

**CORTLAND COUNTY LANDFILL
WEST SIDE EXTENSION**

PHASE I DEVELOPMENT

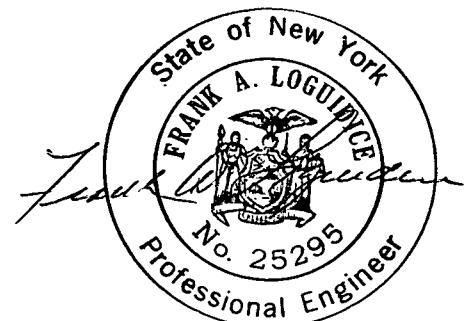
**HYDROGEOLOGIC
REPORT**

APPENDICES A, B, C, D, and E

**CORTLAND COUNTY
DEPARTMENT OF SOLID WASTE**

March, 1989

NO ALTERATION PERMITTED HEREON EXCEPT
AS PROVIDED UNDER SECTION 7209 SUB-
DIVISION 2 OF THE NEW YORK STATE
EDUCATION LAW.



Barton & Loguidice, P.C.



HYDROGEOLOGIC REPORT

APPENDIX A

TEST PIT/BORING LOGS

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TABLE A-1 GEOLOGIC INVESTIGATIONS

Test Pit Logs:

Barton & Loguidice, P.C.: 1988
Empire Soils Investigations: 1984

Boring Logs/Monitoring Wells

Barton & Loguidice, P.C.: 1988
John S. MacNeill - Final Logs: 1987
John S. MacNeill - Field Logs: 1987
Empire Soils Investigations: 1984-1985
Catch/Dunn Geoscience: 1984
Empire Soils Investigations: 1983
NYSDEC: 1979

TABLE A-1

GEOLOGIC INVESTIGATIONS FOR SOLID WASTE DISPOSAL*
CORTLAND COUNTY LANDFILL

DATE	PERFORMED BY	PERFORMED FOR	METHOD OF INVESTIGATION		
			TEST PIT	SOIL BORING	MONITORING WELLS
July-Aug, 1972	Cortland Co. Hwy. Dept.	Cortland Co. Solid Waste	34		
Unknown	Cortland	Cortland Co. Solid Waste	3		2+
November, 1979	Rochester Drilling	Dunn Geoscience Under Contract To NYSDEC			2
December, 1983	Empire Soils Investigations	Cortland Co.			1
Aug-Sept, 1984	CATOH Empire Soils Investigations	CATOH/Dunn Geoscience	5	3	11 (4)**
Dec 1984-Jan 1985	Empire Soils Investigations	Cortland Co.		7	3
November, 1987	North Star Drilling	John MacNeill, P.C.			16
May, 1988	Beck Construction	Barton & Loguidice	38		(8)++
September, 1988	North Star Drilling	Barton & Loguidice			4
TOTAL			80	10	36++
TOTAL PHASE I			38	-	27*

*Additional investigations have been performed in the Mosquito Creek drainage area on the north side of the 308.8 acre site for construction debris landfill site.

+PVC wells installed in Test Pit Excavation.

**Can be used for both existing and proposed landfill.

++Temporary wells installed in Test Pit excavation - not included in total wells.

TEST PIT LOGS

JUNE 1988

BARTON & LOGUIDICE,P.C.

TEST PIT LOG
TEST PIT NO. TP-1

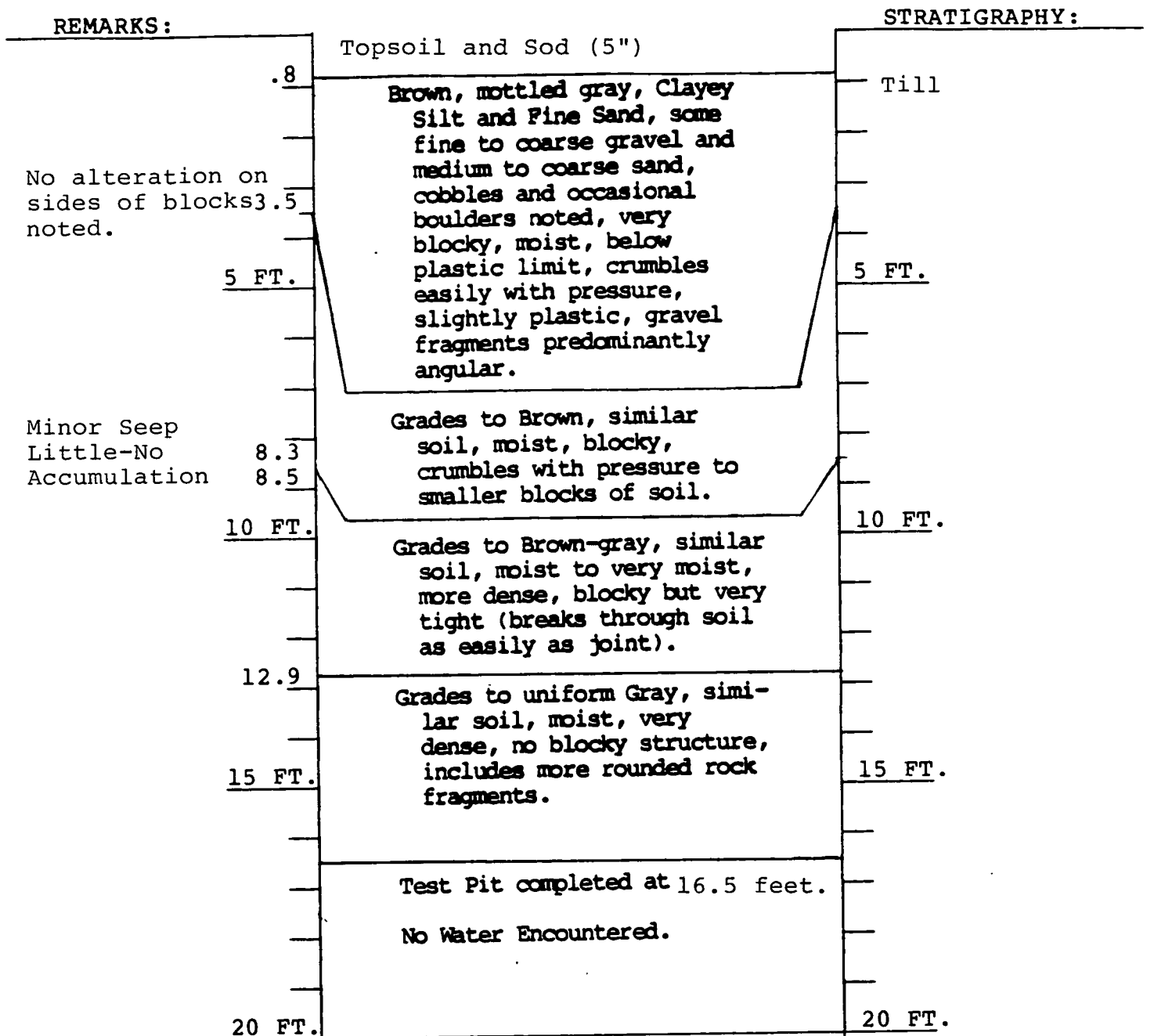
REMARKS:			STRATIGRAPHY:
Cobbles and Boulders Throughout	3.5	Brown, mottled gray, Clayey Silt and Fine Sand, some fine to coarse gravel and medium to coarse sand, cobbles and occasional boulders noted, very blocky, moist, below plastic limit, crumbles easily with pressure, slightly plastic, gravel fragments predominantly angular.	Topsoil Till
	5 FT.		5 FT.
Water Seep Noted	7.5	Grades to Brown, similar soil, moist, blocky, crumbles with pressure to smaller blocks of soil.	
	8.3		
	10 FT.	Grades to Brown-gray, similar soil, moist to very moist, more dense, blocky but very tight (breaks through soil as easily as joint).	10 FT.
		Grades to uniform Gray, similar soil, moist, very dense, no blocky structure, includes more rounded rock fragments.	
Test Pit Terminated Due to Nested Boulders in Dense Till	14.5		
	15 FT.	Test Pit completed at 14.5 feet.	15 FT.
	20 FT.		20 FT.

SAMPLE TYPE	DEPTH	SAMPLE NO.	DESCRIPTION
BULK	3-8	TP-1	BRN. MOTTLED GRAY
BULK	8-14	TP-1	BRN.

PROJECT: CORTLAND CO. L'FILL EXT.
CLIENT: CORTLAND COUNTY
CONTRACTOR: BECK CONSTR.
DATE: 6/16/88

JOB #: 331.02 SHEET 1 OF 1
SITE: CORTLAND CO. LANDFILL
EQUIPMENT: CAT 215
INSPECTOR: ROY W. WAGNER

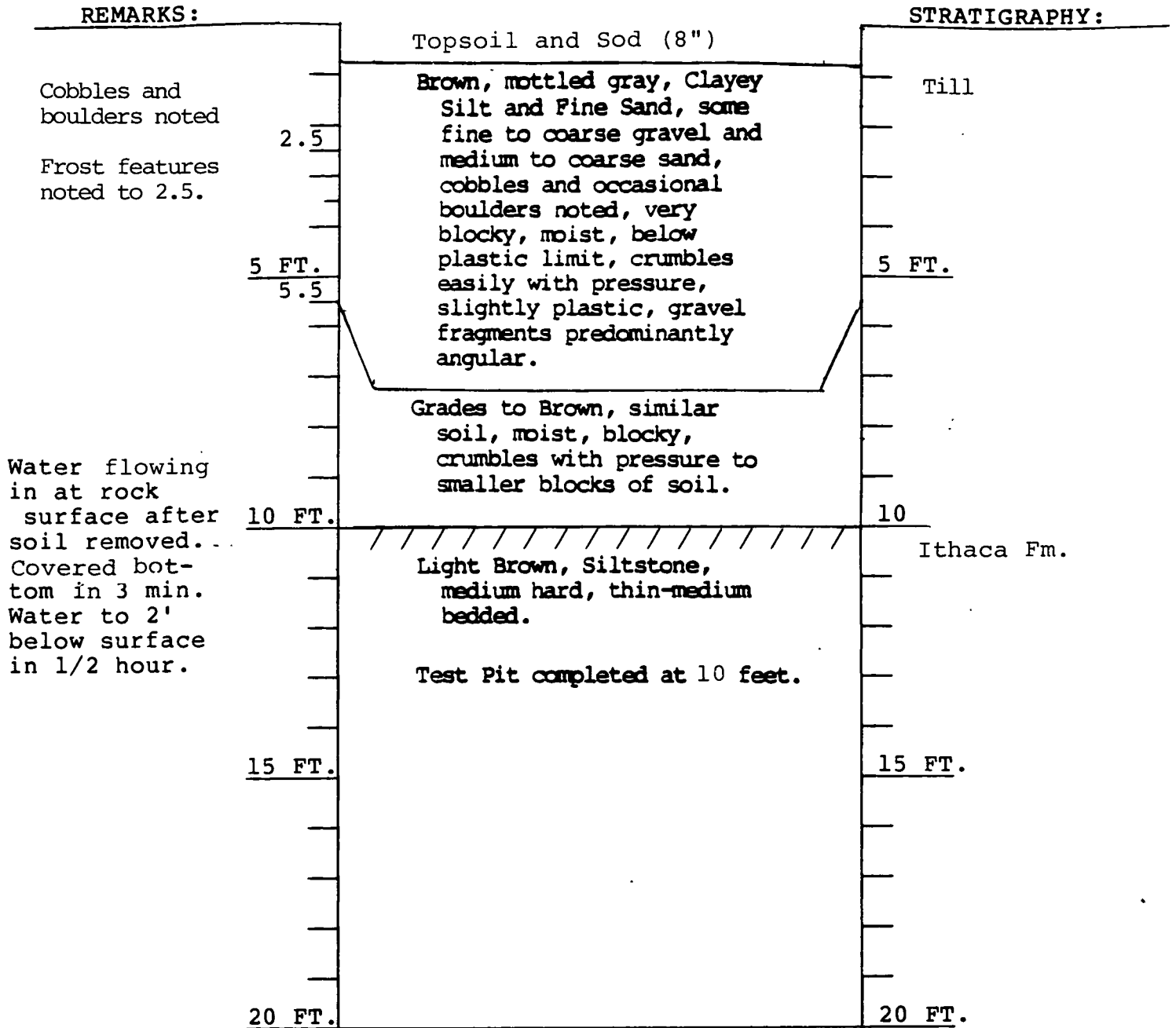
TEST PIT LOG
TEST PIT NO. TP-2



SAMPLE TYPE	DEPTH	SAMPLE NO.	DESCRIPTION
<u>1</u>	<u>3-8'</u>	<u>TP-1</u>	<u>Brn.Mottled Gr.Clay&Silt</u>

PROJECT: <u>CORTLAND CO. L'FILL EXT.</u>	JOB #: <u>331.02</u>
CLIENT: <u>CORTLAND COUNTY</u>	SHEET <u>1</u> OF <u>1</u>
CONTRACTOR: <u>BECK CONSTRUCTION</u>	SITE: <u>CORTLAND COUNTY LANDFILL</u>
DATE: <u>6/16/88</u>	EQUIPMENT: <u>CAT 215</u>
	INSPECTOR: <u>ROY W. WAGNER</u>

TEST PIT LOG
TEST PIT NO. TP-3



SAMPLE TYPE	DEPTH	SAMPLE NO.	DESCRIPTION
<u>BULK</u>	<u>2'-5'</u>	<u>TP-3</u>	<u>BRN-MOTTLED GRAY</u>

PROJECT: CORTLAND CO. L'FILL EXT.
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 CONTRACTOR: BECK CONSTRUCTION
 DATE: 6/16/88

JOB #: 331.02 SHEET 1 OF 1
 SITE: CORTLAND COUNTY LANDFILL
 EQUIPMENT: CAT 215
 INSPECTOR: ROY W. WAGNER

TEST PIT LOG
TEST PIT NO. TP-4

REMARKS:		STRATIGRAPHY:
	Topsoil and Sod (6")	
Root lines extending into soil.		Till
4' grades with less sand, more fines.	4	
	5 FT.	5 FT.
8.5' Noticeable moisture around gravel fragments	5.5	
9.5' Stains along block planes but soil does not necessarily break along them.	8.5	
	10 FT.	10 FT.
Below plastic limit	11.3	
	15 FT.	15 FT.
Water seeping in at rock surface 45 min. later	17.5	
Test Pit completed at 17.5'. Dry at completion.		Ithaca Fm.
	20 FT.	20 FT.

SAMPLE TYPE	DEPTH	SAMPLE NO.	DESCRIPTION
<u>1</u>	<u>11.5-17.5</u>	<u>TP-4</u>	<u>Gr. clayey silt.</u>

PROJECT: CORTLAND CO. L'FILL EXT.
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JOB #: 331.02 SHEET 1 OF 1
 SITE: CORTLAND COUNTY LANDFILL
 EQUIPMENT: CAT 215
 INSPECTOR: ROY W. WAGNER

TEST PIT LOG
TEST PIT NO. TP-5

REMARKS:

STRATIGRAPHY:

Roots to 16"

Topsoil and Sod (0.7')

Till

Brown, mottled gray, Clayey Silt and Fine Sand, some fine to coarse gravel and medium to coarse sand, cobbles and occasional boulders noted, very blocky, moist, below plastic limit, crumbles easily with pressure, slightly plastic, gravel fragments predominantly angular.

Bedrock

4
5 FT.

5 FT.

Light Brown, Siltstone, medium hard, thin-medium bedded.

Test Pit completed at 4 feet.

10 FT.

10 FT.

No Water Encountered.

15 FT.

15 FT.

20 FT.

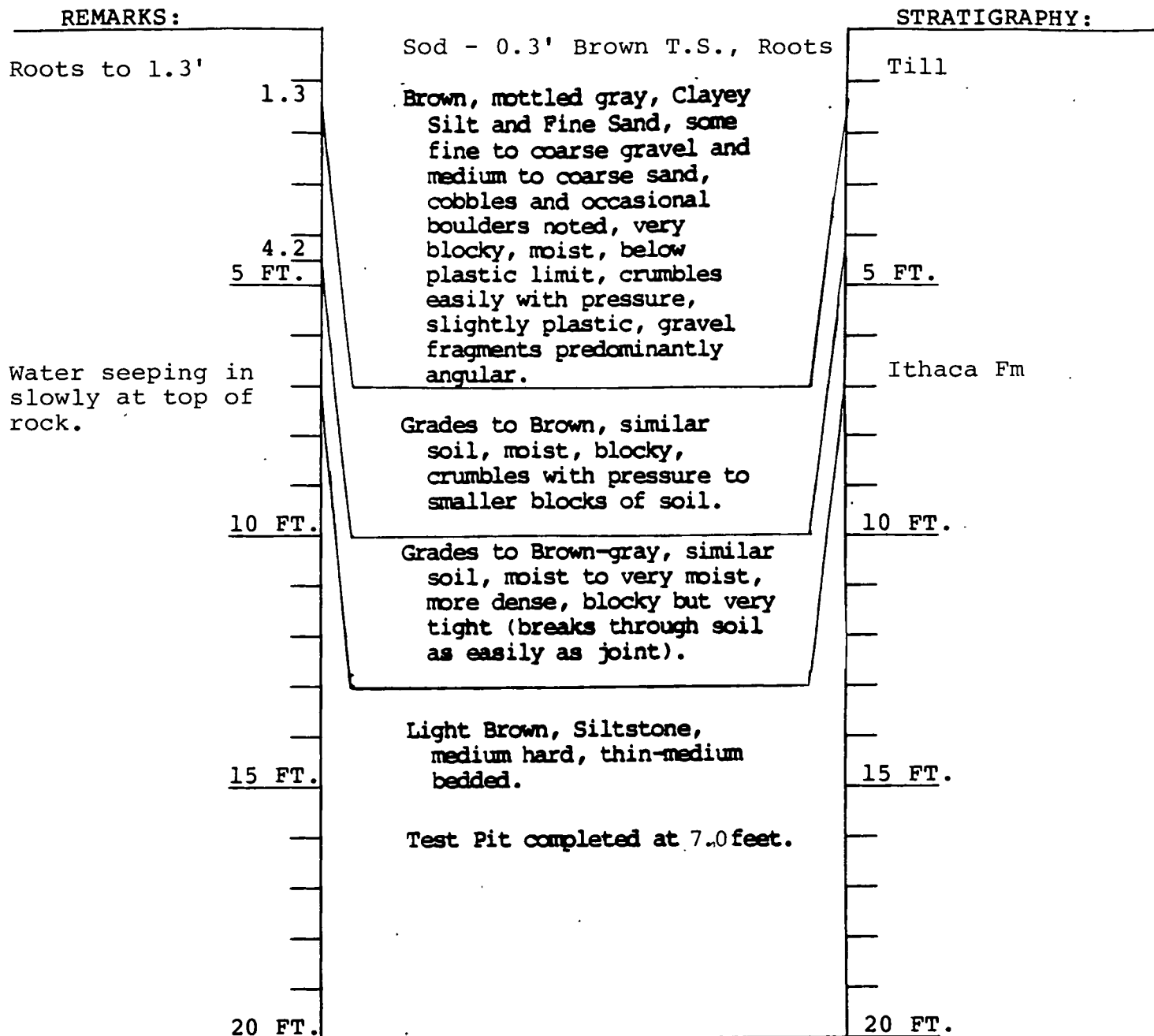
20 FT.

SAMPLE TYPE	DEPTH	SAMPLE NO.	DESCRIPTION
		TP-5	

PROJECT: CORTLAND CO. L'FILL EXT.
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JOB #: 331.02 SHEET 1 OF 1
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 EQUIPMENT: CAT 215
 INSPECTOR: ROY W. WAGNER

TEST PIT LOG
TEST PIT NO. TP-6



SAMPLE TYPE	DEPTH	SAMPLE NO.	DESCRIPTION
<u>1</u>	<u>2-7'</u>	<u>TP-6</u>	<u>Composite Brn.&Gry-Brn.</u>

PROJECT: <u>CORTLAND CO. L'FILL EXT.</u>	JOB #: <u>331.02</u> SHEET <u>1</u> OF <u>1</u>
CLIENT: <u>CORTLAND COUNTY</u>	SITE: <u>CORTLAND COUNTY LANDFILL</u>
CONTRACTOR: <u>BECK CONSTRUCTION</u>	EQUIPMENT: <u>CAT 215</u>
DATE: <u>6/16/88</u>	INSPECTOR: <u>ROY W. WAGNER</u>

TEST PIT LOG
TEST PIT NO. TP-7

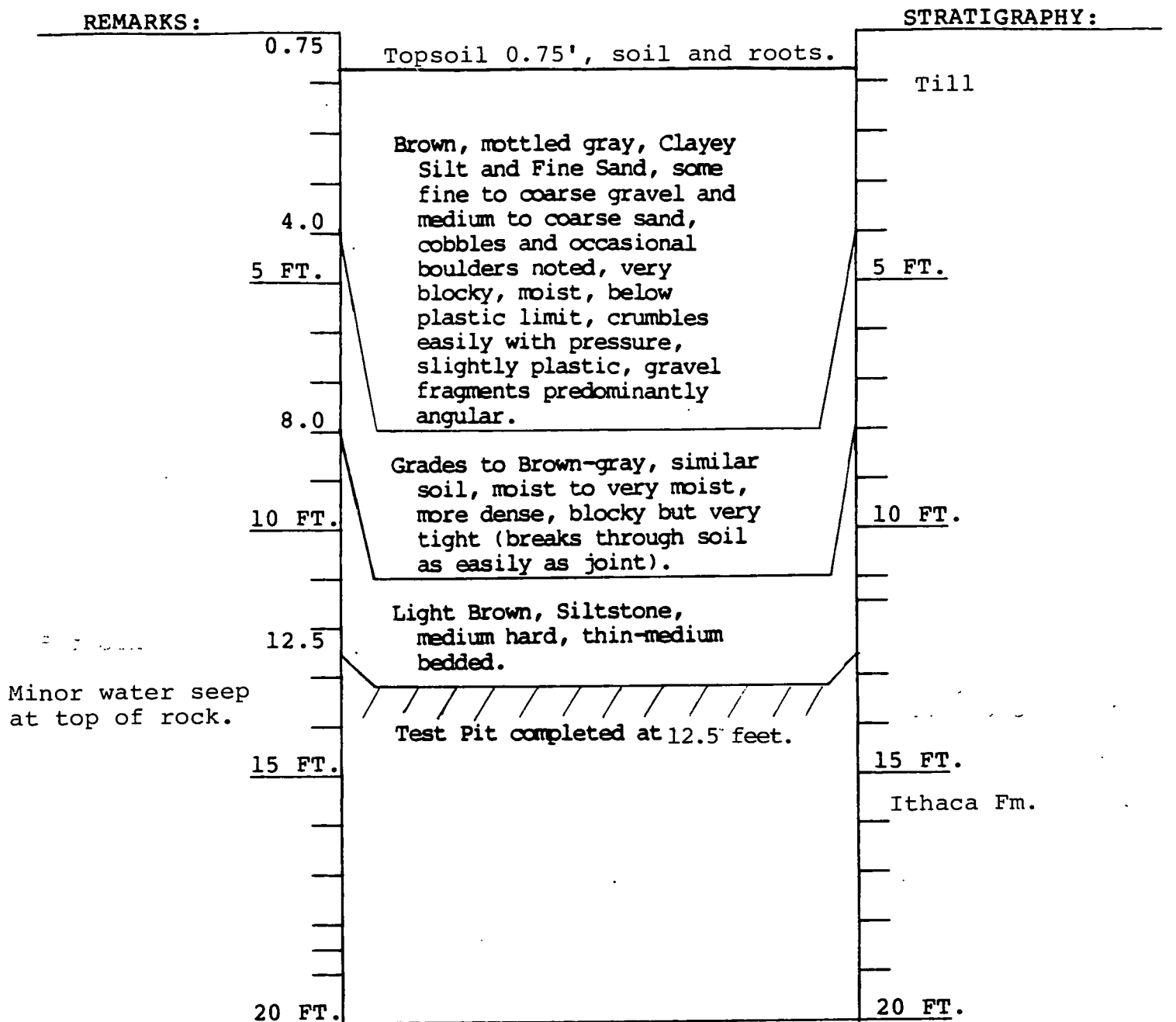
REMARKS:		STRATIGRAPHY:	
	0.75	Topsoil - .75' roots and soil	
Cobbles and boulders noted		Brown, mottled gray, Clayey Silt and Fine Sand, some fine to coarse gravel and medium to coarse sand, cobbles and occasional boulders noted, very blocky, moist, below plastic limit, crumbles easily with pressure, slightly plastic, gravel fragments predominantly angular.	Till
	5 FT.		5 FT.
Not blocky.	7.2	Grades to Brown-Brown-gray, similar soil, moist.	
	10 FT.		10 FT.
	11.7		11.7
Minor water seep		Grades to uniform Gray, similar soil, moist, very dense, no blocky texture, includes more rounded rock fragments.	
	15 FT.		15 FT.
	18.2	Test Pit completed at 18.2'. No bedrock encountered.	
	20 FT.		20 FT.

SAMPLE TYPE	DEPTH	SAMPLE NO.	DESCRIPTION
<u>BULK</u>	<u>11.7-18'</u>	<u>TP-7</u>	<u>Brn.Mottled Gray,Clayey Silt.</u>
_____	_____	_____	_____
_____	_____	_____	_____

PROJECT: CORTLAND CO. L'FILL EXT.
 CLIENT: CORTLAND COUNTY
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JOB #: 331.02 SHEET 1 OF 1
 SITE: CORTLAND COUNTY LANDFILL
 EQUIPMENT: CAT 215
 INSPECTOR: ROY W. WAGNER

TEST PIT LOG
TEST PIT NO. TP-8



SAMPLE TYPE	DEPTH	SAMPLE NO.	DESCRIPTION
<u>BULK</u>	<u>12.5'</u>	<u>TP-8</u>	<u>Brn.Mottled Gray, Clayey Si</u>

PROJECT: <u>CORTLAND CO. L'FILL EXT.</u>	JOB #: <u>331.02</u> SHEET <u>1</u> OF <u>1</u>
CLIENT: <u>CORTLAND COUNTY</u>	SITE: <u>CORTLAND COUNTY LANDFILL</u>
CONTRACTOR: <u>BECK CONSTRUCTION</u>	EQUIPMENT: <u>CAT 215</u>
DATE: <u>6/16/88</u>	INSPECTOR: <u>ROY W. WAGNER</u>

TEST PIT LOG
TEST PIT NO. TP-9

REMARKS:

STRATIGRAPHY:

Roots to 1.2'.

0.75

Topsoil - 0.75', soil & roots.

Effects of frost
noted to near
top of rock.
(Horiz. separation
planes).

4.1

5 FT.

Brown, mottled gray, Clayey Silt and Fine Sand, some fine to coarse gravel and medium to coarse sand, cobbles and occasional boulders noted, very blocky, moist, below plastic limit, crumbles easily with pressure, slightly plastic, gravel fragments predominantly angular.

Till

5 FT.

Ithaca Fm.

10 FT.

Light Brown, Siltstone,
medium hard, thin-medium
bedded.

Test Pit completed at 4.1feet.

10 FT.

15 FT.

15 FT.

20 FT.

20 FT.

SAMPLE TYPE
BULK

DEPTH
4.1'

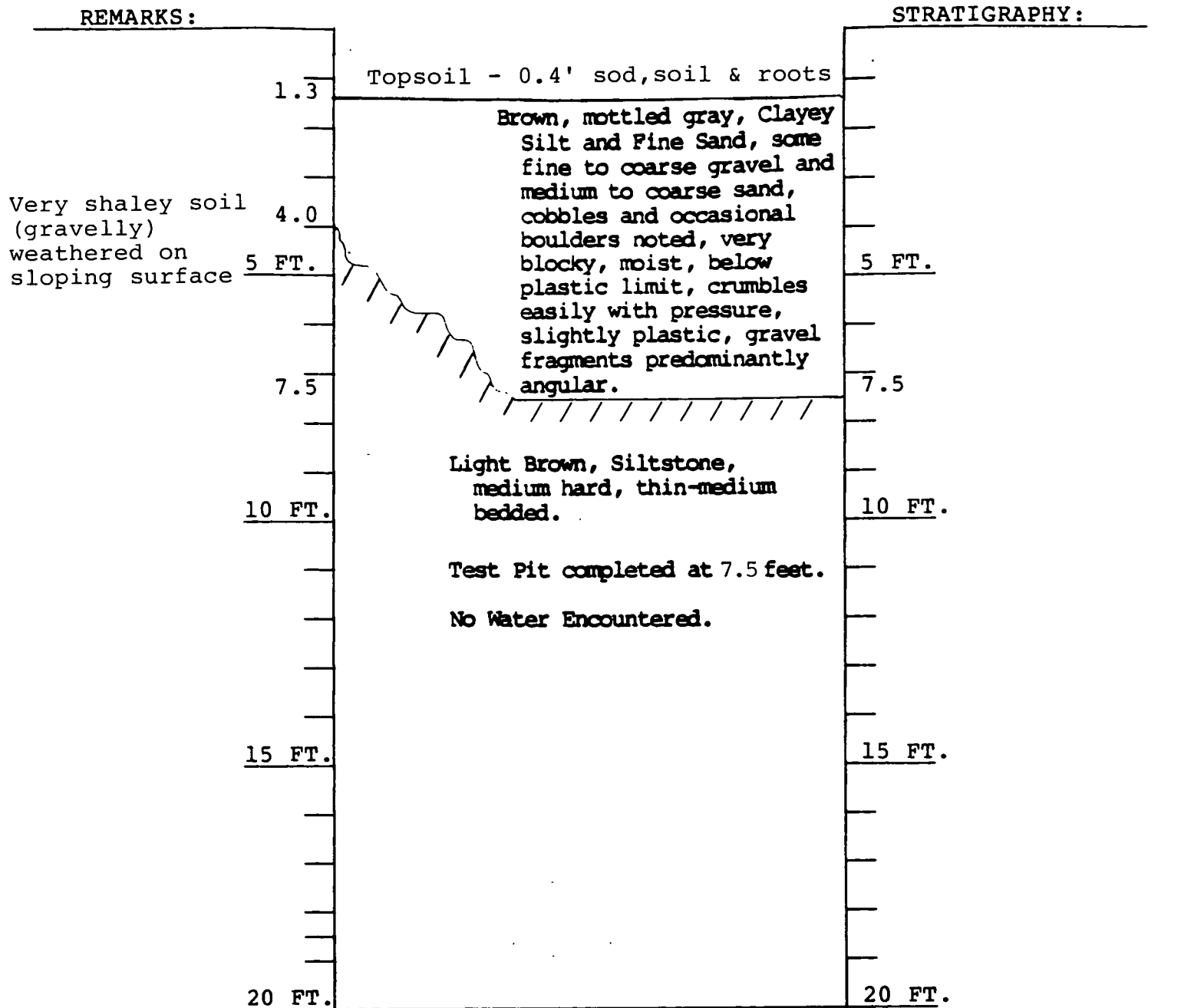
SAMPLE NO.
TP-9

DESCRIPTION
Brn.Mottled Gray,Clayey Sil

PROJECT: CORTLAND CO. L'FILL EXT.
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SITE: CORTLAND COUNTY LANDFILL
EQUIPMENT: CAT 215
INSPECTOR: ROY W. WAGNER

TEST PIT LOG
TEST PIT NO. TP-10



SAMPLE TYPE	DEPTH	SAMPLE NO.	DESCRIPTION
<u>BULK</u>	<u>7.5'</u>	<u>TP-10</u>	<u>Brn.Mottled Gray, Clayey Silt</u>
<u> </u>	<u> </u>	<u> </u>	<u> </u>
<u> </u>	<u> </u>	<u> </u>	<u> </u>

PROJECT: CORTLAND CO. L'FILL EXT.
 CLIENT: CORTLAND COUNTY
 CONTRACTOR: BECK CONSTRUCTION
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JOB #: 331.02 SHEET 1 OF 1
 SITE: CORTLAND COUNTY LANDFILL
 EQUIPMENT: CAT 215
 INSPECTOR: ROY W. WAGNER

TEST PIT LOG
TEST PIT NO. TP-11

REMARKS:			STRATIGRAPHY:
	.75	Topsoil, Sod (.25) Blk-Dk Brn	
Roots noted to top of rock.		Brown, mottled gray, Clayey Silt and Fine Sand, some fine to coarse gravel and medium to coarse sand, cobbles and occasional boulders noted, very blocky, moist, below plastic limit, crumbles easily with pressure, slightly plastic, gravel fragments predominantly angular.	Till.
V. moist at rock surface.	2.1		
	5 FT.		5 FT. Ithaca Fm.
		Light Brown, Siltstone, medium hard, thin-medium bedded.	
	10 FT.	Test Pit completed at 2.1 feet.	10 FT.
		No Water Encountered.	
	15 FT.		15 FT.
	20 FT.		20 FT.

SAMPLE TYPE	DEPTH	SAMPLE NO.	DESCRIPTION
<u>BULK</u>	<u>2.1'</u>	<u>TP-11</u>	<u>Brn.Mottled Gray,Clayey Sil</u>
<u> </u>	<u> </u>	<u> </u>	<u> </u>
<u> </u>	<u> </u>	<u> </u>	<u> </u>

PROJECT: CORTLAND CO. L'FILL EXT.
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SITE: CORTLAND COUNTY LANDFILL
EQUIPMENT: CAT 215
INSPECTOR: ROY W. WAGNER

TEST PIT LOG
TEST PIT NO. TP-12

REMARKS:			STRATIGRAPHY:
	.6	Topsoil - Roots and Soil	Till
		Brown, mottled gray, Clayey Silt and Fine Sand, some fine to coarse gravel and medium to coarse sand, cobbles and occasional boulders noted, very blocky, moist, below plastic limit, crumbles easily with pressure, slightly plastic, gravel fragments predominantly angular.	
	5 FT.		5 FT.
Note free water at gravel/soil interface.	5.7		
		Grades to Brown, similar soil, moist, blocky, crumbles with pressure to smaller blocks of soil.	
	10 FT.		10 FT.
Change in gravel constituents. Brn. locally derived, angular. Gray foreign, transported, v. well rounded.	11.7		
		Grades to uniform Gray, similar soil, moist, very dense, no blocky structure, includes more rounded rock fragments.	
	15 FT.		15 FT.
	18.0		
		Test Pit completed at 18.0 feet.	
		No Water Encountered.	
	20 FT.		20 FT.

SAMPLE TYPE	DEPTH	SAMPLE NO.	DESCRIPTION
BULK	12.5'	TP-12	Gray-Brn.-Gray Silt
BULK	12.5'	TP-12	Gray-Brn.-Gray Silt
BULK	10'	TP-12	Grn. Silt

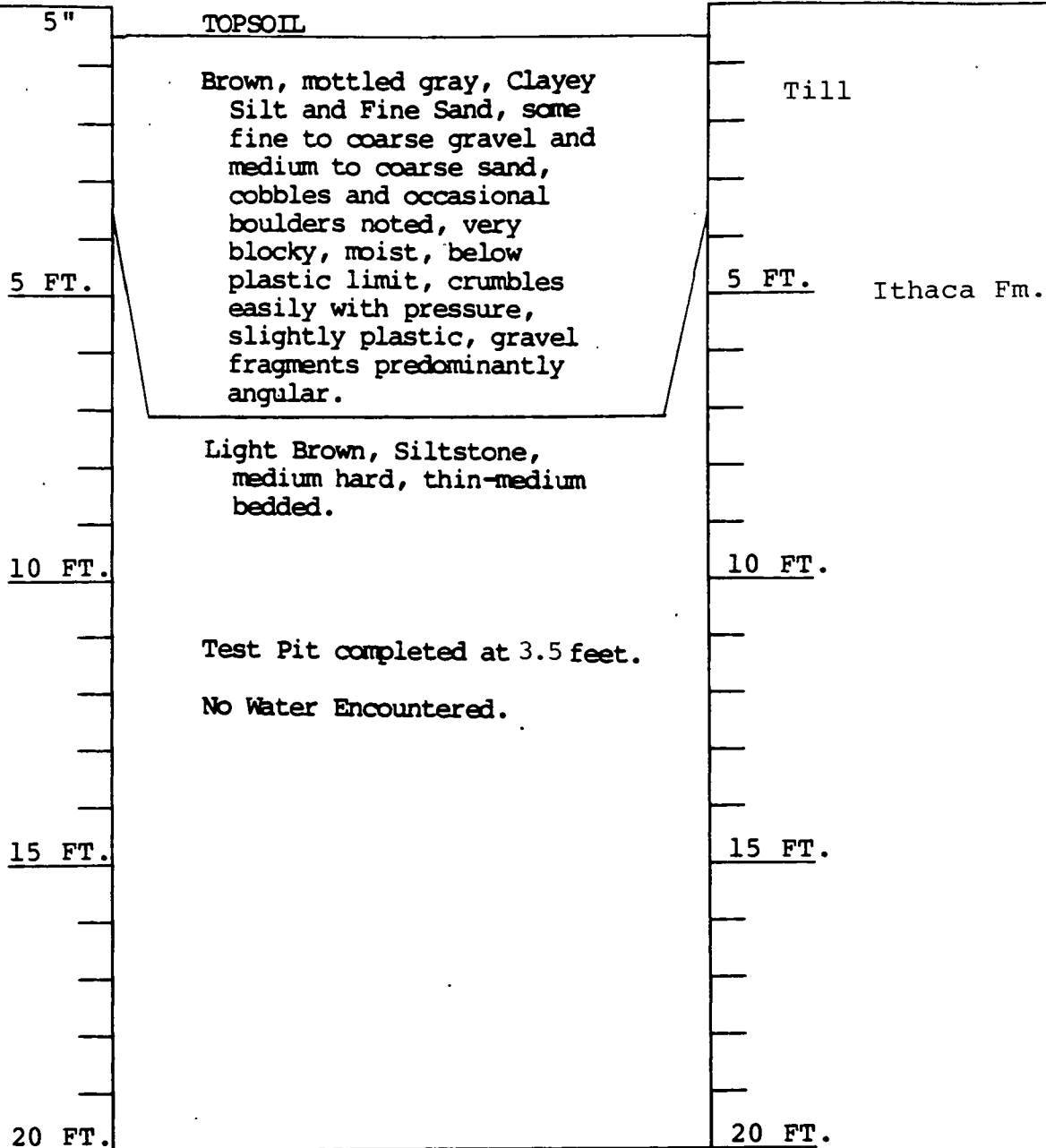
PROJECT: CORTLAND CO. L'FILL EXT.
 CLIENT: CORTLAND COUNTY
 CONTRACTOR: BECK CONSTRUCTION
 DATE: 6/16/88

JOB #: 331.02 SHEET 1 OF 1
 SITE: CORTLAND COUNTY LANDFILL
 EQUIPMENT: CAT 215
 INSPECTOR: ROY W. WAGNER

TEST PIT LOG
TEST PIT NO. TP-13

REMARKS:

STRATIGRAPHY:



SAMPLE TYPE	DEPTH	SAMPLE NO.	DESCRIPTION
NONE			

PROJECT: CORTLAND CO. L'FILL EXT.
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 DATE: 6/16/88

JOB #: 331.02 SHEET 1 OF 1
 SITE: CORTLAND COUNTY LANDFILL
 EQUIPMENT: CAT 215
 INSPECTOR: ROY W. WAGNER

TEST PIT LOG
TEST PIT NO. TP-14

REMARKS:		TOPSOIL	STRATIGRAPHY:
	9"		Till
Cobbles and boulders noted, blocky.		Brown, mottled gray, Clayey Silt and Fine Sand, some fine to coarse gravel and medium to coarse sand, cobbles and occasional boulders noted, very blocky, moist, below plastic limit, crumbles easily with pressure, slightly plastic, gravel fragments predominantly angular.	
	4.1		
	5 FT.		5 FT.
		Grades to Brown, similar soil, moist, blocky, crumbles with pressure to smaller blocks of soil.	
	10 FT.		10 FT.
	11.1	Grades to Brown-gray, similar soil, moist to very moist, more dense, blocky but very tight (breaks through soil as easily as joint).	
	13		
	15 FT.	Grades to uniform Gray, similar soil, moist, very dense, no blocky structure, includes more rounded rock fragments.	15 FT.
	15.8		
Water flowing in from rock.		Light Brown, Siltstone, medium hard, thin-medium bedded.	Ithaca Fm.
		Test Pit completed at 15.8'.	
	20 FT.		20 FT.

SAMPLE TYPE	DEPTH	SAMPLE NO.	DESCRIPTION
<u>1</u>	<u>5-10'</u>	<u>TP-14</u>	<u>Brn. silt.</u>
<u> </u>	<u> </u>	<u> </u>	<u> </u>
<u> </u>	<u> </u>	<u> </u>	<u> </u>

PROJECT: CORTLAND CO. L'FILL EXT.
 CLIENT: CORTLAND COUNTY
 CONTRACTOR: BECK CONSTRUCTION
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JOB #: 331.02 SHEET 1 OF 1
 SITE: CORTLAND COUNTY LANDFILL
 EQUIPMENT: CAT 215
 INSPECTOR: ROY W. WAGNER

TEST PIT LOG
TEST PIT NO. TP-15

REMARKS:		STRATIGRAPHY:
	TOPSOIL	Till
1.9	Sod, roots A&B Horizon.	
4.6	Brown, mottled gray, Clayey Silt and Fine Sand, some fine to coarse gravel and medium to coarse sand, cobbles and occasional boulders noted, very blocky, moist, below plastic limit, crumbles easily with pressure, slightly plastic, gravel fragments predominantly angular.	
5 FT.		5 FT.
10 FT.	Grades to Brown-gray, similar soil, moist to very moist, more dense, blocky but very tight (breaks through soil as easily as joint).	10 FT.
11.8		
13	Light Brown, Siltstone, medium hard, thin-medium bedded.	Ithaca Fm.
15 FT.	Test Pit completed at 11.3 feet.	15 FT.
20 FT.		20 FT.

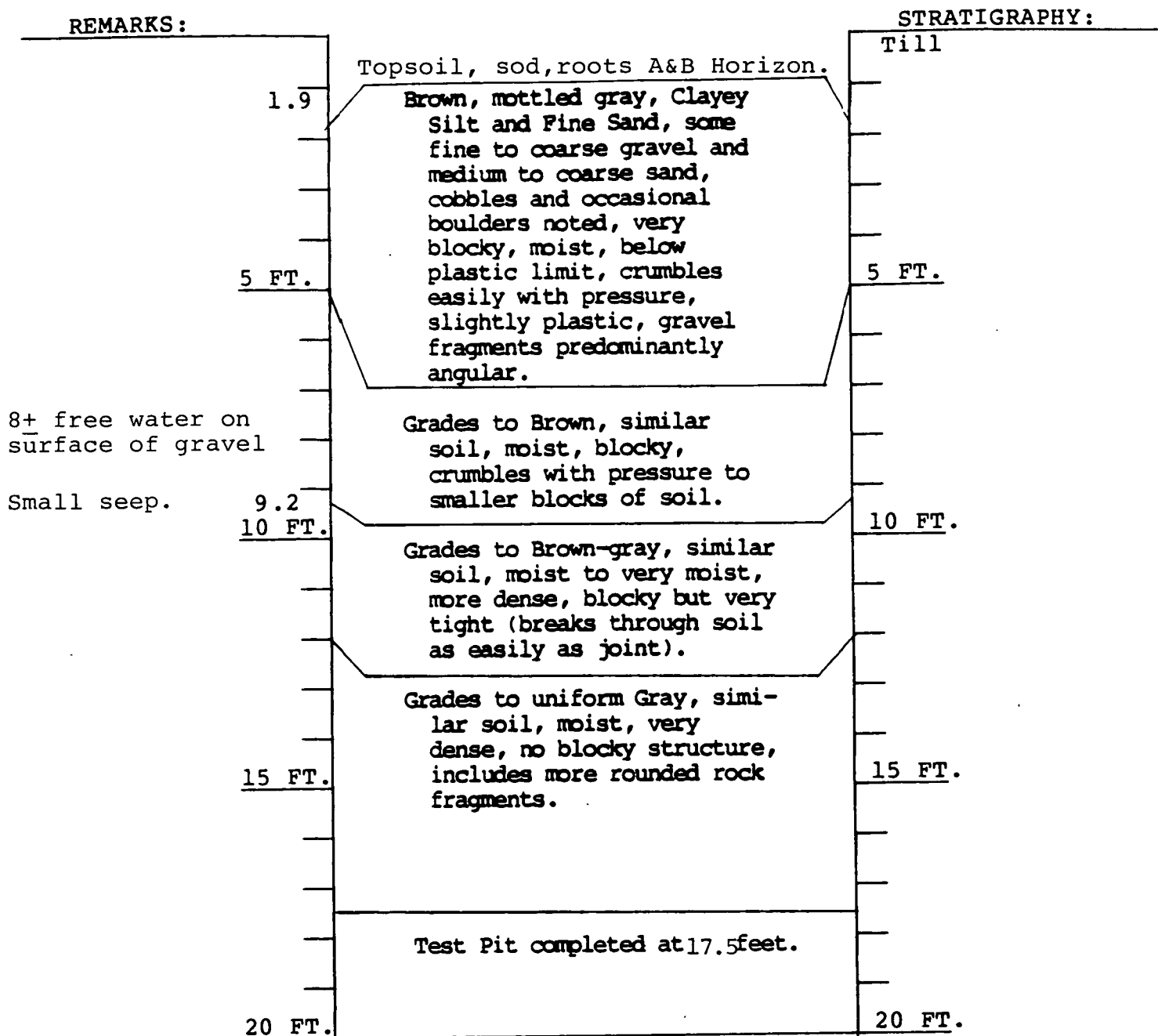
Dry hole while excavating slow seep in bottom coming from rock.

SAMPLE TYPE	DEPTH	SAMPLE NO.	DESCRIPTION
1	7-10'	TP-15	Brn. silt.

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 EQUIPMENT: CAT 215
 INSPECTOR: ROY W. WAGNER

TEST PIT LOG
TEST PIT NO. TP-16



SAMPLE TYPE	DEPTH	SAMPLE NO.	DESCRIPTION
BAG	12-15	TP-16	Gry. CL.SI
BULK	12-15	TP-16	Gry. CL.SI
BULK	17'	TP-16	Gry. CL.SI

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CONTRACTOR: <u>BECK CONSTRUCTION</u>	EQUIPMENT: <u>CAT 215</u>	
DATE: <u>6/16/88</u>	INSPECTOR: <u>ROY W. WAGNER</u>	

TEST PIT LOG
TEST PIT NO. TP-17

REMARKS:	TOPSOIL	STRATIGRAPHY:
Disturbed by dozer.		Till
Cobbles and boulders noted.	Brown, mottled gray, Clayey Silt and Fine Sand, some fine to coarse gravel and medium to coarse sand, cobbles and occasional boulders noted, very blocky, moist, below plastic limit, crumbles easily with pressure, slightly plastic, gravel fragments predominantly angular.	
4.5 5 FT.		5 FT.
	Grades to Brown, similar soil, moist, blocky, crumbles with pressure to smaller blocks of soil.	
10 FT.		10 FT.
Shale bedrock 11.1 Dry excavation, no water seeps.	Grades to Brown-gray, similar soil, moist to very moist, more dense, blocky but very tight (breaks through soil as easily as joint).	Ithaca Fm.
	Light Brown, Siltstone, medium hard, thin-medium bedded.	
15 FT.		15 FT.
	Test Pit completed at 11.1 feet.	
	No Water Encountered.	
20 FT.		20 FT.

SAMPLE TYPE	DEPTH	SAMPLE NO.	DESCRIPTION
BULK	5-7	TP-17	Brn. Silt
BULK	5-7	TP-17	Brn. Silt

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 SITE: CORTLAND COUNTY LANDFILL
 EQUIPMENT: CAT 215
 INSPECTOR: ROY W. WAGNER

TEST PIT LOG
TEST PIT NO. TP-18

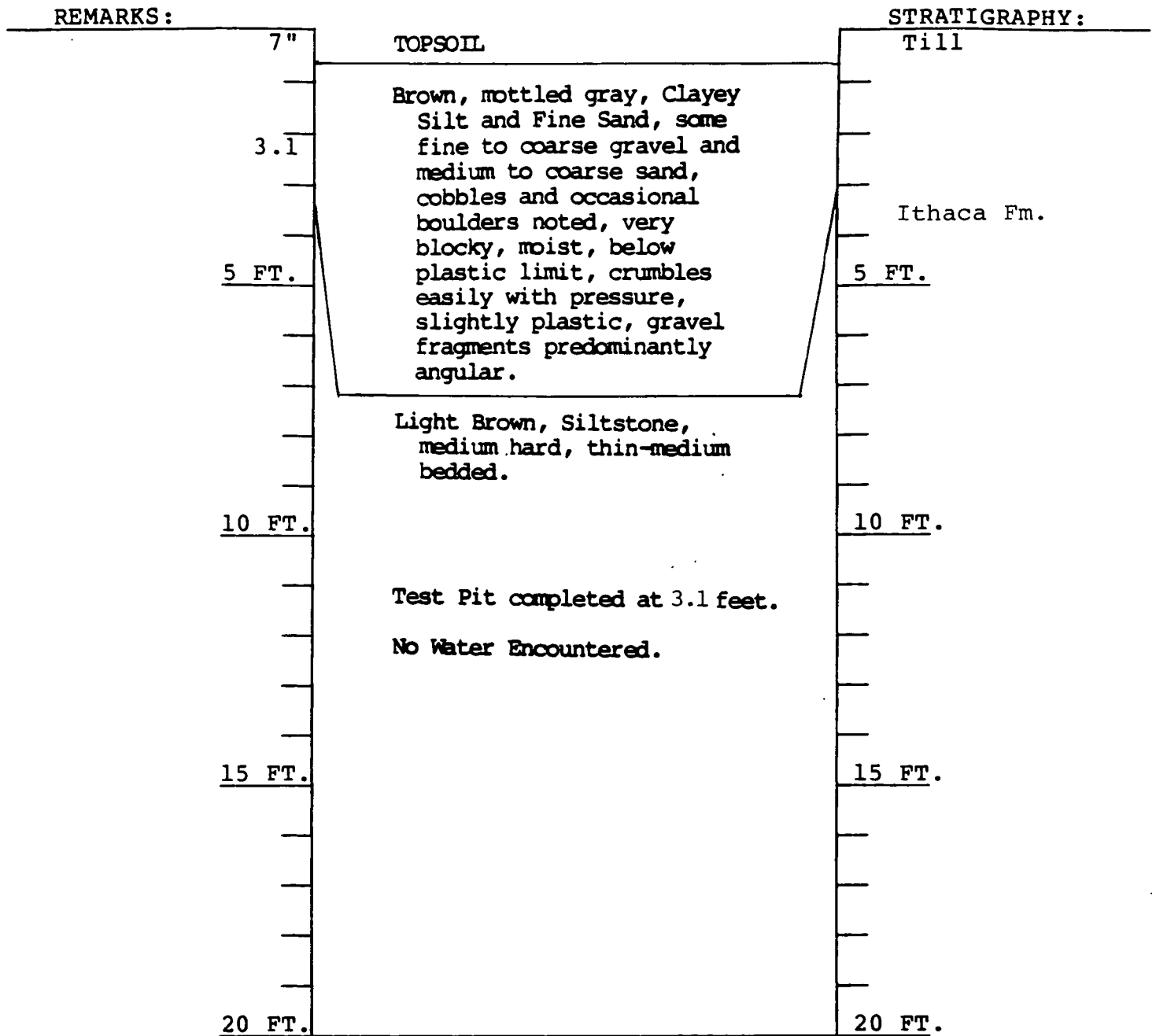
REMARKS:		STRATIGRAPHY:
10"	TOPSOIL	
45'	Brown, mottled gray, Clayey Silt and Fine Sand, some fine to coarse gravel and medium to coarse sand, cobbles and occasional boulders noted, very blocky, moist, below plastic limit, crumbles easily with pressure, slightly plastic, gravel fragments predominantly angular.	Till
5 FT.		5 FT.
		Ithaca Fm.
	Light Brown, Siltstone, medium hard, thin-medium bedded.	
10 FT.		10 FT.
	Test Pit completed at 4.5 feet.	
	No Water Encountered.	
15 FT.		15 FT.
20 FT.		20 FT.

SAMPLE TYPE	DEPTH	SAMPLE NO.	DESCRIPTION
<u>BULK</u>	<u>4.5</u>	<u>TP-18</u>	<u>Brn. mottled gray silt</u>
<u> </u>	<u> </u>	<u> </u>	<u> </u>
<u> </u>	<u> </u>	<u> </u>	<u> </u>

PROJECT: CORTLAND CO. L'FILL EXT.
 CLIENT: CORTLAND COUNTY
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 DATE: 6/16/88

JOB #: 331.02 SHEET 1 OF 1
 SITE: CORTLAND COUNTY LANDFILL
 EQUIPMENT: CAT 215
 INSPECTOR: ROY W. WAGNER

TEST PIT LOG
TEST PIT NO. TP-19



SAMPLE TYPE	DEPTH	SAMPLE NO.	DESCRIPTION
<u>None</u>	<u> </u>	<u>TP-19</u>	<u> </u>
<u> </u>	<u> </u>	<u> </u>	<u> </u>
<u> </u>	<u> </u>	<u> </u>	<u> </u>

PROJECT: <u>CORTLAND CO. L'FILL EXT.</u> CLIENT: <u>CORTLAND COUNTY</u> CONTRACTOR: <u>BECK CONSTRUCTION</u> DATE: <u>6/16/88</u>	JOB #: <u>331.02</u> SHEET <u>1</u> OF <u>1</u> SITE: <u>CORTLAND COUNTY LANDFILL</u> EQUIPMENT: <u>CAT 215</u> INSPECTOR: <u>ROY W. WAGNER</u>
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TEST PIT LOG
TEST PIT NO. TP-20

REMARKS:

STRATIGRAPHY:

Tilled area. Roots
to 24".

2.0 grades to
gray-brown,
similar.

TOPSOIL
 Brn. loamy soil w/roots.
 Brown, mottled gray, Clayey
 Silt and Fine Sand, some
 fine to coarse gravel and
 medium to coarse sand,
 cobbles and occasional
 boulders noted, very
 blocky, moist, below
 plastic limit, crumbles
 easily with pressure,
 slightly plastic, gravel
 fragments predominantly
 angular.

Light Brown, Siltstone,
 medium hard, thin-medium
 bedded.

Test Pit completed at 3.0 feet.

No Water Encountered.

Till

Ithaca Fm.

5 FT.

5 FT.

10 FT.

10 FT.

15 FT.

15 FT.

20 FT.

20 FT.

SAMPLE TYPE

DEPTH

SAMPLE NO.

DESCRIPTION

None

TP-20

PROJECT: CORTLAND CO. L'FILL EXT.

CLIENT: CORTLAND COUNTY

CONTRACTOR: BECK CONSTRUCTION

DATE: 6/16/88

JOB #: 331.02 SHEET 1 OF 1

SITE: CORTLAND COUNTY LANDFILL

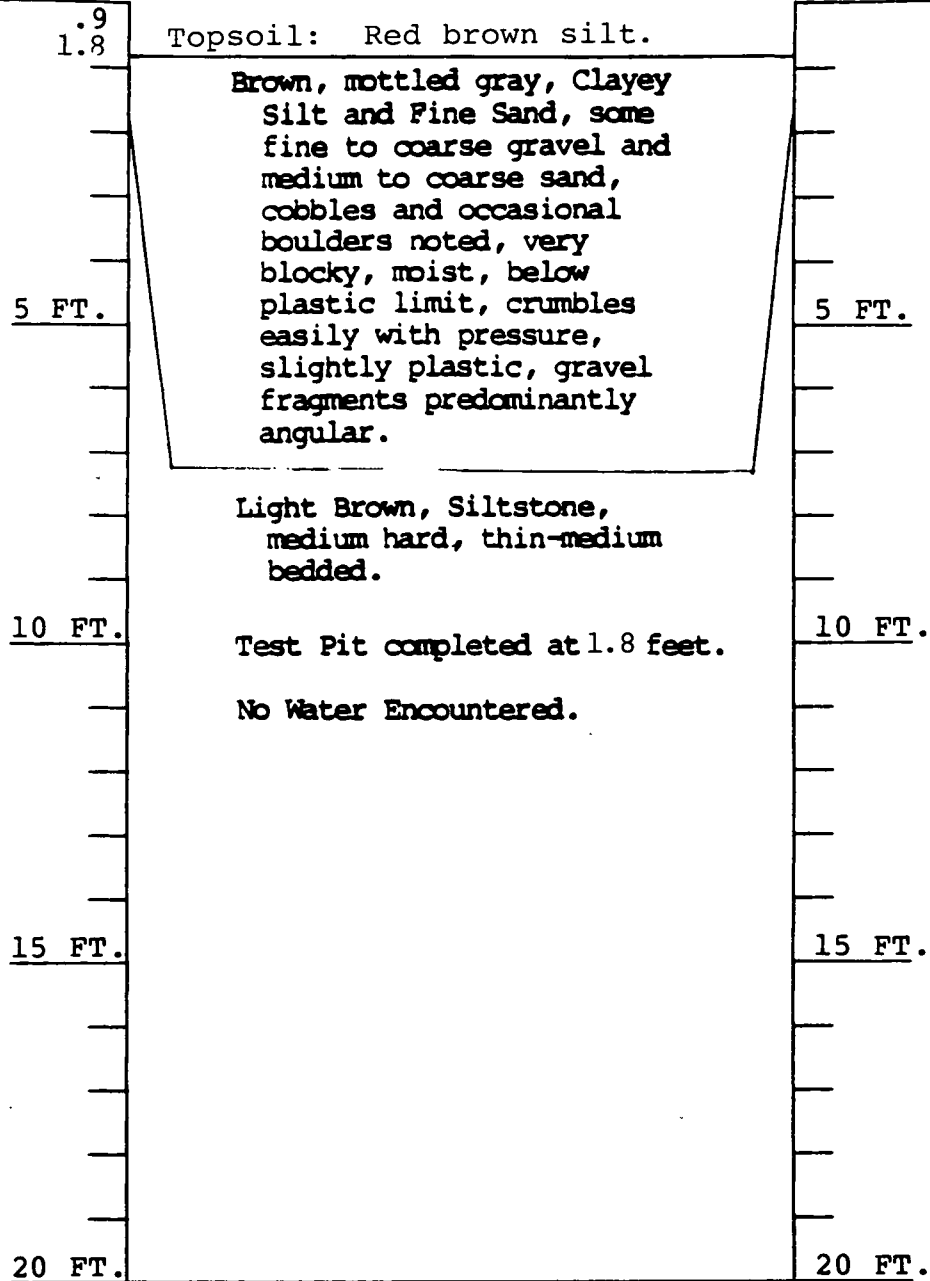
EQUIPMENT: CAT 215

INSPECTOR: ROY W. WAGNER

TEST PIT LOG
TEST PIT NO. TP-21

REMARKS:

STRATIGRAPHY:



SAMPLE TYPE	DEPTH	SAMPLE NO.	DESCRIPTION
None		TP-21	

PROJECT: CORTLAND CO. L'FILL EXT.
CLIENT: CORTLAND COUNTY
CONTRACTOR: BECK CONSTRUCTION
DATE: 6/16/88

JOB #: 331.02 SHEET 1 OF 1
SITE: CORTLAND COUNTY LANDFILL
EQUIPMENT: CAT 215
INSPECTOR: ROY W. WAGNER

TEST PIT LOG
TEST PIT NO. TP-22

REMARKS:

STRATIGRAPHY:

TOPSOIL

 $1.\overline{3}$

Brown, mottled gray, Clayey Silt and Fine Sand, some fine to coarse gravel and medium to coarse sand, cobbles and occasional boulders noted, very blocky, moist, below plastic limit, crumbles easily with pressure, slightly plastic, gravel fragments predominantly angular.

Till.

4.3

5 FT.

5 FT. Ithaca Fm.

Light Brown, Siltstone,
medium hard, thin-medium
bedded.

10 FT.

10 FT.

Test Pit completed at 4.3 feet.

No Water Encountered.

15 FT.

15 FT.

20 FT.

20 FT.

SAMPLE TYPE

DEPTH

SAMPLE NO.

DESCRIPTION

None

TP-22

PROJECT: CORTLAND CO. L'FILL EXT.

CLIENT: CORTLAND COUNTY

CONTRACTOR: BECK CONSTRUCTION

DATE: 6/16/88

JOB #: 331.02 SHEET 1 OF 1

SITE: CORTLAND COUNTY LANDFILL

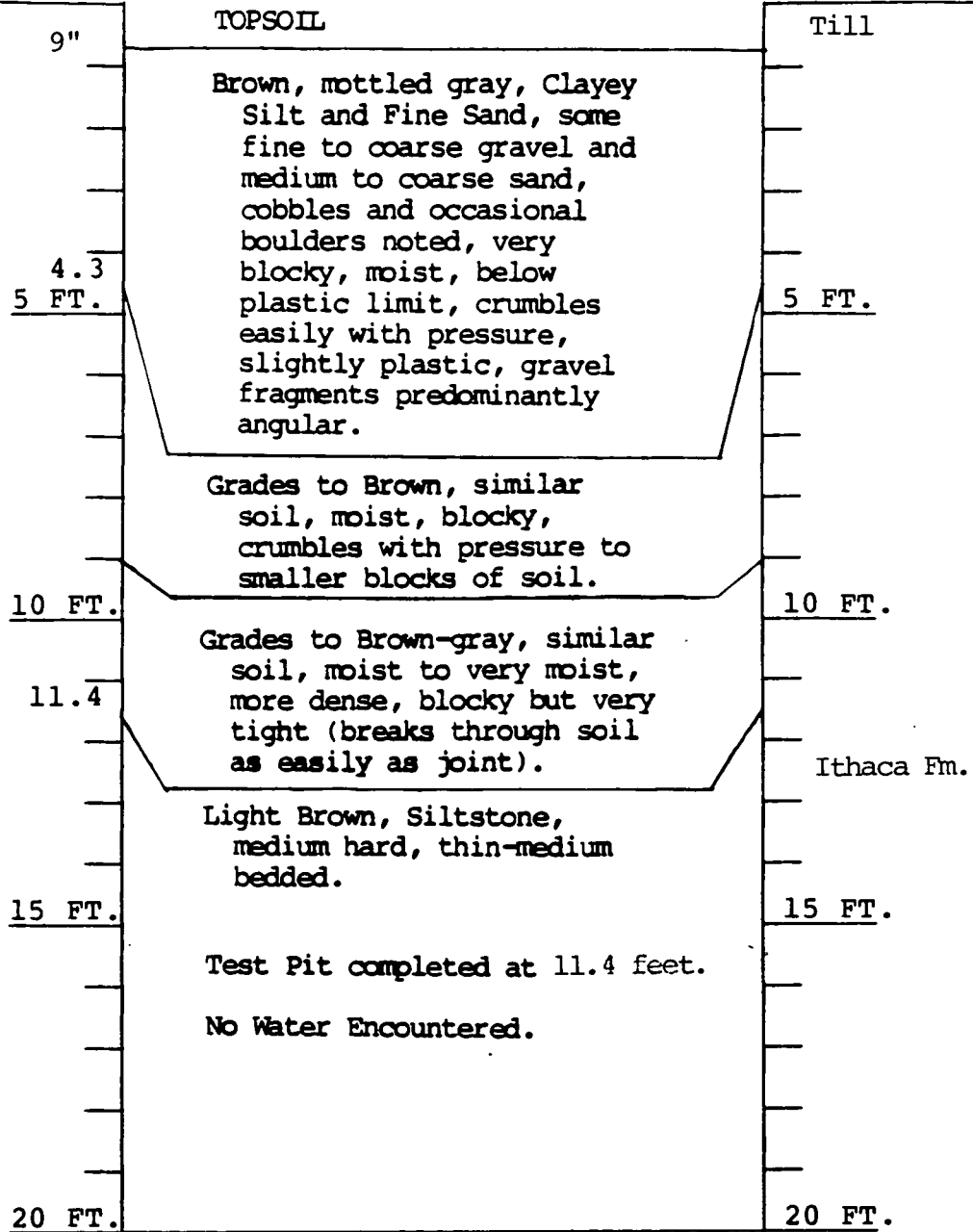
EQUIPMENT: CAT 215

INSPECTOR: ROY W. WAGNER

TEST PIT LOG
TEST PIT NO. TP-23

REMARKS:

STRATIGRAPHY:

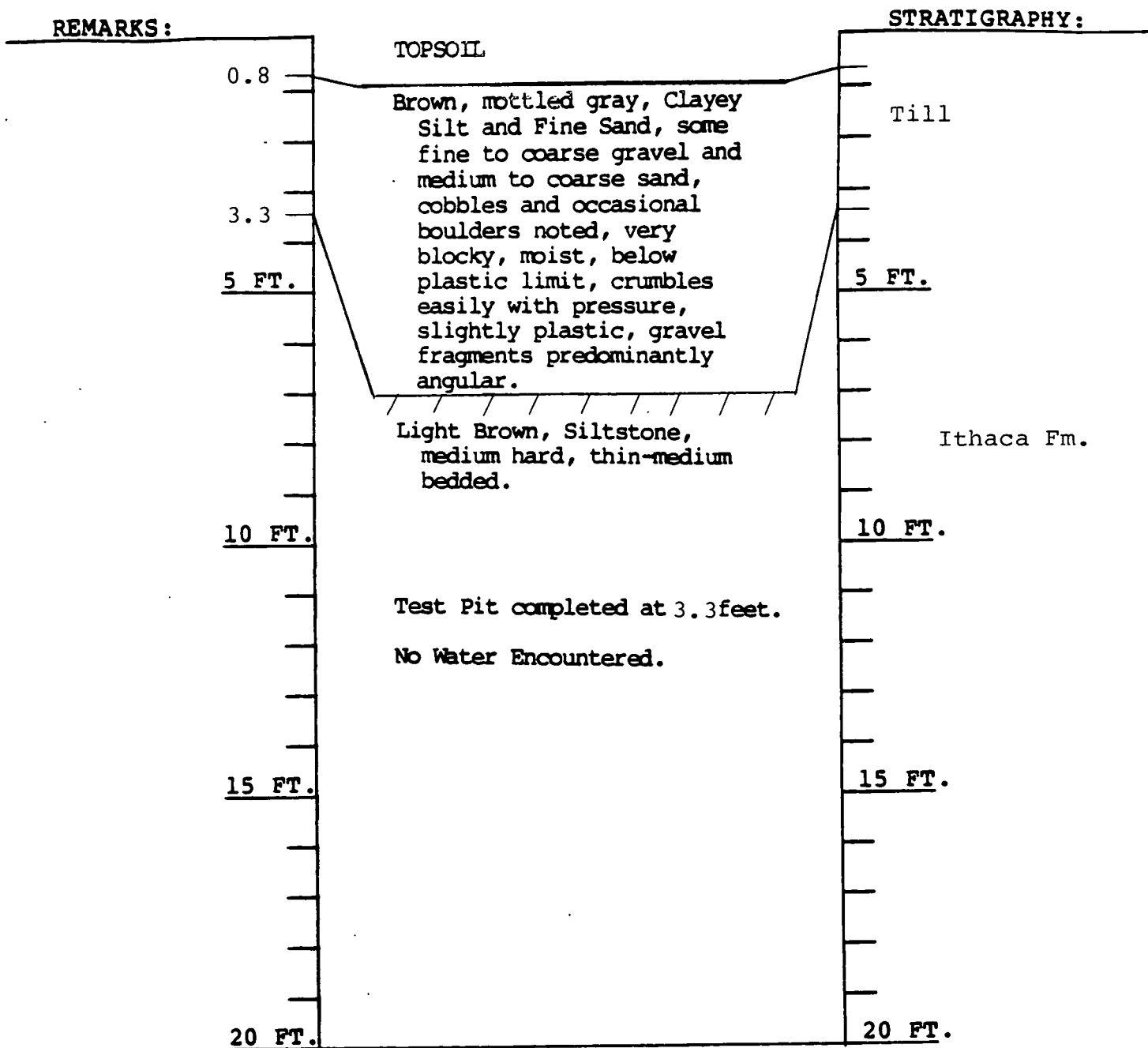


SAMPLE TYPE	DEPTH	SAMPLE NO.	DESCRIPTION
<u>1</u>	<u>2-11</u>	<u>TP-23</u>	<u>Brn. Silt.</u>

PROJECT: CORTLAND CO. L'FILL EXT.
 CLIENT: CORTLAND COUNTY
 CONTRACTOR: BECK CONSTRUCTION
 DATE: 6/16/88

JOB #: 331.02 SHEET 1 OF 1
 SITE: CORTLAND COUNTY LANDFILL
 EQUIPMENT: CAT 215
 INSPECTOR: ROY W. WAGNER

TEST PIT LOG
TEST PIT NO. TP-24



SAMPLE TYPE	DEPTH	SAMPLE NO.	DESCRIPTION
NONE			

PROJECT: <u>Cortland Co. Landfill Ext.</u>	JOB #: <u>331.02</u>	SHEET <u>1</u> OF <u>1</u>
CLIENT: <u>Cortland County</u>	SITE: <u>Cortland Co. Landfill</u>	
CONTRACTOR: <u>Beck Construction</u>	EQUIPMENT: <u>Cat 215</u>	
DATE: <u>6/18/88</u>	INSPECTOR: <u>Roy W. Wagner</u>	

TEST PIT LOG
TEST PIT NO. TP-25

REMARKS:

STRATIGRAPHY:

TOPSOIL

Sod and Roots to 1.0'

1.0

Brown, mottled gray, Clayey
Silt and Fine Sand, some
fine to coarse gravel and
medium to coarse sand,
cobbles and occasional
boulders noted, very
blocky, moist, below
plastic limit, crumbles
easily with pressure,
slightly plastic, gravel
fragments predominantly
angular.

Till

4.0

5 FT.

Top 6" highly Weathered

5 FT.

Light Brown, Siltstone,
medium hard, thin-medium
bedded.

Ithaca Fm.

10 FT.

10 FT.

Test Pit completed at 4:0 feet.

No Water Encountered.

15 FT.

15 FT.

20 FT.

20 FT.

SAMPLE TYPE

DEPTH

SAMPLE NO.

DESCRIPTION

NONE

PROJECT: Cortland Co. Landfill Ext.

JOB #: 331.02

SHEET 1 OF 1

CLIENT: Cortland County

SITE: Cortland Co. Landfill

CONTRACTOR: Beck Construction

EQUIPMENT: Cat 215

DATE: 6/18/88

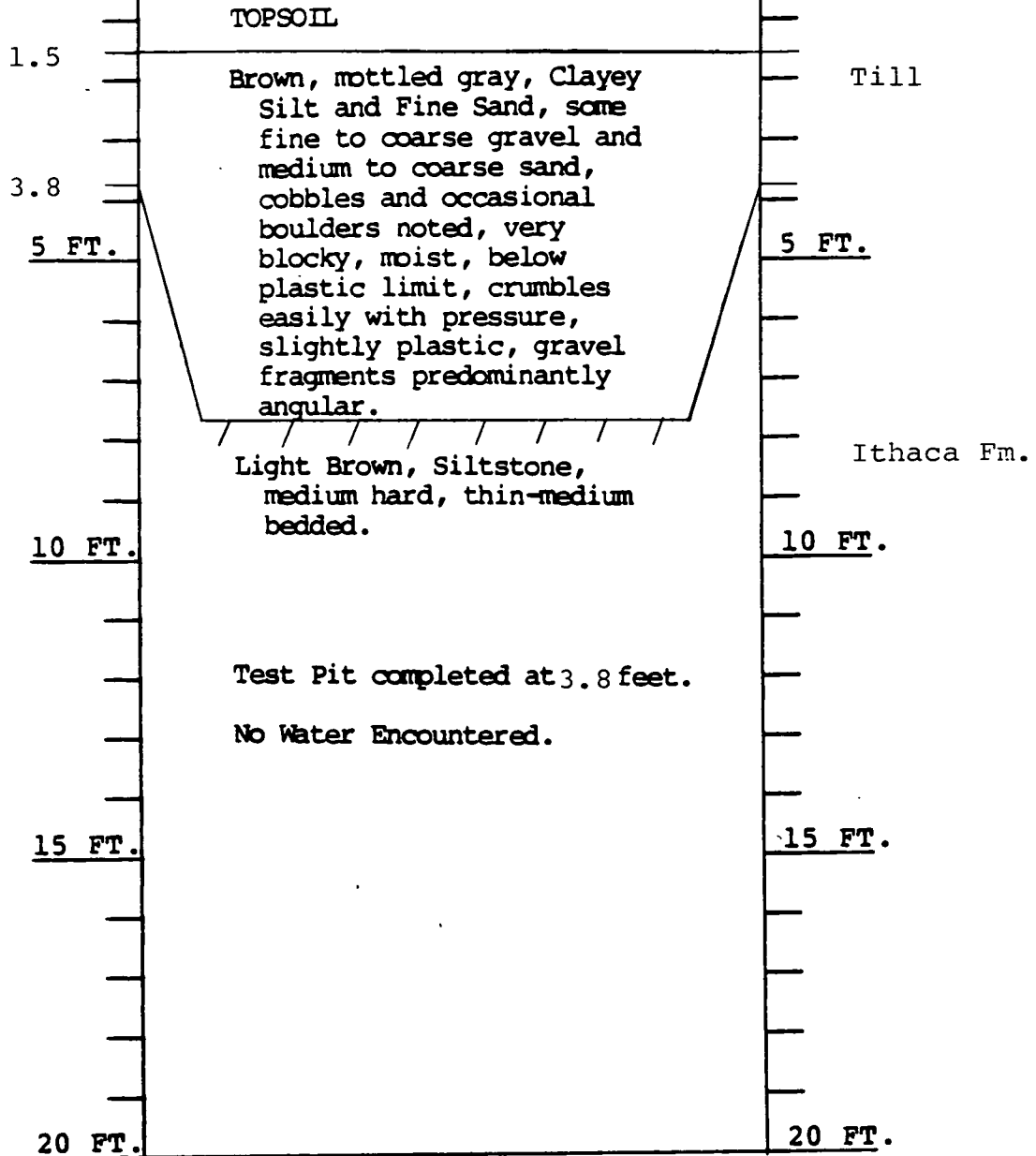
INSPECTOR: Roy W. Wagner

TEST PIT LOG
TEST PIT NO. TP-26

REMARKS:

STRATIGRAPHY:

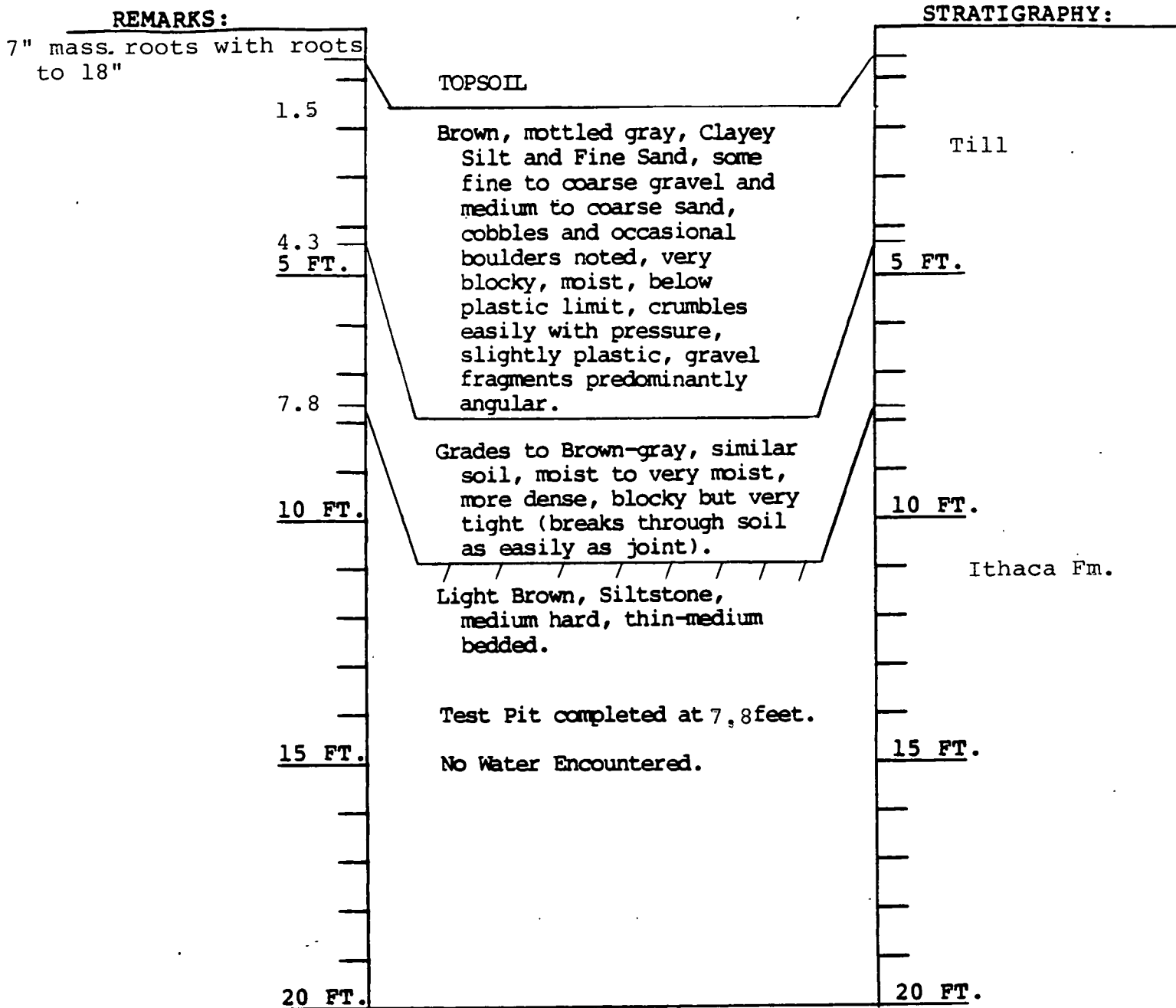
Roots to 1.5'



SAMPLE TYPE	DEPTH	SAMPLE NO.	DESCRIPTION
<u>NONE</u>	<u> </u>	<u> </u>	<u> </u>
<u> </u>	<u> </u>	<u> </u>	<u> </u>
<u> </u>	<u> </u>	<u> </u>	<u> </u>

PROJECT: Cortland Co. Landfill Ext. **JOB #:** 331.02 **SHEET** 1 **OF** 1
CLIENT: Cortland County **SITE:** Cortland Co. Landfill
CONTRACTOR: Beck Construction **EQUIPMENT:** Cat 215
DATE: 6/18/88 **INSPECTOR:** Roy W. Wagner

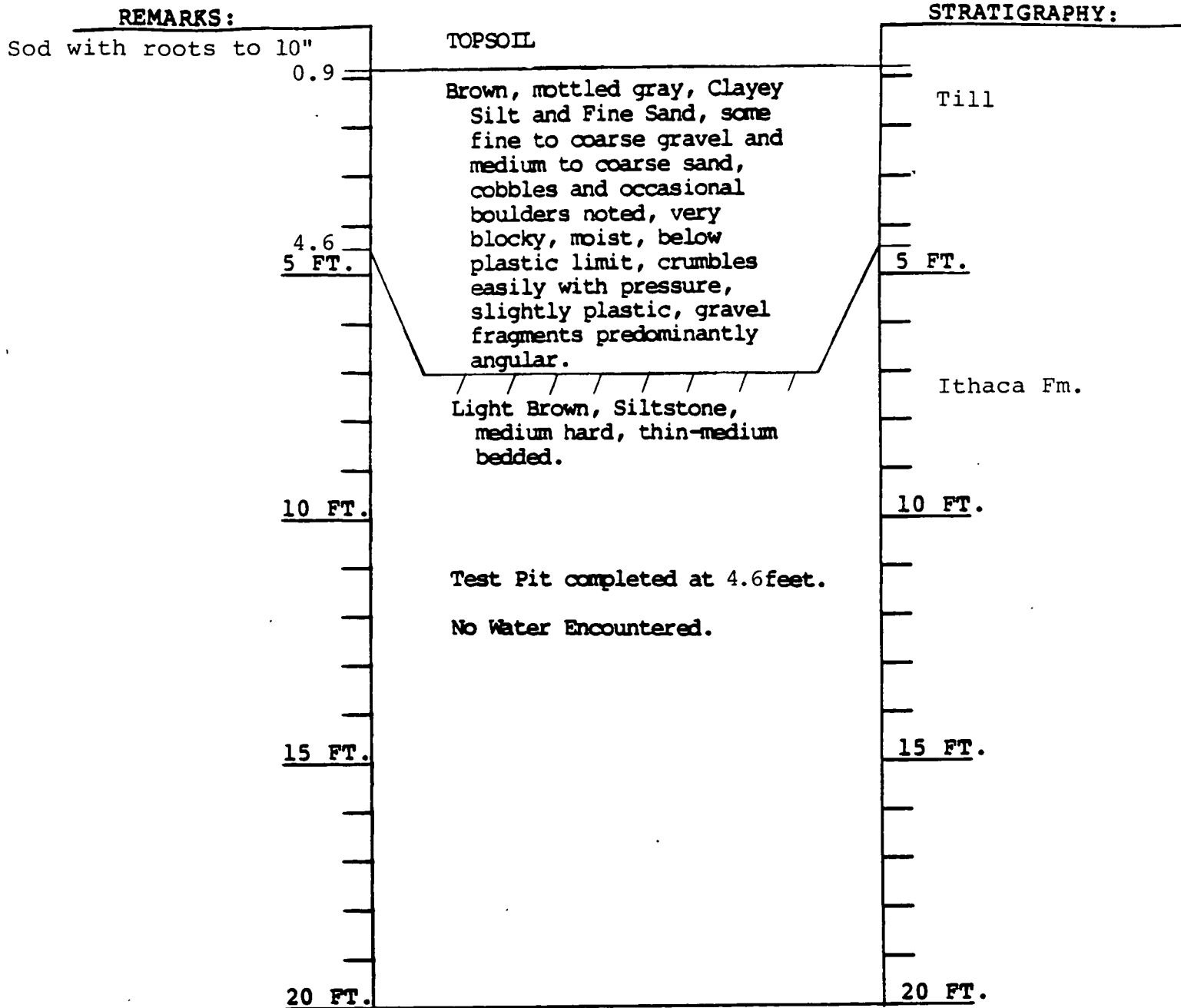
TEST PIT LOG
TEST PIT NO. TP-27



SAMPLE TYPE	DEPTH	SAMPLE NO.	DESCRIPTION
<u>BULK</u>	<u>3-7'</u>	<u>TP-27</u>	<u>BRN TO BRN-GRAY</u>
<u> </u>	<u> </u>	<u> </u>	<u> </u>
<u> </u>	<u> </u>	<u> </u>	<u> </u>

PROJECT: <u>Cortland Co. Landfill Ext.</u>	JOB #: <u>331.02</u>	SHEET <u>1</u> OF <u>1</u>
CLIENT: <u>Cortland County</u>	SITE: <u>Cortland County Landfill</u>	
CONTRACTOR: <u>Beck Construction</u>	EQUIPMENT: <u>Cat 215</u>	
DATE: <u>6/18/88</u>	INSPECTOR: <u>Roy W. Wagner</u>	

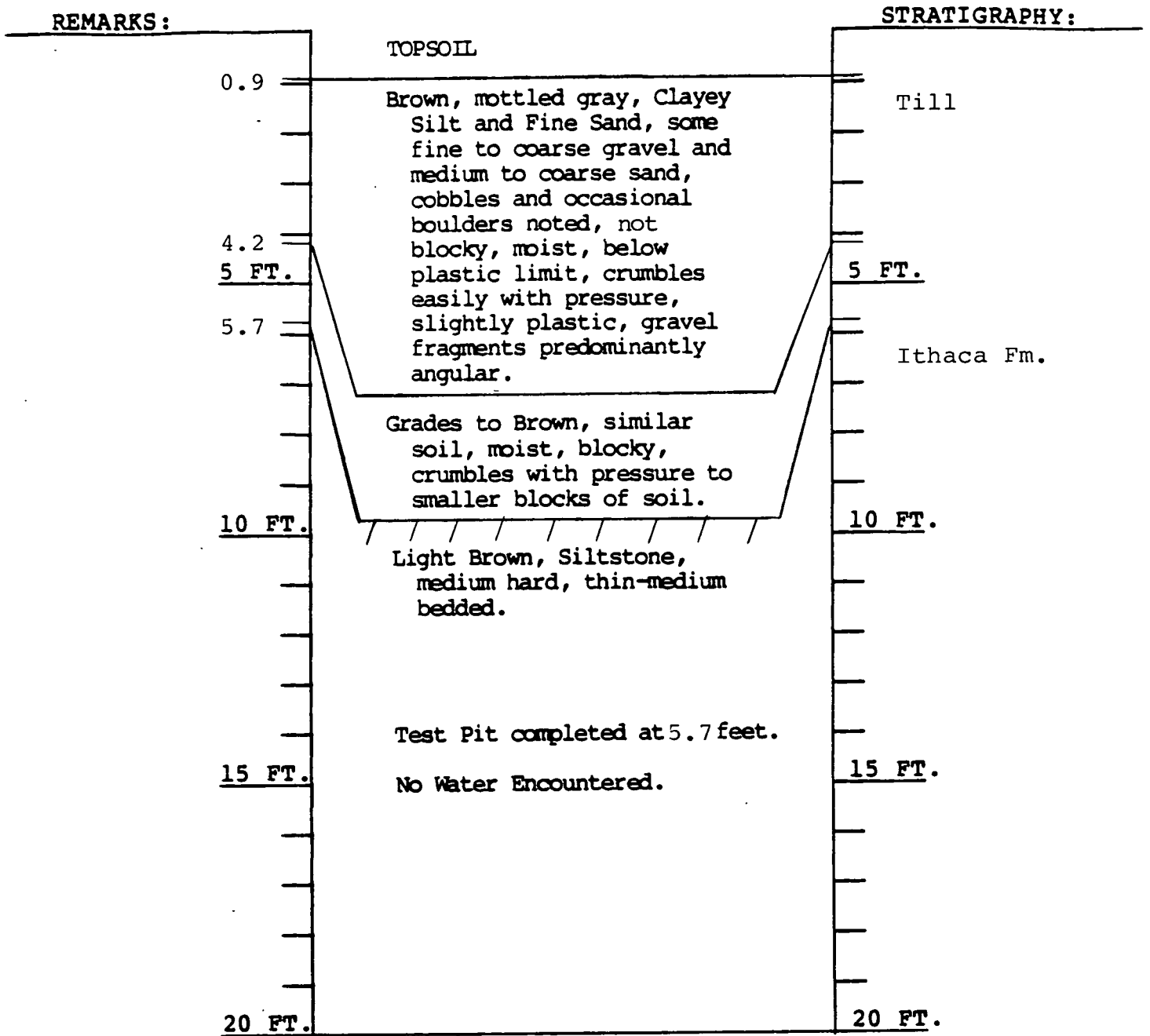
TEST PIT LOG
TEST PIT NO. TP-28



SAMPLE TYPE	DEPTH	SAMPLE NO.	DESCRIPTION
NONE			

PROJECT: Cortland Co. Landfill Ext. JOB #: 331.02 SHEET 1 OF 1
 CLIENT: Cortland Co. SITE: Cortland County Landfill
 CONTRACTOR: Beck Construction EQUIPMENT: Cat 215
 DATE: 6/18/88 INSPECTOR: Roy W. Wagner

TEST PIT LOG
TEST PIT NO. TP-29



SAMPLE TYPE	DEPTH	SAMPLE NO.	DESCRIPTION
NONE			

PROJECT:	<u>Cortland Co. Landfill Ext.</u>	JOB #:	<u>331.02</u>	SHEET	<u>1</u>	OF	<u>1</u>
CLIENT:	<u>Cortland County</u>	SITE:	<u>Cortland Co. Landfill</u>				
CONTRACTOR:	<u>Beck Construction</u>	EQUIPMENT:	<u>Cat 215</u>				
DATE:	<u>6/18/89</u>	INSPECTOR:	<u>Roy W. Wagner</u>				

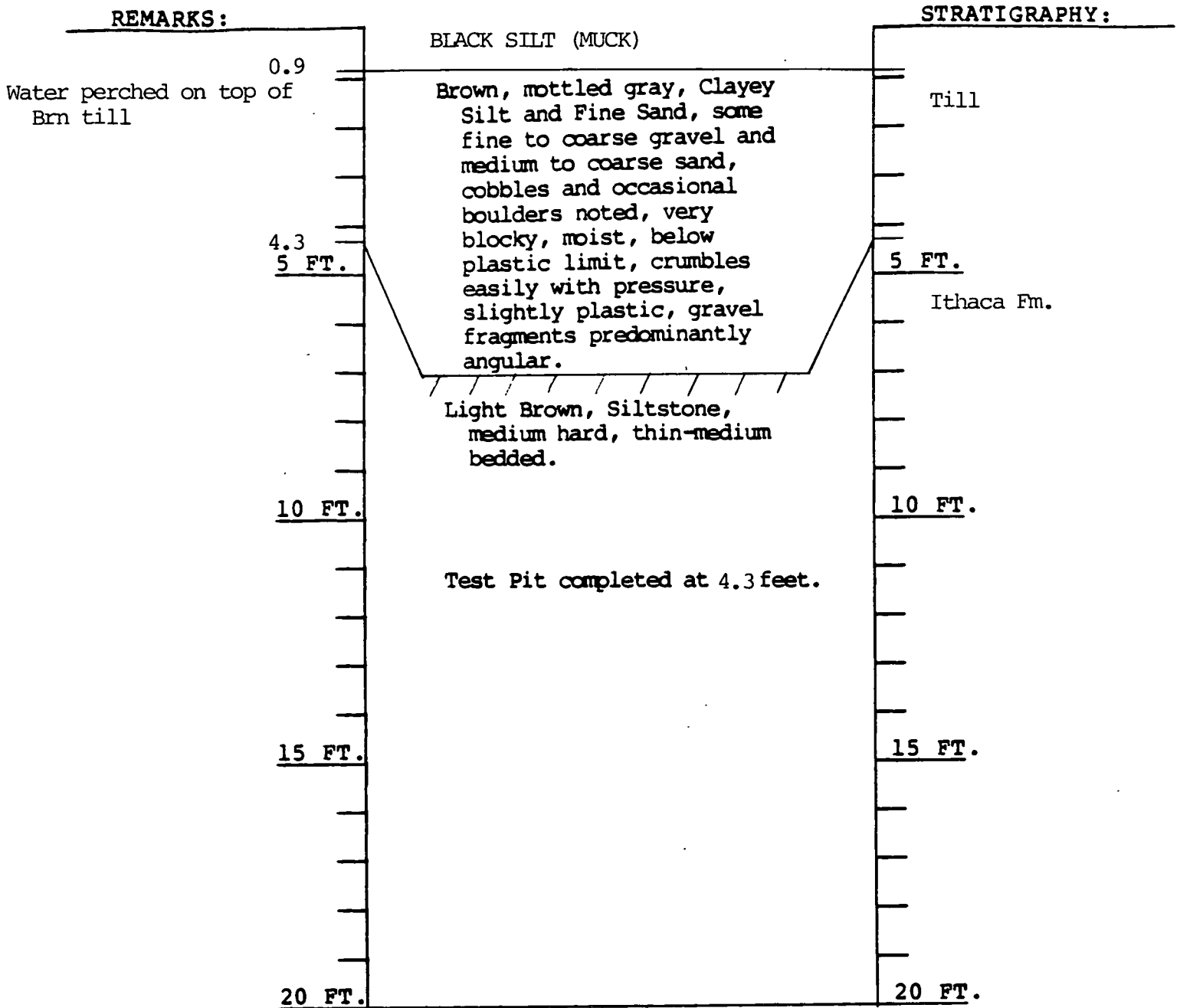
TEST PIT LOG
TEST PIT NO. TP-30

REMARKS:	TOPSOIL	STRATIGRAPHY:
7" sod with roots to 12"		
1.0	Brown, mottled gray, Clayey Silt and Fine Sand, some fine to coarse gravel and medium to coarse sand, cobbles and occasional boulders noted, very blocky, moist, below plastic limit, crumbles easily with pressure, slightly plastic, gravel fragments predominantly angular.	Till
5 FT.		5 FT.
5.3		
8.5	Grades to Brown, similar soil, moist, blocky, crumbles with pressure to smaller blocks of soil.	
10 FT.		10 FT.
12.5	Grades to Brown-gray, similar soil, moist to very moist, more dense, blocky but very tight (breaks through soil as easily as joint).	
15 FT.		15 FT.
	Light Brown, Siltstone, medium hard, thin-medium bedded.	Ithaca Fm.
20 FT.	Test Pit completed at 12.5 feet. No Water Encountered.	20 FT.

SAMPLE TYPE	DEPTH	SAMPLE NO.	DESCRIPTION
BULK	4-12'	TP-30	BRN AND BRN-GRAY

PROJECT: Cortland Co. Landfill Ext. JOB #: 331.02 SHEET 1 OF 1
 CLIENT: Cortland County SITE: Cortland Co. Landfill
 CONTRACTOR: Beck Construction EQUIPMENT: Cat 215
 DATE: 6/18/88 INSPECTOR: Roy W. Wagner

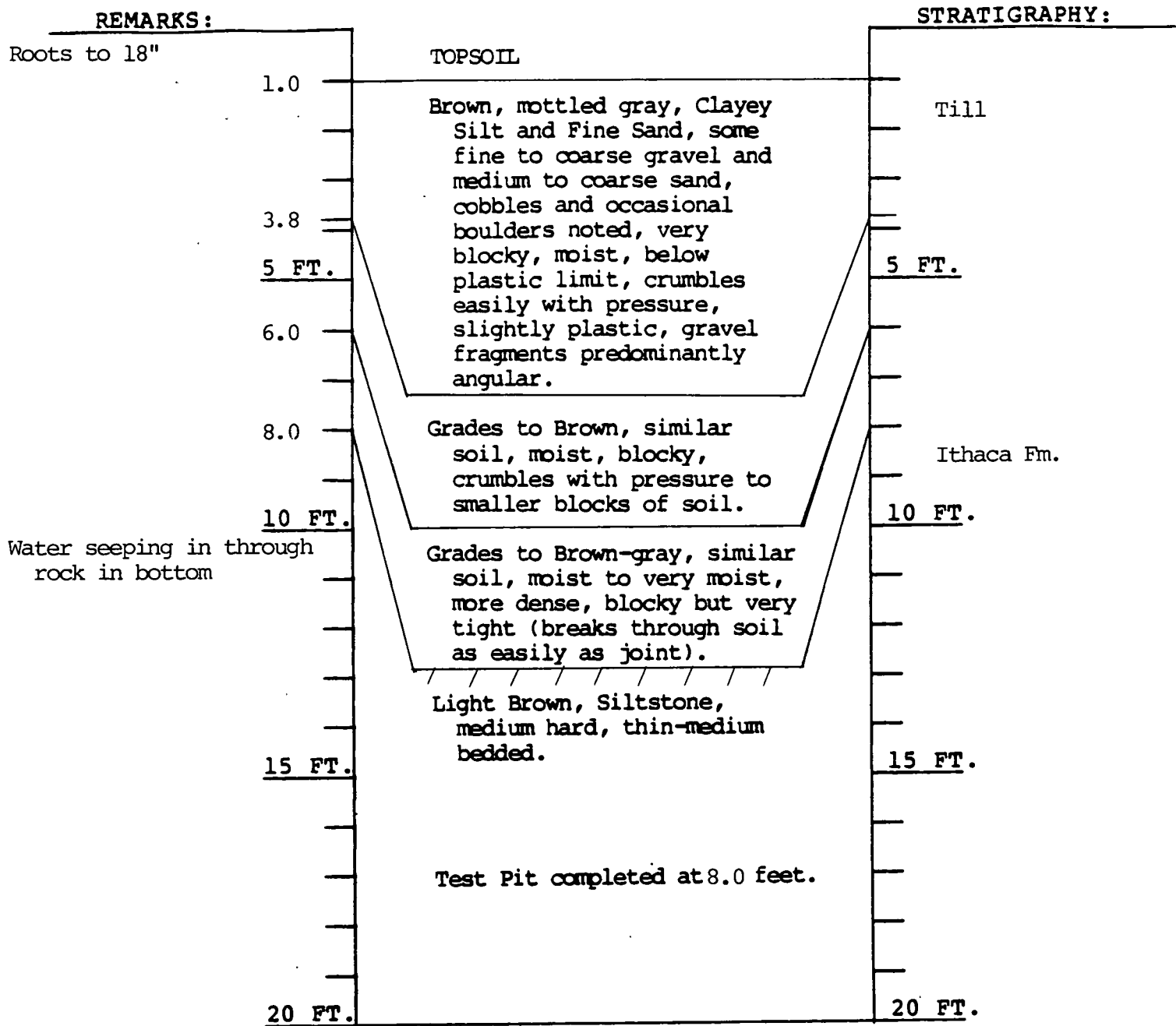
TEST PIT LOG
TEST PIT NO. TP-31



SAMPLE TYPE	DEPTH	SAMPLE NO.	DESCRIPTION
<u>NONE</u>	<u> </u>	<u> </u>	<u> </u>
<u> </u>	<u> </u>	<u> </u>	<u> </u>
<u> </u>	<u> </u>	<u> </u>	<u> </u>

PROJECT: <u>Cortland Co. Lanfill Ext.</u> CLIENT: <u>Cortland County</u> CONTRACTOR: <u>Beck Construction</u> DATE: <u>6/18/88</u>	JOB #: <u>331.02</u> SHEET <u>1</u> OF <u>1</u> SITE: <u>Cortland County Landfill</u> EQUIPMENT: <u>Cat 215</u> INSPECTOR: <u>Roy W. Wagner</u>
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TEST PIT LOG
TEST PIT NO. TP-32



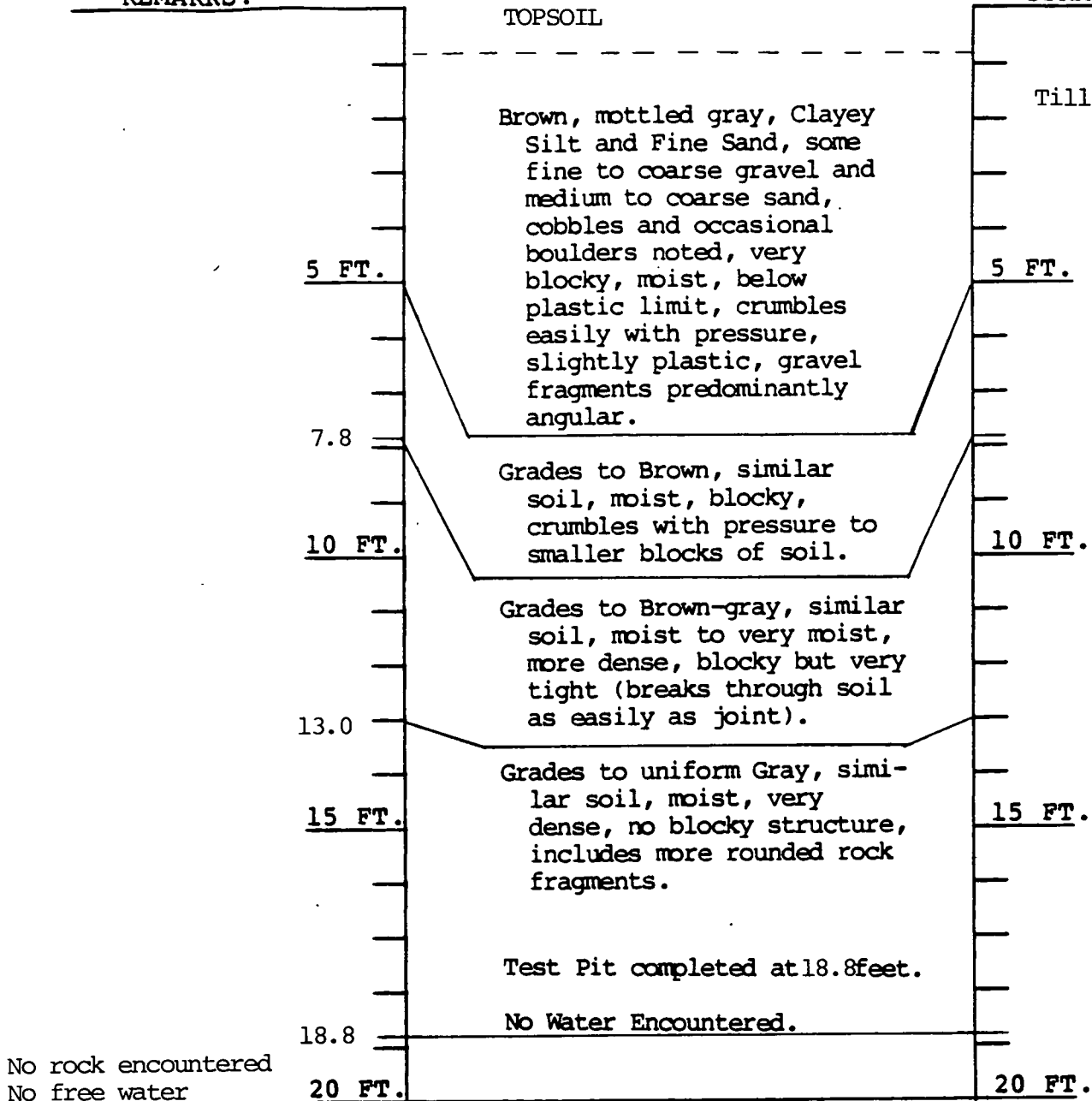
SAMPLE TYPE	DEPTH	SAMPLE NO.	DESCRIPTION
NONE			

PROJECT:	<u>Cortland Co. Landfill Ext.</u>	JOB #:	<u>331.02</u>	SHEET	<u>1</u>	OF	<u>1</u>
CLIENT:	<u>Cortland County</u>	SITE:	<u>Cortland County Landfill</u>				
CONTRACTOR:	<u>Beck Construction</u>	EQUIPMENT:	<u>Cat 215</u>				
DATE:	<u>6/20/88</u>	INSPECTOR:	<u>Roy W. Wagner</u>				

TEST PIT LOG
TEST PIT NO. TP-33

REMARKS:

STRATIGRAPHY:



SAMPLE TYPE	DEPTH	SAMPLE NO.	DESCRIPTION
<u>BULK</u>	<u>8'-13'</u>	<u>TP-33</u>	<u>BRN-GRAY</u>
<u>BULK</u>	<u>13'-18'</u>	<u>TP-33</u>	<u>GRAY-SILT</u>

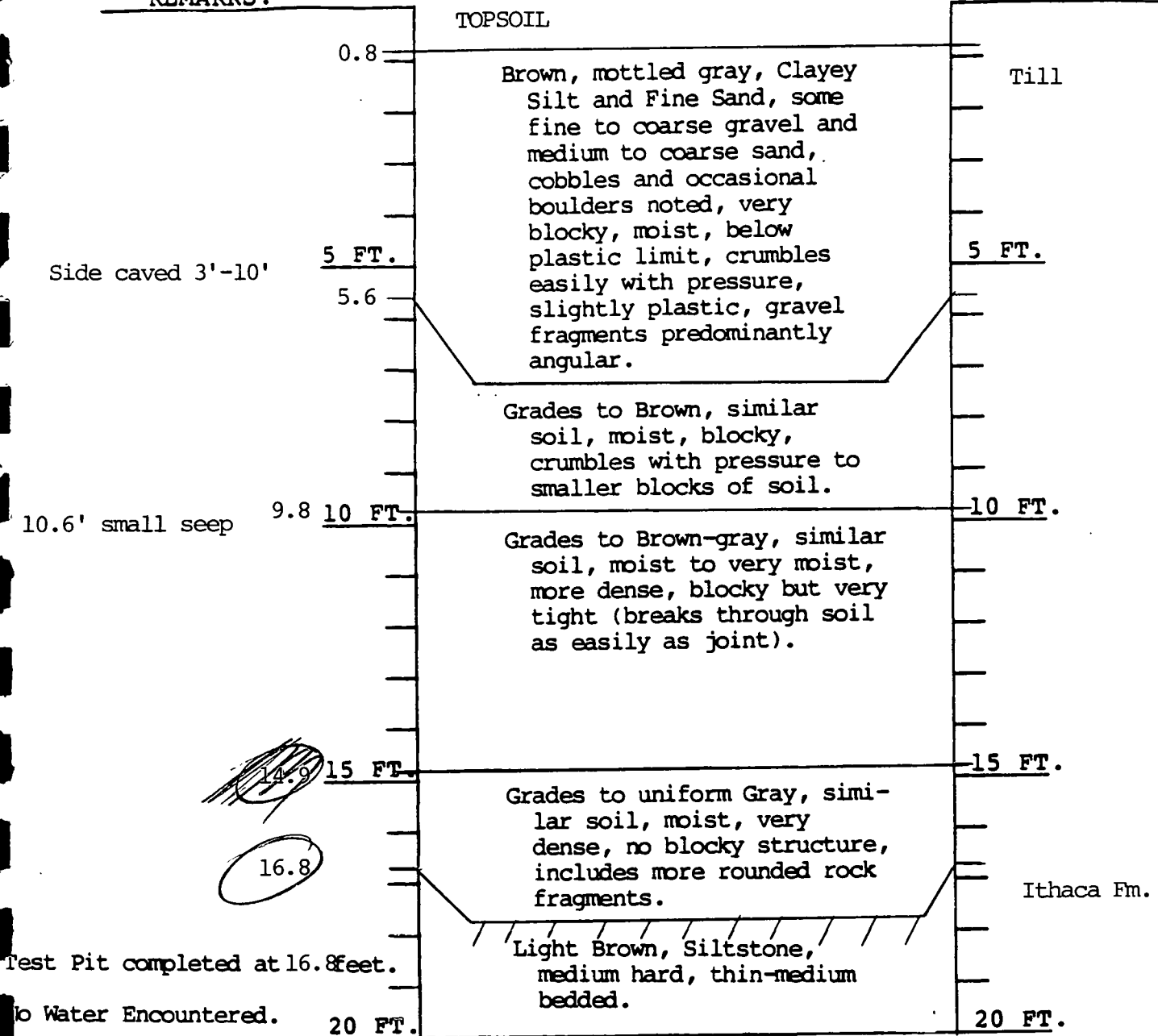
PROJECT: Cortland Co. Landfill Ext.
CLIENT: Cortland County
CONTRACTOR: Beck Construction
DATE: 6/20/88

JOB #: 331.02 **SHEET** 1 **OF** 1
SITE: Cortland County Landfill
EQUIPMENT: Cat 215
INSPECTOR: Roy W. Wagner

TEST PIT LOG
TEST PIT NO. TP-34

REMARKS:

STRATIGRAPHY:

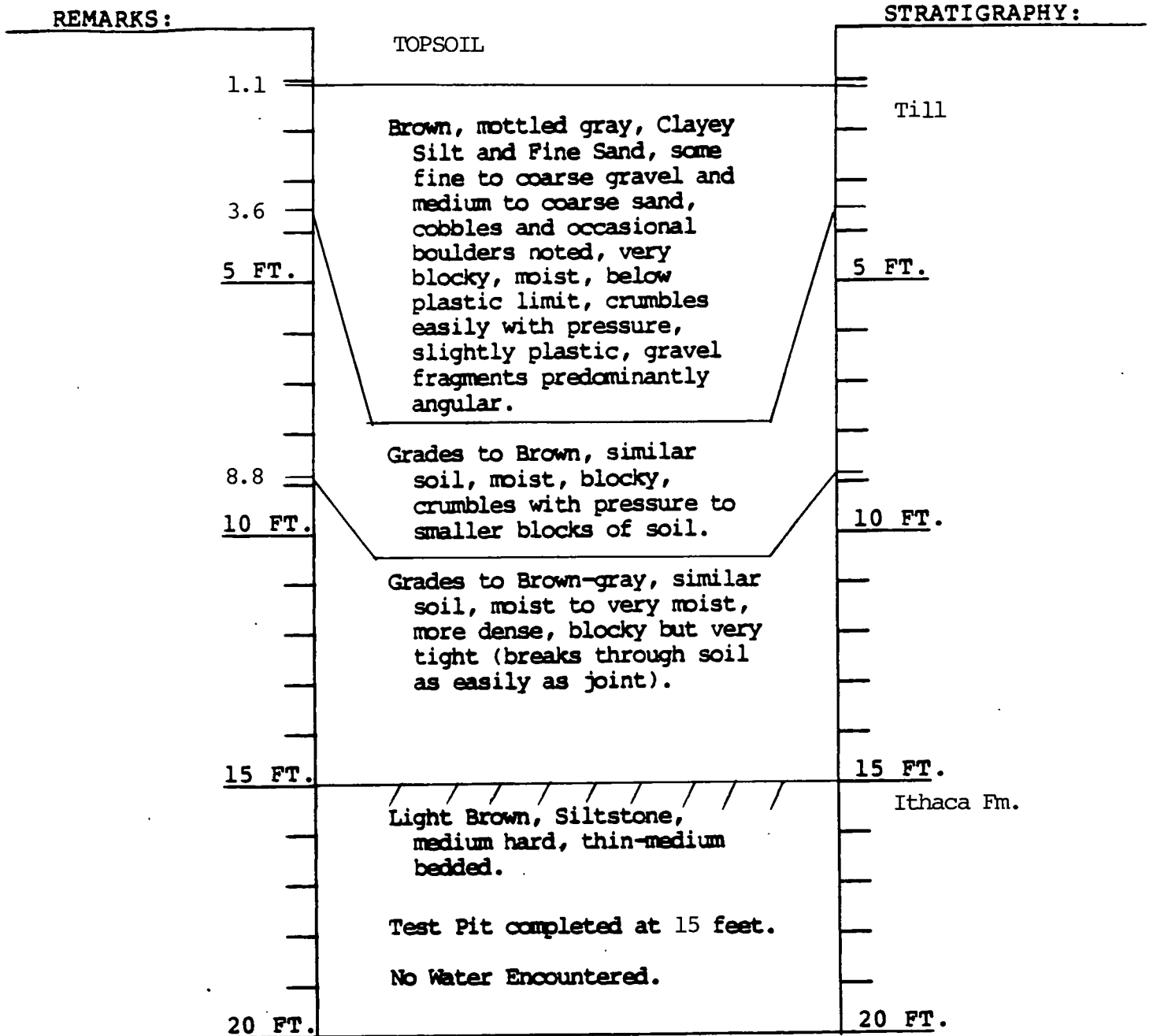


SAMPLE TYPE	DEPTH	SAMPLE NO.	DESCRIPTION
BULK	3'-6'	TP-34	BRN, MOTTLED GRAY

PROJECT: Cortland Co. Landfill Ext.
 CLIENT: Cortland County
 CONTRACTOR: Beck Construction
 DATE: 6/20/88

JOB #: 331.02 SHEET 1 OF 1
 SITE: Cortland County Landfill
 EQUIPMENT: Cat 215
 INSPECTOR: Roy W. Wagner

TEST PIT LOG
TEST PIT NO. TP-35

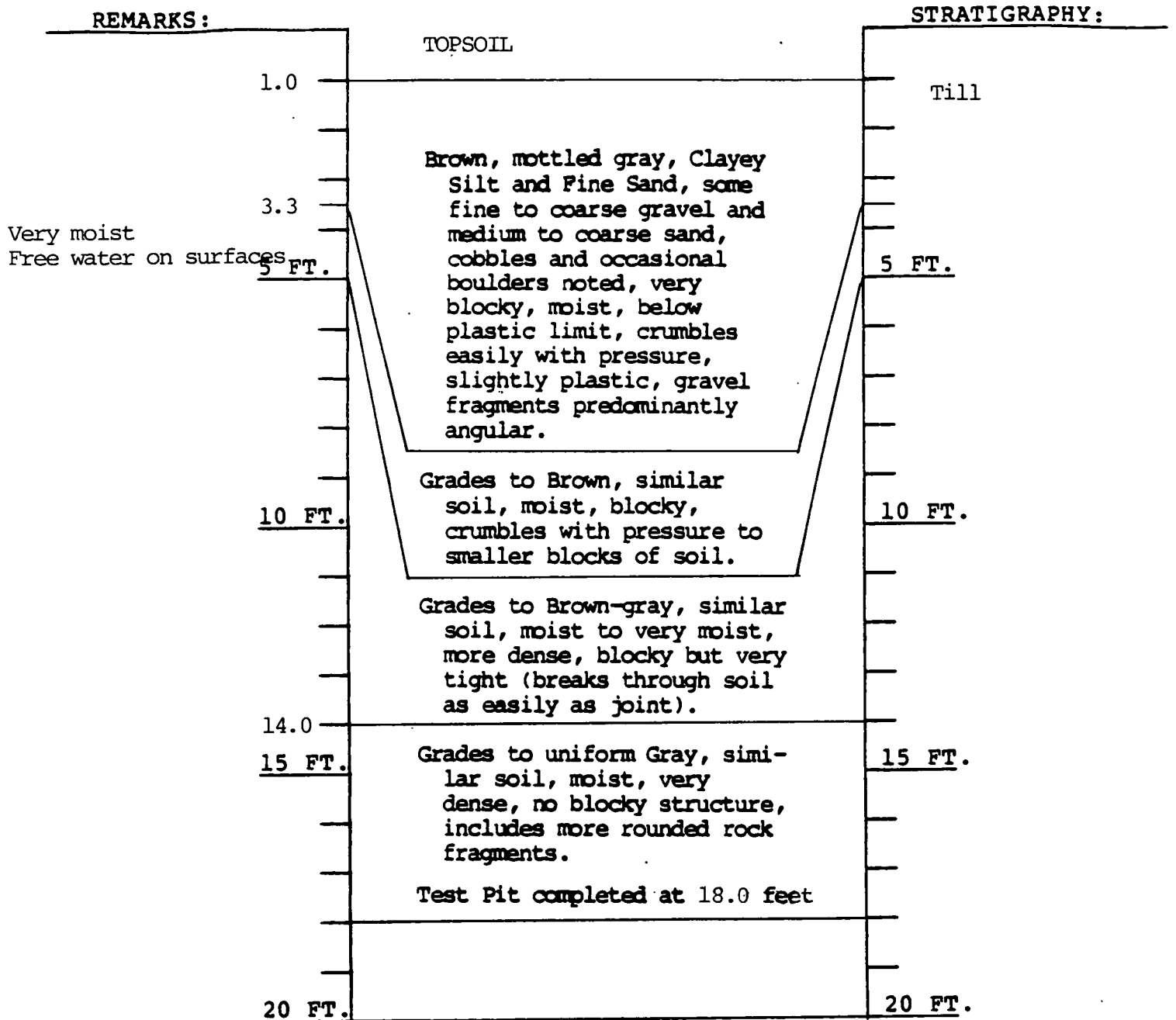


SAMPLE TYPE	DEPTH	SAMPLE NO.	DESCRIPTION
<u>BULK</u>	<u>9'-12'</u>	<u>TP-35</u>	<u>BRN-GRAY</u>
<u> </u>	<u> </u>	<u> </u>	<u> </u>
<u> </u>	<u> </u>	<u> </u>	<u> </u>

PROJECT: Cortland Co. Landfill Ext.
 CLIENT: Cortland County
 CONTRACTOR: Beck Construction
 DATE: 6/20/88

JOB #: 331.02 SHEET 1 OF 1
 SITE: Cortland Co. Landfill
 EQUIPMENT: Cat 215
 INSPECTOR: Roy W. Wagner

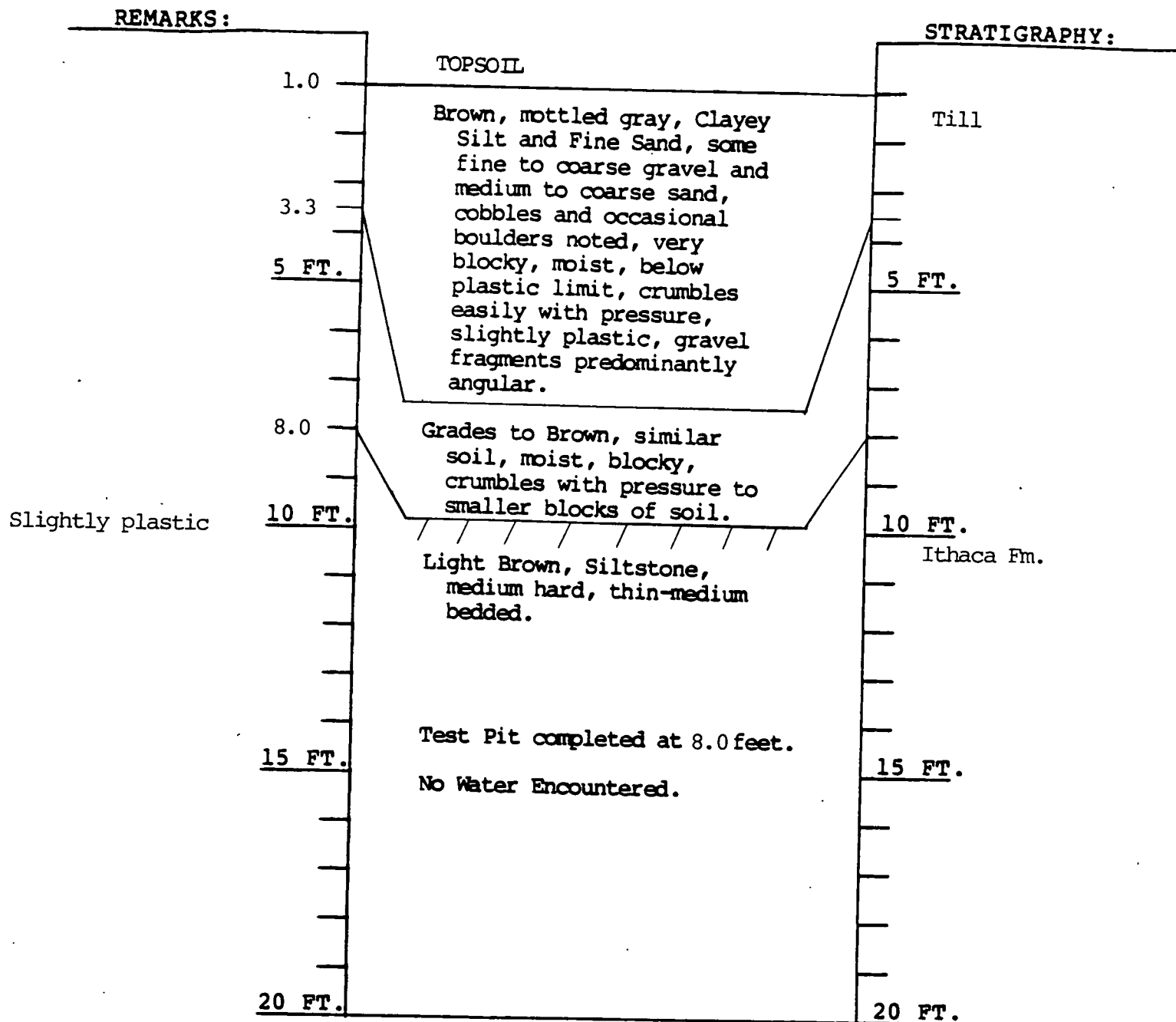
TEST PIT LOG
TEST PIT NO. TP-36



SAMPLE TYPE	DEPTH	SAMPLE NO.	DESCRIPTION
<u>BULK</u>	<u>5'-8'</u>	<u>TP-36</u>	<u>GRAY-BRN</u>

PROJECT: <u>Cortland Co. Landfill Ext.</u> CLIENT: <u>Cortland County</u> CONTRACTOR: <u>Beck Construction</u> DATE: <u>6/20/88</u>	JOB #: <u>331.02</u> SHEET <u>1</u> OF <u>1</u> SITE: <u>Cortland Co. Landfill</u> EQUIPMENT: <u>Cat 215</u> INSPECTOR: <u>Roy W. Wagner</u>
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TEST PIT LOG
TEST PIT NO. TP-37

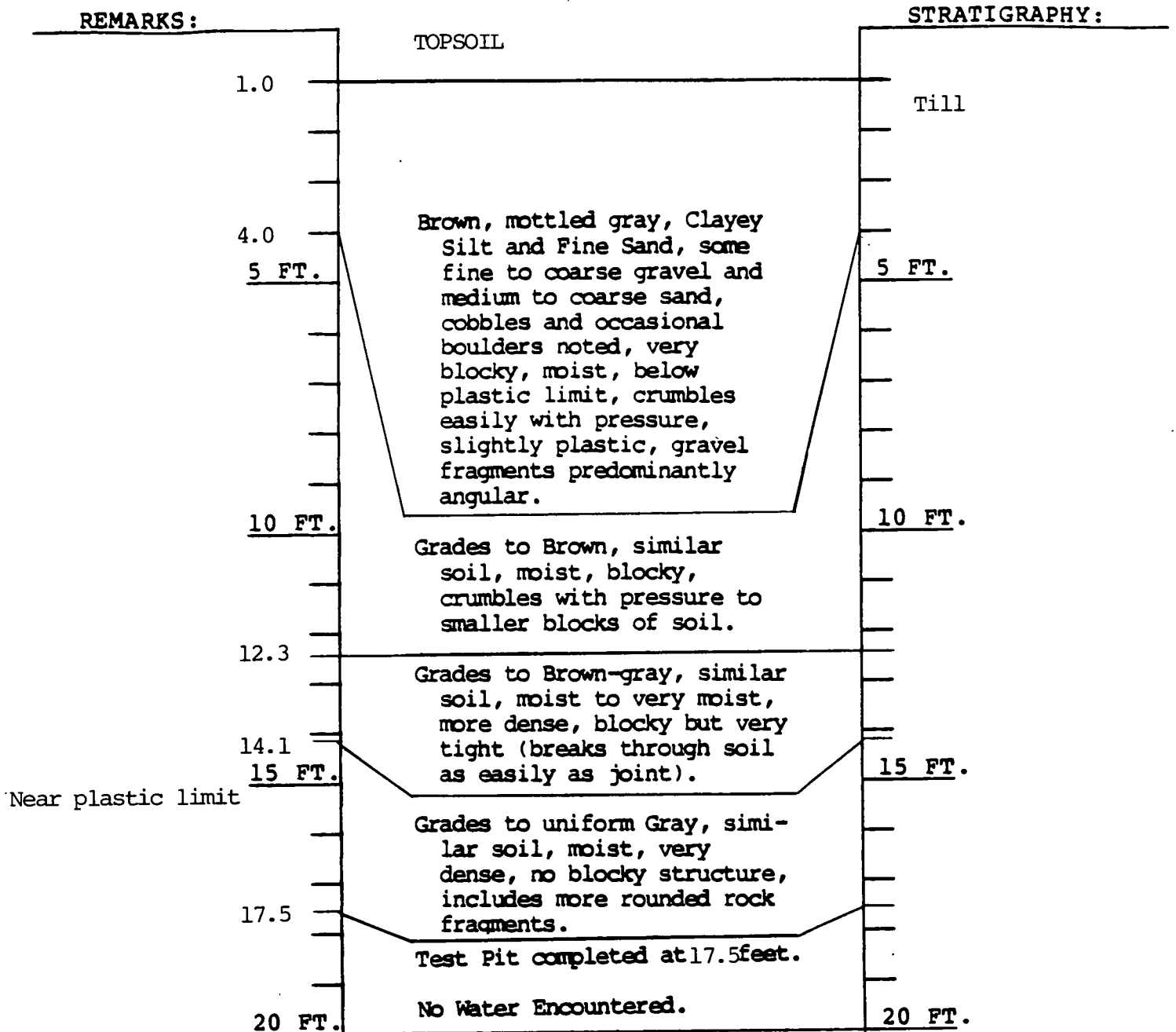


SAMPLE TYPE	DEPTH	SAMPLE NO.	DESCRIPTION
<u>BULK</u>	<u>3'-8'</u>	<u>TP-37</u>	<u>BROWN</u>
<u> </u>	<u> </u>	<u> </u>	<u> </u>
<u> </u>	<u> </u>	<u> </u>	<u> </u>

PROJECT: Cortland Co. Landfill Ext.
 CLIENT: Cortland County
 CONTRACTOR: Beck Construction
 DATE: 6/20/88

JOB #: 331.02 SHEET 1 OF 1
 SITE: Cortland Co. Landfill
 EQUIPMENT: Cat 215
 INSPECTOR: Roy W. Wagner

TEST PIT LOG
TEST PIT NO. TP-38



SAMPLE TYPE	DEPTH	SAMPLE NO.	DESCRIPTION
<u>BULK</u>	<u>2'-5'</u>	<u>TP-38</u>	<u>BRN, MOTTLED GRAY AND BRN</u>
<u>BULK</u>	<u>14'-16'</u>	<u>TP-38</u>	<u>GRAY-SILT</u>

PROJECT: <u>Cortland Co. Landfill Ext.</u>	JOB #: <u>331.02</u> SHEET <u>1</u> OF <u>1</u>
CLIENT: <u>Cortland County</u>	SITE: <u>Cortland County Landfill</u>
CONTRACTOR: <u>Beck Construction</u>	EQUIPMENT: <u>Cat 215</u>
DATE: <u>6/20/88</u>	INSPECTOR: <u>Roy W. Wagner</u>

TEST PIT LOGS

JULY 1984

EMPIRE SOILS INVESTIGATIONS

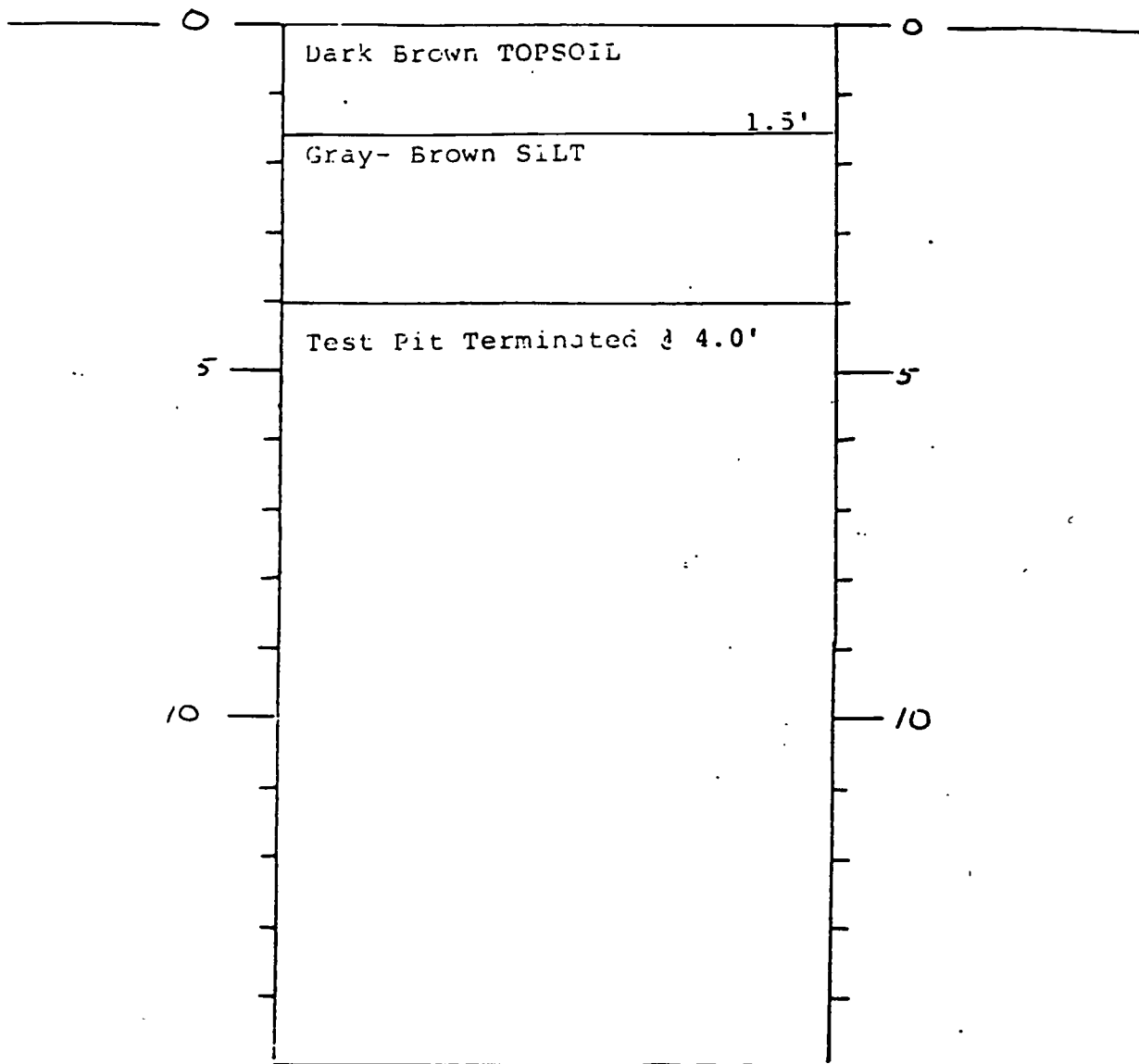
THOMSEN ASSOCIATES

CONSULTING GEOTECHNICAL ENGINEERS & GEOLOGISTS

SUBJECT Cortland County Landfill PROJECT NUMBER GTA-84-50
 BY MR-L DATE 7/9/84 CHECKED BY _____ DATE _____ SHEET NUMBER _____ OF _____

TEST PIT LOG

TEST PIT TP-84-1



PROJECT NAME: Cortland Co. Landfill
 LOCATION: Solcn, N.Y.
 LOGGED BY: MR-L

NOTES: Sample taken from 3.5'
to 4.0'
Moisture Content = 11.8%

THOMSEN ASSOCIATES

CONSULTING GEOTECHNICAL ENGINEERS & GEOLOGISTS

SUBJECT Cortland County Landfill

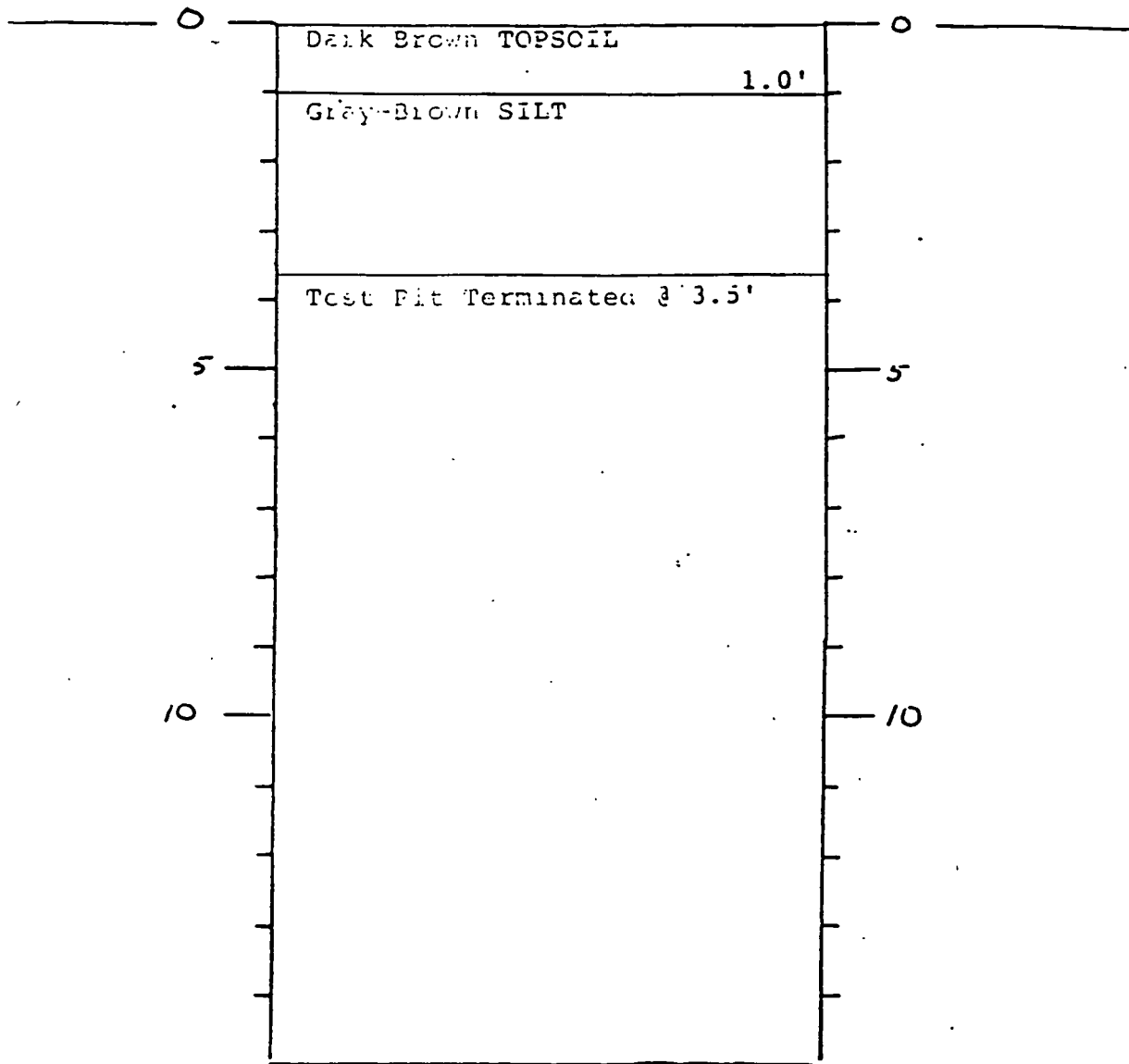
PROJECT NUMBER GTA-84-50

BY MR-L DATE 7/9/84 CHECKED BY _____ DATE _____

SHEET NUMBER _____ OF _____

TEST PIT LOG

TEST PIT TP-84-2



PROJECT NAME: Cortland Co. Landfill

LOCATION: Solon, N.W.

LOGGED BY: MR-L

NOTES: Sample taken from 3.0'
to 3.5'

Moisture Content = 12.3%

THOMSEN ASSOCIATES

CONSULTING GEOTECHNICAL ENGINEERS & GEOLOGISTS

SUBJECT Cortland County Landfill

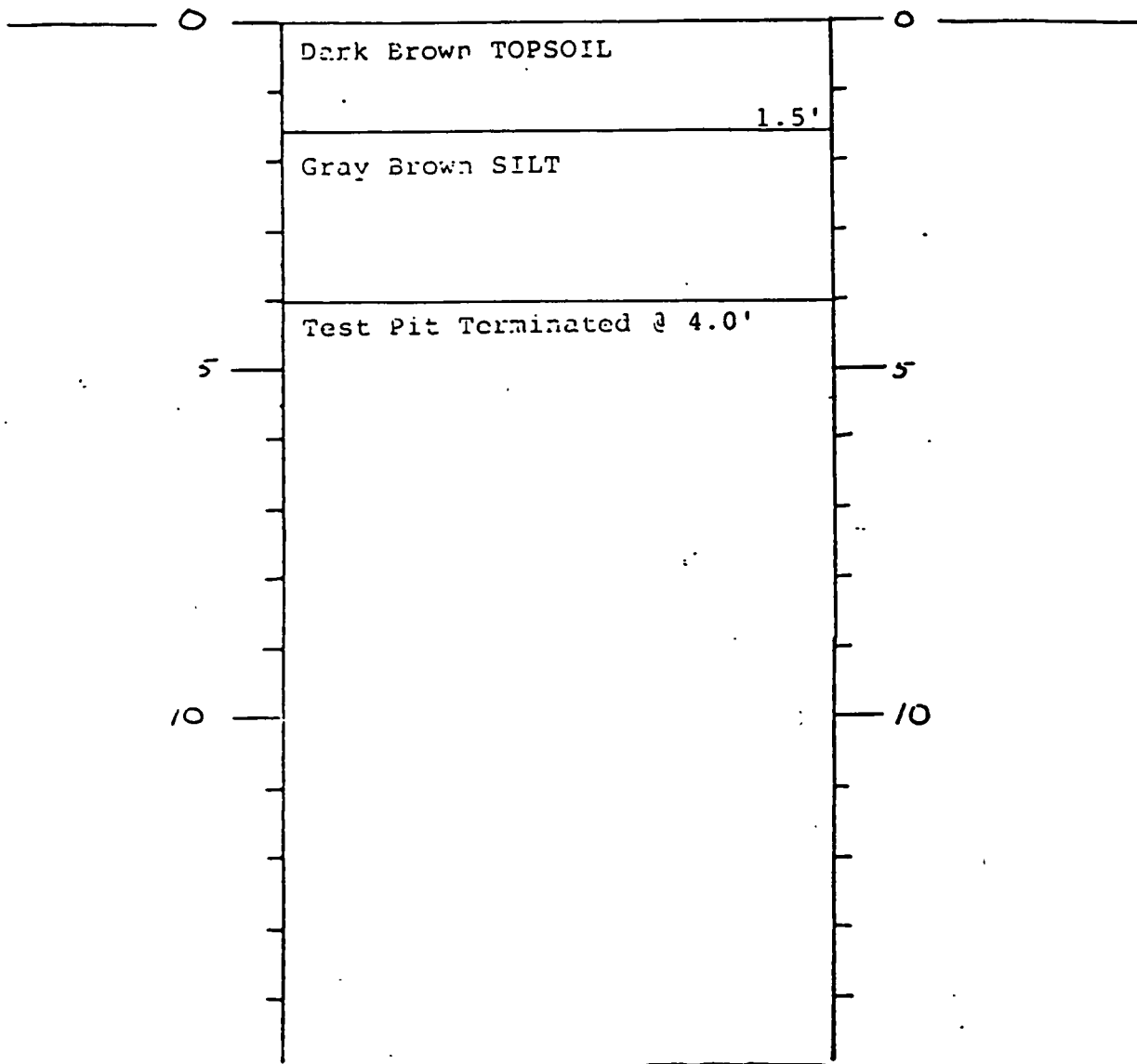
PROJECT NUMBER GTA-84-50

BY MR-L DATE 7/9/84 CHECKED BY

DATE SHEET NUMBER OF

TEST PIT LOG

TEST PIT TP-84-3



PROJECT NAME: Cortland Co. Landfill

LOCATION: Solon, N.Y.

LOGGED BY: MR-L

NOTES: Sample taken from 3.5'
to 4.0'

Moisture Content - 12.4%

SUBJECT Cortland County Landfill

PROJECT NUMBER 84-GTA-84-50

BY MR-L

DATE 7/9/84

CHECKED BY

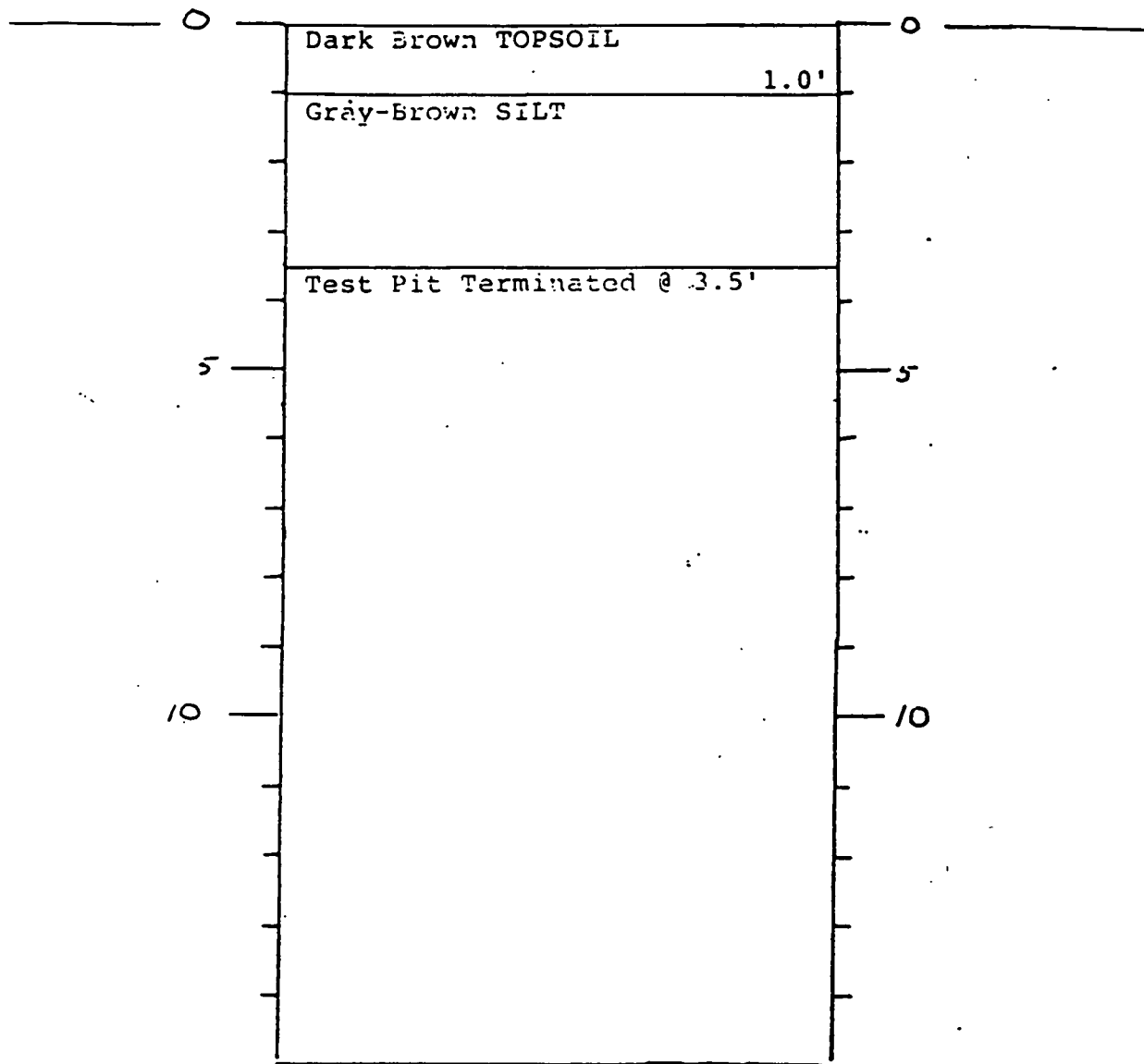
DATE

SHEET NUMBER

OF

TEST PIT LOG

TEST PIT TP-84-4



PROJECT NAME Cortland Co. Landfill

LOCATION: Solon, N.Y.

LOGGED BY: MR-L

NOTES: Sample taken from 3.0' to 3.5'

Moisture Content = 17.9%

THOMSEN ASSOCIATES

CONSULTING GEOTECHNICAL ENGINEERS & GEOLOGISTS

SUBJECT Cortland County Landfill

PROJECT NUMBER GTA-84-50

BY MR-L

DATE

7/9/84

CHECKED BY

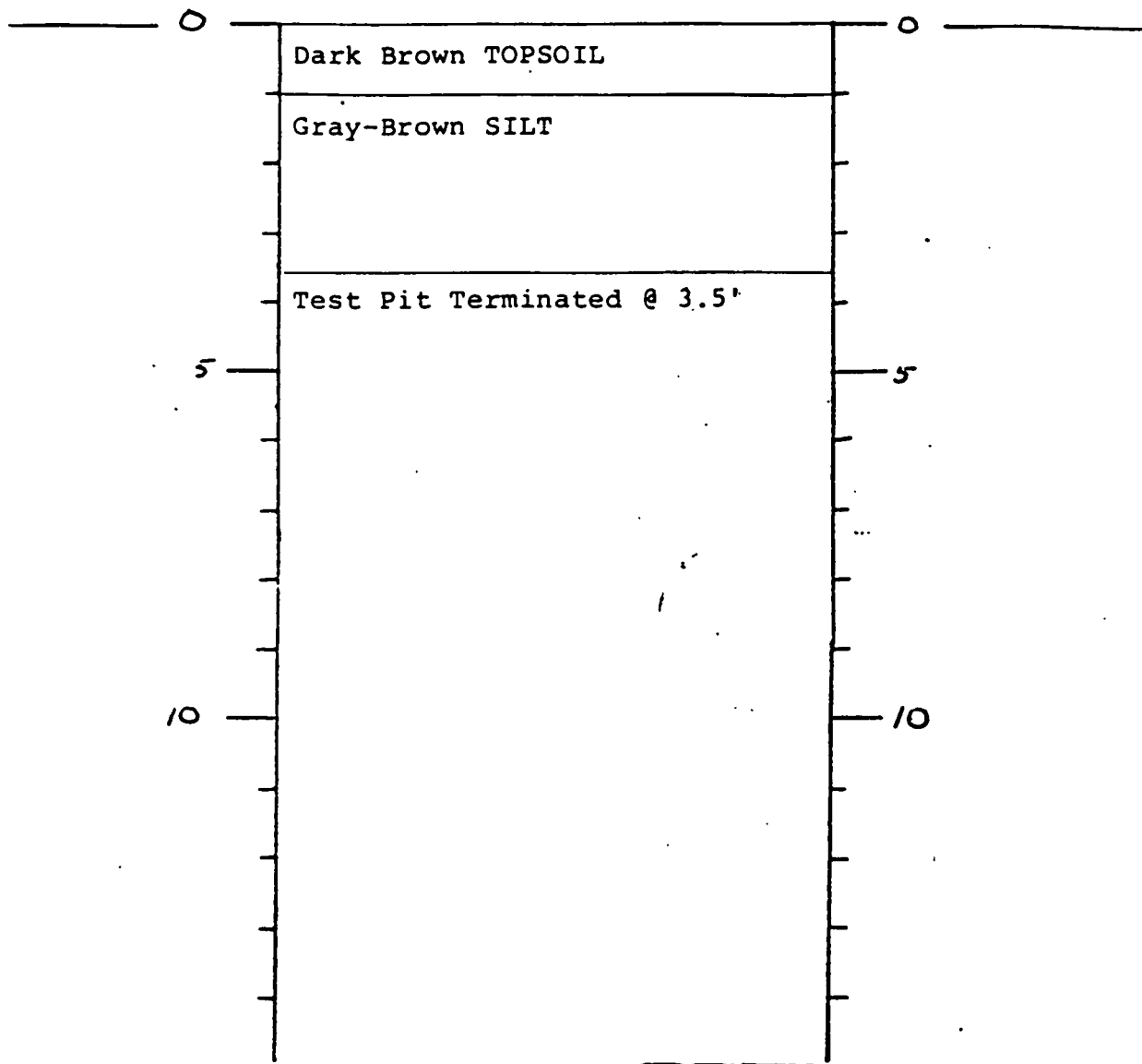
DATE

SHEET NUMBER

OF

TEST PIT LOG

TEST PIT TP-84-5



PROJECT NAME: Cortland Co. Landfill

NOTES: Sample taken from 3.0'

LOCATION: Solon, New York

to 3.5'

Moisture Content = 11.8%

LOGGED BY: MR-L

BORING LOGS
SEPTEMBER 1988
BARTON & LOGUIDICE, P.C.

**CORTLAND COUNTY LANDFILL -
WEST SIDE EXTENSION**

**Prepared For
Barton & Loguidice, P.C.
Syracuse, New York**

**Prepared By
North Star Drilling Company
Cortland, New York**

**Report No. NSD-8835
September 1988**

- SUBSURFACE LOGS -

Boring No. MW-11A
Project No. NSD-8835
Sheet 1 of 1
Date Started 8/23/88
Date Completed 8/25/88
Driller Harry Lyon

SUBSURFACE LOG

Boring Location Established & Recorded by Client

Surface Elevation Recorded by Client

Ground Water Observations

Date	Time	Casing at	Hole at	Water at
8/24	1800	29.3'	43.0'	1.0'
8/25	0730	29.3'	43.0'	2.0'
8/30	1430	Well at	43.0'	6.6'
9/2	1600	Well at	43.0'	4.8'
9/16	1230	Well at	43.0'	5.0'

Telephone: 607-756-8820

NORTH STAR DRILLING CO.

SUBSURFACE LOG

Boring No. MW-11B
Project No. NSD-8835
Sheet 1 of 1
Date Started 9/2/88
Date Completed 9/2/88
Driller Harry Lyon

SUBSURFACE LOG

Boring Location Established & Recorded by Client

Surface Elevation Recorded by Client

Ground Water Observations

Date	Time	Casing at	Hole at	Water at
9/2	1100	Well at	25.0'	Dry
9/2	1600	Well at	25.0'	24.5'
9/16	1235	Well at	25.0'	8.5'

[illegible]

MATERIAL DESCRIPTION

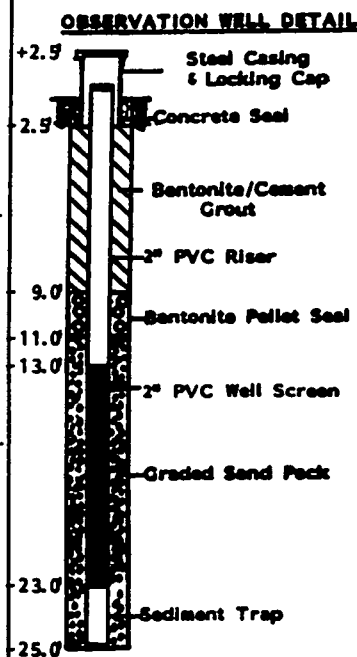
REMARKS

Depth of Change

Drilled without Sampling to 15.0'

Wet, Gray, SILT And CLAY, With Embedded Coarse to Fine SAND And GRAVEL, With Scattered Cobbles And Boulders (Glacial Till)

Boring Terminated at 25.0'



"NOT TO SCALE"

Note: Obtained bulk sample of auger cuttings from 15' to 25' for laboratory testing.

Client Barton & Loquidice, P.C.
Syracuse, New York
 Project Cortland County Landfill
West Side Extension
 Location Town of Solon
Cortland County, N.Y.



Boring No. MW-12A
 Project No. NSD-8835
 Sheet 1 of 2
 Date Started 8/26/88
 Date Completed 8/31/88
 Driller Harry Lyon

SUBSURFACE LOG

Method of Investigation
 Drill Rig CME-55
 Casing HW (4" Ø) Flush Joint Casing
 Casing Hammer: Wt. _____ lb. Fall _____ in.
 Soil Sampler 2" O.D. Split Spoon
 Sample Hammer: Wt. 140 lb. Fall 30 in.
 Rock Sampler NWD4 Double Tube Core Barrel
 Other: 3-7/8" Tricone Roller Bit

Boring Location Established & Recorded by Client

Surface Elevation Recorded by Client

Ground Water Observations				
Date	Time	Casing at	Hole at	Water at
8/30	0815	27.0'	27.0'	9.3'
8/31	0730	37.0'	78.0'	4.4'
9/1	0730	Well at	78.0'	7.4'
9/2	1630	Well at	78.0'	19.2'
9/16	1200	Well at	78.0'	7.7'

Depth	Sample Number	Sample Depth		Sample Type	SOIL Blows on Sampler					N
					0' / 0.5'	0.5' / 1.0'	1.0' / 1.5'	1.5' / 2.0'		
		From (Ft)	To (Ft)		ROCK Recovery		RQD			
					Ft.	%				
5	1	0.0	2.0	s	4	9	8	7	17	
	2	2.0	4.0	s	10	12	12	14	24	
	3	4.0	6.0	s	6	7	7	6	14	
	4	6.0	8.0	s	5	8	7	23	15	
	5	8.0	10.0	s	15	13	15	10	28	
10	6	10.0	12.0	s	16	12	12	13	24	
	7	12.0	13.5	s	10	12	23	10 / .0'	35	
15										
20	8	16.0	18.0	s	22	38	22	24	60	
	9	18.0	20.0	s	18	25	36	22	61	
	10	20.5	22.0	s	17	20	25		45	
	11	22.0	24.0	s	23	33	40	28	73	
25	12	24.0	26.0	s	27	25	32	35	57	
30	13	26.0	28.0	s	11	17	28	22	45	
	14	28.0	30.0	s	32	35	45	42	80	
	15	30.0	32.0	s	15	18	15	20	33	
	16	32.0	34.0	s	20	23	24	28	47	
35	17	34.0	36.0	s	15	50	47	45	97	
40	18	36.0	38.0	s	20	27	29	34	56	
	19	38.0	40.0	s	31	27	19	24	46	
	20	40.0	42.0	s	11	20	28	45	48	
	21	42.0	42.4	s	50 / .4'				-	
45	22	44.0	46.0	s	17	20	24	28	44	
50	23	46.0	47.7	s	37	37	42	50 / .2'	79	
	24	48.0	48.1	s	10 / .1'				-	

MATERIAL DESCRIPTION

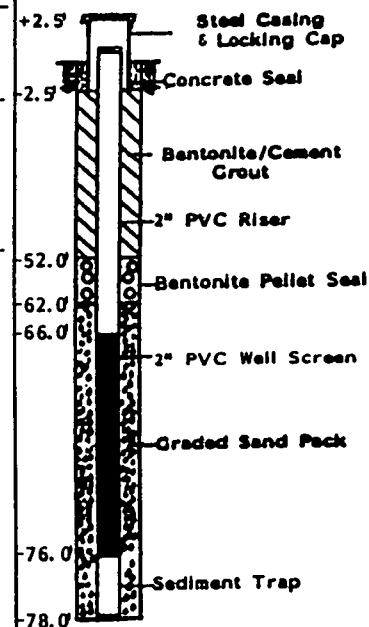
Depth of Change

Damp, Brown, SILT And Medium to Fine SAND, Little CLAY, Trace Wood, Roots and Fibers (Reworked Soil)
 Similar - Moist, Gray/Brown
 7.5'
 Moist, Brown, SILT And CLAY, With Embedded Coarse to Fine SAND And GRAVEL, With Scattered Cobbles And Boulders (Glacial Till)
 Similar - Wet
 8.0'
 18.0'
 Similar - Gray
 Similar - With Fine Sand Lense (Approx. 1/16") Noted at 29'±

REMARKS

Note: Injected potable water for drilling & well installation operations - initial ground water observations may not represent a static condition.

OBSERVATION WELL DETAIL



NOT TO SCALE

Note: Substituted bentonite slurry for bentonite pellets, and "Volclay" grout for bentonite/cement grout in this well installation.

Note: Developed well by pumping and surging on 9/1/88.

Client Barton & Loquidice, P.C.
Syracuse, New York
Project Cortland County Landfill
West Side Extension
Location Town of Solon
Cortland County, N.Y.



Boring No. MW-12A
Project No. NSD-8835
Sheet 2 of 2
Date Started 8/26/88
Date Completed 8/31/88
Driller Harry Lyon

Method of Investigation

Drill Rig _____
Casing _____
Casing Hammer: Wt. _____ lb. Fall _____ in.
Soil Sampler _____
Sample Hammer: Wt. _____ lb. Fall _____ in.
Rock Sampler _____
Other: _____

Boring Location _____

Surface Elevation _____

Ground Water Observations

Date _____ Time _____ Casing at _____ Hole at _____ Water at _____

Depth	Sample Number	Sample Depth		Sample Type	SOIL Blows on Sampler					N	MATERIAL DESCRIPTION	REMARKS
					0' / 0.5'	0.5' / 1.0'	1.0' / 1.5'	1.5' / 2.0'				
		From (Ft)	To (Ft)		ROCK Recovery		RQD					
					Ft.	%						
	25	50.0	52.0	s	20	36	42	46	78	Wet, Gray, SILT And CLAY, With Embedded Coarse to Fine SAND And GRAVEL, With Scattered Cobbles And Boulders (Glacial Till)	Note: No recovery - samples 5-7, 12, 24 & 30. Note: Rotary drilled without casing from 37' to bottom of boring.	
	26	52.0	53.9	s	20	32	36	50 / .4'	68			
55	27	54.0	56.0	s	18	42	45	50	87			
	28	56.0	58.0	s	25	32	47	47	79			
	29	58.0	60.0	s	28	35	80	82	115			
60	30	60.0	60.7	s	43	50 / .2'			-			
	31	62.0	64.0	s	20	41	48	40	89			
65	32	64.0	66.0	s	37	43	34	50	77			
	33	66.0	66.8	s	22	50 / .3'			-			
	R1	68.0	78.0	c		10.0'	100%		45%			
70										Gray, Thin Bedded, Interbedded, Calcareous, SHALE And SILTSTONE	Note: Reamed NX (3") core hole to 3-7/8" diameter with tricone roller bit.	
75										Boring Terminated at 78.0'		
80												

Boring No. MW-12B
Project No. NSD-8835
Sheet 1 of 1
Date Started 9/1/88
Date Completed 9/1/88
Driller Harry Lyon

Date	Time	Casing at	Hole at	Water at
9/2	1630	Well at	35.0'	1.0'
9/16	1205	Well at	35.0'	18.4'

REMARKS	
Note: Injected potable water for drilling & well installation operations - initial ground water observations may not represent a static condition.	
OBSERVATION WELL DETAIL Diagram illustrating the Observation Well Detail. The well is shown with various components and elevations: +2.5: Steel Casing & Locking Cap -2.5: Concrete Seal -18.0: Bentonite/Cement Grout -20.5: 3" PVC Riser -23.0: Bentonite Pellet Seal -33.0: 2" PVC Well Screen -35.0: Graded Sand Pack - Sediment Trap "NOT TO SCALE"	

Telephone: 607-756-8820

SOIL BORING LOGS

AUGUST 1987

JOHN S. MACNEILL, P.C.

(FINAL LOGS)

Boring 87-01A

DEPTH	SAMPLE	%	MOISTURE	COLOR	DESCRIPTION
1	15	10	olive		TOPSOIL
2					silty, fine SAND w/occ. stone fragments
4					
6	2	31	12	brown	silty CLAY w/ embedded gravel (f-n, subangular)
8					
10					
12	3	60/4	8	gray/bn	
14					weathered SHALE Ru 13.5 to 20.5' Rec= 92% RQD= 7%
16					
18					
20					

Boring terminated at 20.5 feet

Note: 1. Drilled with 3 7/8" roller bit from 12.5 to 15.5 feet, cored then reamed to 20.5 feet.

Boring 87-03A

DEPTH	SAMPLE	%	MOISTURE	COLOR	DESCRIPTION
1	9	23	grey		TOPSOIL
2					clayey GRAVEL
4					
6	2	15	12	grey	silty CLAY with embedded gravel (f, rounded)
8					
10					
12	3	35	10	grey	
14					
16	4	50/3	10	grey	clayey GRAVEL
18					
20					weathered SHALE Ru 19 to 24' Rec= 100% RQD= 0%
22					
24					

enclosed

Boring terminated at 24.0 feet

Note: 1. Driller noted soft/wet zone from 13.5 to 14.5'
2. Driller noted mud seams in rock

Boring 87-2A

DEPTH	SAMPLE	%	MOISTURE	COLOR	DESCRIPTION
1	3	28	red/bn		silty SAND
2					
4					
6	2	27	12	lt brn	
8					
10					
12	3	55	9	brown	sample also contains stone fragments
14					
16	4		3	grey	weathered SHALE
18					
20					Ru 18.5 to 23.5' Rec= 92% RQD= 15%
22					

Boring terminated at 23.5 feet

Note: 1. Driller was able to advance augers to 15.0 feet.

CORTLAND COUNTY, N. Y.

LONG TERM LANDFILL
SUBSURFACE LOGS

November 1987 Sheet 1 of 5

Boring 87-4A

DEPTH	SAMPLE #	MOISTURE %	COLOR	DESCRIPTION
2	1	11	olive	TOPSOIL
2	2	24	olive	silty fine SAND
4	3	25	olive	clayey SILT w/gravel (rounded)
6	4	48	olive	
8	5	50/2-5	grey	
10	6	32	grey	silty Clay w/ embedded gravel (F-n, subangular)
12	7	46	grey	
14	8	34	grey	
16	9	38	grey	
18	10	38/4	grey	
20	11	72	grey	
22				
24	12	58/2	see Note 1	
26				
28				
30	13	43	grey	
32				
34				
36	14	73/4	grey	
38				
40	15	58/8	No Recovery	
42				
44				
46	16	50/1	grey	clayey GRAVEL (fine-coarse, subangular to angular)
48				
50	17	58/4	grey	
52				
54				
56				
58	18	see Note 6		
60				
62				red/grey interbedded SHALE & SILTSTONE RU 61 to 66'
64				
66				Rec= 92% RED= 0%
68				
70				
72				

Boring terminated at 72.0 feet

- Notes:
1. Sample #12 contained just stone fragments.
 2. Driller noted scattered cobbles/boulders from 20 to 43 feet.
 3. Water was added to the hole to facilitate drilling below 29 feet.
 4. Driller noted occasional wet seams from 6 to 20 feet with first free water at 40 to 45 feet.
 5. Drilled dry from 58 to 60 feet with casing at 50 feet.
 6. Unable to sample at 53 feet due to boulder-obtained sample of air rotary cuttings from 53 feet to 60 feet S18.
 7. Drilled with 3 7/8" roller bit in rock from 61-66' cored then reamed to 72 feet.

Boring 87-5A

DEPTH	SAMPLE #	MOISTURE %	COLOR	DESCRIPTION
2	1	18	brown	TOPSOIL
4				gravelly SAND, silty (little organics)
6				
8	2	25	olive	silty CLAY w/embedded gravel (F-n, rounded)
10				
12	3	37	grey	
14				reworked till
16	4	42	grey	
18				
20				
22	5	99	grey	
24				
26	6	43	No Recovery	
28				
30	7	44	grey	
32				
34				
36	8	49	grey	
38				
40	9	58/4	grey	
42				
44				
46	10	72	grey	
48				
50	11	58/2	grey	weathered SHALE w/rud. seams RU 58.7 to 60.7'
52				Rec= 100% RED= 52%
54				
56				
58				
60				

Boring terminated at 60.7 feet

CORTLAND COUNTY, N. Y.

LONG TERM LANDFILL
SUBSURFACE LOGS

November 1987

Sheet 2 of 5

Boring 87-6A

DEPTH	SAMPLE	%	MOISTURE	COLOR	DESCRIPTION
2	1	6	28	brown	TUFSOIL
4					clayey SILT
6	2	19	11	grey	silty CLAY w/ embedded gravel (P-rounded)
8	3	50/1	No Recovery		
10					
12					weathered SHALE with mud seams
14					RU 13.5 to 18.5'
16					Rec= 100%
18					RSD= 17%

Boring terminated at 18.5 feet

Boring 87-08A

DEPTH	SAMPLE	%	MOISTURE	COLOR	DESCRIPTION
2	1	5	12	brown	silty fine SAND w/ stone fragments
4	2	50/4		olive	clayey GRAVEL (medium coarse rounded) reworked till
6					
8					highly weathered SHALE
10					RU 7.5 to 12.5'
					Rec= 100%
					RSD= 0%

Boring terminated at 12.5 feet

Boring 87-9A

DEPTH	SAMPLE	%	MOISTURE	COLOR	DESCRIPTION
2	1	19	14	olive	TUFSOIL
4	2	57	9		silty, fine SAND
6	3	50/2	6		silty CLAY w/embedded fine gravel stone fragment in Sample 6E
8					highly weathered & broken SILTSTONE
10					RU 9.8 to 14.0'
12					Rec= 100%
14					RSD= 8%

Boring terminated at 14.0 feet

Boring 87-7A

DEPTH	SAMPLE	%	MOISTURE	COLOR	DESCRIPTION
2	1	14	13	olive	TUFSOIL
4					sandy SILT w/occ. stone fragments
6	2	21	15	grey	silty CLAY w/embedded gravel (P-n rounded)
8					
10	3	26	18	grey	
12					
14					
16	4	43	12	grey	clayey SAND
18					sandy GRAVEL, clayey (coarse, subangular) reworked till
20					
22	5	46	12	grey	
24					weathered SHALE
26					RU 27 to 32'
28					Rec= 100%
30					RSD= 0%
32					

Boring terminated at 32.0 feet

Note: 1. Driller noted 'more cobbly' from 2.5 to 4.5 feet.

CORTLAND COUNTY, N.Y.

LONG TERM LANDFILL
SUBSURFACE LOGS

November 1987 Sheet 3 of 5

Boring Notes

1. These borings were between the 10th and 26th of August 1987 by North Star Drilling Company of Cortland, NY, using a CME - 55 drilling rig. The holes were advanced through the overburden using a hollow-stem auger casing. Samples were obtained of the soil below the casing using the procedure described in ASTM D 1586 which is titled "Standard Method for Penetration Test and Split-Barrel Sampling of Soils". A copy of this procedure follows these logs.

Upon encountering the apparent bedrock surface the rock was drilled approximately 5 feet with a 3 7/8" roller bit. This was followed by a 5 ft coring run with an NX size (3" OD, 2 1/8" core) diamond core bit. After completion of the coring run that portion of the hole was reamed with the roller bit to provide a hole of approximately 4" diameter for the well installation.

2. The field locations of the borings were established by the writer as being representative locations on the site. These locations are shown on the drawing titled EXISTING TOPOGRAPHY.

3. The soil descriptions shown on the logs are based upon the writer's visual examination of the recovered soil samples; and generally follow the N.Y. State Dept. of Transportation "Soil Description Procedure", STP-2; a copy of which appears later in this appendix.

The demarcations between strata are based upon the writer's review of the soil samples, as well as the driller's notes. Solid lines are coincident with changes noted by the driller, while dashed lines are based upon the recovered samples only. In either case, the transition may be gradual and vary from these precise depths.

4. The column headings on the boring logs have the following meanings:

N - The Standard Penetration Resistance as defined in note 1.

Moisture - The natural moisture content as determined by laboratory test and expressed as a percent of the dry weight of soil.

Color - The predominant color of the recovered sample in its natural moisture condition.

5. Monitoring/Observation wells were installed in the bedrock at the bottom of each of the borings. Additional wells were installed in companion borings where it appeared that an additional water regime was present in the unconsolidated overburden. These second or third borings were made without sampling. The details of the well installations are presented on the following page.

Boring 87-10A

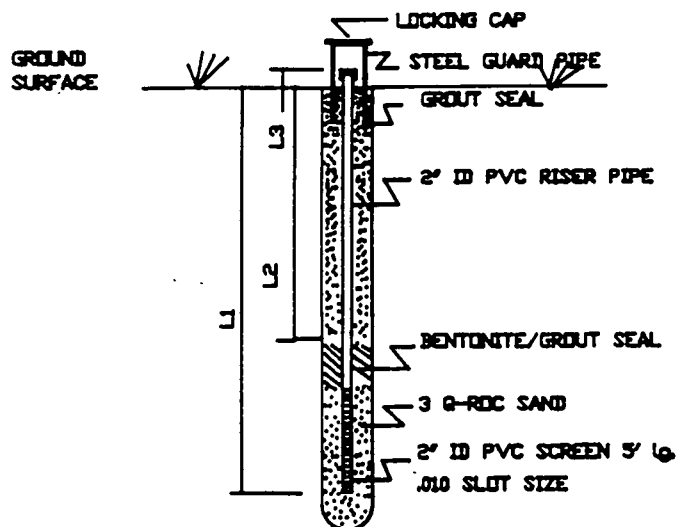
DEPTH	SAMPLE	Moisture %	Color	DESCRIPTION
2	1	8	14	brown
4				
6	2	47	10	olive
8				
10	3		4	grey
12				
14				
16				
18				
20				

Boring terminated at 20.0 feet

CORTLAND COUNTY, N. Y.

LONG TERM LANDFILL
SUBSURFACE LOGS

November 1987 Sheet 4 of 5



WELL NO.	GROUND SURFACE ELEVATION	L1 Ft.	L2 Ft.	L3 Ft.
87-1A	1795'	20.5	11.5	2.3
87-1B	1795'	10.0	1.0	2.3
87-2A	1792'	23.5	14.3	2.0
87-3A	1776'	24.0	15.0	2.3
87-4A	1771'	72.0	65.0	2.0
87-4B	1771'	43.0	35.0	2.0
87-4C	1771'	13.0	2.0	
87-5A	1767'	60.7	51.0	2.0
87-5B	1767'	17.0	9.0	2.0
87-6A	1777'	18.5	9.5	2.3
87-7A	1753'	32.0	23.0	2.5
87-7B	1753'	18.8	10.8	2.3
87-7C	1753'	11.0	3.0	2.3
87-8A	1753'	12.5	3.5	2.5
87-9A	1795'	14.0	5.0	2.3
87-10A	1773'	20.0	11.0	2.3

CORTLAND COUNTY, N. Y.

LONG TERM LANDFILL
MONITORING WELL DETAILS

November 1987 Sheet 5 of 5

BORING LOGS

AUGUST 1987

JOHN S. MACNEILL, P.C.

(FIELD LOGS)

Location Mechanicville, N.Y.



NORTH STAR DRILLING CO.

SUBSURFACE LOG

Driller HARRY

Other: 328 23

8/27 0945 11 11 10.5

Telephone: 607-756-8820

Location Moscow, U.S.S.R.



NORTH STAR DRILLING CO.

SUBSURFACE LOG

Boring No. MS 701-B
Project No. MSD 372
Sheet 1 of 1
Date Started 8-20-87
Date Completed 8-20-87
Driller HANLEY

Method of Investigation

Drill Rig CME 55
Casing 4 1/2" ED AUGER
Casing Hammer: Wt. _____ lb. Fall _____ in.
Soil Sampler 3" SIRON
Sample Hammer: Wt. 140 lb. Fall 30 in.
Rock Sampler _____
Other: 3 1/2" RB

Boring Location BY CLIENT

Surface Elevation BY CLIENT

Ground Water Observations

Date	Time	Casing at	Hole at	Water at
8-20-97	1:00 PM	WELL	10.0	DRY
8/27	0945	"	"	DRY

[illegible]

Boring No. 0287-2A
Project No. NSD 872
Sheet 1 of 1
Date Started 8-19-87
Date Completed 8-19-87
Driller HARRY

SUBSURFACE LOG

Ground Water Observations				
Date	Time	Casing at	Hole at	Water at
8-19-87	7:30 AM	15.0	23.5	13.5
8/27	0945	well at	23.5	15.4

Depth	Sample Number	Sample Depth		Sample Type	SOIL Blows on Sampler						MATERIAL DESCRIPTION	REMARKS
										N		
					0' 0.5'	0.5' 1.0'	1.0' 1.5'	1.5' 2.0'				
		ROCK Recovery					RQD					
From (Ft)	To (Ft)	Ft.	%									
1	0	1.5	5	1	1	2		3	DRY BRN V.F. SANDY WET N. DEPOSITS SOME M.F.C. SAND	3.0		
2	5	6.5	5	12	15	12		27	DRY BRN SRTTY V.F. SAND W/ SOME C.S. SAND & F. GRAV. & SHALE FRAG.	7.5		
3	10	11.5	5	21	22	33		55	SIMILAR. TILL LIKE. MORE COMPACT	12.5		
SWITEK ZONE PROBABLY MOST ZONE											SET AUGERS 15.0	
4	15	15.1	3	50					DRY GR. HIGHLY WEATHERED ROCK	3.5	REMOVED NUB WITH 3 1/8" R.B. TO 23.5	
RI	18.5	23.5	3		46	76%		150	GR. WEATHERED SHALE W. VERTICAL FRAC. 1350 FRAC. 2	55 P.P.C.		
B.T. 23.5 + WELL												
											30 STOP	
											SURF. GROUT	
											14.3 SEAL. (P)	
											16.3 T.O. SAND	
											19.5 T.O. 30.0	
											23.5 B.O. W.	

Location McDonnell



SUBSURFACE LOG

Driller HARRY

Other: 3 7/8 RB

8/27 0945 11 11 6.0'

Telephone: 607-756-8820

Client MCCORMICK/WOOD
 Project CL LANDFILL
 Location MCCORMICK, NY



Boring No. GW-87-4A
 Project No. MSD-872
 Sheet of 2
 Date Started 8/10/87
 Date Completed 8/12/87
 Driller J. MEYER

Method of Investigation
 Drill Rig CME-55
 Casing 4 1/4" I.D. Hollow Augers
 Casing Hammer: Wt. _____ lb. Fall _____ in.
 Soil Sampler 2" O.D. Split Spoon
 Sample Hammer: Wt. 140 lb. Fall 30 in.
 Rock Sampler NWD4 Double Tube C.R.
 Other: 3 1/2 Trucone Rock Bit

Boring Location BY CLIENT
 Surface Elevation BY CLIENT
 Ground Water Observations

Date	Time	Casing at	Hole at	Water at
8/10	1330	18.0	21.5	DRY
8/11	0800	"	"	DRY
"	1145	35.0	35.4	DRY
"	1230	35.0	45.6	19.5
"	1500	50.0	60.0	DRY

 CONTINUED ON PAGE 2

Depth	Sample Number	Sample Depth		Sample Type	SOIL Blows on Sampler					ROCK Recovery	RQD	MATERIAL DESCRIPTION	REMARKS
		From (Ft)	To (Ft)		0'	0.5'	1.0'	1.5'	2.0'				
					0.5'	1.0'	1.5'	2.0'	N				
												Depth of Change	
	1	0.0	2.0	S	2	3	8	10	11			Topsoil	0.2'
	2	2.0	4.0	S	8	10	14	10	24			MST. BDN, SILT + F SAND (Loam)	3.0'
	3	4.0	6.0	S	10	12	14	10	26			MST. BDN, SILT + CLAY WITH EMBEDDED CF SAND + F GRAVEL, WITH SCATTERED COBBLES (GLACIAL TILL)	6.0'
10	4	6.0	8.0	S	12	16	32	23	48				
	5	8.0	8.7	S	12	50/3			-				
	6	10.0	12.0	S	15	17	15	17	32			SIMILAR - WET IN OCCASIONAL SEAMS	9.5'
	7	12.0	14.0	S	12	30	36	37	66			SIMILAR - GRAY, MOIST TO WET	16.0'
15	8	14.0	16.0	S	20	47	37	29	84				
	9	16.0	18.0	S	10	17	31	23	32			SIMILAR - WET IN OCCASIONAL SEAMS	20.0'
20	10	18.0	19.4	S	31	37	59/4		-			SIMILAR, GRAY, MOIST TO WET @ SCATTERED COBBLER + BOULDERS	
	11	20.0	21.5	S	22	32	10		72				
25	12	25.0	25.2	S	59/2				-				
30	13	30.0	31.5	S	16	18	25		43				
35	14	35.0	35.7	S	75/4				-				
40	15	40.0	40.0	S	9/0				-				
45	16	45.0	45.6	S	48	50/1			-				
50	17	50.0	50.4	S	100/4				-				
												13.0'	

NOTE: ADDED 420 TO HOLE FOR DRILLING BELOW 20'.
 NOTE: FIRST FREE H2O ENCOUNTERED 10-15' SAMPLE TAKEN FOR CONDUCTIVITY TEST IN 6.

Client MACNEIL/WOOD
Project CC LANDFILL
Location McGraw, NY



Boring No. MSD-A7-04A
Project No. MSD-A72
Sheet 2 of 2
Date Started 8/10/87
Date Completed 8/12/87
Driller J. THEW

Method of Investigation

Drill Rig _____
Casing _____
Casing Hammer: Wt. _____ lb. Fall _____ in.
Soil Sampler _____
Sample Hammer: Wt. _____ lb. Fall _____ in.
Rock Sampler _____
Other: _____

Boring Location

Surface Elevation _____

Ground Water Observations

Date	Time	Casing at	Hole at	Water at
8/11	1730	50.0	71.0	10.5 *
8/12	0800	"	"	11.1
"	1000	60	71.0	46.6 #
"	1400	WELL AT 72.0	"	12.8
8/13	0800	"	"	13.1
8/27	0843	"	"	13.5

+ AFTER CORRECTING WITH IT 20

Depth	Sample Number	Sample Depth		Sample Type	SOIL					N
					Blows on Sampler					
					0'	0.5'	1.0'	1.5'	2.0'	
		ROCK					RQD			
		Recovery								
From (Ft)		To (Ft)		Ft.	%					
55	18 55	60	A	AIR CUTTINGS					-	
60	19 60	60	S	50/10'					-	
65	21 65	70	C	4.6 92					0	

MATERIAL DESCRIPTION

Depth of Change

REMARKS

SIMILAR TO PREVIOUS PAGE

TOP OF ROCK 61.0'

WATER PRODUCING BEDROCK

RED/GRAY, INTERBEDDED SHALE + SILTSTONE

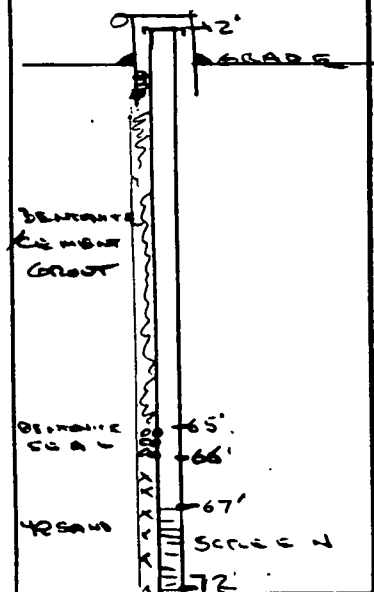
BORING TERMINATED AT 72.0'

NOTE: DRILLING DRY FROM 50-60' WITH CASING AT 50'

NOTE: UNABLE TO SAMPLE AT 55' DUE TO BOULDER-ORIGIN SAMPLE OF AIR MUD CUTTINGS FROM 55 TO 60' - 518

WELL DRILLED WITH 3 1/8" RATCHET BIT IN ROCK FROM 61' TO 72', LOGGED, THEN REAMED TO 72'

INSTALLED 2" PUC OBSERVATION WELL



Client MACNEILL/WOOD

Project C.C. LAMPELL

Location McGowan, NY



NORTH STAR DRILLING CO.

SUBSURFACE LOG

Boring No. OW-87-0413
 Project No. NSD-877
 Sheet 1 of 1
 Date Started 8/12/87
 Date Completed 8/13/87
 Driller J. THEW

Method of Investigation
 Drill Rig CME-55
 Casing 4 1/4" I.D. Hollow AUGER
 Soil Sampler _____ in.
 Sample Hammer: Wt. _____ lb. Fall _____ in.
 Rock Sampler _____
 Other: _____

Boring Location BY CLIENT

Surface Elevation BY CLIENT

Date		Time	Casing at	Hole at	Water at
8/13	0945		43	43	32.3
"	1400		WELL AT 43	"	1.3
8/27	0945		"	"	9.0

Depth	Sample Number	Sample Depth		Sample Type	SOIL Blows on Sampler						ROCK Recovery	RQD	MATERIAL DESCRIPTION	Depth of Change	REMARKS
					0'	0.5'	1.0'	1.5'	2.0'	N					
		From (Ft)	To (Ft)		0.5'	1.0'	1.5'	2.0'							
													DRILLED w/o SAMPLING FROM 0' TO 43'.		NOTE: FIRST FREQ. H ₂ O AT 40'-43'
													INSTALLED 2" PUL OBSERVATION WELL AS FOLLOWS:		

Boring No. W-67-048
Project No. NED 872
Sheet 1 of 1
Date Started 8/13/67
Date Completed 8/13/67
Driller J. T. HEW

SUBSURFACE LOG

Ground Water Observations				
Date	Time	Casing at	Hole at	Water at
2/13	1600	well	AT 13	DN-Y.
8/27	0945	"	"	6.2

[illegible]

Client MCNEIL WOODProject C.C. LANDFILLLocation MORRIS N.Y.

NORTH STAR DRILLING CO.

SUBSURFACE LOG

Boring No. 0W87-54Project No. NSD 872Sheet 1 of 2Date Started 8-14-87Date Completed 8-17-87Driller HARRY

Method of Investigation

Drill Rig CMS 55
 Casing 4" E.D. AUGER
 Casing Hammer: Wt. _____ lb. Fall _____ in.
 Soil Sampler 2" S.P.O.W.
 Sample Hammer: Wt. 14.0 lb. Fall 3.0 in.
 Rock Sampler NW D-1
 Other: 3 1/2 RA

Boring Location BY CLIENTSurface Elevation BY CLIENT

Ground Water Observations

Date	Time	Casing at	Hole at	Water at
8-11-87	7:20 AM	14	15.5	13.9
8-17-87	7:50 AM	43.0	43.0	26.3
8-18-87	8:10 AM	NELL	60.7	6.7
8/27	0945	"	"	6.0'

Depth	Sample Number	Sample Depth		Sample Type	SOIL						N	ROD	MATERIAL DESCRIPTION	Depth of Change	REMARKS
					Blows on Sampler										
					0'	0.5'	1.0'	1.5'	2.0'						
		From (Ft)	To (Ft)		ROCK Recovery										
					Ft.	%									
1	0	1.5	5	2	2	9					10	TOPSOIL	0.1		
													DMP BRN V.F. SANDY SILT & SOME		
													SAND & ORGANICS	3.0	
5	3.5	6.5	5	9	10	15					25	DMP BRN V.F. SAND & SILT U. SOME			
													C. SAND & GRAIN & SAND & GRAIN		
													TEMPERATURE CORRECTION - TAILOR	60	
10	3	10	11.5	3	9	19	18				37	BRNGR.			
													BECOMES VERY COMPACT	8.0	
														11.5	
														140	
15	4	15.5	17.0	3	16	21	21				42	GR DMP WET - VERY LOOSELY			
														18.5	
20	5	20	21.5	5	18	50	49				79	BRN WET			
														22	
25	6	25	26.5	5	6	8	35				43	GR. NO REC.			
														27	
30	7	30	31.5	5	11	24	20				44	BRN WET, V.F. SANDY SILT W. SOME CLAY			
													W.C. SILT & SOME F. GRAIN & SAND		
													FINE SILT & CLAY		
35	8	35	36.5	3	13	21	28				49				
40	9	40	40.9	5	24										
45	10	45	46.5	5	20	25	44				72				
50	11	50	50.7	5	18	38									

P.O. Box 67 Cortland, N.Y. 13045

Telephone: 607-756-8820

Location McGowan, N.Y.



NORTH STAR DRILLING CO.

SUBSURFACE LOG

Driller

Other: 32. RD

Date	Time	Location	Remarks	Remarks

[illegible]

Telephone: 607-756-8820

Location MCGRAW AVE



NORTH STAR DRILLING CO.

SUBSURFACE LOG

Boring No. 0021-53
Project No. WS. D. 112
Sheet 1 of 1
Date Started 8-18-67
Date Completed 10-1-67
Driller John R

Method of Investigation

Drill Rig _____
Casing _____
Casing Hammer: Wt. _____ lb. Fall _____ in.
Soil Sampler _____
Sample Hammer: Wt. _____ lb. Fall _____ in.
Rock Sampler _____
Other: _____

Boring Location BY C.C. 117

Surface Elevation

Ground Water Observations

Date	Time	Casing at	Hole at	Water at
8/27	0945	WELL AT	17.0'	7.2'

[illegible]

Client MCNEIL WOOD
 Project C.C. LAND FILL
 Location MCGRAW N.Y.



Boring No. 0487-0A
 Project No. NS-D-872
 Sheet 1 of 1
 Date Started 8-21-87
 Date Completed 8-21-87
 Driller BOBBY

Method of Investigation
 Drill Rig SMISS
 Casing 4" I.D. RUGERS
 Casing Hammer: Wt. _____ lb. Fall _____ in.
 Soil Sampler 2" SPOON
 Sample Hammer: Wt. 140 lb. Fall 30 in.
 Rock Sampler AWD4
 Other: 375 R.B.

Boring Location BY CLIENT
 Surface Elevation _____
 Ground Water Observations
 Date 8-24-87 Time 3:00 Casing at WELL Hole at 18.5 Water at 4.3
9/27 0945 11 11 11.3'

Depth	Sample Number	Sample Depth		Sample Type	SOIL Blows on Sampler						N	RQD	MATERIAL DESCRIPTION	REMARKS					
					0'	0.5'	1.0'	1.5'	2.0'										
		From (Ft)	To (Ft)		ROCK Recovery														
					Ft.	%													
1	0	1.5	3	2	3	5					6	DMP BK SHTY U.F. SAND W. SOME EC. SAND TRACE F. 9 ROL. NO. 2.0	1 1/2" TOP SOIL						
2	5	6.5	9	11	8						19	DMP BK. U.F. SANDY SHT W. SOME C. SAND + EGRAW TRACE CANV. SANDS FRAGS. - COBBLES	85 SET. AUGERS 90 RB-90135						
3	9.0	9.1	3	37								N.O. REC.							
4	11.5	18.5	CB		5.0	100					178	GR WEATHERED SHT STONE W. SOME MUD SEAMS	R.B. 13.5-18.5						
B.T. 18.5																			
2.5 G. PIPE 2.3 ST. UP GRUNT TO SURF 9.5 SEAL-PI. 11.5 T.O. SAND 13.5 T.O. R. 18.5 BON. 																			

Location McGuire AFB



NORTH STAR DRILLING CO.

A SUBSURFACE LOG

Boring No. 0097-7A
Project No. NS0872
Sheet 1 of 1
Date Started 8-25-87
Date Completed 8-29-87
Driller H.M. 226

Method of Investigation

Drill Rig CME 35
Casing 4 1/2" DMG 42
Casing Hammer: Wt. _____ lb. Fall _____ in.
Soil Sampler 2 1/2" 500W
Sample Hammer: Wt. 140 lb. Fall 30 in.
Rock Sampler NWD 4
Other: 576 CB

Boring Location BYC212N1

Surface Elevation 3466.10m

Ground Water Observations

Date	Time	Casing at	Hole at	Water at
8-24-87	3:45 PM	9.5	11.0	12.0
8-25-87	7:30 AM	22.5	22.0	2.5
8-26-87	7:30 AM	WELL	32.0	5.0
8/27	0915	11	11	3.5

[illegible]

Location McBRIDE N.Y



NORTH STAR DRILLING CO.

SUBSURFACE LOG

Driller Harvey

Other: 334 R.B.

8/27 0945 " " 18.4

18.8 20. Nov.

Telephone: 607-756-8820

Location MCGRAW N.Y.



NORTH STAR DRILLING CO.

SUBSURFACE LOG

Boring No. 0W97-7C
Project No. N32872
Sheet 1 of 1
Date Started 8-25-87
Date Completed 8-25-87
Driller HARRY

Method of Investigation

Drill Rig CMSS
Casing 4 1/2 ID AGES
Casing Hammer: Wt. _____ lb. Fall _____ in.
Soil Sampler
Sample Hammer: Wt. _____ lb. Fall _____ in.
Rock Sampler
Other: 2 1/2 ID

Boring Location BY CLIENT

Surface Elevation BYCIENT

Ground Water Observations

Date	Time	Casing at	Hole at	Water at
8-26-87	7:30 AM	WELL	11.0	3.2
8/27	0945	11	11	2.5'

[illegible]

Boring No. OW87-8A
Project No. NSD872
Sheet 1 of 1
Date Started 8-21-87
Date Completed 2-24-87
Driller HARRY

SUBSURFACE LOG

Date	Time	Casing at	Hole at	Water at
8-21-87	1:00 PM	WFL	12.5	6.2
8/27	0945	"	"	2.9

[illegible]

Client MCNIEL WOOD
 Project C.C. LAND FILL
 Location MCCORMACK N.Y.



Boring No. OW87-9A
 Project No. NSD 872
 Sheet 1 of 1
 Date Started 8-26-87
 Date Completed 9-26-87
 Driller HORRY

Method of Investigation
 Drill Rig CHIEF 55
 Casing 1 1/2" ID AUGER
 Casing Hammer: Wt. _____ lb. Fall _____ in.
 Soil Sampler 2" SPOON
 Sample Hammer: Wt. 14" J lb. Fall 20 in.
 Rock Sampler NW0 J
 Other: 3" RE

Boring Location BY CLIENT
 Surface Elevation BY CLIENT
 Ground Water Observations

Date	Time	Casing at	Hole at	Water at
<u>8-26-87</u>	<u>9:00am</u>	<u>7.5</u>	<u>5.0</u>	<u>DRY</u>
<u>9/27</u>	<u>0945</u>	<u>WEEL AT</u>	<u>14.0</u>	<u>1.3'</u>

Depth	Sample Number	Sample Depth		Sample Type	SOIL Blows on Sampler					ROD	MATERIAL DESCRIPTION	REMARKS
					0' 0.5'	0.5' 1.0'	1.0' 1.5'	1.5' 2.0'	N			
		From (Ft)	To (Ft)		ROCK Recovery		RQD					
					Ft.	%						
1	0	2	S	1	2	5	14	19	DRY BRN V.F. SANDY SILT W SOME C. SAND + F. GRAU + ORG. M.I.C. 1.5	3" TOP...		
2	2	4	S	2	17	17	40	57	SIMILAR. MORE COMPACT N, SAMPLE FRMS. TILL LIKE 3.8	5.0 SFT AUGERS		
3	5	5.2	S	50%					NO. REC.	5-9 R.B.		

Client MCNEIL WOOD
Project C.C. LAND FILL
Location MCGRAW NY



Boring No. OW 87-10A
Project No. NSP 872
Sheet 1 of 1
Date Started 8-26-87
Date Completed 8-26-87
Driller HARRY

Method of Investigation

Drill Rig CHIEF 35
Casing 4 1/2" ID AUGERS
Casing Hammer: Wt. _____ lb. Fall _____ in.
Soil Sampler 2" SPOON
Sample Hammer: Wt. 140 lb. Fall 30 in.
Rock Sampler NWD-1
Other: 3 1/2" R.B.

Boring Location BY CLIENT

Surface Elevation BY CLIENT

Ground Water Observations

Date	Time	Casing at	Hole at	Water at
<u>8-26-87</u>	<u>1:00 PM</u>	<u>8.5</u>	<u>9.5</u>	<u>DRY</u>
<u>8/27</u>	<u>0945</u>	<u>WELL AT</u>	<u>20.0</u>	<u>14.5'</u>

Depth	Sample Number	Sample Depth		Sample Type	SOIL Blows on Sampler						ROD	MATERIAL DESCRIPTION	REMARKS
					0'	0.5'	1.0'	1.5'	2.0'	N			
		From (Ft)	To (Ft)		ROCK Recovery		N						
					Ft.	%							
2	0	1.5	3	1	1	7			8	DMP BEN V.E. SANDY SILT W. ORGANICS. SOME C. SAND & GRAU — — — 1.5	2" TO SOIL		
2	5	6.5	5	11	11	36			47	SIMILAR SAND SEAMS - TAL LIKE			
3	9	9.8		35	39					DRY	9.8		

SOIL BORING LOGS
DEC. 1984 - JAN. 1985
EMPIRE SOILS INVESTIGATIONS

[illegible]

DATE

STARTED 1-4-85

FINISHED 1-4-85

SHEET 1 Of 1



SUBSURFACE LOG

HOLE NO LT-2

SURF ELEV. _____

C. W. DEPTH See Notes

PROJECT Cortland County Landfill

LOCATION Town of Solon
Cortland County

DEPTH	SAMPLES	SAMPLE NO	BLOWS ON SAMPLER					Sample Rec.	SOIL OR ROCK CLASSIFICATION	NOTES
			0	1	2	3	4			
0		1	2	2	2	4		10"	Brown, wet, loose TOPSOIL-SILT, Some fine-coarse sand, little gravel, roots	Set 4" casing to 4.7', Roller bit to 5.3'
		2								
		2	12	33	45	78		18"	Brown, moist very compact, SILT, Some fine-coarse sand, little gravel, cobbles	
		17								
		3	64	100	120			5"	Brown, dry, DECOMPOSED SHALE	4.7'
5									SILTSTONE w/interbedded SHALE, Gray medium hard, very weathered thin bedded	Run #1: 5.3'-10.3' 5' Recovery RQD 0%
10									weathered, numerous fractures	Run #2: 10.3'-15.3' 5' Recovery RQD 0%
									Terminated @ 15.3'	Boring dry prior to rock coring

N - No blows to drive 2" spoon 12" with 140 lb. pin wt. falling 30" per blow CLASSIFICATION Visual by
Geologist
C - No blows to drive 2" casing 12" with 140 lb. weight falling 30" per blow
2 1/2" I.D. Hollow Stem Augers/Standard Penetration Test, 4" Casing, NX Rod

METHOD OF INVESTIGATION

[illegible]

DATE STARTED <u>12-28-84</u> FINISHED <u>12-31-84</u> SHEET <u>1</u> OF <u>1</u>	EMPIRE SOILS INVESTIGATIONS INC.	SUBSURFACE LOG HOLE NO <u>LT-4</u> SURF ELEV <u> </u> C. W. DEPTH <u>See Notes</u>
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PROJECT <u>Cortland County Landfill</u>	LOCATION <u>Town of Solon</u> <u>Cortland County</u>
---	---

DEPTH	SAMPLE NO	BLOWS ON SAMPLER					Sample Rec	SOIL OR ROCK CLASSIFICATION	NOTES
		1	2	3	4	5			
0	1	2	1	1	2	8"	Brown, wet, loose, SILT, little fine-coarse sand, trace gravel	Encountered cobbles throughout soil profile	
	2	8	20	16	36	12"	Similar		
	3	7	9	14	23	14"	Similar		
5	4	22	33	30	63	18"	Similar		
	5	100/.1'					No Sample Recovery		
10							Till w/siltstone boulders	Run #1: 8.2'-13.5' 4.7' Recovery	
	6	25	44	43	87	6"	Similar	Boring dry prior to rock coring	
15	7	33	100/.3'			9"	Similar		
	8	100/.3'					Similar		
20	9	37	53	84	137	11"	Similar	Run #2: 23.0'-28.0' 5' Recovery RQD 25%	
		61					22.1'		
25							Shale w/interbedded SILTSTONE Gray, medium hard, weathered, thin bedded, few fractures		
30								Run #3: 28.0'-33.0' 5' Recovery RQD 25%	
35							Terminated @ 33.0'		

N = No. blows to drive 2 " spoon 12 " with 140 lb pin wt. falling 30 " per blow CLASSIFICATION Visual by
 C = No. blows to drive " casing " with lb. weight falling " per blow Geologist
 METHOD OF INVESTIGATION 2 1/2" I.D. Hollow Stem Augers/Standard Penetration Test, NX Rock Core

DATE
 STARTED 12-26-84
 FINISHED 12-27-84
 SHEET 1 OF 1



SUBSURFACE LOG

HOLE NO LT-5
 SURF ELEV. _____
 C.W. DEPTH See Notes

PROJECT Cortland County Landfill

LOCATION Town of Solon
Cortland County

DEPTH	SAMPLE NO	BLOWS ON SAMPLER						Sample Rec.	SOIL OR ROCK CLASSIFICATION	NOTES
		0	4	8	12	16	20			
0	1	3	2	2				8"	Brown, firm, moist, SILT, little fine-coarse sand, little gravel, wood fragments	6" TOPSOIL
	10								Similar	
	2	27	61	37				14"	No Sample Recovery	Encountered cobbles throughout soil profile.
	27									
	3	100	/.0'							4.2'-5.9' Boulders water @ approx. 8.0' 12-26-84
5										8.2'-9.3' boulder auger to 11.8', pull augers, drop 4" casing roller bit to 13.0'
	4	21	24	17				8"	Similar grades to gray	
	17									
	5	100	/.2'							
	6	43	100	/.4'					Gray, Moist Decomposed SHALE	Run #1: 13.0'-18.0' 4.9' Recovery RQD 46.6%
10										
									SILTSTONE, Gray, medium hard, sound bedded	
15								15.5'		
									SHALE, Gray, medium hard, thin bedded weathered, few fractures	Run #18.0'-23.0' 4' Recovery (Left 1' of core in hole) RQD 55% lost approx. 100 gal. of water during run
20										
									Terminated @ 23.0'	
25										

N = No blows to drive 2 " spoon 12 " with 140 lb. pin wt. falling 30 " per blow. CLASSIFICATION Visual by
 C = No blows to drive _____ " casing _____ " with _____ lb. weight falling _____ " per blow Geologist
 METHOD OF INVESTIGATION 2 1/2" I.D. Hollow Stem Augers/Standard Penetration Test, 4" Casing, NX Roc

N = No. blows to drive 2 " spoon 12 " with 140 lb. pin wt. falling 30 " per blow CLASSIFICATION Visual by
Geologist
C = No. blows to drive " casing " with lb. weight falling " per blow
METHOD OF INVESTIGATION 2½" I.D. Hollow Stem Augers/Standard Penetration Test

N = No blows to drive 2 " spoon 12 " with 140 lb. pin wt. falling 30 " per blow CLASSIFICATION Visual by
C = No blows to drive " casing " with lb. weight falling " per blow Geologist
METHOD OF INVESTIGATION 2 1/2" I.D. Hollow Stem Augers/Standard Penetration Test

DATE STARTED <u>12-18-84</u> FINISHED <u>12-20-84</u> SHEET <u>1</u> OF <u>1</u>	EMPIRE SOILS INVESTIGATIONS INC.	HOLE NO <u>LT-2</u> SURF ELEV _____ G. W. DEPTH <u>See Notes</u>
---	--	--

SUBSURFACE LOG

PROJECT Cortland County Landfill

LOCATION Town of Solon
Cortland County

DEPTH	SAMPLE	SAMPLING	BLOWS ON SAMPLER					Sample Rec.	SOIL OR ROCK CLASSIFICATION	NOTES
			1	4	12	18	N			
0		1	1	2	3	5	15"	Brown, moist, loose, SILT, little fine-coarse sand, little gravel, roots	5" TOPSOIL	
		11						Similar	Water Level @ 4.3' on 1-18-85	
		2	15	30	25	60	12"	Similar	Encountered cobbles throughout soil profile	
		3	19	12	15	27	10"	Similar		
5		11								
		4	10	9	15	24	12"	Similar		
		27								
		5	7	10	10	20	18"	Similar		
		10								
10		6	9	12	16	28		No Sample Recovery	Water @ 11.6' 12-18-84	
		19								
		7	25	44	100/.4		10"	Similar Till w/Siltstone Boulder	Run #1: 13.4'-16.4' 2.1' Recovery	
15									Boulders: 19.9'-20.9' 21.4'-22.3' 23.9'-24.5' 25.0'-26.6' 27.5'-28.5' 28.7'-29.2'	
		8	33	62	100/.1		7"	Similar		
		9	150/.3				.3'	Similar		
20		10	150/.3				.4'	Similar, grades to gray		
		11	200/.3				.3'	Similar		
25		12	210/.5				5"	Similar		
		13	200/.3				.3'	Similar	Monitoring Well Installed	
		14	69	118			9"	Similar		
30								Terminated @ 30.4'		
35										

N = No blows to drive 2 " spoon 12 " with 140 lb. pin wt. falling 30 " per blow CLASSIFICATION Visual by _____

C = No blows to drive _____ " casing _____ " with _____ lb. weight falling _____ " per blow Geologist

METHOD OF INVESTIGATION 2 1/2" I.D. Hollow Stem Augers/Standard Penetration Test, NX Rock Co

HOLE NO X-1
SURF ELEV. _____
C. W. DEPTH See Notes

PROJECT Cortland County Landfill

LOCATION	<u>Town of Solon</u> <u>Cortland County</u>
----------	--

[illegible]

N = No. blows to drive 2 " spoon 12 " with 140 lb. pin wt. falling 30 " per blow CLASSIFICATION Visual by
C = No. blows to drive " casing " with lb. weight falling " per blow Geologist
METHOD OF INVESTIGATION: 2½" I.D. Hollow Stem Augers/Standard Penetration Test, NX Rock Core

SHEET 1 OF 1



SUBSURFACE LOG

HOLE NO. X-2

SURF ELEV

G. W. DEPTH See Notes

PROJECT Cortland County Landfill

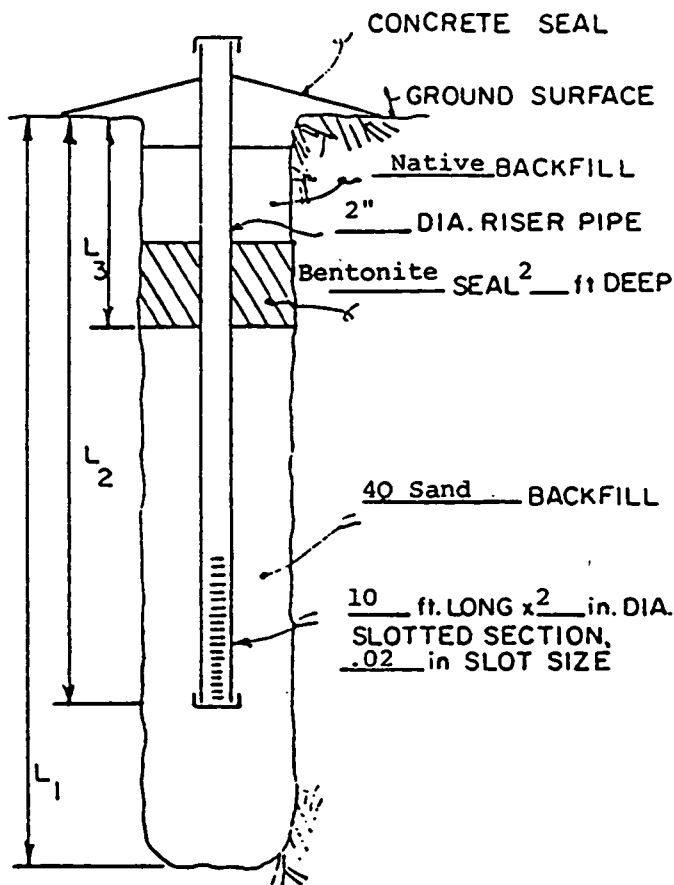
LOCATION	Town of Solon Cortland County
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[illegible]

N = No. blows to drive 2 " spoon 12 " with 140 lb. pin wt. falling 30 " per blow

C = No blows to drive _____" casing _____" with _____lb. weight falling _____" per blow.

METHOD OF INVESTIGATION 2 1/2" I.D. Hollow Stem Augers/Standard Penetration Test



WELL NO.	L ₁	L ₂	L ₃
LT-3	17.6'	17.6'	5.5'
LT-8	32.0'	30.0'	18.0'
LT-7	32.0'	31.0'	18.0'

6" Protective Pipe w/Locking Cap



EMPIRE SOILS INVESTIGATIONS, INC

OBSERVATION WELL DETAILS

CORTLAND COUNTY LANDFILL EXPANSION

CORTLAND COUNTY HIGHWAY DEPARTMENT

DR BY FCE

SCALE

-

PROJ NCGD-84-96

CAD BY mr-

DATE

1-17-85

DRWG NO NA

BORING LOGS
SEPTEMBER 1984
CATOH/DUNN GEOSCIENCE

CATOH Environmental Companies, Inc.
One Industrial Place, Savannah, New York 13146
Phone: 315/365-2891

Project: Groundwater Observation Well Installation
 Cortland County Landfill
 Town of Solon, Cortland County, NY
 Client: Cortland County
 Date Started: 8/27/84
 Date Completed: 8/27/84
 Driller: M. Skardinski
 Inspector:

Project No.: C275
 Boring No.: B-1
 Surface Elev.:
 Groundwater Depth-Casing In: 9.6'
 Below Ground Surf.-Casing Out:

Sheet 1 of 1

DEPTH	SAMPLE DEPTH	SAMPLE NO	BLOWS ON SAMPLER					N	MATERIAL DESCRIPTION
			0" 6"	6" 12"	12" 18"	18" 24"			
0-	0.0-2.0'	1	20	14				34	Brown moist silt, little gravel and sand, trace clay.
	2.0-4.0'	2	15	11	12	13		25	Brown moist silt, some gravel and sand, trace clay.
	4.0-6.0'	3	10	22	13	14		27	Brown moist silt, some gravel and sand, trace clay.
5-	6.0-7.8'	4	29	25				54	Gray moist to damp gravel and cobbles, little sand and silt.
	8.0-8.1'	5			19	10	35	119	Gray wet to saturated gravel and cobbles, little sand and silt.
10-									Boring terminated at 10.0'
									NOTE: advanced augers to 10.0'
									Installed monitor well
15-									
20-									
25-									
30-									
35-									
40-									

N = No. of blows to drive 2" spoon 12" w/ 140 lb. weight 30" each blow.
 Casing Type: hollow stem auger

CATOH Environmental Companies, Inc.
One Industrial Place, Savannah, New York 13146
Phone: 315/365-2891

Project: Groundwater Observation Well Installation
 Cortland County Landfill
 Town of Solon, Cortland County, NY
 Client: Cortland County
 Date Started: 8/28/84
 Date Completed: 8/28/84
 Driller: M. Skardinski
 Inspector:

Project No.: C275
 Boring No.: B-2
 Surface Elev.:
 Groundwater Depth-Casing In: none at com-
 Below Ground Surf.-Casing Out: pletion of
 drilling
 Sheet 1 of 1

DEPTH	SAMPLE DEPTH	SAMPLE NO	BLOWS ON SAMPLER				N	MATERIAL DESCRIPTION
			0" 6"	6" 12"	12" 18"	18" 24"		
0	0.0-2.0'	1	5	6			11	Brown moist silt, little gravel and sand, trace clay.
					11	14	25	
	2.0-4.0'	2	14	12			26	Brown moist silt, little gravel and sand, trace clay.
					11	16	27	
5	4.0-6.0'	3	13	16			29	Brown moist silt, little gravel and sand, trace clay.
					25	70	95	
	6.0-6.1'	4	100	1			100	Brown moist silt, little gravel and sand, trace clay.
	8.0-10.0'	5	27	23			50	Gray moist silty gravel, little sand, trace clay.
10					21	30	51	
								Boring terminated at 10.0'
								NOTE: Installed monitor well
15								
20								
25								
30								
35								
40								

N = No. of blows to drive 2" spoon 12" w/ 140 lb. weight 30" each blow.
 Casing Type: hollow stem auger

N = No. of blows to drive 2" spoon 12" w/ 140 lb. weight 30" each blow.
Casing Type: hollow stem auger

CATOH Environmental Companies, Inc.
One Industrial Place, Savannah, New York 13146
Phone: 315/365-2891

Project: Groundwater Observation Well Installation
 Cortland County Landfill
 Town of Solon, Cortland County, NY
 Client: Cortland County
 Date Started: 8/30/84
 Date Completed: 8/30/84
 Driller: M. Skardinski
 Inspector:

Project No.: C275
 Boring No.: RE-5
 Surface Elev.:
 Groundwater Depth-Casing In: 8.0'
 Below Ground Surf.-Casing Out:

Sheet 1 of 1

DEPTH	SAMPLE DEPTH	SAMPLE NO.	BLOWS ON SAMPLER				N	MATERIAL DESCRIPTION
			0" 6"	6" 12"	12" 18"	18" 24"		
0	0.0-2.0'	1	1	1			2	Brown moist silt, little coarse to fine sand and fine gravel.
					9	29	38	
	2.0-4.0'	2	33	10			43	Brown moist silt, little coarse to fine sand and fine gravel.
					11	13	24	
5	4.0-6.0'	3	8	14			22	Brown moist silt, some sand and gravel.
					42	23	65	
	6.0-8.0'	4	44	34			78	Gray moist gravel and sand, some silt.
					28	20	48	
	8.0-10.0'	5	10	18			28	Brown wet sand and gravel, little clayey silt.
					23	31	54	
10	10.0-12.0'	6	26	23			49	Brown moist sand and gravel, little silt
					32	25	57	
	12.0-14.0'	7	46	90			136	Brown moist sand and gravel, little silt
					66	79	145	
	14.0-16.0'	8	29	26			55	Brown moist sand and gravel, little silt
15					36	32	68	trace clay.
	16.0-18.0'	9	28	29			57	Brown moist silt, some sand and gravel.
					24	50	74	
	18.0-20.0'	10	26	40			66	Brown moist silt, some sand and gravel.
					58	42	100	
20	20.0-22.0'	11	31	30			61	Brown saturated sand and gravel, little clayey silt.
					32	32	64	
	22.0-24.0'	12	30	55			85	Gray wet silty sand and fine gravel, trace clay.
					85	70	155	
25	24.0-25.0'	13	67	93			160	Gray wet silty sand and fine gravel, trace clay.
								Boring terminated at 25.0'
30								
35								
40								

NOTE: Installed monitor well.

N = No. of blows to drive 2" spoon 12" w/ 140 lb. weight 30" each blow.
 Casing Type: hollow stem auger

CATOH Environmental Companies, Inc.
One Industrial Place, Savannah, New York 13146
Phone: 315/365-2891

PRELIMINARY

Project: Groundwater Observation Well Installation
Cortland County Landfill
Town of Solon, Cortland County, NY
Cortland County

Project No.: C275

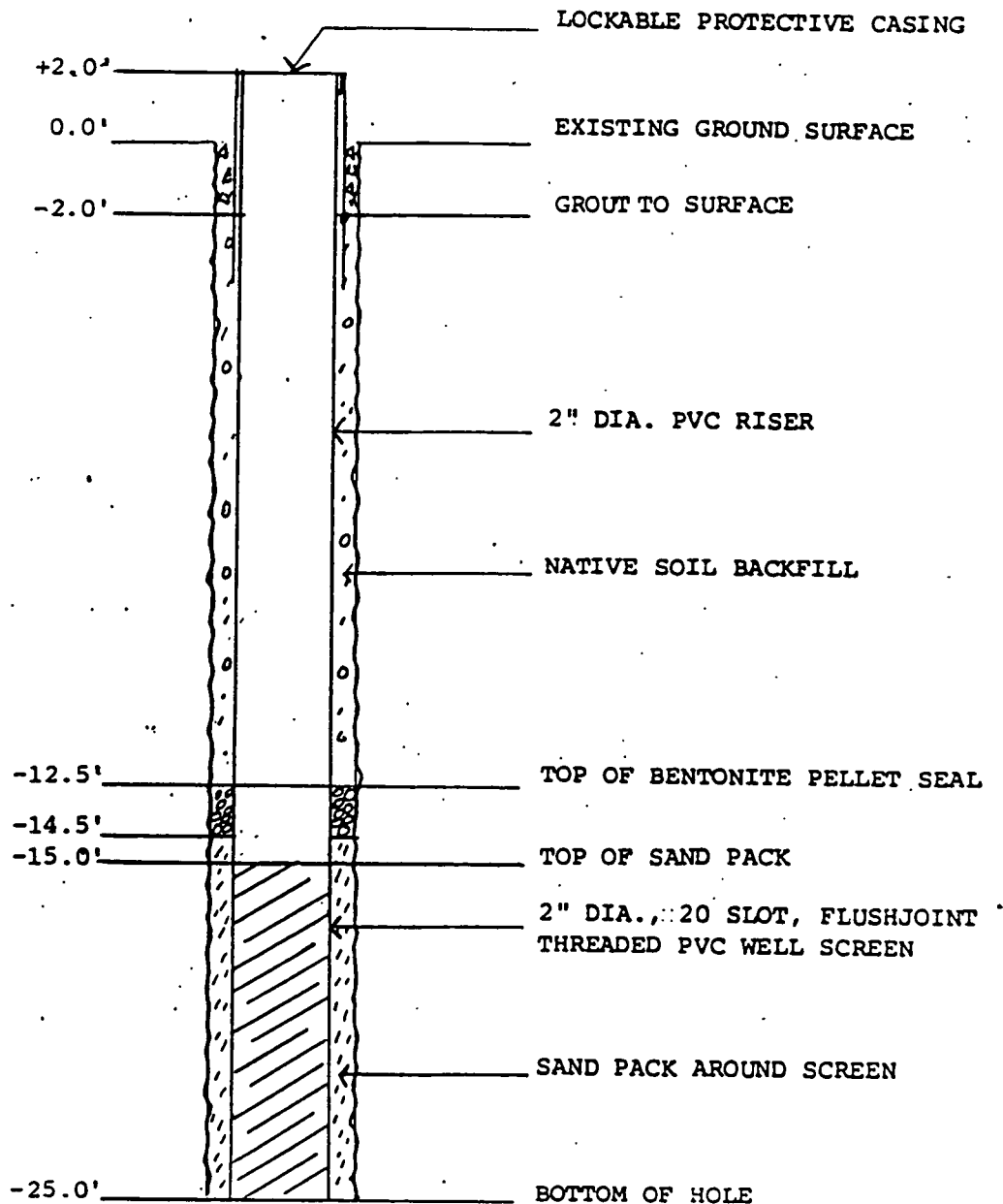
Boring No.: RE-5

Surface Elev.:

Groundwater Depth-Casing In:
Below Ground Surf.-Casing Out:

Client:
Date Started:
Date Completed: 8/ 8/84
Driller: M Skardinski
Inspector:

Sheet 01



CATOH Environmental Companies, Inc.
One Industrial Place, Savannah, New York 13146
Phone: 315/365-2891

Project: Groundwater Observation Well Installation
 Cortland County Landfill
 Town of Solon, Cortland County, NY
 Client: Cortland County
 Date Started: 8/29/84
 Date Completed: 8/30/84
 Driller: M. Skardinski
 Inspector:

Project No.: C275
 Boring No.: RE-6
 Surface Elev.:
 Groundwater Depth-Casing In: 7.0'
 Below Ground Surf.-Casing Out:

Sheet 1 of 1

DEPTH	SAMPLE DEPTH	SAMPLE NO.	BLOWS ON SAMPLER				N	MATERIAL DESCRIPTION
			0" 6"	6" 12"	12" 18"	18" 24"		
0	0.0-2.0'	1	2	3			5	Brown moist silt, little sand and gravel, trace clay.
					8	13	21	
	2.0-4.0'	2	16	32			48	Brown moist silt, little sand and gravel, trace clay.
					16	17	33	
5	4.0-6.0'	3	8	10			18	Brown moist silt, little clay, little sand and gravel.
					11	12	23	
	6.0-8.0'	4	12	15			27	Brown damp clayey silt, little fine gravel and coarse to fine sand. 7.5'
					14	18	32	
	8.0-10.0'	5	21	18			39	Brown saturated silty sand and gravel.
					18	17	35	
10	10.0-12.0'	6	18	16			34	Brown damp gravel and sand, some silt.
					18	28	46	
	12.0-13.35'	7	22	23	100	35	100	Gray moist silty sand and gravel.
							85	
	14.0-16.0'	8	29	53			82	Gray wet silt, little sand and gravel.
15					35	21	56	
	16.0-18.0'	9	16	28			44	Gray wet silt, little sand and gravel, trace clay.
					33	30	63	
	18.0-20.0'	10	33	28			61	Gray wet clayey silt, little sand and gravel.
					23	33	56	
20	20.0-22.0'	11	24	29			53	Gray wet silt, little sand and gravel, trace clay.
					23	44	67	
	22.0-24.0'	12	22	20			42	Gray wet clayey silt, little and gravel.
					77	51	128	
25	24.0-25.0'	13	37	43			80	Gray wet silt, little sand and gravel, trace clay.
								Boring terminated at 25.0'
								NOTE: Installed monitor well.
30								
35								
40								

N = No. of blows to drive 2" spoon 12" w/ 140lb. weight 30" each blow.
 Casing Type: hollow stem auger

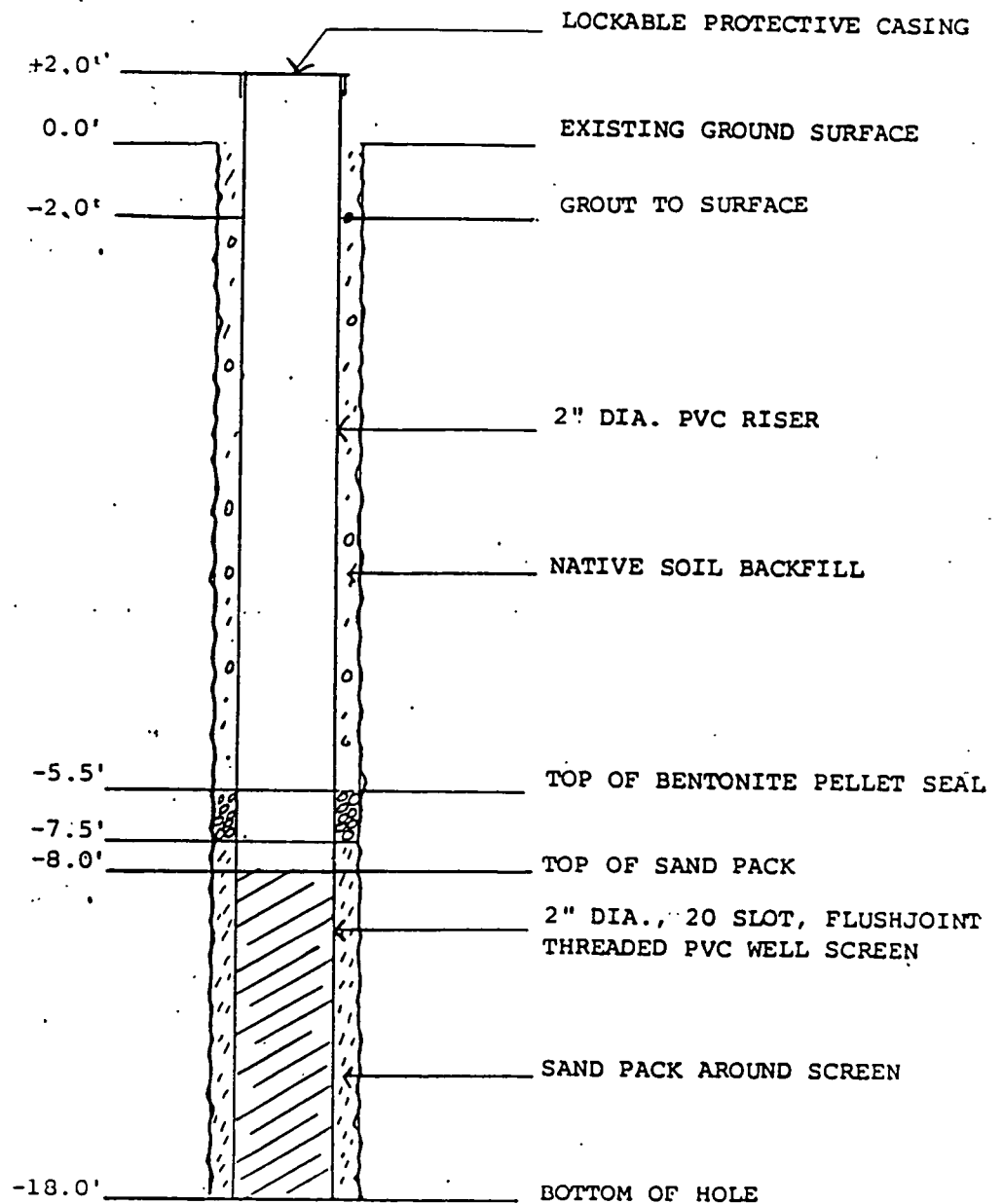
CATOH Environmental Companies, Inc.
One Industrial Place, Savannah, New York 13146
Phone: 315/365-2891

PRELIMINARY

Project: Groundwater Observation Well Installation
Cortland County Landfill
Town of Solon, Cortland County, NY
Cortland County
Client:
Date Started:
Date Completed: 8/30/84
Driller: M Skardinski
Inspector:

Project No.: C275
Boring No.: RE-6
Surface Elev.:
Groundwater Depth-Casing In:
Below Ground Surf.-Casing Out:

Sheet of



CATOH Environmental Companies, Inc.
 One Industrial Place, Savannah, New York 13146
 Phone: 315/365-2891

Project: Groundwater Observation Well Installation
 Cortland County Landfill
 Town of Solon, Cortland County, NY
 Client: Cortland County
 Date Started: 8/28/84
 Date Completed: 8/29/84
 Driller: M. Skardinski
 Inspector:

Project No.: C275
 Boring No.: RE-7
 Surface Elev.:
 Groundwater Depth-Casing In: 6.5'
 Below Ground Surf.-Casing Out:

Sheet 1 of 1

DEPTH	SAMPLE DEPTH	SAMPLE NO	BLOWS ON SAMPLER				N	MATERIAL DESCRIPTION
			0" 6"	6" 12"	12" 18"	18" 24"		
0	0.0-2.0'	1	2	3	8	32	5	Brown moist silt, trace sand and gravel.
	2.0-4.0'	2	35	26	51	27	40	Brown moist silt, little sand and gravel.
	4.0-6.0'	3	7	13	13	15	20	Brown moist silt, little sand and gravel.
	6.0-8.0'	4	9	10	12	14	19	Brown wet silt, little sand and gravel.
	8.0-10.0'	5	7	14	21	30	21	Brown moist silt, some sand and gravel.
10	10.0-12.0'	6	18	22	36	24	40	Gray moist sand and gravel, little silt.
	12.0-13.1'	7	27	36	100	1	60	Gray moist silt, some sand and gravel, trace clay.
	14.0-16.0'	8	32	34	74	88	66	Gray wet gravel, little sand, little silt, trace clay.
15	16.0-18.0'	9	39	40	44	49	79	Brown saturated sand and gravel, little silt.
	18.0-19.3'	10	25	27	100	3	93	Gray moist silty sand and gravel.
20	20.0-22.0'	11	27	42	37	36	69	Gray moist silty sand and gravel.
	22.0-22.7'	12	40	100	2		73	Gray wet sand and gravel, little silt.
25	24.0-25.0'	13	20	23			43	Gray wet sand and gravel, little silt.
								Boring terminated at 25.0'
								NOTE: Installed monitor well.
30								
35								
40								

N = No. of blows to drive 2" spoon 12" w/ 140 lb. weight 30" each blow.
 Casing Type: hollow stem auger

CATOH Environmental Companies, Inc.
One Industrial Place, Savannah, New York 13146
Phone: 315/365-2891

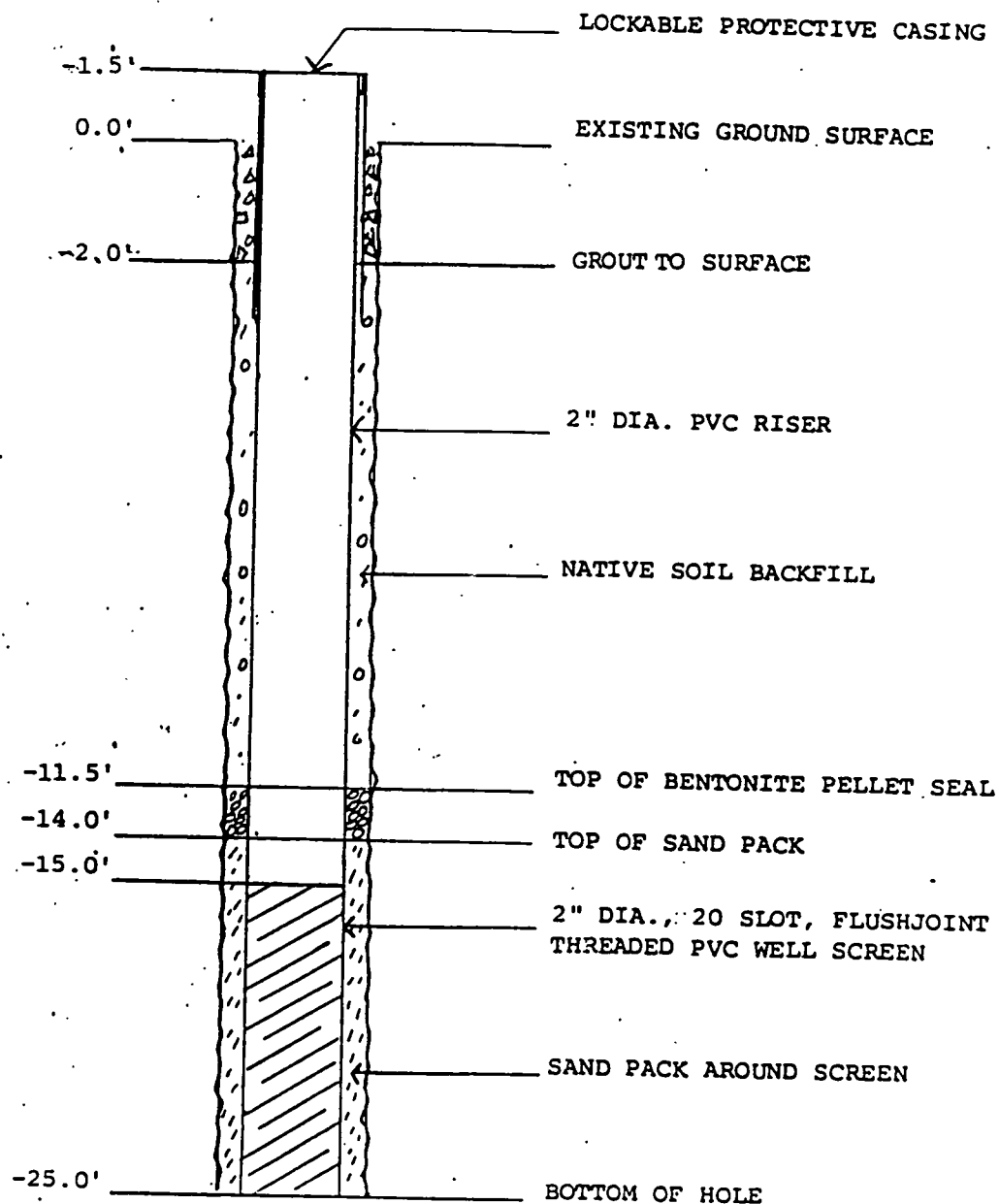
PRELIMINARY

Project: Groundwater Observation Well Installation
Cortland County Landfill
Town of Solon, Cortland County, NY
Cortland County

Client:
Date Started:
Date Completed: 8/29/84
Driller: M Skardinski
Inspector:

Project No.: C275
Boring No.: RE-7
Surface Elev.:
Groundwater Depth-Casing In:
Below Ground Surf.-Casing Out:

Sheet of



CATOH Environmental Companies, Inc.
 One Industrial Place, Savannah, New York 13146
 Phone: 315/365-2891

Project: Groundwater Observation Well Installation
 Cortland County Landfill
 Town of Solon, Cortland County, NY
 Client: Cortland County
 Date Started: 8/28/84
 Date Completed: 8/28/84
 Driller: M. Skardinski
 Inspector:

Project No.: C275
 Boring No.: RE-8
 Surface Elev.:
 Groundwater Depth-Casing In: 9.0'
 Below Ground Surf.-Casing Out:

Sheet 1 of 1

INSPECTOR:			BLOWS ON SAMPLER				N	MATERIAL DESCRIPTION	
DEPTH	SAMPLE DEPTH	SAMPLE NO.	0" 6"	6" 12"	12" 18"	18" 24"			
0	0.0-2.0'	1	6	11			17	Brown moist silt, little sand and gravel, trace clay.	
					8	5	13		
	2.0-4.0'	2	23	47			70		Brown sand and gravel, trace silt.
5					66	32	98	Brown moist silt, some sand and gravel, trace clay.	
	4.0-6.0'	3	23	17			40		
					15	12	27		
	6.0-8.0'	4	16	17			33		
					21	32	53		Brown moist sand and gravel, trace silt.
10	8.0-10.0'	5	26	22			48	Brown moist silt, some sand and gravel.	
					22	68	90		
	10.0-12.0'	6	100	4			100		Brown moist silt, some sand and gravel.
15	12.0-14.0'	7	36	77			113	Brown saturated sand and gravel, little silt, trace clay.	
					47	37	84		
	14.0-16.0'	8	26	31			57		Gray moist silt, some sand and gravel.
					40	62	102		
20	16.0-16.5'	9	100	5			100	Gray saturated coarse to fine sand, little silt, trace fine gravel, trace clay.	
	18.0-20.0'	10	30	41			71		Gray moist silt, little sand and fine gravel, trace clay.
					34	98	132		
25	20.0-22.0'	11	28	40			68	Gray moist silt, little sand and fine gravel, trace clay.	
					52	44	96		
	22.0-24.0'	12	40	38			78		Gray moist silt, little sand and fine gravel, trace clay.
					41	67	108		
30	24.0-25.0'	13	43	57			100	Gray moist silt, little sand and fine gravel, trace clay.	
35								Boring terminated at 25.0'	
40								NOTE: Installed monitor well.	

N = No. of blows to drive 2" spoon 12" w/ 140 lb. weight 30" each blow.
 Casing Type: hollow stem auger

CATOH Environmental Companies, Inc.
One Industrial Place, Savannah, New York 13146
Phone: 315/365-2891

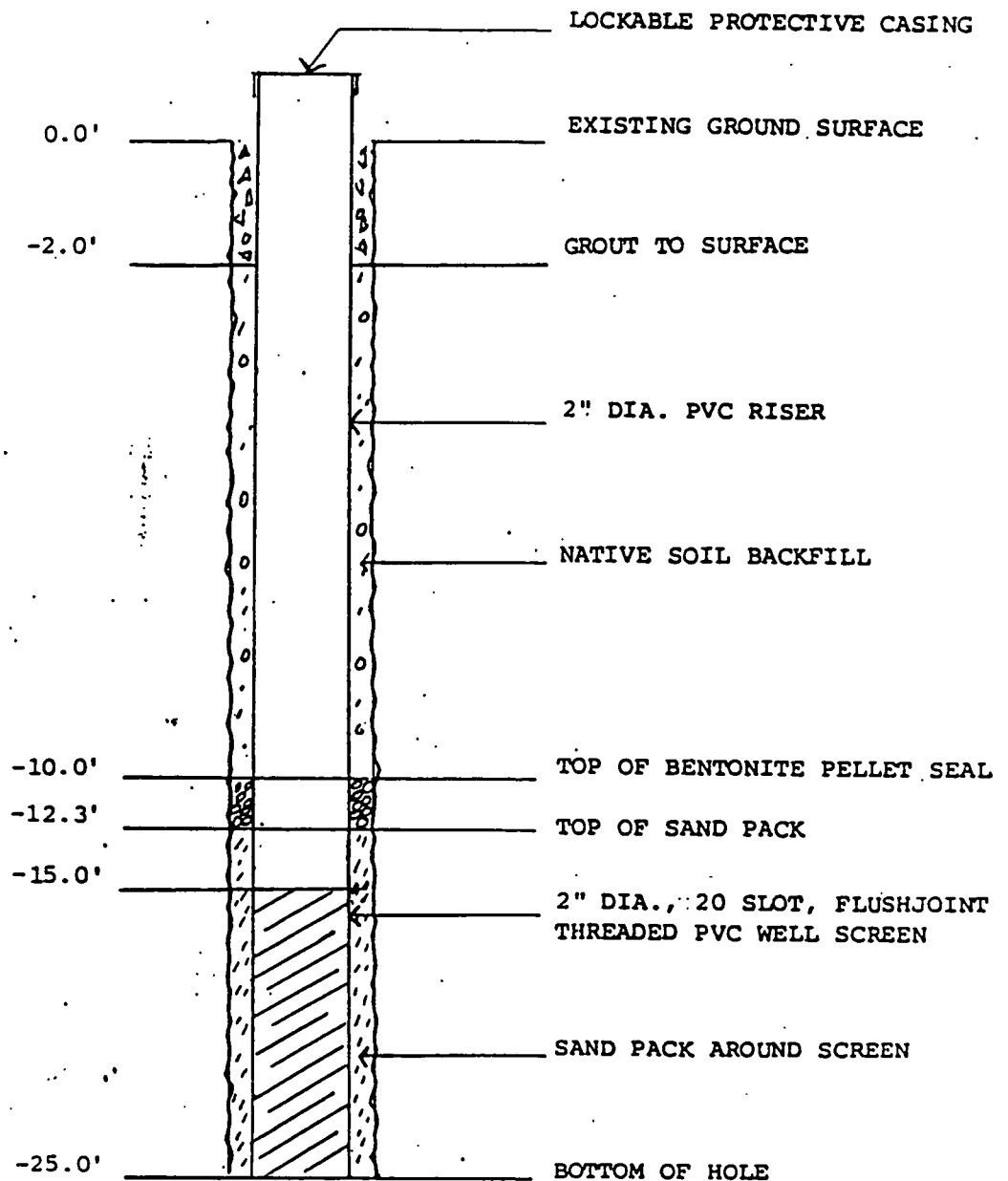
PRELIMINARY

Project: Groundwater Observation Well Installation
Cortland County Landfill
Town of Solon, Cortland County, NY
Cortland County

Client:
Date Started:
Date Completed: 8/28/84
Driller: M Skardinski
Inspector:

Project No.: C275
Boring No.: RE-8
Surface Elev.:
Groundwater Depth-Casing In:
Below Ground Surf.-Casing Out:

Sheet of



Dunn Geoscience Corporation

Core Log

Client CATOH ENVIRONMENTAL CO. INC.
 Project CORTLAND LANDFILL
 Location TOWN OF SOLON

Logged by JTW Date Logged 10/19/84
 Drilling Co. CATOH ENVIRONMENTAL CO. INC.
 Driller T.CROWELL. M. SKARDINSKI
 Started 9/14/84 Finished 9/14/84

Hole D-1
 Depth 157.5'
 Elev 1727.46
 Core Dia 4"

FORMATION	Member	Zone/Unit	Graphic Log	Depth	Descriptive Log ROCK TYPE color, grain, size texture, bedding minerals remarks etc	Angle of Bedding to Core	% Core Recovery
			1" <u>5'</u>				
				155	INTERBEDDED SILTSTONE & SHALE- Medium gray to medium dark gray (N4-N5), aphanitic (157.5-177.5') to fine grained, thinly bedded with cross-bedding throughout; localized fossils, fractures are oriented along bedding planes predominating along the Shale; Siltstone is locally calcareous, possibly due to a Calcite cementation; fractures decreasing in frequency towards 170.0' Shale & Siltstone becoming medium bedded towards 173.0' with frequent disturbed bedding surfaces.		RUN#1 REC=9 RQD=7 D=1 S=2 F=4
				160			
				165			
				170			
				175			RUN#2 Rec=9 RQD=7 D-1 S-2 F-3

CATOH Environmental Companies, Inc.
One Industrial Place, Savannah, New York 13146
Phone: 315/365-2891

Project: Groundwater Observation Well Installation
 Cortland County Landfill
 Town of Solon, Cortland County, NY
 Client: Cortland County
 Date Started:
 Date Completed: 9/14/84
 Driller: T. Crowell, M. Skardinski
 Inspector:

Project No.: C275
 Boring No.: D-1
 Surface Elev.:

Groundwater Depth-Casing In:
 Below Ground Surf.-Casing Out:

Sheet 1 of 2

DEPTH	SAMPLE DEPTH	SAMPLE NO.	BLOWS ON SAMPLER				N	MATERIAL DESCRIPTION
			0" 6"	6" 12"	12" 18"	18" 24"		
140								Drilled 6" diameter mud rotary to 157.0' (approximately 5' into competent bedrock)
145								No soils samples at owner's request
150								Installed 4" diameter steel casing with float shoe to 157.0'
155								Installed cement/bentonite grout in the 4" casing x borehole wall annulus from -157.0' to ground surface.
	RUN NO. 1							Drilled float shoe and advanced the borehole to -157.5' with 3 7/8" tricone roller bit.
	157.5-167.5'							
	RECOVERED 9.8'							
160								Gray shale with interbedded limestone.
165								Gray shale with interbedded limestone.
	RUN NO. 2							Gray shale with interbedded limestone.
	167.5-177.5'							
170	RECOVERED 9.7'							
175								boring terminated at 177.5'
180								

N = No. of blows to drive _____ spoon _____ w/ _____ lb. weight _____ each blow.
 Casing Type: _____

N = No. of blows to drive _____ spoon _____ w/ _____ lb. weight _____ each blow.
Casing Type: _____

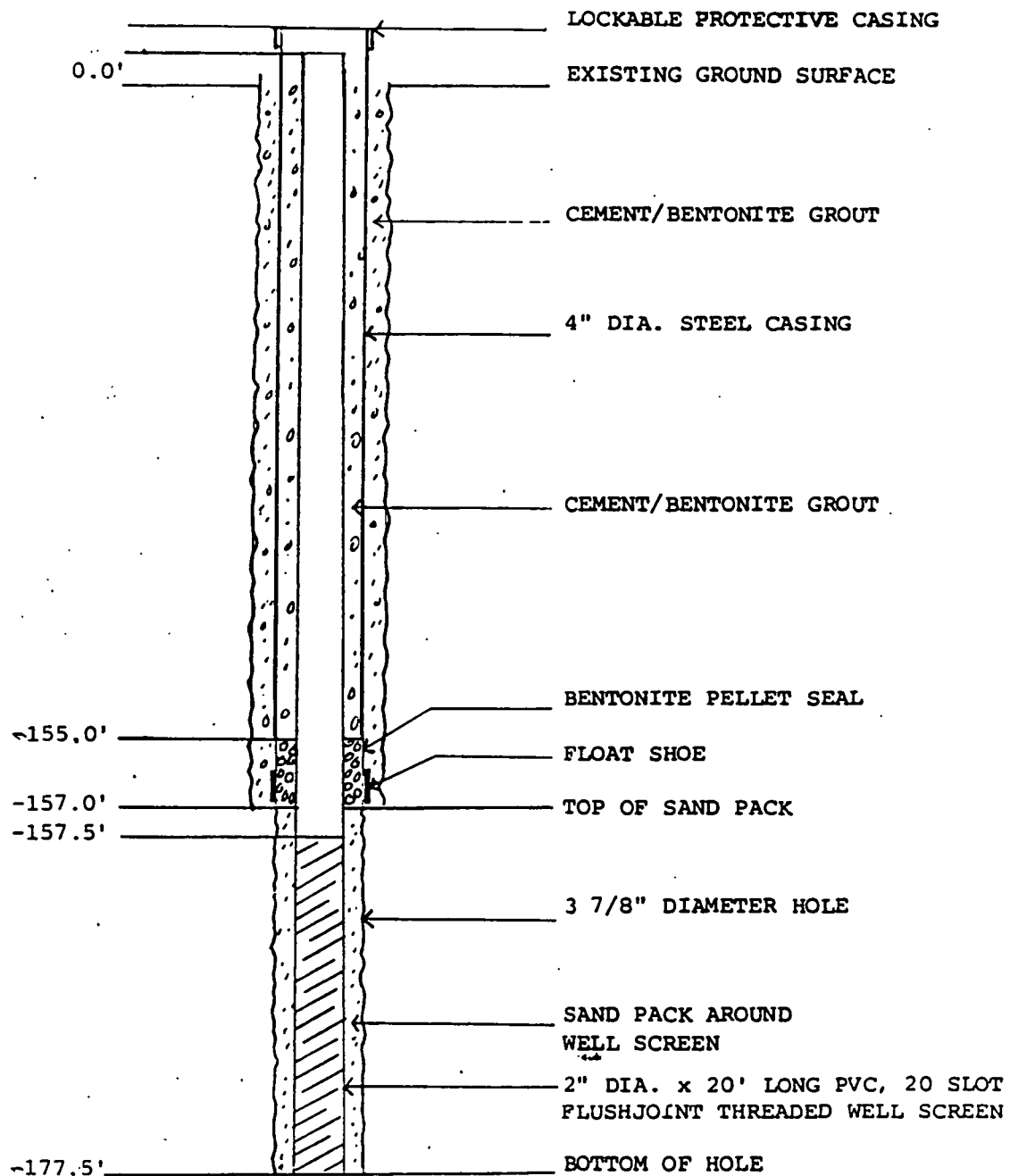
CATOH Environmental Companies, Inc.
One Industrial Place, Savannah, New York 13146
Phone: 315/365-2891

PRELIMINARY

Project: Groundwater Observation Well Installation
Cortland County Landfill
Town of Solon, Cortland County, NY
Client: Cortland County
Date Started:
Date Completed: 9/14/84
Driller: T. Crowell, M. Skardinski
Inspector:

Project No.: C275
Boring No.: D-1
Surface Elev.:
Groundwater Depth-Casing In:
Below Ground Surf.-Casing Out:

Sheet of



Dunn Geoscience Corporation

Core Log

Client Catoh Environmental Co. Inc.
 Project Cortland Landfill
 Location Town of Solon

Logged by J. T. Wink Date Logged 10/19/84
 Drilling Co Catoh Environmental Comp., Inc.
 Driller T. Crowell, A. Utter
 Started 9/14/84 Finished 10/11/84

Hole D-2
 Depth 118'
 Elev. 1710.56'
 Core Dia 4"

FORMATION	Member	Zone/Unit	Graphic Log 1" <u>5'</u>	Depth	Descriptive Log ROCK TYPE. color grain size texture bedding minerals remarks, etc	Angle of Bedding to Core	% Core Recovery
				120	INTERBEDDED SILTSTONE & LIMESTONE - Medium dark gray to medium gray (N4-N5), very fine grained to aphanitic, thin to medium bedding, localized cross-bedding and disturbed bedding surfaces. Occasionally fossiliferous, fracturing predominantly along individual bedding planes		Run=1 Rec=4 RQD=3' D-1 S-2 F-4
				125	SHALE - Medium dark gray (N4) aphanitic texture, thinly bedded (123.3-123.7)		Run # Rec=4. RQD=6'
				130	LIMESTONE - Medium gray (N4), aphanitic, medium bedded, extremely fossiliferous (123.7'-124.5') (Spirifer, little fracturing)		D-1 S-2 F-3
					SHALE - (same as 123.3-123.7) (124.4-127.0)		Run # Rec=5 RQD=9'
				135	INTERBEDDED SILTSTONE & SHALE - Medium gray to medium light gray (N-5-N-6) (127.0'-138) very fine grained to aphanitic, extremely thinly bedded with cross-bedding throughout. Occasionally fossiliferous fractures occurring along bedding planes, one large fracture oriented 60° from horizontal at 30.4'.		D-1 S-1 F-2
				140			Run # Rec=5 RQD=11' D-1 S-1 F-2

Hole No D-2
 Sheet 1 of 1

N = No. of blows to drive _____ spoon _____ w/ _____ lb. weight _____ each blow.
Casing Type: _____

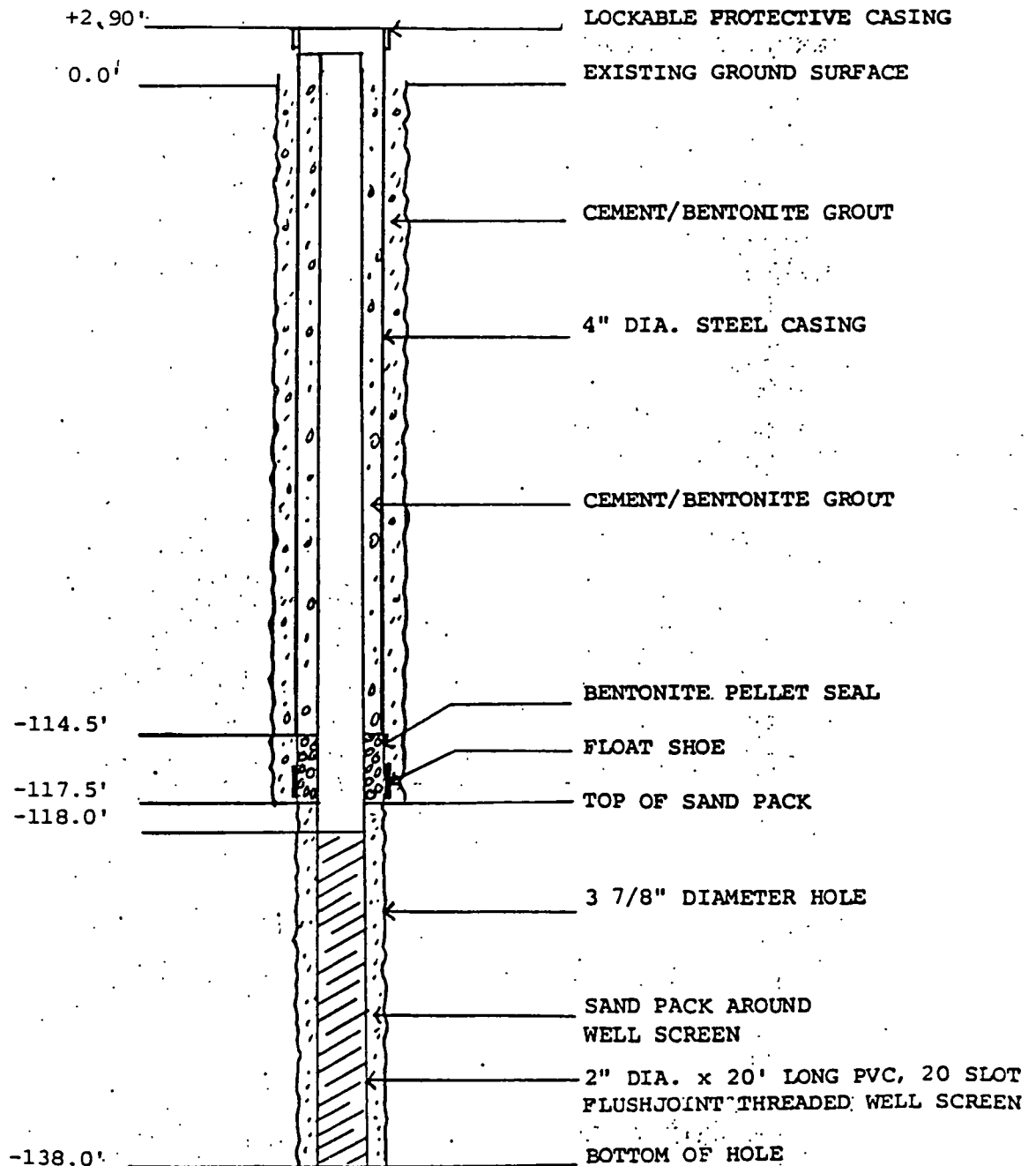
N = No. of blows to drive _____ spoon _____ w/ _____ lb. weight _____ each blow.
Casing Type: _____

CATOH Environmental Companies, Inc.
One Industrial Place, Savannah, New York 13146
Phone: 315/365-2891

Project: Groundwater Observation Well Installation
Cortland County Landfill
Town of Solon, Cortland County, NY
Client: Cortland County
Date Started: 9/14/84
Date Completed: 10/11/84
Driller: T. Crowell, A. Utter
Inspector:

Project No.: C275
Boring No.: D-2
Surface Elev.:
Groundwater Depth-Casing In:
Below Ground Surf.-Casing Out:

Sheet 1 of 1



L. I. G. Inc. Co. Inc.
Core Log

Client Catch Environmental Co. Inc.
Project Cortland Landfill
Location Town of Solon

Logged by JTW Date Logged 10/19/84
Drilling Co Catch Environmental Co. Inc.
Driller T. Crowell, M. Skardinski
Started 9.25.84 Finished 12/11/84

Hole D-3
Depth 100.00
Elev 1694.24
Core Dia 4"

FORMATION	Member	Zone/Unit	Graphic Log	Depth	Descriptive Log ROCK TYPE color grain size texture bedding. minerals. remarks etc	Angle of Bedding to Core	% Core Recovery
			1' 5'				
				100	INTERBEDDED SHALE & SILTSTONE-Medium dark gray to dark gray (N4-N-3) (100.0-107.6') aphanitic Stexture, cross-bedded with disturbed bedding surfaces. Slightly fossiliferous and calcareous. Fractures oriented along Shale horizons; highly broken throughout.		Run #1 Rec= RQD= D-1 S-2 F-3,
				105	LIMESTONE-Medium dark gray (N4), aphanitic, medium bedded (107.6'-108.9') slightly fossiliferous, little fracturing.		Run # Rec= RQD= D-1 S-2 F-3
				110	SHALE-Medium dark gray (N4) aphanitic texture, thinly bedded (108.9-112.35')		Run # Rec= RQD= D-1 S-2 F-3
				115	INTERBEDDED SHALE & SILTSTONE-(Same as 100.0-107.6') Not as fractured. (112.35'-120.0')		Run # Rec= RQD= D-1 S-2 F-3

CATOH Environmental Companies, Inc.
One Industrial Place, Savannah, New York 13146
Phone: 315/365-2891

Project: Groundwater Observation Well Installation
 Cortland County Landfill
 Town of Solon, Cortland County, NY
 Client: Cortland County
 Date Started: 9/25/84
 Date Completed: 12/11/84
 Driller: T. Crowell, M. Skardinski
 Inspector:

Project No.: C275
 Boring No.: D-3
 Surface Elev.:

Groundwater Depth-Casing In:
 Below Ground Surf.-Casing Out:

Sheet 1 of 2

DEPTH	SAMPLE DEPTH	SAMPLE NO.	BLOWS ON SAMPLER					N	MATERIAL DESCRIPTION
			0" 6"	6" 12"	12" 18"	18" 24"			
									Drilled 6" diameter mud rotary to 99.0' (approximately 5' into competent bedrock).
									No soils samples obtained at owner's request.
									Installed 4" diameter steel casing with float shoe to 99.0'.
									Installed cement/bentonite grout in the 4" casing x borehole wall annulus from 99.0' to ground surface.
100	RUN NO. 1 100.0-103.77 RECOVERED 2.9'								Drilled float shoe and advanced borehole to 100.0' with 3 7/8" diameter tricone roller bit.
105	RUN NO. 2 103.77-108.77 RECOVERED 4.0'								Gray shale with interbedded limestone.
110	RUN NO. 3 108.77-116.77 RECOVERED 7.5'								Gray shale with interbedded limestone.
115	RUN NO. 4 116.77-120.07 RECOVERED 3.2'								
120									Boring terminated at 120.0'
125									

N = No. of blows to drive _____ spoon _____ w/ _____ lb. weight _____ each blow.
 Casing Type: _____

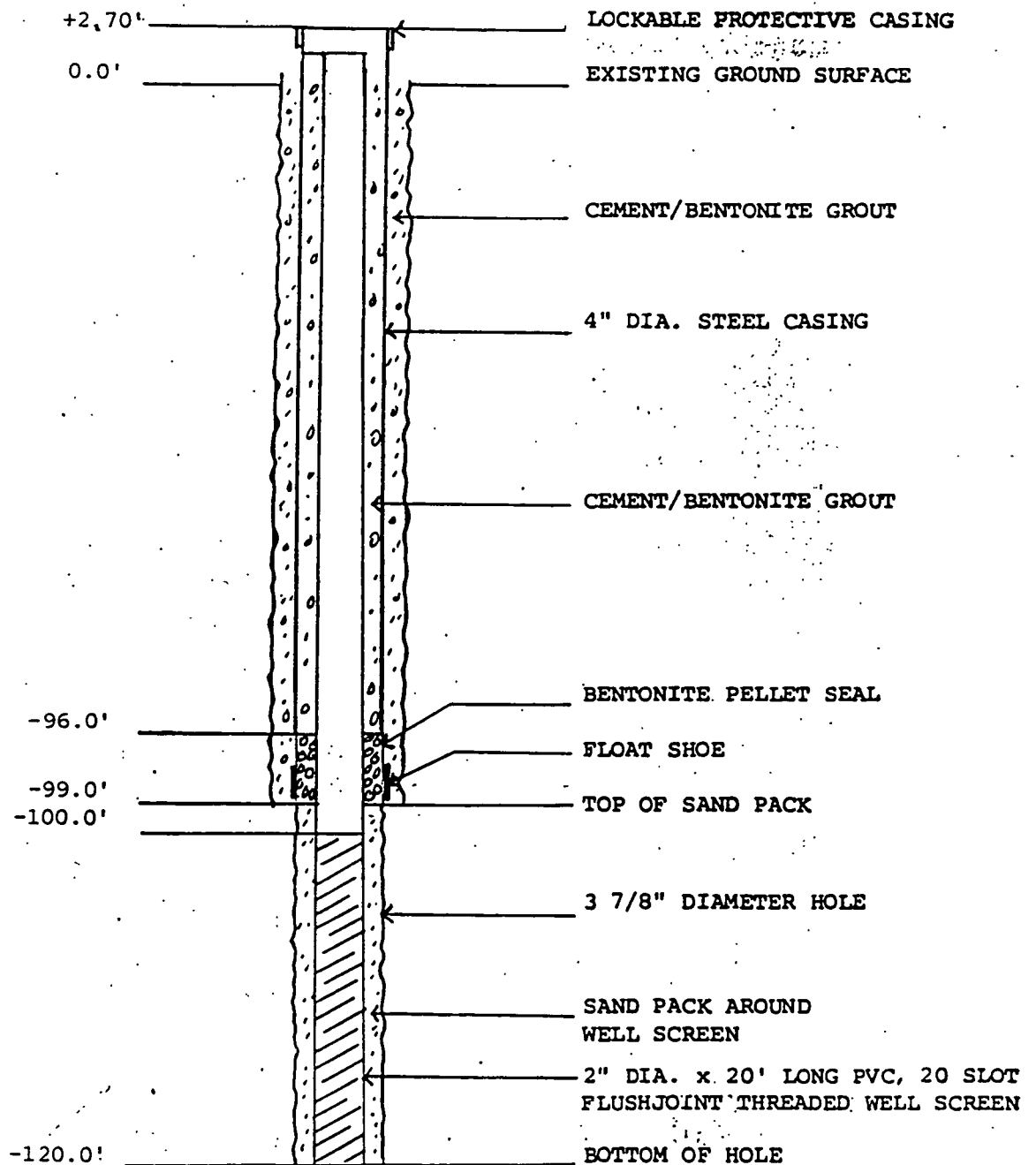
N = No. of blows to drive _____ spoon _____ w/ _____ lb. weight _____ each blow.
Casing Type: _____

CATOH Environmental Companies, Inc.
One Industrial Place, Savannah, New York 13146
Phone: 315/365-2891

Project: Groundwater Observation Well Installation
Cortland County Landfill
Town of Solon, Cortland County, NY
Client: Cortland County
Date Started: 9/25/84
Date Completed: 10/11/84
Driller: T. Crowell, M. Skardinski
Inspector:

Project No.: C275
Boring No.: D-3
Surface Elev.:
Groundwater Depth-Casing In:
Below Ground Surf.-Casing Out:

Sheet 1 of 1



Dunn Geoscience Corporation
Core Log

Client Catoh Environmental Co. Inc.
Project Cortland Co. Landfill
Location Town of Solon

Logged by JTW Date Logged 10-12-84
Drilling Co Catoh Environmental Co. Inc.
Driller T. Crowell, M. Skardinski
Started 9/25/84 Finished 12/11/84

Hole D-4
Depth 141'
Elev 1672.75
Core Dia 4"

FORMATION	Member	Zone/Unit	Graphic Log	Depth	Descriptive Log ROCK TYPE color grain size texture bedding minerals remarks etc	Angle of Bedding to Core	% Core Recovery
			5'				
				145	<u>INTERBEDDED SHALE & SILTSTONE</u> -Medium dark gray to dark gray (N4-N3), aphanitic texture, (141.0-153.15') tightly bedded with cross-bedding throughout; slightly fossiliferous and calcareous, fracturing predominating along Shale bedding planes; large fracture oriented 20° from the horizontal at 145.9.		Run #1 Rec=1 RDQ=1 D-1 S-2 F-3
				150	<u>DOLOMITE</u> -Medium gray (N5), medium bedded, aphanitic texture, localized clasts of argillaceous material and pyrite nodules; large fractured stylolic surface at 153.55'.		Run #1 Rec=1 RDQ=1 D-1 S-2 F-3
				155	<u>INTERBEDDED LIMESTONE & SHALE</u> -Medium dark gray (N4-N5) aphanitic texture, medium to thinly bedded, localized cross bedding, extremely fossiliferous from 157.5-158.9 fracturing predominantly occurring along stylolic surfaces and bedding planes, (not as tightly fractured as above).		
				160	<u>INTERBEDDED SHALE AND SILTSTONE</u> -(same as 141-153.15') Not as highly fractured.		

CATOH Environmental Companies, Inc.
One Industrial Place, Savannah, New York 13146
Phone: 315/365-2891

Project: Groundwater Observation Well Installation
 Cortland County Landfill
 Town of Solon, Cortland County, NY
 Client: Cortland County
 Date Started: 9/27/84
 Date Completed: 10/12/84
 Driller: T. Crowell, A. Utter
 Inspector:

Project No.: C275
 Boring No.: D-4
 Surface Elev.:

Groundwater Depth-Casing In:
 Below Ground Surf.-Casing Out:

Sheet 1 of 2

DEPTH	SAMPLE DEPTH	SAMPLE NO.	BLOWS ON SAMPLER				N	MATERIAL DESCRIPTION
			0" 6"	6" 12"	12" 18"	18" 24"		
								Drilled 6" diameter mud rotary to 140.5' (approximately 5' into competent bedrock).
								No soils samples obtained at owner's request.
								Installed 4" diameter steel casing with float shoe to 140.5'
								Installed cement/bentonite grout in the 4" casing x borehole wall annulus from 140.5' to ground surface.
140	RUN NO. 1							Drilled float shoe and advanced borehole to 141.0' with 3 7/8" diameter tricone roller bit.
	141.0-151.0'							
	RECOVERED 9.2'							
145								Gray shale with interbedded limestone.
150	RUN NO. 2							Gray shale with interbedded limestone.
	151.0-161.0'							
	RECOVERED 10.2'							
155								
160								
								Boring terminated at 161.0'
165								

N = No. of blows to drive _____ spoon _____ w/ _____ lb. weight _____ each blow.
 Casing Type: _____

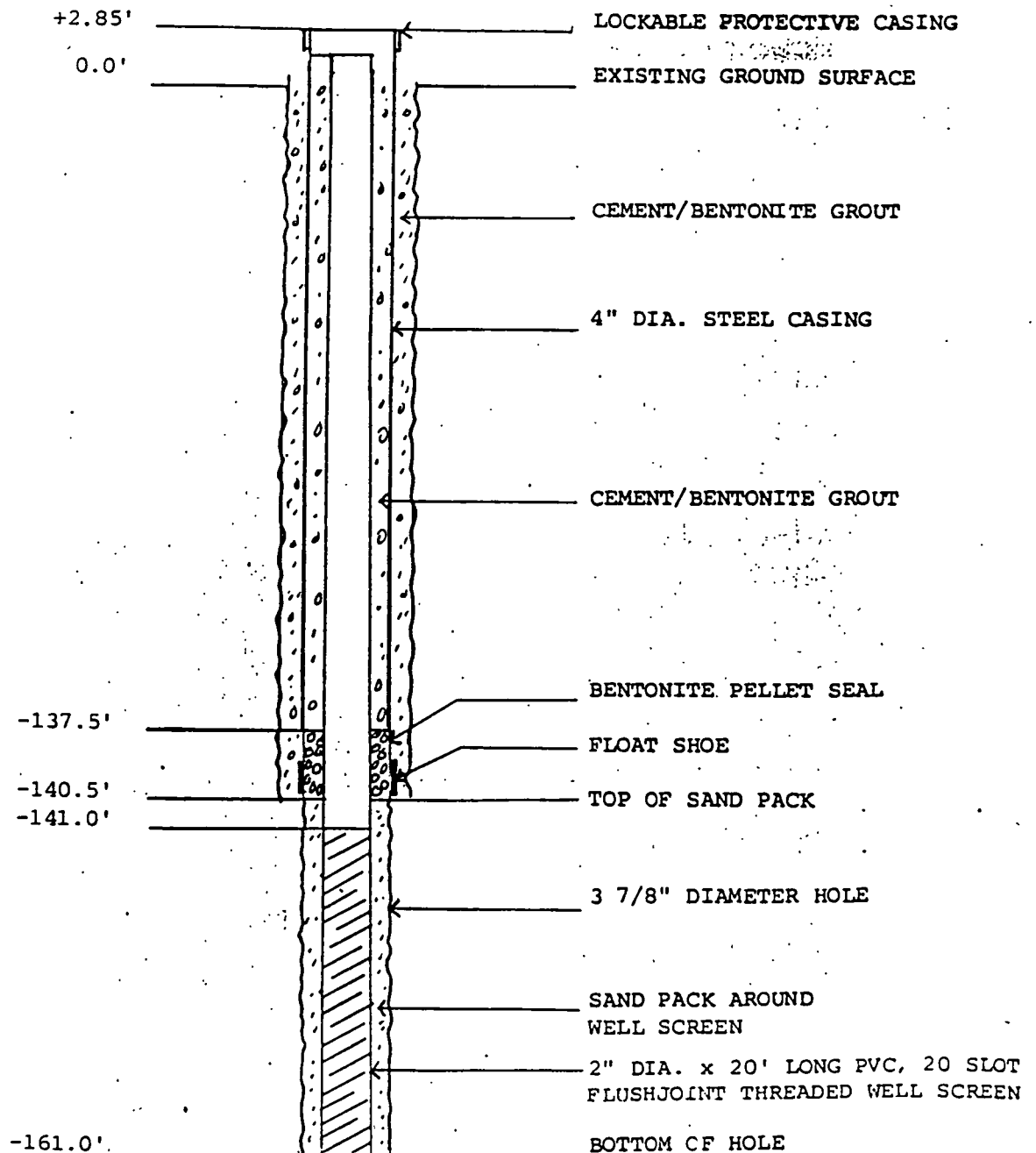
N = No. of blows to drive _____ spoon _____ w/ _____ lb. weight _____ each blow.
Casing Type: _____

CATOH Environmental Companies, Inc.
One Industrial Place, Savannah, New York 13146
Phone: 315/365-2891

Project: Groundwater Observation Well Installation
Cortland County Landfill
Town of Solon, Cortland County, NY
Client: Cortland County
Date Started: 9/27/84
Date Completed: 10/12/84
Driller: T. Crowell, A. Utter
Inspector:

Project No.: C275
Boring No.: D-4
Surface Elev.:
Groundwater Depth-Casing In:
Below Ground Surf.-Casing Out:

Sheet 1 of 1



Dunn Geoscience Corporation
Core Log

Client Catch Environmental Co. Inc.
Project Cortland Co. Landfill
Location Town of Solon

Logged by JTW Date Logged _____
Drilling Co Catch Environmental Co. Inc.
Driller T. Crowell, A. Utter
Started 9-27-84 Finished 10-12-84

Hole D-5
Depth 146.5'
Elev 1663.05
Core Dia 4"

FORMATION	Member	Zone/Unit	Graphic Log 1" = 2.5'	Depth	Descriptive Log ROCK TYPE color, grain size texture, bedding minerals remarks etc	Angle of Bedding to Core	% Core Recovery
				145	<u>SILTSTONE</u> -Gray (W-5), very fine grained, nearly aphanitic, medium to thinly bedded, (146.5-148.55') localized Shale seam at 147.1', fractures in core predominating along bedding planes one every 0.3'.		Run #1 Rec=9. RQD=41 D-1 S-2 F-4
					<u>LIMESTONE</u> -Medium light gray (N-5), aphanitic, medium bedded, slightly fossiliferous (148.55-148.85') along the upper horizon from 148.55'-149.50', fracturing is along bedding planes which are oriented at 10-15 degrees from the horizontal.		
				150	<u>INTERBEDDED LIMESTONE & SILTSTONE</u> -Medium gray (N-5), fine grained to aphanitic, tightly (148.85-150') interbedded Siltstone & Limestone, very thinly bedded, some cross bedding Fractures predominantly along bedding planes; slightly calcareous.		
					<u>SHALE</u> -Medium dark gray (N-4), thinly bedded & aphanitic texture, localized inclusions (150.0-150.40') of Limestone clasts.		
					<u>INTERBEDDED LIMESTONE & SILTSTONE</u> -(same as 148.85-150.0') Disturbed contact on upper (150.40-154.15') portion of bedding surface (possibly erosional or depositional) fossiliferous from 150.40', 150.65', 151.15', 151.50' & 152.30-152.50' extremely cross bedded and interbedded.		
				155	<u>SILTSTONE</u> -(same as 146.5-148.55') Large fracture across bedding planes at 155.0', (154.15-155.5') interbedded Shale seams scattered throught Siltstone slightly fossiliferous.		
					<u>INTERBEDDED LIMESTONE & SILTSTONE</u> -(same as 148.85-150-50') Not as fossiliferous, thinly (155.5-156.5) interbedded, very broken up from 156.2-156.5'		Hole No. D-5 Sheet 1 of 2

INTERBEDDED SHALE & SILTSTONE- Medium gray-medium dark gray (N-5-N-6), fine grained
(156.5-161.10') to aphanitic, extremely cross bedded, very thin bedding planes
fracturing occurring along bedding surfaces.

160 LIMESTONE - Medium gray(N-5) aphanitic, slightly interbedded with clastic material
(161.10-166.5') (Siltstone or Shale) fractures occurring along bedding surfaces, large
color change along stylolitic surface at 165.7'.

RUN #2
REC=9.
RQD=68
D=1
S=2
F=3,4

CATOH Environmental Companies, Inc.
One Industrial Place, Savannah, New York 13146
Phone: 315/365-2891

Project: Groundwater Observation Well Installation
 Cortland County Landfill
 Town of Solon, Cortland County, NY
 Client: Cortland County
 Date Started:
 Date Completed: 9/16/84
 Driller: T. Crowell, M. Skardinski
 Inspector:

Project No.: C275
 Boring No.: D-5
 Surface Elev.:

Groundwater Depth-Casing In:
 Below Ground Surf.-Casing Out:

Sheet 1 of 2

DEPTH	SAMPLE DEPTH	SAMPLE NO	BLOWS ON SAMPLER				N	MATERIAL DESCRIPTION
			0" 6"	6" 12"	12" 18"	18" 24"		
								Drilled 6" diameter mud rotary to 146.0' (approximately 5' into competent bedrock)
								No soils samples obtained at owner's request.
								Installed 4" diameter steel casing with float shoe to 146.0'
								Installed cement/bentonite grout in the 4" casing x borehole wall annulus from 146' to ground surface.
145								Drilled float shoe and advanced borehole to -146.5' with 3 7/8" diameter tricone roller bit.
	RUN NO. 1							
	146.5-156.5'							
	RECOVERED 9.9'							
150								Gray shale with interbedded limestone.
155								
	RUN NO. 2							
	156.5-166.5'							
	RECOVERED 9.8'							
160								Gray shale with interbedded limestone.
165								
170								Boring terminated at 166.5'

N = No. of blows to drive _____ spoon _____ w/ _____ lb. weight _____ each blow.

Casing Type: _____

N = No. of blows to drive _____ spoon _____ w/ _____ lb. weight _____ each blow.
Casing Type: _____

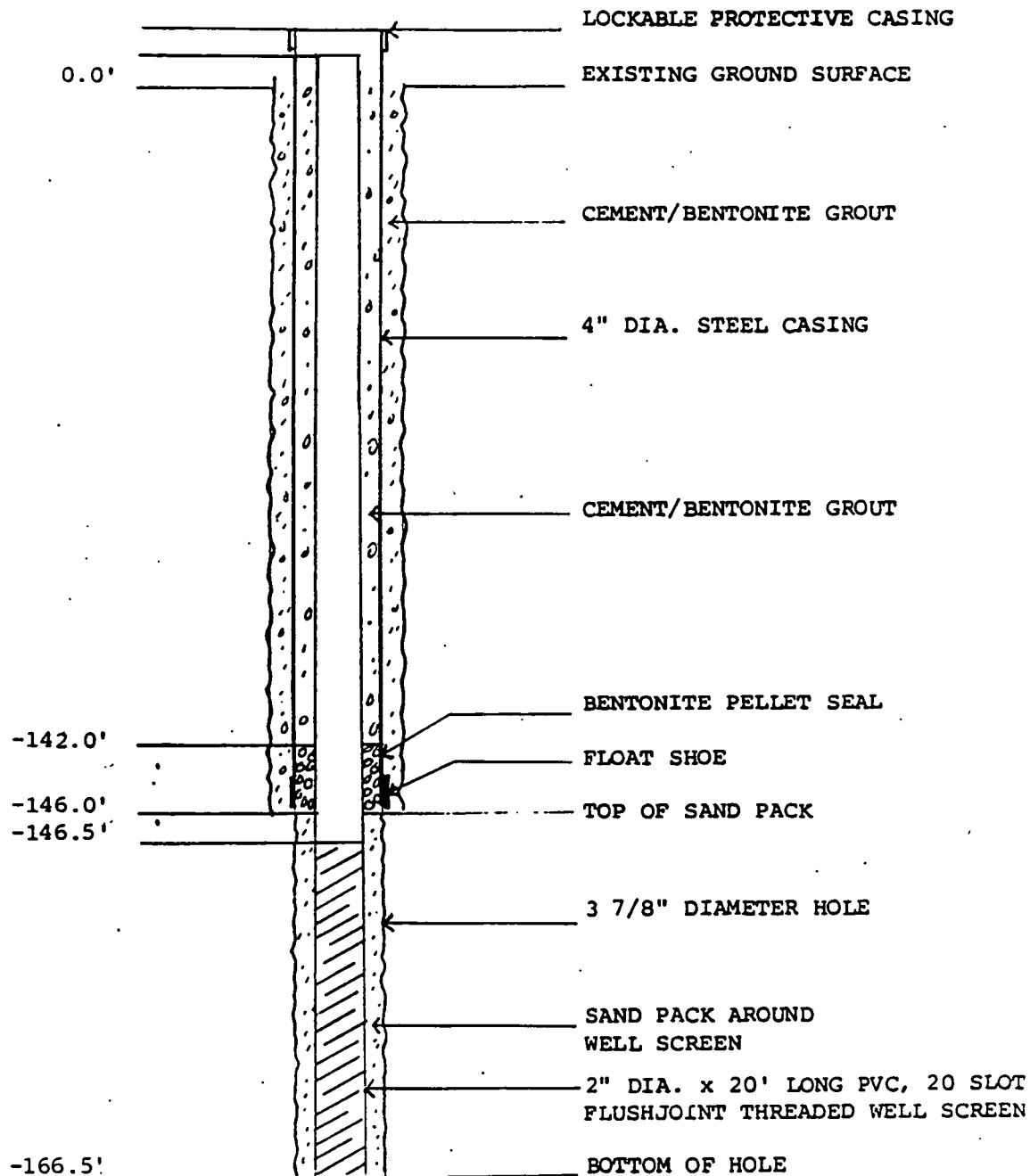
CATOH Environmental Companies, Inc.
One Industrial Place, Savannah, New York 13146
Phone: 315/365-2891

PRELIMINARY

Project: Groundwater Observation Well Installation
Cortland County Landfill
Town of Solon, Cortland County, NY
Client: Cortland County
Date Started:
Date Completed: 9/16/84
Driller: T. Crowell, M. Skardinski
Inspector:

Project No.: C275
Boring No.: D-5
Surface Elev.:
Groundwater Depth-Casing In:
Below Ground Surf.-Casing Out:

Sheet of



Dunn Geoscience Corporation
Core Log

Client CATOH ENVIRONMENTAL CO. INC.
Project CORTLAND CO. LANDFILL
Location TOWN OF SOLON

Logged by JTW Date Logged 10-19-84
Drilling Co CATOH ENVIRONMENTAL CO. INC.
Driller T. CROWELL, A. UTTER
Started 9-27-84 Finished 10-12-84

Hole D-6
Depth 69'
Elev 1712.79
Core Dia 4"

FORMATION	Member	Zone/Unit	Graphic Log 1" 5'	Depth	Descriptive Log ROCK TYPE color grain size texture bedding minerals remarks etc	Angle of Bedding to Core	% Core Recovery
				70	<u>DOLOMITE</u> - Medium light gray (N6), aphanitic texture, highly fractured and broken, fractures (69.0-69.5') are stained and water worn. <u>SILTSTONE</u> - Medium light gray(N6), fine grained to aphanitic, highly fractured and irregularly broken, fractures are water worn and stained, thinly bedded and slightly cross bedded Coarsening downwards.		RUN#1 REC=4 RQD=0 D=2 S=2 F=5
				75	<u>SANDSTONE</u> - Medium light gray to medium gray (N6-N5), subrounded fine grained quartz (72.0-74.0') in a Calite cement matrix; slightly fossiliferous, thinly bedded, with occasional interbedded Limestone & Shale seams; fracturing is both oriented along bedding planes and irregular throughout core.		RUN#2 REC=7 RQD=2 D=2 S=2 F=4
				80	<u>INTERBEDDED SILTSTONE & LIMESTONE</u> - Medium gray to medium dark gray (N5-N4), fine grained (74.0-76.0') to aphanitic, thinly bedded with localized cross bedding; fractures are irregular and oriented along bedding planes. Slightly fossiliferous in areas.		
				85	<u>SILTSTONE</u> - (same as 69.5-72.0') Localized seams of Limestone and occasional fossils. (76.0-87.8')		RUN#3 REC=5 RQD=5 D=2 S=2 F=4.5
				90	<u>INTERBEDDED SILTSTONE & SHALE</u> - Medium gray to medium dark gray(N5-N4), medium to thinly (87.8-88.6 ') bedded, fine to aphanitic grain size, localized cross-bedding and fossiliferous zone; increasing fractures. Fractures are primarily along bedding planes, (few irregular fractures) localized straining along fractures.		
					<u>SILTSTONE</u> - (same as 69.5-72.0) (88.6 -89.0')		

Hole No. D-6
Sheet 1 of 1

CATON Environmental Companies, Inc.
 One Industrial Place, Savannah, New York 13146
 Phone: 315/365-2891

Project: Groundwater Observation Well Installation
 Cortland County Landfill
 Town of Solon, Cortland County, NY
 Cortland County

Client:
 Date Started:
 Date Completed: 9/5/84
 Driller: T. Crowell, A. Utter
 Inspector:

Project No.: C275
 Boring No.: D-6
 Surface Elev.:

Groundwater Depth-Casing In:
 Below Ground Surf.-Casing Out:

Sheet 1 of 2

DEPTH	SAMPLE DEPTH	SAMPLE NO	BLOWS ON SAMPLER				N	MATERIAL DESCRIPTION
			0" 6"	6" 12"	12" 18"	18" 24"		
								Drilled 6" diameter mud rotary to 66.0' (approximately 5' into competent bedrock)
								No soils samples obtained at owner's request.
								Installed 4" diameter steel casing to 66.0'
								Installed cement/bentonite grout in the 4" casing x borehole wall annulus from -66.0' to ground surface.
65								Drilled to -69.0' with 3 7/8" diameter tricone roller bit.
70	RUN NO. 1							Gray shale with interbedded limestone.
	69.0-74.0'							
	RECOVERED 4.5'							
75	RUN NO. 2							Gray shale with interbedded limestone.
	74.0-82.0'							
	RECOVERED 7.7'							
80								
	RUN NO. 3							Gray shale with interbedded limestone.
	82.0-89.0'							
	RECOVERED 6.5'							
85								
90								Boring terminated at 89.0'

N = No. of blows to drive _____ spoon _____ w/ _____ lb. weight _____ each blow.
 Casing Type: _____

N = No. of blows to drive _____ spoon _____ w/ _____ lb. weight _____ each blow.
Casing Type: _____

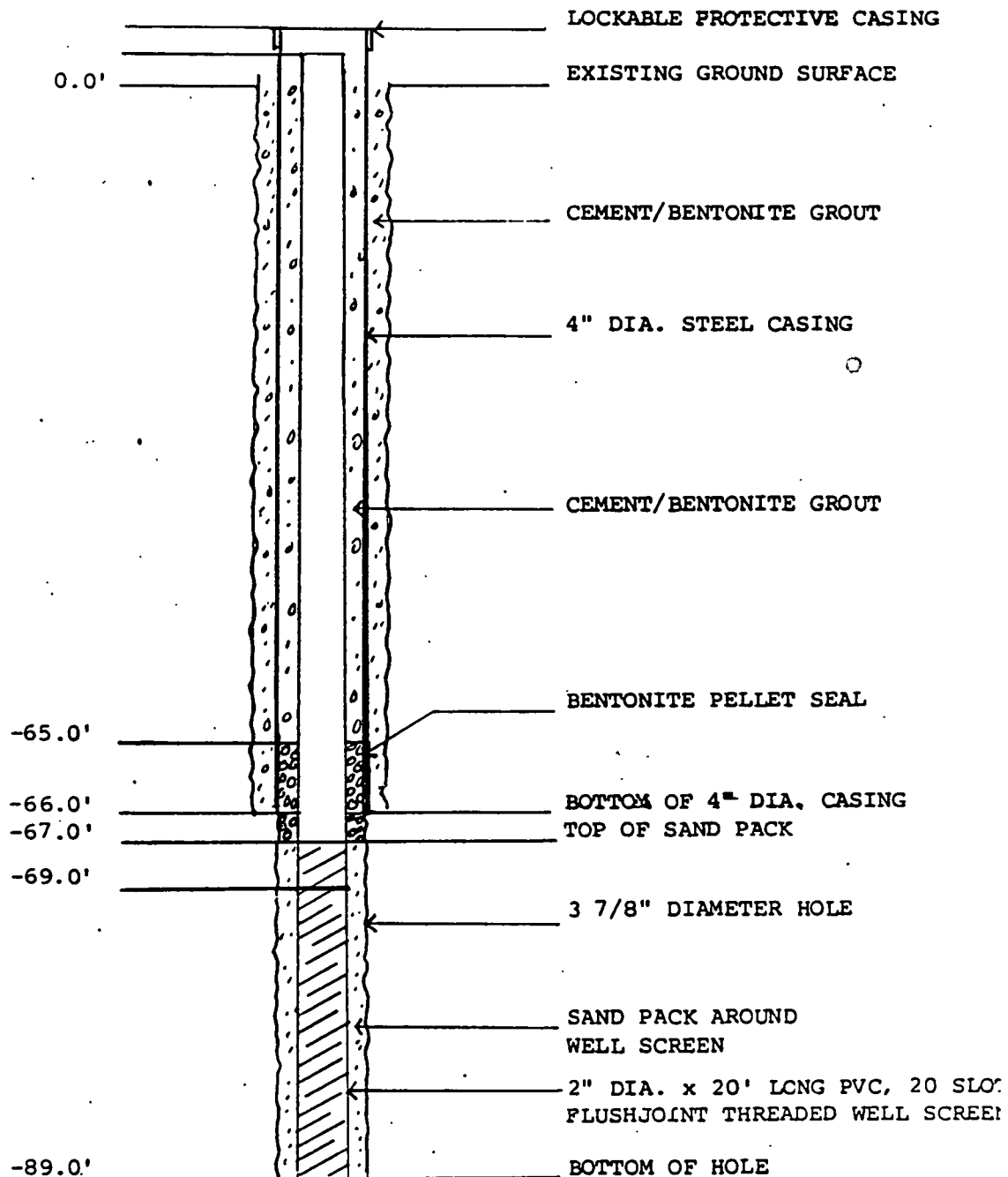
CATOH Environmental Companies, Inc.
One Industrial Place, Savannah, New York 13146
Phone: 315/365-2891

PRELIMINARY

Project: Groundwater Observation Well Installation
Cortland County Landfill
Town of Solon, Cortland County, NY
Client: Cortland County
Date Started:
Date Completed: 9/5/84
Driller: T. Crowell, M. Skardinski
Inspector:

Project No.: C275
Boring No.: D-6
Surface Elev.:
Groundwater Depth-Casing In:
Below Ground Surf.-Casing Out:

Sheet of



BORING LOGS
DECEMBER 1983
EMPIRE SOILS INVESTIGATIONS

STARTED 12-20-83
FINISHED 12-20-83
SHEET 1 OF 1



SUBSURFACE LOG

HOLE NO. RE-4

SURF. ELEV.

C. W. DEPTH See Note

PROJECT Cortland County Landfill

LOCATION Town of Solon, New York
Cortland County

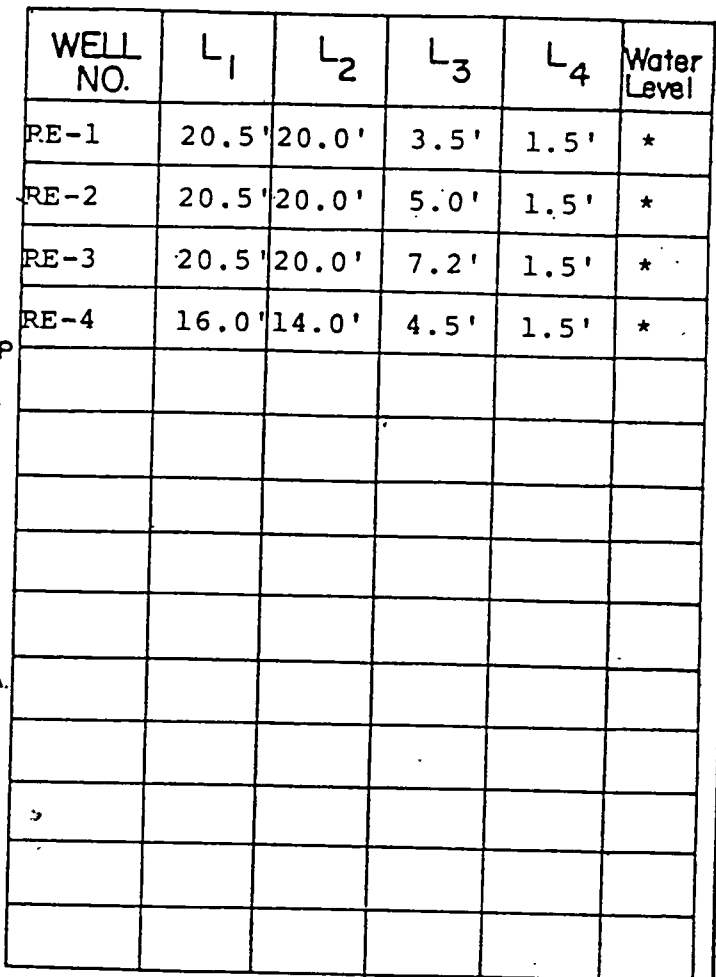
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N = No blows to drive 24 " spoon 12 " with 140 lb. pin wt. falling 30 " per blow.

C = No blows to drive _____" casing _____" with _____lb. weight falling _____" per blow.

METHOD OF INVESTIGATION 3 1/2" I.D. Hollow Stem Auger Casing

CLASSIFICATION Visual by
Geologist



**RE-3; 4Q Sand Backfill was used from 5.2' to 1.2',
then grout to surface



CORTLAND COUNTY LANDFILL
OBSERVATION WELL DESCRIPTIONS
TOWN OF SOLON, NEW YORK

DRWG NO. 1

BORING LOGS
NOVEMBER 1979
NYSDEC



DUNN GEOSCIENCE CORP.

5 Northway Lane North
Latham, New York 12110

DATE DRILLED: 11-13-79
DRILLED BY: ROCHESTER DRILLING
TOTAL DEPTH: 25' 11"

PROJECT: RCRA Contract for Groundwater Quality Assessment

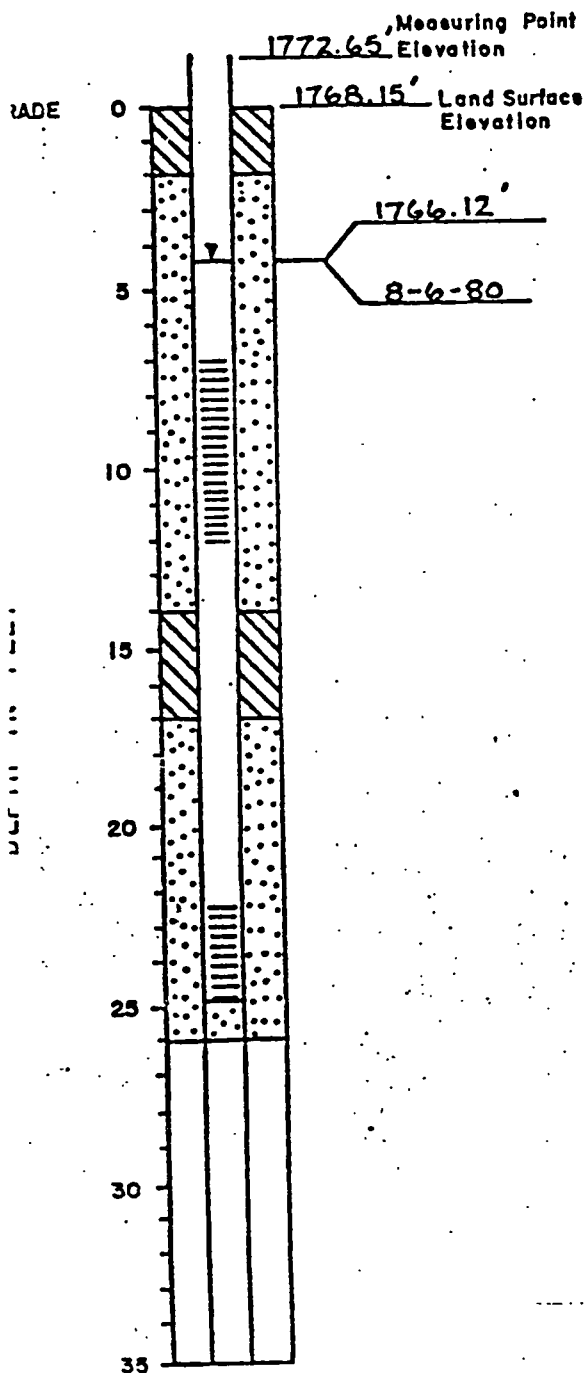
PROJECT NO. 15-2-1831

CONTRACT NO. NYSDEC-C-162001

SITE NAME: CORTLAND

WELL NO: DQ-1 PAGE 1 of 1

REGION NO: 7 FACILITY NO: 12501



LEGEND



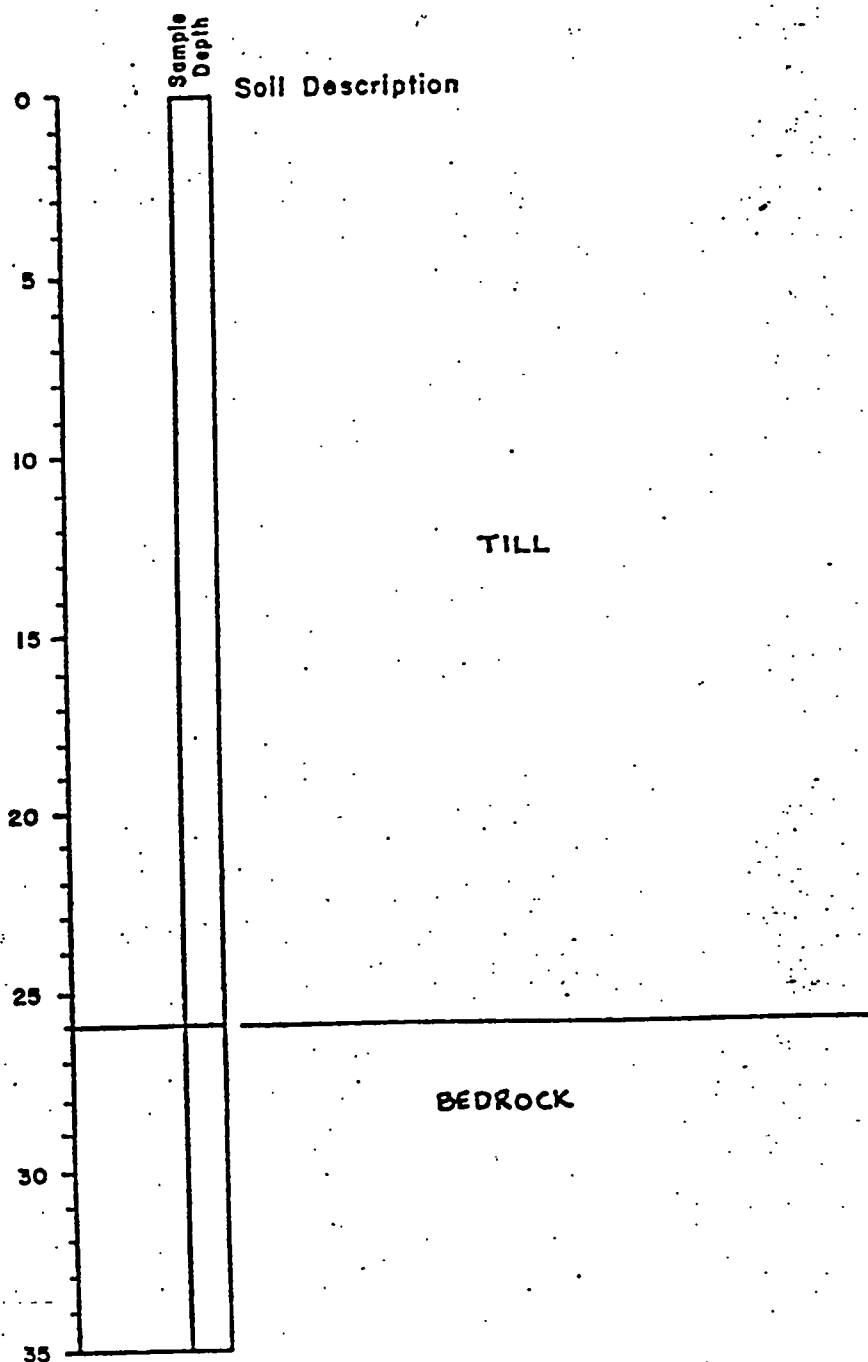
Screen

Sand



Backfill

Grout seal



NOTE:

For test borings/monitoring wells in excess of 35 feet, the log and construction detail are continued on succeeding pages.

PROJECT NO. 2165 PAGE 1 OF 2 BORING NO. 12S01-DO-1
PROJECT Cortland County SLF, Cortland County, New York
CLIENT Dunn Geoscience Corporation, Latham, New York
ELEVATION _____ INSPECTOR _____ WEATHER _____
DATE STARTED 11/13/79 COMPLETED 11/13/79 TECHNICIAN D. Sweeting
GROUND WATER - CASING IN - _____ AT COMPLETION / TIME _____
BELOW SURFACE - CASING OUT - _____ WELL POINTS AT
Water at completion with auger casing in - 6'9" 12'0" and 25'0"
Water at completion with well screens in - 4'0"; on 11/14/79 - 3'6"

TH OW CE	C	BLOWS ON SAMPLER					SAMPLE NO.	DEPTH OF SAMPLE	SOIL AND ROCK CLASSIFICATION REMARKS	
		0' 6"	6' 12"	12' 18"	18' 24"	N				
									Grass - weeds	0'2"
									Brown fine sandy silt, little medium to fine gravel	
		20	15	21		36	1	5'0"-6'6"	Encountered water at 7'0"	
										7'6"
		7	20	23		43	2	10'0"-11'6"	Brown moist sandy gravel, little medium to fine sand and silt Sample 2A - top of spoon Sample 2 - bottom of spoon	
										13'0"
		24	32	36		68	3	15'0"-16'6"	Brown damp gravelly silt, little weathered and decomposed shale, trace of sand and clay	
										17'0"
		52	56	80		136	4	20'0"-21'6"	Brown damp gravelly silt with weathered and decomposed shale	
										24'0"
		50	100			160	5	25'0"-25'11"	Brown damp weathered and decomposed shale	25'11"
			5"			11"			Boring terminated at 25'11"	

NOTES: N = NO. OF BLOWS TO DRIVE 2" SPOON 12" WITH 140 LB. WT. 30" EA. BLO
C = NO. OF BLOWS TO DRIVE _____ CASING _____ WITH _____ LB. WT. _____ EA. BLO

PROJECT NO. 2165 PAGE 2 OF 2 BORING NO. 12S01-DO-1
PROJECT Cortland County SLF, Cortland County, New York
CLIENT Dunn Geoscience Corporation, Latham, New York
ELEVATION _____ INSPECTOR _____ WEATHER _____
DATE STARTED 11/13/79 COMPLETED 11/13/79 TECHNICIAN D. Sweeting
GROUND WATER - CASING IN - _____ AT COMPLETION / TIME _____
FLOW SURFACE - CASING OUT - _____ WELL POINTS AT _____
Water at completion with auger casing in - 6'9" 12'0" and 25'0"
Water at completion with well screens in - 4'0"; on 11/14/79 - 3'6"

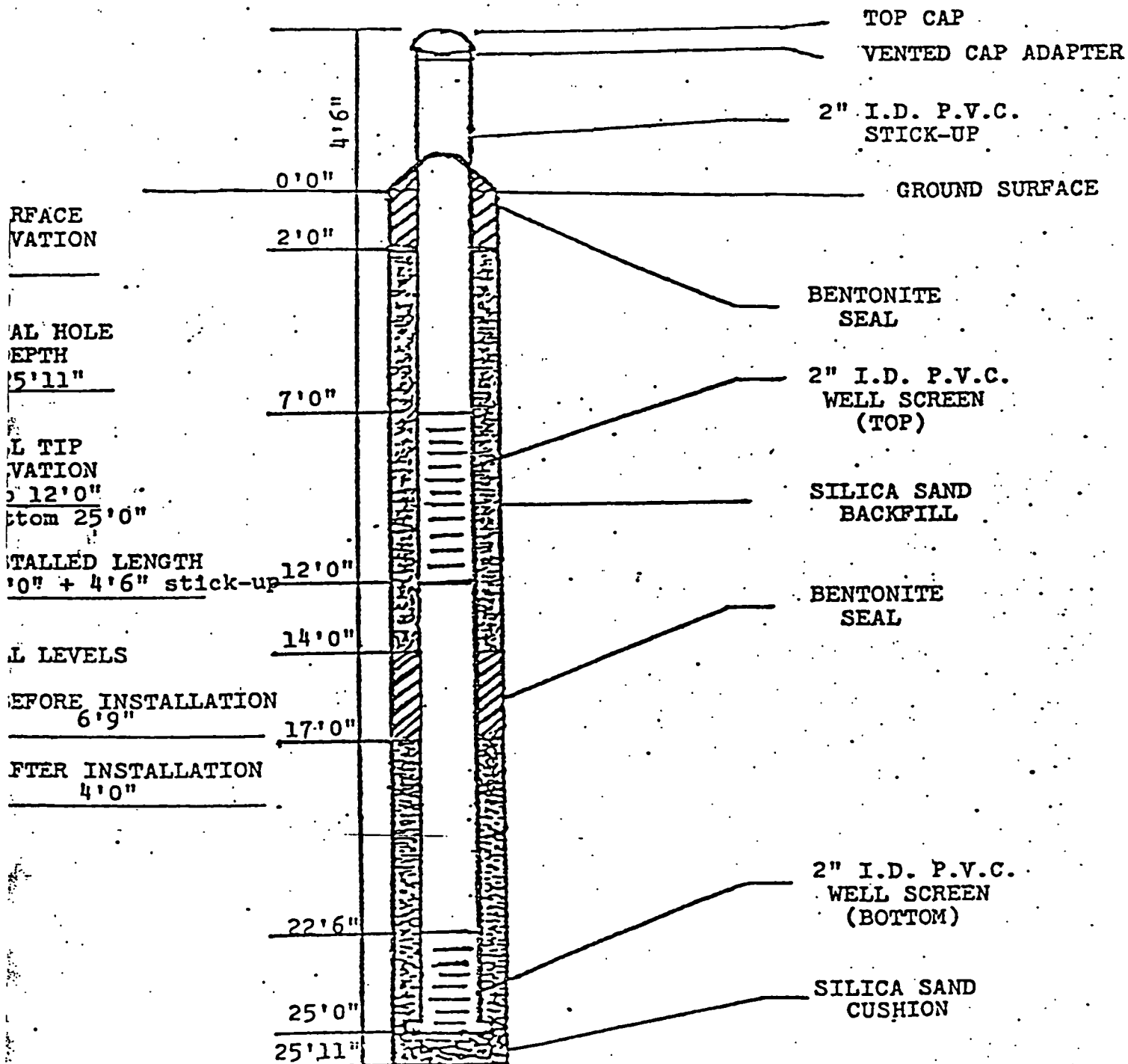
C	BLOWS ON SAMPLER					SAMPLE NO.	DEPTH OF SAMPLE	SOIL AND ROCK CLASSIFICATION REMARKS
	0' 6"	6" 12"	12" 18"	18" 24"	N			
								Notes: Advanced test boring with hollow stem auger casing Alternating soft and hard layers between 13' - 17' and 23' - 25'. Seasonal and climatic changes may alter the observed water levels Observation wells placed at 22'6" - 25'0" and 7'0" 12'0" in same hole 2" I.D. Top cap Vented cap adapter Stand pipe above ground Bentonite seal 0'0"-2'0" Sand backfill 2'0"-7'0" 2" I.D. screen 7'0"-12'0" Sand backfill 12'0"-14'0" Bentonite seal 14'0"-17'0" Sand backfill 17'0"-22'6" 2" I.D. screen 22'6"-25'0" Bottom cap plug Sand cushion 25'0"-25'1"

NOTES: N = NO. OF BLOWS TO DRIVE _____ 2" SPOON 12" WITH 140 LB. WT. 30" EA. BLO
C = NO. OF BLOWS TO DRIVE _____ CASING WITH _____ LB. WT. _____ EA. BLO

PROJECT Cortland County SLF, Cortland County PROJECT NUMBER 2165

DATE OF INSTALLATION 11/13/79

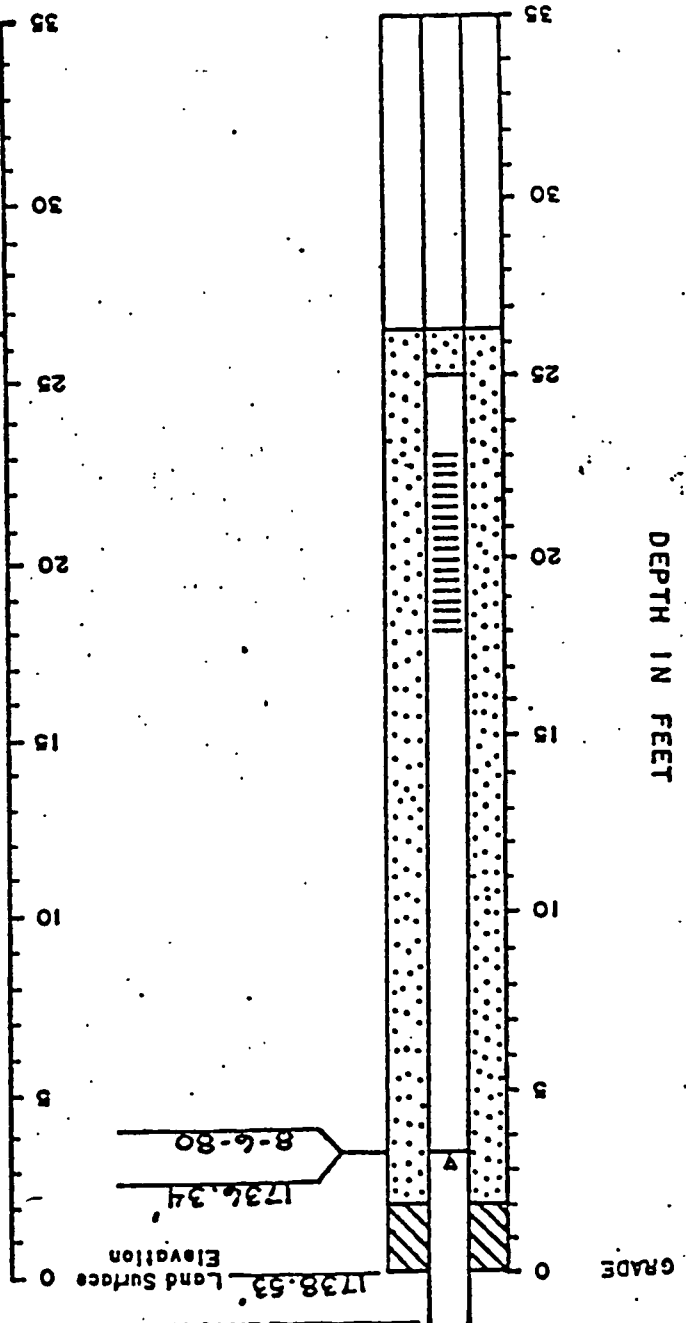
BORING NUMBER 12S01-DO-1



DATE DRILLED: 11-14-79
 DRILLED BY: ROCHESTER DRILLING
 TOTAL DEPTH: 26.5'

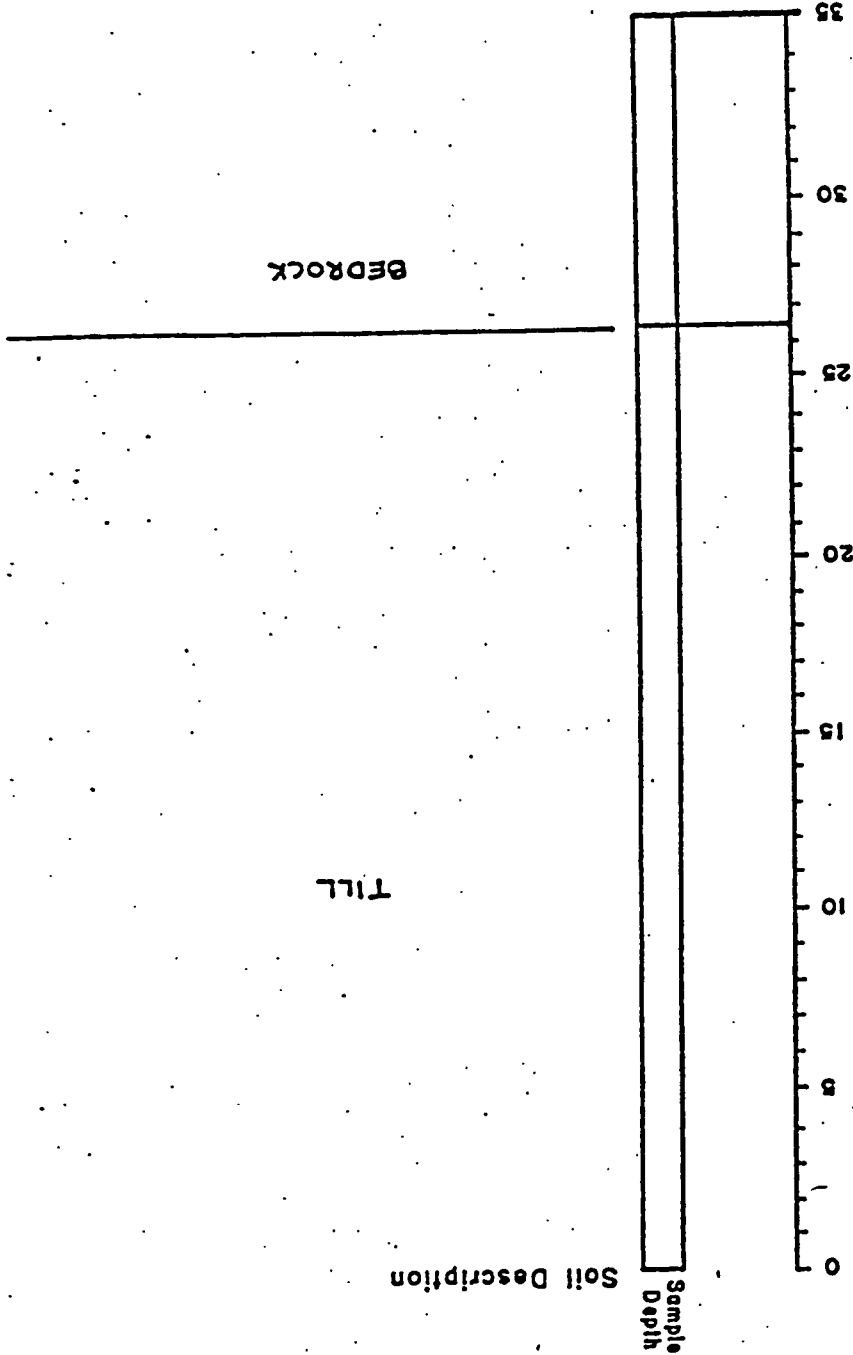
Measuring Point
 1742.01' Elevation
 Land Surface
 1738.53' Elevation

1736.34'
 8-6-80



NOTE:

For test borings/monitoring wells in excess of 35 feet, the log and construction detail are continued on succeeding pages.



PROJECT: RCRA Contract for Groundwater Quality Assessment
 PROJECT NO. 15-2-1831
 CONTRACT NO. NYSDEC-C-162001
 SITE NAME: GORTLAND
 WELL NO: DO-2
 PAGE 1 of 1
 REGION NO: 7
 FACILITY NO: 12501

PROJECT NO. 2165 PAGE 1 OF 2 BORING NO. 12S01-DO-2
PROJECT Cortland County SLF, Cortland County, New York
BY Dunn Geoscience Corporation, Latham, New York
DATE 11/14/79 INSPECTOR _____ WEATHER _____
STARTED 11/14/79 COMPLETED 11/14/79 TECHNICIAN D. Sweeting
NO WATER - CASING IN - _____ AT COMPLETION / TIME _____
SURFACE - CASING OUT - _____ - WELLPOINT AT 25'0"
Water level at completion with auger casing in - 15'4"
Water level at completion with well screen in - 12'9"

DEPTH OF SAMPLE	BLOWS ON SAMPLER						SAMPLE NO.	SOIL AND ROCK CLASSIFICATION	
	0"	6"	12"	18"	24"	N		REMARKS	
								Topsoil	0'4"
								Brown damp gravelly silt, little fine sand, trace of clay	
5'0"-6'0"	12	13	30			33	1		
10'0"-11'6"	7	10	13			23	2	Cobbles noted Encountered water at 10'0" Soft layer 9'0" to 10'0"	
15'0"-16'6"	37	24	26			50	3	Appears water is moving through gravel layers - sample #3 Cobbles noted	
20'0"-21'6"	29	32	32			64	4	Cobbles noted	
25'0"-26'6"	29	38	40			78	5	Trace of weathered and decomposed shale	26'6"
								Boring terminated at 26'6"	

NOTES: N = NO. OF BLOWS TO DRIVE 2" SPOON 12" WITH 140 LB. WT. 30" EA. BL
C = NO. OF BLOWS TO DRIVE _____ CASING _____ WITH _____ LB. WT. _____ EA. BL

PROJECT NO. 2165 PAGE 2 OF 2 BORING NO. 12S01-DO-
PROJECT Cortland County SLF, Cortland County, New York
CLIENT Dunn Geoscience Landfill, Latham, New York
ELEVATION _____ INSPECTOR _____ WEATHER _____
DATE STARTED 11/14/79 COMPLETED 11/14/79 TECHNICIAN D. Sweeting
GROUND WATER - CASING IN - _____ AT COMPLETION / TIME _____
BELOW SURFACE - CASING OUT - _____ -WELLPOINT AT 25'0"
Water level at completion with auger casing in - 15'4"
Water level at completion with well screen in - 12'9"

DEPTH BELOW SURFACE	C	BLOWS ON SAMPLER						SAMPLE NO.	DEPTH OF SAMPLE	SOIL AND ROCK CLASSIFICATION REMARKS
		0' 6"	6' 12"	12' 18"	18' 24"	N				
										Notes: Advanced test boring with hollow stem auger casin Seasonal and climatic changes may alter the observed water levels Observation well placed at 18'0" - 23'0" - 2" I 5 feet long Top cap Vented cap adapter Stand pipe above ground Bentonite seal 0'0"-2' Sand backfill 2'0"-18' 2" I.D. screen 18'0"-23' 2" I.D. sump 23'0"-25' Bottom cap plug Sand cushion 25'0"-28'

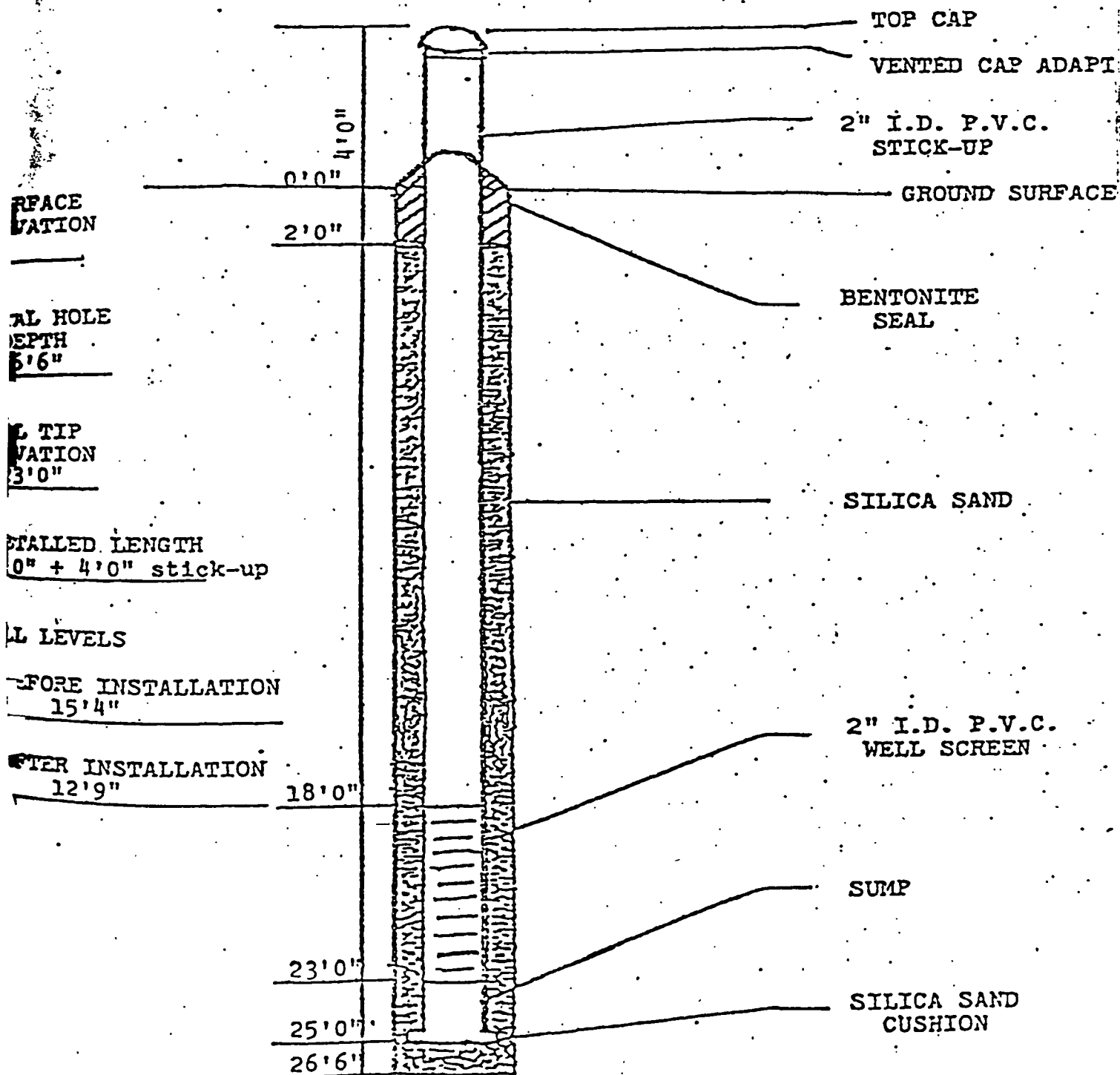
NOTES: N = NO. OF BLOWS TO DRIVE 2" SPOON 12" WITH 140 LB. WT. 30" EA.
C = NO. OF BLOWS TO DRIVE _____ CASING _____ WITH _____ LB. WT. _____ EA.

ROCHESTER
D RILLING
C COMPANY, INC.

SUMMARY SHEET

WELL POINT INSTALLATION FOR SUBSURFACE INVESTIGATIONS
 Test Borings - Land - Off-Shore
 TESTING AND INSPECTION
 Concrete - Soils - Asphalt - Steel
 Chemical - Piles - Non-Destructive
 45 Steel Street - Rochester, N. Y. 14606
 Office: 716-453-0821
 Telex: 978-462

PROJECT Cortland County SLF, Cortland County PROJECT NUMBER 2165
 DATE OF INSTALLATION 11/14/79 BORING NUMBER 12S01-DO-2



HYDROGEOLOGIC REPORT
APPENDIX B
SOILS LABORATORY DATA

TABLE OF CONTENTS

TABLE B-1 - Summary of Index Properties
TABLE B-2 - Laboratory Permeability Tests

Particle Size Analyses

Barton & Loguidice, P.C.
Catch/Dunn Geoscience
Composite Particle Size Analyses

Compaction Data

Barton & Loguidice, P.C. (Modified Proctor)
Catch/Dunn Geoscience (Standard Proctor)

Permeability Data

Barton & Loguidice, P.C.
Catch/Dunn Geoscience

Strength Data

Barton & Loguidice, P.C.

TABLE B-1

SUMMARY OF INDEX PROPERTIES
CORTLAND COUNTY LANDFILL

BORING NO.	SAMPLE NO.	SAMPLE DEPTH FROM SURFACE	SAMPLE ELEV.	pH	NATURAL WATER CONTENT %	% GRAVEL	% SAND	% FINER THAN # 200 SIEVE	LIQUID LIMIT	PLASTIC LIMIT	PLASTICITY INDEX	CATION EXCHANGE (cmol +/- kg)	PROCTOR DATA	UNIT WEIGHT pcf	SPECIFIC GRAVITY	REMARKS
TP-1		3- 8'				23.8	29.2	47.0	22.0	17.0	5.0	-				
TP-1		8-14'														
TP-2		3- 8'		7.4	9.1	29.8	21.8	48.4	23.0	18.0	5.0	8.50	135.7	136.0	2.726	
TP-3		2- 5'														
TP-4		11-17'		7.6	9.0	28.9	26.1	45.0	21.0	16.0	5.0	4.70	138.1	136.6	2.727	
TP-6		2- 7'														
TP-7		12-18'		7.7	8.2									136.0	2.725	
TP-8		8-12'				37.2	22.5	40.3	23.0	18.0	5.0					
TP-10		5-7.5'			7.7	54.4	29.6	16.0	26.0	21.0	5.0			137.0		
TP-12		10'		7.9	7.7									137.5	2.699	
TP-12		12.5'			10.0	22.2	26.5	51.3	22.0	17.0	5.0			132.9		
TP-14		5-10'														
TP-15		7-10'		7.9	9.8	21.3	24.9	53.8	22.0	16.0	6.0	6.60	131.9	127.5	2.705	
TP-16		12-15'			11.4	30.5	17.8	51.7	26.0	16.0	10.0			129.6		
TP-16		17'		7.7	10.9									131.6	2.738	
TP-17		5- 7'		7.0	11.3	23.5	26.2	50.3	22.0	16.0	6.0	7.10	136.9	127.3	2.721	
TP-23		2-11'														
TP-27		3- 7'		6.4	12.3	31.9	22.6	45.5	24.0	18.0	6.0			124.3	2.711	
TP-30		4-12'				32.7	22.4	44.9	25.0	17.0	8.0					
TP-33		8-13'		7.8	11.8	30.9	20.1	49.0	23.0	18.0	5.0			128.4	2.732	
TP-33		13-18'			8.7	27.4	24.1	48.5	22.0	18.0	4.0			136.9		
TP-34		3- 6'														
TP-35		9-12'				28.5	21.8	49.7	24.0	16.0	8.0					
TP-36		5- 8'		7.8	12.0	29.6	21.8	48.6	23.0	17.0	6.0	10.0		127.9	2.717	
T-37		3- 8'				29.4	24.0	46.6	24.0	17.0	7.0					
TP-38		2- 5'				27.7	22.9	49.4	24.0	17.0	7.0					
TP-38		14-16'				28.8	22.6	48.6	22.0	15.0	7.0					

TABLE B-2

LABORATORY PERMEABILITY TESTS*
CORTLAND COUNTY LANDFILL

SAMPLE NO.	DEPTH (FT.)	UNIT WEIGHT (PCF)	MOISTURE CONTENT (%)	COMPACTION (%)	CAST M	OPTIMUM MOISTURE (%)	NATURAL MOISTURE (%)	LABORATORY PERMEABILITY CM/SEC
TP-4	17.5	129.0	10.9	93.4	MOD	6.9	9.0	2.77×10^{-8}
TP-15	16.8	126.9	11.6	96.2	MOD	8.6	9.8	2.01×10^{-8}
TP-17	11.1	131.2	9.4	95.9	MOD	7.4	11.3	1.95×10^{-8}
MW-11B	11-25	124.6	9.4	90.1	MOD	7.4	NT	5.35×10^{-7}
MW-11D	27.6							5.68×10^{-7}
MW-11B	11-25	131.5	7.0	95.1	MOD	7.4	NT	1.03×10^{-7}
								1.44×10^{-7}
TP-4	11-17	135.7	8.8	98.2	MOD	6.9	9.0	3.28×10^{-8}
								3.48×10^{-8}
TP-15	7-10	126.4	10.3	95.8	MOD	8.6	9.8	5.05×10^{-8}
TP-84-1	ND	117.1	15.1	92.2	STD	11.0	ND	2.43×10^{-8}
								2.46×10^{-8}
TP-84-2	ND	118.7	15.0	91.7	STD	9.4	ND	6.13×10^{-8}
								6.14×10^{-8}
TP-84-3	ND	114.9	16.2	91.4	STD	11.1	ND	2.45×10^{-8}
								2.45×10^{-8}
TP-84-4	ND	101.9	21.9	88.9	STD	14.0	ND	4.22×10^{-8}
								4.41×10^{-8}
TP-84-5	ND	111.5	17.3	89.7	STD	10.3	ND	3.85×10^{-8}
								4.07×10^{-8}

*Falling Head Permeameter

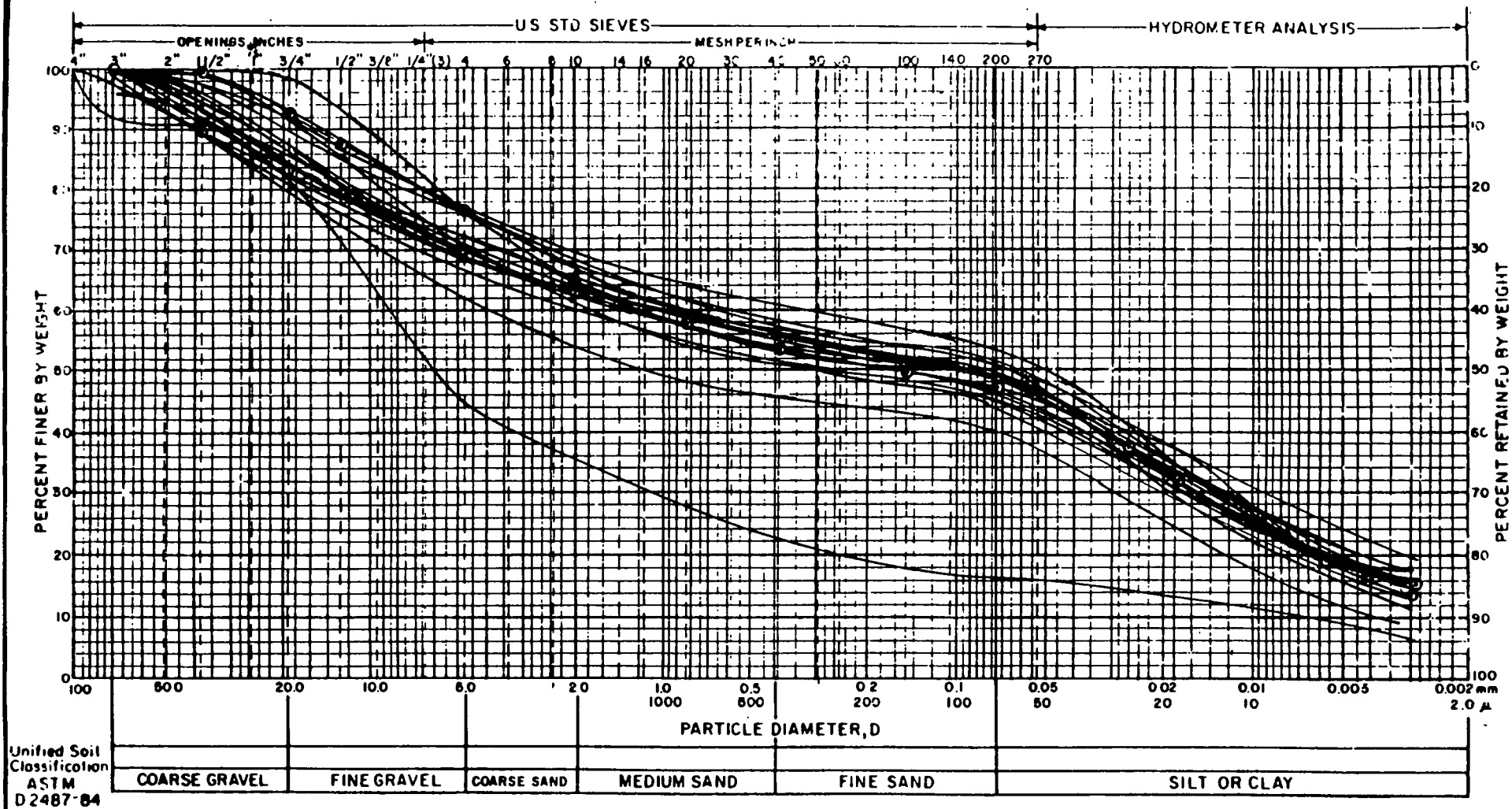
NT - Not Tested

ND - Data Not Available or Not Tested

STD - Standard Proctor Test ASTM D698-70

MOD - Modified Proctor Test ASTM D1557-78

PARTICLE SIZE ANALYSES
BARTON & LOGUIDICE - 1988



BARTON & LOGUIDICE, P.C.

CONSULTING ENGINEERS & LAND SURVEYORS
280 BLUWOOD DAVID ROAD / BOX 3107, SYRACUSE, NEW YORK 13220

**CORTLAND COUNTY LANDFILL
WEST SIDE EXTENSION**

**COMPOSITE PARTICLE SIZE
ANALYSES - B&L DATA**

Soil Classification Chart (ASTM 2487-84)

Vertical Axis: PERCENT FINER BY WEIGHT (0 to 100) / PERCENT RETAINED BY WEIGHT (100 to 0)

Horizontal Axis: PARTICLE DIAMETER, D (100 to 0.002 mm)

Top Scales: OPENINGS, INCHES (4" to 1/4") / U.S. STD. SIEVES / MESH PER INCH (4 to 270)

Bottom Scales: SOIL CLASSIFICATION RANGES

Soil Classification	Particle Diameter Range (mm)
COARSE GRAVEL	75 to 4.75
FINE GRAVEL	4.75 to 0.075
COARSE SAND	0.075 to 0.425
MEDIUM SAND	0.425 to 0.850
FINE SAND	0.850 to 0.075
SILT OR CLAY	0.075 to 0.002

Soil Classification: **COARSE GRAVEL**

SAMPLE INFORMATION:	Sample No.:	TP-1
	Depth:	3.0'-8.0'
	Liquid Limit:	22
	Plastic Limit:	17
	Plasticity Index:	5

☐ Insufficient Sample Size per ASTM D 422

Report No. 1

EMPIRE

SOILS INVESTIGATIONS INC.

PARTICLE SIZE ANALYSIS

CORTLAND COUNTY LANDFILL
CORTLAND, NEW YORK
BARTON & LOGUIDICE, P.C.

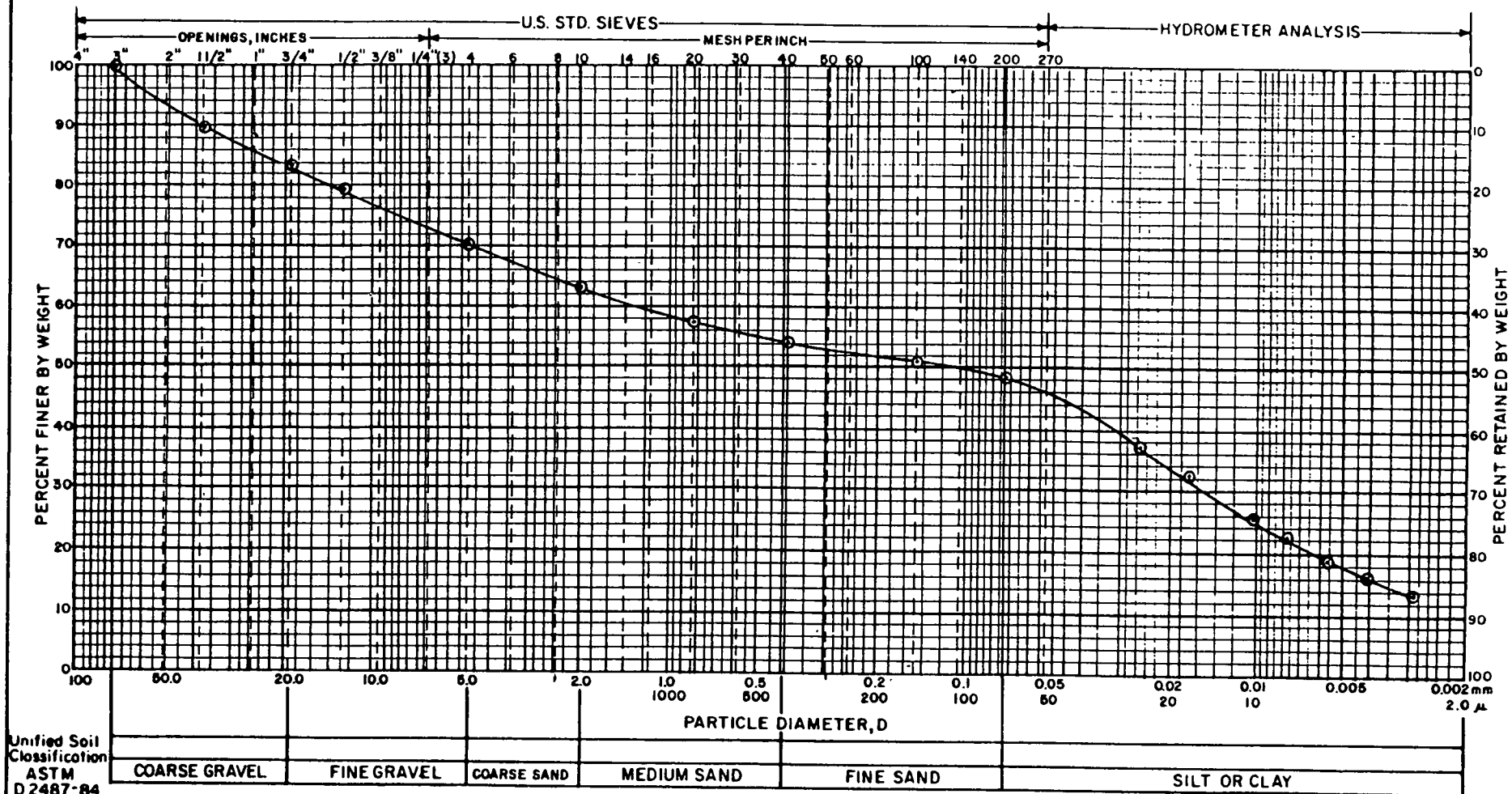
DR. BY: 

СК'Д.

DATE: 7/88

PROJ. NO GT-88-102

PARTICLE SIZE DISTRIBUTION CURVE



SAMPLE INFORMATION: Sample No.: TP-2
 Depth: 3.0'-8.0'
 Liquid Limit: 23
 Plastic Limit: 18
 Plasticity Index: 5
 Specific Gravity: 2.726
 Unit Weight: 136.0 pcf
 pH: 7.4

Report No. 2



PARTICLE SIZE ANALYSIS

CORTLAND COUNTY LANDFILL
 CORTLAND, NEW YORK
 BARTON & LOGUIDICE, P.C.

DR BY: *me* CK'D: DATE: 7/88 PROJ. NO: GT-88-102

U.S. STD. SIEVES

HYDROMETER ANALYSIS

PERCENT FINER BY WEIGHT

PARTICLE DIAMETER, D

COARSE GRAVEL FINE GRAVEL COARSE SAND MEDIUM SAND FINE SAND SILT OR CLAY

Particle Diameter (mm)	Percent Finer (%)
100	100
75	100
60	100
47.5	100
37.5	100
30	100
25	100
20	100
15	100
12.5	100
10	100
7.5	100
6.0	100
4.75	100
3.75	100
3.0	100
2.5	100
2.0	100
1.5	100
1.18	100
0.85	100
0.75	100
0.60	100
0.425	100
0.354	100
0.25	100
0.18	100
0.15	100
0.125	100
0.106	100
0.075	100
0.060	100
0.0425	100
0.0354	100
0.025	100
0.018	100
0.015	100
0.0125	100
0.0106	100
0.0075	100
0.0060	100
0.00425	100
0.00354	100
0.0025	100
0.0018	100
0.0015	100
0.00125	100
0.00106	100
0.00075	100
0.00060	100
0.000425	100
0.000354	100
0.00025	100
0.00018	100
0.00015	100
0.000125	100
0.000106	100
0.000075	100
0.000060	100
0.0000425	100
0.0000354	100
0.000025	100
0.000018	100
0.000015	100
0.0000125	100
0.0000106	100
0.0000075	100
0.0000060	100
0.00000425	100
0.00000354	100
0.0000025	100
0.0000018	100
0.0000015	100
0.00000125	100
0.00000106	100
0.00000075	100
0.00000060	100
0.000000425	100
0.000000354	100
0.00000025	100
0.00000018	100
0.00000015	100
0.000000125	100
0.000000106	100
0.000000075	100
0.000000060	100
0.0000000425	100
0.0000000354	100
0.000000025	100
0.000000018	100
0.000000015	100
0.0000000125	100
0.0000000106	100
0.0000000075	100
0.0000000060	100
0.00000000425	100
0.00000000354	100
0.0000000025	100
0.0000000018	100
0.0000000015	100
0.00000000125	100
0.00000000106	100
0.00000000075	100
0.00000000060	100
0.000000000425	100
0.000000000354	100
0.00000000025	100
0.00000000018	100
0.00000000015	100
0.000000000125	100
0.000000000106	100
0.000000000075	100
0.000000000060	100
0.0000000000425	100
0.0000000000354	100
0.000000000025	100
0.000000000018	100
0.000000000015	100
0.0000000000125	100
0.0000000000106	100
0.0000000000075	100
0.0000000000060	100
0.00000000000425	100
0.00000000000354	100
0.0000000000025	100
0.0000000000018	100
0.0000000000015	100
0.00000000000125	100
0.00000000000106	100
0.00000000000075	100
0.00000000000060	100
0.000000000000425	100
0.000000000000354	100
0.00000000000025	100
0.00000000000018	100
0.00000000000015	100
0.000000000000125	100
0.000000000000106	100
0.000000000000075	100
0.000000000000060	

SAMPLE INFORMATION:	Sample No.:	TP-4
	Depth:	11.0'-17.0'
	Liquid Limit:	21
	Plastic Limit:	16
	Plasticity Index:	5
	Specific Gravity:	2.727
	Unit Weight:	136.6 pcf
	pH: 7.6	

Report No. 3

EMPIRE

SOILS INVESTIGATIONS INC.

PARTICLE SIZE ANALYSIS

CORTLAND COUNTY LANDFILL
CORTLAND, NEW YORK
BARTON & LOGUIDICE, P.C.

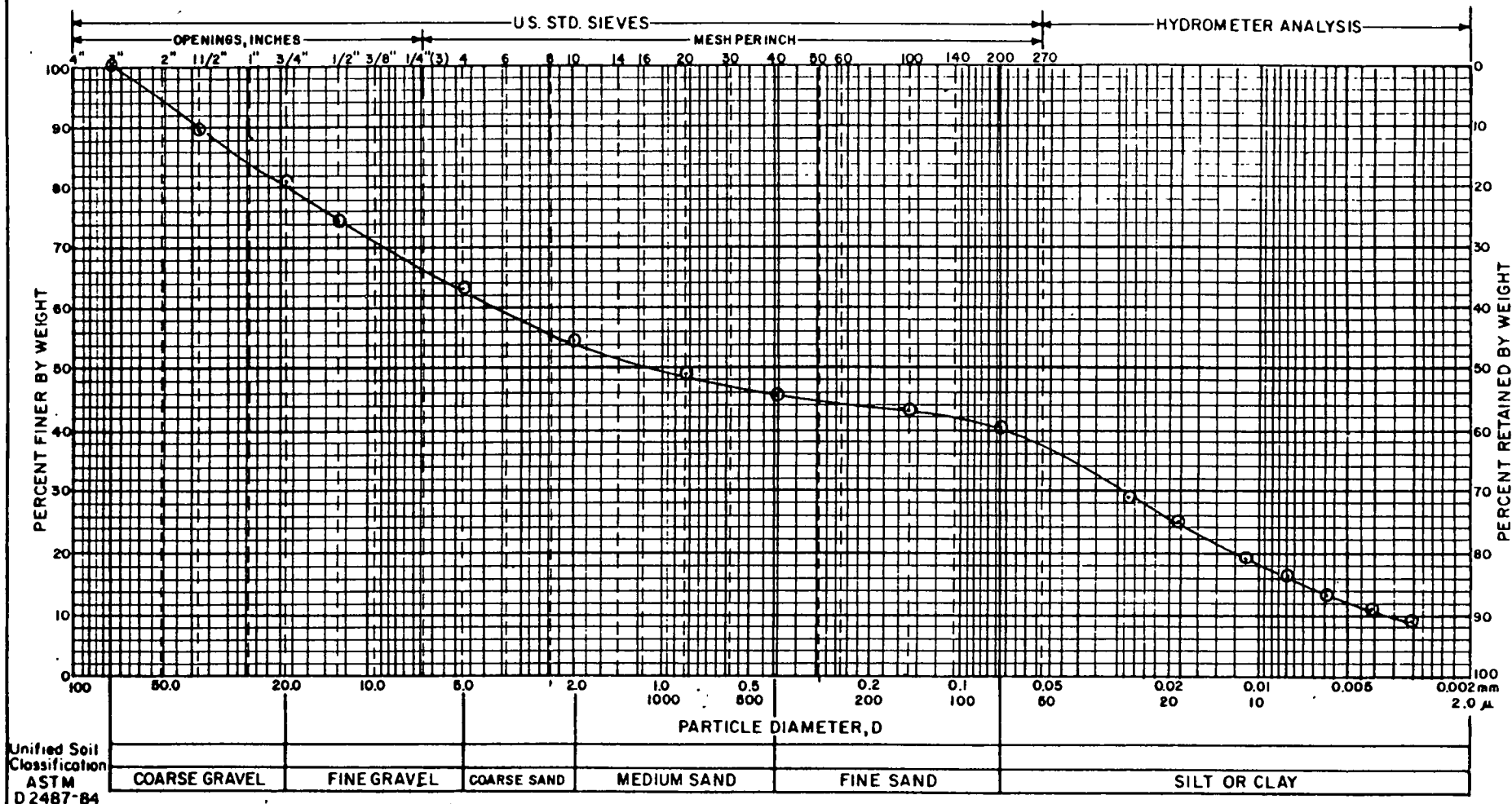
DR. BY: CK'D.

СК'Д.

DATE: 7/88

PROJ. NO GT-88-102

PARTICLE SIZE DISTRIBUTION CURVE



SAMPLE INFORMATION: Sample No.: TP-8
 Depth: 8.0'-12.0'
 Liquid Limit: 23
 Plastic Limit: 18
 Plasticity Index: 5



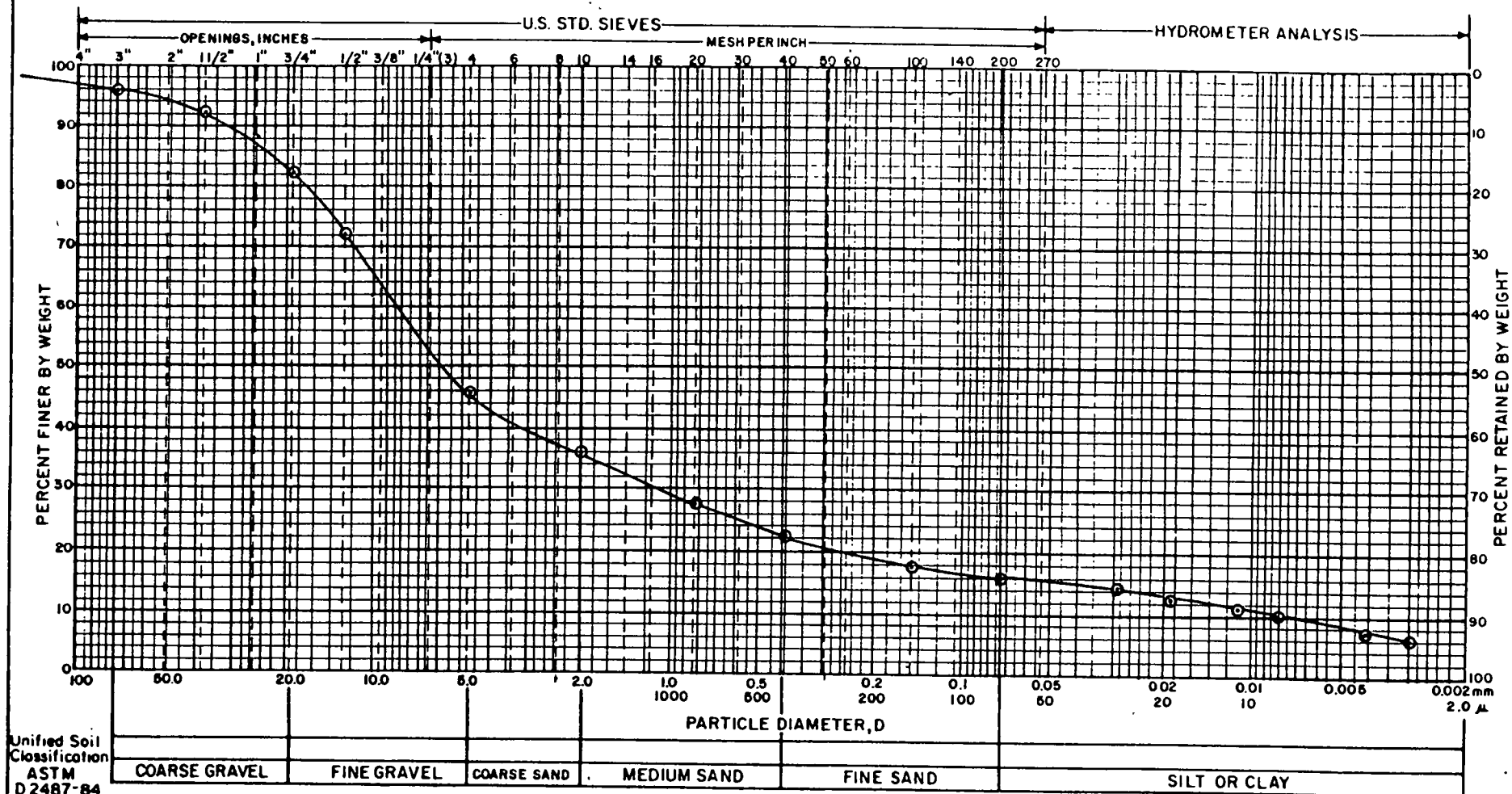
PARTICLE SIZE ANALYSIS

CORTLAND COUNTY LANDFILL
 CORTLAND, NEW YORK
 BARTON & LOGUIDICE, P.C.

☐ Insufficient Sample Size per ASTM D 422 Report No. 4

DR. BY: DJG CK'D. DATE: 7/88 PROJ. NO: GT-88-102

PARTICLE SIZE DISTRIBUTION CURVE



SAMPLE INFORMATION:

Sample No.: TP-10

Depth: 5.0'-7.5'

Liquid Limit: 26

Plastic Limit: 21

Plasticity Index: 5

Unit Weight: 137.0 pcf

6"-100% Passing

☐ Insufficient Sample Size per ASTM D 422 Report No. 5

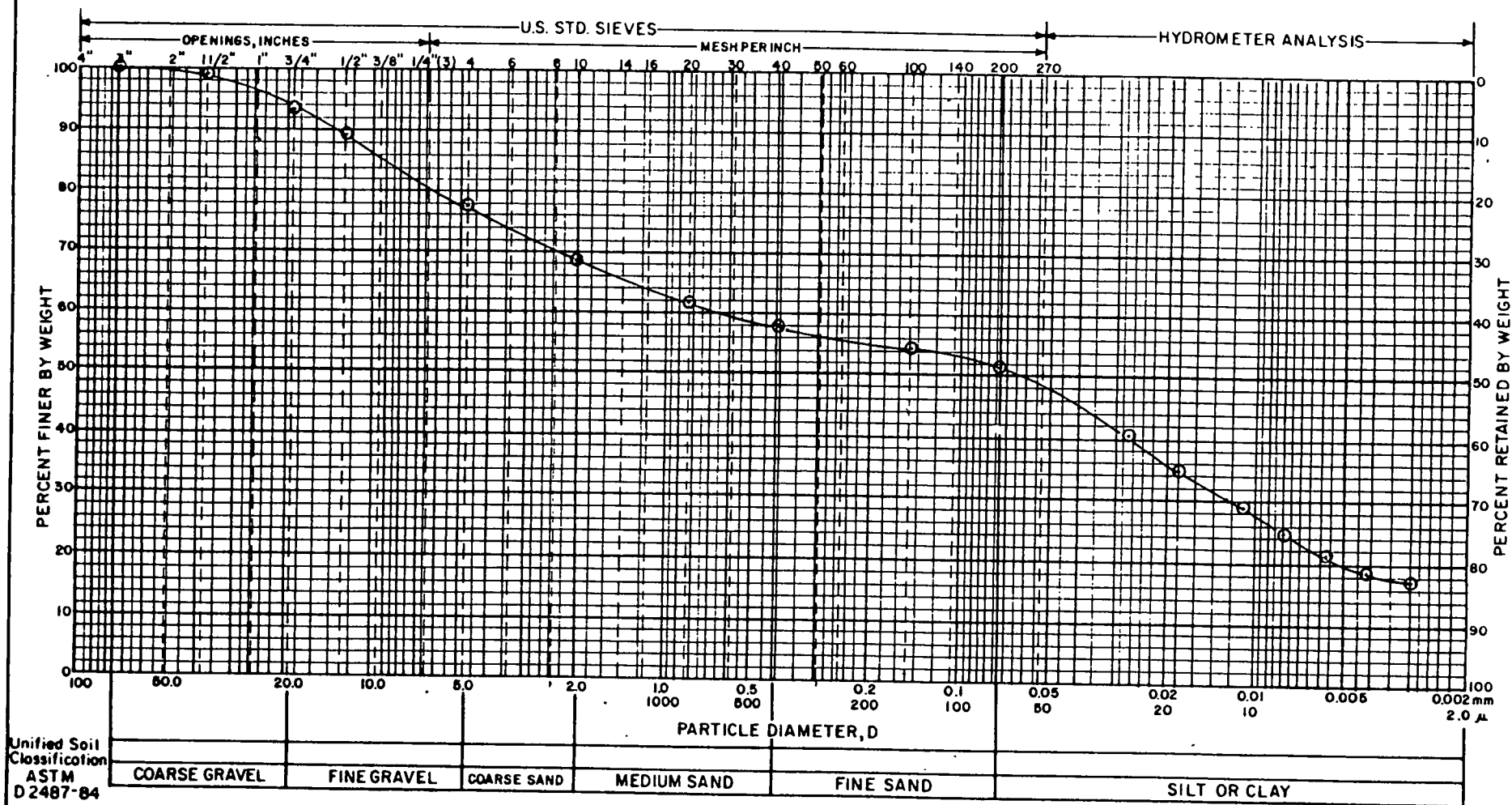
EMPIRE
SOILS INVESTIGATIONS INC.

PARTICLE SIZE ANALYSIS

CORTLAND COUNTY LANDFILL
CORTLAND, NEW YORK
BARTON & LOGUIDICE, P.C.

DR. BY: *re* CK'D. DATE: 7/88 PROJ. NO. GT-88-102

PARTICLE SIZE DISTRIBUTION CURVE



SAMPLE INFORMATION: Sample No.: TP-12
 Depth: 12.5'
 Liquid Limit: 22
 Plastic Limit: 17
 Plasticity Index: 5
 Unit Weight: 132.9 pcf

☐ Insufficient Sample Size per ASTM D 422 Report No. 6

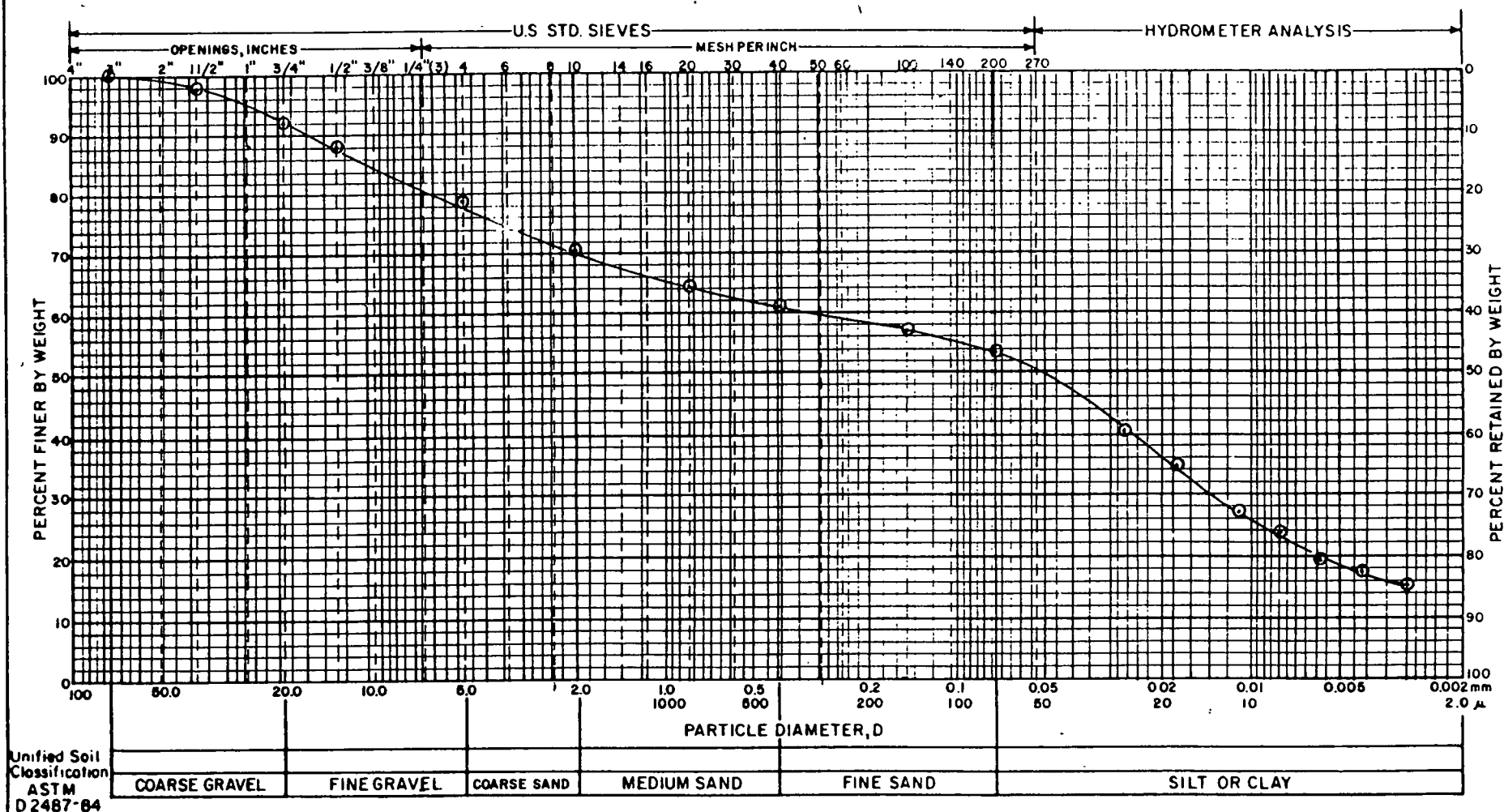


PARTICLE SIZE ANALYSIS

CORTLAND COUNTY LANDFILL
 CORTLAND, NEW YORK
 BARTON & LOGUIDICE, P.C.

DR. BY: *JK* CK'D. DATE: 7/88 PROJ. NO: GT-88-102

PARTICLE SIZE DISTRIBUTION CURVE



SAMPLE INFORMATION: Sample No.: TP-15
 Depth: 7.0'-10.0'
 Liquid Limit: 22
 Plastic Limit: 16
 Plasticity Index: 6
 Specific Gravity: 2.705
 Unit Weight: 127.5 pcf
 pH: 7.9

Report No. 7

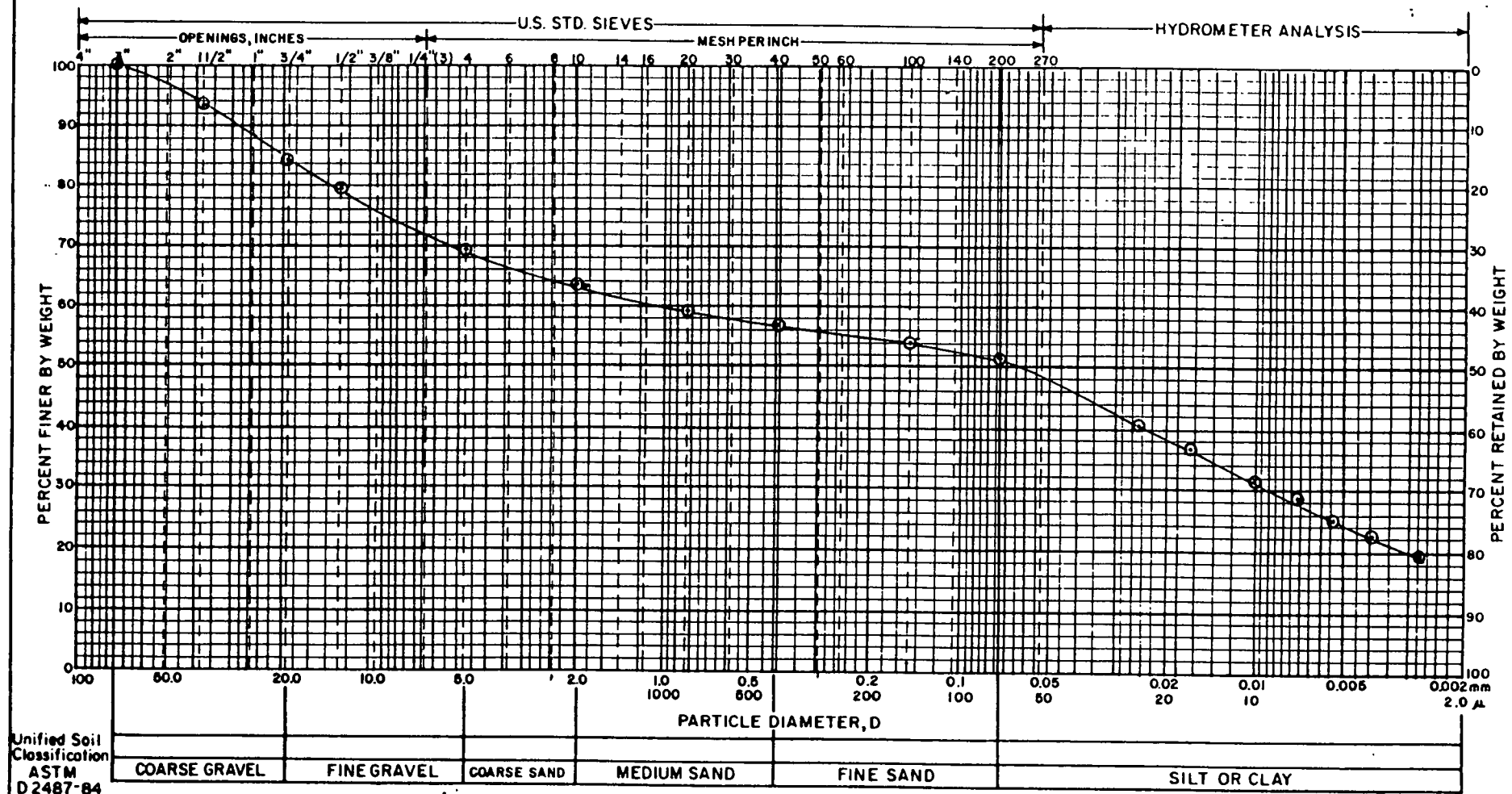


PARTICLE SIZE ANALYSIS

CORTLAND COUNTY LANDFILL
 CORTLAND, NEW YORK
 BARTON & LOGUIDICE, P.C.

DR. BY: JG CK'D. DATE: 7/88 PROJ. NO: GT-88-102

PARTICLE SIZE DISTRIBUTION CURVE



SAMPLE INFORMATION: Sample No.: TP-16
 Depth: 12.0'-15.0'
 Liquid Limit: 26
 Plastic Limit: 16
 Plasticity Index: 10
 Unit Weight: 129.6 pcf

☐ Insufficient Sample Size per ASTM D 422 Report No. 8



PARTICLE SIZE ANALYSIS

CORTLAND COUNTY LANDFILL
 CORTLAND, NEW YORK
 BARTON & LOGUIDICE, P.C.

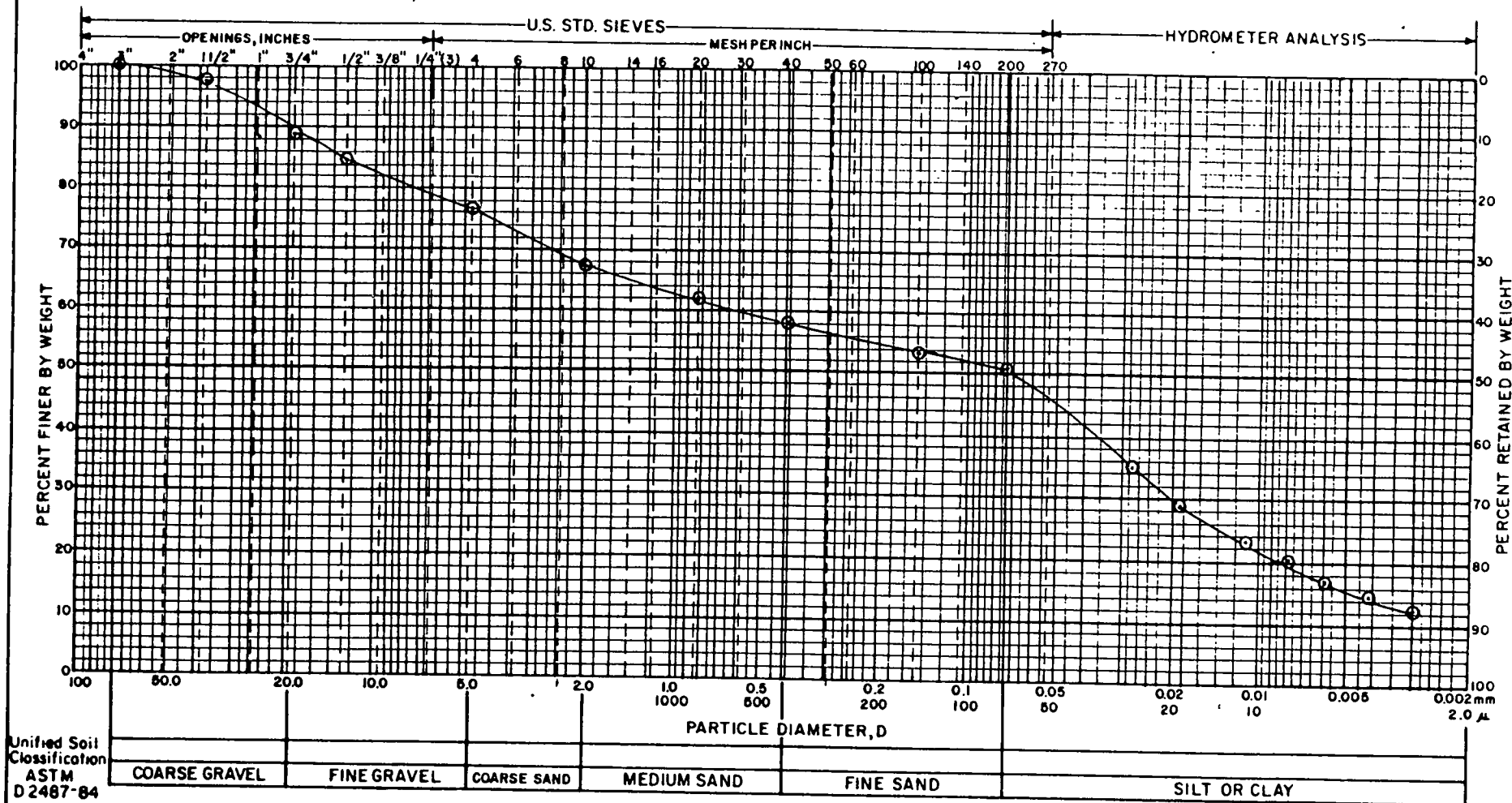
DR. BY: DB

CK'D.

DATE: 7/88

PROJ. NO. GT-88-102

PARTICLE SIZE DISTRIBUTION CURVE



SAMPLE INFORMATION: Sample No.: TP-17
 Depth: 5.0'-7.0'
 Liquid Limit: 22
 Plastic Limit: 16
 Plasticity Index: 6
 Specific Gravity: 2.721
 Unit Weight: 127.3 pcf
 pH: 7.0

Report No. 9

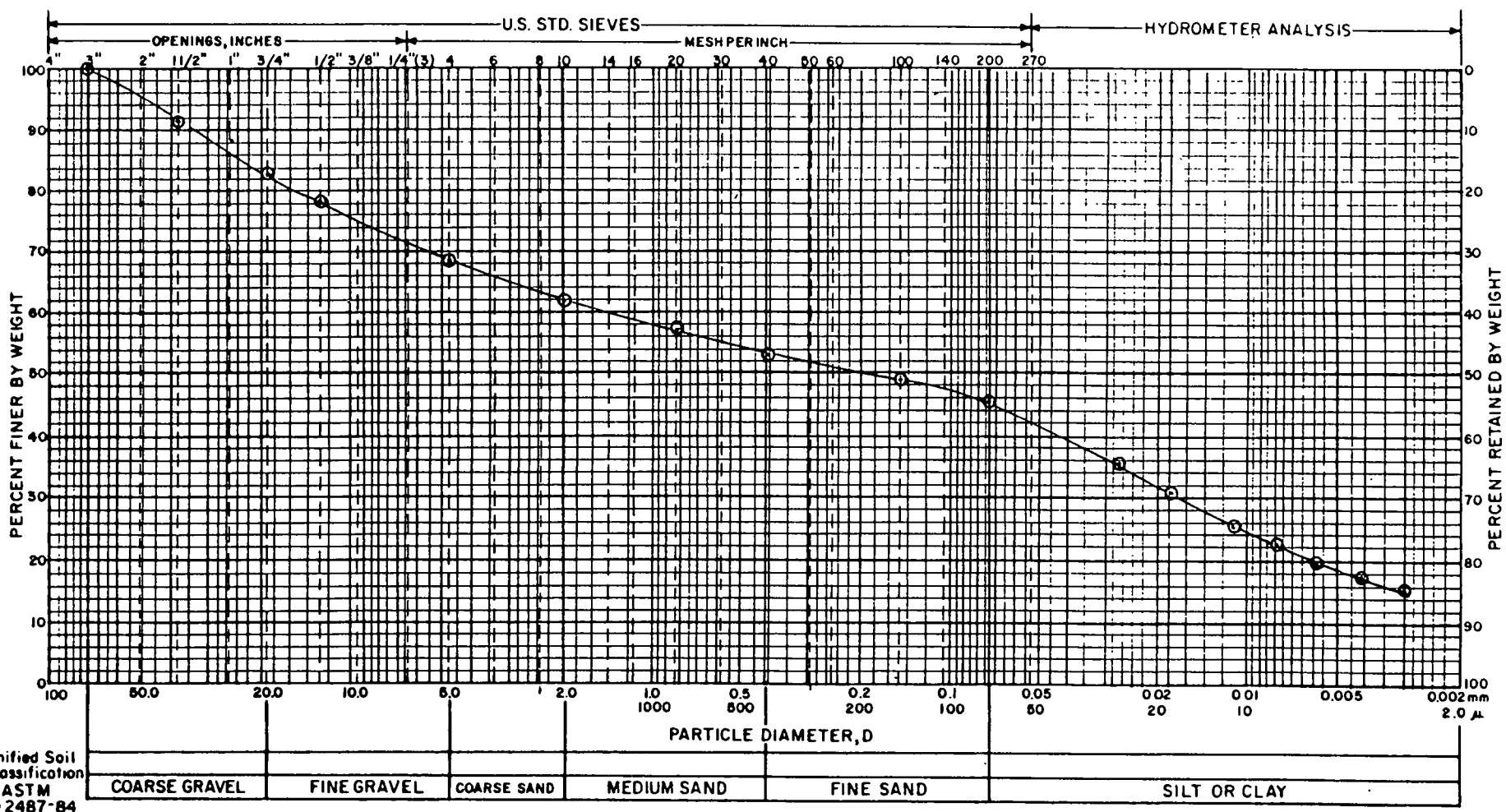
EMPIRE
 SOILS INVESTIGATIONS INC.

**PARTICLE SIZE
 ANALYSIS**

CORTLAND COUNTY LANDFILL
 CORTLAND, NEW YORK

DR. BY: *dy* CK'D. DATE: 7/88 PROJ. NOGT-88-102

PARTICLE SIZE DISTRIBUTION CURVE



SAMPLE INFORMATION: Sample No.: TP-27
 Depth: 3.0'-7.0'
 Liquid Limit: 24
 Plastic Limit: 18
 Plasticity Index: 6
 Specific Gravity: 2.711
 Unit Weight: 124.3 pcf
 pH: 6.4

Report No. 10

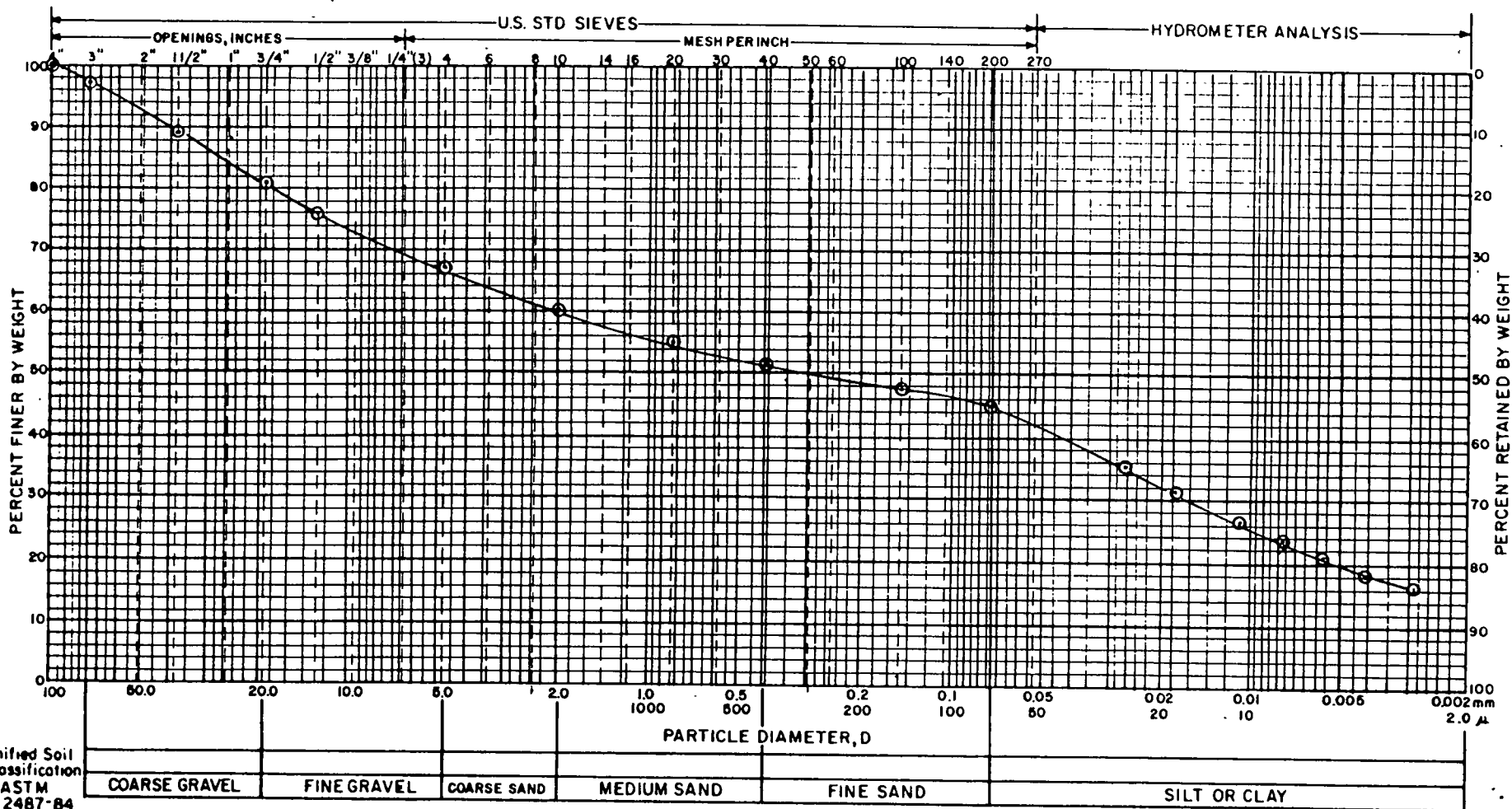


PARTICLE SIZE ANALYSIS

CORTLAND COUNTY LANDFILL
 CORTLAND, NEW YORK
 BARTON & LOGUIDICE, P.C.

DR. BY: JG CK'D. DATE: 7/88 PROJ. NO: GT-88-102

PARTICLE SIZE DISTRIBUTION CURVE



SAMPLE INFORMATION: Sample No.: TP-30
Depth: 4.0'-12.0'
Liquid Limit: 25
Plastic Limit: 17
Plasticity Index: 8

EMPIRE
SOILS INVESTIGATIONS INC.

**PARTICLE SIZE
ANALYSIS**

CORTLAND COUNTY LANDFILL
CORTLAND, NEW YORK
BARTON & LOGUIDICE, P.C.

☐ Insufficient Sample Size per ASTM D 422

Report No. 11

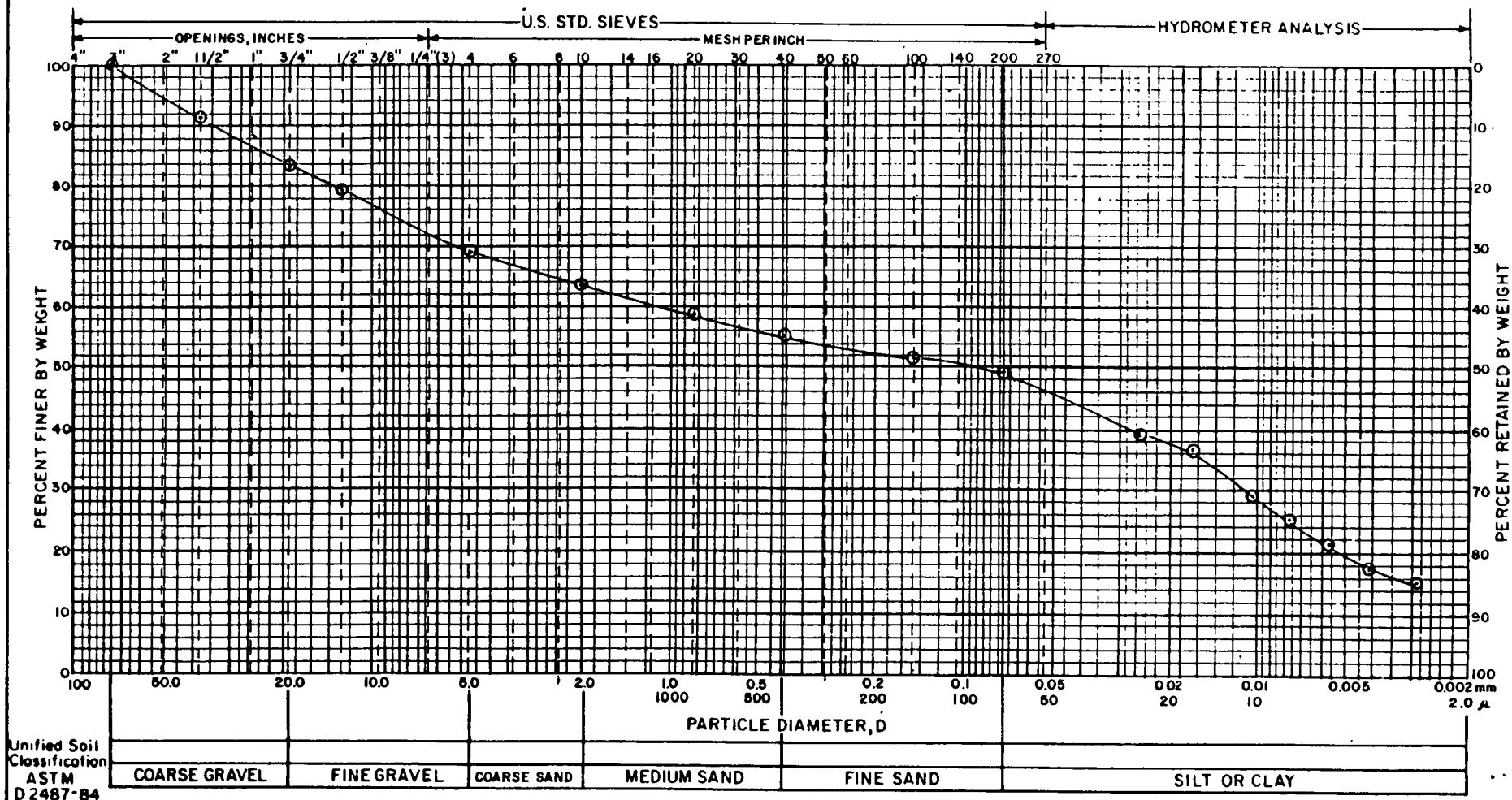
DR. BY: *DC*

CK'D.

DATE: 7/88

PROJ. NO GT-88-102

PARTICLE SIZE DISTRIBUTION CURVE



SAMPLE INFORMATION:

Sample No.:	TP-33
Depth:	8.0'-13.0'
Liquid Limit:	23
Plastic Limit:	18
Plasticity Index:	5
Specific Gravity:	2.732
Unit Weight:	128.4 pcf
pH:	7.8



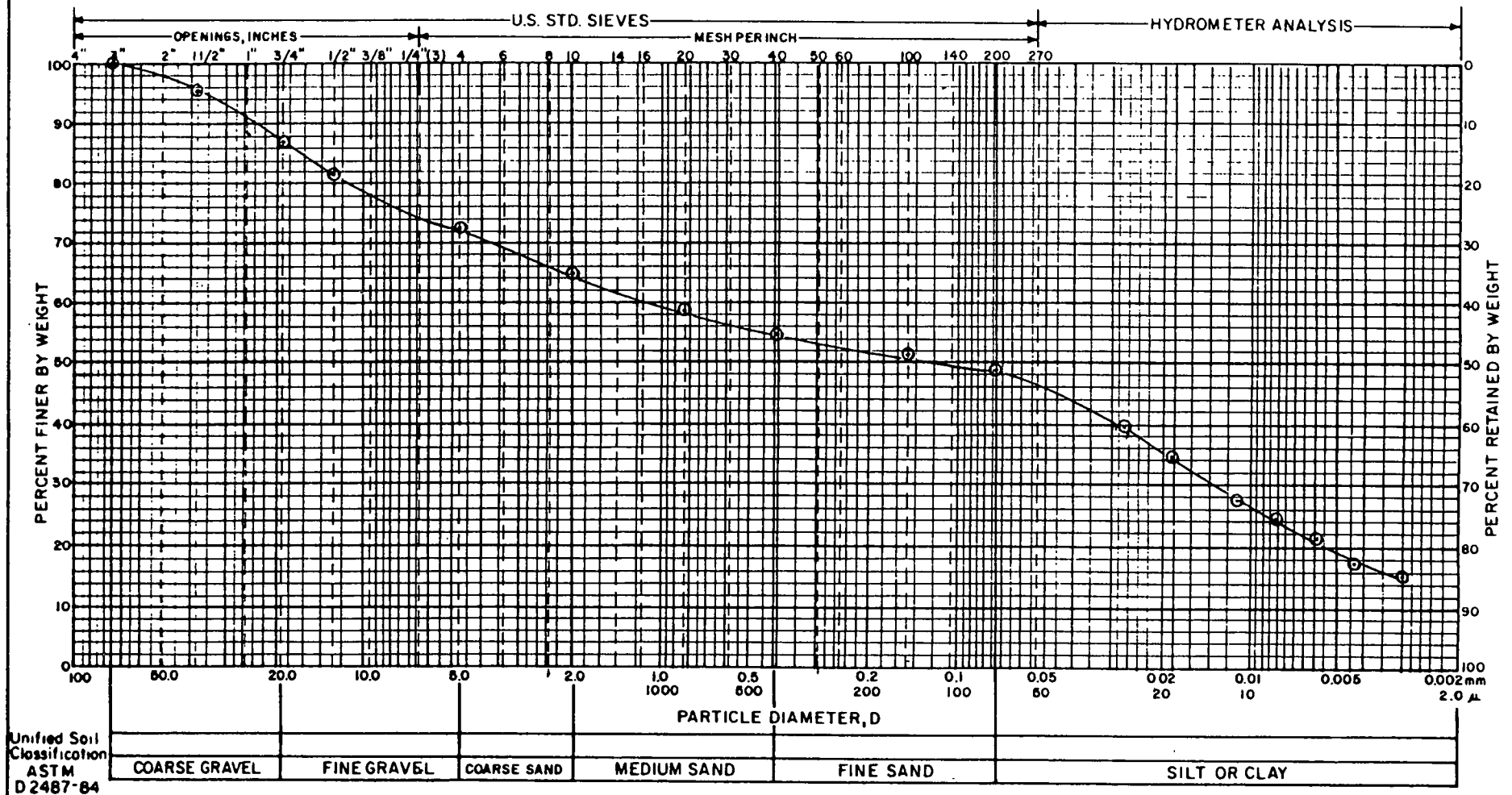
PARTICLE SIZE ANALYSIS

CORTLAND COUNTY LANDFILL
CORTLAND, NEW YORK
BARTON & LOGUIDICE, P.C.

Report No. 12

DR. BY *JG* CK'D. DATE: 7/88 PROJ. NO. GT-88-102

PARTICLE SIZE DISTRIBUTION CURVE



SAMPLE INFORMATION: Sample No. : TP-33
 Depth: 13.0'-18.0'
 Liquid Limit: 22
 Plastic Limit: 18
 Plasticity Index: 4
 Unit Weight: 136.9 pcf

☐ Insufficient Sample Size per ASTM D 422 Report No. 13



PARTICLE SIZE ANALYSIS

CORTLAND COUNTY LANDFILL
 CORTLAND, NEW YORK
 BARTON & LOGUIDICE, P.C.

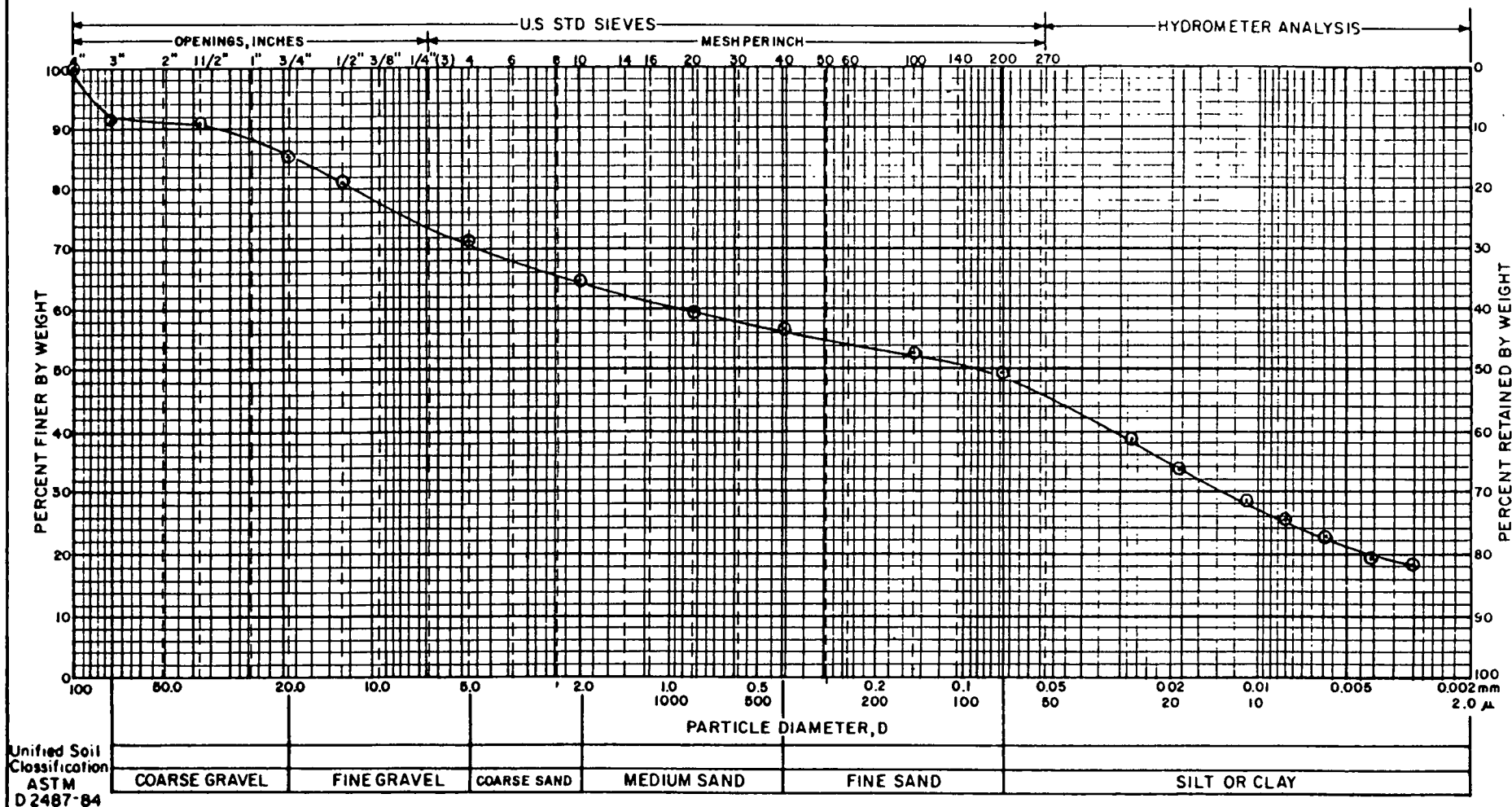
DR BY: *JB*

CK'D.

DATE: 7/88

PROJ. NOGT-88-102

PARTICLE SIZE DISTRIBUTION CURVE



SAMPLE INFORMATION: Sample No.: TP-35
 Depth: 9.0'-12.0'
 Liquid Limit: 24
 Plastic Limit: 16
 Plasticity Index: 8



PARTICLE SIZE ANALYSIS

CORTLAND COUNTY LANDFILL
 CORTLAND, NEW YORK
 BARTON & LOGUIDICE, P.C.

☐ Insufficient Sample Size per ASTM D 422

Report No. 14

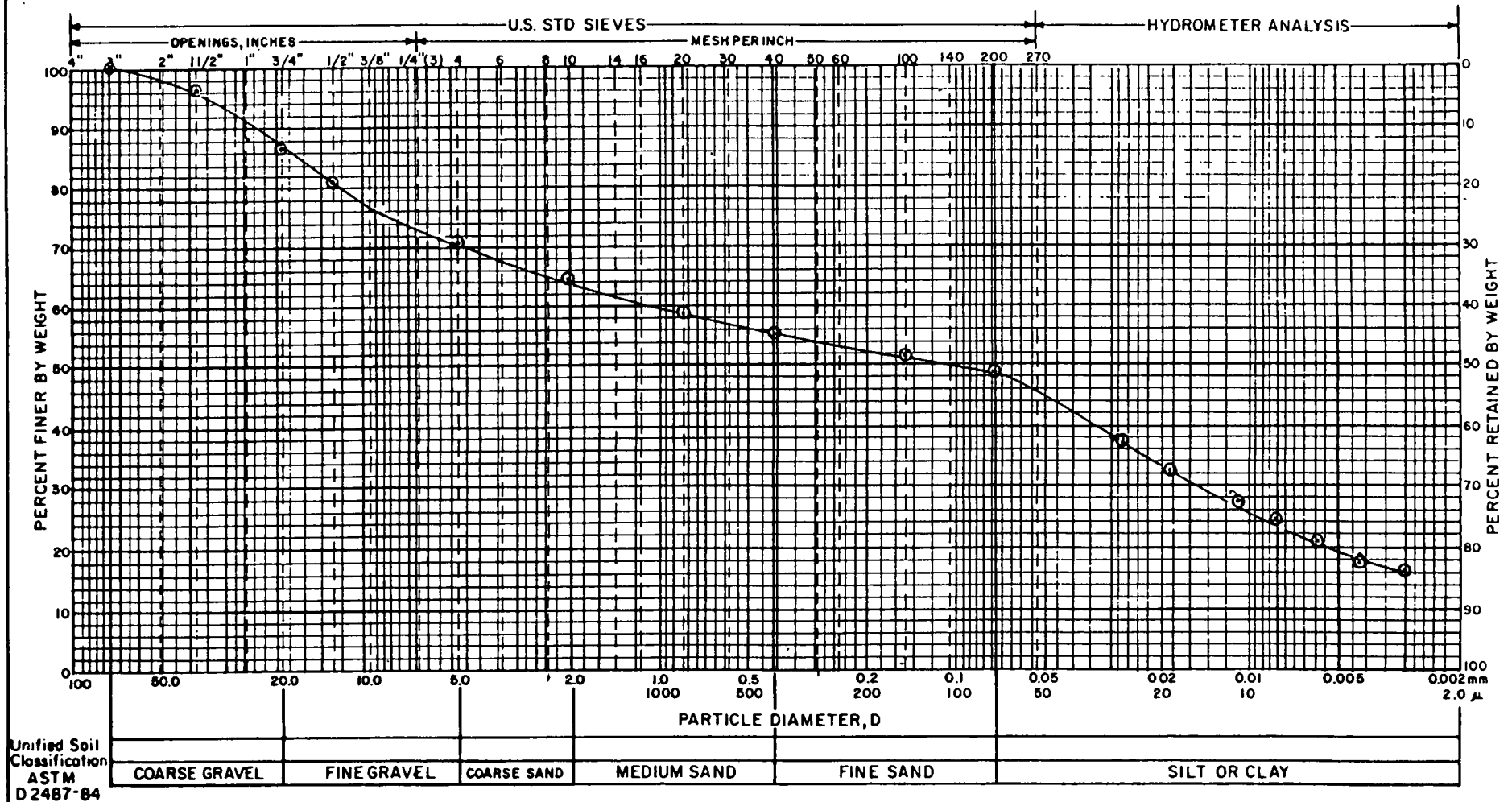
DR. BY: *[Signature]*

CK'D.

DATE: 7/88

PROJ. NO. GT-88-102

PARTICLE SIZE DISTRIBUTION CURVE



SAMPLE INFORMATION: Sample No.: TP-36
 Depth: 5.0'-8.0'
 Liquid Limit: 23
 Plastic Limit: 17
 Plasticity Index: 6
 Specific Gravity: 2.717
 Unit Weight: 127.9 pcf
 pH: 7.8

Report No. 15

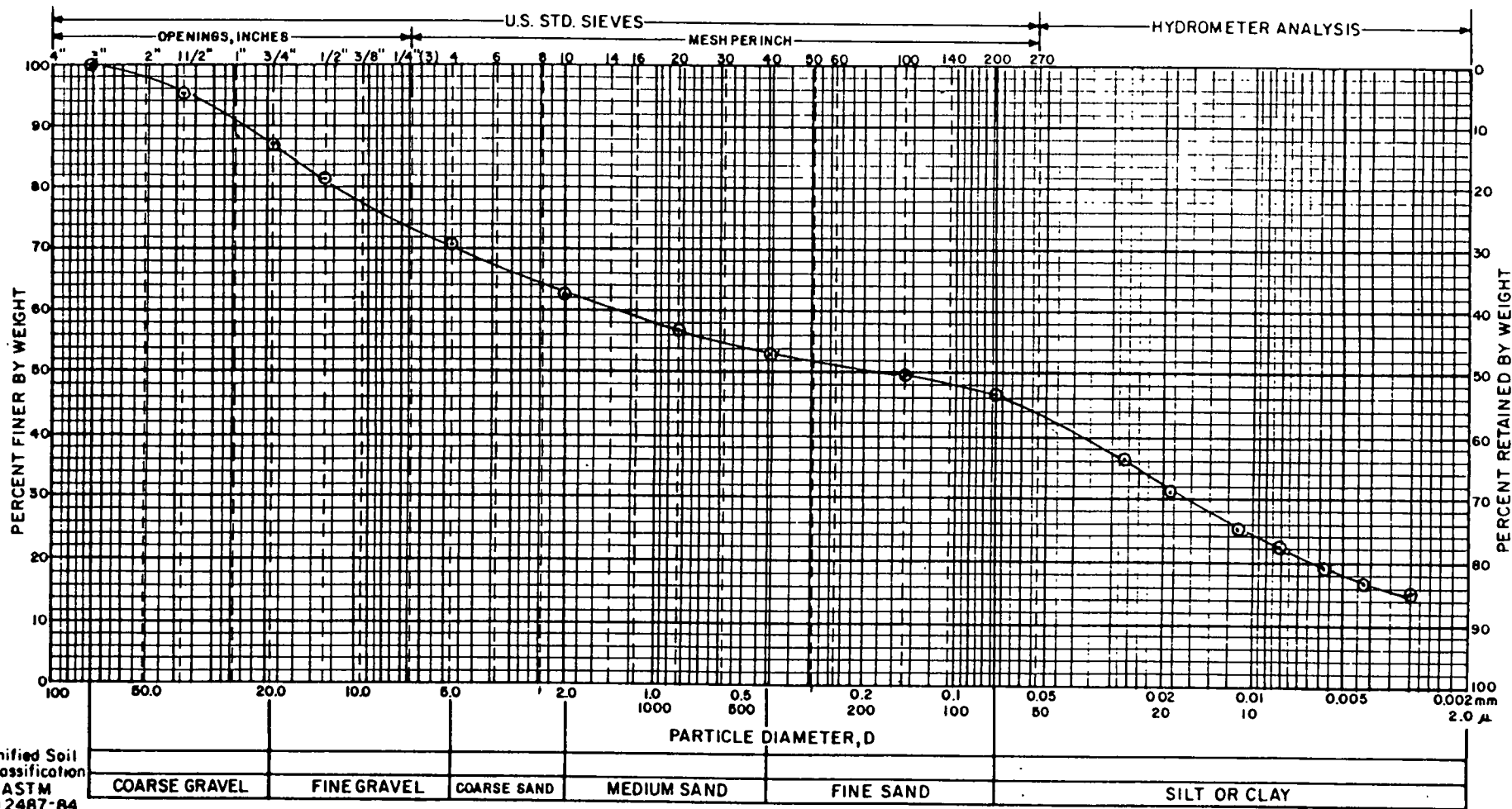


PARTICLE SIZE ANALYSIS

CORTLAND COUNTY LANDFILL
 CORTLAND, NEW YORK
 BARTON & LOGUIDICE, P.C.

DR. BY: *DB* CK'D. DATE: 7/88 PROJ. NO. GT-88-10

PARTICLE SIZE DISTRIBUTION CURVE



SAMPLE INFORMATION: Sample No.: TP-37
 Depth: 3.0'-8.0'
 Liquid Limit: 24
 Plastic Limit: 17
 Plasticity Index: 7

EMPIRE
 SOILS INVESTIGATIONS INC.

PARTICLE SIZE ANALYSIS

CORTLAND COUNTY LANDFILL
 CORTLAND, NEW YORK
 BARTON & LOGUIDICE, P.C.

☐ Insufficient Sample Size per ASTM D 422

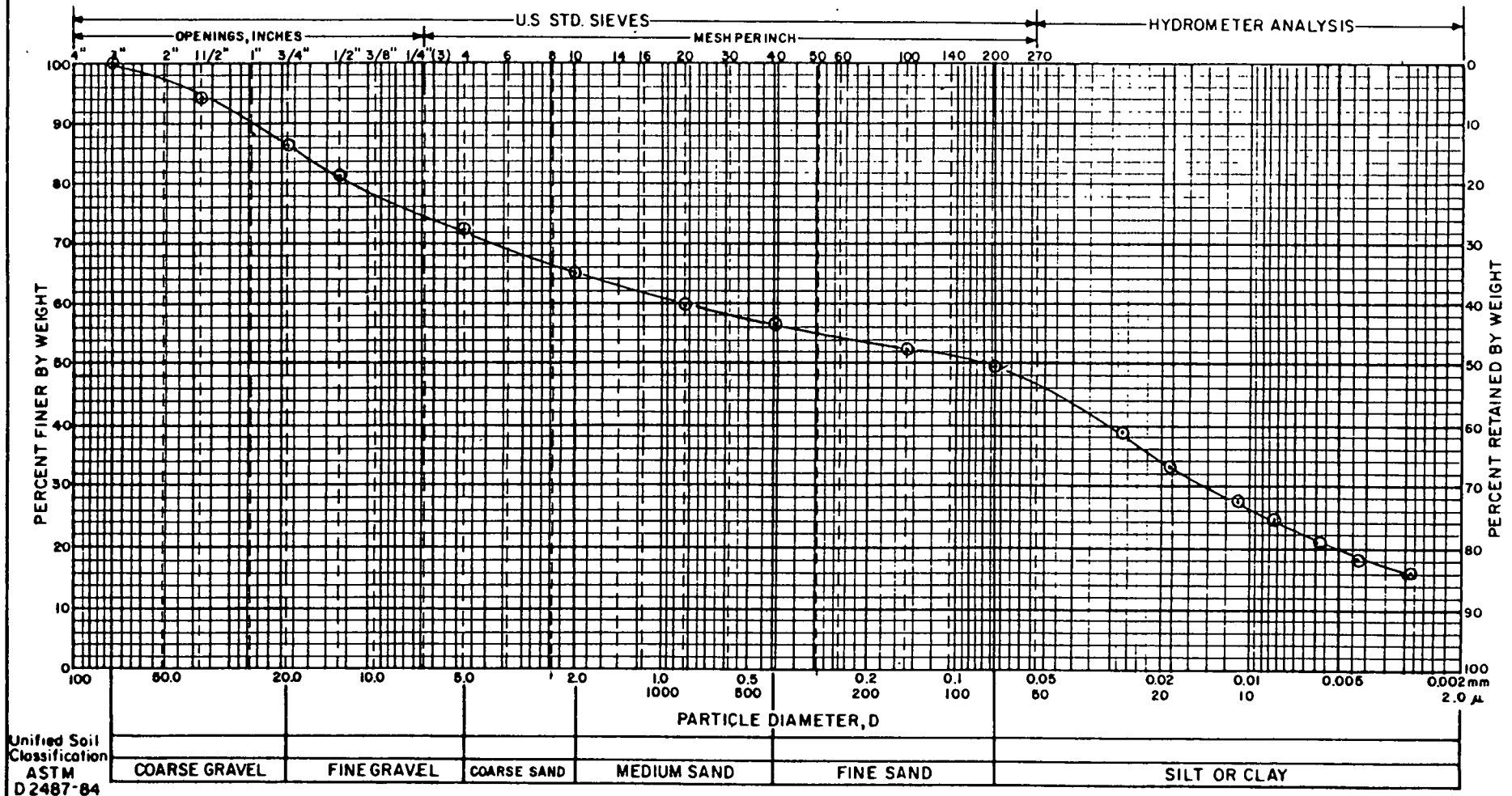
Report No. 16

DR. BY: D/G CK'D.

DATE: 7/88

PROJ. NO: GT-88-102

PARTICLE SIZE DISTRIBUTION CURVE



Unified Soil Classification
ASTM
D 2487-84

SAMPLE INFORMATION: Sample No.: TP-38
Depth: 2.0'-5.0'
Liquid Limit: 24
Plastic Limit: 17
Plasticity Index: 7

☐ Insufficient Sample Size per ASTM D 422 Report No. 17

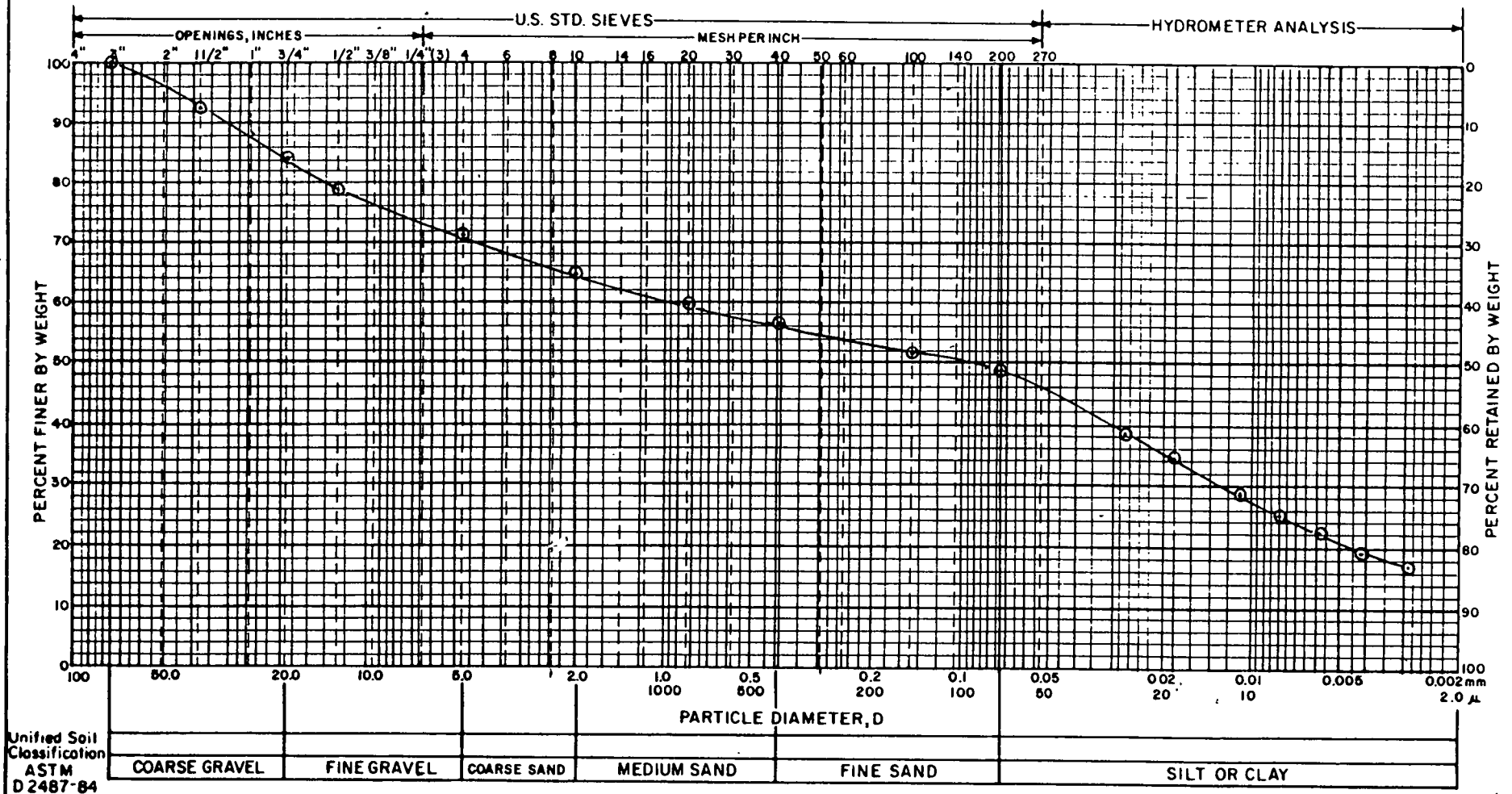


PARTICLE SIZE ANALYSIS

CORTLAND COUNTY LANDFILL
CORTLAND, NEW YORK
BARTON & LOGUIDICE, P.C.

DR BY: 36 CK'D: DATE: 7/88 PROJ. NO. GT-88-10

PARTICLE SIZE DISTRIBUTION CURVE



SAMPLE INFORMATION: Sample No.: TP-38
 Depth: 14.0'-16.0'
 Liquid Limit: 22
 Plastic Limit: 15
 Plasticity Index: 7



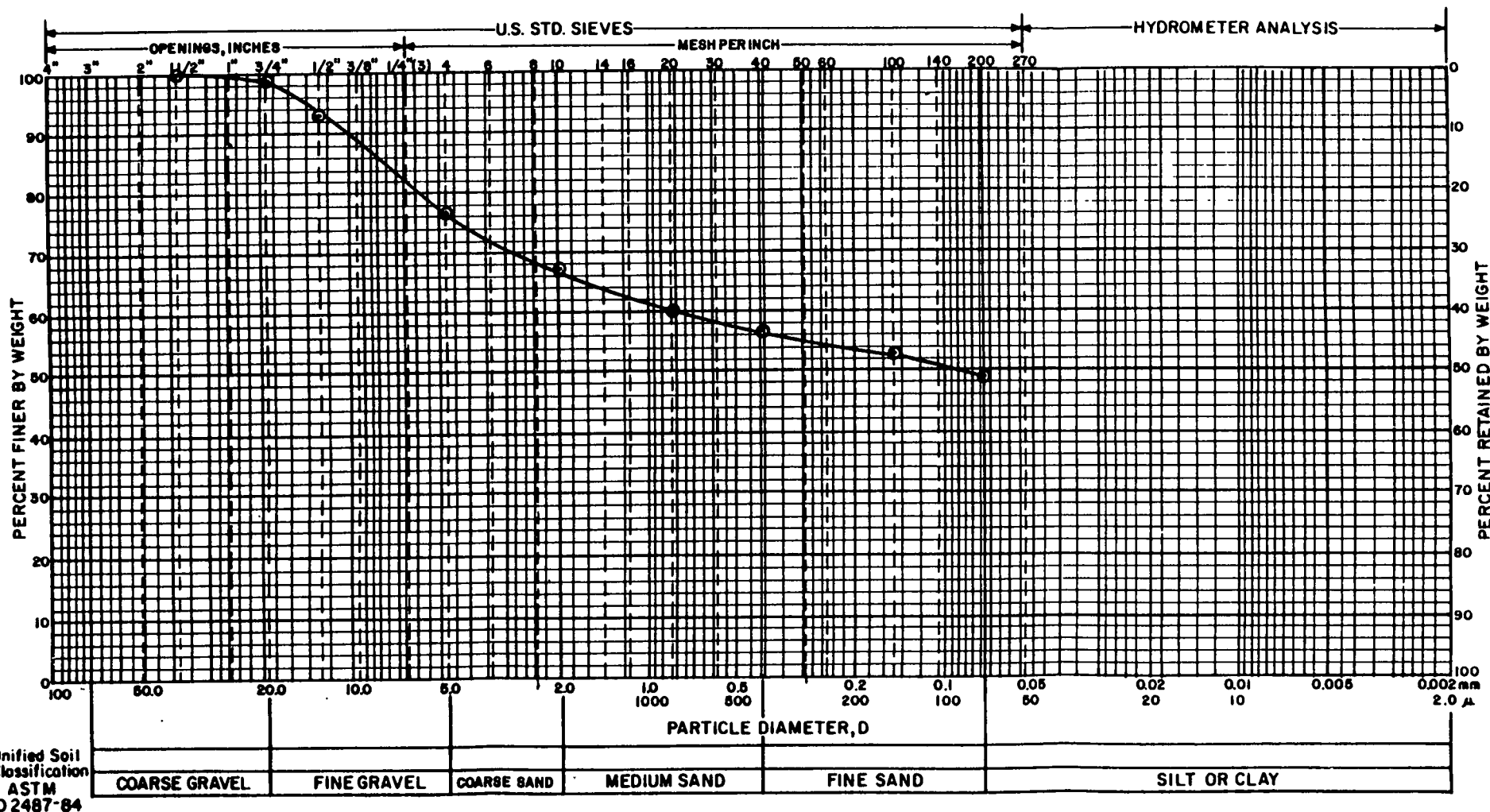
PARTICLE SIZE ANALYSIS

CORTLAND COUNTY LANDFILL
 CORTLAND, NEW YORK
 BARTON & LOGUIDICE, P.C.

☐ Insufficient Sample Size per ASTM D 422 Report No. 18

DR. BY: *[Signature]* CK'D: DATE: 7/88 PROJ. NO.: 81-88-102

PARTICLE SIZE DISTRIBUTION CURVE



SAMPLE INFORMATION: Boring No.: MW-11B
Sample No.: Auger Sample
Depth: 15'-25'

EMPIRE
SOILS INVESTIGATIONS INC.

**PARTICLE SIZE
ANALYSIS**

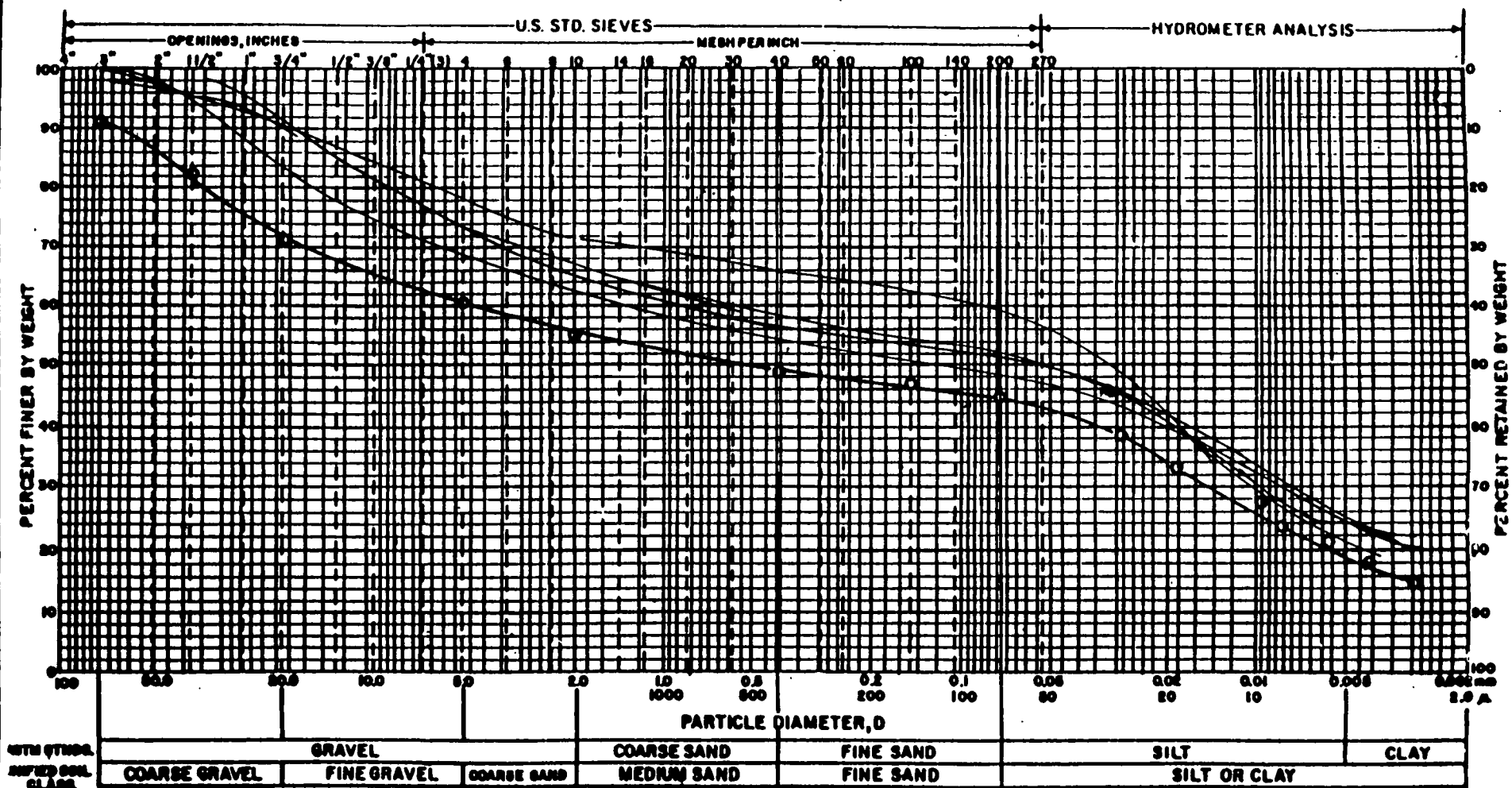
CORTLAND COUNTY LANDFILL
CORTLAND, NEW YORK

☐ Insufficient Sample Size per ASTM D 422

Report No. 14

DR. BY: DJC CK'D. DATE: 12/88 PROJ. NO: GT-88-102

PARTICLE SIZE ANALYSES
CATOH/DUNN GEOSCIENCE - 1984



BARTON & LOGUIDICE, P.C.

CONSULTING ENGINEERS & LAND SURVEYORS

289 ELWOOD DAVIS ROAD / BOX 3107, SYRACUSE, NEW YORK 13220

**CORTLAND COUNTY LANDFILL
WEST SIDE EXTENSION**

**COMPOSITE PARTICLE SIZE ANALYSES
CATOH/DUNN GEOSCIENCE DATA**

PERCENT FINER BY WEIGHT

OPENINGS, INCHES

U.S. STD. SIEVES

MESH PER INCH

HYDROMETER ANALYSIS

PERCENT RETAINED BY WEIGHT

PARTICLE DIAMETER, D

GRAVEL

COARSE GRAVEL

FINE GRAVEL

COARSE SAND

MEDIUM SAND

FINE SAND

SILT

SILT OR CLAY

CLAY

Particle Diameter (mm)	Percent Finer (%)
75	92
47.5	82
25	70
15	62
7.5	58
4.75	54
2.5	50
1.5	48
0.75	46
0.425	44
0.25	42
0.15	40
0.075	38
0.0425	32
0.025	25
0.015	20
0.0075	15
0.00425	12

Hole No. TP-84-2

**NOTE: VISUAL SOIL CLASSIFICATIONS ON E.S.I. SUBSURFACE LOGS
ARE BASED ON THE UNIFIED SOIL CLASSIFICATION SYSTEM.**



EMPIRE SOILS INVESTIGATIONS, INC.

MECHANICAL ANALYSIS

CORTLAND COUNTY LANDFILL
TOWN OF SOLON, NEW YORK

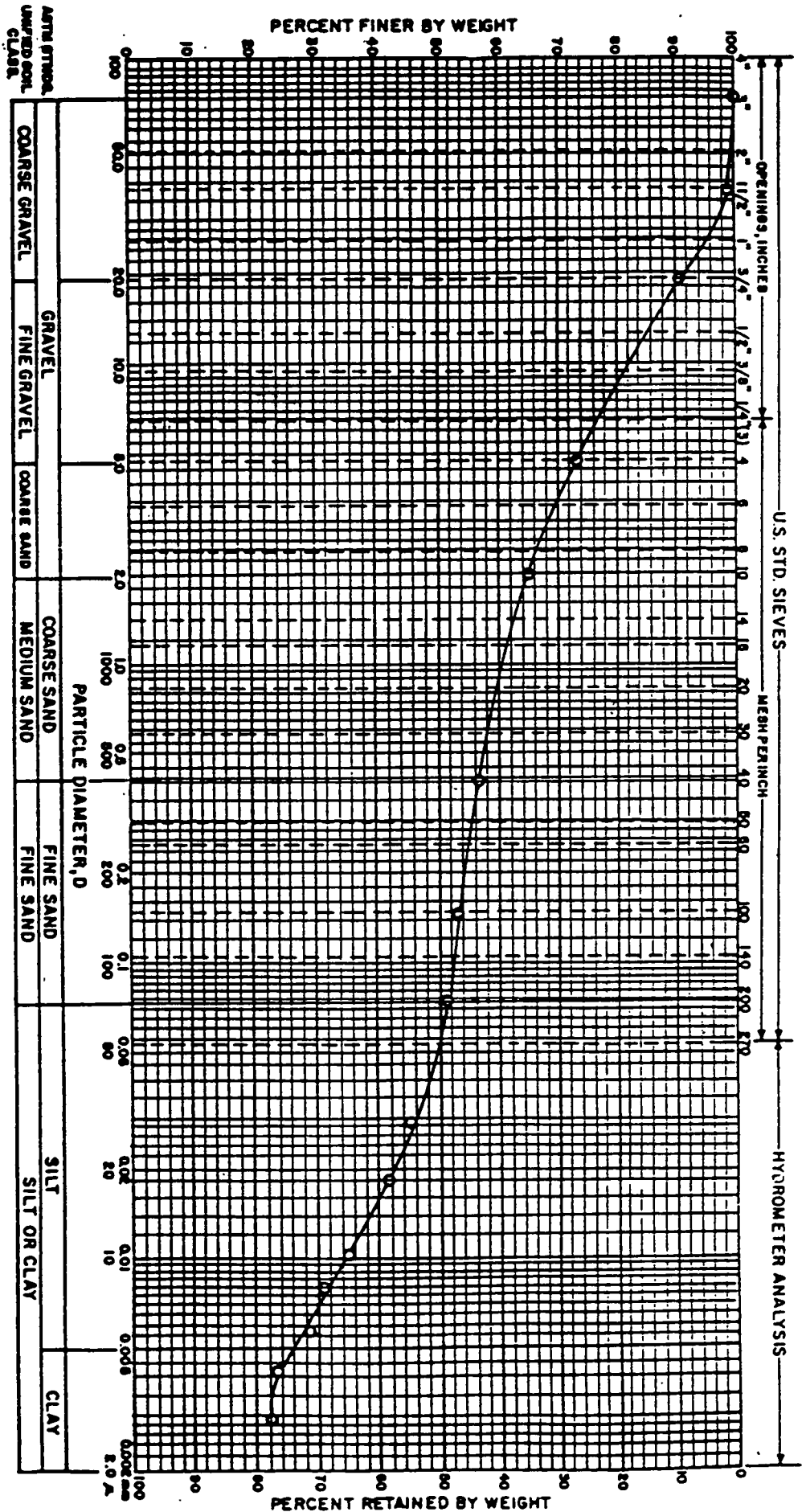
DR BY.

СК'О.

DATE: 9/84

PROJ. NO. GTA-84-50

GRAIN SIZE DISTRIBUTION CURVE



SAMPLE INFORMATION: Hole No.: TP-84-3

NOTE: VISUAL SOIL CLASSIFICATIONS ON E.S.I. SUBSURFACE LOGS ARE BASED ON THE UNIFIED SOIL CLASSIFICATION SYSTEM.



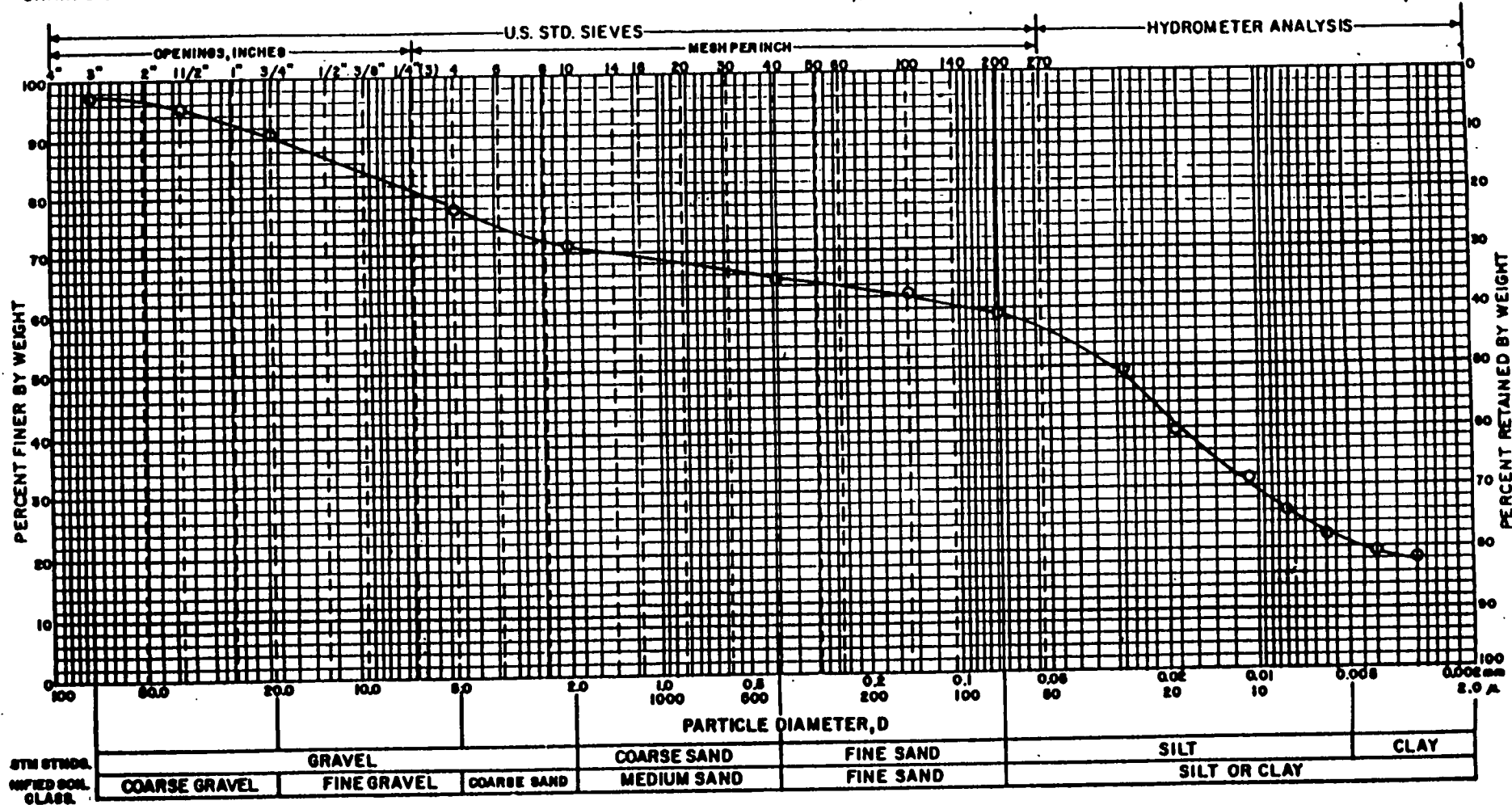
EMPIRE SOILS INVESTIGATIONS, INC.

MECHANICAL ANALYSIS

CORTLAND COUNTY LANDFILL
TOWN OF SOLOON, NEW YORK

DR. BY: CRD. DATE: 9/84 PROJ. NO. GTA-84-50

GRAIN SIZE DISTRIBUTION CURVE



SAMPLE INFORMATION: Hole No.: TP-84-4



EMPIRE SOILS INVESTIGATIONS, INC.

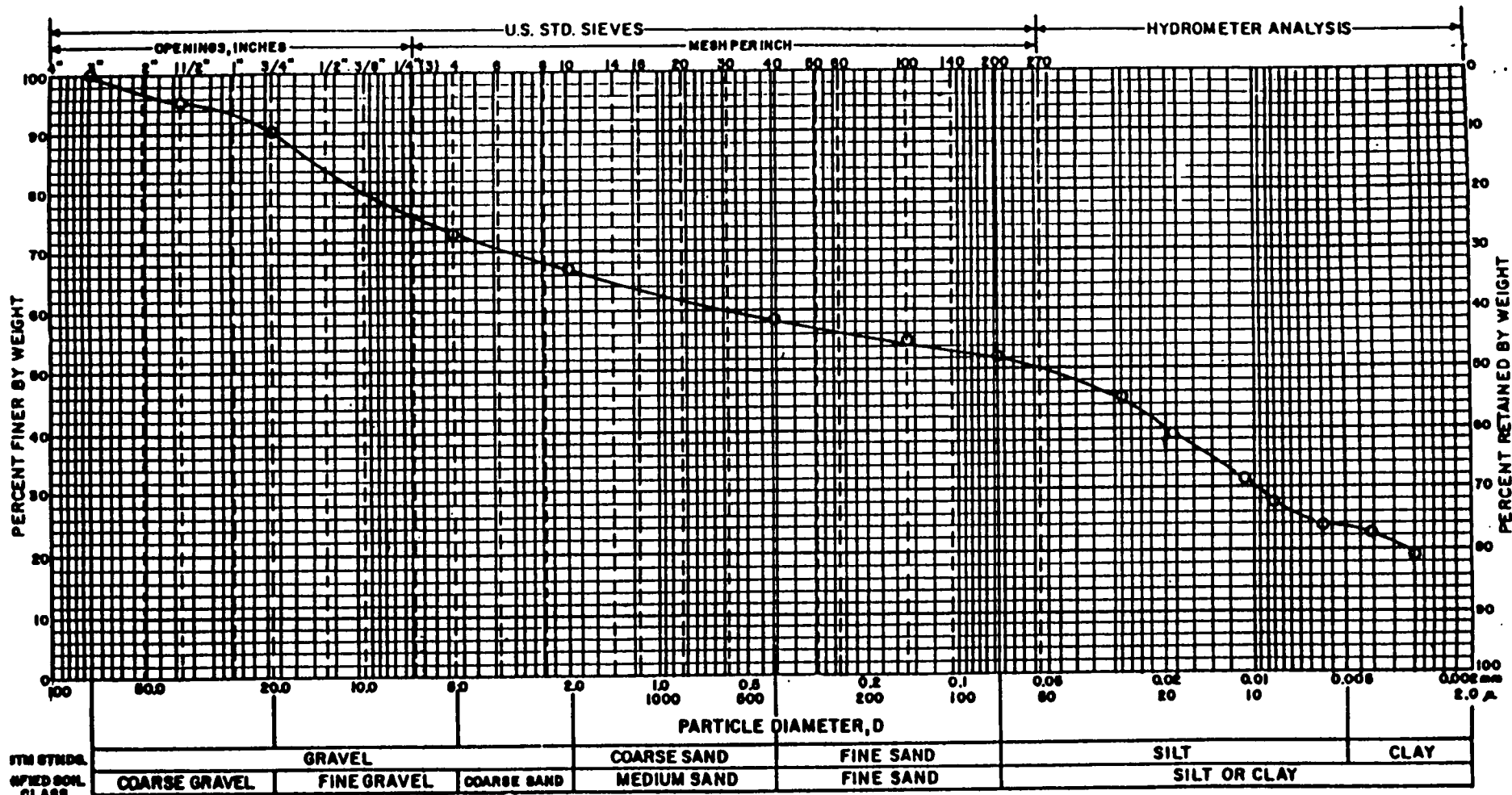
MECHANICAL ANALYSIS

CORTLAND COUNTY LANDFILL
TOWN OF SOLON, NEW YORK

NOTE: VISUAL SOIL CLASSIFICATIONS ON E.S.I. SUBSURFACE LOGS
ARE BASED ON THE UNIFIED SOIL CLASSIFICATION SYSTEM.

DR. BY: CK'D. DATE: 9/84 PROJ. NO. GTA-84-50

GRAIN SIZE DISTRIBUTION CURVE



SAMPLE INFORMATION: Hole No.: TP-84-5



EMPIRE SOILS INVESTIGATIONS, INC.

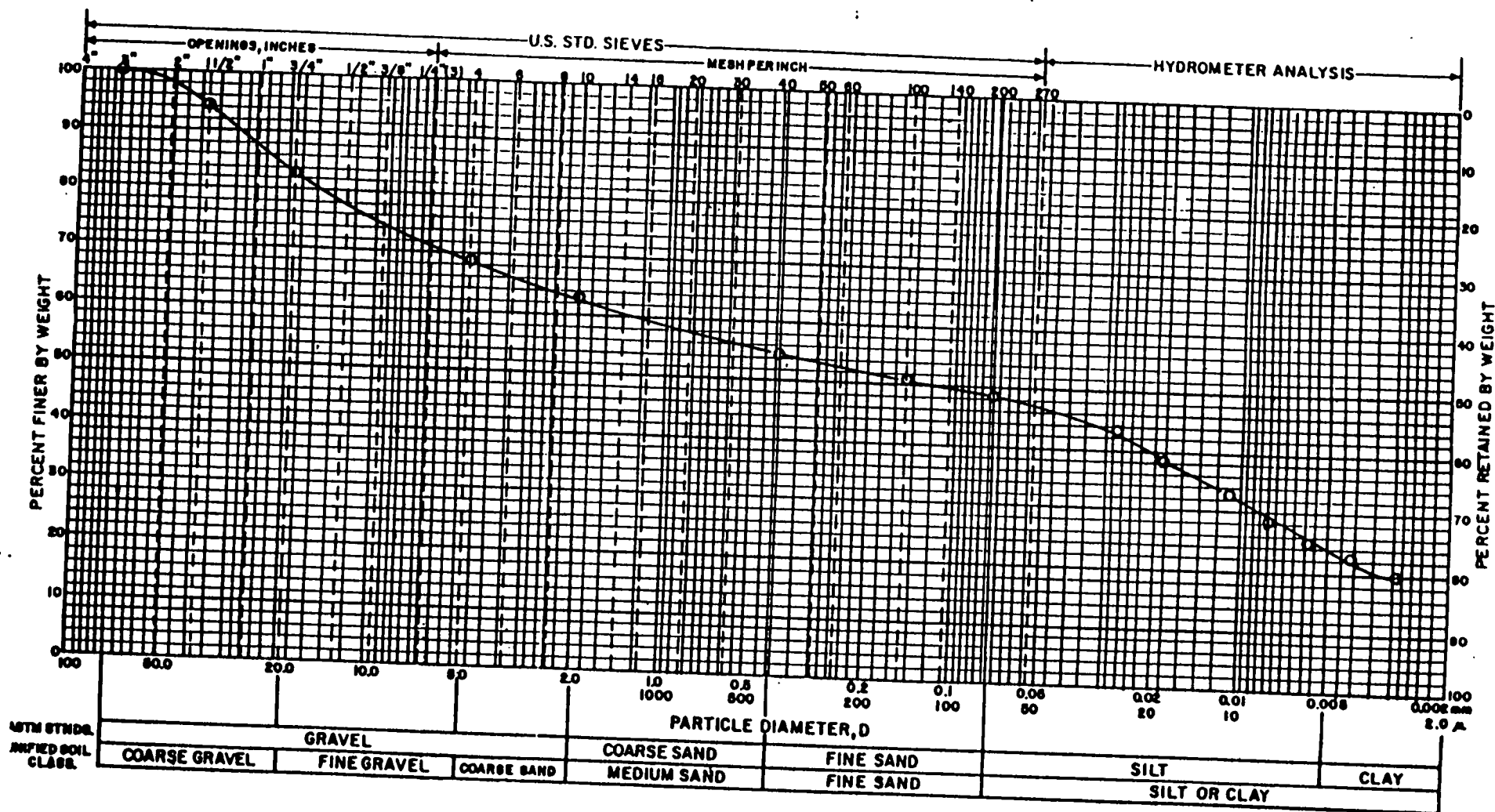
MECHANICAL ANALYSIS

CORTLAND COUNTY LANDFILL
TOWN OF SOLON, NEW YORK

NOTE: VISUAL SOIL CLASSIFICATIONS ON E.S.I. SUBSURFACE LOGS
ARE BASED ON THE UNIFIED SOIL CLASSIFICATION SYSTEM.

DR. BY: CK'D. DATE: 9/84 PROJ. NO: TA-84-50

GRAIN SIZE DISTRIBUTION CURVE



SAMPLE INFORMATION: Hole No.: TP-84-1

NOTE: VISUAL SOIL CLASSIFICATIONS ON E.S.I. SUBSURFACE LOGS ARE BASED ON THE UNIFIED SOIL CLASSIFICATION SYSTEM.



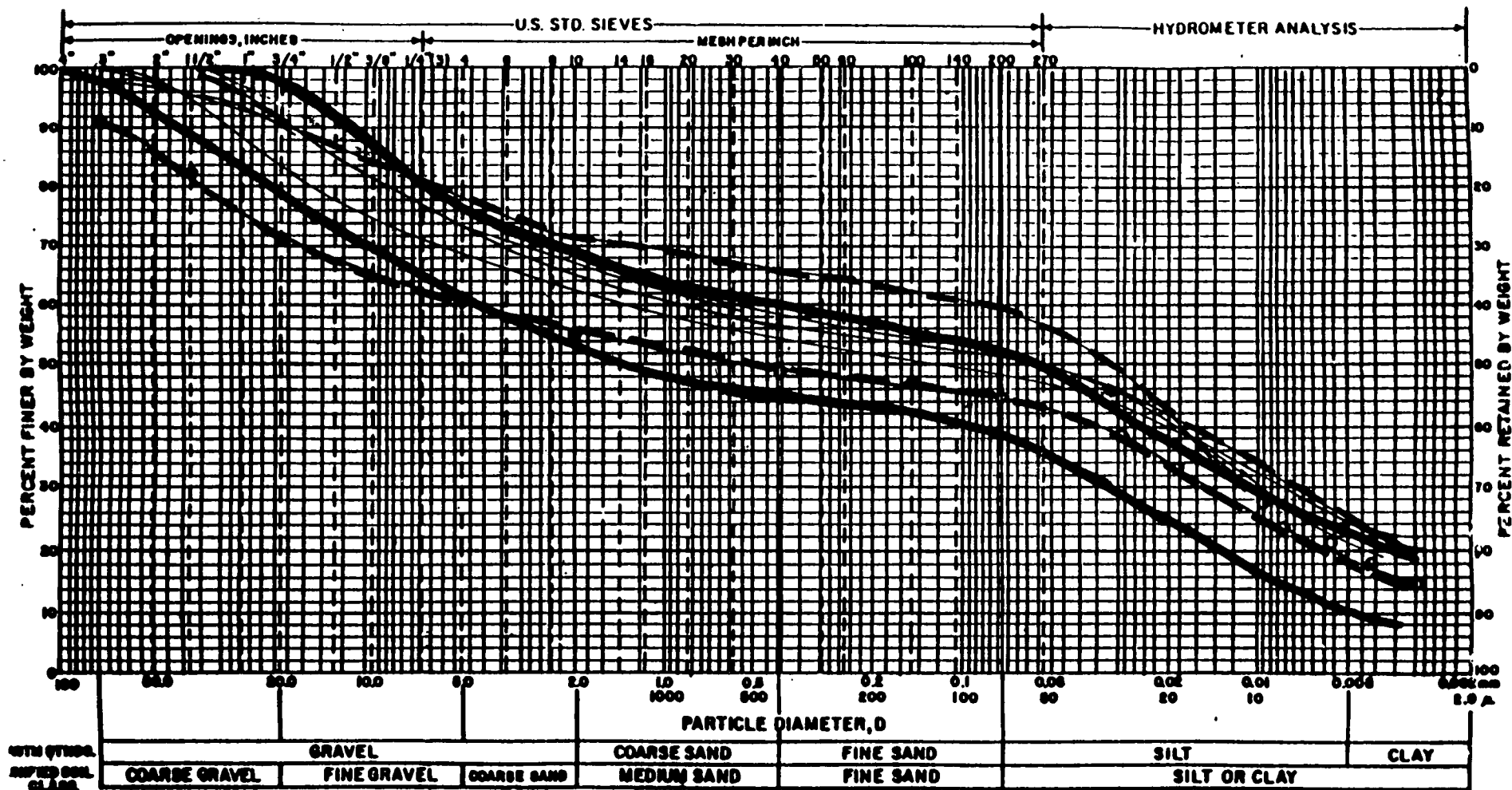
EMPIRE SOILS INVESTIGATIONS, INC.

MECHANICAL ANALYSIS

**CORTLAND COUNTY LANDFILL
TOWN OF SOLON, NEW YORK**

DR. BY: CK'D. DATE: 9/84 PROJ. NO. GTA-84-50

COMPOSITE PARTICLE
SIZE ANALYSES



BARTON & LOGUIDICE, P.C.

CONSULTING ENGINEERS & LAND SURVEYORS

380 ELMWOOD DAVID ROAD / BOX 3107, SYRACUSE, NEW YORK 13220

CORTLAND COUNTY LANDFILL
WEST SIDE EXTENSION

COMPOSITE PARTICLE SIZE
ANALYSES

COMPACTION DATA

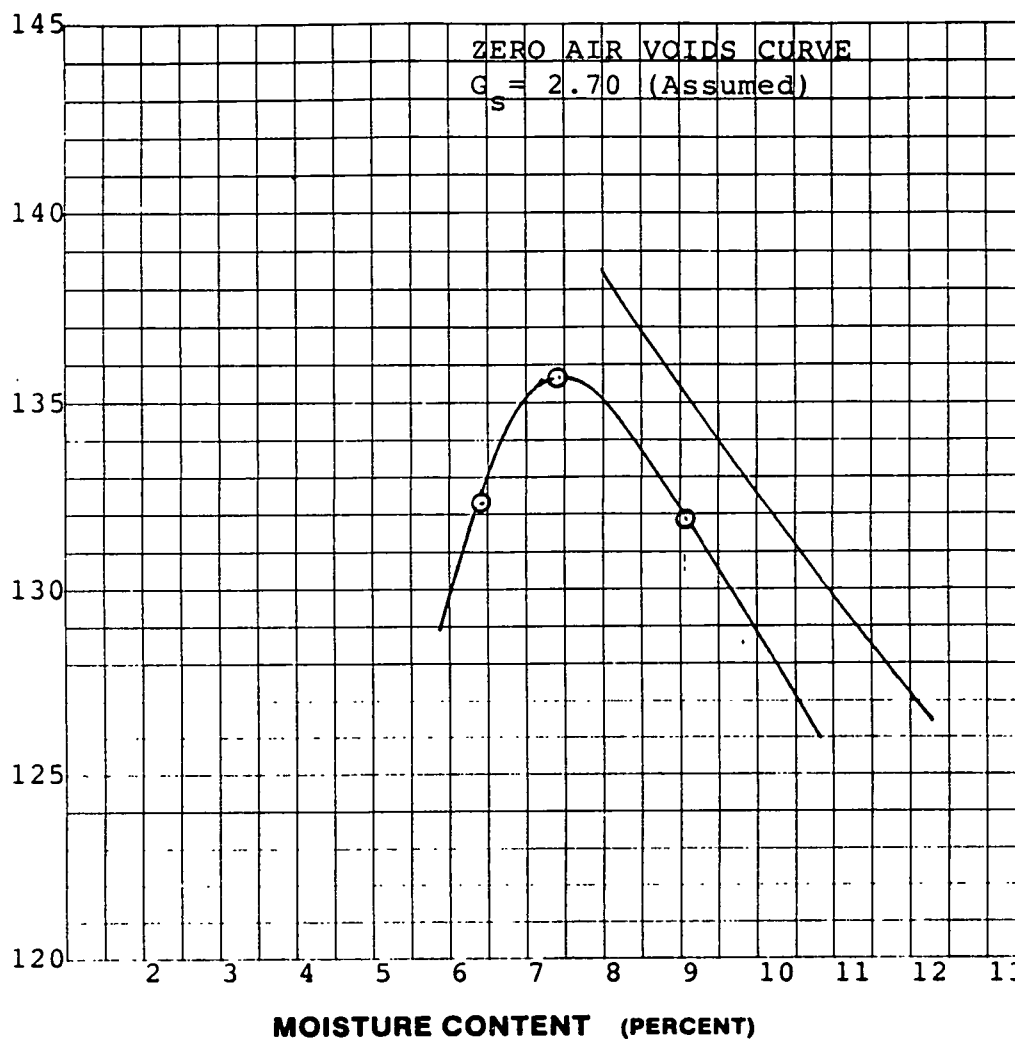
(ASTM D 1557)

BARTON & LOGUIDICE - 1988



MAXIMUM DENSITY/OPTIMUM MOISTURE

DRY DENSITY (POUNDS PER CUBIC FOOT)



$G_s = 2.726$
(Actual)

MAXIMUM DRY DENSITY 135.7 PCF

OPTIMUM WATER CONTENT 7.4 %

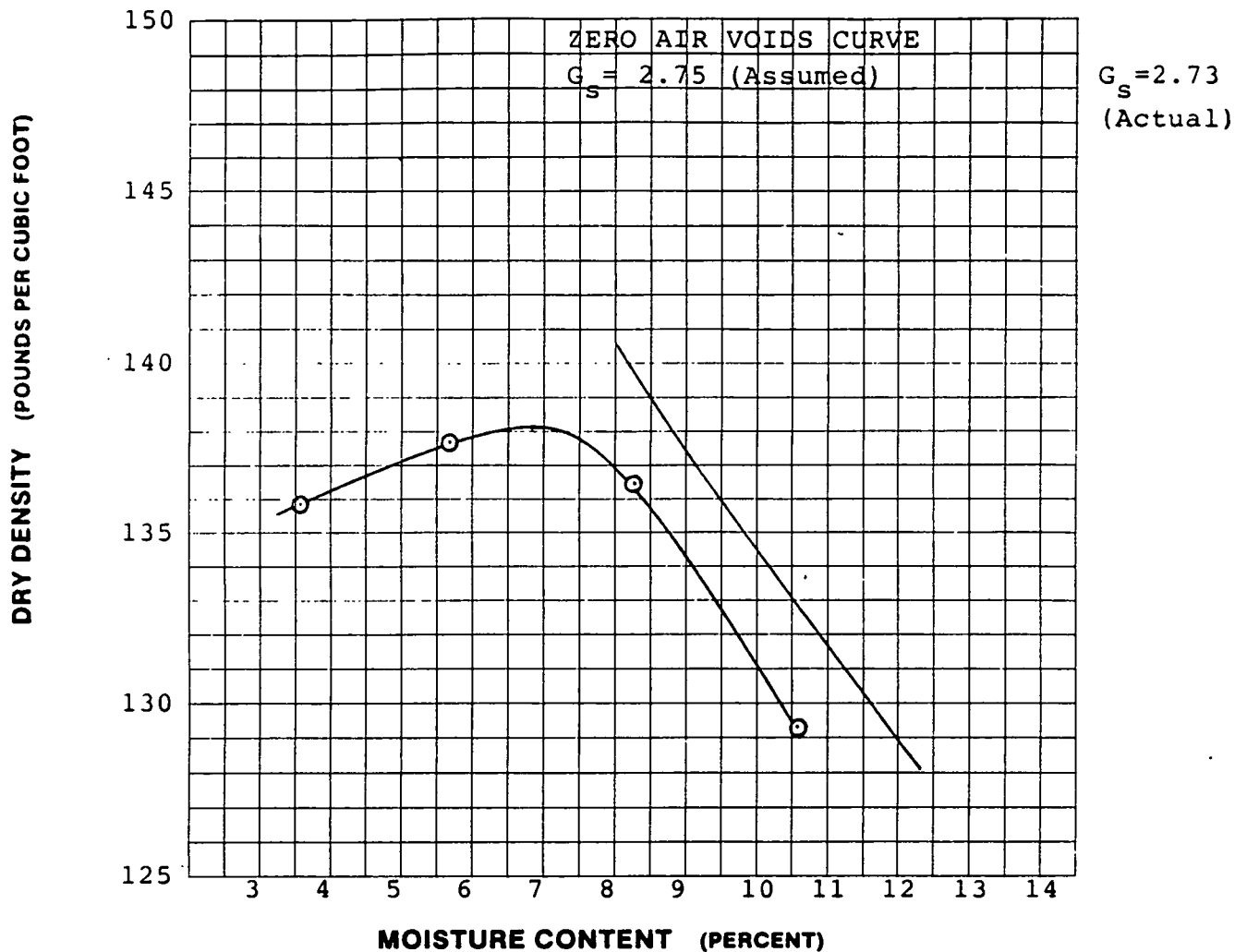
Gradation of Sample		Specs.
Sieve Size	% Finer by Weight	
3"	100.0	
1 1/2"	89.8	
3/4"	83.9	
1/2"	79.6	
#4	70.2	
#10	63.3	
#40	54.3	
#200	48.4	

TEST METHOD	
Mold Dia., Inch.	6
Mold Volume, ft. ³	.0748
Hammer Weight, lb.	10
Hammer Drop, Inch.	18
Number of Layers	5
Number of Blows	56
Max. Material Size	3/4"
Test Method	ASTM D-1557-78
Method "D"	

JOB NAME	Cortland County
	Landfill, Cortland, NY
MATERIAL	On-Site
SOURCE	TP-2, 3.0'-8.0'
SAMPLED BY	Client
DATE SAMPLED	
TESTED BY	ESI-N. Hammond
CURVE NO.	1
PROJECT NO.	GT-88-102
DR. BY TAH	CK'D BY



MAXIMUM DENSITY/OPTIMUM MOISTURE



MAXIMUM DRY DENSITY 138.1 PCF

OPTIMUM WATER CONTENT 6.9 %

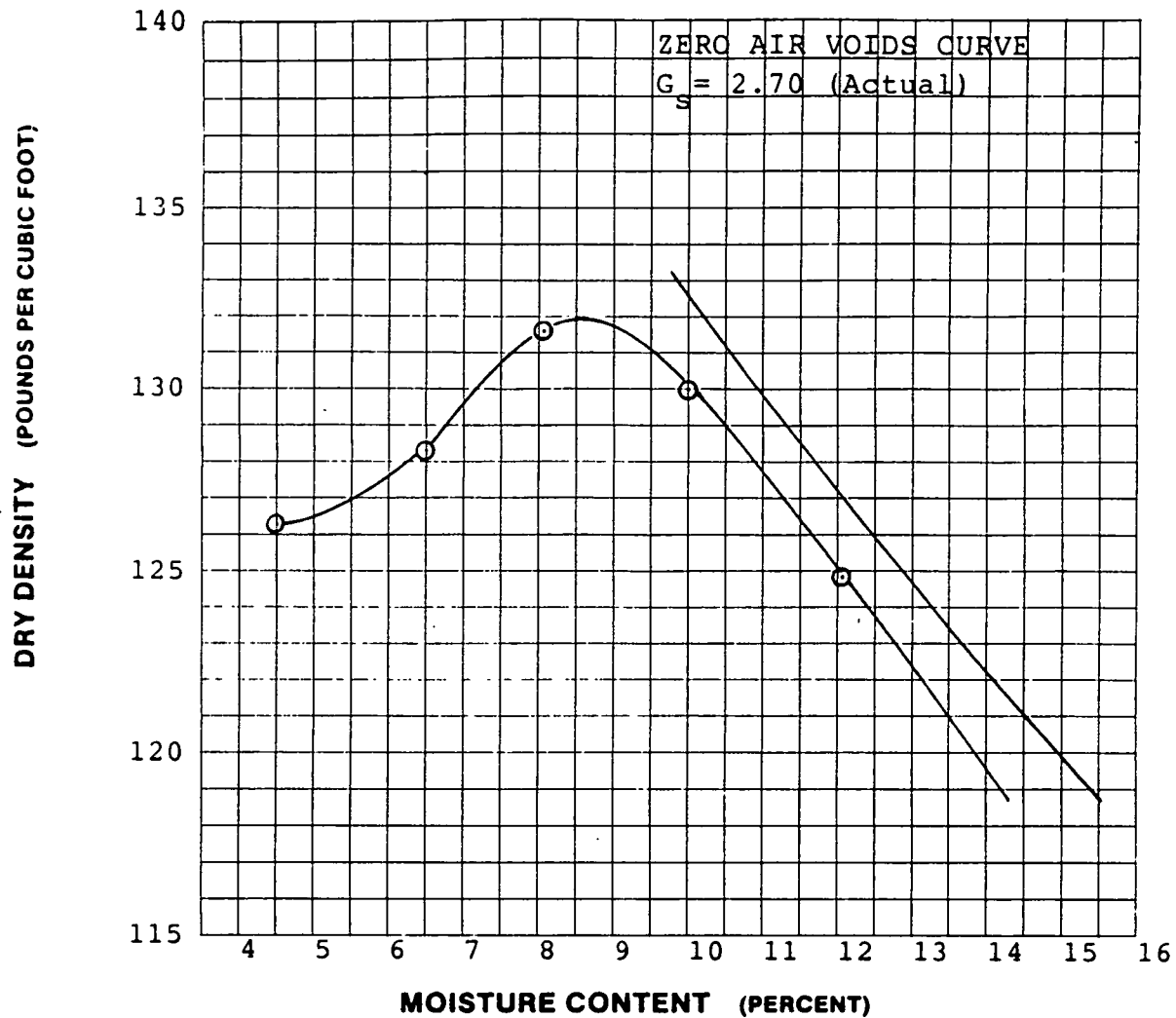
Gradation of Sample		Specs.
Sieve Size	% Finer by Weight	
3"	100.0	
1 1/2"	99.7	
3/4"	92.1	
1/2"	85.3	
#4	71.1	
#10	61.7	
#20	54.5	
#40	51.0	
#200	45.0	

TEST METHOD	
Mold Dia., Inch.	6
Mold Volume, ft. ³	.0745
Hammer Weight, lb.	10
Hammer Drop, Inch.	18
Number of Layers	5
Number of Blows	56
Max. Material Size	3/4"
Test Method	ASTM D-1557-78
Method "C"	

JOB NAME	Cortland County Landfill, Cortland, NY
MATERIAL	On-Site
SOURCE	TP-4, 11.0'-17.0'
SAMPLED BY	Client
DATE SAMPLED	
TESTED BY	ESI-N. Hammond
CURVE NO.	2
PROJECT NO.	GT-88-102
DR. BY TAH	CK'D BY



MAXIMUM DENSITY/OPTIMUM MOISTURE



MAXIMUM DRY DENSITY 131.9 pcf

OPTIMUM WATER CONTENT 8.6 %

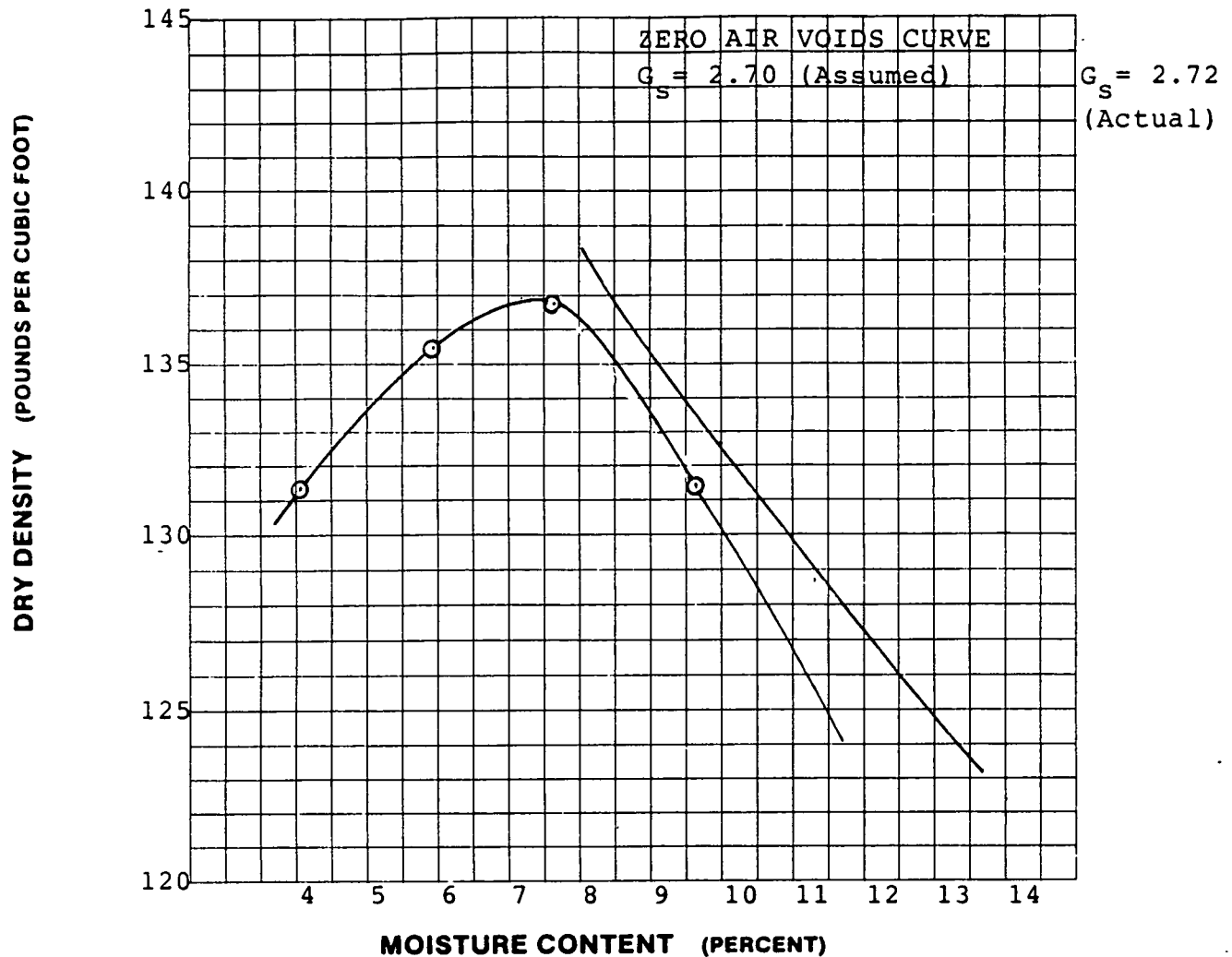
Gradation of Sample		Specs.
Sieve Size	% Finer by Weight	
3"	100.0	
1 1/2"	97.9	
3/4"	92.0	
1/2"	88.0	
#4	78.7	
#10	70.2	
#20	64.2	
#40	60.7	
#200	53.8	

TEST METHOD	
Mold Dia., Inch.	6
Mold Volume, ft. ³	.0748
Hammer Weight, lb.	10
Hammer Drop, Inch.	18
Number of Layers	56
Number of Blows	5
Max. Material Size	3/4"
Test Method	ASTM D-1557-78
Method "C"	

JOB NAME	Cortland County Landfill, Cortland, NY
MATERIAL	On-Site
SOURCE	TP-15, 7.0'-10.0'
SAMPLED BY	Client
DATE SAMPLED	
TESTED BY	ESI-B. Hall
CURVE NO.	3
PROJECT NO.	GT-88-102
DR. BY TAH	CK'D BY



MAXIMUM DENSITY/OPTIMUM MOISTURE



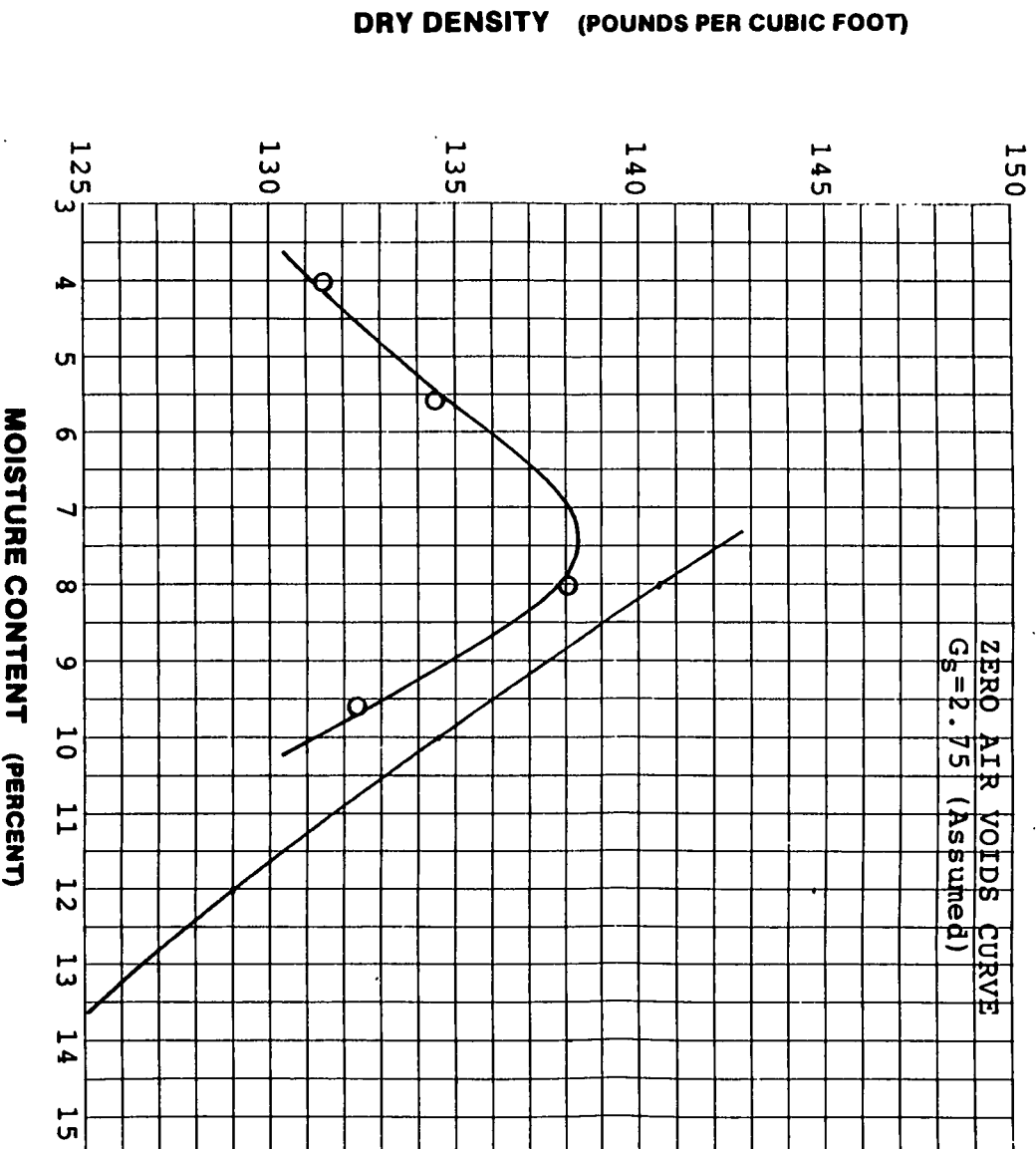
MAXIMUM DRY DENSITY 136.9 PCF

OPTIMUM WATER CONTENT 7.4 %

Gradation of Sample		Specs.
Sieve Size	% Finer by Weight	
3"	100.0	
1 1/2"	97.5	
3/4"	88.7	
1/2"	84.3	
#4	76.5	
#10	67.3	
#20	61.9	
#40	58.0	
#200	50.3	

TEST METHOD	
Mold Dia., Inch.	6
Mold Volume, ft. ³	.074
Hammer Weight, lb.	10
Hammer Drop, Inch.	18
Number of Layers	5
Number of Blows	56
Max. Material Size	3/4"
Test Method	ASTM D-1557-78
Method "D"	

JOB NAME	Cortland County Landfill, Cortland, NY
MATERIAL	On-Site
SOURCE	TP-17, 5.0'-7.0'
SAMPLED BY	Client
DATE SAMPLED	
TESTED BY	ESI-K. Hepfer
CURVE NO.	4
PROJECT NO.	GT-88-102
DR. BY TAH	CK'D BY

MAXIMUM DRY DENSITY 138.3 pcfOPTIMUM WATER CONTENT 7.4 %

Gradation of Sample	Specs.
Sieve Size	% Finer by Weight
1 1/2"	100
3/4"	98.8
1/2"	93.0
#4	76.4
#10	67.0
#100	52.9
#200	48.7

TEST METHOD	
Mold Dia., inch.	6
Mold Volume, ft. ³	.0745
Hammer Weight, lb.	10
Hammer Drop, inch.	18
Number of Layers	5
Number of Blows	56
Max. Material Size	3/4"
Test Method ASTM D1557-78	
Method "C"	

JOB NAME	Cortland County
Landfill, Cortland, NY	
MATERIAL	Grey Sand, Gravel, Silt & Clay
SOURCE	MW-11B
SAMPLED BY	Client
DATE SAMPLED	August, 1988
TESTED BY	E.S.I. - C.D.
CURVE NO.	5
PROJECT NO.	GT-88-102
DR. BY	TAH
CKD BY	

COMPACTION DATA

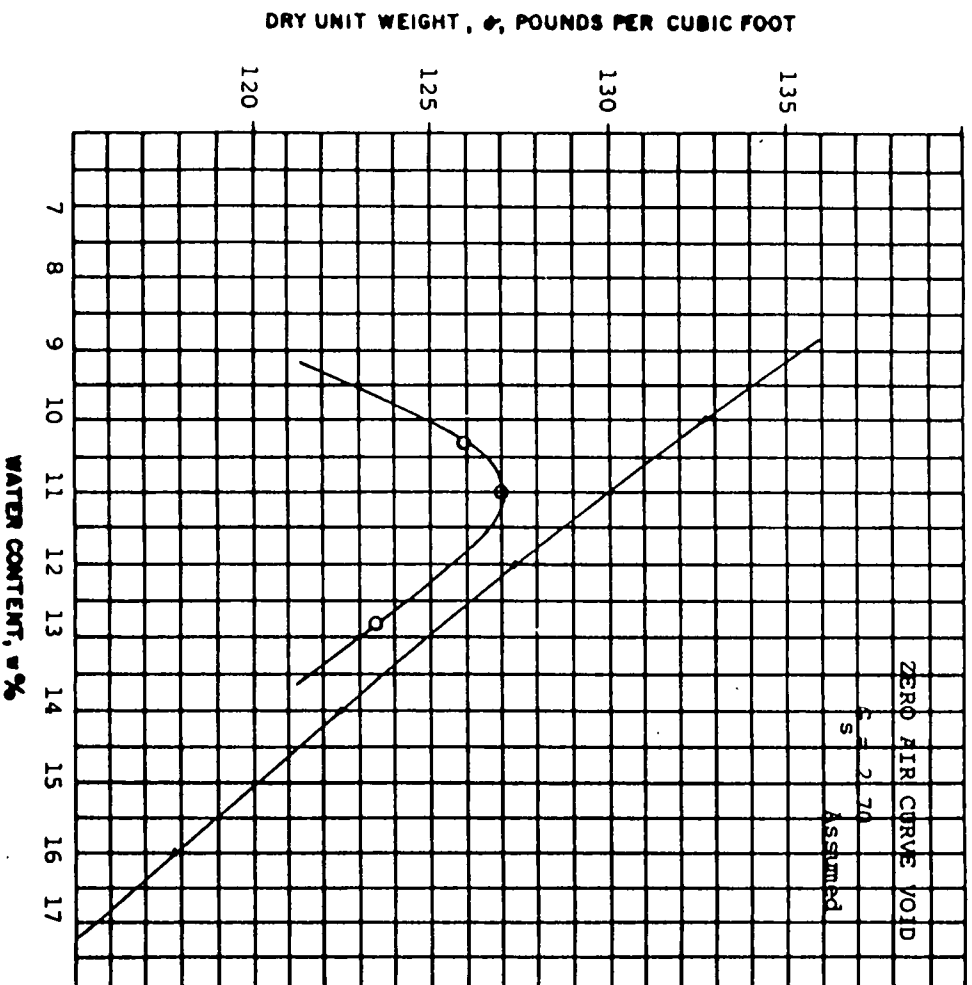
(ASTM D 698)

CATOH/DUNN GEOSCIENCE - 1984

TEST METHOD	STANDARD PROCTOR TEST (AASHTO T 99-70, ASTM D 698-70)				MODIFIED PROCTOR TEST (AASHTO T 100-70, ASTM D 1557-70)			
MOLD DIAMETER, INCHES	4			6	4			6
MOLD VOLUME, CUBIC FEET	0.033		0.078		0.033		0.078	
HAMMER WEIGHT, POUNDS	6.8		6.8		10		10	
HAMMER DROP, INCHES	18		18		18		18	
NUMBER OF BLOWS	3		3		5		5	
NUMBER OF LAYERS	25		25		25		25	
MAXIMUM MATERIAL SIZE	#4	3/4"	#4	3/4"	#4	3/4"	#4	3/4"
METHOD	A	C*	B	D*	A	C*	B	D*

*OVERSIZE MATERIAL MAY BE REPLACED WITH MATERIAL BETWEEN 3/4" AND THE #40 SIEVE. (NOTE 2 IN ASTM SPECIFICATIONS.)

MOISTURE-DENSITY RELATION



GRADATION OF SAMPLE	
SIEVE SIZE	% FINER BY WEIGHT
3	
3/4	
#4	
#10	
#40	
#100	

MAXIMUM DRY DENSITY	127.0 POUNDS PER CUBIC FOOT,
OPTIMUM WATER CONTENT	11.0 %

SAMPLE INFORMATION: TP-84-1



EMPIRE SOILS INVESTIGATIONS, INC.
PROCTOR COMPACTION TEST

METHOD OF TEST: ASTM D698-70, Method C
using stone substitution

CORTLAND COUNTY LANDFILL
TOWN OF SOLOIN, NEW YORK

CM. 8V:

CM. 8V:

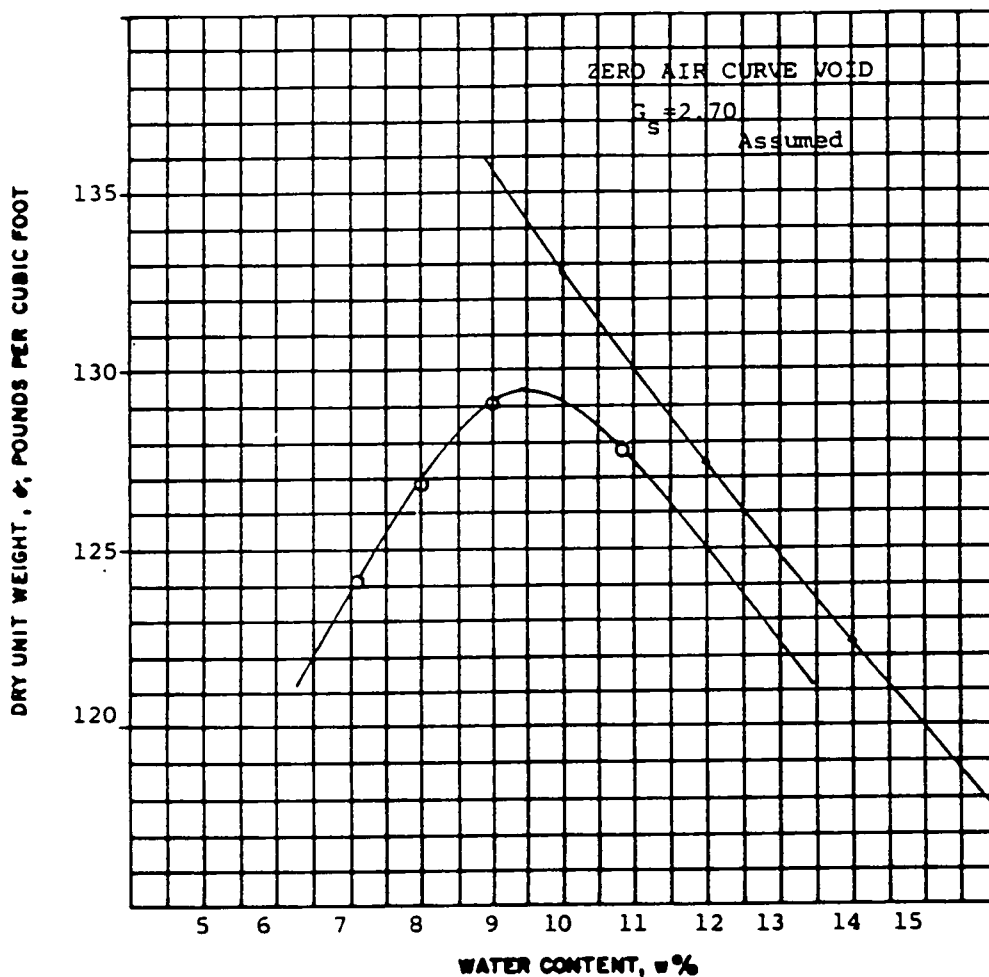
DATE: 9/84

PROJ. NO. GTA-84-50

TEST METHOD	STANDARD PROCTOR TEST (AASHTO T 99-70, ASTM D 698-70)				MODIFIED PROCTOR TEST (AASHTO T 155-70, ASTM D 1557-70)			
	4	6	4	6	4	6	4	6
MOLD DIAMETER, INCHES	0.053	0.076	0.053	0.076	0.053	0.076	0.053	0.076
MOLD VOLUME, CUBIC FEET	8.8	8.8	10	10	10	10	10	10
HAMMER WEIGHT, POUNDS	12	12	18	18	18	18	18	18
HAMMER DROP, INCHES	3	3	5	5	5	5	5	5
NUMBER OF BLOWS	25	25	25	25	25	25	25	25
MAXIMUM MATERIAL SIZE	#4	3/4"	#4	3/4"	#4	3/4"	#4	3/4"
METHOD	A	C	B	D	A	C	B	D

* OVERSIZE MATERIAL MAY BE REPLACED WITH MATERIAL BETWEEN 3/4" AND THE #4 SIEVE. (NOTE 2 IN ASTM SPECIFICATIONS.)

MOISTURE-DENSITY RELATION



GRADATION OF SAMPLE

SIEVE SIZE	% FINER BY WEIGHT
3	
3/4	
#4	
#10	
#40	
#200	

MAXIMUM DRY DENSITY
129.4 POUNDS
PER CUBIC FOOT,
OPTIMUM WATER
CONTENT 9.4 %

SAMPLE INFORMATION: TP-84-2

METHOD OF TEST: ASTM D 698-70, Method C
using stone substitution



EMPIRE SOILS INVESTIGATIONS, INC.

PROCTOR COMPACTION TEST

CORTLAND COUNTY LANDFILL
TOWN OF SOLON, NEW YORK

DR. BY:

CR'D.

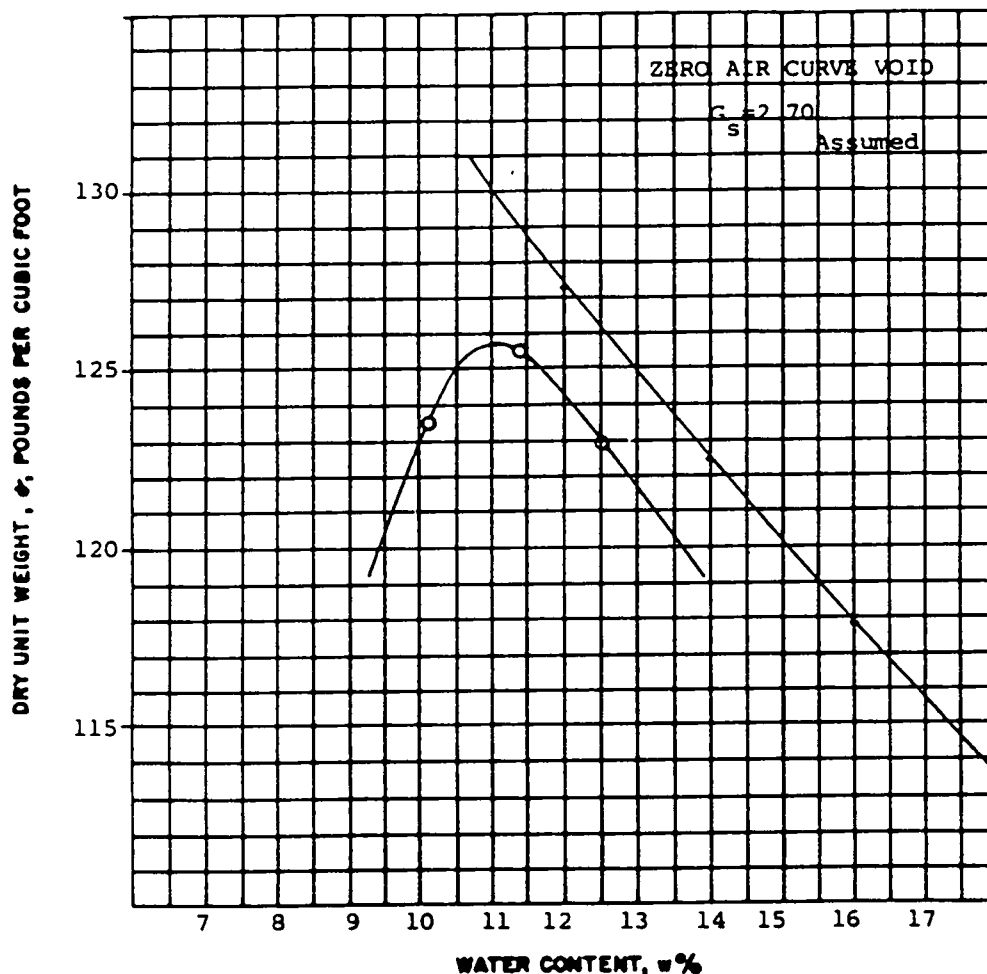
DATE: 9/84

PROJ. NO. GTA-84-50

TEST METHOD	STANDARD PROCTOR TEST (AASHTO T 99-70, ASTM D 698-70)				MODIFIED PROCTOR TEST (AASHTO T 100-70, ASTM D 1557-70)			
	4	6	4	6	4	6	4	6
MOLD DIAMETER, INCHES	0.033	0.078	0.033	0.078	0.033	0.078	0.033	0.078
MOLD VOLUME, CUBIC FEET	8.8	8.8	10	10	10	10	10	10
HAMMER WEIGHT, POUNDS	12	12	18	18	18	18	18	18
HAMMER DROP, INCHES	3	3	6	6	6	6	6	6
NUMBER OF LAYERS	25	25	25	25	25	25	25	25
NUMBER OF BLOWS	25	25	25	25	25	25	25	25
MAXIMUM MATERIAL SIZE	4	3/4"	4	3/4"	4	3/4"	4	3/4"
METHOD	A	C	B	D	A	C	B	D

* OVERSIZE MATERIAL MAY BE REPLACED
WITH MATERIAL BETWEEN 3/4" AND THE
4" SIEVE. (NOTE 2 IN ASTM SPECIFICATIONS.)

MOISTURE-DENSITY RELATION



GRADATION OF SAMPLE

SIEVE SIZE % FINER BY WEIGHT

3
3/4
4
10
40
200

MAXIMUM DRY DENSITY
125.6 POUNDS
PER CUBIC FOOT,
OPTIMUM WATER
CONTENT 11.1 %

SAMPLE INFORMATION: TP-84-3

METHOD OF TEST: ASTM D 698-70, Method C
using stone substitution



EMPIRE SOILS INVESTIGATIONS, INC.

PROCTOR COMPACTION TEST

CORTLAND COUNTY LANDFILL
TOWN OF SOLON, NEW YORK

DR. BY:

CK'D.

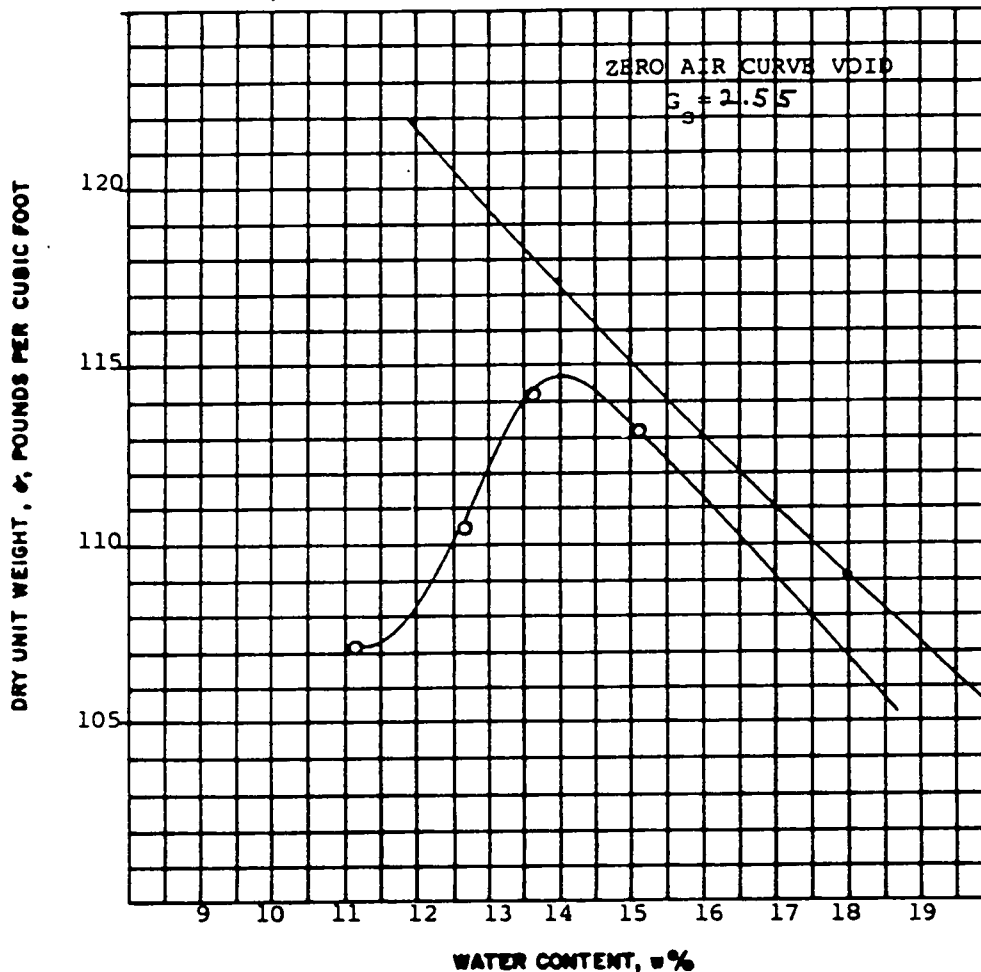
DATE: 9/84

PROJ. NO. GTA-84-50

TEST METHOD	STANDARD PROCTOR TEST (AASHTO T 99-70, ASTM D 698-70)				MODIFIED PROCTOR TEST (AASHTO T 100-70, ASTM D 1557-70)			
	4	6	4	6	4	6	4	6
MOLD DIAMETER, INCHES	0.033	0.078	0.033	0.078	0.033	0.078	0.033	0.078
MOLD VOLUME, CUBIC FEET	0.033	0.078	0.033	0.078	0.033	0.078	0.033	0.078
HAMMER WEIGHT, POUNDS	10	10	10	10	10	10	10	10
HAMMER DROP, INCHES	12	12	12	12	12	12	12	12
NUMBER OF LAYERS	3	3	3	3	3	3	3	3
NUMBER OF BLOWS	25	25	25	25	25	25	25	25
MAXIMUM MATERIAL SIZE	4	3/4	4	3/4	4	3/4	4	3/4
METHOD	A	C	B	D	A	C	B	D

* OVERSIZE MATERIAL MAY BE REPLACED
WITH MATERIAL BETWEEN 3/4" AND THE
4" SIEVE. (NOTE 2 IN ASTM SPECIFICATIONS.)

MOISTURE-DENSITY RELATION



GRADATION OF SAMPLE

SIEVE SIZE % FINER BY WEIGHT

3
3/4
4
10
40
200

MAXIMUM DRY DENSITY
114.6 POUNDS
PER CUBIC FOOT,
OPTIMUM WATER
CONTENT 14.0 %

SAMPLE INFORMATION: TP-84-4

METHOD OF TEST: ASTM D 698-70, Method C
using stone substitution



EMPIRE SOILS INVESTIGATIONS, INC.

PROCTOR COMPACTION TEST

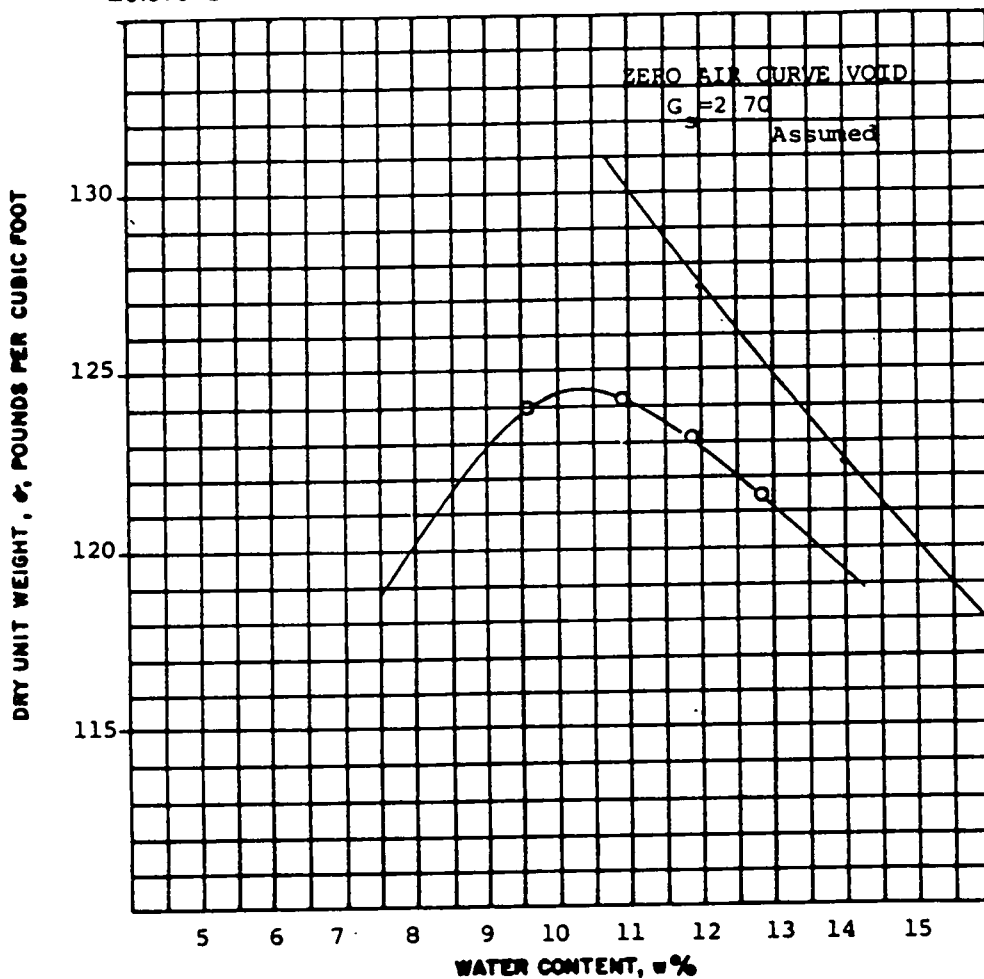
CORTLAND COUNTY LANDFILL
TOWN OF SOLON, NEW YORK

DR. BY: CR'D. DATE 9/84 PROJ. NO. GTA-84-50

TEST METHOD	STANDARD PROCTOR TEST (AASHTO T 99-70, ASTM D 698-70)				MODIFIED PROCTOR TEST (AASHTO T 180-70, ASTM D 1557-70)			
	4	6	4	6	4	6	4	6
MOLD DIAMETER, INCHES	0.033	0.078	0.033	0.078	0.033	0.078	0.033	0.078
MOLD VOLUME, CUBIC FEET	8.8	8.8	10	10	10	10	10	10
HAMMER WEIGHT, POUNDS	12	12	18	18	18	18	18	18
HAMMER DROP, INCHES	3	3	5	5	5	5	5	5
NUMBER OF LAYERS	25	25	25	25	25	25	25	25
NUMBER OF BLOWS	25	25	25	25	25	25	25	25
MAXIMUM MATERIAL SIZE	4	3/4	4	3/4	4	3/4	4	3/4
METHOD	A	C	B	D	A	C	B	D

* OVERSIZE MATERIAL MAY BE REPLACED WITH MATERIAL BETWEEN 3/4" AND THE 4" SIEVE. (NOTE 2 IN ASTM SPECIFICATIONS.)

MOISTURE-DENSITY RELATION



GRADATION OF SAMPLE

SIEVE SIZE % FINER BY WEIGHT

3
3/4
4
10
40
200

MAXIMUM DRY DENSITY
124.3 POUNDS
PER CUBIC FOOT,
OPTIMUM WATER
CONTENT 10.3%

SAMPLE INFORMATION: TP-84-5

METHOD OF TEST: ASTM D 698-70, Method C
using stone substitution



EMPIRE SOILS INVESTIGATIONS, INC.

PROCTOR COMPACTION TEST

CORTLAND COUNTY LANDFILL
TOWN OF SOLON, NEW YORK

DR. BY:

CR'D:

DATE: 9/84

PROJECT: GTA-84-50

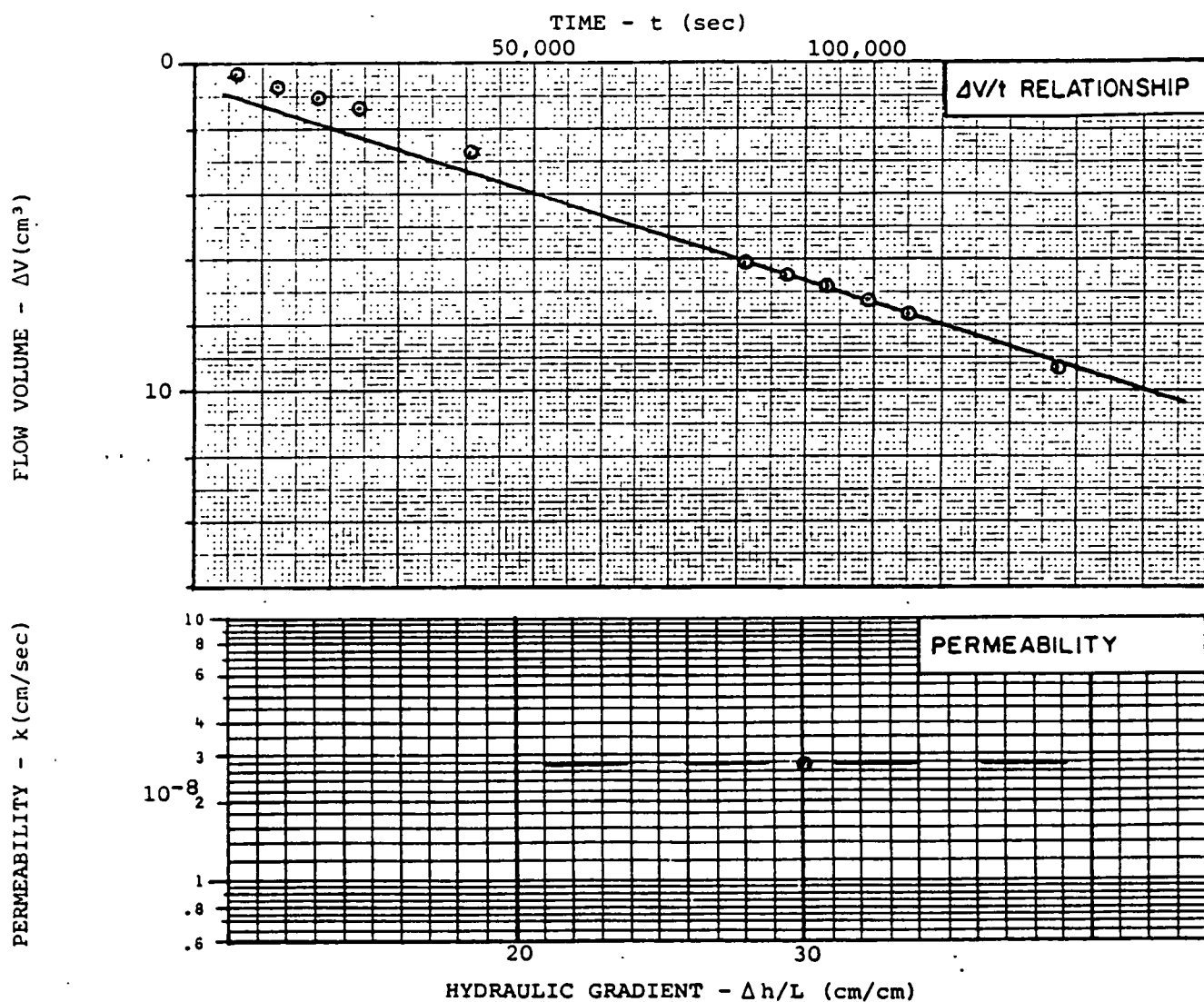
PERMEABILITY DATA
BARTON & LOGUIDICE - 1988

TEST DATA:

Specimen Height (cm): 11.70
 Specimen Diameter (cm): 10.16
 Dry Unit Weight (pcf): 129.0
 Moisture Content Before Test (%): 10.9
 Moisture Content After Test (%): 10.5
 Cell Confining Pressure (psi): 95
 Test Pressure (psi): 85 -
 Back Pressure (psi): 80 -
 Differential Head (psi): 5 -
 Flow Rate ($\Delta V/t$) (cm³/sec): $6.73 \times 10^{-5} \Delta$ -
 Permeability (cm/sec): $2.77 \times 10^{-8} \Delta$ -

SAMPLE DATA:

Sample Identification: TP-4
 11'-17'
 Visual Description: Grey GRAVEL, SILT & SAND, little clay
 Remarks: Remolded to approximately 95% compaction
 Maximum Dry Density (ASTM D 1557) (pcf): 138.1
 Optimum Moisture Content (%): 6.9
 Percent Compaction: 93.4
 Permeameter Type: Triaxial



PERMEABILITY TEST REPORT

CORTLAND COUNTY LANDFILL
 CORTLAND, NEW YORK

DR BY: *JK*

CK'D.

DATE: August, 1988

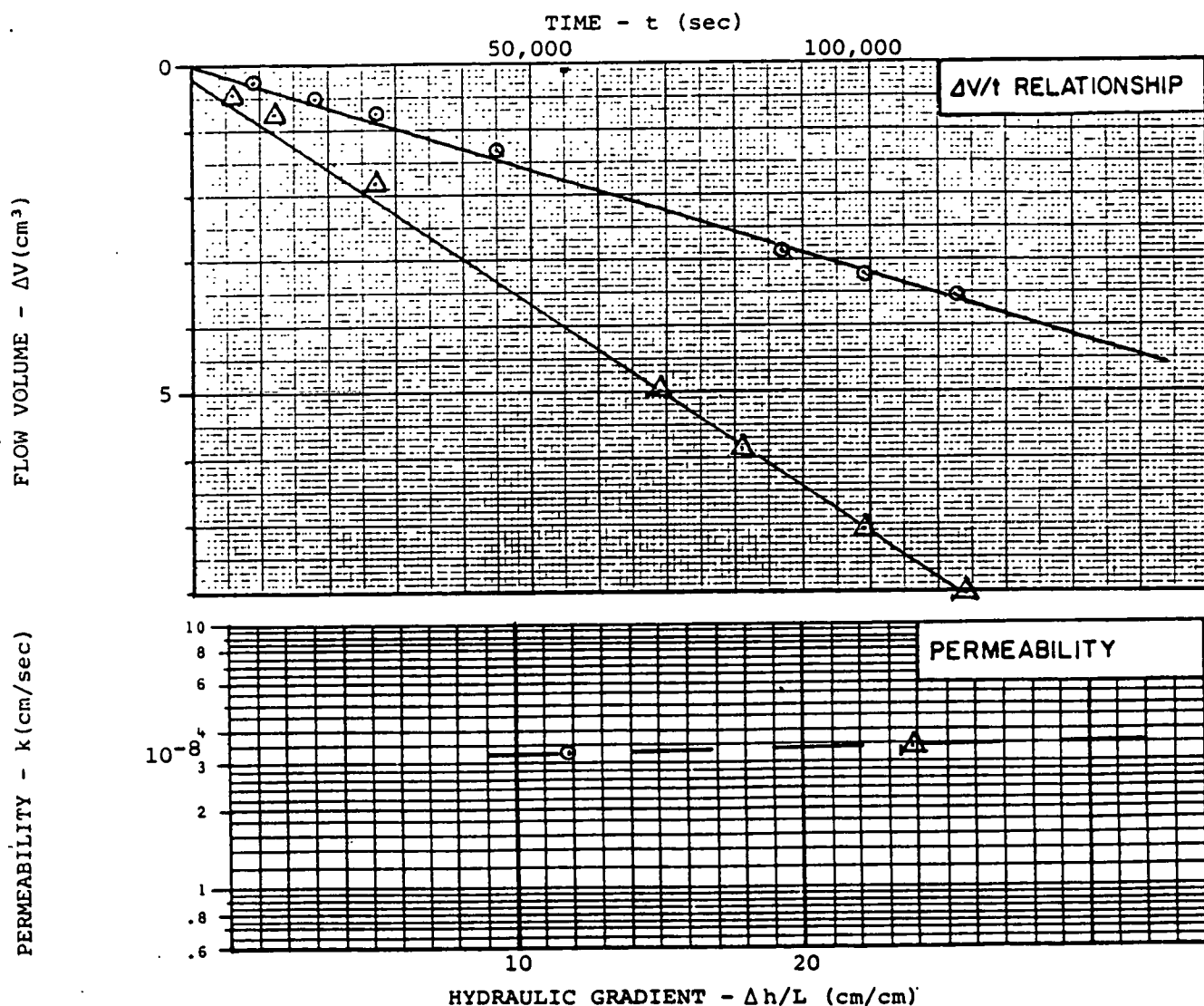
PROJ. NO. GT-88-102

TEST DATA:

Specimen Height (cm): 11.67
 Specimen Diameter (cm): 10.16
 Dry Unit Weight (pcf): 135.7
 Moisture Content Before Test (%): 8.8
 Moisture Content After Test (%): 9.3
 Cell Confining Pressure (psi): 85
 Test Pressure (psi): 82 84
 Back Pressure (psi): 80 80
 Differential Head (psi): 2 4
 Flow Rate ($\Delta V/t$) (cm³/sec) $0.3.2 \times 10^{-5}$ $\Delta 6.8 \times 10^{-5}$
 Permeability (cm/sec): $0.3.28 \times 10^{-8}$ $\Delta 3.48 \times 10^{-8}$

SAMPLE DATA:

Sample Identification: TP-4
 11'-17'
 Visual Description: Grey GRAVEL, SILT & SAND, little clay
 Remarks: Tested at approximately natural density of 136.6 pcf
 Maximum Dry Density (ASTM D 1557) (pcf): 138.1
 Optimum Moisture Content (%): 6.9
 Percent Compaction: 98.2
 Permeameter Type: Triaxial



PERMEABILITY TEST REPORT

CORTLAND COUNTY LANDFILL
 CORTLAND, NEW YORK

DR BY: DJG

CK'D.

DATE: August, 1988

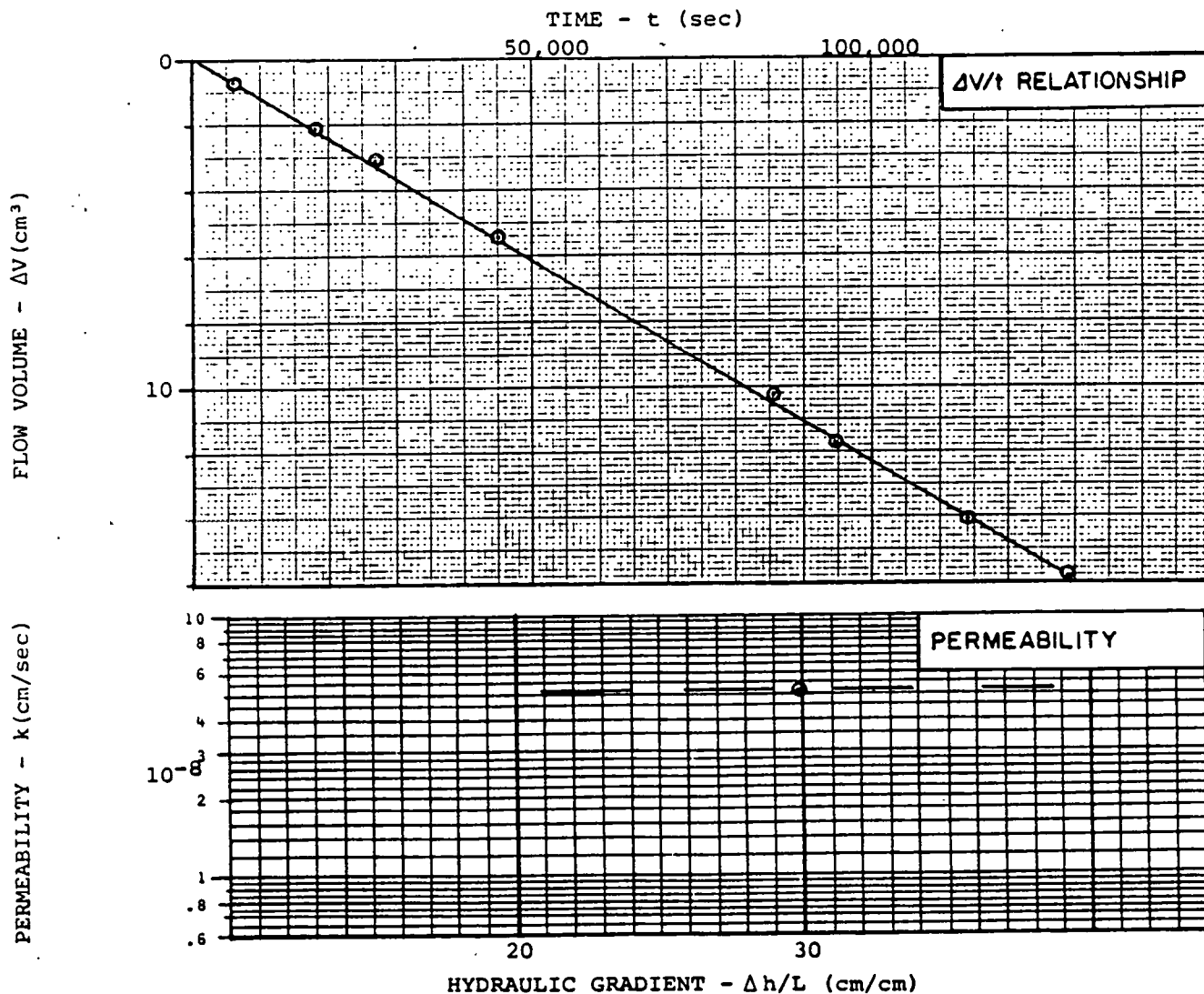
PROJ. NO. GT-88-102

TEST DATA:

Specimen Height (cm): 11.75
 Specimen Diameter (cm): 10.19
 Dry Unit Weight (pcf): 126.4
 Moisture Content Before Test (%): 10.3
 Moisture Content After Test (%): 11.7
 Cell Confining Pressure (psi): 95
 Test Pressure (psi): 85 -
 Back Pressure (psi): 80 -
 Differential Head (psi): 5 -
 Flow Rate ($\Delta V/t$) (cm³/sec): $0.123 \times 10^{-4} \Delta$ -
 Permeability (cm/sec): $0.505 \times 10^{-8} \Delta$ -

SAMPLE DATA:

Sample Identification: TP-15, 7'-10'
 Visual Description: Brown SILT, Some Sand,
 & Gravel, little clay
 Remarks: Remolded at approximately
 natural density of 127.5 pcf
 Maximum Dry Density
 (ASTM D 1557) (pcf): 131.9
 Optimum Moisture Content (%): 8.6
 Percent Compaction: 95.8
 Permeameter Type: Triaxial



PERMEABILITY TEST REPORT

CORTLAND COUNTY LANDFILL
 CORTLAND, NEW YORK

DR BY: *DYG*

CK'D:

DATE: August, 1988

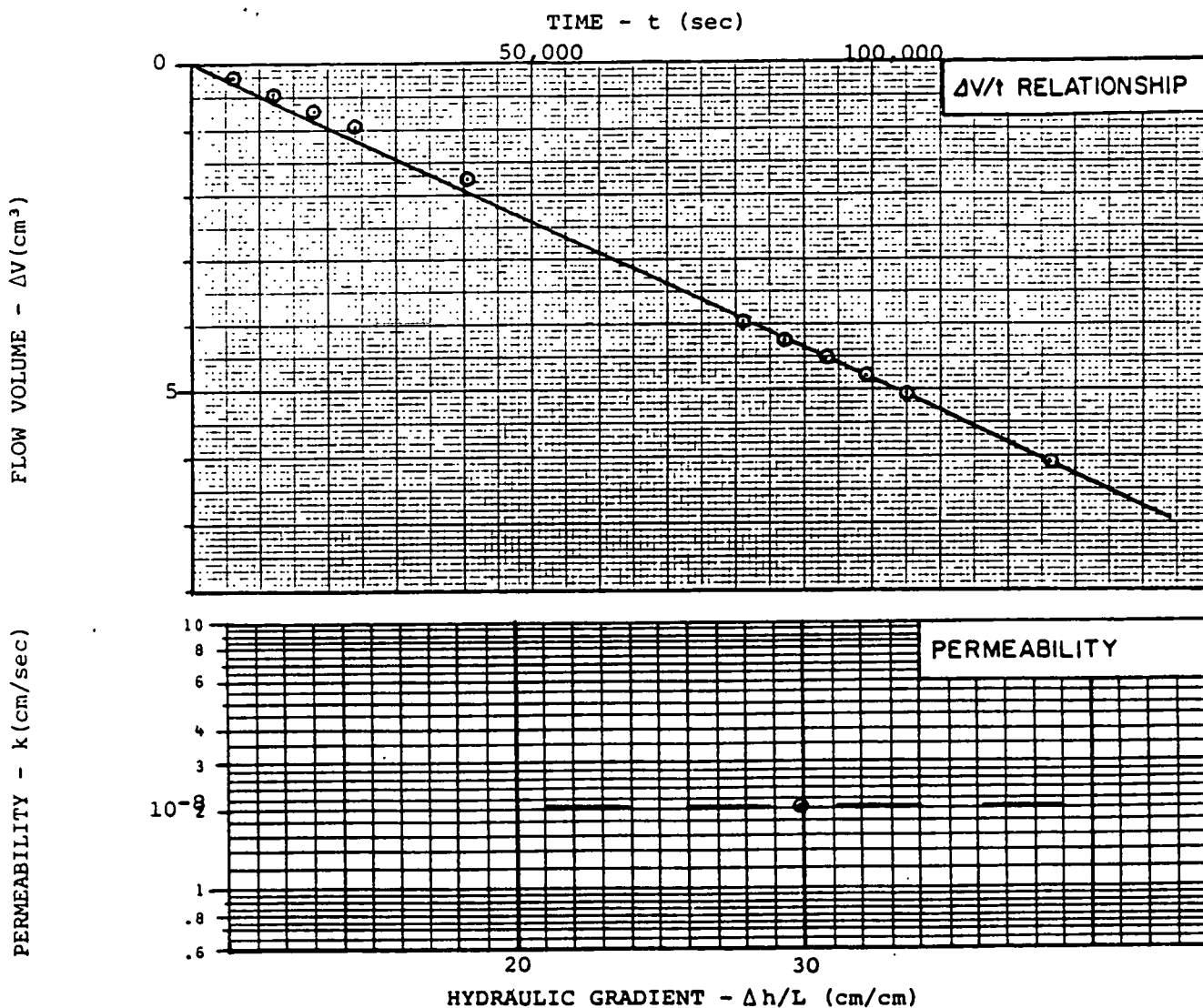
PROJ. NO. GT-88-102

TEST DATA:

Specimen Height (cm): 11.75
 Specimen Diameter (cm): 10.15
 Dry Unit Weight (pcf): 126.9
 Moisture Content Before Test (%): 11.6
 Moisture Content After Test (%): 11.3
 Cell Confining Pressure (psi): 95
 Test Pressure (psi): 85 -
 Back Pressure (psi): 80 -
 Differential Head (psi): 5 -
 Flow Rate ($\Delta V/t$) (cm³/sec): 0.487×10^{-5} Δ -
 Permeability (cm/sec): 0.201×10^{-8} Δ -

SAMPLE DATA:

Sample Identification: TP-15
7'-10'
 Visual Description: Brown SILT, Some Sand,
& Gravel, little clay
 Remarks: Remolded to approximately 95%
compaction
 Maximum Dry Density
 (ASTM D 1557) (pcf): 131.9
 Optimum Moisture Content (%): 8.6
 Percent Compaction: 96.2
 Permeameter Type: Triaxial



EMPIRE
 SOILS INVESTIGATIONS INC.

PERMEABILITY TEST REPORT

CORTLAND COUNTY LANDFILL
 CORTLAND, NEW YORK

DR BY: DG

CK'D:

DATE: August, 1988

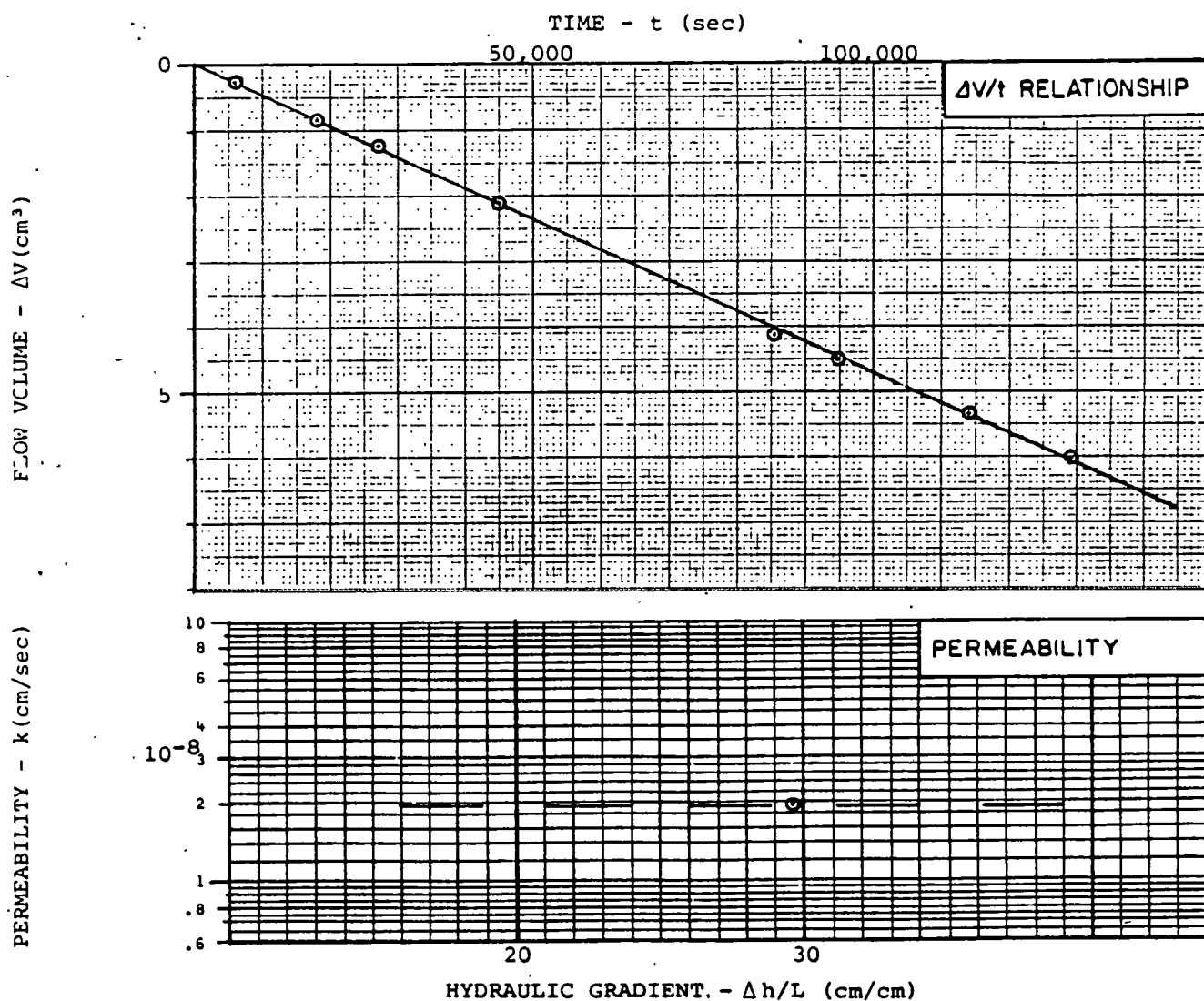
PROJ. NO. GT-88-102

TEST DATA:

Specimen Height (cm): 11.83
 Specimen Diameter (cm): 10.17
 Dry Unit Weight (pcf): 131.2
 Moisture Content Before Test (%): 9.4
 Moisture Content After Test (%): 9.8
 Cell Confining Pressure (psi): 95
 Test Pressure (psi): 85 -
 Back Pressure (psi): 80 -
 Differential Head (psi): 5 -
 Flow Rate ($\Delta V/t$) (cm³/sec): 0.47x10⁻⁵ Δ -
 Permeability (cm/sec): 0.195x10⁻⁸ Δ -

SAMPLE DATA:

Sample Identification: TP-17, 5'-7'
 Visual Description: Brown SILT, SAND & GRAVEL, little clay
 Remarks: Remolded to approximately 95% compaction
 Maximum Dry Density (ASTM D 1557) (pcf): 136.9
 Optimum Moisture Content (%): 7.4
 Percent Compaction: 95.9
 Permeameter Type: Triaxial



PERMEABILITY TEST REPORT

CORTLAND COUNTY LANDFILL
 CORTLAND, NEW YORK

DR BY: DV

CK'D:

DATE: August, 1988

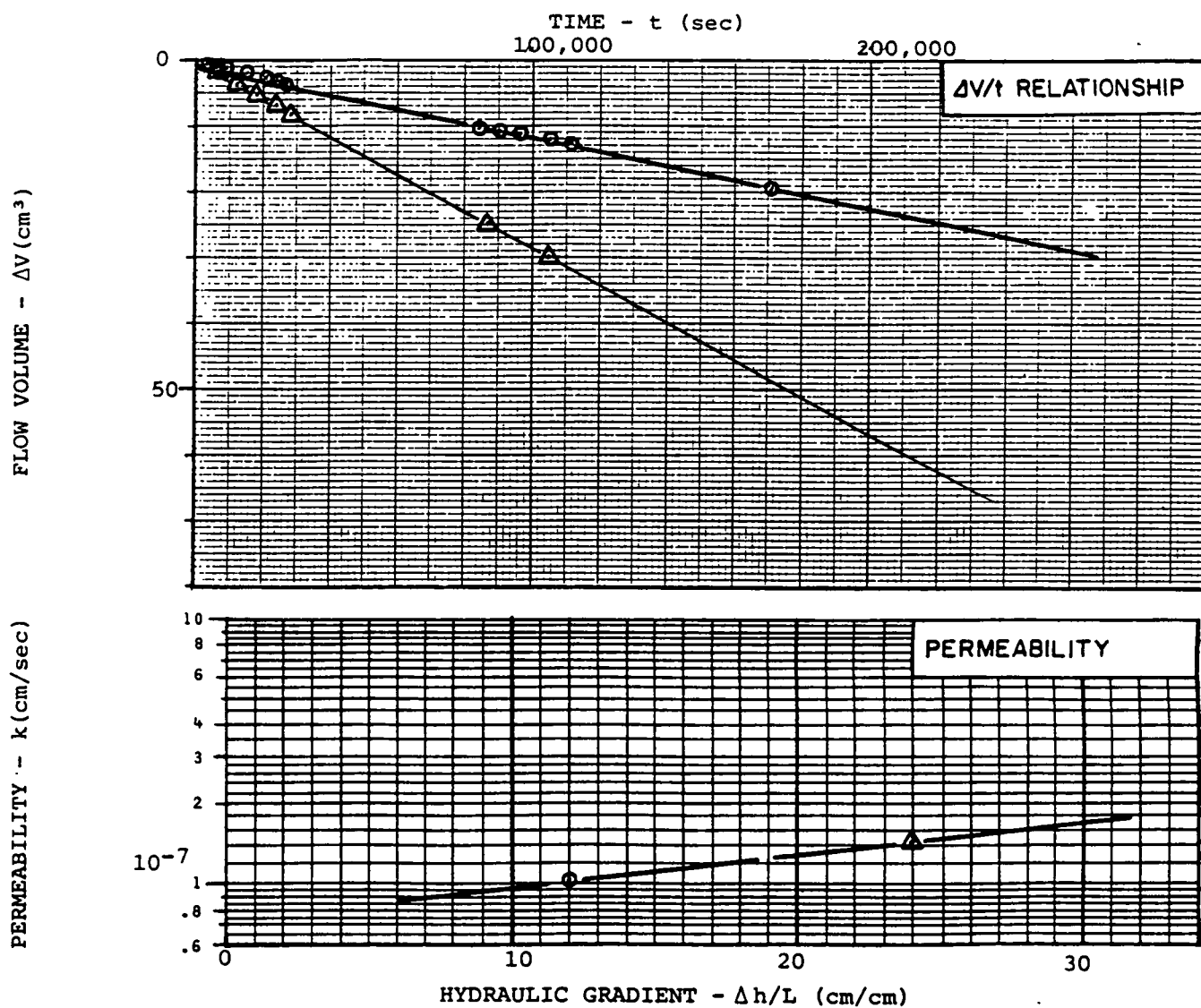
PROJ. NO. GT-88-102

TEST DATA:

Specimen Height (cm): 11.74
 Specimen Diameter (cm): 10.19
 Dry Unit Weight (pcf): 131.5
 Moisture Content Before Test (%): 7.0
 Moisture Content After Test (%): 12.1
 Cell Confining Pressure (psi): 85
 Test Pressure (psi): 82 84
 Back Pressure (psi): 80 80
 Differential Head (psi): 2 4
 Flow Rate ($\Delta V/t$) (cm³/sec): 01.01x10⁻⁴ Δ2.82x10⁻⁴
 Permeability (cm/sec): 01.03x10⁻⁷ Δ1.44x10⁻⁷

SAMPLE DATA:

Sample Identification: MW-11B
15'-25'
 Visual Description: Grey Sand, Gravel,
Silt & Clay
 Remarks: _____
 Maximum Dry Density
 (ASTM D 1557) (pcf): 138.3
 Optimum Moisture Content (%): 7.4
 Percent Compaction: 95.1
 Permeameter Type: Triaxial



PERMEABILITY TEST REPORT

CORTLAND COUNTY LANDFILL
 CORTLAND, NEW YORK

DR BY: re

CK'D.

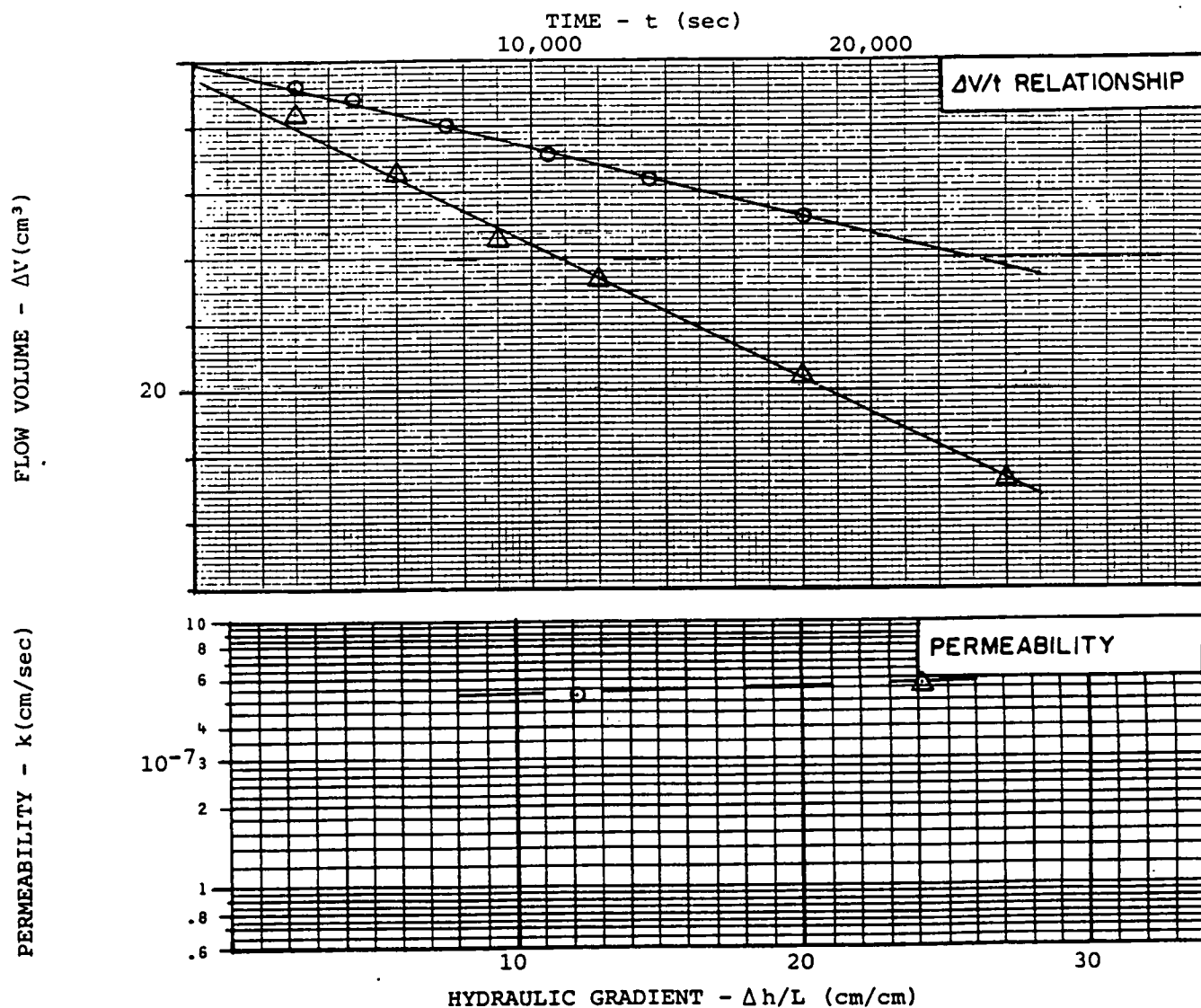
DATE: December, 1988 PROJ. NO. GT-88-102

TEST DATA:

Specimen Height (cm): 11.64
 Specimen Diameter (cm): 10.17
 Dry Unit Weight (pcf): 124.6
 Moisture Content Before Test (%): 9.4
 Moisture Content After Test (%): 12.8
 Cell Confining Pressure (psi): 85
 Test Pressure (psi): 80 80
 Back Pressure (psi): 82 84
 Differential Head (psi): 2 4
 Flow Rate ($\Delta V/t$) (cm³/sec): 0.525x10⁻⁴ 1.11x10⁻³
 Permeability (cm/sec): 0.535x10⁻⁷ 5.68x10⁻⁷

SAMPLE DATA:

Sample Identification: MW-11B
15'-25'
 Visual Description: Grey Sand, Gravel,
Silt and Clay
 Remarks: _____
 Maximum Dry Density
 (ASTM D 1557) (pcf): 138.3
 Optimum Moisture Content (%): 7.4
 Percent Compaction: 90.1
 Permeameter Type: Triaxial



PERMEABILITY TEST REPORT

CORTLAND COUNTY LANDFILL
 CORTLAND, NEW YORK

DR BY:

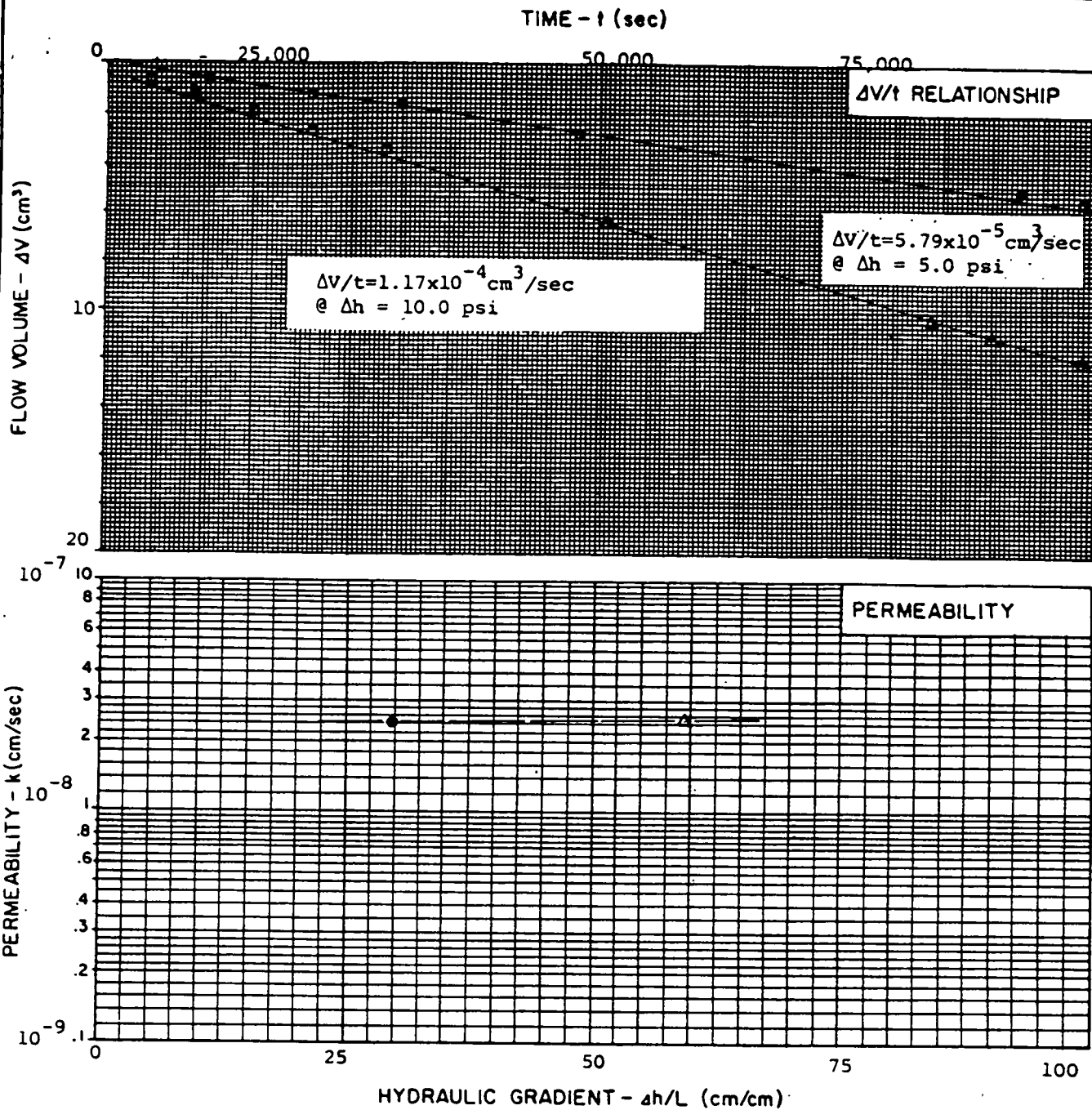
74

CK'D.

DATE: December, 1988

PROJ. NO. GT-88-102

PERMEABILITY DATA
DUNN GEOSCIENCE - 1984



TEST DATA:

TYPE OF PERMEAMETER	Constant Head, Triaxial	
SPECIMEN HEIGHT (cm)	11.79	
SPECIMEN DIAMETER (cm)	10.08	
DRY UNIT WEIGHT (pcf)	117.1	
MOISTURE CONTENT BEFORE TEST (%)	15.1	
MOISTURE CONTENT AFTER TEST (%)	13.8	
MAXIMUM DRY DENSITY (ASTM D 698) (pcf)	127.0	
OPTIMUM MOISTURE CONTENT (%)	11.0	
CELL CONFINING PRESSURE (psii)	95.0	95.0
TEST PRESSURE (psi)	85.0	90.0
BACK PRESSURE (psi)	80.0	80.0
DIFFERENTIAL HEAD (psi)	5.0	10.0
PERMEABILITY (cm/sec)	2.43×10^{-8}	2.46×10^{-8}

SAMPLE IDENTIFICATION:

Test Pit No. TP-84-1

VISUAL DESCRIPTION: Brown clayey
silt, sand and gravel



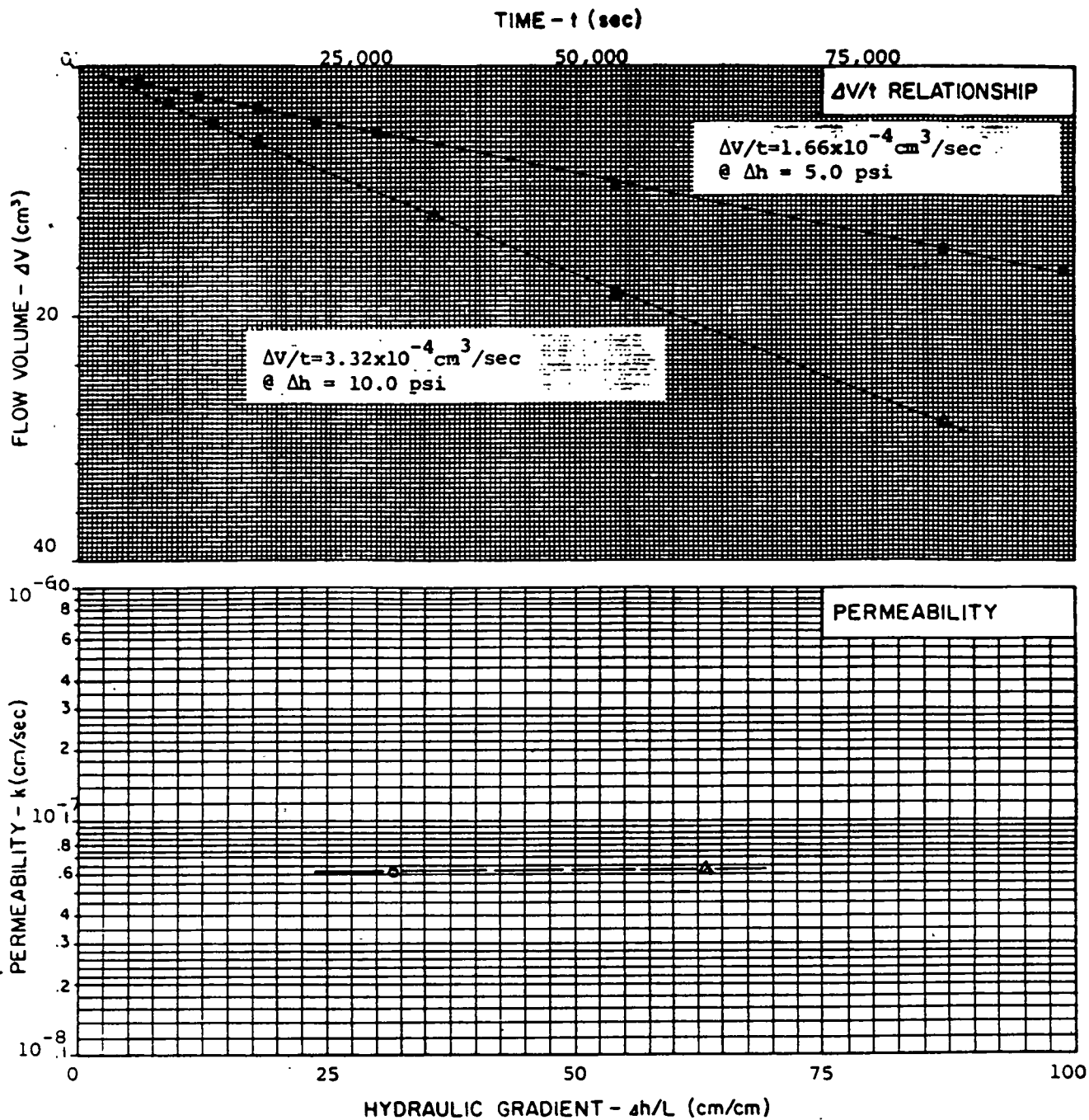
EMPIRE SOILS INVESTIGATIONS, INC.

PERMEABILITY TEST REPORT

CORTLAND COUNTY LANDFILL
TOWN OF SOLON, NEW YORK

DATE August, 1984

PROJ NO. GTA-84-50


TEST DATA:

TYPE OF PERMEAMETER	Constant Head, Triaxial	
SPECIMEN HEIGHT (cm)	11.05	
SPECIMEN DIAMETER (cm)	10.40	
DRY UNIT WEIGHT (pcf)	118.7	
MOISTURE CONTENT BEFORE TEST (%)	15.0	
MOISTURE CONTENT AFTER TEST (%)	12.6	
MAXIMUM DRY DENSITY (ASTM D698) (pcf)	129.4	
OPTIMUM MOISTURE CONTENT (%)	9.4	
CELL CONFINING PRESSURE (psi)	95.0	95.0
TEST PRESSURE (psi)	85.0	90.0
BACK PRESSURE (psi)	80.0	80.0
DIFFERENTIAL HEAD (psi)	5.0	10.0
PERMEABILITY (cm/sec)	6.13×10^{-8}	6.14×10^{-8}

SAMPLE IDENTIFICATION:

Test Pit No. TP-84-2

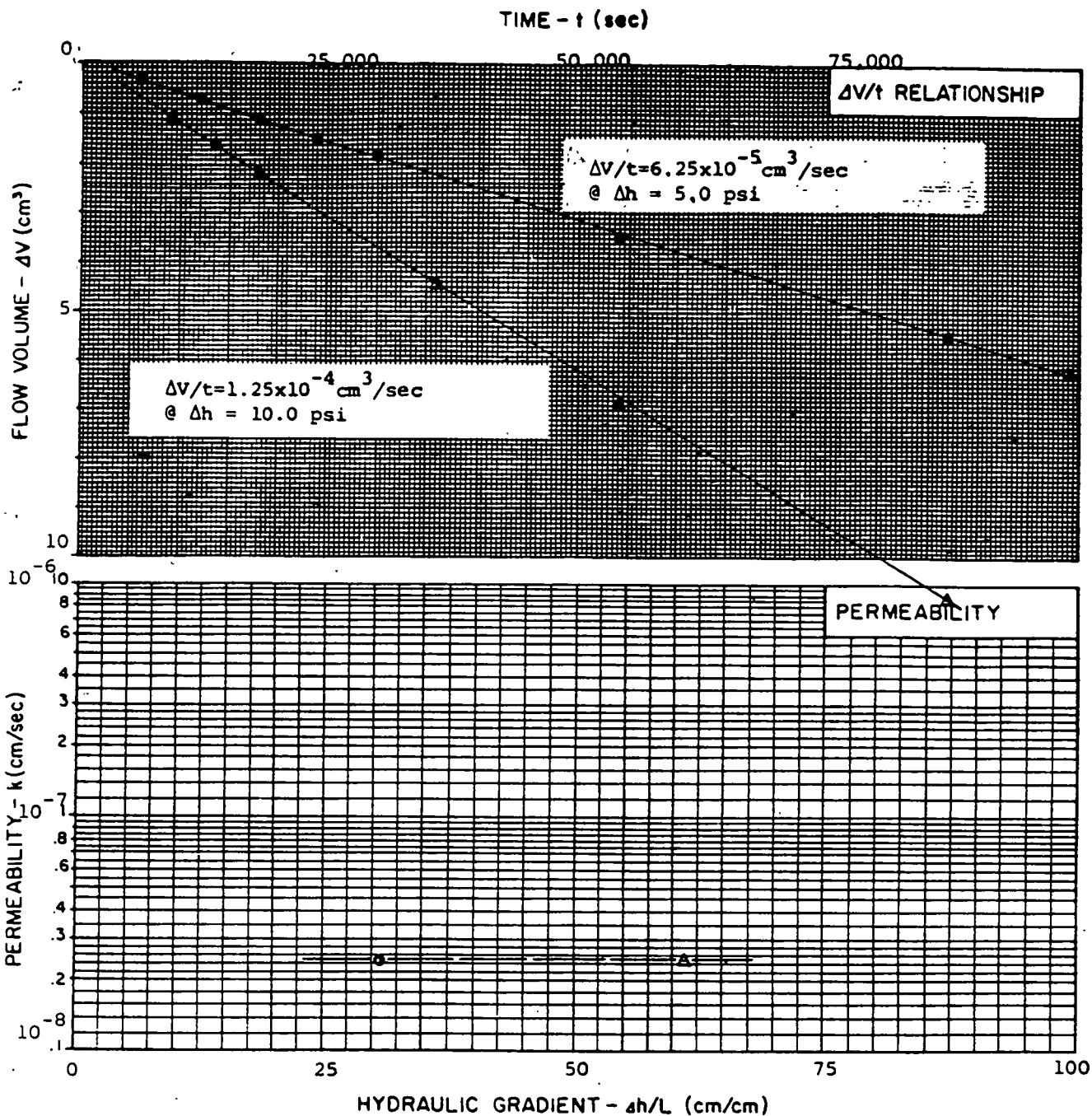
VISUAL DESCRIPTION: Brown SILT, SAND & GRAVEL, little clay

EMPIRE SOILS INVESTIGATIONS, INC.
PERMEABILITY TEST REPORT

 CORTLAND COUNTY LANDFILL
TOWN OF SOLON, NEW YORK

DATE August, 1984

PROJ. NO.: GTA-84-50



TEST DATA:

TYPE OF PERMEAMETER	Constant Head, Triaxial	
SPECIMEN HEIGHT (cm)	11.41	
SPECIMEN DIAMETER (cm)	10.27	
DRY UNIT WEIGHT (pcf)	114.9	
MOISTURE CONTENT BEFORE TEST (%)	16.2	
MOISTURE CONTENT AFTER TEST (%)	14.5	
MAXIMUM DRY DENSITY (ASTM D 698) (pcf)	125.6	
OPTIMUM MOISTURE CONTENT (%)	11.1	
CELL CONFINING PRESSURE (psi)	95.0	95.0
TEST PRESSURE (psi)	85.0	90.0
BACK PRESSURE (psi)	80.0	80.0
DIFFERENTIAL HEAD (psi)	5.0	10.0
PERMEABILITY (cm/sec)	2.45×10^{-8}	2.45×10^{-8}

SAMPLE IDENTIFICATION:

Test Pit No. TP-84-3

VISUAL DESCRIPTION: Brown SILT, SAND & GRAVEL, little clay



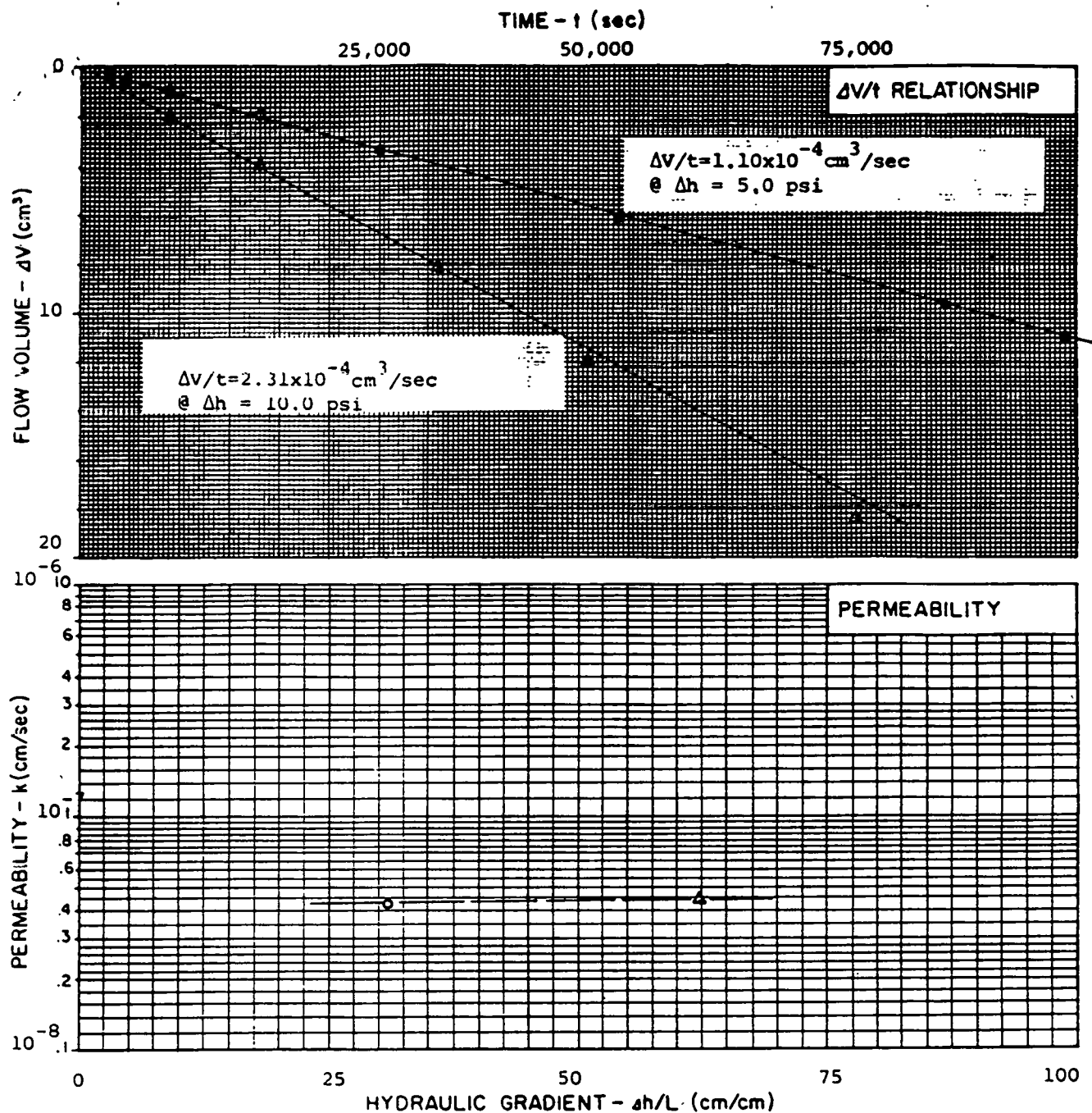
EMPIRE SOILS INVESTIGATIONS, INC.

PERMEABILITY TEST REPORT

CORTLAND COUNTY LANDFILL
TOWN OF SOLON, NEW YORK

DATE: August, 1984

PROJ NO.: GTA-84-50



TEST DATA:

TYPE OF PERMEAMETER	Constant Head, Triaxial	
SPECIMEN HEIGHT (cm)	11.29	
SPECIMEN DIAMETER (cm)	10.34	
DRY UNIT WEIGHT (pcf)	101.9	
MOISTURE CONTENT BEFORE TEST (%)	21.9	
MOISTURE CONTENT AFTER TEST (%)	18.7	
MAXIMUM DRY DENSITY (ASTM D 698) (pcf)	114.6	
OPTIMUM MOISTURE CONTENT (%)	14.0	
CELL CONFINING PRESSURE (psi)	95.0	95.0
TEST PRESSURE (psi)	85.0	90.0
BACK PRESSURE (psi)	80.0	80.0
DIFFERENTIAL HEAD (psi)	5.0	10.0
PERMEABILITY (cm/sec)	4.22×10^{-8}	4.41×10^{-8}

SAMPLE IDENTIFICATION:

Test Pit No. TP-84-4

VISUAL DESCRIPTION Brown SILT, SAND & GRAVEL, little clay



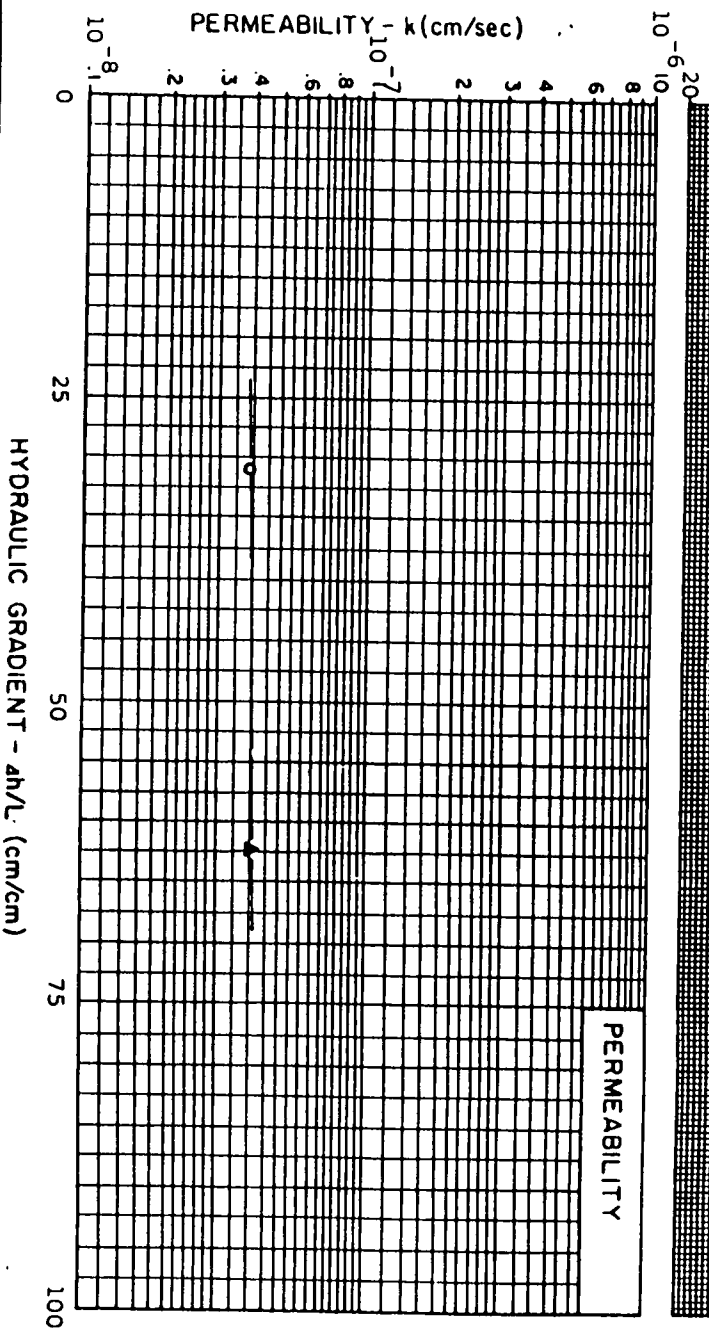
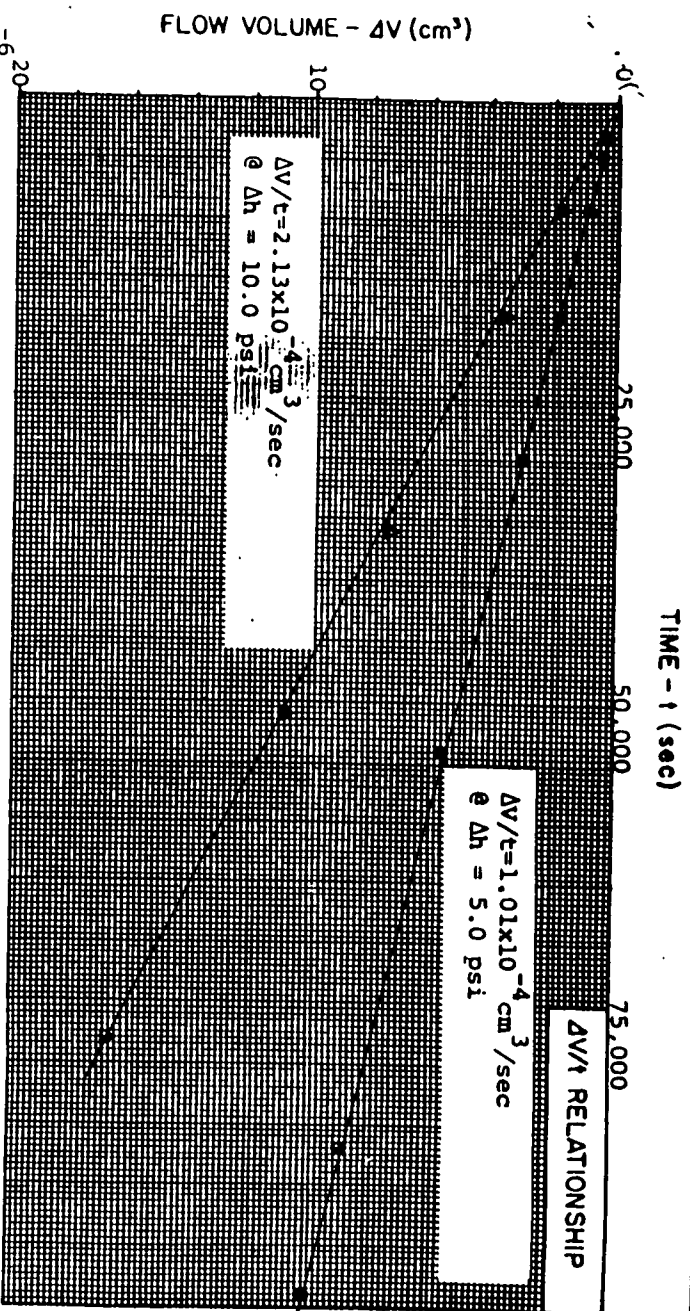
EMPIRE SOILS INVESTIGATIONS, INC.

PERMEABILITY TEST REPORT

CORTLAND COUNTY LANDFILL
TOWN OF SOLON, NEW YORK

DATE: August, 1984

PROJ. NO. GIA-84-50



TEST DATA:

TYPE OF PERMEAMETER	Constant Head, Triaxial
SPECIMEN HEIGHT (cm)	11.31
SPECIMEN DIAMETER (cm)	10.34
DRY UNIT WEIGHT (pcf)	111.5
MOISTURE CONTENT BEFORE TEST (%)	17.3
MOISTURE CONTENT AFTER TEST (%)	14.9
MAXIMUM DRY DENSITY (ASTM D 698) (pcf)	124.3
OPTIMUM MOISTURE CONTENT (%)	10.3
CELL CONFINING PRESSURE (psi)	95.0
TEST PRESSURE (psi)	85.0
BACK PRESSURE (psi)	80.0
DIFFERENTIAL HEAD (psi)	5.0
PERMEABILITY (cm/sec)	3.85×10^{-8}
	4.07×10^{-8}

SAMPLE IDENTIFICATION:

Test Pit No. TP-84-5

VISUAL DESCRIPTION: Brown SILT, SAND
& GRAVEL, little clay



EMPIRE SOILS INVESTIGATIONS, INC.

PERMEABILITY TEST REPORT

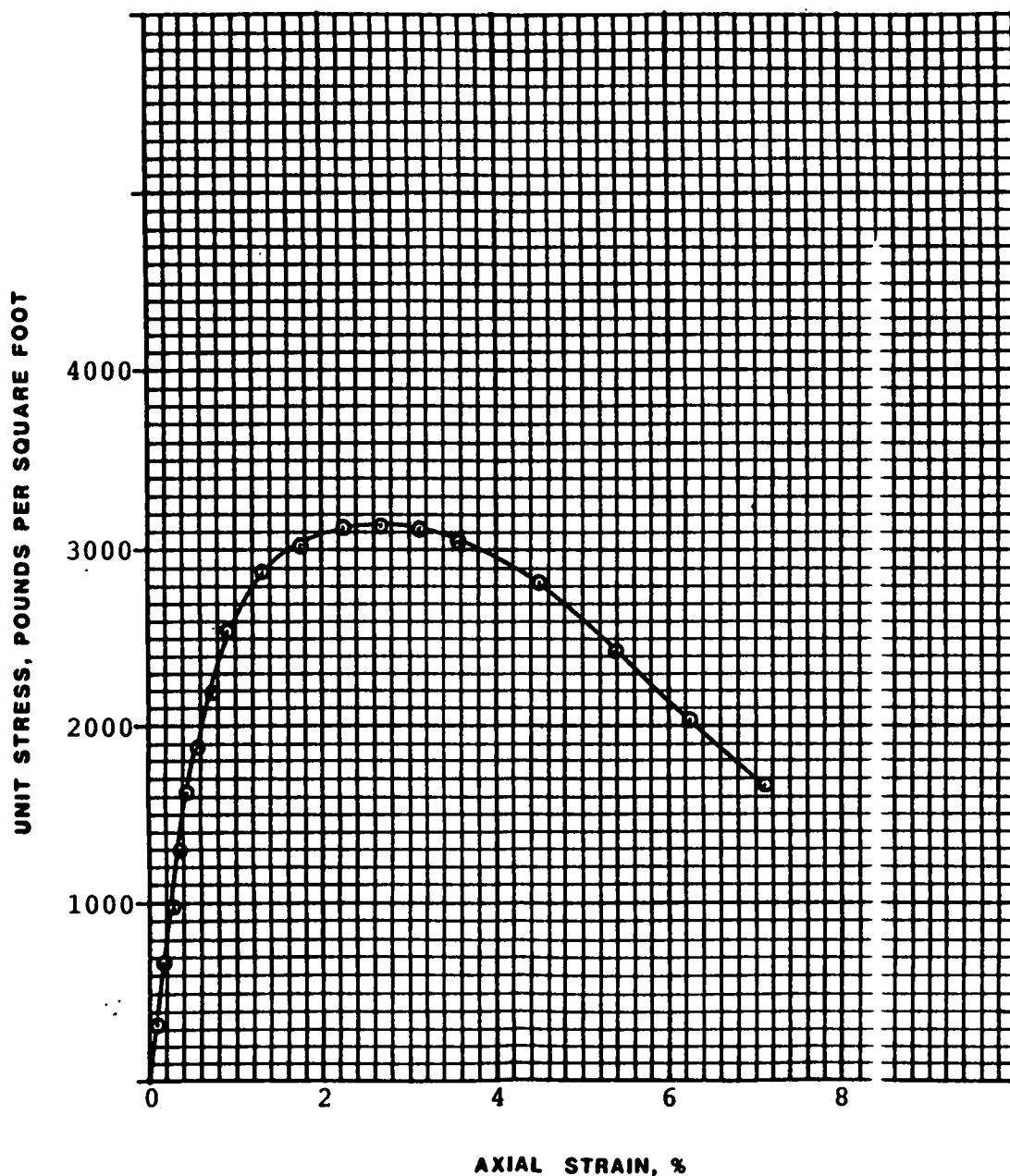
CORTLAND COUNTY LANDFILL
TOWN OF SOLON, NEW YORK

DATE: August, 1984

PROJ. NO. GTA-84-50

SOIL STRENGTH DATA
BARTON & LOGUIDICE - 1988

Stress-Strain Curve



SAMPLE DATA:

Boring No. MW-11B Surf. Elev. _____
 Sample No. _____ Depth, ft. 15'-25'
 Sample Type Auger Cutting

VISUAL DESCRIPTION

Grey SAND, GRAVEL,
SILT & CLAY

FAILURE SKETCH



CLASSIFICATION SYMBOL: -

SPECIMEN DATA:

Specimen Height, inches 5.60
 Specimen Diameter, inches 2.81
 Height to Diameter Ratio 1.99
 Natural Water Content % 10.5
 Dry Unit Weight, pcf 124.1
 Rate of Strain %/min. 0.80
 Peak Strain % 2.7
 Unconfined Compressive Strength, Q_u , psf 3122
 Shear Strength, $Q_u/2$, psf 1561

CLASSIFICATION TESTS:

Plastic Limit, % - Liquid Limit, % -

REMARKS:

Sample remolded to 89.7%
of Maximum Dry Density
(ASTM D-1557) of 138.3 lb/ft³

EMPIRE
 SOILS INVESTIGATIONS INC.

**UNCONFINED
 COMPRESSION TEST**

CORTLAND COUNTY LANDFILL
 CORTLAND, NEW YORK

DR. BY: re CK'D _____ DATE: 1/89 PROJ. NO. GT-88-102

APPENDIX C.



HYDROGEOLOGIC REPORT
APPENDIX C
FIELD HYDRAULIC CONDUCTIVITY TESTS

TABLE OF CONTENTS

TABLE C-1 - Field Hydraulic Conductivity Tests
BEDROCK WELLS

MW-1A
MW-4A
MW-5A
MW-7A
MW-11A
MW-12A

OVERBURDEN WELLS

MW-4B
MW-4C
MW-5B
MW-7B
MW-11B
MW-12B
LT-7

TABLE C-1

FIELD HYDRAULIC CONDUCTIVITY TESTS

BEDROCK WELLS					
WELL NO.	BORING DEPTH (FT.)	DEPTH TO ROCK (FT.)	SCREENED INTERVAL* (FT.)	HYDRAULIC CONDUCTIVITY (CM/SEC)	REMARKS
MW-1A	20.5	10.5	13.5-20.5	1.39×10^{-4}	-POK
MW-4A	72.0	61.0	66.0-72.0	5.12×10^{-5}	POK
MW-5A	60.7	50.7	53.8-60.7	1.28×10^{-6}	
MW-7A	32.0	21.8	25.0-32.0	7.24×10^{-6} 3.46×10^{-6}	AVG. 5.01×10^{-6}
MW-11A	43.0	27.5	30.8-41.0	1.32×10^{-6}	
MW-12A	78.0	68.0	62.0-76.0	1.81×10^{-7} 6.89×10^{-7}	AVG. 3.53×10^{-7} Possible broken rock at 66.5
GEOMETRIC MEAN				5.26×10^{-6}	
OVERBURDEN WELLS					
WELL NO.	BORING DEPTH (FT.)	SCREENED INTERVAL* (FT.)	HYDRAULIC CONDUCTIVITY (CM/SEC)	REMARKS	
MW-4B	43.0	36.0-43.0	1.90×10^{-4}	Free water at 40-43' Brown clayey gravel noted	
MW-4C	13.0	3.0-13.0	2.05×10^{-6}		
MW-5B	17.0	11.0-17.0	1.60×10^{-4}	"Very Cobbly Zone"	
MW-7B	18.8	12.8-18.8	1.07×10^{-7}		
MW-11B	25.0	11.0-23.0	4.21×10^{-6}		
MW-12B	35.0	20.5-33.0	4.17×10^{-6}	<1/8 inch sand seam noted	
LT-7	30.0	17.0-30.0	1.61×10^{-7}		
GEOMETRIC MEAN				4.08×10^{-6}	

*Screened interval includes sand pack above top of well screen.

**HYDRAULIC CONDUCTIVITY TESTS
BEDROCK WELLS**

VARIABLE HEAD
HYDRAULIC CONDUCTIVITY TEST

WELL NO: MW-1A
LOCATION: NEW LANDFILL SITE
CORTLAND COUNTY, NY

TEST NO: 1
TEST DATE: 09/28/88
TESTED BY: MPC

METHOD:

$$k = \frac{r^2 \ln(L/R) \ln(h_1/h_2)}{2L (t_2 - t_1)}$$

WELL DATA:

Where: k = hydraulic conductivity (cm/sec)
 r = well riser radius (cm) = 2.54
 R = bore radius (cm) = 4.92
 L = effective screen length (cm) = 213.36
 and h1, h2 = head ratio (H/H0) at t1, t2
 t1, t2 = elapsed time at h1, h2 (sec)

RESULTS:

TEST DATA (PARTIAL LIST)

Elapsed Time (sec)	Head Ratio H/H0	ln(H/H0)
1.2	0.966	-0.03459144
10.0	0.849	-0.16369609
20.0	0.782	-0.24590053
40.0	0.681	-0.38419297
60.0	0.605	-0.50252682
90.0	0.513	-0.66747943
120.0	0.437	-0.82782208
180.0	0.328	-1.11474167
300.0	0.193	-1.64506509
* 420.0	0.126	-2.07147337
* 510.0	0.101	-2.29263476
* 600.0	0.076	-2.57702193
* 840.0	0.043	-3.14655516
* 1080.0	0.025	-3.68887945
* 1200.0	0.017	-4.07454193
* 1560.0	0.008	-4.82831373

Linear Regression Relation for

Indicated Range * : $\ln (H/H_0) = -0.00243 (\text{El. Time}) + -1.08051$
 R-Squared Coeff. = 0.99808

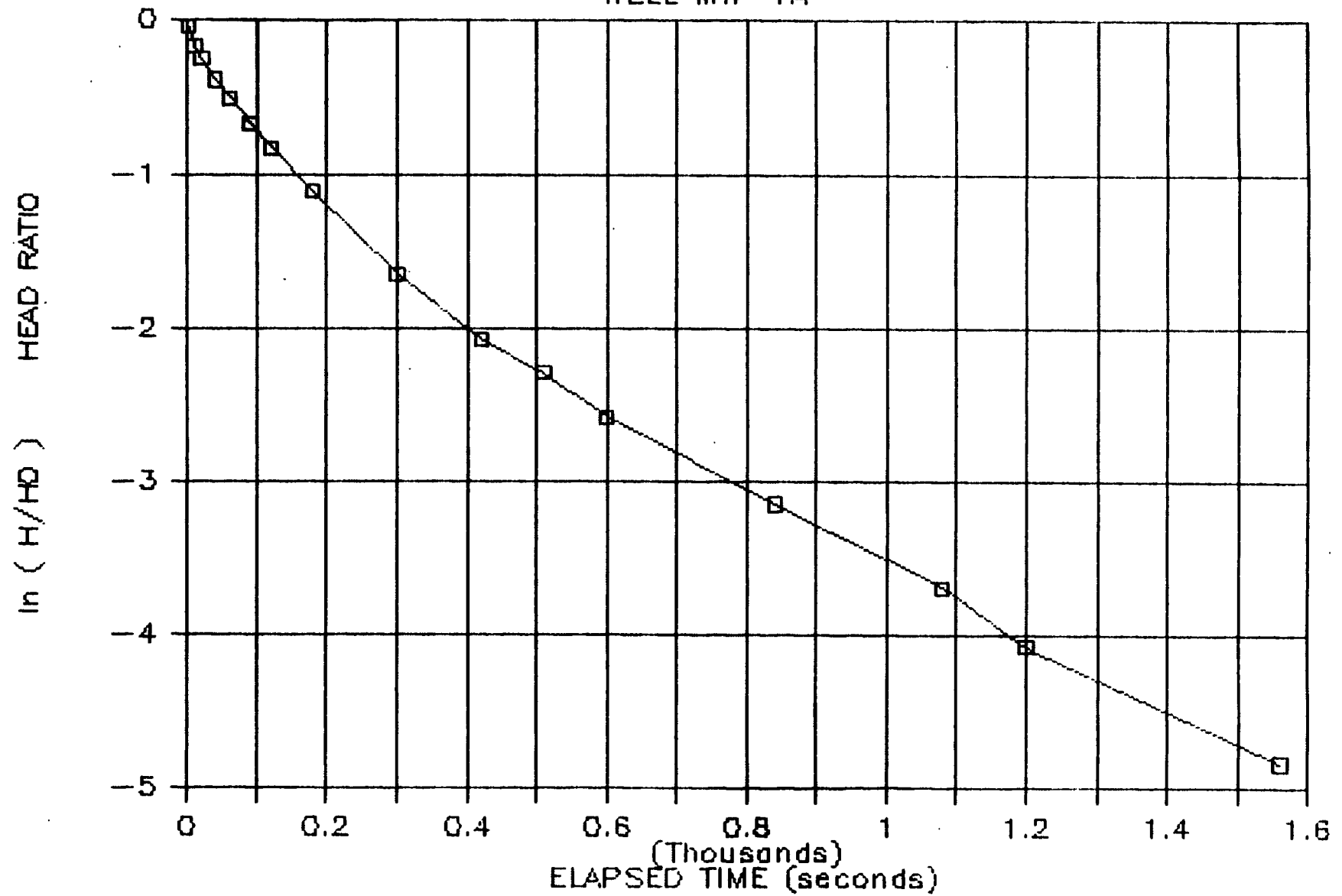
SELECTED

VALUES: t1 (sec) = 500.0 h1 = 0.101
 t2 (sec) = 1500.0 h2 = 0.009

k = 1.39E-04 cm/sec

VARIABLE HEAD TEST

WELL MW-1A



VARIABLE HEAD
HYDRAULIC CONDUCTIVITY TEST

WELL NO: MW-4A
LOCATION: NEW LANDFILL SITE
CORTLAND COUNTY, NY

TEST NO: 1
TEST DATE: 10/05/88
TESTED BY: RWW

METHOD:

$$k = \frac{r^2 \ln(L/R) \ln(h_1/h_2)}{2L (t_2 - t_1)}$$

WELL DATA:

Where: k = hydraulic conductivity (cm/sec)
 r = well riser radius (cm) = 2.54
 R = bore radius (cm) = 4.92
 L = effective screen length (cm) = 182.88
 and h1, h2 = head ratio (H/H0) at t1, t2
 t1, t2 = elapsed time at h1, h2 (sec)

RESULTS:

TEST DATA (PARTIAL LIST)

Elapsed Time (sec)	Head Ratio H/H0	ln(H/H0)
1.2	0.990	-0.01005033
10.0	0.870	-0.13926206
20.0	0.760	-0.27443684
40.0	0.610	-0.49429632
60.0	0.500	-0.69314718
90.0	0.380	-0.96758402
120.0	0.300	-1.20397280
180.0	0.190	-1.66073120
270.0	0.110	-2.20727491
390.0	0.080	-2.52572864
* 540.0	0.060	-2.81341071
* 720.0	0.050	-2.99573227
* 960.0	0.040	-3.21887582
* 1800.0	0.020	-3.91202300
* 2760.0	0.010	-4.60517018

Linear Regression Relation for

Indicated Range * : $\ln (H/H_0) = -0.00080 (El. Time) + -2.42006$
 R-Squared Coeff. = 0.99747

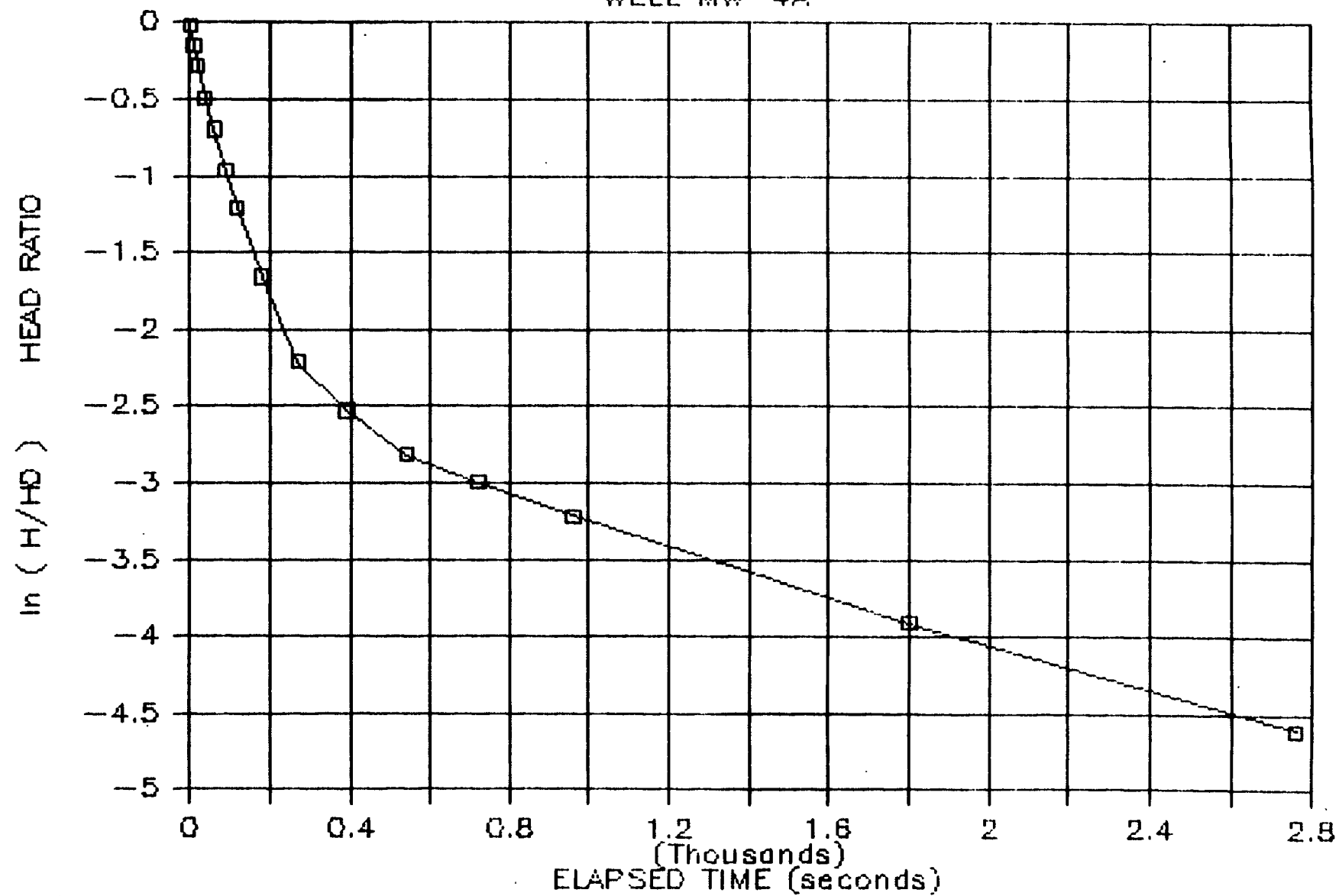
SELECTED

VALUES: t1 (sec) = 500.0 h1 = 0.060
 t2 (sec) = 3000.0 h2 = 0.008

k = 5.12E-05 cm/sec

VARIABLE HEAD TEST

WELL MW-4A



VARIABLE HEAD
HYDRAULIC CONDUCTIVITY TEST

WELL NO: MW-5A
LOCATION: NEW LANDFILL SITE
CORTLAND COUNTY, NY

TEST NO: 2
TEST DATE: 10/06/88
TESTED BY: RWW

METHOD:

$$k = \frac{r^2 \ln(L/R) \ln(h_1/h_2)}{2L (t_2 - t_1)}$$

WELL DATA:

Where: k = hydraulic conductivity (cm/sec)
 r = well riser radius (cm) = 2.54
 R = bore radius (cm) = 4.92
 L = effective screen length (cm) = 210.31
 and h1, h2 = head ratio (H/H0) at t1, t2
 t1, t2 = elapsed time at h1, h2 (sec)

RESULTS:

TEST DATA (PARTIAL LIST)

Elapsed Time (sec)	Head Ratio H/H0	ln(H/H0)
* 90.0	0.890	-0.11653381
* 600.0	0.881	-0.12669765
* 2400.0	0.847	-0.16605458
* 6000.0	0.797	-0.22690060
* 9000.0	0.737	-0.30516738
* 12000.0	0.695	-0.36384343
* 15000.0	0.653	-0.42617814
* 18000.0	0.619	-0.47965000
* 24000.0	0.542	-0.61248927
* 30600.0	0.466	-0.76356964
* 39000.0	0.390	-0.94160853
* 45600.0	0.331	-1.10563690
* 54000.0	0.271	-1.30563645
* 66000.0	0.203	-1.59454929
* 72000.0	0.178	-1.72597172
* 84000.0	0.144	-1.93794197

Linear Regression Relation for

Indicated Range * : $\ln(H/H_0) = -0.00002 \text{ (El. Time)} + -0.09888$
 R-Squared Coeff. = 0.99914

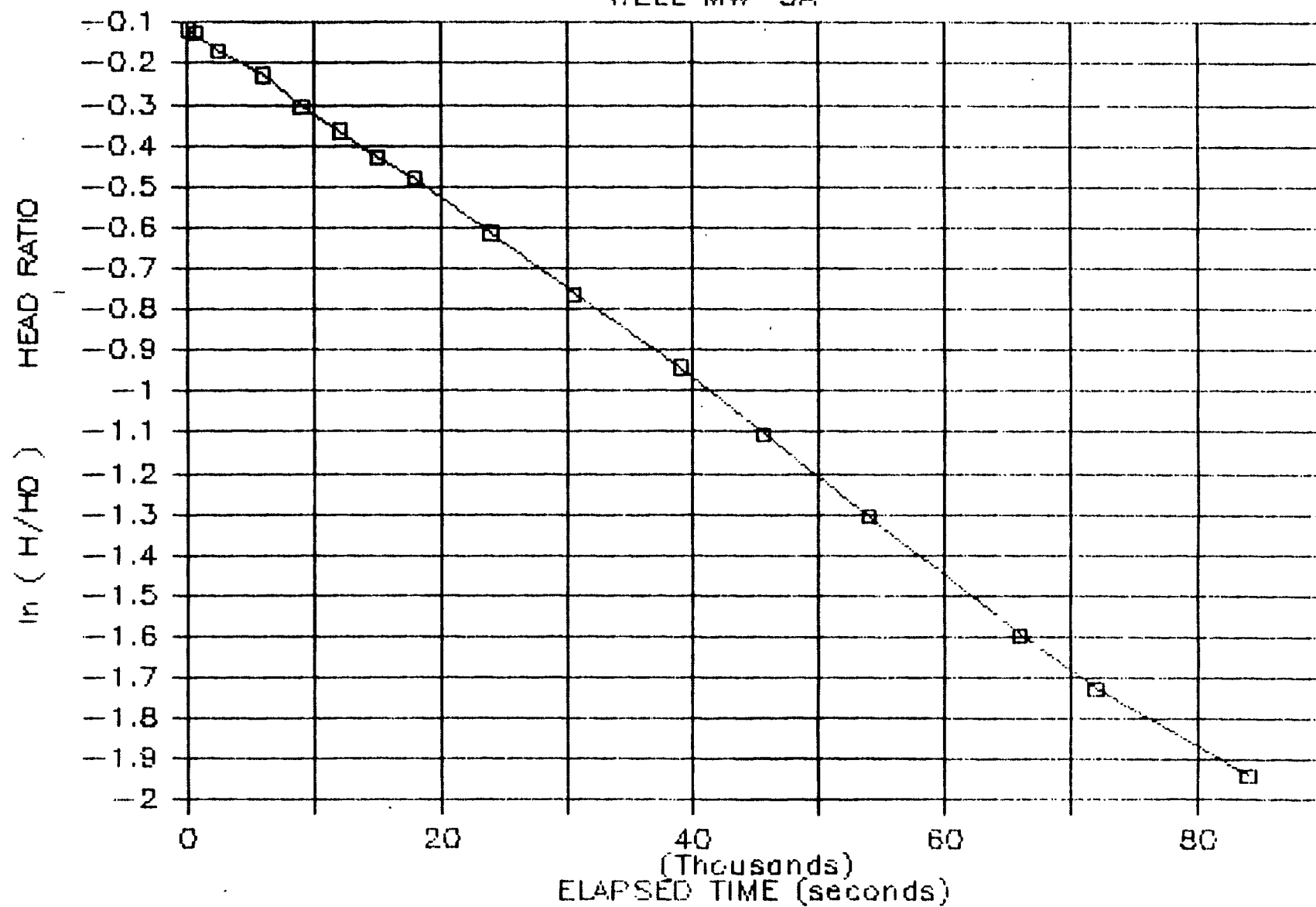
SELECTED

VALUES: t1 (sec) = 7500.0 h1 = 0.767
 t2 (sec) = 75000.0 h2 = 0.171

k = 1.28E-06 cm/sec

VARIABLE HEAD TEST

WELL MW--5A



VARIABLE HEAD
HYDRAULIC CONDUCTIVITY TEST

WELL NO: MW-7A
LOCATION: NEW LANDFILL SITE
CORTLAND COUNTY, NY

TEST NO: 1
TEST DATE: 10/10/88
TESTED BY: RWW

METHOD:

$$k = \frac{r^2 \ln(L/R) \ln(h_1/h_2)}{2L (t_2 - t_1)}$$

WELL DATA:

Where: k = hydraulic conductivity (cm/sec)
r = well riser radius (cm) = 2.54
R = bore radius (cm) = 4.92
L = effective screen length (cm) = 213.36
and h₁, h₂ = head ratio (H/H₀) at t₁, t₂
t₁, t₂ = elapsed time at h₁, h₂ (sec)

RESULTS:

TEST DATA (PARTIAL LIST)

Elapsed Time (sec)	Head Ratio H/H ₀	ln(H/H ₀)
# 180.0	0.970	-0.03045920
# 1200.0	0.920	-0.08338160
# 4200.0	0.770	-0.26136476
# 7200.0	0.650	-0.43078291
# 10200.0	0.550	-0.59783700
# 13200.0	0.460	-0.77652878
# 16200.0	0.380	-0.96758402
# 19200.0	0.310	-1.17118298
# 22200.0	0.250	-1.38629436
25200.0	0.190	-1.66073120
28200.0	0.150	-1.89711998
31800.0	0.100	-2.30258509
33600.0	0.080	-2.52572864
36000.0	0.060	-2.81341071
37200.0	0.050	-2.99573227
38400.0	0.040	-3.21887582

Linear Regression Relation for

Indicated Range # : $\ln (H/H_0) = -0.00006 \text{ (El. Time)} + -0.00071$
R-Squared Coeff. = 0.99815

SELECTED

VALUES: t₁ (sec) = 25000.0 h₁ = 0.219
t₂ (sec) = 35000.0 h₂ = 0.119

k = 3.46E-06 cm/sec

VARIABLE HEAD
HYDRAULIC CONDUCTIVITY TEST

WELL NO: MW-7A
LOCATION: NEW LANDFILL SITE
CORTLAND COUNTY, NY

TEST NO: 1
TEST DATE: 10/10/88
TESTED BY: RWW

$$k = \frac{r^2 \ln(L/R) \ln(h_1/h_2)}{2L (t_2 - t_1)}$$

WELL DATA:

Where: k = hydraulic conductivity (cm/sec)
r = well riser radius (cm) = 2.54
R = bore radius (cm) = 4.92
L = effective screen length (cm) = 213.36
and h₁, h₂ = head ratio (H/H₀) at t₁, t₂
t₁, t₂ = elapsed time at h₁, h₂ (sec)

RESULTS:

TEST DATA (PARTIAL LIST)

Elapsed Time (sec)	Head Ratio H/H ₀	ln(H/H ₀)
180.0	0.970	-0.03045920
1200.0	0.920	-0.08338160
4200.0	0.770	-0.26136476
7200.0	0.650	-0.43878291
10200.0	0.550	-0.59783700
13200.0	0.460	-0.77652878
16200.0	0.380	-0.96758402
19200.0	0.310	-1.17118298
22200.0	0.250	-1.38629436
25200.0	0.190	-1.66073120
* 28200.0	0.150	-1.89711998
* 31800.0	0.100	-2.30258509
* 33600.0	0.080	-2.52572864
* 36000.0	0.060	-2.81341071
* 37200.0	0.050	-2.99573227
* 38400.0	0.040	-3.21887582

Linear Regression Relation for

Indicated Range * : $\ln (H/H_0) = -0.00013 (El. Time) + 1.71889$
R-Squared Coeff. = 0.99369

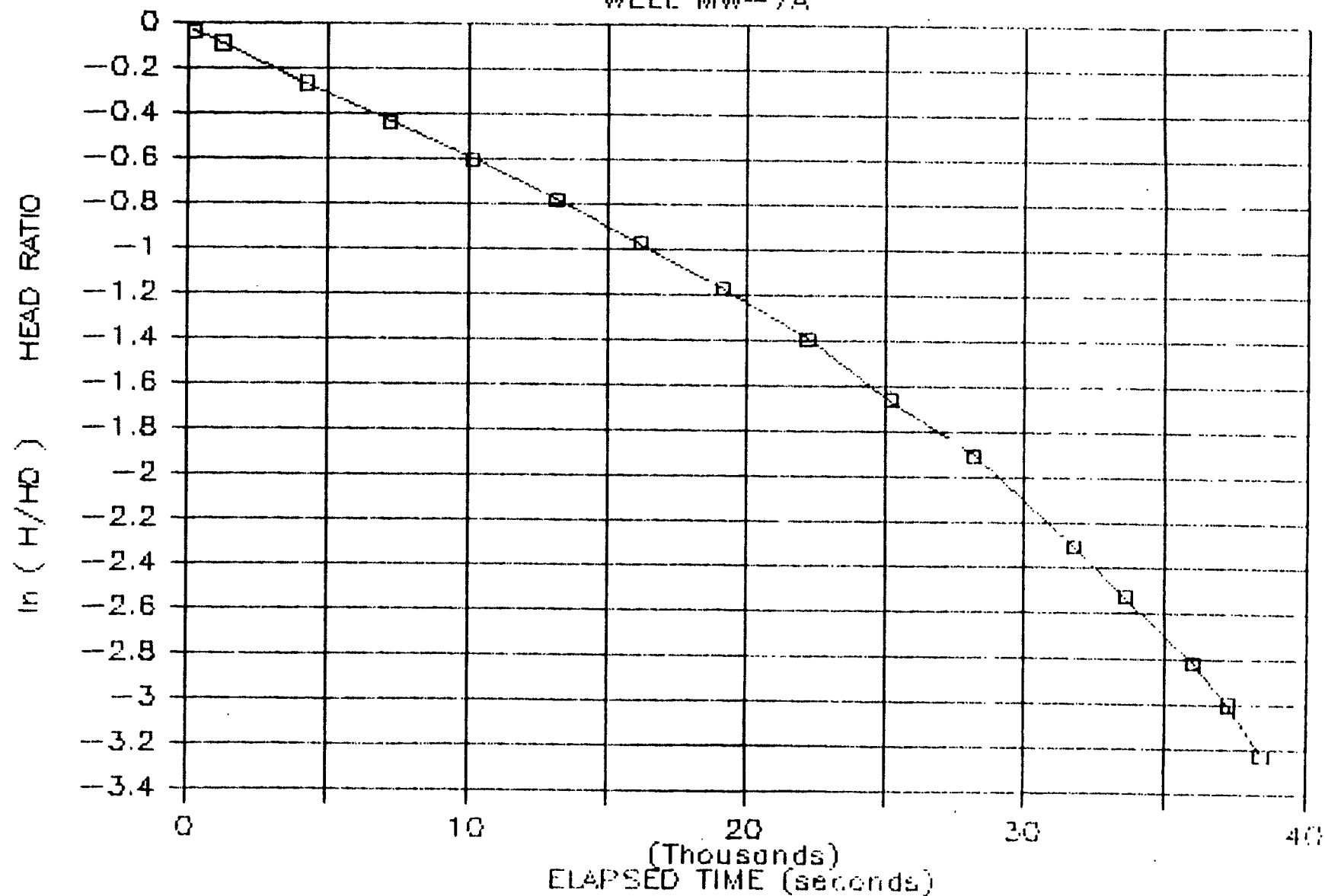
SELECTED

VALUES: t₁ (sec) = 25000.0 h₁ = 0.233
t₂ (sec) = 35000.0 h₂ = 0.065

k = 7.24E-06 cm/sec

VARIABLE HEAD TEST

WELL MW-7A



VARIABLE HEAD
HYDRAULIC CONDUCTIVITY TEST

WELL NO: MW-11A
LOCATION: NEW LANDFILL SITE
CORTLAND COUNTY, NY

TEST NO: 2
TEST DATE: 10/13/88
TESTED BY: RWW

METHOD:

$$k = \frac{r^2 \ln(L/R) \ln(h_1/h_2)}{2L (t_2 - t_1)}$$

WELL DATA:

Where: k = hydraulic conductivity (cm/sec)
r = well riser radius (cm) = 2.54
R = bore radius (cm) = 4.92
L = effective screen length (cm) = 335.28
and h1, h2 = head ratio (H/H0) at t1, t2
t1, t2 = elapsed time at h1, h2 (sec)

RESULTS:

TEST DATA (PARTIAL LIST)

Elapsed Time (sec)	Head Ratio H/H0	ln(H/H0)
150.0	0.479	-0.73605468
480.0	0.261	-1.34323487
720.0	0.193	-1.64506509
1200.0	0.134	-2.00991547
1560.0	0.109	-2.21640739
1920.0	0.092	-2.38596670
2160.0	0.084	-2.47693848
2520.0	0.076	-2.57702193
3000.0	0.067	-2.70306265
* 4560.0	0.059	-2.83021783
* 10200.0	0.050	-2.99573227
* 18000.0	0.042	-3.17008566
* 25200.0	0.034	-3.38139475
* 34200.0	0.025	-3.68887945
* 45000.0	0.017	-4.07454193
* 66000.0	0.008	-4.82831373

Linear Regression Relation for

Indicated Range * : $\ln (H/H_0) = -0.00003 (El. Time) + -2.62114$
R-Squared Coeff. = 0.99449

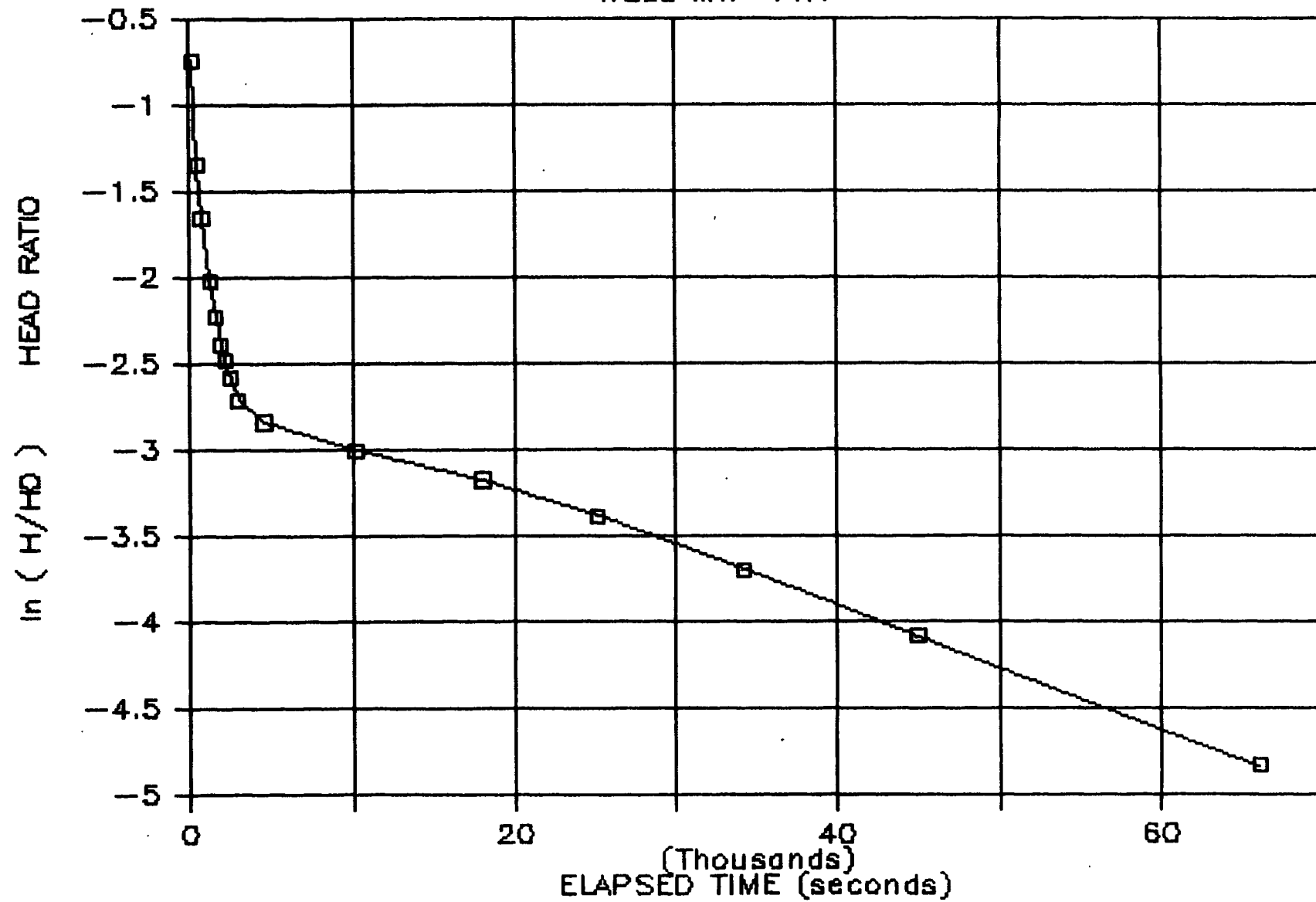
SELECTED

VALUES: t1 (sec) = 20000.0 h1 = 0.038
t2 (sec) = 40000.0 h2 = 0.020

k = 1.32E-06 cm/sec

VARIABLE HEAD TEST

WELL MW-11A



VARIABLE HEAD
HYDRAULIC CONDUCTIVITY TEST

WELL NO: MW-12A
LOCATION: NEW LANDFILL SITE
CORTLAND COUNTY, NY

TEST NO: 4
TEST DATE: 10/01/88
TESTED BY: RWW

METHOD:

$$k = \frac{r^2 \ln(L/R) \ln(h_1/h_2)}{2L (t_2 - t_1)}$$

WELL DATA:

Where: k = hydraulic conductivity (cm/sec)
r = well riser radius (cm) = 2.54
R = bore radius (cm) = 4.92
L = effective screen length (cm) = 426.72
and h1, h2 = head ratio (H/H0) at t1, t2
t1, t2 = elapsed time at h1, h2 (sec)

RESULTS:

TEST DATA (PARTIAL LIST)

Elapsed Time (sec)	Head Ratio H/H0	ln(H/H0)
# 3000.0	0.872	-0.13696585
# 6000.0	0.819	-0.19967119
# 9000.0	0.755	-0.28103752
# 12000.0	0.713	-0.33827385
# 15000.0	0.670	-0.40047756
# 18000.0	0.628	-0.46521511
# 21000.0	0.596	-0.51751461
# 24000.0	0.564	-0.57270102
# 28200.0	0.521	-0.65200523
31200.0	0.500	-0.69314718
36000.0	0.468	-0.75928698
40200.0	0.447	-0.80519668
45600.0	0.426	-0.85331593
50400.0	0.415	-0.87947675
55800.0	0.404	-0.90634040
60000.0	0.394	-0.93140436

Linear Regression Relation for

Indicated Range # : $\ln (H/H_0) = -0.00002 \text{ (El. Time)} + -0.08687$
R-Squared Coeff. = 0.99718

SELECTED

VALUES: t1 (sec) = 45000.0 h1 = 0.366
t2 (sec) = 60000.0 h2 = 0.269

k = 6.89E-07 cm/sec

VARIABLE HEAD
HYDRAULIC CONDUCTIVITY TEST

WELL NO: MW-12A
LOCATION: NEW LANDFILL SITE
CORTLAND COUNTY, NY

TEST NO: 4
TEST DATE: 10/01/88
TESTED BY: RWW

METHOD:

$$k = \frac{r^2 \ln(L/R) \ln(h_1/h_2)}{2L (t_2 - t_1)}$$

WELL DATA:

Where: k = hydraulic conductivity (cm/sec)
 r = well riser radius (cm) = 2.54
 R = bore radius (cm) = 4.92
 L = effective screen length (cm) = 426.72
 and h1, h2 = head ratio (H/H0) at t1, t2
 t1, t2 = elapsed time at h1, h2 (sec)

RESULTS:

TEST DATA (PARTIAL LIST)

Elapsed Time (sec)	Head Ratio H/H0	ln(H/H0)
3000.0	0.872	-0.13696585
6000.0	0.819	-0.19967119
9000.0	0.755	-0.28103752
12000.0	0.713	-0.33827385
15000.0	0.670	-0.40047756
18000.0	0.628	-0.46521511
21000.0	0.596	-0.51751461
24000.0	0.564	-0.57270102
28200.0	0.521	-0.65200523
31200.0	0.500	-0.69314718
36000.0	0.468	-0.75928698
40200.0	0.447	-0.80519668
* 45600.0	0.426	-0.85331593
* 50400.0	0.415	-0.87947675
* 55800.0	0.404	-0.90634040
* 60000.0	0.394	-0.93140436

Linear Regression Relation for

Indicated Range * : $\ln (H/H0) = -0.00001 \text{ (El. Time) } + -0.60856$
 R-Squared Coeff. = 0.99892

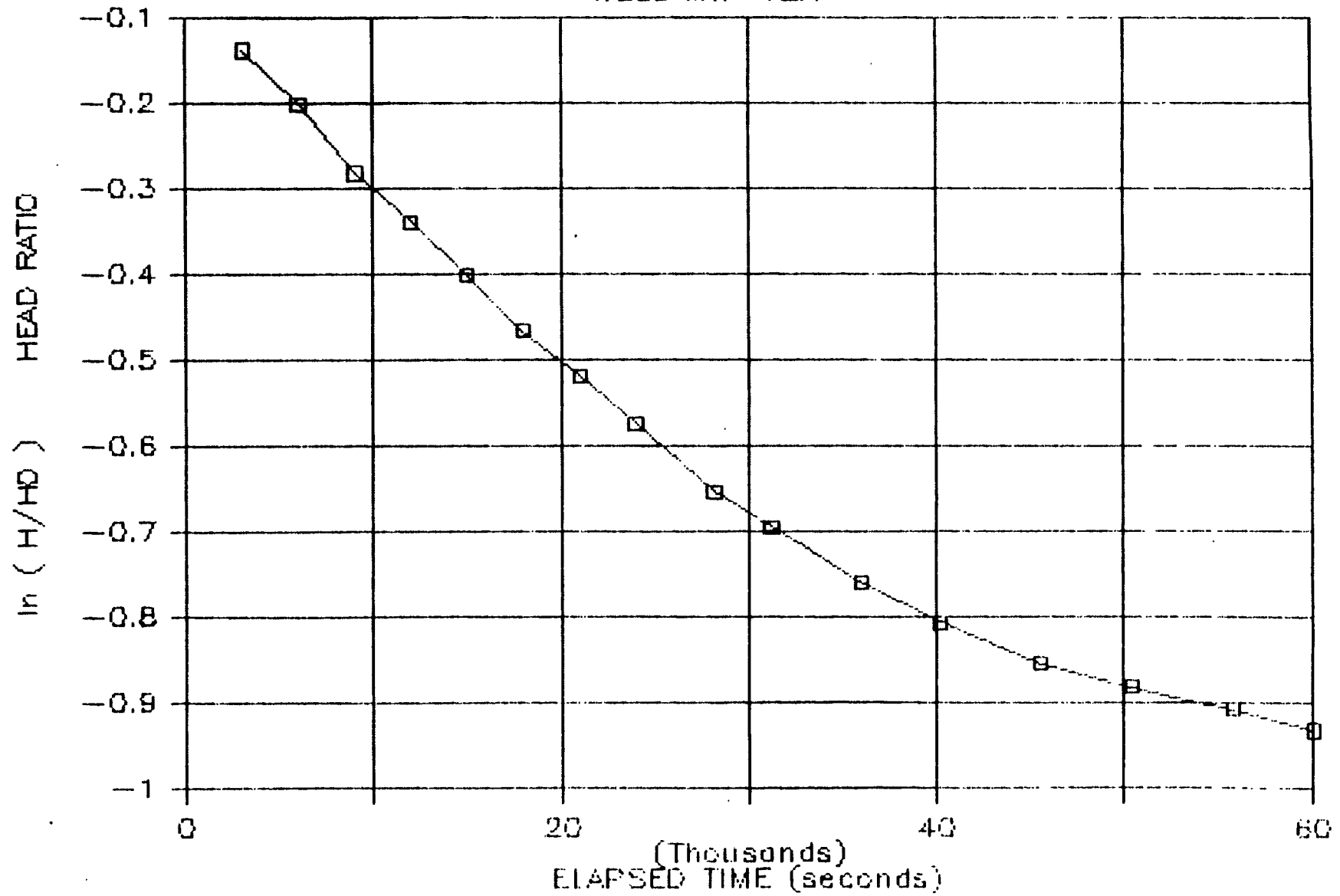
SELECTED

VALUES: t1 (sec) = 45000.0 h1 = 0.427
 t2 (sec) = 60000.0 h2 = 0.394

k = 1.81E-07 cm/sec

VARIABLE HEAD TEST

WELL MW-12A



**HYDRAULIC CONDUCTIVITY TESTS
OVERBURDEN WELLS**

VARIABLE HEAD
HYDRAULIC CONDUCTIVITY TEST

WELL NO: MW-4B
LOCATION: NEW LANDFILL SITE
CORTLAND COUNTY, NY

TEST NO: 1
TEST DATE: 09/28/88
TESTED BY: MPC

METHOD:

$$k = \frac{r^2 \ln(L/R) \ln(h_1/h_2)}{2L (t_2 - t_1)}$$

WELL DATA:

Where: k = hydraulic conductivity (cm/sec)
r = well riser radius (cm) = 2.54
R = bore radius (cm) = 10.48
L = effective screen length (cm) = 213.36
and h₁, h₂ = head ratio (H/H₀) at t₁, t₂
t₁, t₂ = elapsed time at h₁, h₂ (sec)

RESULTS:

TEST DATA (PARTIAL LIST)

Elapsed Time (sec)	Head Ratio H/H ₀	ln(H/H ₀)
0.0	1.000	0
5.0	0.714	-0.33687231
10.0	0.563	-0.57447565
15.0	0.452	-0.79407309
30.0	0.270	-1.30933332
45.0	0.175	-1.74296930
60.0	0.119	-2.12863178
75.0	0.093	-2.37515578
* 90.0	0.071	-2.64507540
* 105.0	0.063	-2.76462055
* 120.0	0.056	-2.88240358
* 150.0	0.040	-3.21887582
* 270.0	0.032	-3.44201937
* 330.0	0.024	-3.72970144
* 450.0	0.016	-4.13516655
* 570.0	0.008	-4.82831373

Linear Regression Relation for

Indicated Range * : $\ln(H/H_0) = -0.00417 (El. Time) + -2.36909$
R-Squared Coeff. = 0.97865

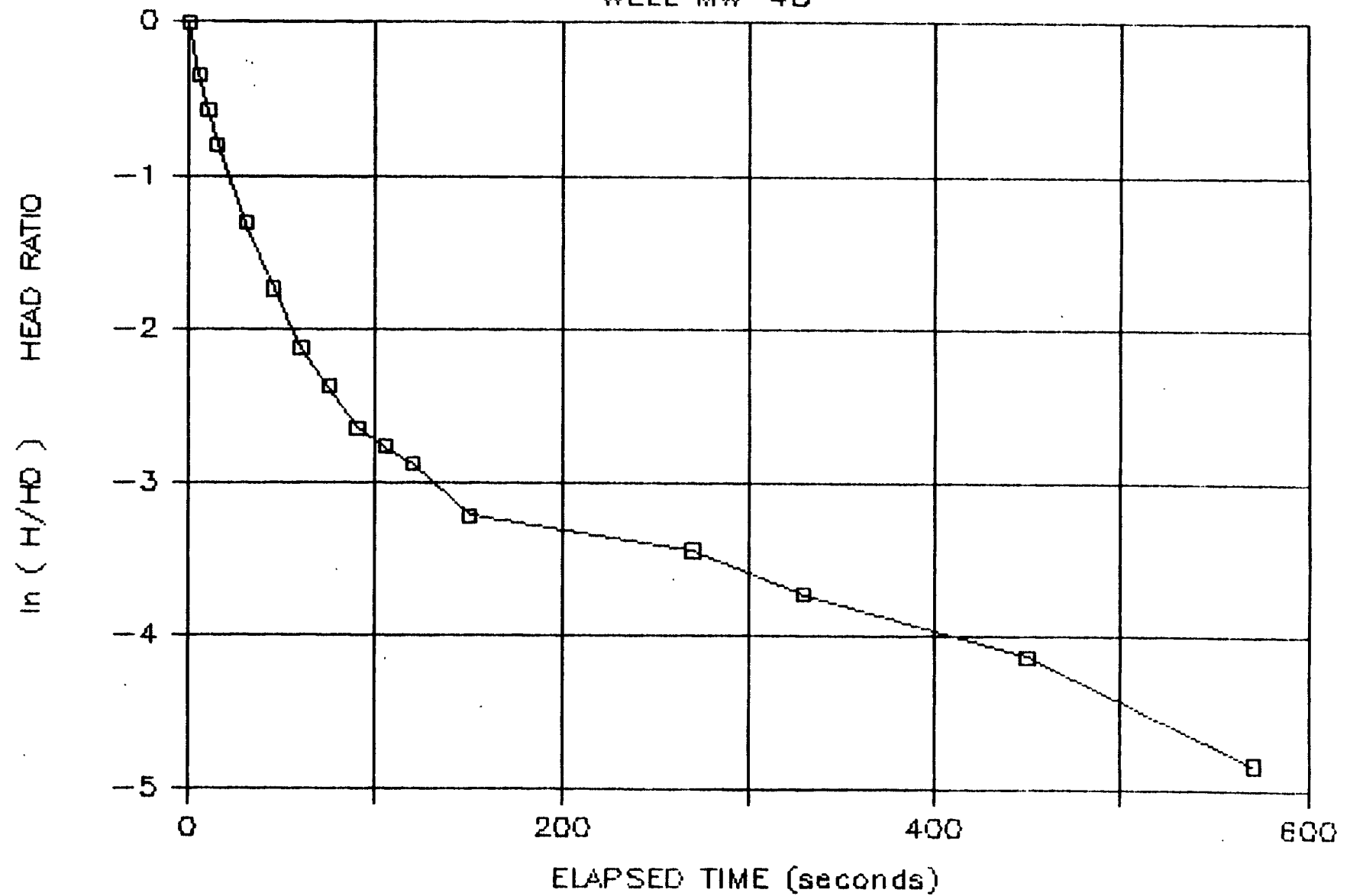
SELECTED

VALUES: t₁ (sec) = 100.0 h₁ = 0.062
t₂ (sec) = 600.0 h₂ = 0.008

k = 1.90E-04 cm/sec

VARIABLE HEAD TEST

WELL MW-4B



VARIABLE HEAD
HYDRAULIC CONDUCTIVITY TEST

WELL NO: MW-4C
LOCATION: NEW LANDFILL SITE
CORTLAND COUNTY, NY

TEST NO: 1
TEST DATE: 09/28/88
TESTED BY: MPC

METHOD:

$$k = \frac{r^2 \ln(L/R) \ln(h_1/h_2)}{2L (t_2 - t_1)}$$

WELL DATA:

Where: k = hydraulic conductivity (cm/sec)
 r = well riser radius (cm) = 2.54
 R = bore radius (cm) = 10.48
 L = effective screen length (cm) = 304.80
 and h₁, h₂ = head ratio (H/H₀) at t₁, t₂
 t₁, t₂ = elapsed time at h₁, h₂ (sec)

RESULTS:

TEST DATA (PARTIAL LIST)		
Elapsed Time (sec)	Head Ratio H/H ₀	ln(H/H ₀)
0.4	1.000	0
1.4	0.815	-0.20456716
1.6	0.778	-0.25102875
2.0	0.731	-0.31334181
3.0	0.713	-0.33827385
4.0	0.704	-0.35097692
5.0	0.685	-0.37833644
6.0	0.676	-0.39156220
7.0	0.667	-0.40496523
10.0	0.657	-0.42007126
* 35.0	0.648	-0.43386458
* 120.0	0.639	-0.44785082
* 270.0	0.630	-0.46203545
* 570.0	0.620	-0.47803580
* 960.0	0.611	-0.49265831
* 1200.0	0.602	-0.50749783

Linear Regression Relation for

Indicated Range * : $\ln (H/H_0) = -0.00006 (\text{El. Time}) + -0.44006$
 R-Squared Coeff. = 0.96201

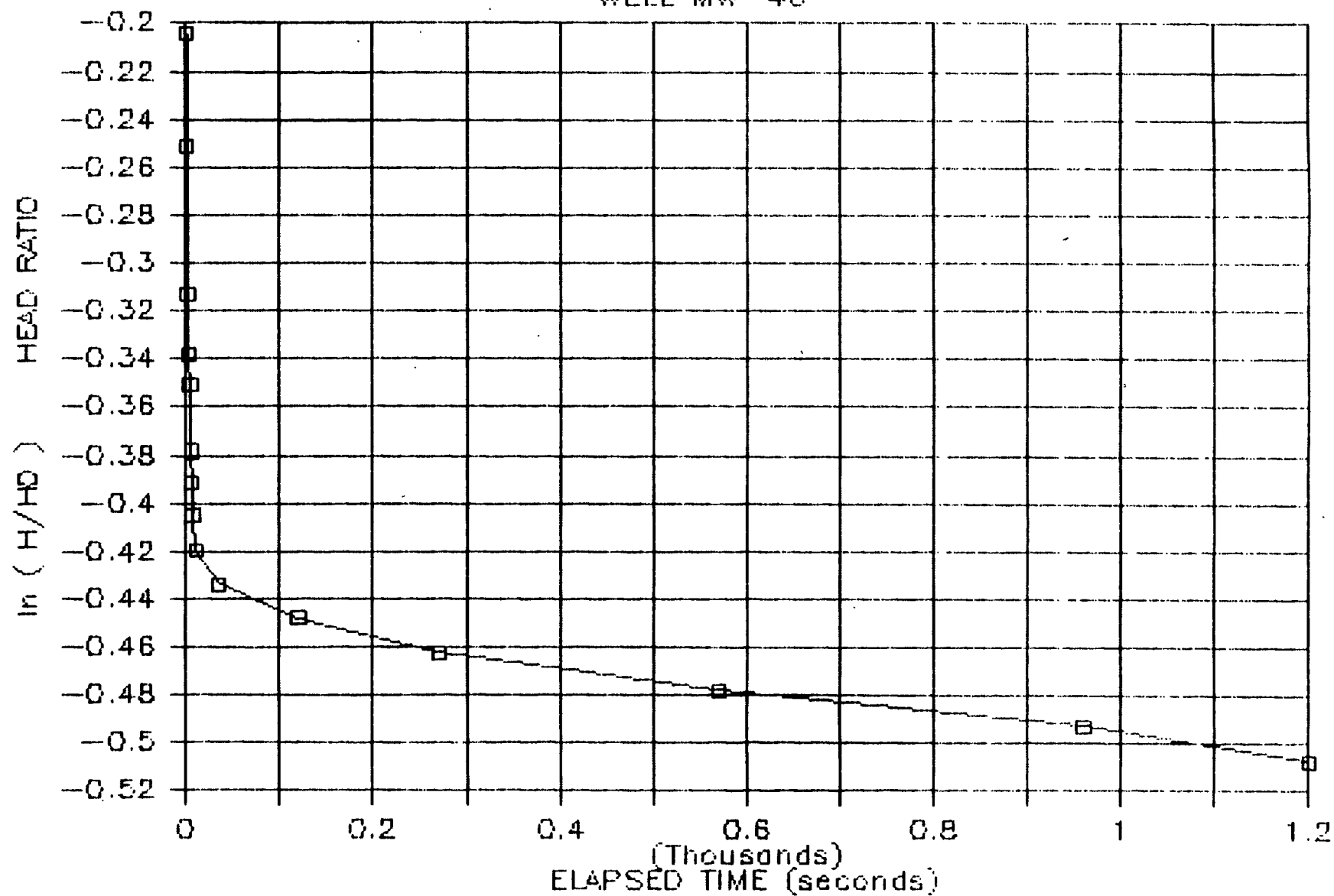
SELECTED

VALUES: t₁ (sec) = 60.0 h₁ = 0.642
 t₂ (sec) = 1000.0 h₂ = 0.608

k = 2.05E-06 cm/sec

VARIABLE HEAD TEST

WELL MW-4C



VARIABLE HEAD
HYDRAULIC CONDUCTIVITY TEST

WELL NO: MW-5B
LOCATION: NEW LANDFILL SITE
CORTLAND COUNTY, NY

TEST NO: 1
TEST DATE: 09/28/88
TESTED BY: MPC

METHOD:

$$k = \frac{r^2 \ln(L/R) \ln(h_1/h_2)}{2L (t_2 - t_1)}$$

WELL DATA:

Where: k = hydraulic conductivity (cm/sec)
 r = well riser radius (cm) = 2.54
 R = bore radius (cm) = 10.48
 L = effective screen length (cm) = 182.88
 and h₁, h₂ = head ratio (H/H₀) at t₁, t₂
 t₁, t₂ = elapsed time at h₁, h₂ (sec)

RESULTS:

TEST DATA (PARTIAL LIST)

Elapsed Time (sec)	Head Ratio H/H ₀	ln(H/H ₀)
0.0	1.000	0
5.0	0.945	-0.05657035
10.0	0.901	-0.10425002
30.0	0.802	-0.22064667
60.0	0.670	-0.40047756
90.0	0.582	-0.54128483
120.0	0.505	-0.68319684
210.0	0.330	-1.10866262
* 330.0	0.198	-1.61948824
* 420.0	0.154	-1.87080267
* 510.0	0.110	-2.20727491
* 600.0	0.088	-2.43041846
* 720.0	0.055	-2.90042209
* 840.0	0.044	-3.12356564
* 1080.0	0.022	-3.81671282
* 1200.0	0.011	-4.50986000

Linear Regression Relation for

Indicated Range * : $\ln (H/H_0) = -0.00316 \text{ (El. Time)} + -0.55560$
 R-Squared Coeff. = 0.99058

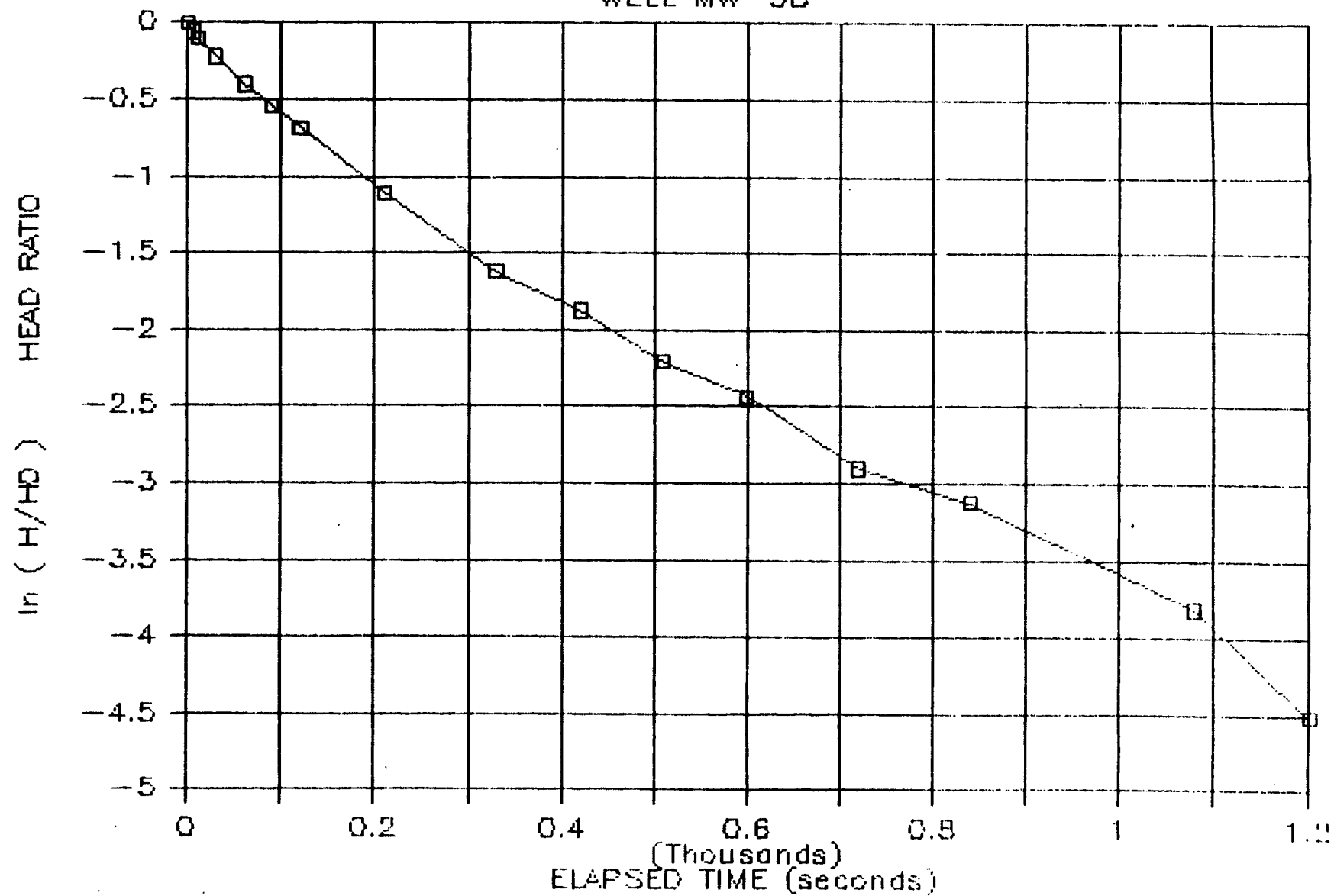
SELECTED

VALUES: t₁ (sec) = 350.0 h₁ = 0.190
 t₂ (sec) = 1100.0 h₂ = 0.018

k = 1.60E-04 cm/sec

VARIABLE HEAD TEST

WELL MW-5B



VARIABLE HEAD
HYDRAULIC CONDUCTIVITY TEST

WELL NO: MW-7B
LOCATION: NEW LANDFILL SITE
CORTLAND COUNTY, NY

TEST NO: 1
TEST DATE: 10/07/88
TESTED BY: RWW

METHOD:

$$k = \frac{r^2 \ln(L/R) \ln(h_1/h_2)}{2L (t_2 - t_1)}$$

WELL DATA:

Where: k = hydraulic conductivity (cm/sec)
r = well riser radius (cm) = 2.54
R = bore radius (cm) = 10.48
L = effective screen length (cm) = 182.88
and h₁, h₂ = head ratio (H/H₀) at t₁, t₂
t₁, t₂ = elapsed time at h₁, h₂ (sec)

RESULTS:

TEST DATA (PARTIAL LIST)

Elapsed Time (sec)	Head Ratio H/H ₀	ln(H/H ₀)
240.0	0.927	-0.07580171
540.0	0.917	-0.08664780
* 1200.0	0.908	-0.09651090
* 5760.0	0.899	-0.10647224
* 8400.0	0.890	-0.11653381
* 12000.0	0.881	-0.12669765
* 16200.0	0.872	-0.13696585
* 19800.0	0.862	-0.14850000
* 25800.0	0.853	-0.15899573
* 31200.0	0.844	-0.16960278
* 37800.0	0.835	-0.18032355
* 43200.0	0.826	-0.19116050
* 48600.0	0.817	-0.20211618
* 55200.0	0.807	-0.21443161
* 60000.0	0.798	-0.22564668
* 66000.0	0.789	-0.23698895

Linear Regression Relation for

Indicated Range * : $\ln (H/H_0) = -0.00000 (El. Time) + -0.09996$
R-Squared Coeff. = 0.99361

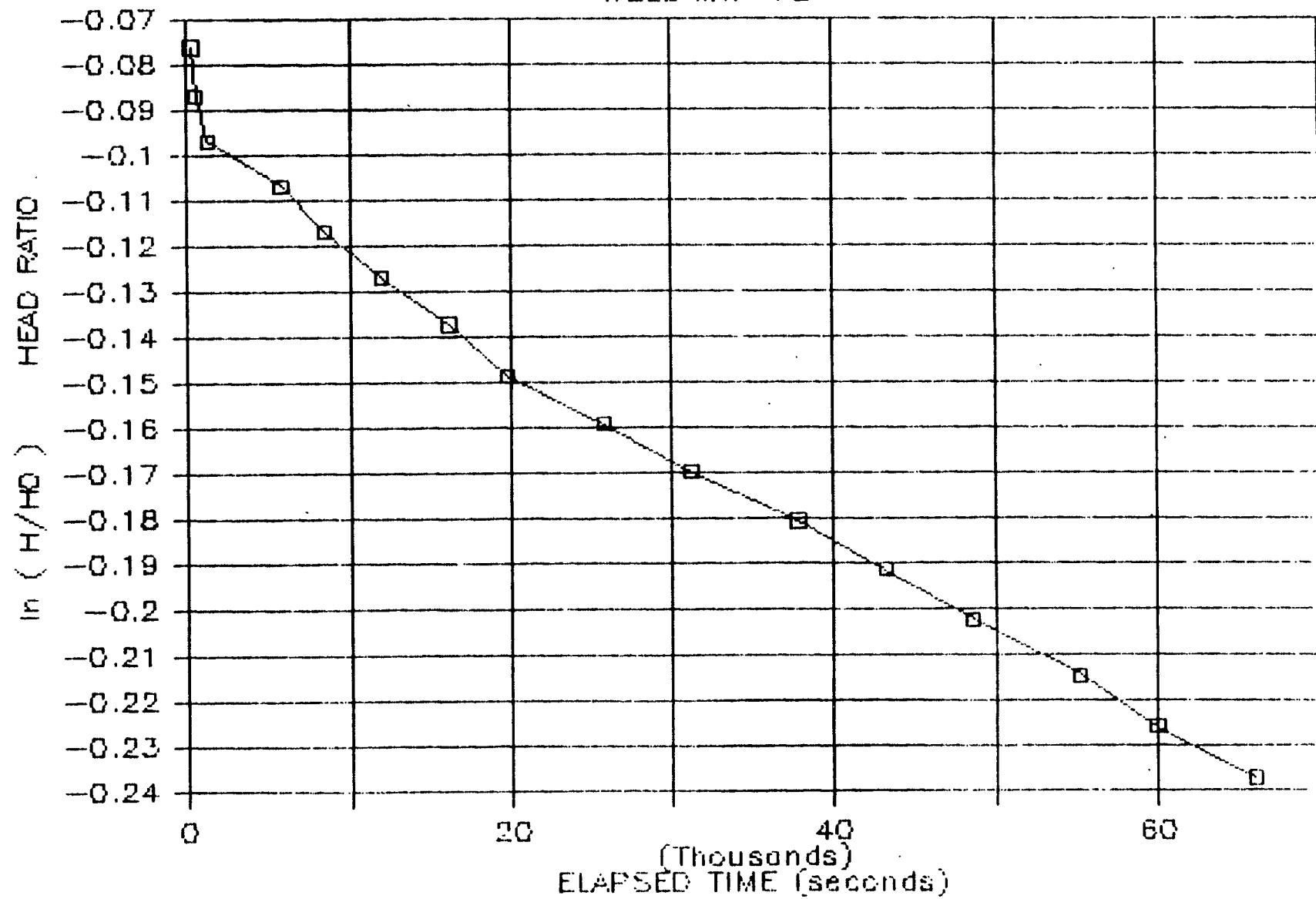
SELECTED

VALUES: t₁ (sec) = 5000.0 h₁ = 0.895
t₂ (sec) = 65000.0 h₂ = 0.789

k = 1.07E-07 cm/sec

VARIABLE HEAD TEST

WELL MW-7B



VARIABLE HEAD
HYDRAULIC CONDUCTIVITY TEST

WELL NO: MW-11B
LOCATION: NEW LANDFILL SITE
CORTLAND COUNTY, NY

TEST NO: 1
TEST DATE: 10/04/88
TESTED BY: RWW

METHOD:

$$k = \frac{r^2 \ln(L/R) \ln(h_1/h_2)}{2L (t_2 - t_1)}$$

WELL DATA:

Where: k = hydraulic conductivity (cm/sec)
r = well riser radius (cm) = 2.54
R = bore radius (cm) = 10.48
L = effective screen length (cm) = 365.76
and h₁, h₂ = head ratio (H/H₀) at t₁, t₂
t₁, t₂ = elapsed time at h₁, h₂ (sec)

RESULTS:

TEST DATA (PARTIAL LIST)

Elapsed Time (sec)	Head Ratio H/H ₀	ln(H/H ₀)
60.0	0.758	-0.27707189
360.0	0.667	-0.40496523
960.0	0.576	-0.55164761
1680.0	0.485	-0.72360638
2400.0	0.409	-0.89404012
* 3240.0	0.348	-1.05555279
* 4080.0	0.303	-1.19402247
* 5040.0	0.258	-1.35479569
* 5880.0	0.227	-1.48280526
* 8400.0	0.152	-1.88387475
* 10200.0	0.121	-2.11196473
* 12600.0	0.091	-2.39689577
* 15600.0	0.061	-2.79688141
* 18000.0	0.045	-3.10109278
* 21000.0	0.030	-3.50655789
* 26400.0	0.015	-4.19970507

Linear Regression Relation for

Indicated Range * : ln (H/H₀) = -0.00013 (El. Time) + -0.68702
R-Squared Coeff. = 0.99849

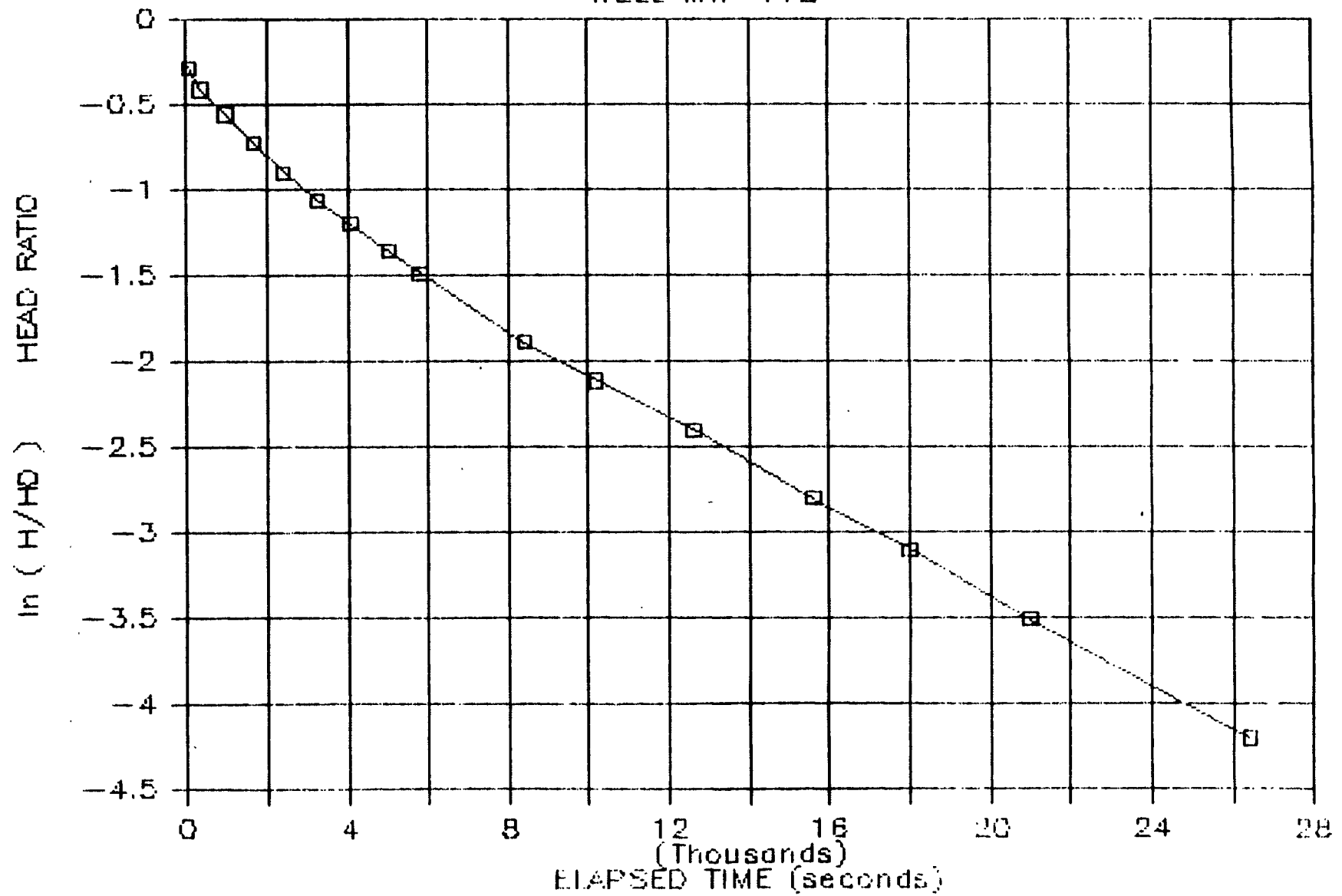
SELECTED

VALUES: t₁ (sec) = 5000.0 h₁ = 0.257
t₂ (sec) = 25000.0 h₂ = 0.017

k = 4.21E-06 cm/sec

VARIABLE HEAD TEST

WELL MW-11B



VARIABLE HEAD
HYDRAULIC CONDUCTIVITY TEST

WELL NO: MW-12B
LOCATION: NEW LANDFILL SITE
CORTLAND COUNTY, NY

TEST NO: 2
TEST DATE: 10/03/88
TESTED BY: RWW

METHOD:

$$k = \frac{r^2 \ln(L/R) \ln(h_1/h_2)}{2L (t_2 - t_1)}$$

WELL DATA:

Where: k = hydraulic conductivity (cm/sec)
r = well riser radius (cm) = 2.54
R = bore radius (cm) = 10.48
L = effective screen length (cm) = 381.00
and h1, h2 = head ratio (H/H0) at t1, t2
t1, t2 = elapsed time at h1, h2 (sec)

RESULTS:

TEST DATA (PARTIAL LIST)

Elapsed Time (sec)	Head Ratio H/H0	ln(H/H0)
270.0	0.878	-0.13010868
960.0	0.767	-0.26526847
1800.0	0.644	-0.44005655
3000.0	0.511	-0.67138568
* 4920.0	0.356	-1.03282454
* 7200.0	0.233	-1.45671682
* 9000.0	0.189	-1.66600826
* 10800.0	0.133	-2.01740615
* 12600.0	0.111	-2.19822507
* 14400.0	0.089	-2.41911890
* 16800.0	0.067	-2.70306265
* 18000.0	0.056	-2.88240358
* 19800.0	0.044	-3.12356564
* 22200.0	0.033	-3.41124771
* 24600.0	0.022	-3.81671282
* 29400.0	0.011	-4.50986000

Linear Regression Relation for

Indicated Range * : $\ln (H/H_0) = -0.00014 \text{ (El. Time)} + -0.43596$
R-Squared Coeff. = 0.99755

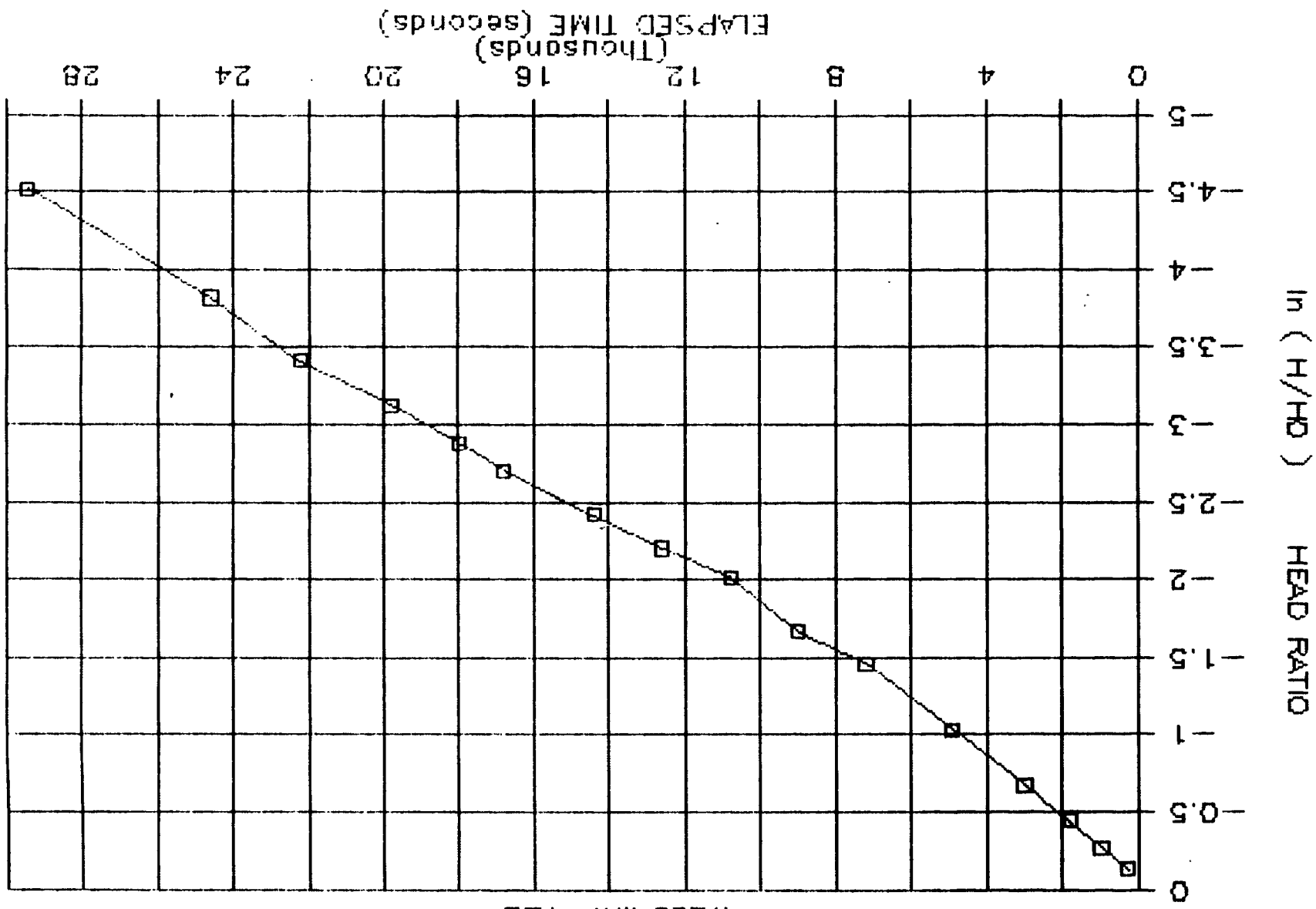
SELECTED

VALUES: t1 (sec) = 5000.0 h1 = 0.326
t2 (sec) = 25000.0 h2 = 0.021

k = 4.17E-06 cm/sec

VARIABLE HEAD TEST

WELL MW-12B



VARIABLE HEAD
HYDRAULIC CONDUCTIVITY TEST

WELL NO: LT-7
LOCATION: NEW LANDFILL SITE
CORTLAND COUNTY, NY

TEST NO: 1
TEST DATE: 10/12/88
TESTED BY: RWW

METHOD:

$$k = \frac{r^2 \ln(L/R) \ln(h_1/h_2)}{2L (t_2 - t_1)}$$

WELL DATA:

Where: k = hydraulic conductivity (cm/sec)
r = well riser radius (cm) = 2.54
R = bore radius (cm) = 7.94
L = effective screen length (cm) = 396.24
and h1, h2 = head ratio (H/H0) at t1, t2
t1, t2 = elapsed time at h1, h2 (sec)

RESULTS:

TEST DATA (PARTIAL LIST)

Elapsed Time (sec)	Head Ratio H/H0	ln(H/H0)
* 1000.0	0.943	-0.05868899
* 3000.0	0.934	-0.06827884
* 6000.0	0.915	-0.08883121
* 12000.0	0.887	-0.11991029
* 18000.0	0.868	-0.14156356
* 24000.0	0.840	-0.17435338
* 30000.0	0.811	-0.20948722
* 36000.0	0.783	-0.24462258
* 42000.0	0.764	-0.26918748
* 48000.0	0.745	-0.29437106
* 54000.0	0.717	-0.33267943
* 60000.0	0.698	-0.35953617
* 66000.0	0.679	-0.38713415
* 72000.0	0.660	-0.41551544
* 78000.0	0.642	-0.44316697
* 84000.0	0.613	-0.48939034

Linear Regression Relation for

Indicated Range * : $\ln (H/H_0) = -0.00001 (El. Time) + -0.05462$
R-Squared Coeff. = 0.99904

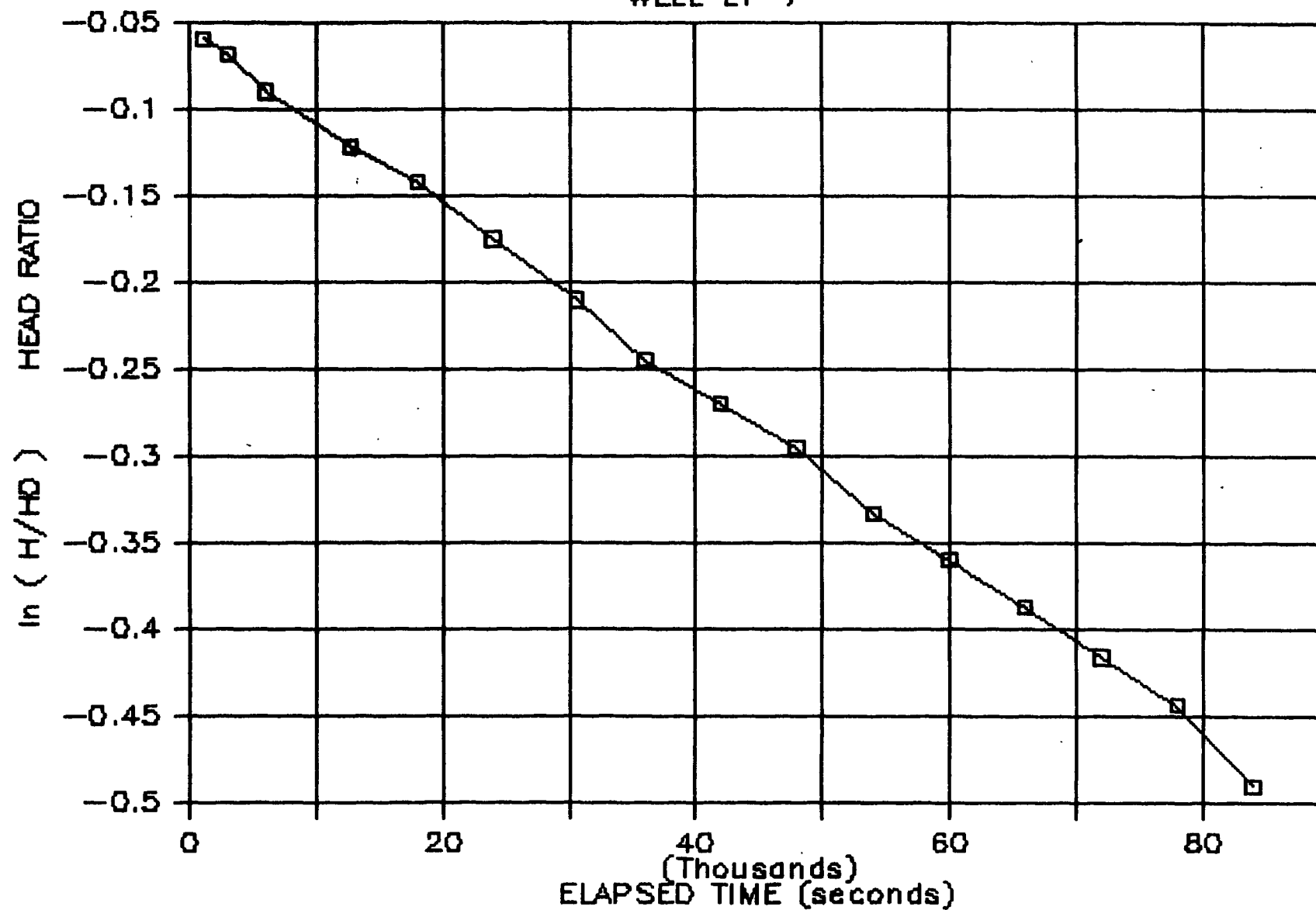
SELECTED

VALUES: t1 (sec) = 20000.0 h1 = 0.855
t2 (sec) = 40000.0 h2 = 0.773

k = 1.61E-07 cm/sec

VARIABLE HEAD TEST

WELL LT-7



SE1000B
Environmental Logger
10/10 09:22

Unit# 00357 Test# 2

INPUT 1: Level (F) TOC

Reference 0.00
Scale factor 9.96
Offset 0.00

Step# 0 10/04 12:16

Elapsed Time	Value
0.0000	0.66
0.0033	0.64
0.0066	0.59
0.0099	0.55
0.0133	0.54
0.0166	0.54
0.0200	0.57
0.0233	0.58
0.0266	0.58
0.0300	0.57
0.0333	0.55
0.0500	0.55
0.0666	0.53
0.0833	0.53
0.1000	0.53
0.1166	0.52
0.1333	0.52
0.1500	0.52
0.1666	0.52
0.1833	0.52
0.2000	0.52
0.2166	0.52
0.2333	0.52
0.2500	0.52
0.2666	0.52
0.2833	0.52
0.3000	0.51
0.3166	0.51
0.3333	0.51
0.4167	0.51
0.5000	0.51
0.5833	0.51
0.6667	0.51
0.7500	0.50
0.8333	0.50
0.9167	0.50
1.0000	0.50
1.0833	0.50
1.1667	0.50
1.2500	0.50
1.3333	0.50
1.4166	0.49
1.5000	0.49
1.5833	0.49
1.6667	0.49
1.7500	0.49
1.8333	0.49
1.9167	0.49
2.0000	0.49
2.5000	0.48
3.0000	0.47
3.5000	0.47
4.0000	0.46
4.5000	0.46
5.0000	0.45
5.5000	0.45
6.0000	0.44
6.5000	0.44
7.0000	0.44
7.5000	0.43

8.0000	0.43
8.5000	0.42
9.0000	0.42
9.5000	0.42
10.0000	0.41
12.0000	0.40
14.0000	0.39
16.0000	0.38
18.0000	0.37
20.0000	0.36
22.0000	0.35
24.0000	0.34
26.0000	0.33
28.0000	0.32
30.0000	0.32
32.0000	0.30
34.0000	0.30
36.0000	0.29
38.0000	0.28
40.0000	0.27
42.0000	0.27
44.0000	0.27
46.0000	0.26
48.0000	0.25
50.0000	0.25
52.0000	0.24
54.0000	0.23
56.0000	0.23
58.0000	0.22
60.0000	0.22
62.0000	0.22
64.0000	0.21
66.0000	0.21
68.0000	0.20
70.0000	0.20
72.0000	0.19
74.0000	0.19
76.0000	0.19
78.0000	0.18
80.0000	0.18
82.0000	0.18
84.0000	0.17
86.0000	0.17
88.0000	0.17
90.0000	0.16
92.0000	0.18
94.0000	0.16
96.0000	0.16
98.0000	0.15
100.000	0.15
110.000	0.15
120.000	0.12
130.000	0.13
140.000	0.10
150.000	0.10
160.000	0.10
170.000	0.08
180.000	0.08
190.000	0.07
200.000	0.07
210.000	0.06
220.000	0.06
230.000	0.06
240.000	0.05
250.000	0.05
260.000	0.04
270.000	0.04
280.000	0.04
290.000	0.04
300.000	0.03
310.000	0.03
320.000	0.03
330.000	0.02
340.000	0.02
350.000	0.02
360.000	0.02

370.000	0.02
380.000	0.02
390.000	0.02
400.000	0.02
410.000	0.02
420.000	0.01
430.000	0.01
440.000	0.01
450.000	0.01
460.000	0.01
470.000	0.01
480.000	0.01
490.000	0.01
500.000	0.01
510.000	0.01
520.000	0.01
530.000	0.01
540.000	0.01
550.000	0.01
560.000	0.01
570.000	0.01
580.000	0.00
590.000	0.00
600.000	0.00
610.000	0.00
620.000	0.00
630.000	0.00
640.000	0.00
650.000	0.00
660.000	0.00
670.000	0.00
680.000	0.00
690.000	- 0.00
700.000	- 0.00
710.000	- 0.00
720.000	0.00
730.000	- 0.00
740.000	0.00
750.000	- 0.00
760.000	- 0.00
770.000	- 0.00
780.000	- 0.00
790.000	0.00
800.000	0.00
810.000	0.00
820.000	0.00
830.000	0.00
840.000	0.00
850.000	0.00
860.000	- 0.00
870.000	- 0.00
880.000	- 0.01
890.000	- 0.01
900.000	- 0.02
910.000	- 0.03
920.000	- 0.05
930.000	- 0.05
940.000	- 0.04
950.000	- 0.04
960.000	- 0.03
970.000	- 0.03
980.000	- 0.02
990.000	- 0.04
1000.00	- 0.03
1100.00	- 0.01
1200.00	0.00

END

HYDROGEOLOGIC REPORT
APPENDIX D
WATER QUALITY ANALYSES

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TABLE D-3	-	Total Metals
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TABLE D-5	-	Organic Parameters
TABLE D-6	-	Parameters Exceeding Standards or Guidance Values

Laboratory Data

Upstate Laboratories, Inc.: November 28, 1988
October 7, 1988

Buck Engineering: September 2, 1988
April 28, 1988
May 2, 1987

CS Environmental Laboratory: May 23, 1986

Friend Laboratory, Inc.: December 28, 1984

Cortland County Health Department: September 17, 1985

TABLE D-1
WATER QUALITY TEST DATA
FIELD PARAMETERS

SNYCRR Part 703								
GROUNDWATER STANDARD		6.5-8.5						
or [GUIDANCE VALUE]		Std Units						
							----- STATIC WATER LEVEL -----	
WELL #	FIELD						below top	elevation
AND	PARAMETERS:	TEMPERATURE	EH	pH	SP. COND.	DO	of casing	a.s.l.
DATE		(degrees F)	(mV) (Std Units)		(umhos/cm)	(mg/l)	(feet)	(feet)

BEDROCK WELLS:								

MW-1A								
17/OCT/88		47	124	7.1	230	-	11.13	1783.24
28/NOV/88		49	90	7.4	210	-	8.52	1785.85
MW-11A								
17/OCT/88		51	114	7.6	360	-	4.33	1661.91
28/NOV/88		47	120	7.3	340	-	1.2	1665.04
MW-12A								
17/OCT/88		49	94	7.9	460	-	13.04	1722.21
28/NOV/88		47	115	7.9	390	-	9.3	1725.95
OVERBURDEN WELLS:								

MW-1B								
28/NOV/88		47	181	7.6	350	-	7.88	1786.47
MW-11B								
17/OCT/88		50	121	7.7	330	-	5.57	1662.00
28/NOV/88		47	140	7.3	320	-	3.24	1664.33
MW-12B								
17/OCT/88		49	75	7.8	470	-	7.19	1727.58
28/NOV/88		48	114	7.6	460	-	5.08	1729.69

**TABLE D-2
WATER QUALITY TEST DATA
INORGANIC PARAMETERS**

6NYCRR Part 703 GROUNDWATER STANDARD or [GUIDANCE VALUE]		10.0 mg/l		0.05 mg/l		250 mg/l		250 mg/l										0.2 mg/l		0.001 mg/l	
WELL # AND DATE	INORGANIC PARAMETERS: (mg/l)	TVS (mg/l)	800-5 (mg/l)	NO3-N (mg/l)	MBAS (mg LAS/l)	Cr-6+ (mg/l)	TURBIDITY (NTU)	TDS (mg/l)	SO4 (mg/l)	ALKALINITY (mg/l CaCO3)	COLOR (Units)	ODOR (Units)	Cl (mg/l)	TKN (mg/l)	NH3-N (mg/l)	TOC (mg/l)	COD (mg/l)	HARDNESS (mg/l CaCO3)	TOTAL CYANIDE (mg/l)	TOTAL PHENOLS (mg/l)	
BEDROCK WELLS:																					

MW-1A																					
07/OCT/88	-	<5	0.84	<0.05	<0.01	220	160	5	68	5	1	1	<0.5	<0.5	<1	28	60	<0.01	<0.005		
28/NOV/88	-	4	0.15	0.043	<0.01	170	95	9	80	1	1	<1	<0.5	<0.5	1.9	40	88	<0.01	0.011		
MW-11A																					
07/OCT/88	-	<5	0.76	<0.05	<0.01	180	210	16	160	1	1	2	<0.5	<0.5	<1	28	150	<0.01	<0.005		
28/NOV/88	-	4	0.6	<0.025	<0.01	74	150	13	150	1	1	4	<0.5	<0.5	<1	<5	140	<0.01	0.05		
MW-12A																					
07/OCT/88	-	<5	<0.10	<0.05	<0.01	770	850	34	190	1	1	2	<0.5	<0.5	<1	29	150	<0.01	<0.005		
28/NOV/88	-	7	<0.05	<0.025	<0.01	990	190	25	160	1	1	2	0.6	<0.5	<1	<5	150	<0.01	0.01		
OVERBURDEN WELLS:																					

MW-1B																					
28/NOV/88	-	6	1.3	<0.025	<0.01	97	180	24	140	1	1.4	<1	<0.5	<0.5	1.6	50	150	<0.01	0.008		
MW-11B																					
07/OCT/88	-	<5	<0.10	<0.05	<0.01	130	230	25	150	2	1	1	<0.5	<0.5	<1	19	150	<0.01	0.007		
28/NOV/88	-	13	<0.05	<0.025	<0.01	120	170	18	150	1	1	3	1.1	<0.5	<1	<5	130	<0.01	0.007		
MW-12B																					
07/OCT/88	-	<5	0.59	<0.05	<0.01	720	920	23	200	5	1	1	<0.5	<0.5	<1	48	170	<0.01	<0.005		
28/NOV/88	-	7	<0.05	<0.025	<0.01	3400	250	21	180	1	1	2	1.1	<0.5	<1	<5	170	<0.01	0.009		

TABLE D-3
WATER QUALITY TEST DATA
TOTAL METALS

Potassium 0.056

6NYCRR Part 703 GROUNDWATER STANDARD or [GUIDANCE VALUE]		[0.003]	0.025	1.0	[0.003]	[0.125]	0.01	-	-	1.0	0.3	0.025	[35.0]	0.3	0.002	-	-	0.02	0.05	-	[0.004]	5.0	
		mg/l	mg/l	mg/l	mg/l	mg/l	mg/l			mg/l	mg/l	mg/l	mg/l	mg/l	mg/l			mg/l	mg/l		mg/l	mg/l	
WELL # AND DATE	METALS TOTAL:	Al (mg/l)	Sb (mg/l)	As (mg/l)	Ba (mg/l)	Be (mg/l)	B (mg/l)	Cd (mg/l)	Ca (mg/l)	Cr (mg/l)	Cu (mg/l)	Fe (mg/l)	Pb (mg/l)	Mg (mg/l)	Mn (mg/l)	Hg (mg/l)	Ni (mg/l)	K (mg/l)	Se (mg/l)	Ag (mg/l)	Na (mg/l)	Tl (mg/l)	Zn (mg/l)
BEDROCK WELLS:																							
MW-1A 07/OCT/88		3.9	<0.001	0.001	0.4	<0.005	0.5	<0.005	34	<0.05	0.03	6.7	0.006	-	0.31	<0.0004	<0.03	-	<0.001	<0.05	3.6	<0.001	0.01
28/NOV/88		1.5	<0.001	0.001	0.5	<0.005	0.1	<0.005	74	<0.05	<0.02	6.1	0.003	-	0.2	<0.0004	<0.03	-	<0.001	<0.05	6	<0.001	0.015
MW-11A 07/OCT/88		0.9	<0.001	<0.001	<0.3	<0.005	0.1	<0.005	39	<0.05	0.02	1.7	0.002	-	0.21	<0.0004	<0.03	-	<0.001	<0.05	12	<0.001	0.013
28/NOV/88		0.78	<0.001	0.001	<0.3	<0.005	0.1	<0.005	44	<0.05	<0.02	1.5	0.002	-	0.24	<0.0004	<0.03	-	<0.001	<0.05	12	<0.001	0.005
MW-12A 07/OCT/88		3	<0.001	0.004	<0.3	<0.005	<0.1	<0.005	44	<0.05	0.03	4.1	0.021	-	0.51	<0.0004	<0.03	-	<0.001	<0.05	33	<0.001	0.013
28/NOV/88		0.5	<0.001	0.002	<0.3	<0.005	0.1	<0.005	41	<0.05	<0.02	1.4	0.005	-	0.32	<0.0004	<0.03	-	0.002	<0.05	25	<0.001	<0.005
OVERBURDEN WELLS:																							
MW-18 28/NOV/88		1.1	<0.001	0.001	<0.3	<0.005	0.2	<0.005	54	<0.05	<0.02	3.8	0.005	-	0.19	<0.0004	<0.03	-	<0.001	<0.05	6.5	<0.001	0.02
MW-118 07/OCT/88		1.5	<0.001	<0.001	<0.3	<0.005	<0.1	<0.005	33	<0.05	0.02	2.9	0.005	-	0.46	<0.0004	<0.03	-	<0.001	<0.05	9.6	<0.001	0.015
28/NOV/88		<0.5	<0.001	<0.001	<0.3	<0.005	<0.1	<0.005	42	<0.05	<0.02	1.3	0.001	-	0.3	<0.0004	<0.03	-	<0.001	<0.05	8.9	<0.001	<0.005
MW-128 07/OCT/88		6.7	<0.001	0.010	0.5	<0.005	<0.1	<0.005	41	<0.05	0.05	18	0.021	-	1.3	<0.0004	<0.03	-	<0.001	<0.05	26	<0.001	0.013
28/NOV/88		2.6	<0.001	0.005	0.3	<0.005	0.2	<0.005	51	<0.05	<0.02	15	0.015	-	0.88	<0.0004	<0.03	-	0.002	<0.05	20	<0.001	0.012

TABLE D-4
WATER QUALITY TEST DATA
DISSOLVED METALS

6NYCRR Part 703 GROUNDWATER STANDARD or [GUIDANCE VALUE]		[0.003] mg/l	0.025 mg/l	1.0 mg/l	[0.003] mg/l	[0.125] mg/l	0.01 mg/l	-	-	1.0 mg/l	0.3 mg/l	0.025 mg/l	[35.0] mg/l	0.3 mg/l	0.002 mg/l	-	-	0.02 mg/l	0.05 mg/l	-	[0.004] mg/l	5.0 mg/l	
WELL # AND DATE	METALS DISSOLVED:	Al (mg/l)	Sb (mg/l)	As (mg/l)	Ba (mg/l)	Be (mg/l)	B (mg/l)	Cd (mg/l)	Ca (mg/l)	Cr (mg/l)	Cu (mg/l)	Fe (mg/l)	Pb (mg/l)	Mg (mg/l)	Mn (mg/l)	Hg (mg/l)	Ni (mg/l)	K (mg/l)	Se (mg/l)	Ag (mg/l)	Na (mg/l)	Tl (mg/l)	Zn (mg/l)
BEDROCK WELLS:																							
MW-1A																							
07/OCT/88		<0.5	<0.001	0.001	<0.3	<0.005	<0.1	<0.005	27	<0.05	0.02	0.11	0.001	-	0.02	<0.0004	<0.03	-	<0.001	<0.05	3.6	<0.001	0.017
28/NOV/88		<0.5	<0.001	0.001	<0.3	<0.005	0.1	<0.005	25	<0.05	<0.02	<0.03	0.13 *	-	0.03	<0.0004	<0.03	-	0.001	<0.05	5.2	<0.001	<0.005
MW-11A																							
07/OCT/88		<0.5	<0.001	<0.001	<0.3	<0.005	<0.1	<0.005	38	<0.05	<0.02	0.05	0.001	-	0.15	<0.0004	<0.03	-	<0.001	<0.05	14	<0.001	0.007
28/NOV/88		<0.5	<0.001	<0.001	<0.3	<0.005	0.1	<0.005	43	<0.05	<0.02	<0.03	<0.001	-	0.09	<0.0004	<0.03	-	<0.001	<0.05	12	<0.001	0.011
MW-12A																							
07/OCT/88		<0.5	<0.001	0.001	<0.3	<0.005	0.1	<0.005	38	<0.05	<0.02	0.05	0.001	-	0.17	<0.0004	<0.03	-	<0.001	<0.05	30	<0.001	0.042
28/NOV/88		<0.5	<0.001	0.001	<0.3	<0.005	<0.1	<0.005	34	<0.05	<0.02	<0.03	<0.001	-	0.24	<0.0004	<0.03	-	<0.001	<0.05	25	<0.001	<0.005
OVERBURDEN WELLS:																							
MW-1B																							
28/NOV/88		<0.5	<0.001	0.001	<0.3	<0.005	0.1	<0.005	48	<0.05	<0.02	<0.03	0.004	-	0.03	<0.0004	<0.03	-	<0.001	<0.05	6	<0.001	0.01
MW-11B																							
07/OCT/88		<0.5	<0.001	<0.001	<0.3	<0.005	<0.1	<0.005	33	<0.05	<0.02	0.07	<0.001	-	0.39	<0.0004	<0.03	-	<0.001	<0.05	9.6	<0.001	<0.005
28/NOV/88		<0.5	<0.001	<0.001	<0.3	<0.005	0.1	<0.005	33	<0.05	<0.02	<0.03	<0.001	-	0.29	<0.0004	<0.03	-	<0.001	<0.05	11	<0.001	0.01
MW-12B																							
07/OCT/88		<0.5	<0.001	<0.001	<0.3	<0.005	<0.1	<0.005	41	<0.05	<0.02	0.05	<0.001	-	0.35	<0.0004	<0.03	-	<0.001	<0.05	26	<0.001	0.11
28/NOV/88		<0.5	<0.001	0.001	<0.3	<0.005	<0.1	<0.005	42	<0.05	<0.02	<0.03	0.001	-	0.39	<0.0004	<0.03	-	<0.001	<0.05	23	<0.001	0.005

*: Melissa (ULI-2C) reports sample tested in duplicate, and diluted 25:1 because of initial high results.

TABLE D-5
WATER QUALITY TEST DATA
ORGANIC PARAMETERS *

6NYCRR Part 703			
GROUNDWATER STANDARD		--	--
or [GUIDANCE VALUE]			
WELL # AND DATE	PPA COMPOUNDS DETECTED:	Toluene (ug/l)	Total Organic Halogens (ug/l)
BEDROCK WELLS:			
MW-1A			
07/OCT/88		20	-
28/NOV/88		6	-
MW-11A			
07/OCT/88		-	-
28/NOV/88		18	-
MW-12A			
07/OCT/88		8	-
28/NOV/88		10	-
OVERBURDEN WELLS:			
MW-1B			
28/NOV/88		-	-
MW-11B			
07/OCT/88		-	-
28/NOV/88		-	-
MW-12B			
07/OCT/88		-	-
28/NOV/88		-	-

* All other organic parameters indicated below detectable limits.

TABLE D-6

PARAMETERS EXCEEDING STANDARDS OR GUIDANCE VALUES

BEDROCK

	Standard/ Guidance (mg/l)	<u>MW-1A</u>		<u>BEDROCK MW-11A</u>		<u>MW-12A</u>	
		10/7	11/28	10/7	11/28	10/7	11/28
Total Phenols	.001	<.005++	.011	<.005++	.05	<.005++	.01
Total Boron	.125	.5	-	-	-	-	-
Total Iron	.3	6.7	6.1	1.7	1.5	4.1	1.4
Total Manganese	.3	-	.31	-	-	.51	.32
Dissolved Lead	.025	-	.13	-	-	-	-

OVERBURDEN

	Standard/ Guidance (mg/l)	<u>MW-1B</u>		<u>MW-11B</u>		<u>MW-12B</u>	
		10/7	11/28	10/7	11/28	10/7	11/28
Total Phenols	.001	NS	.008	.007	.007	<.005++	.009
Total Boron	.125	NS	.2	-	-	-	.2
Total Iron	.3	NS	3.8	2.9	1.3	18	15
Total Manganese	.3	NS	-	.46	-	1.3	.88
Dissolved Lead	.03 .025	NS	-	.39	-	.35	.39

++not tested to Standard Limits

NS-not samples

- Below standard or guidance value

UPSTATE LABORATORIES, INC.

NOVEMBER 28, 1988

Analysis Results
Report Number 121988013
Date: December 19, 1988

CLIENT I.D. Barton & Loguidice, P.C. (Cortland County Landfill-331-1188B) (11/28/88, GRAB)	MW-1A 1010 hrs.	MW-1B 0915 hrs.	MW-11A 1310 hrs.	MW-11B 1508 hrs.
ULI I.D.	33488001	33488002	33488003	33488004
BOD ₅	4	6	4	13
Nitrate-Nitrogen	0.15	1.3	0.60	<0.05
MBAS *	0.043	<0.025	<0.025	<0.025
Hexavalent Chromium	<0.01	<0.01	<0.01	<0.01
Turbidity	170 NTU	97 NTU	74 NTU	120 NTU
Total Dissolved Solids	95	180	150	170
Sulfate	9	24	13	18
Alkalinity **	80	140	150	150
Color	1 Unit	1 Unit	1 Unit	1 Unit
Odor	1 Unit	1.4 Units	1 Unit	1 Unit
Total Chloride	<1	<1	4	3
Total Kjeldahl Nitrogen	<0.5	<0.5	<0.5	1.1
Ammonia-Nitrogen	<0.5	<0.5	<0.5	<0.5
TOC	1.9	1.6	<1.0	<1.0
COD	40	50	<5	<5
Hardness **	88	150	140	130
Total Cyanide	<0.01	<0.01	<0.01	<0.01
Total Phenols	0.011	0.008	0.050	0.007
Total Boron	0.1	0.2	0.1	<0.1
Dissolved Boron	0.1	0.1	0.1	0.1
Field Measured Parameters Taken by Barton & Loguidice:				
pH (SU)	7.4	7.6	7.3	7.3
Temperature (°F)	49	47	47	47
Specific Conductivity(umhos/cm)	210	350	340	320
Eh (mV)	90	181	120	140

All results are expressed as mg/l unless otherwise stated.

*Results are expressed as mg LAS/l.

**Results are expressed as mg/l CaCO₃.

Sampled by client

Approved: *[Signature]* ml-

Date: 12/19/88

Disclaimer: The test results and procedures utilized, and laboratory interpretations of data obtained by ULI as contained in this report are believed by ULI to be accurate and reliable for sample(s) tested. In accepting this report, the customer agrees that the full extent of any and all liability for actual and consequential damages of ULI for the services performed shall be equal to the fee charged to the customer for the services as liquidated damages.

Analysis Results
Report Number 121988013
Date: December 19, 1988

CLIENT I.D. Barton & Loguidice, P.C. (Cortland County Landfill-311-1188B) (11/28/88, GRAB)	MW-12A 1415 hrs.	MW-12B 1350 hrs.		
ULI I.D.	33488005	33488006		
BOD ₅	7	7		
Nitrate-Nitrogen	<0.05	<0.05		
MBAS *	<0.025	<0.025		
Hexavalent Chromium	<0.01	<0.01		
Turbidity	990 NTU	3400 NTU		
Total Dissolved Solids	190	250		
Sulfate	25	21		
Alkalinity **	160	180		
Color	1 Unit	1 Unit		
Odor	1 Unit	1 Unit		
Total Chloride	2	2		
Total Kjeldahl Nitrogen	0.6	1.1		
Ammonia-Nitrogen	<0.5	<0.5		
TOC	<1.0	<1.0		
COD	<5	<5		
Hardness **	150	170		
Total Cyanide	<0.01	<0.01		
Total Phenols	0.010	0.009		
Total Boron	0.1	0.2		
Dissolved Boron	<0.1	<0.1		
Field Measured Parameters Taken by Barton & Loguidice:				
pH (SU)	7.9	7.6		
Temperature (°F)	47	48		
Specific Conductivity(umhos/cm)	390	460		
Eh (mV)	115	114		

All results are expressed as mg/l unless otherwise stated.

*Results are expressed as mg LAS/l.

**Results are expressed as mg/l CaCO₃.

Sampled by client.

Approved: *C. J. Loguidice* *jr.*

Date: 12/19/88

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Analysis Results
Report Number 121988013
Date: December 19, 1988

CLIENT I.D.	MW-1A 1010 hrs.	MW-1B 0915 hrs.	MW-11A 1310 hrs.	MW-11B 1508 hrs.
Barton & Loguidice, P.C. (Cortland County Landfill-331- 1188B) (11/28/88, GRAB)				
ULI I.D.	33488001	33488002	33488003	33488004
TOTAL:				
Aluminum	1.5	1.1	0.78	<0.5
Antimony *	<0.001	<0.001	<0.001	<0.001
Arsenic *	0.001	0.001	0.001	<0.001
Barium	0.5	<0.3	<0.3	<0.3
Beryllium	<0.005	<0.005	<0.005	<0.005
Cadmium	<0.005	<0.005	<0.005	<0.005
Calcium	74	54	44	42
Chromium	<0.05	<0.05	<0.05	<0.05
Copper	<0.02	<0.02	<0.02	<0.02
Iron	6.1	3.8	1.5	1.3
Lead *	0.003	0.005	0.002	0.001
Manganese	0.20	0.19	0.24	0.30
Mercury	<0.0004	<0.0004	<0.0004	<0.0004
Nickel	<0.03	<0.03	<0.03	<0.03
Selenium *	<0.001	<0.001	<0.001	<0.001
Silver	<0.05	<0.05	<0.05	<0.05
Sodium	6.0	6.5	12	8.9
Thallium *	<0.001	<0.001	<0.001	<0.001
Zinc	0.015	0.020	0.005	<0.005

All results are expressed as mg/l.

*Analysis by Furnace AA.

Sampled by client.

Approved: *A. L. Cal*

Date: 12/19/88

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Analysis Results
 Report Number 121988013
 Date: December 19, 1988

CLIENT I.D. Barton & Loguidice, P.C. (Cortland County Landfill-331-1188B) (11/28/88, GRAB)	MW-12A 1415 hrs.	MW-12B 1350 hrs.		
ULI I.D.	33488005	33488006		
TOTAL:				
Aluminum	0.5	2.6		
Antimony *	<0.001	<0.001		
Arsenic *	0.002	0.005		
Barium	<0.3	0.3		
Beryllium	<0.005	<0.005		
Cadmium	<0.005	<0.005		
Calcium	41	51		
Chromium	<0.05	<0.05		
Copper	<0.02	<0.02		
Iron	1.4	15		
Lead *	0.005	0.015		
Manganese	0.32	0.88		
Mercury	<0.0004	<0.0004		
Nickel	<0.03	<0.03		
Selenium *	0.002	0.002		
Silver	<0.05	<0.05		
Sodium	25	20		
Thallium *	<0.001	<0.001		
Zinc	<0.005	0.012		

All results are expressed as mg/l.

*Analysis by Furnace AA.

Sampled by client.

Approved: _____

Date: _____

12/19/88

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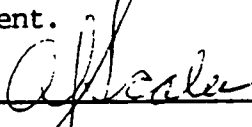
Analysis Results
Report Number 121988013
Date: December 19, 1988

CLIENT I.D. Barton & Loguidice, P.C. (Cortland County Landfill-331-1188B) (11/28/88, GRAB)	MW-1A 1010 hrs.	MW-1B 0915 hrs.	MW-11A 1310 hrs.	MW-11B 1508 hrs.
ULI I.D.	33488001	33488002	33488003	33488004
DISSOLVED:				
Aluminum	<0.5	<0.5	<0.5	<0.5
Antimony *	<0.001	<0.001	<0.001	<0.001
Arsenic *	0.001	0.001	<0.001	<0.001
Barium	<0.3	<0.3	<0.3	<0.3
Beryllium	<0.005	<0.005	<0.005	<0.005
Cadmium	<0.005	<0.005	<0.005	<0.005
Calcium	25	48	43	33
Chromium	<0.05	<0.05	<0.05	<0.05
Copper	<0.02	<0.02	<0.02	<0.02
Iron	<0.03	<0.03	<0.03	<0.03
Lead *	0.13	0.004	<0.001	<0.001
Manganese	0.03	0.03	0.09	0.29
Mercury	<0.0004	<0.0004	<0.0004	<0.0004
Nickel	<0.03	<0.03	<0.03	<0.03
Selenium *	0.001	<0.001	<0.001	<0.001
Silver	<0.05	<0.05	<0.05	<0.05
Sodium	5.2	6.0	12	11
Thallium *	<0.001	<0.001	<0.001	<0.001
Zinc	<0.005	0.010	0.011	0.010

All results are expressed as mg/l.

*Analysis by Furnace AA.

Sampled by client.

Approved: 

Date: 12/19/88

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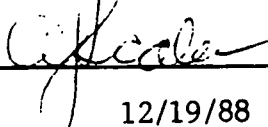
Analysis Results
Report Number 121988013
Date: December 19, 1988

CLIENT I.D. Barton & Loguidice, P.C. (Cortland County Landfill-311-1188B) (11/28/88, GRAB)	MW-12A 1415 hrs.	MW-12B 1350 hrs.		
ULI I.D.	33488005	33488006		
DISSOLVED:				
Aluminum	<0.5	<0.5		
Antimony *	<0.001	<0.001		
Arsenic *	0.001	0.001		
Barium	<0.3	<0.3		
Beryllium	<0.005	<0.005		
Cadmium	<0.005	<0.005		
Calcium	34	42		
Chromium	<0.05	<0.05		
Copper	<0.02	<0.02		
Iron	<0.03	<0.03		
Lead *	<0.001	0.001		
Manganese	0.24	0.39		
Mercury	<0.0004	<0.0004		
Nickel	<0.03	<0.03		
Selenium *	<0.001	<0.001		
Silver	<0.05	<0.05		
Sodium	25	23		
Thallium *	<0.001	<0.001		
Zinc	<0.005	0.005		

All results are expressed as mg/l.

*Analysis by Furnace AA.

Sampled by client.

Approved:  M-

Date: 12/19/88

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Analysis Results
 Report Number 121988013
 Date: December 19, 1988

METHOD: EPA 624

CLIENT I.D. Barton & Loguidice, P.C. (Cortland County Landfill- 331-1188B)(11/28/88, GRAB)	MW-1A 1010 hrs.	MW-1B 0915 hrs.	MW-11A 1310 hrs.	MW-11B 1508 hrs.
ULI I.D.	33488001	33488002	33488003	33488004
Chloromethane	<3	<3	<3	<3
Bromomethane	<3	<3	<3	<3
Vinyl Chloride	<3	<3	<3	<3
Chloroethane	<3	<3	<3	<3
Methylene Chloride	<3	<3	<3	<3
Trichlorofluoromethane	<3	<3	<3	<3
1,1-Dichloroethylene	<3	<3	<3	<3
t-1,2-Dichloroethylene	<3	<3	<3	<3
1,1-Dichloroethane	<3	<3	<3	<3
Chloroform	<3	<3	<3	<3
1,2-Dichloroethane	<3	<3	<3	<3
1,1,1-Trichloroethane	<3	<3	<3	<3
Benzene	<3	<3	<3	<3
Carbon Tetrachloride	<3	<3	<3	<3
1,2-Dichloropropane	<3	<3	<3	<3
Bromodichloromethane	<3	<3	<3	<3
Trichloroethylene	<3	<3	<3	<3
c-1,3-Dichloropropene	<3	<3	<3	<3
t-1,3-Dichloropropene	<3	<3	<3	<3
1,1,2-Trichloroethane	<3	<3	<3	<3
Toluene	6	<3	18	<3
Dibromochloromethane	<3	<3	<3	<3
Tetrachloroethylene	<3	<3	<3	<3
2-Chloroethylvinyl Ether	<3	<3	<3	<3
Chlorobenzene	<3	<3	<3	<3
Ethylbenzene	<3	<3	<3	<3

All results are expressed as ug/l.
 Sampled by client.

Analysis Results
Report Number 121988013
Date: December 19, 1988

METHOD: EPA 624

CLIENT I.D. Barton & Loguidice, P.C. (Cortland County Landfill- 331-1188B)(11/28/88, GRAB)	MW-1A 1010 hrs.	MW-1B 0915 hrs.	MW-11A 1310 hrs.	MW-11B 1508 hrs.
ULI I.D.	33488001	33488002	33488003	33488004
Bromoform	<3	<3	<3	<3
1,1,2,2-Tetrachloroethane	<3	<3	<3	<3
1,2-Dichlorobenzene	<3	<3	<3	<3
1,3-Dichlorobenzene	<3	<3	<3	<3
1,4-Dichlorobenzene	<3	<3	<3	<3
Total Xylenes	<3	<3	<3	<3

All results are expressed as ug/l.

Sampled by client.

Approved: (Signature) 12/19/88

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Analysis Results
Report Number 121988013
Date: December 19, 1988

METHOD: EPA 624

CLIENT I.D. Barton & Loguidice, P.C. (Cortland County Landfill- 331-1188B)	MW-12A 11/28/88 1415 hrs. GRAB	MW-12B 11/28/88 1350 hrs. GRAB	Organic Free Blank (Received 11/28/88)	
ULI I.D.	33488005	33488006	33488007	
Chloromethane	<3	<3	<3	
Bromomethane	<3	<3	<3	
Vinyl Chloride	<3	<3	<3	
Chloroethane	<3	<3	<3	
Methylene Chloride	<3	<3	<3	
Trichlorofluoromethane	<3	<3	<3	
1,1-Dichloroethylene	<3	<3	<3	
t-1,2-Dichloroethylene	<3	<3	<3	
1,1-Dichloroethane	<3	<3	<3	
Chloroform	<3	<3	<3	
1,2-Dichloroethane	<3	<3	<3	
1,1,1-Trichloroethane	<3	<3	<3	
Benzene	<3	<3	<3	
Carbon Tetrachloride	<3	<3	<3	
1,2-Dichloropropane	<3	<3	<3	
Bromodichloromethane	<3	<3	<3	
Trichloroethylene	<3	<3	<3	
c-1,3-Dichloropropene	<3	<3	<3	
t-1,3-Dichloropropene	<3	<3	<3	
1,1,2-Trichloroethane	<3	<3	<3	
Toluene	10	<3	<3	
Dibromochloromethane	<3	<3	<3	
Tetrachloroethylene	<3	<3	<3	
2-Chloroethylvinyl Ether	<3	<3	<3	
Chlorobenzene	<3	<3	<3	
Ethylbenzene	<3	<3	<3	

All results are expressed as ug/l. 11/1
Sampled by client.

Analysis Results
Report Number 121988013
Date: December 19, 1988

METHOD: EPA 624

CLIENT I.D. Barton & Loguidice, P.C. (Cortland County Landfill- 331-1188B)	MW-12A 11/28/88 1415 hrs. GRAB	MW-12B 11/28/88 1350 hrs. GRAB	Organic Free Blank (Received 11/28/88)	
ULI I.D.	33488005	33488006	33488007	
Bromoform	<3	<3	<3	
1,1,2,2-Tetrachloroethane	<3	<3	<3	
1,2-Dichlorobenzene	<3	<3	<3	
1,3-Dichlorobenzene	<3	<3	<3	
1,4-Dichlorobenzene	<3	<3	<3	
Total Xylenes	<3	<3	<3	

All results are expressed as ug/l.

Sampled by client.

Approved: *C. J. Calkins* *m* 12/19/88

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Analysis Results
 Report Number 121988013
 Date: December 19, 1988

BASE/NEUTRAL EXTRACTABLES

CLIENT I.D. Barton & Loguidice, P.C. (Cortland County Landfill-331-1188B) (11/28/88, GRAB)	MW-1A 1010 hrs.	MW-1B 0915 hrs.	MW-11A 1310 hrs.	MW-11B 1508 hrs.
ULI I.D.	33488001	33488002	33488003	33488004
N-Nitrosodimethylamine	<5	<5	<5	<5
Bis(2-chloroethyl)Ether	<5	<5	<5	<5
1,3-Dichlorobenzene	<5	<5	<5	<5
1,4-Dichlorobenzene	<5	<5	<5	<5
1,2-Dichlorobenzene	<5	<5	<5	<5
Bis(2-chloroisopropyl)Ether	<5	<5	<5	<5
Hexachloroethane	<5	<5	<5	<5
Nitrobenzene	<5	<5	<5	<5
N-Nitrosodipropylamine	<5	<5	<5	<5
Isophorone	<5	<5	<5	<5
Bis(2-chloroethoxy)Methane	<5	<5	<5	<5
1,2,4-Trichlorobenzene	<5	<5	<5	<5
Naphthalene	<5	<5	<5	<5
Hexachlorobutadiene	<5	<5	<5	<5
Hexachlorocyclopentadiene	<5	<5	<5	<5
2-Chloronaphthalene	<5	<5	<5	<5
Dimethylphthalate	<5	<5	<5	<5
Acenaphthylene	<5	<5	<5	<5
2,6-Dinitrotoluene	<5	<5	<5	<5
Acenaphthene	<5	<5	<5	<5
2,4-Dinitrotoluene	<5	<5	<5	<5
Fluorene	<5	<5	<5	<5
Diethyl Phthalate	<5	<5	<5	<5

All results are expressed as ug/l.
 Sampled by client.

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Analysis Results
Report Number 121988013
Date: December 19, 1988

BASE/NEUTRAL EXTRACTABLES

CLIENT I.D. Barton & Loguidice, P.C. (Cortland County Landfill-331-1188B) (11/28/88, GRAB)	MW-12A 1415 hrs.	MW-12B 1350 hrs.		
ULI I.D.	33488005	33488006		
N-Nitrosodimethylamine	<5	<5		
Bis(2-chloroethyl)Ether	<5	<5		
1,3-Dichlorobenzene	<5	<5		
1,4-Dichlorobenzene	<5	<5		
1,2-Dichlorobenzene	<5	<5		
Bis(2-chloroisopropyl)Ether	<5	<5		
Hexachloroethane	<5	<5		
Nitrobenzene	<5	<5		
N-Nitrosodipropylamine	<5	<5		
Isophorone	<5	<5		
Bis(2-chloroethoxy)Methane	<5	<5		
1,2,4-Trichlorobenzene	<5	<5		
Naphthalene	<5	<5		
Hexachlorobutadiene	<5	<5		
Hexachlorocyclopentadiene	<5	<5		
2-Chloronaphthalene	<5	<5		
Dimethylphthalate	<5	<5		
Acenaphthylene	<5	<5		
2,6-Dinitrotoluene	<5	<5		
Acenaphthene	<5	<5		
2,4-Dinitrotoluene	<5	<5		
Fluorene	<5	<5		
Diethyl Phthalate	<5	<5		

All results are expressed as ug/l. *mc*
Sampled by client.

Analysis Results
 Report Number 121988013
 Date: December 19, 1988

BASE/NEUTRAL EXTRACTABLES (cont.)

CLIENT I.D. Barton & Loguidice, P.C. (Cortland County Landfill- 331-1188B)(11/28/88, GRAB)	MW-1A 1010 hrs.	MW-1B 0915 hrs.	MW-11A 1310 hrs.	MW-11B 1508 hrs.
ULI I.D.	33488001	33488002	33488003	33488004
4-Chlorophenylphenyl Ether	<5	<5	<5	<5
N-Nitrosodiphenylamine	<5	<5	<5	<5
4-Bromophenylphenyl Ether	<5	<5	<5	<5
Hexachlorobenzene	<5	<5	<5	<5
Phenanthrene	<5	<5	<5	<5
Anthracene	<5	<5	<5	<5
Dibutyl Phthalate	<5	<5	<5	<5
Fluoranthene	<5	<5	<5	<5
Benzidine	<5	<5	<5	<5
Pyrene	<5	<5	<5	<5
Butyl Benzyl Phthalate	<5	<5	<5	<5
3,3'-Dichlorobenzidine	<5	<5	<5	<5
Chrysene	<5	<5	<5	<5
Benzo(a)Anthracene	<5	<5	<5	<5
Bis(2-ethylhexyl)Phthalate	<5	40	<5	<5
Diocetyl Phthalate	<5	<5	<5	<5
Benzo(b)Fluoranthene	<5	<5	<5	<5
Benzo(k)Fluoranthene	<5	<5	<5	<5
Benzo(a)Pyrene	<5	<5	<5	<5
Indeno(1,2,3-cd)Pyrene	<10	<10	<10	<10
Dibenzo(a,h)Anthracene	<10	<10	<10	<10
Benzo(ghi)Perylene	<10	<10	<10	<10

All results are expressed as ug/l. *Y*
 Sampled by client.

Analysis Results
 Report Number 121988013
 Date: December 19, 1988

BASE/NEUTRAL EXTRACTABLES (cont.)

CLIENT I.D. Barton & Loguidice, P.C. (Cortland County Landfill- 331-1188B) (11/28/88, GRAB)	MW-12A 1415 hrs.	MW-12B 1350 hrs.		
ULI I.D.	33488005	33488006		
4-Chlorophenylphenyl Ether	<5	<5		
N-Nitrosodiphenylamine	<5	<5		
4-Bromophenylphenyl Ether	<5	<5		
Hexachlorobenzene	<5	<5		
Phenanthrene	<5	<5		
Anthracene	<5	<5		
Dibutyl Phthalate	<5	<5		
Fluoranthene	<5	<5		
Benzidine	<5	<5		
Pyrene	<5	<5		
Butyl Benzyl Phthalate	<5	<5		
3,3'-Dichlorobenzidine	<5	<5		
Chrysene	<5	<5		
Benzo(a)Anthracene	<5	<5		
Bis(2-ethylhexyl)Phthalate	86	64		
Diethyl Phthalate	<5	<5		
Benzo(b)Fluoranthene	<5	<5		
Benzo(k)Fluoranthene	<5	<5		
Benzo(a)Pyrene	<5	<5		
Indeno(1,2,3-cd)Pyrene	<10	<10		
Dibenzo(a,h)Anthracene	<10	<10		
Benzo(ghi)Perylene	<10	<10		

All results are expressed as ug/l. *mc*
 Sampled by client.

Analysis Results
 Report Number 121988013
 Date: December 19, 1988

PESTICIDES/PCBs

CLIENT I.D. Barton & Loguidice, P.C. (Cortland County Landfill- 331-1188B) (11/28/88)	MW-1A 1010 hrs. GRAB	MW-1B 0915 hrs. GRAB	MW-11A 1310 hrs. GRAB	MW-11B 1508 hrs. GRAB
ULI I.D.	33488001	33488002	33488003	33488004
BHC (a-isomer)	<0.01	<0.01	<0.01	<0.01
BHC (g-isomer)	<0.01	<0.01	<0.01	<0.01
BHC (b-isomer)	<0.01	<0.01	<0.01	<0.01
Heptachlor	<0.01	<0.01	<0.01	<0.01
BHC (d-isomer)	<0.01	<0.01	<0.01	<0.01
Aldrin	<0.01	<0.01	<0.01	<0.01
Heptachlor Epoxide	<0.1	<0.1	<0.1	<0.1
Endosulfan (a-isomer)	<0.01	<0.01	<0.01	<0.01
Dieldrin	<0.01	<0.01	<0.01	<0.01
4,4'-DDE	<0.01	<0.01	<0.01	<0.01
4,4'-DDD	<0.01	<0.01	<0.01	<0.01
Endrin	<0.01	<0.01	<0.01	<0.01
Endosulfan (b-isomer)	<0.01	<0.01	<0.01	<0.01
4,4'-DDT	<0.01	<0.01	<0.01	<0.01
Endrin Aldehyde	<0.03	<0.03	<0.03	<0.03
Endosulfan Sulfate	<0.1	<0.1	<0.1	<0.1
Chlordane	<0.03	<0.03	<0.03	<0.03
Toxaphene	<0.5	<0.5	<0.5	<0.5
Aroclor 1016	<0.1	<0.1	<0.1	<0.1
Aroclor 1221	<0.1	<0.1	<0.1	<0.1
Aroclor 1232	<0.1	<0.1	<0.1	<0.1
Aroclor 1242	<0.1	<0.1	<0.1	<0.1
Aroclor 1248	<0.1	<0.1	<0.1	<0.1
Aroclor 1254	<0.1	<0.1	<0.1	<0.1
Aroclor 1260	<0.1	<0.1	<0.1	<0.1

All results are expressed as ug/l. *ml*
 Sampled by client.

Analysis Results
Report Number 121988013
Date: December 19, 1988

PESTICIDES/PCBs

CLIENT I.D. Barton & Loguidice, P.C. (Cortland County Landfill- 331-1188B) (11/28/88)	MW-12A 1415 hrs. GRAB	MW-12B 1350 hrs. GRAB		
ULI I.D.	33488005	33488006		
BHC (a-isomer)	<0.01	<0.01		
BHC (g-isomer)	<0.01	<0.01		
BHC (b-isomer)	<0.01	<0.01		
Heptachlor	<0.01	<0.01		
BHC (d-isomer)	<0.01	<0.01		
Aldrin	<0.01	<0.01		
Heptachlor Epoxide	<0.1	<0.1		
Endosulfan (a-isomer)	<0.01	<0.01		
Dieldrin	<0.01	<0.01		
4,4'-DDE	<0.01	<0.01		
4,4'-DDD	<0.01	<0.01		
Endrin	<0.01	<0.01		
Endosulfan (b-isomer)	<0.01	<0.01		
4,4'-DDT	<0.01	<0.01		
Endrin Aldehyde	<0.03	<0.03		
Endosulfan Sulfate	<0.1	<0.1		
Chlordane	<0.03	<0.03		
Toxaphene	<0.5	<0.5		
Aroclor 1016	<0.1	<0.1		
Aroclor 1221	<0.1	<0.1		
Aroclor 1232	<0.1	<0.1		
Aroclor 1242	<0.1	<0.1		
Aroclor 1248	<0.1	<0.1		
Aroclor 1254	<0.1	<0.1		
Aroclor 1260	<0.1	<0.1		

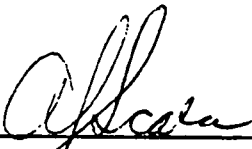
All results are expressed as ug/l. *mc*
Sampled by client.

Analysis Results
Report Number 121988013
Date: December 19, 1988

ACID EXTRACTABLES

CLIENT I.D. Barton & Loguidice, P.C. (Cortland County Landfill- 331-1188B) (11/28/88, GRAB)	MW-1A 1010 hrs.	MW-1B 0915 hrs.	MW-11A 1310 hrs.	MW-11B 1508 hrs.
ULI I.D.	33488001	33488002	33488003	33488004
Phenol	<5	<5	<5	<5
2-Chlorophenol	<5	<5	<5	<5
2-Nitrophenol	<5	<5	<5	<5
2,4-Dimethylphenol	<5	<5	<5	<5
2,4-Dichlorophenol	<5	<5	<5	<5
4-Chloro-3-Methylphenol	<5	<5	<5	<5
2,4,6-Trichlorophenol	<5	<5	<5	<5
2,4-Dinitrophenol	<50	<50	<50	<50
4-Nitrophenol	<5	<5	<5	<5
2-Methyl-4,6-Dinitrophenol	<50	<50	<50	<50
Pentachlorophenol	<10	<10	<10	<10

All results are expressed as ug/l.
Sampled by client.

Approved:  mc 12/19/88

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Analysis Results
Report Number 121988013
Date: December 19, 1988

ACID EXTRACTABLES

CLIENT I.D. Barton & Loguidice, P.C. (Cortland County Landfill- 331-1188B) (11/28/88, GRAB)	MW-12A 1415 hrs.	MW-12B 1350 hrs.		
ULI I.D.	33488005	33488006		
Phenol	<5	<5		
2-Chlorophenol	<5	<5		
2-Nitrophenol	<5	<5		
2,4-Dimethylphenol	<5	<5		
2,4-Dichlorophenol	<5	<5		
4-Chloro-3-Methylphenol	<5	<5		
2,4,6-Trichlorophenol	<5	<5		
2,4-Dinitrophenol	<50	<50		
4-Nitrophenol	<5	<5		
2-Methyl-4,6-Dinitrophenol	<50	<50		
Pentachlorophenol	<10	<10		

All results are expressed as ug/l.
Sampled by client.
NYS DOH I.D.: 10170

Approved:  12/19/88

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UPSTATE LABORATORIES, INC.

OCTOBER 7, 1988

Analysis Results
Report Number 110788007
Date: November 7, 1988

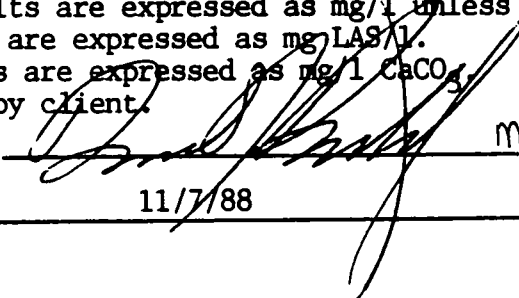
CLIENT I.D.	MW-1A 0750 hrs.	MW-11A 0945 hrs.	MW-11B 0940 hrs.	MW-12A 0910 hrs.
Barton & Loguidice, P.C. (Cortland County Landfill-331- 1088B) (10/7/88, GRAB Samples)				
ULI I.D.	28188081	28188082	28188083	28188084
pH	9.1 SU	7.6 SU	7.7 SU	7.9 SU
BOD ₅	<5	<5	<5	<5
Nitrate-Nitrogen	0.84	0.76	<0.10	<0.10
MBAS *	<0.050	<0.050	<0.050	<0.050
Hexavalent Chromium	<0.01	<0.01	<0.01	<0.01
Turbidity	220 NTU	180 NTU	130 NTU	170 NTU
Total Dissolved Solids	160	210	230	850
Sulfate	5	16	25	34
Alkalinity **	68	160	150	190
Color	5 Units	1 Unit	2 Units	1 Unit
Odor	1 Unit	1 Unit	1 Unit	1 Unit
Total Chloride	1	2	1	2
Total Kjeldahl Nitrogen	<0.5	<0.5	<0.5	<0.5
Ammonia-Nitrogen	<0.5	<0.5	<0.5	<0.5
TOC	<1	<1	<1	<1
COD	28	28	19	29
Hardness **	60	150	150	150
Total Cyanide	<0.01	<0.01	<0.01	<0.01
Total Phenols	<0.005	<0.005	0.007	<0.005
Total Boron	0.5	0.1	<0.1	<0.1
Dissolved Boron	<0.1	<0.1	<0.1	0.1
Field Measured Parameters Taken by Barton & Loguidice:				
Specific Conductivity (umhos/cm)	230	360	330	460
Temperature (°F)	47°F	51°F	50°F	49°F
Eh (mV)	124	114	121	94

All results are expressed as mg/l unless otherwise stated.

*Results are expressed as mg/LAS/l.

**Results are expressed as mg/l CaCO₃.

Sampled by client.

Approved:  ML

Date: 11/7/88

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Analysis Results
Report Number 110788007
Date: November 7, 1988

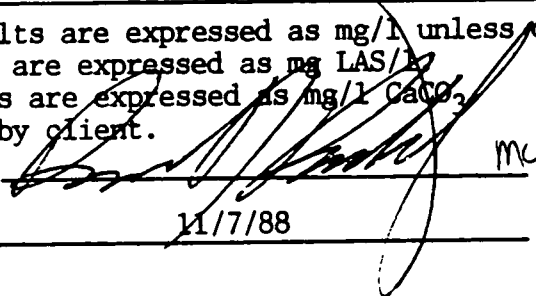
CLIENT I.D. Barton & Loguidice, P.C. (Cortland County Landfill-331-1088B) (10/7/88, GRAB Sample)	MW-12B 0820 hrs.			
ULI I.D.	28188085			
pH	7.8 SU			
BOD ₅	<5			
Nitrate-Nitrogen	0.59			
MBAS *	<0.050			
Hexavalent Chromium	<0.01			
Turbidity	720 NTU			
Total Dissolved Solids	920			
Sulfate	23			
Alkalinity **	200			
Color	5 Units			
Odor	1 Unit			
Total Chloride	1			
Total Kjeldahl Nitrogen	<0.5			
Ammonia-Nitrogen	<0.5			
TOC	<1			
COD	48			
Hardness **	170			
Total Cyanide	<0.01			
Total Phenols	<0.005			
Total Boron	<0.1			
Dissolved Boron	<0.1			
Field Measured Parameters Taken by Barton & Loguidice:				
Specific Conductivity (umhos/cm)	470			
Temperature (°F)	49°F			
Eh (mV)	75			

All results are expressed as mg/l unless otherwise stated.

*Results are expressed as mg LAS/l

**Results are expressed as mg/l CaCO₃

Sampled by client.

Approved:  MC

Date: 11/7/88

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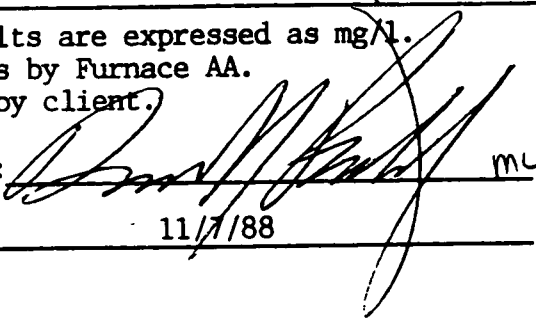
Analysis Results
Report Number 110788007
Date: November 7, 1988

CLIENT I.D. Barton & Loguidice, P.C. (Cortland County Landfill-331- 1088B) (10/7/88, GRAB Samples)	MW-1A 0750 hrs.	MW-11A 0945 hrs.	MW-11B 0940 hrs.	MW-12A 0910 hrs.
ULI I.D.	28188081	28188082	28188083	28188084
<u>TOTAL:</u>				
Aluminum	3.9	0.9	1.5	3.0
Antimony *	<0.001	<0.001	<0.001	<0.001
Arsenic *	0.001	<0.001	<0.001	0.004
Barium	0.4	<0.3	<0.3	<0.3
Beryllium	<0.005	<0.005	<0.005	<0.005
Cadmium	<0.005	<0.005	<0.005	<0.005
Calcium	34	39	33	44
Chromium	<0.05	<0.05	<0.05	<0.05
Copper	0.03	0.02	0.02	0.03
Iron	6.7	1.7	2.9	4.1
Lead *	0.006	0.002	0.005	0.021
Manganese	0.31	0.21	0.46	0.51
Mercury	<0.0004	<0.0004	<0.0004	<0.0004
Nickel	<0.03	<0.03	<0.03	<0.03
Selenium *	<0.001	<0.001	<0.001	<0.001
Silver	<0.05	<0.05	<0.05	<0.05
Sodium	3.6	12	9.6	33
Thallium *	<0.001	<0.001	<0.001	<0.001
Zinc	0.010	0.013	0.015	0.013

All results are expressed as mg/l.

*Analysis by Furnace AA.

Sampled by client.

Approved:  ml

Date: 11/7/88

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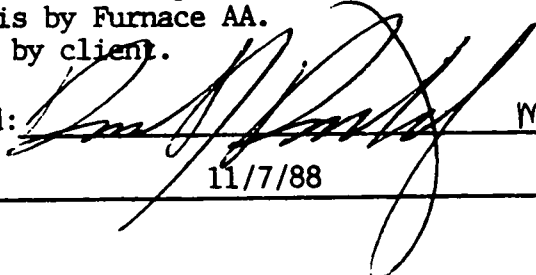
Analysis Results
Report Number 110788007
Date: November 7, 1988

CLIENT I.D. Barton & Loguidice, P.C. (Cortland County Landfill-331- 1088B) (10/7/88, GRAB Samples)	MW-1A 0750 hrs.	MW-11A 0945 hrs.	MW-11B 0940 hrs.	MW-12A 0910 hrs.
ULI I.D.	28188081	28188082	28188083	28188084
DISSOLVED:				
Aluminum	<0.5	<0.5	<0.5	<0.5
Antimony *	<0.001	<0.001	<0.001	<0.001
Arsenic *	0.001	<0.001	<0.001	0.001
Barium	<0.3	<0.3	<0.3	<0.3
Beryllium	<0.005	<0.005	<0.005	<0.005
Cadmium	<0.005	<0.005	<0.005	<0.005
Calcium	27	38	33	38
Chromium	<0.05	<0.05	<0.05	<0.05
Copper	0.02	<0.02	<0.02	<0.02
Iron	0.11	0.05	0.07	0.05
Lead *	0.001	0.001	<0.001	0.001
Manganese	0.02	0.15	0.39	0.17
Mercury	<0.0004	<0.0004	<0.0004	<0.0004
Nickel	<0.03	<0.03	<0.03	<0.03
Selenium *	<0.001	<0.001	<0.001	<0.001
Silver	<0.05	<0.05	<0.05	<0.05
Sodium	3.6	14	9.6	30
Thallium *	<0.001	<0.001	<0.001	<0.001
Zinc	0.017	0.007	<0.005	0.042

All results are expressed as mg/l.

*Analysis by Furnace AA.

Sampled by client.

Approved:  ML

Date: 11/7/88

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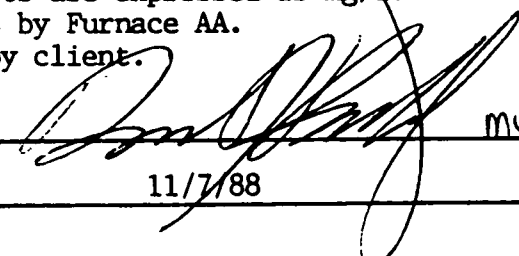
Analysis Results
Report Number 110788007
Date: November 7, 1988

CLIENT I.D. Barton & Loguidice, P.C. (Cortland County Landfill-331- 1088B) (10/7/88, GRAB Sample)	MW-12B 0820 hrs.			
ULI I.D.	28188085			
DISSOLVED:				
Aluminum	<0.5			
Antimony *	<0.001			
Arsenic *	<0.001			
Barium	<0.3			
Beryllium	<0.005			
Cadmium	<0.005			
Calcium	41			
Chromium	<0.05			
Copper	<0.02			
Iron	0.05			
Lead *	<0.001			
Manganese	0.35			
Mercury	<0.0004			
Nickel	<0.03			
Selenium *	<0.001			
Silver	<0.05			
Sodium	26			
Thallium *	<0.001			
Zinc	0.11			

All results are expressed as mg/l.

*Analysis by Furnace AA.

Sampled by client.

Approved:  m

Date: 11/7/88

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Analysis Results
Report Number 110788007
Date: November 7, 1988

METHOD: EPA 624

CLIENT I.D. Barton & Loguidice, P.C. (Cortland County Landfill- 331-1088B) (10/7/88 Samples)	MW-1A 0750 hrs. GRAB	MW-11A 0945 hrs. GRAB	MW-11B 0940 hrs. GRAB	MW-12A 0910 hrs. GRAB
ULI I.D.	28188081	28188082	28188083	28188084
Chloromethane	<3	<3	<3	<3
Bromomethane	<3	<3	<3	<3
Vinyl Chloride	<3	<3	<3	<3
Chloroethane	<3	<3	<3	<3
Methylene Chloride	<3	<3	<3	<3
Trichlorofluoromethane	<3	<3	<3	<3
1,1-Dichloroethylene	<3	<3	<3	<3
t-1,2-Dichloroethylene	<3	<3	<3	<3
1,1-Dichloroethane	<3	<3	<3	<3
Chloroform	<3	<3	<3	<3
1,2-Dichloroethane	<3	<3	<3	<3
1,1,1-Trichloroethane	<3	<3	<3	<3
Benzene	<3	<3	<3	<3
Carbon Tetrachloride	<3	<3	<3	<3
1,2-Dichloropropane	<3	<3	<3	<3
Bromodichloromethane	<3	<3	<3	<3
Trichloroethylene	<3	<3	<3	<3
c-1,3-Dichloropropene	<3	<3	<3	<3
t-1,3-Dichloropropene	<3	<3	<3	<3
1,1,2-Trichloroethane	<3	<3	<3	<3
Toluene		<3	<3	8
Dibromochloromethane	<3	<3	<3	<3
Tetrachloroethylene	<3	<3	<3	<3
2-Chloroethylvinyl Ether	<3	<3	<3	<3
Chlorobenzene	<3	<3	<3	<3
Ethylbenzene	<3	<3	<3	<3

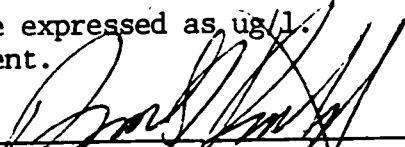
All results are expressed as ug/l. *mc*
Sampled by client.

Analysis Results
Report Number 110788007
Date: November 7, 1988

METHOD: EPA 624

CLIENT I.D. Barton & Loguidice, P.C. (Cortland County Landfill- 331-1088B) (10/7/88 Samples)	MW-1A 0750 hrs. GRAB	MW-11A 0945 hrs. GRAB	MW-11B 0940 hrs. GRAB	MW-12A 0910 hrs. GRAB
ULI I.D.	28188081	28188082	28188083	28188084
Bromoform	<3	<3	<3	<3
1,1,2,2-Tetrachloroethane	<3	<3	<3	<3
1,2-Dichlorobenzene	<3	<3	<3	<3
1,3-Dichlorobenzene	<3	<3	<3	<3
1,4-Dichlorobenzene	<3	<3	<3	<3
Total Xylenes	<3	<3	<3	<3

All results are expressed as ug/l.
Sampled by client.

Approved:  11/7/88

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Analysis Results
 Report Number 110788007
 Date: November 7, 1988

METHOD: EPA 624

CLIENT I.D. Barton & Loguidice, P.C. (Cortland County Landfill- 331-1088B)	MW-12B 10/7/88 0820 hrs. GRAB	Organic Free Blank (Received 10/7/88)		
ULI I.D.	28188085	28188086		
Chloromethane	<3	<3		
Bromomethane	<3	<3		
Vinyl Chloride	<3	<3		
Chloroethane	<3	<3		
Methylene Chloride	<3	<3		
Trichlorofluoromethane	<3	<3		
1,1-Dichloroethylene	<3	<3		
t-1,2-Dichloroethylene	<3	<3		
1,1-Dichloroethane	<3	<3		
Chloroform	<3	<3		
1,2-Dichloroethane	<3	<3		
1,1,1-Trichloroethane	<3	<3		
Benzene	<3	<3		
Carbon Tetrachloride	<3	<3		
1,2-Dichloropropane	<3	<3		
Bromodichloromethane	<3	<3		
Trichloroethylene	<3	<3		
c-1,3-Dichloropropene	<3	<3		
t-1,3-Dichloropropene	<3	<3		
1,1,2-Trichloroethane	<3	<3		
Toluene	<3	<3		
Dibromochloromethane	<3	<3		
Tetrachloroethylene	<3	<3		
2-Chloroethylvinyl ether	<3	<3		
Chlorobenzene	<3	<3		
Ethylbenzene	<3	<3		

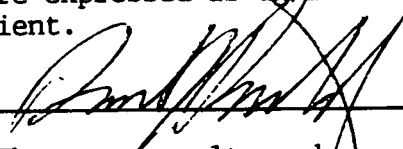
All results are expressed as ug/l. mL
 Sampled by client.

Analysis Results
Report Number 110788007
Date: November 7, 1988

METHOD: EPA 624

CLIENT I.D. Barton & Loguidice, P.C. (Cortland County Landfill- 331-1088B)	MW-12B 10/7/88 0820 hrs. GRAB	Organic Free Blank (Received 10/7/88)		
ULI I.D.	28188085	28188086		
Bromoform	<3	<3		
1,1,2,2-Tetrachloroethane	<3	<3		
1,2-Dichlorobenzene	<3	<3		
1,3-Dichlorobenzene	<3	<3		
1,4-Dichlorobenzene	<3	<3		
Total Xylenes	<3	<3		

All results are expressed as ug/l.
Sampled by client.

Approved:  ML 11/7/88

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Analysis Results
 Report Number 110788007
 Date: November 7, 1988

BASE/NEUTRAL EXTRACTABLES

CLIENT I.D. Barton & Loguidice, P.C. (Cortland County Landfill- 331-1088B) (10/7/88 Samples)	MW-1A 0750 hrs. GRAB	MW-11A 0945 hrs. GRAB	MW-11B 0940 hrs. GRAB	MW-12A 0910 hrs. GRAB
ULI I.D.	28188081	28188082	28188083	28188084
N-Nitrosodimethylamine	<5	<5	<5	<5
Bis(2-chloroethyl)Ether	<5	<5	<5	<5
1,3-Dichlorobenzene	<5	<5	<5	<5
1,4-Dichlorobenzene	<5	<5	<5	<5
1,2-Dichlorobenzene	<5	<5	<5	<5
Bis(2-chloroisopropyl)Ether	<5	<5	<5	<5
Hexachloroethane	<5	<5	<5	<5
Nitrobenzene	<5	<5	<5	<5
N-Nitrosodipropylamine	<5	<5	<5	<5
Isophorone	<5	<5	<5	<5
Bis(2-chloroethoxy)Methane	<5	<5	<5	<5
1,2,4-Trichlorobenzene	<5	<5	<5	<5
Naphthalene	<5	<5	<5	<5
Hexachlorobutadiene	<5	<5	<5	<5
Hexachlorocyclopentadiene	<5	<5	<5	<5
2-Chloronaphthalene	<5	<5	<5	<5
Dimethylphthalate	<5	<5	<5	<5
Acenaphthylene	<5	<5	<5	<5
2,6-Dinitrotoluene	<5	<5	<5	<5
Acenaphthene	<5	<5	<5	<5
2,4-Dinitrotoluene	<5	<5	<5	<5
Fluorene	<5	<5	<5	<5
Diethyl Phthalate	<5	<5	<5	<5

All results are expressed as ug/l. mL
 Sampled by client.

Analysis Results
Report Number 110788007
Date: November 7, 1988

BASE/NEUTRAL EXTRACTABLES

CLIENT I.D. Barton & Loguidice, P.C. (Cortland County Landfill- 331-1088B) (10/7/88 Sample)	MW-12B 0820 hrs. GRAB			
ULI I.D.	28188085			
N-Nitrosodimethylamine	<5			
Bis(2-chloroethyl) Ether	<5			
1,3-Dichlorobenzene	<5			
1,4-Dichlorobenzene	<5			
1,2-Dichlorobenzene	<5			
Bis(2-chloroisopropyl) Ether	<5			
Hexachloroethane	<5			
Nitrobenzene	<5			
N-Nitrosodipropylamine	<5			
Isophorone	<5			
Bis(2-chloroethoxy) Methane	<5			
1,2,4-Trichlorobenzene	<5			
Naphthalene	<5			
Hexachlorobutadiene	<5			
Hexachlorocyclopentadiene	<5			
2-Chloronaphthalene	<5			
Dimethylphthalate	<5			
Acenaphthylene	<5			
2,6-Dinitrotoluene	<5			
Acenaphthene	<5			
2,4-Dinitrotoluene	<5			
Fluorene	<5			
Diethyl Phthalate	<5			

All results are expressed as ug/l. m.c.
Sampled by client.

Analysis Results
 Report Number 110788007
 Date: November 7, 1988

BASE/NEUTRAL EXTRACTABLES (cont.)

CLIENT I.D. Barton & Loguidice, P.C. (Cortland County Landfill- 331-1088B) (10/7/88 Samples)	MW-1A 0750 hrs. GRAB	MW-11A 0945 hrs. GRAB	MW-11B 0940 hrs. GRAB	MW-12A 0910 hrs. GRAB
ULI I.D.	28188081	28188082	28188083	28188084
4-Chlorophenylphenyl Ether	<5	<5	<5	<5
N-Nitrosodiphenylamine	<5	<5	<5	<5
4-Bromophenylphenyl Ether	<5	<5	<5	<5
Hexachlorobenzene	<5	<5	<5	<5
Phenanthrene	<5	<5	<5	<5
Anthracene	<5	<5	<5	<5
Dibutyl Phthalate	<5	<5	<5	<5
Fluoranthene	<5	<5	<5	<5
Benzidine	<5	<5	<5	<5
Pyrene	<5	<5	<5	<5
Butyl Benzyl Phthalate	<5	<5	<5	<5
3,3'-Dichlorobenzidine	<5	<5	<5	<5
Chrysene	<5	<5	<5	<5
Benzo(a)Anthracene	<5	<5	<5	<5
Bis(2-ethylhexyl)Phthalate	<5	<5	<5	<5
Diethyl Phthalate	<5	<5	<5	<5
Benzo(b)Fluoranthene	<5	<5	<5	<5
Benzo(k)Fluoranthene	<5	<5	<5	<5
Benzo(a)Pyrene	<5	<5	<5	<5
Indeno(1,2,3-cd)Pyrene	<10	<10	<10	<10
Dibenzo(a,h)Anthracene	<10	<10	<10	<10
Benzo(ghi)Perylene	<10	<10	<10	<10

All results are expressed as ug/l. mL
 Sampled by client.

Analysis Results
 Report Number 110788007
 Date: November 7, 1988

BASE/NEUTRAL EXTRACTABLES (cont.)

CLIENT I.D. Barton & Loguidice, P.C. (Cortland County Landfill- 331-1088B) (10/7/88 Sample)	MW-12B 0820 hrs. GRAB			
ULI I.D.	28188085			
4-Chlorophenylphenyl Ether	<5			
N-Nitrosodiphenylamine	<5			
4-Bromophenylphenyl Ether	<5			
Hexachlorobenzene	<5			
Phenanthrene	<5			
Anthracene	<5			
Dibutyl Phthalate	<5			
Fluoranthene	<5			
Benzidine	<5			
Pyrene	<5			
Butyl Benzyl Phthalate	<5			
3,3'-Dichlorobenzidine	<5			
Chrysene	<5			
Benzo(a)Anthracene	<5			
Bis(2-ethylhexyl)Phthalate	<5			
Diethyl Phthalate	<5			
Benzo(b)Fluoranthene	<5			
Benzo(k)Fluoranthene	<5			
Benzo(a)Pyrene	<5			
Indeno(1,2,3-cd)Pyrene	<10			
Dibenzo(a,h)Anthracene	<10			
Benzo(ghi)Perylene	<10			

All results are expressed as ug/l. ml
 Sampled by client.

Analysis Results
Report Number 110788007
Date: November 7, 1988

PESTICIDES/PCBs

CLIENT I.D. Barton & Loguidice, P.C. (Cortland County Landfill- 331-1088B)	MW-1A 10/7/88 0750 hrs. GRAB	MW-11A 10/7/88 0945 hrs. GRAB	MW-11B 10/7/88 0940 hrs. GRAB	MW-12A 10/7/88 0910 hrs. GRAB
ULI I.D.	28188081	28188082	28188083	28188084
BHC (a-isomer)	<0.01	<0.01	<0.01	<0.01
BHC (g-isomer)	<0.01	<0.01	<0.01	<0.01
BHC (b-isomer)	<0.01	<0.01	<0.01	<0.01
Heptachlor	<0.01	<0.01	<0.01	<0.01
BHC (d-isomer)	<0.01	<0.01	<0.01	<0.01
Aldrin	<0.01	<0.01	<0.01	<0.01
Heptachlor Epoxide	<0.1	<0.1	<0.1	<0.1
Endosulfan (a-isomer)	<0.01	<0.01	<0.01	<0.01
Dieldrin	<0.01	<0.01	<0.01	<0.01
4,4'-DDE	<0.01	<0.01	<0.01	<0.01
4,4'-DDD	<0.01	<0.01	<0.01	<0.01
Endrin	<0.01	<0.01	<0.01	<0.01
Endosulfan (b-isomer)	<0.01	<0.01	<0.01	<0.01
4,4'-DDT	<0.01	<0.01	<0.01	<0.01
Endrin Aldehyde	<0.03	<0.03	<0.03	<0.03
Endosulfan Sulfate	<0.1	<0.1	<0.1	<0.1
Chlordane	<0.03	<0.03	<0.03	<0.03
Toxaphene	<0.5	<0.5	<0.5	<0.5
Aroclor 1016	<0.1	<0.1	<0.1	<0.1
Aroclor 1221	<0.1	<0.1	<0.1	<0.1
Aroclor 1232	<0.1	<0.1	<0.1	<0.1
Aroclor 1242	<0.1	<0.1	<0.1	<0.1
Aroclor 1248	<0.1	<0.1	<0.1	<0.1
Aroclor 1254	<0.1	<0.1	<0.1	<0.1
Aroclor 1260	<0.1	<0.1	<0.1	<0.1

All results are expressed as ug/l. *ml*
Sampled by client.

Analysis Results
 Report Number 110788007
 Date: November 7, 1988

PESTICIDES/PCBs

CLIENT I.D. Barton & Loguidice, P.C. (Cortland County Landfill- 331-1088B)	MW-12B 10/7/88 0820 hrs. GRAB			
ULI I.D.	28188085			
BHC (a-isomer)	<0.01			
BHC (g-isomer)	<0.01			
BHC (b-isomer)	<0.01			
Heptachlor	<0.01			
BHC (d-isomer)	<0.01			
Aldrin	<0.01			
Heptachlor Epoxide	<0.1			
Endosulfan (a-isomer)	<0.01			
Dieldrin	<0.01			
4,4'-DDE	<0.01			
4,4'-DDD	<0.01			
Endrin	<0.01			
Endosulfan (b-isomer)	<0.01			
4,4'-DDT	<0.01			
Endrin Aldehyde	<0.03			
Endosulfan Sulfate	<0.1			
Chlordane	<0.03			
Toxaphene	<0.5			
Aroclor 1016	<0.1			
Aroclor 1221	<0.1			
Aroclor 1232	<0.1			
Aroclor 1242	<0.1			
Aroclor 1248	<0.1			
Aroclor 1254	<0.1			
Aroclor 1260	<0.1			

All results are expressed as ug/l.
 Sampled by client.

mc

Analysis Results
Report Number 110788007
Date: November 7, 1988

ACID EXTRACTABLES

CLIENT I.D. Barton & Loguidice, P.C. (Cortland County Landfill- 331-1088B)	MW-1A 10/7/88 0750 hrs. GRAB	MW-11A 10/7/88 0945 hrs. GRAB	MW-11B 10/7/88 0940 hrs. GRAB	MW-12A 10/7/88 0910 hrs. GRAB
ULI I.D.	28188081	28188082	28188083	28188084
Phenol	<5	<5	<5	<5
2-Chlorophenol	<5	<5	<5	<5
2-Nitrophenol	<5	<5	<5	<5
2,4-Dimethylphenol	<5	<5	<5	<5
2,4-Dichlorophenol	<5	<5	<5	<5
4-Chloro-3-Methylphenol	<5	<5	<5	<5
2,4,6-Trichlorophenol	<5	<5	<5	<5
2,4-Dinitrophenol	<50	<50	<50	<50
4-Nitrophenol	<5	<5	<5	<5
2-Methyl-4,6-Dinitrophenol	<50	<50	<50	<50
Pentachlorophenol	<10	<10	<10	<10

All results are expressed as ug/l.
Sampled by client.

Approved:  MC 11/7/88

Disclaimer: The test results and procedures utilized, and laboratory interpretations of data obtained by ULI as contained in this report are believed by ULI to be accurate and reliable for sample(s) tested. In accepting this report, the customer agrees that the full extent of any and all liability for actual and consequential damages of ULI for the services performed shall be equal to the fee charged to the customer for the services as liquidated damages.

Analysis Results
Report Number 110788007
Date: November 7, 1988

ACID EXTRACTABLES

CLIENT I.D. Barton & Loguidice, P.C. (Cortland County Landfill- 331-1088B)	MW-12B 10/7/88 0820 hrs. GRAB			
ULI I.D.	28188085			
Phenol	<5			
2-Chlorophenol	<5			
2-Nitrophenol	<5			
2,4-Dimethylphenol	<5			
2,4-Dichlorophenol	<5			
4-Chloro-3-Methylphenol	<5			
2,4,6-Trichlorophenol	<5			
2,4-Dinitrophenol	<50			
4-Nitrophenol	<5			
2-Methyl-4,6-Dinitrophenol	<50			
Pentachlorophenol	<10			

All results are expressed as ug/l.

Sampled by client.

NYS DOH I.D.: 10170

Approved:  ML 11/7/88

Disclaimer: The test results and procedures utilized, and laboratory interpretations of data obtained by ULI as contained in this report are believed by ULI to be accurate and reliable for sample(s) tested. In accepting this report, the customer agrees that the full extent of any and all liability for actual and consequential damages of ULI for the services performed shall be equal to the fee charged to the customer for the services as liquidated damages.

QUALITY CONTROL DATA FOR CORTLAND COUNTY LANDFILL (ULI Report #110788007)EPA 608 Matrix Spike % Recovery

<u>Parameter</u>	<u>% Recovery</u>	<u>99% Control Limits</u>
BHC (a-isomer)	90.5	39.0 to 130
Heptachlor Epoxide	93.0	56.5 to 132
Endosulfan (a-isomer)	99.0	57.0 to 141
Endosulfan (b-isomer)	55.3	22.0 to 170
Endrin Aldehyde	76.2	14.4 to 186

EPA 608 Matrix Spike Duplicate Relative % Difference

<u>Parameter</u>	<u>Relative % Difference</u>	<u>99% Control Limits</u>
BHC (b-isomer)	5.7	*
Heptachlor Epoxide	9.0	*
Endosulfan (a-isomer)	4.6	*
Endosulfan (b-isomer)	10.7	*
Endrin Aldehyde	7.2	*

*No control limits currently available.
(cont.)

<u>Parameter</u>	<u>% Recovery</u>	<u>99% Control Limits</u>
Phenol	7.6	ND to 104
2-Chlorophenol	44.4	ND to 146
1,2,4-Trichlorobenzene	51.2	6.6 to 139
4-Chloro-3-Methylphenol	40.8	ND to 143
Acenaphthene	52.4	ND to 137
2,4-Dinitrotoluene	44.4	ND to 186
Dibutyl Phthalate	18.4	11.7 to 138
Pyrene	106	ND to 146

EPA 625 Matrix Spike Duplicate Relative % Difference

<u>Parameter</u>	<u>Relative % Difference</u>	<u>99% Control Limits</u>
Phenol	23.5	71.8
2-Chlorophenol	9.4	50.4
1,2,4-Trichlorobenzene	14.2	72.6
4-Chloro-3-Methylphenol	17.6	63.6
Acenaphthene	11.3	58.4
2,4-Dinitrotoluene	20.3	130
Dibutyl Phthalate	25.8	38.4
Pyrene	5.5	59.3

(cont.)

QUALITY CONTROL - DEFINITIONS

Page 3 of 3

$$\% \text{ Recovery} = \frac{\text{Actual}}{\text{Expected}} \times 100$$

$$\text{Relative \% Difference} = \frac{|\text{Original} - \text{Duplicate}|}{\frac{1}{2}(\text{Original} + \text{Duplicate})}$$

Control Limits are defined as 99% Confidence Interval = $\bar{x} \pm 3 \text{ SD}$, where $\bar{x}$ = mean, and SD = standard deviation.

ND = Non-Detected.

Please note Relative % Difference Control Limits are based on only 5 data points. All other Control Limits are based on 20 data points.

BUCK ENGINEERING
SEPTEMBER 2, 1988

BUCK ENGINEERING
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100 TOMPKINS ST. • CORTLAND, N.Y. 13045
607-753-3403

LABORATORY REPORT
for Cortland County Department of Solid Waste
Analysis of Ground and Surface Water Samples
Taken at Cortland County Landfill
September 2, 1988
Items I & II

	<u>D1</u>	<u>D2</u>	<u>D3</u>	<u>D4</u>
Water Elevation (Note 1) (feet below grade)	5.8	Artesian	Artesian	12.3
Temperature (degrees C)	13.7	13.6	21.9	14.2
pH	8.21	7.62	12.01	9.05
Conductivity (Note 2) (umho/cm compensated to 25°C)	211	259	268	355
Dissolved Oxygen (mg/L)	-	-	-	-
Chloride (mg/L)	1.9	4.9	ND (<1)	3.6
Iron (mg/L) (field filtered)	.09	.08	.08	.04
Manganese (mg/L) (field filtered)	ND (<.01)	.03	.04	ND
Total Organic Halogens (TOX) (ug/L) (Note 3)	ND (<.2)	ND	ND	ND
Total Organic Carbon (TOC) (mg/L)	5.1	ND (<1)	ND	1.1

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CORTLAND COUNTY LANDFILL
 September 2, 1988

	<u>D5</u>	<u>D6</u>	<u>DO-1</u>	<u>DO-2</u>
Water Elevation (Note 1) (feet below grade)	31.8	0.6	2.1	3.0
Temperature (degrees C)	9.6	18.2	16.9	15.7
pH	10.39	8.28	7.15	7.54
Conductivity (Note 2) (umho/cm compensated to 25°C)	1,120	254	1,318	360
Dissolved Oxygen (mg/L)	-	-	-	-
Chloride (mg/L)	1.8	ND	129.	1.7
Iron (mg/L) (field filtered)	.05	.10	.10	.18
Manganese (mg/L) (field filtered)	ND	ND	2.10	ND
Total Organic Halogens (TOX) (ug/L) (Note 3)	.8	.4	ND	ND
Total Organic Carbon (TOC) (mg/L)	8.4	ND	6.4	ND

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CORTLAND COUNTY LANDFILL
 September 2, 1988

	<u>CC-1</u>	<u>BMC-1</u>	<u>BMC-2</u>	<u>RE-4</u>
Water Elevation (Note 1) (feet below grade)	6.1	2.5	2.2	6.3
Temperature (degrees C)	11.2	17.6	17.1	16.8
pH	8.28	7.07	7.17	7.25
Conductivity (Note 2) (umho/cm compensated to 25° C)	138	432	656	483
Dissolved Oxygen (mg/L)	-	-	-	-
Chloride (mg/L)	3.2	10.6	15.8	22.4
Iron (mg/L) (field filtered)	.06	.20	.23	14.6
Manganese (mg/L) (field filtered)	ND	.76	.47	.11
Total Organic Halogens (TOX) (ug/L) (Note 3)	1.5	ND	1.8	ND
Total Organic Carbon (TOC) (mg/L)	ND	7.9	4.3	1.3

CORTLAND COUNTY LANDFILL
 September 2, 1988

	<u>RE-5</u>	<u>RE-6</u>	<u>RE-7</u>	<u>RE-8</u>
Water Elevation (Note 1) (feet below grade)	7.5	5.8	3.5	11.3
Temperature (degrees C)	14.4	14.5	15.6	11.6
pH	7.36	7.38	7.31	7.38
Conductivity (Note 2) (umho/cm compensated to 25° C)	372	292	508	352
Dissolved Oxygen (mg/L)	-	-	-	-
Chloride (mg/L)	1.7	3.9	2.7	2.1
Iron (mg/L) (field filtered)	.57	.17	.09	.07
Manganese (mg/L) (field filtered)	.10	.03	ND	.02
Total Organic Halogens (TOX) (ug/L) (Note 3)	ND	.4	ND	ND
Total Organic Carbon (TOC) (mg/L)	2.5	1.2	3.2	1.0

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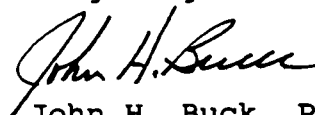
CORTLAND COUNTY LANDFILL

September 2, 1988

	<u>P-4</u>	<u>TL-1</u>	<u>RT-41 (Note 4)</u>
Water Elevation (feet below grade)	-	-	-
Temperature (degrees C))	22.7	20.0	16.9
pH	7.66	7.18	7.68
Conductivity (Note 2) (umho/cm compensated to 25°C)	1,409	1,125	425
Dissolved Oxygen (mg/L)	8.8	9.02	10.7
Chloride (mg/L)	293.	231.	70.0
Iron (mg/L) (field filtered)	.46	.19	.03
Manganese (mg/L) (field filtered)	.08	ND	ND
Total Organic Halogens (TOX) (ug/L) (Note 3)	ND	ND	.4
Total Organic Carbon (TOC) (mg/L)	12.	4.4	2.2

ND - None detected greater than detection limit noted.

I certify that the methods used in these analyses conform with generally accepted laboratory practices and requirements of the New York State Health Department Environmental Laboratory Approval Program as well as the New York State Department of Environmental Conservation RCRA Municipal Landfill Monitoring Program.



John H. Buck, P.E.
Laboratory Director
NYS ELAP CERT 10795

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CORTLAND COUNTY LANDFILL
September 2, 1988

NOTES

1. Measurement to grade, not top of casing.
2. Temperature compensated.
3. Total halogens measured as lindane by ECD.
4. Sampled at B & D Abdallah, 3039 Route 41.

BUCK ENGINEERING

APRIL 28, 1988

LABORATORY REPORT
for Cortland County Department of Solid Waste

Analysis of Ground and Surface Water Samples
Taken at Cortland County Landfill

April 28, 1988
Items I & II

LABORATORY REPORT
for Cortland County Department of Solid WasteAnalysis of Ground and Surface Water Samples
Taken at Cortland County Landfill

April 28, 1988

Items I & II

	<u>D1</u>	<u>D2</u>	<u>D3</u>	<u>D4</u>
Water Elevation (Note 1) (feet below grade)	2.7	Artesian	Artesian	10.3
Temperature (degrees C)	6.5 43.7	8.0 46.4	8.1	7.6
pH	9.03	7.50	8.06	10.20
Conductivity (Note 2) (umho/cm compensated to 25° C)	211	259	269	368
Dissolved Oxygen (mg/L)	-	-	-	-
Chloride (mg/L)	2.5	5.6	ND (<1)	4.4
Iron (mg/L) (field filtered)	.24	.13	1.83	.21
Manganese (mg/L) (field filtered)	ND (<.01)	.06	.10	ND
Total Organic Halogens (TOX) (ug/L) (Note 3)	ND (<.2)	.25	ND	ND
Total Organic Carbon (TOC) (mg/L)	3.0	ND (<1)	8.5	4.6

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607-753-3403CORTLAND COUNTY LANDFILL
April 28, 1988

	<u>D5</u>	<u>D6</u>	<u>DO-1</u>	<u>DO-2</u>
Water Elevation (Note 1) (feet below grade)	26.3	-3.3	1.5	0.5
Temperature (degrees C)	8.8 7.6	6.8 4.4	7.8	6.1
pH	11.63	7.48	6.12	7.44
Conductivity (Note 2) (umho/cm compensated to 25° C)	1,260	284	1,029	368
Dissolved Oxygen (mg/L)	-	-	-	-
Chloride (mg/L)	2.8	ND	121.	2.0
Iron (mg/L) (field filtered)	.17	.06	2.65	.39
Manganese (mg/L) (field filtered)	ND	.08	4.93	.02
Total Organic Halogens (TOX) (ug/L) (Note 3)	ND	ND	ND	ND
Total Organic Carbon (TOC) (mg/L)	9.5	ND	15.8	2.4

CORTLAND COUNTY LANDFILL
April 28, 1988

	<u>CC-1</u>	<u>BMC-1</u>	<u>BMC-2</u>	<u>RE-4</u>
Water Elevation (Note 1) (feet below grade)	5.6	-0.3	0.3	5.0
Temperature (degrees C)	5.8	5.9	5.5	6.4
pH	8.42	6.92	6.73	7.40
Conductivity (Note 2) (umho/cm compensated to 25°C)	143	421	765	393
Dissolved Oxygen (mg/L)	-	-	-	-
Chloride (mg/L)	3.5	2.4	15.9	18.2
Iron (mg/L) (field filtered)	8.2	2.42	14.6	4.82
Manganese (mg/L) (field filtered)	.03	2.23	1.83	.11
Total Organic Halogens (TOX) (ug/L) (Note 3)	.72	S	ND	ND
Total Organic Carbon (TOC) (mg/L)	ND	S	4.5	2.0

CORTLAND COUNTY LANDFILL
April 28, 1988

	<u>RE-5</u>	<u>RE-6</u>	<u>RE-7</u>	<u>RE-8</u>
Water Elevation (Note 1) (feet below grade)	4.7	3.4	0.8	6.1
Temperature (degrees C)	7.2 15.0	6.5 13.1	6.6	6.0
pH	7.74	7.71	7.55	7.36
Conductivity (Note 2) (umho/cm compensated to 25°C)	370	290	520	342
Dissolved Oxygen (mg/L)	-	-	-	-
Chloride (mg/L)	ND	4.9	1.9	2.4
Iron (mg/L) (field filtered)	.27	10.0	.49	.50
Manganese (mg/L) (field filtered)	.01	.10	ND	ND
Total Organic Halogens (TOX) (ug/L) (Note 3)	ND	ND	ND	ND
Total Organic Carbon (TOC) (mg/L)	2.8	ND	2.4	1.0

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CORTLAND COUNTY LANDFILL

April 28, 1988

	<u>P-4</u>	<u>TL-1</u>	<u>RT-41 (Note 4)</u>
Water Elevation (feet below grade)	-	-	-
Temperature (degrees C)	8.3	10.0	9.3
pH	7.58	7.73	7.82
Conductivity (Note 2) (umho/cm compensated to 25°C)	1,099	716	307
Dissolved Oxygen (mg/L)	9.8	10.6	11.2
Chloride (mg/L)	119.	80.4	30.3
Iron (mg/L) (field filtered)	.87	1.10	.22
Manganese (mg/L) (field filtered)	.58	.28	ND
Total Organic Halogens (TOX) (ug/L) (Note 3)	.40	ND	ND
Total Organic Carbon (TOC) (mg/L)	25.	21.	9.3

I certify that the methods used in these analyses conform with generally accepted laboratory practices and requirements of the New York State Health Department Environmental Laboratory Approval Program as well as the New York State Department of Environmental Conservation RCRA Municipal Landfill Monitoring Program.

John H. Buck, P.E.
Laboratory Director
ELAP #10795

BUCK ENGINEERING
ENVIRONMENTAL LABORATORY

100 TOMPKINS ST. • CORTLAND, N.Y. 13045
607-753-3403

CORTLAND COUNTY LANDFILL
April 28, 1988

NOTES

1. Measurement to grade, not top of casing.
2. Temperature compensated.
3. Total halogens measured as lindane by ECD.
4. Sampled at B & D Abdallah, 3039 Route 41.

BUCK ENGINEERING

MAY 2, 1987

MONITORING WELL AND SURFACE WATER ANALYSIS

of May 2, 1987

Cortland County Department of Solid Waste

BUCK ENGINEERING
& ENVIRONMENTAL LABORATORY

CONSULTING ENGINEERS & ENVIRONMENTAL ANALYSIS

100 TOMPKINS ST. • CORTLAND, N.Y. 13045

BUCK ENGINEERING

AN ENVIRONMENTAL LABORATORY

CONSULTING ENGINEERS & ENVIRONMENTAL ANALYSIS

100 TOMPKINS ST. • CORTLAND, N.Y. 13045

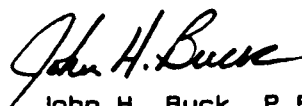
Cortland County Department of Solid Waste
Town Line Road
McGraw, NY 13101
Attention Mr. Ralph Pitman, Director

Sample Date 5/2/87
Sampled by John H. Buck
Lab Log #N87147

ANALYTICAL RESULTS

	<u>D1</u>	<u>D2</u>	<u>D3</u>	<u>D4</u>
Water Elevation ¹ (feet below grade)	7.0'	Artesian	Artesian	7.1'
Temperature (°C)	10.1°	10.2°	11.1°	8.0°
pH	9.99	8.15	8.16	10.30
Conductivity ² (umho/cm compensated to 25°C)	200	242	274	384
Dissolved Oxygen (mg/L)	-	-	-	-
Chloride (mg/L)	<1.0	<1.0	<1.0	2.6
Iron (mg/L)	.38	2.20	.11	.30
Total Organic Halogens (TOX) ³ (ug/L)	ND	ND	ND	ND
Total Organic Carbon (TOC) ⁴ (mg/L)	<3	11	8	9

I certify that the methods used in these analyses conform with generally accepted laboratory practices and requirements of the New York State Health Department Environmental Laboratory Approval Program as well as the New York State Department of Environmental Conservation RCRA Municipal Landfill Monitoring Program.



John H. Buck, P.E.
Laboratory Director
ELAP #10795

BUCK ENGINEERING

A ENVIRONMENTAL LABORATORY

CONSULTING ENGINEERS & ENVIRONMENTAL ANALYSIS

100 TOMPKINS ST. • CORTLAND, N.Y. 13045

Cortland County Department of Solid Waste
Town Line Road
McGraw, NY 13101
Attention Mr. Ralph Pitman, Director

Sample Date 5/2/87
Sampled by John H. Buck
Lab Log #N87147

ANALYTICAL RESULTS

	<u>05*</u>	<u>06</u>	<u>00-1</u>	<u>00-2</u>
Water Elevation ¹ (feet below grade)	29.0'	1.5'	1.3'	2.3'
Temperature (°C)	9.8°	8.6°	10.9°	9.3°
pH	11.65	8.21	6.53	7.69
Conductivity ² (umho/cm compensated to 25°C)	1,888	278	1,232	310
Dissolved Oxygen (mg/L)	-	-	-	-
Chloride (mg/L)	0.6	0.6	95.2	0.8
Iron (mg/L)	<.03	.50	2.54	.49
Total Organic Halogens (TOX) ³ (ug/L)	ND	ND	ND	ND
Total Organic Carbon (TOC) ⁴ (mg/L)	9	12	<200***	13

I certify that the methods used in these analyses conform with generally accepted laboratory practices and requirements of the New York State Health Department Environmental Laboratory Approval Program as well as the New York State Department of Environmental Conservation RCRA Municipal Landfill Monitoring Program.



John H. Buck, P.E.
Laboratory Director
ELAP #10795

BUCK ENGINEERING

AN ENVIRONMENTAL LABORATORY

100 TOMPKINS ST. • CORTLAND, N.Y. 13045

Cortland County Department of Solid Waste
Town Line Road
McGraw, NY 13101
Attention Mr. Ralph Pitman, Director

Sample Date 5/2/87
Sampled by John H. Buck
Lab Log #N87147

ANALYTICAL RESULTS

	<u>CC-1</u>	<u>BMC-1</u>	<u>BMC-2</u>	<u>RE-4</u>
Water Elevation ¹ (feet below grade)	5.4'	1.8'	1.5'	6.1'
Temperature (°C)	7.9°	8.4°	9.1°	10.3°
pH	7.99	7.18	7.22	7.80
Conductivity ² (umho/cm compensated to 25°C)	140	364	572	350
Dissolved Oxygen (mg/L)	-	-	-	-
Chloride (mg/L)	3.1	0.8	10.3	10.7
Iron (mg/L)	4.27	6.42	15.50	2.26
Total Organic Halogens (TOX) ³ (ug/L)	ND	ND	ND	ND
Total Organic Carbon (TOC) ⁴ (mg/L)	14	28	24	21

I certify that the methods used in these analyses conform with generally accepted laboratory practices and requirements of the New York State Health Department Environmental Laboratory Approval Program as well as the New York State Department of Environmental Conservation RCRA Municipal Landfill Monitoring Program.



John H. Buck, P.E.
Laboratory Director
ELAP #10795

BUCK ENGINEERING

& ENVIRONMENTAL LABORATORY

CONSULTING ENGINEERING NEW ENVIRONMENTAL ANALYSIS

100 TOMPKINS ST. • CORTLAND, N.Y. 13045

Cortland County Department of Solid Waste
Town Line Road
McGraw, NY 13101
Attention Mr. Ralph Pitman, Director

Sample Date 5/2/87

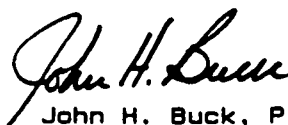
Sampled by John H. Buck

Lab Log #N87147

ANALYTICAL RESULTS

	<u>RE-5</u>	<u>RE-6</u>	<u>RE-7*</u>	<u>RE-8</u>
Water Elevation ¹ (feet below grade)	8.3'	6.8'	4.0'	10.0'
Temperature (°C)	10.6°	7.5°	9.4°	8.0°
pH	7.72	7.74	8.02	7.91
Conductivity ² (umho/cm compensated to 25°C)	331	299	540	320
Dissolved Oxygen (mg/L)	-	-	-	-
Chloride (mg/L)	0.8	3.1	0.7	1.2
Iron (mg/L)	1.74	2.25	5.18	3.25
Total Organic Halogens (TOX) ³ (ug/L)	ND	ND	ND	ND
Total Organic Carbon (TOC) ⁴ (mg/L)	14	16	21	46

I certify that the methods used in these analyses conform with generally accepted laboratory practices and requirements of the New York State Health Department Environmental Laboratory Approval Program as well as the New York State Department of Environmental Conservation RCRA Municipal Landfill Monitoring Program.



John H. Buck, P.E.
Laboratory Director
ELAP #10795

BUCK ENGINEERING

AN ENVIRONMENTAL LABORATORY

100 TOMPKINS ST. • CORTLAND, N.Y. 13045

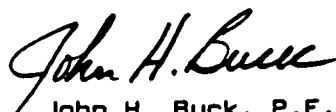
Cortland County Department of Solid Waste
Town Line Road
McGraw, NY 13101
Attention Mr. Ralph Pitman, Director

Sample Date 5/2/87
Sampled by John H. Buck
Lab Log #N87147

ANALYTICAL RESULTS

	<u>P-4</u>	<u>TL-1</u>	<u>RT-41**</u>
Water Elevation ¹ (feet below grade)	-	-	-
Temperature (°C)	14.5°	11.6°	12.6°
pH	7.81	7.67	8.19
Conductivity ² (umho/cm compensated to 25°C)	796	612	152
Dissolved Oxygen (mg/L)	5.9	8.6	8.8
Chloride (mg/L)	11.2	36.9	5.7
Iron (mg/L)	1.03	1.73	.05
Total Organic Halogens (TOX) ³ (ug/L)	ND	ND	ND
Total Organic Carbon (TOC) ⁴ (mg/L)	75	45	9

I certify that the methods used in these analyses conform with generally accepted laboratory practices and requirements of the New York State Health Department Environmental Laboratory Approval Program as well as the New York State Department of Environmental Conservation RCRA Municipal Landfill Monitoring Program.



John H. Buck, P.E.
Laboratory Director
ELAP #10795

BUCK ENGINEERING

A ENVIRONMENTAL LABORATORY

100 TOMPKINS ST. • CORTLAND, N.Y. 13045

Cortland County Department of Solid Waste
Town Line Road
McGraw, NY 13101
Attention Mr. Ralph Pitman, Director

Sample Date 5/2/87
Sampled by John H. Buck
Lab Log #N87147

NOTES

¹Measurement to grade, not top of casing

²Temperature compensated

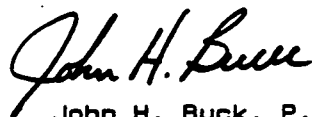
³ND (<1.0 ug/L total halogens measured as lindane by ECD)

⁴Analyses by CS Environmental Laboratory, Inc. ELAP #10067 (technically acceptable to NYSDEC)

*OS assumed downhill, RE-7 assumed uphill

**Highland Bridge off North Street

***Matrix interference reported by CS Laboratories



John H. Buck, P.E.
Laboratory Director
ELAP #10795

CS ENVIRONMENTAL LABORATORY

MAY 23, 1986

Environmental CS LABORATORY

(315) 457-6711

Division of Calocerinos & Spina Consulting Engineers • 1020 Seventh North Street, Liverpool, NY 13088

To: CORTLAND COUNTY HIGHWAY DEPT.
P.O. BOX 5590
CORTLAND, NY 13045

Date: May 23 1986

Attention: RALPH PITMAN

SAMPLE #2116
LABORATORY ANALYSIS REPORT

SAMPLE SUMMARY

CLIENT : CORTLAND COUNTY HIGHWAY DEPT.

DATE RECEIVED : 03/27/86

JOB # : 142.009.00

DATE COLLECTED : 03/27/86

LOCATION : BLANK

TIME COLLECTED : NA

PRICE CODE : STANDARD

METHOD : GRAB

PARAMETER	RESULTS	UNITS
BENZENE	<5.	ug/l
TOLUENE	<5.	ug/l
PARA-XYLENE	<5.	ug/l
META-XYLENE	<5.	ug/l
ORTHO-XYLENE	<5.	ug/l
METHYLENE CHLORIDE	<5.	ug/l
CHLOROFORM	<1.	ug/l
1,2 DICHLOROETHANE	<1.	ug/l
1,1,1 TRICHLOROETHANE	<1.	ug/l
CARBON TETRACHLORIDE	<1.	ug/l
112C13 122F3 ETHANE	<1.	ug/l
TRICHLOROETHYLENE	<1.	ug/l
1,1,2 TRICHLOROETHANE	<1.	ug/l
TETRACHLOROETHYLENE	<1.	ug/l

Environmental CS LABORATORY

(315) 457-6711

Division of Calocerinos & Spina Consulting Engineers • 1020 Seventh North Street, Liverpool, NY 13088

SAMPLE #2116

PAGE 2 OF 2

LABORATORY ANALYSIS REPORT

PARAMETER	RESULTS	UNITS
-----------	---------	-------

TOX	<0.19	ug/l
-----	-------	------

CS warrants that any sampling and analyses conducted as part of this report are performed in accordance with the analytical industries recognized methodologies and professional standards. CS will not assume liability for any damages resulting from deficient work other than reperformance or cost of said work and will not accept any liability as a result of data interpretation by the client.

APPROVED BY: _____

DATE: MAY 23 1986

Environmental
CS LABORATORY

Division of Calocerinos & Spina Consulting Engineers • 1020 Seventh North Street, Liverpool, NY 13088 • (315) 457-6711

TRANSMITTAL

To: Cortland County Highway Dept.
P.O. Box 5590
Cortland, NY 13045

Re: Sample#2116

File: 405.050.00

Attention: Mr. Ralph Pitman

Date: May 23, 1986

We are sending you X herewith _____ under separate cover via
a copy of your completed analytical data.

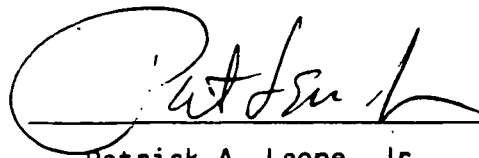
The above are for _____ information _____ sampling X analysis
_____ return _____ revision _____ approval X other

Remarks:

We failed to send you the results of blank from your last samples.
We hope this will be of some use to you.

If enclosed are not as noted, please notify us at once.

C&S ENVIRONMENTAL LABORATORY



Patrick A. Leone, Jr.
Laboratory Director

Environmental CS LABORATORY

Division of Calocerinos & Spina Consulting Engineers • 1020 Seventh North Street, Liverpool, NY 13088

To: CORTLAND COUNTY HIGHWAY DEPT.
P.O. BOX 5590
CORTLAND, NY 13045

Date: May 08 1986

Attention: RALPH PITMAN

SAMPLE #2110

PAGE 1 OF 2

LABORATORY ANALYSIS REPORT

SAMPLE SUMMARY

CLIENT : CORTLAND COUNTY HIGHWAY DEPT.

DATE RECEIVED : 03/27/86

JOB # : 142.009.00

DATE COLLECTED : 03/27/86

LOCATION : DO-1

TIME COLLECTED : 1045

PRICE CODE : STANDARD

METHOD : GRAB

PARAMETER	RESULTS	UNITS	Duplicate
CHLORIDE-SOL	160.	mg/l	
CONDUCTANCE-SOL	1210.	umhos/cm	
pH-SOL	7.8	Standard Units	
TEMPERATURE	10	Degrees C	
TOC-SOL	15.	mg/l	
IRON-SOL	0.08	mg/l	
MANGANESE-SOL	5.0	mg/l	
BENZENE	13.	ug/l	14.
TOLUENE	<5.	ug/l	LT 5.
PARA-XYLENE	<5.	ug/l	LT 5.
META-XYLENE	<5.	ug/l	LT 5.
ORTHO-XYLENE	<5.	ug/l	LT 5.
METHYLENE CHLORIDE	<5.	ug/l	
CHLOROFORM	<10.	ug/l	

Environmental CS LABORATORY

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SAMPLE #2110

PAGE 2 OF 2

LABORATORY ANALYSIS REPORT

PARAMETER	RESULTS	UNITS
1,2 DICHLOROETHANE	<1.	ug/l
1,1,1 TRICHLOROETHANE	7.	ug/l
CARBON TETRACHLORIDE	<10.	ug/l
112C13 122F3 ETHANE	<10.	ug/l
TRICHLOROETHYLENE	59.	ug/l
1,1,2 TRICHLOROETHANE	<2.	ug/l
TETRACHLOROETHYLENE	<1.	ug/l
TOX	2.1	ug/l

NOTE:

TOX Scan - The results of this scan are not designed for qualification or quantification of any specific organic compound. The results are calculated based upon the chlorine content and response factor of lindane (α -BHC). This does not imply either the presence or absence of lindane itself.

CS warrants that any sampling and analyses conducted as part of this report are performed in accordance with the analytical industries recognized methodologies and professional standards. CS will not assume liability for any damages resulting from deficient work other than reperformance or cost of said work and will not accept any liability as a result of data interpretation by the client.

APPROVED BY: Conrad Teufel Jr. DATE: MAY 06 1986



MONITORING WELL
SAMPLE CHARACTERIZATION AND
CHAIN OF CUSTODY SHEET

LAB SAMPLE LOG NO.

2110

JOB NO. 142-009

SOURCE

CLIENT Cortland County

WELL NO. DO -1

LOCATION Landfill

WELL TYPE/SIZE 2" PVC

EVACUATION

DATE 3/26/86

WELL DEPTH 28'

DEPTH TO WATER 5.7'

WELL VOLUME 36 gal.

METHOD PVC bailer

NO. OF VOLUMES 10 g.

TOTAL VOLUME 35 gallons

GAL./FT. 1-1/4" = 0.877 2" = 0.10 3" = 0.37 4" = .50
1-1/2" = 0.10 2-1/2" = 0.24 3-1/2" = 0.50 4" = 1.40

ITEM	START	FINISH
TIME	1000	1045
pH	6.9	7.0
TEMP.	9°	10°
DEPTH	5.7	15'
COLOR	gray clay fines	
APPEAR.	1600	1600

rech. Excl.

SAMPLING

DATE 3/27/86

TIME 1045

pH 7.0

TEMP 10°

METHOD PVC bailer

COLOR gray clay fines

CONTAINER 1-12 gallon pl. 1-qt. 4-vials

APPEAR.

SAMPLED BY

EN 1600

PRESERVATION

DATE 3/27/86

FILTERED: YES ☒ NO ☐

TIME 1100

BY GDS

PRESERVED: YES ☒ NO ☐

TIME 1100

BY GDS

PRESERVATIVE: ☐ H₂SO₄

☒ HNO₃

☐ NaOH

☐ H₃PO₄ + CuSO₄

☐ Zn(C₂H₃O₂)₂

☒ COOLED TO 4°C

☒ OTHER Sod. Thio

CUSTODY

SAMPLER'S SIGNATURE Tony Magari

TRANSFERRED TO: #1

RECEIVED BY

DATE

TIME

#2

RECEIVED BY

DATE

TIME

Environmental **CS** LABORATORY

(315) 457-6711

Division of Calocerinos & Spina Consulting Engineers • 1020 Seventh North Street, Liverpool, NY 13088

To: CORTLAND COUNTY HIGHWAY DEPT.
P.O. BOX 5590
CORTLAND, NY 13045

Date: May 08 1986

Attention: RALPH PITMAN

SAMPLE #2111

PAGE 1 OF 2

LABORATORY ANALYSIS REPORT

SAMPLE SUMMARY

CLIENT : CORTLAND COUNTY HIGHWAY DEPT.

DATE RECEIVED : 03/27/86

JOB # : 142.009.00

DATE COLLECTED : 03/27/86

LOCATION : DO-2

TIME COLLECTED : 1115

PRICE CODE : STANDARD

METHOD : GRAB

PARAMETER	RESULTS	UNITS
CHLORIDE-SOL	1.5	mg/l
CONDUCTANCE-SOL	310.	umhos/cm
pH-SOL	8.2	Standard Units
TEMPERATURE	9	Degrees C
TOC-SOL	16.	mg/l
IRON-SOL	0.04	mg/l
MANGANESE-SOL	0.07	mg/l
BENZENE	<5.	ug/l
TOLUENE	<5.	ug/l
PARA-XYLENE	<5.	ug/l
META-XYLENE	<5.	ug/l
ORTHO-XYLENE	<5.	ug/l
METHYLENE CHLORIDE	<5.	ug/l
CHLOROFORM	<1.	ug/l

Environmental CS LABORATORY

Division of Calocerinos & Spina Consulting Engineers • 1020 Seventh North Street, Liverpool, NY 13088

SAMPLE #2111

PAGE 2 OF 2

LABORATORY ANALYSIS REPORT

PARAMETER	RESULTS	UNITS
1,2 DICHLOROETHANE	<1.	ug/l
1,1,1 TRICHLOROETHANE	<1.	ug/l
CARBON TETRACHLORIDE	<1.	ug/l
112C13 122F3 ETHANE	<1.	ug/l
TRICHLOROETHYLENE	<1.	ug/l
1,1,2 TRICHLOROETHANE	<1.	ug/l
TETRACHLOROETHYLENE	<1.	ug/l
TOX	1.3	ug/l

NOTE:

TOX Scan - The results of this scan are not designed for qualification or quantification of any specific organic compound. The results are calculated based upon the chlorine content and response factor of lindane (X-BHC). This does not imply either the presence or absence of lindane itself.

CS warrants that any sampling and analyses conducted as part of this report are performed in accordance with the analytical industries recognized methodologies and professional standards. CS will not assume liability for any damages resulting from deficient work other than reperformance or cost of said work and will not accept any liability as a result of data interpretation by the client.

APPROVED BY: Conrad Terefe Jr. DATE: MAY 10 1986



MONITORING WELL
SAMPLE CHARACTERIZATION AND
CHAIN OF CUSTODY SHEET

LAB SAMPLE LOG NO.

2111

JOB NO.

142-009

SOURCE

CLIENT

Cortland County

WELL NO.

DO-2

LOCATION

Landfill

WELL TYPE/SIZE

2" prc

EVACUATION

DATE

3/26/86

WELL DEPTH

28'

DEPTH TO WATER

5.2'

WELL VOLUME

3.6

METHOD

prc bailer

NO. OF VOLUMES

5

TOTAL VOLUME

25 cullows

GAL/FT.

1-1/2" = 0.077

1-1/2" = 0.10

2" = 0.10

2-1/2" = 0.24

3" = 0.37

3-1/2" = 0.80

4" = .88

4-1/2" = 1.40

ITEM

START

FINISH

TIME

1200

1115

pH

7.3

7

TEMP.

9°

9°c

DEPTH

COLOR

clear to muddy gray

APPEAR.

320

resch - good

SAMPLING

DATE

3/27/86

TIME

1115

pH

7

TEMP.

9°

METHOD

prc bailer

COLOR

muddy gray

CONTAINER

1 yellow, 1 Qt, 4-vials

APPEAR.

SAMPLED BY

GDS, TN

EH

320

PRESERVATION

DATE

3/27/86

FILTERED: YES

Y

NO

TIME

1130

BY

GDS

PRESERVED: YES

K

NO

TIME

1130

BY

GDS

PRESERVATIVE:

☒ H₂SO₄

☐ HNO₃

☐ NaOH

☐ H₃PO₄ + CaSO₄

☐ Zn(C₂H₃O₂)₂

☒ COOLED TO 4°C

☒ OTHER

Sed Thio

CUSTODY

SAMPLER'S SIGNATURE

Tony Napoli

TRANSFERRED TO: #1

Paula H. Hall

RECEIVED BY

DATE

TIME

#2

RECEIVED BY

DATE

TIME

Environmental CS LABORATORY

(315) 457-6711

Division of Calocerinos & Spina Consulting Engineers • 1020 Seventh North Street, Liverpool, NY 13088

To: CORTLAND COUNTY HIGHWAY DEPT.
P.O. BOX 5590
CORTLAND, NY 13045

Date: May 08 1986

Attention: RALPH PITMAN

SAMPLE #2115

PAGE 1 OF 2

LABORATORY ANALYSIS REPORT

SAMPLE SUMMARY

CLIENT : CORTLAND COUNTY HIGHWAY DEPT.

DATE RECEIVED : 03/27/86

JOB # : 142.009.00

DATE COLLECTED : 03/27/86

LOCATION : RE-4

TIME COLLECTED : 1130

PRICE CODE : STANDARD

METHOD : GRAB

PARAMETER	RESULTS	UNITS	SPIKE % RECOVERY
CHLORIDE-SOL	22.	mg/l	
CONDUCTANCE-SOL	388.	umhos/cm	
pH-SOL	8.3	Standard Units	
TEMPERATURE	7	Degrees C	
TOC-SOL	10.	mg/l	
IRON-SOL	0.03	mg/l	
MANGANESE-SOL	0.38	mg/l	
BENZENE	<5.	ug/l	106%
TOLUENE	<5.	ug/l	107%
PARA-XYLENE	<5.	ug/l	105%
META-XYLENE	<5.	ug/l	104%
ORTHO-XYLENE	<5.	ug/l	103%
METHYLENE CHLORIDE	<5.	ug/l	
CHLOROFORM	<1.	ug/l	

Environmental CS LABORATORY

(315) 457-6711

Division of Calocerinos & Spina Consulting Engineers • 1020 Seventh North Street, Liverpool, NY 13088

SAMPLE #2115

PAGE 2 OF 2

LABORATORY ANALYSIS REPORT

PARAMETER RESULTS UNITS

1,2 DICHLOROETHANE	<1.	ug/l
1,1,1 TRICHLOROETHANE	<1.	ug/l
CARBON TETRACHLORIDE	<1.	ug/l
112C13 122F3 ETHANE	<1.	ug/l
TRICHLOROETHYLENE	<1.	ug/l
1,1,2 TRICHLOROETHANE	<1.	ug/l
TETRACHLOROETHYLENE	<1.	ug/l
TOX	<0.19	ug/l

NOTE:

TOX Scan - The results of this scan are not designed for qualification or quantification of any specific organic compound. The results are calculated based upon the chlorine content and response factor of lindane (α -BHC). This does not imply either the presence or absence of lindane itself.

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APPROVED BY: Conrad Teyfel Jr. DATE: MAY 08 1986



MONITORING WELL
SAMPLE CHARACTERIZATION AND
CHAIN OF CUSTODY SHEET

LAB SAMPLE LOG NO. 2115

JOB NO. 142-009

SOURCE

CLIENT Cortland County
LOCATION Landfill

WELL NO. RF-4
WELL TYPE/SIZE _____

EVACUATION

DATE 3/26/86
WELL DEPTH 16'
DEPTH TO WATER 5.8'
WELL VOLUME 1.6 g.
METHOD prc bailer
NO. OF VOLUMES 5
TOTAL VOLUME 10 gallons
GAL./FT. 1-1/2"=0.077 2-1/2"=0.10 3-1/2"=0.13 4-1/2"=0.16 5-1/2"=0.19 6-1/2"=0.22 7-1/2"=0.25 8-1/2"=0.28 9-1/2"=0.31 10-1/2"=0.34 11-1/2"=0.37 12-1/2"=0.40 13-1/2"=0.43 14-1/2"=0.46 15-1/2"=0.49 16-1/2"=0.52 17-1/2"=0.55 18-1/2"=0.58 19-1/2"=0.61 20-1/2"=0.64 21-1/2"=0.67 22-1/2"=0.70 23-1/2"=0.73 24-1/2"=0.76 25-1/2"=0.79 26-1/2"=0.82 27-1/2"=0.85 28-1/2"=0.88 29-1/2"=0.91 30-1/2"=0.94 31-1/2"=0.97 32-1/2"=1.00 33-1/2"=1.03 34-1/2"=1.06 35-1/2"=1.09 36-1/2"=1.12 37-1/2"=1.15 38-1/2"=1.18 39-1/2"=1.21 40-1/2"=1.24 41-1/2"=1.27 42-1/2"=1.30 43-1/2"=1.33 44-1/2"=1.36 45-1/2"=1.39 46-1/2"=1.42 47-1/2"=1.45 48-1/2"=1.48 49-1/2"=1.51 50-1/2"=1.54 51-1/2"=1.57 52-1/2"=1.60 53-1/2"=1.63 54-1/2"=1.66 55-1/2"=1.69 56-1/2"=1.72 57-1/2"=1.75 58-1/2"=1.78 59-1/2"=1.81 60-1/2"=1.84 61-1/2"=1.87 62-1/2"=1.90 63-1/2"=1.93 64-1/2"=1.96 65-1/2"=1.99 66-1/2"=2.02 67-1/2"=2.05 68-1/2"=2.08 69-1/2"=2.11 70-1/2"=2.14 71-1/2"=2.17 72-1/2"=2.20 73-1/2"=2.23 74-1/2"=2.26 75-1/2"=2.29 76-1/2"=2.32 77-1/2"=2.35 78-1/2"=2.38 79-1/2"=2.41 80-1/2"=2.44 81-1/2"=2.47 82-1/2"=2.50 83-1/2"=2.53 84-1/2"=2.56 85-1/2"=2.59 86-1/2"=2.62 87-1/2"=2.65 88-1/2"=2.68 89-1/2"=2.71 90-1/2"=2.74 91-1/2"=2.77 92-1/2"=2.80 93-1/2"=2.83 94-1/2"=2.86 95-1/2"=2.89 96-1/2"=2.92 97-1/2"=2.95 98-1/2"=2.98 99-1/2"=3.01 100-1/2"=3.04 101-1/2"=3.07 102-1/2"=3.10 103-1/2"=3.13 104-1/2"=3.16 105-1/2"=3.19 106-1/2"=3.22 107-1/2"=3.25 108-1/2"=3.28 109-1/2"=3.31 110-1/2"=3.34 111-1/2"=3.37 112-1/2"=3.40 113-1/2"=3.43 114-1/2"=3.46 115-1/2"=3.49 116-1/2"=3.52 117-1/2"=3.55 118-1/2"=3.58 119-1/2"=3.61 120-1/2"=3.64 121-1/2"=3.67 122-1/2"=3.70 123-1/2"=3.73 124-1/2"=3.76 125-1/2"=3.79 126-1/2"=3.82 127-1/2"=3.85 128-1/2"=3.88 129-1/2"=3.91 130-1/2"=3.94 131-1/2"=3.97 132-1/2"=4.00 133-1/2"=4.03 134-1/2"=4.06 135-1/2"=4.09 136-1/2"=4.12 137-1/2"=4.15 138-1/2"=4.18 139-1/2"=4.21 140-1/2"=4.24 141-1/2"=4.27 142-1/2"=4.30 143-1/2"=4.33 144-1/2"=4.36 145-1/2"=4.39 146-1/2"=4.42 147-1/2"=4.45 148-1/2"=4.48 149-1/2"=4.51 150-1/2"=4.54 151-1/2"=4.57 152-1/2"=4.60 153-1/2"=4.63 154-1/2"=4.66 155-1/2"=4.69 156-1/2"=4.72 157-1/2"=4.75 158-1/2"=4.78 159-1/2"=4.81 160-1/2"=4.84 161-1/2"=4.87 162-1/2"=4.90 163-1/2"=4.93 164-1/2"=4.96 165-1/2"=4.99 166-1/2"=5.02 167-1/2"=5.05 168-1/2"=5.08 169-1/2"=5.11 170-1/2"=5.14 171-1/2"=5.17 172-1/2"=5.20 173-1/2"=5.23 174-1/2"=5.26 175-1/2"=5.29 176-1/2"=5.32 177-1/2"=5.35 178-1/2"=5.38 179-1/2"=5.41 180-1/2"=5.44 181-1/2"=5.47 182-1/2"=5.50 183-1/2"=5.53 184-1/2"=5.56 185-1/2"=5.59 186-1/2"=5.62 187-1/2"=5.65 188-1/2"=5.68 189-1/2"=5.71 190-1/2"=5.74 191-1/2"=5.77 192-1/2"=5.80 193-1/2"=5.83 194-1/2"=5.86 195-1/2"=5.89 196-1/2"=5.92 197-1/2"=5.95 198-1/2"=5.98 199-1/2"=6.01 200-1/2"=6.04 201-1/2"=6.07 202-1/2"=6.10 203-1/2"=6.13 204-1/2"=6.16 205-1/2"=6.19 206-1/2"=6.22 207-1/2"=6.25 208-1/2"=6.28 209-1/2"=6.31 210-1/2"=6.34 211-1/2"=6.37 212-1/2"=6.40 213-1/2"=6.43 214-1/2"=6.46 215-1/2"=6.49 216-1/2"=6.52 217-1/2"=6.55 218-1/2"=6.58 219-1/2"=6.61 220-1/2"=6.64 221-1/2"=6.67 222-1/2"=6.70 223-1/2"=6.73 224-1/2"=6.76 225-1/2"=6.79 226-1/2"=6.82 227-1/2"=6.85 228-1/2"=6.88 229-1/2"=6.91 230-1/2"=6.94 231-1/2"=6.97 232-1/2"=7.00 233-1/2"=7.03 234-1/2"=7.06 235-1/2"=7.09 236-1/2"=7.12 237-1/2"=7.15 238-1/2"=7.18 239-1/2"=7.21 240-1/2"=7.24 241-1/2"=7.27 242-1/2"=7.30 243-1/2"=7.33 244-1/2"=7.36 245-1/2"=7.39 246-1/2"=7.42 247-1/2"=7.45 248-1/2"=7.48 249-1/2"=7.51 250-1/2"=7.54 251-1/2"=7.57 252-1/2"=7.60 253-1/2"=7.63 254-1/2"=7.66 255-1/2"=7.69 256-1/2"=7.72 257-1/2"=7.75 258-1/2"=7.78 259-1/2"=7.81 260-1/2"=7.84 261-1/2"=7.87 262-1/2"=7.90 263-1/2"=7.93 264-1/2"=7.96 265-1/2"=7.99 266-1/2"=8.02 267-1/2"=8.05 268-1/2"=8.08 269-1/2"=8.11 270-1/2"=8.14 271-1/2"=8.17 272-1/2"=8.20 273-1/2"=8.23 274-1/2"=8.26 275-1/2"=8.29 276-1/2"=8.32 277-1/2"=8.35 278-1/2"=8.38 279-1/2"=8.41 280-1/2"=8.44 281-1/2"=8.47 282-1/2"=8.50 283-1/2"=8.53 284-1/2"=8.56 285-1/2"=8.59 286-1/2"=8.62 287-1/2"=8.65 288-1/2"=8.68 289-1/2"=8.71 290-1/2"=8.74 291-1/2"=8.77 292-1/2"=8.80 293-1/2"=8.83 294-1/2"=8.86 295-1/2"=8.89 296-1/2"=8.92 297-1/2"=8.95 298-1/2"=8.98 299-1/2"=9.01 300-1/2"=9.04 301-1/2"=9.07 302-1/2"=9.10 303-1/2"=9.13 304-1/2"=9.16 305-1/2"=9.19 306-1/2"=9.22 307-1/2"=9.25 308-1/2"=9.28 309-1/2"=9.31 310-1/2"=9.34 311-1/2"=9.37 312-1/2"=9.40 313-1/2"=9.43 314-1/2"=9.46 315-1/2"=9.49 316-1/2"=9.52 317-1/2"=9.55 318-1/2"=9.58 319-1/2"=9.61 320-1/2"=9.64 321-1/2"=9.67 322-1/2"=9.70 323-1/2"=9.73 324-1/2"=9.76 325-1/2"=9.79 326-1/2"=9.82 327-1/2"=9.85 328-1/2"=9.88 329-1/2"=9.91 330-1/2"=9.94 331-1/2"=9.97 332-1/2"=10.00 333-1/2"=10.03 334-1/2"=10.06 335-1/2"=10.09 336-1/2"=10.12 337-1/2"=10.15 338-1/2"=10.18 339-1/2"=10.21 340-1/2"=10.24 341-1/2"=10.27 342-1/2"=10.30 343-1/2"=10.33 344-1/2"=10.36 345-1/2"=10.39 346-1/2"=10.42 347-1/2"=10.45 348-1/2"=10.48 349-1/2"=10.51 350-1/2"=10.54 351-1/2"=10.57 352-1/2"=10.60 353-1/2"=10.63 354-1/2"=10.66 355-1/2"=10.69 356-1/2"=10.72 357-1/2"=10.75 358-1/2"=10.78 359-1/2"=10.81 360-1/2"=10.84 361-1/2"=10.87 362-1/2"=10.90 363-1/2"=10.93 364-1/2"=10.96 365-1/2"=10.99 366-1/2"=11.02 367-1/2"=11.05 368-1/2"=11.08 369-1/2"=11.11 370-1/2"=11.14 371-1/2"=11.17 372-1/2"=11.20 373-1/2"=11.23 374-1/2"=11.26 375-1/2"=11.29 376-1/2"=11.32 377-1/2"=11.35 378-1/2"=11.38 379-1/2"=11.41 380-1/2"=11.44 381-1/2"=11.47 382-1/2"=11.50 383-1/2"=11.53 384-1/2"=11.56 385-1/2"=11.59 386-1/2"=11.62 387-1/2"=11.65 388-1/2"=11.68 389-1/2"=11.71 390-1/2"=11.74 391-1/2"=11.77 392-1/2"=11.80 393-1/2"=11.83 394-1/2"=11.86 395-1/2"=11.89 396-1/2"=11.92 397-1/2"=11.95 398-1/2"=11.98 399-1/2"=12.01 400-1/2"=12.04 401-1/2"=12.07 402-1/2"=12.10 403-1/2"=12.13 404-1/2"=12.16 405-1/2"=12.19 406-1/2"=12.22 407-1/2"=12.25 408-1/2"=12.28 409-1/2"=12.31 410-1/2"=12.34 411-1/2"=12.37 412-1/2"=12.40 413-1/2"=12.43 414-1/2"=12.46 415-1/2"=12.49 416-1/2"=12.52 417-1/2"=12.55 418-1/2"=12.58 419-1/2"=12.61 420-1/2"=12.64 421-1/2"=12.67 422-1/2"=12.70 423-1/2"=12.73 424-1/2"=12.76 425-1/2"=12.79 426-1/2"=12.82 427-1/2"=12.85 428-1/2"=12.88 429-1/2"=12.91 430-1/2"=12.94 431-1/2"=12.97 432-1/2"=13.00 433-1/2"=13.03 434-1/2"=13.06 435-1/2"=13.09 436-1/2"=13.12 437-1/2"=13.15 438-1/2"=13.18 439-1/2"=13.21 440-1/2"=13.24 441-1/2"=13.27 442-1/2"=13.30 443-1/2"=13.33 444-1/2"=13.36 445-1/2"=13.39 446-1/2"=13.42 447-1/2"=13.45 448-1/2"=13.48 449-1/2"=13.51 450-1/2"=13.54 451-1/2"=13.57 452-1/2"=13.60 453-1/2"=13.63 454-1/2"=13.66 455-1/2"=13.69 456-1/2"=13.72 457-1/2"=13.75 458-1/2"=13.78 459-1/2"=13.81 460-1/2"=13.84 461-1/2"=13.87 462-1/2"=13.90 463-1/2"=13.93 464-1/2"=13.96 465-1/2"=13.99 466-1/2"=14.02 467-1/2"=14.05 468-1/2"=14.08 469-1/2"=14.11 470-1/2"=14.14 471-1/2"=14.17 472-1/2"=14.20 473-1/2"=14.23 474-1/2"=14.26 475-1/2"=14.29 476-1/2"=14.32 477-1/2"=14.35 478-1/2"=14.38 479-1/2"=14.41 480-1/2"=14.44 481-1/2"=14.47 482-1/2"=14.50 483-1/2"=14.53 484-1/2"=14.56 485-1/2"=14.59 486-1/2"=14.62 487-1/2"=14.65 488-1/2"=14.68 489-1/2"=14.71 490-1/2"=14.74 491-1/2"=14.77 492-1/2"=14.80 493-1/2"=14.83 494-1/2"=14.86 495-1/2"=14.89 496-1/2"=14.92 497-1/2"=14.95 498-1/2"=14.98 499-1/2"=15.01 500-1/2"=15.04 501-1/2"=15.07 502-1/2"=15.10 503-1/2"=15.13 504-1/2"=15.16 505-1/2"=15.19 506-1/2"=15.22 507-1/2"=15.25 508-1/2"=15.28 509-1/2"=15.31 510-1/2"=15.34 511-1/2"=15.37 512-1/2"=15.40 513-1/2"=15.43 514-1/2"=15.46 515-1/2"=15.49 516-1/2"=15.52 517-1/2"=15.55 518-1/2"=15.58 519-1/2"=15.61 520-1/2"=15.64 521-1/2"=15.67 522-1/2"=15.70 523-1/2"=15.73 524-1/2"=15.76 525-1/2"=15.79 526-1/2"=15.82 527-1/2"=15.85 528-1/2"=15.88 529-1/2"=15.91 530-1/2"=15.94 531-1/2"=15.97 532-1/2"=16.00 533-1/2"=16.03 534-1/2"=16.06 535-1/2"=16.09 536-1/2"=16.12 537-1/2"=16.15 538-1/2"=16.18 539-1/2"=16.21 540-1/2"=16.24 541-1/2"=16.27 542-1/2"=16.30 543-1/2"=16.33 544-1/2"=16.36 545-1/2"=16.39 546-1/2"=16.42 547-1/2"=16.45 548-1/2"=16.48 549-1/2"=16.51 550-1/2"=16.54 551-1/2"=16.57 552-1/2"=16.60 553-1/2"=16.63 554-1/2"=16.66 555-1/2"=16.69 556-1/2"=16.72 557-1/2"=16.75 558-1/2"=16.78 559-1/2"=16.81 560-1/2"=16.84 561-1/2"=16.87 562-1/2"=16.90 563-1/2"=16.93 564-1/2"=16.96 565-1/2"=16.99 566-1/2"=17.02 567-1/2"=17.05 568-1/2"=17.08 569-1/2"=17.11 570-1/2"=17.14 571-1/2"=17.17 572-1/2"=17.20 573-1/2"=17.23 574-1/2"=17.26 575-1/2"=17.29 576-1/2"=17.32 577-1/2"=17.35 578-1/2"=17.38 579-1/2"=17.41 580-1/2"=17.44 581-1/2"=17.47 582-1/2"=17.50 583-1/2"=17.53 584-1/2"=17.56 585-1/2"=17.59 586-1/2"=17.62 587-1/2"=17.65 588-1/2"=17.68 589-1/2"=17.71 590-1/2"=17.74 591-1/2"=17.77 592-1/2"=17.80 593-1/2"=17.83 594-1/2"=17.86 595-1/2"=17.89 596-1/2"=17.92 597-1/2"=17.95 598-1/2"=17.98 599-1/2"=18.01 600-1/2"=18.04 601-1/2"=18.07 602-1/2"=18.10 603-1/2"=18.13 604-1/2"=18.16 605-1/2"=18.19 606-1/2"=18.22 607-1/2"=18.25 608-1/2"=18.28 609-1/2"=18.31 610-1/2"=18.34 611-1/2"=18.37 612-1/2"=18.40 613-1/2"=18.43 614-1/2"=18.46 615-1/2"=18.49 616-1/2"=18.52 617-1/2"=18.55 618-1/2"=18.58 619-1/2"=18.61 620-1/2"=18.64 621-1/2"=18.67 622-1/2"=18.70 623-1/2"=18.73 624-1/2"=18.76 625-1/2"=18.79 626-1/2"=18.82 627-1/2"=18.85 628-1/2"=18.88 629-1/2"=18.91 630-1/2"=18.94 631-1/2"=18.97 632-1/2"=19.00 633-1/2"=19.03 634-1/2"=19.06 635-1/2"=19.09 636-1/2"=19.12 637-1/2"=19.15 638-1/2"=19.18 639-1/2"=19.21 640-1/2"=19.24 641-1/2"=19.27 642-1/2"=19.30 643-1/2"=19.33 644-1/2"=19.36 645-1/2"=19.39 646-1/2"=19.42 647-1/2"=19.45 648-1/2"=19.48 649-1/2"=19.51 650-1/2"=19.54 651-1/2"=19.57 652-1/2"=19.60 653-1/2"=19.63 654-1/2"=19.66 655-1/2"=19.69 656-1/2"=19.72 657-1/2"=19.75 658-1/2"=19.78 659-1/2"=19.81 660-1/2"=19.84 661-1/2"=19.87 662-1/2"=19.90 663-1/2"=19.93 664-1/2"=19.96 665-1/2"=19.99 666-1/2"=20.02 667-1/2"=20.05 668-1/2"=20.08 669-1/2"=20.11 670-1/2"=20.14 671-1/2"=20.17 672-1/2"=20.20 673-1/2"=20.23 674-1/2"=20.26 675-1/2"=20.29 676-1/2"=20.32 677-1/2"=20.35 678-1/2"=20.38 679-1/2"=20.41 680-1/2"=20.44 681-1/2"=20.47 682-1/2"=20.50 683-1/2"=20.53 684-1/2"=20.56 685-1/2"=20.59 686-1/2"=20.62 687-1/2"=20.65 688-1/2"=20.68 689-1/2"=20.71 690-1/2"=20.74 691-1/2"=20.77 692-1/2"=20.80 693-1/2"=20.83 694-1/2"=20.86 695-1/2"=20.89 696-1/2"=20.92 697-1/2"=20.95 698-1/2"=20.98 699-1/2"=21.01 700-1/2"=21.04 701-1/2"=21.07 702-1/2"=21.10 703-1/2"=21.13 704-1/2"=21.16 705-1/2"=21.19 706-1/2"=21.22 707-1/2"=21.25 708-1/2"=21.28 709-1/2"=21.31 710-1/2"=21.34 711-1/2"=21.37 712-1/2"=21.40 713-1/2"=21.43 714-1/2"=21.46 715-1/2"=21.49 716-1/2"=21.52 717-1/2"=21.55 718-1/2"=21.58 719-1/2"=21.61 720-1/2"=21.64 721-1/2"=21.67 722-1/2"=21.70 723-1/2"=21.73 724-1/2"=21.76 725-1/2"=21.79 726-1/2"=21.82 727-1/2"=21.85 728-1/2"=21.88 729-1/2"=21.91 730-1/2"=21.94 731-1/2"=21.97 732-1/2"=22.00 733-1/2"=22.03 734-1/2"=22.06 735-1/2"=22.09 736-1/2"=22.12 737-1/2"=22.15 738-1/2"=22.18 739-1/2"=22.21 740-1/2"=22.24 741-1/2"=22.27 742-1/2"=22.30 743-1/2"=22.33 744-1/2"=22.36 745-1/2"=22.39 746-1/2"=22.42 747-1/2"=22.45 748-1/2"=22.48 749-1/2"=22.51 750-1/2"=22.54 751-1/2"=22.57 752-1/2"=22.60 753-1/2"=22.63 754-1/2"=22.66 755-1/2"=22.69 756-1/2"=22.72 757-1/2"=22.75 758-1/2"=22.78 759-1/2"=22.81 760-1/2"=22.84 761-1/2"=22.87 762-1/2"=22.90 763-1/2"=22.93 764-1/2"=22.96 765-1/2"=22.99 766-1/2"=23.02 767-1/2"=23.05 768-1/2"=23.08 769-1/2"=23.11 770-1/2"=23.14 771-1/2"=23.17 772-1/2"=23.20 773-1/2"=23.23 774-1/2"=23.26 775-1/2"=23.29 776-1/2"=23.32 777-1/2"=23.35 778-1/2"=23.38 779-1/2"=23.41 780-1/2"=23.44 781-1/2"=23.47 782-1/2"=23.50 783-1/2"=23.53 784-1/2"=23.56 785-1/2"=23.59 786-1/2"=23.62 787-1/2"=23.65 788-1/2"=23.68 789-1/2"=23.71 790-1/2"=23.74 791-1/2"=23.77 792-1/2"=23.80 793-1/2"=23.83 794-1/2"=23.86 795-1/2"=23.89 796-1/2"=23.92 797-1/2"=23.95 798-1/2"=23.98 799-1/2"=24.01 800-1/2"=24.04 801-1/2"=24.07 802-1/2"=24.10 803-1/2"=24.13 804-1/2"=24.16 805-1/2"=24.19 806-1/2"=24.22 807-1/2"=24.25 808-1/2"=24.28 809-1/2"=24.31 810-1/2"=24.34 811-1/2"=24.37 812-1/2"=24.40 813-1/2"=24.43 814-1/2"=24.46 815-1/2"=24.49 816-1/2"=24.52 817-1/2"=24.55 818-1/2"=24.58 819-1/2"=24.61 820-1/2"=24.64 821-1/2"=24.67 822-1/2"

Environmental CS LABORATORY

(315) 457-6711

Division of Calocerinos & Spina Consulting Engineers • 1020 Seventh North Street, Liverpool, NY 13088

To: CORTLAND COUNTY HIGHWAY DEPT.
P.O. BOX 5590
CORTLAND, NY 13045

Date: Apr 28 1986

Attention: RALPH PITMAN

SAMPLE #2107
LABORATORY ANALYSIS REPORT

SAMPLE SUMMARY

CLIENT : CORTLAND COUNTY HIGHWAY DEPT.

DATE RECEIVED : 03/27/86

JOB # : 142.009.00

DATE COLLECTED : 03/27/86

LOCATION : BMC-1

TIME COLLECTED : 1300

PRICE CODE : STANDARD

METHOD : GRAB

PARAMETER	RESULTS	UNITS
CHLORIDE-SOL	115.	mg/l
CONDUCTANCE-SOL	1390.	umhos/cm
pH-SOL	7.6	Standard Units
TEMPERATURE	8.	Degrees C
TOC-SOL	7.0	mg/l
IRON-SOL	0.69	mg/l
MANGANESE-SOL	4.4	mg/l
TOX	4.7	ug/l

NOTE:

TOX Scan - The results of this scan are not designed for qualification or quantification of any specific organic compound. The results are calculated based upon the chlorine content and response factor of lindane (γ-BHC). This does not imply either the presence or absence of lindane itself.

CS warrants that any sampling and analyses conducted as part of this report are performed in accordance with the analytical industries recognized methodologies and professional standards. CS will not assume liability for any damages resulting from deficient work other than reperformance or cost of said work and will not accept any liability as a result of data interpretation by the client.

APPROVED BY: Conrad Tugle DATE: APR 28 1986



MONITORING WELL
SAMPLE CHARACTERIZATION AND
CHAIN OF CUSTODY SHEET

LAB SAMPLE LOG NO. 2107 JOB NO. 142-009

SOURCE

CLIENT Cortland County WELL NO. Bmc-1
LOCATION Landfill WELL TYPE/SIZE 1 1/2" pvc

EVACUATION

DATE 3/26/86
WELL DEPTH 8'
DEPTH TO WATER 29'
WELL VOLUME .5
METHOD pvc bailer
NO. OF VOLUMES 6
TOTAL VOLUME 3 gallons
CAL./FT. 1-1/2" = 0.077 2" = 0.10 3" = 0.27 4" = .40
1-1/2" = 0.10 2-1/2" = 0.30 3-1/2" = 0.80 4" = 1.40

ITEM	START	FINISH
TIME	1100	1300
pH	6.9	7.1
TEMP.	8°	8°
DEPTH	29'	4'
COLOR	Turbid	
APPEAR.	1300	1300

rech - good

SAMPLING

DATE 3/27/86 pH 7.1
TIME 1300 TEMP 8°
METHOD pvc bailer COLOR Turbid
CONTAINER 1-1/2 gallon, lat. APPEAR.
SAMPLED BY GDS, TN EN 1300

PRESERVATION

DATE 3/27/86
FILTERED: YES X NO TIME 1315 BY GDS
PRESERVED: YES Y NO TIME 1315 BY GDS
PRESERVATIVE: ☒ H₂SO₄ ☐ HNO₃ ☐ NaOH ☐ H₃PO₄ + CuSO₄ ☐ Zn(C₂H₃O₂)₂
☒ COOLED TO 4°C ☒ OTHER Sod. Thio

CUSTODY

SAMPLER'S SIGNATURE Tony Napoli
TRANSFERRED TO: #1 GDS Lab
RECEIVED BY Paula Kelly DATE TIME
#2
RECEIVED BY DATE TIME

Environmental CS LABORATORY

(315) 457-6711

Division of Calocerinos & Spina Consulting Engineers • 1020 Seventh North Street, Liverpool, NY 13088

To: CORTLAND COUNTY HIGHWAY DEPT.
P.O. BOX 5590
CORTLAND, NY 13045

Date: Apr 28 1986

Attention: RALPH PITMAN

SAMPLE #2108
LABORATORY ANALYSIS REPORT

SAMPLE SUMMARY

CLIENT : CORTLAND COUNTY HIGHWAY DEPT.

DATE RECEIVED : 03/27/86

JOB # : 142.009.00

DATE COLLECTED : 03/27/86

LOCATION : BMC-2

TIME COLLECTED : 1330

PRICE CODE : STANDARD

METHOD : GRAB

PARAMETER	RESULTS	UNITS
CHLORIDE-SOL	13.	mg/l
CONDUCTANCE-SOL	505.	umhos/cm
pH-SOL	7.6	Standard Units
TEMPERATURE	7.	Degrees C
TOC-SOL	8.0	mg/l
IRON-SOL	10.3	mg/l
MANGANESE-SOL	2.7	mg/l
TOX	0.19	ug/l

NOTE:

TOX Scan - The results of this scan are not designed for qualification or quantification of any specific organic compound. The results are calculated based upon the chlorine content and response factor of lindane (BHC). This does not imply either the presence or absence of lindane itself.

CS warrants that any sampling and analyses conducted as part of this report are performed in accordance with the analytical industries recognized methodologies and professional standards. CS will not assume liability for any damages resulting from deficient work other than reperformance or cost of said work and will not accept any liability as a result of data interpretation by the client.

APPROVED BY:

Conrad Teegels Jr. DATE: APR 28 1986



MONITORING WELL
SAMPLE CHARACTERIZATION AND
CHAIN OF CUSTODY SHEET

LAB SAMPLE LOG NO.

2108

JOB NO.

142-009

SOURCE

CLIENT

Contland County

WELL NO.

BMC 2

LOCATION

Landfill

WELL TYPE/SIZE

1.5" pvc

EVACUATION

DATE 3/26/86

WELL DEPTH

12'

DEPTH TO WATER

4.75'

WELL VOLUME

7 g.

METHOD

pvc bailer

NO. OF VOLUMES

3

TOTAL VOLUME

2.5 gallons

CAL./FT. 1-1/2"=0.077 2-1/2"=0.10 3-1/2"=0.13 4-1/2"=0.16 5-1/2"=0.19 6-1/2"=0.22

ITEM

START

FINISH

TIME

1030

1330

pH

6.9

6

TEMP.

8°

7°

DEPTH

4.75'

Bottom 3'

COLOR

cloudy

9

APPEAR.

600

540

resch. good

SAMPLING

DATE 3/27/86

TIME

1330

pH

6

TEMP

7°

METHOD

pvc bailer

COLOR

cloudy

CONTAINER

1-1/2 gallon, 1 Qt.

APPEAR.

SAMPLED BY

GOS, TN

EH

540

PRESERVATION

DATE 3/27/86

FILTERED: YES

X

NO

TIME

1345

BY

GOS

PRESERVED: YES

X

NO

TIME

1345

BY

GOS

PRESERVATIVE:

☒ H₂SO₄

☐ HNO₃

☐ NaOH

☐ H₃PO₄+CaSO₄

☐ Zn(C₂H₃O₂)₂

☒ COOLED TO 4°C

☒ OTHER

CUSTODY

SAMPLER'S SIGNATURE

Tony Napoli

TRANSFERRED TO: #1

RECEIVED BY

Paul H. Hall

DATE

TIME

#2

RECEIVED BY

DATE

TIME

FRIEND LABORATORY, INC.

DECEMBER 28, 1984

provided by the Environmental
Protection Agency for the:
acteriological examination
of Potable Water
eta's by Atomic Absorption
et Chemistry
ative Organics
esticides, herbicides

Friend Laboratory, Inc
446 BROAD STREET • WAVERLY, N.Y. 14892-1145
Phone (607) 565-2893

Chemical and Bacteria-
analysis of
WATER
STREAM POLLUTION
WASTEWATER
SLUDGE
SOIL
DAIRY PRODUCTS
FOODS and MORE

*2nd Round - Background Water
Analysis*

(PINE TREE SITE)

Key For Report

< = Less Than
> = Greater Than
Pt. Co. U = Platinum Cobalt Units
ppm = Parts per Million
ug/L = Micrograms per Liter
mg/L = Milligrams per Liter
NTU = Nephelometric
Turbidity Unit
ND = None Detected
umhos/cm = Micromhos per
Centimeter

SAMPLE SOURCES

Date Received: **12/28/84**

Pick up by: **Randy**

Cortland County Highway Dept.
ATTN: Mr. Ralph Pitman
P.O. Box 5590
Cortland, NY 13045

		RE-8 Depth 6'10"	RE-5 Depth 32'10"	RE-4 Depth 40'9"	RE-5 Depth 5'2"	RE-4 Depth 8'2"
Aluminum	mg/L	27	2.8	1.4	20	14
Calcium as CaCO ₃	mg/L	30	29	17	27	45
pH		7.3	12.0	11.0	7.6	7.5
		2.4	1.5	15.6	3.6	1.8
C.O.D. 5 mg/L		ND<3.0	ND<3.0	ND<3.0	ND<3.0	4.4
C.O.D. mg/L		142.0	119.0	125.0	120.0	100.0
Total Hardness mg/L		5.6	17.5	16.8	16.1	3.10
Kjeldahl Nitrogen mg/L		500.0	1110.0	550.0	560.0	370.0
Dissolved Solids mg/L				3	3	3
Odor	Threshold #	2	6			
Conductivity	umhos/cm	340.0	4900.0	680.0	340.0	460.0
Chlorides	mg/L	2.2	2.8	3.3	1.7	21.6
Ammonia Nitrogen as N	mg/L	0.13	0.86	1.3	ND<0.10	ND<0.10
Nitrate Nitrogen as N	mg/L	0.44	10.82	2.20	0.38	0.52
Sulfate	mg/L	15.0	34.5	62.0	38.0	22.0
Hexachromium	mg/L	ND<0.05	ND<0.05	ND<0.05	ND<0.05	ND<0.05
Detergents Anionic	mg MBAS/L	ND<0.01	ND<0.01	ND<0.01	ND<0.01	ND<0.01
Phenols	mg/L	0.2	0.2	0.16	0.20	0.20
Alkalinity as CaCO ₃	mg/L	145.2	936.0	55.2	144.0	162.0
Color	Pt. Co. U	35	20	20	35	70
Copper	mg/L	ND<0.05	ND<0.05	ND<0.05	ND<0.05	ND<0.05
Iron mg/L		9.2	0.65	1.00	8.9	4.98
Manganese	mg/L	0.678	0.140	0.140	0.688	0.252
Zinc mg/L		0.026	ND<0.025	ND<0.025	ND<0.025	ND<0.025
Arsenic mg/L		ND<0.0025	ND<0.0025	ND<0.0025	ND<0.0025	ND<0.0025
Sodium	mg/L	16.2	139	38	12.3	16.7
Calcium mg/L		0.05	0.03	ND<0.01	ND<0.01	ND<0.01
Chromium mg/L		ND<0.05	ND<0.05	ND<0.05	ND<0.05	ND<0.05
Lead mg/L		0.72	0.59	0.57	0.28	0.26
Mercury mg/L		ND<0.0004	0.0004	0.0005	0.0004	ND<0.0004
Selenium mg/L		ND<0.002	ND<0.002	ND<0.002	ND<0.002	ND<0.002
Silver mg/L		ND<0.05	ND<0.05	ND<0.05	ND<0.05	ND<0.05

Coliform

>14

<2.2

<2.2

>16

CC:

Date **1/16/85** pg

Approved By:

Manager

Page 1 of 3

Comments: T.O.C. to Follow

Approved by the Environmental
Protection Agency for the
water pollution examination
of Potable Water
Metals by Atomic Absorption
Water Chemistry
Inorganic Organics
Pesticides, Herbicides

Friend Laboratory, Inc.
446 BROAD STREET, WAVERLY, N.Y. 14892-1445
Phone (607) 565-2893

Chemical and Bacterial
analysis of
WATER
STREAM POLLUTION
WASTEWATER
SLUDGE
SOIL
DAIRY PRODUCTS
FOODS and MORE

*Supplement to 2nd Round of
Background Water Samples - PINE Tree Site*

Key For Report

< = Less Than
> = Greater Than
Pt. Co. U. = Platinum Cobalt Units
ppm = Parts per Million
ug/L = Micrograms per Liter
mg/L = Milligrams per liter
NTU = Nephelometric
Turbidity Unit
ND = None Detected
UMHOS/cm = Micromhos per
Centimeter

Cortland County Highway Dept.
ATTN: Mr. Ralph Pitman
P.O. Box 5590
Cortland, NY 13045

SAMPLE SOURCES

Date Received: Addendum to
12/28/84

Pick up by: Randy

Analysis
Performed:

	RE-8 Depth 6'10"	RE-7 D-5 Depth 32'10"	RE-6 D-4 Depth 40'9"	RE-5 Depth 5'2"	RE-4 Depth 8'2"
PH					
DO 5 25 mg/L					
DO mg/L					
Total Hardness mg/L					
Kjeldahl Nitrogen mg/L					
Dissolved Solids mg/L					
Suspended Solids mg/L					
Total Solids mg/L					
Volatiles Solids mg/L					
T.O.C.	mg/L	6	6	12	2
					4
Copper mg/L					
Iron mg/L					
Nickel mg/L					
Zinc mg/L					
Arsenic mg/L					
Barium mg/L					
Calcium mg/L					
Chromium mg/L					
Lead mg/L					
Mercury mg/L					
Selenium mg/L					
Silver mg/L					

CC:

Date 1/24/85 pg

Approved By:

Manager

Comments:

Page 1 of 3

Form 1043

Approved by the Environmental
Protection Agency for the:
Bacteriological examination
of Potable Water
Metals by Atomic Absorption
Water Chemistry
Volatile Organics
Pesticides, Herbicides

Friend Laboratory, Inc.

448 BROAD STREET • WAVERLY, N.Y. 14892-1445
Phone (607) 565-2893

Chemical and Bacteri-
analysis of
WATER
STREAM POLLUTION
WASTEWATER
SLUDGE
SOIL
DAIRY PRODUCTS
FOODS and MORE

2nd Round - Background Water Analysis (PINE TREE SITE)

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uMHOS/cm = Micromhos per
Centimeter

Plant Mgr. ☐

Company
Name

Cortland County Highway Dept. - Cont'd.

Address ☐

Date Received: 12/28/84

SAMPLE SOURCES

Pick up by: Randy

		DO-2 Depth 5'5"	D-1 Depth 12'2"	D-2 Artesian	D-3 WELL FROZEN	RE-6 Depth 6'2"
Aluminum	mg/L	16	1.0	<0.5		13
Calcium as CaCO ₃	mg/L	31	<10	17		28
pH		7.5	8.3	7.7		7.5
B.O.D. 5 24 mg/L		2.4	1.5	2.4		14.5
C.O.D. mg/L		ND<3.0	ND<3.0	ND<3.0		13.3
Total Hardness mg/L		180.0	68.0	145.0		150.0
Kjeldahl Nitrogen mg/L		18.2	8.4	3.5		16.72
Dissolved Solids mg/L		670.0	400.0	590.0		620.0
Odor	Threshold #	3	2	6		13
Conductivity	uMHOS/cm	350.0	250.0	320.0		760.0
Chlorides	mg/L	1.7	1.1	2.8		14.4
Ammonia Nitrogen as N	mg/L	ND<0.10	0.10	ND<0.10		ND<0.10
Nitrate Nitrogen as N	mg/L	0.33	0.21	0.30		0.26
Sulfate	mg/L	20.0	22.0	10.0		20.0
Hexachromium	mg/L	ND<0.05	ND<0.05	ND<0.05		ND<0.05
Detergents Anionic	mg MBAS/L	ND<0.01	ND<0.01	ND<0.01		ND<0.01
Phenols	mg/L	0.10	0.10	0.16		ND<0.05
Alkalinity as CaCO ₃	mg/L	163.2	240.0	103.2		122.8
Color	Pt. Co. U.	70	20	<5		45
Copper	mg/L	ND<0.05	ND<0.05	ND<0.05		ND<0.05
Iron mg/L		2.37	0.79	0.23		2.80
Manganese	mg/L	0.418	0.126	0.185		0.462
Lead mg/L		ND<0.025	ND<0.025	ND<0.025		ND<0.025
Arsenic mg/L		ND<0.0025	ND<0.0025	ND<0.0025		ND<0.0025
Sodium	mg/L	14.5	35.9	12.0		195.6
Cadmium mg/L		ND<0.01	ND<0.01	ND<0.01		ND<0.01
Chromium mg/L		ND<0.05	ND<0.05	ND<0.05		ND<0.05
Cobalt mg/L		0.21	0.23	0.19		ND<0.1
Mercury mg/L		ND<0.0004	ND<0.0004	ND<0.0004		ND<0.0004
Selenium mg/L		ND<0.002	ND<0.002	ND<0.002		ND<0.002
Silver mg/L		ND<0.05	ND<0.05	ND<0.05		ND<0.05

Calcium

> 16

> 16

> 16

GC:

Date 1/16/85 pg

Approved By:

Manager

Comments: T.O.C. to Follow

Page 2 of 3

Approved by the Environmental
Protection Agency for the:
Bacteriological Examination
of Potable Water
Analysis: Atomic Absorption
Water Chemistry
Inorganic Organics
Pesticides - Herbicides

Friend Laboratory, Inc.
446 BROAD STREET, WAVERLY, N.Y. 14892-1445
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Chemical and Bacterial
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WATER
STREAM POLLUTION
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Turbidity Unit
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Centimeter

Cortland County Highway Dept. - Cont'd.

Date Received: Addendum to

12/28/84

Pick up by: Randy

SAMPLE SOURCES

Analysis
Performed:

		DO-2 Depth 5'5"	D-1 Depth 12'2"	D-2 Artesian	D-3 Well Frozen	RE-6 Depth 6'2"
pH						
DO 5.28 mg/L						
DO mg/L						
Total Hardness mg/L						
Kjeldahl Nitrogen mg/L						
Dissolved Solids mg/L						
Suspended Solids mg/L						
Total Solids mg/L						
Volatiles Solids mg/L						
T.O.C.	mg/L	3	2	3		4
Copper mg/L						
Iron mg/L						
Nickel mg/L						
Zinc mg/L						
Arsenic mg/L						
Barium mg/L						
Cadmium mg/L						
Chromium mg/L						
Lead mg/L						
Mercury mg/L						
Selenium mg/L						
Silver mg/L						

CC:

Date 1/24/85 pg

Approved By: W.S. /
Manager

Comments:

Approved by the Environmental
Protection Agency for the
bacteriological examination
of Potable Water
Metals by Atomic Absorption
Spectrometry
Pesticides, Herbicides

Friend Laboratory, Inc.

446 BROAD STREET • WAVERLY, N.Y. 14892-1445
Phone (607) 565-2893

Chemical and Bacterial
analysis of:
WATER
STREAM POLLUTION
WASTEWATER
SLUDGE
SOIL
DAIRY PRODUCTS
FOODS and MORE

2nd. Round - Background Water Analysis (Pine TREE SITE)

Key For Report

< = Less Than
> = Greater Than
Pt. Co. U. = Platinum Cobalt Units
ppm = Parts per Million
ug/L = Micrograms per Liter
mg/L = Milligrams per Liter
NTU = Nephelometric
Turbidity Unit
ND = None Detected
umhos/cm = Micromhos per
Centimeter

Company Name Cortland County Highway Dept. - Cont'd.

Address

Date Received 12/28/84

Pick up by: Randy

SAMPLE SOURCES

		RE-7 Depth 7'2"	D-6 WELL FROZEN	B-1 Depth 2'10"	B-2 WELL FROZEN	B-3 Depth 2'9"
Ammonium	mg/L	16		16		23
Calcium as CaCO ₃	mg/L	52		30		48
		7.3		7.3		7.2
COD 5% mg/L		4.2		13.2		8.4
COD 2% mg/L		8.9		3.3		7.7
Total Hardness mg/L		133.0		2.1		1.4
Urethane Nitrogen mg/L		32.2		2.1		1.4
Dissolved Solids mg/L		8080.0		540.0		510.0
Odor	Threshold #	2		3		3
Conductivity	umhos/cm	760.0		340.0		400.0
Chlorides	mg/L	3.3		4.9		5.5
Ammonia Nitrogen as N	mg/L	0.10		0.10		ND<0.10
Nitrate Nitrogen as N	mg/L	0.70		0.28		1.03
Sulfate	mg/L	100.0		45.0		130.0
Hexachromium	mg/L	ND<0.05		ND<0.05		ND<0.05
Detergents Anionic	mg MBAS/L	ND<0.01		ND<0.01		ND<0.01
Phenols	mg/L	ND<0.05		ND<0.05		ND<0.05
Alkalinity as CaCO ₃	mg/L	94.8		127.2		158.4
Color	Pt Co U	35		20		20
Copper	mg/L	ND<0.05		ND<0.05		ND<0.05
Iron mg/L		2.21		2.38		4.79
Manganese	mg/L	0.212		0.442		0.373
Zinc mg/L		ND<0.025		ND<0.025		ND<0.025
Arsenic mg/L		ND<0.0025		ND<0.0025		ND<0.0025
Cadmium		78.8		16.7		8.2
Barium mg/L		ND<0.01		ND<0.01		ND<0.01
Chromium mg/L		ND<0.05		ND<0.05		ND<0.05
Lead mg/L		ND<0.1		0.19		0.21
Mercury mg/L		ND<0.0004		ND<0.0004		ND<0.0004
Selenium mg/L		ND<0.002		ND<0.002		ND<0.002
Copper mg/L		ND<0.05		ND<0.05		ND<0.05

Coliform

SC:

Comments: T.O.C. to Follow

Date 1/16/85 pg

Page 3 of 3

Approved By: W. S. J. Manager

Approved by the Environmental
Protection Agency for the:
Microbiological examination
of Potable Water
Analysis by Atomic Absorption
Spectrometry
Volatile Organics
Pesticides, Herbicides

Friend Laboratory, Inc.
446 BROAD STREET, WAVERLY, N.Y. 14892-1445
Phone (607) 565-2893

Chemical and Bacterial
analysis of:
WATER
STREAM POLLUTION
WASTEWATER
SLUDGE
SOIL
DAIRY PRODUCTS
FOODS and MORE

Key For Report

< = Less Than
> = Greater Than
Pt. Co. U. = Platinum Cobalt Units
ppm = Parts per Million
ug/L = Micrograms per Liter
mg/L = Milligrams per Liter
NTU = Nephelometric
Turbidity Unit
ND = None Detected
uMHOS/cm = Micromhos per
Centimeter

Cortland County Highway Dept. - Cont'd.

SAMPLE SOURCES

Date Received: Addendum to
12/28/84
Pick up by: Randy

Analysis
Performed:

		RE-7 Depth 7'2"	D-6 Well Frozen	B-1 Depth 2'10"	B-2 Well Frozen	B-3 Depth 2'9"
PH	--					
DO 5 25 mg/L						
DO mg/L						
Total Hardness mg/L						
Ammonia Nitrogen mg/L						
Dissolved Solids mg/L						
Suspended Solids mg/L						
Total Solids mg/L						
Volatile Solids mg/L						
Calc. mg/L	mg/L	5		3		3
Copper mg/L						
Iron mg/L						
Cadmium mg/L						
Zinc mg/L						
Arsenic mg/L						
Mercury mg/L						
Barium mg/L						
Chromium mg/L						
Lead mg/L						
Mercury mg/L						
Selenium mg/L						
Silver mg/L						

CC:

Date 1/24/85 pg

Approved By:

Manager

Comments:

CORTLAND COUNTY HEALTH DEPARTMENT

SEPTEMBER 17, 1985

Cortland County Health Department

60 CENTRAL AVENUE
P. O. BOX 5590
CORTLAND, NEW YORK 13045
TELEPHONE 607-753-5036

JAMES V. FEUSS, P. E.
Director of Public Health

ROBERT T. COREY, M. D.
*Deputy Commissioner
Medical Director*

V. NELLIE DIMON
Secretary, Board of Health

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December 26, 1985

Mary Kimberly
Mc Graw Village Office
Cemetery Street
McGraw, N.Y. 13101

Re: Results of Orange Creek and Trout Brook Water Sample Analysis

Dear Ms. Kimberly,

Enclosed are the results of the stream sampling our office conducted this past September 17, 1985. Three points were sampled. We first sampled the water in Orange Creek (i.e. the water which drains from the Cortland County Landfill) after it passed through the culvert at State Highway 41. We then sampled the water in Trout Brook approximately 300 feet upstream from where Orange Creek flows into Trout Brook. This sample supposedly should give us background levels of chemicals in Trout Brook before any impact is made on Trout Brook by Orange Creek. We then took one final set of samples on Trout Brook approximately 800 feet downstream of the confluence of Orange Creek and Trout Brook. At the time of our sampling, Orange Creek did not directly flow into Trout Brook. Approximately half-way between Highway 41 and Trout Brook, all of the water in Orange Creek dropped into the ground at a "losing reach" of the stream bed. The sampling point on Trout Brook downstream of the confluence of the two streams was chosen because it was thought to be a "gaining reach" of the stream bed. In other words, this reach of the stream was thought to be a reach where ground water flowed upward into the stream bed (as opposed to surface water flowing downward into the ground as is observed in a losing reach). Because Orange Creek did not flow directly into Trout Brook, a gaining reach downstream of the confluence on Trout Brook was desired so that a sample representative of the mixed water of the two streams could be obtained. From this sample we hoped to observe any impact on Trout Brook by Orange Creek.

From the enclosed results, one can see that essentially none of the 122 organic chemicals analyzed for in these 3 stream samples were detected. The only organic chemical that was present was dichloromethane. A level of 1 microgram per liter (ug/l) of this compound was detected in the Orange Creek sample and the upstream sample taken on Trout Brook. The lab noted these two results as suspicious, however, because the field blank showed a level of 7 ug/l of this same chemical.

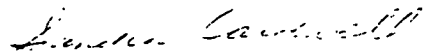
The inorganic sample results show that the iron, manganese and chloride levels at each of the three sampling points are below the maximum contaminant levels established by the State Sanitary Code for those same elements in drinking water. The reported total dissolved solids (TDS) level at each of the three sampling locations is below the maximum contaminant level for

Cont'd: Results of Orange Creek and Trout Brook Water

TDS regulated by the Safe Drinking Water Act. The pH of the water in Trout Brook is much higher, or more alkaline, than the water in Orange Creek. This indicates that the mixing of the two streams would result in a lowering of the pH in Trout Brook, thus helping to bring the pH of Trout Brook back to the more neutral pH of 7.

By and large, there seems to be no significant impact on Trout Brook by Orange Creek based on this series of samples. If you have any further questions regarding this matter, I will be happy to try and answer them for you. I can be reached at 753-5035.

Very truly yours,



Sandra Cardwell
Asst. Public Health Engineer

MEMORANDUM

CORTLAND COUNTY HEALTH DEPARTMENT

Env. Health Div.

5c

TO: Mr. James O'Mara

DATE: November 7, 1985

FROM: James V. Feuss *JVF*

SUBJECT: Orange Creek (Tributary 5 Trout Brook)

This is to advise that a comprehensive analysis of the water samples taken from Orange Creek and Trout Brook (above and below the inlet of Orange Creek) has been completed. The laboratory services were provided by the health department as a special project to determine if any potential danger exists that may threaten the McGraw water supply.

The three samples were analyzed for 129 chemicals designated by EPA as the priority pollutants. None were found to be present. This is consistent with a DEC analysis of the biological life in Trout Brook near the confluence of Orange Creek. If anyone wants more details on this study, please feel free to contact Sandra Cardwell in our Division of Environmental Health.

JVF/gt

cc: Mr. Compagni
Mr. Bilodeau
Mayor Carole Connelly - McGraw
Mr. Tim Buhl - Resource Engineering
Mr. Palm
Mr. Poole
Mr. Pitman

0809

NEW YORK STATE DEPARTMENT OF HEALTH
WADSWORTH CENTER FOR LABORATORIES AND RESEARCH

PAGE 1

RESULTS OF EXAMINATION

FINAL REPORT

SAMPLE ID: 851007038 SAMPLE RECEIVED: 85/09/19/11 CHARGE: 1140
PROGRAM: 108: HAZARDOUS WASTE SITE-PRELIMINARY INVESTIGATION
SOURCE ID: DRAINAGE BASIN: 06 GAZETTEER CODE: 1151
POLITICAL SUBDIVISION: CORTLANDVILLE COUNTY: CORTLAND
LATITUDE: LONGITUDE: Z DIRECTION:
LOCATION: CORTLAND COUNTY LANDFILL SURVEY REGISTRY SITE NO. 712001
DESCRIPTION: 1 FT DOWNSTREAM FROM RT 41 CULVERT OVER ORANGE CK
REPORTING LAB: 10: LABORATORY OF INORGANIC ANALYTICAL CHEMISTRY - ALBANY
TEST PATTERN: 10-067: IRON AND MANGANESE
SAMPLE TYPE: 210: SURFACE WATER
TIME OF SAMPLING: 85/09/17 14:40 DATE PRINTED: 85/11/15

PARAMETER	RESULT
01IRON IRON	0.07 MG/L
01MANGAN MANGANESE	< 0.02 MG/L

FOLLOWING PARAMETERS NOT PART OF TEST PATTERN

PARAMETER	RESULT
01PH PH	8.0
01CHLORIDE CHLORIDE	33.8 MG/L
01SOLIDDIS SOLIDS, TOTAL DISSOLVED, 180 C	24. MG/L

**** END OF REPORT ****

COPIES SENT TO: CO(1), RO(1), LPHE(2), FED(0), INFO-P(0), INFO-L(0)

CORTLAND COUNTY HEALTH DEPT.
COUNTY OFFICE BUILDING
60 CENTRAL AVE., FIRST FLOOR
CORTLAND, N. Y. 13045

SUBMITTED BY: GUARD

REC'D
HEALTH DEPT.
NOV 20 10 00 AM '85

NEW YORK STATE DEPARTMENT OF HEALTH
WADSWORTH CENTER FOR LABORATORIES AND RESEARCH

PAGE 1

RESULTS OF EXAMINATION

FINAL REPORT

SAMPLE ID: 53402 SAMPLE RECEIVED: 85/09/19/ CHARGE: 22.00
PROGRAM: 108: HAZARDOUS WASTE SITE-PRELIMINARY INVESTIGATION
SOURCE ID: DRAINAGE BASIN: 06 GAZETTEER CODE: 1151
POLITICAL SUBDIVISION: CORTLANDVILLE COUNTY: CORTLAND
LATITUDE: LONGITUDE: Z DIRECTION:
LOCATION: CORTLAND COUNTY LANDFILL SURVEY REGISTRY SITE NO. 712001
DESCRIPTION: 1 FT DOWNSTREAM FROM RT 41 CULVERT OVER ORANTE CK
REPORTING LAB: TOX: LAB FOR ORGANIC ANALYTICAL CHEMISTRY
TEST PATTERN: PPEP: PRIORITY POLLUTANTS - PURGEABLE HALOCARBONS & AROMAT C
SAMPLE TYPE: 210: SURFACE WATER
TIME OF SAMPLING: 85/09/17 14:40 DATE PRINTED: 85/10/07

PARAMETER	RESULT
T62009 CHLOROMETHANE	< 1. MCG/L
T61809 BROMOMETHANE	< 1. MCG/L
T41009 VINYL CHLORIDE	< 1. MCG/L
T70209 DICHLORODIFLUOROMETHANE	< 1. MCG/L
T61909 CHLOROETHANE	< 1. MCG/L
T61709 TRICHLOROFLUOROMETHANE	< 1. MCG/L
T23809 DICHLOROMETHANE	1. MCG/L
T50909 1, 1-DICHLOROETHENE	< 1. MCG/L
T51909 1, 1-DICHLOROETHANE	< 1. MCG/L
T61209 TRANS-1, 2-DICHLOROETHENE	< 1. MCG/L
T39009 CHLOROFORM	< 1. MCG/L
T50809 1, 2-DICHLOROETHANE	< 1. MCG/L
T23609 1, 1, 1-TRICHLOROETHANE	< 1. MCG/L
T36609 CARBON TETRACHLORIDE	< 1. MCG/L
T38909 BROMODICHLOROMETHANE	< 1. MCG/L
T61309 1, 2-DICHLOROPROPANE	< 1. MCG/L
T61509 TRANS-1, 3-DICHLOROPROPENE	< 1. MCG/L
T41109 TRICHLOROETHYLENE	< 1. MCG/L
T44909 DIBROMOCHLOROMETHANE	< 1. MCG/L
T61409 CIS-1, 3-DICHLOROPROPENE	< 1. MCG/L
T51709 1, 1, 2-TRICHLOROETHANE	< 1. MCG/L
T61109 2-CHLOROETHYL VINYL ETHER	< 1. MCG/L
T42109 BROMOFORM	< 1. MCG/L
T51809 1, 1, 2, 2-TETRACHLOROETHANE	< 1. MCG/L
T41209 TETRACHLOROETHENE	< 1. MCG/L
T40909 CHLOROBENZENE	< 1. MCG/L
T49709 1, 3-DICHLOROBENZENE	< 1. MCG/L
T44109 1, 2-DICHLOROBENZENE	< 1. MCG/L
T44209 1, 4-DICHLOROBENZENE	< 1. MCG/L
T34409 BENZENE	< 1. MCG/L
T39209 TOLUENE	< 1. MCG/L
T51009 ETHYLBENZENE	< 1. MCG/L
T85209 1-CHLOROCYCLOHEXENE-1	< 1. MCG/L

**** CONTINUED ON NEXT PAGE ****

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CORTLAND, N. Y. 13045

SUBMITTED BY: GUARD

NEW YORK STATE DEPARTMENT OF HEALTH
WADSWORTH CENTER FOR LABORATORIES AND RESEARCH

PAGE 2

RESULTS OF EXAMINATION

FINAL REPORT

SAMPLE ID: 53402 SAMPLE RECEIVED: 85/09/19/ CHARGE: 22.00
POLITICAL SUBDIVISION: CORTLANDVILLE COUNTY: CORTLAND
LOCATION: CORTLAND COUNTY LANDFILL SURVEY REGISTRY SITE NO. 712001
TIME OF SAMPLING: 85/09/17 14:40 DATE PRINTED: 85/10/07

PARAMETER	RESULT
T70409 PARA-XYLENE	< 1. MCG/L
T70309 META-XYLENE	< 1. MCG/L
T51409 ORTHO-XYLENE	< 1. MCG/L
T85309 CUMENE	< 1. MCG/L
T85409 STYRENE	< 1. MCG/L
T85509 P-BROMOFLUOROBENZENE	< 1. MCG/L
T51109 N-PROPYLBENZENE	< 1. MCG/L
T85609 TERT-BUTYLBENZENE	< 1. MCG/L
T85709 O/P-CHLOROTOLUENE	< 1. MCG/L
T51209 BROMOBENZENE	< 1. MCG/L
T50509 META-CHLOROTOLUENE	< 1. MCG/L
T85809 1, 3, 5-TRIMETHYLBENZENE	< 1. MCG/L
T85909 1, 2, 4-TRIMETHYLBENZENE	< 1. MCG/L
T86009 P-CYME	< 1. MCG/L
T86109 CYCLOPROPYLBENZENE	< 1. MCG/L
T86209 SEC-BUTYLBENZENE	< 1. MCG/L
T86309 N-BUTYLBENZENE	< 1. MCG/L
T86409 2, 3-BENZOFURAN	< 1. MCG/L
T52509 HEXACHLOROBTADIENE (C-46)	< 5. MCG/L
T44009 1, 2, 4-TRICHLOROBENZENE	< 5. MCG/L
T65609 NAPHTHALENE	< 5. MCG/L
T43909 1, 2, 3-TRICHLOROBENZENE	< 5. MCG/L
T67109 PHENOL	< 10. MCG/L
T66409 2-CHLOROPHENOL	< 10. MCG/L
T66809 2-NITROPHENOL	< 10. MCG/L
T66609 2, 4-DIMETHYLPHENOL	< 10. MCG/L
T66509 2, 4-DICHLOROPHENOL	< 10. MCG/L
T66309 4-CHLORO-3-METHYLPHENOL	< 10. MCG/L
T67209 2, 4, 6-TRICHLOROPHENOL	< 10. MCG/L
T49609 2, 4, 5-TRICHLOROPHENOL	< 10. MCG/L
T66709 2, 4-DINITROPHENOL	< 10. MCG/L
T66909 4-NITROPHENOL	< 10. MCG/L
T68509 2-METHYL-4, 6-DINITROPHENOL	< 10. MCG/L
T67009 PENTACHLOROPHENOL	< 10. MCG/L
T68109 BIS(2-CHLOROISOPROPYL)ETHER	NA
T63909 BIS(2-CHLOROETHYL)ETHER	< 10. MCG/L
T65909 N-NITROSODI-N-PROPYLAMINE	< 10. MCG/L
T65309 HEXACHLOROETHANE	< 10. MCG/L
T65709 NITROBENZENE	< 10. MCG/L
T65509 ISOPHORONE	< 10. MCG/L
T68609 BIS(2-CHLOROETHOXY)METHANE	< 10. MCG/L
T49209 HEXACHLOROCYCLOPENTADIENE (C-56)	< 10. MCG/L
T64109 2-CHLORONAPHTHALENE	< 10. MCG/L
T64909 2, 6-DINITROTOLUENE	< 10. MCG/L
T63109 ACENAPHTHYLENE	< 10. MCG/L
T64709 DIMETHYLPHTHALATE	< 10. MCG/L
T63009 ACENAPHTHENE	< 10. MCG/L
T64809 2, 4-DINITROTOLUENE	< 10. MCG/L

**** CONTINUED ON NEXT PAGE ****

NEW YORK STATE DEPARTMENT OF HEALTH
WADSWORTH CENTER FOR LABORATORIES AND RESEARCH

PAGE 3

RESULTS OF EXAMINATION

FINAL REPORT

SAMPLE ID: 53402 SAMPLE RECEIVED: 85/09/19/ CHARGE: 22.00
POLITICAL SUBDIVISION: CORTLANDVILLE COUNTY: CORTLAND
LOCATION: CORTLAND COUNTY LANDFILL SURVEY REGISTRY SITE NO. 712001
TIME OF SAMPLING: 85/09/17 14:40 DATE PRINTED: 85/10/07

PARAMETER	RESULT	
T64609 DIETHYLPHTHALATE	< 10. MCG/L	
T65209 FLUORENE	< 10. MCG/L	
T68409 4-CHLOROPHENYL PHENYL ETHER		NA
T66009 N-NITROSODIPHENYLAMINE	< 10. MCG/L	
T65109 1,2-DIPHENYLHYDRAZINE	< 10. MCG/L	
T68309 4-BROMOPHENYL PHENYL ETHER	< 10. MCG/L	
T48809 HEXACHLOROBENZENE	< 10. MCG/L	
T66109 PHENANTHRENE	< 10. MCG/L	
T63209 ANTHRACENE	< 10. MCG/L	
T64409 DI-N-BUTYLPHTHALATE	< 10. MCG/L	
T68009 FLUORANTHENE	< 10. MCG/L	
T66209 PYRENE	< 10. MCG/L	
T63809 BENZIDINE	< 200. MCG/L	
T64009 BUTYL BENZYL PHTHALATE	< 30. MCG/L	
T63309 BENZO(A)ANTHRACENE	< 30. MCG/L	
T64509 3,3'-DICHLOROBENZIDINE	< 30. MCG/L	
T64209 CHRYSENE	< 30. MCG/L	
T67909 BIS(2-ETHYLHEXYL)PHTHALATE	< 30. MCG/L	
T65009 DI-N-OCTYL PHTHALATE	< 30. MCG/L	
T63409 BENZO(B)FLUORANTHENE	< 30. MCG/L	
T63509 BENZO(K)FLUORANTHENE	< 30. MCG/L	
T63609 BENZO(A)PYRENE	< 30. MCG/L	
T65409 INDENO(1,2,3-CD)PYRENE	< 30. MCG/L	
T64309 DIBENZO(A,H)ANTHRACENE	< 30. MCG/L	
T63709 BENZO(GHI)PERYLENE	< 30. MCG/L	
T15709 HCH, ALPHA	< 10. MCG/L	
T15809 HCH, BETA	< 10. MCG/L	
T35609 HCH, GAMMA (LINDANE)	< 10. MCG/L	
T16009 HCH, DELTA	< 10. MCG/L	
T08009 HEPTACHLOR	< 10. MCG/L	
T07709 ALDRIN	< 10. MCG/L	
T08309 HEPTACHLOR EPOXIDE	< 10. MCG/L	
T43309 ENDOSULFAN I	< 10. MCG/L	
T14809 DDE -PARA, PARA	< 10. MCG/L	
T08509 DIELDRIN	< 10. MCG/L	
T08409 ENDRIN	< 10. MCG/L	
T14909 DDD -PARA, PARA	< 10. MCG/L	
T43409 ENDOSULFAN II	< 10. MCG/L	
T67409 ENDRIN ALDEHYDE	< 10. MCG/L	
T67309 ENDOSULFAN SULFATE	< 10. MCG/L	
T14709 DDT -PARA, PARA	< 10. MCG/L	

**** END OF REPORT ****

0807

NEW YORK STATE DEPARTMENT OF HEALTH
WADSWORTH CENTER FOR LABORATORIES AND RESEARCH

PAGE 1

RESULTS OF EXAMINATION

FINAL REPORT

SAMPLE ID: 851007037 SAMPLE RECEIVED: 85/09/19/11 CHARGE: 1.40
PROGRAM: 108: HAZARDOUS WASTE SITE-PRELIMINARY INVESTIGATION
SOURCE ID: DRAINAGE BASIN: 06 GAZETTEER CODE: 1151
POLITICAL SUBDIVISION: CORTLANDVILLE COUNTY: CORTLAND
LATITUDE: LONGITUDE: Z DIRECTION:
LOCATION: CORTLAND COUNTY LANDFILL SURVEY REGISTRY SITE NO. 712001
DESCRIPTION: 300 FT UPSTREAM OF CONFLUENCE ON TROUT BROOK
REPORTING LAB. 10: LABORATORY OF INORGANIC ANALYTICAL CHEMISTRY - ALBANY
TEST PATTERN: 10-067: IRON AND MANGANESE
SAMPLE TYPE: 210: SURFACE WATER
TIME OF SAMPLING: 85/09/17 15:20 DATE PRINTED: 85/11/13

PARAMETER	RESULT
01IRON IRON	0.10 MG/L
01MANGAN MANGANESE	< 0.02 MG/L

FOLLOWING PARAMETERS NOT PART OF TEST PATTERN

PARAMETER	RESULT
01PH PH	9.4
01CHLORIDE CHLORIDE	16.4 MG/L
01SOLIDS SOLIDS, TOTAL DISSOLVED; 180 °C	32. MG/L

**** END OF REPORT ****

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WADSWORTH CENTER FOR LABORATORIES AND RESEARCH

PAGE 1

RESULTS OF EXAMINATION

FINAL REPORT

SAMPLE ID: 53401 SAMPLE RECEIVED: 85/09/19/ CHARGE: 22.00
PROGRAM: 108:HAZARDOUS WASTE SITE-PRELIMINARY INVESTIGATION
SOURCE ID: DRAINAGE BASIN:06 GAZETTEER CODE:1151
POLITICAL SUBDIVISION:CORTLANDVILLE COUNTY:CORTLAND
LATITUDE: LONGITUDE: Z DIRECTION:
LOCATION: CORTLAND COUNTY LANDFILL SURVEY REGISTRY SITE NO. 712001
DESCRIPTION:300 FT. UPSTREAM OF CONFLUENCE ON TROUT BROOK
REPORTING LAB: TOX:LAB FOR ORGANIC ANALYTICAL CHEMISTRY
TEST PATTERN: PPEP:PRIORITY POLLUTANTS - PURGEABLE HALOCARBONS & AROMAT (C
SAMPLE TYPE: 210: SURFACE WATER
TIME OF SAMPLING: 85/09/17 15:20 DATE PRINTED:85/10/07

PARAMETER	RESULT
T62009 CHLOROMETHANE	< 1. MCG/L
T61809 BROMOMETHANE	< 1. MCG/L
T41009 VINYL CHLORIDE	< 1. MCG/L
T70209 DICHLORODIFLUOROMETHANE	< 1. MCG/L
T61909 CHLOROETHANE	< 1. MCG/L
T61709 TRICHLOROFLUOROMETHANE	< 1. MCG/L
T23809 DICHLOROMETHANE	1. MCG/L
T50909 1,1-DICHLOROETHENE	< 1. MCG/L
T51909 1,1-DICHLOROETHANE	< 1. MCG/L
T61209 TRANS-1,2-DICHLOROETHENE	< 1. MCG/L
T39009 CHLOROFORM	< 1. MCG/L
T50809 1,2-DICHLOROETHANE	< 1. MCG/L
T23609 1,1,1-TRICHLOROETHANE	< 1. MCG/L
T36609 CARBON TETRACHLORIDE	< 1. MCG/L
T38909 BROMODICHLOROMETHANE	< 1. MCG/L
T61309 1,2-DICHLOROPROPANE	< 1. MCG/L
T61509 TRANS-1,3-DICHLOROPROPENE	< 1. MCG/L
T41109 TRICHLOROETHYLENE	< 1. MCG/L
T44909 DIBROMOCHLOROMETHANE	< 1. MCG/L
T61409 CIS-1,3-DICHLOROPROPENE	< 1. MCG/L
T51709 1,1,2-TRICHLOROETHANE	< 1. MCG/L
T61109 2-CHLOROETHYL VINYL ETHER	< 1. MCG/L
T42109 BROMOFORM	< 1. MCG/L
T51809 1,1,2,2-TETRACHLOROETHANE	< 1. MCG/L
T41209 TETRACHLOROETHENE	< 1. MCG/L
T40909 CHLOROBENZENE	< 1. MCG/L
T49709 1,3-DICHLOROBENZENE	< 1. MCG/L
T44109 1,2-DICHLOROBENZENE	< 1. MCG/L
T44209 1,4-DICHLOROBENZENE	< 1. MCG/L
T34409 BENZENE	< 1. MCG/L
T39209 TOLUENE	< 1. MCG/L
T51009 ETHYLBENZENE	< 1. MCG/L
T85209 1-CHLOROCYCLOHEXENE-1	< 1. MCG/L

SUSPENSIOUS
= RESULT
SU

**** CONTINUED ON NEXT PAGE ****

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PAGE 2

RESULTS OF EXAMINATION

FINAL REPORT

SAMPLE ID: 53401 SAMPLE RECEIVED: 85/09/19/ CHARGE: 22.00
POLITICAL SUBDIVISION: CORTLANDVILLE COUNTY: CORTLAND
LOCATION: CORTLAND COUNTY LANDFILL SURVEY REGISTRY SITE NO. 712001
TIME OF SAMPLING: 85/09/17 15:20 DATE PRINTED: 85/10/07

PARAMETER	RESULT
T70409 PARA-XYLENE	< 1. MCG/L
T70309 META-XYLENE	< 1. MCG/L
T51409 ORTHO-XYLENE	< 1. MCG/L
T85309 CUMENE	< 1. MCG/L
T85409 STYRENE	< 1. MCG/L
T85509 P-BROMOFLUOROBENZENE	< 1. MCG/L
T51109 N-PROPYLBENZENE	< 1. MCG/L
T85609 TERT-BUTYLBENZENE	< 1. MCG/L
T85709 O/P-CHLOROTOLUENE	< 1. MCG/L
T51209 BROMOBENZENE	< 1. MCG/L
T50509 META-CHLOROTOLUENE	< 1. MCG/L
T85809 1,3,5-TRIMETHYLBENZENE	< 1. MCG/L
T85909 1,2,4-TRIMETHYLBENZENE	< 1. MCG/L
T86009 P-CYME	< 1. MCG/L
T86109 CYCLOPROPYLBENZENE	< 1. MCG/L
T86209 SEC-BUTYLBENZENE	< 1. MCG/L
T86309 N-BUTYLBENZENE	< 1. MCG/L
T86409 2,3-BENZOFURAN	< 1. MCG/L
T52509 HEXACHLOROBUTADIENE (C-46)	< 5. MCG/L
T44009 1,2,4-TRICHLOROBENZENE	< 5. MCG/L
T65609 NAPHTHALENE	< 5. MCG/L
T43909 1,2,3-TRICHLOROBENZENE	< 5. MCG/L
T67109 PHENOL	< 10. MCG/L
T66409 2-CHLOROPHENOL	< 10. MCG/L
T66809 2-NITROPHENOL	< 10. MCG/L
T66609 2,4-DIMETHYLPHENOL	< 10. MCG/L
T66509 2,4-DICHLOROPHENOL	< 10. MCG/L
T66309 4-CHLORO-3-METHYLPHENOL	< 10. MCG/L
T67209 2,4,6-TRICHLOROPHENOL	< 10. MCG/L
T49609 2,4,5-TRICHLOROPHENOL	< 10. MCG/L
T66709 2,4-DINITROPHENOL	< 10. MCG/L
T66909 4-NITROPHENOL	< 10. MCG/L
T68509 2-METHYL-4,6-DINITROPHENOL	< 10. MCG/L
T67009 PENTACHLOROPHENOL	< 10. MCG/L
T68109 BIS(2-CHLOROISOPROPYL)ETHER	NA
T63909 BIS(2-CHLOROETHYL)ETHER	< 10. MCG/L
T65909 N-NITROSODI-N-PROPYLAMINE	< 10. MCG/L
T65309 HEXACHLOROETHANE	< 10. MCG/L
T65709 NITROBENZENE	< 10. MCG/L
T65509 ISOPHORONE	< 10. MCG/L
T68609 BIS(2-CHLOROETHOXY)METHANE	< 10. MCG/L
T49209 HEXACHLOROCYCLOPENTADIENE (C-56)	< 10. MCG/L
T64109 2-CHLORONAPHTHALENE	< 10. MCG/L
T64909 2,6-DINITROTOLUENE	< 10. MCG/L
T63109 ACENAPHTHYLENE	< 10. MCG/L
T64709 DIMETHYLPHTHALATE	< 10. MCG/L
T63009 ACENAPHTHENE	< 10. MCG/L
T64809 2,4-DINITROTOLUENE	< 10. MCG/L

**** CONTINUED ON NEXT PAGE ****

NEW YORK STATE DEPARTMENT OF HEALTH
WADSWORTH CENTER FOR LABORATORIES AND RESEARCH

PAGE 3

RESULTS OF EXAMINATION

FINAL REPORT

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TIME OF SAMPLING: 85/09/17 15:20 DATE PRINTED: 85/10/07

PARAMETER	RESULT
T64609 DIETHYLPHTHALATE	< 10. MCG/L
T65209 FLUORENE	< 10. MCG/L
T69409 4-CHLOROPHENYL PHENYL ETHER	NA
T66009 N-NITROSODIPHENYLAMINE	< 10. MCG/L
T65109 1,2-DIPHENYLHYDRAZINE	< 10. MCG/L
T68309 4-BROMOPHENYL PHENYL ETHER	< 10. MCG/L
T49809 HEXACHLOROBENZENE	< 10. MCG/L
T66109 PHENANTHRENE	< 10. MCG/L
T63209 ANTHRACENE	< 10. MCG/L
T64409 DI-N-BUTYLPHTHALATE	< 10. MCG/L
T68009 FLUORANTHENE	< 10. MCG/L
T66209 PYRENE	< 10. MCG/L
T63809 BENZIDINE	< 200. MCG/L
T64009 BUTYL BENZYL PHTHALATE	< 30. MCG/L
T63309 BENZO(A)ANTHRACENE	< 30. MCG/L
T64509 3,3'-DICHLOROBENZIDINE	< 30. MCG/L
T64209 CHRYSENE	< 30. MCG/L
T67909 BIS(2-ETHYLHEXYL)PHTHALATE	< 30. MCG/L
T65009 DI-N-OCTYL PHTHALATE	< 30. MCG/L
T63409 BENZO(B)FLUORANTHENE	< 30. MCG/L
T63509 BENZO(K)FLUORANTHENE	< 30. MCG/L
T63609 BENZO(A)PYRENE	< 30. MCG/L
T65409 INDENO(1,2,3-CD)PYRENE	< 30. MCG/L
T64309 DIBENZO(A,H)ANTHRACENE	< 30. MCG/L
T63709 BENZO(GHI)PERYLENE	< 30. MCG/L
T15709 HCH, ALPHA	< 10. MCG/L
T15809 HCH, BETA	< 10. MCG/L
T35609 HCH, GAMMA (LINDANE)	< 10. MCG/L
T16009 HCH, DELTA	< 10. MCG/L
T08009 HEPTACHLOR	< 10. MCG/L
T07709 ALDRIN	< 10. MCG/L
T08309 HEPTACHLOR EPOXIDE	< 10. MCG/L
T43309 ENDOSULFAN I	< 10. MCG/L
T14809 DDE -PARA, PARA	< 10. MCG/L
T08509 DIELDRIN	< 10. MCG/L
T08409 ENDRIN	< 10. MCG/L
T14909 DDD -PARA, PARA	< 10. MCG/L
T43409 ENDOSULFAN II	< 10. MCG/L
T67409 ENDRIN ALDEHYDE	< 10. MCG/L
T67309 ENDOSULFAN SULFATE	< 10. MCG/L
T14709 DDT -PARA, PARA	< 10. MCG/L

**** END OF REPORT ****

0826

NEW YORK STATE DEPARTMENT OF HEALTH
WADSWORTH CENTER FOR LABORATORIES AND RESEARCH

PAGE 1 RESULTS OF EXAMINATION FINAL REPORT

SAMPLE ID: 851007039 SAMPLE RECEIVED: 85/09/19/11 CHARGE: 1.40
PROGRAM: 108: HAZARDOUS WASTE SITE-PRELIMINARY INVESTIGATION
SOURCE ID: DRAINAGE BASIN: 06 GAZETTEER CODE: 1151
POLITICAL SUBDIVISION: CORTLANDVILLE COUNTY: CORTLAND
LATITUDE: LONGITUDE: Z DIRECTION:
LOCATION: CORTLAND COUNTY LANDFILL SURVEY REGISTRY SITE NO. 712001
DESCRIPTION: 800 FT DOWNSTREAM OF CONFLUENCE ON TROUG BROOK
REPORTING LAB: 10: LABORATORY OF INORGANIC ANALYTICAL CHEMISTRY - ALBANY
TEST PATTERN: 10-067: IRON AND MANGANESE
SAMPLE TYPE: 210: SURFACE WATER
TIME OF SAMPLING: 85/09/17 15:50 DATE PRINTED: 85/11/15

PARAMETER	RESULT
01IRON IRON	0.14 MG/L
01MANGAN MANGANESE	< 0.02 MG/L

FOLLOWING PARAMETERS NOT PART OF TEST PATTERN

PARAMETER	RESULT
01PH PH	9.3
01CHLORIDE CHLORIDE	14.7 MG/L
01SOLIDS SOLIDS, TOTAL DISSOLVED, 180 C	12. MG/L

**** END OF REPORT ****

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PAGE 1

RESULTS OF EXAMINATION

FINAL REPORT

SAMPLE ID: 53403 SAMPLE RECEIVED: 85/09/19/ CHARGE: 22.00
PROGRAM: 108: HAZARDOUS WASTE SITE-PRELIMINARY INVESTIGATION
SOURCE ID: DRAINAGE BASIN: 06 GAZETTEER CODE: 1151
POLITICAL SUBDIVISION: CORTLANDVILLE COUNTY: CORTLAND
LATITUDE: LONGITUDE: Z DIRECTION:
LOCATION: CORTLAND COUNTY LANDFILL SURVEY REGISTRY SITE NO. 712001
DESCRIPTION: 800 FT DOWNSTREAM OF CONFLUENCE ON TROUT BROOK
REPORTING LAB: TOX: LAB FOR ORGANIC ANALYTICAL CHEMISTRY
TEST PATTERN: PPEP: PRIORITY POLLUTANTS - PURGEABLE HALOCARBONS & AROMAT
SAMPLE TYPE: 210: SURFACE WATER
TIME OF SAMPLING: 85/09/17 15:50 DATE PRINTED: 85/10/07

PARAMETER	RESULT
T62009 CHLOROMETHANE	< 1. MCG/L
T61809 BROMOMETHANE	< 1. MCG/L
T41009 VINYL CHLORIDE	< 1. MCG/L
T70209 DICHLORODIFLUOROMETHANE	< 1. MCG/L
T61909 CHLOROETHANE	< 1. MCG/L
T61709 TRICHLOROFLUOROMETHANE	< 1. MCG/L
T23809 DICHLOROMETHANE	< 1. MCG/L
T50909 1,1-DICHLOROETHENE	< 1. MCG/L
T51909 1,1-DICHLOROETHANE	< 1. MCG/L
T61209 TRANS-1,2-DICHLOROETHENE	< 1. MCG/L
T39009 CHLOROFORM	< 1. MCG/L
T50809 1,2-DICHLOROETHANE	< 1. MCG/L
T23609 1,1,1-TRICHLOROETHANE	< 1. MCG/L
T36609 CARBON TETRACHLORIDE	< 1. MCG/L
T38909 BROMODICHLOROMETHANE	< 1. MCG/L
T61309 1,2-DICHLOROPROPANE	< 1. MCG/L
T61509 TRANS-1,3-DICHLOROPROPENE	< 1. MCG/L
T41109 TRICHLOROETHYLENE	< 1. MCG/L
T44909 DIBROMOCHLOROMETHANE	< 1. MCG/L
T61409 CIS-1,3-DICHLOROPROPENE	< 1. MCG/L
T51709 1,1,2-TRICHLOROETHANE	< 1. MCG/L
T61109 2-CHLOROETHYL VINYL ETHER	< 1. MCG/L
T42109 BROMOFORM	< 1. MCG/L
T51809 1,1,2,2-TETRACHLOROETHANE	< 1. MCG/L
T41209 TETRACHLOROETHENE	< 1. MCG/L
T40909 CHLOROBENZENE	< 1. MCG/L
T49709 1,3-DICHLOROBENZENE	< 1. MCG/L
T44109 1,2-DICHLOROBENZENE	< 1. MCG/L
T44209 1,4-DICHLOROBENZENE	< 1. MCG/L
T34409 BENZENE	< 1. MCG/L
T39209 TOLUENE	< 1. MCG/L
T51009 ETHYLBENZENE	< 1. MCG/L
T85209 1-CHLOROCYCLOHEXENE-1	< 1. MCG/L

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TIME OF SAMPLING: 85/09/17 15:50 DATE PRINTED: 85/10/07

PARAMETER	RESULT
T70409 PARA-XYLENE	< 1. MCG/L
T70309 META-XYLENE	< 1. MCG/L
T51409 ORTHO-XYLENE	< 1. MCG/L
T85309 CUMENE	< 1. MCG/L
T85409 STYRENE	< 1. MCG/L
T85509 P-BROMOFLUOROBENZENE	< 1. MCG/L
T51109 N-PROPYLBENZENE	< 1. MCG/L
T85609 TERT-BUTYLBENZENE	< 1. MCG/L
T85709 O/P-CHLOROTOLUENE	< 1. MCG/L
T51209 BROMOBENZENE	< 1. MCG/L
T50509 META-CHLOROTOLUENE	< 1. MCG/L
T85809 1, 3, 5-TRIMETHYLBENZENE	< 1. MCG/L
T85909 1, 2, 4-TRIMETHYLBENZENE	< 1. MCG/L
T86009 P-CYME	< 1. MCG/L
T86109 CYCLOPROPYLBENZENE	< 1. MCG/L
T86209 SEC-BUTYLBENZENE	< 1. MCG/L
T86309 N-BUTYLBENZENE	< 1. MCG/L
T86409 2, 3-BENZOFURAN	< 1. MCG/L
T52509 HEXACHLOROBUTADIENE (C-46)	< 5. MCG/L
T44009 1, 2, 4-TRICHLOROBENZENE	< 5. MCG/L
T65609 NAPHTHALENE	< 5. MCG/L
T43909 1, 2, 3-TRICHLOROBENZENE	< 5. MCG/L
T67109 PHENOL	< 10. MCG/L
T66409 2-CHLOROPHENOL	< 10. MCG/L
T66809 2-NITROPHENOL	< 10. MCG/L
T66609 2, 4-DIMETHYLPHENOL	< 10. MCG/L
T66509 2, 4-DICHLOROPHENOL	< 10. MCG/L
T66309 4-CHLORO-3-METHYLPHENOL	< 10. MCG/L
T67209 2, 4, 6-TRICHLOROPHENOL	< 10. MCG/L
T49609 2, 4, 5-TRICHLOROPHENOL	< 10. MCG/L
T66709 2, 4-DINITROPHENOL	< 10. MCG/L
T66909 4-NITROPHENOL	< 10. MCG/L
T68509 2-METHYL-4, 6-DINITROPHENOL	< 10. MCG/L
T67009 PENTACHLOROPHENOL	< 10. MCG/L
T68109 BIS(2-CHLOROISOPROPYL)ETHER	NA
T63909 BIS(2-CHLOROETHYL)ETHER	< 10. MCG/L
T65909 N-NITROSODI-N-PROPYLAMINE	< 10. MCG/L
T65309 HEXACHLOROETHANE	< 10. MCG/L
T65709 NITROBENZENE	< 10. MCG/L
T65509 ISOPHORONE	< 10. MCG/L
T68609 BIS(2-CHLOROETHOXY)METHANE	< 10. MCG/L
T49209 HEXACHLOROCYCLOPENTADIENE (C-56)	< 10. MCG/L
T64109 2-CHLORONAPHTHALENE	< 10. MCG/L
T64909 2, 6-DINITROTOLUENE	< 10. MCG/L
T63109 ACENAPHTHYLENE	< 10. MCG/L
T64709 DIMETHYLPHTHALATE	< 10. MCG/L
T63009 ACENAPHTHENE	< 10. MCG/L
T64809 2, 4-DINITROTOLUENE	< 10. MCG/L

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WADSWORTH CENTER FOR LABORATORIES AND RESEARCH

PAGE 3

RESULTS OF EXAMINATION

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PARAMETER	RESULT
T64609 DIETHYLPHTHALATE	< 10. MCG/L
T65209 FLUORENE	< 10. MCG/L
T68409 4-CHLOROPHENYL PHENYL ETHER	NA
T66009 N-NITROSODIPHENYLAMINE	< 10. MCG/L
T65109 1,2-DIPHENYLHYDRAZINE	< 10. MCG/L
T68309 4-BROMOPHENYL PHENYL ETHER	< 10. MCG/L
T43809 HEXACHLOROBENZENE	< 10. MCG/L
T66109 PHENANTHRENE	< 10. MCG/L
T63209 ANTHRACENE	< 10. MCG/L
T64409 DI-N-BUTYLPHTHALATE	< 10. MCG/L
T68009 FLUORANTHENE	< 10. MCG/L
T66209 PYRENE	< 10. MCG/L
T63809 BENZIDINE	< 200. MCG/L
T64009 BUTYL BENZYL PHTHALATE	< 30. MCG/L
T63309 BENZO(A)ANTHRACENE	< 30. MCG/L
T64509 3,3'-DICHLOROBENZIDINE	< 30. MCG/L
T64209 CHRYSENE	< 30. MCG/L
T67909 BIS(2-ETHYLHEXYL)PHTHALATE	< 30. MCG/L
T65009 DI-N-OCTYL PHTHALATE	< 30. MCG/L
T63409 BENZO(B)FLUORANTHENE	< 30. MCG/L
T63509 BENZO(K)FLUORANTHENE	< 30. MCG/L
T63609 BENZO(A)PYRENE	< 30. MCG/L
T65409 INDENO(1,2,3-CD)PYRENE	< 30. MCG/L
T64309 DIBENZO(A,H)ANTHRACENE	< 30. MCG/L
T63709 BENZO(GHI)PERYLENE	< 30. MCG/L
T15709 HCH, ALPHA	< 10. MCG/L
T15809 HCH, BETA	< 10. MCG/L
T35609 HCH, GAMMA (LINDANE)	< 10. MCG/L
T16009 HCH, DELTA	< 10. MCG/L
T08009 HEPTACHLOR	< 10. MCG/L
T07709 ALDRIN	< 10. MCG/L
T08309 HEPTACHLOR EPOXIDE	< 10. MCG/L
T43309 ENDOSULFAN I	< 10. MCG/L
T14809 DDE -PARA, PARA	< 10. MCG/L
T08509 DIELDRIN	< 10. MCG/L
T08409 ENDRIN	< 10. MCG/L
T14909 DDD -PARA, PARA	< 10. MCG/L
T43409 ENDOSULFAN II	< 10. MCG/L
T67409 ENDRIN ALDEHYDE	< 10. MCG/L
T67309 ENDOSULFAN SULFATE	< 10. MCG/L
T14709 DDT -PARA, PARA	< 10. MCG/L

**** END OF REPORT ****

800 ft. downstream - bottom silted over
under trees that hang over the river

Temp 68°F

width = 8' 6"

edge:
1 1/2" - 3 1/4" - 4 1/4" - 6" - 5 1/2" - 5 1/4" - 6" - 5" - 5 1/4" - 4" - 3 3/4" - 4 1/4" - 3 1/4"

measurements
taken
every 6"

and taken ~ 60 ft upstream from
where we took samples
in narrow section of stream

where all water in reach is moving

- + not a still pond.

Water pretty still + deeper where we
took samples under tree.

Two piles
on creek
bed upstream
from where we took
samples

8 1/4"
3 1/4"
3 1/4"
1 1/2"
0



HYDROGEOLOGIC REPORT

APPENDIX E

WATER ELEVATION DATA

TABLE OF CONTENTS

TABLE E-1 - Proposed Landfill
TABLE E-2 - Test Pits
TABLE E-3 - Pine Tree Site
TABLE E-4 - Existing Landfills

Groundwater Hydrographs

MW-1A and MW-1B
MW-2A
MW-3A
MW-4A, MW-4B and MW-4C
MW-5A and MW-5B
MW-6A
MW-7A, MW-7B and MW-7C
MW-8A
MW-9A
MW-10A
MW-11A and MW-11B
MW-12A and MW-12B
LT-3
LT-7
LT-8
D1 and DO-2
D2 and RE-4
D3 and RE-5
D4 and RE-6
D5 and RE-7
D6 and RE-8

TABLE E-1
WATER ELEVATION DATA
PROPOSED LANDFILL

WELL NUMBER	1A		1B		2A		3A		4A	
WELL DEPTH (FT):	23.34		12.56		25.84		26.89		74.96	
SCREENED INTERVAL (FT):	13.50 TO 20.50		3.00 TO 10.00		16.30 TO 23.50		17.00 TO 24.00		66.00 TO 72.00	
CASING STANDUP (FT):	2.34		2.26		2.26		2.17		2.10	
TOP OF CASING ELEVATION (FT):	1794.37		1794.64		1790.13		1777.88		1771.14	
REFERENCE POINT:	TOSC		TOSC		TOSC		TOSC		TOSC	
DATE	ELEVATION*	SWL**	ELEVATION	SWL	ELEVATION	SWL	ELEVATION	SWL	ELEVATION	SWL
28/DEC/84	--	--	--	--	--	--	--	--	--	--
23/MAY/86	--	--	--	--	--	--	--	--	--	--
23/SEP/86	--	--	--	--	--	--	--	--	--	--
10/OCT/86	--	--	--	--	--	--	--	--	--	--
13/NOV/86	--	--	--	--	--	--	--	--	--	--
19/DEC/86	--	--	--	--	--	--	--	--	--	--
09/FEB/87	--	--	--	--	--	--	--	--	--	--
02/MAY/87	--	--	--	--	--	--	--	--	--	--
24/JUL/87	--	--	--	--	--	--	--	--	--	--
19/JAN/88	--	--	--	--	--	--	--	--	--	--
28/APR/88	--	--	--	--	--	--	--	--	--	--
27/MAY/88	1786.11	8.26	1786.97	7.67	1778.51	11.62	1776.04	1.84	1761.01	10.13
27/JUN/88	1781.97	12.40	1782.50	12.14	1773.63	16.50	1771.12	6.76	1759.22	11.92
09/AUG/88	1781.79	12.50	1782.46	12.18	1773.05	17.00	1769.06	8.02	1758.14	13.00
09/SEP/88	1783.12	11.25	1783.35	11.29	1775.67	14.46	1773.82	4.06	1759.25	11.89
07/OCT/88	1783.24	11.13	--	--	--	--	--	--	--	--
20/NOV/88	1785.85	8.52	1786.76	7.88	--	--	--	--	--	--
15/DEC/88	1784.11	10.26	1784.05	10.59	1776.45	13.68	1774.70	3.18	--	++
31/JAN/89	1784.57	9.80	1785.14	9.50	1777.21	12.92	1774.70	3.18	1760.10	11.04
08/MAR/89	1784.11	10.26	1785.34	9.30	1776.45	13.68	1775.84	2.04 +	1759.76	11.38

* ELEVATION= WATER ELEVATION (FT. ABOVE MEAN SEA LEVEL)

** SWL= STATIC WATER LEVEL (FT. BELOW TOP OF CASING)

+ WATER IN WELL FROZEN

++ LID/LOCK FROZEN CLOSED

**TABLE E-1 cont'd
WATER ELEVATION DATA
PROPOSED LANDFILL**

WELL NUMBER	4B		4C		5A		5B		6A	
WELL DEPTH (FT):	45.00		14.54		62.70		19.23		21.09	
SCREENED INTERVAL (FT):	36.00 TO 43.00		3.00 TO 13.00		53.00 TO 60.70		11.00 TO 17.00		11.50 TO 18.50	
CASING STANDUP (FT):	2.00		2.13		1.49		1.00		2.07	
TOP OF CASING ELEVATION (FT):	1770.87		1771.15		1763.22		1763.66		1776.50	
REFERENCE POINT:	TOSC		TOSC		TOSC		TOSC		TOSC	
DATE	ELEVATION	SWL	ELEVATION	SWL	ELEVATION	SWL	ELEVATION	SWL	ELEVATION	SWL
28/DEC/84	--	--	--	--	--	--	--	--	--	--
23/MAY/86	--	--	--	--	--	--	--	--	--	--
23/SEP/86	--	--	--	--	--	--	--	--	--	--
10/OCT/86	--	--	--	--	--	--	--	--	--	--
13/NOV/86	--	--	--	--	--	--	--	--	--	--
19/DEC/86	--	--	--	--	--	--	--	--	--	--
09/FEB/87	--	--	--	--	--	--	--	--	--	--
02/MAY/87	--	--	--	--	--	--	--	--	--	--
24/JUL/87	--	--	--	--	--	--	--	--	--	--
19/JAN/88	--	--	--	--	--	--	--	--	--	--
28/APR/88	--	--	--	--	--	--	--	--	--	--
27/MAY/88	1764.55	6.32	1767.92	3.23	1758.70	4.52	1758.72	4.94	1771.00	4.70
27/JUN/88	1762.68	8.19	1765.03	6.12	1755.50	7.72	1755.76	7.90	1765.00	10.70
09/AUG/88	1761.93	8.94	1765.29	5.86	1754.52	8.70	1754.74	8.92	1764.92	11.58
09/SEP/88	1763.20	7.67	1766.43	4.72	1755.91	7.31	1755.46	8.20	1768.98	7.52
07/OCT/88	--	--	--	--	--	--	--	--	--	--
28/NOV/88	--	--	--	--	--	--	--	--	--	--
15/DEC/88	1764.17	6.70	1767.35	3.80	1757.92	5.30	1757.26	6.40	1770.50	6.00
31/JAN/89	1764.37	6.50	1768.01	3.14	1759.06	4.16	1758.32	5.34	1772.24	4.26
08/MAR/89	1763.97	6.90	1767.25	3.90	1758.18	5.04	1757.30	6.36	1770.74	5.76

* ELEVATION= WATER ELEVATION (FT. ABOVE MEAN SEA LEVEL)

** SWL= STATIC WATER LEVEL (FT. BELOW TOP OF CASING)

**TABLE E-1 cont'd
WATER ELEVATION DATA
PROPOSED LANDFILL**

WELL NUMBER	7A		7B		7C		8A		9A	
WELL DEPTH (FT):	34.90		21.87		13.49		14.85		16.84	
SCREENED INTERVAL (FT):	25.00 TO 32.00		12.80 TO 18.80		5.00 TO 11.00		5.50 TO 12.50		7.00 TO 14.00	
CASING STANDUP (FT):	2.24		2.49		2.88		1.74		2.38	
TOP OF CASING ELEVATION (FT):	1757.95		1758.71		1758.82		1756.63		1795.99	
REFERENCE POINT:	TOSC		TOSC		TOSC		TOSC		TOSC	
DATE	ELEVATION	SWL	ELEVATION	SWL	ELEVATION	SWL	ELEVATION	SWL	ELEVATION	SWL
28/DEC/84	--	--	--	--	--	--	--	--	--	--
23/MAY/86	--	--	--	--	--	--	--	--	--	--
23/SEP/86	--	--	--	--	--	--	--	--	--	--
10/OCT/86	--	--	--	--	--	--	--	--	--	--
13/NOV/86	--	--	--	--	--	--	--	--	--	--
19/DEC/86	--	--	--	--	--	--	--	--	--	--
09/FEB/87	--	--	--	--	--	--	--	--	--	--
02/MAY/87	--	--	--	--	--	--	--	--	--	--
24/JUL/87	--	--	--	--	--	--	--	--	--	--
19/JAN/88	--	--	--	--	--	--	--	--	--	--
28/APR/88	--	--	--	--	--	--	--	--	--	--
27/MAY/88	1754.13	3.82	1755.24	3.47	1755.66	3.16	1753.16	3.47	1789.17	6.82
27/JUN/88	1751.39	6.56	1753.25	5.46	1752.78	6.04	1751.20	5.43	1786.10	9.89
09/AUG/88	1751.48	6.47	1752.18	6.53	1753.05	5.77	1751.78	4.85	1785.77	10.22
09/SEP/88	1752.73	5.22	1753.43	5.28	1754.43	4.39	1752.07	4.56	1786.74	9.25
07/OCT/88	--	--	--	--	--	--	--	--	--	--
28/NOV/88	--	--	--	--	--	--	--	--	--	--
15/DEC/88	1753.71	4.24	1754.93	3.78	1755.48	3.34	1752.19	4.44	1786.77	9.22
31/JAN/89	1754.35	3.60	1755.01	3.70	1756.08	2.74	1752.83	3.88	1789.55	6.44
08/MAR/89	1753.49	4.46	1754.67	4.04	1756.04	2.78	1751.59	5.04	1787.21	8.78

* ELEVATION= WATER ELEVATION (FT. ABOVE MEAN SEA LEVEL)

** SWL= STATIC WATER LEVEL (FT. BELOW TOP OF CASING)

**TABLE E-1 cont'd
WATER ELEVATION DATA
PROPOSED LANDFILL**

WELL NUMBER	10A		MW-11A		MW-11B		MW-12A		MW-12B	
WELL DEPTH (FT):	22.91		43.00		25.00		78.00		35.00	
SCREENED INTERVAL (FT):	13.00 TO 20.00		30.00 TO 41.00		11.00 TO 23.00		63.00 TO 77.00		20.50 TO 33.00	
CASING STANDUP (FT):	2.34		2.52		2.75		2.76		2.70	
TOP OF CASING ELEVATION (FT):	1775.40		1666.24		1667.57		1735.25		1734.77	
REFERENCE POINT:	TOSC		TOSC		TOSC		TOSC		TOSC	
DATE	ELEVATION	SWL	ELEVATION	SWL	ELEVATION	SWL	ELEVATION	SWL	ELEVATION	SWL
28/DEC/84	--	--	--	--	--	--	--	--	--	--
23/MAY/86	--	--	--	--	--	--	--	--	--	--
23/SEP/86	--	--	--	--	--	--	--	--	--	--
10/OCT/86	--	--	--	--	--	--	--	--	--	--
13/NOV/86	--	--	--	--	--	--	--	--	--	--
19/DEC/86	--	--	--	--	--	--	--	--	--	--
09/FEB/87	--	--	--	--	--	--	--	--	--	--
02/MAY/87	--	--	--	--	--	--	--	--	--	--
24/JUL/87	--	--	--	--	--	--	--	--	--	--
19/JAN/88	--	--	--	--	--	--	--	--	--	--
28/APR/88	--	--	--	--	--	--	--	--	--	--
27/MAY/88	1760.87	14.53	--	--	--	--	--	--	--	--
27/JUN/88	1758.17	17.23	--	--	--	--	--	--	--	--
09/AUG/88	1758.01	17.39	--	--	--	--	--	--	--	--
09/SEP/88	1758.69	16.71	1661.32	4.92	1660.87	6.70	1716.63	18.62	1730.47	4.30
07/OCT/88	--	--	1661.91	4.33	1662.00	5.57	1722.21	13.04	1727.58	7.19
28/NOV/88	--	--	1665.04	1.20	1664.33	3.24	1725.95	9.30	1729.69	5.08
15/DEC/88	1758.92	16.48	1663.94	2.30	1663.41	4.16	--	++	1729.09	5.68
31/JAN/89	1759.82	15.58	1663.70	2.54	1663.85	3.72	1732.55	2.70	1729.15	5.62
08/MAR/89	1758.84	16.56	1664.24	2.00 +	1663.17	4.40	1732.99	2.26	1728.31	6.46

* ELEVATION= WATER ELEVATION (FT. ABOVE MEAN SEA LEVEL)

** SWL= STATIC WATER LEVEL (FT. BELOW TOP OF CASING)

+ WATER FROZEN IN WELL

++ BAILER ROPE FROZEN IN WELL

**TABLE E-1 cont'd
WATER ELEVATION DATA
PROPOSED LANDFILL**

WELL NUMBER	LT-3		LT-7		LT-8	
WELL DEPTH (FT):	19.90		33.71		32.76	
SCREENED INTERVAL (FT):	7.60 TO 17.60		18.00 TO 31.00		20.00 TO 30.00	
CASING STANDUP (FT):	2.76		2.38		2.92	
TOP OF CASING ELEVATION (FT):	1823.74		1678.07		1659.87	
REFERENCE POINT:	TOSC		TOSC		TOSC	

DATE	ELEVATION	SWL	ELEVATION	SWL	ELEVATION	SWL
28/DEC/84	--	--	--	--	--	--
23/MAY/86	--	--	--	--	--	--
23/SEP/86	--	--	--	--	--	--
10/OCT/86	--	--	--	--	--	--
13/NOV/86	--	--	--	--	--	--
19/DEC/86	--	--	--	--	--	--
09/FEB/87	--	--	--	--	--	--
02/MAY/87	--	--	--	--	--	--
24/JUL/87	--	--	--	--	--	--
19/JAN/88	--	--	--	--	--	--
28/APR/88	--	--	--	--	--	--
27/MAY/88	--	--	1675.09	2.98	1652.90	6.97
27/JUN/88	1810.18	13.56	1672.37	5.70	--	--
09/AUG/88	1806.51	17.23	1670.53	7.54	1649.35	10.52
09/SEP/88	1810.44	13.30	1673.67	4.40	1649.88	10.07
07/OCT/88	--	--	--	--	--	--
28/NOV/88	--	--	--	--	--	--
15/DEC/88	1803.84	dry	1674.51	3.56	1652.57	7.30
31/JAN/89	1803.84	dry	1674.85	3.22	1653.17	6.70
08/MAR/89	1803.84	dry	1674.81	3.26	1653.55	6.32

* ELEVATION= WATER ELEVATION (FT. ABOVE MEAN SEA LEVEL)

** SWL= STATIC WATER LEVEL (FT. BELOW TOP OF CASING)

**TABLE E-2
WATER ELEVATION DATA
TEST PITS**

TEST PIT WELL #:	TP-3		TP-4		TP-6		TP-7	
WELL DEPTH (FT.):	12.30		19.95		9.95		19.95	
CASING STANDUP:	2.73		1.75		3.18		1.70	
TOP OF CASING ELEVATION:	1768.74		1766.45		1766.19		1761.54	
REFERENCE POINT:	TOPC		TOPC		TOPC		TOPC	
DATE:	ELEVATION (FT):	DEPTH TO WATER (FT):	ELEVATION (FT):	DEPTH TO WATER (FT):	ELEVATION (FT):	DEPTH TO WATER (FT):	ELEVATION (FT):	DEPTH TO WATER (FT):
27/JUN/88	1762.57	6.17	1758.47	7.98	1761.30	4.89	1753.91	7.63
09/AUG/88	1762.19	6.55	1762.38	4.07	1761.59	4.60	1757.10	4.44
09/SEP/88	1763.01	4.93	1763.19	3.26	1762.37	3.02	1758.40	3.14
15/DEC/88	1764.38	4.36	1763.61	2.84	1762.93	3.26	1758.88	2.66
31/JAN/88	1764.04	3.90	1764.07	2.38	1762.95	3.24 +	1759.36	2.18
08/MAR/89	1764.62	4.12	1763.69	2.76	1762.97	3.22	1759.04	2.50

+ WATER FROZEN IN WELL

TEST PIT WELL #:	TP-8		TP-14		TP-15		TP-32	
WELL DEPTH (FT.):	15.03		17.90		14.60		10.05	
CASING STANDUP:	2.43		1.65		2.25		1.32	
TOP OF CASING ELEVATION:	1750.20		1778.91		1783.56		1777.89	
REFERENCE POINT:	TOPC		TOPC		TOPC		TOPC	
DATE:	ELEVATION (FT):	DEPTH TO WATER (FT):	ELEVATION (FT):	DEPTH TO WATER (FT):	ELEVATION (FT):	DEPTH TO WATER (FT):	ELEVATION (FT):	DEPTH TO WATER (FT):
27/JUN/88	--	--	1769.70	9.21	1769.78	13.78	--	--
09/AUG/88	1745.17	5.03	1767.67	11.24	1769.12	14.44	1771.12	6.77
09/SEP/88	1745.92	4.28	1772.71	6.20	1772.75	10.01	1772.81	5.08
15/DEC/88	1746.44	3.76	1774.59	4.32	1774.84	8.72	1773.53	4.36
31/JAN/88	1746.90	3.30	1776.41	2.50	1775.42	8.14	1774.01	3.88
08/MAR/89	1746.94	3.26	1776.45	2.46	1775.44	8.12	1773.47	4.42

**TABLE E-3
WATER ELEVATION DATA
PINE TREE SITE**

WELL NUMBER	D-1		D-2		D-3		D-4		D-5		D-6	
WELL DEPTH (FT):	181.01		141.29		122.85		163.68		173.30		86.40	
SCREENED INTERVAL (FT):	157.00 TO 177.50		117.50 TO 138.00		99.00 TO 120.00		141.00 TO 161.00		146.00 TO 166.50		67.00 TO 89.00	
CASING STANDUP (FT):	3.15		2.99		2.77		2.42		3.20		2.98	
TOP OF CASING ELEVATION (FT):	1730.37		1713.33		1696.95		1676.91		1666.46		1715.84	
REFERENCE POINT:	TOSC		TOSC		TOSC		TOSC		TOSC		TOSC	
DATE	ELEVATION	SWL	ELEVATION	SWL	ELEVATION	SWL	ELEVATION	SWL	ELEVATION	SWL	ELEVATION	SWL
28/DEC/84	1718.20	12.17	--	--	--	--	1636.16	40.75	1633.63	32.83	--	--
23/MAY/86	--	--	--	--	--	--	--	--	--	--	--	--
23/SEP/86	--	--	--	--	--	--	--	--	--	--	--	--
10/OCT/86	--	--	--	--	--	--	--	--	--	--	--	--
13/NOV/86	--	--	--	--	--	--	--	--	--	--	--	--
19/DEC/86	--	--	--	--	--	--	--	--	--	--	--	--
09/FEB/87	--	--	--	--	--	--	--	--	--	--	--	--
02/MAY/87	1720.22	10.15	--	--	--	--	1667.39	9.52	1634.26	32.20	1711.44	4.40
24/JUL/87	1719.22	11.15	--	--	--	--	1661.59	15.32	1631.26	35.20	1711.54	4.30
19/JAN/88	1722.42	7.95	--	--	--	--	1662.49	14.42	1633.96	32.50	1714.24	1.60
28/APR/88	1724.52	5.85	--	--	--	--	1664.18	12.73	1636.96	29.50	1716.24	-0.40
27/MAY/88	--	--	--	--	--	--	--	--	--	--	--	--
27/JUN/88	--	--	--	--	--	--	1662.91	14.00	1634.79	31.67	1714.04	1.80
09/AUG/88	1721.87	8.50	1712.78	+	1696.45	++	1663.49	13.42	1632.03	34.43	1712.02	3.82
09/SEP/88	1721.79	8.58	1712.78	+	1696.45	++	1660.76	16.15	1631.27	35.19	1711.96	3.88
07/OCT/88	--	--	--	--	--	--	--	--	--	--	--	--
28/NOV/88	--	--	--	--	--	--	--	--	--	--	--	--
15/DEC/88	1724.13	6.24	1712.78	+	1696.45	++	1663.31	13.60	1633.18	33.28	1713.92	1.92
31/JAN/89	--	[]	1712.78	+	1696.45	++	1659.15	17.76	1634.02	32.44	1714.02	1.82
08/MAR/89	1724.29	6.08	1712.78	+	1696.45	++	1664.61	12.30	1633.86	32.60	1714.22	1.62 <

+ ARTESIAN - WATER FLOWING OUT OF CASING AT
0.55 FT BELOW TOP OF CASING

++ ARTESIAN - WATER FLOWING OUT OF CASING AT
0.50 FT BELOW TOP OF CASING

* ELEVATION= WATER ELEVATION (FT. ABOVE MEAN SEA LEVEL)

** SWL= STATIC WATER LEVEL (FT. BELOW TOP OF CASING)

[] LID/LOCK FROZEN CLOSED

< WATER IN WELL FROZEN

TABLE E-3 cont'd
WATER ELEVATION DATA
PINE TREE SITE

WELL NUMBER	RE-4		RE-5		RE-6		RE-7		RE-8	
WELL DEPTH (FT):	16.14		27.50		20.90		28.24		23.50	
SCREENED INTERVAL (FT):	4.00 TO 14.00		15.00 TO 25.00		8.00 TO 18.00		14.00 TO 25.00		12.30 TO 25.00	
CASING STANDUP (FT):	1.72		3.40		2.90		3.27		2.50	
TOP OF CASING ELEVATION (FT):	1712.33		1696.00		1675.66		1666.49		1717.69	
REFERENCE POINT:	TOSC		TOSC		TOSC		TOSC		TOSC	
DATE	ELEVATION	SWL	ELEVATION	SWL	ELEVATION	SWL	ELEVATION	SWL	ELEVATION	SWL
28/DEC/84	1704.16	8.17	1690.83	5.17	1669.49	6.17	1659.32	7.17	1710.86	6.83
23/MAY/86	--	5.80	--	--	--	--	--	--	--	--
23/SEP/86	--	7.30	--	--	--	--	--	--	--	--
10/OCT/86	--	--	--	--	--	--	--	--	--	--
13/NOV/86	--	--	--	--	--	--	--	--	--	--
19/DEC/86	1705.53	6.80	--	--	--	--	--	--	--	--
09/FEB/87	1705.93	6.40	--	--	--	--	--	--	--	--
02/MAY/87	1704.51	7.82	1684.30	11.70	1665.96	9.70	1659.22	7.27	1705.19	12.50
24/JUL/87	1703.61	8.72	1683.40	12.60	1665.76	9.90	1652.32	14.17	1703.59	14.10
19/JAN/88	1705.01	7.32	1685.30	10.70	1665.76	9.90	1658.82	7.67	1705.69	12.00
28/APR/88	1705.61	6.72	1687.90	8.10	1669.36	6.30	1662.42	4.07	1709.09	8.60
27/MAY/88	--	--	--	--	--	--	--	--	--	--
27/JUN/88	--	--	--	--	--	--	--	--	--	--
09/AUG/88	1704.35	7.98	1686.39	9.61	1666.79	8.87	1657.60	8.89	1707.49	10.20
09/SEP/88	1704.93	7.40	1686.82	9.18	1666.56	9.10	1657.56	8.93	1704.35	13.34
07/OCT/88	--	--	--	--	--	--	1655.63	10.86	1703.02	14.67
28/NOV/88	--	--	--	--	--	--	--	--	--	--
15/DEC/88	1706.83	5.50	1687.88	8.12	1665.92	9.74	--	--	--	--
31/JAN/89	1707.17	5.16	1689.76	6.24	1668.08	7.58	1660.03	6.46	1705.53	12.16
08/MAR/89	1705.91	6.42	1688.72	7.28	1666.78	8.88	1654.39	12.10	1706.53	11.16
							1660.03	6.46	1706.03	11.66

* ELEVATION= WATER ELEVATION (FT. ABOVE MEAN SEA LEVEL)
** SWL= STATIC WATER LEVEL (FT. BELOW TOP OF CASING)

TABLE E-4
WATER ELEVATION DATA
EXISTING LANDFILLS

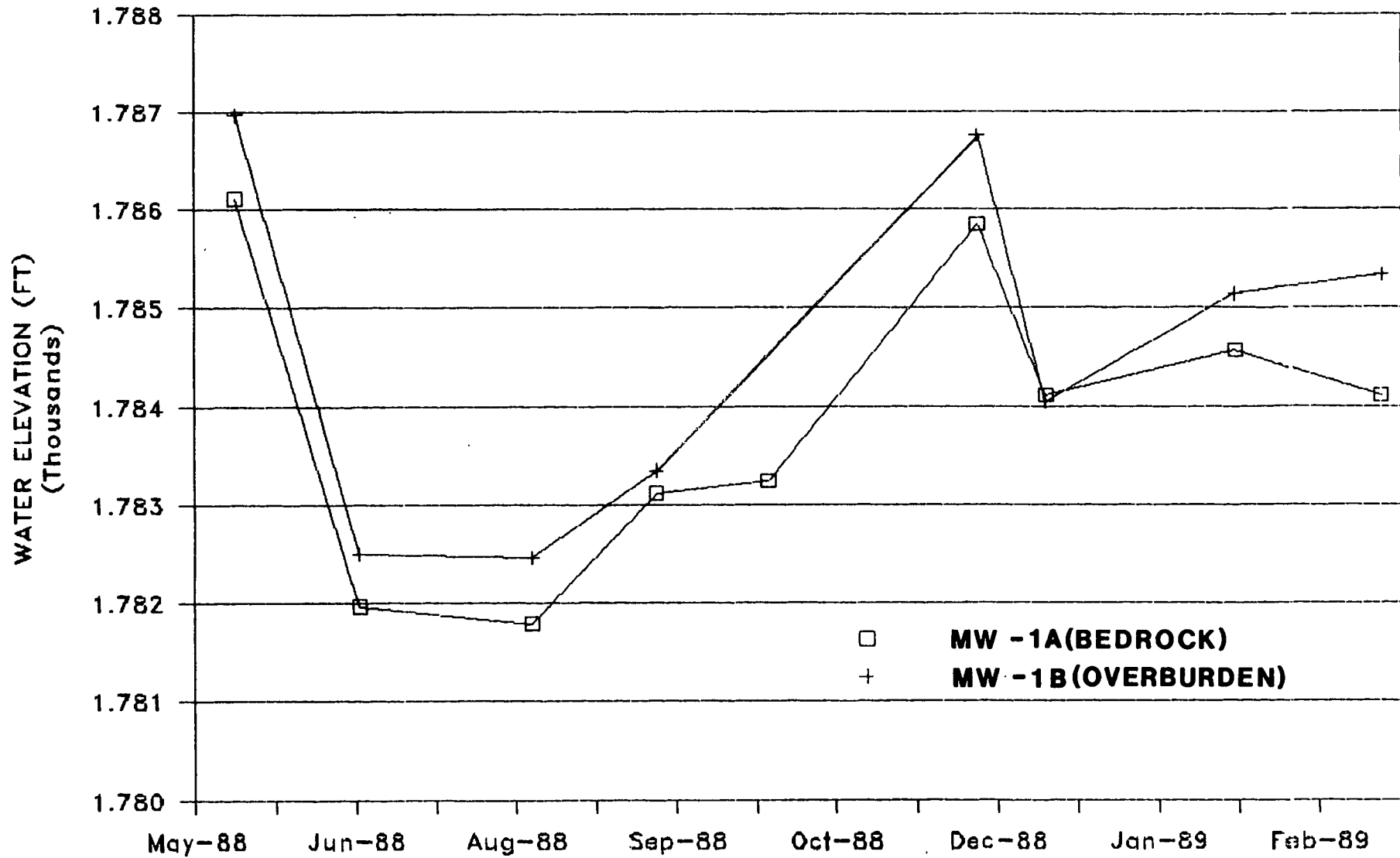
WELL NUMBER	00-1		00-2		BMC-1		BMC-2	
WELL DEPTH (FT):	24.63		28.49		10.33		12.13	
SCREENED INTERVAL (FT):	2.00 TO 14.00*		2.00 TO 26.50		unknown		unknown	
CASING STANDUP (FT):	0.83		3.79		3.20		3.95	
TOP OF CASING ELEVATION (FT):	1761.53		1730.84		1740.06		1738.25	
REFERENCE POINT:	TOPC		TOPC		TOPC		TOPC	
	* AND 17 00 TO 26.00							
DATE	ELEVATION	SWL	ELEVATION	SWL	ELEVATION	SWL	ELEVATION	SWL
28/DEC/84	--	--	1725.42	5.42	--	--	--	--
23/MAY/86	1755.83	5.70	1725.64	5.20	1737.16	2.90	1733.50	4.75
23/SEP/86	1755.83	5.70	--	--	1737.06	3.00	1733.85	4.40
10/OCT/86	--	--	1723.64	7.20	--	--	--	--
13/NOV/86	--	--	--	--	1736.96	3.10	1734.25	4.00
19/DEC/86	1755.53	6.00	1725.04	5.80	--	--	--	--
09/FEB/87	1758.43	3.10	1725.34	5.50	1737.91	2.15	1734.15	4.10
02/MAY/87	1759.40	2.13	1724.75	6.09	1735.06	5.00	1732.80	5.45
24/JUL/87	1759.20	2.33	1722.55	8.29	1735.86	4.20	1731.60	6.65
19/JAN/88	1759.20	2.33	1725.15	5.69	--	--	1733.30	4.95
28/APR/88	1759.20	2.33	1726.55	4.29	1737.16	2.90	1734.00	4.25
27/MAY/88	--	--	--	--	--	--	--	--
27/JUN/88	--	--	--	--	1733.82	6.24	--	--
09/AUG/88	1759.49	2.04	1722.73	8.11	1733.38	6.68	1731.84	6.41
09/SEP/88	1759.19	2.34	1723.60	7.24	1733.88	6.18	1732.35	5.90
07/OCT/88	--	--	--	--	--	--	--	--
28/NOV/88	--	--	--	--	--	--	--	--
15/DEC/88	1759.29	2.24	1724.32	6.52	1735.36	4.70	1733.15	5.10
31/JAN/89	1759.79	1.74	1726.44	4.40	1737.24	2.82	1734.47	3.78
08/MAR/89	1759.39	2.14	1725.00	5.84	1737.14	2.92	1732.47	5.78

* ELEVATION= WATER ELEVATION (FT. ABOVE MEAN SEA LEVEL)

** SWL= STATIC WATER LEVEL (FT. BELOW TOP OF CASING)

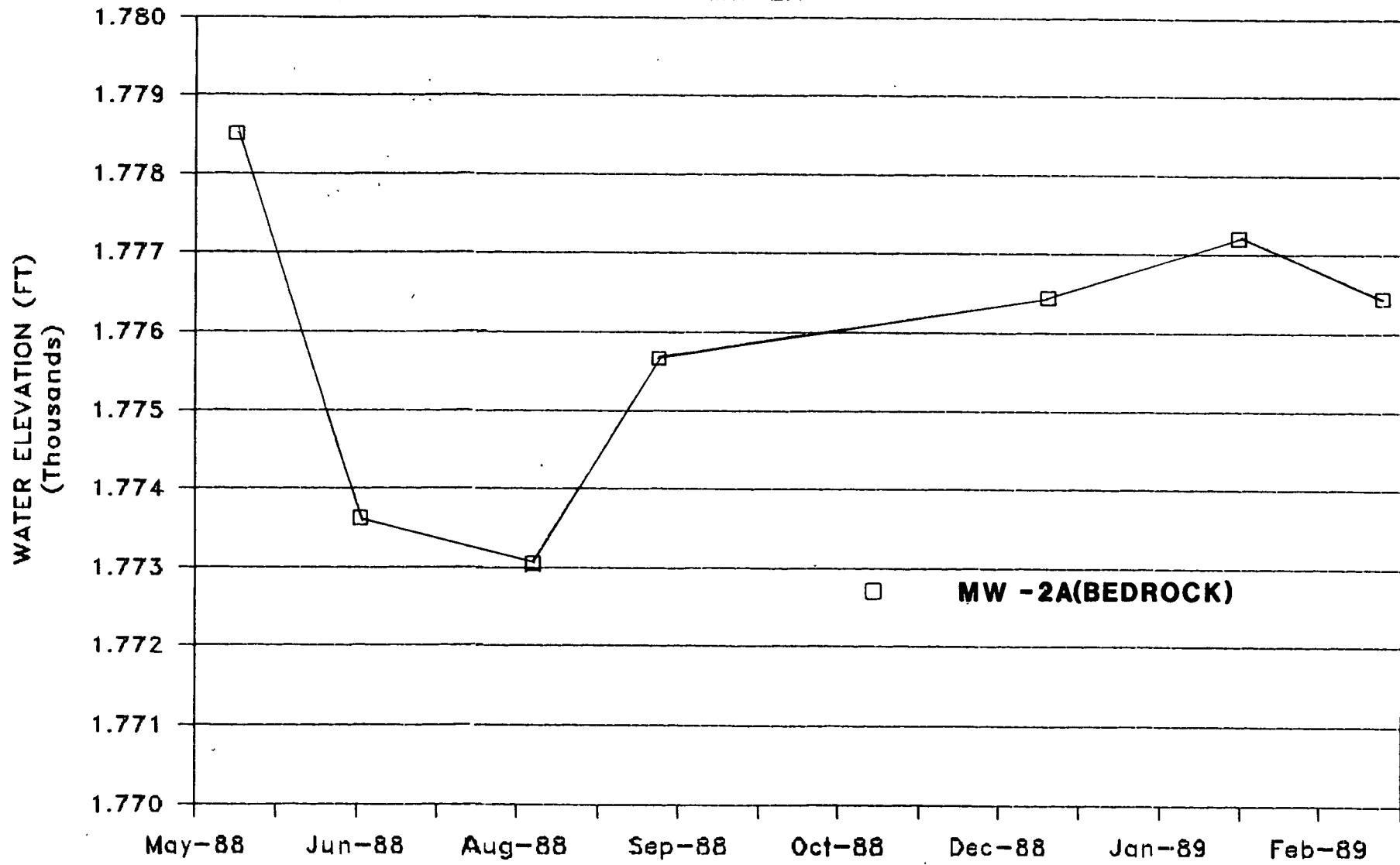
GROUNDWATER HYDROGRAPH

MW-1A and MW-1B



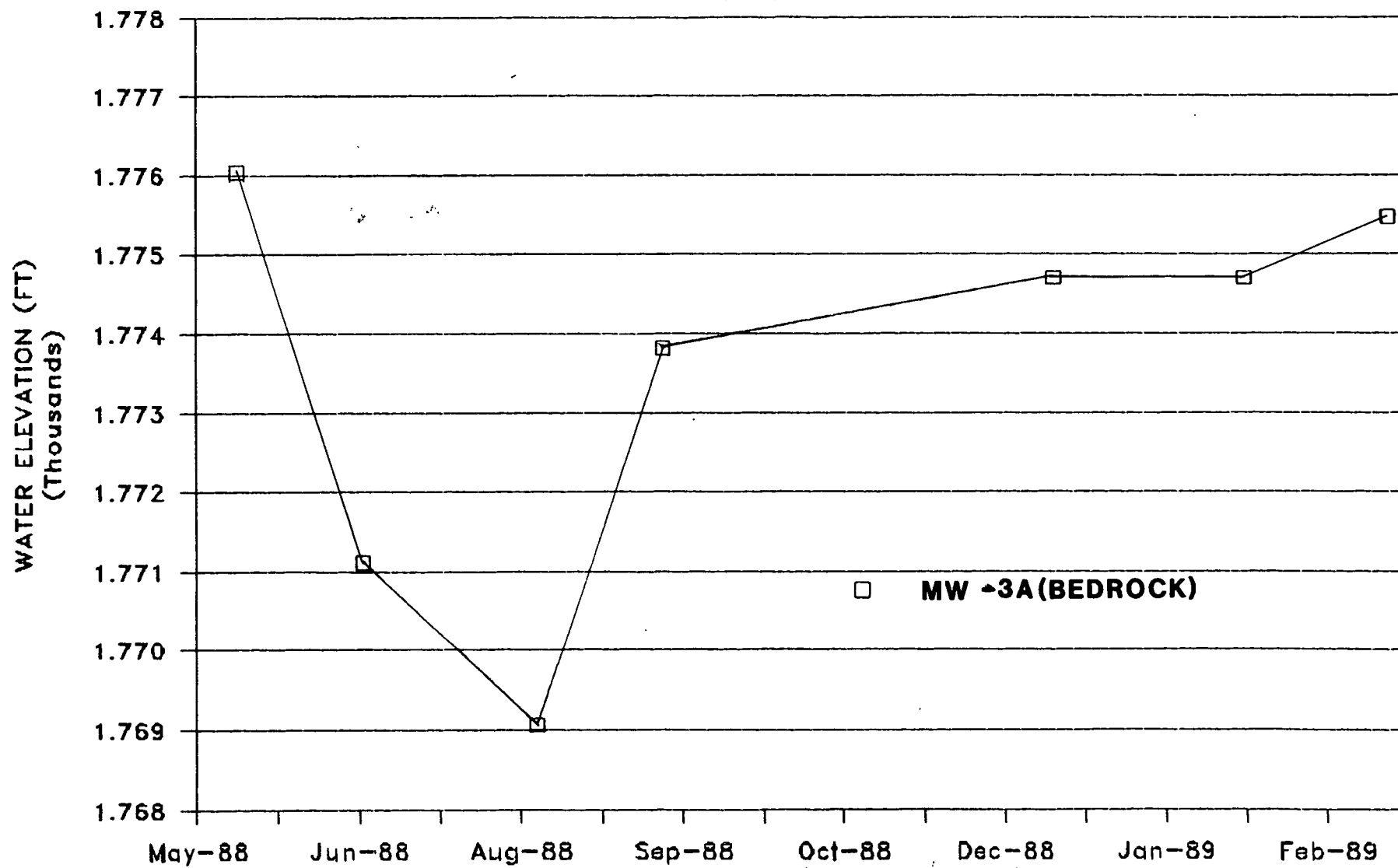
GROUNDWATER HYDROGRAPH

MW-2A



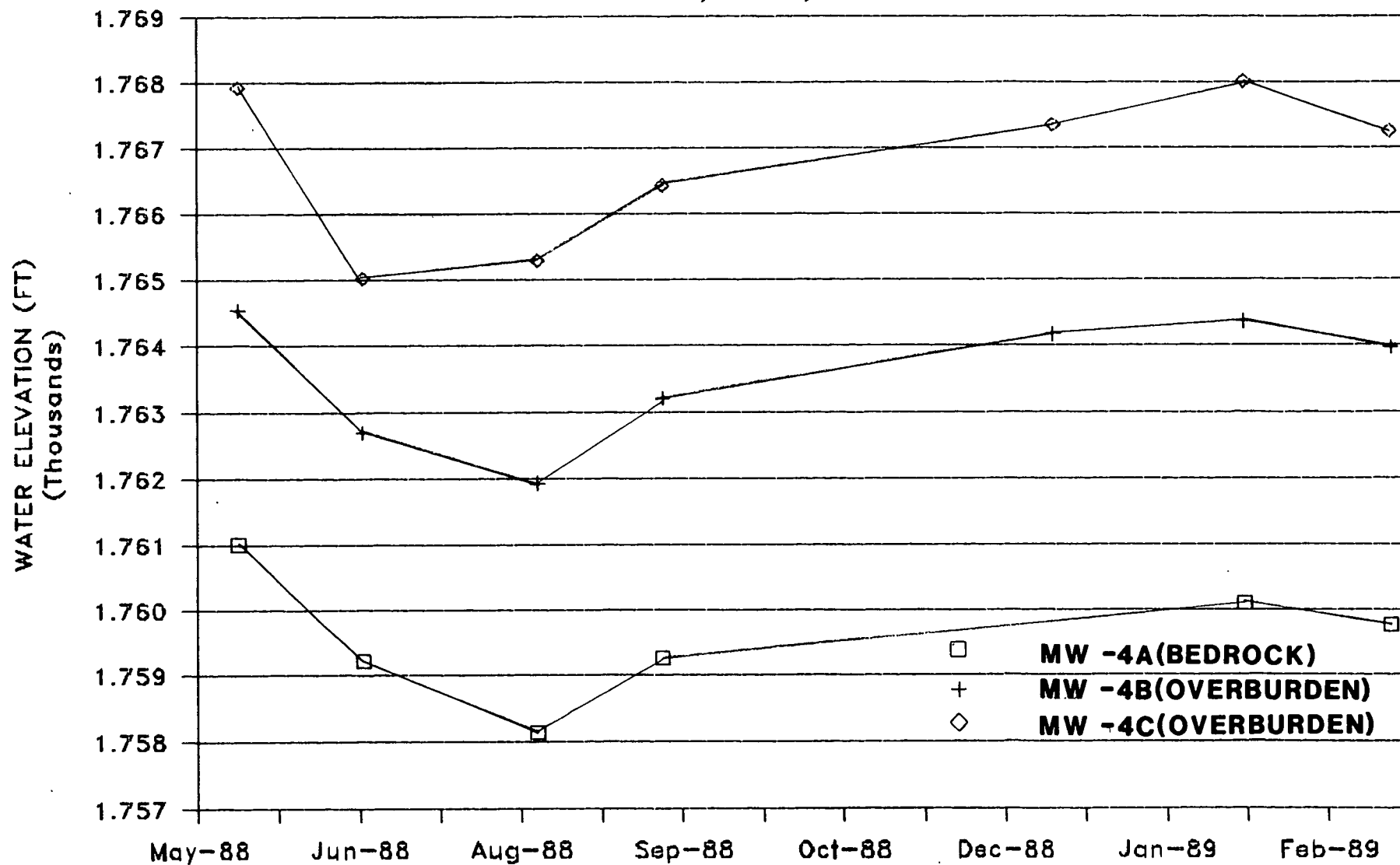
GROUNDWATER HYDROGRAPH

MW-3A



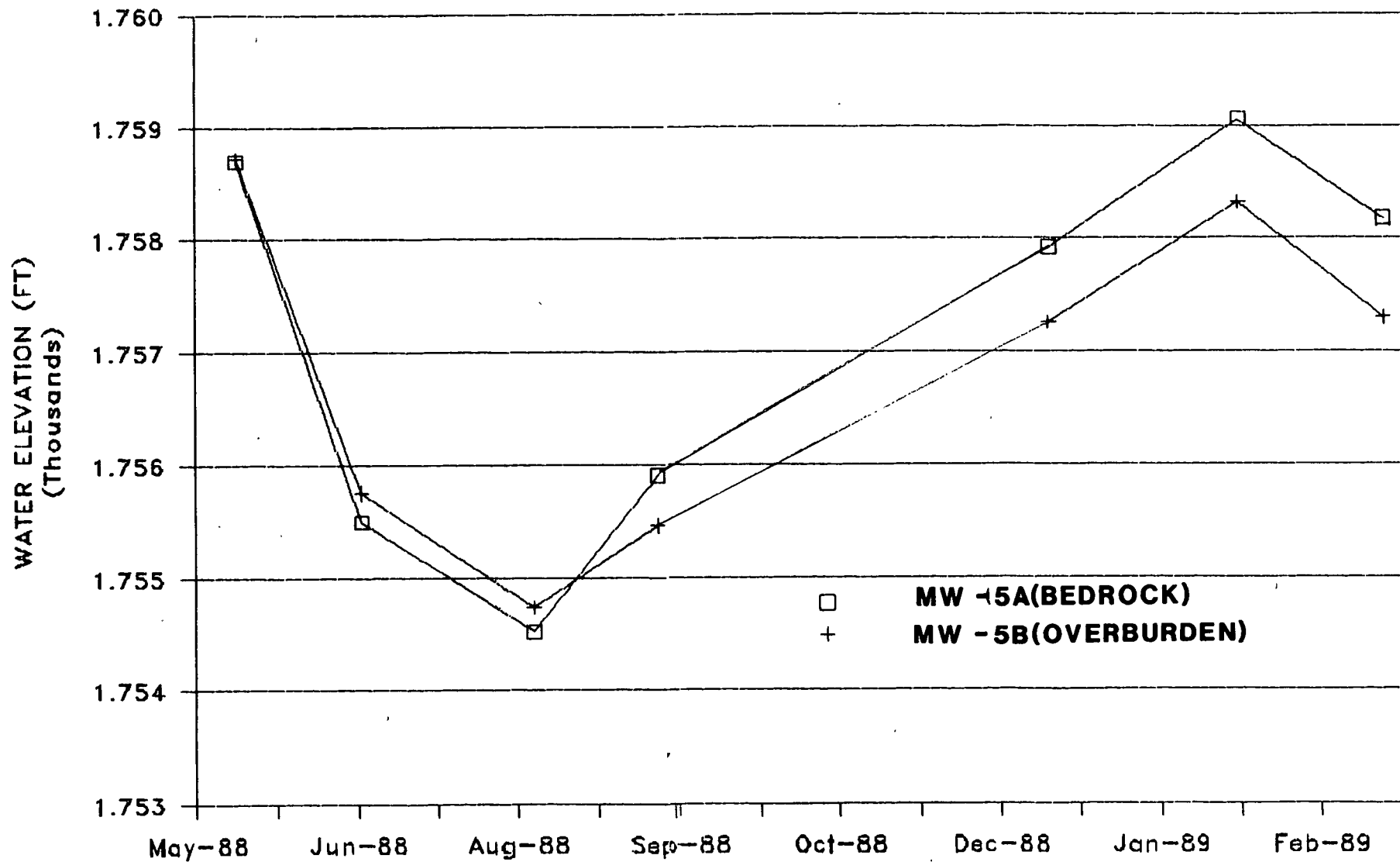
GROUNDWATER HYDROGRAPH

MW-4A, MW-4B, MW-4C



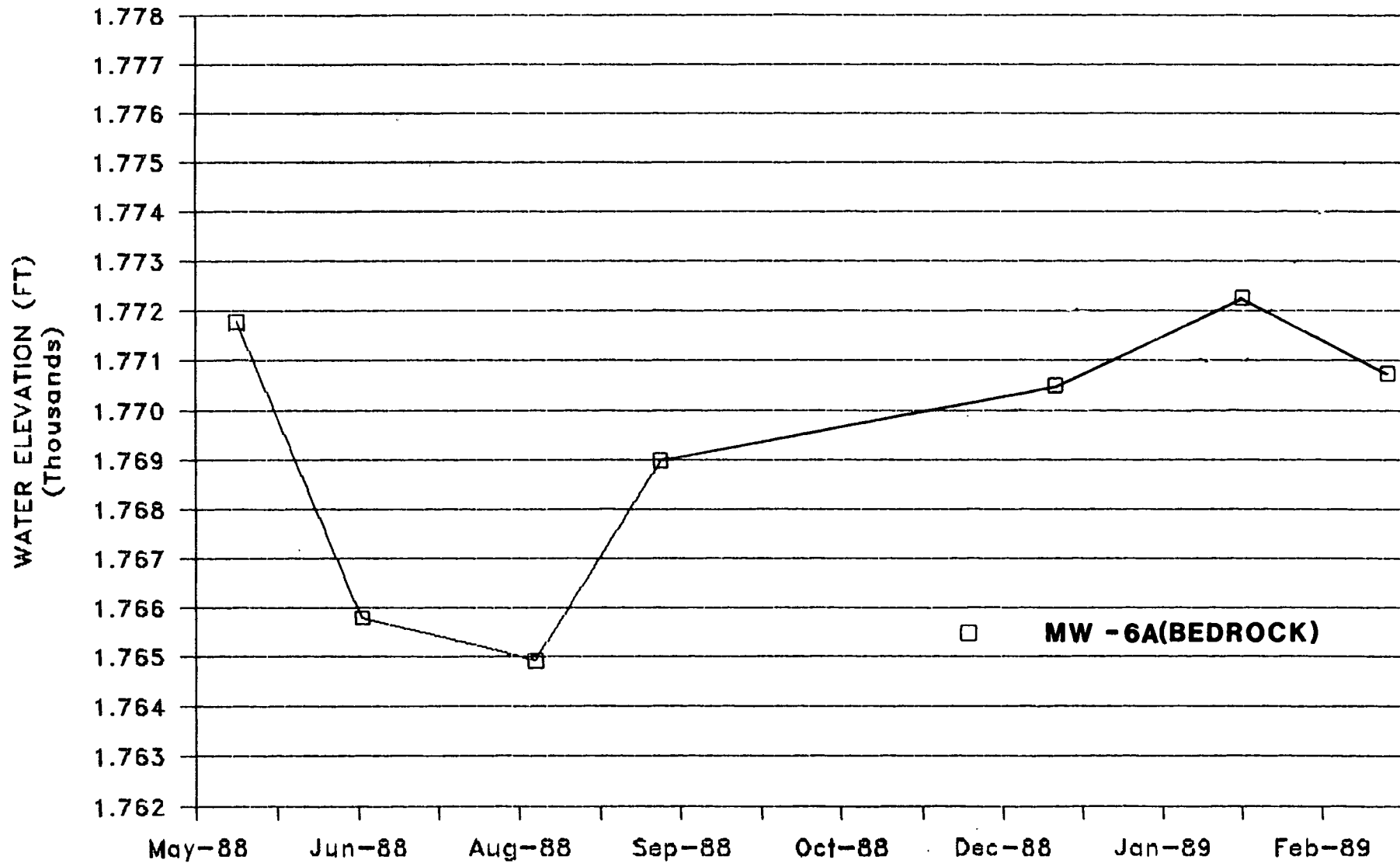
GROUNDWATER HYDROGRAPH

NW-5A, MW-5B



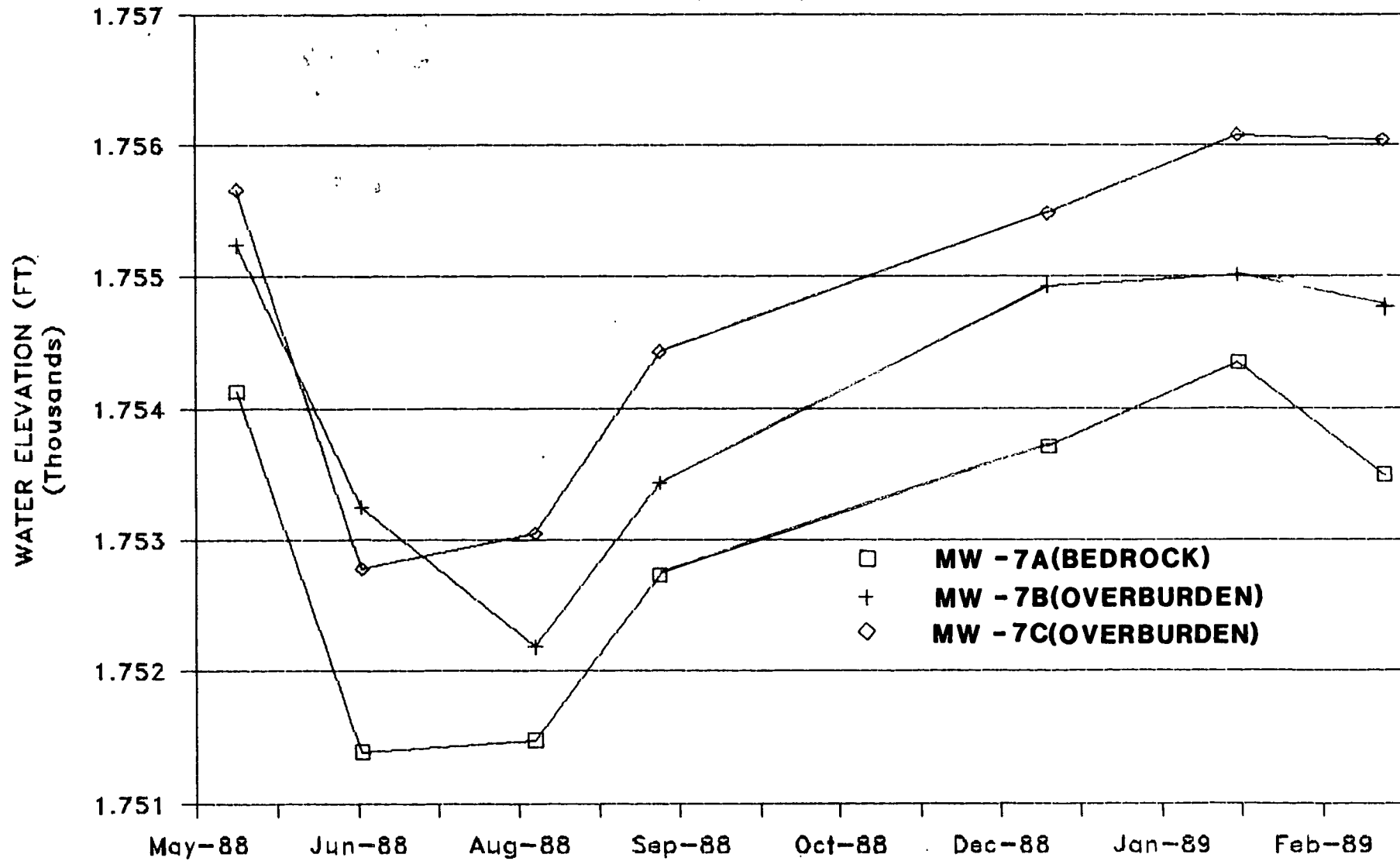
GROUNDWATER HYDROGRAPH

MW-6A



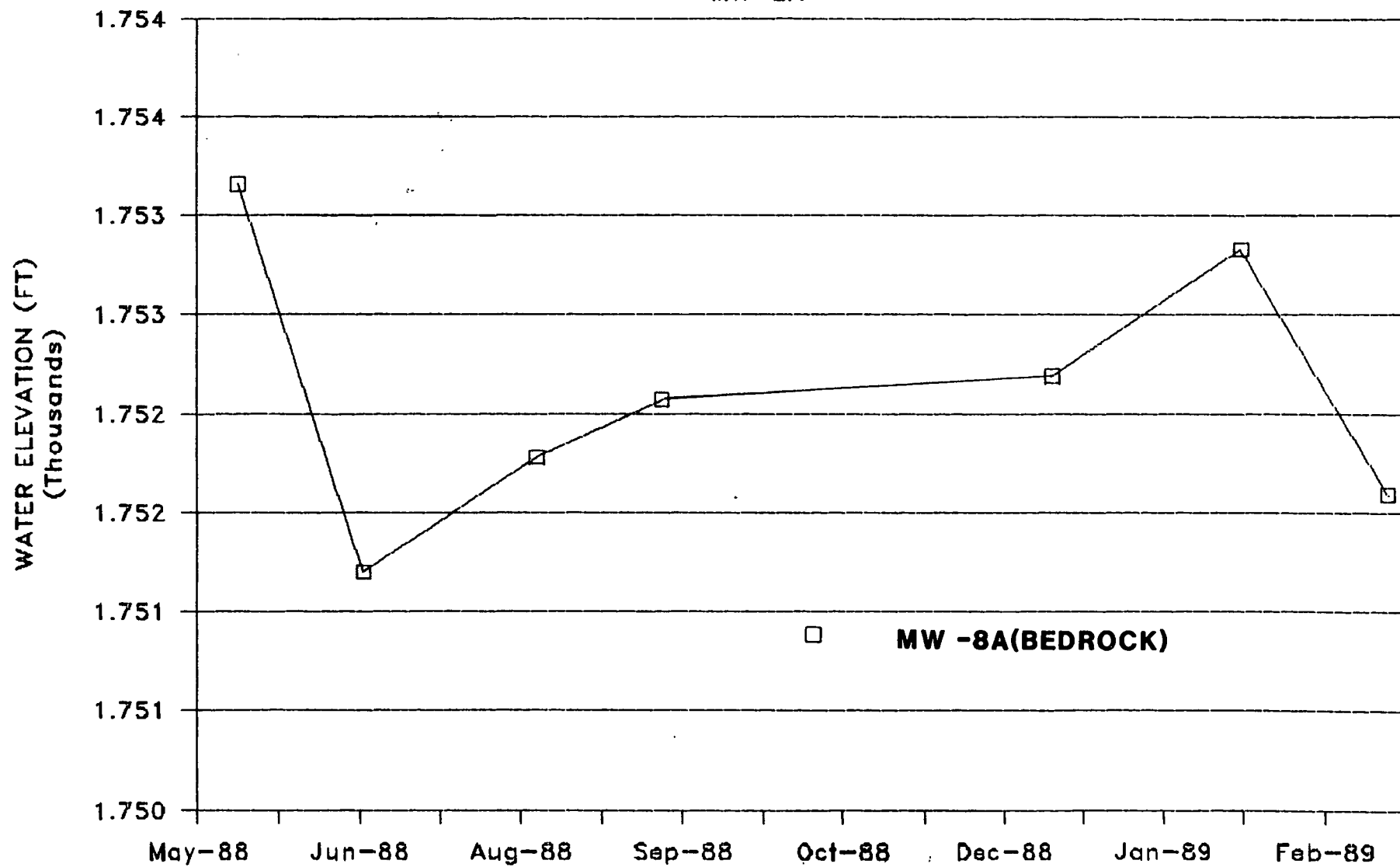
GROUNDWATER HYDROGRAPH

MW-7A, MW-7B, MW-7C



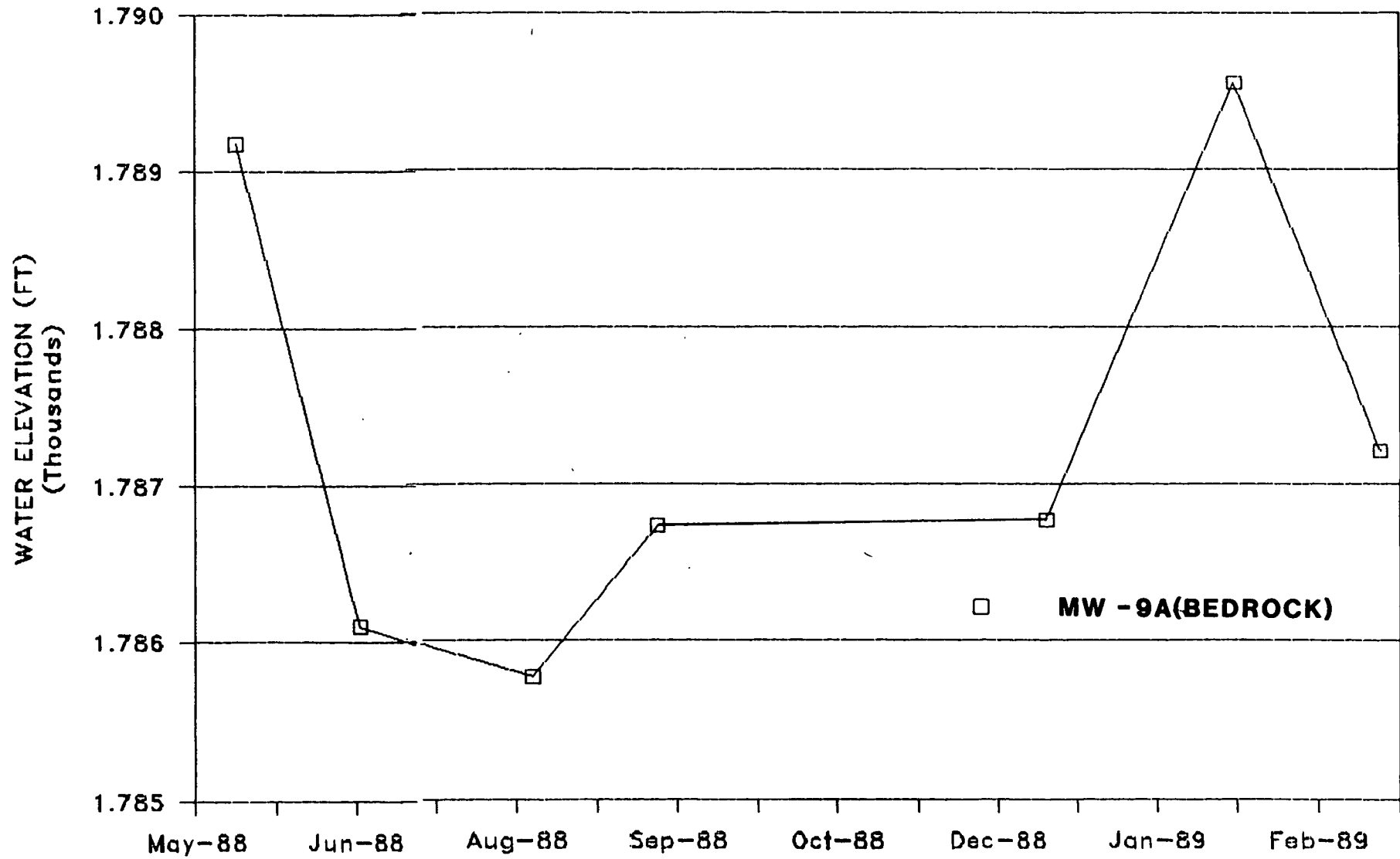
GROUNDWATER HYDROGRAPH

MW-8A



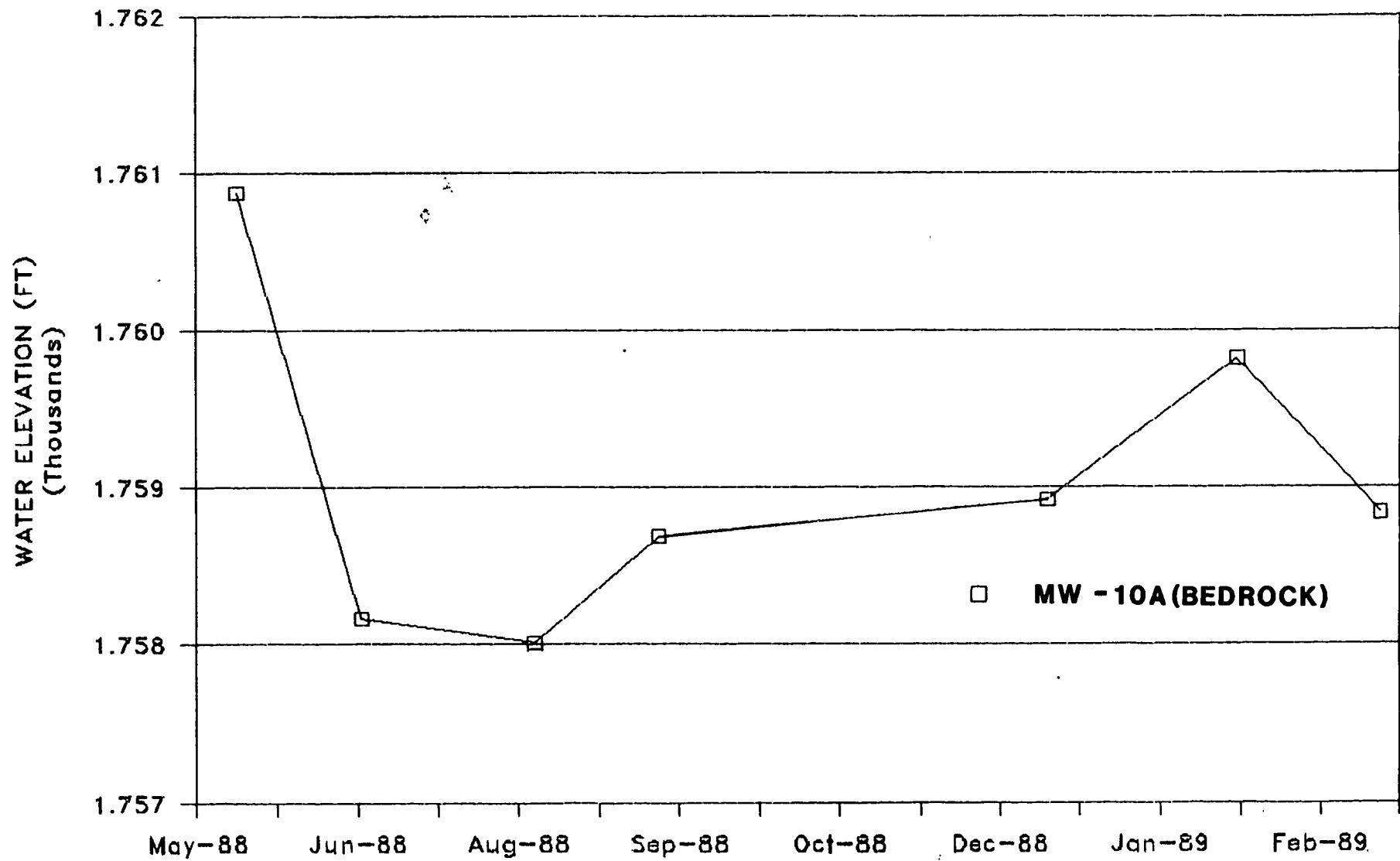
GROUNDWATER HYDROGRAPH

MW-9A



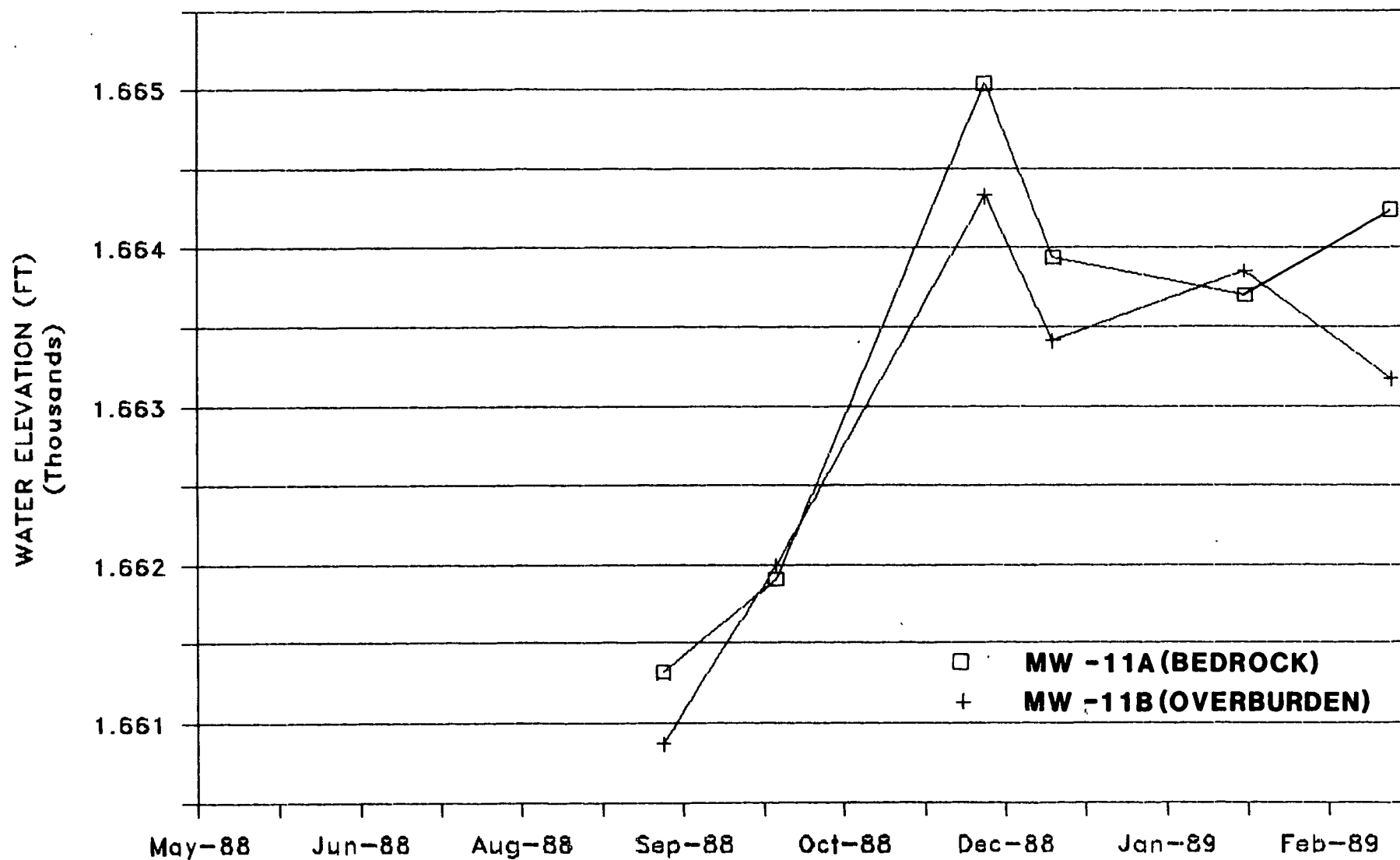
GROUNDWATER HYDROGRAPH

MW-10A



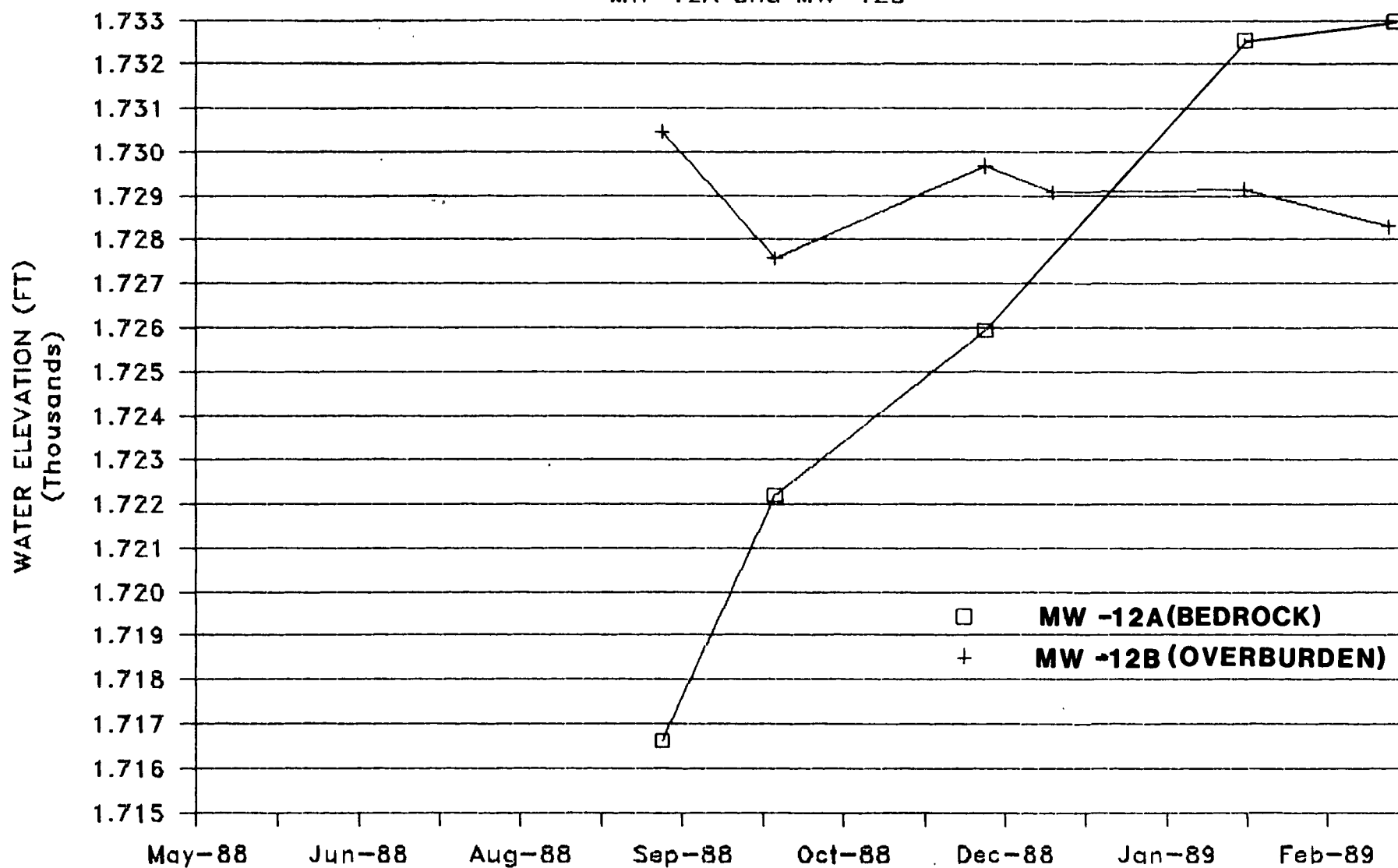
GROUNDWATER HYDROGRAPH

MW-11A and MW-11B



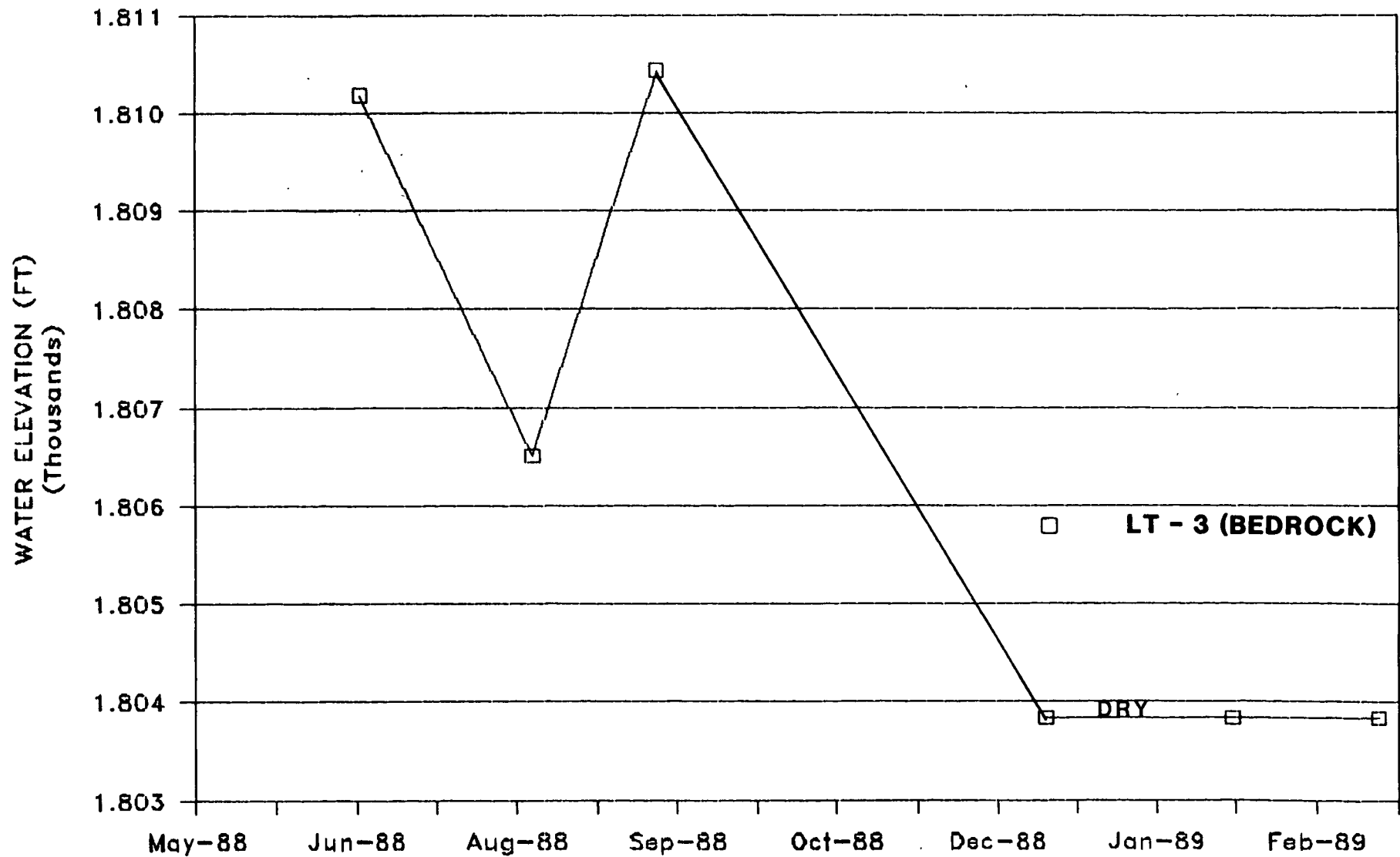
GROUNDWATER HYDROGRAPH

MW-12A and MW-12B



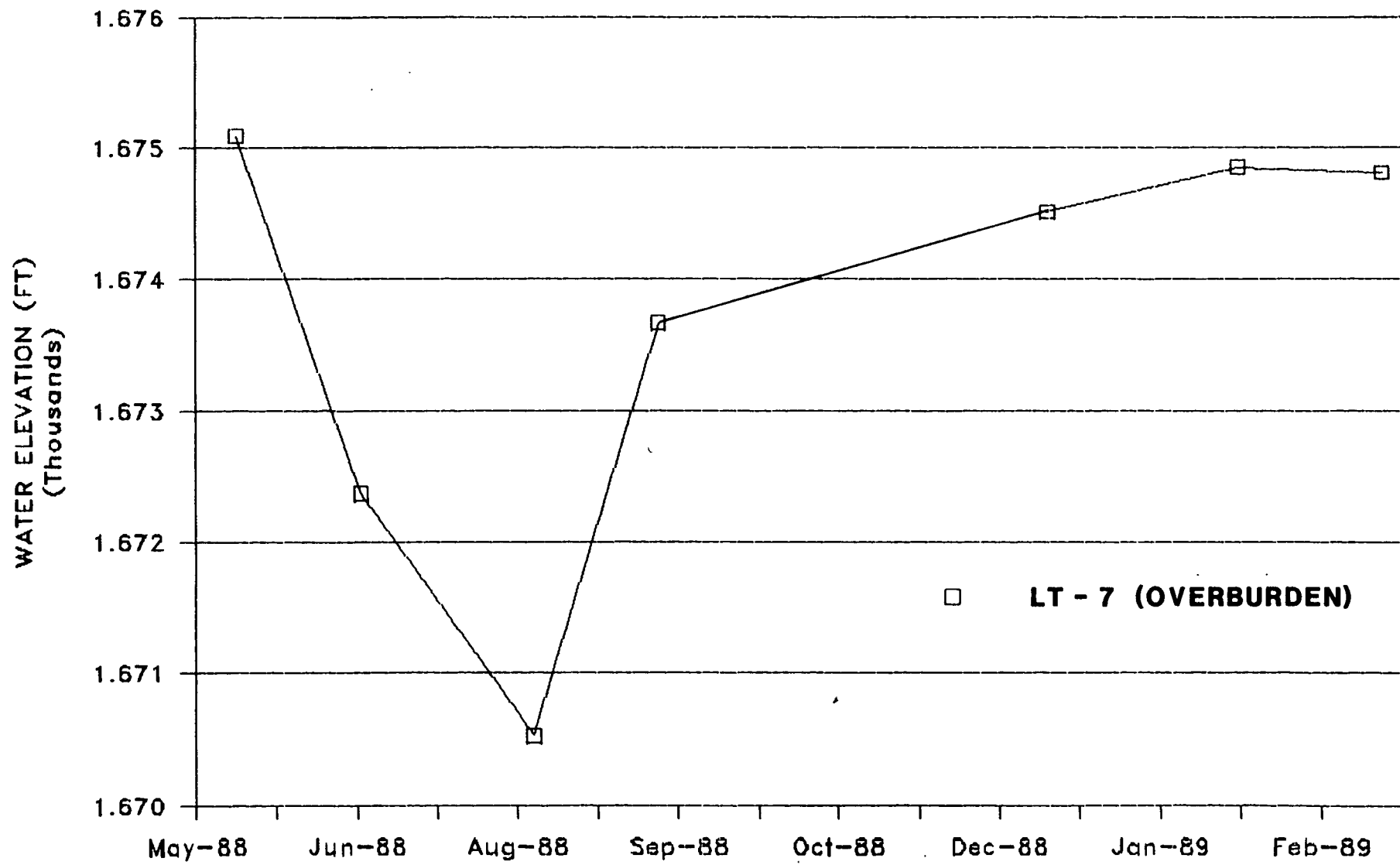
GROUNDWATER HYDROGRAPH

LT-3



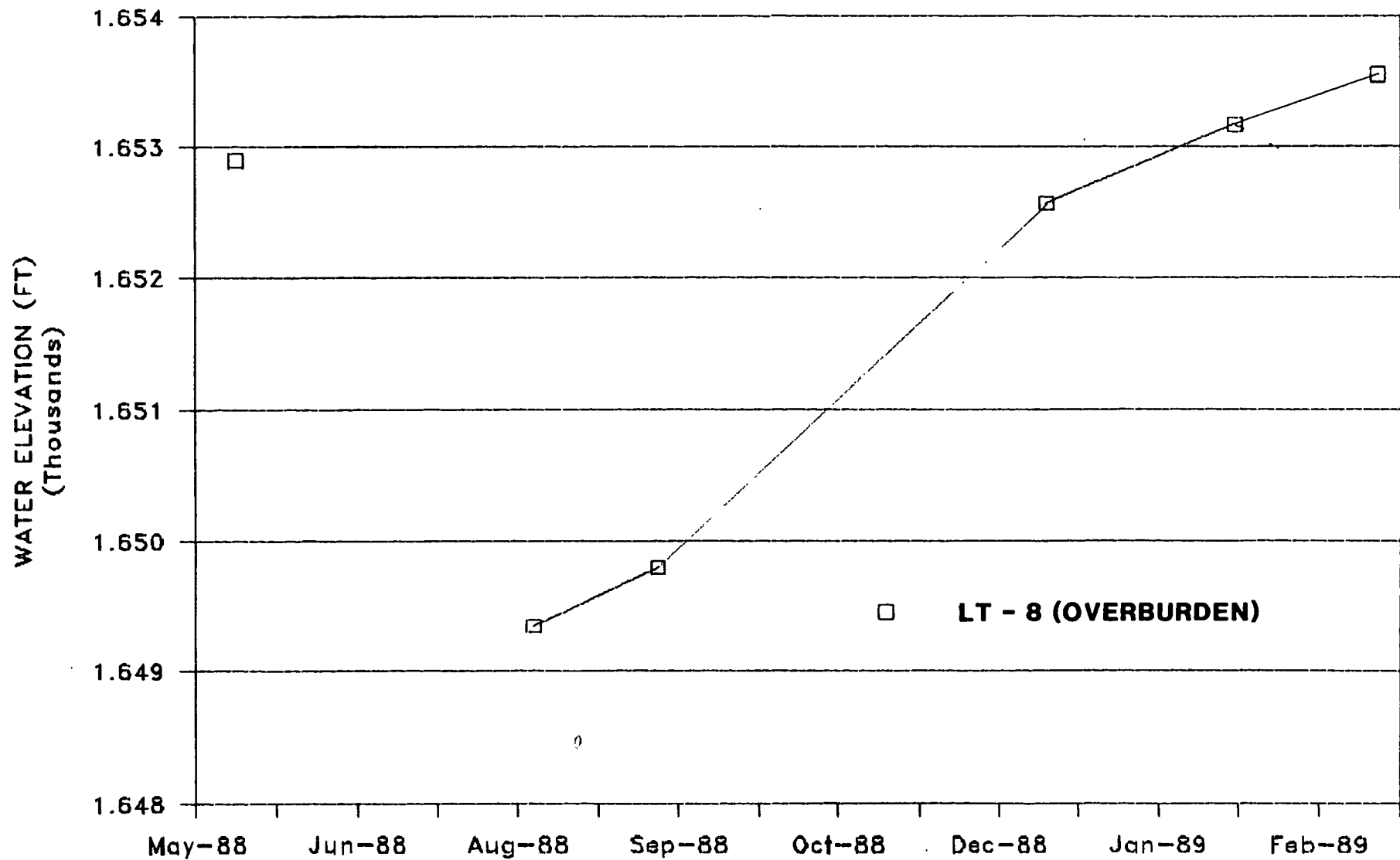
GROUNDWATER HYDROGRAPH

LT-7



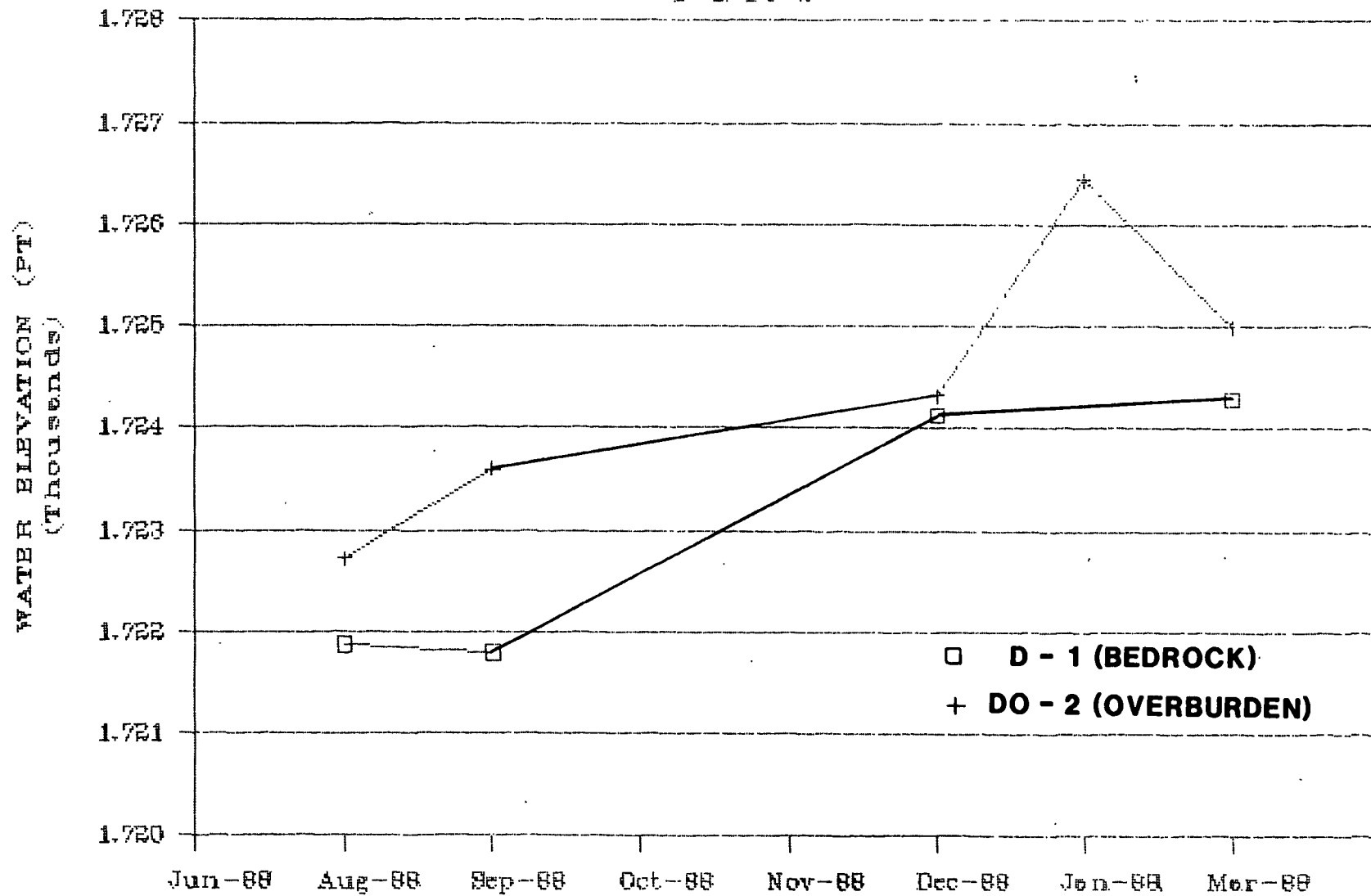
GROUNDWATER HYDROGRAPH

LT-8



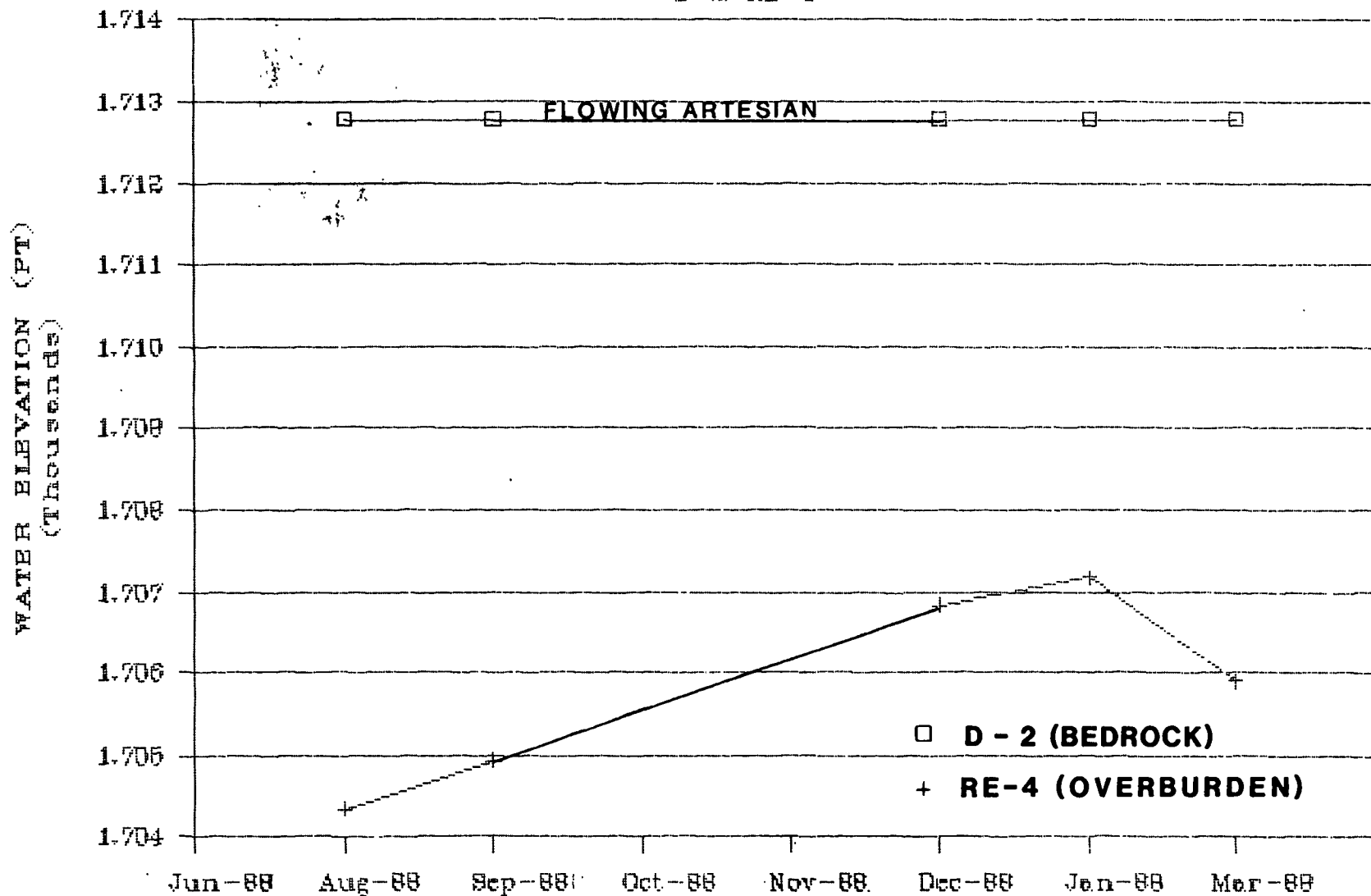
GROUNDWATER HYDROGRAPH

D-1/DO-2



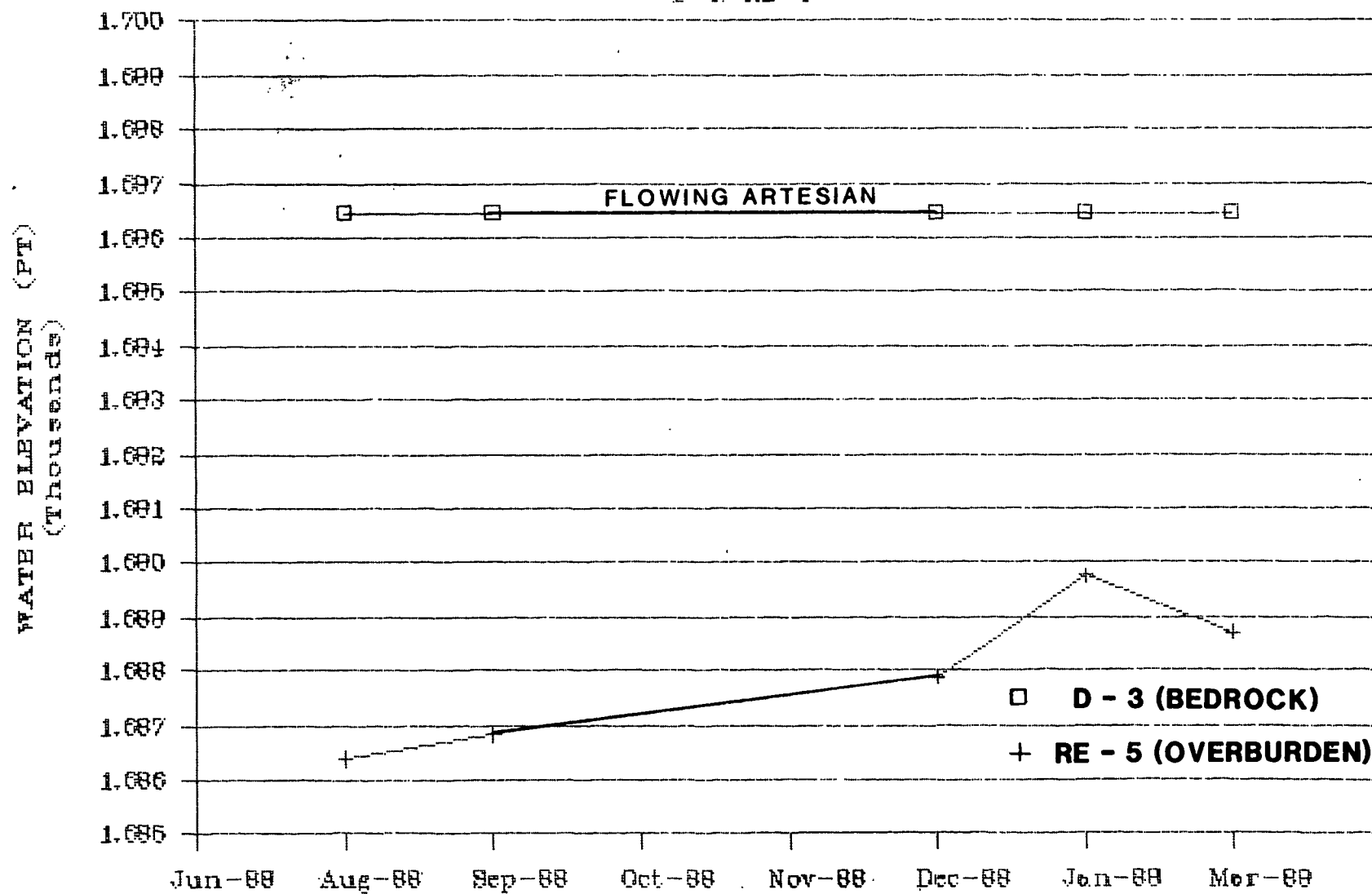
GROUNDWATER HYDROGRAPH

D-2/RE-4



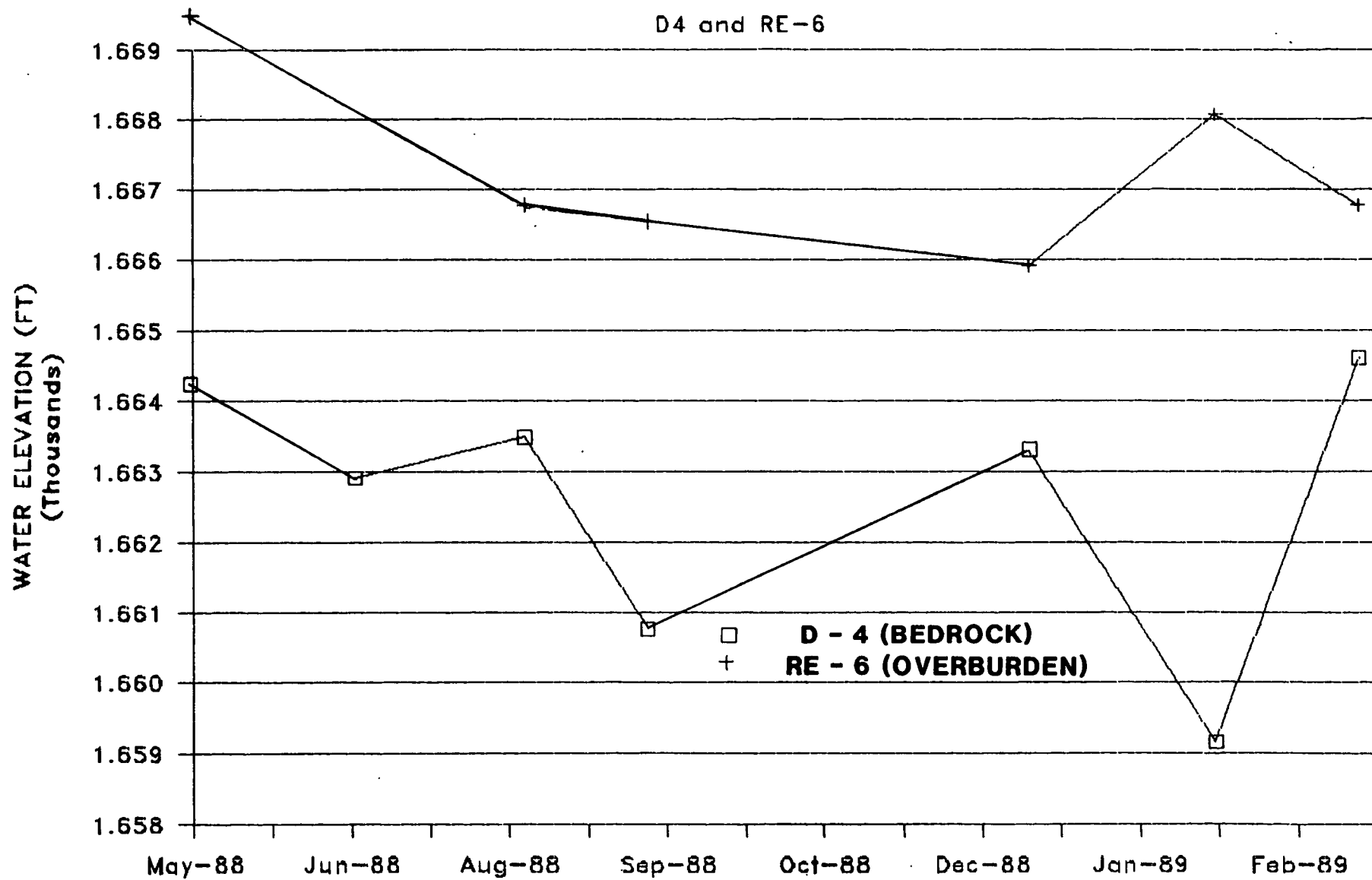
GROUNDWATER HYDROGRAPH

D-3/RE-5



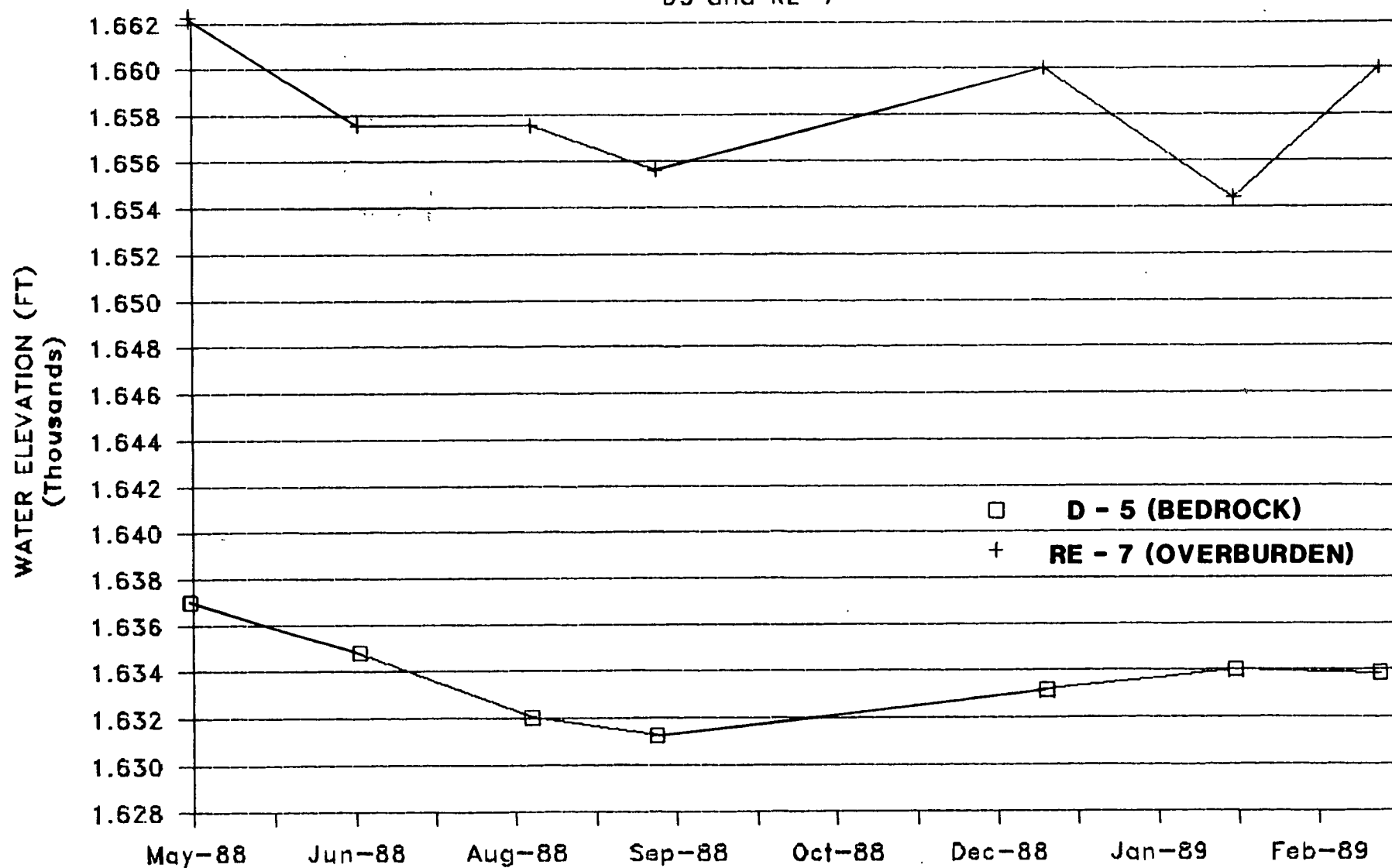
GROUNDWATER HYDROGRAPH

D4 and RE-6



GROUNDWATER HYDROGRAPH

D5 and RE-7



GROUNDWATER HYDROGRAPH

D6 and RE-8

