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SCS ENGINEERS

Offices Nationwide

January 30, 1995
File No. 0990018.35

41193
4029C30075
5029-256427

Mr. Kim Ford, P.E.
Solid Waste Permitting
Florida Department of Environmental Protection
3804 Coconut Palm Drive
Tampa, Fl 33619

Subject: Southeast County Landfill Permit Renewal - Responses to Additional Information Request

Dear Mr. Ford,

As indicated in correspondence dated January 13, 1995, on behalf of the Hillsborough County Department of Solid Waste (HCDSW), SCS Engineers (SCS) would like to present the following information.

FDEP Request 1 - Based on the performance of the leachate collection system and current pumping data, reevaluate the amount of leachate over the liner, the amount of time required to lower the leachate head, and the sump area.

Response - The current withdrawal rate and levels are monitored daily and are shown in Attachment 1. The flow into pump station No. 3 will vary as leachate levels are lowered. SCS anticipates that once leachate levels in the sump reach approximately 15 inches or lower, a disposal rate of 150,000 gpd will not be obtainable (See Attachment 2). SCS estimates that at a disposal rate of 150,000 gpd it will take approximately 6 months to reach the condition described above.

FDEP Request 2 - Evaluate and implement a system to record the actual flow rate of leachate being removed from the Landfill.

Response - The HCDSW is tentatively planning to install, within the next 30 days, a flow meter at pump station No. 3 to record the rate of leachate being removed directly from the landfill. In the interim the HCDSW will continue to monitor the rates as shown in Attachment 1.

FDEP Request 3 - Evaluate expanding the Landfill monitoring program to include Phases III and IV leachate levels, raw leachate storage tank, and stormwater levels within Phases V and VI.

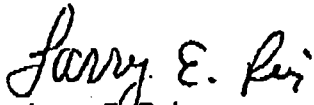


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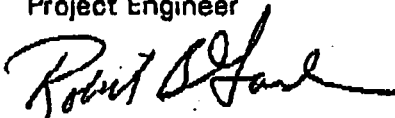
Response - The leachate monitoring program was expanded to monitor leachate levels in the existing clean outs in Phases III and IV (See Note 5, Figure 1), and the leachate storage tank at the on-site Leachate Treatment Facility on daily basis. In addition, the water levels are monitored in the temporary pump station No. 4 to maintain the water levels in Phases V and VI at least equal to leachate levels in Phases III and IV so that the 12-inch hydraulic head is not exceeded on the synthetic liner along the interior berms of Phases III and IV. The water depth in the temporary Pump Station No. 4 will be monitored and maintained to a level at least 6 inches higher than the leachate level depth in Pump Station No. 3 (See Figures 2 and 3).

If you have any additional questions, please call.

Very truly yours,



Larry E. Ruiz
Project Engineer



Robert B. Gardner, P.E.
Vice President
SCS Engineers

LR/RBG:lr

01-30-95 07:15PM

FROM SCS

ENGINEERS TAMPA

TO 7446125

P005/015

Attachment 1
Leachate Monitoring Form for January

MONTH: January 1995

Day	Sump 3	Phase III	Phase IV	500,000Gal Tnk Phase VI feet	gal	Rain Stormwater Fall	Leachate Hauled Contr.	County	I:it.
1	4.3			Holiday		0.0	Holiday		M-M
2	5.6			Tank Full		0.0	-	63,000	M-M
3	5.9			12	360,000	0.0	68,582	57,086	M-M
4	6.3			10.6	315,000	0.3	68,599	57,178	M-M
5	5.8			10	300,000	0.0	68,291	56,808	M-M
6	5.4			9	270,000	0.0	68,537	66,999	M-M
7	5.4			-	-	1.7	86,522	57,007	M-M
8	5.4			-	-	0.0	-	-	M-M
9	5.5			10	300,000	0.0	68,386	57,387	M-M
10	5.2			9	270,000	0.0	68,546	57,244	M-M
11	5.4			9	270,000	0.0	68,428	56,975	M-M
12	5.8			8	240,000	0.0	68,528	50,632	M-M
13	5.0	4.0	5.5	12	360,000	0.4	68,514	56,868	M-M
14	5.0	4.0	5.0	13	390,000	1.1	68,466	56,957	M-M
15	4.9			-	-	0.2	-	-	M-M

Comments: 1/12 County tanker down, lost 1 load Subtotal County - 684,111
 Subtotal Contractor - 77,539

01-30-95 07:15PM FROM SCS INEERS TAMPA TO 7446125 P006/015

MONTH: _____

Day	Sump 3	Phase III	Phase IV	500,000Gal fee:	Ink gal	Phase VI Stormwater	Rain Fall	Leachate Contr.	Hauled County	Init.
16	5.6	Holiday		11.6	345,000	Holiday	0.0	63,800	56,928	M M
17	5.7	4.4	6.0	11	330,000	4.3	0.0	64,490	56,919	M M
18	5.3	3.4	5.8	10	300,000	4.2	0.0	64,675	50,546	M M
19	5.3	3.1	5.6	9.6	288,000	4.2	0.0	64,818	57,073	M M
20	4.9	3.7	5.3	11	330,000	4.0	0.0	65,504	56,321	M M
21	4.8	3.5	5.2	12.5	375,000	4.0	0.0	67,492	56,622	M M
22	5.3	-	-	-	-	-	0.0	-	-	M M
23	5.8	4.3	6	9	270,000	4.1	0.0	53,061	56,134	M M
24	4.9	3.7	4.8	9	270,000	4.0	0.0	80,150	42,250	M M
25	4.9	3.5	5	10.5	315,000	4.0	0.0	68,018	56,186	M M
26	4.7	3.4	4.9	11.8	354,000	4.0	0.0	67,774	56,145	M M
27	4.7	3.3	4.11	12	360,000	3.11	0.0			M M
28										
29										
30										
31										

Comments: 1/18 County truck down 4 1/2 hrs, 1/24 Regen using Public Utilities truck

01-30-95 07:15PM FROM SCS ENGINEERS TAMPA NO 7446125 P007/015

01-30-95 07:15PM FROM SCS ENGINEERS TAMPA TO 7446125

P008/015

Attachment 2
Leachate Disposal Rates Calculations

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SHEET 1 OF 2

CLIENT	Hillsb. Co.	PROJECT	SELF	PLANS	0990018.35
SUBJECT	leachate withdrawal		BY	Fat	DATE
			CHECKED	FJ	1/25/95
					1-10-95

Assumptions:

- Disposal rate 150,000 gpd \approx 104 gpm
- Exist. disposal area 120.4 ac.
- Estimated leachate generation = 48,000 gpd = 33 gpm
- Exist. Pump Rate $>$ 125 gpm
- Sand layer permeability 1×10^{-3} cm/sec
- Trench permeability \approx 49 cm/sec \checkmark
- Average exist. level in sump 5.5 feet. \checkmark
- Trench assumption as attached table 1.

Goal:

Determine when the disposal rate will be controlled by the amount at which the trench can convey leachate to the sump

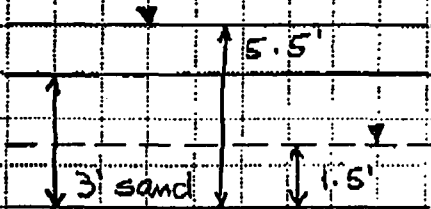
Conclusion:

As shown on table 1 an approximate flow of 104 gpm through the trench will occur approx. at 15" leachate level, say 1.5 feet.

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SHEET 2 OF 2

CLIENT Hillsb. Co.	PROJECT SELF	JOB NO. 0990018.35
SUBJECT leachate withdrawal	BY Jep	DATE 1/25/95
	CHECKED EJ	DATE 1-21-95



leachate volume to 5.5 = 25 mill gal.
 leachate volume to 1.5 = 1.3 mill gal.
 (Table 2 attached)

Difference to dis pose ::

$$25 - 1.3 = 23.7 \text{ mill. gallons}$$

$$23.7 \text{ mill gal} / 150,000 \text{ gpd} = 158 \text{ days} \checkmark$$

26 days per week = 26 day / mon

$$158 / 26 = 6 \text{ months} \checkmark$$

TABLE 1.

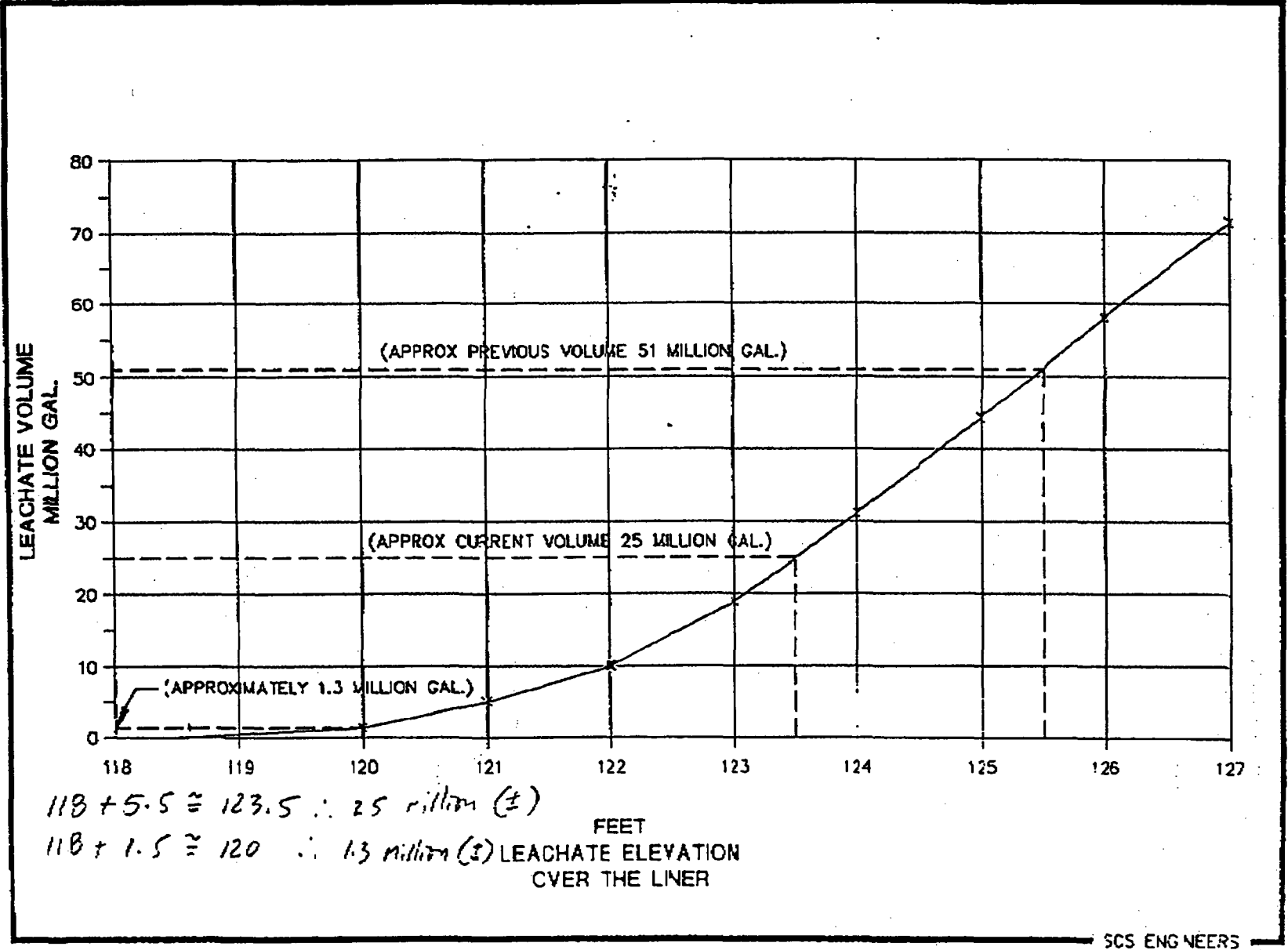
LEACHATE DEPTH IN TRENCH VS. MAXIMUM HEAD IN DRAINAGE SAND

ASSUMPTIONS:

PERMEABILITY OF CRUSHED GRANITIC ROCK =	140,000 FT/DAY
TRENCH GRADE =	0.18 PERCENT
TRENCH COLLECTION AREA =	3.72 AC
TRENCH SPACE =	200 FT
PERMEABILITY OF DRAINAGE SAND =	0.001 CM/S
LEACHATE GENERATED FROM CLAY BOTTOM =	50 GAL/DAY/AC

LEACHATE DEPTH IN TRENCH (INCH)	FLOW RATE IN TRENCH (CF/S)	INFILTRATION RATE (CM/S)	LEACHATE GENERATE RATE (GAL./D/AC)	MAXIMUM LEACHATE HEAD IN SAND (FT)	FLOW RATE TO SUMP (GPM)
1	4.86E-04	9.14E-08	84	0.88	7
2	9.72E-04	1.83E-07	169	1.20	14
3	1.46E-03	2.74E-07	253	1.42	21
4	1.94E-03	3.66E-07	338	1.61	28
5	2.43E-03	4.57E-07	422	1.76	35
6	2.92E-03	5.49E-07	507	1.90	42
7	3.40E-03	6.40E-07	591	2.01	49
8	3.89E-03	7.31E-07	676	2.12	56
9	4.38E-03	8.23E-07	760	2.22	64
10	4.86E-03	9.14E-07	845	2.30	71
11	5.35E-03	1.01E-06	929	2.38	78
12	5.83E-03	1.10E-06	1,013	2.46	85
13	6.32E-03	1.19E-06	1,098	2.53	92
14	6.81E-03	1.28E-06	1,182	2.60	99
15	7.29E-03	1.37E-06	1,267	2.66	106
16	7.78E-03	1.46E-06	1,351	2.72	113
17	8.26E-03	1.55E-06	1,436	2.77	120
18	8.75E-03	1.65E-06	1,520	2.83	127
19	9.24E-03	1.74E-06	1,605	2.88	134
20	9.72E-03	1.83E-06	1,689	2.92	141
21	1.02E-02	1.92E-06	1,773	2.97	148
22	1.07E-02	2.01E-06	1,858	3.01	155
23	1.12E-02	2.10E-06	1,942	3.05	162
24	1.17E-02	2.19E-06	2,027	3.09	169

0980018_35 LEVEL 2



$118 + 5.5 \approx 123.5 \therefore 25 \text{ million } (\pm)$

$118 + 1.5 \approx 120 \therefore 1.3 \text{ million } (\pm)$

TABLE 2.

Leachate Volume vs. Elevation,
Southeast Landfill, Hillsborough County.

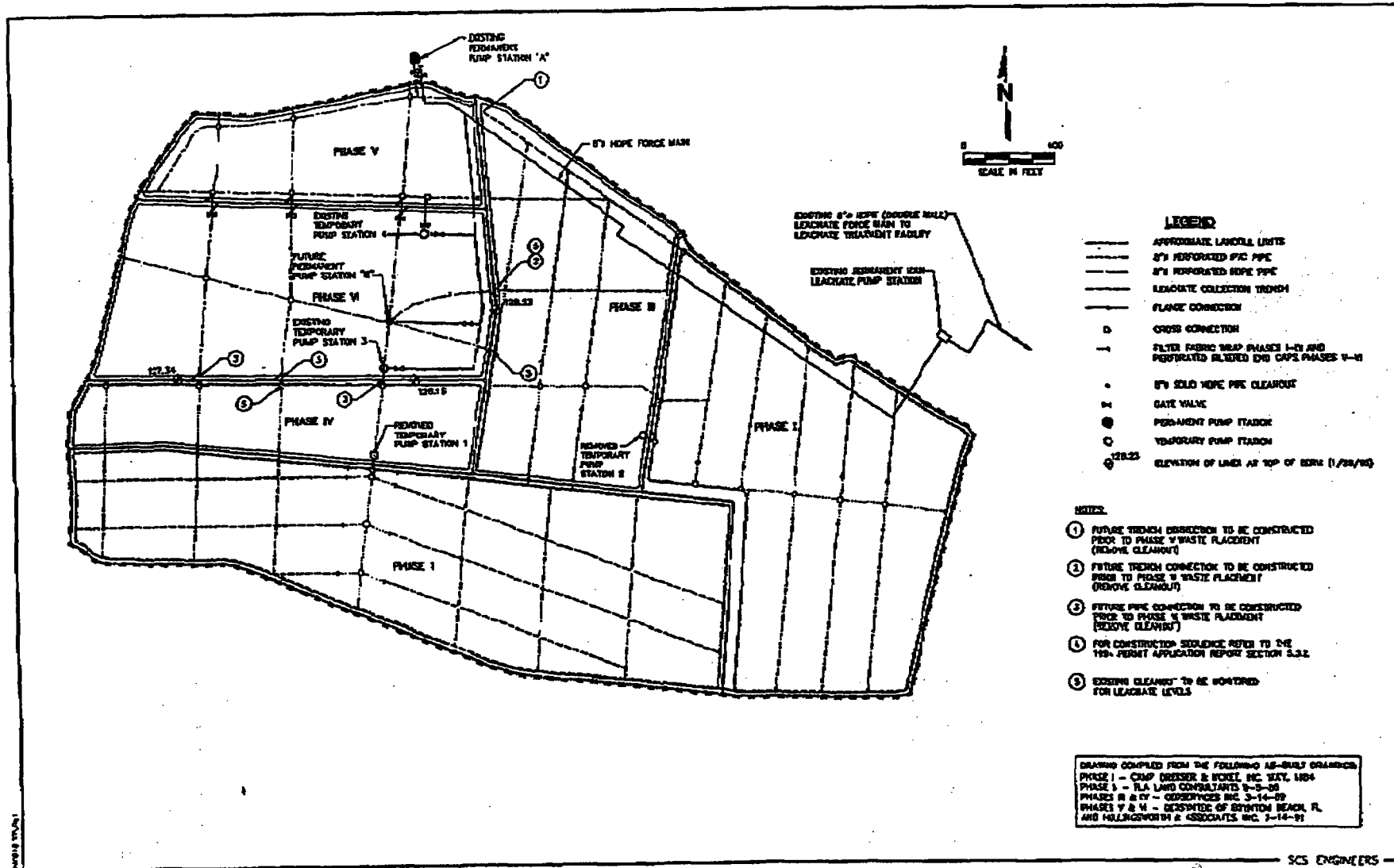


Figure 1. Leachate Collection System, Southeast Landfill.

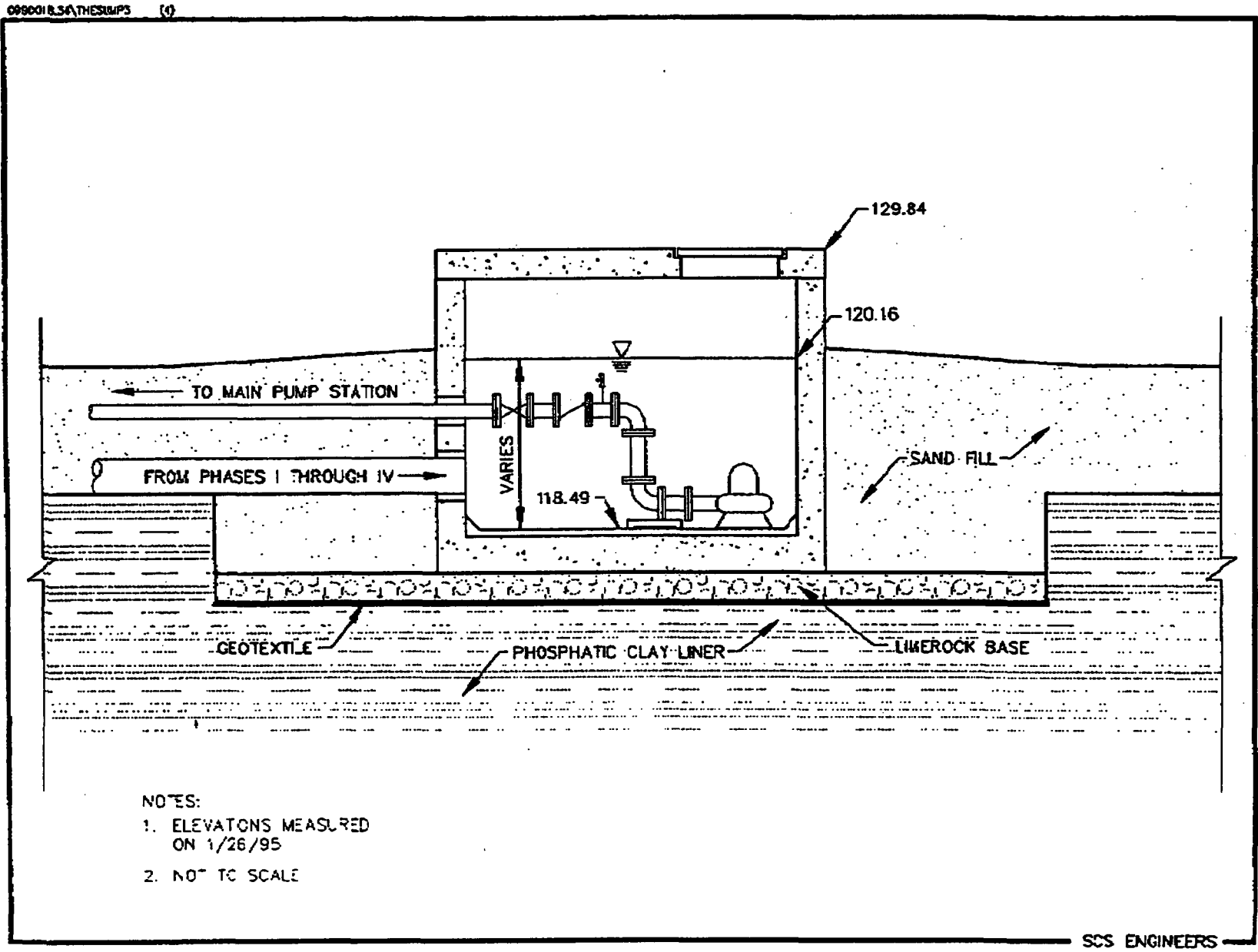
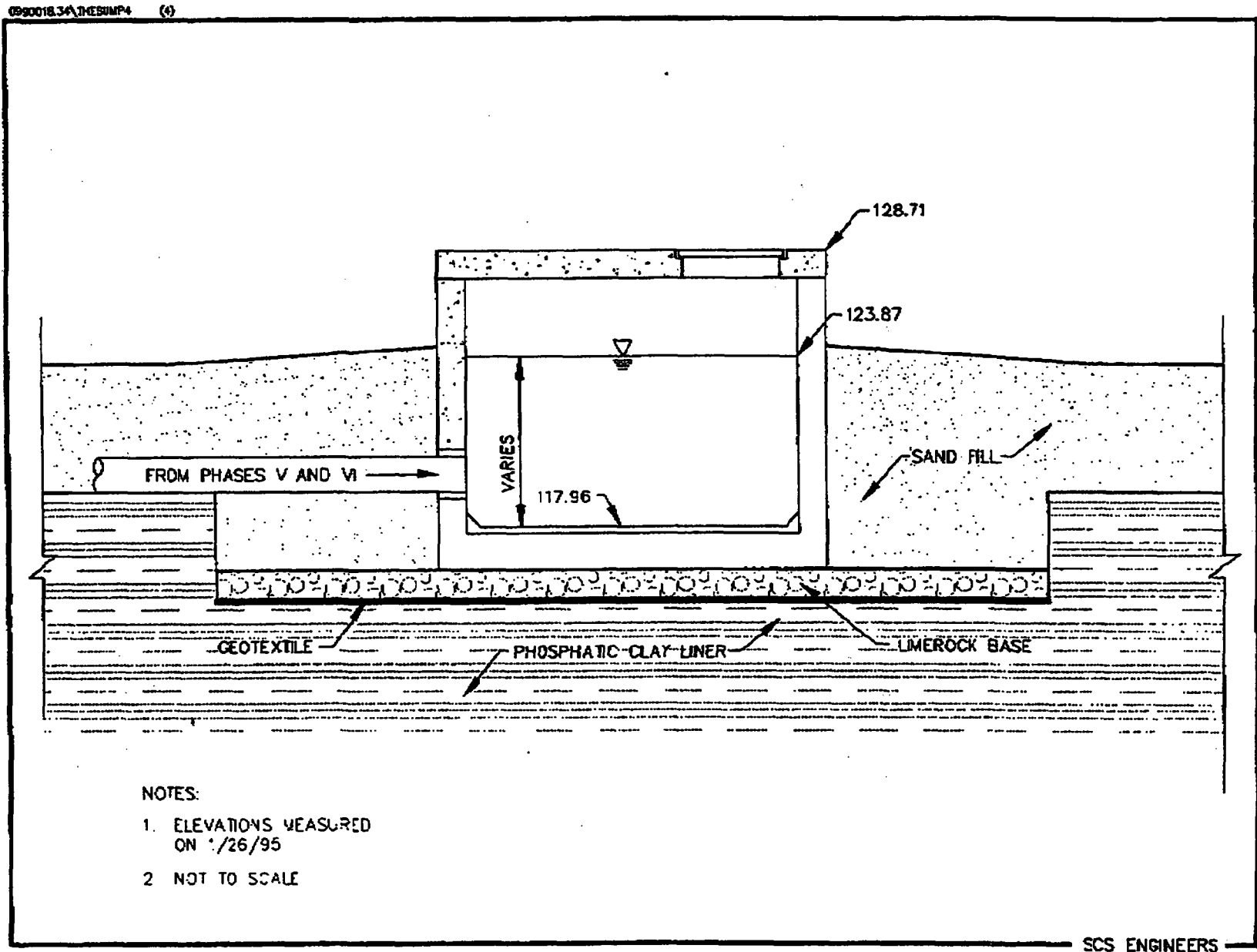


Figure 2. Existing Temporary Pump Station No. 3 (Phase VI).



- NOTES:
- 1. ELEVATIONS MEASURED ON 11/26/95
 - 2. NOT TO SCALE

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Figure 3. Existing Temporary Pump Station No. 4 (Phase VI).