowish brown (10Yr 5/6), slightly moist, 90% clay, 10% sand, very stiff, no odor.	70	CH		X	0.0	4 12 25	6 6 6	
	42							
	44							
	46							
	48							
	52							
	54							
	56							
	58							
	62							
	64							
	66							
	68							
	72							
	74							
	76							
	78							
	80							

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NOTE: This summary applies only at the location of this boring and at the time of drilling. Subsurface conditions may differ at other locations. The data presented is a simplification of actual conditions encountered.

# Geologic Log of Well 04\_DGMW66A

Project **EL TORO, MCAS** Project No. **918708**



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**NOTE:** This summary applies only at the location of this boring and at the time of drilling. Subsurface conditions may differ at other locations

# Geologic Log of Well 04\_DGMW66A

Project **EL TORO, MCAS**

Project No. **918708**

DESCRIPTION	Depth (feet)	Soil Group	Graphic Log	Samples	PID/FID (ppm)	Blows/6 in.	Recovery (6 inches)	WELL DETAIL
Clay (CL): Light olive brown (2.5Y 5/6), medium plasticity, stiff, 60% silt, 40% clay, no odor, moist.	120	CL		X	0.0	18 25 31	6 6 6	<div style="display: flex; justify-content: space-around;"> <div style="border-left: 1px solid black; border-right: 1px solid black; width: 40%; height: 100%;"></div> <div style="border-left: 1px solid black; border-right: 1px solid black; width: 40%; height: 100%;"></div> </div> <p style="font-size: small; margin-top: 10px;">4-INCH DIA. FLUSH THREADED SCH. 40 PVC BLANK CASING</p> <p style="font-size: x-small; margin-top: 10px;">BENTONITE/CEMENT GROUT</p>
	122							
	124							
	126							
	128							
Silty Clay (CL): Light olive brown (2.5Y 5/6), moist, 50% clay, 50% silt, no odor.	130	CL		X	0.0	3 3 6	6 6 6	
	132							
	134							
	136							
	138							
Silty Clay with Sand (CL): (2.5Y 5/6), medium plasticity, 50% clay, 20% fine sand, 30% silt, moist, no odor.	140	CL		X	0.0	3 30 30	6 6 6	
	142							
	144							
	146							
	148							
Sand with Silty Clay (SC): Light olive brown (2.5Y 5/6), 80% very fine sand, matrix, few mottles, yellowish red (5YR 5/6), medium plasticity, few coarse fragments, gravel size, moist, no odor.	150	SC		X	0.0	4 7 26	6 6 6	
	152							
	154							
	156							
	158							
	160							

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NOTE: This summary applies only at the location of this boring and at the time of drilling. Subsurface conditions may differ at other locations

# Geologic Log of Well 04\_DGMW66A

Project **EL TORO, MCAS**

Project No. **918708**

DESCRIPTION	Depth (feet)	Soil Group	Graphic Log	Samples	PID/FID (ppm)	Blows/6 in.	Recovery (6 inches)	WELL DETAIL
<p>Silty Clay (CL): Light olive brown (2.5Y 5/6), 10% very fine sand, 30% silt, 60% clay, moderate plasticity, saturated, no odor.</p>	160	CL			0.0	31 35 40	0 0 0	<p style="font-size: small;">4-INCH DIA. FLUSH THREADED SCH. 40 PVC BLANK CASING</p> <p style="font-size: small;">BENTONITE/CEMENT GROUT</p>
	162							
	164							
	166							
	168							
	170							
<p>Clayey Silt with Sand (ML): Light olive brown (2.5Y 5/6), mottles, dark olive brown (2.5Y 3/4), 50% silt, 15% very fine sand, 30% clay, gravel trace present - 1%, 1-inch diameter, moist, no odor.</p>	170	ML			0.0	10 30 40	6 6 6	<p style="font-size: small;">BENTONITE SEAL</p>
	172							
	174							
	176							
<p>Clayey Sand with Silt (SC): Light olive brown (2.5Y 5/6), 30% clay, 50% very fine sand, 15% silt, trace coarse fragments - gravel, slightly moist, no odor.</p>	180	SC			0.0	2 5 3	2 6 6	<p style="font-size: small;">TRANSITION SAND</p> <p style="font-size: small;">BENTONITE SEAL</p>
	182							
	184							
	186							
<p>Sand with Silty Clay (SC): Yellowish brown (10YR 5/6), medium plastic, 70% very fine sand, 25% silty clay, slightly moist, no odor, trace fine gravel fragments.</p>	190	SC			0.0	3 4 5	3 3 0	<p style="font-size: small;">4-INCH DIA. CONTINUOUS-WRAP WIRE-WOUND STAINLESS STEEL WITH 0.020 INCH SLOTS.</p> <p style="font-size: small;">FILTER PACK #3 SAND</p>
	192							
	194							
	196							
<p>Silts with Sand (ML): Light olive brown (2.5Y 5/6), 60% silt, 30% very fine sand, trace clay, many coarse fragments, slightly moist, no odor.</p>	196	ML			0.0	3 5 3	3 0 0	<p style="font-size: small;">4-INCH DIA. CONTINUOUS-WRAP WIRE-WOUND STAINLESS STEEL WITH 0.020 INCH SLOTS.</p> <p style="font-size: small;">FILTER PACK #3 SAND</p>
	198							
	200							
	200							

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NOTE: This summary applies only at the location of this boring and at the time of drilling. Subsurface conditions may differ at other locations. The data presented is a simplification of actual conditions encountered.

# Geologic Log of Well 04\_DGMW66A

Project **EL TORO, MCAS**

Project No. **918708**

DESCRIPTION	Depth (feet)	Soil Group	Graphic Log	Samples	PID/FID (ppm)	Blows/6 In.	Recovery (6 inches)	WELL DETAIL
No recovery of soil.	200				0.0	4 10 10	0 0 0	<p style="text-align: center;">4-INCH DIA. CONTINUOUS-WRAP WIRE-WOUND STAINLESS STEEL WITH 0.020 INCH SLOTS.</p> <p style="text-align: center;">4-INCH DIA. STAINLESS STEEL SUMP</p> <p style="text-align: center;">FILTER PACK #3 SAND</p>
Sandy Silt (ML): Yellowish brown (2.5Y 5/4), 60% silt, 35% very fine sand, slightly moist, trace gravel fragments, no odor.	202	ML			0.0	4 5 15	0 0 3	
Silty Sand (SM): Yellowish brown (2.5Y 5/4), 60% very fine sand, 30% silt, 10% clay, trace coarse fragments gravel size, moist, no odor.	210	SM			0.0	3 4 6	0 3 3	
Sandy Silt (ML): Dark yellowish (brown 2.5Y 5/4), 60% silt, 25% very fine sand, 10% clay, trace cobbles, cobble fragments, slightly moist, no odor.	216	ML			0.0	4 7 12	0 6 6	
Sandy Silty Clay (CL): Light yellowish brown (2.5Y 5/4), 30% silt, 40% clay, 30% very fine sand, trace fine gravel fragments, no odor.	220	CL			0.0	5 7 13	0 4 0	
Silty Clay (CL): Reddish brown (5Y 5/4), 90% silty clay, some large fragments, cobble size with iron staining, no odor, saturated.	230	CL			0.0	14 50 1	0 2 2	
Total Depth=235 feet.	234							
	236							
	238							
	240							

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NOTE: This summary applies only at the location of this boring and at the time of drilling. Subsurface conditions may differ at other locations

# Geologic Log of Boring 05\_UGMW27A

Project <b>MCAS, EL TORO</b>	Northing 2189141.21	Drilling Company LAYNE CHRISTENSEN CO.	
Project Number <b>918708</b>	Easting 6118142.85	Drill Rig FOREMOST AP 1000	Begin Drilling 9/12/00
Client SWDIV	TOC Elevation 439.17	Driller Pancho Gutierrez	End Drilling 9/13/00
Geologist Chris Holcomb	RIM Elevation 440.04	Drill Method DWRCPH	Start Time 1125
Location <b>MARINE CORPS AIR STATION</b>		DIAGRAM NOT TO SCALE	
Borehole Diameter 10 INCHES	Total Depth of Borehole 200 FEET	Depth to Water 167 FEET	

DESCRIPTION	Depth (feet)	Soil Group	Graphic Log	Samples	PID/FID (ppm)	Blows/6 in.	Recovery (inches)	BORING DETAIL
<p>Borings handaugered to 10 feet bgs for underground utilities. No samples were collected for analytical, lithology only. No pids were used due to the original well samples showed no contamination.</p>								
<p>Silty Sand (SM): Reddish brown, fine sand with silt, low strength, slightly moist, &lt;30% silt.</p>	0							
	10	SM	[Graphic Log Pattern]	[Sample Symbol]	15 16 17	6 6 6	6 6 6	
	20	SM	[Graphic Log Pattern]	[Sample Symbol]	9 9 10	6 6 6	6 6 6	
<p>Silty Sand (SM): Brown, moist, fine, dense, medium strength &gt;40% silt, no odor detected.</p>	30			[Sample Symbol]	9 9 10	6 6 6	6 6 6	<p>4-INCH DIA. FLUSH THREADED SCH. 40 PVC BLANK CASING</p>
<p>Same as above (SM): Less Silt, slightly moist.</p>	40			[Sample Symbol]	12	6	6	
<p>Sandy Silt (ML): Poorly graded sand, medium plasticity, slightly moist, some SiO<sub>2</sub> X-TALS, no odor detected.</p>	40			[Sample Symbol]	12	6	6	<p>BENTONITE/CEMENT GROUT</p>

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NOTE: This summary applies only at the location of this boring and at the time of drilling. Subsurface conditions may differ at other locations and may change at this location with the passage of time. The data presented is a simplification of actual conditions encountered.

# Geologic Log of Boring 05\_UGMW27A

Project **EL TORO, MCAS** Project No. **918708**

DESCRIPTION	Depth (feet)	Soil Group	Graphic Log	Samples	PID/FID (ppm)	Blows/6 In.	Recovery (6 inches)	WELL DETAIL															
Sandy Silt (ML): Poorly graded sand, medium plasticity, slightly moist, some SiO <sub>2</sub> X-TALS, no odor detected.	40	<b>ML</b>	[Vertical lines]	[X]		12 22 26	6 6 6	<div style="display: flex; justify-content: space-between;"> <div style="writing-mode: vertical-rl; transform: rotate(180deg);">4-INCH DIA. FLUSH THREADED SCH. 40 PVC BLANK CASING</div> <div style="writing-mode: vertical-rl; transform: rotate(180deg);">BENTONITE/CEMENT GROUT</div> </div>															
Silty Sand (SM): Dark brown, dense, moist, >30% silt.	42			44	46	48	50		52	54	56	58	60	62	64	66	68	70	72	74	76	78	80
Silty Sand (SP): Light brown, poorly sorted sand (80% sand), with 20% silt, some gravel (rose quartz cobbles), slightly moist, medium dense, no odor detected.	50			<b>SM</b>	[Vertical lines]	[X]			11 13 17	6 6 6													
Sand (SP): Brownish gray, poorly grained, slightly moist, medium dense.	60	<b>SP</b>	[Vertical lines]			[X]		13 8 23	6 6 6														
	70					[X]		35 50/3	6 6														

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NOTE: This summary applies only at the location of this boring and at the time of drilling. Subsurface conditions may differ at other locations. The data presented is a simplification of actual conditions encountered.

# Geologic Log of Boring 05\_UGMW27A

Project **EL TORO, MCAS**

Project No. **918708**

DESCRIPTION	Depth (feet)	Soil Group	Graphic Log	Samples	PID/FID (ppm)	Blows/6 In.	Recovery (6 inches)	WELL DETAIL
(SP): No recovery, cuttings indicate no change in lithology except less silt	80							<div style="display: flex; justify-content: space-around;"> <div style="border: 1px solid black; padding: 2px;">4-INCH DIA. FLUSH THREADED SCH. 40 PVC BLANK CASING</div> <div style="border: 1px solid black; padding: 2px;">BENTONITE/CEMENT GROUT</div> </div>
	82							
	84							
	86							
	88							
Silty Sand (SM): Light brown, fine sandy silt, moist, slightly dense, SiO <sub>2</sub> X-TALS, micaceous, no odor detected.	90	SM	XXXX		9 16 28	6 6 6		
	92							
	94							
	96							
Same as above (SP): Slightly moist.	100	SM	XXXX		11 22 30	6 6 6		
	102							
	104							
	106							
	108							
Silty Sand (SM): Dark brown, 85% sand, 15% silt, poorly graded, fine, moist, no odor detected.	110	SM	XXXX		9 16 35	6 6 6		
	112							
	114							
	116							
	118							
Sand (SP): Brown with red (FeO <sub>2</sub> ), staining, fine-coarse sand, low strength, moist, poorly graded, some gravel, no odor detected.	120							

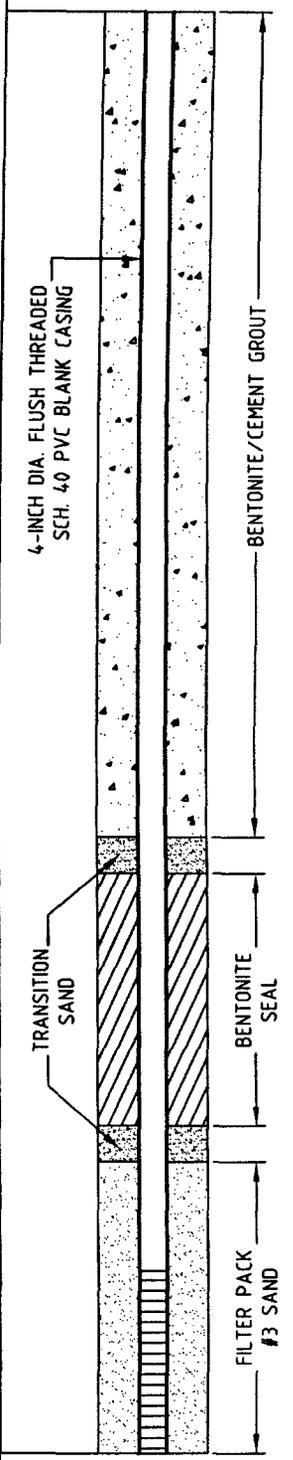
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**NOTE:** This summary applies only at the location of this boring and at the time of drilling. Subsurface conditions may differ at other locations and at this location with the passage of time. The data presented is a simplification of actual conditions encountered.

# Geologic Log of Boring 05\_UGMW27A

Project **EL TORO, MCAS**

Project No. **918708**

DESCRIPTION	Depth (feet)	Soil Group	Graphic Log	Samples	PID/FID (ppm)	Blows/6 In.	Recovery (6 inches)	WELL DETAIL
Sand (SP): Brown with red (FeO <sub>2</sub> ), staining, fine-coarse sand, low strength, moist, poorly graded, some gravel, no odor detected.	120	SP						 <p style="font-size: small;">4-INCH DIA. FLUSH THREADED SCH. 40 PVC BLANK CASING BENTONITE/CEMENT GROUT BENTONITE SEAL TRANSITION SAND FILTER PACK #3 SAND</p>
Sand (SP): Light brown, fine, poorly graded, low strength, moist, no odor detected.	130							
	132							
	134							
	136							
	138							
Sand (SP): Same as above, slightly moist.	140							
	142							
	144							
	146							
	148							
Sand (SP): Brown, fine grain, moist.	150							
	152							
	154							
	156							
	158							
Silt with Sand (ML): Brown, silt with fine sand (>80% silt), dense, moist, stiff.	160							

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NOTE: This summary applies only at the location of this boring and at the time of drilling. Subsurface conditions may differ at other locations.

# Geologic Log of Boring 05\_UGMW27A

Project **EL TORO, MCAS**

Project No. **918708**

DESCRIPTION	Depth (feet)	Soil Group	Graphic Log	Samples	PID/FID (ppm)	Blows/6 In.	Recovery (6 inches)	WELL DETAIL
Silt with Sand (ML): Brown, silt with fine sand (>80% silt), dense, moist, stiff.	160	ML				8 18 28	6 6 6	<p style="text-align: center;">4-INCH DIA. CONTINUOUS-WRAP WIRE-WOUND STAINLESS STEEL WITH 0.020 INCH SLOTS.</p> <p style="text-align: center;">FILTER PACK #3 SAND</p> <p style="text-align: center;">4-INCH DIA. STAINLESS STEEL SUMP</p>
Sand (SP): Brown, fine, poorly graded, loose with coarse grains, moist, no odor detected.	162	SP				10 20 50/3	6 6 6	
167 feet ground water detected.	166							
Well graded Sand (SW): Light brown/gray, little strength, some gravel, wet, <10% silt, no odor detected.	170	SW				8 5 14	6 6 6	
Sandy Silt (ML): Brown, fine, very dense, moist, plastic, 30% sand, 70% silt, no odor detected.	174	ML				2 2 14	6 6 6	
Sand with Silt (ML): Brown/reddish, fine, dense, wet, very moist, medium plasticity.	180	ML				4 11 20	6 6 6	
Sand (SP): Light brown/gray, well graded, coarse sand, little strength, no odor detected.	186	SP				6 14 25	6 6 6	
Same as above (SP): Wet, logged off cuttings.	190							
Same as above (SP): Wet.	194							
Total Depth= 200 feet.	200							

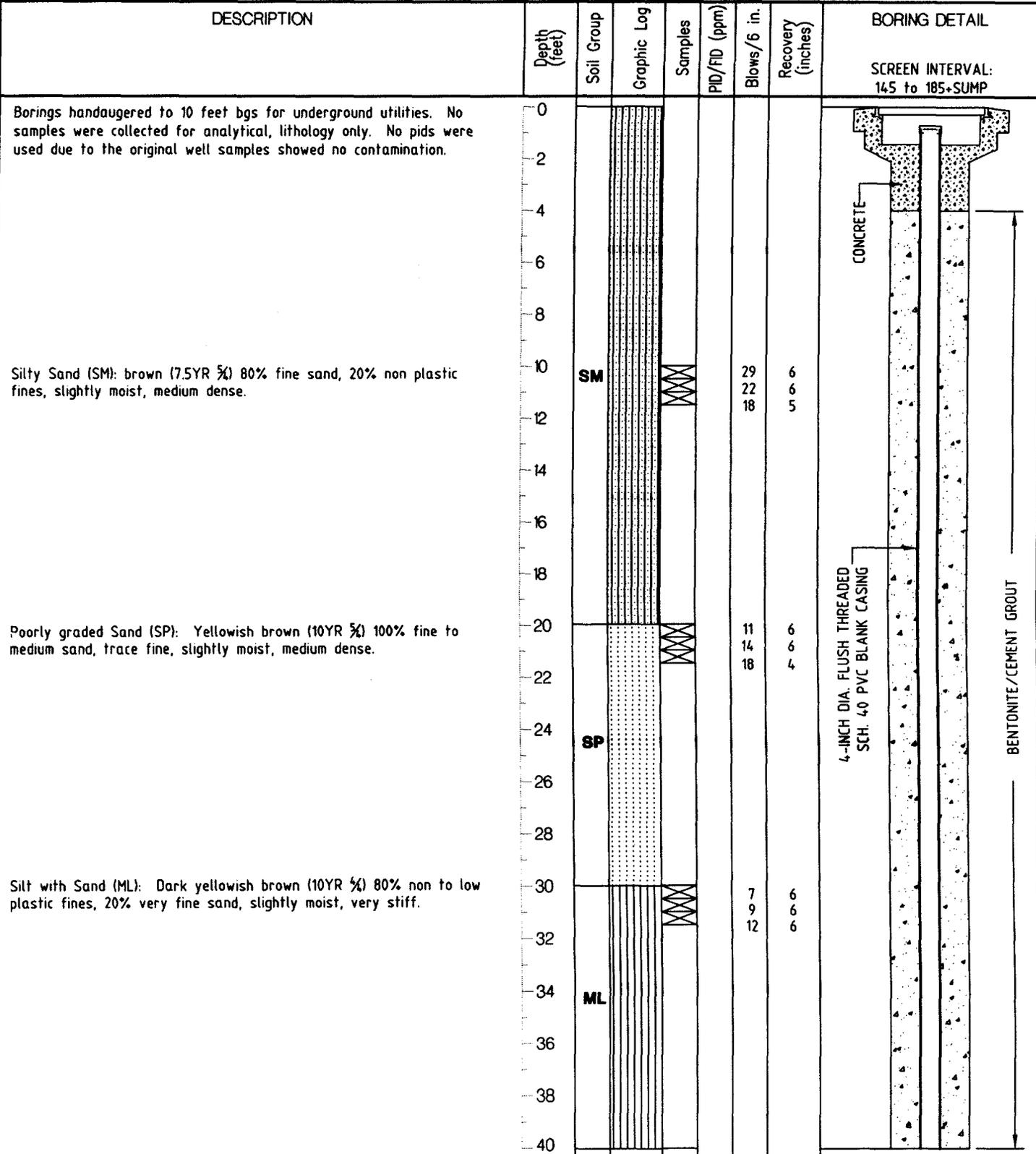
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**NOTE:** This summary applies only at the location of this boring and at the time of drilling. Subsurface conditions may differ at other locations and may change at this location with the passage of time. The data presented is a simplification of actual conditions encountered.

# Geologic Log of Boring 05\_DBMW41A

Project <b>MCAS, EL TORO</b>	Northing 2188838.68	Drilling Company LAYNE CHRISTENSEN CO.	
Project Number <b>918708</b>	Easting 6117555.99	Drill Rig FOREMOST AP 1000	Begin Drilling 9/6/00
Client SWDIV	TOC Elevation 426.21	Driller Pancho Gutierrez	End Drilling 9/6/00
Geologist A. Siddiqui	RIM Elevation 426.84	Drill Method DWRCPH	Start time 0831
Location <b>MARINE CORPS AIR STATION</b>		DIAGRAM NOT TO SCALE	
Borehole Diameter 10 INCHES	Total Depth of Borehole 190 FEET	Depth to Water 154 FEET	



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NOTE: This summary applies only at the location of this boring and at the time of drilling. Subsurface conditions may differ at other locations. The data presented is a simplification of actual conditions encountered.

# Geologic Log of Well 05\_DBMW41A

Project **EL TORO, MCAS**

Project No. **918708**

DESCRIPTION	Depth (feet)	Soil Group	Graphic Log	Samples	PID/FID (ppm)	Blows/6 In.	Recovery (6 inches)	WELL DETAIL
<p>Poorly graded Sand (SP): Yellowish brown (10YR 5/6), 100% fine to medium sand, trace fines, slightly moist, medium dense to dense.</p>	40	SP	[Dotted pattern]	[X-pattern]		7	6	[Well diagram: 4-INCH DIA. FLUSH THREADED SCH. 40 PVC BLANK CASING; BENTONITE/CEMENT GROUT]
	42					9	6	
	44					19	3	
<p>Silty Sand (SM): Dark yellowish brown (10YR 5/6) 60% fine sand, 40% low to non plastic fines, slightly moist, medium dense, amount of fines variable 30-40% at place, grades into sandy silt.</p>	50	SM	[Vertical lines pattern]	[X-pattern]		8	6	[Well diagram: 4-INCH DIA. FLUSH THREADED SCH. 40 PVC BLANK CASING; BENTONITE/CEMENT GROUT]
	52					12	6	
	54					17	6	
<p>Silty Sand (SM): Dark yellowish brown (10YR 5/6) 60% very fine sand, 40% non to low plastic fines, slightly moist, medium dense to dense, grades into sandy silt at places.</p>	60	SM	[Vertical lines pattern]	[X-pattern]		8	6	[Well diagram: 4-INCH DIA. FLUSH THREADED SCH. 40 PVC BLANK CASING; BENTONITE/CEMENT GROUT]
	62					20	6	
	64					30	6	
<p>Silty Sand (SM): Dark yellowish brown (10YR 5/6), 70% fine sand, 30% low plastic fine, dense, slightly moist.</p>	70	SM	[Vertical lines pattern]	[X-pattern]		15	6	[Well diagram: 4-INCH DIA. FLUSH THREADED SCH. 40 PVC BLANK CASING; BENTONITE/CEMENT GROUT]
	72					25	6	
	74					33	6	
	80							

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*NOTE:* This summary applies only at the location of this boring and at the time of drilling. Subsurface conditions may differ at other locations

# Geologic Log of Well 05\_DBMW41A

Project **EL TORO, MCAS** Project No. **918708**

DESCRIPTION	Depth (feet)	Soil Group	Graphic Log	Samples	PID/FID (ppm)	Blows/6 in.	Recovery (6 inches)	WELL DETAIL
<p>Poorly graded Sand with silt (SP/SM): Light olive brown (2.5Y 5/6) 90 % fine to medium sand, 10% low plastic fines, slightly moist, very dense.</p>	80	SP/SM				20	6	
	82					50/3	4	
	84							
<p>Silt with Sand (ML): Dark yellowish brown (10YR 5/6) 80% non to low plastic fines, 20% very fine sand, slightly moist, hard.</p>	90	ML				15	6	
	92					22	6	
	94					30	6	
<p>Silty Sand (SM): Light olive brown (2.5Y 5/6), 80% fine sand, 20% non to low plastic fines, slightly moist, dense.</p>	100	SM				14	6	
	102					27	6	
	104					33	6	
<p>Poorly graded Sand (SP): Light yellowish brown (2.5Y 5/6), 100% fine to medium to coarse sand, trace fine to sub angular gravel, slightly moist, dense.</p> <p>Same as above.</p>	110	SP				10	6	
	112					25	6	
	114					39	6	
	116							
	118							
	120							

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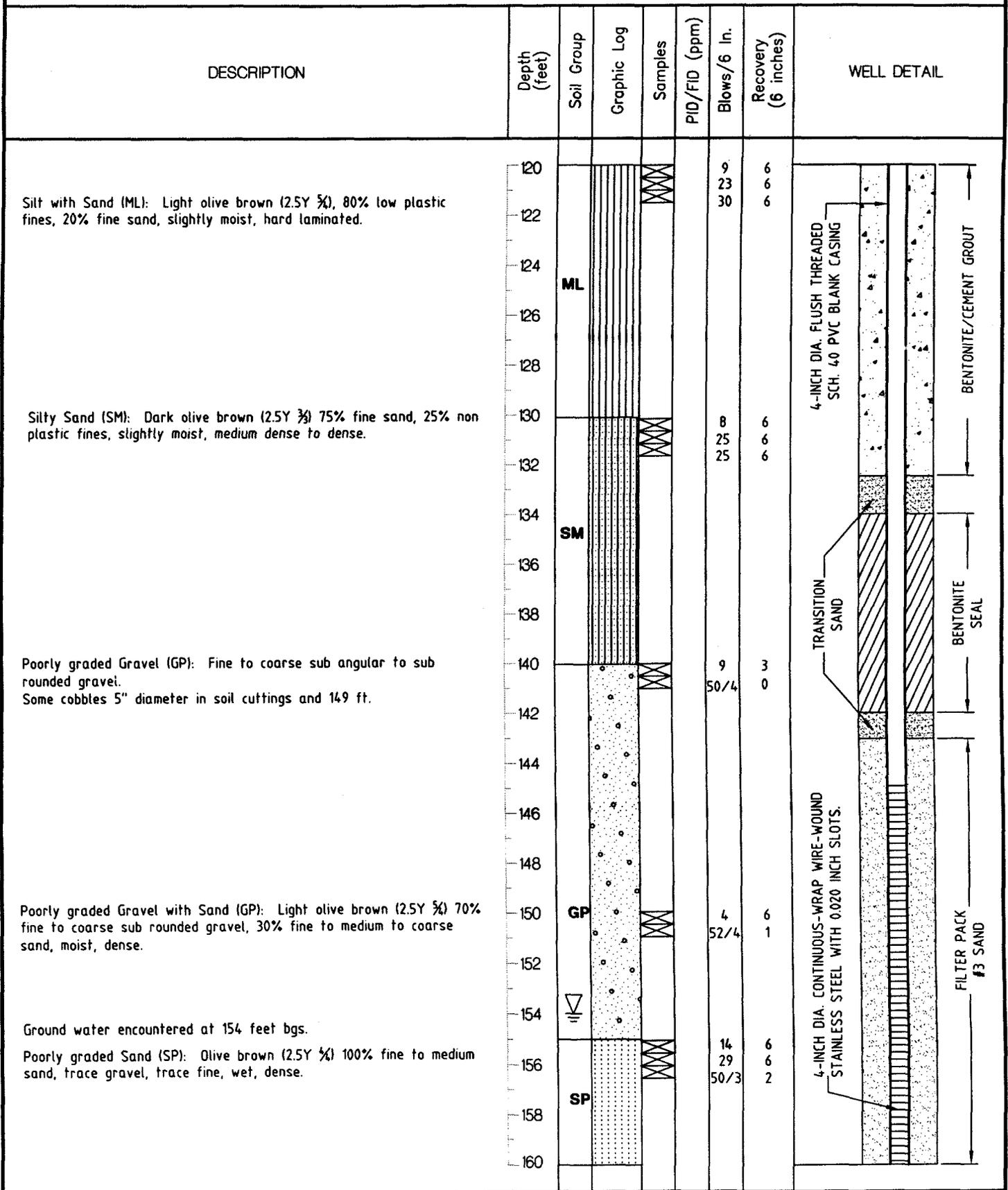


**NOTE:** This summary applies only at the location of this boring and at the time of drilling. Subsurface conditions may differ at other locations. The data presented is a simplification of actual conditions encountered.

# Geologic Log of Well 05\_DBMW41A

Project **EL TORO, MCAS**

Project No. **918708**



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**NOTE:** This summary applies only at the location of this boring and at the time of drilling. Subsurface conditions may differ at other locations.

# Geologic Log of Well 05\_DBMW41A

Project **EL TORO, MCAS**

Project No. **918708**

DESCRIPTION	Depth (feet)	Soil Group	Graphic Log	Samples	PID/FID (ppm)	Blows/6 In.	Recovery (6 inches)	WELL DETAIL
Poorly graded Sand with silt (SP/SM): Yellowish brown (10YR 5/4) 85% fine to medium to coarse sand, 10% fines, 5% fine sub rounded gravel, wet, dense.	160	SP/SM				13	6	<p>4-INCH DIA. CONTINUOUS-WRAP WIRE-WOUND STAINLESS STEEL WITH 0.020 INCH SLOTS.</p> <p>4-INCH DIA. STAINLESS STEEL SUMP</p> <p>FILTER PACK #3 SAND</p>
	162					23	6	
						29	6	
Clayey Silt (ML): Dark yellowish brown (10YR 3/6) 100% medium plastic fines, moist, very stiff.	164	ML				5	6	
	166					11	6	
						20	5	
Clayey Silt (ML): Light olive brown (2.5Y 5/6) 100% medium plastic fines, moist, hard.	170	ML				8	6	
	172					24	6	
						40	6	
No sample at 175 ft. flowing sand coming into drill string.	174	SP						
From 175 feet to total depth boring is logged by drill cuttings. Sands (SP), well sorted fine sands, saturated.	176							
	178							
Same as above (SP).	180	SP						
	182							
	184							
Same as above (SP).	186	SP						
	188							
Same as above (SP): Fine to medium flowing sand.	190							
TOTAL DEPTH = 190.0 FEET	190							
	192							
	194							
	196							
	198							
	200							

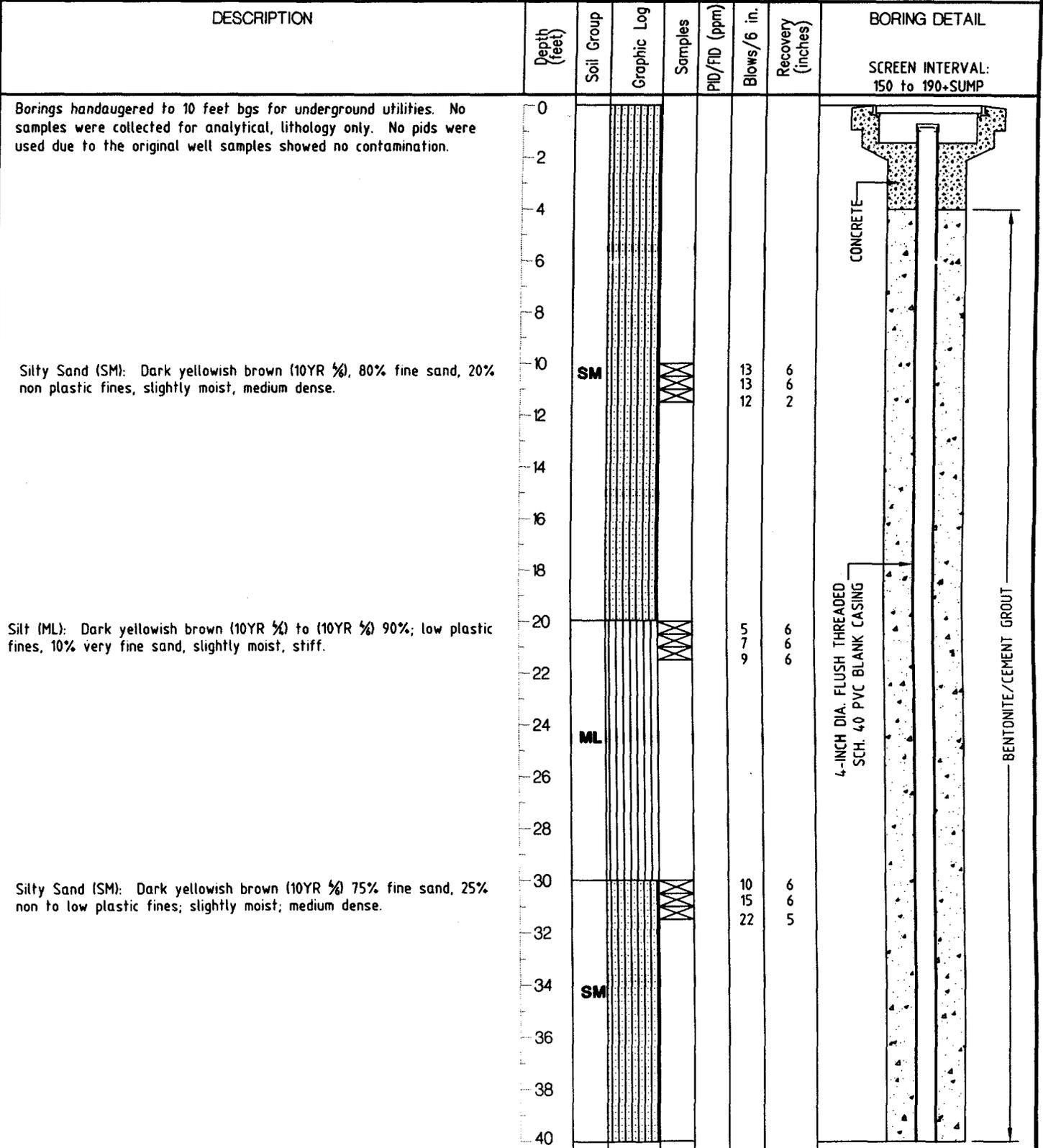
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NOTE: This summary applies only at the location of this boring and at the time of drilling. Subsurface conditions may differ at other locations and at this location with the passage of time. The data presented is a simplification of actual conditions encountered.

# Geologic Log of Boring 05\_DGMW67A

Project <b>MCAS, EL TORO</b>		Northing 2189097.05	Drilling Company LAYNE CHRISTENSEN CO.	
Project Number <b>918708</b>		Easting 6117685.05	Drill Rig FOREMOST AP 1000	Begin Drilling 9/1/00
Client SWDIV		TOC Elevation 430.02	Driller Pancho Gutierrez	End Drilling 9/5/00
Geologist A. Siddiqui		RIM Elevation 430.64	Drill Method DWRCPH	Start time 0802
Location <b>MARINE CORPS AIR STATION</b>		DIAGRAM NOT TO SCALE		End time 0900
Borehole Diameter 10 INCHES	Total Depth of Borehole 195 FEET		Depth to Water 159.6 FEET	



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NOTE: This summary applies only at the location of this boring and at the time of drilling. Subsurface conditions may differ at other locations. The data presented is a simplification of actual conditions encountered.

# Geologic Log of Well 05\_DGMW67A

Project **EL TORO, MCAS** Project No. **918708**

DESCRIPTION	Depth (feet)	Soil Group	Graphic Log	Samples	PID/FID (ppm)	Blows/6 in.	Recovery (6 inches)	WELL DETAIL
<p>Poorly graded Sand (SP): Yellowish brown (10YR 5/6), 100% fine to medium sand, trace fines, slightly moist, medium dense to dense.</p>	40	SP	[Dotted pattern]	[X marks]		14 23 31	6 6 6	[Well detail diagram]
	42							
	44							
<p>Silty Sand (SM): Yellowish brown (10YR 5/6) 70% fine sand, 30% low plastic fines, slightly moist, very dense, trace caliche.</p>	50	SM	[Vertical lines pattern]	[X marks]		22 50/5	6 5	[Well detail diagram]
	52							
	54							
<p>Silty Sand (SM): Dark yellowish brown (10YR 5/6) 70% fine sand, 30% non plastic fines, slightly moist, dense.</p>	60	SM	[Vertical lines pattern]	[X marks]		15 27 40	6 6 6	[Well detail diagram]
	62							
	64							
<p>Poorly graded Sand (SP): Light yellowish brown (2.5Y 5/6) 100% fine to medium sand, slightly moist, dense.</p>	70	SP	[Dotted pattern]	[X marks]		10 30 42	6 6 5	[Well detail diagram]
	72							
	74							
	76							
	78							
	80							

4-INCH DIA. FLUSH THREADED  
 SCH. 40 PVC BLANK CASING  
 BENTONITE/CEMENT GROUT

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*NOTE: This summary applies only at the location of this boring and at the time of drilling. Subsurface conditions may differ at other locations.*

# Geologic Log of Well 05\_DGMW67A

Project **EL TORO, MCAS**

Project No. **918708**

DESCRIPTION	Depth (feet)	Soil Group	Graphic Log	Samples	PID/FID (ppm)	Blows/6 in.	Recovery (6 inches)	WELL DETAIL
Silty Sand (SM): Dark yellowish brown (10YR 5/2), 60% fine sand, 40% non plastic fines, trace caliche, slightly moist dense.	80	SM	[Vertical Line Pattern]	[X Pattern]		10	6	[Well Detail Diagram]
	82					30	6	
	84					42	5	
Silt with Sand (ML): Dark yellowish brown, (10YR 5/2) 80% non plastic fines, 20% very fine sand, trace caliche, slightly moist, very stiff.	90	ML	[Vertical Line Pattern]	[X Pattern]		7	6	[Well Detail Diagram]
	92					13	6	
	94					20	6	
Silty Sand (SM): Light yellowish brown (2.5Y 5/2) 80% fine sand, 20% fines, slightly moist, medium dense.	100	SM	[Vertical Line Pattern]	[X Pattern]		6	6	[Well Detail Diagram]
	102					11	6	
	104					20	5	
Silty Sand (SM): Light olive brown (2.5Y 5/2) 80% fine sand, 20% non plastic fines, slightly moist, medium dense.	110	SM	[Vertical Line Pattern]	[X Pattern]		5	6	[Well Detail Diagram]
	112					7	6	
	114					20	6	
	116							4-INCH DIA. FLUSH THREADED SCH. 40 PVC BLANK CASING  BENTONITE/CEMENT GROUT
	118							
	120							

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**NOTE:** This summary applies only at the location of this boring and at the time of drilling. Subsurface conditions may differ at other locations.

# Geologic Log of Well 05\_DGMW67A

Project **EL TORO, MCAS**

Project No. **918708**

DESCRIPTION	Depth (feet)	Soil Group	Graphic Log	Samples	PID/FID (ppm)	Blows/6 In.	Recovery (6 inches)	WELL DETAIL
<p>Poorly graded Sand (SP): Light olive brown (2.5Y 5/6), 95% fine to medium sand, 5% coarse subrounded gravel, trace fines, slightly moist, medium dense. At 122 feet soil cuttings are very moist.</p>	120	SP	[Dotted pattern]	[X-pattern]		3 9 20	6 4 0	4-INCH DIA. FLUSH THREADED SCH. 40 PVC BLANK CASING
	122							
	124							
	126							
	128							
<p>Poorly graded Sand with silt (SP/SM): 90% fine to medium sand, 10% medium plastic fines, very moist, loose.</p>	130	SP/SM	[Horizontal lines]	[X-pattern]		3 3 6	6 5 0	BENTONITE/CEMENT GROUT
	132							
	134							
	136							
	138							
<p>Poorly graded Gravel with Sand (GP): 80% fine to coarse sub angular to subrounded gravel, 20% fine to medium to coarse sand, trace fine slightly moist; sand is light olive brown (2.5Y 5/6), dense.</p>	140	GP	[Large dots]	[X-pattern]		15 50/3	6 1	TRANSITION SAND
	142							
	144							
	146							
	148							
<p>Same as above.</p>	150					7 10 30	6 1 0	BENTONITE SEAL
	152							
	154							
<p>At 155 ft. no recovery.</p>	154							
	156							
<p>Groundwater encountered @ 159.6 feet bgs.</p>	156							
	158							
	160							4-INCH DIA. CONTINUOUS-WRAP WIRE-WOUND STAINLESS STEEL WITH 0.020 INCH SLOTS
								FILTER PACK #3 SAND

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NOTE: This summary applies only at the location of this boring and at the time of drilling. Subsurface conditions may differ at other locations

# Geologic Log of Well 05\_DGMW67A

Project **EL TORO, MCAS**

Project No. **918708**

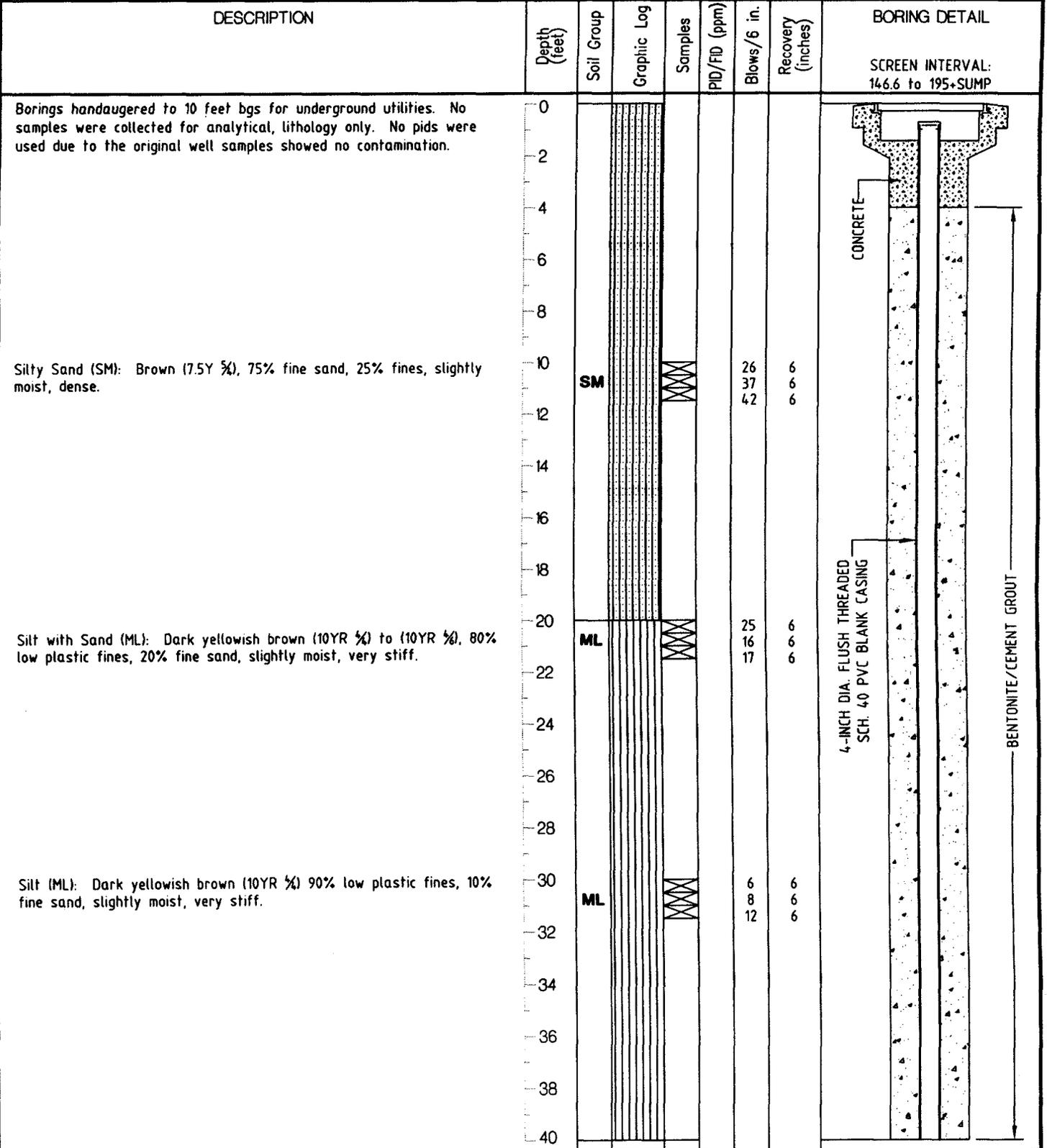
DESCRIPTION	Depth (feet)	Soil Group	Graphic Log	Samples	PID/FID (ppm)	Blows/6 In.	Recovery (6 inches)	WELL DETAIL
Clayey Silt (ML): Light olive brown (2.5Y 5/6), 90% medium plastic fines, 10% very fine sand, moist, very stiff.	160	ML				5	6	
	162					10	6	
	164					20	6	
Silty clayey Sand (SM/SC): Dark yellowish brown (10YR 5/6) 75% fine sand, 25% medium plastic fines, very moist, very dense to dense.	166	SM/SC				5	6	
	168					35	6	
	170					50/5	5	
Silty Sand (SM): Light olive brown (2.5Y 5/6) 85% fine to medium sand 15% medium plastic fines, 2" gravel in shoe, very moist, dense.	172	SM				20	6	
	174					50/2	1	
	176					12	6	
Silty clayey Sand (SM/SC): Light olive brown (2.5Y 5/6) 60% fine sand, 40% medium plastic fines, very moist, dense.	178	SM/SC				20	4	
	180					31	6	
	182					7	6	
Silty CLAY: olive brown (2.5Y 5/6) 100% medium plastic fines, moist, very stiff.	184	CL				30	6	
	186					50/2	6	
	188					9	6	
Poorly graded SAND; light yellowish brown (2.5Y 5/6) 100% fine to medium sand, little coarse sand, trace fines, wet, loose.	190	SP				9	6	
	192					9	6	
	194					17	6	
TOTAL DEPTH = 195.0 FEET	196							
	198							
	200							

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NOTE: This summary applies only at the location of this boring and at the time of drilling. Subsurface conditions may differ at other locations. The data presented is a qualitative representation of actual conditions encountered.

# Geologic Log of Boring 05\_DGMW68A

Project <b>MCAS, EL TORO</b>		Northing 2188678.69		Drilling Company LAYNE CHRISTENSEN CO.	
Project Number <b>918708</b>		Easting 6117264.34		Drill Rig FOREMOST AP 1000	
Client SWDIV		TOC Elevation 419.61		Driller Pancho Gutierrez	
Geologist A. Siddiqui		RIM Elevation 420.09		Drill Method DWRCPH	
Location <b>MARINE CORPS AIR STATION</b>			DIAGRAM NOT TO SCALE		
Borehole Diameter 10 INCHES		Total Depth of Borehole 200 FEET		Depth to Water 164 FEET	



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NOTE: This summary applies only at the location of this boring and at the time of drilling. Subsurface conditions may differ at other locations

# Geologic Log of Well 05\_DGMW68A

Project **EL TORO, MCAS**

Project No. **918708**

DESCRIPTION	Depth (feet)	Soil Group	Graphic Log	Samples	PID/FID (ppm)	Blows/6 In.	Recovery (6 inches)	WELL DETAIL
Poorly graded Sand (SP): Light yellowish brown (10YR 4/1) 100% fine well sorted sand, interbedded with dark yellowish brown, low plastic silt, slightly moist, loose.	40	SP				26	6	
	42					37	6	
	44					42	6	
Sandy Silt (ML): Dark yellowish brown (10YR 3/1) 70% low plastic fine, 30% fine sand, mist, stiff, grades into silty sand at places.	50	ML				4	6	
	52					7	6	
	54					8	6	
Poorly graded Sand (SP): Light yellowish brown (2.5Y 4/1) 90% fine to medium to coarse sand, 10% fine sub rounded gravel, trace fines, slightly moist, dense.	60	SP				11	6	4-INCH DIA. FLUSH THREADED SCH. 40 PVC BLANK CASING  BENTONITE/CEMENT GROUT
	62					50/3'	2	
	64							
Coarse Gravel and some cobbles in soil cuttings  Sandy Gravel; 2 1/2" gravel in sampler.  Gravel end at 73 ft.	70	GP				50/3'	4	
	72							
	74							
SP	76	SP						
	78							
	80							

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**OHM Remediation Services Corp.**

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NOTE: This summary applies only at the location of this boring and at the time of drilling. Subsurface conditions may differ at other locations

# Geologic Log of Well 05\_DGMW68A

Project **EL TORO, MCAS**

Project No. **918708**

DESCRIPTION	Depth (feet)	Soil Group	Graphic Log	Samples	PID/FID (ppm)	Blows/6 In.	Recovery (6 inches)	WELL DETAIL
Poorly graded Sand (SP): Dark yellowish brown (10YR 5/6), 95% fine to medium sand, 5% fines, slightly moist, dense.	80	SP				25	6	<div style="display: flex; justify-content: space-between;"> <div style="width: 40%;"> <p style="text-align: center;">4-INCH DIA. FLUSH THREADED SCH. 40 PVC BLANK CASING</p> </div> <div style="width: 50%;"> <p style="text-align: center;">BENTONITE/CEMENT GROUT</p> </div> </div>
	82					30	6	
	84					31	6	
Clayey Silt (ML): Dark yellowish brown (10YR 5/6) 100% medium plastic fines, slightly moist, very stiff to hard.	90	ML				10	6	
	92					11	6	
	94					27	6	
Sandy Silt (ML): Dark yellowish brown (10YR 5/6) 70% low plastic fines, 30% fine sand, slightly moist to moist, hard.	100	ML				15	6	
	102					25	6	
	104					46	6	
Poorly graded Sand with silt (SP/SM): Light yellowish brown (2.5Y 5/6), 90% fine to medium sand, 10% fines, interbedded with sandy silt, slightly moist, medium dense.	110	SP/SM				8	6	
	112					14	6	
	114					17	6	
Poorly graded Sand (SP): Light olive brown (2.5Y 5/6) 100% fine to medium to coarse sand, slightly moist, interbedded with olive brown color laminated silt, dense.	116	SP				10	6	
	118					32	6	
	120					36	6	

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**NOTE:** This summary applies only at the location of this boring and at the time of drilling. Subsurface conditions may differ at other locations.

# Geologic Log of Well 05\_DGMW68A

Project **EL TORO, MCAS**

Project No. **918708**

DESCRIPTION	Depth (feet)	Soil Group	Graphic Log	Samples	PID/FID (ppm)	Blows/6 in.	Recovery (6 inches)	WELL DETAIL
Silty Sand (SM): Dark brown (10YR 3/3) 70% very fine sand, 30% non to low plastic fines, moist, medium dense.	120	SM				16	6	
	122					24	6	
	120-122					20	6	
Poorly graded Sand (SP): Light olive brown (2.5Y 3/3) 95% fine to medium sand, 5% fines, slightly moist; medium dense, trace silt stone gravel.	130	SP				10	6	
	132					15	6	
	130-132					17	6	
Poorly graded Sand with silt (SM): Yellowish brown fine sand with silt, slightly moist, medium dense, no odor.	140	SM				6	6	
	142					13	6	
	140-142					20	6	
Poorly graded Sand (SP): Light yellowish brown, little to no silt, slightly moist, no odor.	150	SP				6	0	
	152					26	6	
	150-152					50/4	6	
Well graded Sand with silt (SM): Brown, moist, 10% silt some gravels (N.75) low strength, no odor.	156	SM				20	0	
	158					40	6	
	156-158					50	6	
CLAY with silt (CL): Olive plastic medium dense, moist, very fine sands (<5%)	158	CL						
	160							

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NOTE: This summary applies only at the location of this boring and at the time of drilling. Subsurface conditions may differ at other locations

# Geologic Log of Well 05\_DGMW68A

Project **EL TORO, MCAS**

Project No. **918708**

DESCRIPTION	Depth (feet)	Soil Group	Graphic Log	Samples	PID/FID (ppm)	Blows/6 in.	Recovery (6 inches)	WELL DETAIL
CLAY with silt (CL): Olive plastic medium dense, moist, very fine sands (<5%)	160	CL				13 35 18	6 6 6	<p style="font-size: small;">4-INCH DIA. CONTINUOUS-WRAP WIRE-WOUND STAINLESS STEEL WITH 0.020 INCH SLOTS.</p> <p style="font-size: small;">4-INCH DIA. STAINLESS STEEL SUMP</p> <p style="font-size: small;">FILTER PACK #3 SAND</p>
Well graded Sand (SW): Brown, very moist (wet), low silt (<5%), low strength, no odor. Ground water encountered at 164 feet bgs.	162							
	164							
	166	SW			4 20 30	6 6 6		
	168							
Clay (CL): Olive gray medium plasticity, dense, with little silt, moist, (<1% sand) no odor.	170	CL			7 10 15	6 6 6		
	172							
Poorly graded Sand (SP): With silt, brown, wet with gravels (no. 6), no odor.	174	SP			15 20 30	0 6 6 6		
	176							
	178							
Same as above (SP), logged by cuttings.	180							
	182							
	184							
Same as above (SP).	186							
	188							
Same as above (SP).	190							
	192							
	194							
	196							
Same as above (SP).	198							
	200							

TOTAL DEPTH = 200 FEET

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NOTE: This summary applies only at the location of this boring and at the time of drilling. Subsurface conditions may differ at other locations.





# Geologic Log of Well 07\_DBMW43A

Project **EL TORO, MCAS**

Project No. **918708**

DESCRIPTION	Depth (feet)	Soil Group	Graphic Log	Samples	PID/FID (ppm)	Blows/6 in.	Recovery (6 inches)	WELL DETAIL
Silt (ML): Olive brown (2.5Y 5) 95% low to medium plastic fines, 5% fine sand, slightly moist, very stiff.	80	ML				14	6	<p style="font-size: small;">4-INCH DIA. FLUSH THREADED SCH. 40 PVC BLANK CASING</p> <p style="font-size: small;">TRANSITION SAND</p> <p style="font-size: small;">BENTONITE/CEMENT GROUT</p> <p style="font-size: small;">BENTONITE SEAL</p> <p style="font-size: small;">4-INCH DIA. CONTINUOUS-WRAP WIRE-WOUND STAINLESS STEEL WITH 0.020 INCH SLOTS.</p> <p style="font-size: small;">FILTER PACK #3 SAND</p>
	82							
Silty Sand (SM): Dark yellowish brown (10YR 5) 65% fine sand, 35% low plastic fines, slightly moist, medium dense, grades into sandy silt at places.	84	SM				8	6	
	86					13	6	
	88					22	6	
	90					8	6	
Poorly graded Sand (SP): Yellowish brown (10YR 5) 100% fine to medium sand, trace fines, slightly moist to moist, dense.	92	SP				13	6	
	94					22	6	
	96					8	6	
	98					14	6	
Silt (ML): Dark yellowish brown (10YR 5) 90% low to medium plastic fines, 10% fine sand, very moist, very stiff.	100	ML				30	6	
	102					50	6	
	104					6	6	
Silty Sand (SM): Dark yellowish brown (10YR 5) 75% fine sand, 25% fines, wet, medium dense. Groundwater encountered @ 109 feet bgs.	106	SM				11	6	
	108					20	6	
	110					8	6	
Silty Sand (SM): Dark yellowish brown (10YR 5) 70% fine sand, 30% low plastic fines, wet, medium dense.	112	SM				11	6	
	114					15	6	
	116					3	6	
Unable to collect sample ~3 feet of heave inside hole, consisting of silty sand and poorly graded sand with silt.	118	SM				9	6	
	120					20	6	

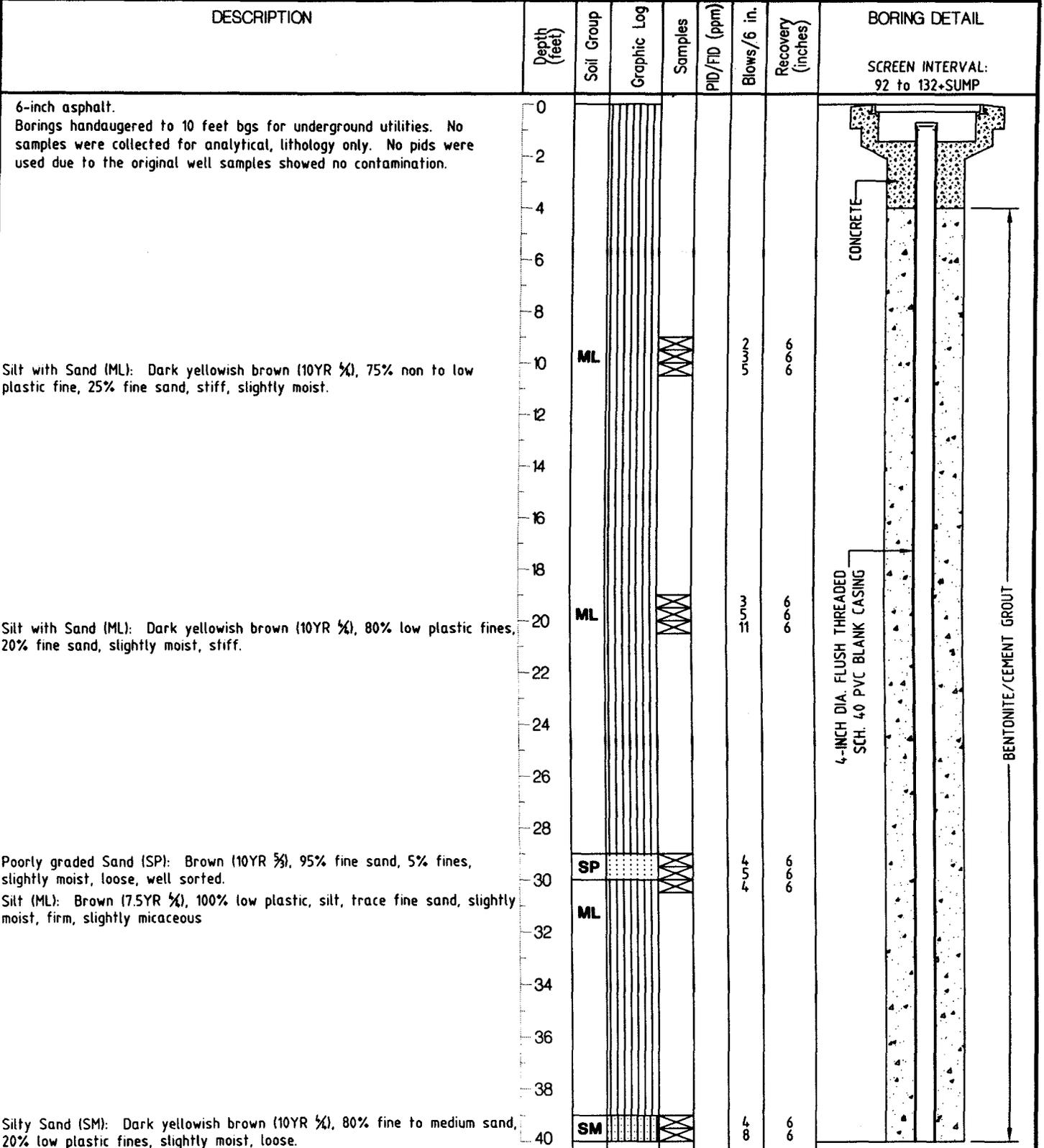
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**NOTE:** This summary applies only at the location of this boring and at the time of drilling. Subsurface conditions may differ at other locations and may change at this location with the passage of time. The data presented is a simplification of actual conditions encountered.



# Geologic Log of Boring 07\_DBMW100A

Project <b>MCAS, EL TORO</b>		Northing 2187960.16	Drilling Company LAYNE CHRISTENSEN CO.	
Project Number <b>918708</b>		Easting 6110538.74	Drill Rig CME 95	Begin Drilling 8/11/00
Client SWDIV		TOC Elevation 286.06	Driller Jim Kline	End Drilling 8/11/00
Geologist A. Siddiqui		RIM Elevation 286.57	Drill Method HSA	Start Time 0738
Location <b>MARINE CORPS AIR STATION</b>		DIAGRAM NOT TO SCALE		End Time 1300
Borehole Diameter 12 INCHES		Total Depth of Borehole 138 FEET	Depth to Water 99 FEET	



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**NOTE:** This summary applies only at the location of this boring and at the time of drilling. Subsurface conditions may differ at other locations and may change at this location with the passage of time. The data presented is a simplification of actual conditions encountered.

# Geologic Log of Well 07\_DBMW100A

Project **EL TORO, MCAS**

Project No. **918708**

DESCRIPTION	Depth (feet)	Soil Group	Graphic Log	Samples	PID/FID (ppm)	Blows/6 in.	Recovery (6 inches)	WELL DETAIL
Silt with Sand (ML): Yellowish brown (10YR 5/4), 85% low plastic fines, 15% fine sand, slightly moist, stiff to very stiff.  ~1 foot of Gravel layer at 42 feet.	40	ML				10	6	
	42							
Silt (ML): Yellowish brown (10YR 5/4), 90% low plastic fines, 10% fine sand, slightly moist, very stiff to hard.	50	ML				8 15 24	6 6 6	
	52							
Silt with Sand (ML): Dark yellowish brown (10YR 5/4), 80% low to medium plastic fines, 20% fine sand, slightly moist, very stiff.	60	ML				5 12 22	6 6 6	
	62							
Silt (ML): Dark yellowish brown (10YR 5/4), 90% medium plastic fines, 10% fine sand, slightly moist, very stiff.	70	ML				5 12 23	6 6 6	
	72							
Silty Sand (SM): Light olive brown (2.5Y 5/4), 85% fine sand, 15% fines, slightly moist, medium dense, interbedded with poorly graded sand, well sorted.	80	SM				8 10	6 6	
	80							

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4-INCH DIA. FLUSH THREADED  
 SCH. 40 PVC BLANK CASING  
  
 BENTONITE/CEMENT GROUT



NOTE: This summary applies only at the location of this boring and at the time of drilling. Subsurface conditions may differ at other locations and may change at this location with the passage of time. The data presented is a simplification of actual conditions encountered.

# Geologic Log of Well 07\_DBMW100A

Project **EL TORO, MCAS**

Project No. **918708**

DESCRIPTION	Depth (feet)	Soil Group	Graphic Log	Samples	PID/FID (ppm)	Blows/6 in.	Recovery (6 inches)	WELL DETAIL
Silty Sand (SM): Light olive brown (2.5Y 5/4), 85% fine sand, 15% fines, slightly moist, medium dense, interbedded with poorly graded sand.	80 - 82	SM	[Vertical lines]	[X]		19	6	<p style="text-align: center;">4-INCH DIA. FLUSH THREADED SCH. 40 PVC BLANK CASING</p> <p style="text-align: center;">4-INCH DIA. CONTINUOUS-WRAP WIRE-WOUND STAINLESS STEEL WITH 0.020 INCH SLOTS.</p> <p style="text-align: center;">#3 SAND</p> <p style="text-align: center;">BENTONITE SEAL</p> <p style="text-align: center;">CEMENT GROUT</p>
Silty Sand (SM): Yellowish brown (10YR 5/4), 85% fine (mostly) to medium sand, 15% fines, trace fine angular gravel, slightly moist, dense.	82 - 90	SM	[Vertical lines]	[X]		16 21 29	6 6 6	
Poorly Graded Sand (SP): Light olive brown (2.5Y 5/4), 100% fine to medium sand, trace fine subrounded gravel, trace fines, slightly moist to moist, medium dense.	90 - 94	SP	[Dotted pattern]	[X]		7 16 25	6 6 6	
Silt (ML): Dark yellowish brown (10YR 5/4), 90% medium plastic fines, 10% fine sand, very moist, stiff, interbedded with olive brown color lens of saturated poorly graded sand. Groundwater encountered @ 99 feet bgs.	94 - 100	ML	[Vertical lines]	[X]		7 6 8	6 6 6	
Silt (ML): Light olive brown (2.5Y 5/4) to (2.5Y 5/4), 90% low to medium plastic fines, 10% fine sand, very moist to wet, very stiff, interbedded with fine grain silty sand.	100 - 104	ML	[Vertical lines]	[X]		4 5 14	6 6 6	
Silty Sand (SM): Olive brown (2.5Y 5/4), 70% fine to medium sand, 30% low plastic fines, wet, interbedded with low plastic silt, and poorly graded sand.	104 - 110	SM	[Vertical lines]	[X]		9 7 10	6 6 6	
Silty Sand (SM): Light olive brown (2.5Y 5/4), 80% fine to medium sand, 20% low plastic fines, wet, loose, grades into poorly graded sand.	110 - 114	SM	[Vertical lines]	[X]		4 6 10	6 6 6	
Silt (ML): Dark yellowish brown (10YR 5/4), 90% medium plastic fines, 10% fine sand, moist, very stiff.	114 - 120	ML	[Vertical lines]	[X]		8 12	6 6	

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**NOTE:** This summary applies only at the location of this boring and at the time of drilling. Subsurface conditions may differ at other locations and may change at this location with the passage of time. The data presented is a simplification of actual conditions encountered.

# Geologic Log of Well 07\_DBMW100A

Project **EL TORO, MCAS**

Project No. **918708**

DESCRIPTION	Depth (feet)	Soil Group	Graphic Log	Samples	PID/FID (ppm)	Blows/6 in.	Recovery (6 inches)	WELL DETAIL
Silt (ML): Dark yellowish brown (10YR 3/4), 90% medium plastic fines, 10% fine sand, moist, very stiff.	120	ML		X		21	6	<p style="font-size: small;">4-INCH DIA. CONTINUOUS-WRAP WIRE-WOUND STAINLESS STEEL WITH 0.020 INCH SLOTS.</p> <p style="font-size: small;">4-INCH DIA. STAINLESS STEEL SUMP</p> <p style="font-size: small;">FILTER PACK #3 SAND</p>
Silt (ML): Light olive brown to olive brown (2.5Y 3/4) to (2.5Y 3/4), 90% low to medium plastic fines, 10% fine sand, very moist, very stiff.	122	ML		X		9	6	
	124	ML		X		16	6	
	126	ML		X		14	6	
Poorly graded Sand (SP): Light olive brown (2.5Y 3/4), 95% fine to medium sand, 5% fines, wet, dense.	128	SP		X		21	6	
	130	SP		X		38	6	
Poorly graded Sand (SP): Fine to medium to coarse sand, same as above.	132	SP		X				
	134	SP		X		22	6	
	136	SP		X		50/5	6	
	138	SP		X				
Total Depth= 138 feet.	140							
	142							
	144							
	146							
	148							
	150							
	152							
	154							
	156							
	158							
	160							

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**NOTE:** This summary applies only at the location of this boring and at the time of drilling. Subsurface conditions may differ at other locations and may change at this location with the passage of time. The data presented is a simplification of actual conditions encountered.

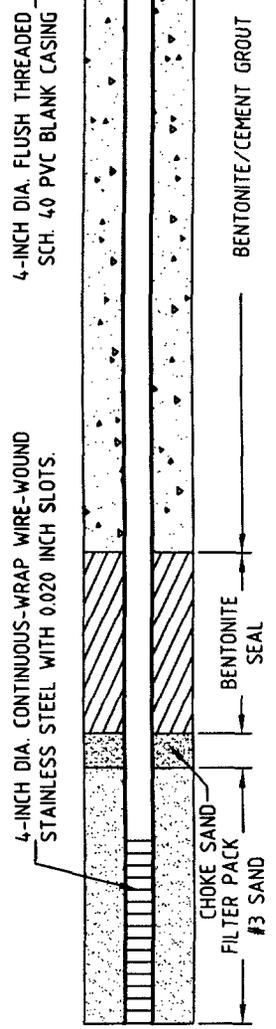


# Geologic Log of Well 08\_UGMW29A

Project **EL TORO, MCAS** Project No. **918708**

DESCRIPTION	Depth (feet)	Soil Group	Graphic Log	Samples	PID/FID (ppm)	Blows/6 in.	Recovery (6 inches)	WELL DETAIL
Silty Sand (SM): Dark yellowish brown (10YR 5/6) 70% fine (mostly) to medium sand, 30% low plastic fines, slightly moist, medium dense, interbedded with 1-inch lens of poorly graded sand with silt.	40	SM				17	6	
	42					27	6	
Sandy Silt (ML): Yellowish brown (10YR 5/6), 70% non to low plastic fines, 30% fine sand, slightly moist, hard.	50	ML				8	6	
	52					12	6	
	54					17	6	
Silty Sand (SM): Dark yellowish brown (10YR 5/6), 70% fine sand, 30% low plastic fines, slightly moist, medium dense, interbedded with sandy silt.	60	SM				5	6	
	62					15	6	
	64					34	6	
Silty Sand (SM): Dark yellowish brown (10YR 5/6) 65% fine sand, 35% low plastic fines, slightly moist, dense, interbedded into sandy silt at places.	70	SM				17	6	
	72					26	6	
	74					44	6	
Poorly graded Sand with Silt (SP/SM): Light olive brown (2.5Y 5/6), 90% fine sand, 10% fines, slightly moist, medium dense, very well sorted.	74	SP/SM				5	6	
	76					11	6	
Silty Sand (SM): Dark yellowish brow (10YR 5/6) 70% fine (mostly) to medium sand, 30% non to low plastic fines, trace piece of micaceous olive color sandy silt, very moist, medium dense.	78	SM				11	6	
	80					17	6	

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**NOTE:** This summary applies only at the location of this boring and at the time of drilling. Subsurface conditions may differ at other locations and at this location with the passage of time. The data presented is a simplification of actual conditions encountered.

# Geologic Log of Well 08\_UGMW29A

Project **EL TORO, MCAS**

Project No. **918708**

DESCRIPTION	Depth (feet)	Soil Group	Graphic Log	Samples	PID/FID (ppm)	Blows/6 In.	Recovery (6 inches)	WELL DETAIL	
<p>Silty Sand (SM): Yellowish brown to dark yellowish brown (10YR 5/2) to (10YR 5/4) 75% fine sand, 25% non plastic, fine, very moist to wet, medium dense interbedded with poorly graded sand with silt. Groundwater encountered at 84 feet bgs.</p> <p>Silty Sand (SM): Yellowish brown (10YR 5/4) 85% fine to medium sand, 15% fines, wet, medium dense, little coarse sand.</p> <p>Poorly graded Sand (SP): Light yellowish brown (2.5Y 5/2) 100% fine to medium to coarse sand layers, trace gravel, wet.</p> <p>Silty Sand (SM): Light olive brown (2.5Y 5/2) 70% fine sand, 30% non plastic fines, very well sorted micaceous wet, loose to medium dense.</p> <p>3 feet of heave in bore hole consisting of fine to medium to coarse grained poorly graded sand, no sample collected at 100 feet.</p> <p>4 feet of heave in bore hole at 105 feet, no sample collected at 105 feet fine to medium grained SP to SP-SM.</p> <p>Clean heave inside auger and drill to 110'. Now there is 12 feet of heave material inside the augers.</p> <p>There is 9 1/2 feet of heave inside the augers at 115 feet; trying to get it out. Can not get the sand out of the auger however the hole is open to 115 ft. So it appears that there is silt or clay or sandy silt/clay at 115 feet. Stop drilling at 115 ft. with small auger; when pulled sample out of augers it is full of heave consisting of fine grained SP.</p> <p style="text-align: center;">TOTAL DEPTH = 115.0 FEET</p>	80					18	6		
	82								
	84	SM	SM	SM	SM		6		6
	86						14		6
	88						19		6
	90						12		6
	92						16		6
	94	SP	SP	SP	SP		23		6
	96						2		6
	98	SM	SM	SM	SM		5		6
	100						14		6
	102								
	104	SP	SP	SP	SP				
	106								
	108								
	110								
	112	ML	ML	ML	ML				
	114								
116									
118									
120									

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**NOTE:** This summary applies only at the location of this boring and at the time of drilling. Subsurface conditions may differ at other locations and may change at this location with the passage of time. The data presented is a simplification of actual conditions encountered.



# Geologic Log of Well 12\_DBMW48A

Project **EL TORO, MCAS**

Project No. **918708**

DESCRIPTION	Depth (feet)	Soil Group	Graphic Log	Samples	PID/FID (ppm)	Blows/6 in.	Recovery (6 inches)	WELL DETAIL
Silty Sand (SM): Dark Brown (7.5YR 3/3), 80% fine to medium sand, 20% low plastic fines, slightly moist, medium dense.	40	SM				16	6	<p style="font-size: small;">4-INCH DIA. FLUSH THREADED SCH. 40 PVC BLANK CASING</p> <p style="font-size: small;">BENTONITE/CEMENT GROUT</p> <p style="font-size: small;">BENTONITE SEAL</p> <p style="font-size: small;">1/2" BENTONITE SEAL</p> <p style="font-size: small;">TRANSITION #30 SAND</p> <p style="font-size: small;">FILTER PACK #3 SAND</p>
Silt (ML): Brown (7.5YR 5/4), 90% low plastic fines, 10% fine sand, slightly moist, very stiff.	42							
	44							
	46							
	48							
	50	ML				5 8 17	6 6 6	
	52							
	54							
	56							
	58							
Silt with Sand (ML): Dark yellowish brown (10YR 5/4), 75% non to low plastic fines, 25% fine sand, slightly moist, hard.	60	ML				11 15 38	6 6 6	
	62							
	64							
	66							
	68							
Silt with Sand (ML): Dark yellowish brown (10YR 3/4), 80% low plastic fines, 20% fine sand, slightly moist.	70	ML				11	6	
Poorly Graded Sand (SP): Light olive brown (2.5Y 5/4), 100% fine to medium sand, slightly moist, medium dense.	72	SP				12 17	6 6	
	74							
	76							
	78							
Poorly Graded Sand (SP): Yellowish brown (10YR 5/4), 100% fine to medium sand, trace fine subrounded gravel, moist, dense.	80	SP				6 23	6 6	

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**OHM Remediation Services Corp.**

(REV 3/19/01)

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**NOTE:** This summary applies only at the location of this boring and at the time of drilling. Subsurface conditions may differ at other locations and may change at this location with the passage of time. The data presented is a simplification of actual conditions encountered.

# Geologic Log of Well 12\_DBMW48A

Project **EL TORO, MCAS**

Project No. **918708**

DESCRIPTION	Depth (feet)	Soil Group	Graphic Log	Samples	PID/FID (ppm)	Blows/6 In.	Recovery (6 inches)	WELL DETAIL
Poorly Graded Sand (SP): Yellowish brown (10YR 5/4), 100% fine to medium sand, trace fine subrounded gravel, moist, dense.	80	SP	[Dotted pattern]	[X]		39	6	
Poorly Graded Sand (SP): Light olive brown (2.5Y 5/4), 100% fine to medium sand, trace fines, wet, dense. Groundwater encountered @ 85 feet bgs.	82	SP	[Dotted pattern]	[X]				
	84	SP	[Dotted pattern]	[X]		9	6	
	86	SP	[Dotted pattern]	[X]		12	6	
	88	SP	[Dotted pattern]	[X]		34	6	
Silty Sand (SM): Olive brown (2.5Y 5/4), 60% fine to medium sand, 40% non to low plastic fines, wet, medium dense, grades into sandy silt at places.	90	SM	[Vertical lines]	[X]		6	6	
	92	SM	[Vertical lines]	[X]		8	6	
	94	SM	[Vertical lines]	[X]		14	6	
Poorly Graded Sand (SP): Light olive brown (2.5Y 5/4), 100% fine to medium sand, trace fine, subrounded gravel, trace fines, wet, medium dense.	96	SP	[Dotted pattern]	[X]		14	6	
	98	SP	[Dotted pattern]	[X]		19	6	
	100	SP	[Dotted pattern]	[X]		23	6	
Silty Sand (SM): Olive brown (2.5Y 5/4), 85% fine to medium sand, 15% fines, wet medium dense.	102	SM	[Vertical lines]	[X]		9	6	
	104	SM	[Vertical lines]	[X]		9	6	
	106	SM	[Vertical lines]	[X]		16	6	
Silty Sand (SM): Dark yellowish brown (10YR 3/4), 40% non to low plastic fines, 60% fine sand, wet, medium dense, grades into sandy silt at places.	108	SM	[Vertical lines]	[X]		6	6	
	110	SM	[Vertical lines]	[X]		10	6	
	112	SM	[Vertical lines]	[X]		22	6	
Silty Sand (SM): Dark yellowish brown (10YR 5/4), 70% fine sand, 30% non to low plastic fines, wet, medium dense.	114	SM	[Vertical lines]	[X]		14	6	
	116	SM	[Vertical lines]	[X]		17	6	
	118	SM	[Vertical lines]	[X]		23	6	
Total Depth= 110 feet.	120							

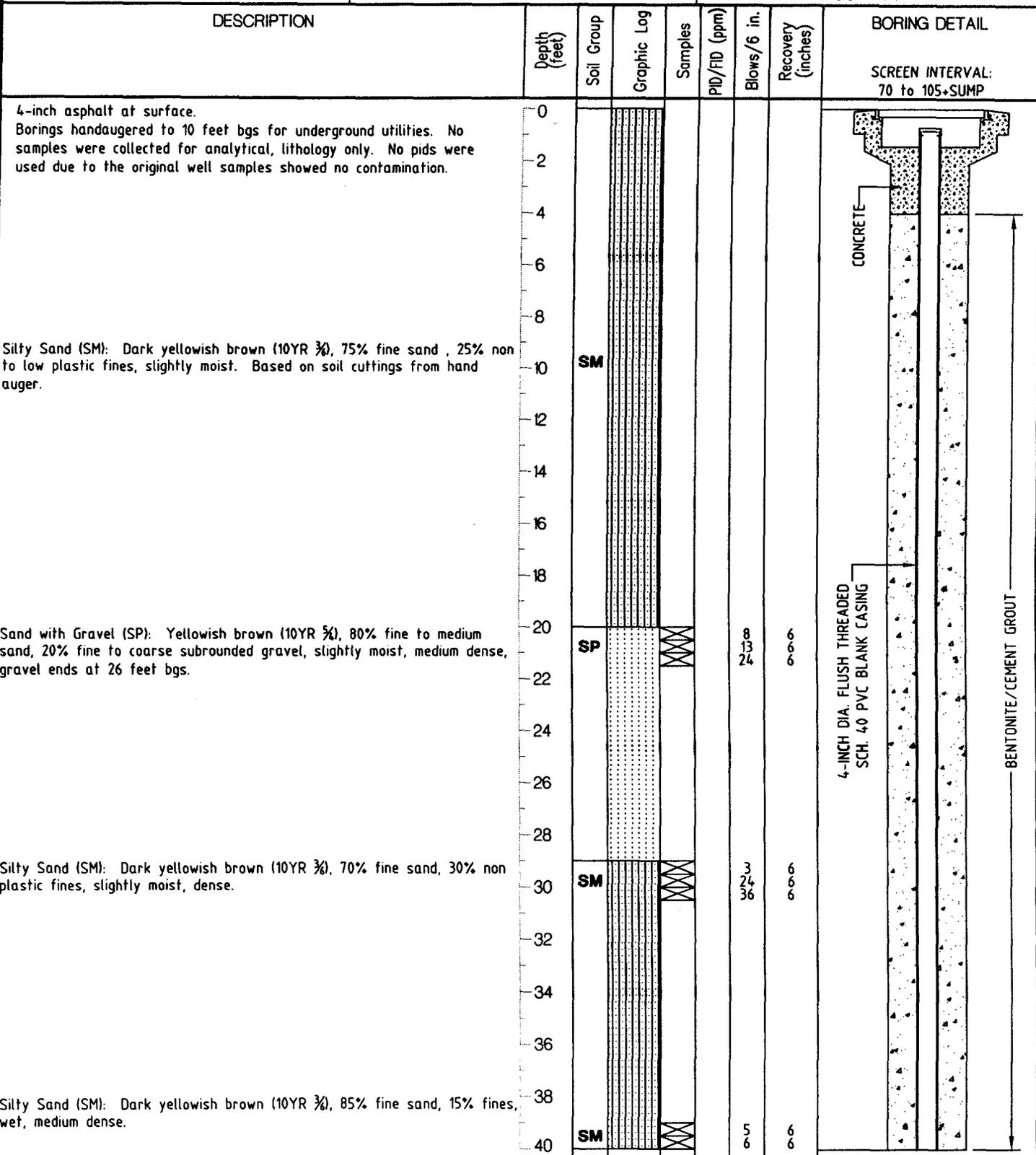
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**NOTE:** This summary applies only at the location of this boring and at the time of drilling. Subsurface conditions may differ at other locations and may change at this location with the passage of time. The data presented is a simplification of actual conditions encountered.

# Geologic Log of Boring 18\_PS3A

Project <b>MCAS, EL TORO</b>	Northing 2187093.49	Drilling Company LAYNE CHRISTENSEN CO.	
Project Number <b>918708</b>	Easting 6109290.87	Drill Rig CME 95	Begin Drilling 8/24/00
Client SWDIV	TOC Elevation 263.76	Driller Jim Kline	End Drilling 8/24/00
Geologist A. Siddiqui	RIM Elevation 264.06	Drill Method HSA	Start Time 1210
Location <b>MARINE CORPS AIR STATION</b>	DIAGRAM NOT TO SCALE		End Time 1535
Borehole Diameter 12 INCHES	Total Depth of Borehole 111 FEET	Depth to Water 80 FEET	



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NOTE: This summary applies only at the location of this boring and at the time of drilling. Subsurface conditions may differ at other locations and may change at this location with the passage of time. The data presented is a simplification of actual conditions encountered.

# Geologic Log of Well 18\_PS3A

Project **EL TORO, MCAS**

Project No. **918708**

DESCRIPTION	Depth (feet)	Soil Group	Graphic Log	Samples	PID/FID (ppm)	Blows/6 in.	Recovery (6 inches)	WELL DETAIL
Silty Sand (SM): Dark yellowish brown (10YR 3/0), 85% fine sand, 15% fines, wet, medium dense.	40	SM				15	6	<p>4-INCH DIA. FLUSH THREADED SCH. 40 PVC BLANK CASING</p> <p>CEMENT/BENTONITE GROUT</p> <p>TRANSITION SAND</p> <p>BENTONITE SEAL</p> <p>4-INCH DIA. CONTINUOUS-WRAP WIRE-WOUND STAINLESS STEEL WITH 0.020 INCH SLOTS.</p> <p>FILTER PACK #3 SAND</p>
Sandy Silt (ML): Dark yellowish brown (10YR 5/0), 70% low plastic fines, 30% fine sand, moist, stiff.	44	ML				4 5 9	6 6 6	
Clayey Silt (ML): Olive brown (2.5Y 5/0), 90% medium plastic fines, 10% fine sand, slightly moist, very stiff.	48	ML				3 8 14	6 6 6	
Silty Sand (SM): Dark yellowish brown (10YR 5/0), 70% fine sand, 30% low plastic fines, slightly moist to moist, medium dense.	60	SM				2 10 17	6 6 6	
Poorly Graded Sand (SP): Yellowish brown (10YR 5/0), 95% fine to medium to coarse sand, 5% fine subangular gravel, slightly moist, medium dense.	70	SP				5 12 19	6 6 6	
Poorly Graded Sand (SP): Same as above, trace gravel.	74	SP				4 16 23	6 6 6	
Poorly Graded Sand with Silt (SP-SM): Yellowish brown (10YR 5/0), 90% fine to medium sand, 10% fine, wet, loose.	80	SP/SM				3 4 11	6 5 0	

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**NOTE:** This summary applies only at the location of this boring and at the time of drilling. Subsurface conditions may differ at other locations and may change at this location with the passage of time. The data presented is a simplification of actual conditions encountered.

# Geologic Log of Well 18\_PS3A

Project **EL TORO, MCAS**

Project No. **918708**

DESCRIPTION	Depth (feet)	Soil Group	Graphic Log	Samples	PID/FID (ppm)	Blows/6 in.	Recovery (6 inches)	WELL DETAIL
Poorly Graded Sand with Silt (SP-SM): Yellowish brown (10YR 5/4), 90% fine to medium sand, 10% fine, wet, loose.	80	SP/SM				11	0	<p style="text-align: center;">4-INCH DIA. CONTINUOUS-WRAP WIRE-WOUND STAINLESS STEEL WITH 0.020 INCH SLOTS.</p> <p style="text-align: center;">4-INCH DIA. STAINLESS STEEL SUMP</p> <p style="text-align: center;">FILTER PACK #3 SAND</p>
Silty Sand (SM): Light olive brown (2.5Y 5/4), 65% fine sand, 35% fines, wet, loose.	82							
Clayey Silt (ML): Dark brown, very dark grayish brown (10YR 3/2), to (10YR 3/3), 100% medium plastic fines, slightly moist, stiff.	84	SM/ML				1 6 7	6 6 6	
	86							
Silty Sand (SM): Dark yellowish brown (10YR 5/4), 65% fine sand, 35% fines, wet, medium dense.	88	SM				6 14 14	6 6 6	
	90							
Poorly Graded Sand (SP): Yellowish brown (10YR 5/4), 95% fine to medium sand, 5% fines, wet, loose.	92	SP				6 8 10	6 6 6	
	94							
Silt with Sand (ML): Light olive brown to olive brown (2.5Y 5/4), to (2.5Y 5/6), 80% medium plastic fines, 20% fine to medium sand, wet, stiff.	96	ML				1 3 7	6 6 6	
	98							
Clayey Silt (ML): Dark yellowish brown (10YR 5/4), 100% medium plastic fines, moist, stiff.	100	ML				6 6 9	6 6 6	
	102							
Poorly Graded Sand (SP): Light olive brown (2.5Y 5/6), 100% fine to medium to coarse sand, trace fines, wet, medium dense.	104	SP				4 9 14	6 6 6	
	106							
Total Depth= 111 feet.	108							
	110							
	112							
	114							
	116							
	118							
	120							

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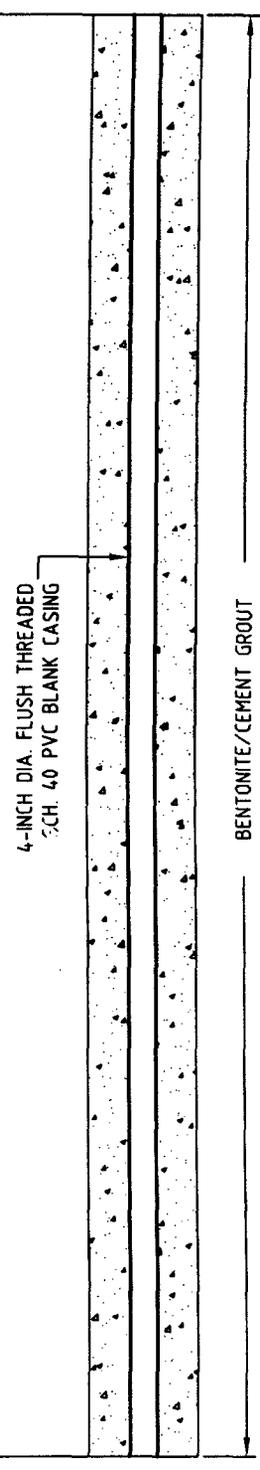
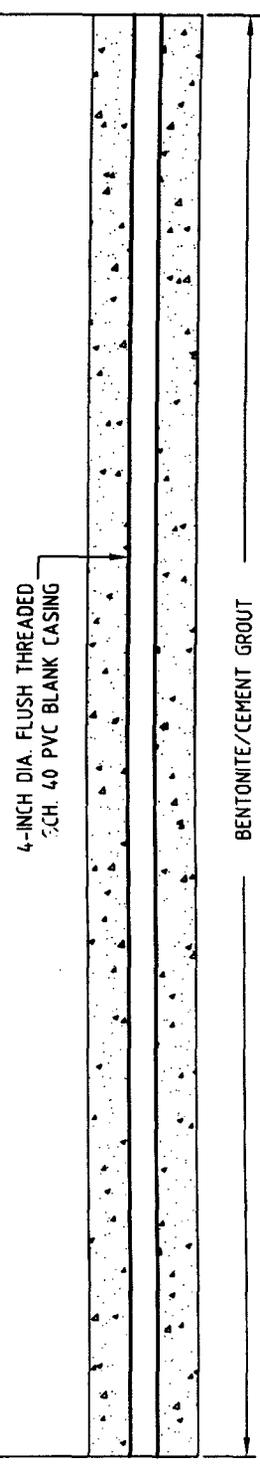
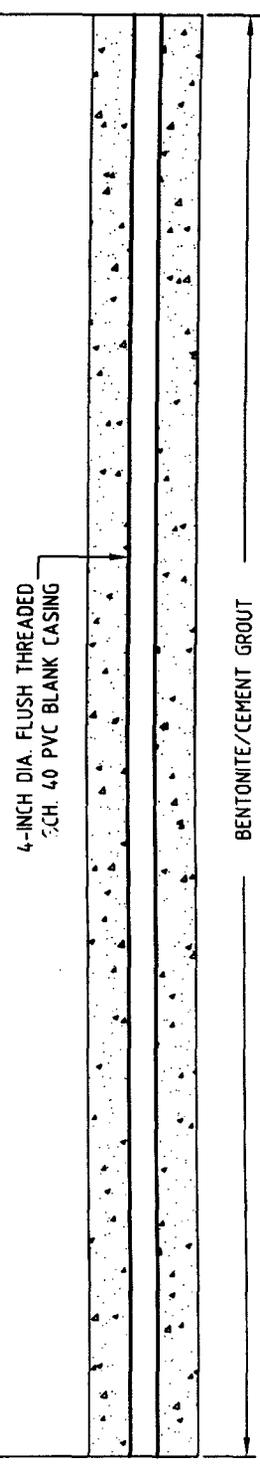
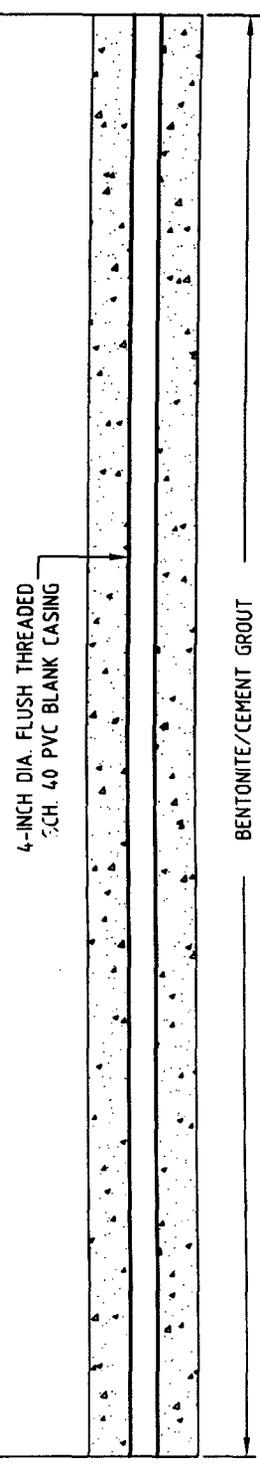
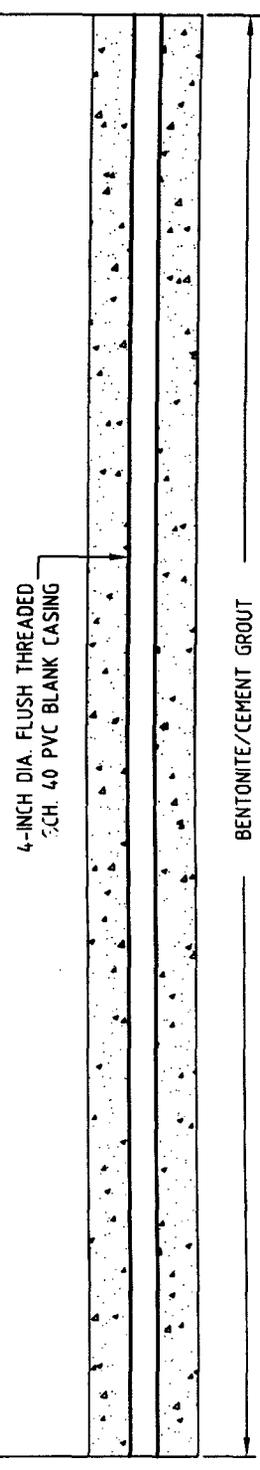
**NOTE:** This summary applies only at the location of this boring and at the time of drilling. Subsurface conditions may differ at other locations and may change at this location with the passage of time. The data presented is a simplification of actual conditions encountered.



# Geologic Log of Well 18\_BGMW18A

Project **EL TORO, MCAS**

Project No. **918708**

DESCRIPTION	Depth (feet)	Soil Group	Graphic Log	Samples	PID/FID (ppm)	Blows/6 in.	Recovery (6 inches)	WELL DETAIL
Poorly graded Sand (SP): Light yellowish brown (10YR 5/6) 100% fine to medium to coarse sand, slightly moist, medium dense.	40	SP				24	6	
	42							
	44							
Clayey Silt (ML): Dark brown (10YR 3/3) 100% low to medium plastic fines, slightly moist, stiff.	48	ML				2 3 8	6 6 6	
	50							
	52							
Silty Sand (SM): Dark yellowish brown (10YR 3/6) 60% fine sand, 40% low plastic fines, slightly moist; medium dense, grades into sandy silt at places.	58	SM				3 9 11	6 6 6	
	60							
	62							
Silty Sand (SM): Dark yellowish brown (10YR 5/6) 75% fine sand, 25% fines, slightly moist, medium dense.	66	SM				5 8 9	6 6 6	
	70							
	72							
Clayey Silt (ML): Dark yellowish brown (10YR 3/6) 90% low to medium plastic fines, 10% fine sand, slightly moist, very stiff.	74	ML				4 5	6 6	
	78							
	80							

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*NOTE: This summary applies only at the location of this boring and at the time of drilling. Subsurface conditions may differ at other locations.*

# Geologic Log of Well 18\_BGMW18A

Project **EL TORO, MCAS**

Project No. **918708**

DESCRIPTION	Depth (feet)	Soil Group	Graphic Log	Samples	PID/FID (ppm)	Blows/6 In.	Recovery (6 inches)	WELL DETAIL
Clayey Silt (ML): Dark yellowish brown (10YR 3/6) 90% low to medium plastic fines, 10% fine sand, slightly moist, very stiff.	80	ML				14	4	
	82							
	84							
Silty Sand (SM): Strong brown (7.5YR 3/6) 70% fine sand 30% low plastic fines, slightly moist, medium dense, at places interbedded with sandy silt.	88	SM				4 21 23	6 6 6	
	90							
	92							
	94							
Silty Sand (SM): Light yellowish brown (10YR 3/6) 75% fine sand, 25% fines, slightly moist, medium dense.	98	SM				11 12 20	6 6 6	
	100							
	102							
Poorly graded Sand (SP): Yellowish brown (10YR 3/6) 90% fine to medium to coarse sand, 10% fine sub rounded gravel, trace fines, moist, medium dense, interbedded with thin lenses of sandy silt at places.	104	SP				5 8 12	6 6 6	
	106							
	108							
	110							
Poorly graded Sand (SP): Yellowish brown (10YR 3/6) 100% fine to medium sand, very moist, trace fines, very moist; loose.	112	SP				6 4	6 6	
	114							
	116							
	118							
	120							

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# Geologic Log of Well 18\_BGMW18A

Project **EL TORO, MCAS**

Project No. **918708**

DESCRIPTION	Depth (feet)	Soil Group	Graphic Log	Samples	PID/FID (ppm)	Blows/6 In.	Recovery (6 inches)	WELL DETAIL
<p>Poorly graded Sand (SP): Yellowish brown (10YR 5/6) 100% fine to medium sand, very moist, trace fines, very moist; loose.</p> <p>Groundwater encountered @ 122 feet bgs.</p>	120	SP				11	6	<p style="font-size: small;">4-INCH DIA. CONTINUOUS-WRAP WIRE-WOUND STAINLESS STEEL WITH 0.020 INCH SLOTS.</p> <p style="font-size: small;">4-INCH DIA. STAINLESS STEEL SUMP</p> <p style="font-size: small;">FILTER PACK #3 SAND</p>
<p>Poorly graded Sand with Silt (SP/SM): Brown (10YR 5/6) 90% fine to medium sand, 10% fines, wet, loose.</p>	124	SP/SM				2	6	
	126					2	6	
	128					5	3	
<p>Clayey Silt (ML): Dark yellowish brown (10YR 5/6) 100% medium plastic fines, moist, stiff.</p>	130					4	6	
	132					5	6	
	134					4	6	
<p>Silt (ML): Dark yellowish brown (10YR 5/6) 90% low plastic fines, 10% very fine sand, moist, stiff.</p>	136	ML				2	6	
	138					5	6	
	140					6	6	
<p>Silty Clay (CH): Dark yellowish brown (10YR 5/6) 100% medium to high plastic fines, slightly moist to moist, very stiff.</p>	142	CH				4	6	
	144					5	6	
	146					15	6	
<p>Clayey Silt with Sand (ML): Dark yellowish brown (10YR 5/6) 85% medium plastic fines, 15% fine sand, wet, very stiff.</p>	148					3	6	
	150					5	2	
	152					14	0	
<p>Silt with Sand (ML): Dark yellowish brown (10YR 5/6) 80% low to medium plastic fines 20% fine sand, wet, very stiff.</p>	154	ML				5	6	
	156					9	6	
	158					15	6	
TOTAL DEPTH = 154.0 FEET	160							

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# Geologic Log of Well 18\_BGMW101A

Project **EL TORO, MCAS**

Project No. **918708**

DESCRIPTION	Depth (feet)	Soil Group	Graphic Log	Samples	PID/FID (ppm)	Blows/6 in.	Recovery (6 inches)	WELL DETAIL
Silt (ML): Dark yellowish brown (10YR 3/4), 100% low plastic fines, slightly moist, very stiff to stiff, interbedded with yellowish brown color, poorly graded sand.	40 - 48	ML	[Vertical lines]	[X marks]		12	6	<p>4-INCH DIA. FLUSH THREADED SCH. 40 PVC BLANK CASING</p> <p>BENTONITE/CEMENT GROUT</p> <p>TRANSITION SAND</p> <p>BENTONITE SEAL</p> <p>4-INCH DIA. CONTINUOUS-WRAP WIRE-WOUND STAINLESS STEEL WITH 0.020 INCH SLOTS.</p> <p>FILTER PACK #3 SAND</p>
Silty Sand (SM): Brown (7.5YR 5/6), 70% fine sand, 30% low plastic fines, slightly moist, loose, grades into sandy silt at places.	48 - 58	SM	[Vertical lines]	[X marks]		4 6 10	6 6 6	
Silty Sand (SM): Dark yellowish brown (10YR 5/6), 65% fine sand, 35% low plastic fines, slightly moist, medium dense, grades into sandy silt at places.	58 - 66	SM	[Vertical lines]	[X marks]		3 5 29	6 6 6	
Silty Sand (SM): Dark yellowish brown (10YR 5/6), 80% fine sand, 20% fines, trace coarse subangular gravel, slightly moist, medium dense.	66 - 74	SM	[Vertical lines]	[X marks]		8 10 21	6 6 6	
Silt (ML): Dark yellowish brown (10YR 5/6), 100% medium plastic fines, trace fine sand, moist, stiff.	74 - 76	SM	[Vertical lines]	[X marks]		6 7 11	6 6 6	
Poorly Graded Sand (SP): Light olive brown (2.5Y 5/6), 100% fine to medium sand, trace fines, wet, medium dense.	76 - 78	SP	[Dotted pattern]	[X marks]				
Silty Sand (SM): Dark yellowish brown (10YR 5/6), 70% fine sand, 30% low plastic fines, wet, loose.	78 - 80	SM	[Vertical lines]	[X marks]		5 5	6 6	

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# Geologic Log of Well 18\_BGMW101A

Project **EL TORO, MCAS**

Project No. **918708**

DESCRIPTION	Depth (feet)	Soil Group	Graphic Log	Samples	PID/FID (ppm)	Blows/6 In.	Recovery (6 inches)	WELL DETAIL
Silty Sand (SM): Dark yellowish brown (10YR 5/4), 70% fine sand, 30% low plastic fines, wet, loose.	80	SM				8	6	<p style="font-size: small;">4-INCH DIA. CONTINUOUS-WRAP WIRE-WOUND STAINLESS STEEL WITH 0.020 INCH SLOTS.</p> <p style="font-size: small;">4-INCH DIA. STAINLESS STEEL SUMP</p> <p style="font-size: small;">FILTER PACK SAND #3</p>
Clayey Silt (ML): Dark yellowish brown (10YR 3/4), 100% medium plastic fines, slightly moist to moist, hard.	82							
	84	ML				9	6	
	86							
	88							
Clayey Silt with Sand (ML): Yellowish brown (10YR 5/4), 85% low to medium plastic fines, 15% fine sand, moist to very moist, very stiff.	90	ML				5	6	
	92							
	94							
Silty Clays (CH): Brown (10YR 5/3), 100% medium to high plastic fines, moist, stiff.	96	CH				3	6	
Poorly Graded Sand with Silt (SP-SM): Light olive brown (2.5Y 5/4), 90% fine to medium sand, 10% fines, wet, medium dense.	98							
	100	SP-SM				7	6	
	102							
	104							
Silty Clay (CH): Light olive brown (3.5Y 5/4), 100% medium to high plastic fines, very moist, soft, interbedded with poorly graded sand at places.	106	CH				1	6	
	108							
	110							
	112					1	6	
	114							
	116							
	118						6	
	120							
Total Depth= 105 feet.								

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