

# **CONFIRMATION STUDY VERIFICATION STEP**

HUNTERS POINT NAVAL SHIPYARD (DISESTABLISHED)  
SAN FRANCISCO, CALIFORNIA

## **VOLUME II: APPENDIX E - BORING LOGS AND WELL DETAILS**

(CONTRACT N62474-85-C5501)

Prepared for  
NAVAL FACILITIES ENGINEERING COMMAND  
WESTERN DIVISION

March 19, 1987



EMCON Associates  
1921 Ringwood Avenue  
San Jose, California 95131

Project 365-02.02

CONFIRMATION STUDY, VERIFICATION STEP  
VOLUME II

DATED 19 MARCH 1987

THIS RECORD CONTAINS MULTIPLE VOLUMES  
WHICH HAVE BEEN ENTERED SEPARATELY

VOLUME I OF IV IS ENTERED IN THE DATABASE  
AND FILED AT ADMINISTRATIVE RECORD NO.

**N00217.002880**

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VOLUME IV OF IV IS ENTERED IN THE DATABASE  
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Appendix E  
BORING LOGS AND WELL DETAILS

## EXPLANATION OF SYMBOLS ON LOGS OF EXPLORATORY BORINGS

### Penetration

Blows required to drive split-spoon sampler 1 foot into soil are indicated on the logs. Drive hammer weight - 140 pounds, drop - 30 inches.



Undisturbed sample obtained using a 2-inch I.D. split-spoon sampler.



First observed ground water.



Static ground-water level.

### Soil Chemistry Analyses (symbol location corresponds to depth interval analyzed)

v volatile organic compounds  
s semivolatile organic compounds  
m metals (total)  
sm soluble metals  
g gasoline  
d diesel  
pcb polychlorinated biphenyls  
a asbestos

(2.5YR, 6/2)

Color as field checked to Munsell Soil Color Charts (1975 Edition) or GSA Rock Color Chart.

OIL RECLAMATION PONDS

# LOG OF EXPLORATORY BORING

PROJECT NUMBER 365-02.02

BORING NO. 001

PROJECT NAME HPNS-Oil Reclamation Ponds Area

PAGE 1 OF 1

BY JDB DATE 8/21/86

SURFACE ELEV.\* 111.19'

TORVANE (TSF)	POCKET PENETRO- METER (TSF)	PENETRA- TION (Blows/ Ft.)	GROUND WATER LEVELS	DEPTH IN FT.	SAMPLES	LITHO- GRAPHIC COLUMN	DESCRIPTION
		21		21	1	SW	SAND-FILL; black (10YR, 2/1); 5-10% low-plasticity fines; 90-95% fine to coarse sand; <5% debris: wood and metal; medium dense; moist.
		43		43	2	SC	CLAYEY SAND-FILL; dark brown (10YR, 3/2); 15-25% low-plasticity fines; 45-65% fine to coarse sand; 20-30% fine coarse gravel; dense; moist.
		45	▼	45	3	GC	CLAYEY GRAVEL-FILL; dark brown (7.5YR, 3/2); 15-25% low-plasticity fines; 10-25% fine to coarse sand; 50-70% fine to coarse gravel; <2% wood fragments; dense; moist.
		51	▼	51	4	GC	GRAVELLY CLAY TO CLAYEY SAND-FILL; (5Y, 3-2); 35-70% low-plasticity fines; 15-40% fine to coarse sand; 15-25% fine to coarse gravel; dense; moist. @8': wet; oil film on grains.
		38		38	5	CL-SC	CLAYEY GRAVEL-FILL; olive gray (5Y, 4/2); 10-20% low-plasticity fines; 20-30% fine to coarse sand; 50-70% fine to coarse angular serpentinite gravel; oily; medium dense; wet.
		13		13	6	GC	SILTY CLAY; dark gray (5Y, 3/1); 95% moderate-plasticity fines; <5% fine sand; <2% shell fragments; very soft; wet
0.0		1		1	7	CL-CH	
		1		1	8	CL-CH	
		2		2	9	CL-CH	
0.0		3		3	10	CL-CH	
		2		2	11	CL-CH	
0.0		2		2	12	CL-CH	
				18.5			BOTTOM OF BORING AT 18.5 FEET.

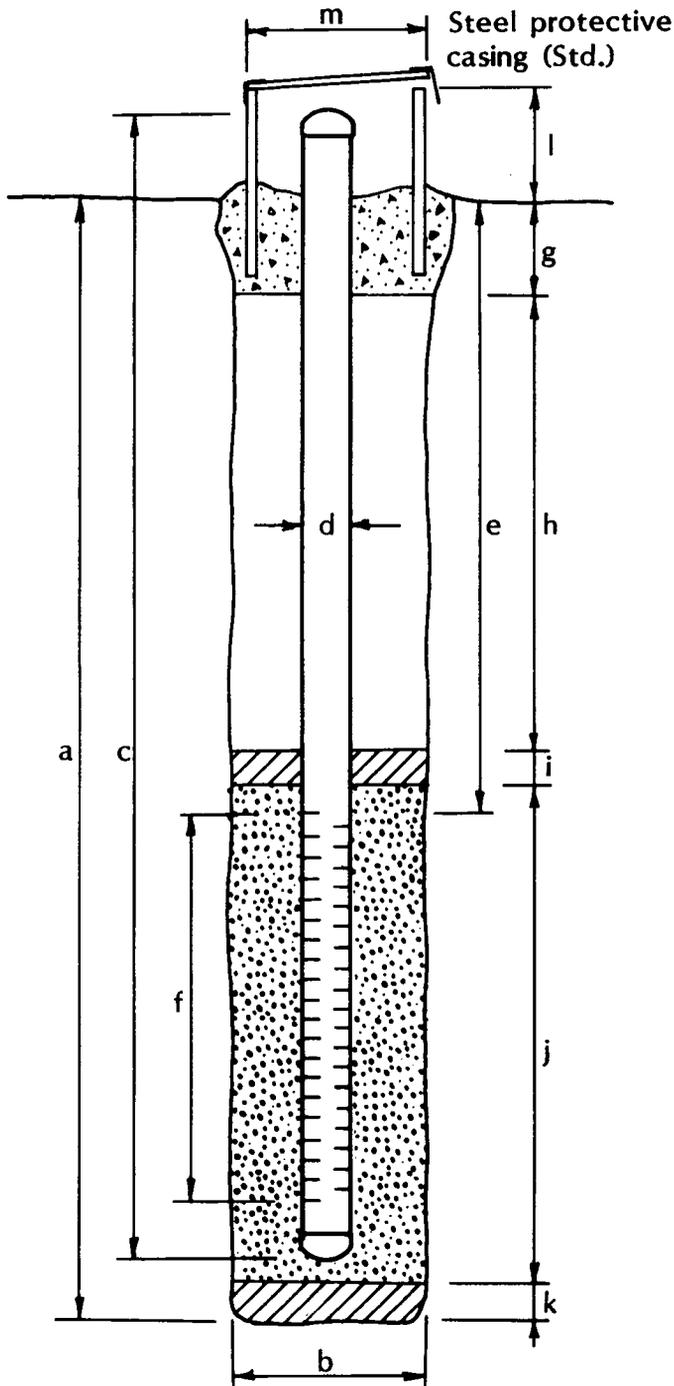
**REMARKS**

Drilled with 8-inch hollow-stem auger; sampled with 2-inch I.D. California modified split-spoon sampler fitted with stainless steel liners. Boring was converted to a 2-inch ground-water monitoring well as detailed on Plate A2. \*Casing elevation is relative to Navy datum.

# WELL DETAILS



PROJECT NUMBER 365-02.02 BORING / WELL NO. 001  
 PROJECT NAME HPNS-Oil Reclamation Ponds TOP OF CASING ELEV. 111.19'  
 COUNTY San Francisco GROUND SURFACE ELEV. 110'<sup>±</sup>  
 WELL PERMIT NO. \_\_\_\_\_ DATUM Navy



## EXPLORATORY BORING

- a. Total depth 18.5 ft.
- b. Diameter 8 in.
- Drilling method Hollow-stem auger

## WELL CONSTRUCTION

- c. Casing length 18.5 ft.  
Material stainless steel
- d. Diameter 2 in.
- e. Depth to top perforations 2.5 ft.
- f. Perforated length 15 ft.  
Perforated interval from 17.5 to 2.5 ft.  
Perforation type screen  
Perforation size 0.010 inch
- g. Surface seal (1 - 0') 1 ft.  
Seal material cement-bentonite grout
- h. Backfill - ft.  
Backfill material cement-bentonite grout
- i. Seal (2 - 1') 1 ft.  
Seal material bentonite
- j. Gravel pack (17 - 2') 15 ft.  
Pack material 12x20 sand
- k. Bottom seal N/A ft.  
Seal material N/A
- l. Casing height 1.5 ft.
- m. Protective casing diameter 10 in.

Boring caved to 17 feet when augers removed.

# LOG OF EXPLORATORY BORING

PROJECT NUMBER 365-02.02

BORING NO. 002

PROJECT NAME HPNS-Oil Reclamation Ponds Area

PAGE 1 OF 2

BY JDB DATE 8/22/86

SURFACE ELEV. \*112.67'

TORVANE (TSF)	POCKET PENETRO- METER (TSF)	PENETRA- TION (Blows/ Ft.)	GROUND WATER LEVELS	DEPTH IN FT.	SAMPLES	LITHO- GRAPHIC COLUMN	DESCRIPTION
		50 for 3"		v, s m	1	SW- SC	SAND TO CLAYEY SAND-FILL; black to very dark grayish brown (2.5Y, 2/0 to 3/2); 5-20% low-plasticity fines; 95% fine to coarse sand; <5% debris: metal, concrete; loose; damp.
		2			2	CL- SC	@2': concrete. SANDY CLAY TO CLAYEY SAND-FILL; very dark grayish brown (2.5Y, 3/2); 25-75% low-plasticity fines; 15-25% fine to coarse sand; 10-30% fine to coarse gravel; soft; moist.
		20			3	GC- CL	CLAYEY GRAVEL TO GRAVELLY CLAY-FILL; very dark gray (5Y, 3/1); 20-50% low-plasticity fines; 15-25% fine to coarse sand; 25-65% fine and coarse gravel; medium dense; moist.
	1.5	27	▼	s m v	4	GC- CL	CLAYEY GRAVEL TO GRAVELLY CLAY-FILL; very dark gray (5Y, 3/1); 20-50% low-plasticity fines; 15-25% fine to coarse sand; 25-65% fine and coarse gravel; medium dense; moist.
		30			5		
		25	▼		6	CL	SILTY CLAY-FILL; very dark gray (5Y, 3/1); 45-65% low-plasticity fines; 15-25% fine to coarse sand; 20-30% fine coarse gravel; stiff; oily; very moist to wet.
		12			7	SW- SC	@11': wood fragments; oily to bottom of hole.
		13			8	SW- SC	SAND TO CLAYEY SAND-FILL; black (2.5Y, 2/0); 5-15% low-plasticity fines; 35-65% fine to coarse sand; 30-50% wood fragments; dense; wet; saturated with oil.
		12			9		
		10			10	SP	SAND; black (2.5Y, 2/0); 5-10% low plasticity fines; 90-95% fine sand; <2% 1-3mm wood fragments; loose; wet; oil film on sand grains to bottom of hole.
		13			11		
		7			12		
		18			13		

**REMARKS**

Drilled with 8-inch hollow-stem auger; sampled with 2-inch I.D. California modified split-spoon sampler fitted with stainless steel liners. Boring was converted to a 2-inch ground-water monitoring well as detailed on Plate A5. \*Casing elevation is relative to Navy datum.

# LOG OF EXPLORATORY BORING

PROJECT NUMBER 365-02.02

BORING NO. 002

PROJECT NAME HPNS-011 Reclamation Ponds Area

PAGE 2 OF 2

BY JDB DATE 8/22/86

SURFACE ELEV. \*112.67'

TORVANE (TSF)	POCKET PENETRO- METER (TSF)	PENETRA- TION (Blows/ Ft.)	GROUND WATER LEVELS	DEPTH IN FT.	SAMPLES	LITHO- GRAPHIC COLUMN	DESCRIPTION
				20	█	█	SAND; continued. BOTTOM OF BORING AT 21 FEET.
				25			
				30			
				35			
				40			

REMARKS

# WELL DETAILS



PROJECT NUMBER 365-02.02

BORING / WELL NO. 002

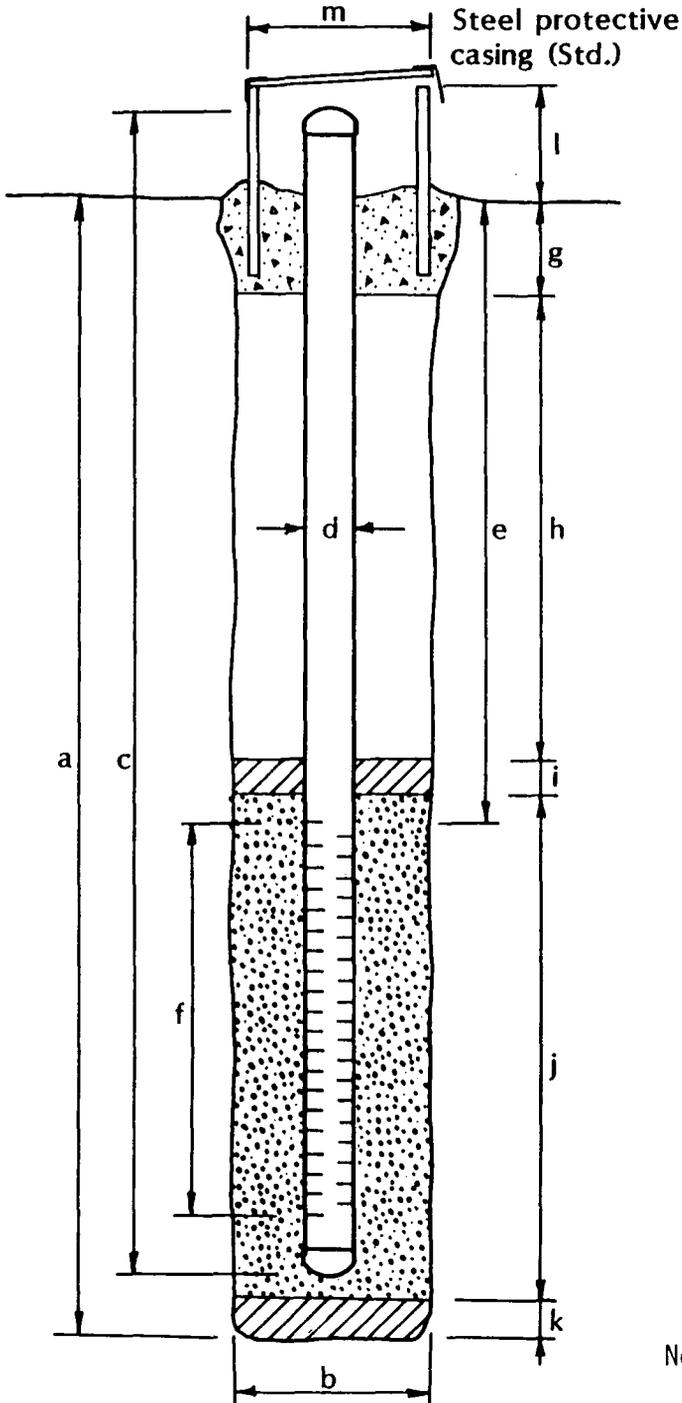
PROJECT NAME HPNS-Oil Reclamation Ponds TOP OF CASING ELEV. 112.67'

COUNTY San Francisco

GROUND SURFACE ELEV. 112'±

WELL PERMIT NO. \_\_\_\_\_

DATUM Navy



## EXPLORATORY BORING

- a. Total depth 21 ft.
- b. Diameter 8 in.
- Drilling method Hollow-stem auger

## WELL CONSTRUCTION

- c. Casing length 21 ft.  
Material stainless steel
- d. Diameter 2 in.
- e. Depth to top perforations 3.5 ft.
- f. Perforated length 16.5 ft.  
Perforated interval from 20 to 3.5 ft.  
Perforation type screen  
Perforation size 0.010 inch
- g. Surface seal (1 - 0') 1 ft.  
Seal material cement-bentonite grout
- h. Backfill (2 - 1') 1 ft.  
Backfill material cement-bentonite grout
- i. Seal (3 - 2') 1 ft.  
Seal material bentonite
- j. Gravel pack (15 - 3') 12 ft.  
Pack material 12x20 sand
- k. Bottom seal N/A ft.  
Seal material N/A
- l. Casing height 1.5 ft.
- m. Protective casing diameter 10 in.

Note: Boring caved to 15 feet when augers removed.

# LOG OF EXPLORATORY BORING

PROJECT NUMBER 365-02.02

BORING NO. 003

PROJECT NAME HPNS-Oil Reclamation Ponds Area

PAGE 1 OF 1

BY JDB DATE 8/25/86

SURFACE ELEV.\* 112.12'

TORVANE (TSF)	POCKET PENETRO- METER (TSF)	PENETRA- TION (Blows/ Ft.)	GROUND WATER LEVELS	DEPTH IN FT.	SAMPLES	LITHO- GRAPHIC COLUMN	DESCRIPTION
				v	1	SW	SAND-FILL; black (5Y, 2.5/1); <5% low-plasticity fines; 85-90% fine to coarse sand; 10-15% coarse gravel; medium dense; dry.
		17		m			
				s	2	GC	CLAYEY GRAVEL-FILL; olive gray (5Y,4/2); 10-20% low-plasticity fines; 15-25% fine to coarse sand; 55-75% fine to coarse angular gravel; medium dense; damp.
		22					
				3			
		20					
				5			
		18		m		CL	GRAVELLY CLAY-FILL; black (5Y, 2.5/1); 45-65% low-plasticity fines; 15-25% fine to coarse sand; 20-30% fine and coarse gravel; some oil coating on sand grains; wood fragments; very soft; moist to wet.
				v			
		10	∇		5		
				m		SC- GC	CLAYEY SAND TO GRAVELLY SAND; black (5Y, 2.5/1); 10-30% low-plasticity fines; 35-45% fine to coarse sand; 30-45% fine and coarse gravel; wood fragments; oily; medium dense; wet.
		12		v, s			
				6			
		21		10			
				8			
		47					
				9			
		24					
				15			
		20					@14': abundant metal fragments.
				11		SP	SAND; very dark gray (5Y, 3/1); <5% low-plasticity fines; 95% fine sand; <2% shell fragments; oily; medium dense; wet.
		15					
				12			
		24					
				13			
		11					
				20			BOTTOM OF BORING AT 20 FEET.

**REMARKS**

Drilled with 8-inch hollow-stem auger; sampled with 2-inch I.D. California modified split-spoon sampler fitted with stainless steel liners. Boring was converted to a 2-inch ground-water monitoring well as detailed on Plate A7. \*Casing elevation is relative to Navy datum.



# LOG OF EXPLORATORY BORING

PROJECT NUMBER 365-02.02

BORING NO. 0A

PROJECT NAME HPNS-Oil Reclamation Ponds Area

PAGE 1 OF 1

BY JDB DATE 8/21/86

SURFACE ELEV. \*110'±

TORVANE (TSF)	POCKET PENETRO- METER (TSF)	PENETRA- TION (Blows/ Ft.)	GROUND WATER LEVELS	DEPTH IN FT.	SAMPLES	LITHO- GRAPHIC COLUMN	DESCRIPTION
				75	1	SW	SAND-FILL; black (10YR, 2/1); to light olive gray (5Y, 4/2); <5% low-plasticity fines; >95% fine to coarse sand; loose; dry.
				51	2		
				26	3		
				19	4		
				10	5	SC	@6.5': wood fragments. CLAYEY SAND-FILL; very dark grayish brown (2.5Y, 3/2); 10-30% low-plasticity fines; 55-80% fine to coarse sand; 10-15% fine to medium gravel; wood fragments; medium dense; damp
				14	6	CL- SC	SANDY CLAY TO CLAYEY SAND-FILL; dark gray (5Y, 3/1); 30-70% low-plasticity fines; 20-40% fine to coarse sand; 10-30% fine and coarse gravel; oil film on sand grains; medium dense; wet.
0.0				4	7	CL- CH	SILTY CLAY; dark gray (5Y,3/1); 95% moderate- to high-plasticity fines; <5% fine sand; <2% shell fragments; very soft; wet.
	0.0			2	8		
				2	9		
				15			BOTTOM OF BORING AT 14.5 FEET.
				20			

**REMARKS**

Drilled with 8-inch hollow-stem auger; sampled with 2-inch I.D. California modified split-spoon sampler fitted with stainless steel liners. Boring was backfilled to surface with cement-bentonite grout.

\*Surface elevation is relative to Navy datum.

# LOG OF EXPLORATORY BORING

PROJECT NUMBER 365-02.02

BORING NO. 0B

PROJECT NAME HPNS-Oil Reclamation Ponds Area

PAGE 1 OF 1

BY JDB DATE 8/21/86

SURFACE ELEV. \*110'±

TORVANE (TSF)	POCKET PENETRO- METER (TSF)	PENETRA- TION (Blows/ Ft.)	GROUND WATER LEVELS	DEPTH IN FT.	SAMPLES	LITHO- GRAPHIC COLUMN	DESCRIPTION
				23	1	SW	SAND-FILL; black to very dark grayish brown (2.5Y, 3/2); <5% low-plasticity fines; >95% fine to coarse sand; medium dense; dry.
				21	2		
				13	3		
				13	4	SC	CLAYEY SAND-FILL; very dark gray (2.5Y, 3/2); 15-30% low-plasticity fines; 55-75% fine to coarse sand; 10-15% fine gravel; medium dense; damp.
				28	5	GC	CLAYEY GRAVEL-FILL; very dark gray (5Y, 3/2); 15-30% low-plasticity fines; 15-30% fine to coarse sand; 40-70% fine and very coarse gravel; wood fragments; medium dense; wet.
				63	6		
				23	7		
				16	8		@11': oil sheen on sampler, sand grains; >50% wood fragments.
				25	9		
	0.0			13	10		
				3	11	CL- CH	SILTY CLAY; very dark gray (5Y, 3/1); >95% moderate-plasticity fines; <5% shell fragments; very soft; wet. BOTTOM OF BORING AT 16.5 FEET.
				20			

**REMARKS**

Drilled with 8-inch hollow-stem auger; sampled with 2-inch I.D. California modified split-spoon sampler fitted with stainless steel liners. Boring was backfilled to surface with cement-bentonite grout.

\*Surface elevation is relative to Navy datum.

INDUSTRIAL LANDFILL

# LOG OF EXPLORATORY BORING

PROJECT NUMBER 365-02.02

BORING NO. I01

PROJECT NAME HPNS-Industrial Landfill Area

PAGE 1 OF 1

BY SK DATE 9/10/86

SURFACE ELEV. \* 118.94'

PHOTO-VAC (ppm)	POCKET PENETROMETER (TSF)	PENETRATION (Blows/Ft.)	GROUND WATER LEVELS	DEPTH IN FT.	SAMPLES	LITHO-GRAPHIC COLUMN	DESCRIPTION
				34	1	GW	SANDY GRAVEL-FILL; light olive brown (7.5Y, 6/4); <5% low-plasticity fines; 35% fine to coarse sand; 60% fine and coarse gravel; dense; dry.
				30	2	GC- GW	CLAYEY GRAVEL TO SANDY GRAVEL-FILL; olive gray (5Y, 5/2); 5-15% low-plasticity fines; 25-35% fine to coarse sand; 50-70% fine and coarse gravel; medium dense; damp.
				37	3	SC	CLAYEY SAND-FILL; olive brown (2.5Y, 4/4); 30% low-plasticity fines; 50% fine to coarse sand; 20% fine coarse gravel; medium dense; damp.
			v, s m	9	4	CL- GC-	@4.5-5': coarse gravel-size serberntinite clasts. @5.5': dark gray (5Y, 4/1); 15% low-plasticity fines; 60% fine to coarse sand; 25% sand-size shell fragments; loose to medium dense; very moist.
			v, s m	13	5	GP	GRAVELLY CLAY TO CLAYEY GRAVEL-FILL; dark gray (5Y, 4/1); 40-50% low-plasticity fines; 10% fine to coarse sand; 35-45% fine and coarse gravel; <5% shell fragments; medium dense; very moist to wet.
			v, s m	9	6	SC- SP	SANDY GRAVEL-FILL; very dark gray (5Y, 3/1); <5% low-plasticity fines; 15-20% fine to coarse sand; 70-75% fine and coarse gravel; <5% shell fragments; medium dense; wet.
			v, s m	15	7	SC- SP	CLAYEY SAND TO SAND-FILL; very dark gray (5Y, 3/1); 5-15% low-plasticity fines; 85-95% fine to coarse sand; loose to medium dense; wet.
				8	8		
				30	15		
				20			BOTTOM OF BORING 19.5 FEET.

**REMARKS**

Drilled with 8-inch hollow-stem auger; sampled with 2-inch I.D. California modified split-spoon sampler fitted with stainless steel liners. Boring was converted to a 2-inch ground-water monitoring well as detailed on Plate A11. \*Casing elevation is relative to Navy datum.

# WELL DETAILS



PROJECT NUMBER 365-02.02

BORING / WELL NO. IØ1

PROJECT NAME HPNS-Industrial Landfill

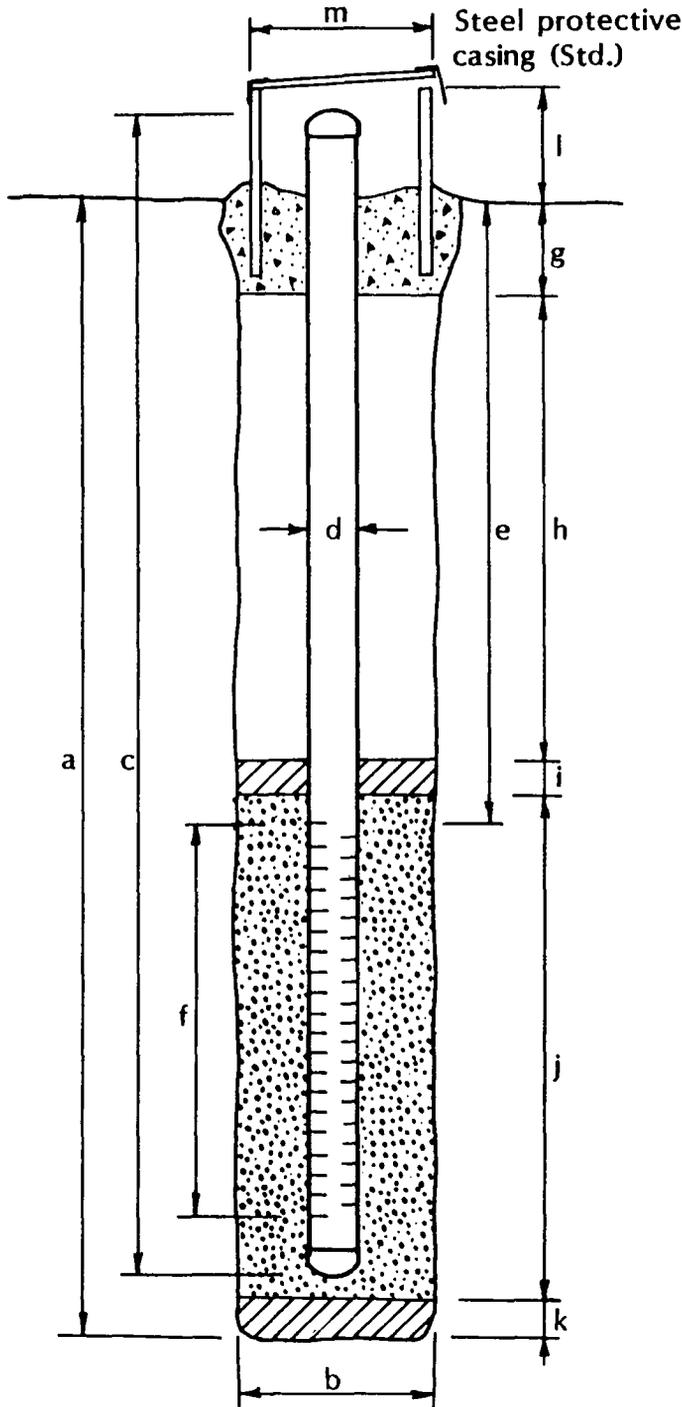
TOP OF CASING ELEV. 118.94'

COUNTY San Francisco

GROUND SURFACE ELEV. 118'±

WELL PERMIT NO. \_\_\_\_\_

DATUM Navy



## EXPLORATORY BORING

- a. Total depth 19.5 ft.
- b. Diameter 8 in.
- Drilling method Hollow-stem auger

## WELL CONSTRUCTION

- c. Casing length 20 ft.  
Material stainless steel
- d. Diameter 2 in.
- e. Depth to top perforations 4 ft.
- f. Perforated length 15 ft.  
Perforated interval from 19 to 4 ft.  
Perforation type screen  
Perforation size 0.010 inch
- g. Surface seal (1 - 0') 1 ft.  
Seal material cement-bentonite grout
- h. Backfill (1.5 - 1') 0.5 ft.  
Backfill material cement-bentonite grout
- i. Seal (3 - 1.5') 1.5 ft.  
Seal material bentonite
- j. Gravel pack (19 - 3') 16 ft.  
Pack material 12x20 sand
- k. Bottom seal N/A ft.  
Seal material N/A
- l. Casing height 1.5 ft.
- m. Protective casing diameter 10 in.

# LOG OF EXPLORATORY BORING

PROJECT NUMBER 365-02.02

BORING NO. I02

PROJECT NAME HPNS-Industrial Landfill Area

PAGE 1 OF 2

BY SK DATE 9/11/86

SURFACE ELEV. \* 116.78'

PHOTO-VAC (ppm)	POCKET PENETROMETER (TSF)	PENETRATION (Blows/Ft.)	GROUND WATER LEVELS	DEPTH IN FT.	SAMPLES	LITHO-GRAPHIC COLUMN	DESCRIPTION
				52	1	GC	<p>CLAYEY GRAVEL-FILL; gray (5Y, 5/0); 10-15% low-plasticity fines; 25-30% fine to coarse sand; 55-65% fine and coarse gravel; medium dense to dense; damp.</p> <p>CLAYEY SAND TO SANDY CLAY-FILL; light olive brown (2.5Y, 5/4); 35-65% low-plasticity fines; 30-55% fine to coarse sand; 5-10% fine gravel; dense; damp.</p> <p>SAND TO CLAYEY SAND- FILL olive (5Y, 5/3); 5-10% low-plasticity fines; 80-90% fine to coarse sand; 5-10% fine to coarse gravel; dense; damp. @4': 20% black serpentinized peridotite clasts.</p> <p>CLAYEY SAND-FILL; olive brown (2.5Y, 4/4); 15-40% low-plasticity fines; 50% fine to coarse sand; 10-20% fine and coarse gravel; medium dense; damp. @9-9.5': black (2.5Y, 2/0). @10': 15-20% fines.</p> <p>SANDY GRAVEL-FILL; dark gray (5Y, 4/1); &lt;5% low-plasticity fines; 15-20% fine to coarse sand; 75% fine and coarse gravel; loose to medium dense; wet.</p> <p>@17.5-18.5': sandy clay layer.</p> <p>CLAYEY SAND -FILL; dark gray (5Y, 4/1); 30-40% low-plasticity fines; 50-60% fine to coarse sand; 10% fine and coarse gravel; loose to medium dense; wet.</p>
				63	2	SC-CL	
				43	3	SW-SC	
				16	4	SC	
				26	5	SC	
				21	6	v, s m 10	
			▽	18	7	v, s	
			▽	17	8	m	
			GW	18	9	GW	
				72	10	15	
				15	11	11	
				29	12	SC	
				18	13	20	

**REMARKS**

Drilled with 8-inch hollow-stem auger; sampled with 2-inch I.D. California modified split-spoon sampler fitted with stainless steel liners. Boring was converted to a 2-inch ground-water monitoring well as detailed on Plate A14. \* Casing Elevation is relative to Navy datum.

# LOG OF EXPLORATORY BORING

PROJECT NUMBER 365-02.02

BORING NO. IØ2

PROJECT NAME HPNS-Industrial Landfill Area

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BY SK DATE 9/11/86

SURFACE ELEV. \* 116.78'

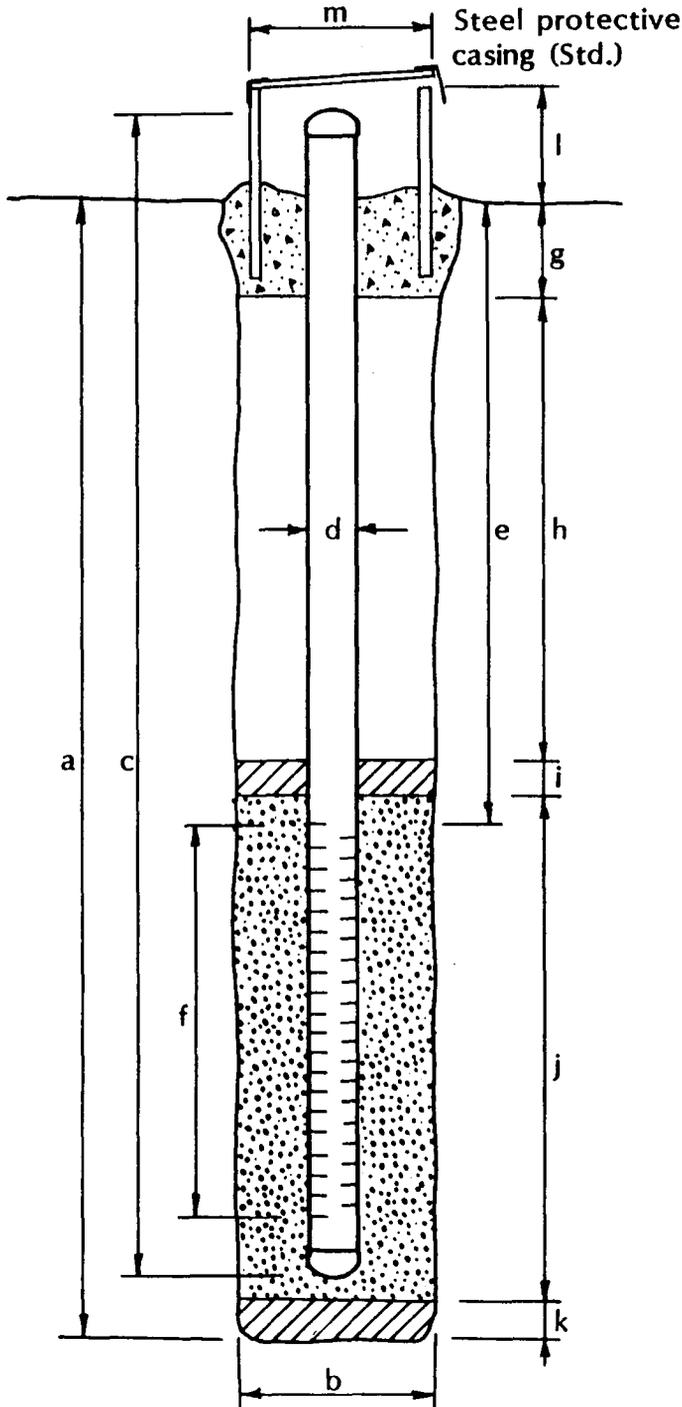
PHOTO-VAC (ppm)	POCKET PENETRO-METER (TSF)	PENETRA-TION (Blows/ Ft.)	GROUND WATER LEVELS	DEPTH IN FT.	SAMPLES	LITHO-GRAPHIC COLUMN	DESCRIPTION
				20		SC	CLAYEY SAND-FILL; continued. BOTTOM OF BORING AT 20.5 FEET.
				25			
				30			
				35			
				40			

REMARKS

# WELL DETAILS



PROJECT NUMBER 365-02.02 BORING / WELL NO. 102  
 PROJECT NAME HPNS-Industrial Landfill TOP OF CASING ELEV. 116.78'  
 COUNTY San Francisco GROUND SURFACE ELEV. 116'±  
 WELL PERMIT NO. \_\_\_\_\_ DATUM Navy



## EXPLORATORY BORING

a. Total depth 20.5 ft.  
 b. Diameter 8 in.  
 Drilling method Hollow-stem auger

## WELL CONSTRUCTION

c. Casing length 21 ft.  
 Material stainless steel  
 d. Diameter 2 in.  
 e. Depth to top perforations 5.5 ft.  
 f. Perforated length 15 ft.  
 Perforated interval from 20.5 to 5.5 ft.  
 Perforation type screen  
 Perforation size 0.010 inch  
 g. Surface seal (1 - 0') 1 ft.  
 Seal material cement-bentonite grout  
 h. Backfill (1.5 - 1') 0.5 ft.  
 Backfill material cement-bentonite grout  
 i. Seal (3 - 1.5') 1.5 ft.  
 Seal material bentonite  
 j. Gravel pack (20.5 - 3.5') 17 ft.  
 Pack material 12x20 sand  
 k. Bottom seal N/A ft.  
 Seal material N/A  
 l. Casing height 1 ft.  
 m. Protective casing diameter 10 in.

# LOG OF EXPLORATORY BORING

PROJECT NUMBER 365-02.02

BORING NO. I03

PROJECT NAME HPNS-Industrial Landfill Area

PAGE 1 OF 1

BY SK DATE 9/11/86

SURFACE ELEV. \*113.51'

PHOTO-VAC (ppm)	POCKET PENETROMETER (TSF)	PENETRATION (Blows/Ft.)	GROUND WATER LEVELS	DEPTH IN FT.	SAMPLES	LITHO-GRAPHIC COLUMN	DESCRIPTION
				13	1	SW	<p>GRAVELLY SAND-FILL; light olive brown (2.5Y, 5/4); &lt;5% low-plasticity fines; 70% fine to coarse sand; 25-30% fine and coarse gravel; medium dense; dry.                      @ 2-2.5': metal fragments.                      SAND-FILL; pale yellow (5Y, 7/3); &lt;5% low-plasticity fines; 95% fine to medium sand; trace refuse: plastic, metal fragments; medium dense; dry to damp.                      @ 3.5-4': gray (7.5YR, 5/0).                      @ 5-5.5': black cemented aggregate; very moist.                      @6' wet.                       @8-9.5': dark yellowish brown (10YR, 4/6).                       @ 10-10.5': black (2.5Y, 2/0).                       @12.5': 10-15% fine gravel.</p> <p style="text-align: center;">BOTTOM OF BORING AT 17 FEET.</p>
			v, s	20	2	SP	
			5	17	3		
			v, s	13	4		
			v, s	19	5		
				11	6		
			10	13	7		
			8	8	8		
				27	9		
			15	25	10		
				36	11		
				20			

**REMARKS**

Drilled with 8-inch hollow-stem auger; sampled with 2-inch I.D. California modified split-spoon sampler fitted with stainless steel liners. Boring was converted to a 2-inch ground-water monitoring well as detailed on Plate 16. \*Casing elevation is relative to Navy datum.

# WELL DETAILS



PROJECT NUMBER 365-02.02

BORING / WELL NO. 103

PROJECT NAME HPNS-Industrial Landfill

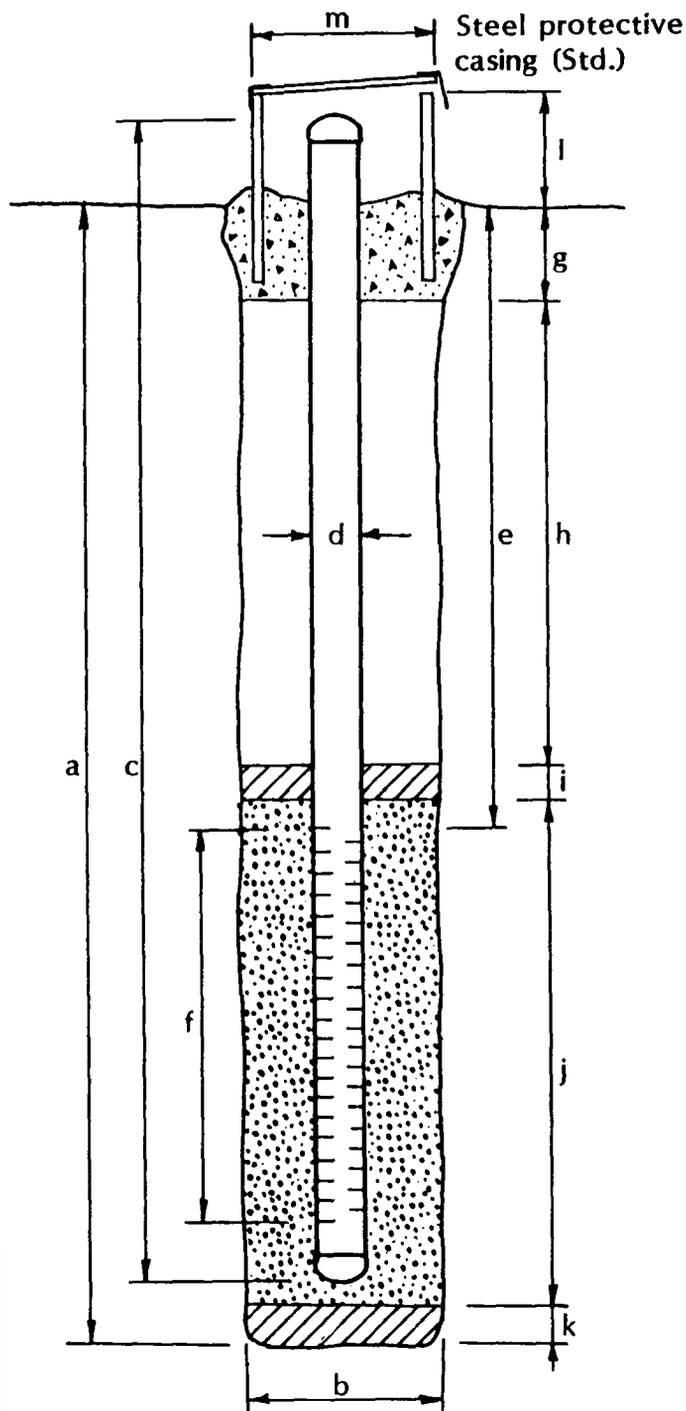
TOP OF CASING ELEV. 113.51'

COUNTY San Francisco

GROUND SURFACE ELEV. 112'±

WELL PERMIT NO. \_\_\_\_\_

DATUM Navy



## EXPLORATORY BORING

- a. Total depth 17 ft.  
 b. Diameter 8 in.  
 Drilling method Hollow-stem auger

## WELL CONSTRUCTION

- c. Casing length 18 ft.  
 Material stainless steel  
 d. Diameter 2 in.  
 e. Depth to top perforations 4 ft.  
 f. Perforated length 13 ft.  
 Perforated interval from 17 to 4 ft.  
 Perforation type screen  
 Perforation size 0.010 inch  
 g. Surface seal (1 - 0') 1 ft.  
 Seal material cement-bentonite grout  
 h. Backfill (2 - 1') 1 ft.  
 Backfill material cement-bentonite grout  
 i. Seal (3 - 2') 1 ft.  
 Seal material bentonite  
 j. Gravel pack (9 - 3') 6 ft.  
 Pack material 12x20 sand  
 k. Bottom seal N/A ft.  
 Seal material N/A  
 l. Casing height 1.5 ft.  
 m. Protective casing diameter 10 in.
- Note: Boring caved to 9 feet when augers removed.

# LOG OF EXPLORATORY BORING

PROJECT NUMBER 365-02.02  
 PROJECT NAME HPNS-Industrial Landfill Area  
 BY SK DATE 9/12/86

BORING NO. I04  
 PAGE 1 OF 1  
 SURFACE ELEV. \* 117.43'

PHOTO-VAC (ppm)	POCKET PENETROMETER (TSF)	PENETRATION (Blows/Ft.)	GROUND WATER LEVELS	DEPTH IN FT.	SAMPLES	LITHO-GRAPHIC COLUMN	DESCRIPTION
		39	v, s	1	SP- SC SP	[Dotted pattern]	GRAVELLY SAND TO CLAYEY SAND-FILL; pale brown( 10YR, 6/3); 10% low-plasticity fines; 75% very fine to coarse sand; 15% fine and coarse gravel; medium dense; dry.
		39		2		[Diagonal lines]	SAND-FILL; grayish brown (10YR, 5/2); <5% low-plasticity fines; 90-95% fine to medium sand; <5% fine gravel; occasional dark reddish brown (5YR, 3/4) pockets; medium dense to dense; dry.
		22	m	3		[Diagonal lines]	@1-1.5': occasional white (10YR, 8/1) sand to gravel size clasts; iron oxide stained. @4-5.5': 1-2% green sand sized particles. @7': black (2.5Y, 2/0); <5% fine to coarse gravel; occasional clayey pockets.
		16	v, s	4		[Diagonal lines]	
		5	v, s, m	5		[Diagonal lines]	
		3		6	CL	[Diagonal lines]	
		5		7		[Diagonal lines]	SILTY CLAY; very dark gray (5Y, 3/1); 95% low-plasticity fines; <5% very fine sand; 1-2% shell fragments; soft; very moist.
		5		8		[Diagonal lines]	
		3		9		[Diagonal lines]	
		3		10		[Diagonal lines]	BOTTOM OF BORING AT 16 FEET.

**REMARKS**

Drilled with 8-inch hollow-stem auger; sampled with 2-inch I.D. California modified split-spoon sampler fitted with stainless steel liners. Boring was converted to a 2-inch ground-water monitoring well as detailed on Plate 18. \*Casing elevation is relative to Navy datum.

# WELL DETAILS



PROJECT NUMBER 365-02.02

BORING / WELL NO. 104

PROJECT NAME HPNS-Industrial Landfill

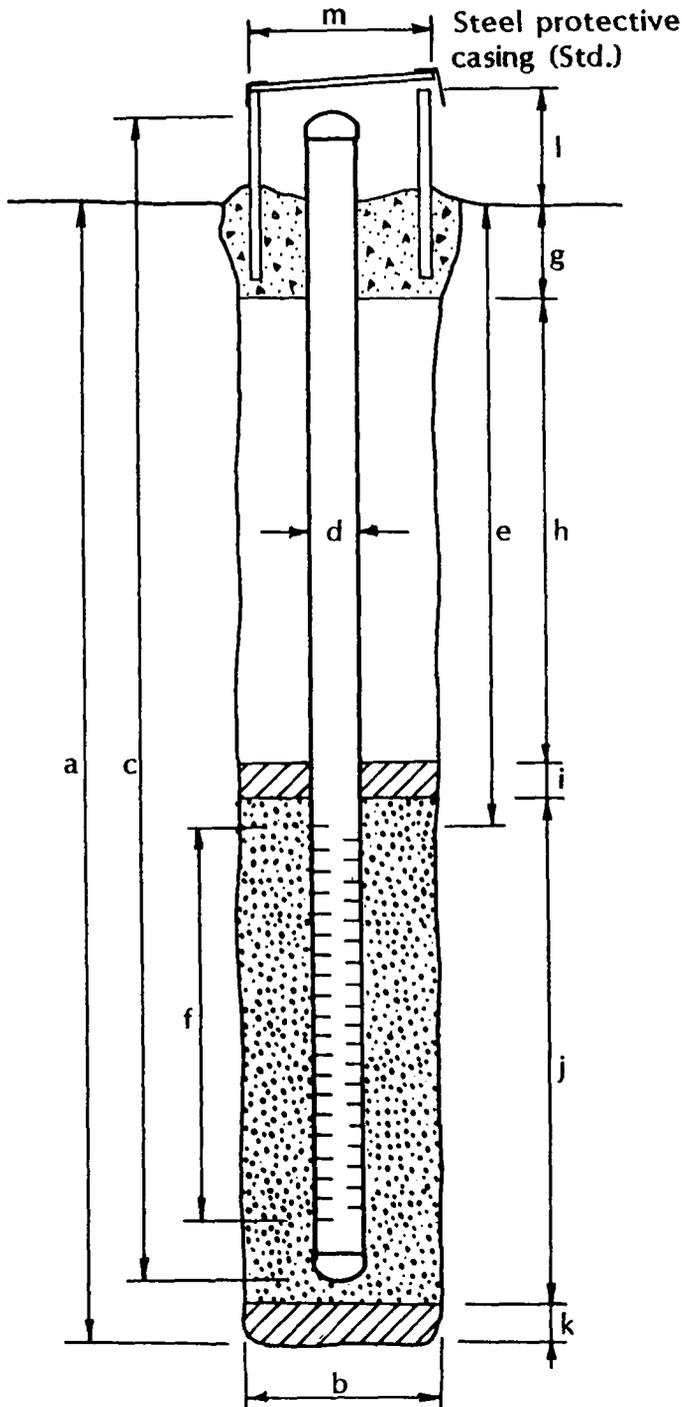
TOP OF CASING ELEV. 117.43'

COUNTY San Francisco

GROUND SURFACE ELEV. 116'±

WELL PERMIT NO. \_\_\_\_\_

DATUM Navy



## EXPLORATORY BORING

- a. Total depth 16 ft.
- b. Diameter 8 in.
- Drilling method Hollow-stem auger

## WELL CONSTRUCTION

- c. Casing length 15 ft.  
Material stainless steel
- d. Diameter 2 in.
- e. Depth to top perforations 4 ft.
- f. Perforated length 10 ft.  
Perforated interval from 14 to 4 ft.  
Perforation type screen  
Perforation size 0.010 inch
- g. Surface seal (1 - 0') 1 ft.  
Seal material cement-bentonite grout
- h. Backfill (2 - 1') 1 ft.  
Backfill material cement-bentonite grout
- i. Seal (3 - 2') 1 ft.  
Seal material bentonite
- j. Gravel pack (12 - 3') 9 ft.  
Pack material 12x20 sand
- k. Bottom seal N/A ft.  
Seal material N/A
- l. Casing height 1.5 ft.
- m. Protective casing diameter 10 in.

Note: Boring caved to 12 feet when augers removed.

# LOG OF EXPLORATORY BORING

PROJECT NUMBER 365-02.02

BORING NO. I05

PROJECT NAME HPNS-Industrial Landfill Area

PAGE 1 OF 2

BY SK DATE 9/29/86

SURFACE ELEV. \* 115.45'

PHOTO-VAC (ppm)	POCKET PENETROMETER (TSF)	PENETRATION (Blows/Ft.)	GROUND WATER LEVELS	DEPTH IN FT.	SAMPLES	LITHO-GRAPHIC COLUMN	DESCRIPTION
				50	1	SC	<p>CLAYEY SAND-FILL; strong brown (7.5YR, 5/6); 20-40% low-plasticity fines; 50-70% fine sand; 10% fine to coarse gravel; medium dense; dry.</p> <p>@4.5-5': silty clay layer.</p> <p>SAND TO CLAYEY SAND AND REFUSE-FILL; very dark gray (5Y, 3/1); 5-12% low-plasticity fines; 60% fine to medium sand; 35% refuse: cloth; medium dense; moist.</p> <p>@6.5': black (2.5Y, 2/0); refuse: wood fragments and olive yellow (5Y, 6/6) fibrous material.</p> <p>@7.5': 85-95% refuse: wood, plastic, copper wire.</p> <p>@9': 15-20% refuse: plastic, wood, occasional blue sandy pockets.</p> <p>@9.5': 65% refuse: wood; very moist to wet.</p> <p>@11': 85-90% refuse; slight oily appearance</p> <p>@14': 50% refuse</p>
				43	2		
				60	3		
				30	4	SP-SC	
				54	5		
			▽	18	6		
			▼	30	7		
				26	8		
				58	9		
				15			
				20			

**REMARKS**

Drilled with 8-inch hollow-stem auger; sampled with 2-inch I.D. California modified split-spoon sampler fitted with stainless steel liners. Boring was converted to a 2-inch ground-water monitoring well as detailed on Plate 21. \*Casing elevation is relative to Navy datum.

# LOG OF EXPLORATORY BORING

PROJECT NUMBER 365-02.02  
 PROJECT NAME HPNS-Industrial Landfill Area  
 BY SK DATE 9/29/86

BORING NO. I05  
 PAGE 2 OF 2  
 SURFACE ELEV. \* 115.45'

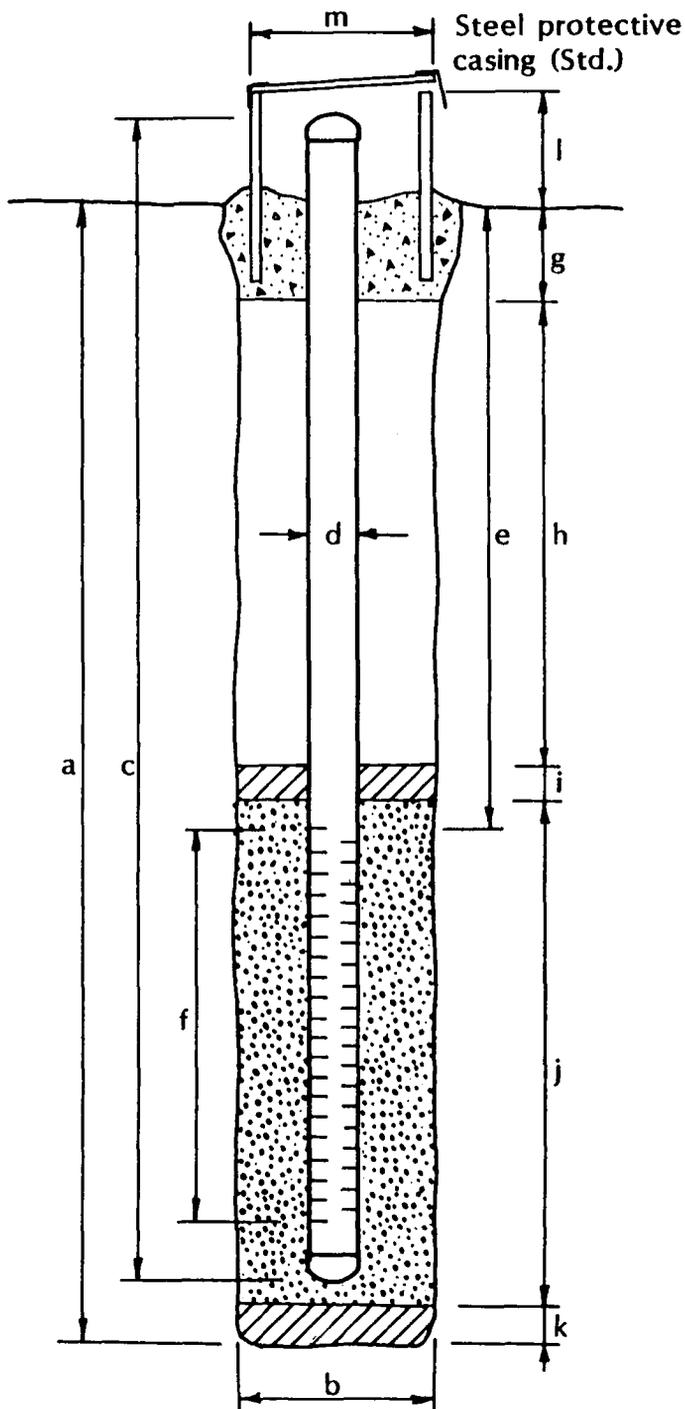
PHOTO-VAC (ppm)	POCKET PENETROMETER (TSF)	PENETRATION (Blows/Ft.)	GROUND WATER LEVELS	DEPTH IN FT.	SAMPLES	LITHO-GRAPHIC COLUMN	DESCRIPTION
		58		20	10	SP-SC	SAND TO CLAYEY SAND AND REFUSE;-FILL; continued.
		5		25	11	CL	SILTY CLAY; very dark gray (5Y, 3/1); 95% low- to moderate-plasticity fines; <5% fine sand; <3% shell fragments; soft to firm; very moist.
		7		30	12		BOTTOM OF BORING AT 31.5 FEET.
				35			
				40			

REMARKS

# WELL DETAILS



PROJECT NUMBER 365-02.02      BORING / WELL NO. I05  
 PROJECT NAME HPNS-Industrial Landfill      TOP OF CASING ELEV. 119.45'  
 COUNTY San Francisco      GROUND SURFACE ELEV. 118'±  
 WELL PERMIT NO. \_\_\_\_\_      DATUM Navy



## EXPLORATORY BORING

a. Total depth 31.5 ft.  
 b. Diameter 8 in.  
 Drilling method Hollow-stem auger

## WELL CONSTRUCTION

c. Casing length 21 ft.  
 Material stainless steel  
 d. Diameter 2 in.  
 e. Depth to top perforations 5 ft.  
 f. Perforated length 15 ft.  
 Perforated interval from 20 to 5 ft.  
 Perforation type screen  
 Perforation size 0.010 inch  
 g. Surface seal (1 - 0') 1 ft.  
 Seal material cement-bentonite grout  
 h. Backfill (3 - 1') 2 ft.  
 Backfill material cement-bentonite grout  
 i. Seal (4 - 3') 1 ft.  
 Seal material bentonite  
 j. Gravel pack (20 - 4') 16 ft.  
 Pack material 12x20 sand  
 k. Bottom seal (20-30.5') 12 ft.  
 Seal material bentonite  
 l. Casing height 1.5 ft.  
 m. Protective casing diameter 10 in.

# LOG OF EXPLORATORY BORING

PROJECT NUMBER 365-02.02

BORING NO. 106

PROJECT NAME HPNS-Industrial Landfill Area

PAGE 1 OF 1

BY SK DATE 9/16/86

SURFACE ELEV. \* 113.19'

PHOTO-VAC (ppm)	POCKET PENETROMETER (TSF)	PENETRATION (Blows/Ft.)	GROUND WATER LEVELS	DEPTH IN FT.	SAMPLES	LITHO-GRAPHIC COLUMN	DESCRIPTION
				30	1	GW	<p>SANDY GRAVEL-FILL; reddish brown (2.5YR, 5/4); &lt;5% low-plasticity fines; 35% fine to coarse sand; 55-60% coarse gravel; &lt;5% brick fragments; medium dense; dry.</p> <p>SAND-FILL; light gray (2.5Y, 7/2); &lt;5% low-plasticity fines; &gt;95% fine sand &lt;5% brick fragments; loose; dry. @3.5': 1-2% cobble sized brick fragments.</p> <p>@5.5': black (2.5Y, 2/0); 5% refuse: nails, aggregate; &lt;5% fine gravel; very moist.</p> <p>SANDY GRAVEL-FILL; very dark gray (5Y, 3/1); &lt;5% low-plasticity fines; 25-30% fine to coarse sand; 55-70% fine gravel; medium dense; wet. @9': 10-15% cobbles.</p> <p>BOTTOM OF BORING AT 11.5 FEET.</p>
				31	2	SP	
			v, s	62	3	GP	
			v, s	50 for 6"	4		
			v, s	50 for 6"	5		
				50 for 6"	6		
				50 for 6"	7		
				15			
				20			

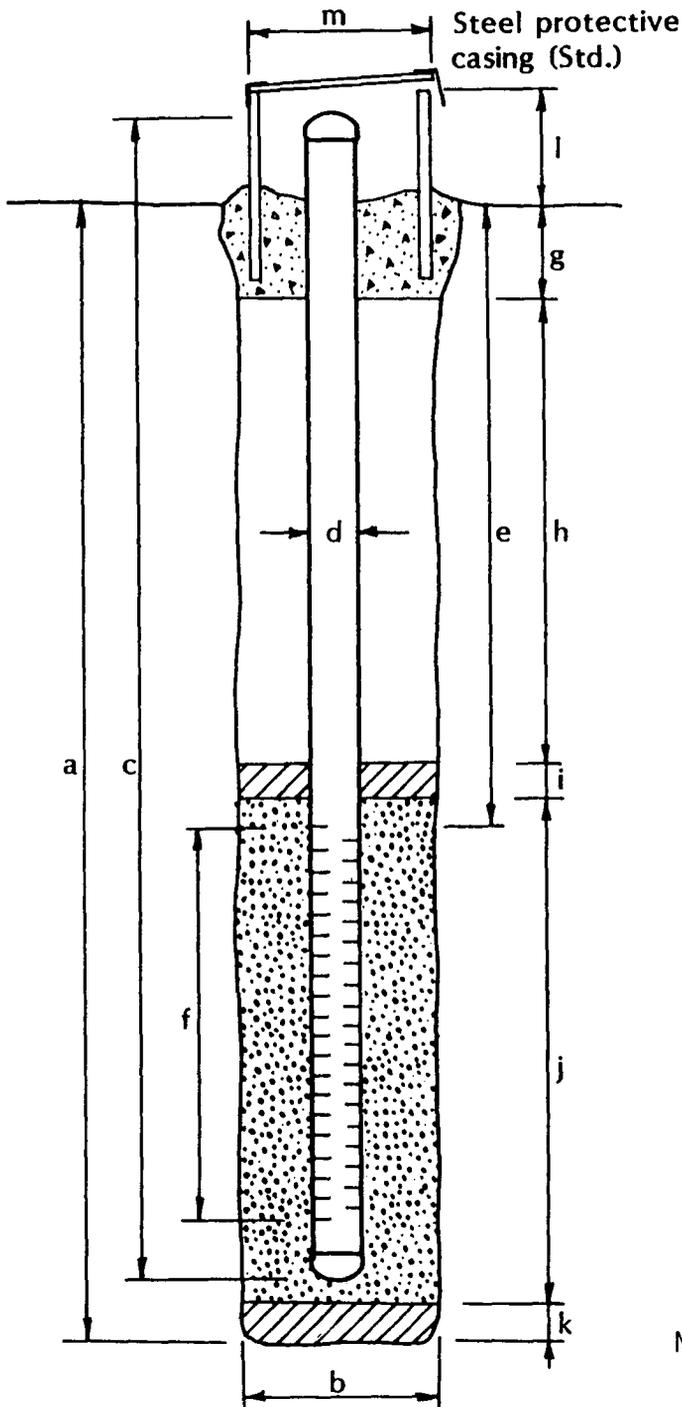
**REMARKS**

Drilled with 8-inch hollow-stem auger; sampled with 2-inch I.D. California modified split-spoon sampler fitted with stainless steel liners. Boring was converted to a 2-inch ground-water monitoring well as detailed on Plate 23. \*Casing elevation is relative to Navy datum.

# WELL DETAILS



PROJECT NUMBER 365-02.02 BORING / WELL NO. I06  
 PROJECT NAME HPNS-Industrial Landfill TOP OF CASING ELEV. 113.19'  
 COUNTY San Francisco GROUND SURFACE ELEV. 112'±  
 WELL PERMIT NO. \_\_\_\_\_ DATUM Navy



## EXPLORATORY BORING

- a. Total depth 11.5 ft.
- b. Diameter 8 in.
- Drilling method Hollow-stem auger

## WELL CONSTRUCTION

- c. Casing length 12.5 ft.  
Material stainless steel
- d. Diameter 2 in.
- e. Depth to top perforations 4 ft.
- f. Perforated length 7.5 ft.  
Perforated interval from 11.5 to 4  
Perforation type screen  
Perforation size 0.010 inch
- g. Surface seal (1 - 0') 1 ft.  
Seal material cement-bentonite grout
- h. Backfill (2 - 1') 1 ft.  
Backfill material cement-bentonite grout
- i. Seal (3 - 2') 1 ft.  
Seal material bentonite
- j. Gravel pack (8 - 3') 5 ft.  
Pack material 12x20 sand
- k. Bottom seal N/A ft.  
Seal material N/A
- l. Casing height 1.5 ft.
- m. Protective casing diameter 10 in.

Note: Boring caved to 8 feet when augers removed.

# LOG OF EXPLORATORY BORING

PROJECT NUMBER 365-02.02

BORING NO. I07

PROJECT NAME HPNS-Industrial Landfill Area

PAGE 1 OF 1

BY SK DATE 9/16/86

SURFACE ELEV. \* 109.52'

PHOTO-VAC (ppm)	POCKET PENETRO-METER (TSF)	PENETRA-TION (Blows/ Ft.)	GROUND WATER LEVELS	DEPTH IN FT.	SAMPLES	LITHO-GRAPHIC COLUMN	DESCRIPTION
				27 6 8 2 2 2 2 10 2 15 20	v, s m m v, s v, s m 5 4 5 6 7	SP-SW CL	<p>SAND-FILL; light yellowish brown (2.5Y, 6/4); &lt;5% low-plasticity fines; &gt;90% fine sand; &lt;5% refuse: wood; loose to medium dense; damp to moist.</p> <p>SILTY CLAY; very dark gray (5Y, 3/1); &gt;95% low- to moderate-plasticity fines &lt;5% very fine sand; 1-2% shell fragments; soft; very moist.</p> <p>BOTTOM OF BORING AT 13 FEET.</p>

**REMARKS**

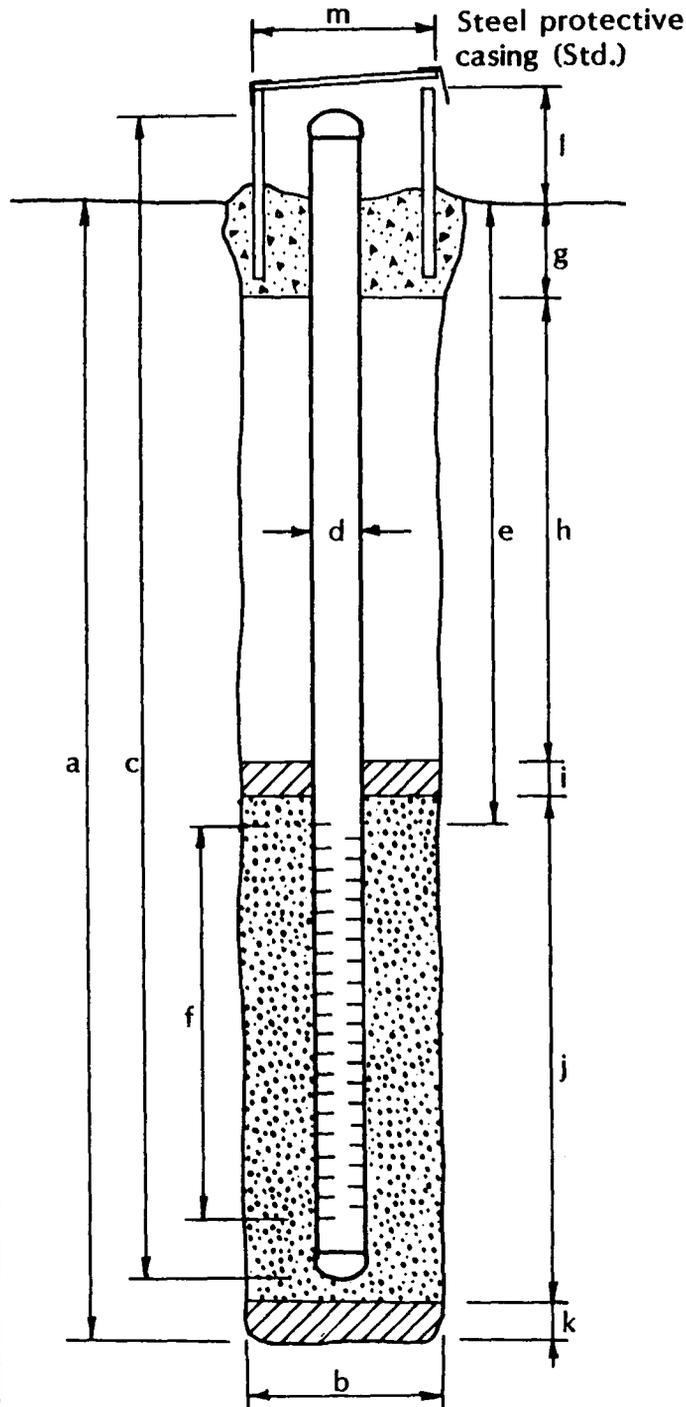
Drilled with 8-inch hollow-stem auger; sampled with 2-inch I.D. California modified split-spoon sampler fitted with stainless steel liners. Boring was converted to a 2-inch ground-water monitoring well as detailed on Plate 25. \*Casing elevation is relative to Navy Datum.

# WELL DETAILS



PROJECT NUMBER 365-02.02  
 PROJECT NAME HPNS-Industrial Landfill  
 COUNTY San Francisco  
 WELL PERMIT NO. \_\_\_\_\_

BORING / WELL NO. 107  
 TOP OF CASING ELEV. 109.52'  
 GROUND SURFACE ELEV. 108'±  
 DATUM Navy



## EXPLORATORY BORING

- a. Total depth 13 ft.
- b. Diameter 8 in.
- Drilling method Hollow-stem auger

## WELL CONSTRUCTION

- c. Casing length 13.5ft.  
Material stainless steel
- d. Diameter 2 in.
- e. Depth to top perforations 3 ft.
- f. Perforated length 10 ft.  
Perforated interval from 13 to 3 ft.  
Perforation type screen  
Perforation size 0.010 inch
- g. Surface seal (1 - 0') 1 ft.  
Seal material cement-bentonite grout
- h. Backfill - ft.  
Backfill material cement-bentonite grout
- i. Seal (2 - 1') 1 ft.  
Seal material bentonite
- j. Gravel pack (9½-2') 7.5 ft.  
Pack material 12x20 sand
- k. Bottom seal N/A ft.  
Seal material N/A
- l. Casing height 1 ft.
- m. Protective casing diameter 10 in.

Boring caved to 9.5 feet when augers removed.

# LOG OF EXPLORATORY BORING

PROJECT NUMBER 365-02.02

BORING NO. IØ8

PROJECT NAME HPNS-Industrial Landfill Area

PAGE 1 OF 1

BY SK DATE 9/16/86

SURFACE ELEV. \* 108.34'

PHOTO-VAC (ppm)	POCKET PENETROMETER (TSF)	PENETRATION (Blows/Ft.)	GROUND WATER LEVELS	DEPTH IN FT.	SAMPLES	LITHO-GRAPHIC COLUMN	DESCRIPTION
			▽	17	v, s m	1	<p>SANDY GRAVEL TO CLAYEY GRAVEL-FILL; light brownish gray (5Y, 6/2); 5-10% low-plasticity fines; 30% fine to coarse sand; 60% fine and coarse gravel; 1-2% brick fragments; medium dense; very moist to wet.</p> <p>@5': black (2.5Y, 2/0); trace wood.</p>
			▽	32	m	2	
				57	v, s m	3	
				41	5	4	
				18	v, s m	5	
				15	10	6	
				18	7	7	
				15			BOTTOM OF BORING AT 12.5 FEET.
				20			

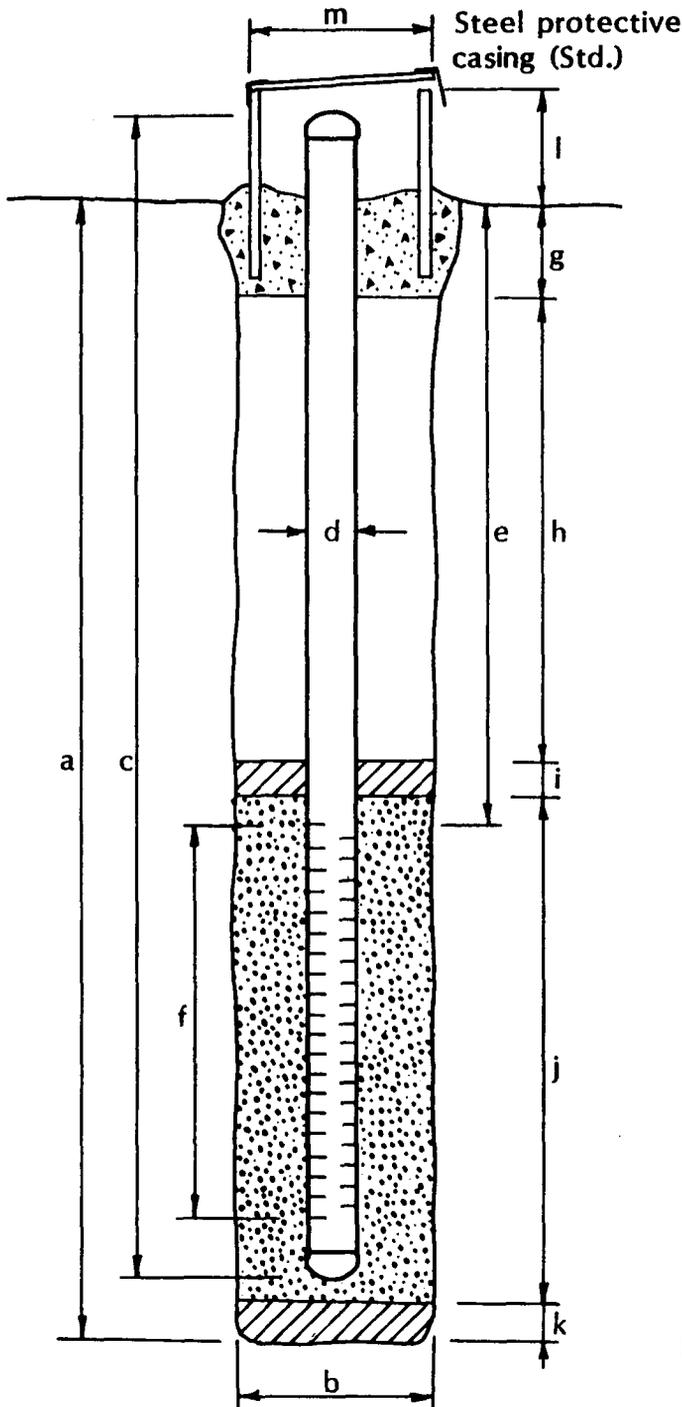
**REMARKS**

Drilled with 8-inch hollow-stem auger; sampled with 2-inch I.D. California modified split-spoon sampler fitted with stainless steel liners. Boring was converted to a 2-inch ground-water monitoring well as detailed on Plate 27. \*Casing elevation is relative to Navy datum.

# WELL DETAILS



PROJECT NUMBER 365-02.02 BORING / WELL NO. 108  
 PROJECT NAME HPNS-Industrial Landfill TOP OF CASING ELEV. 108.34'  
 COUNTY San Francisco GROUND SURFACE ELEV. 107'±  
 WELL PERMIT NO. \_\_\_\_\_ DATUM Navy



## EXPLORATORY BORING

a. Total depth 12.5 ft.  
 b. Diameter 8 in.  
 Drilling method Hollow-stem auger

## WELL CONSTRUCTION

c. Casing length 13 ft.  
 Material stainless steel  
 d. Diameter 2 in.  
 e. Depth to top perforations 2 ft.  
 f. Perforated length 10 ft.  
 Perforated interval from 12 to 2 ft.  
 Perforation type screen  
 Perforation size 0.010 inch  
 g. Surface seal (1 - 0') 1 ft.  
 Seal material cement-bentonite grout  
 h. Backfill - ft.  
 Backfill material cement-bentonite grout  
 i. Seal (1-3/4 - 1') .75 ft.  
 Seal material bentonite  
 j. Gravel pack (6- 1-3/4') 4.25 ft.  
 Pack material 12x20 sand  
 k. Bottom seal N/A ft.  
 Seal material N/A  
 l. Casing height 1.5 ft.  
 m. Protective casing diameter 10 in.

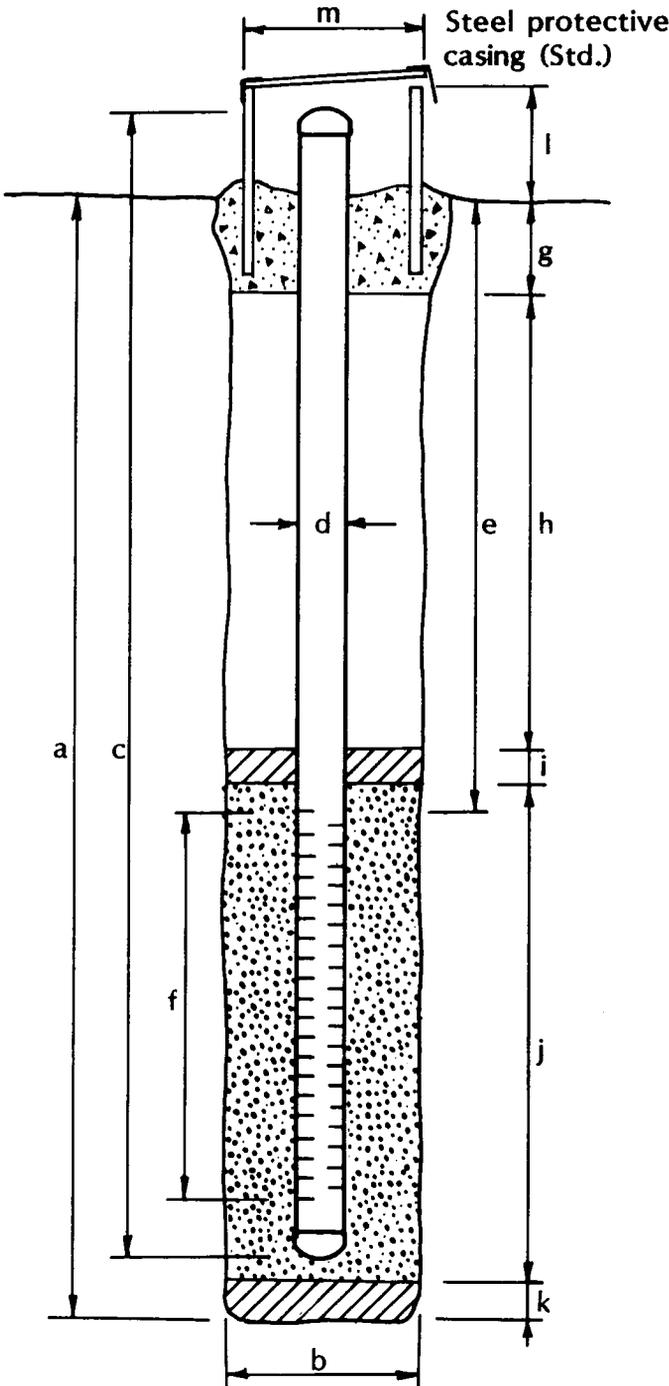
Note: Boring caved to 6 feet when augers removed.



# WELL DETAILS



PROJECT NUMBER 365-02.02 BORING / WELL NO. I09  
 PROJECT NAME HPNS-Industrial Landfill TOP OF CASING ELEV. 111.82'  
 COUNTY San Francisco GROUND SURFACE ELEV. 111'±  
 WELL PERMIT NO. \_\_\_\_\_ DATUM Navy



## EXPLORATORY BORING

- a. Total depth 16.5 ft.  
 b. Diameter 8 in.  
 Drilling method Hollow-stem auger

## WELL CONSTRUCTION

- c. Casing length 14 ft.  
 Material stainless steel  
 d. Diameter 2 in.  
 e. Depth to top perforations 3 ft.  
 f. Perforated length 10 ft.  
 Perforated interval from 13 to 3 ft.  
 Perforation type screen  
 Perforation size 0.010 inch  
 g. Surface seal (1 - 0') 1 ft.  
 Seal material cement-bentonite grout  
 h. Backfill - ft.  
 Backfill material cement-bentonite grout  
 i. Seal (2 - 1') 1 ft.  
 Seal material bentonite  
 j. Gravel pack (14 - 2') 12 ft.  
 Pack material 12x20 sand  
 k. Bottom seal (16.5 - 14') 2.5 ft.  
 Seal material bentonite  
 l. Casing height 1.5 ft.  
 m. Protective casing diameter 10 in.

SCRAP YARD

# LOG OF EXPLORATORY BORING

PROJECT NUMBER 365-02.02  
 PROJECT NAME HPNS-Scrap Yard Area  
 BY JDB DATE 8/05/86

BORING NO. SYA  
 PAGE 1 OF 1  
 SURFACE ELEV. \*113'±

PHOTO-VAC (ppm)	POCKET PENETROMETER (TSF)	PENETRATION (Blows/Ft.)	GROUND WATER LEVELS	DEPTH IN FT.	SAMPLES	LITHO-GRAPHIC COLUMN	DESCRIPTION
				1	GP		ASPHALT CONCRETE
	2.0	22		1 pcb	CL- GC		GRAVEL-FILL; very dense coarse baserock. TO CLAYEY SAND-FILL; olive gray (5Y, 4/2); 25-60%; mostly fine, to coarse, deeply weathered, crushed serpentinite gravel; 30-45% fine to coarse sand; stiff; dry to damp.
				2			
		21		3 pcb	CL- GC		
	2.0	24		4			
				5 sm	3		@5': increase in fine gravel to 30-40%
							BOTTOM OF BORING AT 5.5 FEET.

**REMARKS**

Drilled with 5-inch solid-stem auger; sampled with 2-inch I.D. California modified split-spoon sampler fitted with stainless steel liners.  
 Boring backfilled to surface with cement-bentonite grout.  
 \*Surface elevation is relative to Navy Datum.

# LOG OF EXPLORATORY BORING

PROJECT NUMBER 365-02.02  
 PROJECT NAME HPNS-Scrap Yard Area  
 BY JDB DATE 8/05/86

BORING NO. SYB  
 PAGE 1 OF 1  
 SURFACE ELEV. \*111'±

TORVANE (TSF)	POCKET PENETRO- METER (TSF)	PENETRA- TION (Blows/ Ft.)	GROUND WATER LEVELS	DEPTH IN FT.	SAMPLES	LITHO- GRAPHIC COLUMN	DESCRIPTION
		38		1	1	GP GC	ASPHALT GRAVEL-FILL; coarse baserock CLAYEY GRAVEL-FILL; olive gray (5Y, 4/2) 15-30% low-plasticity fines; 10-20% fine to coarse sand; 50-75% fine and coarse serpentinite gravel; moder- ately weathered; dense; damp.
		26		2	2	GC- GW	CLAYEY GRAVEL TO SANDY GRAVEL-FILL; olive gray (5Y, 4/2); 5-15% low-plas- ticity fines; 35-45% fine to coarse sand; 40-60% fine and coarse gravel; dense; damp.
		56		3	3		@4.5': 10-20% sand; 60-80% gravel; very dense; damp.
				4			
				5			BOTTOM OF BORING AT 5 FEET.

**REMARKS**

Drilled with 5-inch solid-stem auger; sampled with 2-inch I.D. California modified split-spoon sampler fitted with stainless steel liners.  
 Boring was backfilled to surface with cement-bentonite grout.  
 \*Surface elevation is relative to Navy Datum.

# LOG OF EXPLORATORY BORING

PROJECT NUMBER 365-02.02  
 PROJECT NAME HPNS-Scrap Yard Area  
 BY JDB DATE 8/05/86

BORING NO. SYC  
 PAGE 1 OF 1  
 SURFACE ELEV. \*110'±

PHOTO-VAC (ppm)	POCKET PENETROMETER (TSF)	PENETRATION (Blows/Ft.)	GROUND WATER LEVELS	DEPTH IN FT. SAMPLES	LITHO-GRAPHIC COLUMN	DESCRIPTION
		63		1 pcb 1 m 2 m	GP GW	ASPHALT GRAVEL-FILL; coarse baserock. SANDY GRAVEL-FILL; olive gray (5Y, 4/2); 5-10% non-plastic fines; 40-50% fine to coarse sand; 40-55% mostly fine and coarse serpentinite gravel; slightly weathered; very dense; dry to damp.
		33		2 pcb 3 m 4 m	2	
		35		3 pcb 5 m	3 CL	GRAVELLEY CLAY-FILL; very dark gray (2.5Y, 3/0); 55-80% low-plasticity fines; 10-20% fine to coarse sand; 10-25% mostly fine, and coarse gravel; hard; damp. BOTTOM OF BORING AT 5 FEET.

**REMARKS**

Drilled with 5-inch solid-stem auger; sampled with 2-inch I.D. California modified split-spoon sampler fitted with stainless steel liners.  
 Boring was backfilled to surface with cement-bentonite grout.  
 \*Surface elevation is relative to Navy Datum.

# LOG OF EXPLORATORY BORING

PROJECT NUMBER 365-02.02  
 PROJECT NAME HPNS-Scrap Yard Area  
 BY JDB DATE 8/05/86

BORING NO. SYD  
 PAGE 1 OF 1  
 SURFACE ELEV. \*110'±

PHOTO-VAC (ppm)	POCKET PENETROMETER (TSF)	PENETRATION (Blows/Ft.)	GROUND WATER LEVELS	DEPTH IN FT. SAMPLES	LITHO-GRAPHIC COLUMN	DESCRIPTION
	2.5	38		1	GP CL	ASPHALT GRAVEL-FILL; coarse baserock. GRAVELLY CLAY-FILL; dark gray (2.5Y, 3/0); 50-70% low-plasticity fines; 10-20% fine to coarse sand; 20-30% fine and coarse serpentinite gravel; deeply weathered; very stiff; damp.
		40		2	GC	CLAYEY GRAVEL-FILL; olive gray (5Y, 4/2) 15-20% low-plasticity fines; <5% fine to coarse sand; 80-85% fine and coarse serpentinite gravel; dense; damp.
		15		3	SERP	SERPENTINITE- BEDROCK ; green and white; deeply weathered; medium dense; dry.
				5.5		BOTTOM OF BORING AT 5.5 FEET.

**REMARKS**

Drilled with 5-inch solid-stem auger; sampled with 2-inch I.D. California modified split-spoon sampler fitted with stainless steel sleeves.  
 Boring was backfilled to surface with cement-bentonite grout.  
 \*Surface elevation is relative to Navy Datum.



# LOG OF EXPLORATORY BORING

PROJECT NUMBER 365-02.02  
 PROJECT NAME HPNS-Scrap Yard Area  
 BY JDB DATE 8/05/86

BORING NO. SYF  
 PAGE 1 OF 1  
 SURFACE ELEV. \*109'±

PHOTO-VAC (ppm)	POCKET PENETROMETER (TSF)	PENETRATION (Blows/Ft.)	GROUND WATER LEVELS	DEPTH IN FT.	SAMPLES	LITHO-GRAPHIC COLUMN	DESCRIPTION
	1.5	28		1	1	GP GC	GRAVEL-FILL; coarse baserock.
		23		2	2	CL SERP	CLAYEY GRAVEL-FILL; olive gray (5Y, 4/2) 20-30% low-plasticity fines; 20-30% fine to coarse sand; 40-60% fine and coarse serpentinite gravel; dense; dry. SANDY CLAY-FILL; olive gray (5Y, 4/2); 70-80% low-plasticity fines from weathered bedrock; 20-30% fine to coarse sand; stiff; damp.
		33		3	3	SERP	SERPENTINITE-BEDROCK; green, black and white; moderately weathered; medium dense; dry.
				5			BOTTOM OF BORING AT 5 FEET.

**REMARKS**

Drilled with 5-inch solid-stem auger; sampled with 2-inch I.D. California modified split-spoon sampler fitted with stainless steel sleeves.  
 Boring was backfilled to surface with cement-bentonite grout.  
 \*Surface elevation is relative to Navy Datum.

# LOG OF EXPLORATORY BORING

PROJECT NUMBER 365-02.02  
 PROJECT NAME HPNS-Scrap Yard Area  
 BY JDB DATE 8/06/86

BORING NO. SYG  
 PAGE 1 OF 1  
 SURFACE ELEV. \*111'±

TORVANE (TSF)	POCKET PENETRO- METER (TSF)	PENETRA- TION (Blows/ Ft.)	GROUND WATER LEVELS	DEPTH IN FT.	SAMPLES	LITHO- GRAPHIC COLUMN	DESCRIPTION
				1		GP	ASPHALT GRAVEL-FILL; coarse baserock.
		60		2	1	GW- GC	SANDY GRAVEL TO CLAYEY GRAVEL-FILL; olive gray (5Y, 4/2); 5-15% low- plasticity fines; 30-40% fine to coarse sand; 45-65% fine and coarse serpentinite gravel; very dense; dry.
		100		3	2	SERP	SERPENTINITE-BEDROCK; gray (2.5Y, 4/1); very dense; poorly weathered; dry.
		25		5	2		@5': green; softer; deeply weathered serpentinite.
				6			BOTTOM OF BORING AT 6 FEET.

**REMARKS**

Drilled with 5-inch solid-stem auger; sampled with 2-inch I.D. California modified split-spoon sampler fitted with stainless steel liners.  
 Boring was backfilled to surface with cement-bentonite grout.  
 \*Surface elevation is relative to Navy Datum.

# LOG OF EXPLORATORY BORING

PROJECT NUMBER 365-02.02  
 PROJECT NAME HPNS-Scrap Yard Area  
 BY JDB DATE 8/06/86

BORING NO. SYH  
 PAGE 1 OF 1  
 SURFACE ELEV. \*111'±

TORVANE (TSF)	POCKET PENETRO- METER (TSF)	PENETRA- TION (Blows/ Ft.)	GROUND WATER LEVELS	DEPTH IN FT.	SAMPLES	LITHO- GRAPHIC COLUMN	DESCRIPTION
		30		1	1	GP	ASPHALT GRAVEL-FILL; coarse baserock.
				pcb	1	SERP	@1.5': 15-30% low-plasticity fines. SERPENTINITE-BEDROCK; greenish brown; moderate to deeply weathered; medium dense; dry.
		25		2	2		@3.5': dark gray (2.5Y, 3/1); poorly weathered; hard; dry.
				3	3		@5': yellowish brown (10YR, 5/6); highly weathered and iron stained; <10% red chert; hard; dry.
		56		4			
				5			
				pcb, m			BOTTOM OF BORING AT 6 FEET.

**REMARKS**

Drilled with 5-inch solid-stem auger; sampled with 2-inch I.D. California modified split-spoon sampler fitted with stainless steel liners.  
 Boring was backfilled to surface with cement-bentonite grout.  
 \*Surface elevation is relative to Navy Datum.

OLD TRANSFORMER STORAGE YARD

# LOG OF EXPLORATORY BORING

PROJECT NUMBER 365-02.02

BORING NO. TA

PROJECT NAME HPNS-Transformer Storage Yard Area

PAGE 1 OF 1

BY JDB DATE 8/07/86

SURFACE ELEV. \*109'±

TORVANE (TSF)	POCKET PENETRO- METER (TSF)	PENETRA- TION (Blows/ Ft.)	GROUND WATER LEVELS	DEPTH IN FT.	SAMPLES	LITHO- GRAPHIC COLUMN	DESCRIPTION
		83		1	1	GW GC	<p>SANDY GRAVEL-FILL; olive gray (5Y, 4/2); &lt;5% low-plasticity fines; 55-70% fine, to mostly coarse crushed serpentinite gravel; 30-45% fine to coarse sand; very dense; dry. @ 1': trace to 20% silty clay.</p> <p>@5': wet.</p> <p>BOTTOM OF BORING AT 6.5 FEET.</p>
		44		2	2		
		19		3	3		
		12	▽	4	4		
				5			
				6			
				7			

**REMARKS**

Drilled with 5-inch, solid-stem auger; sampled with 2-inch I.D. California modified split-spoon sampler fitted with stainless steel liners. Boring was backfilled to surface with cement-bentonite grout.

\*Surface elevation is relative to Navy datum.

# LOG OF EXPLORATORY BORING

PROJECT NUMBER 365-02.02

BORING NO. TB

PROJECT NAME HPNS-Transformer Storage Yard Area

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BY JDB DATE 8/07/86

SURFACE ELEV. \*110'±

TORVANE (TSF)	POCKET PENETRO- METER (TSF)	PENETRA- TION (Blows/ Ft.)	GROUND WATER LEVELS	DEPTH IN FT.	SAMPLES	LITHO- GRAPHIC COLUMN	DESCRIPTION
		108		1	1	GP GW- GC	<p>GRAVEL-FILL; coarse baserock; very dense SANDY GRAVEL TO CLAYEY GRAVEL-FILL; pale olive (5Y, 6/3); 5-20% low-plasticity fines; 30-45% fine to coarse sand; 35-65% fine and coarse crushed serpentinite gravel; very dense; dry.</p> <p>BOTTOM OF BORING AT 3 FEET.</p>
		64		2	2		
				3			

**REMARKS**

Drilled with 5-inch solid-stem auger; sampled with 2-inch I.D. California modified split-spoon sampler fitted with stainless steel liners. Boring was backfilled to surface with cement-bentonite grout.

\*Surface elevation is relative to Navy datum.

# LOG OF EXPLORATORY BORING

PROJECT NUMBER 365-02.02

BORING NO. TC

PROJECT NAME HPNS-Transformer Storage Yard Area

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BY JDB DATE 8/07/86

SURFACE ELEV. \*109'±

PHOTO-VAC (ppm)	POCKET PENETROMETER (TSF)	PENETRATION (Blows/Ft.)	GROUND WATER LEVELS	DEPTH IN FT.	SAMPLES	LITHO-GRAPHIC COLUMN	DESCRIPTION
		65		1	1	GW-GC	SANDY GRAVEL TO CLAYEY GRAVEL-FILL; pale olive (5Y, 6/3); 5-20% low-plasticity fines; 30-45% fine to coarse sand; 35-65% fine and coarse gravel; very dense; dry.
	3.0	64		2	2	CL	
				3		CL	CLAY-FILL; black (5Y, 2/0); 100% low-plasticity fines; very stiff; moist. BOTTOM OF BORING AT 3 FEET.

**REMARKS**

Drilled with 5-inch solid-stem auger; sampled with 2-inch I.D. California modified split-spoon sampler fitted with stainless steel liners. Boring was backfilled to surface with cement-bentonite grout.

\*Surface elevation is relative to Navy datum.

# LOG OF EXPLORATORY BORING

PROJECT NUMBER 365-02.02

BORING NO. TD

PROJECT NAME HPNS-Transformer Storage Yard Area

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BY JDB DATE 8/07/86

SURFACE ELEV. \*109'±

PHOTO-VAC (ppm)	POCKET PENETROMETER (TSF)	PENETRATION (Blows/Ft.)	GROUND WATER LEVELS	DEPTH IN FT.	SAMPLES	LITHO-GRAPHIC COLUMN	DESCRIPTION
		44		1	1	GW-GC	<p>SANDY GRAVEL TO CLAYEY GRAVEL-FILL; pale olive (5Y, 6/3); 5-20% low-plasticity fines; 30-45% fine to coarse sand; 35-65% fine and coarse gravel; dense; dry.</p> <p>BOTTOM OF BORING AT 3 FEET.</p>
		49		2	2		
				3			

**REMARKS**

Drilled with 5-inch solid-stem auger; sampled with 2-inch I.D. California modified split-spoon sampler fitted with stainless steel liners. Boring was backfilled to surface with cement-bentonite grout.

\*Surface elevation is relative to Navy datum.

# LOG OF EXPLORATORY BORING

PROJECT NUMBER 365-02.02

BORING NO. TE

PROJECT NAME HPNS-Transformer Storage Yard Area

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BY JDB DATE 8/07/86

SURFACE ELEV. \*109'±

PHOTO-VAC (ppm)	POCKET PENETROMETER (TSF)	PENETRATION (Blows/Ft.)	GROUND WATER LEVELS	DEPTH IN FT.	SAMPLES	LITHO-GRAPHIC COLUMN	DESCRIPTION
		81		1	1	GP GW- GC	ASPHALT AND COARSE GRAVEL-FILL.
		35		2	2		SANDY GRAVEL TO CLAYEY GRAVEL-FILL; olive gray (5Y, 4/2); 5-20% low-plasticity fines; 30-45% fine to coarse sand; 35-65% fine and coarse gravel; dense to very dense; dry.
				4			BOTTOM OF BORING AT 3.5 FEET

**REMARKS**

Drilled with 5-inch solid-stem auger; sampled with 2-inch I.D. California modified split-spoon sampler fitted with stainless steel liners. Boring was backfilled to surface with cement-bentonite grout.

\*Surface elevation is relative to Navy datum.

# LOG OF EXPLORATORY BORING

PROJECT NUMBER 365-02.02

BORING NO. TF

PROJECT NAME HPNS-Transformer Storage Yard Area

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BY JDB DATE 8/07/86

SURFACE ELEV. \*110'±

PHOTO-VAC (ppm)	POCKET PENETROMETER (TSF)	PENETRATION (Blows/Ft.)	GROUND WATER LEVELS	DEPTH IN FT. SAMPLES	LITHO-GRAPHIC COLUMN	DESCRIPTION
		75		1	GP	ASPHALT AND COARSE GRAVEL-FILL. SANDY GRAVEL TO CLAYEY GRAVEL-FILL; pale olive (5Y, 6/3); 5-20% low-plasticity fines; 30-45% fine to coarse sand; 35-65% fine and coarse serpentinite gravel; dense to medium dense; dry.
		28	pcb	2	GW- GC	
				3		BOTTOM OF BORING AT 3.25 FEET.
				4		

**REMARKS**

Drilled with 5-inch solid-stem auger; sampled with 2-inch I.D. California modified split-spoon sampler fitted with stainless steel liners. Boring was backfilled to surface with cement-bentonite grout.

\*Surface elevation is relative to Navy datum.

# LOG OF EXPLORATORY BORING

PROJECT NUMBER 365-02.02

BORING NO. TG

PROJECT NAME HPNS-Transformer Storage Yard Area

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BY JDB DATE 8/07/86

SURFACE ELEV. \*110'±

PHOTO-VAC (ppm)	POCKET PENETROMETER (TSF)	PENETRATION (Blows/Ft.)	GROUND WATER LEVELS	DEPTH IN FT.	SAMPLES	LITHO-GRAPHIC COLUMN	DESCRIPTION
		25		1	1	GP GW- GC	<p>ASPHALT AND COARSE GRAVEL-FILL. SANDY GRAVEL TO CLAYEY GRAVEL-FILL; pale olive (5Y, 6/3); 5-30% low-plasticity fines; 30-45% fine to coarse sand; 25-65% fine and coarse serpentinite gravel; medium dense; damp.</p>
		13		2	2		
				3			
				4			<p>BOTTOM OF BORING AT 3.5 FEET.</p>

**REMARKS**

Drilled with 5-inch solid-stem auger; sampled with 2-inch I.D. California modified split-spoon sampler fitted with stainless steel liners. Boring was backfilled to surface with cement-bentonite grout.

\*Surface elevation is relative to Navy datum.

# LOG OF EXPLORATORY BORING

PROJECT NUMBER 365-02.02

BORING NO. TH

PROJECT NAME HPNS-Transformer Storage Yard Area

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BY JDB DATE 8/07/86

SURFACE ELEV. \*109'±

PHOTO-VAC (ppm)	POCKET PENETROMETER (TSF)	PENETRATION (Blows/Ft.)	GROUND WATER LEVELS	DEPTH IN FT.	SAMPLES	LITHO-GRAPHIC COLUMN	DESCRIPTION
		57		1	1	GW-GC	<p>SANDY GRAVEL TO CLAYEY GRAVEL-FILL; olive gray (5Y, 4/2); 5-20% low-plasticity fines; 30-45% fine to coarse sand; 35-65% fine and coarse serpentinite gravel; very dense; dry.</p>
		68		2	2		
				3			<p>BOTTOM OF BORING AT 3 FEET.</p>

**REMARKS**

Drilled with 5-inch solid-stem auger; sampled with 2-inch I.D. California modified split-spoon sampler fitted with stainless steel liners. Boring was backfilled to surface with cement-bentonite grout.

\*Surface elevation is relative to Navy datum.

# LOG OF EXPLORATORY BORING

PROJECT NUMBER 365-02.02

BORING NO. TI

PROJECT NAME HPNS-Transformer Storage Yard Area

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BY JDB DATE 8/07/86

SURFACE ELEV. \*111'±

PHOTO-VAC (ppm)	POCKET PENETROMETER (TSF)	PENETRATION (Blows/Ft.)	GROUND WATER LEVELS	DEPTH IN FT.	SAMPLES	LITHO-GRAPHIC COLUMN	DESCRIPTION
		13		1	1	GP	ASPHALT AND COARSE GRAVEL-FILL.
		11		2	2	GC	CLAYEY GRAVEL-FILL; olive gray (5Y, 4/2); 20-40% low-plasticity fines from weathered serpentinite; 15-30% fine to coarse sand; 30-65% fine and coarse serpentinite gravel; medium dense; dry.
				4			BOTTOM OF BORING AT 4 FEET.

**REMARKS**

Drilled with 5-inch solid-stem auger; sampled with 2-inch I.D. California modified split-spoon sampler fitted with stainless steel liners. Boring was backfilled to surface with cement-bentonite grout.

\*Surface elevation is relative to Navy datum.

# LOG OF EXPLORATORY BORING

PROJECT NUMBER 365-02.02

BORING NO. TJ

PROJECT NAME HPNS-Transformer Storage Yard Area

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BY JDB DATE 8/07/86

SURFACE ELEV. \*111'±

PHOTO-VAC (ppm)	POCKET PENETROMETER (TSF)	PENETRATION (Blows/Ft.)	GROUND WATER LEVELS	DEPTH IN FT.	SAMPLES	LITHO-GRAPHIC COLUMN	DESCRIPTION
		30		1	1	GC	ASPHALT AND COARSE GRAVEL-FILL. CLAYEY GRAVEL-FILL; olive gray (5Y,4/2); 10-20% low-plasticity fines; 30-40% fine to coarse sand; 40-60% fine and coarse serpentinite gravel; medium dense to dense; dry.
		16		2	2		
				3			BOTTOM OF BORING AT 3.5 FEET.
				4			

**REMARKS**

Drilled with 5-inch solid-stem auger; sampled with 2-inch I.D. California modified split-spoon sampler fitted with stainless steel liners. Boring was backfilled to surface with cement-bentonite grout.

\*Surface elevation is relative to Navy datum.

# LOG OF EXPLORATORY BORING

PROJECT NUMBER 365-02.02

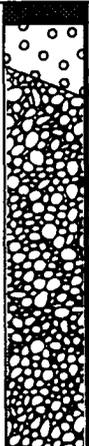
BORING NO. TK

PROJECT NAME HPNS-Transformer Storage Yard Area

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BY JDB DATE 8/07/86

SURFACE ELEV. \*111'±

PHOTO-VAC (ppm)	POCKET PENETROMETER (TSF)	PENETRATION (Blows/Ft.)	GROUND WATER LEVELS	DEPTH IN FT.	SAMPLES	LITHO-GRAPHIC COLUMN	DESCRIPTION
		19		1	1	GP GW- GC	ASPHALT AND COARSE GRAVEL-FILL.
		13		2	2		SANDY GRAVEL TO CLAYEY GRAVEL-FILL; pale olive (5Y, 6/3); 5-10% low-plasticity fine to coarse sand; 45-65% fine and coarse serpentinite gravel; medium dense; dry.
				3			
				4			BOTTOM OF BORING AT 3.5 FEET.

**REMARKS**

Drilled with 5-inch solid-stem auger; samples with 2-inch I.D. California modified split-spoon sampler fitted with stainless steel liners. Boring was backfilled to surface with cement-bentonite grout.

\*Surface elevation is relative to Navy datum.

# LOG OF EXPLORATORY BORING

PROJECT NUMBER 365-02.02

BORING NO. TL

PROJECT NAME HPNS-Transformer Storage Yard Area

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BY JDB DATE 8/07/86

SURFACE ELEV. \*110'±

PHOTO-VAC (ppm)	POCKET PENETROMETER (TSF)	PENETRATION (Blows/Ft.)	GROUND WATER LEVELS	DEPTH IN FT.	SAMPLES	LITHO-GRAPHIC COLUMN	DESCRIPTION
		83		1	1	GP GW- GC	<p>ASPHALT AND COARSE GRAVEL-FILL.</p> <p>SANDY GRAVEL TO CLAYEY GRAVEL-FILL; olive gray (5Y, 4/2); 5-25% low-plasticity fines; 30-45% fine to coarse sand; 30-65% fine and coarse serpentinite gravel; very dense; dry.</p> <p>@2': medium dense.</p>
		20		2	2		
				3			
				4			
							BOTTOM OF BORING AT 3.5 FEET.

**REMARKS**

Drilled with 5-inch solid-stem auger; sampled with 2-inch I.D. California modified split-spoon sampler fitted with stainless steel liners. Boring was backfilled to surface with cement-bentonite grout.

\*Surface elevation is relative to Navy datum.

# LOG OF EXPLORATORY BORING

PROJECT NUMBER 365-02.02

BORING NO. TM

PROJECT NAME HPNS-Transformer Storage Yard Area

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BY JDB DATE 8/07/86

SURFACE ELEV. \*109'±

PHOTO-VAC (ppm)	POCKET PENETROMETER (TSF)	PENETRATION (Blows/Ft.)	GROUND WATER LEVELS	DEPTH IN FT.	SAMPLES	LITHO-GRAPHIC COLUMN	DESCRIPTION
		81		1	1	GP GW- GC	<p>ASPHALT AND COARSE GRAVEL-FILL.</p> <p>SANDY GRAVEL TO CLAYEY GRAVEL-FILL; olive gray (5Y, 4/2); 5-25% low-plasticity fines; 30-45% fine to coarse sand; 30-65% fine and coarse serpentinite gravel; very dense; dry. @2': dense.</p>
		30		2	2		<p>BOTTOM OF BORING AT 3.5 FEET.</p>

**REMARKS**

Drilled with 5-inch solid-stem auger; sampled with 2-inch I.D. California modified split-spoon sampler fitted with stainless steel liners. Boring was backfilled to surface with cement-bentonite grout.

\*Surface elevation is relative to Navy datum.

# LOG OF EXPLORATORY BORING

PROJECT NUMBER 365-02.02

BORING NO. TN

PROJECT NAME HPNS-Transformer Storage Yard Area

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BY JDB DATE 8/07/86

SURFACE ELEV. \*110'±

PHOTO-VAC (ppm)	POCKET PENETROMETER (TSF)	PENETRATION (Blows/Ft.)	GROUND WATER LEVELS	DEPTH IN FT.	SAMPLES	LITHO-GRAPHIC COLUMN	DESCRIPTION
		39		1	1	GP GC- GW	ASPHALT AND COARSE GRAVEL-FILL.
		40		2	2	(Litho-Graphic Column continues)	CLAYEY GRAVEL TO SANDY GRAVEL-FILL; olive gray (5Y, 4/2); 5-30% low-plasticity fines; 30-45% fine to coarse sand; 25-65% fine and coarse serpentinite gravel; dense; dry.
				3.5			BOTTOM OF BORING AT 3.5 FEET.

**REMARKS**

Drilled with 5-inch solid-stem auger; sampled with 2-inch I.D. California modified split-spoon sampler fitted with stainless steel liners. Boring was backfilled to surface with cement-bentonite grout.

\*Surface elevation is relative to Navy datum.

# LOG OF EXPLORATORY BORING

PROJECT NUMBER 365-02.02

BORING NO. T0

PROJECT NAME HPNS-Transformer Storage Yard Area

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BY JDB DATE 8/07/86

SURFACE ELEV. \*110'±

PHOTO-VAC (ppm)	POCKET PENETROMETER (TSF)	PENETRATION (Blows/Ft.)	GROUND WATER LEVELS	DEPTH IN FT.	SAMPLES	LITHO-GRAPHIC COLUMN	DESCRIPTION
		30		1	1	GP GC- GW	ASPHALT AND COARSE GRAVEL-FILL.
		32		2	2		CLAYEY GRAVEL TO SANDY GRAVEL-FILL; olive gray (5Y, 4/2); 5-30% low-plasticity fines; 30-45% fine to coarse sand; 25-65% fine and coarse serpentinite gravel; dense; dry to damp.
				4			BOTTOM OF BORING AT 3.5 FEET.

**REMARKS**

Drilled with 5-inch solid-stem auger; sampled with 2-inch I.D. California modified split-spoon sampler fitted with stainless steel liners. Boring was backfilled to surface with cement-bentonite grout.

\*Surface elevation is relation to Navy datum.

# LOG OF EXPLORATORY BORING

PROJECT NUMBER 365-02.02

BORING NO. TP

PROJECT NAME HPNS-Transformer Storage Yard Area

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BY JDB DATE 8/08/86

SURFACE ELEV. \*110'±

PHOTO-VAC (ppm)	POCKET PENETROMETER (TSF)	PENETRATION (Blows/Ft.)	GROUND WATER LEVELS	DEPTH IN FT.	SAMPLES	LITHO-GRAPHIC COLUMN	DESCRIPTION
		63		1	1	GP GC- GW	<p>ASPHALT AND GRAVEL-FILL.</p> <p>CLAYEY GRAVEL TO SANDY GRAVEL-FILL; olive gray (5Y, 4/2); 5-20% low-plasticity fines; 30-45% fine to coarse sand; 35-65% fine and coarse serpentinite gravel; very dense; dry.</p>
		58		2	2		<p>BOTTOM OF BORING AT 3.5 FEET,</p>

**REMARKS**

Drilled with 5-inch solid-stem auger; sampled with 2-inch I.D. California modified split-spoon sampler fitted with stainless steel liners. Boring was backfilled to surface with cement-bentonite grout.

\*Surface elevation is relative to Navy datum.

# LOG OF EXPLORATORY BORING

PROJECT NUMBER 365-02.02

BORING NO. TQ

PROJECT NAME HPNS-Transformer Storage Yard Area

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BY JDB DATE 8/08/86

SURFACE ELEV. \*110'±

PHOTO-VAC (ppm)	POCKET PENETROMETER (TSF)	PENETRATION (Blows/Ft.)	GROUND WATER LEVELS	DEPTH IN FT.	SAMPLES	LITHO-GRAPHIC COLUMN	DESCRIPTION
		68		1	1	GP	COARSE GRAVEL-FILL.
		86		2	2	GC-GW	CLAYEY GRAVEL TO SANDY GRAVEL-FILL; olive gray (5Y, 4/2); 5-20% low-plasticity fines; 30-45% fine to coarse sand; 35-65% fine and coarse serpentinite gravel; very dense; dry.
				4			BOTTOM OF BORING AT 4 FEET.

**REMARKS**

Drilled with 5-inch solid-stem auger; sampled with 2-inch I.D. California modified split-spoon sampler fitted with stainless steel liners. Boring was backfilled to surface with cement-bentonite grout.

\*Surface elevation is relative to Navy datum.

# LOG OF EXPLORATORY BORING

PROJECT NUMBER 365-02.02

BORING NO. TR

PROJECT NAME HPNS-Transformer Storage Yard Area

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BY JDB DATE 8/08/86

SURFACE ELEV. \*110'±

TORVANE (TSF)	POCKET PENETRO- METER (TSF)	PENETRA- TION (Blows/ Ft.)	GROUND WATER LEVELS	DEPTH IN FT.	SAMPLES	LITHO- GRAPHIC COLUMN	DESCRIPTION
		22		1	1	GP	COARSE GRAVEL-FILL.
		11		2	2	GC- GW	CLAYEY GRAVEL TO SANDY GRAVEL-FILL; olive gray (5Y, 4/2); 5-20% low- plasticity fines; 30-45% fine to coarse sand; 35-65% fine and coarse serpentinite gravel; medium dense; dry to damp.
2.0				4	4	CL	@3.5': 30-40% low-plasticity fines. GRAVELLY CLAY TO CLAYEY GRAVEL-FILL; black (2.5Y, 2/0); 35-65% low-plast- city fines; 15-30% coarse sand; 20-35 fine and coarse angular gravel; very stiff; moist. BOTTOM OF BORING AT 4 FEET.

**REMARKS**

Drilled with 5-inch solid-stem auger; sampled with 2-inch I.D. California modified split-spoon sampler fitted with stainless steel liners. Boring was backfilled to surface with cement-bentonite grout.

\*Surface elevation is relative to Navy datum.

# LOG OF EXPLORATORY BORING

PROJECT NUMBER 365-02.02

BORING NO. TS

PROJECT NAME HPNS-Transformer Storage Yard Area

PAGE 1 OF 1

BY JDB DATE 8/08/86

SURFACE ELEV. \*111'±

PHOTO-VAC (ppm)	POCKET PENETROMETER (TSF)	PENETRATION (Blows/Ft.)	GROUND WATER LEVELS	DEPTH IN FT.	SAMPLES	LITHO-GRAPHIC COLUMN	DESCRIPTION
		26		1	1	GP	COARSE GRAVEL-FILL.
		26	pcb	2	2	GC-GW	CLAYEY GRAVEL TO SANDY GRAVEL-FILL; olive gray (5Y, 4/2); 5-30% low-plasticity fines; 25-40% fine to coarse sand; 30-70% fine and coarse serpentinite gravel; medium dense; dry to damp.
				3			BOTTOM OF BORING AT 3.5 FEET.
				4			
				5			

**REMARKS**

Drilled with 5-inch solid-stem auger; sampled with 2-inch I.D. California modified split-spoon sampler fitted with stainless steel liners. Boring was backfilled to surface with cement-bentonite grout.

\*Surface elevation is relative to Navy datum.

# LOG OF EXPLORATORY BORING

PROJECT NUMBER 365-02.02

BORING NO. TT

PROJECT NAME HPNS-Transformer Storage Yard Area

PAGE 1 OF 1

BY JDB DATE 8/08/86

SURFACE ELEV. \*111'±

PHOTO-VAC (ppm)	POCKET PENETROMETER (TSF)	PENETRATION (Blows/Ft.)	GROUND WATER LEVELS	DEPTH IN FT.	SAMPLES	LITHO-GRAPHIC COLUMN	DESCRIPTION
				1 pcb	GP		COARSE GRAVEL-FILL.
	2.0	18		1	GC		CLAYEY GRAVEL-FILL; dark olive gray (5Y, 3/2); 15-40% low-plasticity fines; 15-30% fine to coarse sand; 30-70% fine and coarse serpentinite gravel; medium dense; damp.
		14		2	CL		SANDY CLAY-FILL; dark olive gray (5Y, 3/2); 35-55% low-plasticity fines; 25-35% fine to coarse sand; 20-30% fine gravel; very stiff; moist.
				3	GC		CLAYEY GRAVEL-FILL; (as above).
				4			BOTTOM OF BORING AT 4 FEET.

**REMARKS**

Drilled with 5-inch solid-stem auger; sampled with 2-inch I.D. California modified split-spoon sampler fitted with stainless steel liners. Boring was backfilled to surface with cement-bentonite grout.

\*Surface elevation is relative to Navy datum.

# LOG OF EXPLORATORY BORING

PROJECT NUMBER 365-02.02

BORING NO. TU

PROJECT NAME HPNS-Transformer Storage Yard Area

PAGE 1 OF 1

BY JDB DATE 8/08/86

SURFACE ELEV. \*112'±

TORVANE (TSF)	POCKET PENETRO- METER (TSF)	PENETRA- TION (Blows/ Ft.)	GROUND WATER LEVELS	DEPTH IN FT.	SAMPLES	LITHO- GRAPHIC COLUMN	DESCRIPTION
	2.5	35		1	1	GP	COARSE GRAVEL-FILL.
				1	1	CL	GRAVELLY CLAY-FILL; olive gray (5Y, 4/2); 45-75% low-plasticity fines; 10-20% fine to coarse sand; 15-35% fine and coarse serpentinite gravel; very stiff; moist.
		55		2	2	SERP	SERPENTINITE- BEDROCK; dark green; moderately weathered; very dense; dry.
				4			BOTTOM OF BORING AT 3.5 FEET.

**REMARKS**

Drilled with 5-inch solid-stem auger; sampled with 2-inch I.D. California modified split-spoon sampler fitted with stainless steel liners. Boring was backfilled to surface with cement-bentonite grout.

\*Surface elevation is relative to Navy datum.

**BAY FILL AREA**

# LOG OF EXPLORATORY BORING

PROJECT NUMBER 365-02.02  
 PROJECT NAME HPNS-Bay Fill Area  
 BY SK DATE 8/13/86

BORING NO. B01  
 PAGE 1 OF 1  
 SURFACE ELEV. \* 112.26'

PHOTO-VAC (ppm)	POCKET PENETROMETER (TSF)	PENETRATION (Blows/Ft.)	GROUND WATER LEVELS	DEPTH IN FT.	SAMPLES	LITHO-GRAPHIC COLUMN	DESCRIPTION
			▼	12	1	GC	CLAYEY GRAVEL-FILL; light olive gray (5Y, 6/2); 25% low-plasticity fines; 30% fine to coarse sand; 30% fine to coarse gravel; 15% cobbles; dense to very dense; dry.
				11	2	CL	SILTY CLAY-FILL; grayish brown (2.5Y, 5/2); 85-95% low-plasticity fines; 5-15% fine sand; firm to stiff; damp to moist.
			▽	7	3	CL-CH	SILTY CLAY; very dark gray (5Y, 3/1); 90-95% moderate- to high-plasticity fines; 5-10% fine sand; 1-3% shell fragments; firm; moist to very moist.
				6	4		
				3	5		
				3	6		@10.5': very moist to wet.
				2	7		@12': very silty.
				3	8		
				2	9		
				3	10		
				20			BOTTOM OF BORING AT 19-1/2 FEET.

**REMARKS**

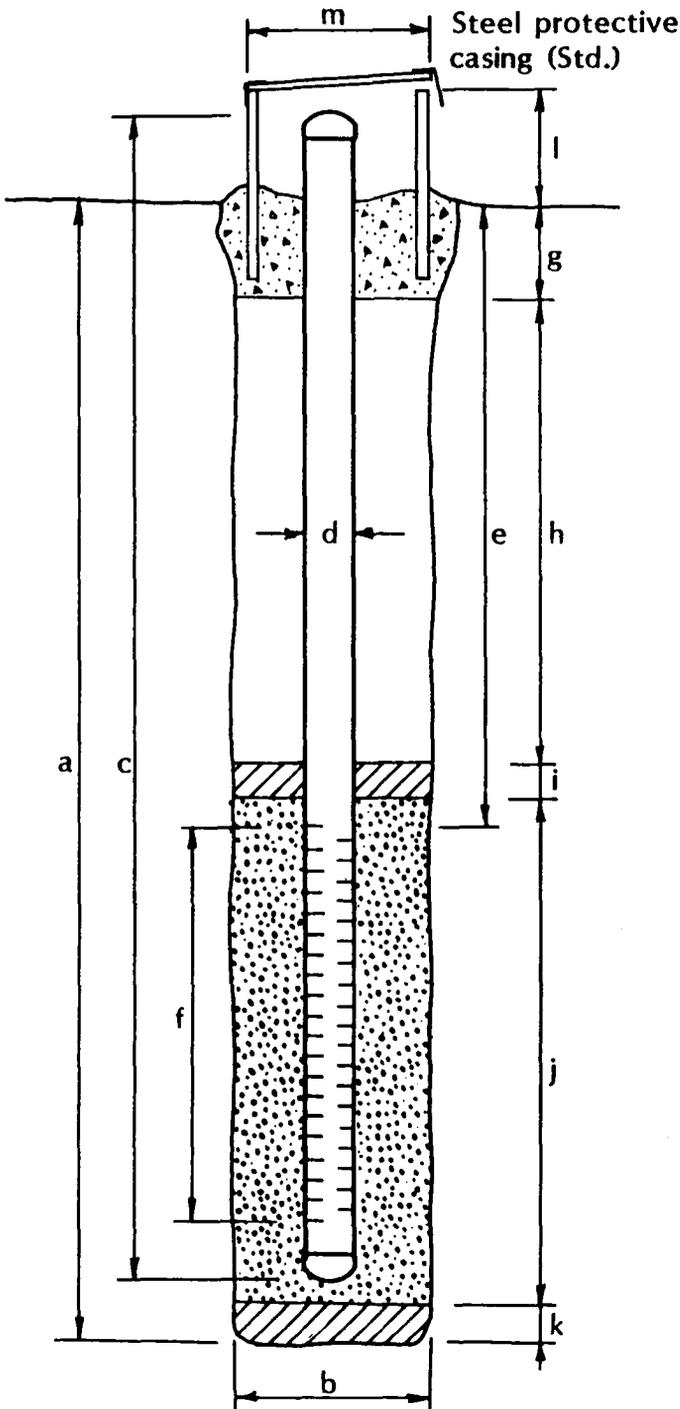
Drilled with 8-inch hollow-stem auger; sampled with 2-inch I.D. California modified split-spoon sampler fitted with stainless steel liners. Boring was converted to a 2-inch ground-water monitoring well as detailed on Plate A60.  
 \*Casing elevation is relative to Navy datum.

# WELL DETAILS



PROJECT NUMBER 365-02.02  
 PROJECT NAME HPNS - Bay Fill Area  
 COUNTY San Francisco  
 WELL PERMIT NO. \_\_\_\_\_

BORING / WELL NO. B01  
 TOP OF CASING ELEV. 112.26'  
 GROUND SURFACE ELEV. 111' ±  
 DATUM Navy



## EXPLORATORY BORING

- a. Total depth 19.5 ft.
- b. Diameter 8 in.
- Drilling method Hollow-stem auger

## WELL CONSTRUCTION

- c. Casing length 19.5 ft.  
Material stainless steel
- d. Diameter 2 in.
- e. Depth to top perforations 4 ft.
- f. Perforated length 15 ft.  
Perforated interval from 19 to 4 ft.  
Perforation type machined slot  
Perforation size 0.010 inch
- g. Surface seal (1 - 0') 1 ft.  
Seal material cement-bentonite grout
- h. Backfill (2 - 1') 1 ft.  
Backfill material cement-bentonite grout
- i. Seal (3 - 2') 1 ft.  
Seal material bentonite
- j. Gravel pack (19 - 3') 16 ft.  
Pack material 12x20 Monterey sand
- k. Bottom seal N/A ft.  
Seal material N/A
- l. Casing height 1 ft.
- m. Protective casing diameter 10 in.

# LOG OF EXPLORATORY BORING

PROJECT NUMBER 365-02.02  
 PROJECT NAME HPNS-Bay Fill Area  
 BY SK DATE 8/15/86

BORING NO. B02  
 PAGE 1 OF 1  
 SURFACE ELEV. \* 115.35'

PHOTO-VAC (ppm)	POCKET PENETROMETER (TSF)	PENETRATION (Blows/Ft.)	GROUND WATER LEVELS	DEPTH IN FT.	SAMPLES	LITHO-GRAPHIC COLUMN	DESCRIPTION
				9	1	SP	GRAVELLY SAND-FILL; olive brown (2.5Y, 4/4); <5% low-plasticity fines; 80% fine to medium sand; 5% coarse sand; 10% fine gravel; 1-3% refuse: wood, rubber; medium dense; damp.  @5': metal scraps in auger cuttings. @6': 3" of red clay.  @8-11.5': concentration of wood.  @11': wet. @12': black (2.5Y, 2/0); 10% non-plastic fines; 80% medium sand; 10% fine sand; <5% fine gravel. @13': 5-10% fine gravel-size angular chert clasts. @14.5-15': concentration of wood.  @16-17.5': 5-10% coarse gravel.
				7	2		
				5	3		
				5	4		
				7	5		
			v, s	17	6		
			v, s	14	7		
			v, s	11	8		
				19	9		
				17	10		
				15	11		
				13	12		
				30	20	BOTTOM OF BORING AT 20.5 FEET.	

**REMARKS**

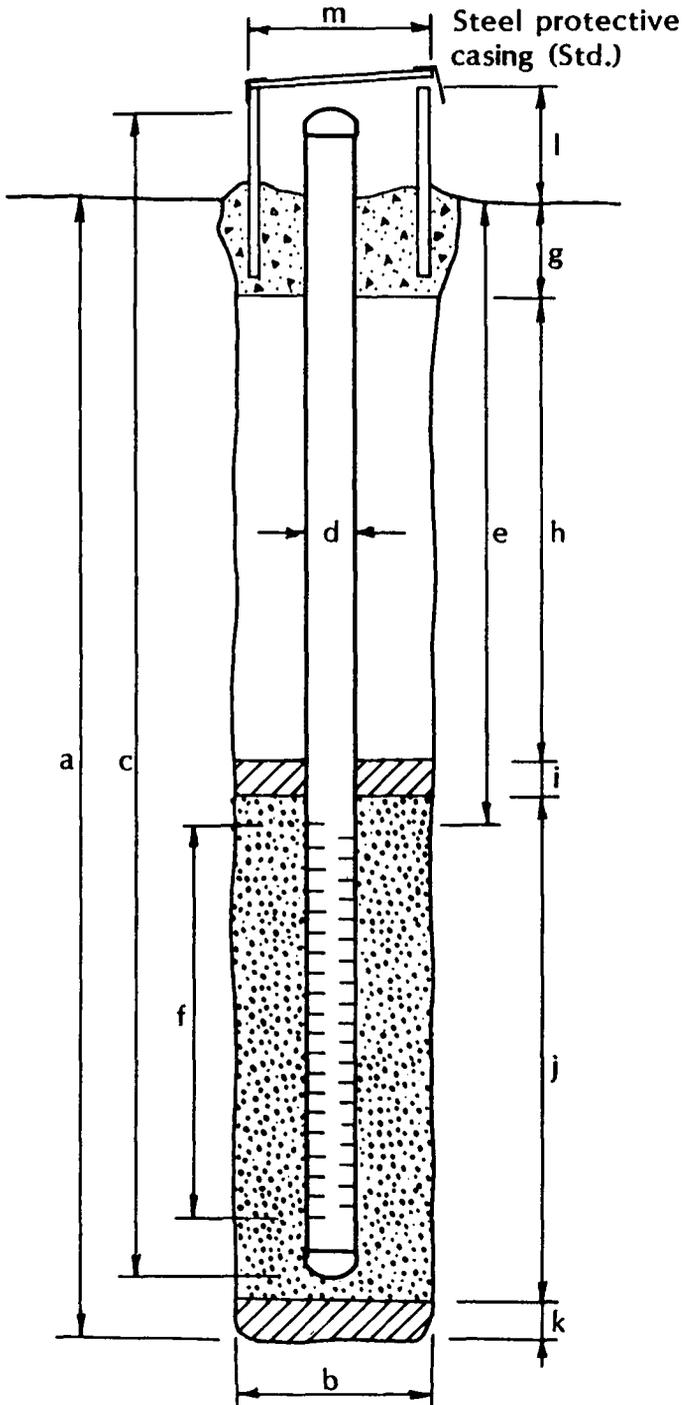
Drilled with 8-inch hollow-stem auger; sampled with 2-inch I.D. California modified split-spoon sampler fitted with stainless steel liners. Boring was converted to a 2-inch ground-water monitoring well as detailed on Plate A62.  
 \*Casing elevation is relative to Navy datum.

# WELL DETAILS



PROJECT NUMBER 365-02.02  
 PROJECT NAME HPNS - Bay Fill Area  
 COUNTY San Francisco  
 WELL PERMIT NO. \_\_\_\_\_

BORING / WELL NO. B02  
 TOP OF CASING ELEV. 115.35'  
 GROUND SURFACE ELEV. 114'±  
 DATUM Navy



## EXPLORATORY BORING

a. Total depth 20.5 ft.  
 b. Diameter 8 in.  
 Drilling method Hollow-stem auger

## WELL CONSTRUCTION

c. Casing length 20 ft.  
 Material stainless steel  
 d. Diameter 2 in.  
 e. Depth to top perforations 4 ft.  
 f. Perforated length 15 ft.  
 Perforated interval from 19 to 4 ft.  
 Perforation type machined slot  
 Perforation size 0.010 inch  
 g. Surface seal (1 - 0') 1 ft.  
 Seal material cement-bentonite grout  
 h. Backfill (2 - 1') 1 ft.  
 Backfill material cement-bentonite grout  
 i. Seal (3 - 2') 1 ft.  
 Seal material bentonite  
 j. Gravel pack (12 - 3') 9 ft.  
 Pack material 12x20 Monterey sand  
 k. Bottom seal N/A ft.  
 Seal material N/A  
 l. Casing height 1.5 ft.  
 m. Protective casing diameter 10 in.

Note: Boring caved to 12 feet around casing when augers removed.

# LOG OF EXPLORATORY BORING

PROJECT NUMBER 365-02.02  
 PROJECT NAME HPNS-Bay Fill Area  
 BY SK DATE 8/19/86

BORING NO. B03  
 PAGE 1 OF 1  
 SURFACE ELEV. \*116.3'

PHOTO-VAC (ppm)	POCKET PENETROMETER (TSF)	PENETRATION (Blows/Ft.)	GROUND WATER LEVELS	DEPTH IN FT.	SAMPLES	LITHO-GRAPHIC COLUMN	DESCRIPTION
				SW		SW	GRAVELLY SAND-FILL; light olive brown (2.5Y, 5/4); <5% low-plasticity fines; 40-50% fine to medium sand, 10% coarse sand; 35-45% fine and coarse gravel; loose to medium dense; dry.
		42	v, s	1	1		
		39		2	2		
		21		3	3		
		24 for 9"		4	4		
		24	m	5	5		@7': very moist.
		24	v, s	6	6	GC	CLAYEY GRAVEL-FILL; dark grayish brown (10YR, 4/2); 25% low-plasticity fines; 20% fine to coarse sand; 55% fine and coarse gravel; dense; very moist to wet.
		20	v, s	7	7	GC-GP	CLAYEY GRAVEL TO GRAVEL-FILL; dark grayish brown (10YR, 4/2); 5-15% low-plasticity fines; 10-20% fine to coarse sand; 65-85% fine and coarse gravel; medium dense; wet.
		12		8	8		
		2		9	9	CL-CH	SILTY CLAY; very dark gray (5Y, 3/1); 95% moderate- to high plasticity fines; <5% fine sand; <5% shell fragments; firm; very moist.
		4		10	10		
		2		11	11		
		2		12	12		
				20			BOTTOM OF BORING AT 19 FEET.

**REMARKS**

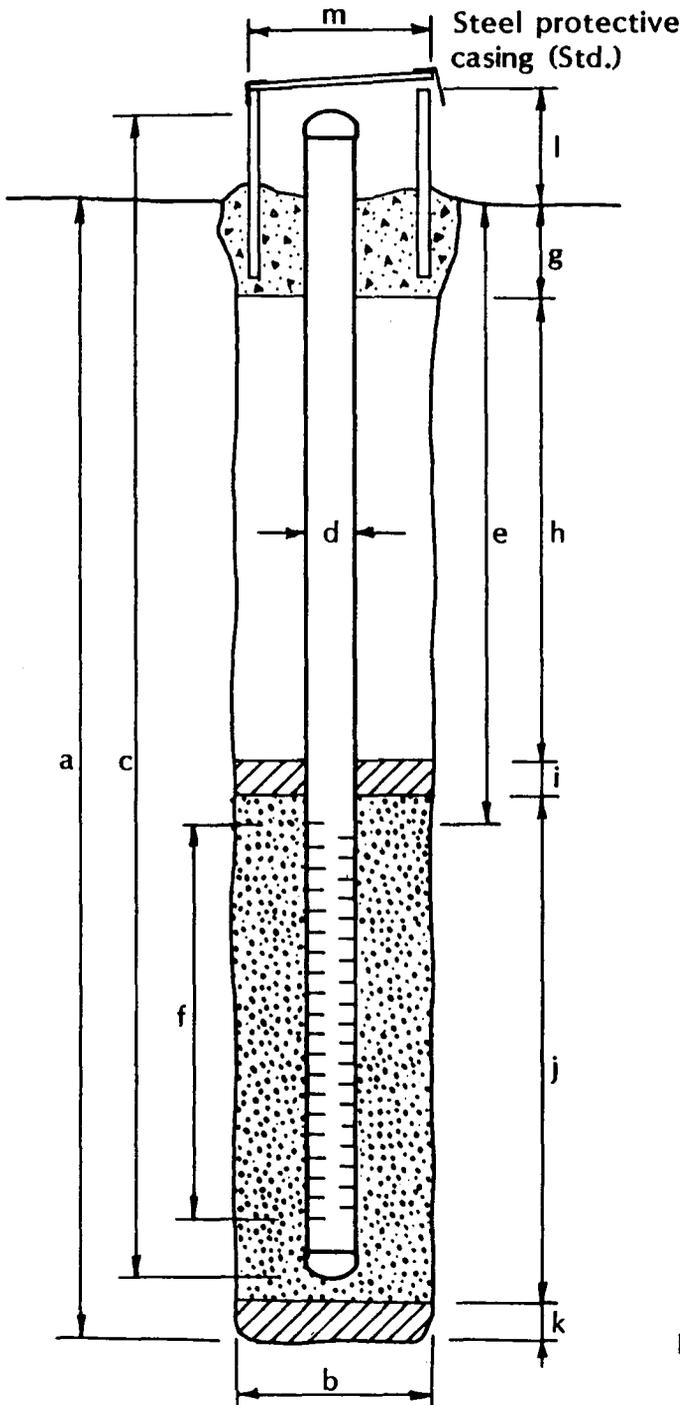
Drilled with 8-inch hollow-stem auger; sampled with 2-inch I.D. California modified split-spoon sampler fitted with stainless steel liners. Boring was converted to a 2-inch ground-water monitoring well as detailed on Plate A64.  
 \*Casing elevation is relative to Navy datum.

# WELL DETAILS



PROJECT NUMBER 365-02.02  
 PROJECT NAME HPNS - Bay Fill Area  
 COUNTY San Francisco  
 WELL PERMIT NO. \_\_\_\_\_

BORING / WELL NO. B03  
 TOP OF CASING ELEV. 116.31'  
 GROUND SURFACE ELEV. 115'±  
 DATUM Navy



## EXPLORATORY BORING

- a. Total depth 20 ft.  
 b. Diameter 8 in.  
 Drilling method Hollow-stem auger

## WELL CONSTRUCTION

- c. Casing length 19 ft.  
 Material stainless steel  
 d. Diameter 2 in.  
 e. Depth to top perforations 4 ft.  
 f. Perforated length 15 ft.  
 Perforated interval from 19 to 4 ft.  
 Perforation type machined slot  
 Perforation size 0.010 inch  
 g. Surface seal (1 - 0') 1 ft.  
 Seal material cement-bentonite grout  
 h. Backfill (2 - 1') 1 ft.  
 Backfill material cement-bentonite grout  
 i. Seal (3 - 2') 1 ft.  
 Seal material bentonite  
 j. Gravel pack (14 - 3') 11 ft.  
 Pack material 12x20 Monterey sand  
 k. Bottom seal N/A ft.  
 Seal material N/A  
 l. Casing height 1.5 ft.  
 m. Protective casing diameter 10 in.

Note: Boring caved to 14 feet around casing when augers removed.

# LOG OF EXPLORATORY BORING

PROJECT NUMBER 365-02.02  
 PROJECT NAME HPNS-Bay Fill Area  
 BY SK DATE 8/20/86

BORING NO. B04  
 PAGE 1 OF 1  
 SURFACE ELEV. \* 112.94'

PHOTO-VAC (ppm)	POCKET PENETROMETER (TSF)	PENETRATION (Blows/Ft.)	GROUND WATER LEVELS	DEPTH IN FT.	SAMPLES	LITHO-GRAPHIC COLUMN	DESCRIPTION
		62 for 6"	v, s	1	1	SP-GW	GRAVELLY SAND TO SANDY GRAVEL-FILL; brown (10YR, 5/3) and yellowish brown (10YR, 5/4); <5% low-plasticity fines; 40-60% fine to coarse sand; 40-60% fine and coarse gravel; iron oxide staining; loose to medium dense; dry.
		38	m	2	2		@4.5': 5-10% fine sand-size shell fragments; trace glass fragments.
		40	▽	3			@6': black (2.5Y, 2/0); metal and wood fragments.
		41	v, s	4	4	GC-GP	CLAYEY GRAVEL TO GRAVEL-FILL; black (2.5Y, 2/0) and yellowish brown (10YR, 5/3); 5-15% low-plasticity fines; 5-15% fine to coarse sand; 70-90% fine and coarse gravel; trace refuse: metal flakes, asphalt fragments, and rust dense; very moist to wet.
		20		5	5	GC	CLAYEY GRAVEL-FILL; black (2.5Y, 2/0); 15% low-plasticity fines; 25% fine to coarse sand; 60% fine and coarse gravel; medium dense; wet.
		19		6	6		SHELLS; very dark gray (5Y, 3/1); <5% low-plasticity fines; >95% sand-size shell fragments; loose; wet.
		5		7	7		@12.5-13': fine sand layer.
		10		8	8		SAND; very dark gray (5Y, 3/1); <5% low plasticity fines; 80-90% very fine to fine sand; 10-20% fine sand-size shell fragments; loose; wet.
		11		9	9	SP	
		5		10	10		
		2		11	11		
				20			BOTTOM OF BORING AT 19.5 FEET.

**REMARKS**

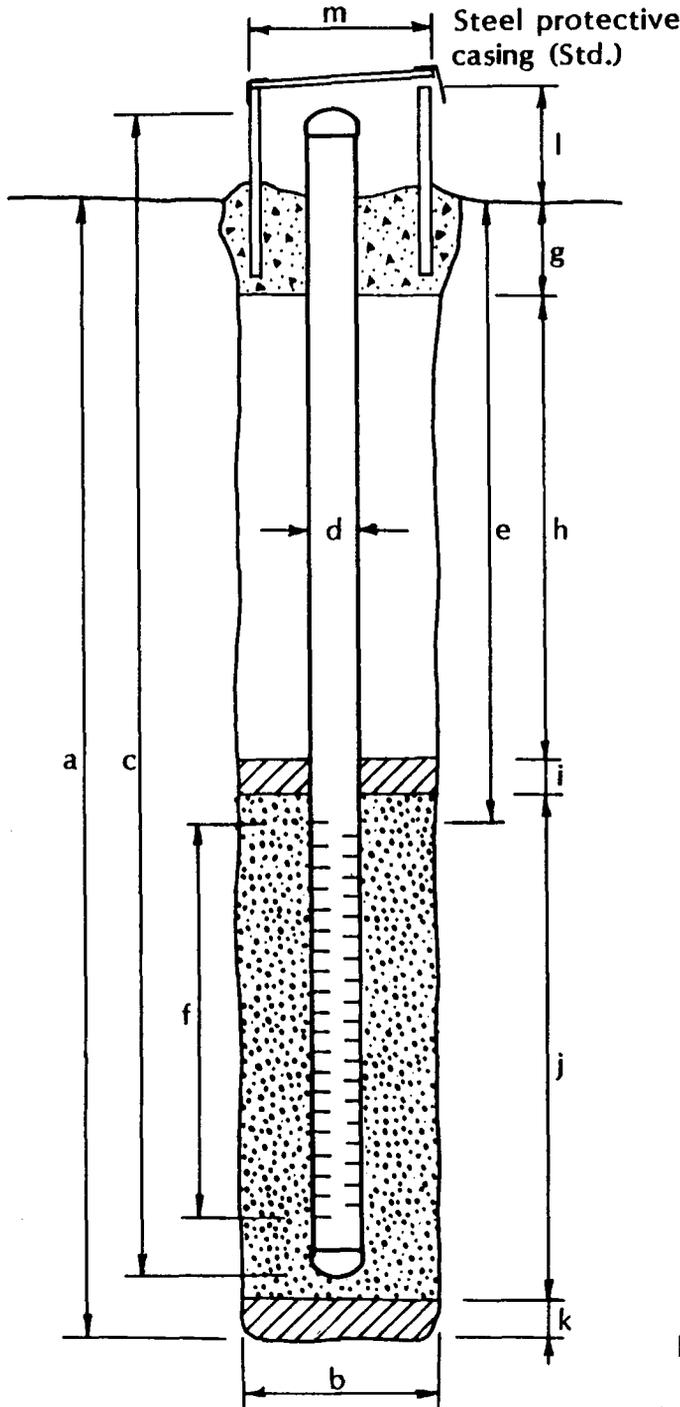
Drilled with 8-inch hollow-stem auger; sampled with 2-inch I.D. California modified split-spoon sampler fitted with stainless steel liners. Boring was converted to a 2-inch ground-water monitoring well as detailed on Plate A66.  
 \*Casing elevation is relative to Navy datum.

# WELL DETAILS



PROJECT NUMBER 365-02.02  
 PROJECT NAME HPNS - Bay Fill Area  
 COUNTY San Francisco  
 WELL PERMIT NO. \_\_\_\_\_

BORING / WELL NO. B04  
 TOP OF CASING ELEV. 112.94'  
 GROUND SURFACE ELEV. 112'±  
 DATUM Navy



## EXPLORATORY BORING

a. Total depth 19.5 ft.  
 b. Diameter 8 in.  
 Drilling method Hollow-stem auger

## WELL CONSTRUCTION

c. Casing length 20 ft.  
 Material stainless steel  
 d. Diameter 2 in.  
 e. Depth to top perforations 4 ft.  
 f. Perforated length 15 ft.  
 Perforated interval from 19 to 4 ft.  
 Perforation type machined slot  
 Perforation size 0.010 inch  
 g. Surface seal (1 - 0') 1 ft.  
 Seal material cement-bentonite grout  
 h. Backfill (2 - 1') 1 ft.  
 Backfill material cement-bentonite grout  
 i. Seal (3 - 2') 1 ft.  
 Seal material bentonite  
 j. Gravel pack (14 - 3') 11 ft.  
 Pack material 12x20 Monterey sand  
 k. Bottom seal N/A ft.  
 Seal material N/A  
 l. Casing height 1.5 ft.  
 m. Protective casing diameter 10 in.

Note: Boring caved to 14 feet around casing when augers removed.

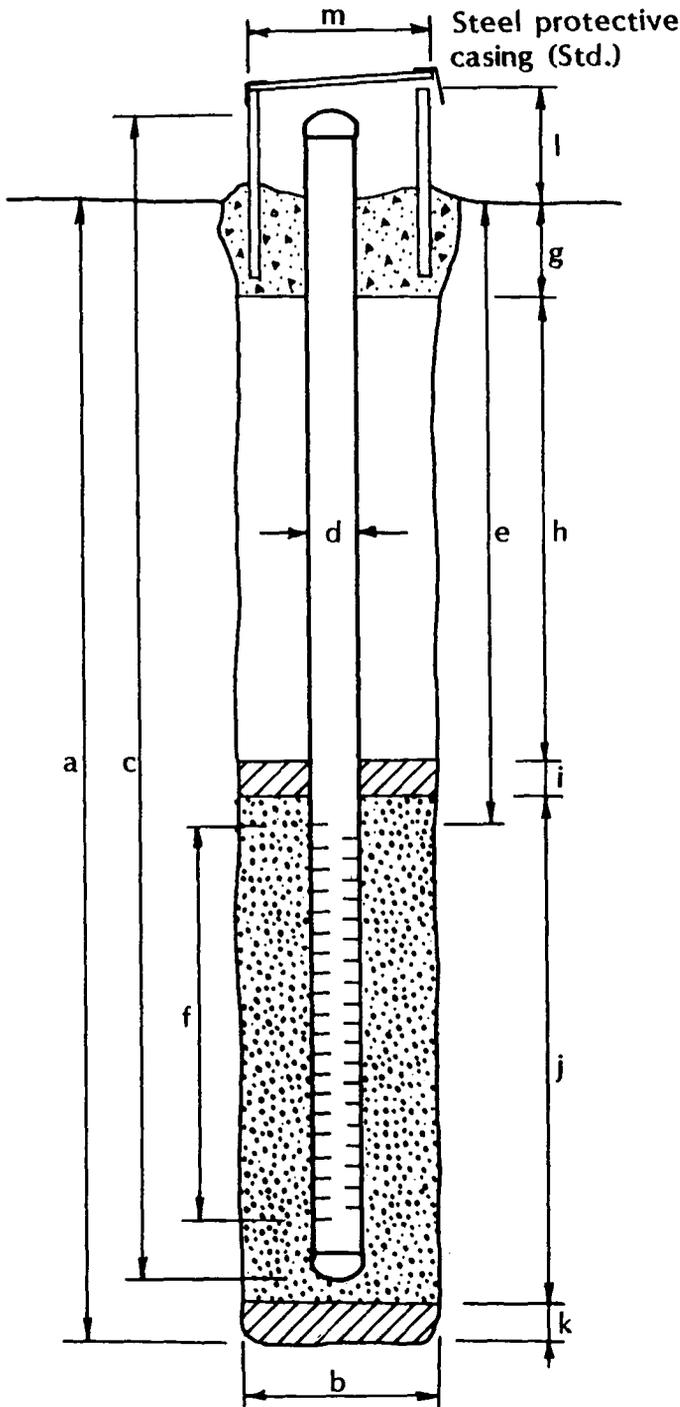


# WELL DETAILS



PROJECT NUMBER 365-02.02  
 PROJECT NAME HPNS - Bay Fill Area  
 COUNTY San Francisco  
 WELL PERMIT NO. \_\_\_\_\_

BORING / WELL NO. B05  
 TOP OF CASING ELEV. 108.08'  
 GROUND SURFACE ELEV. 107'±  
 DATUM Navy



## EXPLORATORY BORING

- a. Total depth 17 ft.
- b. Diameter 8 in.
- Drilling method Hollow-stem auger

## WELL CONSTRUCTION

- c. Casing length 18 ft.  
Material stainless steel
- d. Diameter 2 in.
- e. Depth to top perforations 4 ft.
- f. Perforated length 15 ft.  
Perforated interval from 17 to 3 ft.  
Perforation type machined slot  
Perforation size 0.010 inch
- g. Surface seal (1 - 0') 1 ft.  
Seal material cement-bentonite grout
- h. Backfill N/A ft.  
Backfill material N/A
- i. Seal (2 - 1') 1 ft.  
Seal material bentonite
- j. Gravel pack (17 - 2') 15 ft.  
Pack material 12x20 Monterey sand
- k. Bottom seal N/A ft.  
Seal material N/A
- l. Casing height 1.5 ft.
- m. Protective casing diameter 10 in.

Note: Boring caved to 17 feet around casing when augers removed.

# LOG OF EXPLORATORY BORING

PROJECT NUMBER 365-02.02  
 PROJECT NAME HPNS-Bay Fill Area  
 BY JDB DATE 8/11/86

BORING NO. BA  
 PAGE 1 OF 1  
 SURFACE ELEV. \*109.11'

PHOTO-VAC (ppm)	POCKET PENETROMETER (TSF)	PENETRATION (Blows/Ft.)	GROUND WATER LEVELS	DEPTH IN FT.	SAMPLES	LITHO-GRAPHIC COLUMN	DESCRIPTION
						GP	GRAVEL-FILL; coarse baserock.
		47			1	GC	CLAYEY GRAVEL-FILL; brown (10YR, 4/3); 15-30% low-plasticity fines; 20-30% fine to coarse sand; 40-65% fine and coarse gravel; medium dense to dense; damp. @3': dark brown (10YR, 3/3); moist.
		45			2		
		31			3		@5': brown (7.5YR, 4/2); 45% low plasticity fines.
		7			4	CL-GC	GRAVELLY CLAY TO CLAYEY GRAVEL-FILL; brown (7.5YR, 4/2); 40-60% low-plasticity fines; 10-20% fine to coarse sand; 30-40% fine and coarse gravel; stiff to dense; moist.
	1.0	39			5	CL	GRAVELLY CLAY-FILL; dark gray (5Y, 4/1); 55% low-plasticity fines; 20% fine to coarse sand; 25% fine and coarse gravel; angular serpentinite clasts; firm to stiff; moist.
		13	▽		6	SC-SW	SAND; black (2.5Y, 2/0); 5-20% low-plasticity fines; 75-90% fine to coarse sand; 5% shell fragments; medium dense; wet.
	0.0	2			7	CL-CH	SILTY CLAY; dark gray (5Y, 4/1); >90% moderate- to high-plasticity fines; <5% very fine sand; 5% shell fragments; very soft; very moist to wet.
		4			8		
					9		
	0.0	2			10		
	0.0	3			11		
				20			BOTTOM OF BORING AT 20 FEET.

**REMARKS**

Drilled with 8-inch hollow-stem auger; sampled with 2-inch I.D. California modified split-spoon sampler fitted with stainless steel liners. Boring was backfilled to surface with cement-bentonite grout.  
 \*Surface elevation is relative to Navy datum.

# LOG OF EXPLORATORY BORING

PROJECT NUMBER 365-02.02  
 PROJECT NAME HPNS-Bay Fill Area  
 BY SK DATE 8/11/86

BORING NO. BB  
 PAGE 1 OF 1  
 SURFACE ELEV.\* 110.43'

PHOTO-VAC (ppm)	POCKET PENETROMETER (TSF)	PENETRATION (Blows/Ft.)	GROUND WATER LEVELS	DEPTH IN FT.	SAMPLES	LITHO-GRAPHIC COLUMN	DESCRIPTION
		38		1	1	SC-SP	CLAYEY SAND TO GRAVELLY SAND-FILL; brown (2.5Y, 5/2); 5-20% low-plasticity fines; 50-65% fine to medium sand; 30% fine gravel-size serpentinite clasts; medium dense; dry.
		20		2	2	CL	
		5		3	3	SC-SP	SANDY CLAY-FILL; olive gray (5Y, 4/2); 45-70% low-plasticity fines; 20-30% fine to coarse sand; 5% fine gravel; 20-30% coarse sand-size shell fragments; firm; moist.
		20	▽	4	4	SP	
		19		5	5	SP	CLAYEY SAND TO SAND; olive gray (5Y, 4/2); 5-15% low-plasticity fines; 75-90% fine to medium sand; 5% fine gravel; 1-3% coarse gravel-size serpentinite clasts; loose to medium dense; wet.
		12		6	6	SP	
		PUSH		7	7	SP	SAND AND SHELL FRAGMENTS; <5% low-plasticity fines; 5-25% very fine sand; 75-95% sand-size shell fragments; loose; wet. @11': 5-20% fine gravel. @12-12.5': silty clay layer.
		7		8	8	SP	
		12		9	9	SP	@13.5'-14': fine sand layer; 15% shell fragments.  @16': 70% fine sand; 30% shell fragments.
		4		10	10	SP	
				15			BOTTOM OF BORING AT 17 FEET.
				20			

**REMARKS**

Drilled with 8-inch hollow-stem auger; sampled with 2-inch I.D. California modified split-spoon sampler fitted with stainless steel liners. Boring was backfilled to surface with cement-bentonite grout.  
 \*Surface elevation is relative to Navy datum.

# LOG OF EXPLORATORY BORING

PROJECT NUMBER 365-02.02  
 PROJECT NAME HPNS-Bay Fill Area  
 BY SK DATE 8/12/86

BORING NO. BC  
 PAGE 1 OF 2  
 SURFACE ELEV. \*112.46'

PHOTO-VAC (ppm)	POCKET PENETROMETER (TSF)	PENETRATION (Blows/Ft.)	GROUND WATER LEVELS	DEPTH IN FT.	SAMPLES	LITHO-GRAPHIC COLUMN	DESCRIPTION
				70	v,s m 1	SP	GRAVELLY SAND-FILL; light olive brown (2.5Y, 5/4); <5% low-plasticity fines; 60-80% fine to medium sand; 20-40% fine- to coarse gravel-size serpentinite and chert clasts; dense; dry. @3-6': cemented gravel-to cobble-size serpentinite, chert and cemented sandstone clasts.
				21	5 2		
				10	3	CL	SANDY CLAY-FILL; brown (10YR, 5/3); 70% low-plasticity fines; 15-20% fine to coarse sand; 10-15% fine gravel; iron oxide staining; stiff; moist. @9': 30% coarse gravel.
			▽	10	v,s m 4		
				32	5		SANDY GRAVEL-FILL; dark gray (7YR, 4/0); <5% low-plasticity fines; 40-42% fine to coarse sand; 55% fine to coarse gravel; trace black oil sheen; loose to medium dense; wet.  @13': 80% coarse gravel. @15': 55-70% coarse gravel.
				23	v,s m 6	GP	
				22	7		@18': 75% coarse gravel.
				13	8		
				42	15	9	
				70 for 6"	10		
				40	11		
				20		SP	

**REMARKS**

Drilled with 8-inch hollow-stem auger; sampled with 2-inch I.D. California modified split-spoon sampler fitted with stainless steel liners. Boring was backfilled to surface with cement-bentonite grout.  
 \*Surface elevation is relative to Navy datum.

# LOG OF EXPLORATORY BORING

PROJECT NUMBER 365-02.02  
 PROJECT NAME HPNS-Bay Fill Area  
 BY SK DATE 8/12/86

BORING NO. BC  
 PAGE 2 OF 2  
 SURFACE ELEV. \*112.46'

PHOTO-VAC (ppm)	POCKET PENETROMETER (TSF)	PENETRATION (Blows/Ft.)	GROUND WATER LEVELS	DEPTH IN FT.	SAMPLES	LITHO-GRAPHIC COLUMN	DESCRIPTION
		37		20	12	SP	GRAVELLY SAND-FILL; dark gray (7YR, 4/0); <5% low-plasticity fines; 70-75% medium to coarse sand; 25% fine and coarse gravel; loose to medium dense; wet.
		13			13	GP	
		26			14		SANDY GRAVEL-FILL; dark gray (7YR, 4/0); <5% low-plasticity fines; 25% fine to coarse sand; 70% coarse gravel; loose to medium dense; wet.
				25			
		38			15		@28': oil sheen on sample barrel.
				30			
		67			16		
				35			BOTTOM OF BORING AT 34.5 FEET.
				40			

REMARKS

# LOG OF EXPLORATORY BORING

PROJECT NUMBER 365-02.02  
 PROJECT NAME HPNS-Bay Fill Area  
 BY SK DATE 8/13/86

BORING NO. BD  
 PAGE 1 OF 1  
 SURFACE ELEV. \*110.82'

PHOTO-VAC (ppm)	POCKET PENETROMETER (TSF)	PENETRATION (Blows/Ft.)	GROUND WATER LEVELS	DEPTH IN FT.	SAMPLES	LITHO-GRAPHIC COLUMN	DESCRIPTION
				1	1	CL-CH	SILTY CLAY-FILL; grayish brown (2.5Y, 5/2); 90% moderate- to high plasticity fines; 10% fine sand; stiff; dry.
		9	v, s	2	2	CL-CH	@3': dark grayish brown (2.5Y, 4/2).
		15	5	3	3	CL-CH	
		5	v, s	4	4	CL-CH	SILTY CLAY; dark grayish brown (5Y, 3/2); >95% moderate- to high plasticity fines; 1-3% shell fragments; firm; moist.
		4	∇	5	5	CL-CH	@8.5': very moist to wet. @9': very silty.
		4	v, s	6	6	CL-CH	
		3	10	7	7	CL-CH	
		4	v, s	8	8	CL-CH	
		2	m	9	9	CL-CH	
		3	15	10	10	CL-CH	
		3	m	11	11	CL-CH	
				18			BOTTOM OF BORING AT 18 FEET.
				20			

**REMARKS**

Drilled with 8-inch hollow-stem auger; sampled with 2-inch I.D. California modified split-spoon sampler fitted with stainless steel liners. Boring was backfilled to surface with cement-bentonite grout.  
 \*Surface elevation is relative to Navy datum.

# LOG OF EXPLORATORY BORING

PROJECT NUMBER 365-02.02  
 PROJECT NAME HPNS-Bay Fill Area  
 BY SK DATE 8/14/86

BORING NO. BE  
 PAGE 1 OF 2  
 SURFACE ELEV. \*112.70'

PHOTO-VAC (ppm)	POCKET PENETROMETER (TSF)	PENETRATION (Blows/Ft.)	GROUND WATER LEVELS	DEPTH IN FT.	SAMPLES	LITHO-GRAPHIC COLUMN	DESCRIPTION
				25	1	GW	SANDY GRAVEL-FILL; light brownish gray (5Y, 6/2); <5% low-plasticity fines; 25% fine to coarse sand; 70-75% fine and coarse gravel; medium dense; dry.
				20	2		@3.5-4.5': sand layer: medium sand; very moist.
				13	3	CL	GRAVELLY CLAY-FILL; very dark gray (5Y, 3/1); 60-90% moderate-plasticity fines; 5-20% fine to coarse sand; 5-20% fine and coarse gravel; occasional 6-inch sand and gravel layers; firm to stiff; damp.
			▽	10	4		@6': 5-10% sand; 35% gravel; stiff; moist.
				9	5		@8.5-10': 5% sand; 5% gravel; very moist.
				9	6		@10-11.5': 35% sand; <5% gravel; very moist.
				12	7		@11.5-13': 10% sand; 5% gravel; stiff; damp.
				17	8		@13-19.5': 5-10% sand; <5% gravel; stiff; damp to moist.
				16	9		
				13	10		
				18	11		
				15	12		
				20	12		@19.5': 20% sand; 5% gravel; firm; very moist.

**REMARKS**

Drilled with 8-inch hollow-stem auger; sampled with 2-inch I.D. California modified split-spoon sampler fitted with stainless steel liners. Boring was backfilled to surface with cement-bentonite grout.  
 \*Surface elevation is relative to Navy datum.

# LOG OF EXPLORATORY BORING

PROJECT NUMBER 365-02.02  
 PROJECT NAME HPNS-Bay Fill Area  
 BY SK DATE 8/14/86

BORING NO. BE  
 PAGE 2 OF 2  
 SURFACE ELEV. \*112.70'

PHOTO-VAC (ppm)	POCKET PENETRO-METER (TSF)	PENETRA-TION (Blows/ Ft.)	GROUND WATER LEVELS	DEPTH IN FT.	SAMPLES	LITHO-GRAPHIC COLUMN	DESCRIPTION
		20		20	13	CL	GRAVELLY CLAY-FILL; continued. BOTTOM OF BORING AT 21 FEET.
				25			
				30			
				35			
				40			

REMARKS

# LOG OF EXPLORATORY BORING

PROJECT NUMBER 365-02.02  
 PROJECT NAME HPNS-Bay Fill Area  
 BY SK DATE 8/14/86

BORING NO. BF  
 PAGE 1 OF 1  
 SURFACE ELEV. \*112.03'

PHOTO-VAC (ppm)	POCKET PENETROMETER (TSF)	PENETRATION (Blows/Ft.)	GROUND WATER LEVELS	DEPTH IN FT.	SAMPLES	LITHO-GRAPHIC COLUMN	DESCRIPTION
		38		1	1	GP	SANDY GRAVEL-FILL; olive gray (5Y, 5/2); <5% low-plasticity fines; 35% fine to coarse sand; 60% fine gravel; medium dense to dense; dry.
		11		2	2	SC	CLAYEY SAND-FILL; olive gray (5Y, 4/2); 25% low-plasticity fines; 65% fine to coarse sand; 10% fine gravel; medium dense; damp to moist.
		13		3	3	CL	SILTY CLAY-FILL; very dark gray (5Y, 3/1); 80-90% moderate-plasticity fines; 5% fine to coarse sand; 5-15% fine and coarse gravel; stiff; damp to moist.
		11		4	4		
		15		5	5		@7-10': 10% coarse sand; 5% coarse gravel.
		20	▽	6	6		
		15		7	7		@10-11.5': concentration of white material; occasional sand pockets.
		15		8	8		@11.5-13': 35% fine gravel; very moist to wet.
		15		9	9		@13-16': 5% fine gravel; moist.
		15		10	10		@16-17.5': very moist to wet.
		15		11	11		@17.5-19': very moist.
		18		12	12		
		15		13	13		BOTTOM OF BORING AT 20 FEET.

**REMARKS**

Drilled with 8-inch hollow-stem auger; sampled with 2-inch I.D. California modified split-spoon sampler fitted with stainless steel liners. Boring was backfilled to surface with cement-bentonite grout.  
 \*Surface elevation is relative to Navy datum.

# LOG OF EXPLORATORY BORING

PROJECT NUMBER 365-02.02  
 PROJECT NAME HPNS-Bay Fill Area  
 BY SK DATE 8/14/86

BORING NO. BG  
 PAGE 1 OF 1  
 SURFACE ELEV. \*112.15'

PHOTO-VAC (ppm)	POCKET PENETROMETER (TSF)	PENETRATION (Blows/Ft.)	GROUND WATER LEVELS	DEPTH IN FT.	SAMPLES	LITHO-GRAPHIC COLUMN	DESCRIPTION
		70		1	1	SP-SC	GRAVELLY SAND TO CLAYEY SAND-FILL; gray (5Y, 5/1) 5-10% low-plasticity fines; 70-75% fine sand; 10% fine gravel; 10% fine sand-size shell fragments; medium dense; dry.  @6': wet.  @10-12': concentration of wood and metal.  @12': 1-2% metal shavings.  BOTTOM OF BORING AT 20 FEET.
		27		2	2		
		35	m	3	3		
		20	v, s	4	4		
		14	m	5	5		
		13		6	6		
		50 for 6"	v, s	7	7		
		13		8	8		
		19		9	9		
		33	m	10	10		
		40		11	11		
		11		12	12		
		20		13	13		

**REMARKS**

Drilled with 8-inch hollow-stem auger; sampled with 2-inch I.D. California modified split-spoon sampler fitted with stainless steel liners. Boring was backfilled to surface with cement-bentonite grout.  
 \*Surface elevation is relative to Navy datum.

# LOG OF EXPLORATORY BORING

PROJECT NUMBER 365-02.02  
 PROJECT NAME HPNS-Bay Fill Area  
 BY SK DATE 8/15/86

BORING NO. BH  
 PAGE 1 OF 1  
 SURFACE ELEV.\* 113.04'

PHOTO-VAC (ppm)	POCKET PENETROMETER (TSF)	PENETRATION (Blows/Ft.)	GROUND WATER LEVELS	DEPTH IN FT.	SAMPLES	LITHO-GRAPHIC COLUMN	DESCRIPTION
				34	1	SP	<p>GRAVELLY SAND-FILL; grayish brown (2.5Y, 5/2); &lt;5% low-plasticity fines; 80-85% very fine sand; 15-20% fine gravel; medium dense; dry.                      @1-1.5': fine to medium sand layer.</p> <p>CLAYEY SAND-FILL; dark grayish brown (2.5Y, 4/2); 30% low-plasticity fines; 50% fine to coarse sand; 20% fine gravel; medium dense to dense; dry.                      @3.5-4.5': black (2.5Y, 2/0).                      @4.5-5.5': fine to medium sand layer.</p> <p>SAND TO CLAYEY SAND; very dark gray (5Y, 7/1); 5-15% low-plasticity fines; 60% fine to medium sand; 5-10% fine gravel; 20-25% sand-size shell fragments; loose; wet.</p> <p style="text-align: center;">BOTTOM OF BORING AT 17 FEET .</p>
				45	2	SC	
				35	3	SP-SC	
			▽	13	4	SP-SC	
				4	5	SP-SC	
				2	6	SP-SC	
				4	7	SP-SC	
				3	8	SP-SC	
				3	9	SP-SC	
				8	10	SP-SC	
				7	10	SP-SC	

**REMARKS**

Drilled with 8-inch hollow-stem auger; sampled with 2-inch I.D. California modified split-spoon sampler fitted with stainless steel liners. Boring was backfilled to surface with cement-bentonite grout.  
 \*Surface elevation is relative to Navy datum.

# LOG OF EXPLORATORY BORING

PROJECT NUMBER 365-02.02  
 PROJECT NAME HPNS-Bay Fill Area  
 BY SK DATE 8/18/86

BORING NO. BI  
 PAGE 1 OF 1  
 SURFACE ELEV. \* 114'±

PHOTO-VAC (ppm)	POCKET PENETROMETER (TSF)	PENETRATION (Blows/Ft.)	GROUND WATER LEVELS	DEPTH IN FT.	SAMPLES	LITHO-GRAPHIC COLUMN	DESCRIPTION
				11	1	SP	GRAVELLY SAND-FILL; grayish brown (2.5Y, 5/2); <5% low-plasticity fines; 80-85% very fine to fine sand; 15-20% fine gravel; loose; dry.  @3-4': fine to medium sand layer.  @4-4.5': sandy clay layer.
				13	2		
				13	3	SC	
				10	4		CLAYEY SAND-FILL; very dark grayish brown (2.5Y, 3/2); 30% low-plasticity fines; 55% fine to coarse sand; 15% fine gravel; medium dense; damp. @6-6.5': gravelly sand layer. @7': dark olive (5Y, 5/4) mottling; 15% low-plasticity fines.
				9	5		
				7	6		@8.5': 40% low-plasticity fines; 15% fine and coarse gravel; very moist.
				13	7	CL-SC	
				11	8		SANDY CLAY TO CLAYEY SAND-FILL; very dark gray (5Y, 3/1); 35-65% low-plasticity fines; 30-55% fine to coarse sand; 5-10% fine gravel; stiff; very moist to wet.
				10	9		
				12	10		
				8	11		BOTTOM OF BORING AT 20 FEET.
				13	12		
				12	13		

**REMARKS**

Drilled with 8-inch hollow-stem auger; sampled with 2-inch I.D. California modified split-spoon sampler fitted with stainless steel liners. Boring was backfilled to surface with cement-bentonite grout.

\*Surface elevation is relative to Navy datum.

# LOG OF EXPLORATORY BORING

PROJECT NUMBER 365-02.02  
 PROJECT NAME HPNS-Bay Fill Area  
 BY SK DATE 8/18/86

BORING NO. BJ  
 PAGE 1 OF 1  
 SURFACE ELEV.\* 114.26'

PHOTO-VAC (ppm)	POCKET PENETROMETER (TSF)	PENETRATION (Blows/Ft.)	GROUND WATER LEVELS	DEPTH IN FT.	SAMPLES	LITHO-GRAPHIC COLUMN	DESCRIPTION
		23		1	SP		GRAVELLY SAND-FILL; grayish brown (2.5Y, 5/2); <5% low-plasticity fines; 85% fine sand; 15% fine gravel; medium dense; dry.
		15	v,s m	2			@1-1.5': olive yellow (5Y, 6/4); 45% fine gravel.
		33		3	CL		@2.5-3': dark grayish brown (2.5Y, 4/2).
		14		4			SILTY CLAY TO SANDY CLAY-FILL; very dark gray (5Y,3/1); 80% moderate-plasticity fines; 15% fine to coarse sand; 5% fine to coarse gravel; stiff; damp.
		10	v,s m	5			@6': 25-35% very fine sand; 1-2% coarse gravel; dry.
		13	v,s m	6			@8.5': very moist to wet.
		20		7			
		10		8			
		32		9			@13': 5-15% fine sand; 5% fine gravel; moist.
		32		10			@14.5': occasional coarse-gravel-size, cemented sandstone clasts.
		13		11			@16': 20-40% fine to medium sand; very moist to wet.
		17		12			@18': 20% fine to medium sand; 20% fine and coarse gravel.
		17		13			@19': 5-10% fine to coarse sand; 10% fine and coarse gravel; moist.
		20		20	13		BOTTOM OF BORING AT 20 FEET.

**REMARKS**

Drilled with 8-inch hollow-stem auger; sampled with 2-inch I.D. California modified split-spoon sampler fitted with stainless steel liners. Boring was backfilled to surface with cement-bentonite grout.

\*Surface elevation is relative to Navy datum.

# LOG OF EXPLORATORY BORING

PROJECT NUMBER 365-02.02  
 PROJECT NAME HPNS-Bay Fill Area  
 BY SK DATE 8/17/86

BORING NO. BK  
 PAGE 1 OF 1  
 SURFACE ELEV. \* 114.24'

PHOTO-VAC (ppm)	POCKET PENETROMETER (TSF)	PENETRATION (Blows/Ft.)	GROUND WATER LEVELS	DEPTH IN FT.	SAMPLES	LITHO-GRAPHIC COLUMN	DESCRIPTION
				27	1	SP	GRAVELLY SAND-FILL; grayish brown (10YR, 5/2); <5% low-plasticity fines; 75% fine sand; 15% fine and coarse gravel; 5% cobbles; loose to medium dense; dry.
				17	2		
				18	3	CL-GC	
				17	4		GRAVELLY CLAY TO CLAYEY GRAVEL-FILL; very dark grayish brown (10YR, 3/2); 25-65% low-plasticity fines; 10-15% fine to coarse sand; 25-60% fine and coarse gravel; stiff; dense; damp. @5.5-6': cemented fine sandstone clasts. @7-10': wood.
				11	5		
			▽	11	6		
				6	7	CL-CH	SILTY CLAY; very dark gray (5Y, 3/1); 90-95% moderate- to high-plasticity fines; 5-10% fine sand; 1-2% shell fragments; firm; moist.
				4	8		
				3	9		
							BOTTOM OF BORING AT 14.5 FEET.
				15			
				20			

**REMARKS**

Drilled with 8-inch hollow-stem auger; sampled with 2-inch I.D. California modified split-spoon sampler fitted with stainless steel liners. Boring was backfilled to surface with cement-bentonite grout.

\*Surface elevation is relative to Navy datum.

# LOG OF EXPLORATORY BORING

PROJECT NUMBER 365-02.02  
 PROJECT NAME HPNS-Bay Fill Area  
 BY SK DATE 8/19/86

BORING NO. BL  
 PAGE 1 OF 1  
 SURFACE ELEV. \*112.94'

PHOTO-VAC (ppm)	POCKET PENETROMETER (TSF)	PENETRATION (Blows/Ft.)	GROUND WATER LEVELS	DEPTH IN FT.	SAMPLES	LITHO-GRAPHIC COLUMN	DESCRIPTION
				19	1	SP	<p>SAND-FILL; light olive brown (2.5Y, 5/4); &lt;5% low-plasticity fines; 95% fine to medium sand; 5% fine gravel; occasional black (2.5Y, 2/0) oily pockets; medium dense; damp.                      @2.5-3': 1-2% metal flakes and cloth.                      @3.5-4': clayey gravel layer; very moist.                      @4-4.5': silty sand layer.                      CLAYEY SAND-FILL; black (2.5Y, 2/0); 20-30% low-plasticity fines; 65-75% fine and medium sand; 5% fine gravel; occasional clay pockets; dense; moist.                      @6': light brown (2.5Y, 5/4) mottling.                      SILTY CLAY; very dark gray (5Y, 3/1); &gt;95% moderate- to high plasticity fines; &lt;5% fine sand; 1-2% shell fragments; firm to soft; very moist.</p> <p style="text-align: center;">BOTTOM OF BORING AT 14.5 FEET.</p>
				45	2		
				36	3	SC	
				41	4		
				4	5	CL-CH	
				2	6		
			▽	10			
				3	7		
				3	8		
				2	9		
				15			
				20			

**REMARKS**

Drilled with 8-inch hollow-stem auger; sampled with 2-inch I.D. California modified split-spoon sampler fitted with stainless steel liners. Boring was backfilled to surface with cement-bentonite grout.  
 \*Surface elevation is relative to Navy datum.

**SUB-BASE SANDBLAST AND PAINTING AREA**

# LOG OF EXPLORATORY BORING

PROJECT NUMBER 365-02.02  
 PROJECT NAME HPNS-Additional Area  
 BY JDB DATE 8/26/86

BORING NO. AA  
 PAGE 1 OF 2  
 SURFACE ELEV. \*120'±

TORVANE (TSF)	POCKET PENETRO- METER (TSF)	PENETRA- TION (Blows/ Ft.)	GROUND WATER LEVELS	DEPTH IN FT.	SAMPLES	LITHO- GRAPHIC COLUMN	DESCRIPTION
						GP	ASPHALT & COARSE GRAVEL-FILL.
	1.5	20		v, s g, m d	1	CL	SILTY CLAY-FILL; olive gray (2.5Y, 4/2); 65-80% low plasticity fines; 10-15% fine to coarse sand; 10-20% fine gravel; stiff; damp. @4': 20-35% fine to coarse sand.
					2		
					5	SM	SILTY SAND-FILL; olive gray (2.5Y, 4/2); 10-15% low plasticity fines; 85-90% fine sand; medium dense; moist.
	2.5	12			3	CL	SILTY CLAY-FILL; yellowish brown (10YR, 5/6); 70-85% low plasticity fines; 10-15% fine to coarse sand; 15% fine gravel; very stiff; damp.
					4		
					5	GP- GC	CLAYEY GRAVEL-FILL; olive (5Y, 4/3); 10-15% low plasticity fines; 85-90% fine and coarse gravel; medium dense; dry. @11': 20-40% low plasticity fines.
					10		
	3.0	35			7	CL- GC	GRAVELLY CLAY TO CLAYEY GRAVEL-FILL; dark olive gray (5Y, 3/2); 40-70% low-plasticity fines; 10-20% fine fine to coarse sand; 20-40% fine and coarse serpentinite gravel; deeply weathered; very stiff; moist.
					8		
					9	GC	CLAYEY GRAVEL-FILL; yellowish brown (10YR, 5/6); 15-30% low plasticity fines; 20-40% fine to coarse sand; 30-65% fine and coarse gravel; loose; wet.
					15		
					d		
					7		
					10		
					v, s g, m d	11	
					9		
					10		
					20		

**REMARKS**

Drilled with 8-inch hollow-stem auger; sampled with 2-inch I.D. California modified split-spoon sampler fitted with stainless steel liners. Boring was backfilled to surface with cement-bentonite grout.  
 \*Surface elevation is relative to Navy datum.

# LOG OF EXPLORATORY BORING

PROJECT NUMBER 365-02.02  
 PROJECT NAME HPNS-Additional Area  
 BY JDB DATE 8/26/86

BORING NO. AA  
 PAGE 2 OF 2  
 SURFACE ELEV. \*120'±

TORVANE (TSF)	POCKET PENETRO- METER (TSF)	PENETRA- TION (Blows/ Ft.)	GROUND WATER LEVELS	DEPTH IN FT.	SAMPLES	LITHO- GRAPHIC COLUMN	DESCRIPTION
				20			CLAYEY GRAVEL-FILL; continued.
		7		25	14		@25': 10-20% low plasticity fines; 30-40% fine to coarse sand; loose; wet.
		22		30	15	SC- CL 	CLAYEY SAND; olive brown (2.5Y, 4/4); 15-35% low plasticity fines; 65-85% fine sand; 1-2% shell fragmetns; medium dense; wet.
		61		35	16	CL- SC 	SANDY CLAY TO CLAYEY SAND; olive brown (2.5Y, 4/4); 30-50% low plasticity fines; 40-60% fine sand; 1-2% shell fragments; very dense; wet.
				40			BOTTOM OF BORING AT 37 FEET.

REMARKS

# LOG OF EXPLORATORY BORING

PROJECT NUMBER 365-02.02  
 PROJECT NAME HPNS-Additional Area  
 BY JDB DATE 8/26/86

BORING NO. AB  
 PAGE 1 OF 2  
 SURFACE ELEV. \* 123'±

PHOTO-VAC (ppm)	POCKET PENETROMETER (TSF)	PENETRATION (Blows/Ft.)	GROUND WATER LEVELS	DEPTH IN FT.	SAMPLES	LITHO-GRAPHIC COLUMN	DESCRIPTION
						ASPHALT & COARSE GRAVEL-FILL.	
	1.75	15			1	CL	GRAVELLY CLAY-FILL; olive gray (2.5Y, 4/2); 55-75% low-plasticity fines; 10-20% fine to coarse sand; 15-25% fine and coarse gravel; stiff; damp.  @4': 15-30% fine to coarse sand; stiff to very stiff. @5-5.5': brick.
					2		
	2.0	44			3		
					4	GW	SANDY GRAVEL-FILL; yellowish brown (10YR, 5/6); <5% low-plasticity fines; 20-35% fine to coarse sand; 65-80% fine and coarse gravel; medium dense; dry.
	2.25	19			5	CL	
					6		SILTY CLAY; yellowish brown (10YR, 5/6); 80-85% low-plasticity fines; 15-20% fine to coarse sand; <5% fine gravel; very stiff; damp.
		21			7	GC	
					8	CL	CLAYEY GRAVEL; olive (5Y, 4/3); 15-20% low-plasticity fines; 25-35% fine to coarse sand; 45-60% fine and coarse gravel; medium dense; dry.
	4.25	29			9	GC	
					10	SP	SANDY CLAY; brown (10YR, 4/3); 75-85% low-plasticity fines; 15-25% fine to coarse sand; <5% fine gravel; hard; dry.  CLAYEY GRAVEL; (as above).
		17			11	SC	
					12	SERP	SAND; dark brown (10YR, 3/3); <5% low-plasticity fines; >98% fine sand; <2% wood fragments; medium dense; wet.  CLAYEY SAND; very dark grayish brown (2.5Y, 3/2); 10-15% low-plasticity fines; 70-80% fine sand; 5-20% fine gravel; medium dense; wet.
		44			13	SERP	
							SERPENTINITE-BEDROCK; olive (5Y, 5/3);

**REMARKS**

Drilled with 8-inch hollow-stem auger; sampled with 2-inch I.D. California modified split-spoon sampler fitted with stainless steel liners. Boring was backfilled to surface with cement-bentonite grout.  
 \*Surface elevation is relative to Navy datum.

# LOG OF EXPLORATORY BORING

PROJECT NUMBER 365-02.02  
 PROJECT NAME HPNS-Additional Area  
 BY JDB DATE 8/26/86

BORING NO. AB  
 PAGE 2 OF 2  
 SURFACE ELEV. 123' ±

PHOTO-VAC (ppm)	POCKET PENETROMETER (TSF)	PENETRATION (Blows/Ft.)	GROUND WATER LEVELS	DEPTH IN FT.	SAMPLES	LITHO-GRAPHIC COLUMN	DESCRIPTION
		80		20			SERPENTINITE-BEDROCK; continued; deeply weathered; hard; dry.
				25	14		BOTTOM OF BORING AT 26.5 FEET.
				30			
				35			
				40			

REMARKS

# LOG OF EXPLORATORY BORING

PROJECT NUMBER 365-02.02  
 PROJECT NAME HPNS-Additional Area  
 BY JDB DATE 8/27/86

BORING NO. AC  
 PAGE 1 OF 2  
 SURFACE ELEV. 118'±

PHOTO-VAC (ppm)	POCKET PENETROMETER (TSF)	PENETRATION (Blows/Ft.)	GROUND WATER LEVELS	DEPTH IN FT.	SAMPLES	LITHO-GRAPHIC COLUMN	DESCRIPTION
	1.5	19				ASPHALT & COARSE GRAVEL-FILL.	
		28	v,s g,m d	1	1	CL	SILTY CLAY-FILL; dark yellowish brown (10YR, 4/4); 80-90% low-plasticity fines; 10-20% fine to coarse sand; stiff; damp.
		38		2	2		@2.5': very dark grayish brown (2.5Y, 3/2); 30-40% fine to coarse sand.
		30		3	3		@4': 4" fine sand layer.
		45		4	4		@5': 20-40% fine and coarse gravel.
		12		5	5		@7.5': very dark grayish brown (10YR, 3/2).
		16		6	6	GC	
		14	d,m	7	7	CL	CLAYEY GRAVEL-FILL; olive brown (2.5Y, 4/4); 25-40% low-plasticity fines; 25-30% fine to coarse sand; 30-50% fine and coarse gravel; medium dense; moist.
		6	v,s	8	8	CL	GRAVELLY CLAY-FILL; as above.
		12	v,s g	9	9	GC	CLAYEY GRAVEL-FILL; yellowish brown (10YR, 5/4); 15-25% low-plasticity fines; 10-20% fine to coarse sand; 55-75% fine and coarse gravel; medium dense; wet.
		20	v,s g,m d	10	10		@16': large brick fragments (>2").
		8		11	11		
		20		12	12		@19.5': large brick fragments.

**REMARKS**

Drilled with 8-inch hollow-stem auger; sampled with 2-inch I.D. California modified split-spoon sampler fitted with stainless steel liners. Boring was backfilled to surface with cement-bentonite grout.

\*Surface elevation is relative to Navy datum.

# LOG OF EXPLORATORY BORING

PROJECT NUMBER 365-02.02  
 PROJECT NAME HPNS-Additional Area  
 BY JDB DATE 8/27/86

BORING NO. AC  
 PAGE 2 OF 2  
 SURFACE ELEV. 118'±

PHOTO-VAC (ppm)	POCKET PENETROMETER (TSF)	PENETRATION (Blows/Ft.)	GROUND WATER LEVELS	DEPTH IN FT.	SAMPLES	LITHO-GRAPHIC COLUMN	DESCRIPTION
				20		GC	CLAYEY GRAVEL-FILL; continued.
				25	13	CL-CH	@24': dark gray (5Y, 3/1); 30-40% low-plasticity fines; 20-30% mostly fine to coarse sand; brick and wood fragments; loose; wet. SILTY CLAY; dark gray (5Y, 3/1); >95% moderate to high-plasticity fines; <5% shell fragments; soft; wet.
	0.5			30	14		@30.5': 15-30% fine sand. BOTTOM OF BORING AT 30.5 FEET.
				35			
				40			

REMARKS

# LOG OF EXPLORATORY BORING

PROJECT NUMBER 365-02.02  
 PROJECT NAME HPNS-Additional Area  
 BY JDB DATE 8/27/86

BORING NO. AD  
 PAGE 1 OF 2  
 SURFACE ELEV. \*115.5'±

PHOTO-VAC (ppm)	POCKET PENETROMETER (TSF)	PENETRATION (Blows/Ft.)	GROUND WATER LEVELS	DEPTH IN FT.	SAMPLES	LITHO-GRAPHIC COLUMN	DESCRIPTION
						ASPHALT & COARSE GRAVEL-FILL.	
		49			1	GC	CLAYEY GRAVEL-FILL; very dark grayish brown (2.5Y, 3/2); 15-25% low-plasticity fines; 20-30% fine to coarse sand; 45-65% fine and coarse gravel; dense to very dense; dry.
		56			2		
	5.0	42			3	CL	SANDY CLAY-FILL; yellowish brown (10YR, 5/4) to very dark grayish brown (10YR, 3/2); 55-80% low-plasticity fines; 15-30% fine sand; 5-15% fine gravel; hard; damp.
	5.0	23			4	GC	CLAYEY GRAVEL-FILL; dark olive gray (5Y, 4/2); 15-25% low-plasticity fines; 15-25% fine to coarse sand; 50-70% fine and coarse gravel; <2% wood, brick fragments; medium dense; damp.
		27			5		
		38			6		
		40			7	CL-GC	GRAVELLY CLAY TO CLAYEY GRAVEL-FILL; dark brown (10YR, 3/3); 35-65% low-plasticity fines; 5-15% fine to coarse sand; 30-50% fine to coarse gravel; dense; damp to moist.
		18			8	GC	CLAYEY GRAVEL-FILL; dark olive gray (5Y, 3/2); 15-25% low-plasticity fines; 10-25% fine to coarse sand; 50-75% fine and coarse gravel; medium dense; wet.
		14			9		
		12			10		
		9			11	GW-GC	SANDY GRAVEL TO CLAYEY GRAVEL-FILL; dark olive gray (5Y, 3/2); 5-15% low plasticity fines; 20-40% fine to coarse sand; 45-75% fine and coarse gravel; loose; wet.
		8			12		

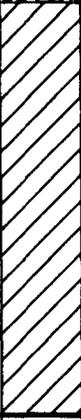
**REMARKS**

Drilled with 8-inch hollow-stem auger; sampled with 2-inch I.D. California modified split-spoon sampler fitted with stainless steel liners. Boring was backfilled to surface with cement-bentonite grout.  
 \*Surface elevation is relative to Navy datum.

# LOG OF EXPLORATORY BORING

PROJECT NUMBER 365-02.02  
 PROJECT NAME HPNS-Additional Area  
 BY JDB DATE 8/27/86

BORING NO. AD  
 PAGE 2 OF 2  
 SURFACE ELEV. 115.5'±

PHOTO-VAC (ppm)	POCKET PENETROMETER (TSF)	PENETRATION (Blows/Ft.)	GROUND WATER LEVELS	DEPTH IN FT.	SAMPLES	LITHO-GRAPHIC COLUMN	DESCRIPTION
				20			SANDY GRAVEL TO CLAYEY GRAVEL-FILL; continued.
		9		25	13		
	0.0	4		27.5	14	CL-CH 	SILTY CLAY; dark gray (5Y, 3/1); 98-99% moderate-to high-plasticity fines; <2% shell fragments; very soft; wet.
				30			
	0.0	7		32.5	15		BOTTOM OF BORING AT 32.5 FEET.
				35			
				40			

REMARKS

# LOG OF EXPLORATORY BORING

PROJECT NUMBER 365-02.02  
 PROJECT NAME HPNS-Additional Area  
 BY SK DATE 8/29/86

BORING NO. AE  
 PAGE 1 OF 2  
 SURFACE ELEV. \*120' ±

PHOTO-VAC (ppm)	POCKET PENETROMETER (TSF)	PENETRATION (Blows/Ft.)	GROUND WATER LEVELS	DEPTH IN FT.	SAMPLES	LITHO-GRAPHIC COLUMN	DESCRIPTION
		38		1	1	SW-SC	ASPHALT.
		47		2	2	SC	GRAVELLY SAND to CLAYEY SAND-FILL; olive (5Y, 5/4); 5-15% low-plasticity fines; 75-80% fine to coarse sand; 10-15% fine and coarse gravel; medium dense; moist. @1': 9" clayey gravel layer.
		23		3	3	CL-SC	@1.5': brown (10YR, 5/3); <5% low-plasticity fines; 85-90% fine to medium sand; 10% gravel-size brick fragments; dense; dry.
		57		4	4		CLAYEY SAND-FILL; dark brown (7.5YR, 4/4); 15-25% low-plasticity fines; 55-75% fine to coarse sand; 10-20% fine and coarse gravel; dense; damp.
		43		5	5		@3.5': 6" fine sand layer.
		17		6	6	CL	SANDY CLAY TO CLAYEY SAND-FILL; dark brown (7.5Y, 4/4); 30-60% low-plasticity fines; 30-60% fine to coarse sand; 10% fine and coarse gravel; dense to very dense; damp.
		6		7	7		SANDY CLAY-FILL; very dark gray (5Y, 3/1); 55-60% low-plasticity fines; 40-45% very fine to fine sand; <2% wood and brick fragments; stiff; very moist to wet.
		14		8	8		
		24		9	9		
				15			
		13		10	10	GP-GC	SANDY GRAVEL to CLAYEY GRAVEL-FILL; light olive brown (2.5Y, 5/6); 5-15% low-plasticity fines; 15% fine to coarse sand; 70-80% fine and coarse gravel; occasional thin sand layers; medium dense; wet.
		11		20	11		

**REMARKS**

Drilled with 8-inch hollow-stem auger; sampled with 2-inch I.D. California modified split-spoon sampler fitted with stainless steel liners. Boring was backfilled to surface with cement-bentonite grout.  
 \*Surface elevation is relative to Navy datum.

# LOG OF EXPLORATORY BORING

PROJECT NUMBER 365-02.02  
 PROJECT NAME HPNS-Additional Area  
 BY SK DATE 8/29/86

BORING NO. AE  
 PAGE 2 OF 2  
 SURFACE ELEV. 120'±

PHOTO-VAC (ppm)	POCKET PENETROMETER (TSF)	PENETRATION (Blows/Ft.)	GROUND WATER LEVELS	DEPTH IN FT.	SAMPLES	LITHO-GRAPHIC COLUMN	DESCRIPTION
		6		20		SP	SANDY GRAVEL-FILL; continued.
				12			@22.5': 1' clayey gravel layer.
				25			SAND; very dark gray (5Y, 3/1); <5% low-plasticity fines; 95% fine sand; <2% shell fragments; loose; wet. loose; wet.
		78		13		SERP	SERPENTINITE-BEDROCK; pale yellow (2.5Y, 8/4) and black (2.5Y, 2/0); deeply weathered; hard; damp. BOTTOM OF BORING AT 28.5 FEET.
				30			
				35			
				40			

REMARKS

# LOG OF EXPLORATORY BORING

PROJECT NUMBER 365-02.02  
 PROJECT NAME HPNS-Additional Area  
 BY JDB DATE 8/28/86

BORING NO. AF  
 PAGE 1 OF 1  
 SURFACE ELEV. \*117.5'

TORVANE (TSF)	POCKET PENETRO- METER (TSF)	PENETRA- TION (Blows/ Ft.)	GROUND WATER LEVELS	DEPTH IN FT. SAMPLES	LITHO- GRAPHIC COLUMN	DESCRIPTION
				1	CL	ASPHALT AND COARSE GRAVEL-BASEROCK.
	1.5	9		v,s g,m	2	SILTY CLAY-FILL; yellowish brown (10YR, 5/6); 85-95% low plasticity fines; 5-15% fine sand; stiff; damp.
	1.75	22		3	5	@3.5': very dark gray (5Y, 3/1); 5-15% fine to coarse sand; 20-40% fine to coarse gravel. @5': 15-25% fine sand; <5% gravel; very stiff.
	3.0	27		4	CL-SC	@6.5': 30-50% fine sand.
		17		5	SERP	SERPENTINITE-BEDROCK; yellow (5Y, 7/6); moderate to deeply weathered; hard; dry.
		79		6		
		100	v,s	g,m	7	@10.5': wet in fractures.
		95	v,s	g,m	8	BOTTOM OF BORING AT 12.5 FEET.
		100		15		
				20		

**REMARKS**

Drilled with 8-inch hollow-stem auger; sampled with 2-inch I.D. California modified split-spoon sampler fitted with stainless steel liners. Boring was backfilled to surface with cement-bentonite grout.  
 \*Surface elevation is relative to Navy datum.

# LOG OF EXPLORATORY BORING

PROJECT NUMBER 365-02.02  
 PROJECT NAME HPNS-Painting Area  
 BY JDB DATE 9/5/86, 9/9/86

BORING NO. P01  
 PAGE 1 OF 1  
 SURFACE ELEV. \*113.41'

PHOTO-VAC (ppm)	POCKET PENETROMETER (TSF)	PENETRATION (Blows/Ft.)	GROUND WATER LEVELS	DEPTH IN FT.	SAMPLES	LITHO-GRAPHIC COLUMN	DESCRIPTION
						GP CL	ASPHALT AND COARSE GRAVEL-FILL.
	2.5	38			1	v, s g, m d	GRAVELLY CLAY TO CLAYEY GRAVEL-FILL; light olive brown (2.5Y, 5/4); 35-55% low-plasticity fines; 10-20% fine to coarse sand; 35-45% fine and coarse gravel; dense to very stiff; damp.
				32	2		
	1.5	22			3	5 CL	@5': dark brown (10YR, 3/3); 60-75% low-plasticity fines; 10-20% fine to coarse sand; 15-30% fine and coarse gravel; stiff; damp.
				15	4	g d, m v, s	
	0.75	12	▽		5	v, s	@8': light yellowish brown (2.5Y, 6/4); 65-85% low-plasticity fines; 10-20% fine to coarse sand; 5-15% fine gravel; wet.
				7	6	g, m d	@8.5': 25-45% fine to coarse gravel. @10': 10-20% fine to coarse gravel. @11': grayish brown (2.5Y, 5/2); 80-90% moderate-plasticity fines; 10-20% fine to coarse sand; <5% fine and coarse gravel; stiff; wet.
	1.0	14			7		
	0.0	6			8		
				15			
					9		@19': 15-30% fine and coarse gravel; stiff; wet.
	1.5	25			9		
				20			BOTTOM OF BORING AT 19.5 FEET.

**REMARKS**

Drilled with 8-inch hollow-stem auger; sampled with 2-inch I.D. California modified split-spoon sampler fitted with stainless steel liners. Boring was converted to a 2-inch ground-water monitoring well as detailed on Plate A94. \*Surface elevation is relative to Navy datum.

# WELL DETAILS



PROJECT NUMBER 365-02.02

BORING / WELL NO. P01

PROJECT NAME HPNS-Painting Area

TOP OF CASING ELEV. 113.41'

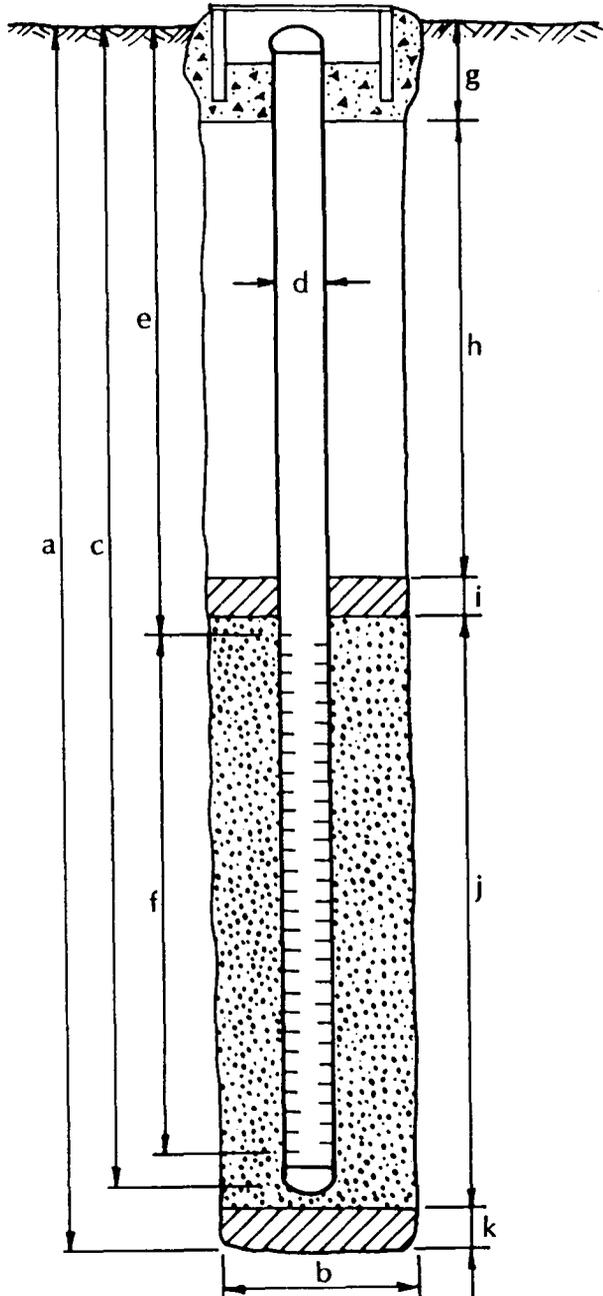
COUNTY San Francisco

GROUND SURFACE ELEV. 114'±

WELL PERMIT NO. \_\_\_\_\_

DATUM Navy

G-5 vault box (Std.)



## EXPLORATORY BORING

- a. Total depth 19.5 ft.  
 b. Diameter 8 in.  
 Drilling method Hollow-stem auger

## WELL CONSTRUCTION

- c. Casing length 19 ft.  
 Material stainless steel  
 d. Diameter 2 in.  
 e. Depth to top perforations 4 ft.  
 f. Perforated length 15 ft.  
 Perforated interval from 19 to 4 ft.  
 Perforation type screen  
 Perforation size 0.010 inch  
 g. Surface seal (1 - 0') 1 ft.  
 Seal material cement-bentonite grout  
 h. Backfill (1.5 - 1') 0.5 ft.  
 Backfill material cement-bentonite grout  
 i. Seal (2.5 - 1.5') 1 ft.  
 Seal material bentonite  
 j. Gravel pack (19 - 2.5') 16.5 ft.  
 Pack material 12x20 sand  
 k. Bottom seal N/A ft.  
 Seal material N/A

# LOG OF EXPLORATORY BORING

PROJECT NUMBER 365-02.02  
 PROJECT NAME HPNS-Painting Area  
 BY JDB DATE 9/05/86

BORING NO. P02  
 PAGE 1 OF 1  
 SURFACE ELEV. \*113.34'

PHOTO-VAC (ppm)	POCKET PENETRO-METER (TSF)	PENETRA-TION (Blows/ Ft.)	GROUND WATER LEVELS	DEPTH IN FT.	SAMPLES	LITHO-GRAPHIC COLUMN	DESCRIPTION
						GP CL- GC	ASPHALT AND COARSE GRAVEL-FILL.
	1.5	22		v,s g,m d	1	GP CL- GC	GRAVELLY CLAY-FILL to CLAYEY GRAVEL; dark brown (7.5YR, 3/2) to very dark grayish brown (2.5Y, 3/2); 45-70% low-plasticity fines; 10-20% fine to coarse sand; 20-35% fine and coarse gravel; very stiff; dry.
				d	2		
				d	3		
				d	4		
				d	5		
	1.0	12	▽	m	6		@6': damp.
			▽	v,s m	10		
				v,s g,m	7	GW	@10': dark brown (7.5YR, 3/2); stiff; wet (unsaturated).
				d	8		SANDY GRAVEL-FILL; olive (5Y, 4/3); <5% low-plasticity fines; 30-45% fine to coarse sand; 55-70% fine and coarse gravel; medium dense; wet (saturated).
	0.25	30		d	9	CL	
				d	15		SILTY CLAY TO GRAVELLY CLAY-FILL; dark gray (5Y, 4/1); 55-85% low-plasticity fines; 10-20% fine to coarse sand; 5-25% fine and coarse gravel; soft; wet.
	0.5	18		d	10		@18': 15-30% fine to coarse sand; soft.
				d	20		BOTTOM OF BORING AT 19.5 FEET.

## REMARKS

Drilled with 8-inch hollow-stem auger; sampled with 2-inch I.D. California modified split-spoon sampler fitted with stainless steel liners. Boring was converted to a 2-inch ground-water monitoring well as detailed on Plate A96. \*Surface elevation is relative to Navy datum.

# WELL DETAILS



PROJECT NUMBER 365-02.02

BORING / WELL NO. P02

PROJECT NAME HPNS-Painting Area

TOP OF CASING ELEV. 113.34'

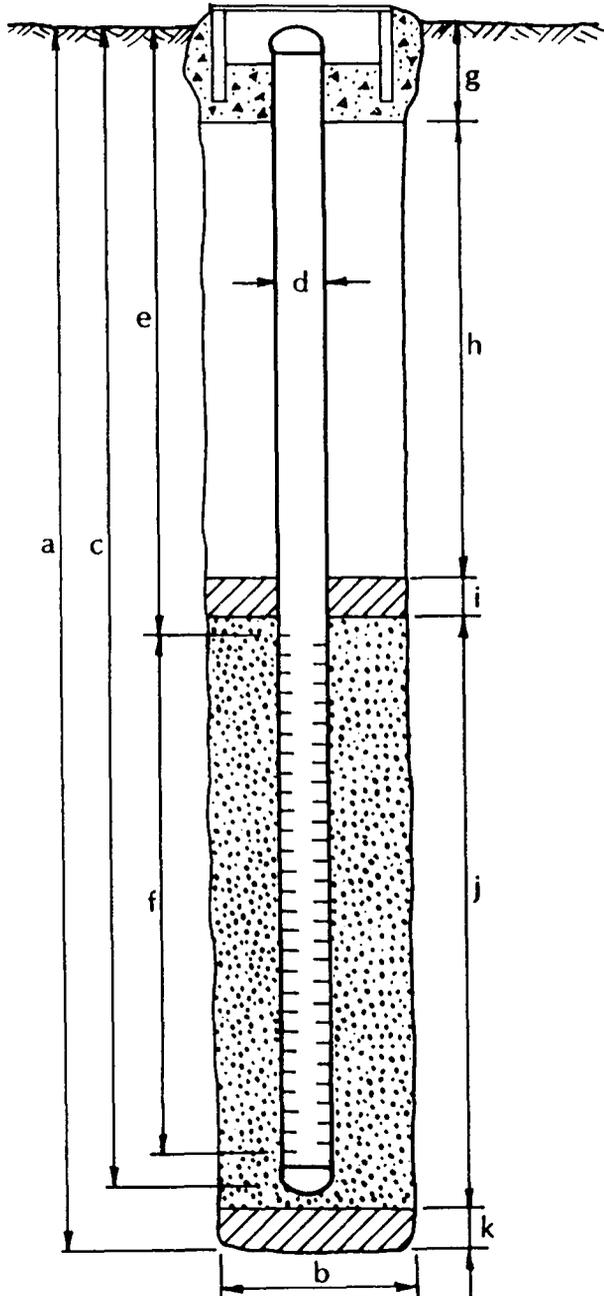
COUNTY San Francisco

GROUND SURFACE ELEV. 114'±

WELL PERMIT NO. \_\_\_\_\_

DATUM Navy

G-5 vault box (Std.)



## EXPLORATORY BORING

- a. Total depth 19.5 ft.  
 b. Diameter 8 in.  
 Drilling method Hollow-stem auger

## WELL CONSTRUCTION

- c. Casing length 19 ft.  
 Material stainless steel  
 d. Diameter 2 in.  
 e. Depth to top perforations 4 ft.  
 f. Perforated length 15 ft.  
 Perforated interval from 19 to 4 ft.  
 Perforation type screen  
 Perforation size 0.010 inch  
 g. Surface seal (1 - 0') 1 ft.  
 Seal material cement-bentonite grout  
 h. Backfill (1.5 - 1') 0.5 ft.  
 Backfill material cement-bentonite grout  
 i. Seal (2.5 - 1.5') 1 ft.  
 Seal material bentonite  
 j. Gravel pack (19 - 2.5') 16.5 ft.  
 Pack material 12x20 sand  
 k. Bottom seal N/A ft.  
 Seal material N/A

# LOG OF EXPLORATORY BORING

PROJECT NUMBER 365-02.02  
 PROJECT NAME HPNS-Painting Area  
 BY JDB DATE 9/18/86

BORING NO. PA  
 PAGE 1 OF 1  
 SURFACE ELEV. \*113.4'

PHOTO-VAC (ppm)	POCKET PENETROMETER (TSF)	PENETRATION (Blows/Ft.)	GROUND WATER LEVELS	DEPTH IN FT.	SAMPLES	LITHO-GRAPHIC COLUMN	DESCRIPTION
						GP	ASPHALT AND COARSE GRAVEL-FILL.
		14			1	GC	CLAYEY GRAVEL-FILL; dark reddish brown (7.5YR, 2.5/4); 20-35% low-plasticity fines; 15-25% fine to coarse sand; 40-65% fine and coarse gravel; medium dense; moist.
	2.5	8	v, s g, m	2	2	GC-CL	CLAYEY GRAVEL TO GRAVELLY CLAY-FILL; dark reddish brown (7.5YR, 2.5/4); 40-60% low-plasticity fines; 15-20% fine to coarse sand; 25-40% fine and coarse sand; loose to very stiff; moist.
		18	v, s g, m	3	3	GC	CLAYEY GRAVEL-FILL; (as above); wet.
		19	d	4	4	GC	@5.5': 5" layer of coarse gravel.
		7	d g, m	5	5	GC	
		11	v, s	6	6	GC	
		12	10	7	7	GC	
	1.0	9	8	8	8	CL	GRAVELLY CLAY-FILL; dark olive gray (5Y, 3/2); 25-55% low-plasticity fines; 10-20% fine to coarse sand; 15-35% fine and coarse serpentinite gravel; stiff to firm; wet.
	0.75	9	9	9	9	CL	
	0.75	9	15	10	10	CL	
		13	11	11	11	CL	@17': 6" clayey gravel layer.
		11	12	12	12	CL	@19': 20-35% fine to coarse gravel.
			20	20	12	CL	BOTTOM OF BORING AT 20 FEET.

**REMARKS**

Drilled with 8-inch hollow-stem auger; sampled with 2-inch I.D. California modified split-spoon sampler fitted with stainless steel liners. Boring was backfilled to surface with cement-bentonite grout.  
 \*Surface elevation is relative to Navy datum.

# LOG OF EXPLORATORY BORING

PROJECT NUMBER 365-02.02  
 PROJECT NAME HPNS-Painting Area  
 BY JDB DATE 9/23/86

BORING NO. PB  
 PAGE 1 OF 1  
 SURFACE ELEV. \*113.7'

PHOTO-VAC (ppm)	POCKET PENETROMETER (TSF)	PENETRATION (Blows/Ft.)	GROUND WATER LEVELS	DEPTH IN FT. SAMPLES	LITHO-GRAPHIC COLUMN	DESCRIPTION
				1	GP	ASPHALT AND COARSE GRAVEL-FILL.
		14	v, s	2	GC	CLAYEY GRAVEL-FILL; olive brown (2.5Y, 4/4); 15-20% low-plasticity fines; 15-25% fine, to mostly coarse sand; 55-70% fine and coarse gravel; medium dense; damp. @3.5': very dark grayish brown (2.5Y, 3/2).
		100	g, m	3		
		17	d	5		
		13		4		@6': 25-40% silty clay; moist.
		13		5		
		11		6	CL	GRAVELLY CLAY; dark gray (5Y, 4/1); 60-80% low-plasticity fines; 10-20% fine to coarse sand; 10-20% fine and coarse gravel; stiff; moist.
		10	d	7		
1.5		17	g, m	8		
		1.25	v, s	9		
		9		8		@13-14': gray (5Y, 5/1); 15-25% fine to coarse sand; 35-50% fine and coarse gravel; stiff; wet.
		1.25	v, s	9	CL-GC	
		7	m	10		@18.5': dark grayish brown (2.5Y, 4/2); 20-35% fine and coarse gravel.
		1.5	d	10		
		16		15		
				20		BOTTOM OF BORING AT 20 FEET.

**REMARKS**

Drilled with 8-inch hollow-stem auger; sampled with 2-inch I.D. California modified split-spoon sampler fitted with stainless steel liners. Boring was backfilled to surface with cement-bentonite grout.  
 \*Surface elevation is relative to Navy datum.

# LOG OF EXPLORATORY BORING

PROJECT NUMBER 365-02.02  
 PROJECT NAME HPNS-Painting Area  
 BY JDB DATE 9/24/86

BORING NO. PC  
 PAGE 1 OF 2  
 SURFACE ELEV. \*113.5'

PHOTO-VAC (ppm)	POCKET PENETROMETER (TSF)	PENETRATION (Blows/Ft.)	GROUND WATER LEVELS	DEPTH IN FT.	SAMPLES	LITHO-GRAPHIC COLUMN	DESCRIPTION
				100	v,s g,m	GP GC	ASPHALT AND COARSE GRAVEL-FILL.
		24		24	d	1	CLAYEY GRAVEL-FILL; yellowish brown (10YR, 5/4); 15-30% low-plasticity fines; 10-20% fine to coarse sand; 50-75% fine and coarse gravel; medium dense; damp.
		30		30	d	2	
		18		36	5	3	
		11		47	d	4	GRAVELLY CLAY-FILL; dark olive gray (5Y, 3/2); 55-75% low-plasticity fines; 10-20% fine to coarse sand; 15-25% fine and coarse gravel; very stiff; moist.
2.25		16		63	g,m v,s	5	
		26	▽	89	10	6	@10': 30-45% fine to coarse gravel; very moist. @10.5': wet (unsaturated).
1.0		13		102	v,s g,m d	7	@12': 5-15% fine to coarse sand; 5-10% fine gravel; firm; very moist.
0.25		6		108	d	8	@13.5': 15-25% fine to coarse sand; 15-25% fine and coarse gravel; soft; wet.
		11		119	d	9	
				130	d	10	
				141	d	11	
				152	d	12	
				163	d	13	
				174	d	14	
				185	d	15	
				196	d	16	
				207	d	17	
				218	d	18	
				229	d	19	
				240	d	20	

**REMARKS**

Drilled with 8-inch hollow-stem auger; sampled with 2-inch I.D. California modified split-spoon sampler fitted with stainless steel liners. Boring was backfilled to surface with cement-bentonite grout.  
 \*Surface elevation is relative to Navy datum.

# LOG OF EXPLORATORY BORING

PROJECT NUMBER 365-02.02  
 PROJECT NAME HPNS-Painting Area  
 BY JDB DATE 9/24/86

BORING NO. PC  
 PAGE 2 OF 2  
 SURFACE ELEV. \*113.5'

PHOTO-VAC (ppm)	POCKET PENETROMETER (TSF)	PENETRATION (Blows/Ft.)	GROUND WATER LEVELS	DEPTH IN FT.	SAMPLES	LITHO-GRAPHIC COLUMN	DESCRIPTION
				20		CL	GRAVELLY CLAY-FILL; continued.
	1.0	22		23	11		@23': 15-30% fine to coarse sand; 25-40% fine to coarse gravel; firm; very moist.
	0.75	14		28	12		@28': soft.
				30		GC	@29.5': pale olive (5Y, 6/3); 80-90% moderate-plasticity fines; 10-20% fine to coarse sand; <5% fine gravel; firm; moist.
		24		34	13		CLAYEY GRAVEL-FILL; olive (5Y, 4/3); 15-30% low-plasticity fines; 15-25% fine to coarse sand; 45-70% fine and coarse gravel; medium dense; wet. @34': 6" coarse gravel layer.
		127		39	14	SERP	SERPENTINITE-BEDROCK?; green and black; slightly weathered; very dense; wet. BOTTOM OF BORING AT 40 FEET.
				40			

REMARKS

# LOG OF EXPLORATORY BORING

PROJECT NUMBER 365-02.02

BORING NO. S01

PROJECT NAME HPNS-Sub-Base Sandblast Fill Area

PAGE 1 OF 1

BY JDB DATE 9/02/86

SURFACE ELEV. \*113.81'

PHOTO-VAC (ppm)	POCKET PENETRO-METER (TSF)	PENETRA-TION (Blows/ Ft.)	GROUND WATER LEVELS	DEPTH IN FT.	SAMPLES	LITHO-GRAPHIC COLUMN	DESCRIPTION
				25	1	GP SERP	ASPHALT AND COARSE GRAVEL-FILL.
				19	2		SERPENTINITE-BEDROCK; olive gray (5Y, 5/2); deeply weathered; medium dense; damp.
				21	3		@3': 10-30% low-plasticity fines from weathering of bedrock.
				35	4		
			▼	6	5		@7': moist.
				10			@8': 20-40% low-plasticity fines from weathered bedrock.
			▽				@10': very moist.
	0.75	11		15	6	CL SERP	@11': wet in fractures.
				20	7		CLAY; yellowish brown (10YR, 5/4); 55-70% low-plasticity fines from deeply weathered bedrock; 30-45% fine to coarse serpentinite sand; soft; wet.
		49					BOTTOM OF BORING AT 20 FEET.

**REMARKS**

Drilled with 8-inch hollow-stem auger; sampled with 2-inch I.D. California modified split-spoon sampler fitted with stainless steel liners. Boring was converted to a 2-inch ground-water monitoring well as detailed on Plate A102.

\*Casing elevation is relative to Navy datum.

# WELL DETAILS



PROJECT NUMBER 365-02.02

BORING / WELL NO. S01

PROJECT NAME HPNS-Sub-Base Sandblast

TOP OF CASING ELEV. 113.81'

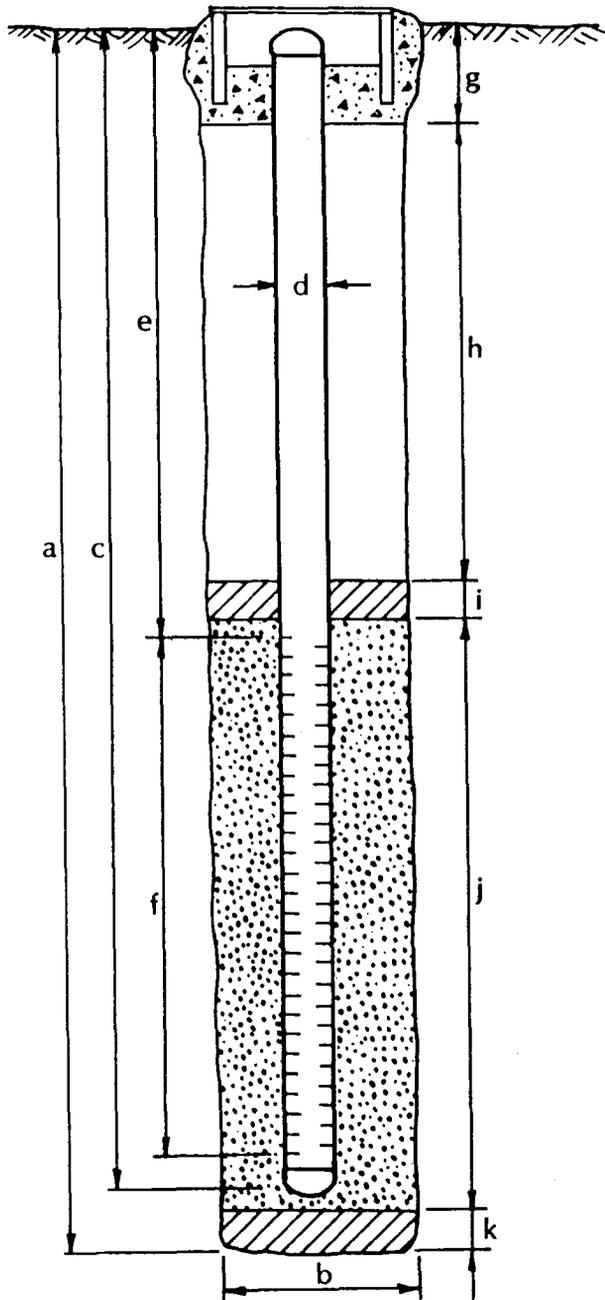
COUNTY San Francisco Fill Area

GROUND SURFACE ELEV. 114'<sup>±</sup>

WELL PERMIT NO. \_\_\_\_\_

DATUM Navy

G-5 vault box (Std.)



## EXPLORATORY BORING

- a. Total depth 20 ft.
- b. Diameter 8 in.
- Drilling method Hollow-stem auger

## WELL CONSTRUCTION

- c. Casing length 18 ft.  
Material stainless steel
- d. Diameter 2 in.
- e. Depth to top perforations 5 ft.
- f. Perforated length 13 ft.  
Perforated interval from 18 to 5 ft.  
Perforation type screen  
Perforation size 0.010 inch
- g. Surface seal (1 - 0') 1 ft.  
Seal material cement-bentonite grout
- h. Backfill (3 - 1') 2 ft.  
Backfill material cement-bentonite grout
- i. Seal 1 ft.  
Seal material bentonite
- j. Gravel pack (13 - 4') 9 ft.  
Pack material 12x20 sand
- k. Bottom seal N/A ft.  
Seal material N/A

Note: Boring caved to 13 feet when augers removed.

# LOG OF EXPLORATORY BORING

PROJECT NUMBER 365-02.02  
 PROJECT NAME HPNS-Sub-Base Sandblast Fill Area  
 BY JDB DATE 9/02/86

BORING NO. SØ2  
 PAGE 1 OF 2  
 SURFACE ELEV. \*112.72'

PHOTO-VAC (ppm)	POCKET PENETROMETER (TSF)	PENETRATION (Blows/Ft.)	GROUND WATER LEVELS	DEPTH IN FT.	SAMPLES	LITHO-GRAPHIC COLUMN	DESCRIPTION
		42		1	1	CL-GC 	GRAVEL-FILL; coarse baserock.
		12	v, s	2	2		GRAVELLY CLAY TO CLAYEY GRAVEL-FILL; dark olive gray (2.5Y, 4/2); 40-60% low plasticity fines; 10-20% fine to coarse sand; 30-60% fine and coarse gravel; stiff to dense; damp.
		10	d	3	3		@4': 10-15% fine to coarse sand; 15-25% fine and coarse gravel; soft; moist.
		15	m	4	4		
		13	d	5	5		
		10	v, s	6	6		@8': 40-60% fine to coarse gravel; soft.
		12	m	7	7		@8.5': wet on sand grains.
1.0		10	d	8	8		
0.75		4	v, s	9	9		
		9	m	10	10		
		11	d	11	11		
				20			

**REMARKS**

Drilled with 8-inch hollow-stem auger; sampled with 2-inch I.D. California modified split-spoon sampler fitted with stainless steel liners. Boring was converted to a 2-inch ground-water monitoring well as detailed on Plate A105.  
 \*Casing elevation is relative to Navy datum.

# LOG OF EXPLORATORY BORING

PROJECT NUMBER 365-02.02

BORING NO. S02

PROJECT NAME HPNS-Sub-Base Sandblast Fill Area

PAGE 2 OF 2

BY JDB DATE 9/02/86

SURFACE ELEV. \*112.7'

PHOTO-VAC (ppm)	POCKET PENETROMETER (TSF)	PENETRATION (Blows/Ft.)	GROUND WATER LEVELS	DEPTH IN FT.	SAMPLES	LITHO-GRAPHIC COLUMN	DESCRIPTION
				20		SC	GRAVELLY CLAY TO CLAYEY GRAVEL-FILL; continued.
		10		12	12	SC	CLAYEY SAND-FILL; dark grayish brown (2.5Y, 4/2); 20-40% low- to moderate-plasticity fines; 45-75% fine to coarse sand; 5-15% fine gravel; loose; wet.
				25			
		11		30	13	CL	
				35			
		4		35	14	CL	CLAY; dark gray (5Y, 3/1); 90% moderate- to high-plasticity fines; <5% fine sand; <5% shell fragments; soft; very moist.
				35			
		100		35.5	15	CL	@35.5': BEDROCK? BOTTOM OF BORING AT 36 FEET: Refusal.
				40			

REMARKS

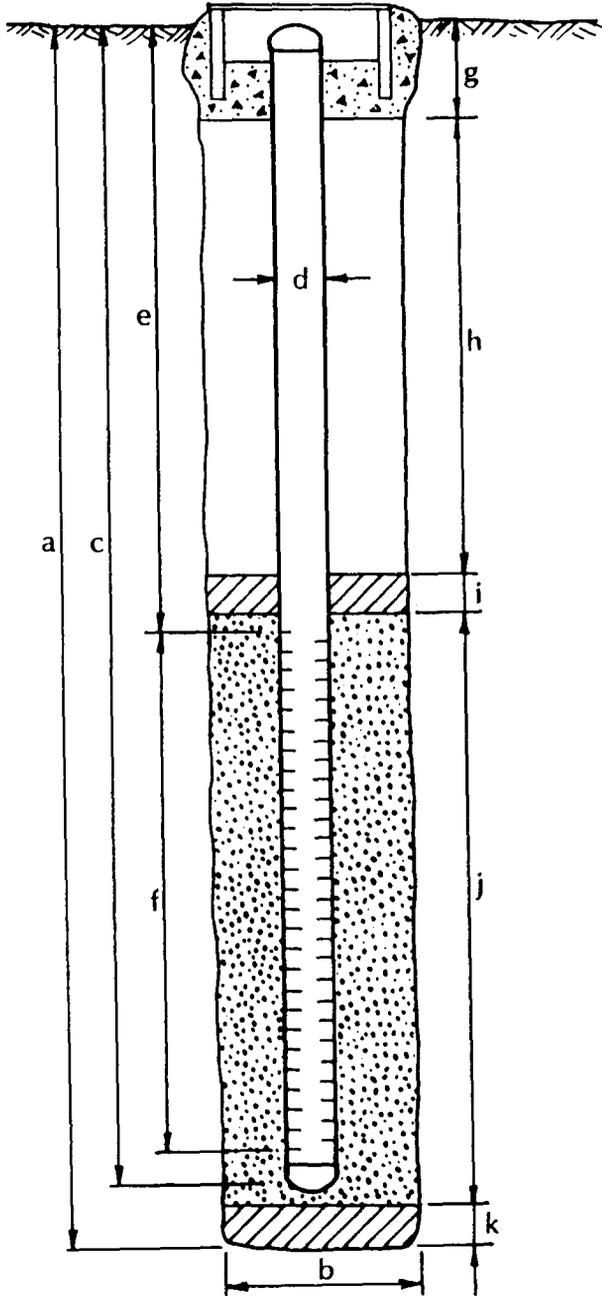
# WELL DETAILS



PROJECT NUMBER 365-02.02  
 PROJECT NAME HPNS-Sub-Base Sandblast  
 COUNTY San Francisco Fill Area  
 WELL PERMIT NO. \_\_\_\_\_

BORING / WELL NO. S02  
 TOP OF CASING ELEV. 112.72'  
 GROUND SURFACE ELEV. 113'±  
 DATUM Navy

G-5 vault box (Std.)



## EXPLORATORY BORING

a. Total depth 36 ft.  
 b. Diameter 8 in.  
 Drilling method Hollow-stem auger

## WELL CONSTRUCTION

c. Casing length 20.5 ft.  
 Material stainless steel  
 d. Diameter 2 in.  
 e. Depth to top perforations 3 ft.  
 f. Perforated length 15 ft.  
 Perforated interval from 18 to 3 ft.  
 Perforation type screen  
 Perforation size 0.010 inch  
 g. Surface seal (1 - 0') 1 ft.  
 Seal material cement-bentonite grout  
 h. Backfill - ft.  
 Backfill material cement-bentonite grout  
 i. Seal (2 - 1') 1 ft.  
 Seal material bentonite  
 j. Gravel pack (31 - 2') 29 ft.  
 Pack material 12x20 sand  
 k. Bottom seal N/A ft.  
 Seal material N/A

Note: Boring caved to 31 feet when augers removed.

# LOG OF EXPLORATORY BORING

PROJECT NUMBER 365-02.02

BORING NO. S03

PROJECT NAME HPNS-Sub-Base Sandblast Fill Area

PAGE 1 OF 2

BY JDB DATE 9/03/86

SURFACE ELEV. \*113.36'

PHOTO-VAC (ppm)	POCKET PENETROMETER (TSF)	PENETRATION (Blows/Ft.)	GROUND WATER LEVELS	DEPTH IN FT.	SAMPLES	LITHO-GRAPHIC COLUMN	DESCRIPTION
		40		40	1	GC	CLAYEY GRAVEL-FILL; grayish brown (2.5Y, 5/2); 10-25% low-plasticity fines; 20-30% fine to coarse sand; 45-70% fine and coarse gravel; dense to very dense; dry.
		72		72	2		
		29	v, s g, m d 5	29	3	SW	SAND-FILL; light yellowish brown (10YR, 6/4); 5-10% low-plasticity fines; 75-90% fine to coarse sand; 5-15% fine gravel; wood fragments; dense; damp.
2.0		27		27	4	CL-GC	GRAVELLY CLAY TO CLAYEY GRAVEL-FILL; brown (7.5YR, 4/2); 20-60% low-plasticity fines; 10-20% fine to coarse sand; 30-60% fine and coarse gravel; very stiff to medium dense; moist.
		18	d	18	5	SM	
	1.0	14	g, m v, s	14	6	CL	SILTY SAND-FILL; grayish brown (2.5Y, 5/2); 10-15% low-plasticity fines; 70-85% fine to coarse sand; 5-15% fine gravel; medium dense; damp.
		13	10	13	7	SC-GC	GRAVELLY CLAY-FILL; dark olive gray (5Y, 3/2); 50-75% low-plasticity fines; 10-20% fine to coarse sand; 15-30% fine and coarse gravel; stiff; damp.
		10	v, s g, m	10	8	8	CLAYEY SAND TO CLAYEY GRAVEL-FILL; dark grayish brown (2.5Y, 4/2); 10-30% low-plasticity fines; 35-45% fine to coarse sand; 35-45% fine and coarse gravel; medium dense; wet (unsaturated).
		8		8	9	9	@14': loose, saturated.
	1.0	3	d 15	3	10	SC	SANDY CLAY-FILL; dark greenish gray (5Y, 4/1); 30-60% low-plasticity fines; 30-45% fine to coarse sand; 10-25% fine gravel; stiff; wet.
				20			

**REMARKS**

Drilled with 8-inch hollow-stem auger; sampled with 2-inch I.D. California modified split-spoon sampler fitted with stainless steel liners. Boring was converted to a 2-inch ground-water monitoring well as detailed on Plate A108.  
 \*Casing elevation is relative to Navy datum.

# LOG OF EXPLORATORY BORING

PROJECT NUMBER 365-02.02

BORING NO. S03

PROJECT NAME HPNS-Sub-Base Sandblast Fill Area

PAGE 2 OF 2

BY JDB DATE 9/03/86

SURFACE ELEV. \*113.36'

PHOTO-VAC (ppm)	POCKET PENETROMETER (TSF)	PENETRATION (Blows/Ft.)	GROUND WATER LEVELS	DEPTH IN FT.	SAMPLES	LITHO-GRAPHIC COLUMN	DESCRIPTION
				20		SC	SANDY CLAY-FILL; continued.
		16			11		@22': light olive brown (2.5Y, 5/4).
	0.5	9		25	12	CL	@25-26': subsurface obstruction. CLAY-FILL; light olive brown (2.5Y, 5/4); 65-80% moderate-plasticity fines; 10-15% fine to coarse sand; 10-20% fine gravel; soft; wet.
	0.25	6		30	13	CL-CH	CLAY; dark gray (5Y, 4/1); >90% moderate- to high-plasticity fines; <10% shell fragments; very soft; moist.
		6		35	15		BOTTOM OF BORING AT 36 FEET.
				40			

REMARKS

# WELL DETAILS



PROJECT NUMBER 365-02.02

BORING / WELL NO. SØ3

PROJECT NAME HPNS-Sub-Base Sandblast

TOP OF CASING ELEV. 113.36'

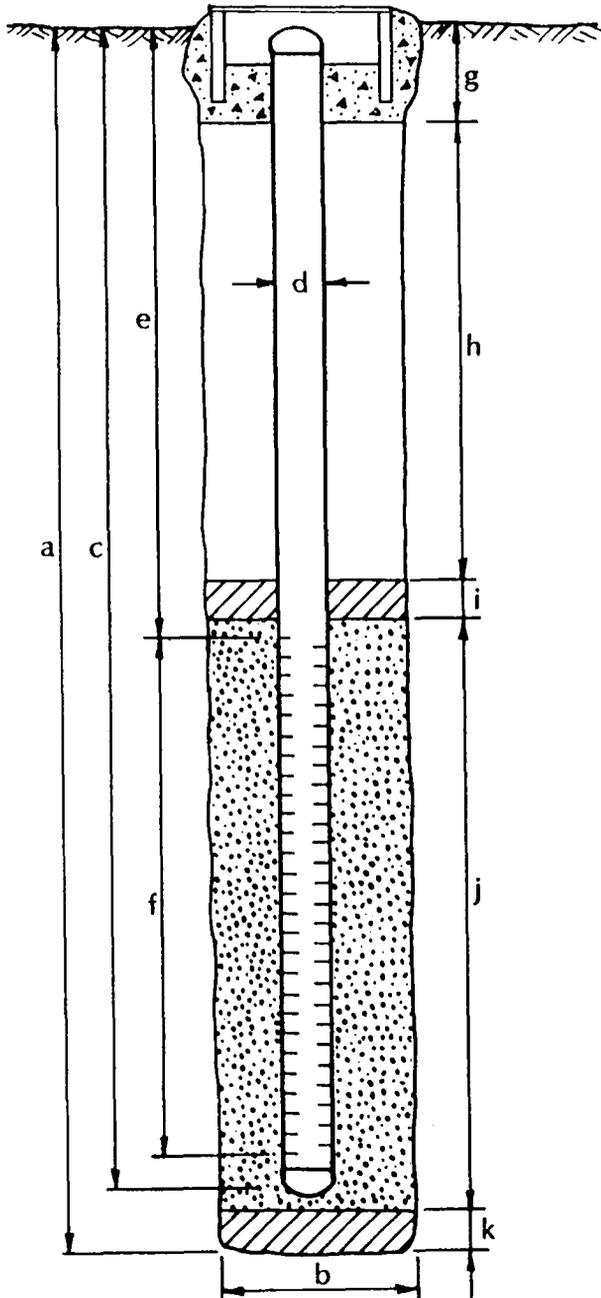
COUNTY San Francisco Fill Area

GROUND SURFACE ELEV. 114'±

WELL PERMIT NO. \_\_\_\_\_

DATUM Navy

G-5 vault box (Std.)



## EXPLORATORY BORING

- a. Total depth 36 ft.
- b. Diameter 8 in.
- Drilling method Hollow-stem auger

## WELL CONSTRUCTION

- c. Casing length 20 ft.  
Material stainless steel
- d. Diameter 2 in.
- e. Depth to top perforations 5 ft.
- f. Perforated length 15 ft.  
Perforated interval from 20 to 5 ft.  
Perforation type screen  
Perforation size 0.010 inch
- g. Surface seal (1 - 0') 1 ft.  
Seal material cement-bentonite grout
- h. Backfill (2.5 - 1') 1.5 ft.  
Backfill material cement-bentonite grout
- i. Seal (3.5 - 2.5') 1 ft.  
Seal material bentonite
- j. Gravel pack (20 - 3.5') 16.5 ft.  
Pack material 12x20 sand
- k. Bottom seal N/A ft.  
Seal material N/A

Note: Boring caved to 20 feet when augers removed.

# LOG OF EXPLORATORY BORING

PROJECT NUMBER 365-02.02

BORING NO. S04

PROJECT NAME HPNS-Sub-Base Sandblast Fill Area

PAGE 1 OF 2

BY JDB DATE 9/04/86

SURFACE ELEV. \*116.83'

PHOTO-VAC (ppm)	POCKET PENETROMETER (TSF)	PENETRATION (Blows/Ft.)	GROUND WATER LEVELS	DEPTH IN FT. SAMPLES	LITHO-GRAPHIC COLUMN	DESCRIPTION
				1	GP	GRAVEL-FILL; very coarse baserock.
		44	v,s	1	GC	CLAYEY GRAVEL-FILL; dark grayish brown (2.5Y, 5/2); 15-25% low-plasticity fines; 10-20% fine to coarse sand; 55-75% fine and coarse gravel; dense; damp. @4.5-5': brick.
		46	g,m	2		
		17	d	3		
		25		4	SC	CLAYEY SAND-FILL; dark grayish brown (2.5Y, 4/2); 15-20% low-plasticity fines; 55-75% fine to coarse sand; 5-15% fine gravel; 5-10% brick fragments; dense; dry.
		8	d	5	GC	CLAYEY GRAVEL-FILL; dark grayish brown (2.5Y, 4/2); 15-25% low-plasticity fines; 10-20% fine to coarse sand; 55-75% fine and coarse gravel; loose; moist. @11': 15-30% low-plasticity fines; wet.
		6	g,m	6		
		21	v,s	7		@13.5': 30-40% fine to coarse sand; 40-60% fine and coarse gravel.
		22	g,m	8		
		14	d	9	GC	CLAYEY GRAVEL-FILL; dark grayish brown (2.5Y, 4/2); 15-25% low-plasticity fines; 25-45% fine to coarse sand; 30-60% fine and coarse gravel; loose; wet.
		6	v,s	10		
			v,s	15		
			g,m	20		

**REMARKS**

Drilled with 8-inch hollow-stem auger; sampled with 2-inch I.D. California modified split-spoon sampler fitted with stainless steel liners. Boring was converted to a 2-inch ground-water monitoring well as detailed on Plate A111.

\*Casing elevation is relative to Navy datum.

# LOG OF EXPLORATORY BORING

PROJECT NUMBER 365-02.02

BORING NO. S04

PROJECT NAME HPNS-Sub-Base Sandblast Fill Area

PAGE 2 OF 2

BY JDB DATE 9/04/86

SURFACE ELEV.\* 116.83'

PHOTO-VAC (ppm)	POCKET PENETROMETER (TSF)	PENETRATION (Blows/Ft.)	GROUND WATER LEVELS	DEPTH IN FT.	SAMPLES	LITHO-GRAPHIC COLUMN	DESCRIPTION
				20		GC	CLAYEY GRAVEL-FILL; continued.
	5.0	28		25	12	CL	CLAY; yellowish brown (10YR, 5/8); 90-95% low-to moderate-plasticity fines; 5-10% fine to medium sand; hard; moist @27.5': black (5Y, 2.5/1); 80-90% moderate-to high-plasticity fines; 10-20% shell fragments; soft; wet.
				30	13	CL-CH	
	0.0	4		35			BOTTOM OF BORING AT 32.5 FEET.
				40			

REMARKS



# LOG OF EXPLORATORY BORING

PROJECT NUMBER 365-02.02

BORING NO. SA

PROJECT NAME HPNS-Sub-Base Sandblast Fill Area

PAGE 1 OF 2

BY JDB DATE 8/28/86

SURFACE ELEV. \*120'±

PHOTO-VAC (ppm)	POCKET PENETROMETER (TSF)	PENETRATION (Blows/Ft.)	GROUND WATER LEVELS	DEPTH IN FT.	SAMPLES	LITHO-GRAPHIC COLUMN	DESCRIPTION
						GP SP	ASPHALT AND COARSE GRAVEL-FILL.
		32		v, s g, m	1		SAND-FILL; olive gray (5Y, 4/2); <5% low-plasticity fines; ≥95% fine sand; medium dense; damp. @2-2.5': wood fragments.
		47		d	2	GC	CLAYEY GRAVEL-FILL; olive gray (5Y, 4/2); 10-20% low-plasticity fines; 20-30% fine to coarse sand; 50-70% fine and coarse gravel; wood fragments; medium dense to dense; moist. @5': 6" fine sand lens.
		31		5	3	CL	
2.25		20		4	4		SILTY CLAY-FILL; yellowish brown (10YR, 5/6); 55-85% low-plasticity fines; 10-30% fine sand; 5-15% fine and coarse gravel; very stiff; moist.
1.0		11		5	5		
		7		6	6		@9-10.5': brick fragments.
		8		d	7		
0.0		8	▽	g, m v, s	8	CL-GC	@12': yellowish brown (10YR, 5/6); 10-20% mostly fine to coarse sand; 15-40% fine and coarse gravel; soft; very moist. @13': wet. @14': brick fragments.
		11		v, s g, m	9		
		6		d	10	CL	
0.0		15		15	11		@16': 30-40% fine sand; <5% fine gravel; very soft. @17': 20-35% fine sand.
0.75		14		14	12		@18.5': olive (5Y, 5/3); 65-80% moderate-plasticity fines; 0% gravel; soft; very moist.
				20			

**REMARKS**

Drilled with 8-inch hollow-stem auger; sampled with 2-inch I.D. California modified split-spoon sampler fitted with stainless steel liners. Boring was backfilled to surface with cement-bentonite grout.

\*Surface elevation is relative to Navy datum.

# LOG OF EXPLORATORY BORING

PROJECT NUMBER 365-02.02

BORING NO. SA

PROJECT NAME HPNS-Sub-Base Sandblast Fill Area

PAGE 2 OF 2

BY JDB DATE 8/28/86

SURFACE ELEV. \*120'±

PHOTO-VAC (ppm)	POCKET PENETROMETER (TSF)	PENETRATION (Blows/Ft.)	GROUND WATER LEVELS	DEPTH IN FT.	SAMPLES	LITHO-GRAPHIC COLUMN	DESCRIPTION
				20			CLAY-FILL; continued.
	0.0	15		25	13	CL-SC SERP	CLAY to CLAYEY SAND; dark gray (5Y, 3/1); 45-85% moderate- to high-plasticity fines; 5-35% fine to medium sand; 10-20% shell fragments; very soft; wet. @24': 3" clayey sand bed; loose. SERPENTINITE-BEDROCK. BOTTOM OF BORING AT 27 FEET: AUGER REFUSAL.
				30			
				35			
				40			

REMARKS

# LOG OF EXPLORATORY BORING

PROJECT NUMBER 365-02.02

BORING NO. SB

PROJECT NAME HPNS-Sub-Base Sandblast Fill Area

PAGE 1 OF 2

BY SK DATE 8/29/86

SURFACE ELEV. \*115'±

PHOTO-VAC (ppm)	POCKET PENETRO-METER (TSF)	PENETRA-TION (Blows/ Ft.)	GROUND WATER LEVELS	DEPTH IN FT.	SAMPLES	LITHO-GRAPHIC COLUMN	DESCRIPTION
				39	1	GP	SANDY GRAVEL-FILL. SAND TO CLAYEY SAND-FILL; dark grayish brown (2.5Y, 4/2); 5-15% low-plasticity fines; 70-80% fine to coarse sand; 10-15% fine and coarse gravel; dense to damp.
				85	2	SW-	
				31	3	SC	
				21	4	CL	SANDY CLAY-FILL; brown (10YR, 5/3); 65-75% low-plasticity fines; 20-30% fine to coarse sand; 5% fine gravel; very stiff; damp.
				24	5		
				22	6		@10.5': 10-20% fine gravel.
			▽	6	7		@12': wet.
				3	8	GC	CLAYEY GRAVEL-FILL; very dark gray (5Y, 3/1); 15% low-plasticity fines; 25% fine to coarse sand; 60% fine and coarse gravel; medium dense; wet. @15': 3" sandy clay layer.
				7	9		
				9	10	GC- CL	CLAYEY GRAVEL TO GRAVELLY CLAY-FILL; very dark gray (5Y, 3/1); 35-55% low-plasticity fines; 10-15% fine to coarse sand; 35-50% fine to coarse gravel; loose to medium dense; wet. @18': 6" sandy gravel layer; wet.
				10	11		
				20			

**REMARKS**

Drilled with 8-inch hollow-stem auger; sampled with 2-inch I.D. California modified split-spoon sampler fitted with stainless steel liners. Boring was backfilled to surface with cement-bentonite grout.

\*Surface elevation is relative to Navy datum.

# LOG OF EXPLORATORY BORING

PROJECT NUMBER 365-02.02

BORING NO. SB

PROJECT NAME HPNS-Sub-Base Sandblast Fill Area

PAGE 2 OF 2

BY SK DATE 8/29/86

SURFACE ELEV. \*115'±

PHOTO-VAC (ppm)	POCKET PENETROMETER (TSF)	PENETRATION (Blows/Ft.)	GROUND WATER LEVELS	DEPTH IN FT.	SAMPLES	LITHO-GRAPHIC COLUMN	DESCRIPTION
				20		GC-CL	CLAYEY GRAVEL TO GRAVELLY CLAY; continued.
		100		25	12	GP	GRAVEL-FILL; very dark gray (5Y, 3/1); <5% low-plasticity fines; 20% fine to coarse sand; 75-80% fine gravel; very dense; wet.
		100		30	13	GC	CLAYEY GRAVEL-FILL; very dark gray (5Y, 3/1); 30% low-plasticity fines; 20% fine to medium sand; 50% fine and coarse to cobble gravel; hard; moist.
		70		33	14		BOTTOM OF BORING AT 33 FEET.
				35			
				40			

REMARKS

# LOG OF EXPLORATORY BORING

PROJECT NUMBER 365-02.02

BORING NO. SC

PROJECT NAME HPNS-Sub-Base Sandblast Fill Area

PAGE 1 OF 3

BY JDB DATE 9/04/86

SURFACE ELEV. \*115'±

PHOTO-VAC (ppm)	POCKET PENETROMETER (TSF)	PENETRATION (Blows/Ft.)	GROUND WATER LEVELS	DEPTH IN FT. SAMPLES	LITHO-GRAPHIC COLUMN	DESCRIPTION
				GP	GP	GRAVEL-FILL; coarse baserock.
		66	v, s	1	GC	CLAYEY GRAVEL-FILL; olive brown (2.5Y, 4/4); 15-35% low-plasticity fines; 15-30% fine to coarse sand; 35-70% fine and coarse gravel; very dense; dry.
		100	g, m	2		
		26		5	3	@5': 30-40% low-plasticity fines.
		17		4		
		12	g, m	5		
		8	v, s	6		@8.5': 20-35% low-plasticity fines; wet.
		15	g, m	10		
		13		7		@10.5': 40-55% low-plasticity fines; 40-60% fine and coarse gravel.
0.5-1.5		13		8	CL	SANDY CLAY-FILL; very dark gray (5Y, 3/1); 65-80% low-plasticity fines; 10-20% fine to coarse sand; 10-15% mostly fine, and coarse gravel; soft to stiff; very moist.
1.0		18		9		@14': dark olive gray (5Y, 3/2).
		13		15		
		13		10		
				20		

**REMARKS**

Drilled with 8-inch hollow-stem auger; sampled with 2-inch I.D. California modified split-spoon sampler fitted with stainless steel liners. Boring was backfilled to surface with cement-bentonite grout.

\*Surface elevation is relative to Navy datum.

# LOG OF EXPLORATORY BORING

PROJECT NUMBER 365-02.02

BORING NO. SC

PROJECT NAME HPNS-Sub-Base Sandblast Fill Area

PAGE 2 OF 3

BY JDB DATE 9/04/86

SURFACE ELEV. \*115'±

PHOTO-VAC (ppm)	POCKET PENETRO-METER (TSF)	PENETRA-TION (Blows/ Ft.)	GROUND WATER LEVELS	DEPTH IN FT. SAMPLES	LITHO-GRAPHIC COLUMN	DESCRIPTION
				20	CL	<p>GRAVELLY CLAY-FILL; (continued).</p> <p>@23': 15-25% fine to coarse sand; 30-45% fine and coarse gravel; soft; wet.</p> <p>@28': 5-15% fine to coarse gravel stiff; wet.</p>
	0.75	24		11	CL-GC	
	0.75	18		12		
		27		13		
		29		14		
				40		

REMARKS

# LOG OF EXPLORATORY BORING

PROJECT NUMBER 365-02.02

BORING NO. SC

PROJECT NAME HPNS-Sub-Base Sandblast Fill Area

PAGE 3 OF 3

BY JDB DATE 9/04/86

SURFACE ELEV. \*115'±

PHOTO-VAC (ppm)	POCKET PENETROMETER (TSF)	PENETRATION (Blows/Ft.)	GROUND WATER LEVELS	DEPTH IN FT.	SAMPLES	LITHO-GRAPHIC COLUMN	DESCRIPTION
	1.25	35		40	15	CL	GRAVELLY CLAY TO SANDY CLAY-FILL; continued.
				45		CL-CH	CLAY; very dark gray (5Y, 3/1); 55-80% moderate-to high- plasticity fines; 10-25% fine sand; 10-20% shell fragments; stiff; moist.
		100		50		SERP	SERPENTINITE-BEDROCK; green, deeply weathered; hard; dry. BOTTOM OF BORING AT 47 FEET.
				55			
				60			

REMARKS