WORK PLAN FOR THE H.O.D. LANDFILL SITE

ANTIOCH, ILLINOIS C.04

ILD980605836

F05-8611-312

January 30, 1987

ecology and environment, inc.

International Specialists in the Environment

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1. INTRODUCTION

This Work Plan, prepared by Ecology and Environment, Inc., (E & E) Region V Field Investigation Team (FIT), describes the tasks necessary to complete an Expanded Site Inspection (ESI) for the H.O.D. Landfill in Antioch, Illinois. Work performed at this site is authorized by TDD F05-8611-312, issued on November 25, 1986.

The Work Plan is divided into several sections. Section 1 - Introduction, contains project objectives and authorization; Section 2 - Background, includes site location, history, geography, geology, and previous investigations; Section 3 - Scope of Work, details the preparation for the field investigation, the tasks to be performed during the field investigation, and evaluation of investigation derived data; Section 4 - Schedule, presents the project time frame; and Section 5 - Budget, supplies estimated costs for the project. The requirements set forth in the TDD and information derived from discussions with U.S. Environmental Protection Agency (U.S. EPA) personnel regarding the site have been included in this Work Plan.

1.1 OBJECTIVES

On June 10, 1986, U.S. EPA proposed the H.O.D. Landfill for placement on the National Priorities List (NPL) as an uncontrolled hazardous waste site. The primary objective of this ESI is to supply

geotechnical and chemical data necessary to finalize this facility's placement on the NPL. This objective will be attained through the following tasks:

- Performing a hydrogeologic investigation of the site area, including monitoring well installation, groundwater elevation measurements, and aquifer testing, and

- Collecting soil samples for chemical and physical analyses and groundwater samples for chemical analyses.

2. BACKGROUND

2.1 SITE LOCATION

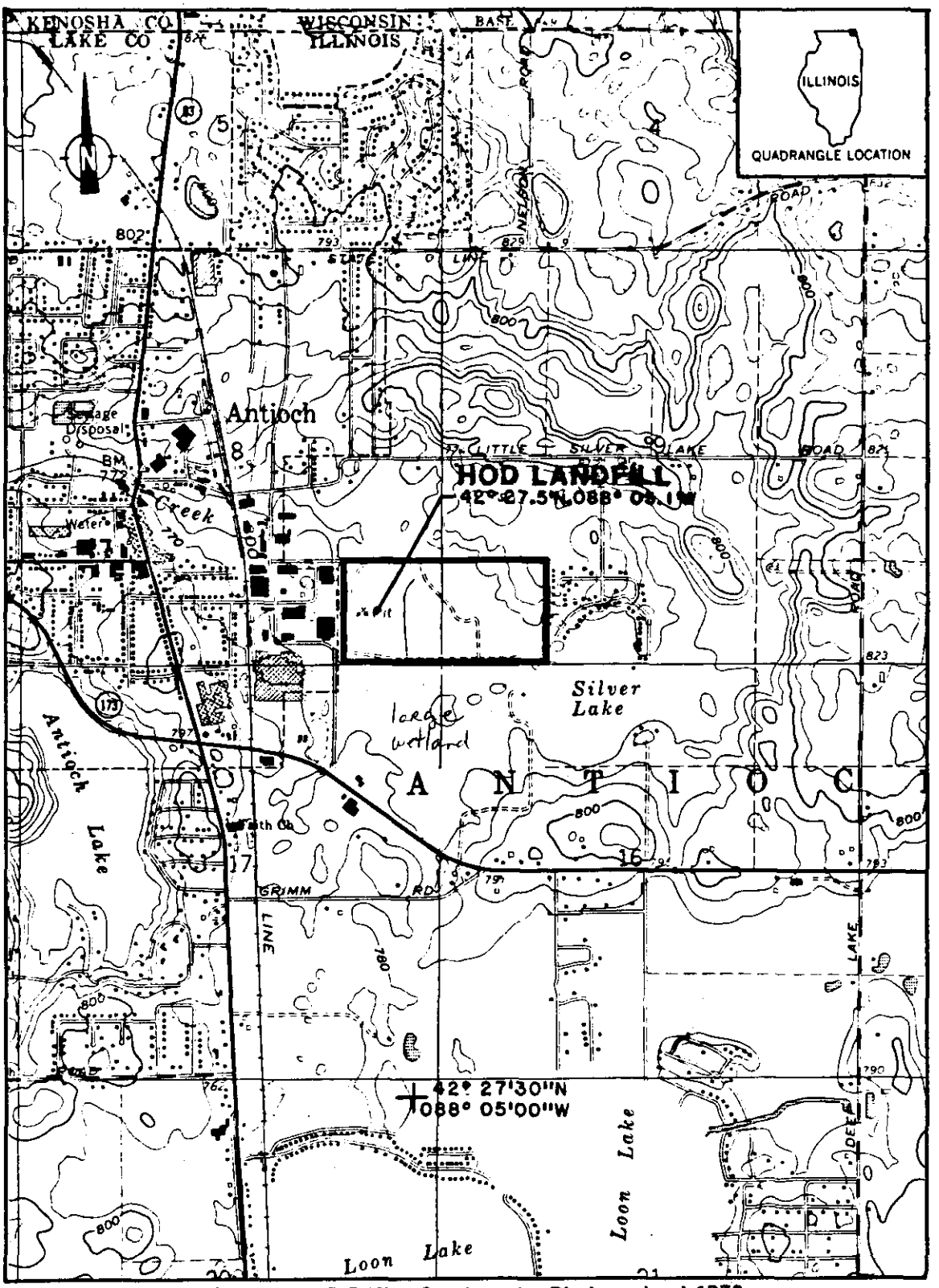
The H.O.D. Landfill (T.46N., R.10E., Sec. 9) is situated on the southeastern side of Antioch, Illinois, in Lake County (see Figure 2-1). The site is bordered on the north and east by agricultural land and residential areas. Silver Lake is located approximately 200 feet southeast of the site. A large wetland lies to the south of the landfill. The area west of the landfill consists of a large industrial park (see Figure 2-2).

2.2 SITE HISTORY

The H.O.D. Landfill was in operation from 1963 to 1984. Between 1963 and June 1973, the site was operated by H.O.D. Disposal Service, Inc. On June 29, 1973, H.O.D. Disposal Service merged with Waste Management of Illinois, Inc.

During the entire period of operation, an unknown amount of wastes was accepted at the H.O.D. Landfill. These wastes allegedly contained solvents, heavy metals, mixed municipal wastes, and cutting and hydraulic oils.

On July 30, 1979, the Illinois Environmental Protection Agency, Division of Land Pollution Control (IEPA-DLPC) confirmed the presence of PCBs in wastes accepted at the H.O.D. Landfill.



SOURCE: USGS, 1960, Antioch 7.5 MIN, Quadrangle. Photorevised 1972.

SCALE

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FIGURE 2-1 SITE LOCATION MAP

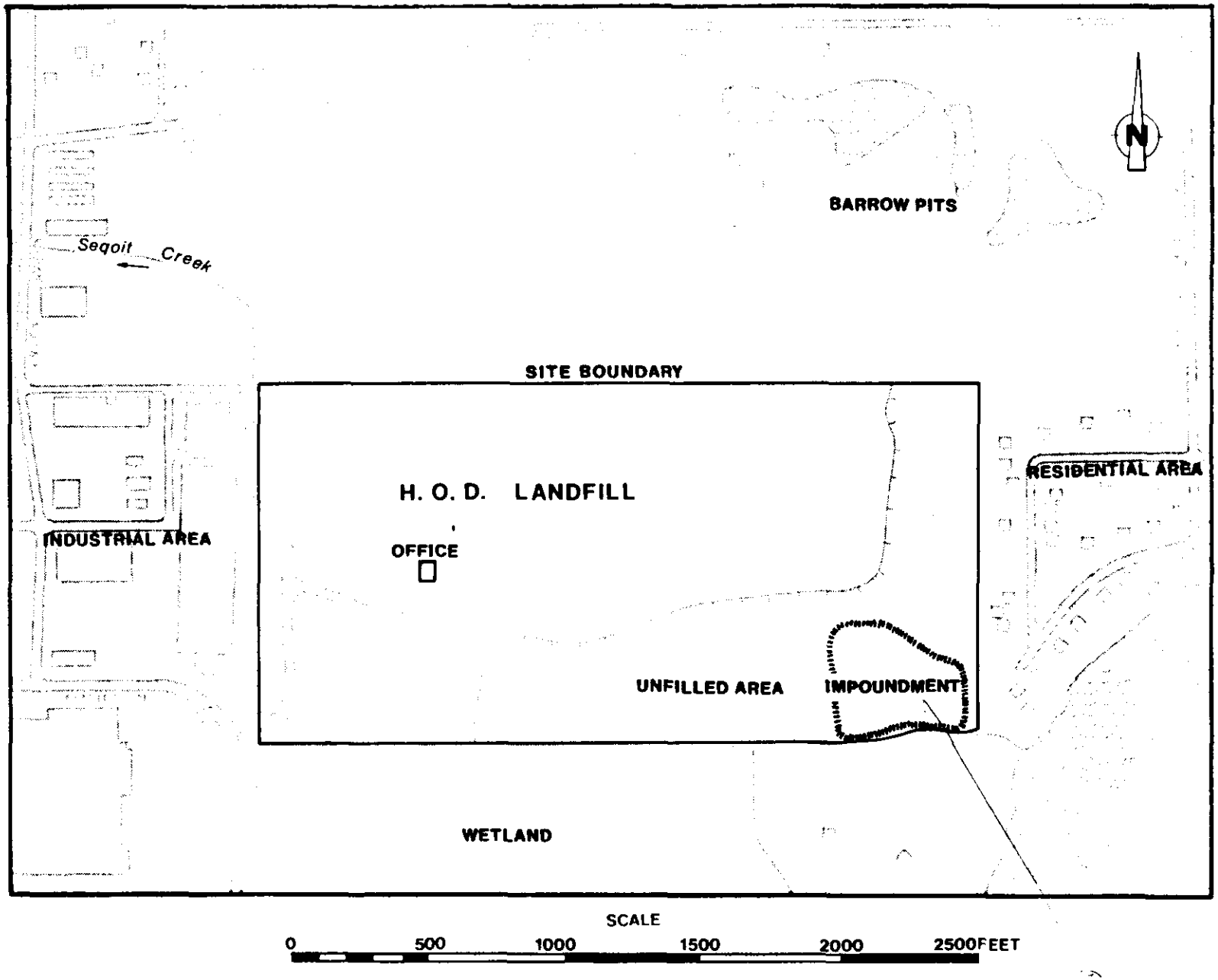


FIGURE 2-2 SITE FEATURES MAP

Technically, the H.O.D. Landfill is not closed. In 1983, the IEPA-DLPC issued a permit to Waste Management of Illinois, allowing the landfill to remain without final cover, pending litigation regarding facility expansion. However, the landfill is currently prohibited from accepting wastes.

2.3 GEOGRAPHY

2.3.1 Physiography

Lake County is situated within the Wheaton Morainal Country of the Central Lowland Province. The county features gently sloping relief, resulting in poorly developed drainage patterns. Many marshes and lakes are found across the county (Paschke 1970).

The major drainage basins of Lake County are the Fox and Des Plaines rivers and Lake Michigan. The Fox River drains the areas of the far western part of the county. The easternmost boundary, up to 3 miles inland, drains into Lake Michigan. Approximately two thirds of the county is drained by the Des Plaines River (Paschke 1970).

2.3.2 Climate

Lake County is in a continental climatic zone, possessing often changing temperature, humidity, and wind direction. The average daily temperature is 23°F for the coldest month, January, and 72°F for the warmest month, July. The average annual precipitation is 32.5 inches (Paschke 1970).

2.4 GEOLOGY

Lake County lies on the eastern flank of a bedrock feature known as the Kankakee Arch. The upper bedrock units in this area dip gently to the east, toward the Michigan Basin. The uppermost bedrock unit is comprised of Silurian dolomites (Willman 1971).

The bedrock surface is covered by approximately 200 feet of unconsolidated materials (Paschke 1970) deposited by the Lake Michigan Lobe of the Wisconsinan Glaciation stage (Willman 1971).

These materials are composed of a silty clay till (Wedron Formation) (Willman 1971) with intermixed sand and gravel lenses, overlying a mixed sand and gravel layer, as indicated by water well logs in Appendix A. The thickness of this lower sand and gravel layer is unknown, although it is at least 75 feet thick as recorded in Antioch Municipal Well No. 1 well logs.

2.5 PREVIOUS INVESTIGATIONS

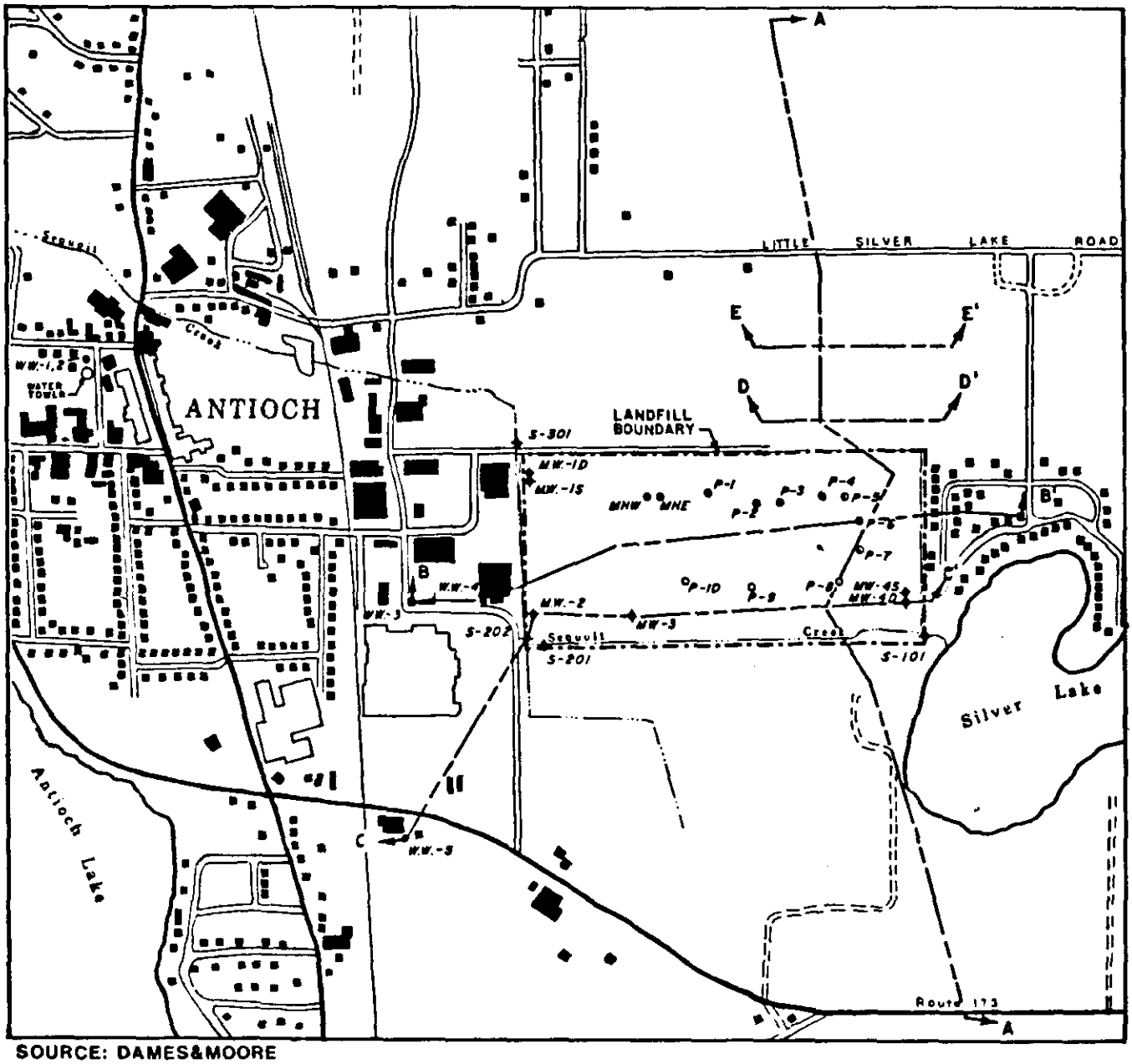
Investigations to date have included hydrogeologic assessment and groundwater quality sampling.

2.5.1 Hydrogeologic Assessment

In February 1981, 26 soil borings were completed around the H.O.D. Landfill. Drilling and soil descriptions were performed by Testing Service Corporation under direction of Waste Management of Illinois. Boring logs are shown in Appendix B.

In November 1985, Dames & Moore provided a hydrogeological assessment of the H.O.D. Landfill and surrounding area. The assessment was based on the above mentioned soil borings and local water well records. Geologic cross-sections A-A', B-B', C-C', D-D', and E-E' were developed for this area and are illustrated in Figures 2-4, 2-5, 2-6, 2-7, and 2-8, respectively. The locations of these cross-sections are shown on Figure 2-3.

Based upon the report by Dames & Moore (1985), portions of the landfill base are in direct contact with a water bearing shallow sand and gravel layer which becomes more extensive to the south of the site (see Figures 2-4 and 2-6). As shown in geologic cross-section C-C' (see Figure 2-6), the thickness of the separating layer between the shallow sand and gravel aquifer and the deeper sand and gravel aquifer is unknown. The effective separating capacity of this clay layer is also undetermined.



SOURCE: DAMES&MOORE

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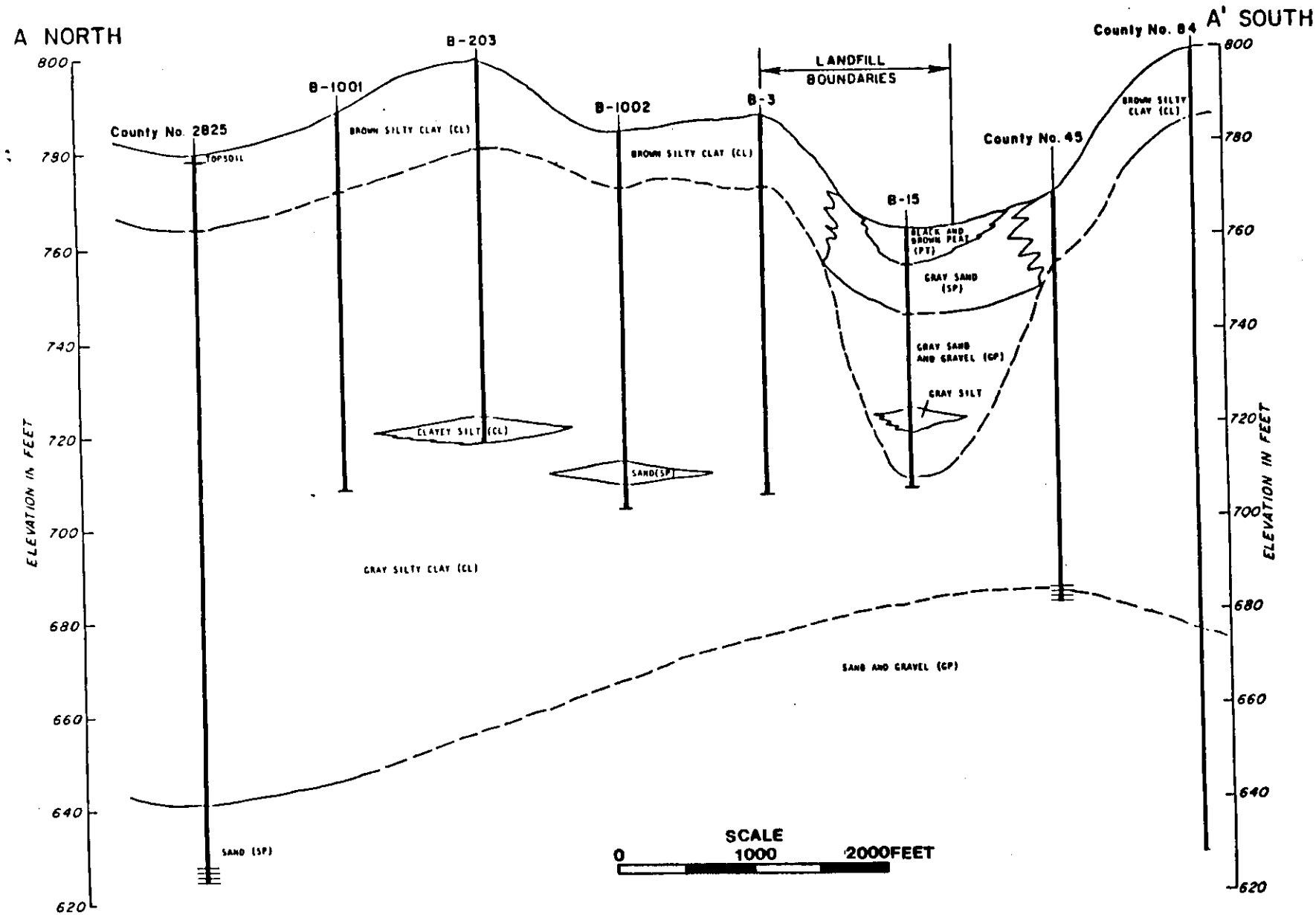
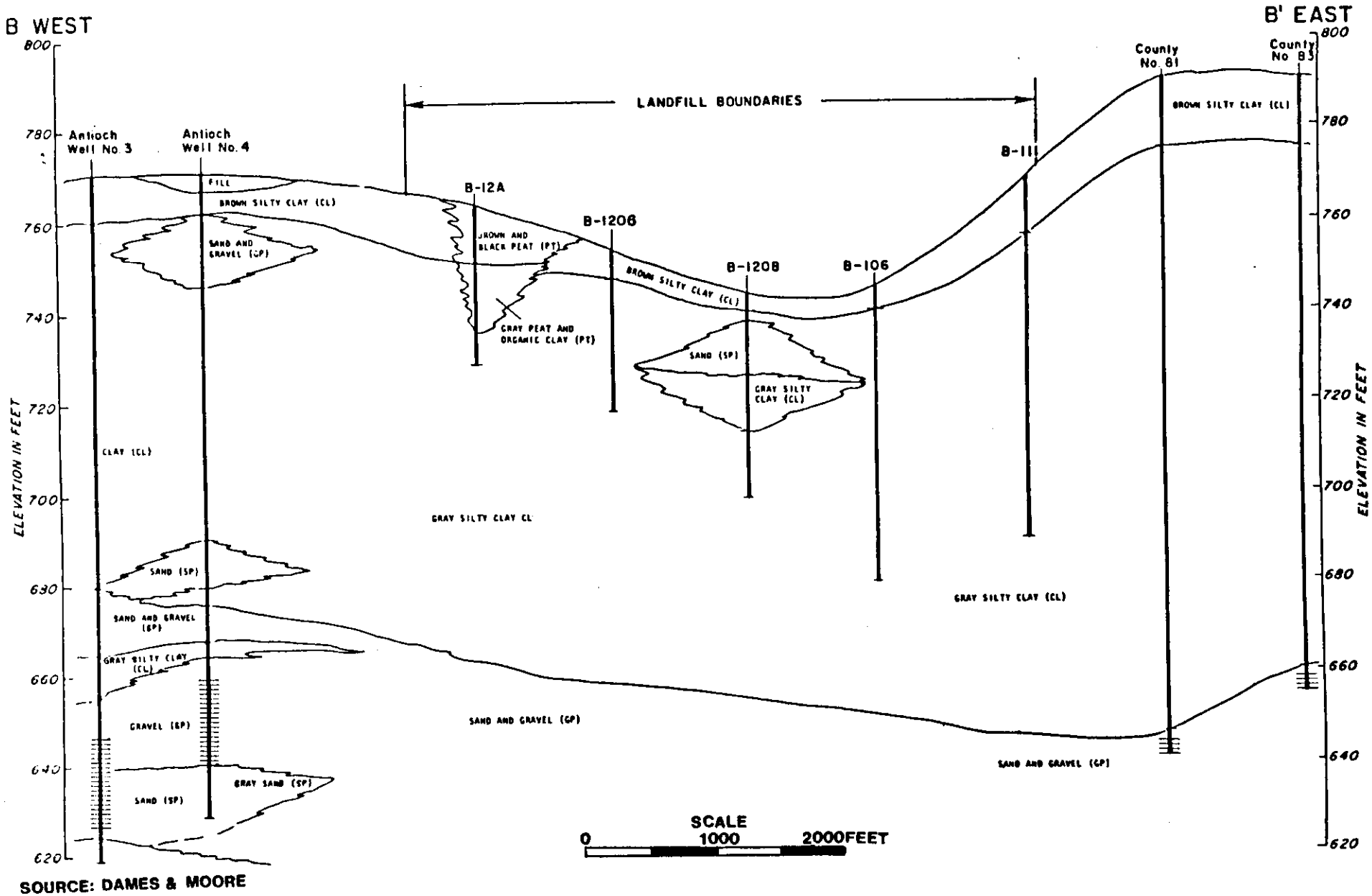
FIGURE 2-3 GEOLOGIC CROSS-SECTION LOCATION MAP



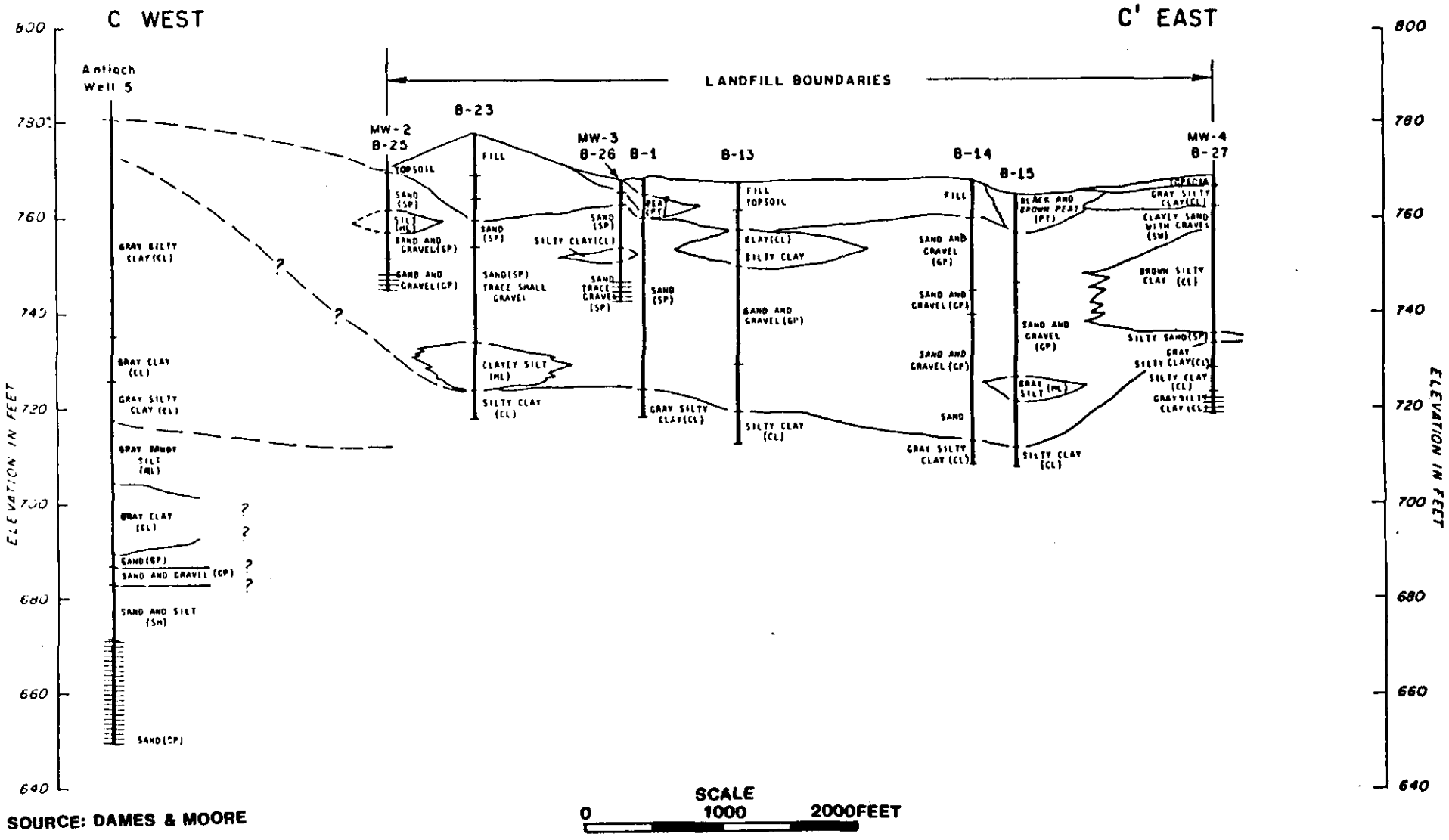
SOURCE: DAMES & MOORE

FIGURE 2-4 GEOLOGIC CROSS-SECTION A-A'



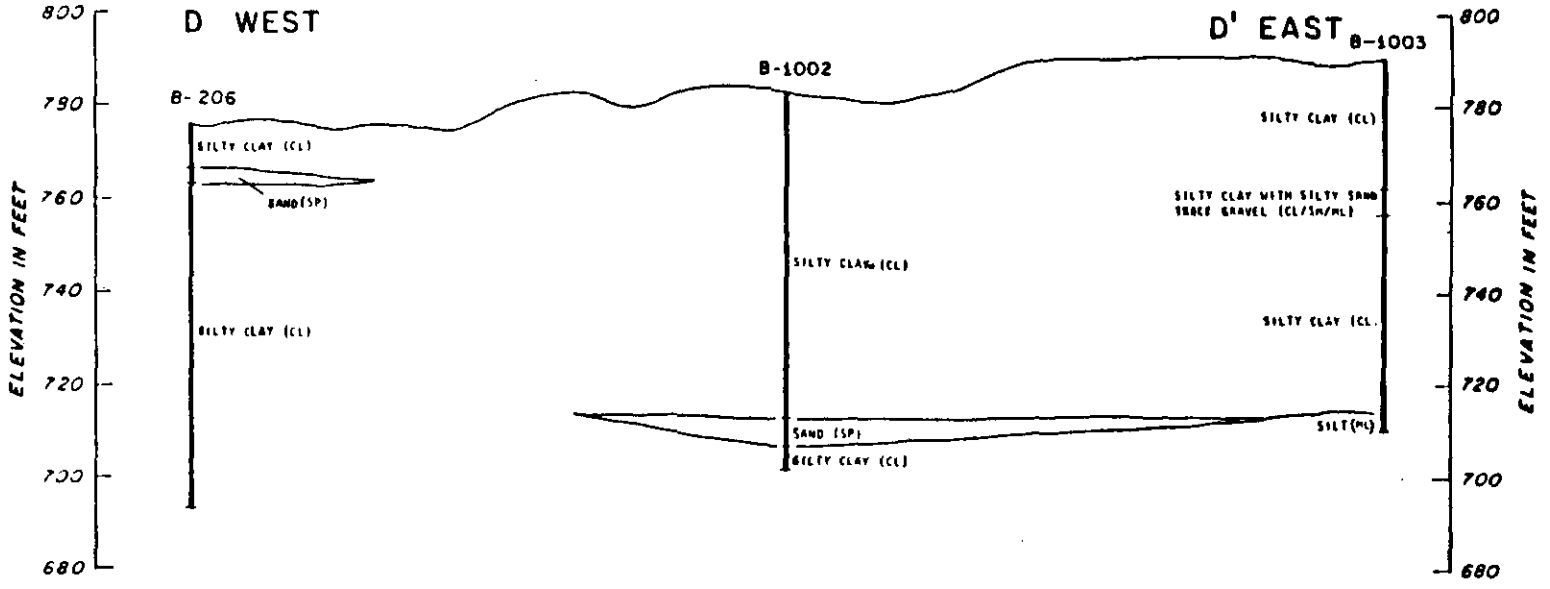
SOURCE: DAMES & MOORE

FIGURE 2-5 GEOLOGIC CROSS-SECTION B-B'



SOURCE: DAMES & MOORE

FIGURE 2-6 GEOLOGIC CROSS-SECTION C-C'



SOURCE: DAMES & MOORE

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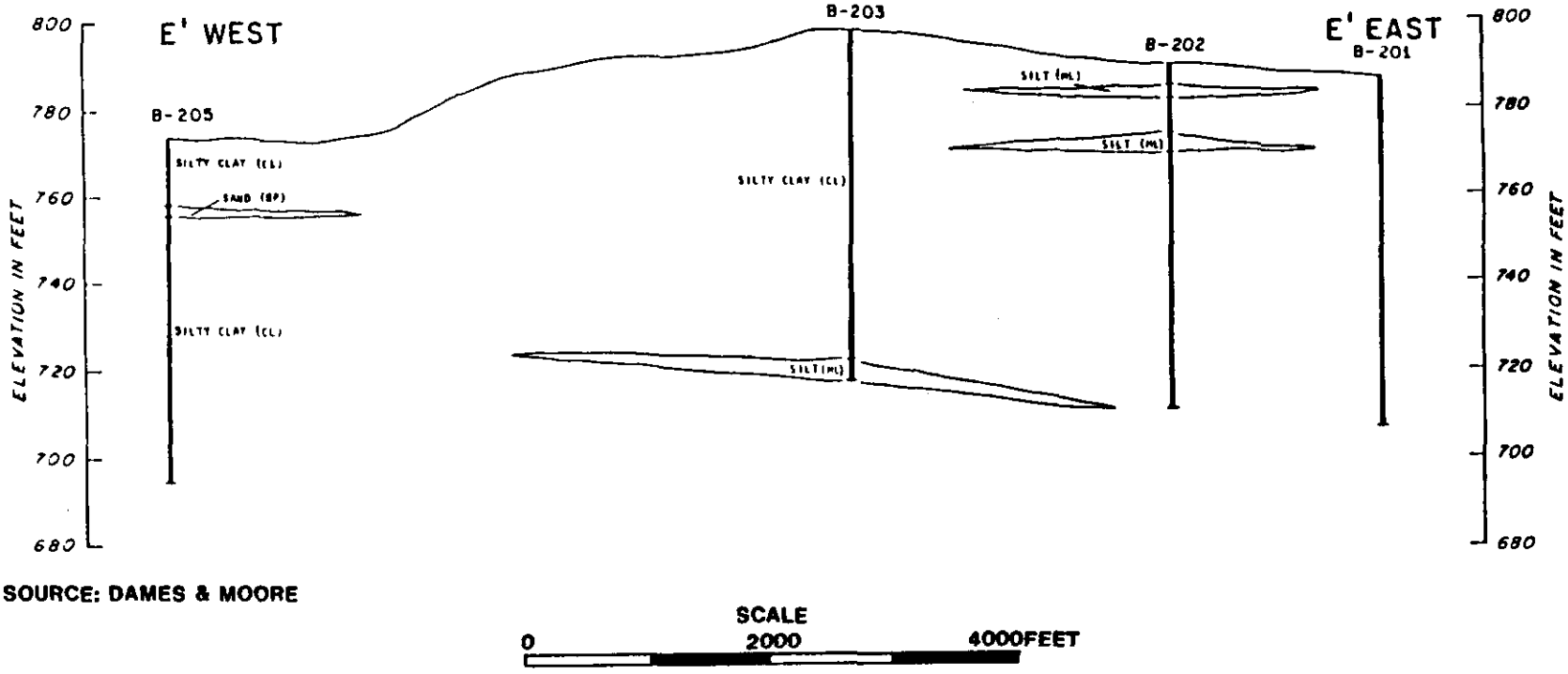
FIGURE 2-7 GEOLOGIC CROSS-SECTION D-D'



SOURCE: DAMES & MOORE

FIGURE 2-8 GEOLOGIC CROSS-SECTION E-E'

2.5.2 Groundwater Quality Monitoring

Antioch Municipal Well No. 4 was analyzed by IEPA on September 1, 1982. No halogenated volatile organic or organic compounds were detected in this sample (Dames & Moore 1985).

Groundwater samples were collected from the three shallow monitoring wells by E & E-FIT personnel on July 10, 1985. Concentrations of lead (6ug/L), cadmium (8 ug/L), and zinc (2040 ug/L) were detected in the sample collected from well MW-3. Sample locations are shown on Figure 2-9.

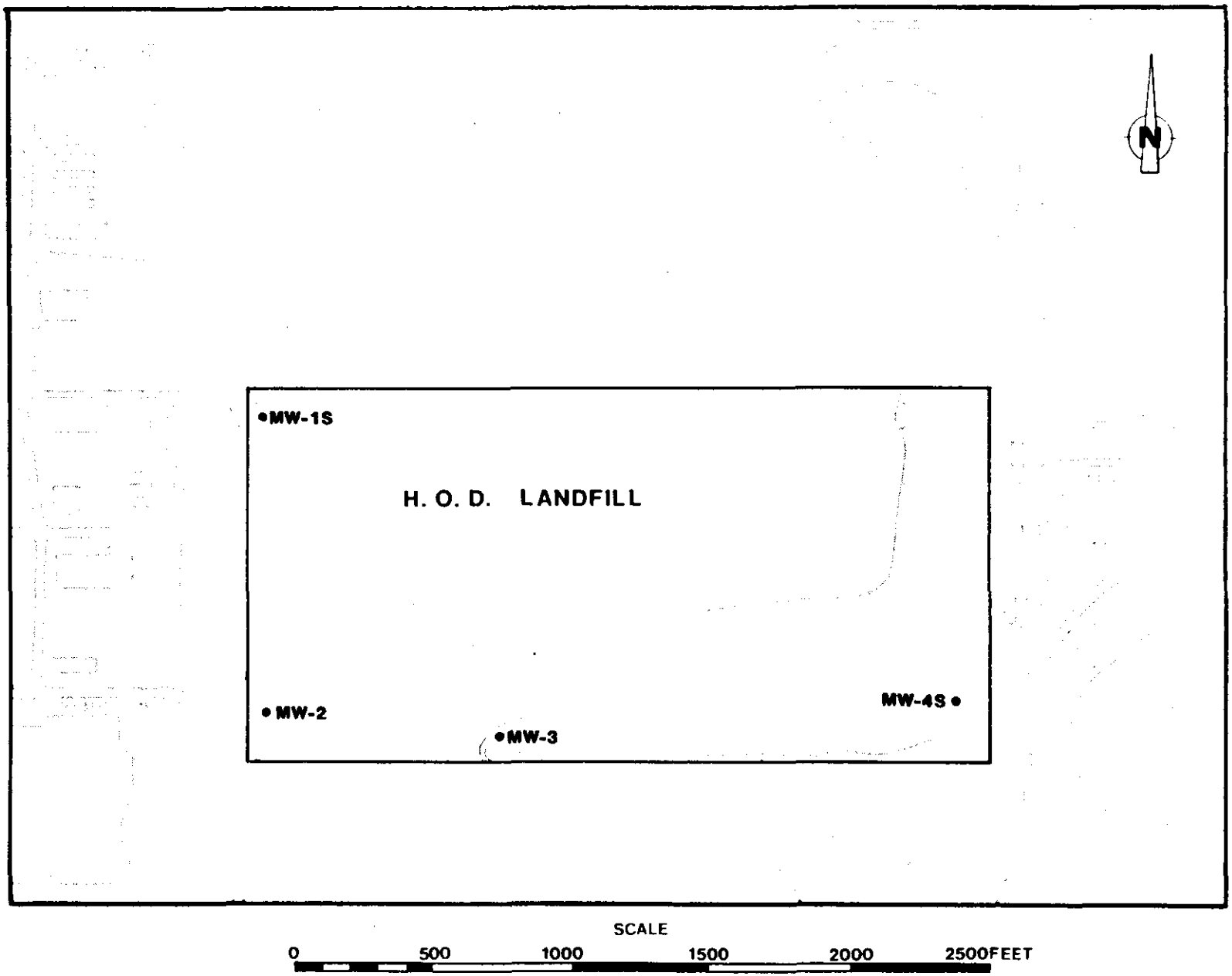


FIGURE 2-9 GROUNDWATER SAMPLE LOCATION MAP

3. SCOPE OF WORK

The primary objective of this ESI is the generation of hydrogeologic, geotechnical, and chemical data to finalize the placement of the H.O.D. Landfill site on the NPL. This objective will be attained by performance of a hydrogeologic/soils investigation of the site area and collection of soil and groundwater samples for physical and chemical analysis. At the present time the available data on the site is insufficient to allow an accurate assessment of the site without the additional work detailed in the following tasks.

A scope of work was developed to address the data requirements for the ESI objective. The proposed scope of work includes the following tasks:

Task 1: Preparation for Field Investigation,

Task 2: Field Investigation, and

Task 3: ESI Report.

Goals for the H.O.D. Landfill site ESI include:

- Determining the extent of subsurface soil contamination around the landfill,

- Evaluating the physical characteristics of the soils in the site area;

- Further clarifying the stratigraphy and geologic characteristics of the site area;

- Performing a pump test on the monitored zones to determine effectiveness of possible confining unit; and

- Determining and evaluating the level and extent of groundwater contamination in the site area.

The ESI work plan is directed toward gathering data necessary to evaluate the physical and chemical environment of the site. The Scope of Work can be expanded or reduced based on data generated during the project. Any change in scope will be reviewed with U.S. EPA to insure that concerns other than the technical needs of the project are being addressed.

3.1 TASK 1 - PREPARATION FOR FIELD INVESTIGATION

The goal of this task is to define the detailed scope of work for the ESI and to develop sufficient background information to allow an effective implementation of the recommended investigation.

During this task, the following subtasks will be completed:

- Conducting initial site health and safety assessment;

- Collecting data;

- Preparing and submitting a technical memorandum outlining the sampling plan;

- Preparing and submitting final work plan; and

- Obtaining permits and rights-of-entry.

Subtask 1.1 Conducting Initial Site Health and Safety Assessment

An initial site inspection will be conducted by the project team to become familiar with the physical state and layout of the site and its surroundings. Based on available information, a site health and safety plan (H&SP) will be prepared by FIT for the initial site visit. During this visit, FIT personnel will conduct a thorough inspection of the entire site using appropriate monitoring equipment such as a radiation detector, explosimeter, Draeger tubes, oxygen meter, and organic vapor analyzers with photoionization or flame ionization detectors. This equipment will be used to obtain sufficient data to evaluate the potential for adverse health effects from chemical exposure levels in the area. Based on data generated in the assessment, a site H&SP for ongoing site activities (e.g., drilling, sampling, etc.) will be prepared by FIT.

who from EPA will be in field to overview project. esp in overview [illegible]

Subtask 1.2 Collecting Data

A data search will be performed by FIT to compile available site information, beyond what has already been collected. Additional maps; historical photographs; well logs, geologic, soils, surface water, and groundwater data; and reports (both published and unpublished) will be collected. Available private, residential, commercial, and industrial wells within the immediate area of the site will be inventoried. Some sources of additional data may include U.S. Geological Survey (USGS), Soil Conservation Service (SCS), IEPA, National Oceanographic and Atmospheric Administration (NOAA), local health department, local well drillers, and the city of Antioch. In addition, legal descriptions of the site boundaries and the boundaries of adjacent properties will be collected from Lake County records. These descriptions and the names of current property owners will be required to obtain rights-of-entry for the field investigations.

Will this data be turned over to EPA at end of report?

Subtask 1.3 Quality Assurance

Quality assurance for the scope of work will be obtained through the implementation of U.S. EPA approved E & E-FIT standard operating procedures (SOPs). Any revisions to the work plan will be approved

by the U.S. EPA prior to implementation. Whenever possible, revisions will be submitted in written form for approval. However, if this is not possible, verbal permission will be sought and then confirmed in written form. Table 3-1 identifies the individuals involved in quality assurance of activities which are related to this project.

In accordance with appropriate SOPs, draft sampling and pump test technical memorandums will be submitted as addenda to the final work plan. These draft plans will be submitted to appropriate project personnel for review. Upon receipt of written review comments, these draft plans will be finalized and incorporated into the scope of work.

Preparing Sampling Plan

A sampling plan will be prepared covering the sampling efforts described in the work plan and will address the following specific topics:

- Sample types and tentative locations;
- Sampling equipment and procedures;
- Sample handling, custody procedures, and preservation;
- Sample documentation;
- Sample shipping;
- Analytical arrangements; and
- Sampling team organization, responsibilities, and training.

Table 3-1

PROJECT PERSONNEL/ORGANIZATION/FUNCTION

Name	Organization	Function
Wendy Ruddy	U.S. EPA	Site Manager
Karen Waldvogel	US EPA	CERLLA Enforcement
Douglas Yeskis	U.S. EPA	Technical Support
Rene' Van Someren	E & E - FIT	Office Manager
Jerome Oskvarek	E & E - FIT	Geotechnical Manager
William Borchardt	E & E - FIT	Project Manager
Clarence Bieze	E & E - FIT	Geotechnical Supervisor
Michael Miller	E & E - FIT	Quality Assurance Manager
Thomas Clyne	E & E - FIT	CLP Data Review
Kathleen Getty	E & E - FIT	Field Audits Supervisor

Pump Test Plan

A pump test plan will be prepared and will address the following specific topics:

- Pump test duration,
- Wells used to collect data, and
- Water disposal methods.

Subtask 1.4 Permits, Rights-of-Entry, and Authorization

U.S. EPA will obtain all permits, rights-of-entry, and authorizations required for the field investigations. FIT will assist the U.S. EPA during this subtask.

3.2 TASK 2 - FIELD INVESTIGATIONS

The goal of this task is to determine the physical and chemical characteristics of the soils and groundwater in the site area. Additional goals include detection of any contaminant plume(s) and determination of the characteristics of the plume(s). To accomplish these goals, the following subtasks are recommended:

- Establish field office,
- Surveying and mapping,
- Geophysical investigation,
- Soils investigation, and
- Hydrogeologic investigation.

Samples collected during these investigations will be analyzed for:

- pH and temperature (field measurements - liquid samples only),
- Conductivity (field measurement - liquid samples only),
- Grain size analysis and permeability testing (soil samples),
- Organic analysis package available from U.S. EPA Contract Laboratory Program (CLP), and
- Inorganic analysis package available from U.S. EPA CLP,

Air monitoring will be performed by FIT personnel during sampling and subsurface investigative procedures for use in evaluating levels of personal safety protection. The HNu and Foxboro OVA will be used for real time analysis and identification of airborne contaminants.

Subtask 2.1 Establish Field Office

A temporary field office will be established for sample packaging and storage and telephone communications. This field office will consist of a rented trailer complete with electrical and telephone connections. The field office will remain in use until field work has been completed.

Subtask 2.2 Surveying and Mapping

Topographic and base maps of the site area have already been prepared for U.S. EPA. These maps are adequate for the work proposed under this ESI. Upon completion of the drilling and sampling outlined in Subtask 2.4, pertinent features will be surveyed and locations added to the existing base map. These features will include: monitoring well casings, sampling points, etc.

Please clearly indicate any [illegible] used in study.

Subtask 2.3 Geophysical Investigation

Geophysical studies will be performed at the site to further characterize the local geology and hydrogeology. U.S. EPA will perform this subtask with assistance from E & E-FIT personnel. The area to be investigated is shown in Figure 3-1. Of particular interest are the east and north boundaries of the landfill. The purpose of this survey is to obtain preliminary information on the site prior to the drilling

why?

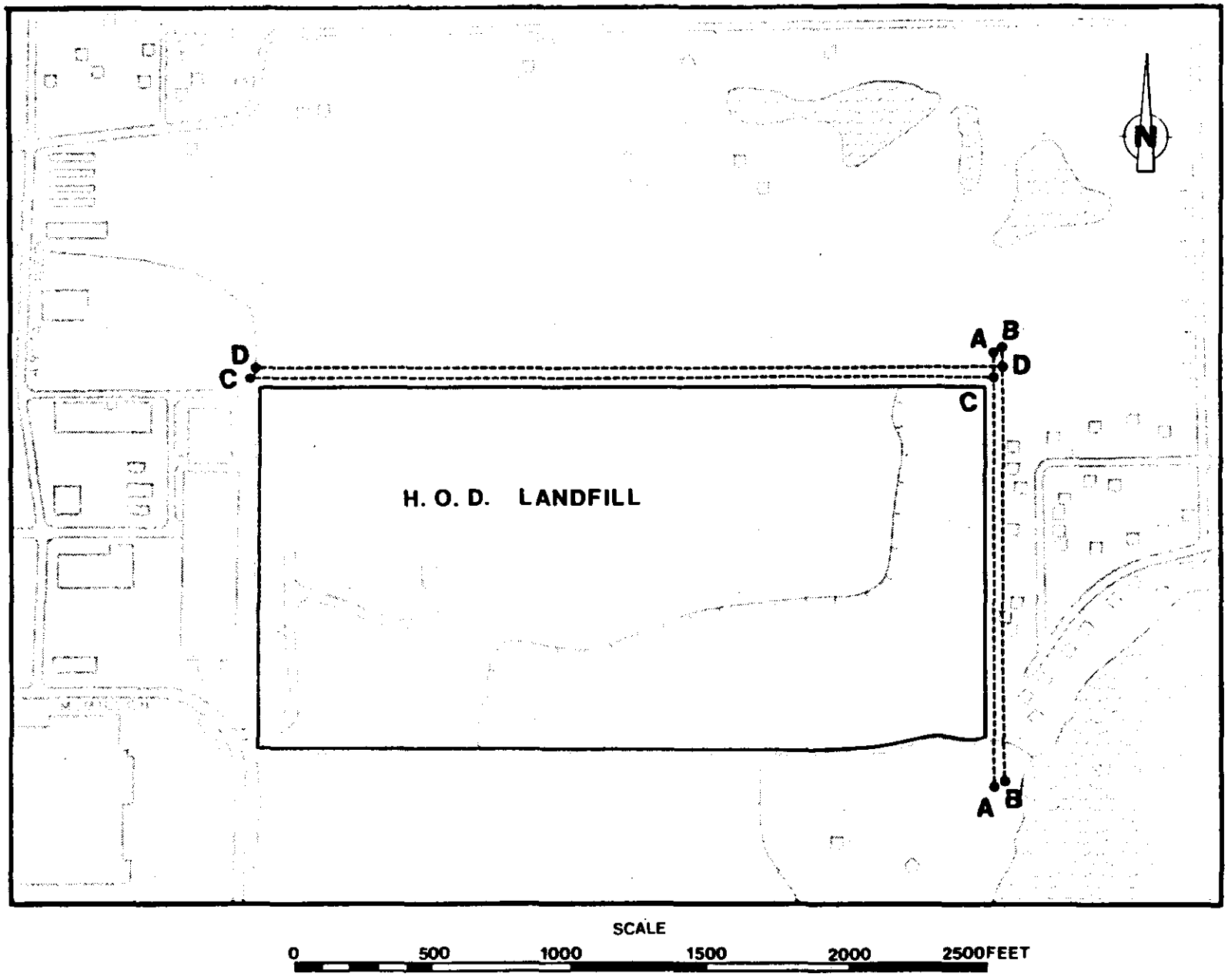


FIGURE 3-1 PROPOSED GEOPHYSICAL STUDY AREA

program to be conducted under Subtasks 2.3 and 2.4. Specifically, this includes:

- Definition of subsurface and hydrogeologic conditions,
- Determination of the presence and extent of the shallow sand and gravel layer, and
- Identification of the lateral distribution of any contaminant plume(s).

Subtask 2.4 Soil Investigation

Subsurface soil samples will be collected from monitoring well boreholes for chemical and geotechnical analysis. Samples will be collected from the deepest boring at each monitoring well location. Shallow borings in well nests will not be sampled. Samples will be obtained at 2.5- and 5.0-foot increments within the sand and gravel layers. Continuous sampling will be conducted of the upper 10 feet of the clay layer which separates the two sand and gravel layers. The remainder of the clay unit will be sampled at 2.5-foot increments. A split-barrel sampler (i.e., split-spoon) will be used to collect all granular soil and many cohesive soil samples. Thin walled tubes (i.e., Shelby tubes) will be used to obtain selected cohesive soil samples. All samples will be field classified before final disposition.

Chemical analysis of soil samples will be limited to samples that exceed a specified contamination screening test. At each boring where soil samples are collected, the samples will be screened with an OVA or HNu. Those samples suspected of being contaminated will be placed in sealed glass jars and transported to a CLP laboratory for analysis. Approximately 100 soil samples are anticipated for analysis for CLP organic and inorganic packages, including an off-site background sample. A soil travel blank will be prepared for control purposes.

Geotechnical analyses will be performed on granular and cohesive soil samples. Granular soils will undergo sieve analysis and cohesive soils will undergo grain size analysis (sieve and hydrometer) and permeability testing. Geotechnical testing will be performed by a subcontractor. No soil samples indicating any level of contamination will be submitted for testing unless previous arrangements concerning safety procedures have been agreed upon. Approximately 50 samples are projected for geotechnical testing.

Subtask 2.5 Hydrogeologic Investigation
Installation of Monitoring Wells

The hydrogeologic investigation is designed to identify flow characteristics in the local water table aquifer, provide information on the properties of subsurface soils, and determine the type and concentrations of contaminants present in both the groundwater and soils at the site. A network of groundwater monitoring wells will be installed to achieve these objectives.

Data on the design, location, and construction of existing monitoring wells and other local wells will be collected and evaluated. If any existing wells are determined to be compatible with the new wells, the former will be incorporated into the proposed monitoring network. Data generated by preliminary field work (i.e., geophysics), will be utilized in selecting well locations.

A maximum of 22 new monitoring wells will be installed approximately at the 10 locations shown in Figure 3-2. Exact well locations will be based on site stratigraphy. The estimated depths of the wells range from 15 to 150 feet. Soil samples will be collected in only the deepest boring at each location (see Subtask 2.4). Borings will be drilled using hollow stem auger and rotary methods, and double steel casing will be used to prevent cross-contamination where two aquifers are encountered.

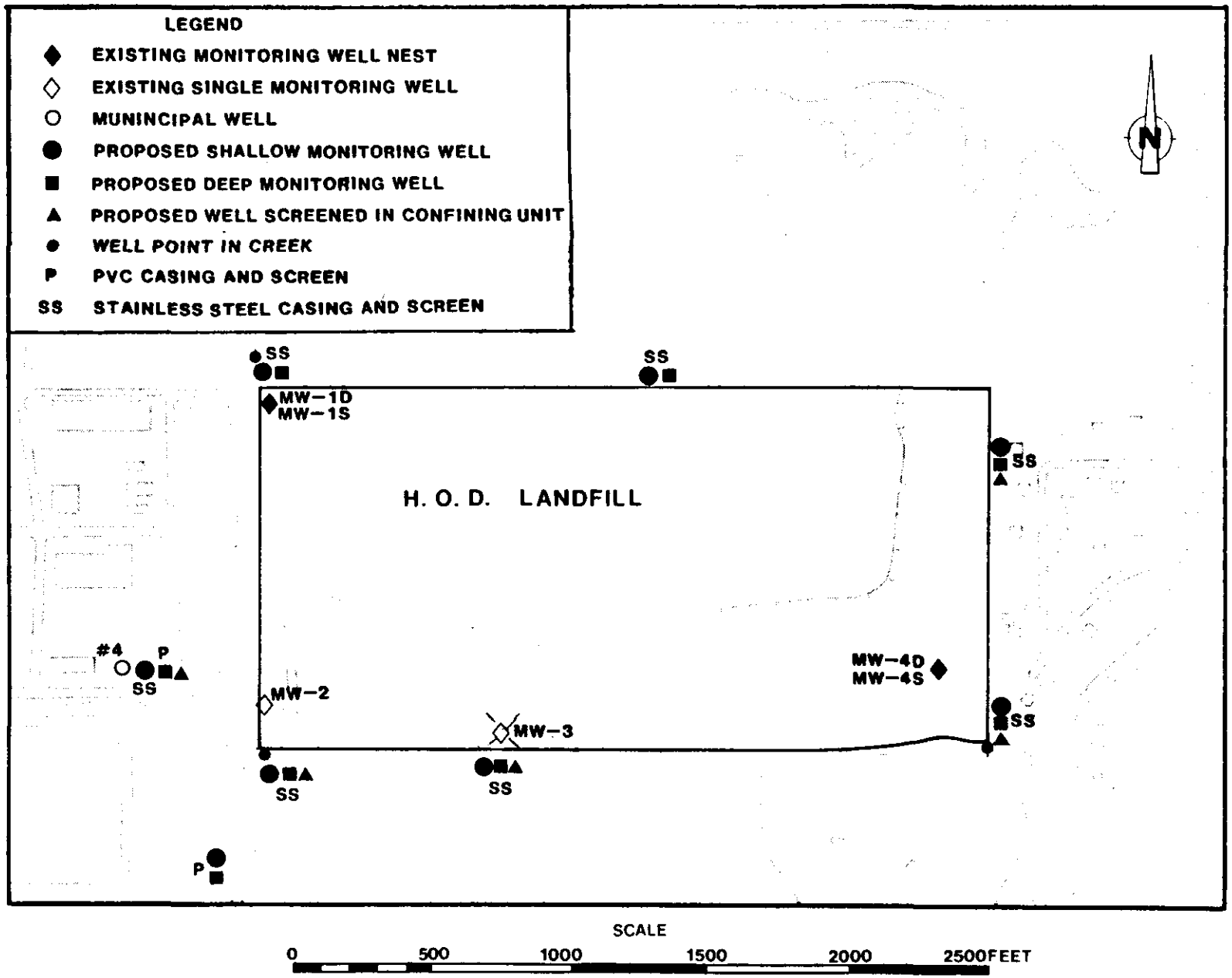


FIGURE 3-2 EXISTING AND PROPOSED MONITORING WELL LOCATIONS

Monitoring wells noted with a P will be constructed of PVC and wells noted with an SS will be constructed of stainless steel materials throughout (see Figure 3-2). Monitoring wells constructed of PVC will initially be used for water levels only. Wells constructed of stainless steel will be used for water levels and sampling. Monitoring wells will be constructed of 2-inch inside diameter (ID) flush jointed, threaded well casing. The casing will terminate in a well point with a slot size of 0.010 inches. Screens will be 5 feet in length and of wire-wound design. Monitoring wells located in readily accessable areas will have three steel guard posts installed around each well. Installation and construction will follow accepted procedures. Monitoring well construction is illustrated in Figure 3-3. Wells will be developed by either surging or air lifting to establish good hydraulic connection with the surrounding formation. Water levels will be allowed to equilibrate over a suitable time period and measurements of static water level will be taken. Development water and drilling spoils will be drummed. Drilling spoils will be sampled to determine acceptable disposal methods. Drummed waste will be stored in a secure area until disposal methods are determined. It is projected that the waste can be stored at a city of Antioch facility. If this option is not feasible, a locked, fenced enclosure will be constructed for storage of the wastes. Locked

Three well points will be driven into the Sequoit Creek — location streambed (see Figure 3-2). These well points will be constructed of 3-foot galvanized well screens and an appropriate length of galvanized pipe to extend approximately 3 feet above the streambed. Data obtained from these well points will be used to evaluate the relationship between groundwater and surface water.

Drilling and monitoring well installation will be performed by a qualified subcontractor under direct supervision of Region V FIT. The subcontractor will be selected through competitive bidding. In general, all procedures will conform to American Society for Testing Materials (ASTM) standards and existing state and local regulations.

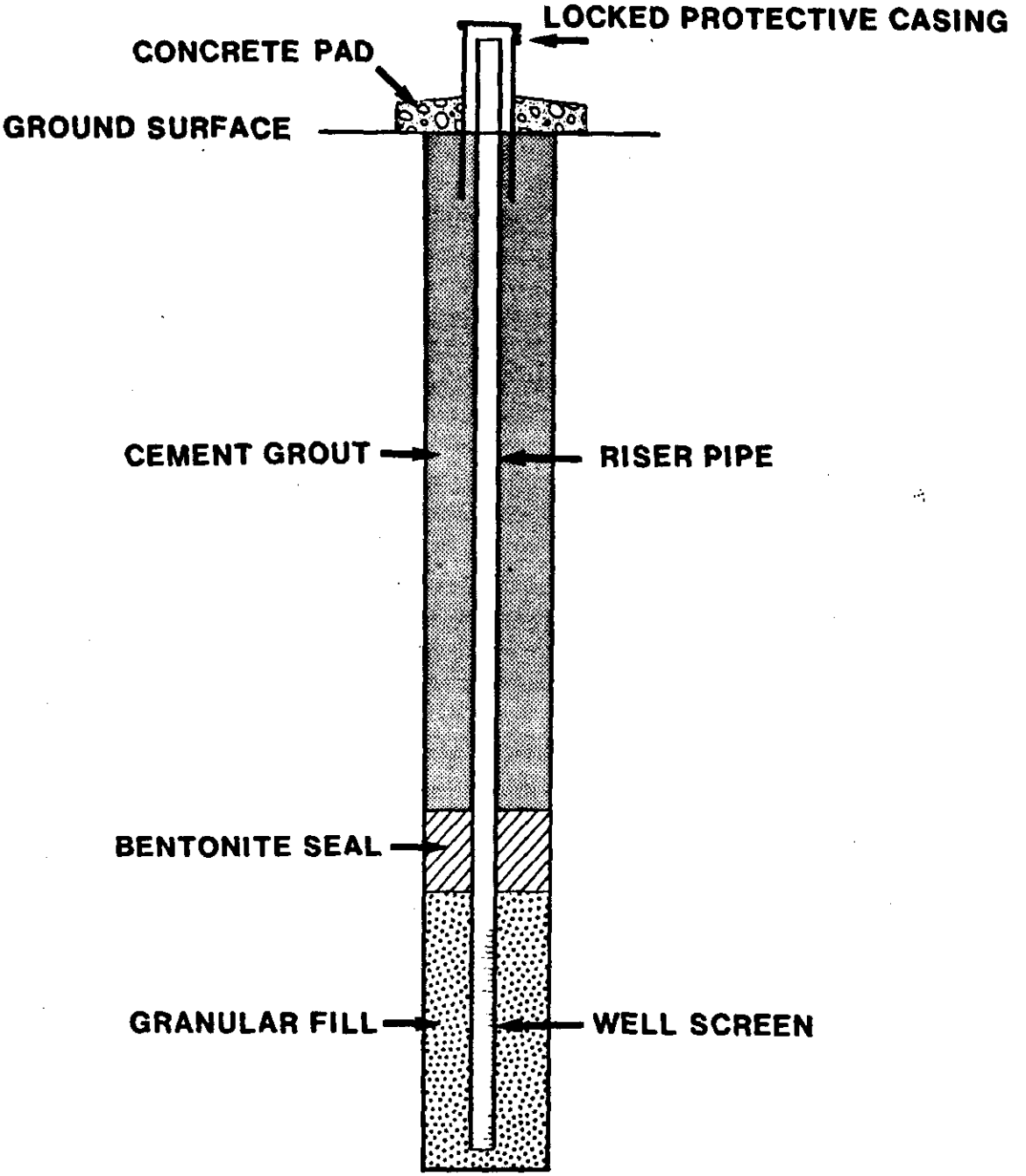


FIGURE 3-3 TYPICAL MONITORING WELL CONSTRUCTION

Field work will be performed under safety considerations established prior to mobilization.

The exact number and locations of monitoring wells will not be determined until the preliminary investigation tasks are completed. For cost estimating and scheduling purposes the following assumptions are made:

- Twenty-one monitoring wells will be installed, requiring approximately 1025 feet of soil boring.
- Approximately 1600 feet of stainless-steel well casing and 16 5-foot stainless steel well points will be required.
- Approximately 335 feet of PVC well casing and five 5-foot PVC well points will be required.
- Approximately 1080 feet of soil sampling at 5-foot intervals, 270 feet of soil sampling at 2.5-foot intervals, and 90 feet of continuous soil sampling will be necessary.
- Approximately 100 soil samples for chemical analysis and 50 samples for geotechnical testing will be generated.
- Two drilling rigs with a total of five workers will be required.
- Three galvanized well points, 3 feet long will be required.
- Level D or C health and safety requirements are presently anticipated during all drilling activities.

- At an estimated production rate of 50 feet of drilling per day per drill rig, the drilling should take approximately 20 working days. Well installation and decontamination time is estimated at one well per day, for a total of 13 working days for these procedures. Total job time is estimated at 31 working days.

- Water levels will be obtained from all monitoring wells and well points at least three times: prior to sampling, prior to slug tests, and prior to pump test.

Aquifer Parameter Testing

Aquifer parameter testing will be accomplished using two methods: a pump test and slug tests.

A pump test will be performed on the lower sand and gravel aquifer. This test will consist of stressing the aquifer by pumping water from the aquifer using Antioch Municipal Well No. 4. Water levels in the surrounding shallow and deep monitoring wells will be recorded over the entire time the test is conducted. The change in water elevations will be plotted versus time.

Data derived from this test will be used to determine groundwater velocities, contaminant migration rates, and the effectiveness of the clay layer as a confining unit.

Slug tests will be performed by the U.S. EPA, with assistance from E & E-FIT personnel, on newly installed monitoring wells. The rising head method will most likely be used. This technique consists of withdrawing a volume of water from the well, causing the water level to fall. The subsequent rise in head is measured as a function of time. Upon plotting these two variables, the value of the hydraulic conductivity at that particular point in the aquifer can be obtained. Such information is used in estimating groundwater flow velocity and rates of contaminant migration. For cost estimating, it is assumed that aquifer response tests will be conducted in all new monitoring wells and compatible existing monitoring wells.

Groundwater Sampling and Analysis

Samples will be collected from all proposed monitoring wells and compatible existing wells. It is assumed that the six existing monitoring wells will be useable. Samples will also be collected from Municipal Well No. 4, seven residential wells, and each of 17 proposed monitoring wells. All groundwater samples will be collected, preserved, documented, and shipped in accordance with the guidelines established in the sampling plan. This includes the purging of at least five well volumes prior to taking the sample, and the preparation of the necessary duplicates and field blanks. Purged water will be drummed and left in the secure area. All samples are expected to be low concentration samples according to CLP criteria.

Groundwater well samples will be analyzed for the following parameters:

- Temperature (field);
- pH (field);
- Specific conductance (field); and
- The full CLP organics and inorganics analysis packages. The Municipal Well No. 4 well and residential samples will be analyzed for the same parameters as monitoring well samples, but will be tested by the Central Regional Laboratory (CRL) instead of a CLP laboratory.

The schedule and cost estimates for Subtask 2.4 are based on the following assumptions:

- One set of groundwater samples will be collected and analyzed to determine groundwater quality;

- Thirty one wells, including one municipal well, seven residential wells, and 23 monitoring wells, will be sampled; four duplicate and five field blanks are also necessary, for a total of 40 samples;

- Sampling will require five working days;

- Analyses will be available approximately 90 days after the CRL and the CLP laboratories receive the samples; and

- Sampling will be performed at Level D safety consideration.

A technical memorandum describing the sampling procedures and activities will be prepared shortly after completion of the field work.

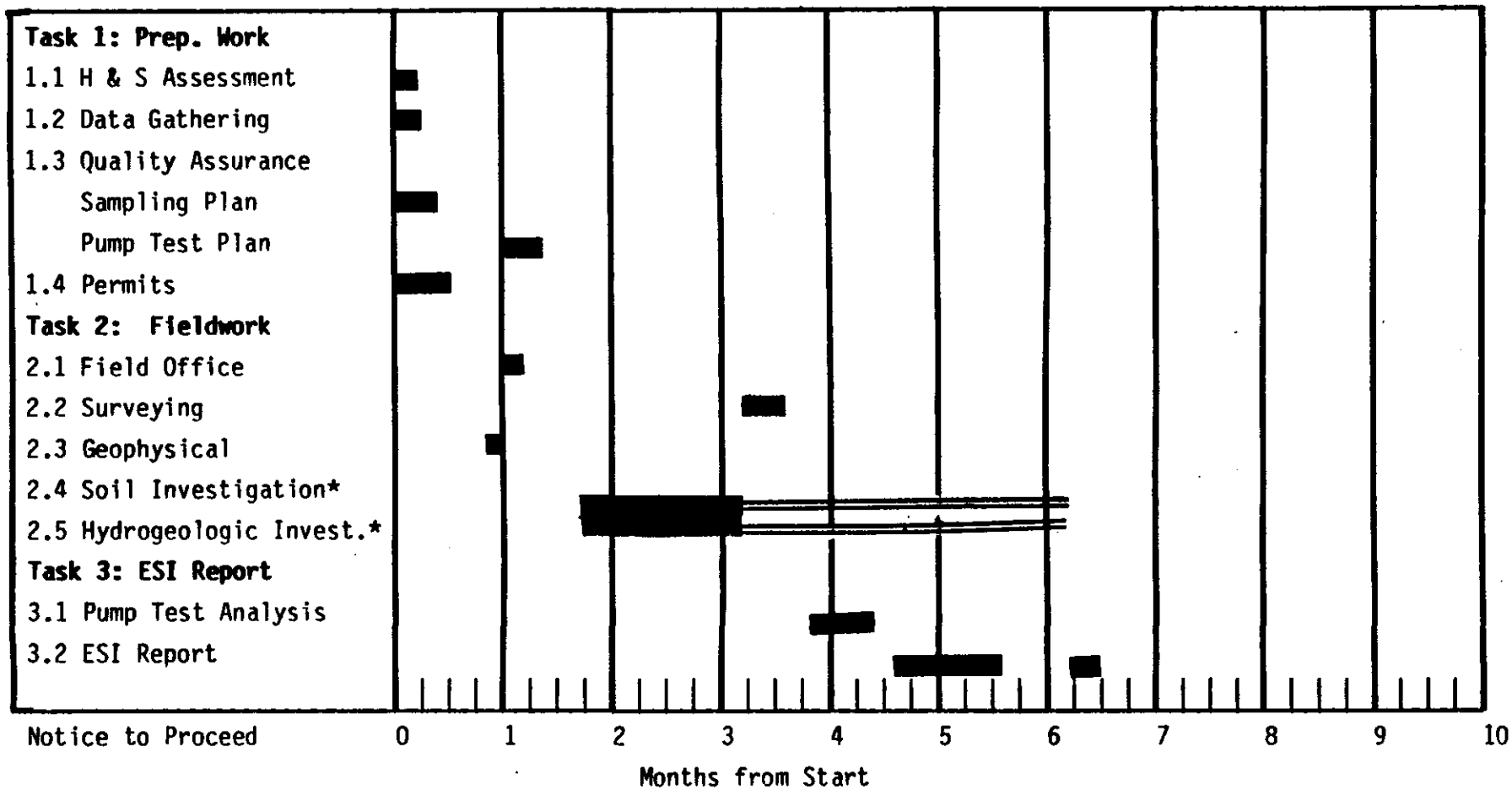
3.3 TASK 3 ESI REPORT

A draft ESI report will be prepared to consolidate and summarize the data collected during the ESI. The report will consist of technical memoranda supplemented by discussions of data and topics not previously discussed in the technical memoranda. Memoranda will include a discussion of procedures and results of all investigative work, including geophysics, soil testing, and hydrogeologic investigation. The report will address the question of contaminant source identification and will generate physical and chemical data necessary for the remedial investigation. The draft report will be submitted to U.S. EPA for review and comments. Upon receipt of written comments from U.S. EPA, a final report will be prepared and submitted to U.S. EPA.

Who does HRS rescoring & will you be done [illegible] HRS packet?

4. SCHEDULE

The project schedule is shown in Figure 4-1. The time estimates are based on FIT experience and the tasks set forth in the work plan. If the scope of work changes, so will the schedule. Analytical results are usually received three to five months after samples are collected and shipped.



*Hours are combined

Key: FIT Work
Lab Work

Figure 4-1
PROJECT SCHEDULE

5. BUDGET

The estimates presented in the Budget Summary (Table 5-1) are based upon the scope of work as outlined in the Draft Work Plan. These estimates represent the major anticipated labor requirements and expenses, not including those for the pump test.

Table 5-1

WORK PLAN BUDGET SUMMARY
H.O.D. Landfill

Task 1. Preparation for Field Investigation

Activity	1.1 Conduct Initial Site Health & Safety Assessment	1.2 Data Gathering	1.3 Quality Assurance: Sampling Plan	1.3 Quality Assurance: Pump Test Plan	1.4 Permits and Rights-of-Entry Authorizations
A. FIT Labor (hours)	32	24	60	60	80
B. CLP Analyses (number of samples)					
B.1 Soil (low hazard)	0	0	0	0	0
B.2 Groundwater (low hazard)	0	0	0	0	0
C. Subcontracts					
C.1 Drilling	0	0	0	0	0
C.2 Trailer	0	0	0	0	0
D. Special Expense Items	0	0	0	0	0

Table 5-1 (Cont.)

WORK PLAN BUDGET SUMMARY
H.O.D. Landfill

Task 2. Conduct Field Investigation

Activity	2.1 Establish Field Office	2.2 Surveying and Mapping	2.3 Geophysical Investigation	2.4/2.5 Soil/ Hydrogeologic Investigations
A. FIT Labor (hours)	48	58	80	2,240*†
B. CLP Analyses (number of samples)				
B.1 Soil (low hazard)	0	0	0	100*
B.2 Groundwater (low hazard)	0	0	0	40*
B.3 Drilling Spoils (low hazard)	0	0	0	35
C. Subcontracts				
C.1 Drilling	0	0	0	$110,370
C.2 Trailer	$ 1,020	0	0	0
D. Special Expense Items	$ 250	$ 50	$ 300	200*
E. Travel Expenses				
E.1 Hotel	0	$ 100	$ 200	$ 7,850*
E.2 Per Diem	0	$ 50	$ 100	$ 3,720*

* Does not reflect costs associated with pump test.
† Includes 290 hours for groundwater sampling.

— effective

high

Table 5-1 (Cont.)

WORK PLAN BUDGET SUMMARY
H.O.D. Landfill

Task 3. Prepare Extended Site Inspection Report

Activity	3.1 Pump Test Data Analysis	3.2 Prepare ESI Report
A. FIT Labor (hours)	100	250
B. CLP Analyses (number of samples)		
B.1 Soils (low hazard)	0	0
B.2 Groundwater (low hazard)	0	0
C. Subcontracts		
C.1 Drilling	0	0
C.2 Trailer	0	0
D. Special Expense Items	0	0

Table 5-1 (Cont.)

WORK PLAN BUDGET SUMMARY
N.O.D. Landfill

Total Project Costs

Activity	Task 1	Task 2	Task 3	Total
A. FIT Labor (hours)	256	2,430*	350	3,036*
B. CLP Analyses (number of samples)				
B.1 Soils (low hazard)	0	100*	0	100*
B.2 Groundwater (low hazard)	0	40*	0	40*
B.3 Drilling Spoils (low hazard)	0	35	0	35
C. *Subcontracts*				
C.1 Drilling		$110,370	0	$110,370
C.2 Trailer	0	$ 1,020	0	$ 1,020
D. Special Expense Items	0	$ 800*	0	$ 800*
E. Travel Expenses				
E.1 Hotel	0	$ 8,150*	0	$ 8,150*
E.2 Per Diem	0	$ 3,870*	0	$ 3,870*

* Does not reflect costs associated with pump test.

6. BIBLIOGRAPHY

Dames & Moore, 1985, Final Report Hydrogeological Assessment Waste Management of Illinois, Inc. H.O.D. Landfill Antioch, Illinois, Park Ridge, Illinois.

Paschke, J.E., 1970, Soil Survey of Lake County, Illinois, Soil Conservation Service, U.S. Department of Agriculture.

Willman, H.B., 1971, Summary of the Geology of the Chicago Area, Illinois State Geological Survey, Circular 460.

APPENDIX A

WATER WELL LOGS

Page 1 **ILLINOIS GEOLOGICAL SURVEY, URBANA** (2)

Strata	Thickness	Top	Bottom
Fill, top soil & brown clay	15		15
Clay & stones	115		130
Sand & gravel - last 6 ft. water	20		150
Bearing - W.L. 40' Red clay & small stones	82		232
Dry gravel & clay	5		237
Limestone hole			261
			TD

Cased with 8" from 0 to 237
Size hole below casing 8"
Static level from surface 40'
Tested capacity 20 gal. per min.
Water lowered to 170 ' in 6 hours.
Length of test: 6 hours.

COMPANY C. L. Wertz (Antioch)
FARM Willowdale Dairy Well NO. 2
DATE DRILLED 1944 COUNTY NO. 1927
AUTHORITY C. L. Wertz
ELEVATION 810 CO
LOCATION 100' W. line, 900' S. line SW NE
COUNTY LAKE S. S.#11976 8-46N-10E

LEW ✓
CLH ✓
REP No Permit

LOG OF WATER WELL

Property owner Willow Dale Dairy Well No. 3

Drilled by C. L. Wertz Year 1945

Formations passed through	Thickness	Depth of Bottom
Top soil - Fill & Brown clay	15	15
Blue clay	128	143
Sand & Gravel	7	150

COUNTY NO. 1928 No Envelope

(Continue on back if necessary)

Finished in Sand & Gravel at 143 to 150 ft.

Cased with 6" inch I.D. Steel Pipe from 0 to 143' ft.

and — inch — from — to — ft.

Size hole below casing — inch. Static level from surf. 40 ft.

Tested capacity 23 gal. per min. Temperature °F.

Water lowered to 75 ft. — in. in 4 hrs. — min.

Length of test hrs. min. Screen 5½" x 7' O.D. Brass -

Slot #20 Diam. Length Bottom set at ft.

(Show location in Section Plat)

Township name Antioch Elev. 810 Sec. 8

Description of location Twp. 46N

Rge. 10E

Signed C. L. Wertz County Lake

(13210—20M—3-55)

(3)

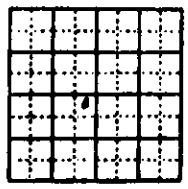
Page 1

ILLINOIS GEOLOGICAL SURVEY, URBANA

Strata	Thickness	Top	Bottom
Clay		0	143
Sand and gravel.		143	150
			TD

Finished in sand and gravel.
Casing: 6" from 0 to 147'
Size hole below casing: 6"
Static level from surface: 50'
Tested capacity: 30 gallons per minute.
Water lowered: 30'

COMPANY C. L. Wertz
FARM Willow Dale Dairy NO. 2
DATE DRILLED August 1945 COUNTY NO. 80
AUTHORITY C. L. Wertz
ELEVATION
LOCATION Ap. NE NE SW
COUNTY LAKE



6-46N-10E

(13210—20M—3-55)

(3)

Page 1

ILLINOIS GEOLOGICAL SURVEY, URBANA

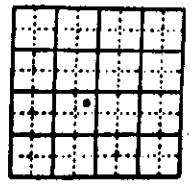
Strata	Thickness	Top	Bottom
Brown clay		0	15
Blue clay		15	145
Fine gravel (Water level 30'; Tested [illegible] gallons per minute at 70')		145	149
Red clay		149	235
Gravel		235	239
Limestone and rock		239	261
			TD

Finished in rock.
Casing: 6" from 0 to 261'
Static level from surface: 30'
Tested capacity: 50 gallons per minute.
Water lowered: 60'

This well is not a good producer; another well was drilled to 35[illegible]', approximately 75' away and production is about the same.

[illegible] township

COMPANY C. L. Wertz
FARM Willow Dale Dairy NO. 1
DATE DRILLED May 1944 COUNTY NO. 79
AUTHORITY C. L. Wertz
ELEVATION
LOCATION Ap. NE NE SW
COUNTY LAKE



6-46N-10E

REQUESTED AND MAIL ORIGINAL TO STATE
NSUMER H .TH PROT' 'ION, 535 WEST
761. DO NO DETACH GE .OGICAL/WATER
E PROPER WELL LOCATION.

GEOLOGICAL AND WATER SURVEYS WELL RECORD

10. Property owner CREGG WENNSTROM Well No. Silver Lake Rd.
Address 42066 N. Deep Lake Rd., Antioch, IL.
Driller GEORGE E. GAFFKE License No. 102-234
11. Permit No. 102976 Date 4/1/82
12. Water from Sand & Gravel (Formation) 13. County Lake
at depth 131 to 140 ft. Sec. 9.6
14. Screen: Diam. 5 in. Twp. 46N
Length: 3 ft. Slot 10 Rge. 10E
Elev.

15. Casing and Liner Pipe

Diam. (In.)	Kind and Weight	From (Ft.)	To (Ft.)
5	PVC	+1	137

SHOW LOCATION IN SECTION PLAT

16. Size Hole below casing: 5 in.
17. Static level 75 ft. below casing top which is 1 ft. above ground level. Pumping level ____ ft. when pumping at 15-20 gpm for ____ hours.

18. FORMATIONS PASSED THROUGH	THICKNESS	DEPTH OF BOTTOM
Topsoil	2	2
Brown Clay	10	12
Blue Clay	57	69
Gravel	3	71
Blue Clay	60	131
Sand & Gravel	9	140

(CONTINUE ON SEPARATE SHEET IF NECESSARY)

SIGNED George E. Gaffke DATE 12/14/82

9-46N-10E

(13210—20M—3-55)

Page 1

ILLINOIS GEOLOGICAL SURVEY, URBANA

Strata	Thickness	Top	Bottom
Clay		0	15
Blue clay		15	12
Sandy gravel		120	13

Finished in sandy gravel.
Casing: 2" from 0 to 130'.
Size hole below casing: 2"
Static level from surface: 70'
Tested capacity: 8 gallons per minute.
Water lowered: 6'.

COMPANY C.L. Wertz
FARM Antioch Cemetary
DATE DRILLED July 1935
AUTHORITY C.L. Wertz
ELEVATION
LOCATION SW SW S
COUNTY L.M.

SGOC NO.
COUNTY NO. 38

JMER HEALTH PROTECTION, 535 WEST
. DO NOT DETACH GEOLOGICAL/WATER
PROPER W .)CATIO

GEOLOGICAL AND WATER SURVEYS WELL RECORD

Completed 6-23-78

10. Property owner AR-KAY BLDRS. Well No. 335 Center
Address 7550 Washington St., Gurnee, IL.
Driller J. P. LICHTER License No. 102-6
11. Permit No. 75113 Date 6/7/78
12. Water from Sand-Gravel (Formation) 13. County Lake
at depth 126 to 130 ft.
14. Screen: Diam. 5 in.
Length: 3 ft. Slot 10

Sec. 8
Twp. 46N
Rge. 10E
Elev. ____

15. Casing and Liner Pipe

Diam. (in.)	Kind and Weight	From (Ft.)	To (Ft.)
5	PVC	grade	128

SHOW LOCATION IN SECTION PLAT
125'SL,125'EL
NE NW NW
(permit)

16. Size Hole below casing: 5 in.
17. Static level 70 ft. below casing top which is 1 ft. above ground level. Pumping level ____ ft. when pumping at 10 gpm for ____ hours. Sub. pump set at 100'

18. FORMATIONS PASSED THROUGH	THICKNESS	DEPTH OF BOTTOM
Brown Clay	10	10
Blue Clay	86	96
Sand	1	97
Blue Clay	29	126
Sand - Gravel	4	130

(CONTINUE ON SEPARATE SHEET IF NECESSARY)

SIGNED J. Lichter DATE 10/23/78

COUNTY No. 46553

LAKE 8-46N-10E

(16699—20M—2-53)

Page 1 ILLINOIS GEOLOGICAL SURVEY, URBANA

Strata	Thickness	Top	Bot
Top soil		0	
Yellow clay		3	1
Blue clay (sand streak)		13	2
Blue clay (soft)		23	6
Blue clay (sand streak)		68	7
Sandy blue clay		73	9
Medium fine sand (dirty)		93	11
Medium coarse sand and gravel		116	12
Coarse sand and gravel		128	14
Coarse sand and gravel (dirty)		143	14
Clay		147	14
			T

Size of Well: 28" surface to 142'.
Casing Record: 12" I.D. screen 122 to 142'
12" I.D. 122' to 2' above ground.
Water at 122 to 142'
Water head 41'
Drawn-down 12'
Yield: 800 gallons per minute.

Location: 507' S. of Ada Street and 88' E. of the east Soo line RR right of way fence.

SAMPLE SET # 23797

Location corrected by Russ Brower.

COMPANY Layne-Western NO.
FARM Village of Antioch #3 NO.
DATE DRILLED October, 1953 COUNTY NO. 1944
AUTHORITY Layne-Western
ELEVATION
LOCATION NE NE?
COUNTY LAKE

8-46N-10E

John C. Moore Corporation, Rochester, N.Y. Binder and holes in leaves, each Patented 1906. 386790

(3)

TOWN Antioch Antioch
COMPANY Antioch Creamery
FARM Hosken
AUTHORITY 770±
ELEVATION Workman
COLLECTOR
DATE DRILLED
CONFIDENTIAL N.E. Part of Antioch

TOWNSHIP Antioch
No.
No.
Map No. R. 10E
T 46N
Sec 8

No.	COUNTY NO. 1922	Thickness Feet	Thickness In.	Depth Feet	Depth In.
	Clay	50		50	
	Sand, sharp	5		55	
	Clay	47		102	
	Sand and gravel with boulders at base	10		112	
	Clay	32		144	
	Sand and gravel, with boulders at base	6		150	
	Clay, little sand and gravel on top of rock	90		240	
	Limestone	90		330	

No sulfur, cased to rock with 6" casing

Little water from coarse gravel on top of rock.

160 ft. of drop pipe

60 ft. to water, 20 gpm

LAKE 0308

County 56 Index No.

T.—DRILL RECORD

(30819—5M—7-34) 2 Illinois Geological Survey, Urbana.

(65600—60M—10-57)

Page 1

ILLINOIS GEOLOGICAL SURVEY, URBANA

Strata	Thickness	Top	Bottom
Summary Sample Study by Lidia Selkregg 7/58.			
PLEISTOCENE SERIES			
Silt, buff, yellow, calcareous, oxidized	10		1
Silt, buff yellow, gray, calcareous, oxidized	40		5
Clay, gray, laminated, calcareous	20		7
Till, buff gray, very silty, calcareous	20		9
Sand, very fine to fine, well sorted, clean	5		9
Gravel, coarse, poorly sorted; till, brownish gray sandy, calcareous	5		10
Sand, fine; well sorted, clean	5		10
Till, gray, very silty, calcareous	10		11
Gravel, granular to coarse, clean; sand, medium to very coarse, clean	10		12
Gravel, granular to coarse, clean	5		13
Sand, very coarse, well sorted, celan; gravel coarse	5		13
Sand, as above; little fill, brownish gray, silty calcareous	5		14
Sand, fine, well sorted, clean; little gravel	5		14
Silt, brownish gray, clayey, calcareous	5		15
Location corrected by Russ Brower.			

COMPANY Layne-Western Co.
FARM Village of Antioch
DATE DRILLED October 1953
AUTHORITY Lidia Selkregg
ELEVATION
LOCATION NE NE
COUNTY LAKE

NO. (3)
COUNTY NO. 1944

S. S. # 23797

8-46N-10E

John J. Moore Corporation, Rochester, N. Y. Binder and holes in leaves, each Patented ... 190

TOWN Antioch TOWNSHIP Antioch Map No. 3
COMPANY No. R. 10E
FARM Village No. 2 T 46N Sec. 8
AUTHORITY
ELEVATION 785+
COLLECTOR W.D.G. DATE DRILLED 1919
CONFIDENTIAL

No.	COUNTY NO.	Thickness Feet	Thickness In.	Depth Feet	Depth In.
	Drift - sand & gravel			220	
	220' of 10" casing				
	NO ENVELOPE				

County LAKE Index No. 0308
T.—DRILL RECORD 8-46N-10E
(30310—5M—7-84) 2 Illinois Geological Survey, Urbana.

John J. Moore Corporation, Rochester, N. Y. Binder and holes in leaves, each Patented ... 190

TOWN Antioch TOWNSHIP Antioch Map No. 3
COMPANY Chas. Thorne No. R. 10E
FARM Village No. 1 T 46N Sec. 8
AUTHORITY
ELEVATION 785+
COLLECTOR W.D.G. DATE DRILLED 1907
CONFIDENTIAL

No.	COUNTY NO.	Thickness Feet	Thickness In.	Depth Feet
	Drift - well in gravel			216
	NO ENVELOPE			

County LAKE Index No. 0308
T.—DRILL RECORD 8-46N-10E
(30310—5M—7-84) 2 Illinois Geological Survey, Urbana.

(13210—20[illegible]-3-55)

Page 1

ILLINOIS GEOLOGICAL SURVEY, URBANA

Strata	Thickness	Top	Bottom
Brown clay		0	15
Blue clay		15	140
Clean sand		140	1[illegible]2
[illegible] sand		[illegible]	[illegible]
Limestone		[illegible]2	2[illegible]
			TD

Finished in limestone.
Casing: 4" black from 0 to 2[illegible]'
Static level from surface: 6[illegible]'
Tested capacity: 5 gallons per minute.
Water lowered to 130'

COMPANY C. L. [illegible]ortz
FARM Lo[illegible]er, [illegible]
DATE DRILLED June 19[illegible]
AUTHORITY C. L. [illegible]ortz
ELEVATION
LOCATION [illegible]
COUNTY L[illegible]

NO. 1
COUNTY NO. 78

-46N-10E

TOWN Antioch TOWNSHIP Antioch Map No. 3
COMPANY H. Edwards No. R. 10E
FARM Antioch Laundry (old) No. T. Sec.
AUTHORITY Edwards 46N 8
ELEVATION 785±
COLLECTOR B.R.M. DATE DRILLED 1930
CONFIDENTIAL Memory

No.	COUNTY NO. 1925 STRATA	Thickness Feet	Thickness In.	Depth Feet	Depth In.
	Soil	2		2	
	Yellow till	10		12	
	Blue till	50		66	
	Blue clay	50		120	
	Sand	3		128	

NO ENVELOPE

County Lake
T.—DRILL RECORD
Index No. 0308
8-46N-10E

(50010—[illegible]—11-32) Illinois Geological Survey, Urbana.

LOG OF WATER WELL

Property owner J. Horton Well No. 1

Drilled by Chas. Madson + Sons Year 1951

Formations passed through	Thickness	Depth of Bottom
Soil	0	3
Yellow Clay	10	13
blue clay	107	120
fine sand	5	125
coarse sand	6	131

COUNTY NO. 1921 No Envelope

(Continue on back if necessary)

Finished in Coarse sand at 125 to 131 ft.

Cased with 4 inch black pipe from 0 to 125 ft.

and - inch - from to ft.

Size hole below casing inch. Static level from surf. 70 ft.

Tested capacity 15 gal. per min. Temperature °F.

Water lowered to ft. in. in hrs. min.

Length of test 6 hrs. - min. Screen Claytos Marks

Slot 60 Diam. 2 in Length 6 ft Bottom set at 131 ft.

[Show location in Section Plat]

Township name Antioch Elev. 790 E-M Sec. 8

Description of location NW NE Twp. 46

Rge. 10

Signed [illegible] County Lake

Copy for Illinois State Geological Survey Index:

Page 1 ILLINOIS GEOLOGICAL SURVEY, INDIANA

ENGINEERING BORING	Thickness	Top	Bottom
B-13			
Fill - Brown silty Clay, Topsoil and gravel			6.
Fill- Gray silty clay			10.
Soft gray organic clay, very moist			13.
Soft to stiff gray silty clay, trace sand, very moist			18.
Firm gray fine to coarse sand and gravel, wet			38.
Dense to very dense gray fine to coarse sand and gravel, wet			48.
Tough to very tough gray silty clay, trace gravel, moist			55.

Typed by Warrenville Office

Soils report with 14 boring logs filed at Warrenville

NO ENVELOPE

COMPANY Testing Service Corporation

FARM Waste Management, Inc. NO. B-13

DATE DRILLED 8-2-73 COUNTY NO. 25980

AUTHORITY Company

ELEVATION 766.3 G.L.

LOCATION 150' from E. line- 100' from S. line

COUNTY LAKE

8-46N-10E

(13210- [illegible]M—3-55)

Page 1

ILLINOIS GEOLOGICAL SURVEY, URBANA

Strata	Thickness	Top	Bottom
Blue clay		0	120
Sand		120	130
			TD

Finished in sand.
Casing: 4" from 0 to 127'
Fine hole below casing: 4".
Static level from surface: 40'
Tested capacity: 10 gallons per minute.
Water lowered: 5'

Complete record in office of C. L. Herbst

COMPANY C. L. Herbst
FARM Heath
DATE DRILLED August 19[illegible]
AUTHORITY C. L. Herbst
ELEVATION
LOCATION NE SW NE
COUNTY LAKE

NO. 1
COUNTY NO. 150

C-46N-10E

John C. Moore Corporation, Rochester, N.Y. Binder and holes in leaves, each Patented 1906. 386790

TOWN Antioch TOWNSHIP Antioch
COMPANY Boysen No.
FARM Chain O'Lakes Laundry No.
AUTHORITY Boysen
ELEVATION 785 ?
COLLECTOR DATE DRILLED
CONFIDENTIAL

Map No. 3
R. 10E
T 46N
Sec. 8

No.	COUNTY NO. 1926 DATA	Thickness Feet	Thickness In.	Depth Feet	Depth In.
	Clay	90		90	
	Sand and gravel	10		100	
	Clay	30		130	
	Gravel	10		140	

County LAKE 159 Index No. 0308
T.—DRILL RECORD
(30819—8M—7-31) Illinois Geological Survey, Urbana.

(13210— —3-55)

5

Page 1

ILLINOIS GEOLOGICAL SURVEY, URBANA

Strata	Thickness	Top	Bottom
Repaired existing 10" well: TD 231' (to bottom of screen)			
Casing: 1[illegible]" from [illegible] to 231'			
Static level from surface: 4[illegible]'			
Tested capacity: 20 gallons per minute.			
Water lowered: 70'			

Copied from record in office of [illegible]

COMPANY C. L. Wertz
FARM Antioch Village Well NO. 1
DATE DRILLED Repaired: Nov. '49 COUNTY NO. 149
AUTHORITY C. L. Wertz
ELEVATION
LOCATION [illegible] SW
COUNTY LAKE

8-46M-10

(13210—20M—3-55)

Page 1

ILLINOIS GEOLOGICAL SURVEY, URBANA

Strata	Thickness	Top	Bottom
[illegible] clay		0	[illegible]
[illegible] gravel		[illegible]	[illegible]
Gray clay		[illegible]	[illegible]
Gravel		[illegible]	[illegible]
Finished in gravel.			
Casing: 4" black, from 0 to [illegible]'			
Static level from surface: 30'			
Tested capacity: 10 gallons per minute.			
Water lowered: 7'			

COMPANY C. L. Wertz
FARM [illegible] NO. 1
DATE DRILLED April 194[illegible] COUNTY NO. 77
AUTHORITY C. L. Wertz
ELEVATION
LOCATION [illegible] SE
COUNTY LAKE

8-46M-10

(89516 15M- 11-49)

Page 2 ILLINOIS GEOLOGICAL SURVEY, URBANA

Strata	Thickness	Top	Bottom
SILURIAN SYSTEM			
Niagaran formation			
Dolomite, white, light gray, massive	30		260 TD

C. L. Wirtz Willowdale Dairy Well #2

COUNTY

(45899—30M—2-53)

Page 1 ILLINOIS GEOLOGICAL SURVEY, URBANA

16

Strata	Thickness	Top	Bottom
Studied by S. W. Foster, 5/52			
PLEISTOCENE SYSTEM			
Cinders & other artificial fill	10		10
Till, buff, clayey, calcareous	40		50
Till, brown, clayey, some sand grains, calcareous	40		90
As above with increasing gravel	10		100
Gravel, gray, medium and coarse, partly clean with till as above, some organic fragments	5		105
Sand, fine to coarse and gravel, fine, clean, poor sorting	5		110
Till, brownish buff, very sandy, gravelly, calcareous	15		125
Sand, brownish gray, fine to coarse, silty, poor sorting	10		135
Gravel, yellow, medium to coarse, clean	10		145
Gravel, medium and sand, fine to coarse, yellow, silty	10		155
Till, rich brown, some fine gravel, calcareous	25		180
Till, buff, sandy on till, brown, gravelly below, calcareous	45		225
Till, light buff, with dolomite chips, calcareous (Antioch)	5		230

COMPANY Willowdale Dairy Well NO. 2

FARM C. L. Wertz NO.

DATE DRILLED 1944 COUNTY NO. 1927

AUTHORITY Summary Sample Study

ELEVATION 810-60

LOCATION 770

COUNTY 100' W. line, 900' S. line SW NE

LAKE S. S. #11076 8-46N-10W

TACH GEOLOGICAL/WATER
LOCATION

GEOLOGICAL AND WATER SURVEYS WELL RECORD

Completed 10/4/76

10. Property owner TONY BERO Well No. _____
Address 1314 Maurine Dr., Lake Villa, IL.
Driller HENRY BOYSEN CO. License No. 102-6
11. Permit No. 52532 Date 9/22/76
12. Water from Sand (Formation) 13. County Lake
at depth 124 to 128 ft. Sec. 10
14. Screen: Diam. 5 in. Twp. 46N
Length: 3 ft. Slot 10 Rge. 10E
Elev. _____

15. Casing and Liner Pipe

Diam. (in.)	Kind and Weight	From (Ft.)	To (Ft.)
5	PVC	grade	126

SHOW LOCATION IN SECTION PLAT
200'NL 100'WL
NE NE NE (permit)

16. Size Hole below casing: 5 in.
17. Static level 49 ft. below casing top which is 1 ft. above ground level. Pumping level _____ ft. when pumping at 25 gpm for _____ hours. Sub. pump set at 84'

18. FORMATIONS PASSED THROUGH	THICKNESS	DEPTH OF BOTTOM
[illegible]y	8	8
[illegible]y	27	35
Sand - Gravel	2	37
Blue Clay - Lt. Gravel	70	107
Gravel	2	109
Soft Blue Clay	6	115
Blue Clay - Gravel	9	124
Sand	4	128

(CONTINUE ON SEPARATE SHEET IF NECESSARY)

SIGNED [signature] DATE 12/27/76

COUNTY No. 24971

LAKE 10-46N-10E

ICAL/WATER SURVEYS SECTION BE SURE TO

GEOLOGICAL AND WATER SURVEYS WELL RECORD

Completed 11-5-72

10. Property owner ROBERT BURGE Well No. _____
Address 625 CREMONA LAKEVILLA
Driller E E GROSS License No. 291
11. Permit No. M16684 Date 10/26/72
12. Water from SAND (Formation) 13. County Lake
at depth 160 to 179 ft. Sec. 9
14. Screen: Diam. 4 in. Twp. 46N
Length: 3 ft. Slot 10 Rge. 10E
Elev. _____

15. Casing and Liner Pipe

Diam. (in.)	Kind and Weight	From (Ft.)	To (Ft.)
4"	GAL. 11.50	0	177

SHOW LOCATION IN SECTION PLAT
SE NE NE (permit)

16. Size Hole below casing: 4 in.
17. Static level 95 ft. below casing top which is 18 ft. above ground level. Pumping level 115 ft. when pumping at 12 gpm for 2 hours.

18. FORMATIONS PASSED THROUGH	~~THICKNESS~~ Top	DEPTH OF BOTTOM
YELLOW CLAY	0	15
BLUE CLAY	15	160
SAND	160	179

(CONTINUE ON SEPARATE SHEET IF NECESSARY)

SIGNED E E Gross DATE 11/22/72

COUNTY No. 3868

LAKE 9-46N-10E

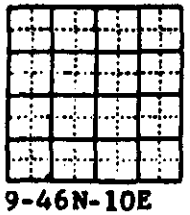
ILLINOIS GEOLOGICAL SURVEY, URBANA

ENGINEERING BORING	Thickness	Top	Bottom
B-10			
Black clayey and sandy topsoil			3.0
Loose gray silt, moist			8.0
Tough to very tough gray-brown s silty Clay, trace small gravel, moist			23.0
Firm gray coarse Sand and Gravel, wet			34.0
Tough gray silty clay, moist			38.0
Very tough gray silty clay, trace gravel, moist			60.0

Typed by Warrenville Office

Soils report w/14 boring logs filed at Warrenville
NO ENVELOPE

COMPANY Testing Service Corporation
FARM Waste Management, Inc. NO. B-10
DATE DRILLED 8/6/73 COUNTY NO. 25981
AUTHORITY Company
ELEVATION 765.9 G.L.
LOCATION 1300' from W. line - 100' from S. line
COUNTY LAKE



9-46N-10E

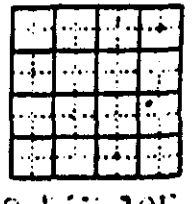
(13210—20M—3-55)

ILLINOIS GEOLOGICAL SURVEY, URBANA

Strata	Thickness	Top	Bottom
Well Repaired.			
Total Depth			170

Finished in sand.
Casing: 3" from 0 to 167'.
Size of hole below casing: 3"
Static level from surface: 65'
Tested capacity: 8 gallons per minute.
Water lowered: 5'.

COMPANY C. L. Wertz
FARM Petsky NO. 1
DATE DRILLED December 1938 COUNTY NO. #1
AUTHORITY C. L. Wertz
ELEVATION
LOCATION [illegible]
COUNTY LAKE



9-[illegible]-10E

GEOLOGICAL WATER SURVEYS WATER WELL RECORD
Completed 9-3-68

10. Dept. Mines and Minerals permit No. NF 8241 Year 65
11. Property owner [illegible] Well No. 1
Address ATH BOX 5[illegible] ANTIOCH
Driller [illegible] License No. [illegible]
12. Water from SAND (Formation) 13. County LAKE
at depth 126 to 146 ft.
14. Screen: Diam. 4 in.
Length: 2 ft. Slot 15
Sec. 9
Twp. [illegible]
Rng. [illegible]
Elev.

15. Casing and Liner Pipe

Diam. (in.)	Kind and Weight	From (Ft.)	To (Ft.)
4"	[illegible]	0	143
4	Johnson [illegible]	143	146

SHOW LOCATION IN SECTION PLAT
SW NW SW (Permit)

16. Size Hole below casing: 4 in.
17. Static level 62 ft. below casing top which is 1 ft. above ground level. Pumping level 51 ft. when pumping at 25 gpm for 3 hours.

18. FORMATIONS PASSED THROUGH	THICKNESS	DEPTH OF BOTTOM
TOP SOIL	4	0-4
YELLOW CLAY	10	4-14
BLUE CLAY	92	14-106
FINE SAND	20	106-126
SAND (WATER BEARING)	20	126-146
(CONTINUE ON SEPARATE SHEET IF NECESSARY)		

SIGNED [illegible] DATE 9-19-68

COUNTY No. 2680

LAKE 9-46N-10E

GEOLOGICAL WATER SURVEYS WATER WELL RECORD
Completed 4-15-70

10. Dept. Mines and Minerals permit No. NF 8930 Year 1970
11. Property owner M.W. Heath Well No. 1
Address Rimear Rd Antioch
Driller C.L. Wertz License No. 37
12. Water from drift (Formation) 13. County Lake
at depth 147 to 150 ft.
14. Screen: Diam. 2½ in.
Length: 36 ft. Slot 60 gauze
Sec. 9
Twp. 46N
Rng. 10E
Elev. 770

15. Casing and Liner Pipe

Diam. (in.)	Kind and Weight	From (Ft.)	To (Ft.)
4"	11 lb galv.	0	147

SHOW LOCATION IN SECTION PLAT
100'NL 100' of NW SW (permit)

16. Size Hole below casing: _____ in.
17. Static level 30 ft. below casing top which is 18" ft. above ground level. Pumping level 55 ft. when pumping at 10 gpm for 3 hours.

18. FORMATIONS PASSED THROUGH	THICKNESS	DEPTH OF BOTTOM
Muck & clay	0	16
Blue clay sticky	120	
and hard		136
Sand	15	151
Screened from 147 to 150		
(CONTINUE ON SEPARATE SHEET IF NECESSARY)		

SIGNED C.L. Wertz DATE Aug 15 70

COUNTY No. 1685

LAKE 9-46N-10E

(13210—20M—3-55)

Page 1

ILLINOIS GEOLOGICAL SURVEY, URBANA

Strata	Thickness	Top	Bottom
Brown clay		[illegible]	15
Grey clay		15	175
Fine grey sand		175	255
Grey and white gravel		255	257
			[illegible]

Finished in grey and white gravel.
Casing: 4" from 0 to 257'
Static level from surface: 45'
Tested capacity: 15 gallons per minute.

COMPANY C. L. Hertz
FARM Mercer, Louis NO. 1
DATE DRILLED October 1940 COUNTY NO. 82
AUTHORITY C. L. Hertz
ELEVATION
LOCATION NW NW SE
COUNTY LAKE

9-46N-10E

.6, STATE OFFICE BUILDING, SPRINGFIELD,
CAL / WATER SURVEYS SECTION. BE SURE TO

GEOLOGICAL AND WATER SURVEYS WELL RECORD

Completed 8-6-71

10. Property owner A. Kahler Well No. _____
Address 1624 - Greenwood Ave
Driller [illegible] License No. 30
11. Permit No. NF 11850 Date 8/4/71
12. Water from Sand (Formation) 13. County Lake
at depth 101 to 110 ft. Sec. 9
14. Screen: Diam. 4 in. Twp. 46N
Length: 3½ ft. Slot 12 Rge. 10E
Elev. _____

15. Casing and Liner Pipe

Diam. (In.)	Kind and Weight	From (Ft.)	To (Ft.)
4	Gals T & C	0	107
	10.89 ppf		

SHOW LOCATION IN SECTION PLAT
50'SL 50'EL of SW (permit)

16. Size Hole below casing: 4 in.
17. Static level 36 ft. below casing top which is 1 ft. above ground level. Pumping level 40 ft. when pumping at 15 gpm for _____ hours.

18. FORMATIONS PASSED THROUGH	THICKNESS	DEPTH OF BOTTOM
Yellow Clay	8	8
Blue Clay	48	56
Sandy Clay	17	73
Gravel & Clay	28	101
Sand	9	110

(CONTINUE ON SEPARATE SHEET IF NECESSARY)

SIGNED [signature] DATE 9/15/71

[illegible] 0.3328

LAKE

9-46N-10E

GEOLOGICAL WATER SURVEYS WATER WELL RECORD

Completed May 30, 1979

10. Dept. Mines and Minerals permit No. 83758 Year 1979
11. Property owner Frank Pressel Well No. 1
Address 1109 Elizabeth - Praire View, Ill
Driller C. L. Wertz License No. 57
12. Water from Drift (Formation) 13. County Lake
at depth 169 to 173 ft. Sec. 9
14. Screen: Diam. 3 in. Twp. 46N
Length: 4 ft. Slot 10 Rng. 10E
Elev.

15. Casing and Liner Pipe

Diam. (In.)	Kind and Weight	From (Ft.)	To (Ft.)
4"	11 lb galv. steel	0	169

SHOW LOCATION IN SECTION PLAT 500'SL.500': NE (permit

16. Size Hole below casing: — in.
17. Static level 80 ft. below casing top which is 1 ft. above ground level. Pumping level 85 ft. when pumping at 10 gpm for 3 hours. Sub pump set at 110'

18. FORMATIONS PASSED THROUGH		THICKNESS	DEPTH OF BOTTOM
Fill muck & clay	0 - 18		
Blue clay	18 - 110		
Gravel "	110 - 140		
Grey clay	140 - 150		
Dirty sand	150 - 168		
Clean "	168 - 174		
(CONTINUE ON SEPARATE SHEET IF NECESSARY)			

SIGNED C. L. Wertz DATE May 30-79

COUNTY No. 26 SC1

LAKE 9-46N-10E

TO DRILLERS

REQUESTED AND ... ORIGINAL TO STATE CONSUMER ... TION, 535 WEST 2761. DO NOT DETACH GEOLOGICAL/WATER DE PROPER WELL LOCATION.

GEOLOGICAL AND WATER SURVEYS WELL RECORD

10. Property owner Fred C. Hartman Well No. 1
Address R.R. Silver Lake Park - Antioch, IV
Driller C. L. Wertz License No. 57
11. Permit No. 104068 Date 9-20-82
12. Water from Drift (Formation) 13. County Lake
at depth 171 to 174 ft. Sec. 9
14. Screen: Diam. 3 in. Twp. 46N
Length: 4 ft. Slot 15 Rge. 10E
Elev. 290

15. Casing and Liner Pipe

Diam. (In.)	Kind and Weight	From (Ft.)	To (Ft.)
4"	galv. steel	0	171
	11 lb per ft.		

SHOW LOCATION IN SECTION PLAT 250'N, 250'W, SE

16. Size Hole below casing: Screened
17. Static level 50 ft. below casing top which is 1 ft. above ground level. Pumping level 55 ft. when pumping at 15 gpm for 4 hours.

18. FORMATIONS PASSED THROUGH		THICKNESS	DEPTH OF BOTTOM
Brown clay	0 - 08		
Gravel streak	8 - 10		
Blue clay	10 - 95		
muck clay	95 - 105		
Grey clay	105 - 160		
Dirty fine sand	160 - 165		
Clean gravel	165 - 174		

(CONTINUE ON SEPARATE SHEET IF NECESSARY)

SIGNED C. L. Wertz DATE 9-20-82

9-46N-10E

EAU OF ENVIRONMENTAL HEALTH, 535 WEST
701. DO NOT DETACH GEOLOGICAL/WATER
E PROPER WELL LOCAT

GEOLOGICAL AND WATER SURVEYS WELL RECORD

Completed 7-78

10. Property owner R. Rottenberg Well No. _____
Address 720 Greentree, Wildwood, #11
Driller C. L. Wertz License No. 57
11. Permit No. 75564 Date July 17-78
12. Water from Drift (Formation) 13. County Lake
at depth ____ to ____ ft. Sec. 9
14. Screen: Diam. 3 in. Twp. 46N
Length: 4 ft. Slot 15 Rge. 10E
Elev. _____

15. Casing and Liner Pipe

Diam. (in.)	Kind and Weight	From (Ft.)	To (Ft.)
4"	gal. 4.66	0	~~25~~
			145

SHOW LOCATION IN SECTION PLAT
NW NE SW
permit)

16. Size Hole below casing: screened
17. Static level 50 ft. below casing top which is 1 ft. above ground level. Pumping level 52 ft. when pumping at 15 gpm for 2 hours. Sub. pump set at 75'

18. FORMATIONS PASSED THROUGH	THICKNESS	DEPTH OF BOTTOM
Brown clay 0-15		
Soft smooth clay 15-70		
Gravely clay 70-95		
Sandy Firm clay 95-125		
Sand streak 125-128		
Firm clay 128-130		
Dirty sand 130-135		
Clean sand To Fine Gravel 135-148		

(CONTINUE ON SEPARATE SHEET IF NECESSARY)

SIGNED C. L. Wertz DATE July 17-78

LAKE COUNTY No. 26555 9-46N-10E

731. DO NOT DETACH GEOLOGICAL/WATER
E PROPER WELL LOCAT

GEOLOGICAL AND WATER SURVEYS WELL RECORD

Completed 12-15-78

10. Property owner PETE GURTOWSKI Well No. _____
Address Rt. 4, Box 508, Antioch
Driller Lonny R. Hoover License No. 102-783
11. Permit No. 83103 Date December 28, 197
12. Water from Sand (Formation) 13. County Lake
at depth 113 to 115 ft. Sec. 9
14. Screen: Diam. 4 in. Twp. 46N
Length: 3 ft. Slot #10 Rge. 10E
Elev. _____

15. Casing and Liner Pipe

Diam. (in.)	Kind and Weight	From (Ft.)	To (Ft.)
4	Galvanized T&C	0	113
	14.81 PPF		

SHOW LOCATION IN SECTION PLAT
50'NL, 275'WL,
NE SW(permit

16. Size Hole below casing: 4 in.
17. Static level 80 ft. below casing top which is 1 ft. above ground level. Pumping level 90 ft. when pumping at 7 gpm for 1½ hours. Sub. pump set at 84' + 10 x 1"

18. FORMATIONS PASSED THROUGH	THICKNESS	DEPTH OF BOTTOM
Yellow stoney clay	23	23
Gray clay	90	113
Sand	3	116

(CONTINUE ON SEPARATE SHEET IF NECESSARY)

SIGNED Lonny R. Hoover/egn DATE 2/2/79

LAKE COUNTY No. 26554 9-46N-10E

EQUESTED AND MAIL ORIGINAL TO STATE
SUMER H TH PROTI ON, 535 WEST
61. DO NOT DETACH GEOLOGICAL/WATER
PROPER WELL LOCATION.

GEOLOGICAL AND WATER SURVEYS WELL RECORD

10. Property owner Fred C Hartman Well No. 1
Address R.R. Silver Lake Park - Antioch, Ill
Driller C. L. Wertz License No. 37
11. Permit No. 1411 CLS Date 9-20-52
12. Water from Drift (Formation) 13. County Lake
at depth 171 to 174 ft.
14. Screen: Diam. 3 in.
Length: 4 ft. Slot 15
Sec. 9
Twp. 46N
Rge. 12E
Elev. 790

15. Casing and Liner Pipe

Diam. (in.)	Kind and Weight	From (Ft.)	To (Ft.)
4"	galv steel	0	171
	11.6 lb per ft.		

SHOW LOCATION IN SECTION PLAT
250'N 250'W SE/4 S

16. Size Hole below casing: 5 Cmented
17. Static level 32 ft. below casing top which is 1 ft. above ground level. Pumping level 33 ft. when pumping at 15 gpm for 4 hours.

18. FORMATIONS PASSED THROUGH		THICKNESS	DEPTH OF BOTTOM
Brown clay	0-8		
Gravel streak	8-10		
Blue clay	10-95		
Muck clay	95-105		
Grey clay	105-165		
Dirty fine sand	165-165		
Clean gravel	165-174		

(CONTINUE ON SEPARATE SHEET IF NECESSARY) 4-inch 100

SIGNED C. L. Wertz DATE 9-22-52

10—2 -561

Page 1 **ILLINOIS GEOLOGICAL SURVEY, URBANA**

Strata	Thickness	Top	Bottom
Blue clay		0	12
Fine sand (very nice gravel at 12')		12	12

Finished in very nice coarse gravel.
Casing: 4" from 0 to 12'.
Static level from surface: 7'
Tested capacity: 10 gallons per minute.
Water lowered: 3'

Northwest of Antioch, Illinois

COMPANY C. L. Wertz
FARM Wike, John NO. 1
DATE DRILLED October 1 3
COUNTY NO. 40
AUTHORITY C. L. Wertz
ELEVATION
LOCATION
COUNTY

9-1[illegible]-1[illegible]

NSUMER HEALTH PROTECTION, 535 WEST
761. DO NOT DETACH GEOLOGICAL/WATER
E PROPER[illegible] LOCATIO

GEOLOGICAL AND WATER SURVEYS WELL RECORD

Completed 9/11/76

10. Property owner [illegible] Well No. _____
Address [illegible]
Driller [illegible] License No. [illegible]
11. Permit No. [illegible] Date [illegible]
12. Water from [illegible] (Formation) 13. County [illegible]
at depth [illegible] to [illegible] ft.
Sec. [illegible]
Twp. [illegible]
Rge. [illegible]
Elev. _____
14. Screen: Diam. [illegible] in.
Length: [illegible] ft. Slot [illegible]

15. Casing and Liner Pipe

Diam. (In.)	Kind and Weight	From (Ft.)	To (Ft.)
[illegible]	[illegible]	0	[illegible]
	[illegible]		

SHOW LOCATION IN SECTION PLAT
1150'NL 375'EL
SW (permit)

16. Size Hole below casing: [illegible] in.
17. Static level [illegible] ft. below casing top which is [illegible] ft. above ground level. Pumping level [illegible] ft. when pumping at [illegible] gpm for _____ hours. Sub. pump set at 105'

18. FORMATIONS PASSED THROUGH	THICKNESS	DEPTH OF BOTTOM
[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]
[illegible]	8	[illegible]

(CONTINUE ON SEPARATE SHEET IF NECESSARY)

SIGNED [illegible] DATE 9/24/76

COUNTY No. [illegible]

LAKE 9-46N-10E

[illegible] DETACH GEOLOGICAL/WATER
E PR[illegible] LOCATIO

GEOLOGICAL AND WATER SURVEYS WELL RECORD

Completed 9/15/76

10. Property owner [illegible] Well No. _____
Address [illegible]
Driller [illegible] License No. [illegible]
11. Permit No. [illegible] Date [illegible]
12. Water from [illegible] (Formation) 13. County [illegible]
at depth [illegible] to [illegible] ft.
Sec. [illegible]
Twp. [illegible]
Rge. [illegible]
Elev. _____
14. Screen: Diam. [illegible] in.
Length: [illegible] ft. Slot [illegible]

15. Casing and Liner Pipe

Diam. (In.)	Kind and Weight	From (Ft.)	To (Ft.)
[illegible]	[illegible]	[illegible]	[illegible]
	[illegible]		

SHOW LOCATION IN SECTION PLAT
500'NL 325'EL
SW (permit)

[illegible] Hole below casing: [illegible] in.
[illegible] level [illegible] ft. below casing top which is [illegible] ft. [illegible] ground level. Pumping level [illegible] ft. when pumping at [illegible] [illegible] for _____ hours. Sub. pump set at 115'

18. FORMATIONS PASSED THROUGH	THICKNESS	DEPTH OF BOTTOM
[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]
[illegible]	4	[illegible]

(CONTINUE ON SEPARATE SHEET IF NECESSARY)

SIGNED [illegible] DATE 9/24/76

COUNTY No. [illegible]

LAKE 9-46N-10E

NSUMER HEALTH PROTECTION, 535 WEST
761. DO NOT DETACH GEOLOGICAL/WATER
IE PROPER WELL LOCAT

GEOLOGICAL AND WATER SURVEYS WELL RECORD

10. Property owner Don Collins Well No. _____
Address Silver Lake Ave. Antioch, IL
Driller Charles C Madsen License No. 42-200
11. Permit No. 110624 Date 11-30-83
12. Water from SAND (Formation) 13. County LAKE
at depth 142 to 153 ft.
14. Screen: Diam. 3 in.
Length: 5 ft. Slot 010
Sec. 9 SE
Twp. 46N
Rge. 10E
Elev. _____

SHOW LOCATION IN SECTION PLAT
SE NE SW

15. Casing and Liner Pipe

Diam. (in.)	Kind and Weight	From (Ft.)	To (Ft.)
4"	Gal 11 PE	0	147

16. Size Hole below casing: 3 in.
17. Static level 115 ft. below casing top which is 1 ft. above ground level. Pumping level 126 ft. when pumping at 10 gpm for 4 hours.

18. FORMATIONS PASSED THROUGH	THICKNESS	DEPTH OF BOTTOM
Yellow Clay	21	21
B Clay	119	140
Sand	120	152

(CONTINUE ON SEPARATE SHEET IF NECESSARY)

SIGNED Charles E Madsen DATE 9/24/84
Charles E Madsen 9 46N10E

761. DO NOT DETACH GEOLOGICAL WATER
L PROPER WELL LOCATION.

GEOLOGICAL AND WATER SURVEYS WELL RECORD

10. Property owner Marlon Cowan Well No. _____
Address 202 Lake St. Evanston, Ill 60201
Driller C. L. Wertz License No. 27
11. Permit No. 112201 Date June 14-84
12. Water from Drift (Formation) 13. County Lake
at depth 162 to 162 ft.
14. Screen: Diam. 3 in.
Length: 48 ft. Slot 12
Sec. 9 SE
Twp. 46N
Rge. 10E
Elev. _____

SHOW LOCATION IN SECTION PLAT
650'S 5400'W
SE/C SW

15. Casing and Liner Pipe

Diam. (in.)	Kind and Weight	From (Ft.)	To (Ft.)
4"	Galv - 11 lb	0	
	Steel		162

16. Size Hole below casing: Screened
17. Static level 50 ft. below casing top which is 1 above ground level. Pumping level 60 ft. when pumping at 10 gpm for 4 hours.

18. FORMATIONS PASSED THROUGH	THICKNESS	DEPTH OF BOTTOM
Brown clay 0 - 19		
Blue clay Firm 19 - 36		
" " mucky 36 - 68		
Grey clay Firm 68 -		
some grit 130		
Sand stuck 130 - 135		
Clay & sand 135 - 155		
Clean sand & gravel 155 - 165		

(CONTINUE ON SEPARATE SHEET IF NECESSARY)

SIGNED C. L. Wertz DATE June 14 84

46N10E

(13210 [illegible]—3-55)

Page 1

ILLINOIS GEOLOGICAL SURVEY, URBANA

Strata	Thickness	Top	Bottom
Brown clay		0	15
Blue clay		15	125
Sand to very nice gravel		125	171
			TD

Finished in sand to very nice gravel.
Casing: [illegible]" from 0 to 171'
Static level from surface: 65'
Tested capacity: 10 gallons per minute.
Water lowered: 5'

COMPANY C. L. Wertz
FARM [illegible] Farm
DATE DRILLED May 1943
AUTHORITY C. L. Wertz
ELEVATION
LOCATION SW SE NW
COUNTY LAKE

NO. 1
COUNTY NO. 84

1[illegible]-[illegible]-10E

John C. Moore [illegible]ration, Rochester, N. Y. Binder and holes in leaves Patented. FORM 402809

TOWN Antioch TOWNSHIP Antioch MAP NO. 3
COMPANY Henry Boysen, Jr. NO. R. 10E
FARM Nixon, M. C. NO. T. 46 N
AUTHORITY Henry Boysen, Jr.
ELEVATION
COLLECTOR
CONFIDENTIAL DATE DRILLED Dec. 1939
SE cor SW SE NW

No.	AUDITY 1943	Thickness Feet	Thickness In.	Depth Feet
	Clay, red	20		20
	Clay, blue	90		110
	Sand and gravel	45		155
	4-1/2" casing to 155'			
	Water level 62' from surface			
	Capacity tested to 10 g.p.m.			

COUNTY Lake INDEX NO. 0316
DRILL RECORD
(A6572--15M--10-39) ILLINOIS GEOLOGICAL SURVEY, URBANA

.701. DO NOT DETACH GEOLOGICAL WATER
DE PROPER WELL LOCATION.

G GICAL ND WATER SURVEYS WL RECO

Completed 7-26-74

10. Property owner George Murphy Well No. _____
Address PO Box 186, Lake Villa
Driller Hauser License No. 30
11. Permit No. 31651 Date 7/30/74
12. Water from Sand (Formation) 13. County Lake
at depth 139 to 145 ft. Sec. 16
14. Screen: Diam. 4 in. Twp. 41N
Length: 3 ft. Slot 12 Rge. 10E
Elev. _____

15. Casing and Liner Pipe

Diam. (in.)	Kind and Weight	From (Ft.)	To (Ft.)
4	galv. T+C	0	142
	10.89 #/ft		

SHOW LOCATION IN SECTION PLAT
350'SL 350'EL of SE (permit)

16. Size Hole below casing: 4 in.
17. Static level 70 ft. below casing top which is 1 ft. above ground level. Pumping level 90 ft. when pumping at 6 gpm for _____ hours. Submersible pump set at 126'

18. FORMATIONS PASSED THROUGH	THICKNESS	DEPTH OF BOTTOM
Yellow Clay	20	20
Soft gray clay	111	131
Yellow fine	8	139
sand	6	145

(CONTINUE ON SEPARATE SHEET IF NECESSARY)

SIGNED L E Hauser DATE 8/5/74

COUNTY No. [illegible]

LAKE 16-46N-10E

...ND OF ... ROL ... LTD, 555 WEST
52701. DO NOT DE CH GEOLOGICAL WATER
IDE PROPER WELL CATION.

GEOLOGICAL AND WATER SURVEYS WELL RECORD

Completed 9-18-74

10. Property owner Leonard Tuell Well No. _____
Address RR 1 Box 114, Antioch
Driller Hauser License No. 30
11. Permit No. 33250 Date 9/23/74
12. Water from Sand (Formation) 13. County Lake
at depth 127 to 130 ft. Sec. 16
14. Screen: Diam. 12 in. Twp. 41N
Length: 3 ft. Slot 12 Rge. 10E
Elev. _____

15. Casing and Liner Pipe

Diam. (in.)	Kind and Weight	From (Ft.)	To (Ft.)
4	galv. T+C	0	127
	10.89 #/ft		

SHOW LOCATION IN SECTION PLAT
350'SL 1000 WL of NW
(permit)

16. Size Hole below casing: 4 in.
17. Static level 60 ft. below casing top which is 1 ft. above ground level. Pumping level 60 ft. when pumping at 15 gpm for _____ hours. Submersible pump set at 80'

18. FORMATIONS PASSED THROUGH	THICKNESS	DEPTH OF BOTTOM
Glacial drift	127	127
Sand	3	130

(CONTINUE ON SEPARATE SHEET IF NECESSARY)

SIGNED L E Hauser DATE 9/30/74
for [illegible]

LAKE 16-46N-10E

(13210—20M—3-55)

LOG OF WATER WELL

Property owner R. Laursen Well No. 1

Drilled by C. L. Wertz Year 1944

Formations passed through

	Thickness	Depth
Top soil & Brown clay	18	18
Grey clay & stones	167	85
Dry lime gravel	5	190
Limestone		215

Continue on back if necessary

Finished in Limestone at 190 to 215

Cased with 4 inch Water well pipe from 0 to 290

and — inch — from to

Size hole below casing 4 inch. Static level from surf 30

Tested capacity 6 gal. per min. Temperature

Water lowered to 50 ft. in. in 4 hrs. min.

Length of test 8 hrs. min. Screen

Slot — Diam. — Length Bottom set at ft.

Township name Newport Elev. 122 Sec 16

Description of location 1000 ft N. of Rt. 173 Tw 76 N Rge 10 E

Signed C. L. Wertz County Lake

Index

Copy for Illinois State Geological Survey

Page 1

ILLINOIS GEOLOGICAL SURVEY, URBANA

Strata	Thickness	Top	Bottom
Brown clay		0	1
Blue clay		15	0
Clean gravel		65	0

Finished in clean gravel.
Casing: 3" from 0 to 67'
Static level from surface: 30'
Tested capacity: 20 gallons per minute.
Water lowered: 5'

Little Silver Lake

COMPANY C. L. Wertz
FARM Hermanck, Ann
DATE DRILLED November 1941
AUTHORITY C. L. Wertz
ELEVATION
LOCATION
COUNTY Lake

NO. 1
COUNTY NO. 45

GEOLOGICAL WATER SURVEYS WATER WELL

10. Dept. Mines and Minerals permit No.
11. Property owner
Address
Driller
12. Water from
at depth to ft.
14. Screen: Diam. in.
Length ft. Slot
15. Casing and Liner Pipe

(CONTINUE ON SEPARATE SHEET IF NECESSARY)

SIGNED DATE

LAKE

16-46N-10E

STATE OFFICE BUILDING, SPRINGFIELD,
GEOLOGICAL/WATER SURVEYS SECTION. BE SURE TO

GEOLOGICAL AND WATER SURVEYS WELL RECORD

Completed 2-73

10. Property owner Murphy Farms Well No. _____
Address Rt. 173 Antioch
Driller Hayner License No. 30
11. Permit No. NE 17855 Date 2/9/73
12. Water from sand (Formation) 13. County Lake
at depth 154 to 164 ft.
14. Screen: Diam. 4 in.
Length: 3 1/2 ft. Slot #8
Sec. 16
Twp. 46N
Rge. 10E
Elev. _____

SHOW LOCATION IN SECTION PLAT
300' SL 850' E of NE (permi

15. Casing and Liner Pipe

Diam. (in.)	Kind and Weight	From (Ft.)	To (Ft.)
4	galv. T.C.	0	161
	10.89 PPF		

16. Size Hole below casing: 4 in.
17. Static level 70 ft. below casing top which is 1 ft. above ground level. Pumping level 78 ft. when pumping at 10 gpm for _____ hours.

18. FORMATIONS PASSED THROUGH	THICKNESS	DEPTH OF BOTTOM
yellow clay	19	19
blue clay	88	107
sandy clay	11	118
gravel & clay	36	154
sand	10	164

(CONTINUE ON SEPARATE SHEET IF NECESSARY)

SIGNED DATE 2/24/73

COUNTY No. 3823

LAKE

16-46N-10E

I REQUESTED AND MAIL ORIGINAL TO STATE
IEAU OF ENVIRONMENTAL HEALTH, 535 WEST
2701. DO NOT DETACH GEOLOGICAL/WATER
DE PROPE LOCA

GEOLOGICAL AND WATER SURVEYS WELL RECORD

Completed 9/2/75

10. Property owner Cunningham Well No. 1
Address R.R. Antioch, Ill
Driller C.L. Wertz License No. 57
11. Permit No. 37569 Date Sept. 8-1975
12. Water from Drift (Formation) 13. County Lake
at depth 82 to 135 ft. Sec. 16
14. Screen: Diam. 2 in. Twp. 46N
Length: 42 ft. Slot 15 Rge. 10E
Elev. 820

15. Casing and Liner Pipe

Diam. (in.)	Kind and Weight	From (Ft.)	To (Ft.)
6"	1926 galv	0	132

SHOW LOCATION IN SECTION PLAT
200'NL, 250'EL
NW SE
(Permit)

16. Size Hole below casing: — in. screened
17. Static level 52 ft. below casing top which is 1 ft. above ground level. Pumping level 60 ft. when pumping at 25 gpm for 3 hours. Sub. pump set at 90'

18. FORMATIONS PASSED THROUGH		THICKNESS	DEPTH OF BOTTOM
Brown & clay	0 -	18	
Blue grey "	18 -	95	
Dark grey clay	95 -	110	
Dirty sand fine	110 -	128	
Clean " & fine	128 -	135	
gravel			

(CONTINUE ON SEPARATE SHEET IF NECESSARY)

SIGNED C.L. Wertz DATE Sept 8-75

COUNTY No. 24582

LAKE

16-46N-10E

JEST ND ORIGINAL TO STATE
SUMER HEALTH PROTECTION, 535 WEST
1. DO NOT DETAC EOLOGICAL/WATER
PROPER W OCATIO

GEOLOGICAL AND WATER SURVEYS WELL RECORD

Completed 4/27/76

10. Property owner RAY Schmidt Well No.
Address Rt 2 Box 126A Antioch
Driller MARTIN JURS & SON License No. 102-7
11. Permit No. 46233 Date April 14, 1976
12. Water from Drift (Formation) 13. County Lake
at depth 100 to 110 ft. Sec. 24 16
14. Screen: Diam. 4 in. Twp. 46N
Length: 5 ft. Slot Rge. 10E
Elev.

15. Casing and Liner Pipe

Diam. (in.)	Kind and Weight	From (Ft.)	To (Ft.)
5"	GALV.	0	105

SHOW LOCATION IN SECTION PLAT
Lot #11, Blk. 2
Lagoona Subd.
SW (permit)

16. Size Hole below casing: in.
17. Static level 40 ft. below casing top which is 2 ft. above ground level. Pumping level 80 ft. when pumping at 5 gpm for 1 hours. Sub. pump set at 80'

18. FORMATIONS PASSED THROUGH	THICKNESS TOP	DEPTH OF BOTTOM
Brown CLAY	0	3
Grey CLAY	3	35
Red CLAY	35	90
SAND & GRAVEL	90	110

(CONTINUE ON SEPARATE SHEET IF NECESSARY)

SIGNED James Hutchings DATE 4/29/76

COUNTY No. 24264

LAKE

16-46N-10E

EQUESTED AND MAIL ORIGINAL TO STATE
SUMER HE··TH PROTEC··N, 535 WEST
1. DO NOT ··TACH GEO··ICAL/WATER
PROPER WELL LOCATION.

GEOLOGICAL AND WATER SURVEYS WELL RECORD

10. Property owner John Hoeing Well No. _____
Address Washington Antioch
Driller Charles Madsen License No. 42-202
11. Permit No. 110134 Date 10-25-83
12. Water from Sand (Formation) 13. County Lake
at depth 101 to 112 ft.
14. Screen: Diam. 3 in.
Length: 5 ft. Slot .010
Sec. 16 b
Twp. 46N
Rge. 10E
Elev. _____

15. Casing and Liner Pipe

Diam. (in.)	Kind and Weight	From (Ft.)	To (Ft.)
4"	Iron 11 DF	0	106
1"	Plastic	4	94

SHOW LOCATION IN SECTION PLAT
Lake Michigan
Lake Marie Rd

16. Size Hole below casing: 3 in.
17. Static level 31 ft. below casing top which is 1 ft. above ground level. Pumping level 47 ft. when pumping at 10 gpm for 4 hours.

18. FORMATIONS PASSED THROUGH	THICKNESS	DEPTH OF BOTTOM
yellow Clay	21	21
Gravel & B Clay	30	51
B Clay	50	101
Sand	11	112

(CONTINUE ON SEPARATE SHEET IF NECESSARY)

SIGNED Charles E Madsen DATE 1/16/84

16 46N 10E

··· TO ····ENS

I REQUESTED AND ··IL ORIGINAL TO STATE
ONSUMER ··ALT··RO··TION, 535 WEST
12761. DO NOT DETACH GEOLOGICAL/WATER
IDE PROPER WELL LOCATION.

GEOLOGICAL AND WATER SURVEYS WELL RECORD

10. Property owner WICKS HOMES by Jackson Enterprises Well No. Lincoln Ave.
Address 1819 E. Grand Ave., Lindenhurst, IL.
Driller GEORGE E. GAEFKE License No. 102-234
11. Permit No. 103455 Date 5/14/82
12. Water from Sand (Formation) 13. County LAKE
at depth 101 to 109 ft.
14. Screen: Diam. 5 in.
Length: 3 ft. Slot 10
Sec. 16.6 b
Twp. 46N
Rge. 10E
Elev. _____

15. Casing and Liner Pipe

Diam. (in.)	Kind and Weight	From (Ft.)	To (Ft.)
5	PVC	+1½	106

SHOW LOCATION IN SECTION PLAT
50' S of SE 1/4

16. Size Hole below casing: 5 in.
17. Static level 50 ft. below casing top which is 1½ ft. above ground level. Pumping level _____ ft. when pumping at 20 gpm for _____ hours.

18. FORMATIONS PASSED THROUGH	THICKNESS	DEPTH OF BOTTOM
Brown Clay	4	4
Sand to Gravel	21	25
Blue Clay	60	85
Hard Pan	10	95
Blue Clay - Gravel	6	101
Sand - Lt. Gravel	8	109

(CONTINUE ON SEPARATE SHEET IF NECESSARY) 16-46N-10E

SIGNED George E. Gaefke DATE 6/14/82

'61. DO NOT DETACH GEOLOGICAL/WATER
E PROPER , LOCAT

GEOLOGICAL AND WATER SURVEYS WELL RECORD

Completed 7-9-77

10. Property owner RAY EDWARDS Well No. 1
Address RT 173 ANTIOCH ILL
Driller C. MADSEN License No. 92-202
11. Permit No. 61121 Date 5-24-77
12. Water from SAND (Formation) 13. County LAKE
at depth 106 to 112 ft.
14. Screen: Diam. 2½ in.
Length: 5 ft. Slot 12
Sec. 16
Twp. 46N
Rge. 10E
Elev.

15. Casing and Liner Pipe

Diam. (in.)	Kind and Weight	From (Ft.)	To (Ft.)
4"	GAL 11PF	0	107

SHOW LOCATION IN SECTION PLAT
Lot4LagonaSub
NE SW(permit)

16. Size Hole below casing: 2½ in.
17. Static level 60 ft. below casing top which is 1½ ft. above ground level. Pumping level 84 ft. when pumping at 10 gpm for 1 hours. Sub. pump set at 84'

18. FORMATIONS PASSED THROUGH	THICKNESS	DEPTH OF BOTTOM
PEAT	8	8
B Clay	87	95
Fine Sand	10	105
C. Sand	7	112

(CONTINUE ON SEPARATE SHEET IF NECESSARY)

SIGNED C Madsen DATE

LAKE COUNTY No. 26559 16-46N-10E

761. DO NOT DETACH GEOLOGICAL/WATER
E PROPE LOCA

GEOLOGICAL AND WATER SURVEYS WELL RECORD

Completed 9-20-78

10. Property owner Steven Lazansky Well No.
Address 600 Piper Lane, Lake Villa
Driller Lonny R. Hoover License No. 102-783
11. Permit No. 79236 Date September 8, 1978
12. Water from sand (Formation) 13. County Lake
at depth 110 to 118 ft.
14. Screen: Diam. 4 in.
Length: 30 ft. Slot #15
Sec. 16
Twp. 46N
Rge. 10E
Elev.

15. Casing and Liner Pipe

Diam. (in.)	Kind and Weight	From (Ft.)	To (Ft.)
4	Galvanized T&C	0	115
	14.81 ppf		

SHOW LOCATION IN SECTION PLAT
25'NL,50'WL
SE (permit)

16. Size Hole below casing: 4 in.
17. Static level 63 ft. below casing top which is 1 ft. above ground level. Pumping level 68 ft. when pumping at 9 gpm for 1 hours. Sub. pump set at 84'

18. FORMATIONS PASSED THROUGH	THICKNESS	DEPTH OF BOTTOM
Clay	110	110
Sand	8	118

(CONTINUE ON SEPARATE SHEET IF NECESSARY)

SIGNED Lonny R. Hoover Jr. DATE 10-17-78

LAKE COUNTY No. 26566 16-46N-10E

761. DO NOT DETACH GEOLOGICAL WATER
DE PROPE LOCA

GEOLOGICAL AND WATER SURVEYS WELL RECORD

Completed 12-8-77

10. Property owner ADAM BARYS Well No. 1
Address LINCOLN DR - ANTIOCH ILL
Driller C. MADSEN License No. 92-202
11. Permit No. 68143 Date 10-14-77
12. Water from Sand (Formation) at depth 118 to 122 ft.
13. County LAKE
Sec. 16
Twp. 46N
Rge. 10E
Elev. ____
14. Screen: Diam. 2½ in.
Length: 5 ft. Slot 10

15. Casing and Liner Pipe

Diam. (in.)	Kind and Weight	From (Ft.)	To (Ft.)
4	Gal 11 RFT	0	118

SHOW LOCATION IN SECTION PLAT
Lot 16 Lagoona Su
800'SL, 400'WL S
SW (permit)

16. Size Hole below casing: 2½ in.
17. Static level 50 ft. below casing top which is 1½ ft. above ground level. Pumping level 63 ft. when pumping at 10 gpm for 2 hours Sub. pump set at 63'

18. FORMATIONS PASSED THROUGH	THICKNESS	DEPTH OF BOTTOM
Peat	12	12
Blue Clay	90	102
Fine Sand	10	112
Coarse Sand	10	122

(CONTINUE ON SEPARATE SHEET IF NECESSARY)

SIGNED C Madsen DATE ____

LAKE COUNTY No. 26553 16-46N-10E

N REQUESTED AND MAIL ORIGINAL TO STATE
CONSUMER HEALTH PROTECTION, 535 WEST
62761. DO NOT DETACH GEOLOGICAL/WATER
VIDE PROPER WELL LOCATION.

GEOLOGICAL AND WATER SURVEYS WELL RECORD

10. Property owner Richard Good Well No. 2
Address RT 2 Box 128A Antioch Il.
Driller William D Blake License No. 92-510
11. Permit No. 94710 Date July 8 1980
12. Water from drift (Formation) at depth 117 to 120 ft.
13. County Lake
Sec. 16.6d
Twp. 46N
Rge. 10E
Elev. ____
14. Screen: Diam. 3¾ in.
Length: 3 ft. Slot 12

15. Casing and Liner Pipe

Diam. (in.)	Kind and Weight	From (Ft.)	To (Ft.)
4	T+C Galv. 11.5 lbs per ft	Surface	117

SHOW LOCATION IN SECTION PLAT
NW NE SW

16. Size Hole below casing: 3 in.
17. Static level 75 ft. below casing top which is 1 ft. above ground level. Pumping level 84 ft. when pumping at 20 gpm for 4 hours.

18. FORMATIONS PASSED THROUGH	THICKNESS	DEPTH OF BOTTOM
Top Soil	3	3
Yellow Clay	12	15
Blue Clay (Smooth)	18	33
Sandy Clay (Blue)	25	58
Hard Pan	20	78
Grey Clay (Silty)	37	115
Sand	5	120

(CONTINUE ON SEPARATE SHEET IF NECESSARY)

SIGNED William D Blake DATE 9-2-82
16-46N-10E

NS TO DRILLERS

REQUESTED AND MAIL ORIGINAL TO STATE
NSUMER LTH PRO TION, 535 WEST
761. DO NO DETACH G LOGICAL/WATER
DE PROPER WELL LOCATION.

GEOLOGICAL AND WATER SURVEYS WELL RECORD

10. Property owner Richard Good Well No. 2
Address RT 2 Box 128A Antioch, Ill.
Driller William D Blake License No. 92-710
11. Permit No. 94710 Date July 8 1980
12. Water from drift (Formation) 13. County Lake
at depth 117 to 120 ft. Sec. 16.6d
14. Screen: Diam. 3 3/4 in. Twp. 46N
Length: 3 ft. Slot 12 Rge. 10E
Elev.

SHOW LOCATION IN SECTION PLAT NWNESW

15. Casing and Liner Pipe

Diam. (in.)	Kind and Weight	From (Ft.)	To (Ft.)
4	T+C Galv. 11.0 lbs/ft	Surface	117

16. Size Hole below casing: 3 in.
17. Static level 75 ft. below casing top which is 1 ft. above ground level. Pumping level 84 ft. when pumping at 20 gpm for 4 hours.

18. FORMATIONS PASSED THROUGH	THICKNESS	DEPTH OF BOTTOM
Top Soil	3	3
Yellow clay	12	15
Blue clay (smooth)	18	33
Sandy clay (Blue)	25	58
Hard Pan	20	78
Gray clay (silty)	37	115
Sand	5	120

(CONTINUE ON SEPARATE SHEET IF NECESSARY) 16-46N-10E

SIGNED William D. Blake DATE 9-2-82

NS TO DRILLERS

REQUESTED AND M ORIGINAL TO STATE
ONSUMER ALTH PR CTION, 535 WEST
52761. DO NOT DETACH GEOLOGICAL/WATER
IDE PROPER WELL LOCATION.

GEOLOGICAL AND WATER SURVEYS WELL RECORD

10. Property owner Wayne Blanchett Well No. 2
Address 22621 W. Rt 173 Antioch, Ill.
Driller William D Blake License No. 92-710
11. Permit No. 101327 Date Sept. 16 81
12. Water from drift (Formation) 13. County Lake
at depth 134 to 138 ft. Sec. 16.5d
14. Screen: Diam. 3 3/4 in. Twp. 46N
Length: 4 ft. Slot 12 Rge. 10E
Elev.

SHOW LOCATION IN SECTION PLAT and N Lagoona NENESW

15. Casing and Liner Pipe

Diam. (in.)	Kind and Weight	From (Ft.)	To (Ft.)
4	T+C Galv. 11.0 lbs/ft	Surface	134

16. Size Hole below casing: 3 in.
17. Static level 12 ft. below casing top which is 1 ft. above ground level. Pumping level 70 ft. when pumping at 12 gpm for 4 hours.

18. FORMATIONS PASSED THROUGH	THICKNESS	DEPTH OF BOTTOM
Top Soil	1	1
Yellow clay	16	17
Blue clay	12	29
Smooth clay	25	54
Sandy clay (Gray)	30	84
Hard Pan	49	133
Sand	5	138

(CONTINUE ON SEPARATE SHEET IF NECESSARY) 16-46N-10E

SIGNED William D. Blake DATE 9-2-82

IONS TO DRILLERS

ON REQUESTED AND MAIL ORIGINAL TO STATE
CONSUME EALTH PI ECTION, 535 WEST
62761. DO NOT DETACH GEOLOGICAL/WATER
VIDE PROPER WELL LOCATION.

GEOLOGICAL AND WATER SURVEYS WELL RECORD

10. Property owner Wayne Blanchette Well No. 2
Address 22621 W. Rte 173 Antioch, Il.
Driller William D. Blake License No. 92-510
11. Permit No. 101357 Date Sept. 16 81
12. Water from drift (Formation) 13. County ~~[illegible]~~ Lake
at depth 134 to 138 ft.
14. Screen: Diam. 3 3/4 in.
Length: 4 ft. Slot 12
Sec. 16.5d
Twp. 46N
Rge. 10E
Elev.

SHOW LOCATION IN SECTION PLAT
Lot 4 Lagoona
NE NE SW

15. Casing and Liner Pipe

Diam. (in.)	Kind and Weight	From (Ft.)	To (Ft.)
4	T+C Galv. 11.3 Lasprish	Surface	134

16. Size Hole below casing: 3 in.
17. Static level 65 ft. below casing top which is 1 ft. above ground level. Pumping level 70 ft. when pumping at 15 gpm for 4 hours.

18. FORMATIONS PASSED THROUGH	THICKNESS	DEPTH OF BOTTOM
Top Soil	1	1
Yellow clay	16	17
Blue clay	12	29
Smooth clay	25	54
Sandy Clay (Grey)	30	84
Hard Pan	49	133
Sand	5	138

(CONTINUE ON SEPARATE SHEET IF NECESSARY)

SIGNED William D. Blake DATE 9-7-82
16-46N-10E

SUMER HEALTH PROTECTION, 535 WEST
1. DO NOT TACH GE ICAL/WATER
PROPER W. LOCAT

GEOLOGICAL AND WATER SURVEYS WELL RECORD

10. Property owner RAY NOWAK Well No.
Address 173 and Madison, Antioch
Driller Lonny R. Hoover License No. 102-783
11. Permit No. 91570 Date Nov. 16, 1979
12. Water from Sand (Formation) 13. County Lake
at depth 123 to 129 ft.
14. Screen: Diam. 4 in.
Length: 3 ft. Slot #10
Sec. 16.5c
Twp. 46N
Rge. ~~12E~~ 10E
Elev.

SHOW LOCATION IN SECTION PLAT
300's, 50E NW/C SE
NW/C SE NE
SW

15. Casing and Liner Pipe

Diam. (in.)	Kind and Weight	From (Ft.)	To (Ft.)
4	New Galv. Steel	0	126
	T&C 14.81 PPF		

16. Size Hole below casing: 4 in.
17. Static level 63 ft. below casing top which is 1 ft. above ground level. Pumping level 65 ft. when pumping at 15 gpm for 1½ hours.

18. FORMATIONS PASSED THROUGH	THICKNESS	DEPTH OF BOTTOM
Clay	113	113
Sandy clay	10	123
Sand	6	129

(CONTINUE ON SEPARATE SHEET IF NECESSARY)

SIGNED [illegible] DATE 1/14/80

16 46N 10E

LOG OF WATER WELL

Property owner H Wilton Well No. 1

Drilled by Chas Madsen & Sons Year 1952

Formations passed through	Thickness	Depth of Bottom
Soil	0	2
yellow clay	18	20
blue clay	88	108
coarse sand	4	112

No Envelope

COUNTY NO. 1941 Permit issued 5/2/52

(Continued on back if necessary)

Finished in Coarse sand at 108 to 112 ft.

Cased with 2 inch Gal fip from 0 to 108 ft.

and — inch — from — to — ft.

Size hole below casing — inch. Static level from surf. 50 ft.

Tested capacity 10 gal. per min. Temperature — °F.

Water lowered to — ft. — in. in — hrs. — min.

Length of test 1 hrs. — min. Screen Midwest

Slot 60 Diam. 1" Length 4 ft. Bottom set at 112 ft.

[Show location in Section Plat]

Township name Antioch Elev. ____ Sec. 15

Description of location Rd-173 Twp. 46N

NE SW NW Rge. 10E

Signed Chas Madsen County Lake

SUMER HEALTH PROTECTION, 535 WEST
51. DO NOT DETACH GEOLOGICAL/WATER
PROPER L LOCA

GEOLOGICAL AND WATER SURVEYS WELL RECORD

10. Property owner Thomas Homan Well No. 173 + Deeplat
Address 21075 North Ave. Antioch 60002
Driller George E. Gaffke License No. 102-234
11. Permit No. 114634 Date 9/7/84
12. Water from Sand + Lt. Gravel Formation 13. County Lake
at depth 155 to 160 ft. Sec. 16 le
14. Screen: Diam. 3 in. Twp. 46N
Length: 5 ft. Slot 10 Rge. 10E
Elev. ____

15. Casing and Liner Pipe

Diam. (in.)	Kind and Weight	From (Ft.)	To (Ft.)
6	PVC	+1	160

SHOW LOCATION IN SECTION PLAT
50'N 200W
SE/L, NE

16. Size Hole below casing: 5 in.
17. Static level 88 ft. below casing top which is +1 ft. above ground level. Pumping level ____ ft. when pumping at 15-20 gpm for ____ hours.

18. FORMATIONS PASSED THROUGH	THICKNESS	DEPTH OF BOTTOM
Brown Clay	0	8
Blue Clay	20	28
Sand + Gravel	2	30
Blue Clay	44	74
Sand + Gravel	1	75
Blue Clay	65	140
Sand	1	141
Blue Clay	14	155
Sand + Lt. Gravel	5	160

(CONTINUE ON SEPARATE SHEET IF NECESSARY)

SIGNED George E. Gaffke DATE 3/27/85

16 46N 10E

(3210—[illegible]—3-55)

Page 1

ILLINOIS GEOLOGICAL SURVEY, URBANA

Strata	Thickness	Top	Bottom
Top soil		0	12
Gravel		12	16
Blue clay		16	60
Grey clay		60	95
Red sand		95	100
Grey sand and gravel, water bearing		100	111
			TD

Finished in sand and gravel.
Casing: [illegible]" from 0 to 111'
Static level from surface: [illegible]'
Tested capacity: 10 gallons per minute.
Water lowered: [illegible]'

Little Silver Lake

COMPANY C. L. Wertz
FARM [illegible], N. H.
DATE DRILLED September 1939
AUTHORITY C. L. Wertz
ELEVATION [illegible]
LOCATION [illegible]
COUNTY [illegible]

NO. 1
COUNTY NO. 44

1[illegible]-[illegible]-10E

LOG OF WATER WELL

Property owner Hans Hofman Well No. NE 1100

Drilled by C. L. Wertz Year 1966

Formations passed through	Thickness	Depth of Bottom
Permit # 11[illegible]		
0-15 Brown clay	15	15
15-80 Blue clay		
80-140 Hard clay		
140-160 Fine sand dirty		
160-180 Clean sand		
180-185 Some fine gravel		

card

Received 5-16-66

(Continue on back if necessary)

Finished in fine gravel at 181 to 185 ft.

Cased with 4 inch galvanized from 0 to 181 ft.

and ___ inch ___ from ___ to ___ ft.

Size hole below casing [illegible] inch. Static level from surf. [illegible] ft.

Tested capacity [illegible] gal. per min. Temperature ___ °F.

Water lowered to [illegible] ft. ___ in. in [illegible] hrs. ___ min.

Length of test ___ hrs. ___ min. Screen [illegible]

Slot ___ Diam. [illegible] Length 30" Bottom set at 185 ft.

(Show location in Section Plat)

Township name Antioch Elev. 780 Sec. 16

Description of location 500'S and 600'W NE/[illegible] NE (Permit) Twp. 46

Rge. 10E

Signed C. L. Wertz County Lake

Copy for Illinois State Geological Survey Index:

NSUMER HEALTH PROTECTION, 535 WEST
761. DO NOT DETACH GEOLOGICAL WATER
E PROPER WELL LOCATION.

GEOLOGICAL AND WATER SURVEYS WELL RECORD

1206 Hook Circle, Antioch Completed 7-26-77

10. Property owner Frances Graffe Well No. _____
Address 4647 S. St. Louis, Chicago, IL
Driller Fred H. Matthesius License No. 102-88
11. Permit No. 63590 Date 7-18-77
12. Water from gravel (Formation) 13. County Lake
at depth 123 to 127 ft. Sec. 16
14. Screen: Diam. 5 in. Twp. 46N
Length: 4 ft. Slot 30 Rge. 10E
Elev. _____

15. Casing and Liner Pipe

Diam. (in.)	Kind and Weight	From (Ft.)	To (Ft.)
5	15# galv. T/C R&D		

SHOW LOCATION IN SECTION PLAT
SE SW SE
(permit)

16. Size Hole below casing: 5 in.
17. Static level 65 ft. below casing top which is 1 ft. above ground level. Pumping level 70 ft. when pumping at 20 gpm for _____ hours.

18. FORMATIONS PASSED THROUGH	~~THICKNESS~~ TOP	DEPTH OF BOTTOM
clay	0	118
sand & gravel	118	127

(CONTINUE ON SEPARATE SHEET IF NECESSARY)

SIGNED Fred H. Matthesius DATE 8-23-77

COUNTY No. 25433

LAKE 16-46N-10E

NSUMER HEALTH PROTECTION, 535 WEST
761. DO NOT DETACH GEOLOGICAL/WATER
E PROPER WELL LOCATION.

GEOLOGICAL AND WATER SURVEYS WELL RECORD

Completed 8-11-77

10. Property owner THE RICHMOND CO. Well No. Washington & Lincoln
Address 2413 Sand Lake Rd., Lindenhurst, IL.
Driller HENRY BOYSEN CO. License No. 102-6
11. Permit No. 61040 Date 5/20/77
12. Water from Sand-Gravel (Formation) 13. County Lake
at depth 104 to 112 ft. Sec. 16
14. Screen: Diam. 5 in. Twp. 46N
Length: 3 ft. Slot 10 Rge. 10E
Elev. _____

15. Casing and Liner Pipe

Diam. (in.)	Kind and Weight	From (Ft.)	To (Ft.)
5	PVC	grade	110

SHOW LOCATION IN SECTION PLAT
75'SL 75'WL
NW NE SW
(permit)

16. Size Hole below casing: 5 in.
17. Static level 49 ft. below casing top which is 1 ft. above ground level. Pumping level _____ ft. when pumping at 10-15 gpm for _____ hours. Sub. pump set at 100'.

18. FORMATIONS PASSED THROUGH	THICKNESS	DEPTH OF BOTTOM
Brown Clay	7	7
Blue Clay	71	78
Blue Clay - Gravel	15	93
Blue Clay	11	104
Sand - Gravel	8	112

(CONTINUE ON SEPARATE SHEET IF NECESSARY)

SIGNED [signature] DATE 12/29/77

COUNTY No. 25452

LAKE 16-46N-10E

REQUESTED AND MAIL ORIGINAL TO STATE
NSUMER HE .TH PROTE' 'ON, 535 WEST
'61. DO NO .ETACH GEL .GICAL/WATER
E PROPER WELL LOCATION.

GEOLOGICAL AND WATER SURVEYS WELL RECORD

10. Property owner GORDON PERSHA Well No. _____
Address BAY VIEW DR. ANTIOCH, IL
Driller Charles Madsen License No. 92-262
11. Permit No. 110136 Date 10-25-83
12. Water from SANTI (Formation) 13. County LAKE
at depth ____ to 152 ft.
14. Screen: Diam. 3 in.
Length: 5 ft. Slot .010
Sec. 18
Twp. 46N
Rge. 10E
Elev. _____

15. Casing and Liner Pipe

Diam. (in.)	Kind and Weight	From (Ft.)	To (Ft.)
4"	GAL UPE	0	146
1"	PLASTIC	4	104

SHOW LOCATION IN SECTION PLAT
Lot 28 Sabrina Manor Subd
SW SE NE

16. Size Hole below casing: 3 in.
17. Static level 86 ft. below casing top which is 1 ft. above ground level. Pumping level 107 ft. when pumping at 15 gpm for 2 hours.

18. FORMATIONS PASSED THROUGH	THICKNESS	DEPTH OF BOTTOM
YELLOW CLAY	21	21
B CLAY	101	122
SAND	30	152

(CONTINUE ON SEPARATE SHEET IF NECESSARY)

SIGNED Charles E. Madsen DATE 1/16/84

18 46N 10E

(12210—30M—3-55)

3

Page 1

ILLINOIS GEOLOGICAL SURVEY, URBANA

Strata	Thickness	Top	Bottom
Brown clay		0	15
Blue clay		15	80
Sand, dry until 110'		80	110
Dirty sand		110	130
Clean water sand and gravel		130	137
			TD

Finished in sand and gravel.
Casing: 3" from 0 to 133½'.
Size hole below casing: 3".
Static level from surface: 60'.
Tested capacity: 10 gallons per minute.
Water lowered: 5'.

COMPANY C. L. Wertz
FARM Zeigler, W. F. NO. 1
DATE DRILLED March 1936 COUNTY NO. 16
AUTHORITY C. L. Wertz
ELEVATION
LOCATION SW SE NW
COUNTY LAKE

17-46N-10E

(13210—[illegible]—3-55)

Page 1

ILLINOIS GEOLOGICAL SURVEY, URBANA

3

Strata	Thickness	Top	Bottom
Yellow clay		0	24
Grey clay		24	90
Sand		90	153
Gravel		153	155
			TD

Finished in gravel.
Casing: 4" galv. from 0 to 155'
Static level from surface: 70'
Tested capacity: 10 gallons per minute.
Water lowered: 5'

Copied from records in office of C. L. Wertz

COMPANY C. L. Wertz
FARM Vox, Clete
DATE DRILLED May 1953
AUTHORITY C. L. Wertz
ELEVATION
LOCATION SW SE NW
COUNTY LAKE

NO. 1
COUNTY NO. 3/4

17-46N-10E

(13210—[illegible]M—3-55)

Page 1

ILLINOIS GEOLOGICAL SURVEY, URBANA

3

Strata	Thickness	Top	Bottom
Brown clay		0	15
Clay		15	145
Sand to gravel		145	165
			TD

Finished in sand to gravel.
Casing: 4" from 0 to 165'
Static level from surface: 60'
Tested capacity: 10 gallons per minute.

Copied from records in office of C. L. Wertz

COMPANY C. L. Wertz
FARM Rosing, H.
DATE DRILLED September 1948
AUTHORITY C. L. Wertz
ELEVATION
LOCATION SW SW SW
COUNTY LAKE

NO. 1
COUNTY NO. 155

17-46N-10E

(13210—20M—3-56)

Page 1

ILLINOIS GEOLOGICAL SURVEY, URBANA

(3)

Strata	Thickness	Top	Bottom
Blue clay		0	154
Gravel		154	158 TD

Finished in gravel.
Casing: 3½" galv. from 0 to 158'
Static level from surface: 65'
Tested capacity: 10 gallons per minute.
Water lowered: 5'

Copied from records in office of C. L. Wertz

COMPANY C. L. Wertz
FARM Newman NO. 1
DATE DRILLED May 1950 COUNTY NO. 154
AUTHORITY C. L. Wertz
ELEVATION
LOCATION NW SE NW
COUNTY LAKE

17-46N-10E

ER SURVEYS SECTION. BE SURE TO

GEOLOGICAL WATER SURVEYS WATER WELL RECORD

Completed November 1969

10. Dept. Mines and Minerals permit No. NF 07252 Year 1969
11. Property owner Ed Kramer Well No.
Address Sunset Ridge, Central
Driller Hoover License No. 30
12. Water from ~~Gravel~~ Formation SAND 13. County Lake
at depth 110 to 128 ft.
14. Screen: Diam. 5 in.
Length: 3½ ft. Slot 12
Sec. 17
Twp. 46N
Rng. 10E
Elev.

SHOW LOCATION IN SECTION PLAT
1100' SL, 900' WL of SW (Permit)

15. Casing and Liner Pipe

Diam. (in.)	Kind and Weight	From (Ft.)	To (Ft.)
5	galv T+C 4.81 ppf	0	125

16. Size Hole below casing: 5 in.
17. Static level 68 ft. below casing top which is 1 ft. above ground level. Pumping level 68 ft. when pumping at 10 gpm for ____ hours.

18. FORMATIONS PASSED THROUGH	THICKNESS	DEPTH OF BOTTOM
yellow clay	24	24
blue clay	60	84
gravel + clay	26	110
Sand	18	128
(CONTINUE ON SEPARATE SHEET IF NECESSARY)		

SIGNED [signature] DATE 12-19-69

COUNTY No. 3025

LAKE

17-46N-10E

ART DUIL SF FIEL
ER SURVEYS SECTION. BE SURE TO

GEOLOGICAL WATER SURVEYS WATER WELL RECORD

Completed 9-26-69

10. Dept. Mines and Minerals permit No. NF07108 Year 1969
11. Property owner HARRY LINDGRIN Well No. 1
Address BT 5 BOX 224 ANTIOCH ILL
Driller F. HELLMAN & SONS INC. License No. 42-109
12. Water from SAND (Formation) 13. County LAKE
at depth 140 to 145 ft. Sec. 17
14. Screen: Diam. 4 in. Twp. 46N
Length: 3 ft. Slot 20 Rng. 10E
Elev.

15. Casing and Liner Pipe

Diam. (in.)	Kind and Weight	From (Ft.)	To (Ft.)
4"	GALV STEEL #11.6	0	142
4"	JOHNSON SCREEN	142	145

SHOW LOCATION IN SECTION PLAT
SW SW SW (Permit)

16. Size Hole below casing: 4 in.
17. Static level 61 ft. below casing top which is 1 ft. above ground level. Pumping level 70 ft. when pumping at 20 gpm for 4 hours.

18. FORMATIONS PASSED THROUGH	THICKNESS	DEPTH OF BOTTOM
YELLOW CLAY	20	0-20
BLUE CLAY	95	20-115
GRAVEL & CLAY	20	115-135
DIRTY SAND	5	135-140
SAND (WATER)	5	140-145
(CONTINUE ON SEPARATE SHEET IF NECESSARY)		

SIGNED [signature] DATE 10-18-1969

COUNTY No. 2968

LAKE 17-46N-10E

UNDER BUILDING, SPRINGFIELD
ER SURVEYS SECTION. BE SURE TO

GEOLOGICAL WATER SURVEYS WATER WELL RECORD

Completed November 1969

10. Dept. Mines and Minerals permit No. NF07117 Year 1969
11. Property owner Phil Haas Well No.
Address 143 Lakewood Drive Antioch
Driller Hoover License No. 30
12. Water from Sand (Formation) 13. County Lake
at depth 133 to 146 ft. Sec. 17
14. Screen: Diam. 5 in. Twp. 46N
Length 3'6" ft. Slot 12 Rng. 10E
Elev.

15. Casing and Liner Pipe

Diam. (in.)	Kind and Weight	From (Ft.)	To (Ft.)
5	galv T & C.	0	143
	14.81 ppf		

SHOW LOCATION IN SECTION PLAT
550'NL, 550'WL of NW (Permit

16. Size Hole below casing: 5 in.
17. Static level 38 ft. below casing top which is 1 ft. above ground level. Pumping level 80 ft. when pumping at 8 gpm for ____ hours.

18. FORMATIONS PASSED THROUGH	THICKNESS	DEPTH OF BOTTOM
Yellow Clay	20	20
Blue Clay	95	115
Sandy Clay	18	133
Sand	13	146
(CONTINUE ON SEPARATE SHEET IF NECESSARY)		

SIGNED [signature] DATE 12-5-69

COUNTY No. 3009

LAKE 17-46N-10E

ER SURVEYS SECTION. BE SURE TO

GEOLOGICAL WATER SURVEYS WATER WELL RECORD

10. Dept. Mines and Minerals permit No. NE07572 Year 1969
11. Property owner RICHARD DANIALS Well No. 1
Address RT 5, BAYVUE Rd ANTIOCH
Driller ENGLEHAN & SONS INC License No. 92-109
12. Water from SAND (Formation) 13. County LAKE
at depth 120 to 143 ft. Sec. 17
14. Screen: Diam. NONE in. Twp. 46N
Length: ____ ft. Slot ____ Rng. 10E
Elev. ____

SHOW LOCATION IN SECTION PLAT

NE SW SW (Permit)

15. Casing and Liner Pipe

Diam. (in.)	Kind and Weight	From (Ft.)	To (Ft.)
5"	galv. STEEL #1500	0	143
Grout:	Clay slurry 0-25'.	- Driller	

16. Size Hole below casing: ____ in.
17. Static level 55 ft. below casing top which is 1 ft. above ground level. Pumping level 60 ft. when pumping at 20 gpm for 4 hours.

18. FORMATIONS PASSED THROUGH	THICKNESS	DEPTH OF BOTTOM
FILL	1	0-1
TOP SOIL	1	1-2
YELLOW CLAY	13	2-15
BLUE CLAY	10	15-25
BROWN CLAY	10	25-35
BLUE CLAY	85	35-120
SAND + GRAVEL (WATER)	23	120-143
(CONTINUE ON SEPARATE SHEET IF NECESSARY)		

SIGNED [signature] DATE 1-15-1970

COUNTY No. 3042

LAKE 17-46N-10E

S, STATE OFFICE BUILDING, SPRINGFIELD,
CAL / WATER SURVEYS SECTION. BE SURE TO

GEOLOGICAL AND WATER SURVEYS WELL RECORD

Completed 12-11-71

10. Property owner Bernard Jasmer Well No. 1
Address 2920 W. Paddock Waukegan, IL
Driller C. L. WERTZ License No. 57
11. Permit No. LF13123 Date Dec-11-71
12. Water from Drift (Formation) 13. County Lake
at depth 176 ft. Sec. 17
14. Screen: Diam. none in. Twp. 46N
Length: — ft. Slot — Rge. 10E
Elev. 750

SHOW LOCATION IN SECTION PLAT

700'SL 700'EL of NW (permit)

15. Casing and Liner Pipe

Diam. (in.)	Kind and Weight	From (Ft.)	To (Ft.)
4"	galv. 11 lb	0	176

16. Size Hole below casing: none in.
17. Static level 30 ft. below casing top which is 18" ft. above ground level. Pumping level 35 ft. when pumping at 10 gpm for 3 hours.

18. FORMATIONS PASSED THROUGH	THICKNESS	DEPTH OF BOTTOM
Brown clay	0 to	15
Grey "	15 to	40
Very sticky Blue clay	40 to	120
fine dirty sand	120 to	150
wood particles in sand	150 to	155
Cleaner sand	155 to	170
Sand + fine gravel	170 to	176

(CONTINUE ON SEPARATE SHEET IF NECESSARY)

SIGNED [signature] DATE Dec 11-71

3431

LAKE 17-46N-10E

GE[illegible]GICAL [illegible] WATER SURVEYS WEL[illegible] REC[illegible]

Completed 12-4-71

10. Property owner W. A. Mitchell Well No. _____
Address Rt 2, Bx 100, Margate Terrace, Antioch
Driller [illegible] License No. 36
11. Permit No. UF13122 Date 12/2/71
12. Water from Coarse Sand (Formation) 13. County Lake
at depth 150 to 160 ft.
14. Screen: Diam. 4 in.
Length: 3 3/4 ft. Slot 15
Sec. 17
Twp. 46N
Rge. 10E
Elev. _____

15. Casing and Liner Pipe

Diam. (in.)	Kind and Weight	From (Ft.)	To (Ft.)
4	galv T+C	0	157
	10.89 ppf		

SHOW LOCATION IN SECTION PLAT
300'SL 350'EL
of NW (permit)

16. Size Hole below casing: 4 in.
17. Static level 85 ft. below casing top which is 1 ft. above ground level. Pumping level 85 ft. when pumping at 10 gpm for _____ hours.

18. FORMATIONS PASSED THROUGH	THICKNESS	DEPTH OF BOTTOM
Brown Clay	12	12
blue clay	91	103
fine sand	47	150
Coarse sand	10	160

(CONTINUE ON SEPARATE SHEET IF NECESSARY)

SIGNED [signature] DATE 12/7/71

[illegible] 3413

LAKE 17-46N-10E

GEOLOGICAL WATER SURVEYS WATER WELL RECORD

Completed 12-1-71

10. Dept. Mines and Minerals permit No. 12483 Year 1971
11. Property owner Dan McHanes Well No. _____
Address Bayview Rd. Antioch, Ill
Driller C. Wertz License No. 57
12. Water from Drift (Formation) 13. County Lake
at depth 144 to 147 ft.
14. Screen: Diam. 3 in.
Length: 36 ft. Slot 15
Sec. 17
Twp. 46N
Rng. 10E
Elev. 790

15. Casing and Liner Pipe

Diam. (in.)	Kind and Weight	From (Ft.)	To (Ft.)
4	11 lb galv. steel	0	144

SHOW LOCATION IN SECTION PLAT
350'SL 800'WL
of NE SW
(permit)

16. Size Hole below casing: — in.
17. Static level 60 ft. below casing top which is 18 ft. above ground level. Pumping level 80 ft. when pumping at 10 gpm for 3 hours.

18. FORMATIONS PASSED THROUGH	~~THICKNESS~~ TO C	DEPTH OF BOTTOM
Brown clay	0 to	18
Blue clay	18 to	50
Grey clay	50 to	90
Soft grey clay	90 to	140
fine sand to	140 to	144
fine gravel	144 to	147
Very fine sand below this depth		147
(CONTINUE ON SEPARATE SHEET IF NECESSARY)		

SIGNED [signature] DATE Dec 1-71

[illegible] 3412

LAKE 17-46N-10E

STA... OFFI... UILL... SP... ELD
AL / WATER SURVEYS SECTION. BE SURE TO

GEOLOGICAL AND WATER SURVEYS WELL RECORD

Completed 7-15-72

10. Property owner CHAS GERMACK Well No. _____
Address R.R. 1 ANTIOCH ILL
Driller ART WERTZ License No. 92-81
11. Permit No. NF 14354 Date 4-21-72
12. Water from GRAVEL (Formation) 13. County LAKE CO
at depth 150 to 185 ft.
14. Screen: Diam. _____ in.
Length: _____ ft. Slot _____

Sec. 17
Twp. 46N
Rge. 10E
Elev. _____

15. Casing and Liner Pipe

Diam. (in.)	Kind and Weight	From (Ft.)	To (Ft.)
4	11# STEEL	—	185

SHOW LOCATION IN SECTION PLAT
SE NE NW
(permit)

16. Size Hole below casing: _____ in.
17. Static level 42 ft. below casing top which is 1 ft. above ground level. Pumping level 50 ft. when pumping at 10 gpm for 4 hours.

18. FORMATIONS PASSED THROUGH	THICKNESS	DEPTH OF BOTTOM
BLUE CLAY	160	160
SAND + CLAY	15	175
SAND + GRAVEL	10	185

(CONTINUE ON SEPARATE SHEET IF NECESSARY)

SIGNED Arthur Wertz DATE 9-25-72

COUNTY No. 3665

LAKE 17-46N-10E

(13210—20M—3-55)

Page 1

ILLINOIS GEOLOGICAL SURVEY, URBANA

Strata	Thickness	Top	Bottom
Clay		0	90
Clay and sand		90	140
Gravel		140	142
			TD

Finished in gravel.
Casing: 4" galv. from 0 to 142'
Static level from surface: 50'
Tested capacity: 10 gallons per minute.
Water lowered: 5'

Copied from records in office of C. L. Wertz

COMPANY C. L. Wertz
FARM LaPlant NO. 1
DATE DRILLED September 1954 COUNTY NO. 233
AUTHORITY C. L. Wertz
ELEVATION
LOCATION SW SE NE
COUNTY LAKE

17-46N-10E

(13210—20M—3-55)

3

Page 1

ILLINOIS GEOLOGICAL SURVEY, URBANA

Strata	Thickness	Top	Bottom
Clay		0	100
Sand		100	104
Very coarse gravel		104	106
			TD

Finished in very coarse gravel.
Casing: 6" galv. from 0 to 105'
Static level from surface: 30'
Tested capacity: 20 gallons per minute.
Water lowered: 5'

Copied from records in office of C. L. Wertz

COMPANY C. L. Wertz
FARM Hunter, Elmer — NO. 1
DATE DRILLED July 1949 — COUNTY NO. 153
AUTHORITY C. L. Wertz
ELEVATION
LOCATION NW SE NE
COUNTY LAKE

17-46N-10E

(13210—20M—3-55)

3

Page 1

ILLINOIS GEOLOGICAL SURVEY, URBANA

Strata	Thickness	Top	Bottom
Brown clay		0	15
Blue clay		15	120
Fine sand to gravel		120	130
			TD

Finished in fine sand to gravel.
Casing: 4" from 0 to 130'
Static level from surface: 40'
Tested capacity: 10 gallons per minute.
Water lowered: 5'

Antioch, Illinois

COMPANY C. L. Wertz
FARM Grimm, Henry — NO. 1
DATE DRILLED March 1945 — COUNTY NO. 85
AUTHORITY C. L. Wertz
ELEVATION
LOCATION NW SE NW SE
COUNTY LAKE

17-46N-10E

(12210—20M—3-55)

Page 1

ILLINOIS GEOLOGICAL SURVEY, URBANA

(3)

Strata	Thickness	Top	Bottom
Brown clay		0	18
Clay		18	90
Sand		90	96
Clay		96	155
Sand to gravel.		155	161
			TD

Finished in sand to gravel.
Casing: 4" from 0 to 158'
Size hole below casing: 4"
Static level from surface: 70'
Tested capacity: 10 gallons per minute.
Water lowered: 5'

Copied from records in office of C. L. Wertz

COMPANY C. L. Wertz
FARM Grenaman
DATE DRILLED May 1950
AUTHORITY C. L. Wertz
ELEVATION
LOCATION SW NE SW
COUNTY LAKE

NO. 1
COUNTY NO. 152

17-46N-10E

(12210—20M—3-55)

Page 1

ILLINOIS GEOLOGICAL SURVEY, URBANA

(3)

Strata	Thickness	Top	Bottom
Top soil		0	20
Clay		20	100
Sand		100	144
Gravel		144	147
			TD

Finished in gravel.
Casing: 4" galv. from 0 to 147'
Static level from surface: 70'
Tested capacity: 10 gallons per minute.
Water lowered: 5'

Copied from records in office of C. L. Wertz

COMPANY C. L. Wertz
FARM Dwieley, T.
DATE DRILLED June 1954
AUTHORITY C. L. Wertz
ELEVATION
LOCATION NE SW NW
COUNTY LAKE

NO. 1
COUNTY NO. 232

17-46N-10E

GEOLOGICAL WATER SURVEYS WATER WELL RECORD

Completed 6-8-67

10. Dept. Mines and Minerals permit No. NF 2214 Year 1967
11. Property owner [illegible] Well No. 1
Address [illegible]
Driller [illegible] License No. 92-109
12. Water from [illegible] Formation 13. County [illegible]
at depth 155 to 157 ft. Sec. 17
14. Screen: Diam. [illegible] in. Twp. 46N
Length: ____ ft. Slot ____ Rng. 10E
Elev. ____

15. Casing and Liner Pipe

Diam. (in.)	Kind and Weight	From (Ft.)	To (Ft.)
4	STEEL #1100	0	157

SHOW LOCATION IN SECTION PLAT

NW SE NE (Permit)

16. Size Hole below casing: ____ in.
17. Static level [illegible] ft. below casing top which is 8" ft. above ground level. Pumping level [illegible] ft. when pumping at 15 gpm for 4 hours.

18. FORMATIONS PASSED THROUGH	THICKNESS	DEPTH OF BOTTOM
TOP SOIL	4	0-4
YELLOW CLAY	18	4-22
BLUE CLAY	80	22-102
FINE SAND	45	102-150
SAND & GRAVEL	5	150-155
GRAVEL (WATER BEARING)	0	155-157
(CONTINUE ON SEPARATE SHEET IF NECESSARY)		

SIGNED [signature] DATE 6-20-67

GEOLOGICAL WATER SURVEYS WATER WELL RECORD

Completed 10-11-67

10. Dept. Mines and Minerals permit No. NF 2810 Year 1967
11. Property owner J. PITZER Well No. 1
Address R#2 ANTIOCH
Driller EH GLENN & SONS INC License No. 92-109
12. Water from SAND Formation 13. County LAKE
at depth 169 to 176 ft. Sec. 17
14. Screen: Diam. 4 in. Twp. 46N
Length: 2 ft. Slot 15 Rng. 10E
Elev. ____

15. Casing and Liner Pipe

Diam. (in.)	Kind and Weight	From (Ft.)	To (Ft.)
4	GALV STEEL #1100	0	173
4	JOHNSON SCREEN	173	176

SHOW LOCATION IN SECTION PLAT

NW SW NE (Permit)

16. Size Hole below casing: 4 in.
17. Static level 53 ft. below casing top which is 8" ft. above ground level. Pumping level 60 ft. when pumping at 22 gpm for 4 hours.

18. FORMATIONS PASSED THROUGH	THICKNESS	DEPTH OF BOTTOM
TOP SOIL	4	0-4
YELLOW CLAY	15	4-19
BLUE CLAY	120	19-139
FINE SAND	25	139-164
GRAVEL + CLAY	5	164-169
SAND + GRAVEL	7	169-176
(CONTINUE ON SEPARATE SHEET IF NECESSARY)		

SIGNED [signature] DATE 10-17-67

COUNTY No. 2423

LAKE 17-46N-10E

GEOLOGICAL WATER SURVEYS WATER WELL RECORD

Completed 8-5-69

10. Dept. Mines and Minerals permit No. NF 06712 Year 1969
11. Property owner G. J. Feiler Well No. 1
Address
Driller C. L. Wertz License No. 57
12. Water from Drift 13. County Lake
Formation
at depth ___ to 160 ft. Sec 17 Sec. 46N
14. Screen: Diam. — in. Twp.
Length: — ft. Slot — Rng. 10E
Elev. 850

15. Casing and Liner Pipe

Diam. (in.)	Kind and Weight	From (Ft.)	To (Ft.)
5"	Galv. 15 lb	0	
	Seamless		160

SHOW LOCATION IN SECTION PLAT
660' NL, 660' WL of NW
(permit)

16. Size Hole below casing [illegible] in.
17. Static level 42 ft. below casing top which is 1 ft. above ground level. Pumping level 50 ft. when pumping at 10 gpm for 4 hours.

18. FORMATIONS PASSED THROUGH	THICKNESS	DEPTH OF BOTTOM
Brown clay	18	18
Blue "	42	60
Sandy clay	50	110
Soft clay	20	120
Dirty sand	35	155
Coarse sand & gravel	5	160
(CONTINUE ON SEPARATE SHEET IF NECESSARY)		

SIGNED C. L. Wertz DATE Aug 20-1969

COUNTY No. 2929

GEOLOGICAL WATER SURVEYS WATER WELL RECORD

NF Completed 8-23-69

10. Dept. Mines and Minerals permit No. [illegible] Year 1969
11. Property owner CARL FISHER Well No.
Address 119 BAY VIEW RD ANTIOCH ILL
Driller ART WERTZ License No. [illegible]
12. Water from GRAVEL 13. County LAKE
Formation
at depth 140 to 150 ft. Sec. 17
14. Screen: Diam. ___ in. Twp. 46N
Length: ___ ft. Slot ___ Rng. 10E
Elev. ___

15. Casing and Liner Pipe

Diam. (in.)	Kind and Weight	From (Ft.)	To (Ft.)
5"	SEAMLESS	—	150
	GALV STEEL		

SHOW LOCATION IN SECTION PLAT
NW/c NW SW SW
(Permit)

16. Size Hole below casing: — in.
17. Static level 30 ft. below casing top which is 1 ft. above ground level. Pumping level [illegible] ft. when pumping at 10 gpm for [illegible] hours.

18. FORMATIONS PASSED THROUGH	THICKNESS	DEPTH OF BOTTOM
GRAY CLAY	130	150
SAND + GRAVEL	20	150
(CONTINUE ON SEPARATE SHEET IF NECESSARY)		

SIGNED Arthur Wertz DATE Aug 25-69

COUNTY No. 2955

LAKE

17-46N-10E

GEOLOGICAL WATER SURVEYS WATER WELL RECORD

Completed July 28, 1968

10. Dept. Mines and Minerals permit No. NF 1141 Year 1968
11. Property owner C. M. Dolak Well No. 1
Address 425 Lake St. Antioch Ill
Driller C. L. Weitz License No. 3
12. Water from Drift 13. County Lake
Formation
at depth ___ to 162 ft. Sec. 17
14. Screen: Diam. — in. Twp. 46N
Length: ___ ft. Slot ___ Rng. 10E
Elev. 732

15. Casing and Liner Pipe

Diam (in)	Kind and Weight	From (Ft.)	To (Ft.)
5	15 lb per ft galv steel	0	162

SHOW LOCATION IN SECTION PLAT
400' NL, 300' WL of SE (permit)

16. Size Hole below casing: New in.
17. Static level 60 ft. below casing top which is 1 ft. above ground level. Pumping level 65 ft. when pumping at 10 gpm for 2 hours.

18. FORMATIONS PASSED THROUGH	THICKNESS	DEPTH OF BOTTOM
Top Soil & Br. clay	0	15
Blue clay	21	36
Sandy Clay	54	90
Fine clay	72	
		162
(CONTINUE ON SEPARATE SHEET IF NECESSARY)		

SIGNED C. L. Weitz DATE July 28, 1968

COUNTY No. 2779

LAKE 17-46N-10E

CE DIR RING
R SURVEYS SECTION. BE SURE TO

GEOLOGICAL WATER SURVEYS WATER WELL RECORD

10. Dept. Mines and Minerals permit No. NE 06597 Year 1969
11. Property owner LESS Eddy Well No. 1
Address RT 83 BY VOLT Rd ANTIOCH ILL.
Driller EHLEHAN & SONS INC License No. 92-109
12. Water from SAND 13. County LAKE
Formation
at depth 98 to 147 ft. Sec. 17
14. Screen: Diam. 4 in. Twp. 46N
Length: 3 ft. Slot 15 Rng. 10E
Elev. ___

15. Casing and Liner Pipe

Diam. (in.)	Kind and Weight	From (Ft.)	To (Ft.)
4	GALV STEEL 11.00	0	144
4	JOHNSON SCREEN	144	147

SHOW LOCATION IN SECTION PLAT
SW NE SW (Permit)

16. Size Hole below casing: 4 in.
17. Static level 51 ft. below casing top which is 1 ft. above ground level. Pumping level 63 ft. when pumping at 20 gpm for 4 hours.

18. FORMATIONS PASSED THROUGH	THICKNESS	DEPTH OF BOTTOM
YELLOW CLAY	22	22
BLUE CLAY	76	98
SAND.	49	149
(CONTINUE ON SEPARATE SHEET IF NECESSARY)		

SIGNED [illegible] DATE 7-29-69

COUNTY No. 2958

LAKE 17-46N-10E

OFFICE BUILDING, SPRINGFIELD,
R SURVEYS SECTION. BE SURE TO

GEOLOGICAL WATER SURVEYS WATER WELL RECORD

Completed 9-17-71

10. Dept. Mines and Minerals permit No. NF 11898 Year 1971
11. Property owner [illegible] Well No. [illegible]
Address [illegible]
Driller [illegible] License No. [illegible]
12. Water from [illegible] (Formation) 13. County [illegible]
at depth ____ to [illegible] ft.
14. Screen: Diam. [illegible] in.
Length: [illegible] ft. Slot [illegible]

Sec. 17
Twp. 46N
Rng. 10E
Elev. [illegible]

15. Casing and Liner Pipe

Diam. (in.)	Kind and Weight	From (Ft.)	To (Ft.)
[illegible]	[illegible]	0	164

SHOW LOCATION IN SECTION PLAT
300' SL 650' [illegible] of NE SW (permit)

16. Size Hole below casing: [illegible] in.
17. Static level [illegible] ft. below casing top which is 1 ft. above ground level. Pumping level [illegible] ft. when pumping at 10 gpm for [illegible] hours.

18. FORMATIONS PASSED THROUGH	THICKNESS	DEPTH OF BOTTOM
[illegible]	15	15
[illegible]	70	85
[illegible]	35	120
[illegible]	30	150
[illegible]	10	160
[illegible]	4	164
(CONTINUE ON SEPARATE SHEET IF NECESSARY)		

SIGNED [illegible] DATE Sept 17-71

COUNTY No. 3339

LAKE 17-46N-10E

GEOLOGICAL WATER SURVEYS WATER WELL RECORD

Completed 1-15-71

10. Dept. Mines and Minerals permit No. NF 09744 Year 1971
11. Property owner ARTIS ANZINSKI Well No. 1
Address PO BOX 2011 ANTIOCH ILL
Driller EH GLENN & SONS INC. License No. 92-[illegible]
12. Water from SAND (Formation) 13. County LAKE
at depth 132 to 139 ft.
14. Screen: Diam. 4 in.
Length: 3 ft. Slot 15

Sec. 17
Twp. 46N
Rng. 10E
Elev. ____

15. Casing and Liner Pipe

Diam. (in.)	Kind and Weight	From (Ft.)	To (Ft.)
5	[illegible] STEEL 15#	0	136
5	JOHNSON SCREEN	136	139

SHOW LOCATION IN SECTION PLAT
NW NE SE (permit)

16. Size Hole below casing: ____ in.
17. Static level ____ ft. below casing top which is ____ ft. above ground level. Pumping level ____ ft. when pumping at ____ gpm for ____ hours.

18. FORMATIONS PASSED THROUGH	THICKNESS	DEPTH OF BOTTOM
TOPSOIL	2	0-2
YELLOW CLAY	20	2-22
BLUE CLAY	80	22-102
SANDY CLAY	20	102-122
DIRTY SAND	10	122-132
SAND (WATER)	7	132-139
(CONTINUE ON SEPARATE SHEET IF NECESSARY)		

SIGNED [illegible] DATE 7-21-71

C[illegible] No. 3390

LAKE 17-46N-10E

S O BUI S IFIE
CAL./WATER SURVEYS SECTION. BE SURE TO

GEOLOGICAL AND WATER SURVEYS WELL RECORD

Completed 9-7-72

10. Property owner Fechner Construction Well No. 1
Address 11607-W-Bluemound Rd - Wauwatosa - Wisc
Driller C.L. WERTZ License No. 57
11. Permit No. NF 10310 Date Sept. 6-72
12. Water from Drift (Formation) 13. County Lake
at depth 153 to 156 ft. Sec. 17
14. Screen: Diam. 4 in. Twp. 46N
Length: 3 ft. Slot 10 Rge. 10E
Elev. 760

15. Casing and Liner Pipe

Diam. (in.)	Kind and Weight	From (Ft.)	To (Ft.)
5"	15 lb galv	0	153

SHOW LOCATION IN SECTION PLAT
300' SL 100' WL of SE NW (permit)

16. Size Hole below casing: none in.
17. Static level 40 ft. below casing top which is 18" ft. above ground level. Pumping level 50 ft. when pumping at 15 gpm for 3 hours.

18. FORMATIONS PASSED THROUGH		THICKNESS	DEPTH OF BOTTOM
Fill & Topsoil clay	0	15	
Mushy clay	15	50	
Clay gravel	50	90	
Muck clay	90	110	
Smooth "	110	145	
Sand fine	145	150	
Sand fine gravel	150	156	

(CONTINUE ON SEPARATE SHEET IF NECESSARY)

SIGNED C.L. Wertz DATE Aug 6-72

COUNTY No. 3635

LAKE 17-46N-10E

R STE D M RIG TO E
AU OF ENVIRONMENTAL HEALTH, 535 WEST
'01. DO NOT DETACH GEOLOGICAL/WATER
E PROPER W LOC ON

GEOLOGICAL AND WATER SURVEYS WELL RECORD

Completed 8-9-73

10. Property owner R. Mesnell Well No.
Address 921 Park Lake Villa Ill
Driller [illegible] License No. 385
11. Permit No. [illegible] Date 7-[illegible]-73
12. Water from Gravel (Formation) 13. County Lake
at depth 276 to 285 ft. Sec. 17
14. Screen: Diam. in. Twp. 46N
Length: ft. Slot Rge. 10E
Elev.

15. Casing and Liner Pipe

Diam. (in.)	Kind and Weight	From (Ft.)	To (Ft.)
5	15# Tol R/M Galv		

SHOW LOCATION IN SECTION PLAT
SE SE NW (permit)

16. Size Hole below casing: 5 in.
17. Static level [illegible] ft. below casing top which is 1 ft. above ground level. Pumping level [illegible] ft. when pumping at 20 gpm for hours.

18. FORMATIONS PASSED THROUGH	THICKNESS	DEPTH OF BOTTOM
Clay	0	100
Sand	100	260
Gravel	260	285

(CONTINUE ON SEPARATE SHEET IF NECESSARY)

SIGNED [illegible] DATE 8-14-73

McHENRY COUNTY WELL & PUMP CO.
4913 W. McCULLOM LAKE RD.
McHENRY, ILLINOIS 60050

COUNTY No. 3962

LAKE 17-46N-10E

... ORIGINAL TO STATE DE-
...15, STATE OFFICE BUILDING, SPRINGFIELD,
...ICAL / WATER SURVEYS SECTION. BE SURE TO

GEOLOGICAL AND WATER SURVEYS WELL RECORD

Completed 11-1-73

10. Property owner Richard Kirkpatrick Well No. _____
Address 4037 Grandville, Dunes
Driller [illegible] License No. 30
11. Permit No. NF 19678 Date 6/21/73
12. Water from [illegible] (Formation) 13. County Lake
at depth 102 to 126 ft. Sec. 17
14. Screen: Diam. 5 in. Twp. 46N
Length: 3 ft. Slot 15 Rge. 10E
Elev. _____

15. Casing and Liner Pipe

Diam. (in.)	Kind and Weight	From (Ft.)	To (Ft.)
5	Galv T+C	0	133
	14.81 ppf		

SHOW LOCATION IN SECTION PLAT
1260'NL 720'WL of SW (permit)

16. Size Hole below casing: 5 in.
17. Static level 30 ft. below casing top which is 1 ft. above ground level. Pumping level 38 ft. when pumping at 30 gpm for _____ hours.

18. FORMATIONS PASSED THROUGH	THICKNESS	DEPTH OF BOTTOM
Yellow Clay	16	16
Blue Clay	86	102
Sand	24	126

(CONTINUE ON SEPARATE SHEET IF NECESSARY)

SIGNED L. R. Hoover DATE 11/8/73

COUNTY No. 24127

LAKE 17-46N-10E

...STE... ...MA... ...RIG... ...TO ...
...NSUMER HEALTH PROTECTION, 535 WEST
...61. DO NOT DETACH GEOLOGICAL/WATER
...E PROPER... LOCATI...

GEOLOGICAL AND WATER SURVEYS WELL RECORD

Completed 9-9-76

10. Property owner Woodland Const. Well No. _____
Address 1819 E Grand, Hinsdale
Driller [illegible] License No. [illegible]
11. Permit No. [illegible] 2442 Date 9/21/76
12. Water from [illegible] (Formation) 13. County Lake
at depth 102 to 117 ft. Sec. 17
14. Screen: Diam. 4 in. Twp. 46N
Length: 3 ft. Slot 10 Rge. 10E
Elev. _____

15. Casing and Liner Pipe

Diam. (in.)	Kind and Weight	From (Ft.)	To (Ft.)
4	Galv T+C	0	105
	10.89 ppf		

SHOW LOCATION IN SECTION PLAT
1100'NL 1250'WL SW (permit)

16. Size Hole below casing: 4 in.
17. Static level [illegible] ft. below casing top which is 1 ft. above ground level. Pumping level 35 ft. when pumping at 30 gpm for _____ hours. Sub. pump set at 84'

18. FORMATIONS PASSED THROUGH	THICKNESS	DEPTH OF BOTTOM
Yellow Clay	17	17
Blue Clay	68	85
Muck	17	102
Sand	15	117

(CONTINUE ON SEPARATE SHEET IF NECESSARY)

SIGNED L. R. Hoover DATE 9/20/76

COUNTY No. 24932

LAKE 17-46N-10E

N REQUESTED AND MAIL ORIGINAL TO STATE
REAU OF ENVIRONMENTAL HEALTH, 535 WEST
62701. DO NOT DETACH GEOLOGICAL/WATER
IDE PROPER WELL LOCATION.

GEOLOGICAL AND WATER SURVEYS WELL RECORD

Completed 10-26-77

10. Property owner R Van Patten Well No. _____
Address 810 Rincar Rd Antioch, Ill
Driller C. L. Wertz License No. 57
11. Permit No. 64017 Date Oct 27-77
12. Water from Drift (Formation) 13. County Lake
at depth 149 to 152 ft. Sec. 17
14. Screen: Diam. 3 in. Twp. 46N
Length: 4 ft. Slot 10 Rge. 10E
Elev. 760

15. Casing and Liner Pipe

Diam (in)	Kind and Weight	From (Ft)	To (Ft)
4"	galv 11 lb	0	
	steel new		152

SHOW LOCATION IN SECTION PLAT
Lot113, Briar Terrace Subd. 400'SL, 700'E NW (permit)

16. Size Hole below casing: None in.
17. Static level 60 ft. below casing top which is 1 ft. above ground level. Pumping level 65 ft. when pumping at 10 gpm for 3 hours. Sub. pump set at 100'.

18. FORMATIONS PASSED THROUGH	THICKNESS	DEPTH OF BOTTOM
Top soil & Brown clay	0 - 18	
Blue clay & grit	18 - 60	
Smooth Blue clay	60 - 90	
Gravely clay	90 - 115	
Dirty sand	115 - 125	
Clay & sand	125 - 140	
Sand fine to	140 -	
coarse	153	

(CONTINUE ON SEPARATE SHEET IF NECESSARY)

SIGNED C. L. Wertz DATE Oct 27-77

COUNTY No. 25435

LAKE 17-46N-10E

REQUESTED AND MA RIGINAL TO STATE
AU OF ENVIRONMEN HEALTH, 535 WEST
'01. DO NOT DETACH GEOLOGICAL/WATER
E PROPE L LOC. N.

GEOLOGICAL AND WATER SURVEYS WELL RECORD

Completed 9-10-77

10. Property owner Ron Anderson Well No. _____
Address RR5 - Box 444A Antioch, Ill
Driller C. L. Wertz License No. 57
11. Permit No. 66330 Date Sept. 10-77
12. Water from Drift (Formation) 13. County Lake
at depth — to 160 ft. Sec. 17
14. Screen: Diam. — in. Twp. 46N
Length: — ft. Slot — Rge. 10E
Elev. 750

15. Casing and Liner Pipe Lot30 Sunset Ridge

Diam. (in)	Kind and Weight	From (Ft)	To (Ft)
4"	galv. 11 lb.	0	160

SHOW LOCATION IN SECTION PLAT
Lot30, Sunset Ridge Subd. 400'SL, 100'WL NE SW (permit)

16. Size Hole below casing: None in.
17. Static level 40 ft. below casing top which is 1 ft. above ground level. Pumping level 42 ft. when pumping at 10 gpm for 3 hours. Sub. pump set at 75'.

18. FORMATIONS PASSED THROUGH	THICKNESS	DEPTH OF BOTTOM
Top soil Brown clay	0 - 18	
Blue clay firm	18 - 40	
" mucky	40 - 60	
Gray clay & grit	60 - 105	
Clean fine sand	105 - 110	
Sand & clay	110 - 130	
Wood Parts & sand	130 - 145	
Sandy clay to clean	145 -	
sand & gravel	160	

(CONTINUE ON SEPARATE SHEET IF NECESSARY)

SIGNED C. L. Wertz DATE Sept 10-77

COUNTY No. 25434

LAKE 17-46N-10E

ILLINOIS GEOLOGICAL SURVEY, URBANA

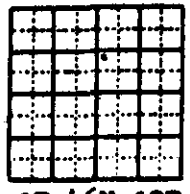
TEST HOLE	Thickness	Top	Bottom
Hard brown silty clay		0	7
Gray very silty clay		7	10
Gray silt		10	16
Gray silty clay		16	23
Loose gray fine sand and silt with clay seams		23	34
[illegible] silty clay		34	39
Fine sand and silt		39	40
Gray silty clay		40	63
Gray silty sandy clay occasional sand and gravel seam		63	71
Gray silty clay		71	91
Fine sand with clay layers		91	108
Fine sand to coarse gravel some boulders		108	126
Fine to coarse sand		126	148
Very fine to medium sand		148	162
Very fine to fine silty sand		162	225
			TD

Static water level 47'

Mud loss	Mud Weight		
6"	8.9	108	126
1/2"	8.8	125	148
1/8"	8.8	148	162

NO ENVELOPE

COMPANY Layne-Western Company, Incorporated
FARM Village of Antioch NO. 1-76
DATE DRILLED July 27, 1976 COUNTY NO. 25976
AUTHORITY Company
ELEVATION
LOCATION 50' N line, 630' W line, SW NE
COUNTY LAKE



17-46N-10E

ILLINOIS GEOLOGICAL SURVEY, URBANA

Permit # 76423	Thickness	Top	Bottom
Hard brown clay		0	7
Gray silty clay		7	10
Gray silty clay with sand seams		10	25
Gray very silty clay		25	40
Gray clay		40	45
Gray sandy silty clay, traces of gravel, boulder at 48'		45	54
Gray silty clay, sticky		54	63
Gray sandy silty with gravel intermixed, some small sand and gravel seams		63	76
Gray clay		76	91
Fine sand		91	93
Fine sand to coarse gravel		93	97
Very fine sand and/or silt (tight)		97	108.5
Fine sand to coarse gravel, tight, occasional boulders		108.5	129
Fine to coarse sand		129	131
			TD

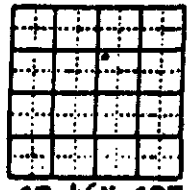
Hole record: 42" 0-40'
38" 40-131'

Casing: 16" -steel +3' - 109'
Screen record: 20' of 16" of stainless steel Johson from 109'-129' slot 0.060"
Gravel pack record: 20 ton #1 & #2 Mix Northern Gravel Company 130' - 84'
Static Level 52'; pumping level 62' after 24 hours pumping at 715 gpm.

S.S. # 61822 (0 - 130')

NO ENVELOPE

COMPANY Layne-Western Company, Incorporated
FARM Village of Antioch NO. 5
DATE DRILLED September 11, 1978 COUNTY NO. 25977
AUTHORITY Company
ELEVATION
LOCATION 1355'N Line, 2100'E Line NE
COUNTY LAKE



17-46N-10E

REQUESTED AND MAIL ORIGINAL TO STATE
CONSUMER HEALTH PROTECTION, 535 WEST
32761. DO NOT DETACH GEOLOGICAL/WATER
IDE PROPER WELL LOCATION.

GEOLOGICAL AND WATER SURVEYS WELL RECORD

10. Property owner Brian Ehlert Well No. _____
Address 4617 Lake View Dr. Antioch, IL
Driller C. L. Wertz License No. 57
11. Permit No. 113645 Date Aug 4-84
12. Water from Drift (Formation) 13. County Lake
at depth ____ to 173 ft.
14. Screen: Diam. 3 in.
Length: 42 ft. Slot 15
Sec. 12C
Twp. 46N
Rge. 10E
Elev. _____

15. Casing and Liner Pipe

Diam. (in.)	Kind and Weight	From (Ft.)	To (Ft.)
4"	11.16 galv steel	0	173

SHOW LOCATION IN SECTION PLAT
200'N 200'W of Sec NW

16. Size Hole below casing: — in.
17. Static level 50 ft. below casing top which is 1 ft. above ground level. Pumping level 23 ft. when pumping at 10 gpm for 2 hours.

18. FORMATIONS PASSED THROUGH		THICKNESS	DEPTH OF BOTTOM
Brown clay	0-18		
Firm Blue clay	18-84		
Soft muck clay	84-115		
Sandy clay	115-145		
Dirty sand	145-158		
Clean "	158-170		
Clean fine gravel	170-173		

(CONTINUE ON SEPARATE SHEET IF NECESSARY)

SIGNED C. F. Wertz DATE _____

17 46N 10E

15 ... R H ... H P ... ECT ... 535 ...
61. DO NOT DETACH GEOLOGICAL/WATER
E PROPER ... L LOC

GEOLOGICAL AND WATER SURVEYS WELL RECORD

10. Property owner Randy Kucerovic Well No. 1
Address 42966 N. Deerpath Rd. Antioch Il
Driller William Blake License No. 71-710
11. Permit No. 108804 Date 8-16-83
12. Water from drift (Formation) 13. County Lake
at depth 155 to 178 ft.
14. Screen: Diam. 3 3/4 in.
Length: 3 ft. Slot 12
Sec. 12SD
Twp. 46N
Rge. 10E
Elev. _____

15. Casing and Liner Pipe

Diam. (in.)	Kind and Weight	From (Ft.)	To (Ft.)
4	TFC galv. [illegible]	surface	155

SHOW LOCATION IN SECTION PLAT
Sec 12 Lot 2 Large pond NE SE SW

16. Size Hole below casing: 3 in.
17. Static level 70 ft. below casing top which is 1 ft. above ground level. Pumping level 84 ft. when pumping at 12 gpm for 4 hours.

18. FORMATIONS PASSED THROUGH	THICKNESS	DEPTH OF BOTTOM
Yellow clay	17	17
Blue Sandy clay	15	32
Blue smooth clay	18	50
Hard Pan	60	110
Silty Sand	30	140
Fine Sand	13	153
Coarse Sand	5	158

(CONTINUE ON SEPARATE SHEET IF NECESSARY)

SIGNED William R Blake DATE 9-23-84

17 46N10E

N REQUESTED AND MAIL ORIGINAL TO STATE
CONSUMER HEALTH PROTECTION, 535 WEST
62761. DO NOT DETACH GEOLOGICAL/WATER
WIDE PROPER WELL LOCATION.

GEOLOGICAL AND WATER SURVEYS WELL RECORD

10. Property owner William Morris Well No. _____
Address 2351 S. W. Marquette Terrace Antioch
Driller C. Mindsen License No. [illegible]
11. Permit No. 96573 Date [illegible]
12. Water from Sand (Formation) 13. County Lake
at depth 131 to 136 ft. Sec. 17 SE
14. Screen: Diam. 3 in. Twp. 46N
Length: ~~[illegible]~~ 5 ft. Slot 010 Rge. 10E
Elev. _____

		X	
			S

15. Casing and Liner Pipe

Diam. (in.)	Kind and Weight	From (Ft.)	To (Ft.)
4	Gal Pipe	0	131

SHOW LOCATION IN SECTION PLAT
Lot 102 Antioch
SE SE NW

16. Size Hole below casing: 3 in.
17. Static level 100 ft. below casing top which is 1 ft. above ground level. Pumping level _____ ft. when pumping at _____ gpm for _____ hours.

18. FORMATIONS PASSED THROUGH	THICKNESS	DEPTH OF BOTTOM
Yellow Clay	21	21
Sand	10	31
B Clay	95	126
Sand	10	136

(CONTINUE ON SEPARATE SHEET IF NECESSARY)

SIGNED Charlie E Mindsen DATE 9/82
17-46N-10E

REQUESTED AND MAIL ORIGINAL TO STATE
CONSUMER HEALTH PROTECTION, 535 WEST
62761. DO NOT DETACH GEOLOGICAL/WATER
WIDE PROPER WELL LOCATION.

GEOLOGICAL AND WATER SURVEYS WELL RECORD

10. Property owner William Morris Well No. _____
Address 2351 S. W. Marquette Terrace Antioch
Driller C. Mindsen License No. [illegible]
11. Permit No. 96573 Date [illegible]
12. Water from Sand (Formation) 13. County Lake
at depth 131 to 136 ft. Sec. 17 SE
14. Screen: Diam. 3 in. Twp. 46N
Length: ~~[illegible]~~ 5 ft. Slot 010 Rge. 10E
Elev. _____

		X	
			S

15. Casing and Liner Pipe

Diam. (in.)	Kind and Weight	From (Ft.)	To (Ft.)
4	Gal Pipe	0	131

SHOW LOCATION IN SECTION PLAT
Lot 102 Antioch
SE SE NW

16. Size Hole below casing: 3 in.
17. Static level 100 ft. below casing top which is 1 ft. above ground level. Pumping level _____ ft. when pumping at _____ gpm for _____ hours.

18. FORMATIONS PASSED THROUGH	THICKNESS	DEPTH OF BOTTOM
Yellow Clay	21	21
Sand	10	31
B Clay	95	126
Sand	10	136

(CONTINUE ON SEPARATE SHEET IF NECESSARY) 17-46N-10E

SIGNED Charlie E Mindsen DATE 9/82

APPENDIX B

SOIL BORING LOGS

PROJECT H.O.D. LANDFILL, ANTIOCH, ILLINOIS

CLIENT WASTE MANAGEMENT, INC., 900 JORIE BOULEVARD, OAK BROOK, ILLINOIS 60521

BORING 1101 DATE STARTED 2-02-81 DATE COMPLETED 2-02-81 JOB 18,037

ELEVATIONS

GROUND SURFACE 742.4

END OF BORING 712.4

WATER TABLE

AT END OF BORING "DRY"

24 HOURS

WHILE DRILLING "DRY"

Distance Below Surface in Feet: 0, 5, 10, 15, 20, 25, 30, 35, 40

LENGTH RECOVERY	SAMPLE NO.	TYPE	N	WC	Q_u	γ DRY	DEPTH	ELEV.	SOIL DESCRIPTIONS
	1	SS	31	16.4	2.5*				
	2	SS	27	14.2	2.0*				
	3	SS	34	14.8	2.5*				Very tough gray silty CLAY, trace to little sand and gravel, moist (CL)
	4	SS	41	14.8	2.5*				
	5	SS	39	13.9	2.5*				
	6	SS	36	12.2	2.5				

End of Boring at 30.0 Feet

*-Approximate unconfined compression strength based on measurements with a calibrated pocket penetrometer.

TESTING SERVICE CORPORATION

DRILL RIG NO. 91

PROJECT H.O.D. LANDFILL, ANTIOCH, ILLINOIS

CLIENT WASTE MANAGEMENT, INC., 900 JORIE BOULEVARD, OAK BROOK, ILLINOIS 60521

BORING 1101A(Cont) DATE STARTED 2-07-81 DATE COMPLETED 2-07-81 JOB 18,037

ELEVATIONS

GROUND SURFACE 749.4

END OF BORING 704.4

WATER TABLE

AT END OF BORING Cave DRY at -10.0 feet

24 HOURS

WHILE DRILLING -18.0 feet

Distance Below Surface in Feet	LENGTH	RECOVERY	SAMPLE NO.	SAMPLE TYPE	N	WC	Q_u	γ_{DRY}	DEPTH	ELEV.	SOIL DESCRIPTIONS
40									42.0	707.4	Firm gray very silty fine SAND, saturated (SM)
45			9	SS	42	16.7	3.5*				Dense gray clayey SILT, trace fine sand, moist (ML)
			End of Boring at -45.0 Feet								
50											
55											
60											
65											
70											
75											
80											

*-Approximate unconfined compression strength based on measurements with a calibrated pocket penetrometer.

TESTING SERVICE CORPORATION

DRILL RIG NO. 60

PROJECT H.O.D. LANDFILL, ANTIOCH, ILLINOIS

CLIENT WASTE MANAGEMENT, INC., 900 JORIE BOULEVARD, OAK BROOK, ILLINOIS 60521

BORING 1101A DATE STARTED 2-07-81 DATE COMPLETED 2-07-81 JOB 18,037

ELEVATIONS

GROUND SURFACE 749.4

END OF BORING 704.4

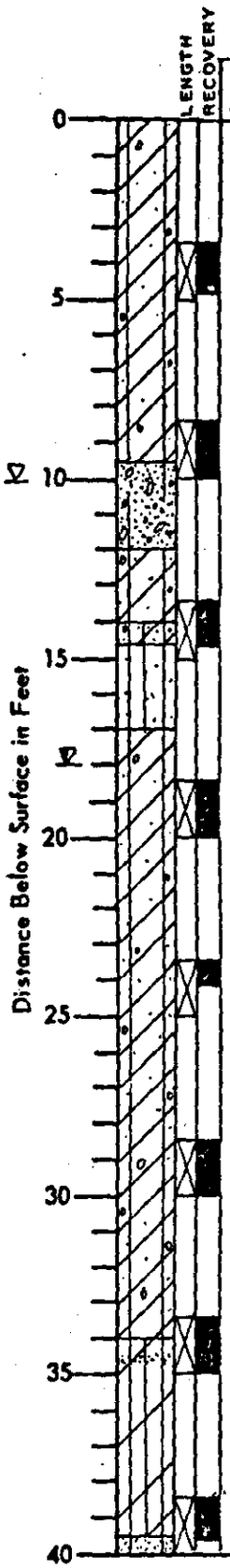
WATER TABLE

AT END OF BORING Cave DRY at -10.0 feet

24 HOURS

WHILE DRILLING -18.0 feet

SHEET 1 OF 2



SAMPLE NO.	TYPE	N	WC	Q_u	DRY	DEPTH	ELEV.	SOIL DESCRIPTIONS
1	SS	22	12.1	3.25*				Very tough to tough gray silty CLAY, little to some sand and gravel, moist (CL)
2a	SS	36	11.3	1.75*				
2b			8.7			9.5	739.9	
								Dense gray fine to coarse SAND and small to large GRAVEL, trace silt, very moist (SW-GW)
						12.0	737.4	Tough gray silty CLAY, some sand and gravel, moist (CL)
3a	SS	65	14.9	1.75*				
3b			9.0	-		14.0	735.4	
3c			16.0	-		14.5	734.9	Very dense gray clayey silty fine to coarse SAND and small to large GRAVEL, very moist (SC-GC)
						17.0	732.4	Dense gray SILT, trace fine sand, very moist (ML)
4	SS	17	15.1	2.5				Tough to hard gray silty CLAY, trace to little sand and gravel, occasional cobbles, moist (CL)
5	SS	44	17.3	1.0				
6	SS	53	12.2	4.5+*				
								*-Approximate unconfined compress strength based on measurements a calibrated pocket penetrometer
7a	SS	14	17.1	1.75*				
7b			19.1	-		34.0	715.4	
7c			14.6	-				
			20.5	-				Firm gray SILT, trace to little clay, wet (ML)
								Thin layer of wet fine to mediu SAND from 34' to 34.7'
8a	SS	14	16.2					
8b			-			39.5	709.9	Firm gray very silty fine SAND, saturated (SM)

Boring Log Continued

TESTING SERVICE CORPORATION

DRILL RIG NO. 60

PROJECT H.O.D. LANDFILL, ANTIOCH, ILLINOIS

CLIENT WASTE MANAGEMENT, INC., 900 JORIE BOULEVARD, OAK BROOK, ILLINOIS 60521

BORING 1101C DATE STARTED 2-07-81 DATE COMPLETED 2-07-81 JOB 18,037

ELEVATIONS

GROUND SURFACE 746.2

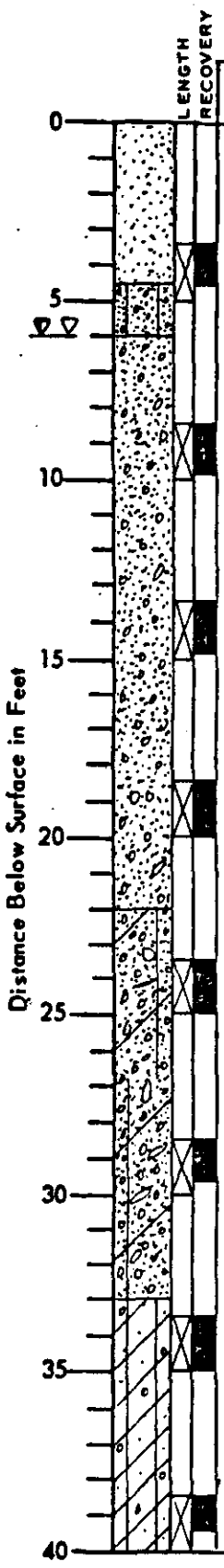
END OF BORING 701.2

WATER TABLE

AT END OF BORING - 6.0 feet

24 HOURS

WHILE DRILLING - 6.0 feet



LENGTH RECOVERY	SAMPLE NO.	TYPE	N	WC	Q_u	γDRY	DEPTH	ELEV.	SOIL DESCRIPTIONS
									Firm gray fine to coarse SAND, damp (SW)
	1a b	SS	19				4.5	741.7	
							6.0	740.2	Firm gray silty fine to coarse SAND, some small gravel, moist (SM)
	2	SS	25						Firm gray fine to coarse SAND and small to medium GRAVEL, saturated (SW-GW)
	3	SS	22						
	4	SS	28						
							22.0	724.2	
	5	SS	32						Dense to firm gray fine to coarse SAND and small GRAVEL, trace silt and clay, saturated (SW)
	6	SS	21						
							33.0	713.2	
	7	SS	26	15.9	2.5*				Very tough to gray silty CLAY, trace sand and gravel, moist (CL)
	8	SS	33	15.4	1.0*				Cobbles from 36' to 37'; occasional gravelly sand seams below 37

*-Approximate unconfined compression strength based on measurements with a calibrated pocket penetrometer.

Boring Log Continued TESTING SERVICE

DRILL RIG NO. 60

PROJECT H.O.D. LANDFILL, ANTIOCH, ILLINOIS

CLIENT WASTE MANAGEMENT, INC., 900 JORIE BOULEVARD, OAK BROOK, ILLINOIS 60521

BORING 1101C(Cont) DATE STARTED 2-07-81 DATE COMPLETED 2-07-81 JOB 18,037

ELEVATIONS

GROUND SURFACE 746.2

END OF BORING 701.2

WATER TABLE

AT END OF BORING - 6.0 feet

24 HOURS

WHILE DRILLING - 6.0 feet

LENGTH	RECOVERY	SAMPLE NO.	TYPE	N	WC	Q_u	γDRY	DEPTH	ELEV.	SOIL DESCRIPTIONS
								41.0	705.2	Tough gray silty CLAY, trace sand and gravel, moist (CL)
		9	SS	18	11.4	1.0*		43.0	703.2	Firm gray medium to coarse SAND, saturated (SP)
										Tough gray silty CLAY, trace sand and gravel, occasional sand and gravel seams, moist (CL)

End of Boring at 45.0 Feet

*-Approximate unconfined compression strength based on measurements with a calibrated pocket penetrometer.

Distance Below Surface in Feet: 40, 45, 50, 55, 60, 65, 70, 75, 80

TESTING SERVICE CORPORATION

DRILL RIG NO. 60

PROJECT H.O.D. LANDFILL, ANTIOCH, ILLINOIS

CLIENT WASTE MANAGEMENT, INC., 900 JORIE BOULEVARD, OAK BROOK, ILLINOIS 60521

BORING 1102 DATE STARTED 2-02-81 DATE COMPLETED 2-02-81 JOB 18,037

ELEVATIONS

GROUND SURFACE 731.0

END OF BORING 711.0

WATER TABLE

AT END OF BORING "DRY"

24 HOURS

WHILE DRILLING "DRY"

Distance Below Surface in Feet: 0, 5, 10, 15, 20, 25, 30, 35, 40

LENGTH	RECOVERY	SAMPLE NO.	TYPE	N	WC	Q_u	% DRY	DEPTH	ELEV.	SOIL DESCRIPTIONS
		1	SS	31	14.2	2.5*				Very tough gray silty CLAY, trace to little sand and gravel, occasional sand seams from 8' to 13', moist (CL)
		2	SS	29	12.3	2.25*				
		3	SS	44	12.9	2.0*				
		4	SS	41	12.1	2.25*				
		End of Boring at 20.0 Feet								

*-Approximate unconfined compression strength based on measurements with a calibrated pocket penetrometer.

TESTING SERVICE CORPORATION

DRILL RIG NO. 91

PROJECT H.O.D. LANDFILL, ANTIOCH, ILLINOIS

CLIENT WASTE MANAGEMENT, INC., 900 JORIE BOULEVARD, OAK BROOK, ILLINOIS 60521

BORING 1103 DATE STARTED 2-02-81 DATE COMPLETED 2-02-81 JOB 18,037

ELEVATIONS

GROUND SURFACE 730.6

END OF BORING 710.6

WATER TABLE

AT END OF BORING "DRY"

24 HOURS

WHILE DRILLING "DRY"

Distance Below Surface in Feet: 0, 5, 10, 15, 20, 25, 30, 35, 40

LENGTH	RECOVERY	SAMPLE NO.	TYPE	N	WC	Q_u	γ_{DRY}	DEPTH	ELEV.	SOIL DESCRIPTIONS
		1	SS	50/5"**	17.6	3.0*				Very tough brownish-gray very silty to silty CLAY, trace sand and gravel, occasional cobbles, moist (CL-ML)
		2	SS	51	17.9	3.5*				
								12.0	718.6	
		3	SS	45	16.8	4.5*				Hard to very tough gray silty CLAY, trace sand and gravel, occasional cobbles, moist (CL)
		4	SS	45	16.8	3.5*				

End of Boring at -20.0 Feet

**Driving on Cobble

*-Approximate unconfined compression strength based on measurements with a calibrated pocket penetrometer.

TESTING SERVICE CORPORATION

DRILL RIG NO. 91

PROJECT H.O.D. LANDFILL, ANTIOCH, ILLINOIS

CLIENT WASTE MANAGEMENT, INC., 900 JORIE BOULEVARD, OAK BROOK, ILLINOIS 60521

BORING 1104 DATE STARTED 2-02-81 DATE COMPLETED 2-02-81 JOB 18,037

ELEVATIONS

GROUND SURFACE 733.3

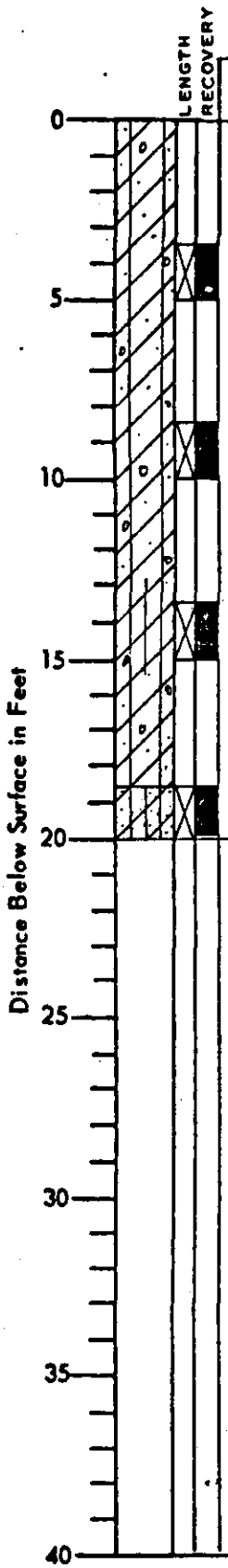
END OF BORING 713.3

WATER TABLE

AT END OF BORING "DRY"

24 HOURS

WHILE DRILLING "DRY"



LENGTH	RECOVERY	SAMPLE NO.	TYPE	N	WC	Q_u	γDRY	DEPTH	ELEV.	SOIL DESCRIPTIONS
		1	SS	28	13.0	2.75*				
		2	SS	60	14.5	3.0*				Very tough gray silty CLAY, trace sand and gravel, moist (CL) Seams of silt and clayey silt from 14' to 14.5'
		3a/b	SS	36	14.4 / 14.8	2.25* / 2.25*				
		4a/b	SS	29	- / 15.8			18.5	714.8	Firm layers of gray SILT, little clay and gray clayey sandy SILT, trace gravel, moist (ML)

End of Boring at -20.0 Feet

*-Approximate unconfined compression strength based on measurements with a calibrated pocket penetrometer.

TESTING SERVICE CORPORATION

DRILL RIG NO. 91

PROJECT H.O.D. LANDFILL, ANTIOCH, ILLINOIS

CLIENT WASTE MANAGEMENT, INC., 900 JORIE BOULEVARD, OAK BROOK, ILLINOIS 60521

BORING 1105 DATE STARTED 2-04-81 DATE COMPLETED 2-04-81 JOB 18.037

ELEVATIONS

GROUND SURFACE 770(estimated)

END OF BORING 720

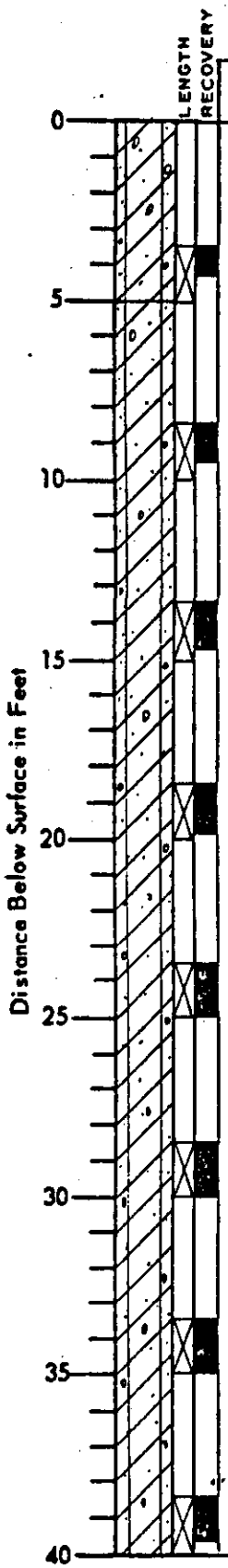
WATER TABLE

AT END OF BORING "DRY"

24 HOURS

WHILE DRILLING "DRY"

SHEET 1 of 2



SAMPLE NO.	TYPE	N	WC	Q_u	% DRY	DEPTH	ELEV.	SOIL DESCRIPTIONS
1	SS	18	16.3			5.0	765	FILL - Brownish-gray silty CLAY, trace sand and gravel (CL)
2	SS	27	18.6	2.25*				
3	SS	14	19.1	2.5*				Very tough gray silty CLAY, trace sand and gravel, moist (CL)
4	SS	19	19.3	3.0*				
5	SS	37	17.5	3.75*				
6	SS	40	18.3	2.5*				
7	SS	29	20.9	2.75*				
8	SS	30	18.0	2.5*				

*-Approximate unconfined compression strength based on measurements with a calibrated pocket penetrometer.

Boring Log Continued

TESTING SERVICE CORPORATION

DRILL RIG NO. 91

PROJECT H.O.D. LANDFILL, ANTIOCH, ILLINOIS

CLIENT WASTE MANAGEMENT, INC., 900 JORIE BOULEVARD, OAK BROOK, ILLINOIS 60521

BORING 1105(Cont) DATE STARTED 2-04-81 DATE COMPLETED 2-04-81 JOB 18,037

ELEVATIONS

GROUND SURFACE 770(estimated)

END OF BORING 720

WATER TABLE

AT END OF BORING "DRY"

24 HOURS

WHILE DRILLING "DRY"

Distance Below Surface in Feet	LENGTH RECOVERY	SAMPLE NO.	TYPE	N	WC	Q_u	γ DRY	DEPTH	ELEV.	SOIL DESCRIPTIONS
40										
45		9	SS	36	20.1	3.0*				Very tough gray silty CLAY, trace sand and gravel, moist (CL)
50		10	SS	30	16.2	3.0*				
		End of Boring at -50.0 Feet								
55										
60										
65										
70										
75										
80										

*-Approximate unconfined compression strength based on measurements with a calibrated pocket penetrometer.

TESTING SERVICE CORPORATION

DRILL RIG NO. 91

PROJECT H.O.D. LANDFILL, ANTIOCH, ILLINOIS

CLIENT WASTE MANAGEMENT, INC., 900 JORIE BOULEVARD, OAK BROOK, ILLINOIS 60521

BORING 1105A DATE STARTED 2-07-81 DATE COMPLETED 2-07-81 JOB 18,037

ELEVATIONS

GROUND SURFACE 767.0

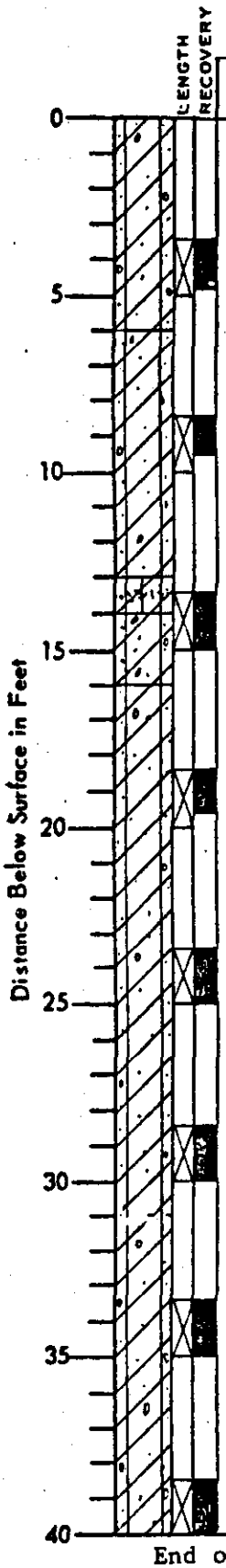
END OF BORING 727.0

WATER TABLE

AT END OF BORING "DRY"

24 HOURS

WHILE DRILLING "DRY"



SAMPLE NO.	TYPE	N	WC	Q_u	% DRY	DEPTH	ELEV.	SOIL DESCRIPTIONS
								Hard brown silty CLAY, little sand, trace gravel, occasional cobbles, moist (CL)
1a	SS	34	15.7	4.5+*				Thin layers of brown silty sandy clay from 4.5' to 5'
1b			15.1	–				
						6.0	761.0	
								Hard brown silty CLAY, little to some sand, trace gravel, occasional clayey sand pockets, moist (CL)
2a	SS	17	–	–				Thin layer of brown silty clayey sand with small gravel from 9' to 9.5'
2b			15.6	4.0*				
						13.0	754.0	
								Tough gray silty CLAY with seams of sandy clayey silt, moist (CL)
3a	SS	17	22.2	1.75*		14.0	753.0	
3b			19.8	2.0*				
								Very tough gray silty CLAY, trace sand, occasional silt partings and cobbles, moist (CL)
						16.0	751.0	
4	SS	23	17.3	3.0*				
								Very tough to hard gray silty CLAY, trace sand and gravel, moist (CL)
5	SS	42	18.5	4.5+*				
6	SS	21	20.5	3.0*				
7	SS	21	20.7	4.25*				
8	SS	36	21.1	3.5*				

*-Approximate unconfined compression strength based on measurements with a calibrated pocket penetrometer.

End of Boring at -40.0 Feet

TESTING SERVICE

DRILL RIG NO. 60

PROJECT H.O.D. LANDFILL, ANTIOCH, ILLINOIS

CLIENT WASTE MANAGEMENT, INC., 900 JORIE BOULEVARD, OAK BROOK, ILLINOIS 60521

BORING 1106 DATE STARTED 2-04-81 DATE COMPLETED 2-05-81 JOB 18,037

ELEVATIONS

GROUND SURFACE 757.5

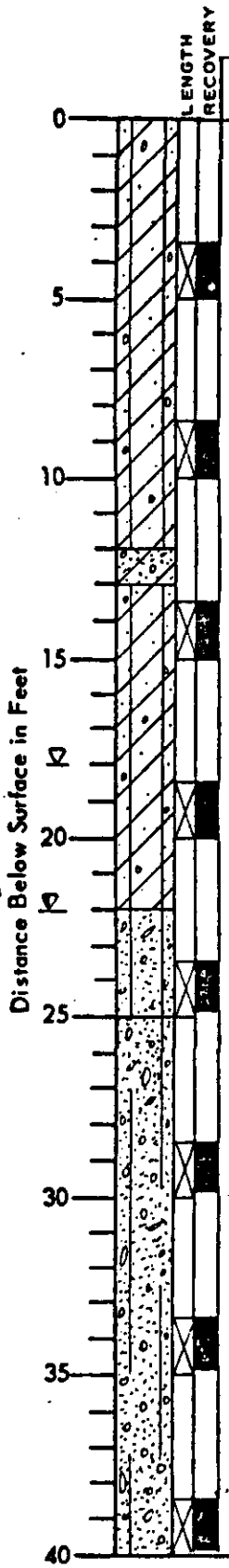
END OF BORING 706.5

WATER TABLE

AT END OF BORING -18.0 feet

24 HOURS

WHILE DRILLING -22.0 feet



SAMPLE NO.	TYPE	N	WC	Q_u	% DRY	DEPTH	ELEV.	SOIL DESCRIPTIONS
1	SS	25	18.4	2.25*				Very tough gray silty CLAY, trace to little sand, trace gravel, moist (CL)
2	SS	23	11.2	2.25*				
						12.0	745.5	
						13.0	744.5	Firm gray SAND, some gravel, trace clay, moist (SW)
3	SS	30	12.7	2.75*				Very tough gray silty to very silty CLAY, trace to some sand, trace gravel, moist (CL)
4	SS	32	11.6	3.0*				
						22.0	735.5	Dense layers of gray silty fine to coarse SAND and gray SILT, wet (SM,ML)
5	SS	40	11.4	2.5*		25.0	732.5	
6	SS	34						Dense to very dense gray fine to coarse SAND and small to large GRAVEL, trace to little silt, saturated (SW-SM/GW-GM)
7	SS	73						
8	SS	69						

*-Approximate unconfined compression strength based on measurements with a calibrated pocket penetrometer.

Boring Log Continued TESTING SERVICE

DRILL RIG NO. 91

PROJECT H.O.D. LANDFILL, ANTIOCH, ILLINOIS

CLIENT WASTE MANAGEMENT, INC., 900 JORIE BOULEVARD, OAK BROOK, ILLINOIS 60521

BORING 1106(Cont) DATE STARTED 2-04-81 DATE COMPLETED 2-05-81 JOB 18,037

ELEVATIONS

GROUND SURFACE 757.5

END OF BORING 706.5

WATER TABLE

AT END OF BORING -18.0 feet

24 HOURS

WHILE DRILLING -22.0 feet

SHEET 2 of 2

Distance Below Surface in Feet	LENGTH RECOVERY	SAMPLE NO.	TYPE	N	WC	Q_u	% DRY	DEPTH	ELEV.	SOIL DESCRIPTIONS
40										
45		9	SS	49						Dense gray fine to coarse SAND and small to medium GRAVEL, trace to little silt, saturated (SW-SC/GW-GM)
								48.0	709.5	
50										Boulder
55										End of Boring at -51.0 Feet Auger Refusal at -51.0 feet attributed to a boulder.
60										
65										
70										
75										
80										

TESTING SERVICE CORPORATION

DRILL RIG NO. 91

PROJECT H.O.D. LANDFILL, ANTIOCH, ILLINOIS

CLIENT WASTE MANAGEMENT, INC., 900 JORIE BOULEVARD, OAK BROOK, ILLINOIS 60521

BORING 1107 DATE STARTED 2-05-81 DATE COMPLETED 2-06-81 JOB 18,037

ELEVATIONS

GROUND SURFACE 731.5

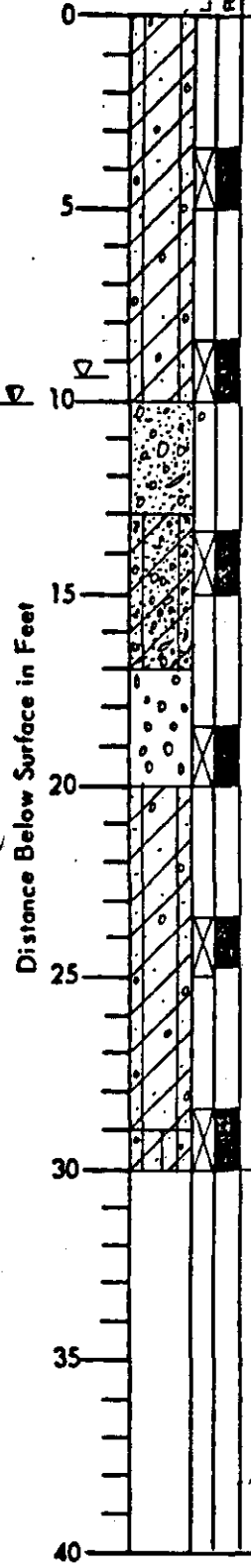
END OF BORING 701.5

WATER TABLE

AT END OF BORING - 9.5 feet

24 HOURS

WHILE DRILLING -10.0 feet



LENGTH	RECOVERY	SAMPLE NO.	TYPE	N	WC	Q_u	DRY	DEPTH	ELEV.	SOIL DESCRIPTIONS
		1	SS	34	16.8	2.25*				Very tough gray silty CLAY, trace sand and gravel, moist (CL)
		2	SS	40	16.0	3.25*				
								10.0	721.5	Dense gray fine to medium SAND, trace small gravel, saturated (SP)
		3	SS	31				13.0	718.5	Dense gray silty clayey fine to coarse SAND and small GRAVEL, very moist to wet (SM-SC)
								17.0	714.5	Dense gray medium to coarse SAND and small GRAVEL, occasional cobbles, saturated (SW-GW)
		4	SS	32				20.0	711.5	
		5	SS	17	24.1	3.25				Tough to hard gray silty CLAY, trace to little sand, trace gravel, moist (CL)
		6a	SS	29	28.6	1.5		29.0	702.5	
		6b			11.6	-				Firm gray clayey SILT, trace sand and gravel, layer of gray sandy silt from 29' to 29.5', moist (ML)
		6c			11.2	4.0*				

End of Boring at 30.0 Feet

*-Approximate unconfined compression strength based on measurements with a calibrated pocket penetrometer.

TESTING SERVICE CORPORATION

DRILL RIG NO. 91 & 60

PROJECT H.O.D. LANDFILL, ANTIOCH, ILLINOIS

CLIENT WASTE MANAGEMENT, INC., 900 JORIE BOULEVARD, OAK BROOK, ILLINOIS 60521

BORING 1107A DATE STARTED 2-06-81 DATE COMPLETED 2-06-81 JOB 18,037

ELEVATIONS

GROUND SURFACE Not Available

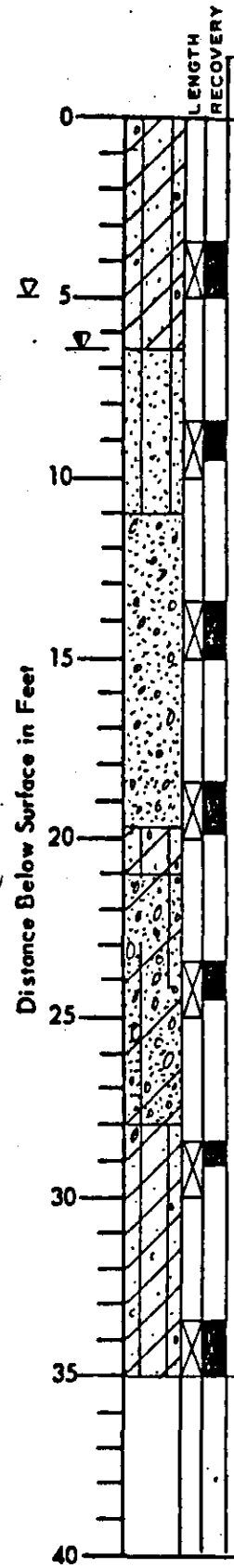
END OF BORING

WATER TABLE

AT END OF BORING - 5.0 feet

24 HOURS

WHILE DRILLING - 6.5 feet



LENGTH RECOVERY	SAMPLE NO.	TYPE	N	WC	Q_u	γDRY	DEPTH	ELEV.	SOIL DESCRIPTIONS
	1	SS	33	12.9	4.5+*				Hard gray silty CLAY, little sand, trace gravel, occasional silt pockets, moist (CL)
							6.5		
	2	SS	16						Firm gray silty fine to coarse SAND, wet (SM)
							11.0		
	3	SS	29						Firm gray medium to coarse SAND and small to medium GRAVEL, saturated (SW-GW)
	4a b	SS	18	9.6			19.7		
							21.0		Gray sandy silty CLAY with gravel, moist (CL)
	5	SS	56						Very dense gray fine to coarse SAND and small to large GRAVEL, trace silt and clay, saturated (SW-GW)
							28.0		
	6	SS	30	20.0	2.0*				Very tough to tough gray silty CLAY, trace to little sand, trace gravel, moist (CL)
	7	SS	27	18.0	1.6*				

End of Boring at 35.0 Feet

*-Approximate unconfined compression strength based on measurements with a calibrated pocket penetrometer.

TESTING SERVICE CORPORATION

DRILL RIG NO. 60

PROJECT H.O.D. LANDFILL, ANTIOCH, ILLINOIS

CLIENT WASTE MANAGEMENT, INC., 900 JORIE BOULEVARD, OAK BROOK, ILLINOIS 60521

BORING 1108 DATE STARTED 2-06-81 DATE COMPLETED 2-06-81 JOB 18,037

ELEVATIONS

GROUND SURFACE 732.6

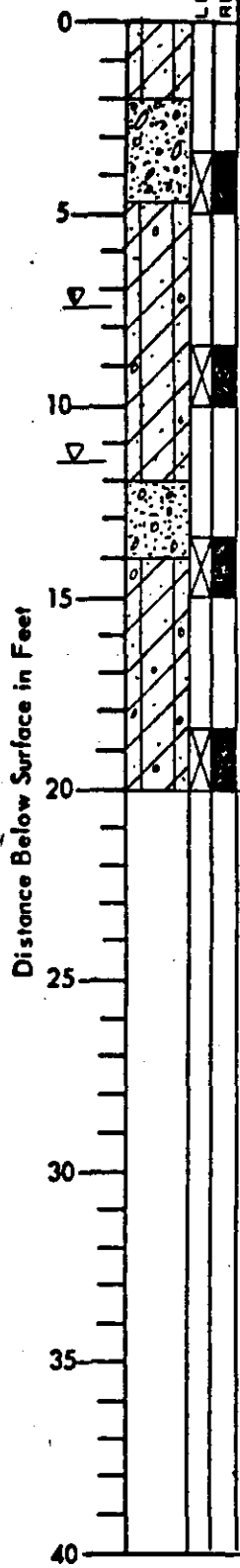
END OF BORING 712.6

WATER TABLE

AT END OF BORING -11.5 feet

24 HOURS

WHILE DRILLING - 7.5 feet



LENGTH	RECOVERY	SAMPLE NO.	TYPE	N	WC	Q_u	% DRY	DEPTH	ELEV.	SOIL DESCRIPTIONS
										Gray silty sandy CLAY, moist (CL)
								2.0	730.6	
										Firm gray fine to coarse SAND and small to large GRAVEL, very moist (SW-GW)
		1 a/b	SS	28	16.5	2.5*		4.7	727.9	
										Very tough gray silty CLAY, trace sand and gravel, occasional silt seams, moist (CL)
		2	SS	23	17.7	2.75*				
								12.0	720.6	
										Dense gray fine to coarse SAND, some small to medium gravel, wet (SW
		3 a/b	SS	31	18.0	2.25*		14.0	718.6	
										Very tough gray silty CLAY, trace sand and gravel, occasional silt pockets, moist (CL)
		4	SS	22	15.8	2.5*				
		End of Boring at -20.0 Feet								

*-Approximate unconfined compression strength based on measurements with a calibrated pocket penetrometer.

TESTING SERVICE CORPORATION

DRILL RIG NO. 60

PROJECT H.O.D. LANDFILL, ANTIOCH, ILLINOIS

CLIENT WASTE MANAGEMENT, INC., 900 JORIE BOULEVARD, OAK BROOK, ILLINOIS 60521

BORING 1109 DATE STARTED 2-06-81 DATE COMPLETED 2-06-81 JOB 18,037

ELEVATIONS

GROUND SURFACE 734.6

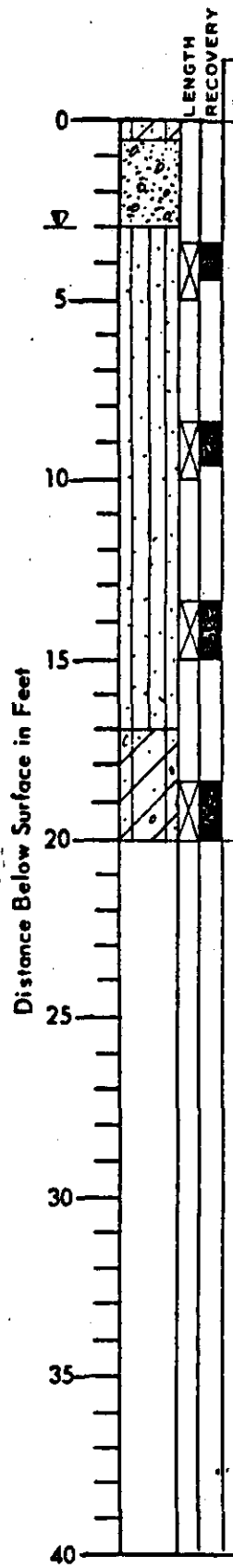
END OF BORING 714.6

WATER TABLE

AT END OF BORING "DRY"

24 HOURS

WHILE DRILLING - 3.0 feet



LENGTH	RECOVERY	SAMPLE NO.	TYPE	N	WC	Q_u	% DRY	DEPTH	ELEV.	SOIL DESCRIPTIONS
								0.5	734.1	Gray silty CLAY, little sand, moist (C
										Gray SAND, some gravel, a few cobbles, very moist to wet (SW)
								3.0	731.6	
		1	SS	27						Firm to dense gray SILT, trace to little fine sand, very moist (ML)
		2	SS	36						
		3	SS	42						
								17.0	717.6	
		4a	SS	39	14.2	4.5+*				Hard gray silty CLAY, trace sand and gravel, moist; occasional sandy silt pockets below 19' (CL)
		4b			14.2	4.0*				

End of Boring at 20.0 Feet

*-Approximate unconfined compression strength based on measurements with a calibrated pocket penetrometer.

TESTING SERVICE CORPORATION

DRILL RIG NO. 60

PROJECT H.O.D. LANDFILL, ANTIOCH, ILLINOIS

CLIENT WASTE MANAGEMENT, INC., 900 JORIE BOULEVARD, OAK BROOK, ILLINOIS 60521

BORING 1110 DATE STARTED 2-06-81 DATE COMPLETED 2-06-81 JOB 18,037

ELEVATIONS

GROUND SURFACE 763.0

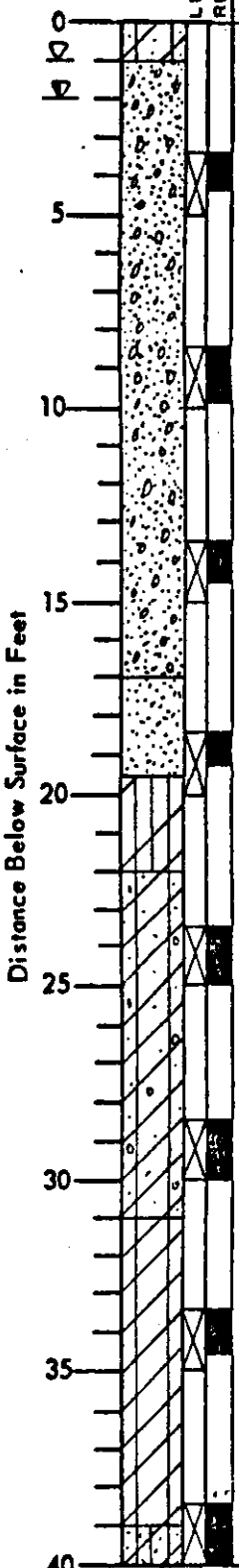
END OF BORING 723.0

WATER TABLE

AT END OF BORING - 1.0 feet

24 HOURS

WHILE DRILLING - 2.0 feet



LENGTH RECOVERY	SAMPLE NO.	TYPE	N	WC	Q_u	% DRY	DEPTH	ELEV.	SOIL DESCRIPTIONS
							1.0	762.0	Gray silty CLAY, some sand, moist (CL
	1	SS	14						Firm to dense gray fine to coarse SAND and small to medium GRAVEL, saturated (SW-GW)
	2	SS	18						
	3	SS	32/10**						
							17.0	746.0	Very dense gray fine to medium SAND, saturated (SP)
	4a b	SS	51	- 10.0			19.5	743.5	Dense gray SILT, little clay, very moist (ML)
							22.0	741.0	
	5	SS	32	15.0	3.5*				Very tough to hard gray silty CLAY, trace sand and gravel, moist (CL)
	6	SS	40	16.5	4.5+*				
							31.0	732.0	
	7	SS	10	27.4	1.75*				Tough to very tough gray silty CLAY, moist (CL)
	8a b c	SS	15	13.7 - 14.4	2.5* - -		39.0	724.0	Layers of gray sandy (fine) SILT, wet and gray SILT, little clay and fine sand, very moist (ML)

*-Approximate unconfined compression strength based on measurements with a calibrated pocket penetrometer.

End of Boring at -40.0 feet

**Driving on lg. grvl. or cobble

DRILL RIG NO. 60

Note: Spoil material around H.S. auger started subsiding down bore hole after drilling to 26'

PROJECT H.O.D. LANDFILL, ANTIOCH, ILLINOIS

CLIENT WASTE MANAGEMENT, INC., 900 JORIE BOULEVARD, OAK BROOK, ILLINOIS 60521

BORING 1111 DATE STARTED 2-12-81 DATE COMPLETED 2-12-81 JOB 18,037

ELEVATIONS

GROUND SURFACE 782.6

END OF BORING 762.6

WATER TABLE

AT END OF BORING -12.0'

24 HOURS

While Drilling -12.0'

SAMPLE NO.	TYPE	N	WC	Q_u	% DRY	DEPTH	ELEV.	SOIL DESCRIPTIONS
1	SS	14	12.1					FILL - Gray silty CLAY, trace sand and gravel (CL)
						7.5	775.1	
2	SS	18	14.6					REFUSE - WOOD, PAPER, SLUDGE, DRYWALL, METAL SCRAP, PLASTIC AND MISC. GARBAGE with layers of silty clay
3	SS	14	26.2					
4	SS	11	27.3					

End of Boring at 20.0 feet

Distance Below Surface in Feet: 0, 5, 10, 15, 20, 25, 30, 35, 40

TESTING SERVICE CORPORATION

DRILL RIG NO. 53

PROJECT H.O.D. LANDFILL, ANTIOCH, ILLINOIS

CLIENT WASTE MANAGEMENT, INC., 900 JORIE BOULEVARD, OAK BROOK, ILLINOIS 60521

BORING 1111A DATE STARTED 2-12-81 DATE COMPLETED 2-12-81 JOB 18,037

ELEVATIONS

GROUND SURFACE 778.6

END OF BORING 728.6

WATER TABLE

AT END OF BORING "DRY"

24 HOURS

While Drilling "DRY"

Distance Below Surface in Feet: 0, 5, 10, 15, 20, 25, 30, 35, 40

SAMPLE NO.	TYPE	N	WC	Q_u	▽ DRY	DEPTH	ELEV.	SOIL DESCRIPTIONS
1	SS	17	18.3 14.6					FILL - Gray silty CLAY, trace sand and gravel (CL)
2	SS	18	13.7					
						12.0	766.6	
3	SS	25	12.0					FILL - Gray clayey SILT (ML)
						15.0	763.6	
4	SS	24	19.9	2.0*				Very tough gray very silty CLAY, some fine sand, trace roots (CL)
						20.5	758.1	
5	SS	21	14.7	3.75*				Very tough brownish-gray silty CLAY, trace sand and gravel, moist (CL)
						26.0	752.6	
6	SS	22	16.5	4.5*				Hard to tough gray silty CLAY, trace sand and gravel, moist (CL)
7	SS	20	17.7	2.0*				
8	SS	16	16.8	1.75*				

*-Approximate unconfined compression strength based on measurements with a calibrated pocket penetrometer.

Boring Log Continued

DRILL RIG NO. 53

TESTING SERVICE CORPORATION

PROJECT H.O.D. LANDFILL, ANTIOCH, ILLINOIS

CLIENT WASTE MANAGEMENT, INC., 900 JORIE BOULEVARD, OAK BROOK, ILLINOIS 60521

BORING 1111A(Cont'd.) DATE STARTED 2-12-81 DATE COMPLETED 2-12-81 JOB 18,037

ELEVATIONS

GROUND SURFACE 778.6

END OF BORING 728.6

WATER TABLE

AT END OF BORING "DRY"

24 HOURS

While Drilling "DRY"

SHEET 2 of 2

Distance Below Surface in Feet	LENGTH RECOVERY	SAMPLE NO.	TYPE	N	WC	Q_u	γDRY	DEPTH	ELEV.	SOIL DESCRIPTIONS
40										
45		9	SS	21	17.4	2.5*				Very tough gray silty CLAY, trace sand and gravel, moist (CL)
50		10	SS	24	15.7	2.25*				
		End of Boring at 50.0 feet								
55										
60										
65										
70										
75										
80										

*-Approximate unconfined compression strength based on measurements with a calibrated pocket penetrometer.

TESTING SERVICE CORPORATION

DRILL RIG NO. 53

PROJECT H.O.D. LANDFILL, ANTIOCH, ILLINOIS

CLIENT WASTE MANAGEMENT, INC., 900 JORIE BOULEVARD, OAK BROOK, ILLINOIS 60521

BORING 1201 DATE STARTED 2-09-81 DATE COMPLETED 2-09-81 JOB 18,037

ELEVATIONS

GROUND SURFACE 746.0

END OF BORING 701.0

WATER TABLE

AT END OF BORING "DRY"

24 HOURS

WHILE DRILLING "DRY"

Distance Below Surface in Feet: 0, 5, 10, 15, 20, 25, 30, 35, 40

LENGTH RECOVERY	SAMPLE NO.	TYPE	N	WC	Q_u	% DRY	DEPTH	ELEV.	SOIL DESCRIPTIONS
	1	SS	19	12.6	2.0*				Very tough gray sandy silty CLAY, a few fine sand seams, trace gravel, moist (CL)
							6.0	740.0	
	2	SS	20						Gray sandy very silty CLAY with considerable small gravel, moist (CL)
							11.0	735.0	
	3	SS	28	17.6	2.5*				Very tough gray silty CLAY, trace sand and gravel, moist (CL)
	4	SS	25	16.9	2.5*				
							22.0	724.0	
	5	SS	23	15.7					Firm gray clayey SILT, trace sand, moist (ML)
							27.0	719.0	
	6	SS	36	15.4	3.25*				Very tough gray silty CLAY, trace sand and gravel, moist (CL)
	7	SS	18	15.7	3.75*				
							37.0	709.0	Hard brownish-gray silty CLAY, trace sand and gravel, moist (CL)
	8	SS	26	17.1	4.5*				

Boring Log Continued

TESTING SERVICE

DRILL RIG NO. 60

PROJECT H.O.D. LANDFILL, ANTIOCH, ILLINOIS

CLIENT WASTE MANAGEMENT, INC., 900 JORIE BOULEVARD, OAK BROOK, ILLINOIS 60521

BORING 1201(Cont) DATE STARTED 2-09-81 DATE COMPLETED 2-09-81 JOB 18.037

ELEVATIONS

GROUND SURFACE 746.0

END OF BORING 701.0

WATER TABLE

AT END OF BORING "DRY"

24 HOURS

WHILE DRILLING "DRY"

Distance Below Surface in Feet	LENGTH	RECOVERY	SAMPLE NO.	TYPE	N	WC	Q_u	% DRY	DEPTH	ELEV.	SOIL DESCRIPTIONS
40											Very tough gray silty CLAY, trace sand, moist (CL)
45			9	SS	16		2.25*				
			End of Boring at 45.0 feet								
50											
55											
60											
65											
70											
75											
80											

*-Approximate unconfined compression strength based on measurements with a calibrated pocket penetrometer.

TESTING SERVICE CORPORATION

DRILL RIG NO. 60

PROJECT H.O.D. LANDFILL, ANTIOCH, ILLINOIS

CLIENT WASTE MANAGEMENT, INC., 900 JORIE BOULEVARD, OAK BROOK, ILLINOIS 60521

BORING 1202 DATE STARTED 2-09-81 DATE COMPLETED 2-09-81 JOB 18,037

ELEVATIONS

GROUND SURFACE 738.4

END OF BORING 693.4

WATER TABLE

AT END OF BORING -10.0 feet

24 HOURS

WHILE DRILLING -17.0 feet

Distance Below Surface in Feet: 0, 5, 10, 15, 20, 25, 30, 35, 40

LENGTH RECOVERY	SAMPLE NO.	TYPE	N	WC	Q_u	% DRY	DEPTH	ELEV.	SOIL DESCRIPTIONS
	1	SS	19	20.9	2.25*				Very tough to tough gray silty CLAY, trace to little sand and gravel, occasional silt seams from 2' to 7', moist (CL)
	2	SS	16	19.0	1.75*				
	3	SS	13	20.4	2.0*				
							17.0	721.4	
	4	SS	23						Firm gray medium to coarse SAND, little small gravel above 22' and below 28', saturated (SP)
	5	SS	29						
	6a b	SS	46				29.5	708.9	
	7	SS	44						Dense gray fine to coarse SAND and small to large GRAVEL, trace clay, saturated (SW-SC/GW-G
	8	SS	43						

*-Approximate unconfined compression strength based on measurements with a calibrated pocket penetrometer

Boring Log Contiued

TESTING SERVICE CORPORATION

DRILL RIG NO. 60

PROJECT H.O.D. LANDFILL, ANTIOCH, ILLINOIS

CLIENT WASTE MANAGEMENT, INC., 900 JORIE BOULEVARD, OAK BROOK, ILLINOIS 60521

BORING 1203 DATE STARTED 2-09-81 DATE COMPLETED 2-09-81 JOB 18,037

ELEVATIONS

GROUND SURFACE 744.3

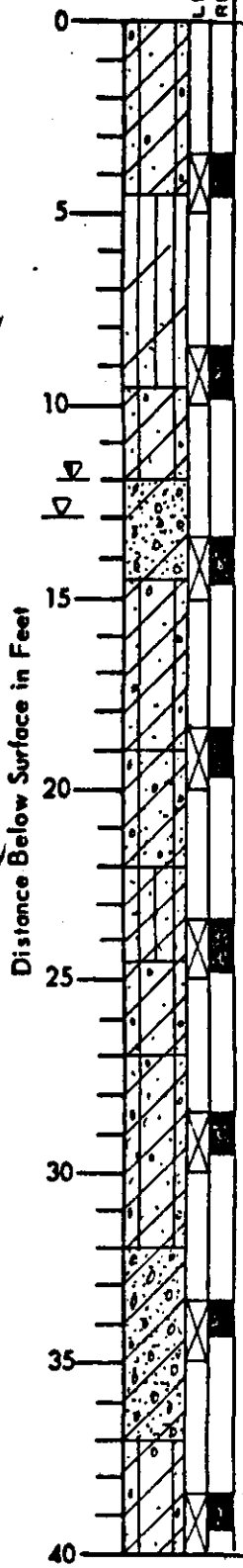
END OF BORING 699.3

WATER TABLE

AT END OF BORING -13.0 feet

24 HOURS

WHILE DRILLING -12.0 feet



SAMPLE NO.	TYPE	N	WC	Q_u	% DRY	DEPTH	ELEV.	SOIL DESCRIPTIONS
								Tough gray silty CLAY, trace sand and gravel, moist (CL)
1 a/b	SS	18	18.2 –	1.5* –		4.5	739.8	
								Firm gray SILT, trace fine sand, little clay below 6', very moist (ML)
2 a/b	SS	15	– 23.8	– 2.0*		9.5	734.8	
								Very tough gray silty CLAY, trace sand and gravel, moist (CL)
						12.0	732.3	
								Firm gray fine to coarse SAND and small to medium GRAVEL, trace clay, saturated (SW-GW)
3 a/b	SS	16	– 12.9	– 2.25*		14.5	729.8	
								Very tough gray silty CLAY, some to trace sand and gravel, occasional sand seams, moist (CL)
4 a/b	SS	26	12.8 13.4	2.5* 1.5*		19.0	725.3	
								Tough gray silty very sandy and gravelly CLAY, moist (CL)
						22.0	722.3	
								Firm gray sandy clayey SILT, moist (ML)
5 a/b	SS	12	17.0 17.1	– 2.5*		24.5	719.8	
								Very tough gray silty CLAY, trace sand and gravel, occasional silt pockets, moist (CL)
						27.0	717.3	
6	SS	37	14.9	2.25*				Very tough gray silty CLAY, some gravel, trace sand, moist (CL)
						32.0	712.3	
7	SS	25	11.3					Firm gray clayey SAND and GRAVEL, wet (SC)
						37.0	707.3	
8	SS	24	15.9	1.5*				Tough gray silty CLAY, trace sand and gravel, moist (CL)

*Approximate unconfined compression strength based on measurements with a calibrated pocket penetrometer.

Boring Log Continued

TESTING SERVICE

DRILL RIG NO. 60

PROJECT H.O.D. LANDFILL, ANTIOCH, ILLINOIS

CLIENT WASTE MANAGEMENT, INC., 900 JORIE BOULEVARD, OAK BROOK, ILLINOIS 60521

BORING 1202(Cont) DATE STARTED 2-09-81 DATE COMPLETED 2-09-81 JOB 18,037

ELEVATIONS

GROUND SURFACE 738.4

END OF BORING 693.4

WATER TABLE

AT END OF BORING -10.0 feet

24 HOURS

WHILE DRILLING -17.0 feet

Distance Below Surface in Feet	LENGTH RECOVERY	SAMPLE NO.	TYPE	N	WC	Q_u	γ DRY	DEPTH	ELEV.	SOIL DESCRIPTIONS
40								42.0	696.4	Dense gray fine to coarse SAND and small to large GRAVEL, trace clay, saturated (SW-SC/GW-GC)
45		9	SS	50	16.8					Very dense gray SILT, trace fine sand, wet (ML)
50										
55										
60										
65										
70										
75										
80										

End of Boring at -45.0 Feet

TESTING SERVICE CORPORATION

DRILL RIG NO. 60

PROJECT H.O.D. LANDFILL, ANTIOCH, ILLINOIS

CLIENT WASTE MANAGEMENT, INC., 900 JORIE BOULEVARD, OAK BROOK, ILLINOIS 60521

BORING 1203(Cont) DATE STARTED 2-09-81 DATE COMPLETED 2-09-81 JOB 18,037

ELEVATIONS

GROUND SURFACE 744.3

END OF BORING 699.3

WATER TABLE

AT END OF BORING -13.0 feet

24 HOURS

WHILE DRILLING -12.0 feet

Distance Below Surface in Feet	LENGTH RECOVERY	SAMPLE NO.	TYPE	N	WC	Q_u	% DRY	DEPTH	ELEV.	SOIL DESCRIPTIONS
40										Very tough gray silty CLAY, occasional silt seams, moist (CL)
45		9	SS	21		2.0*				
		End of Boring at -45.0 Feet								
50										
55										
60										
65										
70										
75										
80										

*-Approximate unconfined compression strength based on measurements with a calibrated pocket penetrometer.

TESTING SERVICE CORPORATION

DRILL RIG NO. 60

PROJECT H.O.D. LANDFILL, ANTIOCH, ILLINOIS

CLIENT WASTE MANAGEMENT, INC., 900 JORIE BOULEVARD, OAK BROOK, ILLINOIS 60521

BORING 1204 DATE STARTED 2-09-81 DATE COMPLETED 2-09-81 JOB 18,037

ELEVATIONS

GROUND SURFACE 741.4

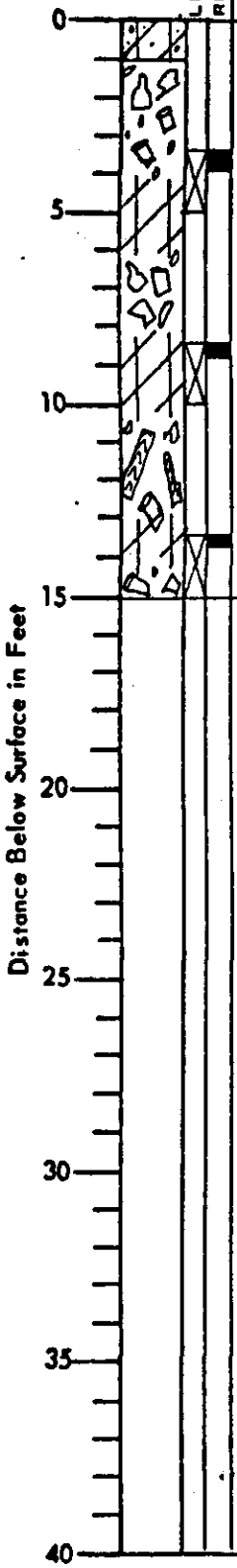
END OF BORING 726.4

WATER TABLE

AT END OF BORING "DRY"

24 HOURS

WHILE DRILLING "DRY"



LENGTH RECOVERY	SAMPLE NO.	TYPE	N	WC	Q_u	γ_{DRY}	DEPTH	ELEV.	SOIL DESCRIPTIONS
							1.0	740.4	FILL - Gray silty CLAY, trace sand and gravel, (CL)
	1	SS	33						REFUSE - CARDBOARD, WOOD, PAPER, METAL SCRAP and miscellaneous GARBAGE with layers of silty clay
	2	SS	24						
	3	SS	20						
	End of Boring at -15.0 Feet								

TESTING SERVICE CORPORATION

DRILL RIG NO. 60

PROJECT H.O.D. LANDFILL, ANTIOCH, ILLINOIS

CLIENT WASTE MANAGEMENT, INC., 900 JORIE BOULEVARD, OAK BROOK, ILLINOIS 60521

BORING 1205 DATE STARTED 2-13-81 DATE COMPLETED 2-13-81 JOB 18,037

ELEVATIONS

GROUND SURFACE 744.0

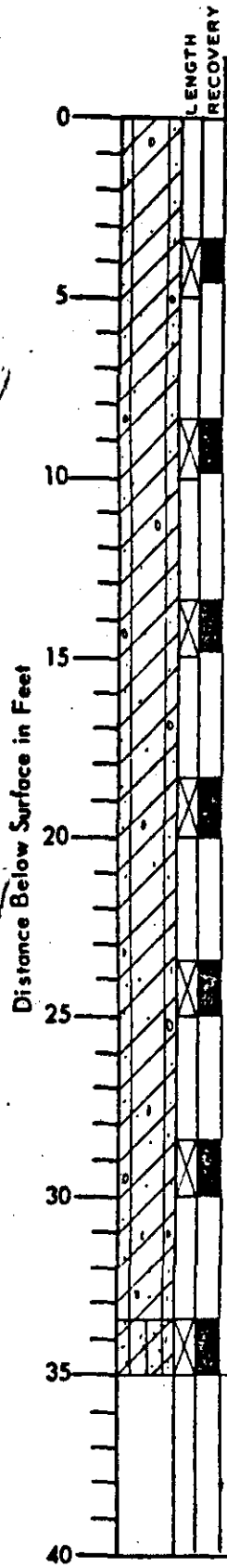
END OF BORING 709.0

WATER TABLE

AT END OF BORING "DRY"

24 HOURS

While Drilling "DRY"



SAMPLE NO.	TYPE	N	WC	Q_u	% DRY	DEPTH	ELEV.	SOIL DESCRIPTIONS
1	SS	16	16.1	3.25*				
2	SS	16	16.7	3.25*				
3	SS	21	15.8	3.0*				Very tough gray silty CLAY, trace sand and gravel, occasional seams and pockets of silt; verticle silt seams in Sample 5, moist (CL)
4	SS	20	16.4	2.5*				
5	SS	21	17.0	3.0*				
6	SS	17	15.6	3.5*				
7	SS	30				33.5	710.5	Dense gray clayey SILT, trace sand, occasional silt seams, moist (ML)

End of Boring at 35.0 feet

*Approximate unconfined compression strength based on measurements with a calibrated pocket penetrometer.

TESTING SERVICE CORPORATION

DRILL RIG NO. 53

PROJECT H.O.D. LANDFILL, ANTIOCH, ILLINOIS

CLIENT WASTE MANAGEMENT, INC., 900 JORIE BOULEVARD, OAK BROOK, ILLINOIS 60521

BORING 1206 DATE STARTED 2-13-81 DATE COMPLETED 2-13-81 JOB 18,037

ELEVATIONS

GROUND SURFACE 752.4

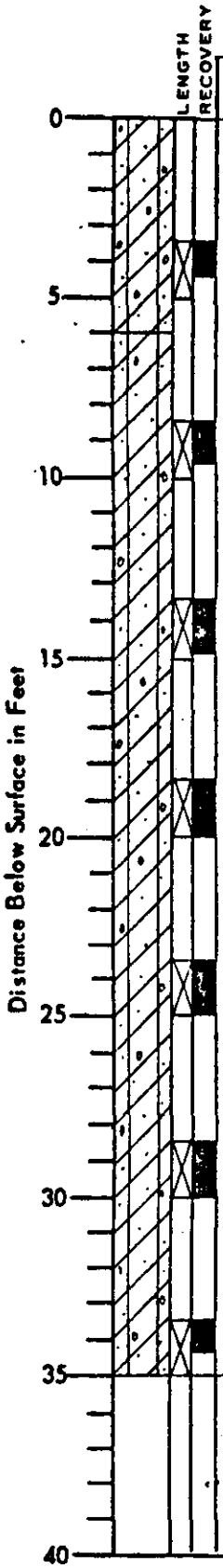
END OF BORING 717.4

WATER TABLE

AT END OF BORING "DRY"

24 HOURS

While Drilling "DRY"



LENGTH RECOVERY	SAMPLE NO.	TYPE	N	WC	Q_u	% DRY	DEPTH	ELEV.	SOIL DESCRIPTIONS
	1	SS	26	11.7					FILL - Brown, gray and black silty CLAY, some sand, trace gravel (CL)
							6.0	746.4	
	2	SS	13	16.8	3.0*				Very tough gray silty CLAY, trace sand and gravel, occasional silt seams, moist (CL)
	3	SS	14	18.2	2.0*				
	4	SS	15	18.0	2.25*				
	5	SS	18	17.0	2.0*				
	6	SS	15	18.2	2.25*				
	7	SS	18	16.7	2.75*				
	End of Boring at 35.0 feet								

*-Approximate unconfined compression strength based on measurements with a calibrated pocket penetrometer.

TESTING SERVICE CORPORATION

DRILL RIG NO. 53

PROJECT H.O.D. LANDFILL, ANTIOCH, ILLINOIS

CLIENT WASTE MANAGEMENT, INC., 900 JORIE BOULEVARD, OAK BROOK, ILLINOIS 60521

BORING 1207 DATE STARTED 2-13-81 DATE COMPLETED 2-13-81 JOB 18,037

ELEVATIONS

GROUND SURFACE 763.0

END OF BORING 718.0

WATER TABLE

AT END OF BORING "DRY"

24 HOURS

While Drilling "DRY"

Distance Below Surface in Feet: 0, 5, 10, 15, 20, 25, 30, 35, 40

LENGTH RECOVERY	SAMPLE NO.	TYPE	N	WC	Q_u	% DRY	DEPTH	ELEV.	SOIL DESCRIPTIONS
	1	SS	22	15.6					Brown sandy silty CLAY, moist (CL)
							6.0	757.0	
	2	SS	22						Firm gray silty fine to coarse SAND, trace small gravel, moist (SM)
							13.0	750.0	
	3	SS	21						Firm gray fine SAND, trace silt, moist (SP-SM)
							18.0	745.0	
	4	SS	32						Dense to firm gray gravelly (small to medium) fine to coarse SAND, occasional clayey sand pockets, moist (SW)
	5	SS	25						
							27.0	736.0	
	6	SS	16	17.6	2.25*				Very tough to hard gray silty CLAY, trace to little sand, trace gravel, occasional silt pockets, moist (CL)
	7	SS	18	17.1	2.25*				
	8	SS	26	14.2	4.5+*				

*-Approximate unconfined compression strength based on measurements with a calibrated pocket penetrometer.

Boring Log Continued

DRILL RIG NO. 53

TESTING SERVICE CORPORATION

PROJECT H.O.D. LANDFILL, ANTIOCH, ILLINOIS

CLIENT WASTE MANGEMENT, INC., 900 JORIE BOULEVARD, OAK BROOK, ILLINOIS 60521

BORING 1207 (Cont'd.) DATE STARTED 2-13-81 DATE COMPLETED 2-13-81 JOB 18,037

ELEVATIONS

GROUND SURFACE 763.0

END OF BORING 718.0

WATER TABLE

AT END OF BORING "DRY"

24 HOURS

While Drilling "DRY"

Distance Below Surface in Feet	LENGTH RECOVERY	SAMPLE NO.	TYPE	N	WC	Q_u	% DRY	DEPTH	ELEV.	SOIL DESCRIPTIONS
40										Hard brownish-gray silty CLAY, trace sand and gravel, moist (CL)
45		9	SS	34	18.5	4.5+*				
		End of Boring at 45.0 feet								
50										
55										
60										
65										
70										
75										
80										

*-Approximate unconfined compression strength based on measurements with a calibrated pocket penetrometer.

TESTING SERVICE CORPORATION

DRILL RIG NO. 53

PROJECT H.O.D. LANDFILL, ANTIOCH, ILLINOIS

CLIENT WASTE MANAGEMENT, INC., 900 JORIE BOULEVARD, OAK BROOK, ILLINOIS 60521

BORING 1208 DATE STARTED 2-13-81 DATE COMPLETED 2-13-81 JOB 18,037

ELEVATIONS

GROUND SURFACE 743.9

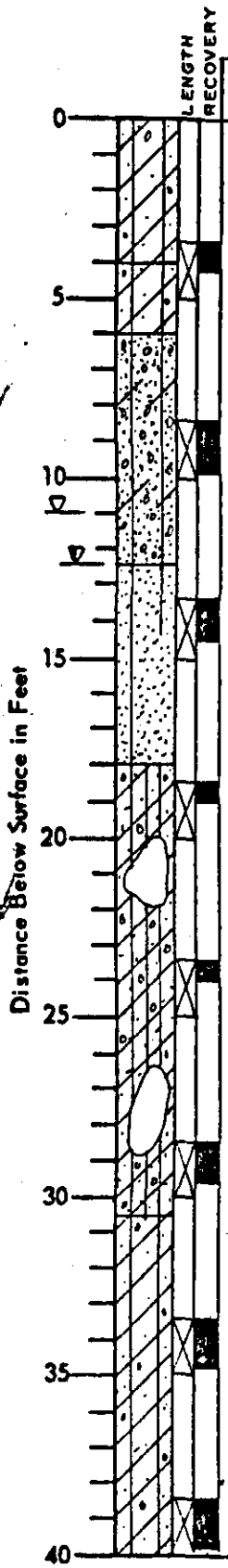
END OF BORING 698.9

WATER TABLE

AT END OF BORING -11.0'

24 HOURS

While Drilling -12.5'



LENGTH RECOVERY	SAMPLE NO.	TYPE	N	WC	Q_u	DRY	DEPTH	ELEV.	SOIL DESCRIPTIONS
							0		FILL - Gray and brown silty CLAY, trace sand and gravel (CL)
	1	SS	12	17.8	1.0*		4.0	739.9	
							6.0	737.9	Tough gray silty CLAY, trace sand and gravel, moist (CL)
	2	SS	28	13.5					Firm gray silty fine to coarse SAND and small GRAVEL with pockets of silty clay, moist (SM-GM)
							12.5	731.4	
	3	SS	15						Firm gray fine SAND, trace silt, wet (SP-SM)
							18.0	725.9	
	4	SS	54	20.4					Very dense to firm gray clayey sandy SILT, some gravel, occasional cobbles and boulders; layer of silt from 28.5' to 30.5', very moist (ML)
	5	SS	24	13.4					
	6	SS	51						
							30.5	713.4	Very tough gray silty CLAY, trace sand and gravel, moist (CL)
	7	SS	31	16.6	2.75*				
	8	SS	29	17.0	2.75*				

*-Approximate unconfined compression strength based on measurements with a calibrated pocket penetrometer.

Boring Log Continued

DRILL RIG NO. 53

TESTING SERVICE CORPORATION

PROJECT H.O.D. LANDFILL, ANTIOCH, ILLINOIS

CLIENT WASTE MANAGEMENT, INC., 900 JORIE BOULEVARD, OAK BROOK, ILLINOIS 60521

BORING 1208(Cont'd.) DATE STARTED 2-13-81 DATE COMPLETED 2-13-81 JOB 18,037

ELEVATIONS

GROUND SURFACE 743.9

END OF BORING 698.9

WATER TABLE

AT END OF BORING -11.0'

24 HOURS

While Drilling -12.5'

Distance Below Surface in Feet	LENGTH RECOVERY	SAMPLE NO.	TYPE	N	WC	Q_u	% DRY	DEPTH	ELEV.	SOIL DESCRIPTIONS
40										
										Very tough gray silty CLAY, trace sand and gravel, moist (CL)
45		9	SS	32	16.8	3.25*				
		End of Boring at 45.0 feet								
50										
55										
60										
65										
70										
75										
80										

*-Approximate unconfined compression strength based on measurements wit a calibrated pocket penetrometer.

TESTING SERVICE CORPORATION

DRILL RIG NO. 53

PROJECT H.O.D. LANDFILL, ANTIOCH, ILLINOIS

CLIENT WASTE MANAGEMENT, INC., 900 JORIE BOULEVARD, OAK BROOK, ILLINOIS 60521

BORING 1209 DATE STARTED 2-16-81 DATE COMPLETED 2-16-81 JOB 18,037

ELEVATIONS

GROUND SURFACE 756.1

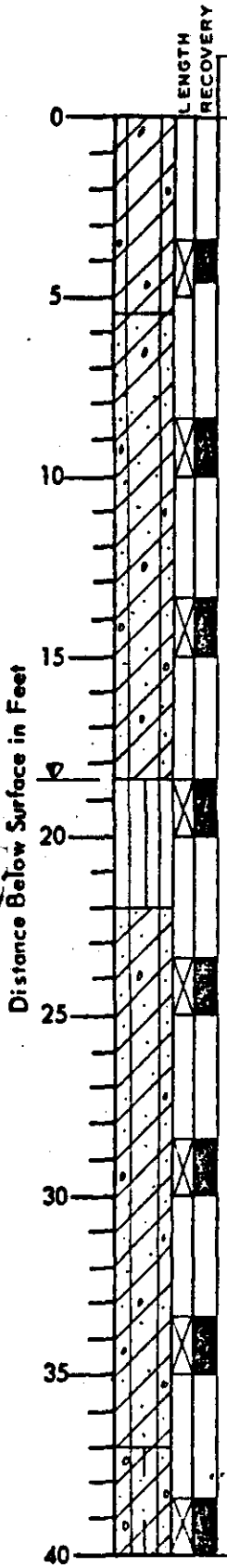
END OF BORING 706.1

WATER TABLE

AT END OF BORING "DRY"

24 HOURS

While Drilling -18.5'



LENGTH RECOVERY	SAMPLE NO.	TYPE	N	WC	Q_u	γ DRY	DEPTH	ELEV.	SOIL DESCRIPTIONS
									FILL - Gray sandy silty CLAY, trace gravel (CL)
	1	SS	31	12.2			5.5	750.6	
	2	SS	12	17.8	2.5*				Very tough to tough gray silty CLAY, trace sand and gravel, moist (CL)
	3	SS	13	17.7	1.75*				
	4	SS	25				18.5	737.6	Firm gray SILT, wet (ML)
							22.0	734.1	
	5	SS	17	15.7	1.75*				Tough to very tough gray silty CLAY with seams of silt above 27.0', trace sand and gravel, moist (CL)
	6	SS	16	18.5	2.0*				
	7	SS	20	17.7	2.25*				
							37.0	719.1	Firm gray very clayey SILT and very tough gray very silty CLAY, trace sand and gravel, moist (CL-ML)
	8	SS	21	17.4	3.25*				

*-Approximate unconfined compression strength based on measurements with a calibrated pocket penetrometer.

Boring Log Continued

TESTING SERVICE

DRILL RIG NO. 53

PROJECT H.O.D. LANDFILL, ANTIOCH, ILLINOIS

CLIENT WASTE MANAGEMENT, INC., 900 JORIE BOULEVARD, OAK BROOK, ILLINOIS 60521

BORING 1209(Cont'd.) DATE STARTED 2-16-81 DATE COMPLETED 2-16-81 JOB 18,037

ELEVATIONS

GROUND SURFACE 756.1

END OF BORING 706.1

WATER TABLE

AT END OF BORING "DRY"

24 HOURS

While Drilling -18.5'

Distance Below Surface in Feet	LENGTH	RECOVERY	SAMPLE NO.	TYPE	N	WC	Q_u	γ_{DRY}	DEPTH	ELEV.	SOIL DESCRIPTIONS
40											Firm gray very clayey SILT and very tough gray very silty CLAY, trace sand and gravel, moist (CL-ML)
45			9	SS	24	14.5	3.0*				
									47.0	709.1	Very tough gray silty CLAY, trace sand and gravel, moist (CL)
50			10	SS	22	21.7	3.75*				
55											
60											
65											
70											
75											
80											

End of Boring at 50.0 feet

*-Approximate unconfined compressior strength based on measurements wi a calibrated pocket penetrometer.

TESTING SERVICE CORPORATION

DRILL RIG NO. 53

PROJECT H.O.D. LANDFILL, ANTIOCH, ILLINOIS

CLIENT WASTE MANAGEMENT, INC., 900 JORIE BOULEVARD, OAK BROOK, ILLINOIS 60521

BORING 1210 DATE STARTED 2-16-81 DATE COMPLETED 2-16-81 JOB 18,037

ELEVATIONS

GROUND SURFACE 741.5

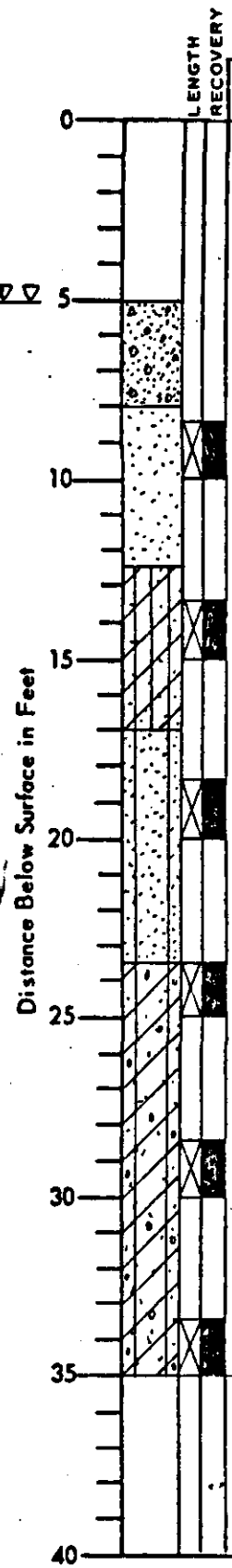
END OF BORING 706.5

WATER TABLE

AT END OF BORING - 5.0'

24 HOURS

While Drilling - 5.0'



LENGTH RECOVERY	SAMPLE NO.	TYPE	N	WC	Q_u	% DRY	DEPTH	ELEV.	SOIL DESCRIPTIONS
									FILL - Top 5 feet of material was placed to make the bore hole location accessible for a drill rig.
							5.0	736.5	Brown fine to coarse SAND and small GRAVEL, saturated (SW)
							8.0	733.5	
	1	SS	8						Loose gray fine SAND, saturated (SP)
							12.5	729.0	
	2	SS	19	13.5					Firm gray clayey sandy SILT, moist (ML)
							17.0	724.5	
	3	SS	6						Loose gray silty fine SAND, wet (SM)
							23.5	718.0	
	4	SS	15	14.3	2.0*				Very tough gray silty CLAY, trace to some sand, trace gravel, moist (CL)
	5	SS	19	12.9	2.5*				
	6	SS	22	14.7	2.75*				
									End of Boring at 35.0 feet

*-Approximate unconfined compression strength based on measurements wit a calibrated pocket penetrometer.

TESTING SERVICE CORPORATION

DRILL RIG NO. 53