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National Geotechnical Experimentation Sites: Central Data Repository

User Manual

U.S. Department of Transportation
Federal Highway Administration

Research and Development
Turner-Fairbank Highway Research Center
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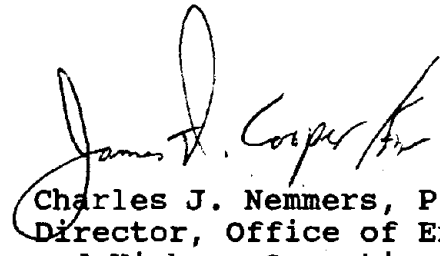
FOREWORD

This report details the development and use of the National Geotechnical Experimentation Sites Database. The database is one of the key elements in the Federal Highway Administration's effort to organize geotechnical research in the United States.



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16. Abstract

The National Science Foundation (NSF) and the Federal Highway Administration (FHWA) recently set up a system of National Geotechnical Experimentation Sites (NGES) available to the geotechnical community at-large for the purpose of advancing the state of the art in such areas as in situ testing, field instrumentation, and prediction of soil behavior. As part of this program, the FHWA also funded the creation of a data base to document the activities and results at each test site. This report describes a data base system, the National Geotechnical Experimentation Sites Data Base (NGESDB) which stores site information and geotechnical data from the experimentation sites. NGESDB allows the user to select a site by soil type, State, or geotechnical activity. Once a site is selected, the NGESDB can be used to display site information such as the site description, representative soil properties, boring locations, owner and contact information, and references with abstracts. Geotechnical data is available for several laboratory and in situ tests as well, including test information details and complete results for each test. Descriptions of prototype and model foundations, permanent field instrumentation, and site improvement activities at each site are also included.

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CHAPTER 1. INTRODUCTION

Several sites exist in the United States that have been well-characterized by geotechnical investigators either for research purposes or when associated with the construction of large projects. When available, the soil information as well as the sites can be used to facilitate the development of new techniques of soil characterization and earthwork construction. Without these well-documented sites, geotechnical engineers would have to find their own appropriate testing sites and fully characterize the soil before any research could begin. Because soil characterization is time consuming and costly, it would be beneficial for researchers to be able to access a previously documented site. The Federal Highway Administration (FHWA) and the National Science Foundation (NSF) have funded a system of well-documented geotechnical sites that are open to the geotechnical engineering community. These multiple-user test sites are now collectively called the National Geotechnical Experimentation Sites (NGES). It is hoped that geotechnical researchers will be able to select the most appropriate site for their needs on the basis of soil type, site location, and available geotechnical data.

CHAPTER 2. BACKGROUND

A 1988 workshop funded by the Earthquake Hazard Mitigation Program of the NSF discussed the possibility of establishing a system of multiple-user test sites.[1] As part of the preparation for this workshop, a questionnaire on geotechnical research interests and ideas was sent to over 400 geotechnical engineers in universities, State and Federal agencies, consulting, drilling, testing, and equipment manufacturing firms. A majority of the respondents indicated an interest in accessing documented test sites, with 81 locations suggested as potential experimentation sites. Following the workshop, these 81 sites were further evaluated and their number was trimmed to 40 sites using the following criteria:

- The site should have a reasonable probability of continued access for at least 5 years.
- A minimum level of documentation is available.
- The soil type is of sufficient interest as to merit inclusion even if the current level of documentation is poor.

The 40 sites were further classified as level I, level II, or level III sites at an NSF/FHWA Workshop on Selection and Management of National Geotechnical Experimentation Sites, which was held in Orlando Florida, in 1991.[2] Level I sites are those sites that match the combined criteria of facilitating research in areas identified as of significant national importance and of presenting favorable site characteristics. Primary research areas are: geotechnical earthquake engineering (liquefaction, site amplification, and permanent deformations), calibration of new equipment, proof testing of site improvement techniques, geo-environmental problems, expansive clay problems, and foundation prototype testing. Sites favorable to these research areas were further screened based on characteristics consisting of: soil types and stratification, site size, interest and energy of site proponents, security, and long-term accessibility. Level II sites fit most of the criteria, but have size limitations in their current state. These sites may be expanded so that they may eventually be upgraded to level I. Level III sites currently do not adequately meet most of the criteria.

Table 1 lists the 40 sites in the NGES program. Five of the forty sites selected were classified as level I and level II sites, while the remaining sites were classified as level III.

Table 1. National Geotechnical Experimentation Sites.

Level	Site ID	Site Name	Location
I	CATIFS	Treasure Island Naval Station, (Fire Station #1)	San Francisco, California
	TXAMCLAY	Texas A&M University, Riverside Campus - Clay Site	College Station, Texas
	TXAMSAND	Texas A&M University, Riverside Campus - Sand Site	College Station, Texas
II	ILNWULAK	Northwestern University, Lake Fill Site	Evanston, Illinois
	MAUMASSA	University of Massachusetts - Amherst	Amherst, Massachusetts
	TXHOUSTO	University of Houston Foundation Test Facility	Houston, Texas
III	CAEUESLS	EPRI/USGS Earthquake Soil Liquefaction Site	Cholame Valley, California
	CAHAMILT	Hamilton Air Force Base	Novato, California
	CAMINOR	Minor Creek Landslide, Redwood Creek Drainage Basin	Northwestern California
	CASEISMI	EPRI Seismic Array	Parkfield, California
	CASFWATE	San Francisco Waterfront	San Francisco, California
	COEXPANS	Expansive clay Shale Test Site	Fort Collins, Colorado
	CAWLDL	Wildlife Site	Calipatria, California
	COEXPLOS	CSU Explosives Test Site (AFOSR)	Fort Collins, Colorado
	COPLATTE	Platte River Test Site	Kersey, Colorado
	DCANACOS	Anacostia Naval Air Station	Washington, District of Columbia
	FLKANAPA	University of Florida - Kanapa	Gainesville, Florida
	ILAMERIC	American Bottoms Mississippi River Floodplain	Collinsville, Illinois
	MARTE95	Old Route 95, Test Embankment	Saugus, Massachusetts
	MNFOUNTF	University of Minnesota Underground Space Center, Foundation Test Facility	Rosemount, Minnesota
	MNRDRESE	Minnesota Cold Regions Pavement Test Facility	I-94, Between the Towns of Albertville & Monticello, Minnesota
	MOEATON	Eaton Dam	Leadwood, Missouri
	NHFROST	Frost Effects Research Facility at U.S. Army Cold Regions Lab	Hanover, New Hampshire
	NYI87/90	I-87/I-90 Interchange	Albany, New York
	NYLOCEXP	Lockport Expressway	Erie County, New York
	NYMASSEN	Massena High School	Massena, New York
	NYRTE37	Route 37 over OBPA Railroad	Ogdensburg, New York
	NYSTFAIR	State Fair Boulevard/Oswego Boulevard	Syracuse, New York
	OKWAGONE	6 miles west of Wagoner, OK on SH52	Wagoner, Oklahoma
	SDCHAMBE	Chamberlain, South Dakota	Chamberlain, South Dakota
	TXAMARIL	Family Hospital Center Site	Amarillo, Texas
	TXA&MUNI	Texas A&M University, College of Agriculture Equipment Compound	College Station, Texas
	TXSH146	State Highway 146 at Houston Ship Channel	Baytown, Texas
	UTAVWDAM	Arthur V. Watkins Dam	Willard, Utah
	VACEBAF	Continuous Wave Electron Beam Accelerator Facility	Newport News, Virginia
	VAKIPPS	Kipp's Farm	Blacksburg, Virginia
	VASCHNAB	Schnabel Engineering Site	Richmond, Virginia
	VTM/DRT7	Manchester - Dorset U.S. Route 7	Manchester, Vermont
	VTRTE73	Brandon, Vermont - Route 73	Brandon, Vermont
	WVTEAYS	Teays Valley	Near Charleston, West Virginia

Level I

- Treasure Island Naval Station, San Francisco, California.
- Texas A&M University, College Station, Texas.

Level II

- Northwestern University, Evanston, Illinois.
- University of Massachusetts, Amherst, Massachusetts.
- University of Houston, Houston, Texas.

NSF/FHWA funding is currently available over a 3-year period (1992 through 1995) to enhance the site characterization and data collection at the level I and level II sites. The remaining sites were classified as level III and were not recommended for immediate financial support, but could be considered at a later date should their condition improve to meet the requirements.

A catalog of the NGES was produced for the NSF Earthquake Mitigation Program and the FHWA.[3] The purpose of the catalog was to promote the use of the experimentation sites by providing information about each of the sites. Within the catalog, each site is described giving site conditions, services, logistics, representative soil properties, references, and tables listing which geotechnical activities have been conducted to date. An example of the catalog detailing the Treasure Island Naval Station site is shown in appendix A.

To set policies for use and operation of the sites and to ensure continuity, a management system for the NGES program has been established which consists of a System Management Board, a System Director, and the respective Site Managers for each site. Details regarding the management aspects of the NGES program can be found in the Orlando NSF/FHWA Workshop proceedings.[2]

CHAPTER 3. NGES DATA BASE SOFTWARE DEVELOPMENT

INTRODUCTION

Coupled with the NGES program is a data base (NGESDB) which is a computer program designed as a menu-driven shell with on line computer search and data retrieval capabilities, for obtaining essential information about multiple-user test sites. This information includes generalized soil conditions and representative soil properties, list of available test data, site logistics, conditions and services, published references, and other pertinent site information. An electronic bulletin board is provided as part of the system to permit rapid exchange of information about ongoing projects and to notify experimenters of the existence of limited-availability event sites. Information is included for all sites (levels I-III); however, for both level I and level II sites, detailed individual field and laboratory test results are also an integral part of NGESDB. The test results are accessible to potential users and researchers, allowing them to review the quality and numerical details of the results. In contrast to the site catalog, the data base is continually updated as new information becomes available.

Development of NGESDB began in 1990, with the data base being programmed using Prime Info-Basic (Prime Computer Corporation, Natick, Massachusetts) on a Prime 6550 Super Minicomputer.[4] This computer is a mainframe system with advantages including multiple users and a large amount of storage capacity. However, Prime Info-Basic is not widely used as a programming language and storing the data is a tedious and difficult process. As the project progressed, it became apparent that the system itself was very slow due to high usage of the Prime computer by other users as well as having to pass the information over phone lines, since at that time modems connected to the Prime 6550 Super Minicomputer had a maximum baud rate of 2400 bps. In addition, the system was monochromatic, visually unappealing, and lacked versatility in presenting the data base information.

Although the data base system on the Prime was approximately 90 percent completed, in an effort to create a system that is easier to use and maintain, another version of the NGESDB was initiated in June of 1992. This version was programmed using Clipper 5.01 from Nantucket Corporation, Los Angeles, California. (Nantucket was acquired by Computer Associates International, Inc. in June, 1993 and the product is now marketed as CA-Clipper). By using Clipper, several problems encountered in the original mainframe version were resolved:

- The program runs faster without erratic pauses.
- The program now uses color and the ASCII extended character set in order to form boxes and shading.
- More support and third-party programs are available for Clipper than for Info-Basic.

The NGESDB program, described in this report is the version developed with Clipper.

DEFINITION OF A DATA BASE

A data base file is a file for storing and organizing information. An address book is similar to a data base file. For example, table 2 contains names and addresses in rows and columns, typical of a data base file. Each row in a data file is called a record, and each column is called a field. The fields define the structure of the data base file, while the records contain the information within the data base file. Name, Address, City, and State are the field names, while Ruth-Ann Davis, 260 Washington Ave., Concord, and NH comprise of one record within the data base. A data base refers to one or more data base files. The data base program enables the user to use the file or files to easily retrieve, sort, display, and store information. Appendix B describes the process of creating a data base.

Table 2. A simple data base.

Name	Address	City	State
Ruth-Ann Davis	260 Washington Ave.	Concord	NH
John Smith	20 16th Street	San Francisco	CA
Jackie Timmons	76 Greely Rd.	Gary	IN
Robert Yeardly	19 Pine Circle	Jacksonville	FL

PROCEDURAL VERSUS RELATIONAL DATA BASES

There are two basic types of data base programs: procedural and relational. A procedural data base is a system by which the user describes how to retrieve the data by writing a procedure to follow. CA-Clipper (Computer Associates International Incorporated, San Diego, California), dBase (Borland International Incorporated, Scotts Valley, California), Paradox (Borland International Incorporated, Scotts Valley, California), and FoxPro, (Microsoft Corporation, Redmond, Washington) all are procedural data base products. Each type of software employs a different approach to set up the procedure. For example, in dBase, the user can either enter commands at a dot prompt or use a shell to execute preprogrammed procedures.

In a relational data base system, a structured query language (SQL) is used to retrieve data. Unlike the procedural system, SQL does not describe a procedure on how to retrieve the data. Instead, SQL commands let the user specify the data needed from the data base and it is up to the system to determine the optimal way to obtain the data. Consequently, this system is much more efficient for the programmer than the procedural method since the programmer does not have to write procedures to retrieve data. Unfortunately, relational data bases are currently only available for UNIX systems. Sybase (Sybase Corporation, Bethesda, Maryland) and Oracle (Oracle Corporation, Belmont, California) are relational data base packages.

Using Sybase would help to alleviate some problems within NGESDB. As an example, since the data base structures within NGESDB are predefined to set lengths, there will be occasional occurrences of data sets that is longer than the preset field lengths. The data base would have to be modified in order to accept this data. Because, field lengths are not specified within Sybase, only the field types need to be specified, and thus Sybase can accommodate data of various lengths.

SOFTWARE SELECTION

The procedural data base, Clipper 5.01, was chosen to be used in the development of the current version of NGESDB to allow the program to be used on a personal computer. Since most personal computers do not have the hardware required to run relational data base packages such as SyBase, it was decided that a procedural data base would be used instead. Unlike other procedural data base packages, Clipper is a programming language that has data base functions and utilities. Other packages, such as dBase, include a macro language instead. Programs developed in Clipper can be compiled to produce stand-alone executable files, whereas programs written with a data base macro language can only be used by users with the same data base package. (Some macro language programs can be executed with an interpreter program, but interpreters are expensive and run slower than executable files.)

While current editions of most data base packages run under the Microsoft Windows (Microsoft Corporation, Redmond, Washington) environment, Clipper does not. The Clipper programming language is only now being modified to take advantage of Windows. A revised NGESDB would benefit from Windows through the addition of graphics capabilities, mouse support, and multiple data set views. However, these additions will require a complete rewrite of the NGESDB code.

IBM RISC/6000

It has been proposed by the FHWA that future versions of the NGESDB be centrally located at the Turner-Fairbank Highway Research Center (TFHRC) in McLean, Virginia, where an IBM RISC/6000 (International Business Machines Corporation, Syracuse, New York) computer is available.[5] RISC stands for Reduced Instruction Set Computing. Placing the NGESDB on the IBM RISC/6000 will lead to the following advantages:

- The data will be kept in a single location which will result in not having to send updates to multiple users.
- The IBM RISC/6000 can run Sybase which will facilitate programming.
- As the NGES program grows, the volume of the data produced grows accordingly. The IBM RISC/6000 has enough storage capacity to meet the future demands of the NGESDB.

Access to the data will require a modem and a telecommunications program. If Sybase is used, the current data bases will have to be converted to Sybase format and the code accessing these data bases will have to be rewritten.

CHAPTER 4. DATA DICTIONARY

In an attempt to standardize all the geotechnical information to be stored in the NGESDB, a manual was written to provide site managers a standard format for sending data to the authors of the NGESDB. This manual is called the Data Dictionary (appendix C) and is available to all site managers and other interested geotechnical engineers. The Data Dictionary was modeled after existing standards and data bases similar to those generated by the Association of Geotechnical Specialists (AGS) in the United Kingdom for their electronic transfer of geotechnical data in ground investigations.[6] At the present time, the Data Dictionary has standards for site information, hole information, specimen information, stratum descriptions, laboratory tests, piezometer tests, and in situ tests. An example of the Data Dictionary is shown in table 3.

DATAREAD PROGRAM

In order to incorporate the geotechnical data sent by the site managers into the data base, a utility program was created for that purpose. The program, Dataread, reads ASCII files provided by the site managers, and places the data into the appropriate data bases. The Dataread program is faster and more accurate than a data entry clerk, and allows the operator to read in several data sets in a short period of time. However, errors may still occur because of several factors:

- The data provided is longer than the field length in the data base for a certain entry. This causes the Dataread program to warn the user and terminate.
- The decimal place length in the data base may be smaller than the number of decimal digits of the data to be entered. This causes the data to be rounded off when read into the data base. As of this date, there is no warning within the Dataread program for this occurrence.
- Since each unknown entry is replaced with a blank line in the ASCII file provided by the site manager, an extra blank line will place the remaining data out of sequence. The same holds true, if the blank line is omitted for unknown data.

If the operator alters the field lengths in problem data bases or edits the ASCII files, these problems can be alleviated. Spreadsheet templates are currently being created to allow the site managers to generate a complete and accurate data file.

Table 3. SPT Data Dictionary

Group Name: SPT			Standard Penetration Test - Results	
Status	Heading	Unit	Description	Example
*	SITE_ID		Site identification	CATIFS
*	HOLE_ID		Exploratory hole identification number	ABC.12
	SPT_SSID	mm	Split-spoon sampler internal diameter	35
	SPT_LINR		Liner was used	T (true)/F (false)
	SPT_BASK		Basket retainer was used	T (true)/F (false)
	SPT_LGTH	mm	Split-spoon sampler length	450
	SPT_RODT		Type of rods	AW
	SPT_RODD	mm	Drive rod external diameter	41.2
	SPT_RODW	kN/m	Drive rod weight per meter	
	SPT_HAMT		Hammer type	Donut/Safety/Trip
	SPT_HAMW	kg	Hammer mass	63.5
	SPT_HAMF	m	Free fall height of hammer	0.76
	SPT_HAMR		Hammer release mechanism	Rope/Trip/Semi-Auto/Auto
	SPT_CATD	cm	Diameter of cathead	
	SPT_ROPE		Number of rope turns	2
	SPT_AVLD	cm	Diameter of anvil	
	SPT_ENEQ		Equipment used to measure energy	
#1	SPT_TOP	m	Depth to top of test	13.50
#1	SPT_CAS	m	Casing depth at time of test	12.00
#1	SPT_WAT	m	Water depth in casing at time of test	2.50
#1	SPT_NPEN	mm	Total penetration for test	450
#1	SPT_INC1		Number of blows for 1st 150mm (6 in)	6
#1	SPT_INC2		Number of blows for 2nd 150mm (6 in)	8
#1	SPT_INC3		Number of blows for 3rd 150mm (6 in)	8
#1	SPT_INC4		Number of blows for 4th 150mm (6 in)	9
#1	SPT_NVAL		SPT uncorrected N value (blows/0.3m)	16
#1	SPT_ENER	%	Measured energy ratio	65.4
	SPT_REM		Remarks related to the test and equipment	

CHAPTER 5. NATIONAL GEOTECHNICAL EXPERIMENTATION SITES DATA BASE

PROGRAM STRUCTURE

The user interface of the current form of the NGESDB is structured into four main sections; (1) **Site Selection**, (2) **Site Information**, (3) **Geotechnical Data**, and (4) **Utilities**. In addition to these four sections, there is on-line help to assist the user. A diagram representing the program structure is shown in figure 1.

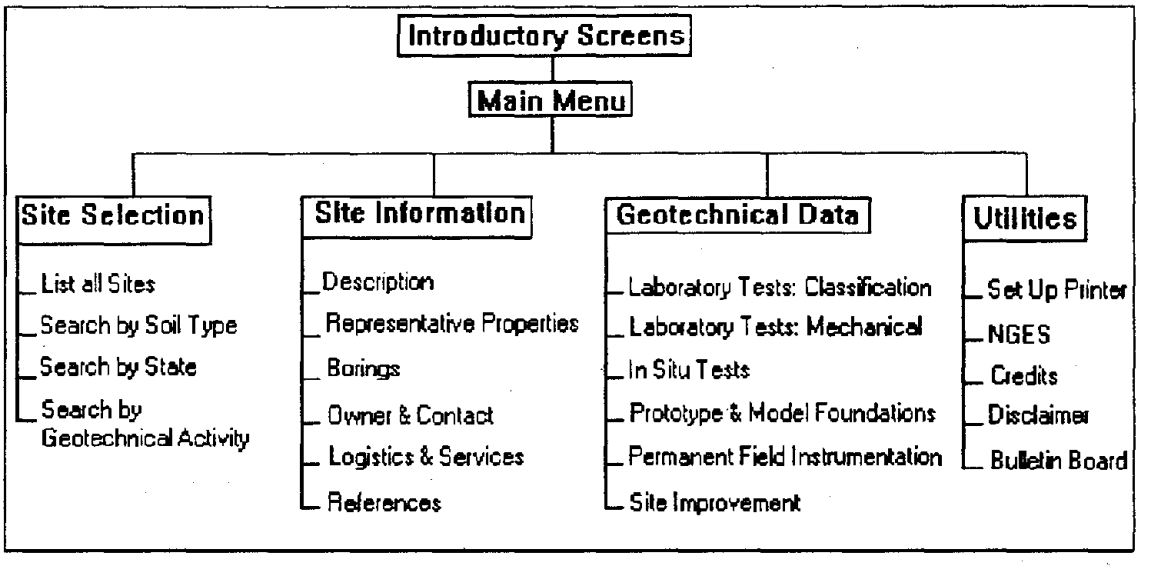

Figure 1. NGESDB structure.

The **Site Selection** section of the program allows the user to select a site by listing all sites or by specifying search criteria. The choices available are (1) **List all Sites**, (2) **Search by Soil Type**, (3) **Search by State**, and (4) **Search by Geotechnical Activity**. After selecting one search criterion, another list of options within that criterion is made available to the user. For example, if the user chooses **Search by State**, then a list of States where sites are located appear on the screen. If the user selects Virginia, then all sites in Virginia are listed and are available for selection.

Once the **Site Selection** is completed, the user can opt to view the **Site Information** section which consists of: (1) **Description**, (2) **Representative Properties**, (3) **Borings**, (4) **Owner and Contact**, (5) **Logistics and Services**, and (6) **References**. **Description** gives the site location, site area, maximum depth explored, depth to the ground water table, seismicity, soil descriptions, and a brief text description of the site. **Representative Properties** gives a description of each soil layer at the site. This section includes the starting and ending depth of the soil layer, an average or ranges of values for grain size, Atterberg limits, unit weight, overconsolidation ratio, uncorrected SPT resistance, cone tip resistance, and undrained shear

strength. The **Borings** option contains the location of all boreholes at the site, the type of boring exploration, who performed the drilling, the equipment used, and other aspects of drilling and hole preparation. Information concerning the site owner, the site contact, or both is listed in the **Owner & Contact** section. **Logistics and Services** details the nearest airports, lodging, accessibility, security, site limitations, prohibited activities, utilities present, and locations of machine shops and soil laboratories near the site. The **References** section includes all publications pertaining to the site. Some references may include abstracts which are also available to the user.

Geotechnical Data displays reports on: (1) **Classification Laboratory Tests**, (2) **Mechanical Laboratory Tests**, (3) **In Situ Tests**, (4) **Prototype and Model Foundations**, (5) **Permanent Field Instrumentation**, and 6) **Site Improvement**. The **Site Improvement** section includes geotechnical information on: (1) **In Situ Reinforcement**, (2) **Densification**, (3) **Reinforcement of Constructed Earth**, (4) **Chemical Admixtures and Grouting**, and (5) **Miscellaneous Methods**. If available from the researcher, full results for the laboratory and in situ tests are made accessible to the user within the NGESDB. All other sections display a summary of the corresponding geotechnical activity at the site. Tables 4, 5, and 6 lists the geotechnical activities available within NGESDB.

The **Utilities** option allows the user to set up the printer or review the opening screens in any order. The choices within this section are: (1) **Set Up Printer**, (2) **NGES**, (3) **Credits**, (4) **Disclaimer**, and (5) **Bulletin Board**. **Set Up Printer** allows the user to select the appropriate printer. Printing options such as page length, margins, headers and footers are definable in this section. **NGES** gives a brief description of the NGES site program detailing the purpose of the program, differences between the site levels, and information on the site management. **Credits** states who assisted in the development and implementation of the NGESDB. The **Disclaimer** states that the user is responsible for how the data within the NGESDB is interpreted and used. The **Bulletin Board** gives recent geotechnical information, such as calls for papers, conferences and symposia, notices and information about recently published geotechnical books, etc.

NGESDB DATA BASES

Several other data bases are included within the NGESDB besides the laboratory and in situ testing data bases outlined in the Data Dictionary. These include **Site Information** data bases, other **Geotechnical Data** data bases, a lookup table data base, a data base for unit conversions, and two data bases containing layout instructions for the **Site Information** and **Geotechnical Data** sections. As of April 1994, 282 data base files are included within the NGESDB. The structure for each data base is given in appendix D.

Table 4. Laboratory and in situ tests.

Laboratory Tests: Classification	Laboratory Tests: Mechanical	In Situ Tests
Grain-Size Distribution	Consolidometer: Incremental Loading	Standard Penetration Test (SPT)
Natural Water Content	Consolidometer: Constant Rate of Strain	Standard Penetration Test with Energy Measurement
Specific Gravity	Consolidometer: Constant Gradient	Electronic Friction Cone (CPT)
Atterberg Limits	Consolidometer: Swelling	Electric Piezo/Friction Cone (CPTU)
Mineralogy	Triaxial: $\overline{ICU}$-C	Electric Seismic/Piezo/Friction Cone (SCPTU)
Organic Content	Triaxial: $\overline{ICU}$-E	Lateral Stress Cone
Carbonate Content	Triaxial: $\overline{ACU}$-C	Dynamic Cone (DCPT)
Angularity and Surface Texture	Triaxial: $\overline{ACU}$-E	Acoustic Cone (ACPT)
Pore Water Chemistry	Triaxial: $C\overline{K_oU}$-TC	Resistivity Cone (RCPT)
	Triaxial: $C\overline{K_oU}$-TE	Vibratory Cone (CPTV)
	Triaxial: $C\overline{K_oU}$-PSA	Miniature Cone (MCPT)
	Triaxial: $C\overline{K_oU}$-PSP	Pre-Bored Pressuremeter (PMT)
	Unconsolidated-Undrained Test	Push-In Pressuremeter (PPMT)
	Cyclic Triaxial Liquefaction	Full-Displacement Pressuremeter (FDPMT)
	Undrained Cyclic Shear Modulus and Damping	Self-Boring Pressuremeter (SBPMT)
	Triaxial: ICD-C	K_o Meter
	Triaxial: ICD-E	Vane Shear (VST)
	Triaxial: ACD-C	Flat Plate Dilatometer (DMT)
	Triaxial: ACD-E	Earth Pressure Cell
	Triaxial: CKoD-TC	K_o Stepped Blade
	Triaxial: CKoD-TE	Screw Plate
	Triaxial: CKoD-PSA	Borehole Shear
	Triaxial: CKoD-PSP	Plate Load
	Drained Cyclic Shear Modulus and Damping	Borehole Permeability
	Laboratory Vane	Pumping
	Direct Shear	Seismic Crosshole
	Direct Simple Shear	Seismic Downhole
	Resonant Column	Seismic Surface
	Permeability	

Table 5. Choices within geotechnical data.

Prototype & Model Foundations	Permanent Field Instrumentation	Site Improvement
Footings	Piezometer: Standpipe	In Situ Reinforcement
Single Pile: Vertical Load	Piezometer: Vibrating Wire	Densification
Single Pile: Lateral Load	Piezometer: Pneumatic	Reinforcement of Constructed Earth
Pile Group: Vertical Load	Piezometer: Strain-Gauge	Chemical Admixtures & Grouting*
Pile Group: Lateral Load	Strong Motion Accelerometer	Miscellaneous Methods
Piers and Caissons	Deep Benchmark	
Embankments over Soft Soils	Inclinometer	
Retaining Structures		
Slurry Trenches		

* Chemical Admixtures & Grouting does not go to a submenu

Table 6. Site improvement options.

In Situ Reinforcement	Densification	Reinforcement of Constructed Earth	Miscellaneous Methods
Stone Columns	Preloading	Walls	Blasting
Soil Nailing	Sand Drains	Embankments	Thermal Stabilization
Micropiles	Deep Dynamic Compaction	Foundations and Subgrade Improvements	Dewatering
Jet Grouting	Wick Drains	Geotextiles	Electro-Osmosis
Permanent Ground Anchors	Vibro-Compaction		Chemical Stabilization
Deep Soil Mixing	Compaction Grouting		
	Compaction Piles		

SITE INFORMATION DATA BASES

The data bases containing data for the **Site Information** section, include SITES.DBF, SOILPROP.DBF, HOLE.DBF, OWNER.DBF, FLD_CHAR.DBF, and ABSTRACT.DBF. These describe the **Site Description**, **Representative Properties**, **Borings**, **Owner & Contact**, **Logistics & Services**, and **References** respectively. Adding new data or modifying existing data can be accomplished by bringing the data file into either DBU, a utility packaged with Clipper, dCLIP-jr form Donnay Software Designs (Santa Ana, California), or another dBase-compatible data base manager. Data will be typed manually into the data base. For further information, see Chapter 13, "Data Base Utility - DBU.EXE", in the CA-Clipper Programming and Utilities Guide.

GEOTECHNICAL DATA BASES

Laboratory and in situ data base files will be maintained by using the Dataread program. However, the data bases in the **Prototype & Model Foundations**, **Permanent Field Instrumentation**, and **Site Improvement** sections must be maintained manually by using a data base manager such as DBU or dCLIP-jr. Each data base contains a description of what has been done on site pertaining to the topic in question. For example, the data base JET_GROU.DBF contains descriptions of jet grouting work performed at all experimentation sites. However, as of April 1994, all of these data bases are empty.

There are several data bases that provide the total number of tests that are included within NGESDB. These include LAB_CLAS.DBF, LAB_MECH.DBF, INSITUTE.DBF, PROTOTYP.DBF, PERMFIEL.DBF, INSITU_R.DBF, DENSE.DBF, REINFORC.DBF, and MISCMETH.DBF. Currently, these data bases are modified manually every time a test is added to the NGESDB. Because of the trial and error process of using the Dataread program, it is not recommended to automate this step within Dataread at this time. This is because if an ASCII data file is successfully read into a data base by the Dataread program, it still may have to be reread again thus producing an error in the number of tests reported.

LOOK-UP TABLE

The look-up table is a data base called LOOK_UPS.DBF. A look-up table is a data base that the program uses to associate one term with another. If this information was not in a data base, the data would have to be part of the program code. Thus, if the information ever needed to be changed, the program would have to be recompiled. Therefore, it is sensible for this information to be part of a data base.

An example of how the NGESDB uses the look-up table would be if a user selects the word "New Hampshire" from a list. The look-up table is used to associate the abbreviation "NH" with "New Hampshire." Primarily, the look-up table within the NGESDB associates geotechnical tests with the name of the data base for that test. Such as "Marchetti Flat Plate Dilatometer" is associated with "DMT," since the data base file name is DMT.DBF. The look-up table is used when selecting the various tests in the **Geotechnical Data** and **Site Selection** sections of NGESDB. Also included in the look-up table is a list of soil types and

states that are also used in **Site Selection**. This data base can be easily modified to include the new test types or new soil types.

UNIT CONVERSION DATA BASE

The unit conversion data base allows NGESDB to convert units from Système International (SI) to the British Engineering system. This data base is named CONVERT.DBF. NGESDB stores all units in SI and the units for each data field are predetermined and stated in the Data Dictionary. The two formatting data bases, DATADICT.DBF and MEMOHEAD.DBF, store the SI unit symbol and the British unit symbol to convert to when the converting units operation takes place. The conversion process takes the original number, which is in SI units, applies a conversion factor, and displays the results with the British system units. When going from back from British units to SI units, the original numbers are displayed, and no conversion takes place.

FORMATTING DATA BASES

There are two data bases used for formatting. DATADICT.DBF is used for formats in the **Site Information** screens and MEMOHEAD.DBF is used in the **Geotechnical Data** section. Both data bases hold for each field, the description, the name in the data base, the units, the length, and on what page it should be displayed. The NGESDB reads this information so that the program will find where and how to display information. The formatting is held within a data base so that it can be easily changed without having to modify and recompile NGESDB.

CHAPTER 6. NGESDB USERS MANUAL

The NGESDB is a data base designed to retrieve information regarding sites included in the National Geotechnical Experimentation Sites program. In this manual, the installation and use of the NGESDB software are explained in detail.

SYSTEM REQUIREMENTS

To use the NGESDB, minimal hardware and software are required as listed herein:

1. An IBM PC/AT or compatible,
2. A minimum of 600 kilobytes (kB) of free random access memory (RAM),
3. Approximately 17 megabytes (MB) of hard disk space, and
4. MS-DOS version 3.1 or later.

A printer and color monitor are suggested, but are not necessary.

INSTALLATION

The NGESDB is currently supplied on one high density 89 mm diskette, labeled **NGESDB Disk 1**. The following instructions describe the installation procedure:

- Place **NGESDB Disk 1** into your 89 mm disk drive
- Switch to the 89 mm disk drive by typing **A:** or **B:**
- Type the command:

```
A:\> INSTALL X: Y:
```

where: X is the letter of the drive containing **NGESDB Disk 1** disk and
Y is the letter of your hard drive where NGESDB is to be installed.

For example, type:

```
A:\> INSTALL A: C:
```

You will then be prompted with the following message:

```
This will copy all the NGES files from A: to C:\NGES
Press Ctrl Break to abort or any other key to continue
```

The installation process copies a compressed file from the floppy disk to the hard disk and then extracts the NGESDB from the compressed file. Once the computer prompts you with:

```
The NGES Data Base is now installed!
Type "NGES" to start the NGES data base.
```

you are ready to use the NGESDB system. The installation procedure has created a directory **NGES**, where the NGESDB is located. After the installation procedure, the computer will enter the **NGES** directory. Type **NGES** while in this directory to start the NGESDB.

Although the NGESDB has not yet been designed to run in the Windows environment, it is still possible to operate within Windows using the sample Program Information File (PIF) included with the system disks. This file, **NGES.PIF**, will allow the NGESDB to run within Windows, allowing you to cut and paste information to a word processor, spreadsheet, etc. Note that the PIF file is predefined and is set up to read from the directory C:\NGES>. If the NGES system was installed onto another hard drive, such as drive D: or drive E:, then the PIF file must be modified accordingly. For such modification please consult Chapter 8, "PIF Editor," in your Microsoft Windows 3.1 manual.

STARTING NGESDB

To run the NGESDB within the DOS environment, first go into the NGES directory by typing **CD \NGES** at the DOS prompt. Next, type **NGES** and the program will start. You will be greeted with an introductory screen featuring a map of the United States highlighting the locations of the level I and level II NGES sites. You can move to the next screen by pressing any key. The next screen provides you with a disclaimer statement for the NGESDB with an address of a contact person should you have any questions about the system. In addition, three screens present information about the NGES system of sites. Finally, a bulletin board addressing topical events such as upcoming conferences, call for papers, and updates of the NGES system, allows you to keep abreast of the latest geotechnical information. The arrow keys can be used to scroll through the bulletin board. When finished, press the <Esc> key to start using the NGESDB.

THE MAIN MENU

The main menu is divided into five sections: (1) the title bar, (2) the program options field, (3) a site information bar, (4) a box containing pertinent keystrokes, and (5) a message line. The title bar states the name of the program, "National Geotechnical Experimentation Sites Data Base," and states the time and date. If the time and date are not correct, you must correctly set them using the MSDOS commands TIME and DATE. The program options field consists of a gray field headed by four main options, in which cascading boxes open

directing you to various sections of the program. The site information bar, displays the name and the ID of the currently selected site. The box below the site information bar contains keystrokes and their functions that you can use at that section of the program. In other sections of the program, these keys may become grayed out, which means they are not currently available for use. Lastly, the message line gives information about the currently selected program option. These five sections change during the course of the program, but their use and function remain the same. Figure 2 shows the NGESDB main menu.

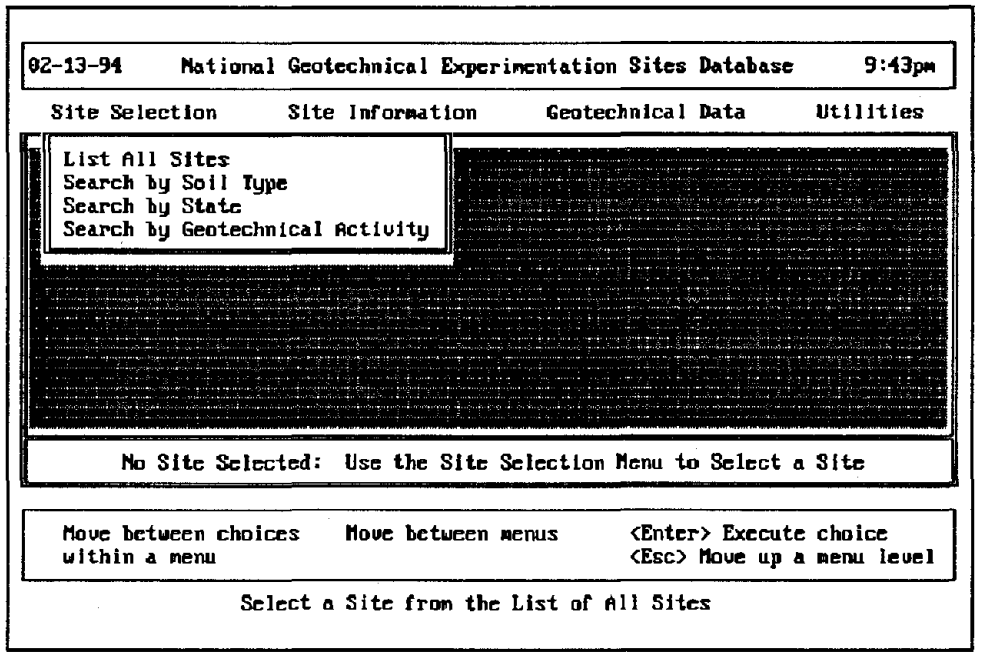

Figure 2. NGESDB main menu.

SELECTING A SITE

The first step, when using the NGESDB, is to select a site. At the main menu, highlight the option **Site Selection**, by using the right and left arrow keys. When the program is loaded for the first time, **Site Selection** will already be highlighted. Then, press the <Return> key to open up the **Site Selection** menu. The screen should look like the one shown in figure 3. There are four options in choosing a site, (1) select a site from the entire list of sites, (2) narrow the search by specifying a soil type, (3) narrow the search within a specific state within the United States, or (4) narrow the search by specifying a geotechnical activity or test that was performed at the site. The following examples will illustrate how to choose a site.

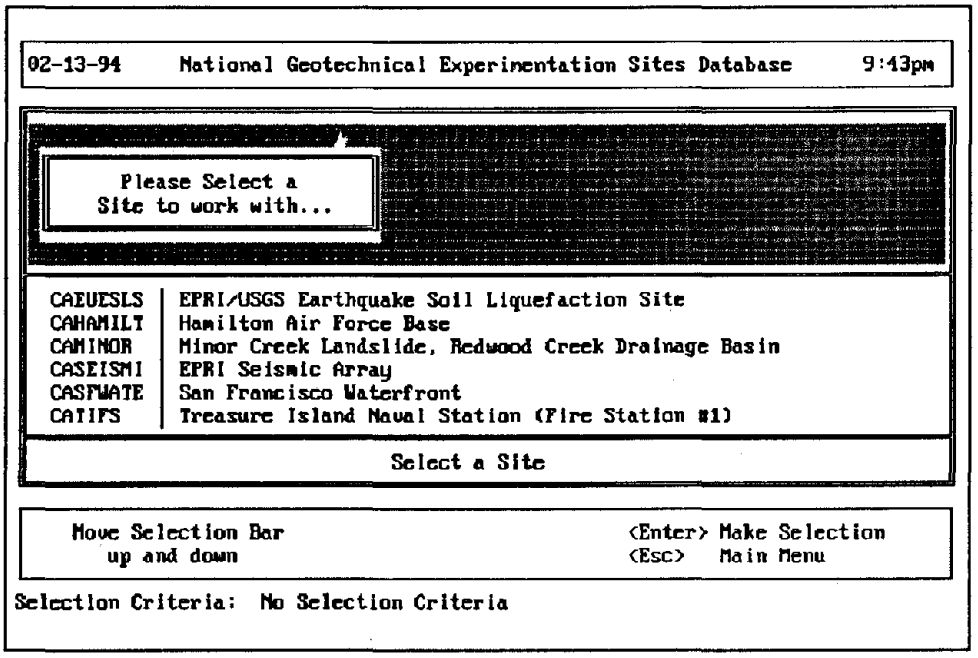

Figure 3. Site selection menu.

This example shows how to list all the sites and choose one for viewing. Use the up and down arrow keys to highlight **List All Sites** and use the <Return> key to select that option. All of the available sites (40 as of April 1994) will be listed. Figure 4 displays how the screen should appear at this stage. Using the up and down arrow keys, scroll through the list of sites. Notice that if you are at the top or the bottom of the list, a message stating **Top of Table** or **End of Table** will appear. To select a site, highlight the site you want to use and press the <Return> key. If for any reason you do not want to select a site, press the <Esc> key. When a site has been selected, the main menu will reappear and the current site will be stated in purple lettering within the site information bar.

This next example shows how to select a site by soil type. Highlight **Search by Soil Type** in the **Site Selection** menu and hit <Return>. You will be prompted with a screen as shown in figure 5. There are seven soil types to choose from to narrow down the list of sites: (1) Clay, (2) Sand, (3) Silt, (4) Gravel, (5) Organic, (6) Rock, and (7) Others. Use the up and down arrow keys to scroll through the soil types and use the <Return> key to select a soil type. Once a soil type has been selected, all the sites that contain that soil type will be available for selection. Selecting a site uses the same procedure as when all sites were listed; use the up and down arrow keys combined with the <Return> key to select a site.

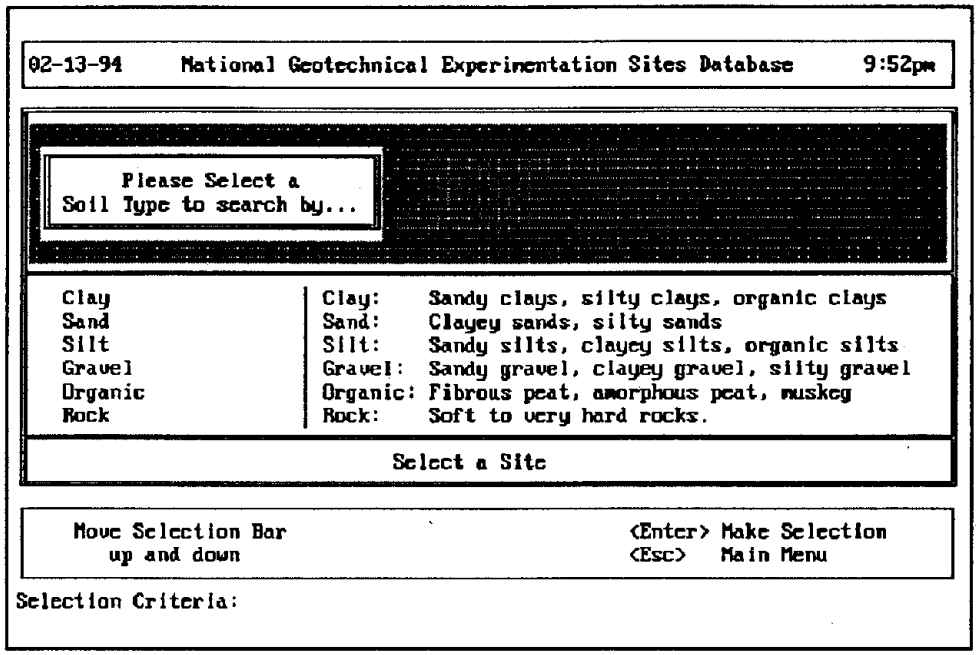

Figure 4. List of all sites within NGESDB.

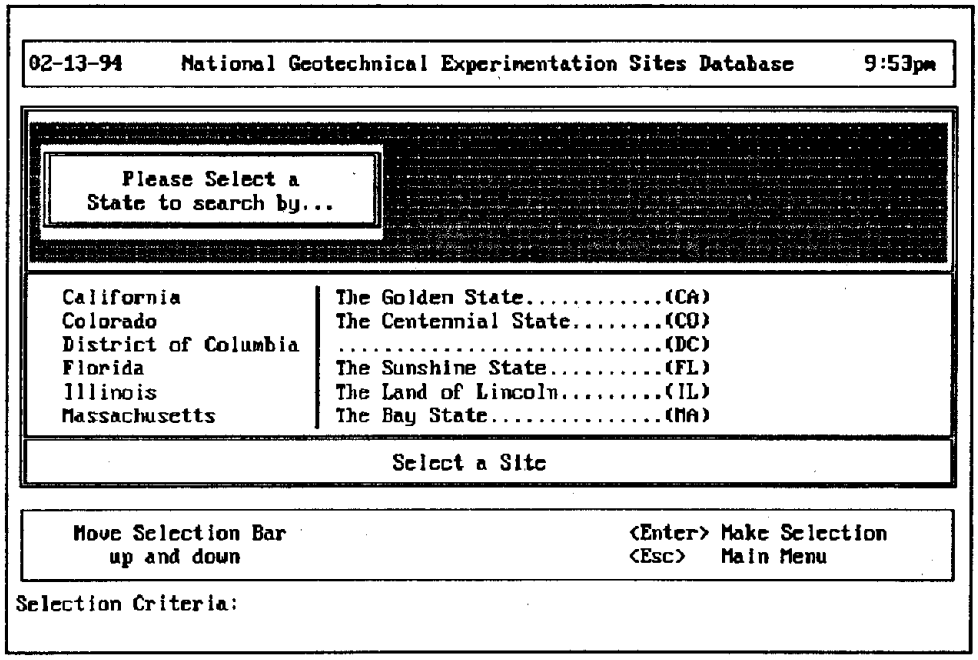

Figure 5. Search by soil type.

The next option, **Search by State**, uses the same procedure as in **Search by Soil Type** except there is a list of states (and the District of Columbia) within the United States to choose from. When **Search by State** is selected the screen should look like the one shown in figure 6.

Sites can also be selected by geotechnical activity. After the **Site Selection** menu has been opened, highlight **Search by Geotechnical Activity** and press the <Return> key. As an example, one may be interested in finding all the sites where the in situ field vane test was performed. The screen will now look like the one shown in figure 7. Highlight **In Situ Tests** and press the <Return> key. Scroll through the list with the up and down arrow keys until **Vane Shear (VST)** appears. Now the screen should resemble the one shown in figure 8. Highlight that option and press the <Return> key. NGESDB will then select the sites where the vane shear test has been completed. Select a site by highlighting it and pressing the <Return> key, or back up to the main menu by pressing the <Esc> key.

The previous examples illustrate:

- How to select a site.
- How to select an option by highlighting it and pressing the <Return> key.
- How to back out of a section by using the <Esc> key.

Even though you can narrow the list of sites specifying a criterion such as soil type or geotechnical activity, it is not possible in this program to have multiple criteria, such as searching for all clayey sites in Utah that have self-boring pressuremeter results. This option is being planned for the next version of the NGESDB.

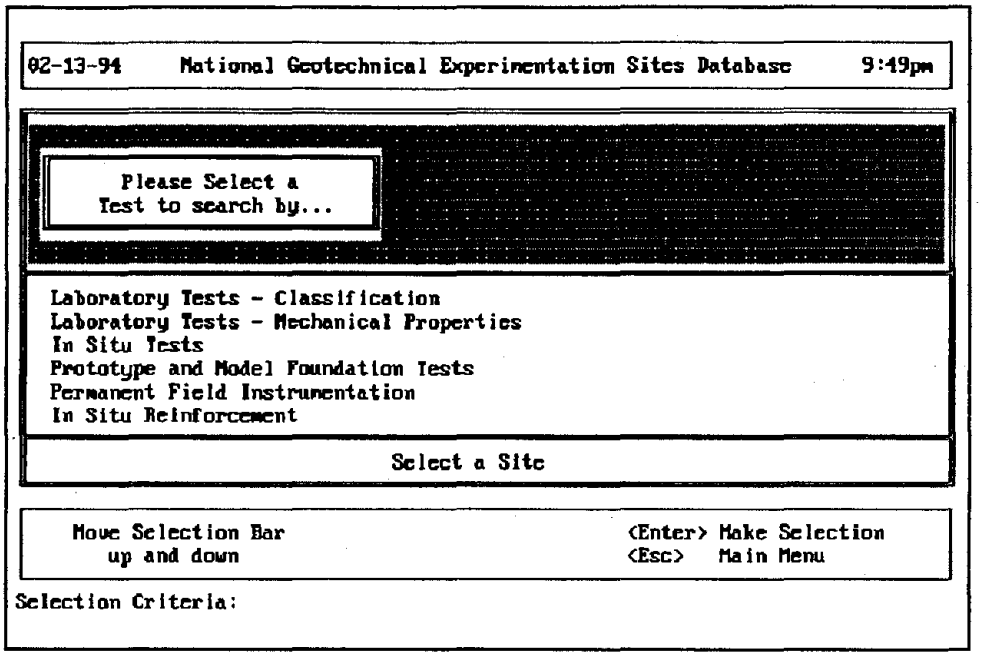

Figure 6. Search by State.

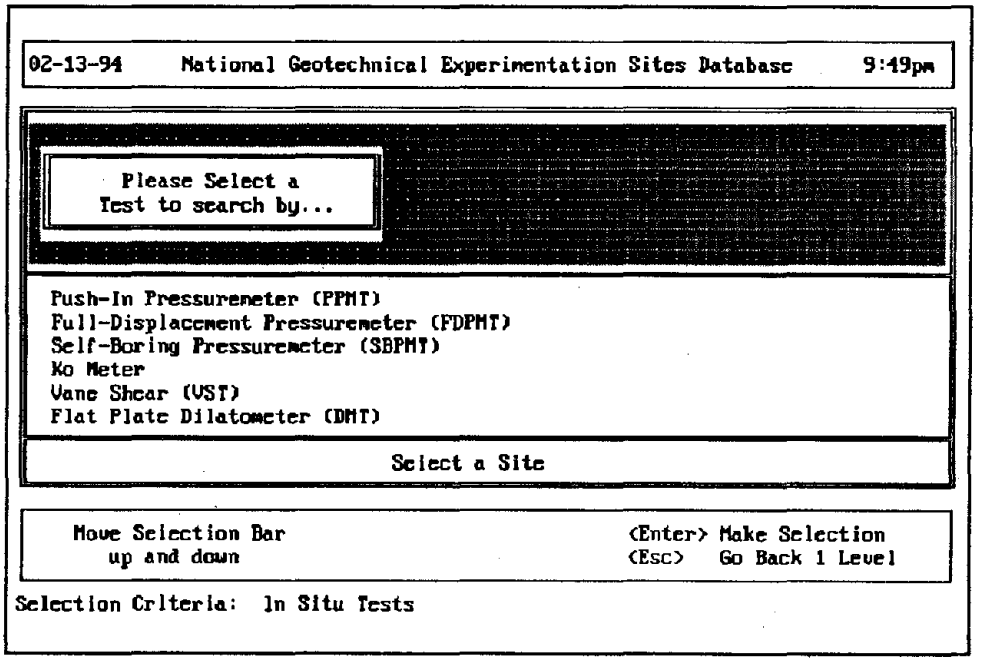

Figure 7. Search by geotechnical activity.

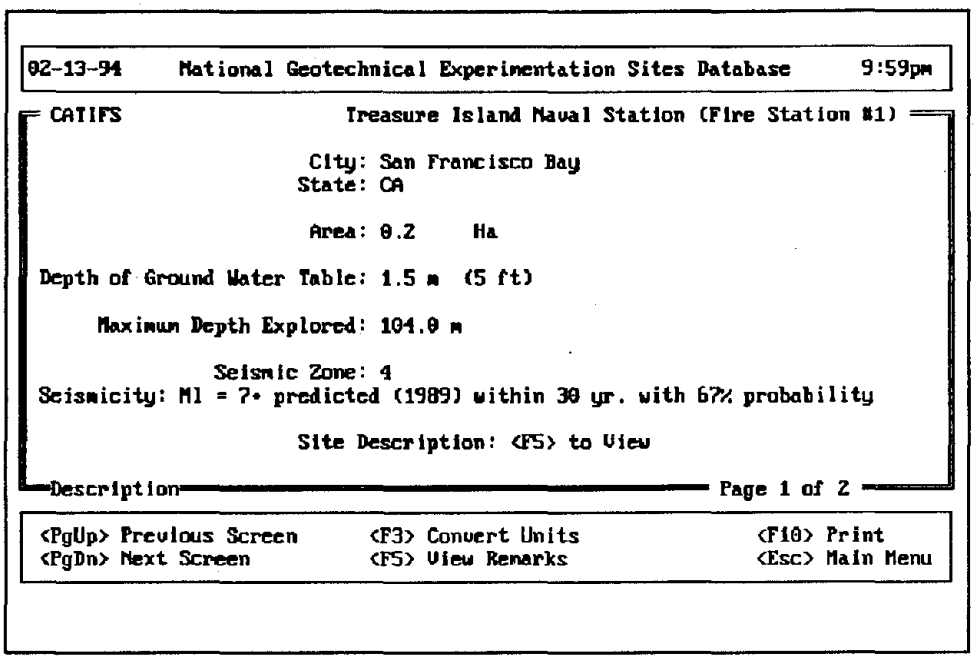

Figure 8. Selecting vane shear.

SITE INFORMATION

The **Site Information** menu consists of six options: (1) **Description**, (2) **Representative Properties**, (3) **Borings**, (4) **Owner & Contact**, (5) **Logistics & Services**, and (6) **References**. These six sections give you a reasonable idea about the site, what soil types are present, and whom to contact for more information. The following is a detailed description of each of the six sections.

The first of two pages under **Description** contains information regarding the location of the site, area, depth to ground water table, maximum depth explored, seismicity, and seismic zone as shown in figure 9. The second page gives a description of the soil materials at the site, which is shown in figure 10. Using the <Page Up> and <Page Down> keys will switch between the two pages. Pressing <F3> will convert numeric data on the screen between SI and the British system. Pressing <F5> gives a site description detailing the uses and testing history at the site. Figure 11 depicts the screen when <F5> is pressed. Use the up and down arrow keys to scroll through the site description, pressing the <Esc> key when finished. The <F10> key will print the information, either to a printer or to a file.

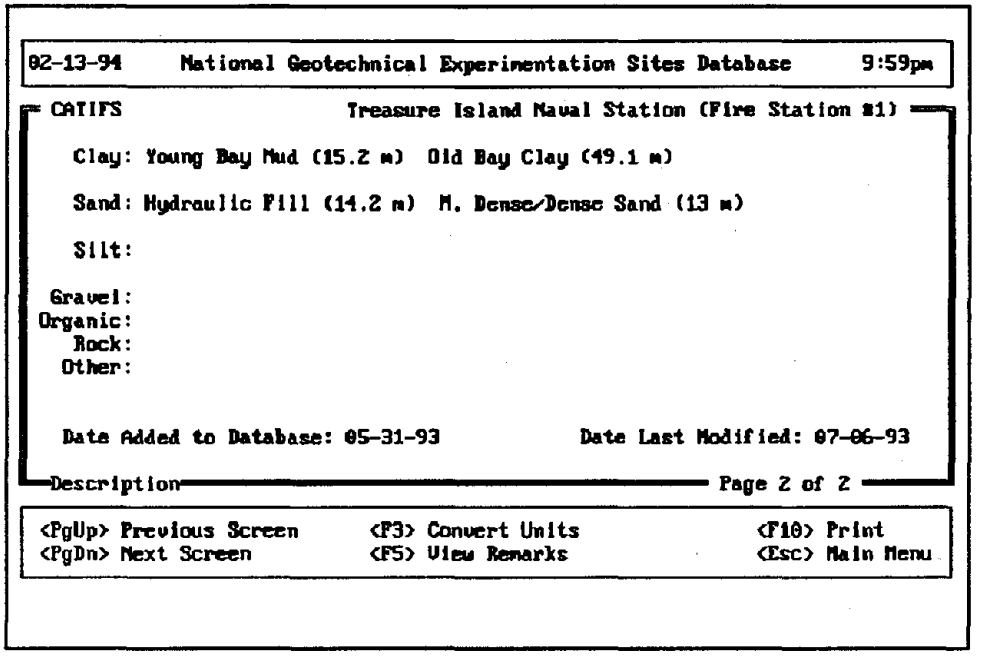

Figure 9. Description page 1.

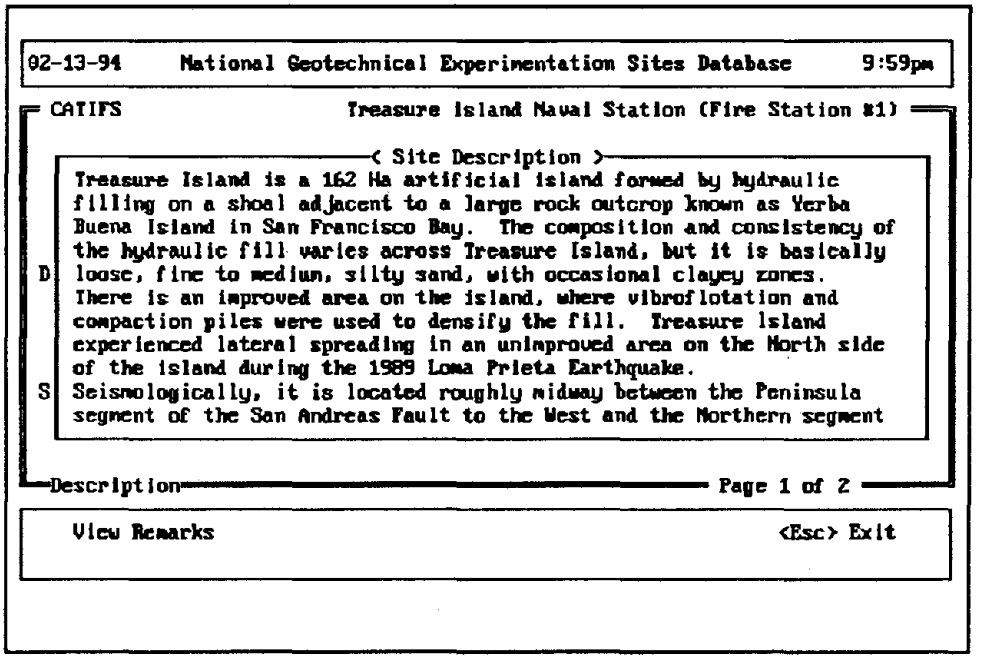

Figure 10. Description page 2.

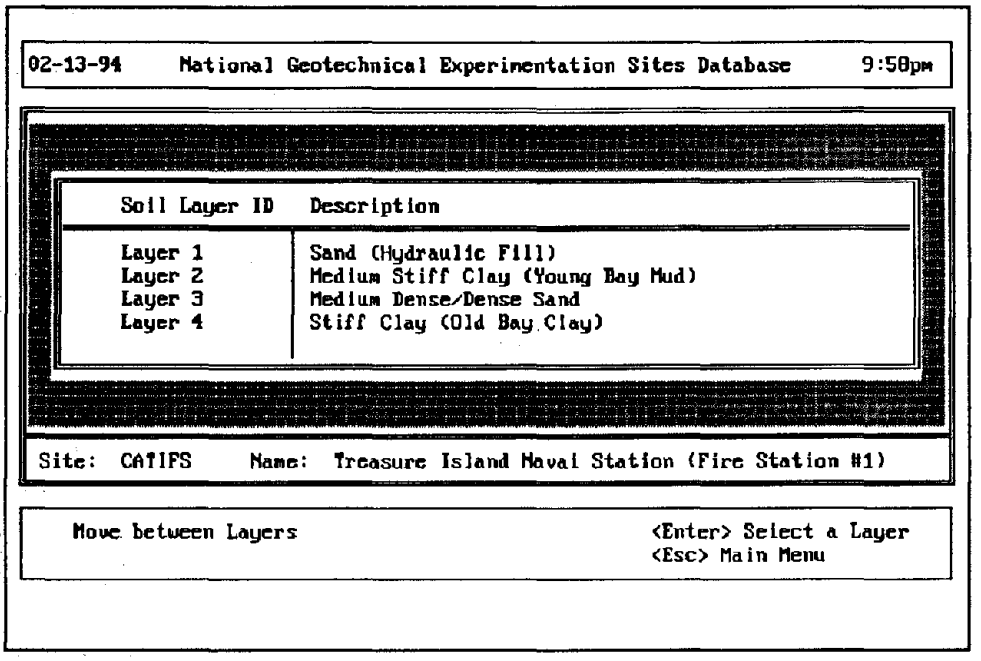

Figure 11. Site description.

Use the **Set Up Printer** option under the **Utilities** menu to correctly configure the printer. When finished viewing the description section, press the <Esc> key to go back to the main menu.

Included within all the data bases are the fields when the data was added to the data base and when the data was modified. This information is useful in determining how recently the information was updated in the NGESDB. In this example the **Description** for CATIFS was added on May 31, 1993, but the information was modified on July 6, 1993.

By choosing **Representative Properties**, a list of soil layers appears. You can then choose the soil layer you are interested in viewing. If there are no soil layers, such as the site NHFROST, the program will notify you and return to the main menu. Figure 12 shows the screen for selecting a soil layer. Information included in the **Representative Properties** section includes depth of the layer, grain sizes, Atterberg limits, unit weight, uncorrected SPT resistance, cone tip resistance, and undrained shear strength. Any information that is not available will be represented by a blank. The keys for converting units and printing are available in this section as well. Pressing the <Esc> key at the information screen goes back to the soil layer list, such that you can select another layer to view. Pressing the <Esc> key at the layer list returns to the main menu. Figure 13 shows a sample **Representative Properties** screen.

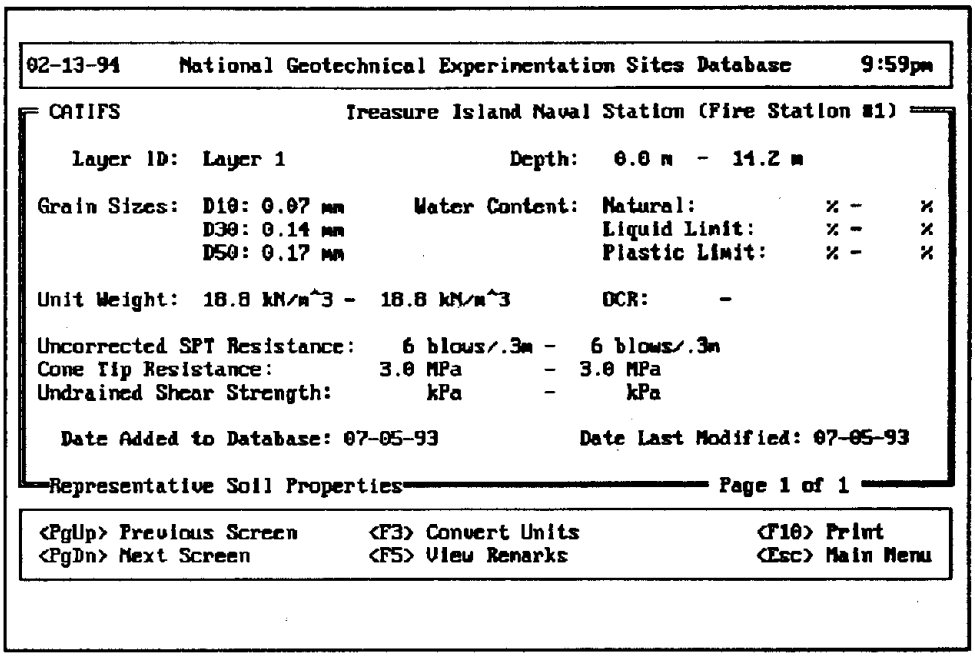

Figure 12. Choosing a soil layer.

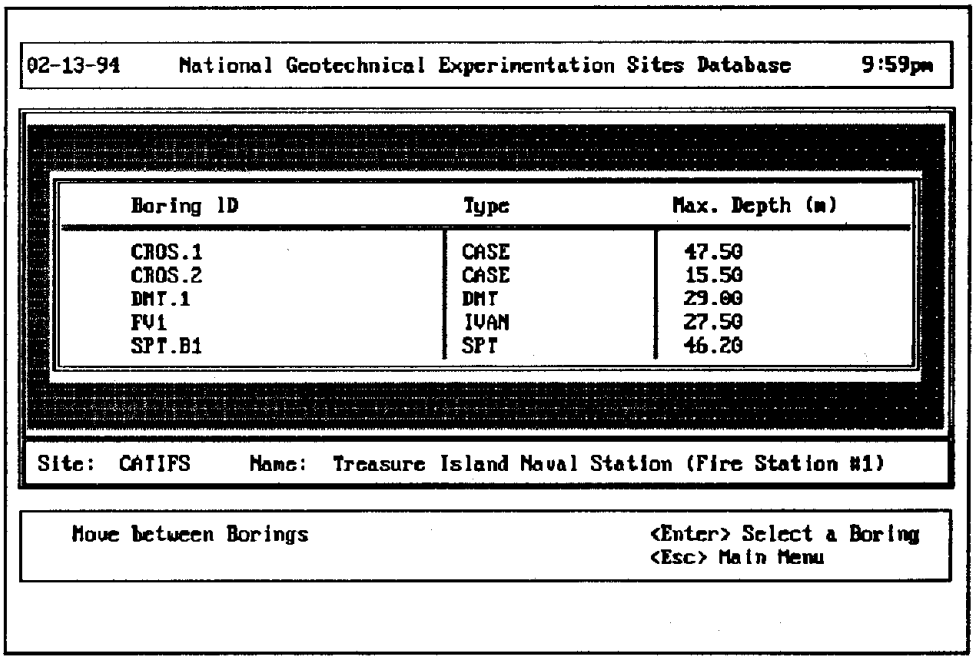

Figure 13. Representative properties.

The **Borings** section gives data pertaining to each borehole or sounding carried out at the site. First a boring must be chosen, using the same procedure as in **Representative Properties**. As soon as the specific borehole or sounding is chosen, information pertaining to the location, final depth, people responsible for drilling, and details such as casing, preparation, and drilling fluid can be displayed. Just as before, converting units, printing and viewing the borehole remarks are accomplished with the <F3>, <F10>, and <F5> keys respectively. Figure 14 depicts the screen when choosing a borehole to view, while figures 15, 16, and 17, show the three **Borings** screens.

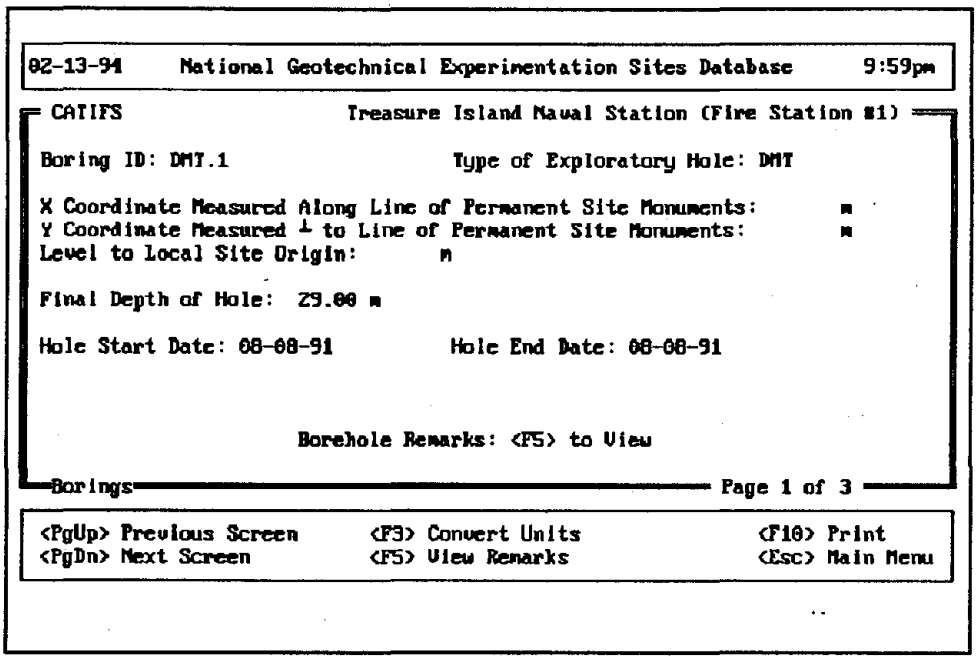

Figure 14. Select a boring.

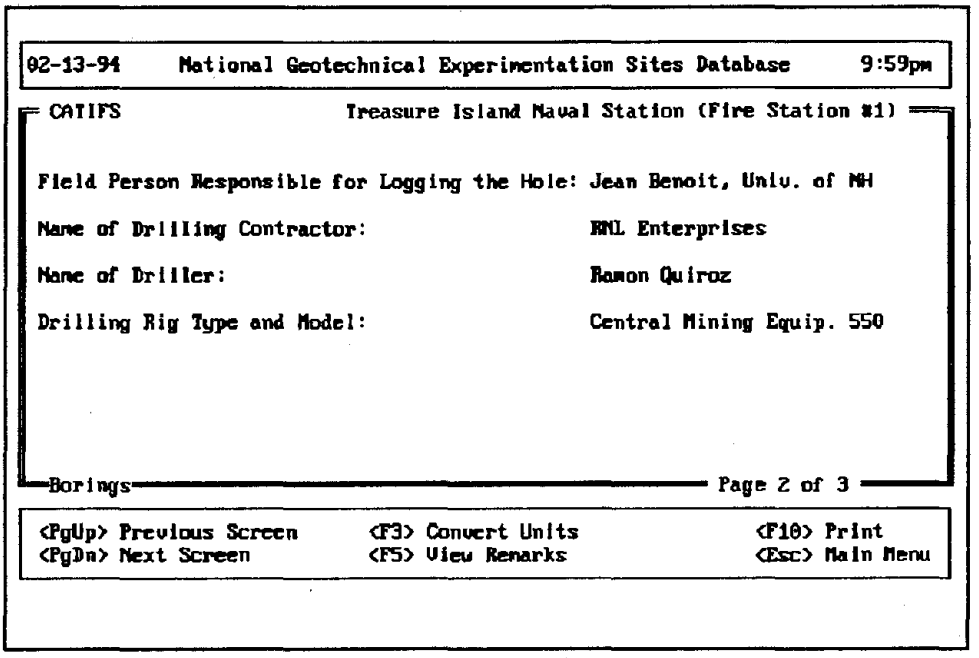

Figure 15. Borings page 1.

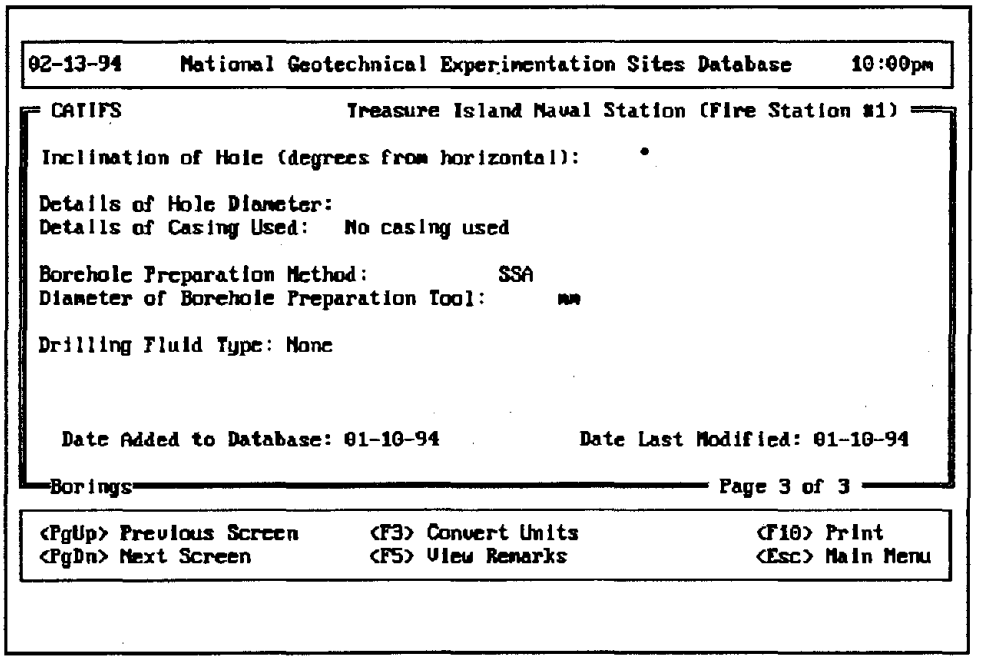

Figure 16. Borings page 2.

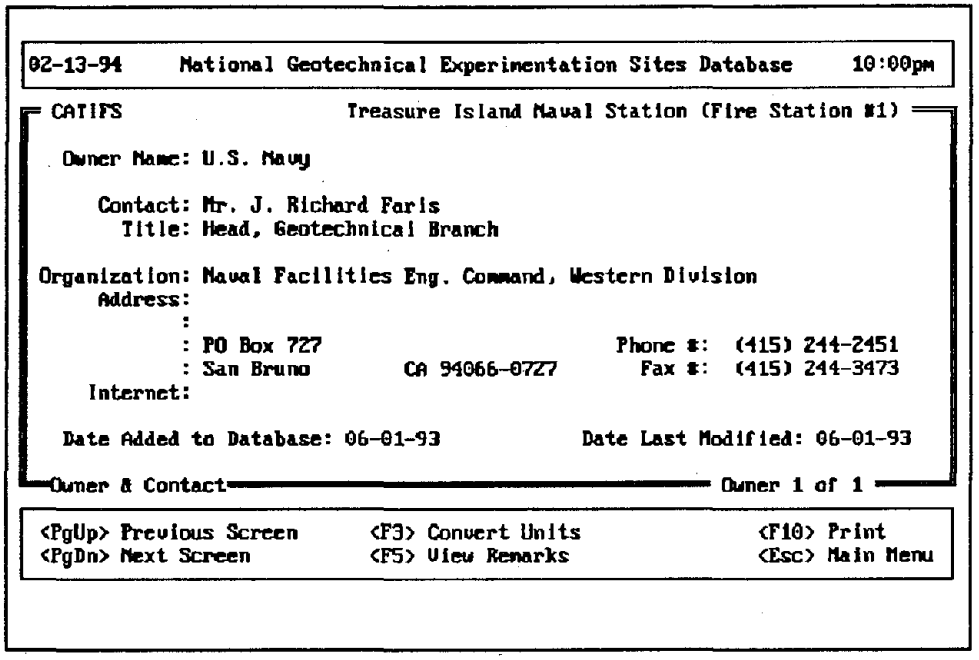

Figure 17. Borings page 3.

Owner & Contact states the owner of the site as well as whom to contact about testing at the site or obtaining additional information. The contact name, address, phone, fax, and internet address are contained within this section. The **Owner & Contact** screen is shown in figure 18.

The section **Logistics & Services** deals with issues such as distances to airports and lodging, site access, security, limitations, prohibited activities, and whether or not the site has electricity, water, a soils laboratory, or a machine shop. This information will be useful when planning a trip to an NGES site. Figures 19, 20, and 21 depict the three pages within **Logistics & Services**.

References lists publications written about the site along with the corresponding abstract. Scroll through the references using the <Page Up> and <Page Down> keys, while using the <F5> key to view an abstract associated with a particular reference. Figure 22 shows a sample **References** screen and figure 23 shows the abstract for the reference shown in figure 22.

By following the previous examples, you should now be able to:

- View multiple pages in a section, using the <Page Up> and <Page Down> keys.
- Select a specific hole or layer within a list.
- Convert units, by pressing the <F3> key.
- View a remarks screen, by pressing the <F5> key.
- Print information, using the <F10> key.

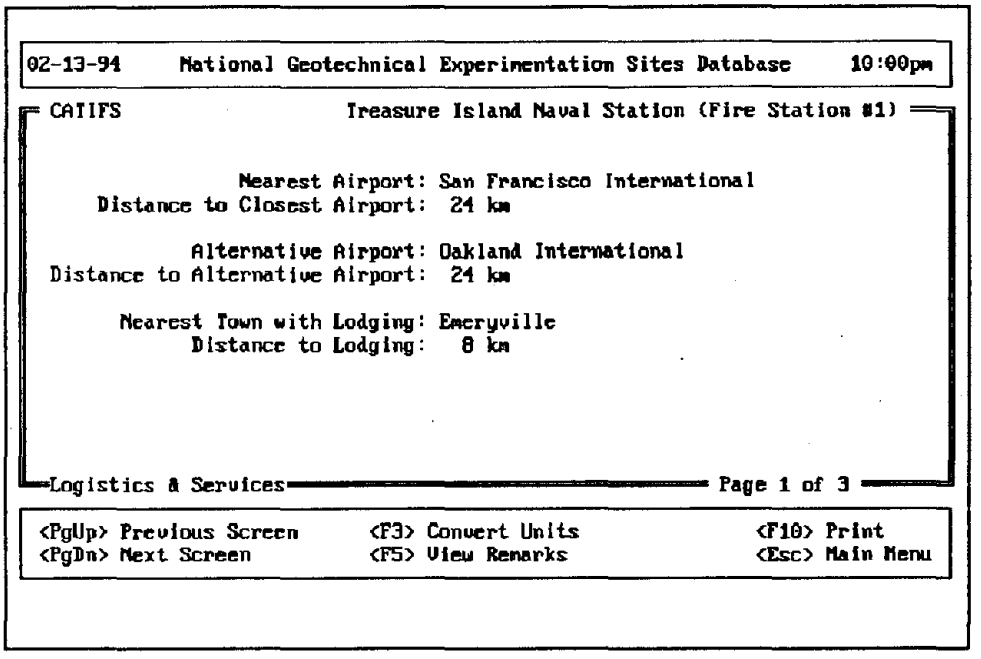

Figure 18. Owner & contact.

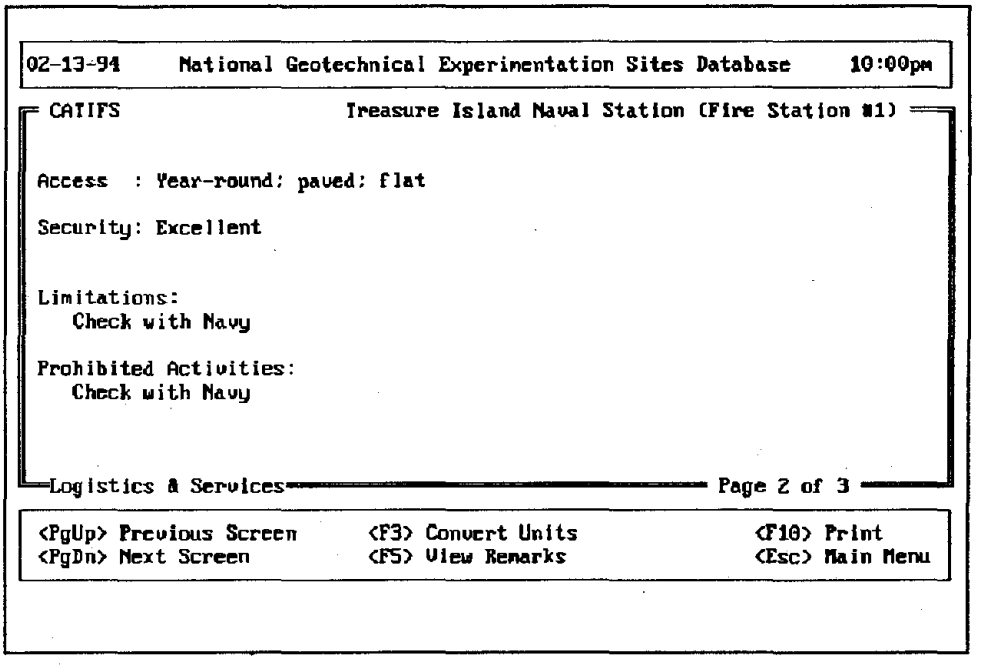

Figure 19. Logistics & services page 1.

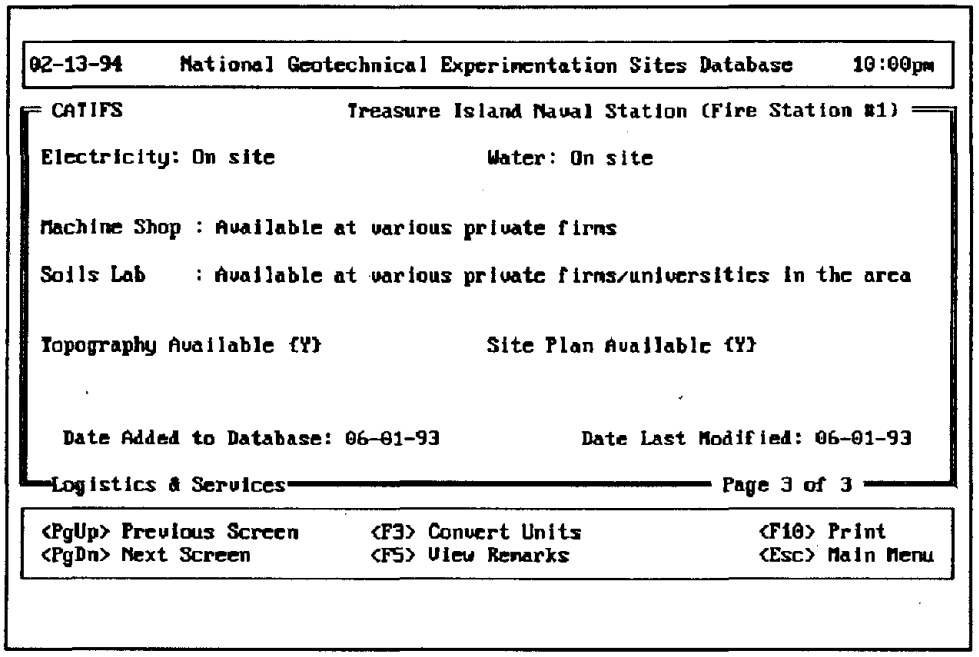

Figure 20. Logistics & services page 2.

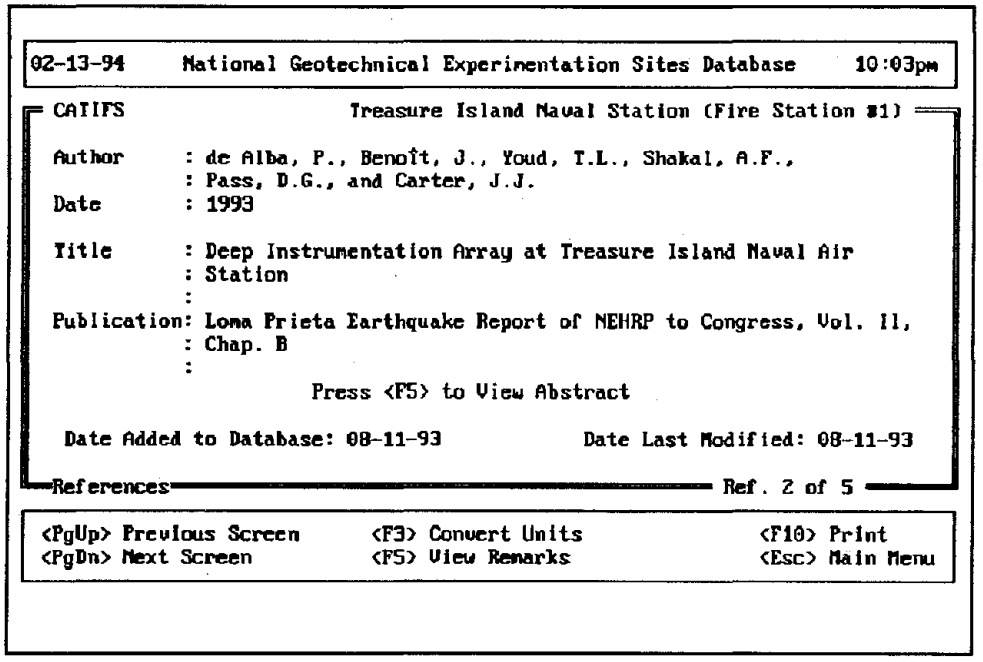

Figure 21. Logistics & services page 3.

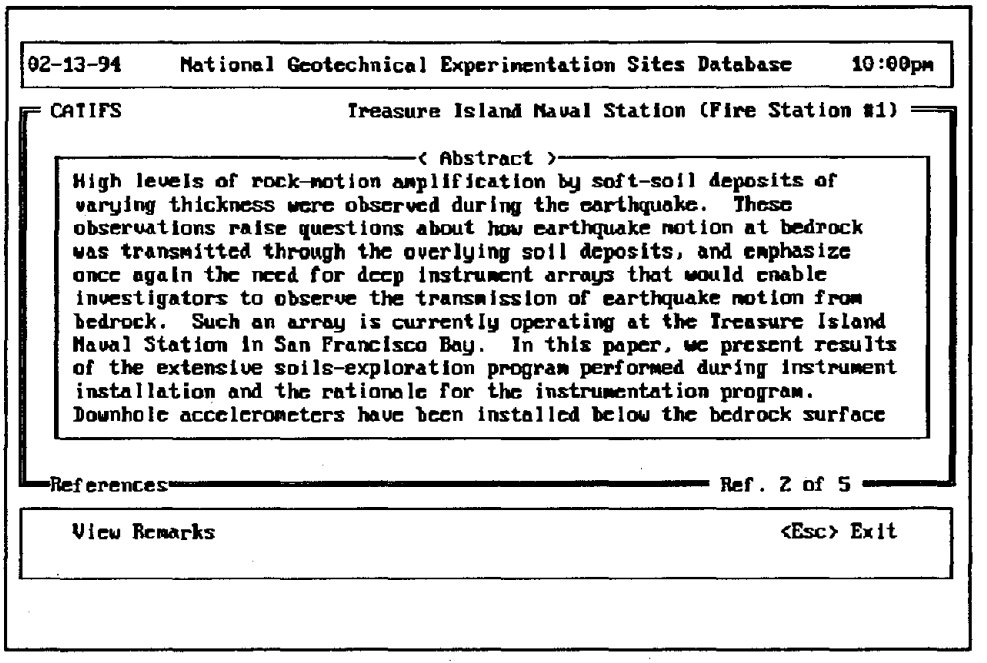

Figure 22. References.

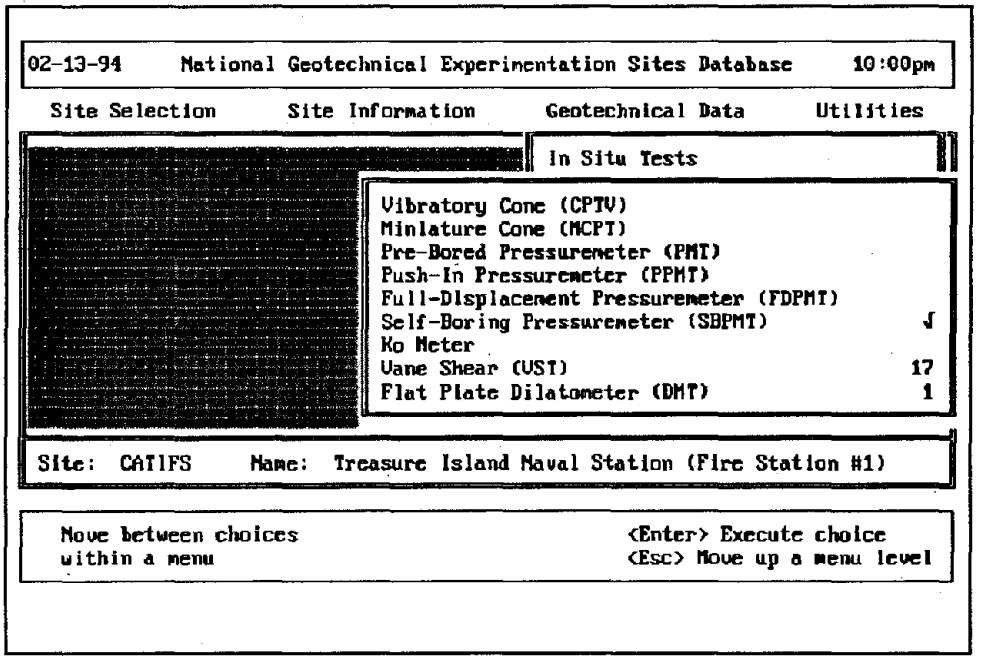

Figure 23. Abstract.

GEOTECHNICAL DATA

Geotechnical Data stores all the data from laboratory and in situ testing, as well as descriptions of major geotechnical field experiments. Selecting **Geotechnical Data** will bring up a menu consisting of the following six categories: (1) **Laboratory Tests: Classification**, (2) **Laboratory Tests: Mechanical**, (3) **In Situ Tests**, (4) **Prototype & Model Foundations**, (5) **Permanent Field Instrumentation**, and (6) **Site Improvement**. Only the first three categories give numerical results, while the last three categories give a detailed description of the tests performed at the site. The following example will show you how to examine Vane Shear Test results (VST) at a particular site.

The first step always consists of selecting a site. In this example, the site CATIFS, Treasure Island Naval Station (Fire Station #1) was chosen using the site selection menus. Using the **Geotechnical Data** menu, select **In Situ Tests**. A menu will open up listing all the in situ tests available within the program. A check mark or a number is used to indicate if or how many tests have been performed at that site. Scroll down the list using the down arrow key or the Page Down key, until **Vane Shear (VST)** is highlighted. An example is shown in figure 24. Select this option and the program will show a list of all the vane shear tests performed at the site. Figure 25 shows the list for this example. Select a particular vane shear test to get more details and results by highlighting the Test ID and pressing <Enter>. figure 26 shows the **Test Information** screen for Test ID FV1.1.

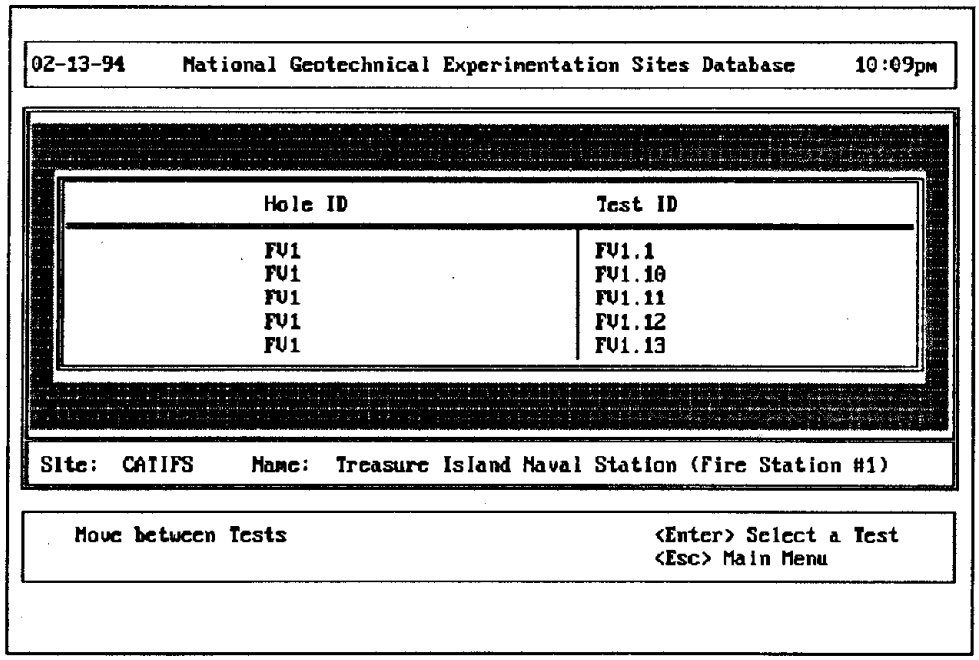

Figure 24. Selecting vane shear within geotechnical data.

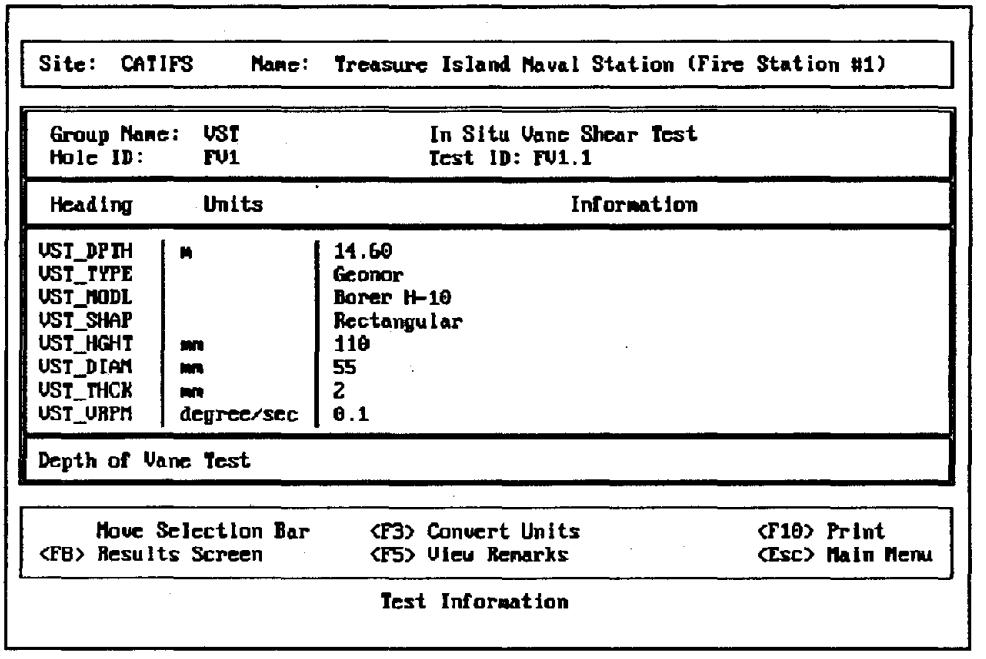

Figure 25. Selecting a vane shear test.

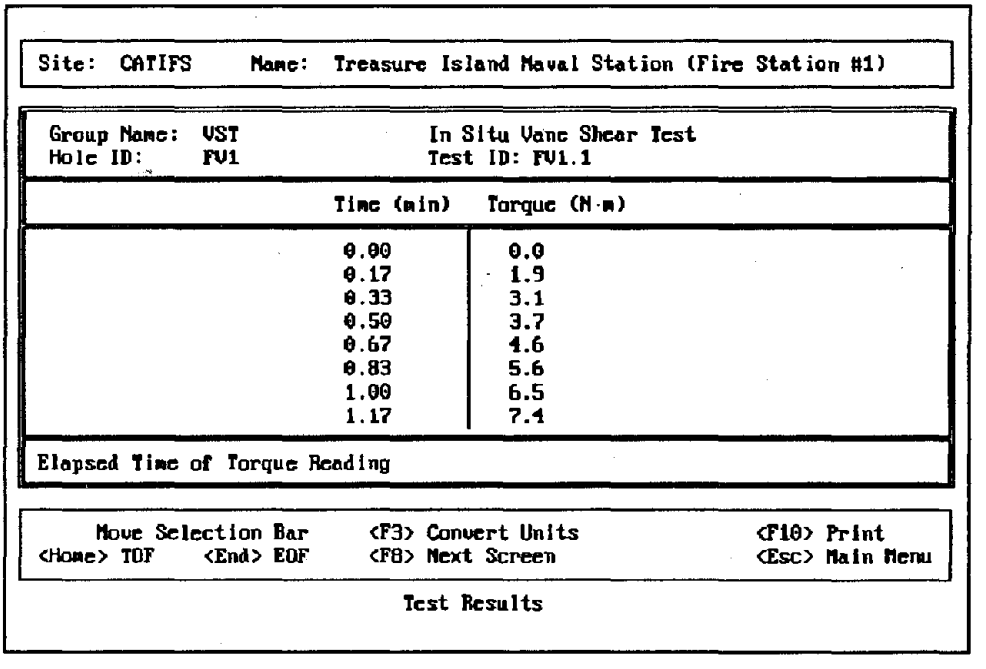

Figure 26. Test information screen.

The topmost box gives the name and ID of the site. Below that box, an area details the group name of the data base (see the corresponding section in the Data Dictionary), the name of the test, the Hole ID and the Test ID. The next box, shows information particular to that test. As one scrolls through the list using the up and down arrow keys, the red highlighted bar states what the heading means on each line. In this example, as VST_DPTH is highlighted, below in red is the definition of the heading: Depth of Vane Test. Next comes the box stating which keys are useful in this section, with the words, **Test Information,** reminding you that this is the information screen of **Geotechnical Data.** The keys, <F3>, <F5>, and <Esc> are consistent with the other sections in which they convert units, bring up the remarks screen, and back up to the main menu respectively. The <F8> key however, brings you to the **Results** screen.

The **Results** screen, shown in figure 27, is similar to the **Test Information** screen except that you can move the cursor horizontally and vertically. The red highlight bar gives the description for the current column. Pressing <F8> will go to the next results screen if there is one, or else the program will return to the **Test Information** screen. <Esc> will also return you to the **Test Information** screen. You can scroll through the list quickly using the <PageUp>, <PageDown>, <Home>, and <End> keys. Of course, as in other sections the data can always be printed in the **Results** or **Test Information** screens by using the <F10> key.

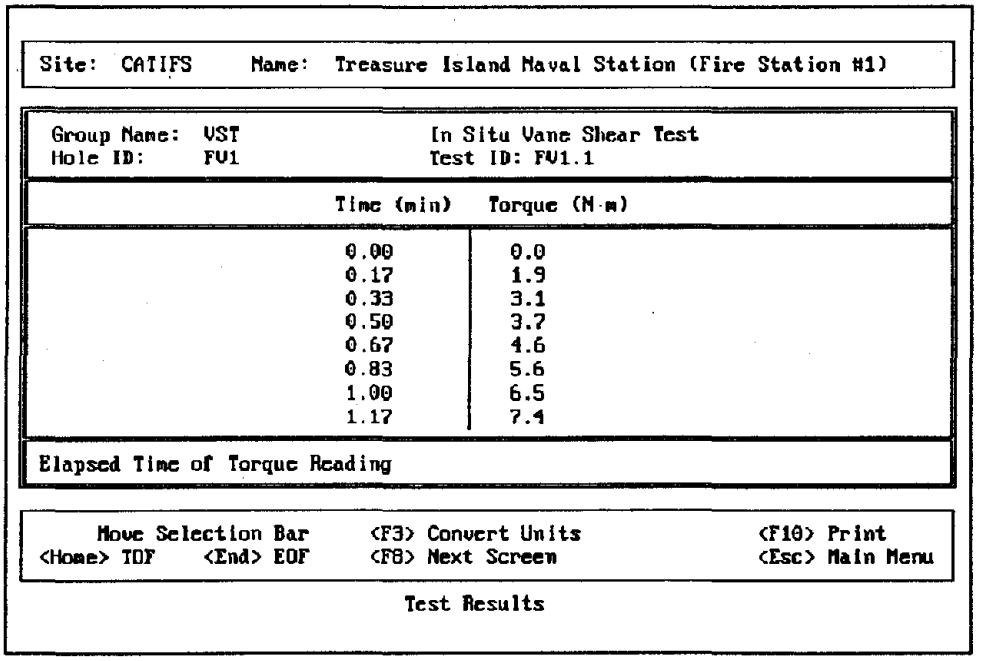

Figure 27. Results screen.

As mentioned previously, the last three options under **Geotechnical Data** will give you a brief paragraph about the experiment. However, at this time, no information of this type has been received from the site managers. If you choose one these options, a message to contact the site manager for more information will be displayed. Therefore, the only use for the last three lists at this time is to check if a specific experiment has been performed at the site by noting check marks next to each experiment.

By following the previous examples, you should now be able to perform these additional functions:

- Know which tests have been carried out at the site.
- Retrieve data for specific in situ or laboratory tests.
- Print data to a printer or save data to a disk.

UTILITIES

There are five options in the **Utilities** section: **Set Up Printer, NGES, Credits, Disclaimer,** and **Bulletin Board.** Choosing **Set Up Printer** brings up two choices, **Select Printer** and **Change Options. Select Printer** lists a wide selection of printers that may be connected to your computer. Choose the appropriate printer. NGESDB will then prompt you to save your selection to a file. Saving the information to a file will allow NGESDB to store the printer information permanently until you choose another printer. **Change Options** allows you to change the page length, margins, add footers and/or headers, and specify to which port your printer is connected. Again this data can also be saved to a file.

NGES gives the information about the National Geotechnical Experimentation Sites program displayed when the program is started. The **Credits** section states the names of all the people who assisted with the development of the NGESDB program. **Disclaimer** releases the program authors from any responsibility associated with the use of the NGESDB program and data. The **Bulletin Board** lists upcoming geotechnical conferences, calls for papers, and other geotechnical information that may be of interest to you.

SPECIAL KEYS

There are several special keys, which allow you more efficient and effective use of the NGESDB. These keys access help screens, activate a pop-up calculator, and print a screen to a file. The specific keys are as follows:

- <F1> Help.
- <F2> Print screen to a text file.
- <F4> Pop-up calculator.

Help is activated by pressing the <F1> key. A box will open up containing instructions pertaining to the specific area of NGESDB you are currently in. The up and down arrows can be used to scroll through the information and the <Esc> key to get out of Help. There

are two options included within the help box. The first is to print the Help screen by pressing Alt-P. The Help screen can only be sent to a printer, not to a file. The second is to personalize the Help screen by typing Alt-E. Modifying the on-line help is as simple as using a text editor. Use the arrow keys, insert key, delete key, and backspace key just as in a text editor, and to save the changes type Ctrl-W. Next, you will be prompted in changing the title, colors, borders, and so forth of the current Help screen. The changes will be saved, available until they are changed again.

The <F2> key allows you to take a screen shot and save it. After pressing <F2>, you will be prompted for a file name that cannot exceed eight characters in length. The file will be saved in the NGES directory with a .TXT extension. This option may be useful for reporting errors to the program authors and producing reports about NGESDB.

A pop-up calculator is activated using the <F4> key. This will allow you to perform simple calculations while viewing the data. There are many keys that operate the calculator. table 7 shows the function of each key.

By following the previous examples, you should now be able to perform these additional functions:

- Activate the help system and modify it if needed.
- Use the pop-up calculator to perform simple mathematical functions.
- Take a screen shot for further use.

Table 7. Calculator functions.

Key	Function	Key	Function
+	Addition	MR	Recall number stored in memory
-	Subtraction	MC	Clear memory (reset to zero)
*	Multiplication	M+	Add current number to memory
/	Division	M-	Subtract current number from memory
^	Exponentiation	M*	Multiply memory by current number
%	Percentage	M/	Divide memory by current number
C	Clear current total	<UpArrow>	Move calculator up one row
E	Clear current entry	<DownArrow>	Move calculator down one row
D	Change number of decimals displayed	<LeftArrow>	Move calculator left one column
R	Round to specified number of decimals	<RightArrow>	Move calculator right one column
P	Print (adding machine mode)	Control-<LeftArrow>	Move calculator to far left
=	Process operation	Control-<RightArrow>	Move calculator far right
<Enter>	Process operation	<Home>	Move calculator to top left corner
<Backspace>	Erase last digit entered	<End>	Move calculator to bottom right corner
<Esc>	Exit calculator	<PageUp>	Move calculator to top row
		<PgDown>	Move calculator to bottom row
		Alt-<F10>	Change color of calculator window

CHAPTER 7. SUMMARY AND RECOMMENDATIONS

The National Geotechnical Experimentation Sites program was established to enhance geotechnical research by allowing the geotechnical community access to previously documented sites. As the geotechnical community produces test data from these sites, it is deposited and stored in the NGESDB data base. NGESDB was developed using the Clipper 5.01 programming language and its data files are dBase compatible. Through the use of this data base, raw test data is available to the geotechnical community to help in the development of in situ testing instruments and interpretation methods, and in the validation of current soil models and predictions.

As this is the first version of NGESDB, several improvements can be made to the system. Some recommendations for future versions include:

- Standardize the data base structures with other data base systems developed for FHWA, such as the data bases pertaining to deep foundations and shallow foundations.
- Translate the data base structures and corresponding data into Sybase, storing all data at TFHRC.
- Develop a new user shell that takes advantage of the Windows environment.
- Develop graphical capabilities within your interface so that 2-D and 3-D plots can be generated.

APPENDIX A. EXAMPLE OF CATALOG INFORMATION

Treasure Island Naval Station
(Fire Station #1), San Francisco, California

Site ID: CATIFS
Location: San Francisco Bay, California
Owner: U.S. Navy
Seismicity: Seismic zone: 4; $M_L = 7^+$ predicted (1989) within 30 yr. with 67% probability

Soil Types: Sand (Hydraulic Fill; 14.2 m), Med. Stiff Clay (Young Bay Mud; 15.2 m) M. Dense/Dense Sand (13 m), V. Stiff Clay (Old Bay Clay; 49.1 m).

Area of Site: 0.2 Ha (Fire Station #1) other locations possible.

Depth to GWT: 1.5 m

Maximum Depth of Exploration: 104 m (bedrock at 91.5 m at test location)

Comments: Treasure Island is a 162 Ha artificial island formed by hydraulic filling on a shoal adjacent to a large rock outcrop known as Yerba Buena Island in San Francisco Bay. The composition and consistency of the hydraulic fill varies across Treasure Island, but it is basically loose, fine to medium, silty sand, with occasional clayey zones. There is an improved area on the island, where vibroflotation and compaction piles were used to densify the fill. Treasure Island experienced lateral spreading in an unimproved area on the North side of the island during the 1989 Loma Prieta Earthquake. Seismologically, it is located roughly midway between the Peninsula segment of the San Andreas Fault to the West, and the Northern segment of the Hayward Fault to the East. An earthquake of magnitude greater than or equal to 7.0 is predicted for one of these fault segments within the next thirty years, with an aggregate probability in excess of 50%. Intensity at Treasure Island is predicted to be MM VIII for either of these events.

The Fire Station #1 site on Treasure Island is quasi-free field, being a large vacant lot behind a one-story wood-frame structure on a surface foundation. The National Science Foundation funded, through the Earthquake Hazard Mitigation Program, the installation of a deep accelerometer array on Treasure Island. This effort is being carried out in collaboration with the Strong Motion Instrumentation Program of the California Division of Mines and Geology (CDMG). CDMG already had a surface instrument at the Fire Station #1 site, which produced a record during the Loma Prieta event. A total of five other instruments have been installed: at bedrock and at four locations in the soil profile.

Eight piezometers have also been provided at various depths in the hydraulic fill. An inclinometer casing has been installed to record horizontal displacements.

An extensive site investigation has been carried out at the fire station. Boring data also exists for other locations.

Site Conditions

Site Accessibility:	Year-round
Access to Site:	Paved
Site Mobility:	Flat
Security:	Excellent
Special Limitations:	Check with Navy
Prohibited Activities:	Check with Navy
Borehole Location Available:	Yes
Topography Available:	Yes

Services

Electricity:	On Site
Water:	On Site
Machine Shop:	Available at various private firms
Soils Laboratory:	Available at various private firms/universities in the area

Site Logistics

		Distance
Nearest Major Public Airport(s):	S.F International	24 km
	Oakland International	24 km
Nearest Lodging:	Emeryville	8 km
Nearest Town:	Emeryville	8 km

Contact Person(s):	Mr. J. Richard Faris
	Head, Geotechnical Branch
Organization:	Naval Facilities Engineering Command, Western Division
Address:	PO Box 727
	San Bruno, CA 94066-0727
Telephone:	(415) 244-3451
Fax:	(425) 244-3473
Internet:	

Representative Soil Properties

Sand (Hydraulic Fill)

Depth: 0-14.2 m

Grain Sizes: D_{10}: <0.074 mm
D_{30}: 0.14 mm
D_{50}: 0.17 mm
Other: D_{60}: 0.20 mm

Unit weight (kN/m^3): 18.8

Uncorrected Standard Penetration Test Resistance (blows/foot): 6

Cone Tip Resistance (MPa): 3

Medium Dense/Dense Sand

Depth: 29.4-42.4 m

Grain Sizes: D_{10}: <0.074 mm
D_{30}: 0.22 mm
D_{50}: 0.33 mm
Other: D_{60}: 0.41 mm

Unit weight (kN/m^3): 20

Uncorrected Standard Penetration Test Resistance (blows/foot): 33-refusal

Cone Tip Resistance:

Medium Stiff Clay (Young Bay Mud)

Depth: 14.2-29.4 m

Water Content - Natural: 40%
Liquid Limit: 46%
Plasticity Index: 23%

Unit weight (kN/m^3): 15.9

Overconsolidated ratio:

Uncorrected Standard Penetration Test Resistance (blows/foot):

Cone Tip Resistance (MPa): 1.5

Undrained Shear Strength (kPa): 27-61 (corrected field vane)

Stiff Clay (Old Bay Clay)

Depth: 42.4-91.5 m

Water Content - Natural:
Liquid Limit:
Plasticity Index:

Unit Weight (kN/m^3): 20

Overconsolidated Ratio:

Uncorrected Standard Penetration Test Resistance (blows/foot):

Cone Tip Resistance (MPa):

Undrained Shear Strength (kPa): 86-190 (pocket penetrometer)

References

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Geomatrix Consultants, Inc. (1990), "Preliminary Report-Compilation of Data and Information for Evaluation of Interior Area Performance, Naval Station Treasure Island".

Governor's Board of Inquiry on the 1989 Loma Prieta Earthquake (1990), "Competing Against Time, report to Governor George Deukmejian," State of California Office of Planning and Research, 272 pp.

Hryciw, R.D., Rollins, K.M., Homolka, M., Shewbridge, S.E. and McHood, M. (1991), "Soil Amplification at Treasure Island During the Loma Prieta Earthquake", Proceedings of the Second International Conference on Recent Advances in Geotechnical Earthquake Engineering and Soil Dynamics, St. Louis, MO.

Laboratory Test Results Available

Soil Type / Depth (m)	Sand 0-14	Young Bay Mud 14-29	Old Bay Clay 42-91
Classification			
Grain-size distribution	✓		
Natural water content		✓	✓
Unit weight		✓	✓
Atterberg limits		✓	✓
Specific gravity		✓	✓
Mineralogy			
Organic content			
Carbonate content			
Angularity and surface texture			
Pore water chemistry			
Mechanical Properties			
Oedometer:			
Incremental loading		✓	✓
Constant rate of strain			
Constant gradient			
Triaxial:			
CIU		✓	
CAU		✓	
CID			
CAD			
Cyclic	✓	✓	✓
Extension			
UU		✓	
Laboratory Vane			
Direct shear			
Direct simple shear (DSS)		✓	
Plane strain (PS)			
Resonant column	✓	✓	
Hydraulic conductivity			
Creep			
Other:			

In Situ Test Results Available

Soil Type / Depth (m)	Sand 0-14	Young Bay Mud 14-29	Old Bay Clay 42-91
Standard penetration (SPT)			
Standard penetration with energy measurement	✓		
Mechanical cone			
Electronic friction cone (CPT)			
Elec piezo/friction cone (CPTU)		✓	
Elec seismic/piezo/friction cone (SCPTU)	✓	✓	
Lateral stress cone			
Dynamic cone (DCPT)			
Pre-bored pressuremeter (PMT)			
Push-in pressuremeter (PPMT)			
Full-displacement pressuremeter (FDPMT)			
Self-boring pressuremeter (SBPMT)	✓	✓	
Vane shear (VST)		✓	
Flat plate dilatometer (DMT)	✓	✓	
Earth pressure cell			
K_o stepped blade			
K_o meter			
Screw plate			
Borehole shear			
Plate load			
Borehole permeability			
Pumping			
Downhole nuclear probes			
Seismic crosshole	✓	✓	✓
Seismic downhole	✓	✓	✓
Seismic surface			
Other:			

Prototype and Model Foundation Tests and Permanent Field Instrumentation Available

Soil Type Depth (m)	Sand 0-14	Young Bay Mud 14-29	Old Bay Clay 42-91
Prototype and Model Foundation			
Footings			
Single pile			
Vertical load			
Lateral load			
Pile group			
Vertical load			
Lateral load			
Piers and Caissons			
Embankments over soft soils			
Retaining structures			
Slurry trenches			
Other:			
Permanent Field Instrumentation			
Piezometers:			
Standpipe			
Vibrating wire			
Pneumatic			
Strain-gauge	✓		
Strong Motion Accelerometer	✓	✓	✓
Deep Benchmark			
Inclinometer	✓		
Other:			

Soil Stabilization and Site Improvement Tests Available

Soil Type Depth (m)	Sand 0-14		
In Situ Reinforcement			
Stone columns			
Soil nailing			
Micropiles			
Jet grouting			
Permanent and ground anchors			
Densification			
Preloading			
Sand drains			
Deep dynamic compaction			
Wick drains			
Vibro-compaction	✓		
Compacting grouting			
Compaction piles	✓		
Reinforcement of Constructed Earth			
Walls			
Embankments			
Foundations and subgrade improvement			
Geotextiles			
Chemical Admixtures & Grouting			
Miscellaneous Methods			
Blasting			
Thermal stabilization			
Dewatering			
Electro-osmosis			
Chemical stabilization			
Other:			

APPENDIX B. CREATING A DATA BASE

In order for the NGESDB to retrieve and display data, data base files needed to be generated. The data files used within the NGESDB are dBase compatible. These files were created using a Clipper 5.01 utility known as DBU. Donnay Software Designs' dCLIP-jr was also used to create and modify the NGES data base structures. The following is a typical example which shows how the references and abstracts data base, ABSTRACT.DBF, was created using DBU. (The structure of ABSTRACT.DBF is given in appendix D.)

1) Start DBU, by typing DBU at the command-line prompt.

2) Press <F3> and then <Return> to create a data base within DBU.

3) Type the first field name, SITEID then <Return>.

4) For the type of field, press "C" for character field type. Other types include "D" for date, "L" for logical, "M" for memo, and "N" for numeric.

5) Type the length of the field and press <Return> when finished. For SITEID the length is eight.

6) If the data type is numeric then the amount of decimal places can be entered. If the amount of decimal places is greater than zero, then the length must be at least equal to the amount of decimal places plus two. For example, the number 0.5 has a length of three and a decimal place value of one.

7) Hit the down arrow key and enter in the rest of the fields.

8) When finished press <F4> and then <Return> key. Type the filename, which in this case is ABSTRACT and hit <Return> twice.

9) The data base ABSTRACT.DBF has been created.

APPENDIX C. DATA DICTIONARY

Table of Contents

Instructions for Creating Data Files

The data files should be created using a spreadsheet program such as LOTUS 1-2-3, EXCEL, QUATTRO PRO, etc. with a CSV (comma separated values) save option, or using a text editor program such as WORD, WORDPERFECT, MS-DOS EDIT, AMI PRO, etc.

Status of Data Fields

*	: Indicates that the information must be included
Blank	: Indicates that those fields should be entered
# number	: Indicates that a data set is being created in the x, y, y, y, y, ..., format

Instructions

Spreadsheet:

1. Type group name in the first cell of the spreadsheet (cell A-1).
2. Type each non-repeating data entry on a separate row.
3. Leave a blank row for cases where no data is available.
4. Each data set is entered on a single row. The first column will have a # (pound) sign followed by the appropriate number of the data set. Each entry of the data set will then be placed in its own separate column in the order specified by the data dictionary.
5. For data sets, leave column blank where data is not available. Do not put a space.
6. For text entries, do not change cells.
7. Place remarks on one line if possible.
8. Save the spreadsheet file as a CSV (comma separated values) file.

DMT					
CATIFS					
DMT1					
1000					
6000					
34					
67					
34					
96					
48					
20					
#1	0.71		149.4	374.9	0.0
#1	0.91		268.1	1314.1	0.0
#1	1.71		316.5	1149.1	0.0
#1	1.92		338.0	1159.2	0.0
Ground water measured at 0.6 m.					

Text editor:

1. Place the group name on the first line.
2. Type each non-repeating data entry on a separate line.
3. Leave a blank line for cases where no data is available.
4. Each data set is entered on a single line. Type the # (pound) sign with the appropriate number of the data set followed by a comma. Type the rest of the data set separating each value or text string by a comma.
5. If some data are not available just type a comma. Do not type a space or a zero. The datafile should reflect that by having 2 consecutive commas (,,).
6. Place remarks on one line if possible.
7. Save the file as an ASCII file.

```
DMT
CATIFS
DMT1

1000
6000
34
67
34
96
48

20

#1,0.71,,149.4,374.9,0.0
#1,0.91,,268.1,1314.1,0.0
#1,1.71,,316.5,1149.1,0.0
#1,1.92,,338.0,1159.2,0.0
Ground water measured at 0.6 m
```

Hole_type

GEOL	:	Geological stratigraphy
SAMP	:	Sampling
SPT	:	Standard penetration testing
CPT	:	Cone penetration testing
PMT	:	Pressuremeter testing
IVAN	:	In situ vane testing
DMT	:	Dilatometer testing
PEPC	:	Push-in earth pressure cell testing
KOSB	:	K_o stepped blade testing
SCRW	:	Screw plate testing
BST	:	Borehole shear testing
BPER	:	Borehole permeability testing
PUMP	:	Pumping test
CASE	:	Cased borehole
GEOL+SAMP+SPT	:	Combination

Hole_prep

WB	:	Wash boring
RD	:	Rotary drilling
CR	:	Core drilling
RP	:	Rotary percussion
TS	:	Tube sampling
DS	:	Driving or vibrodriving a sampler
PTS	:	Pilot hole with subsequent tube sampling
PSS	:	Pilot hole with simultaneous shaving
HSA	:	Hollow stem continuous flight auger
SSA	:	Solid continuous flight auger
HA	:	Bucket or hand auger
DB	:	Drag bit
CB	:	Chopping bit
FB	:	Fishtail bit
RCB	:	Roller cone bit
BD	:	Bottom discharge
SD	:	Side discharge
ST	:	Driving, vibrodriving or pushing slotted tube
SB	:	Self-boring
WD	:	Wet drilling
DD	:	Dry drilling
RD+DB+WD	:	Combination

Samp_type

U	:	Undisturbed sample - Shelby tube
P	:	Undisturbed sample - Piston sample
SSD	:	Disturbed split-spoon sample
BLK	:	Block sample
D	:	Disturbed sample
R	:	Reconstituted sample
C	:	Core sample

Cons_type

SWL	: Swelling test
ICL	: Incremental load
CG	: Constant gradient
CRS	: Constant rate of strain

Triaxial_type

ICUC	: $\overline{ICU}$-C /Isotropically-consolidated undrained compression with pore pressure measurement.
ICUE	: $\overline{ICU}$-E /Isotropically-consolidated undrained extension with pore pressure measurement.
ACUC	: $\overline{ACU}$-C /Anisotropically-consolidated undrained compression with pore pressure measurement.
ACUE	: $\overline{ACU}$-E /Anisotropically-consolidated undrained extension with pore pressure measurement.
CKUC	: $C\overline{K_oU}$-TC /K_o-consolidated undrained compression with pore pressure measurement.
CKUE	: $C\overline{K_oU}$-TE /K_o-consolidated undrained extension with pore pressure measurement.
KPSAU	: $C\overline{K_oU}$-PSA /K_o-consolidated compression - plane strain active condition.
KPSPU	: $C\overline{K_oU}$-PSP /K_o-consolidated compression - plane strain passive condition.
UU	: Unconsolidated-undrained test (including unconfined).
CYLQ	: Cyclic triaxial liquefaction.
CYGDU	: Cyclic shear modulus and damping, strain controlled, undrained.
ICDC	: ICD-C /Isotropically-consolidated drained compression.
ICDE	: ICD-E /Isotropically-consolidated drained extension.
ACDC	: ACD-C /Anisotropically-consolidated drained compression.
ACDE	: ACD-E /Anisotropically-consolidated drained extension.
CKDC	: CK_oD-TC /K_o-consolidated drained compression.
CKDE	: CK_oD-TE /K_o-consolidated drained extension.
KPSAD	: CK_oD-PSA /K_o-consolidated drained compression - plane strain active condition.

KPSPD : CK_oD-PSP /K_o-consolidated drained extension - plane strain passive condition.

CYGDD : Drained cyclic shear modulus and damping, strain-controlled.

PZOR_type

STAN : Standpipe piezometer
VIBW : Vibrating wire piezometer
PNEU : Pneumatic piezometer
STGA : Strain-gauge piezometer

DSST_type

CKUS : $\overline{CK_oU}$DSS /K_o-consolidated undrained unidirectional loading with pore pressure measurement

DSGD : Cyclic shear modulus and damping test, strain controlled

DSLQ : Cyclic liquefaction test

Cone_type

CP : Mechanical cone
CPT : Electric cone
CPTU : Piezocone
SCPTU : Seismic piezocone
LSSCP : Lateral stress cone
DCPT : Dynamic cone
ACPT : Acoustic cone
RCPT : Resistivity cone
CPTV : Vibratory cone
MCPT : Miniature cone

SBPP_type

SBPMT : Self-boring pressuremeter
PPMT : Push-in pressuremeter
FDPMT : Full-displacement pressuremeter
K0 : K_o meter

SITE INFORMATION

Group Name: SITE			Site Information	
Status	Heading	Unit	Description	Example
*	SITE_ID		Site identification	CATIFS
	SITE_NAME		Site name	Treasure Island Naval Station (Fire Station #1)
	SITE_LOC		Location of site	San Francisco, California
	SITE_OWNR		Site owner	U.S. Navy
	SITE_CNTC		Site contact	J. Richard Faris
	SITE_ORI1		Location of local permanent origin, site monument number 1	Borehole A1-1
	SITE_ORI2		Location of local permanent origin, site monument number 2	Borehole A1-2
	SITE_LON1	degrees	Longitude (-180° ↔ +180°) of permanent site monument number 1	102.067
	SITE_LAT1	degrees	Latitude (-90° ↔ +90°) of permanent site measurement number 1	56.311
	SITE_ORZ1	m	Geodetic datum of permanent site monument number 1	
	SITE_LON2	degrees	Longitude (-180° ↔ +180°) of permanent site monument number 2	
	SITE_LAT2	degrees	Latitude (-90° ↔ +90°) of permanent site measurement number 2	
	SITE_ORZ2	m	Geodetic datum of permanent site monument number 2	
	SITE_REM		Remarks	

Note: The two permanent site monuments should be preferably selected at extreme points of the site and along a North-South line or a East-West alignment. One of the monuments will have the coordinates 0, 0.

Group Name: HOLE			Hole Information	
Status	Heading	Unit	Description	Example
*	SITE_ID		Site identification	CATIFS
*	HOLE_ID		Exploratory hole identification number	ABC.12
*	HOLE_TYPE		Type of borehole or sounding	SPT (see hole_type list)
	HOLE_LOCX	m	X coordinate measured along line of permanent site monuments	+565
	HOLE_LOCY	m	Y coordinate measured perpendicular to line of permanent site monuments	-421
	HOLE_LOCZ	m	Level to local site origin	-2.1
	HOLE_FDEP	m	Final depth of hole	32.60
	HOLE_STAR	mm/dd/yyyy	Hole start date	05/23/89
	HOLE_END	mm/dd/yyyy	Hole end date	05/24/89
	HOLE_LOG		Field person responsible for logging the hole and/or performing the in situ tests and affiliation	Rod Wells, Acme Testing
	HOLE_DRILL		Name of drilling contractor	Acme Drilling
	HOLE_CREW		Name of driller	Chuck Kelley
	HOLE_RIG		Drilling rig type and model	Mobile B-53
	HOLE_INCL	deg	Inclination of hole (degrees from horizontal)	90
	HOLE_DIAM		Details of hole diameter	200mm to 18.0m, 150mm to 32.6m
	HOLE_CASG		Details of casing used	200mm to 18.0m, 150mm to 30.0m
	HOLE_PREP		Borehole preparation method	DB (see hole_prep list)
	HOLE_PRED	mm	Diameter of borehole preparation tool	
	HOLE_FLDT		Drilling fluid type	Water/water-bentonite
	HOLE_REM		Remarks	

Group Name: SPEC			Sample/Specimen Reference Information	
Status	Heading	Unit	Description	Example
*	SITE_ID		Site identification	CATIFS
*	HOLE_ID		Exploratory hole identification number	ABC.12
*	SPEC_ID		Specimen identification number	ABC.12.2
*	SPEC_TYPE		Type of sample	U (see Samp_type list)
	SPEC_RECO	mm	Tube sample recovery	760
	SPEC_DPTH	m	Depth to top of specimen	4.20
	SPEC_BASE	m	Depth to base of specimen	4.55
	SPEC_DESC		Sample or specimen description following ASTM D-2488	
	SPEC_TDEN	Mg/m^3	Total density	1.853
	SPEC_WC	%	Specimen natural water content	72.4
	SPEC_SIGV	kPa	Vertical effective stress at specimen depth	40
	SPEC_REM		Remarks	

Note: Specimen is a subset of sample.

Group Name: GEOL			Stratum Global Descriptions	
Status	Heading	Unit	Description	Example
*	SITE_ID		Site identification	CATIFS
*	HOLE_ID		Exploratory hole identification number	ABC.12
#1	GEOL_TOP	m	Depth to TOP of stratum measured from ground surface	16.21
#1	GEOL_DETL		Stratum detailed descriptions available	T (true)/F (false)
#1	GEOL_USCS		USCS soil classification	CL-ML
#1	GEOL_ASTO		AASHTO soil classification	A-7-6
#1	GEOL_DESC		General description of stratum	Stiff brown very silty CLAY

Group Name: DETL			Stratum Detail Descriptions	
Status	Heading	Unit	Description	Example
*	SITE_ID		Site identification	CATIFS
*	HOLE_ID		Exploratory hole identification number	ABC.12
#1	DETL_TOP	m	Depth to TOP of detail description measured from ground surface	16.21
#1	DETL_BASE	m	Depth to BASE of detail description measured from ground surface	16.95
#1	DETL_USCS		USCS soil classification	CL-ML
#1	DETL-ASTO		AASHTO soil classification	A-7-6
#1	DETL_DESC		Detailed description	Claystone

Group Name: GRAD			Grain-Size Distribution Test	
Status	Heading	Unit	Description	Example
*	SITE_ID		Site identification	CATIFS
*	HOLE_ID		Exploratory hole identification number	ABC.12
*	SPEC_ID		Specimen identification number	ABC.12.2
#1	GRAD_SIEV	mm	Sieve opening	19
#1	GRAD_PASS	%	Percent passing	80.3
	GRAD_HMAT		Drying method	Oven/air
	GRAD_HWT	N	Total hydrometer sample weight	20
	GRAD_HMAX		Sieve number passing all hydrometer specimen	40
	GRAD_HDIS		Dispersing agent	Calgon
#2	GRAD_HSIZ	mm	Particle size	0.002
#2	GRAD_HPER	%	Percent	5
	GRAD_REM		Remarks	

Group Name: ALIM			Atterberg Limits Test	
Status	Heading	Unit	Description	Example
*	SITE_ID		Site identification	CATIFS
*	HOLE_ID		Exploratory hole identification number	ABC.12
*	SPEC_ID		Specimen identification number	ABC.12.2
	ALIM_LLCA	%	Liquid limit by Casagrande apparatus	46
	ALIM_LLFC	%	Liquid limit by fall cone	
	ALIM_DRY		Material air dried	T (true)/F (false)
	ALIM_PREP		Washed through #40 sieve or dry sieved?	dry sieved
	ALIM_NPT		Number of points to determine liquid limit	4
	ALIM_FIDX		Flow index	
	ALIM_PLAS	%	Plastic limit	20
	ALIM_SKL	%	Shrinkage limit	10
	ALIM_SKME		Method used for shrinkage limit	Mercury/wax
	ALIM_REM		Remarks	

Group Name: SGRA			Specific Gravity Test	
Status	Heading	Unit	Description	Example
*	SITE_ID		Site identification	CATIFS
*	HOLE_ID		Exploratory hole identification number	ABC.12
*	SPEC_ID		Specimen identification number	ABC.12.2
	SGRA_PYCN	mℓ	Pycnometer capacity	500
	SGRA_NUMB		Number of trials	3
	SGRA_SPG		Specific gravity	2.72
	SGRA_REM		Remarks	

Group Name: MDES			Soil Components Tests	
Status	Heading	Unit	Description	Example
*	SITE_ID		Site identification	CATIFS
*	HOLE_ID		Exploratory hole identification number	ABC.12
*	SPEC_ID		Specimen identification number	ABC.12.2
	MDES_CARB	%	Calcium carbonate content of oven-dried soil (ASTM D-4375)	13
	MDES_ORG	%	Organic matter content of oven-dried soil (ASTM D-2974)	
	MDES_MINR	%	Minerology of soil specimen qualitative (A) or measured (M)	Quartz 80% (A), feldspars 16% (A), mica 4% (A)
	MDES_ANGS		Angularity and surface texture of grains	Subrounded, deep surface solution
	MDES_REM		Remarks	

Group Name: WCHM			Pore Water Chemistry	
Status	Heading	Unit	Description	Example
*	SITE_ID		Site identification	CATIFS
*	HOLE_ID		Exploratory hole identification number	ABC.12
*	SPEC_ID		Specimen identification number	ABC.12.2
	WCHM_ALUM	mg/ℓ	Aluminum	1
	WCHM_ANTI	mg/ℓ	Antimony	5
	WCHM_ARSE	mg/ℓ	Arsenic	2
	WCHM-BARI	mg/ℓ	Barium	5
	WCHM_BORO	mg/ℓ	Boron	2
	WCHM_CAD	mg/ℓ	Cadmium	0
	WCHM_CALC	mg/ℓ	Calcium	1
	WCHM_CHRO	mg/ℓ	Chromium	5
	WCHM_COBA	mg/ℓ	Cobalt	0
	WCHM_COPP	mg/ℓ	Copper	5
	WCHM_IRON	mg/ℓ	Iron	1
	WCHM_LEAD	mg/ℓ	Lead	1
	WCHM_MAGN	mg/ℓ	Magnesium	10
	WCHM_MANG	mg/ℓ	Manganese	10
	WCHM_MERC	mg/ℓ	Mercury	0
	WCHM_MOLY	mg/ℓ	Molybdenum	1
	WCHM_NICK	mg/ℓ	Nickel	5
	WCHM_POTA	mg/ℓ	Potassium	2
	WCHM_SELE	mg/ℓ	Selenium	2
	WCHM_SODI	mg/ℓ	Sodium	10
	WCHM_TINS	mg/ℓ	Tin	0
	WCHM_VANA	mg/ℓ	Vanadium	5
	WCHM_ZINC	mg/ℓ	Zinc	10
	WCHM_BIOX	mg/ℓ	Biochemical Oxygen Demand (5 Day)	20
	WCHM_CHOX	mg/ℓ	Chemical Oxygen Demand (Soluble)	20
	WCHM_CHLR	mg/ℓ	Chloride	0
	WCHM_CYAT	mg/ℓ	Cyanide (Total)	2

Group Name: WCHM			Pore Water Chemistry	
Status	Heading	Unit	Description	Example
	WCHM_CYAF	mg/ℓ	Cyanide (Free & Simple)	1
	WCHM_THIO	mg/ℓ	Thiocyanate	1
	WCHM_OXYD	mg/ℓ	Oxygen (Dissolved)	5
	WCHM_COND	μS/cm	Electrical Conductivity	0.001
	WCHM_FLUO	mg/ℓ	Fluoride	0
	WCHM_OILS	mg/ℓ	Mineral Oils	5
	WCHM_AMMO	mg/ℓ as N	Ammonia Nitrogen	25
	WCHM_NITA	mg/ℓ as N	Nitrate Nitrogen	2
	WCHM_NITI	mg/ℓ as N	Nitrite Nitrogen	7
	WCHM_NITR	mg/ℓ	Kjeldahl Nitrogen (Total)	0
	WCHM_TONI	mg/ℓ	Total Oxidized Nitrogen	5
	WCHM_CHLO	mg/ℓ	Chlorine (Organic)	0
	WCHM_PETR	mg/ℓ	Petroleum Ether Extractable Matter	5
	WCHM_PHET	mg/ℓ	Phenol (Total)	1
	WCHM_PHEM	mg/ℓ	Phenol (Monohydric)	1
	WCHM_ORTH	mg/ℓ	Orthophosphate (Total)	5
	WCHM_PHPT	mg/ℓ	Phosphorus (Total)	0
	WCHM_HCAR	mg/ℓ	Polynuclear Aromatic Hydrocarbons	10
	WCHM_PCBS	μg/ℓ	Polychlorinated Biphenyls	5
	WCHM_BIPO		Polychlorinated Biphenyls - presence of (<50 μg/ℓ or >50 μg/ℓ)	<50
	WCHM_VSOL	mg/ℓ	Volatile Suspended Solids	5
	WCHM_ESUL	mg/ℓ	Sulfur (Elemental)	10
	WCHM_SULA	mg/ℓ	Sulfate	50
	WCHM_SULI	mg/ℓ	Sulfide	10
	WCHM_VFAT	mg/ℓ	Volatile Fatty Acids	0
	WCHM_ACAL	mg/ℓ as $CaCO_3$	Acidity/Alkalinity	
	WCHM_COTD	mg/ℓ	Coal Tar Derivatives	100
	WCHM_PH		pH	5
	WCHM_REPT	mV	Redox Potential	50
	WCHM_CHHY	mg/kg	Chlorinated Hydrocarbons	10

Group Name: WCHM			Pore Water Chemistry	
Status	Heading	Unit	Description	Example
	WCHM_TOC	mg/ℓ	Total Organic Carbon	2
	WCHM_THRN	mg/ℓ as $CaCO_3$	Total Hardness	10
	WCHM_TEMP	°C	Water Temperature	12.3
#1	WCHM_OTHR		Other types with definition	
#1	WCHM_OTH	mg/ℓ	Amount	
	WCHM_REM		Remarks	

Group Name: CONS			One-Dimensional Consolidation Test	
Status	Heading	Unit	Description	Example
*	SITE_ID		Site identification	CATIFS
*	HOLE_ID		Exploratory hole identification number	ABC.12
*	SPEC_ID		Specimen identification number	ABC.12.2
*	CONS_TYPE		Test type	ICL (see Cons_type list)
	CONS_LOAD		Type of consolidometer	Hydraulic/dead weight
	CONS_BSAT		Back pressure saturation	T (true)/F (false)
	CONS_RMAT		Consolidation ring material	Teflon-lined/untreated/ greased
	CONS_RTYP		Ring type	Fixed/floating
	CONS_RHT	mm	Ring height	25.4
	CONS_RINT	mm	Ring internal diameter	
	CONS_REXT	mm	Ring external diameter	
	CONS_GAMI	kg/m^3	Initial dry density	1.63
	CONS_VRI		Initial void ratio	1.4
	CONS_SATI	%	Initial degree of saturation	96
	CONS_GAMF	kg/m^3	Final dry density	1.71
	CONS_VRF		Final void ratio	1.0
	CONS_WATF	%	Final water content	45
	CONS_SATF	%	Final degree of saturation	100
	CONS_SIGV	kPa	Vertical effective stress at sample depth	16
	CONS_CRSE	%/sec	Rate of strain for constant rate of strain consolidation test	2×10^{-4}
	CONS_DPRS	kPa	Differential pressure maintained in constant gradient test	21
#1	CONS_PRE1	kPa	Applied pressure	50
#1	CONS_TIME	min	Elapsed time	60
#1	CONS_DEF	mm	Deformation corrected for apparatus flexibility, measured from 0% consolidation	4.11
	CONS_ECAL		Was specimen height or void ratio calculated at end of primary, 24 hours or other?	One cycle secondary
#2	CONS_PRE2	kPa	Applied pressure	
#2	CONS_VRI		Corresponding void ratio	

Group Name: CONS			One-Dimensional Consolidation Test	
Status	Heading	Unit	Description	Example
#2	CONS_STR	%	Corresponding percent strain	
	CONS_CVM		Coefficient of consolidation calculation method	Log time/square root of time
#3	CONS_PRE3	kPa	Applied pressure	
#3	CONS_CV	mm^2/sec	Coefficient of consolidation	
#3	CONS_SC		Secondary compression index, C_α	0.003
	CONS_MPP	kPa	Maximum past pressure	320
	CONS_MPPM		Method used to determine maximum past pressure	Casagrande
	CONS_OCR		Overconsolidation ratio	4
	CONS_CC		Compression index, C_c	
	CONS_RC		Recompression index, C_r	
	CONS_REM		Remarks	Roe cell used

Group Name: TRIX			Triaxial Test - Individual	
Status	Heading	Unit	Description	Example
*	SITE_ID		Site identification	CATIFS
*	HOLE_ID		Exploratory hole identification number	ABC.12
*	SPEC_ID		Specimen identification number	ABC.12.2
*	TRIX_TYPE		Type of test	CYGD (see Triaxial_type list)
	TRIX_PPTM		Pore pressure measurement transducer make and model	Validyne DP15-50
	TRIX_PPTR	kPa	Pore pressure transducer range	345
	TRIX_PPCM	m^2/kN	Compliance of pore pressure measurement system	
	TRIX_WAVF		Load wave form for dynamic test	Sine/square/sawtooth
	TRIX_PREP		Compaction procedure for reconstituted specimens	Pluviated in water/tamped in layers/harvard miniature/ other
	TRIX_WCI	%	Specimen initial water content	42
	TRIX_VRI		Specimen initial void ratio	1.02
	TRIX_GAMI	kg/m^3	Specimen initial dry density	1.61
	TRIX_SHI	mm	Specimen initial height	177.8
	TRIX_HAC	mm	Accuracy of initial height measurement, smallest division	0.02
	TRIX_SDI	mm	Specimen initial diameter	71.6
	TRIX_SDAC	mm	Accuracy of initial diameter measurement (smallest division)	0.02
	TRIX_SDN		Number of diameter measurements	3
	TRIX_FILT		Filter paper used	Whatman's #54
	TRIX_MEMB	mm	Membrane thickness	0.25
	TRIX_NMEM		Number of membranes	2
	TRIX_BAPF	kPa	Final back pressure	120
	TRIX_BFS		Skempton "B" value after saturation	0.99
	TRIX_BFT		Skempton "B" value immediately before shear	0.98
	TRIX_PRES	kPa	Final effective lateral stress	41
	TRIX_KOC		K_o-consolidation	T (true)/F (false)
	TRIX_KOF		Final K_o	0.55

Group Name: TRIX			Triaxial Test - Individual	
Status	Heading	Unit	Description	Example
	TRIX_ANIS		Ratio of vertical to horizontal effective consolidation stress (other than K_o-consolidation)	
	TRIX_KOM		Monitoring system for K_o-consolidation	K_o-cell/volume change/ lateral deformation gauges
	TRIX_SAXC	kPa	Axial stress at end of consolidation stage	
	TRIX_SRC	kPa	Radial stress at end of consolidation stage	
	TRIX_T5OC	sec	Time for 50% consolidation	
	TRIX_DELV	cm^3	Volume change at end of consolidation	
	TRIX_GAMC	kg/m^3	Specimen dry unit weight after consolidation	
	TRIX_WCC	%	Water content after consolidation	
#1	TRIX_EPSL	%	Axial strain - static loading	
#1	TRIX_SAXL	kPa	Total axial stress	
#1	TRIX_SRT	kPa	Total radial stress	
#1	TRIX_PPG	kPa	Pore pressure generated	
	TRIX_SR	%	Strain rate for shear test	
	TRIX_CORP	kPa	Correction for filter paper	
	TRIX_CORM	kPa	Correction for membrane strength	
	TRIX_SAFA	%	Strain at failure for static test	
	TRIX_PPFA	kPa	Excess pore pressure at failure for static test	
	TRIX_SI1F	kPa	Major principal effective stress at failure	
	TRIX_SI3F	kPa	Minor principal effective stress at failure	
	TRIX_TSTS		Number of cyclic tests on specimen	
	TRIX_TSTN		Cyclic test number on specimen	
	TRIX_FREQ	Hz	Frequency of loading	
	TRIX_NCYC		Number of loading cycles	
#2	TRIX_CYCN		Cycle number	
#2	TRIX_EPSC	%	Cyclic strain	
#2	TRIX_GEQ	MPa	Shear modulus	

Group Name: TRIX			Triaxial Test - Individual	
Status	Heading	Unit	Description	Example
#2	TRIX_DAMP	%	Fraction of critical damping	2%
#2	TRIX_RU	%	Pore pressure ratio at end of cycle	0
#2	TRIX_GRAT	%	Ratio of shear modulus to low-strain shear modulus (G_o)	
#3	TRIX_STRL	kPa	Pulsating axial stress (σ_d) in liquefaction test	
#3	TRIX_NCIL		Number of cycles to initial liquefaction (r_u = 100%)	
#3	TRIX_CSR		Ratio of peak pulsating shear stress to initial effective confining stress $(\frac{\sigma_d}{2\sigma'})$	
#3	TRIX_ECL	%	Double amplitude cyclic axial strain level (2% and 5% suggested)	
#3	TRIX_NECL		Number of cycles to TRIX_ECL	
#4	TRIX_CRLD	%	Axial load, % of peak load in short-term test	25
#4	TRIX_CRT	min	Elapsed time in creep test	86400
#4	TRIX_CEPS	%	Axial strain at elapsed time	2
#4	TRIX_CPPG	kPa	Excess pore pressure	3
	TRIX_REM		Remarks	

Group Name: TRIG			Static Triaxial Test Series - Results	
Status	Heading	Unit	Description	Example
*	SITE_ID		Site identification	CATIFS
*	HOLE_ID		Exploratory hole identification number	ABC.12
*	TRIG_NUMB		Specimen identification numbers used in series	ABC.12.2/ABC.12.3/ ABC.12.4
	TRIG_PHIE	degrees	Effective stress friction angle	26
	TRIG_COHE	kPa	Effective stress cohesion	10
	TRIG_PHIT	degrees	Total stress friction angle	12
	TRIG_COHT	kPa	Total stress cohesion	12
	TRIG_STRK	kPa	Stress range for effective and total stress friction angles	70-700
	TRIG_PSI	degrees	Slope of K_f-line	24
	TRIG_AINT	kPa	"a" intercept of p'-q' plot	9
	TRIG_STRA	kPa	Stress range for slope of K_f-line and "a" intercept	70-700
	TRIG_REM		Remarks	

Group Name: LVAN			Laboratory Vane Test	
Status	Heading	Unit	Description	Example
*	SITE_ID		Site identification	CATIFS
*	HOLE_ID		Exploratory hole identification number	ABC.12
*	SPEC_ID		Specimen identification number	ABC.12.2
	LVAN_SHAP		Vane shape	Square/tapered
	LVAN_HGHT	mm	Vane height	
	LVAN_DIAM	mm	Vane diameter	
	LVAN_THCK	mm	Vane blade thickness	
#1	LVAN_ID		Laboratory vane test identification number	2
#1	LVAN_DPTH	mm	Depth to test from top of specimen	210
#1	LVAN_VRPM	degree/sec	Vane rotation rate	0.1
#1	LVAN_MXTU	N • m	Maximum torque for undisturbed test	
#1	LVAN_RREV		Number of revolutions for remolded test	10
#1	LVAN_MTIM	sec	Elapsed time to maximum torque	
#1	LVAN_MXTR	N • m	Maximum torque for remolded test	
#1	LVAN_VCUU	kPa	Interpreted undrained shear strength	
#1	LVAN_VCUR	kPa	Interpreted remolded shear strength	
	LVAN_REM		Remarks	

Group Name: SHBT			Direct Shear Test - Individual	
Status	Heading	Unit	Description	Example
*	SITE_ID		Site identification	CATIFS
*	HOLE_ID		Exploratory hole identification number	ABC.12
*	SPEC_ID		Specimen identification number	ABC.12.2
	SHBT_PREP		For reconstituted specimen, compaction procedure	Pluviated, air/pluviated, water/moist tamped/other
	SHBT_TYPE		Shear box specimen holder type	Square/round/ring shear/ other
	SHBT_BOXD	mm	Shear box specimen holder diameter or width	50
	SHBT_WCI	%	Specimen initial water content	20
	SHBT_GAMI	kg/m^3	Specimen initial dry density	1.63
	SHBT_NORM	kPa	Normal stress on specimen	100
	SHBT_DISP	mm/sec	Shear box displacement rate	0.1
#1	SHBT_TIME	min	Elapsed time	
#1	SHBT_NORC	kPa	Corrected normal stress	
#1	SHBT_SHER	kPa	Corrected shear stress	
	SHBT_PEAK	kPa	Peak shear stress	65.5
	SHBT_RES	kPa	Residual shear stress	47.2
	SHBT_PDIS	mm	Displacement at peak shear stress	2.35
	SHBT_RDIS	mm	Displacement at residual shear stress	12.41
	SHBT_WCF	%	Specimen final water content	18
	SHBT_REM		Remarks	

Group Name: SHBG			Direct Shear Test Series - Results	
Status	Heading	Unit	Description	Example
*	SITE_ID		Site identification	CATIFS
*	HOLE_ID		Exploratory hole identification number	ABC.12
	SHBG_NUMB		Specimen identification numbers used in series	ABC.12.2/ABC.12.3/ ABC.12.4
	SHBG_PCOH	kPa	Peak cohesion intercept	5
	SHBG_PPHI	degrees	Peak friction angle	26.5
	SHBG_RCOH	kPa	Residual cohesion intercept	1
	SHBG_RPHI	degrees	Residual friction angle	12.0
	SHBG_STRA	kPa	Stress range for cohesion and friction angle reported	10-250
	SHBG_REM		Remarks	

Group Name: DSST			Direct Simple Shear Test	
Status	Heading	Unit	Description	Example
*	SITE_ID		Site identification	CATIFS
*	HOLE_ID		Exploratory hole identification number	ABC.12
*	SPEC_ID		Specimen identification number	ABC.12.2
	DSST_TYPE		Type of test	DSGD (see DSST_type list)
	DSST_MFR		System manufacturer	Interlaken/UNH
	DSST_HOLD		Type of specimen holder	Rigid wall/wire reinforced membrane/stacked ring/other
	DSST_PDIM	mm	Specimen holder diameter or plan dimensions	diam = 100 mm
	DSST_HTS	mm	Initial height of specimen	25.4
	DSST_WAVF		Load wave form for dynamic test	Sine/square/sawtooth
	DSST_PREP		Compaction procedure for reconstituted specimens	Pluviated in water/tamped in layers/other
	DSST_WCI	%	Specimen initial water content	42
	DSST_VRI		Specimen initial void ratio	1.02
	DSST_GAMI	kg/m^3	Specimen initial dry density	1.61
	DSST_BAPF	kPa	Final back pressure	120
	DSST_BFS		Skempton "B" value after saturation	0.99
	DSST_BFT		Skempton "B" value immediately before shear	0.98
	DSST_PRES	kPa	Final effective lateral stress	41
	DSST_KOC		K_o-consolidation	T (true)/F (false)
	DSST_KOF		Final K_o	0.55
	DSST_ANIS		Ratio of vertical to horizontal effective consolidation stress (other than K_o-consolidation)	
	DSST_SAXC	kPa	Axial stress at end of consolidation stage	
	DSST_SRC	kPa	Radial stress at end of consolidation stage	
	DSST_T50C	sec	Time for 50% consolidation	
	DSST_DELV	cm^3	Volume change at end of consolidation	

Group Name: DSST			Direct Simple Shear Test	
Status	Heading	Unit	Description	Example
	DSST_GAMC	kg/m^3	Specimen dry unit weight after consolidation	
	DSST_WCC	%	Water content after consolidation	
#1	DSST_EPSL	%	Axial strain - static loading	
#1	DSST_SAXL	kPa	Total axial stress	
#1	DSST_SRT	kPa	Total radial stress	
#1	DSST_PPG	kPa	Pore pressure generated	
	DSST_SR	%	Strain rate for shear test	
	DSST_SAFA	%	Strain at failure for static test	
	DSST_PPFA	kPa	Excess pore pressure at failure for static test	
	DSST_SI1F	kPa	Major principal effective stress at failure	
	DSST_SI3F	kPa	Minor principal effective stress at failure	
	DSST_TSTS		Number of cyclic tests on specimen	
	DSST_TSTN		Cyclic test number on specimen	
	DSST_FREQ	Hz	Frequency of loading	
	DSST_NCYC		Number of loading cycles	
#2	DSST_CYCN		Cycle number	
#2	DSST_EPSC		Cyclic strain	
#2	DSST_GEQ	MPa	Shear modulus	
#2	DSST_DAMP	%	Fraction of critical damping	2
#2	DSST_RU	%	Pore pressure ratio at end of cycle	0
#2	DSST_GRAT	%	Ratio of shear modulus to low-strain shear modulus (G_o)	
#3	DSST_STRL	kPa	Cyclic shear stress in liquefaction test	
#3	DSST_NCIL		Number of cycles to initial liquefaction (r_u = 100%)	
#3	DSST_CSR		Ratio of cyclic shear stress to initial effective confining stress	
#3	DSST_ECL	%	Single amplitude cyclic shear strain level	
#3	DSST_NECL		Number of cycles to DSST_ECL	
	DSST_REM		Remarks	

Group Name: RESC			Resonant Column Test	
Status	Heading	Unit	Description	Example
*	SITE_ID		Site identification	CATIFS
*	HOLE_ID		Exploratory hole identification number	ABC.12
*	SPEC_ID		Specimen identification number	ABC.12.2
	RESC_TYPE		Type of resonant column	Hardin fixed-free
	RESC_MFR		Manufacturer of resonant column	
	RESC_SPET		Specimen type	U (see Samp_type list)
	RESC_PREP		For reconstituted specimens, compaction procedure	Moist tamped in layers
	RESC_WCI	%	Specimen initial water content	
	RESC_VRI		Specimen initial void ratio	
	RESC_GAMI	kg/m^3	Specimen initial dry density	
	RESC_SHI	mm	Specimen initial height	
	RESC_SATI	%	Specimen initial degree of saturation	
#1	RESC_SRC	kPa	Chamber pressure at end of consolidation	
#1	RESC_SAXC	kPa	Axial stress at end of consolidation	
#1	RESC_T50C	sec	Time for 50% consolidation	
#1	RESC_DELV	cm^3	Volume change at end of consolidation	
#1	RESC_BAPF	kPa	Final back pressure	300
#2	RESC_DSET		Identification number of data set	
#2	RESC_SAMP	%	Strain amplitude	
#2	RESC_STIM	sec	Time at strain amplitude	
#2	RESC_RFRQ	Hz	Resonant frequency	
#2	RESC_GMOD	MPa	Shear modulus at strain amplitude	
#2	RESC_DFR	%	Damping ratio at strain amplitude from frequency response curve	
#2	RESC_DFV	%	Damping ratio at strain amplitude from free vibration	
#2	RESC_EDMP	%	Equipment damping ratio at strain amplitude	
	RESC_DCOR		Reported material damping corrected for equipment damping	T (true)/F (false)
	RESC_WCF	%	Specimen final water content	
	RESC_VRF		Specimen final void ratio	
	RESC_GAMF	kg/m^3	Specimen final dry density	
	RESC_SHF	mm	Specimen final height	
	RESC_SDF	mm	Specimen final diameter	
	RESC_SATF	%	Specimen final percent saturation	
	RESC_REM		Remarks	

Group Name: PERM			Laboratory Permeability Test	
Status	Heading	Unit	Description	Example
*	SITE_ID		Site identification	CATIFS
*	HOLE_ID		Exploratory hole identification number	ABC.12
*	SPEC_ID		Specimen identification number	ABC.12.2
	PERM_TYPE		Type of permeability test	Falling head/constant head/ triaxial/other
	PERM_DIR		Horizontal or vertical permeability	Horizontal
	PERM_GRAD	kPa	Hydraulic gradient across specimen	50
	PERM_KVAL	cm/sec	Permeability at 20°C	2.5×10^{-5}
	PERM_REM		Remarks	

Group Name: PZOR			Piezometer Test	
Status	Heading	Unit	Description	Example
*	SITE_ID		Site identification	CATIFS
*	HOLE_ID		Exploratory hole identification number	ABC.12
*	PZOR_ID		Piezometer identification number	PZ12
*	PZOR_TYPE		Piezometer type	PNEU (see PZOR_type list)
	PZOR_TDEP	m	Depth of piezometer tip or element	7.25
	PZOR_DATE	mm/dd/yy	Piezometer installation date	03/22/91
	PZOR_TRPS	m	Depth to top of response zone	6.50
	PZOR_BRPS	m	Depth to base of response zone	7.50
#1	PZOR_DATE	mm/dd/yy	Date of piezometer reading	12/11/91
#1	PZOR_TIME	hhmmss	Time of piezometer reading	164000
#1	PZOR_DEPW	m	Depth to water below ground surface	6.40
#1	PZOR_HEAD	m	Head of water above piezometer tip	0.85
	PZOR_MTD		Method used to determine depth to water below ground surface (PZOR_DEPW)	Open standpipe
	PZOR_REM		Remarks regarding installation and readings	Reading taken during heavy rain

Group Name: SPT			Standard Penetration Test - Results	
Status	Heading	Unit	Description	Example
*	SITE_ID		Site identification	CATIFS
*	HOLE_ID		Exploratory hole identification number	ABC.12
	SPT_SSID	mm	Split-spoon sampler internal diameter	35
	SPT_LINR		Liner was used	T (true)/F (false)
	SPT_BASK		Basket retainer was used	T (true)/F (false)
	SPT_LGTH	mm	Split-spoon sampler length	450
	SPT_RODT		Type of rods	AW
	SPT_RODD	mm	Drive rod external diameter	41.2
	SPT_RODW	kN/m	Drive rod weight per meter	
	SPT_HAMT		Hammer type	Donut/Safety/Trip
	SPT_HAMW	kg	Hammer mass	63.5
	SPT_HAMF	m	Free fall height of hammer	0.76
	SPT_HAMR		Hammer release mechanism	Rope/Trip/Semi-Auto/Auto
	SPT_CATD	cm	Diameter of cathead	
	SPT_ROPE		Number of rope turns	2
	SPT_AVLD	cm	Diameter of anvil	
	SPT_ENEQ		Equipment used to measure energy	
#1	SPT_TOP	m	Depth to top of test	13.50
#1	SPT_CAS	m	Casing depth at time of test	12.00
#1	SPT_WAT	m	Water depth in casing at time of test	2.50
#1	SPT_NPEN	mm	Total penetration for test	450
#1	SPT_INC1		Number of blows for 1st 150mm (6 in.)	6
#1	SPT_INC2		Number of blows for 2nd 150mm (6 in.)	8
#1	SPT_INC3		Number of blows for 3rd 150mm (6 in.)	8
#1	SPT_INC4		Number of blows for 4th 150mm (6 in.)	9

#1	SPT_NVAL		SPT uncorrected N value (blows/0.3m)	16
#1	SPT_ENER	%	Measured energy ratio	65.4
	SPT_REM		Remarks related to the test and equipment	

Group Name: CPT			Cone Penetration Test	
Status	Heading	Unit	Description	Example
*	SITE_ID		Site identification	CATIFS
*	HOLE_ID		Exploratory hole identification number	CPTU.3
*	CPT_TYPE		Type of cone	CPTU (see Cone_type list)
	CPT_BRND		Cone manufacturer	Wissa
	CPT_TIPA	cm^2	Tip area	10
	CPT_TIPX	degrees	Tip apex angle	60
	CPT_SLVA	cm^2	Friction sleeve area	150
	CPT_SLVP	mm	Distance from center of sleeve to tip	
	CPT_FLTP		Position of filter element(s)	Tip
	CPT_FLTT	mm	Thickness of filter element	
	CPT_FLTM		Filter element(s) material	Sintered stainless steel
	CPT_FLTD	micron	Filter material pore diameter	1
	CPT_SATF		Saturation fluid	Water
	CPT_SATT		Saturation technique	Vacuum 24 hours
	CPT_ARCT		Area ratio correction for tip	
	CPT_ARCS		Area ratio correction for sleeve	
	CPT_CAPS	KN	Capacity of surface load cell	
	CPT_CAPT	MN	Capacity of tip load cell	
	CPT_CAPF	MN	Capacity of friction sleeve load cell	
	CPT_CAPU	kPa	Capacity of pore pressure transducer	100
	CPT_CALD	mm/dd/yy	Last calibration date	02/09/92
	CPT_REDD	mm	Friction reducer diameter	
	CPT_REDL	mm	Friction reducer location from tip	
	CPT_DYNH		Details of hammer system for dynamic cone test	
	CPT_ADVR	mm/sec	Rate of penetration	20
#1	CPT_DPTH	m	Depth of tip measurement	3.04
#1	CPT_QC	kPa	Static or dynamic cone tip resistance (q_c)	
#1	CPT_FS	kPa	Friction sleeve resistance at tip depth (f_s)	
#1	CPT_U	kPa	Penetration pore pressure	

Group Name: CPT			Cone Penetration Test	
Status	Heading	Unit	Description	Example
#1	CPT_SHRW	m/sec	Shear wave velocity	
#1	CPT_INCL	degree	Cone inclination	
#1	CPT_OTH1		Additional measurements: pore pressure sensor, conductivity, lateral stress, temperature (specify units)	
#1	CPT_OTH2		Additional measurement: pore pressure sensor, conductivity, lateral stress, temperature (specify units)	
#2	CPT_DPTD	m	Depth of dissipation test	6.55
#2	CPT_DIST	min	Elapsed time of reading for dissipation test	
#2	CPT_DISU	kPa	Pore pressure during dissipation	
	CPT_REM		Remarks	

Group Name: PMT			Pre-Bored Pressuremeter Test	
Status	Heading	Unit	Description	Example
*	SITE_ID		Site identification	CATIFS
*	HOLE_ID		Exploratory hole identification number	PMT.4
*	PMT_ID		Test identification number	PMT4.1
	PMT_TYPE		Pressuremeter manufacturer	Roctest
	PMT_DPTH	m	Depth to center of expanding portion of probe	3.45
	PMT_MODL		Pressuremeter model	Texam
	PMT_DSGN		Probe design type	Hydraulic/electric
	PMT_CELL		Number of cells	Mono/triple
	PMT_DIAM	mm	Outside diameter of expandable section of probe	
	PMT_LGTH	mm	Length of expandable probe section	
	PMT_MEMT	mm	Rubber membrane thickness	
	PMT_CHLT	mm	Protective sheath thickness	
	PMT_MEMR	kPa	Membrane resistance at expansion corresponding to limit pressure	
	PMT_VOLO	mm^3	Volume of measuring portion of uninflated probe at zero volume reading at ground surface	
	PMT_VOLI	mm^3	Corrected volume reading at pressure where probe made contact with borehole	
	PMT_VOLC	mm^3	Change in volume at control unit between 500 and 2500 kPa with probe in steel tube	
	PMT_TIME	min	Time elapsed between end of borehole preparation and start of test	35
	PMT_TEST		Test procedure	Stress or volume increments
	PMT_EPM	kPa	Pressuremeter modulus E_p	
	PMT_PL	kPa	Pressuremeter limit pressure P_ℓ at twice the original soil cavity volume	
	PMT_ER	kPa	Pressuremeter unload-reload modulus E_R	
#1	PMT_UNCP	kPa	Total cavity pressure at instant at which unloading begins	
#1	PMT_UNCS	%	Circumferential strain corresponding to unloading start	

Group Name: PMT			Pre-Bored Pressuremeter Test	
Status	Heading	Unit	Description	Example
#1	PMT_UNPC	kPa	Total cavity pressure at crossover point of unloading loop	
#1	PMT_UNSC	%	Circumferential strain corresponding to crossover point	
#1	PMT_UNPB	kPa	Total cavity pressure at bottom of unloading loop	
#1	PMT_UNSB	%	Circumferential strain corresponding to bottom of loop	
#2	PMT_PREC	kN/m^2	Corrected pressure	
#2	PMT_VOLC	mm^3	Corrected volume	
#2	PMT_TIME	min	Time associated to corrected pressure or volume at 30 and 60 seconds	
	PMT_REM		Remarks	

Group Name: SBPP	Self-Boring and Push-In Pressuremeter Tests			
Status	Heading	Unit	Description	Example
*	SITE_ID		Site identification	CATIFS
*	HOLE_ID		Exploratory hole identification number	SBPM.1
*	SBPP_ID		Test identification number	SBPM1.5
*	SBPP_TYPE		Type of pressuremeter	SBPMT (see SBPP_type list)
	SBPP_DPTH	m	Depth to center of expanding portion of probe	3.45
	SBPP_BRND		Pressuremeter manufacturer	Cambridge Insitu
	SBPP_MODL		Pressuremeter model	MKVII
	SBPP_DIAM	mm	Outside diameter of expandable section of probe	
	SBPP_LGTH	mm	Length of expandable probe section	
	SBPP_PRES		Pressure measurement system	Gas/Water
	SBPP_VOLS		Volume measurement system	Strain arms/volume
	SBPP_ARMS		Number of strain arms	9
	SBPP_TPR	kN/m^2	Total pressure cell range	2750
	SBPP_PORT		Pore pressure measurement type	Differential/direct
	SBPP_PPR	kN/m^2	Effective or pore pressure cell range	700
	SBPP_MEMT	mm	Rubber membrane thickness	
	SBPP_CHLT	mm	Protective sheath thickness	
	SBPP_MEML	kN/m^2	Membrane system stiffness at lift-off	
	SBPP_MEMS	$kN/m^2 \cdot \%$	Membrane system stiffness during expansion per percent expansion	
	SBPP_VOLI	mm^3	Corrected volume reading at pressure where probe made contact with borehole	
	SBPP_VOLC	mm^3	Change in volume at control unit between 500 and 2500 kPa with probe in steel tube	
	SBPP_SHOE	mm	Diameter of cutting shoe	
	SBPP_TIPR		Remarks regarding cutting shoe or conical tip	Standard 60° cone tip
	SBPP_STAB	min	Stabilization period before expansion test	60
	SBPP_INFR	$kN/m^2 \cdot min$	Expansion rate	
	SBPP_BORG		Advance method	Cutting/jetting/push-in

Group Name: SBPP	Self-Boring and Push-In Pressuremeter Tests			
Status	Heading	Unit	Description	Example
	SBPP_CTYP		Cutter type	Helicoidal/spade/grinder/ etc.
	SBPP_CDIA	mm	Diameter of exit orifice	9.5
	SBPP_CPOS	mm	Cutter position relative to edge of cutting shoe measured from tip of cutter	
	SBPP_CRPM	rpm	Cutter rotation rate	60-80
	SBPP_JTYP		Jetting system type	Jet tip/shower head/etc.
	SBPP_JDIA	mm	Diameter of each orifice	4.2
	SBPP_JNOR		Number of orifices on jetting tip	6
	SBPP_JPOS	mm	Position of lower edge of orifice relative to edge of cutting shoe	
	SBPP_CJFR	ℓ/min	Drilling fluid flow rate	
	SBPP_CJFP	kN/m^2	Drilling fluid pressure	
	SBPP_CJPR	mm/sec	Advance rate	
	SBPP_CJPP	kN/m^2	Average rig hydraulic down pressure	
#1	SBPP_SH1	kN/m^2	Corrected total in situ horizontal stress at Arm No. 1	38
#1	SBPP_SH2	kN/m^2	Corrected total in situ horizontal stress at Arm No. 2	43
#1	SBPP_SH3	kN/m^2	Corrected total in situ horizontal stress at Arm No. 3	42
#1	SBPP_SHA	kN/m^2	Corrected total in situ horizontal stress at other arms (continue series)	45/56/49
	SBPP_SHAV	kN/m^2	Corrected electronic average total in situ horizontal stress	
#2	SBPP_GUR	kN/m^2	Pressuremeter unload-reload modulus G_{ur}	
#2	SBPP_UNCP	kPa	Total cavity pressure at instant at which unloading begins	
#2	SBPP_UNCS	%	Circumferential strain corresponding to unloading start	
#2	SBPP_UNPC	kPa	Total cavity pressure at crossover point of unloading loop	
#2	SBPP_UNSC	%	Circumferential strain corresponding to crossover point	
#2	SBPP_UNPB	kPa	Total cavity pressure at bottom of unloading loop	

Group Name: SBPP	Self-Boring and Push-In Pressuremeter Tests			
Status	Heading	Unit	Description	Example
#2	SBPP_UNSB	%	Circumferential strain corresponding to bottom of loop	
#3	SBPP_TIME	min	Time of reading	
#3	SBPP_STRS	kN/m^2	Corrected total radial pressure	
#3	SBPP_POR1	kN/m^2	Total pore pressure cell number 1	
#3	SBPP_POR2	kN/m^2	Total pore pressure cell number 2	
#3	SBPP_STR1	%	Corrected circumferential strain Arm No. 1	1.22
#3	SBPP_STR2	%	Corrected circumferential strain Arm No. 2	1.31
#3	SBPP_STR3	%	Corrected circumferential strain Arm No. 3	1.52
#3	SBPP_STRA	%	Corrected circumferential strain for other arms (continue series)	1.23; 1.28; 2.03; 1.14; 1.25; 1.37
#3	SBPP_AVGS	%	Corrected electronic average circumferential strain	1.26
#4	SBPP_HLDT	min	Elapsed time of reading for holding test	
#4	SBPP_HLDU	kN/m^2	Pore pressure during dissipation	
#4	SBPP_HLDS	kN/m^2	Total stress during dissipation	
#4	SBPP_HLDD	%	Circumferential strain during dissipation	
	SBPP_REM		Remarks	

Group Name: VST			In Situ Vane Test	
Status	Heading	Unit	Description	Example
*	SITE_ID		Site identification	CATIFS
*	HOLE_ID		Exploratory hole identification number	FV2
*	VST_ID		Test identification number	FV2.6
	VST_DPTH	m	Depth of vane test	16.45
	VST_TYPE		Vane type	Geonor
	VST_MODL		Vane model	Borer H-10
	VST_SHAP		Vane shape	Rectangular/tapered
	VST_HGHT	mm	Vane height	
	VST_DIAM	mm	Vane diameter	
	VST_THCK	mm	Vane blade thickness	
	VST_VRPM	degree/sec	Vane rotation rate	0.1
	VST_RREV		Number of revolutions for remolded test	
	VST_TIMT	min	Elapsed time from insertion to rotation	
	VST_MXTU	N • m	Maximum torque for undisturbed test	
	VST_MXTR	N • m	Maximum torque for remolded test	
	VST_VCUU	kN/m^2	Calculated undrained shear strength	60
	VST_VCUR	kN/m^2	Calculated remolded shear strength	45
#1	VST_TIME	min	Elapsed time of torque reading	3.25
#1	VST_TORQ	N • m	Torque	
	VST_REM		Remarks	

Group Name: DMT			Marchetti Flat Plate Dilatometer	
Status	Heading	Unit	Description	Example
*	SITE_ID		Site identification	CATIFS
*	HOLE_ID		Exploratory hole identification number	DMT1
	DMT_MEMT	mm	Membrane thickness	
	DMT_GAUL	kN/m^2	Low pressure gauge range	1000
	DMT_GAUH	kN/m^2	High pressure gauge range	6000
	DMT_DAB	kN/m^2	Membrane calibration ΔA before test profile	34
	DMT_DBB	kN/m^2	Membrane calibration ΔB before test profile	67
	DMT_DAA	kN/m^2	Membrane calibration ΔA after test profile	34
	DMT_DBA	kN/m^2	Membrane calibration ΔB after test profile	96
	DMT_REDD	mm	Friction reducer diameter	48
	DMT_REDL	mm	Friction reducer location from center of membrane	
	DMT_ADVR	mm/sec	Rate of penetration	20
	DMT_THRR	kN	Thrust load cell range	
#1	DMT_DPTH	m	Depth of measurement	0.71
#1	DMT_THRT	kN	Thrust	
#1	DMT_PO	kN/m^2	Corrected A-Reading	149.4
#1	DMT_P1	kN/m^2	Corrected B-Reading	374.9
#1	DMT_P2	kN/m^2	Corrected C-Reading	0.0
#2	DMT_DISP	m	Depth of dissipation test	
#2	DMT_DIST	min	Elapsed time of reading for dissipation test	
#2	DMT_DISA	kN/m^2	Corrected A-Reading during dissipation	
#2	DMT_DISC	kN/m^2	Corrected C-Reading during dissipation	
	DMT_REM		Remarks	Sunny, windy and too many beeps

Group Name: PEPC			Push-In Earth Pressure Cell	
Status	Heading	Unit	Description	Example
*	SITE_ID		Site identification	MAUMASSA
*	HOLE_ID		Exploratory hole identification number	EPC1
*	PEPC_ID		Test identification number	EPC1.4
	PEPC_DPTH	m	Depth to center of blade	12.85
	PEPC_TYPE		Push-in earth pressure cell brand type	Solinst/Glöetz
	PEPC_WDTH	mm	Spade cell width	100
	PEPC_THCK	mm	Space cell thickness	6.4
	PEPC_CAPA	kg/cm^2	Cell capacity	10
	PEPC_INSD	mm/dd/yyyy	Installation date	05/23/93
	PEPC_INST	hh/mm/ss	Installation time	13/42/35
	PEPC_TIMZ	hh/mm/ss	Time of initial reading	13/44/01
	PECP_ZERB		Zero reading before test	
	PECP_ZERA		Zero reading after test	
#1	PEPC_TIME	min	Elapsed time of reading	
#1	PEPC_STRS	kN/m^2	Corrected stress	
#1	PEPC_PORE	kN/m^2	Pore pressure	
	PEPC_REM		Remarks	

Group Name: KOSB			K_o Stepped Blade Test	
Status	Heading	Unit	Description	Example
*	SITE_ID		Site identification	MAUMASSA
*	HOLE_ID		Exploratory hole identification number	KOSB1
*	KOSB_ID		Test identification number	KOSB1.3
	KOSB_LVEL		Number of levels	4
	KOSB_WDTH	mm	Spade cell width	100
	KOSB_THK4	mm	Space cell thickness at each level	3.0/4.5/6.0/7.5
	KOSB_TEST		Test procedure	A = All levels read at one push location or B = Probe advanced such that each level is read at same depth
#1	KOSB_LVLN		Level number of measurement (1 is for thinnest blade)	2
#1	KOSB_STRS	kN/m^2	Measured corrected stress for that level	
#1	KOSB_DPTH	m	Depth to center of blade for that level	12.85
#1	KOSB_SIGH	kN/m^2	Interpreted in situ horizontal stress	
	KOSB_REM		Remarks	

Group Name: SCRW			Screw Plate Test	
Status	Heading	Unit	Description	Example
*	SITE_ID		Site identification	MAUMASSA
*	HOLE_ID		Exploratory hole identification number	SCR1
*	TEST_ID			SCR1.5
	SCRW_DPTH	m	Test depth	9.85
	SCRW_DIA	mm	Screw plate diameter	300
	SCRW_TEST		Test type	Undrained/drained
	SCRW_REM		Remarks regarding test results and equipment	

Group Name: BST			Borehole Shear Test	
Status	Heading	Unit	Description	Example
*	SITE_ID		Site identification	MAUMASSA
*	HOLE_ID		Exploratory hole identification number	BST.1
*	BST_ID		Test identification number	BST1.1
	BST_DPTH	m	Depth to middle of shearing plates	13.30
	BST_TEST		Test procedure	Fresh/staged
	BST_SHRT	mm/sec	Displacement shear rate	.025
	BST_PORE		Location of pore pressure sensor	Middle/third point
	BST_NORM	kN/m^2	Corrected applied normal stress	
	BST_CONT	min	Time elapsed for consolidation before pulling shear head	
	BST_SHER	kN/m^2	Corrected measured maximum shear stress	
	BST_PORS	kN/m^2	Pore pressure corresponding to maximum shear stress	
	BST_PHI	degrees	Interpreted soil friction angle	
	BST_COH	kN/m^2	Interpreted soil cohesion	
	BST_REM		Remarks	

Group Name: PLT			Plate Load Test	
Status	Heading	Unit	Description	Example
*	SITE_ID		Site identification	MAUMASSA
*	HOLE_ID		Exploratory hole identification number	PLT1
*	TEST_ID		Test identification number	PLT1.1
	PLT_DPTH	m	Plate load test depth	0.50
	PLT_DIAP	mm	Plate diameter or equivalent for square plate	305
	PLT_TEST		Test type	Load/settlement increments
#1	PLT_LOAD	kN/m^2	Load increment	
#1	PLT_TIML	min	Time interval of loading	
#1	PLT_SETL	mm	Settlement for that load increment	
#1	PLT_SETI	mm	Settlement increment	
#1	PLT_LDCH	kN/m^2	Load corresponding to settlement increments (PLT_SETI)	
#1	PLT_TIME	min	Corresponding time for load reading	
	PLT_REM		Remarks	

Group Name: BPER			Borehole Permeability Test	
Status	Heading	Unit	Description	Example
*	SITE_ID		Site identification	MAUMASSA
*	HOLE_ID		Exploratory hole identification number	PERM1
*	BPER_ID		Test identification number	PERM1.2
	BPER_BASE	m	Depth to base of test zone	12.95
	BPER_TOP	m	Depth to top of test zone	12.20
	BPER_TYPE		Type of test	Rising, falling, constant head
	BPER_PRWL	m	Depth to water in borehole or piezometer immediately prior to test	10.60
	BPER_SWAL	m	Depth to water at start of test	5.40
	BPER_TDIA	m	Diameter of test zone	0.150
	BPER_SDIA	mm	Diameter of standpipe or casing	19
	BPER_IPRM	cm/sec	Measured permeability	5×10^{-7}
	BPER_REM		Remarks	

Group Name: PUMP			Pumping Test	
Status	Heading	Unit	Description	Example
*	SITE_ID		Site identification	PERM1
*	HOLE_ID		Exploratory hole identification number	PT1
*	PUMP_ID		Test identification number	PT1.1
*	PZOI_ID		Piezometer identification number	PZ12
	PUMP_DATE	mm/dd/yyyy	Date of pumping start	02/09/1991
	PUMP_TIME	hh/mm/ss	Time of pumping start	14/35/00
	PUMP_QUAT	m^3/sec	Pumping rate from hole	
	PUMP_REM		Remarks	

Group Name: CROS			Seismic Crosshole Test	
Status	Heading	Unit	Description	Example
*	SITE_ID		Site identification	CATIFS
*	CROS_BOR3		Boreholes used	ABC.12, ABC.13, ABC.17
	CROS_DEVS		Borehole deviation surveyed	T (true)/F (false)
	CROS_DEVM		Borehole deviation survey method	Single shot inclinometer
	CROS_SOUR		Type and details regarding source	Pneumatically-operated wedge with manually-operated vertical hammer
	CROS_RECR		Type and details regarding receivers	Mark Products 3-D velocity transducers
	CROS_SGE1	m	Distance from source to receiver 1	4.27
	CROS_SGE2	m	Distance from source to receiver 2	8.42
#1	CROS_DPTH	m	Depth of measurement	14.25
#1	CROS_TRA1	sec	Shear wave travel time from source to receiver 1	0.0194
#1	CROS_TRA2	sec	Shear wave travel time from source to receiver 2	0.038
#1	CROS_SVEL	m/sec	Shear wave velocity	220
#1	CROS_VELD		True or apparent shear wave velocity	T (true)/A (apparent)
#1	CROS_PTR1	sec	Compression wave travel time from source to receiver 1	0.00289
#1	CROS_PTR2	sec	Compression wave travel time from source to receiver 2	0.00570
#1	CROS_PVEL	m/sec	Compression wave velocity accepted	1478
	CROS_REM		Remarks	

Group Name: DOWN			Seismic Downhole Test	
Status	Heading	Unit	Description	Example
*	SITE_ID		Site identification	CATIFS
*	DOWN_BOR		Borehole used	ABC.11
	DOWN_DEVS		Borehole deviation surveyed	T (true)/F (false)
	DOWN_DEVM		Borehole deviation survey method	Single shot inclinometer
	DOWN_SOUR		Type and details regarding source	Hammer on cast-in-place concrete block embedded with angle iron
	DOWN_RECR		Type and details regarding receivers	Mark Products 3-D velocity transducers
	DOWN_SGEH	m	Horizontal distance from source to borehole	0.75
#1	DOWN_DPTR	m	Depth of receiver	4.27
#1	DOWN_TRAV	sec	Travel time from source to receiver	0.0194
#1	DOWN_SVEL	m/sec	Average shear wave velocity	220
	DOWN_REM		Remarks	

Field Description	Field Name	Type	Length	Decimal
Abstracts and References - ABSTRACT.DBF				
Site Identification	SITEID	C	8	
Author - Line 1	AUTHOR	C	60	
Author - Line 2	AUTHOR2	C	60	
Title of Article - Line 1	TITLE	C	60	
Title of Article - Line 2	TITLE2	C	60	
Title of Article - Line 3	TITLE3	C	60	
Publication - Line 1	PUBLICATN	C	60	
Publication - Line 2	PUBLICATN2	C	60	
Publication - Line 3	PUBLICATN3	C	60	
Abstract of reference	ABSTRACT	M	10	
Date Added to Database	ADD_DATE	D	8	
Date Modified within Database	MOD_DATE	D	8	
Atterberg Limits Test - ALIM.DBF				
Site Identification	SITEID	C	8	
Exploratory Hole Identification Number	HOLE_ID	C	25	
Specimen Identification Number	SPEC_ID	C	10	
Liquid Limit by Casagrande Apparatus	ALIM_LLCA	N	4	1
Liquid Limit by Fall Cone	ALIM_LLFC	N	4	1
Material Air Dried	ALIM_DRY	L	1	
Washed through #40 Sieve or Dry Sieved?	ALIM_PREP	C	45	
Number of Points to Determine Liquid Limit	ALIM_NPT	N	2	0
Flow Index	ALIM_FIDX	N	2	0
Plastic Limit	ALIM_PLAS	N	4	1
Shrinkage Limit	ALIM_SKL	N	4	1
Method Used for Shrinkage Limit	ALIM_SKME	C	20	
Remarks	ALIM_REM	M	10	
Date Added to Database	ADD_DATE	D	8	
Date Modified within Database	MOD_DATE	D	8	
Blasting - BLASTING.DBF				

	Site Identification	SITEID	C	8	
	Description	DESCRIPTN	M	10	
	Date Added to Database	ADD_DATE	D	8	
	Date Modified within Database	MOD_DATE	D	8	
Borehole Permeability Test - BPER.DBF					
	Site Identification	SITEID	C	8	
	Exploratory Hole Identification Number	HOLE_ID	C	25	
	Test Identification Number	TEST_ID	C	10	
	Depth to Base of Test Zone	BPER_BASE	N	6	2
	Depth to Top of Test Zone	BPER_TOP	N	6	2
	Type of Test	BPER_TYPE	C	55	
	Depth to Water in Borehole or Piezometer Immediately Prior to Test	BPER_PRWL	N	6	2
	Depth to Water at Start of Test	BPER_SWAL	N	6	2
	Diameter of Test Zone	BPER_TDIA	N	5	3
	Diameter of Standpipe or Casing	BPER_SDIA	N	2	0
	Measured Permeability	BPER_IPRM	N	11	9
	Remarks	BPER_REM	M	10	
	Date Added to Database	ADD_DATE	D	8	
	Date Modified within Database	MOD_DATE	D	8	
Borehole Shear Test - BST.DBF					
	Site Identification	SITEID	C	8	
	Exploratory Hole Identification Number	HOLE_ID	C	25	
	Test Identification Number	TEST_ID	C	10	
	Depth to Middle of Shearing Plates	BST_DPTH	N	6	2
	Test Procedure	BST_TEST	C*	55	
	Displacement Shear Rate	BST_SHRT	N	5	3
	Location of Pore Pressure Sensor	BST_PORE	C	30	
	Corrected Applied Normal Stress	BST_NORM	N	4	1
	Time Elapsed for Consolidation Before Pulling Shear Head	BST_CONT	N	2	0
	Corrected Measured Maximum Shear Stress	BST_SHER	N	4	1
	Pore Pressure Corresponding to Maximum Shear Stress	BST_PORS	N	4	0
	Interpreted Soil Friction Angle	BST_PHI	N	5	2
	Interpreted Soil Cohesion	BST_COH	N	5	2

	Remarks	BST_REM	M	10	
	Date Added to Database	ADD_DATE	D	8	
	Date Modified within Database	MOD_DATE	D	8	
Chemical Admixtures & Grouting - CHEMICAL.DBF					
	Site Identification	SITEID	C	8	
	Description	DESCRIPTN	M	10	
	Date Added to Database	ADD_DATE	D	8	
	Date Modified within Database	MOD_DATE	D	8	
Chemical Stabilization - CHEM_STA.DBF					
	Site Identification	SITEID	C	8	
	Description	DESCRIPTN	M	10	
	Date Added to Database	ADD_DATE	D	8	
	Date Modified within Database	MOD_DATE	D	8	
Compaction Grouting - COMP_GRO.DBF					
	Site Identification	SITEID	C	8	
	Description	DESCRIPTN	M	10	
	Date Added to Database	ADD_DATE	D	8	
	Date Modified within Database	MOD_DATE	D	8	
Compaction Piles - COMP_PIL.DBF					
	Site Identification	SITEID	C	8	
	Description	DESCRIPTN	M	10	
	Date Added to Database	ADD_DATE	D	8	
	Date Modified within Database	MOD_DATE	D	8	
One-Dimensional Consolidation Test - CONS.DBF (CONSCG, CONSCRS, CONSICL, CONSSWL)					
	Site Identification	SITEID	C	8	
	Exploratory Hole Identification Number	HOLE_ID	C	25	
	Specimen Identification Number	SPEC_ID	C	10	
	Type of Consolidometer	CONS_LOAD	C	50	
	Back Pressure Saturation	CONS_BSAT	L	1	
	Consolidation Ring Type	CONS_RMAT	C	50	

	Ring Type	CONS_RTYP	C	50	
	Ring Height	CONS_RHT	N	4	1
	Ring Internal Diameter	CONS_RINT	N	4	1
	Ring External Diameter	CONS_REXT	N	4	1
	Initial Dry Density	CONS_GAMI	N	6	1
	Initial Void Ratio	CONS_VRI	N	3	1
	Initial Degree of Saturation	CONS_SATI	N	3	0
	Final Dry Density	CONS_GAMF	N	6	1
	Final Void Ratio	CONS_VRF	N	5	3
	Final Water Content	CONS_WATF	N	4	1
	Final Degree of Saturation	CONS_SATF	N	3	0
	Vertical Effective Stress at Sample Depth	CONS_SIGV	N	3	0
	Rate of Strain for Constant Rate of Strain Consolidation Test	CONS_CRSE	N	6	4
	Differential Pressure Maintained in Constant Gradient Test	CONS_DPRS	N	2	0
	Coefficient of Consolidation Calculation Method	CONS_CVM	C	30	
	Maximum Past Pressure	CONS_MPP	N	7	2
	Method Used to Determine Maximum Past Pressure	CONS_MPPM	C	20	
	Overconsolidation Ratio	CONS_OCR	N	3	1
	Compression Index, Cc	CONS_CC	N	4	2
	Recompression Index, Cr	CONS_RC	N	5	3
	Remarks	CONS_REM	M	10	
	Date Added to Database	ADD_DATE	D	8	
	Date Modified within Database	MOD_DATE	D	8	
One-Dimensional Consolidation Test - CONS1.DBF (CONSCG1, CONSCRS1, CONSICL1, CONSSWL1)					
	Site Identification	SITEID	C	8	
	Exploratory Hole Identification Number	HOLE_ID	C	25	
	Specimen Identification Number	SPEC_ID	C	10	
	Applied Pressure	CONS_PRE1	N	7	2
	Elapsed Time	CONS_TIME	N	5	0
	Deformation Corrected for Apparatus Flexibility, Measured from 0% Consolidation	CONS_DEF	N	10	6
	Specimen Height or Void Ratio Calculated at End of Primary, 24 Hours or Other	CONS_ECAL	C	50	
One-Dimensional Consolidation Test - CONS2.DBF (CONSCG2, CONSCRS2, CONSICL2, CONSSWL2)					
	Site Identification	SITEID	C	8	

	Exploratory Hole Identification Number	HOLE_ID	C	25	
	Specimen Identification Number	SPEC_ID	C	10	
	Applied Pressure	CONS_PRE2	N	7	2
	Corresponding Void Ratio	CONS_VRI	N	10	4
	Corresponding Percent Strain	CONS_STR	N	8	5
One-Dimensional Consolidation Test - CONS3.DBF (CONSCG3, CONSCRS3, CONSICL3, CONSSWL3)					
	Site Identification	SITEID	C	8	
	Exploratory Hole Identification Number	HOLE_ID	C	25	
	Specimen Identification Number	SPEC_ID	C	10	
	Applied Pressure	CONS_PRE3	N	6	1
	Coefficient of Consolidation	CONS_CV	N	10	4
	Secondary Compression index, Ca	CONS_SC	N	9	6
Conversion SI - British - CONVERT.DBF					
	Equation Number	EQ_NUMBER	N	3	0
	Unit type (area, length, temp...)	CLASS	C	10	
	British Symbol	FROM_SYMBL	C	15	
	British Units	FROM_UNIT	C	50	
	SI Symbol	SI_SYMBOL	C	15	
	SI Units	SI_UNITS	C	50	
	Conversion Factor British -> SI	FACTOR	N	8	6
	Conversion Power British -> SI	POWER	N	3	0
Cone Penetration Test - CPT.DBF (ACPT, CP, CPT, CPTU, CPTV, DCPT, LSSCP, MCPT, RCPT, & SCPTU)					
	Site Identification	SITEID	C	8	
	Exploratory Hole Identification Number	HOLE_ID	C	25	
	Cone Manufacturer	CPT_BRND	C	40	
	Tip Area	CPT_TIPA	N	2	0
	Tip Apex Angle	CPT_TIPX	N	2	0
	Friction Sleeve Area	CPT_SLVA	N	3	0
	Distance From Center to Sleeve Tip	CPT_SLVP	N	3	0
	Position of Filter Element(s)	CPT_FLTP	C	40	
	Thickness of Filter Element	CPT_FLTT	N	2	0
	Filter Element(s) Material	CPT_FLTM	C	40	

	Filter Material Pore Diameter	CPT_FLTD	N	2	0
	Saturation Fluid	CPT_SATF	C	40	
	Saturation Technique	CPT_SATT	C	40	
	Area Ratio Correction for Tip	CPT_ARCT	C	40	
	Area Ratio Correction for Sleeve	CPT_ARCS	C	40	
	Capacity of Surface Load Cell	CPT_CAPS	N	4	0
	Capacity of Tip Load Cell	CPT_CAPT	N	4	0
	Capacity of Friction Sleeve Load Cell	CPT_CAPF	N	4	0
	Capacity of Pore Pressure Transducer	CPT_CAPU	N	3	0
	Last Calibration Date	CPT_CALD	D	8	
	Friction Reducer Diameter	CPT_REDD	N	4	0
	Friction Reducer Location from Tip	CPT_REDL	N	4	0
	Details of Hammer System for Dynamic Cone Test	CPT_DYNH	C	40	
	Rate of Pennetration	CPT_ADVR	N	2	0
	Remarks	CPT_REM	M	10	
	Date Added to Database	ADD_DATE	D	8	
	Date Modified within Database	MOD_DATE	D	8	
Cone Penetration Test - CPT1.DBF (ACPT1, CP1, CPT1, CPTU1, CPTV1, DCPT1, LSSCP1, MCPT1, RCPT1, & SCPTU1)					
	Site Identification	SITEID	C	8	
	Exploratory Hole Identification Number	HOLE_ID	C	25	
	Depth of Tip Measurement	CPT_DPTH	N	7	3
	Static or Dynamic Cone Tip Resistance (qc)	CPT_QC	N	8	2
	Friction Sleeve Resistance at Tip Depth (fs)	CPT_FS	N	7	2
	Penetration Pore Pressure	CPT_U	N	5	1
	Shear Wave Velocity (SCPTU only)	CPT_SHRW	N	4	0
	Cone Inclination	CPT_INCL	N	2	0
	Additional Measurements: Pore Pressure Sensor, Conductivity, Lateral Stress, Temp.	CPT_OTH1	C	55	
	Additional Measurements: Pore Pressure Sensor, Conductivity, Lateral Stress, Temp.	CPT_OTH2	C	55	
Cone Penetration Test - CPT2.DBF (ACPT2, CP2, CPT2, CPTU2, CPTV2, DCPT2, LSSCP2, MCPT2, RCPT2, & SCPTU2)					
	Site Identification	SITEID	C	8	
	Exploratory Hole Identification Number	HOLE_ID	C	25	

	Depth of Dissipation Test	CPT_DPTD	N	6	2
	Elapsed Time of Reading for Dissipation Test	CPT_DIST	N	3	0
	Pore Pressure During Dissipation	CPT_DISU	N	5	1
Seismic Crosshole Test - CROS.DBF					
	Site Identification	SITEID	C	8	
	Boreholes Used	CROS_BOR3	C	55	
	Borehole Deviation Surveyed	CROS_DEVS	L	1	
	Borehole Deviation Survey Method	CROS_DEVM	C	40	
	Type and Details Regarding Source	CROS_SOUR	C	55	
	Type and Details Regarding Receivers	CROS_RECR	C	55	
	Distance From Source to Receiver 1	CROS_SGE1	N	5	2
	Distance From Source to Receiver 2	CROS_SGE2	N	5	2
	Remarks	CROS_REM	M	10	
	Date Added to Database	ADD_DATE	D	8	
	Date Modified within Database	MOD_DATE	D	8	
Seismic Crosshole Test - CROS1.DBF					
	Site Identification	SITEID	C	8	
	Boreholes Used	CROS_BOR3	C	55	
	Depth of Measurement	CROS_DPTH	N	6	2
	Shear Wave Travel Time from Source to Receiver 1	CROS_TRA1	N	6	4
	Shear Wave Travel Time from Source to Receiver 2	CROS_TRA2	N	6	4
	Shear Wave Velocity	CROS_SVEL	N	7	2
	True or Apparent Shear Wave Velocity	CROS_VELD	C	1	
	Compression Wave Travel Time from Source to Receiver 1	CROS_PTR1	N	7	5
	Compression Wave Travel Time from Source to Receiver 2	CROS_PTR2	N	7	5
	Compression Wave Velocity Accepted	CROS_PVEL	N	8	2
Data Dictionary - DATADICT.DBF					
	Data File Name	DBF_NAME	C	10	
	Screen Number	SCREEN_NUM	N	3	0
	Access	ACCESS	N	1	0
	Field Number in Database	FLDNUM	N	3	0
	Row to be Displayed	SAYROW	N	2	0

	Column to be Displayed	SAYCOL	N	2	0
	String to be Displayed	SAYSTRING	C	61	
	Picture of Displayed String	SAYPICT	C	30	
	Color of Displayed String	SAYCOLOR	C	20	
	Row of Get Object	GETROW	N	2	0
	Column of Get Object	GETCOL	N	2	0
	Field Number of Get Object	GETFLD	C	10	
	Picture of Get Object	GETPICT	C	30	
	Color of Get Object	GETCOLOR	C	20	
	When to use Get Objects	GETWHEN	C	100	
	Validation of Get Objects	GETVALID	C	100	
	Toggle	TOGGLE	N	1	0
	SI Units Used	SI_UNITS	C	20	
	British Units Used	BR_UNITS	C	20	
	Comments	COMMENTS	C	100	
Deep Benchmark - DEEP_BEN.DBF					
	Site Identification	SITEID	C	8	
	Description	DESCRIPTN	M	10	
	Date Added to Database	ADD_DATE	D	8	
	Date Modified within Database	MOD_DATE	D	8	
Densification Activities Performed - DENSE.DBF					
	Site Identification	SITEID	C	8	
	Preloading?	PRELOADING	N	2	0
	Sand Drains?	SAND_DRAIN	N	2	0
	Dynamic Compaction?	DYNAMC_CMP	N	2	0
	Wick Drains?	WICK_DRAIN	N	2	0
	Vibro Compaction?	VIBRO_CMP	N	2	0
	Compaction Grouting?	COMP_GROU	N	2	0
	Compaction Piles?	COMP_PILES	N	2	0
	Other Densification Activities	O_DENSE	C	65	
	Date Added to Database	ADD_DATE	D	8	
	Date Modified within Database	MOD_DATE	D	8	

Stratum Detail Descriptions - DETL.DBF					
	Site Identification	SITEID	C	8	
	Exploratory Hole Identification Number	HOLE_ID	C	25	
	Depth to Top of Detail Description Measured from Ground Surface	DETL_TOP	N	6	2
	Depth to Base of Detail Description Measured from Ground Surface	DETL_BASE	N	6	2
	USCS Soil Classification	DETL_USCS	C	15	
	AASHTO Soil Classification	DETL_ASTO	C	15	
	Detailed Description	DETL_DESC	C	75	
	Date Added to Database	ADD_DATE	D	8	
	Date Modified within Database	MOD_DATE	D	8	
Dewatering - DEWATERI.DBF					
	Site Identification	SITEID	C	8	
	Description	DESCRIPTN	M	10	
	Date Added to Database	ADD_DATE	D	8	
	Date Modified within Database	MOD_DATE	D	8	
Marchetti Flat Plate Dilatometer - DMT.DBF					
	Site Identification	SITEID	C	8	
	Exploratory Hole Identification Number	HOLE_ID	C	25	
	Membrane Thickness	DMT_MEMT	N	5	3
	Low Pressure Gauge Range	DMT_GAUL	N	4	0
	High Pressure Gauge Range	DMT_GAUH	N	4	0
	Membrane calibration A Before Test Profile	DMT_DAB	N	4	1
	Membrane calibration B Before Test Profile	DMT_DBB	N	4	1
	Membrane calibration A After Test Profile	DMT_DAA	N	4	1
	Membrane calibration B After Test Profile	DMT_DBA	N	4	1
	Friction Reducter Diameter	DMT_REDD	N	4	1
	Friction Reducer Location from Center of Membrane	DMT_REDL	N	4	0
	Rate of Penetration	DMT_ADVR	N	3	0
	Thrust Load Cell Range	DMT_THRR	N	4	1
	Remarks	DMT_REM	M	10	
	Date Added to Database	ADD_DATE	D	8	
	Date Modified within Database	MOD_DATE	D	8	

Marchetti Flat Plate Dilatometer - DMT1.DBF					
	Site Identification	SITEID	C	8	
	Exploratory Hole Identification Number	HOLE_ID	C	25	
	Depth of Measurement	DMT_DPTH	N	6	3
	Thrust	DMT_THRT	N	4	1
	Corrected A-Reading	DMT_P0	N	7	2
	Corrected B-Reading	DMT_P1	N	7	2
	Corrected C-Reading	DMT_P2	N	7	2
Marchetti Flat Plate Dilatometer - DMT2.DBF					
	Site Identification	SITEID	C	8	
	Exploratory Hole Identification Number	HOLE_ID	C	25	
	Depth of Dissipation Test	DMT_DISP	N	6	2
	Elapsed Time of Reading for Dissipation Test	DMT_DIST	N	3	0
	Corrected A-Reading During Dissipation	DMT_DISA	N	4	0
	Corrected C-Reading During Dissipation	DMT_DISC	N	4	0
Seismic Downhole Test - DOWN.DBF					
	Site Identification	SITEID	C	8	
	Borehole Used	HOLE_ID	C	25	
	Borehole Deviation Surveyed	DOWN_DEVS	L	1	
	Borehole Deviation Survey Method	DOWN_DEVM	C	40	
	Type and Details Regrading Source	DOWN_SOUR	C	55	
	Type and Details Regarding Receivers	DOWN_RECR	C	55	
	Horizontal Distance from Source to Borehole	DOWN_SGEH	N	5	2
	Remarks	DOWN_REM	M	10	
	Date Added to Database	ADD_DATE	D	8	
	Date Modified within Database	MOD_DATE	D	8	
Seismic Downhole Test - DOWN1.DBF					
	Site Identification	SITEID	C	8	
	Borehole Used	HOLE_ID	C	25	
	Depth of Receiver	DOWN_DPTR	N	6	2
	Travel Time from Source to Receiver	DOWN_TRAV	N	6	4
	Average Shear Wave Velocity	DOWN_SVEL	N	5	0

Direct Simple Shear Test - DSST.DBF					
	Site Identification	SITEID	C	8	
	Exploratory Hole Identification Number	HOLE_ID	C	25	
	Specimen Identification Number	SPEC_ID	C	10	
	Type of Test	DSST_TYPE	C	4	
	System Manufacturer	DSST_MFR	C	40	
	Type of Specimen Holder	DSST_HOLD	C	40	
	Specimen Holder Diameter or Plan Dimensions	DSST_PDIM	C	25	
	Initial Height of Specimen	DSST_HTS	N	4	1
	Load Wave Form for Dynamic Test	DSST_WAVF	C	20	
	Compaction Procedure for Reconstituted Specimens	DSST_PREP	C	40	
	Specimen Initial Water Content	DSST_WCI	N	2	0
	Specimen Initial Void Ratio	DSST_VRI	N	4	2
	Specimen Initial Dry Density	DSST_GAMI	N	4	2
	Final Back Pressure	DSST_BAPF	N	4	0
	Skempton "B" Value After Saturation	DSST_BFS	N	4	2
	Skemption "B" Value Immediately Before Shear	DSST_BFT	N	4	2
	Final Effective Lateral Stress	DSST_PRES	N	3	0
	Ko-Consolidation	DSST_KOC	L	1	
	Final Ko	DSST_KOF	N	4	2
	Ratio of Vertical to Horizontal Effective Consolidation Stress (Other than Ko-Consolidation)	DSST_ANIS	N	4	2
	Axial Stress at End of Consolidation Stage	DSST_SAXC	N	4	0
	Radial Stress at end of Consolidation Stage	DSST_SRC	N	4	0
	Time for 50% Consolidation	DSST_T50C	N	5	0
	Volume Change at End of Consolidation	DSST_DELV	N	3	0
	Specimen Dry Unit Weight After Consolidation	DSST_GAMC	N	4	1
	Water Content After Consolidation	DSST_WCC	N	2	0
	Strain Rate for Shear Test	DSST_SR	N	2	0
	Strain at Failure for Static Test	DSST_SAFA	N	2	0
	Excess Pore Pressure at Failure for Static Test	DSST_PPFA	N	4	0
	Major Principal Effective Stress at Failure	DSST_SI1F	N	4	0
	Minor Principal Effective Stress at Failure	DSST_SI3F	N	4	0
	Number of Cyclic Tests on Specimen	DSST_TSTS	N	2	0
	Cyclic Test Number on Specimen	DSST_TSTN	N	2	0

	Frequency of Loading	DSST_FREQ	N	4	0
	Number of Loading Cycles	DSST_NCYC	N	2	0
	Remarks	DSST_REM	M	10	
	Date Added to Database	ADD_DATE	D	8	
	Date Modified within Database	MOD_DATE	D	8	
Direct Simple Shear Test - DSST1.DBF					
	Site Identification	SITEID	C	8	
	Exploratory Hole Identification Number	HOLE_ID	C	25	
	Specimen Identification Number	SPEC_ID	C	10	
	Axial Strain Static Loading	DSST_ESPL	N	2	0
	Total Axial Stress	DSST_SAXL	N	4	0
	Total Radial Stress	DSST_SRT	N	4	0
	Pore Pressure Generated	DSST_PPG	N	4	0
Direct Simple Shear Test - DSST2.DBF					
	Site Identification	SITEID	C	8	
	Exploratory Hole Identification Number	HOLE_ID	C	25	
	Specimen Identification Number	SPEC_ID	C	10	
	Cycle Number	DSST_CYCN	N	2	0
	Cycle Strain	DSST_EPSC	N	4	2
	Shear Modulus	DSST_GEQ	N	4	0
	Fraction of Critical Damping	DSST_DAMP	N	2	0
	Pore Pressure Ratio at End of Cycle	DSST_RU	N	2	0
	Ratio of Shear Modulus to Low-Strain Shear Modulus	DSST_GRAT	N	2	0
Direct Simple Shear Test - DSST3.DBF					
	Site Identification	SITEID	C	8	
	Exploratory Hole Identification Number	HOLE_ID	C	25	
	Specimen Identification Number	SPEC_ID	C	10	
	Cyclic Shear Stress in Liquefaction Test	DSST_STRL	N	4	0
	Number of Cycles to Initial Liquefaction (ru = 100%)	DSST_NCIL	N	3	0
	Ratio of Cyclic Shear Stress to Initial Effective Confining Stress	DSST_CSR	N	4	2
	Single Amplitude Cyclic Shear Strain Level	DSST_ECL	N	2	0
	Number of Cycles to DSST_ECL	DSST_NECL	N	3	0

Deep Dynamic Compaction - DYN_COMP.DBF					
	Site Identification	SITEID	C	8	
	Description	DESCRIPTN	M	10	
	Date Added to Database	ADD_DATE	D	8	
	Date Modified within Database	MOD_DATE	D	8	
Electro-Osmosis - ELEC_OSM.DBF					
	Site Identification	SITEID	C	8	
	Description	DESCRIPTN	M	10	
	Date Added to Database	ADD_DATE	D	8	
	Date Modified within Database	MOD_DATE	D	8	
Embankments - EMBANKME.DBF					
	Site Identification	SITEID	C	8	
	Description	DESCRIPTN	M	10	
	Date Added to Database	ADD_DATE	D	8	
	Date Modified within Database	MOD_DATE	D	8	
Embankments Over Soft Soils - EMBANKSS.DBF					
	Site Identification	SITEID	C	8	
	Description	DESCRIPTN	M	10	
	Date Added to Database	ADD_DATE	D	8	
	Date Modified within Database	MOD_DATE	D	8	
Field Characteristics - FLD_CHAR.DBF					
	Site Identification	SITEID	C	8	
	Nearest Airport	AIRPRT_TN1	C	30	
	Distance to Nearest Airport	AIRPRT_DS1	N	3	0
	Alternative Airport	AIRPRT_TN2	C	30	
	Distance to Alternative Airport	AIRPRT_DS2	N	3	0
	Nearest Town with Lodging	LODGING	C	20	
	Distance to Lodging	LODGING_DS	N	3	0
	Site Accessibility	ACCESS	C	50	
	Site Security	SECURITY	C	50	

	Site Limitations	LIMITS	C	60	
	Prohibited Activities at Site	PROHIBITED	C	60	
	Electricity at Site	ELECTRIC	C	20	
	Water at Site	WATER	C	30	
	Local Machine Shops	SHOP_NAME	C	60	
	Loacal Soil Laboratories	LAB_NAME	C	60	
	Topographical Maps Available?	TOPOGRAPHY	L	1	
	Site Plan Available?	SITEPLAN	L	1	
	Date Added to Database	ADD_DATE	D	8	
	Date Modified within Database	MOD_DATE	D	8	
Footings - FOOTINGS.DBF					
	Site Identification	SITEID	C	8	
	Description	DESCRIPTN	M	10	
	Date Added to Database	ADD_DATE	D	8	
	Date Modified within Database	MOD_DATE	D	8	
Foundations - FOUNDATI.DBF					
	Site Identification	SITEID	C	8	
	Description	DESCRIPTN	M	10	
	Date Added to Database	ADD_DATE	D	8	
	Date Modified within Database	MOD_DATE	D	8	
Stratum Global Descriptions - GEOL.DBF					
	Site Identification	SITEID	C	8	
	Exploratory Hole Identification Number	HOLE_ID	C	25	
	Depth to Top of Stratum Measured from Ground Surface	GEOL_TOP	N	6	2
	Stratum Detailed Descriptions Available	GEOL_DETL	L	1	
	USCS Soil Classification	GEOL_USCS	C	15	
	AASHTO Soil Classification	GEOL_ASTO	C	15	
	General Description of Stratum	GEOL_DESC	C	75	
	Date Added to Database	ADD_DATE	D	8	
	Date Modified within Database	MOD_DATE	D	8	
Geotextiles - GEOTEXTI.DBF					

	Site Identification	SITEID	C	8	
	Description	DESCRIPTN	M	10	
	Date Added to Database	ADD_DATE	D	8	
	Date Modified within Database	MOD_DATE	D	8	
Grain-Size Distribution Test - GRAD.DBF					
	Site Identification	SITEID	C	8	
	Exploratory Hole Identification Number	HOLE_ID	C	25	
	Specimen Identification Number	SPEC_ID	C	10	
	Drying Method	GRAD_HMAT	C	20	
	Total Hydrometer Sample Weight	GRAD_HWT	N	3	0
	Sieve Number Passing All Hydrometer Specimen	GRAD_HMAX	N	3	0
	Dispersing Agent	GRAD_HDIS	C	20	
	Remarks	GRAD_REM	M	10	
	Date Added to Database	ADD_DATE	D	8	
	Date Modified within Database	MOD_DATE	D	8	
Grain-Size Distribution Test - GRAD1.DBF					
	Site Identification	SITEID	C	8	
	Exploratory Hole Identification Number	HOLE_ID	C	25	
	Specimen Identification Number	SPEC_ID	C	10	
	Sieve Opening	GRAD_SIEV	N	6	3
	Percent Passing	GRAD_PASS	N	5	1
Grain-Size Distribution Test - GRAD2.DBF					
	Site Identification	SITEID	C	8	
	Exploratory Hole Identification Number	HOLE_ID	C	25	
	Specimen Identification Number	SPEC_ID	C	10	
	Particle Size	GRAD_HSIZ	N	5	3
	Percent	GRAD_HPER	N	5	1
Ground Anchor: GRND_ANC.DBF					
	Site Identification	SITEID	C	8	
	Description	DESCRIPTN	M	10	
	Date Added to Database	ADD_DATE	D	8	

	Date Modified within Database	MOD_DATE	D	8	
Help - HELP.DBF					
	Name of Subroutine called from	THEPROC	C	10	
	Variable	VAR	C	10	
	Help Text	TEXT	M	10	
	Top Row of Help Box	TOPROW	N	2	0
	Bottom Row of Help Box	BOTROW	N	2	0
	Left Column of Help Box	LT_COL	N	2	0
	Right Column of Help Box	RT_COL	N	2	0
	Color of Help Box	BOXCOLOR	N	3	0
	Color of Titles	TITCOLOR	N	3	0
	Color of Text	TXTCOLOR	N	3	0
	Type of Box	BOXNO	N	1	0
	Title of Help Box	TITLE	C	30	
	Color of Footer	FTCOLOR	N	3	0
	Footer of Help Box	FOOTER	C	30	
Hole Information - HOLE.DBF					
	Site Identification	SITEID	C	8	
	Exploratory Hole Identification Number	HOLE_ID	C	25	
	X Coordinate Measured Along Line of Permanent Site Monuments	HOLE_LOCX	N	5	0
	Y Coordinate Measured Perpendicular to Permanent Site Monuments	HOLE_LOCY	N	5	0
	Level to Local Site Origin	HOLE_LOCZ	N	5	1
	Final Depth of Hole	HOLE_FDEP	N	6	2
	Hole Start Date	HOLE_STAR	D	8	
	Hole End Date	HOLE_END	D	8	
	Field Person Responsible for Logging the Hole and/or Performing the In Situ Tests and Affiliation	HOLE_LOG	C	30	
	Name of Drilling Contractor	HOLE_DRILL	C	30	
	Name of Driller	HOLE_CREW	C	30	
	Drilling Rig Type and Model	HOLE_RIG	C	30	
	Inclination of Hole (Degrees from Horizontal)	HOLE_INCL	N	3	0
	Details of Hole Diameter	HOLE_DIAM	C	45	
	Details of Casing Used	HOLE_CASG	C	45	

	Borehole Preparation Method	HOLE_PREP	C	20	
	Diameter of Borehole Preparation Tool	HOLE_PRED	N	4	1
	Drilling Fluid Type	HOLE_FLDT	C	30	
	Remarks	HOLE_REM	M	10	
	Date Added to Database	ADD_DATE	D	8	
	Date Modified within Database	MOD_DATE	D	8	
Hydraulic Conductivity - HYDRAULI.DBF					
	Site Identification	SITEID	C	8	
	Description	DESCRIPTN	M	10	
	Date Added to Database	ADD_DATE	D	8	
	Date Modified within Database	MOD_DATE	D	8	
Inclinometer - INCLINOM.DBF					
	Site Identification	SITEID	C	8	
	Description	DESCRIPTN	M	10	
	Date Added to Database	ADD_DATE	D	8	
	Date Modified within Database	MOD_DATE	D	8	
In Situ Tests Performed - INSITUTE.DBF					
	Site Identification	SITEID	C	8	
	Standard Penetration Test?	SPT	N	2	0
	Standard Penetration Test with Energy Measurement?	SPT_ENERGY	N	2	0
	Mechanical Cone Test?	CP	N	2	0
	Electric Cone Test?	CPT	N	2	0
	Piezocone Test?	CPTU	N	2	0
	Seismic Piezocone Test?	SCPTU	N	2	0
	Lateral Stress Cone Test?	LSSCP	N	2	0
	Dynamic Cone Test?	DCPT	N	2	0
	Acoustic Cone Test?	ACPT	N	2	0
	Resistivity Cone Test?	RCPT	N	2	0
	Vibratory Cone Test?	CPTV	N	2	0
	Miniature Cone Test?	MCPT	N	2	0
	Pre-Bored Pressuremeter Test?	PMT	N	2	0
	Push-In Pressuremeter Test	PPMT	N	2	0

	Full-Displacement Pressuremeter Test?	FDPMT	N	2	0
	Self-Boring Pressuremeter Test?	SBPMT	N	2	0
	Ko Meter Test?	KO	N	2	0
	In Situ Vane Test?	VST	N	2	0
	Marchetti Flat Plate Dilatometer Test?	DMT	N	2	0
	Push-In Earth Pressure Cell?	PEPC	N	2	0
	Ko Stepped Blade Test?	KOSB	N	2	0
	Screw Plate Test?	SCRW	N	2	0
	Borehole Shear Test?	BST	N	2	0
	Plate Load Test?	PLT	N	2	0
	Borehole Permeability Test?	BPER	N	2	0
	Pumping Test?	PUMP	N	2	0
	Seismic Crosshole Test?	CROS	N	2	0
	Seismic Downhole Test?	DOWN	N	2	0
	Seismic Surface Test?	S_SURFACE	N	2	0
	Other In Situ Tests Performed	O_INSITU	C	65	
	Date Added to Database	ADD_DATE	D	8	
	Date Modified within Database	MOD_DATE	D	8	
In Situ Reinforcement Activities Performed - INSITU_R.DBF					
	Site Identification	SITEID	C	8	
	Stone Columns?	STONE_COL	N	2	0
	Soil Nailing?	SOIL_NAIL	N	2	0
	Micropiles?	MICROPILES	N	2	0
	Jet Grouting?	JET_GROUT	N	2	0
	Ground Anchors?	GRND_ANCHR	N	2	0
	Soil Mixing?	SOIL_MIX	N	2	0
	Other In Situ Reinforcement Activities	O_INSITU_R	C	65	
	Date Added to Database	ADD_DATE	D	8	
	Date Modified within Database	MOD_DATE	D	8	
Jet Grouting - JET_GROU.DBF					
	Site Identification	SITEID	C	8	
	Description	DESCRIPTN	M	10	
	Date Added to Database	ADD_DATE	D	8	

	Date Modified within Database	MOD_DATE	D	8	
Ko-Stepped Blade - KOSB.DBF					
	Site Identification	SITEID	C	8	
	Exploratory Hole Identification Number	HOLE_ID	C	25	
	Test Identification Number	TEST_ID	C	10	
	Number of Levels	KOSB_LEVL	N	1	0
	Spade Cell Width	KOSB_WDTH	N	4	0
	Spade Cell Thickness at Each Level	KOSB_THK4	C	40	
	Test Procedure	KOSB_TEST	C	55	
	Remarks	KOSB_REM	M	10	
	Date Added to Database	ADD_DATE	D	8	
	Date Modified within Database	MOD_DATE	D	8	
Ko-Stepped Blade - KOSB1.DBF					
	Site Identification	SITEID	C	8	
	Exploratory Hole Identification Number	HOLE_ID	C	25	
	Test Identification Number	TEST_ID	C	10	
	Level Number of Measurement (1 is for Thinnest Blade)	KOSB_LVLN	N	2	0
	Measured Corrected Stress for that Level	KOSB_STRS	N	4	0
	Depth to Center of Blade for that Level	KOSB_DPTH	N	6	2
	Interpreted In Situ Horizontal Stress	KOSB_SIGH	N	4	0
Laboratory Classification Tests Performed - LAB_CLAS.DBF					
	Site Identification	SITEID	C	8	
	Specimen Taken?	SPEC	N	2	0
	Grain-Size Distribution Test?	GRAD	N	2	0
	Water Content?	H2O	N	2	0
	Specific Gravity Test?	MDEN	N	2	0
	Atterberg Limits?	ALIM	N	2	0
	Mineralogy?	MINERALOGY	N	2	0
	Organic Content?	ORGANIC	N	2	0
	Carbon Content?	CARBON	N	2	0
	Angularity and Surface Texture?	ANGULARITY	N	2	0
	Pore Water Chemistry?	WCHM	N	2	0

	Other Laboratory Classification Tests Performed	O_CLASS	C	65	
	Date Added to Database	ADD_DATE	D	8	
	Date Modified within Database	MOD_DATE	D	8	
Mechanical Laboratory Tests Performed - LAB_MECH.DBF					
	Site Identification	SITEID	C	8	
	One-Dimensional Consolidation Test: Incremental Load	CONSICL	N	2	0
	One-Dimensional Consolidation Test: Constant Rate of Strain	CONSCRS	N	2	0
	One-Dimensional Consolidation Test: Constant Gradient	CONSCG	N	2	0
	One-Dimensional Consolidation Test: Swelling Test	CONSSWL	N	2	0
	Isotropically-Consolidated Undrained Compression with Pore Pressure Measurement	T_ICUC	N	2	0
	Isotropically-Consolidated Undrained Extension with Pore Pressure Measurement	T_ICUE	N	2	0
	Anisotropically-Consolidated Undrained Compression with Pore Pressure Measurement	T_ACUC	N	2	0
	Anisotropically-Consolidated Undrained Extension with Pore Pressure Measurement	T_ACUE	N	2	0
	Ko-Consolidated Undrained Compression with Pore Pressure Measurement	T_CKUC	N	2	0
	Ko-Consolidated Undrained Extension with Pore Pressure Measurement	T_CKUE	N	2	0
	Ko-Consolidation Compression - Plane Strain Active Condition	T_KPSAU	N	2	0
	Ko-Consolidation Compression - Plane Strain Passive Condition	T_KPSPU	N	2	0
	Un-consolidated-Undrained Test (Including Unconfined)	T_UU	N	2	0
	Cyclic Triaxial Liquefaction	T_CYLQ	N	2	0
	Cyclic Shear Modulus and Damping, Strain Controlled, Undrained	T_CYGDU	N	2	0
	Isotropically-Consolidated Drained Compression	T_ICDC	N	2	0
	Isotropically-Consolidated Drained Extension	T_ICDE	N	2	0
	Anisotropically-Consolidated Drained Compression	T_ACDC	N	2	0
	Anisotropically-Consolidated Drained Extension	T_ACDE	N	2	0
	Ko-Consolidated Drained Compression	T_CKDC	N	2	0
	Ko-Consolidated Drained Extension	T_CKDE	N	2	0
	Ko-Consolidated Drained Compression - Plane Strain Active Condition	T_KPSAD	N	2	0
	Ko-Consolidated Drained Extension - Plane Strain Passive Condition	T_KPSPD	N	2	0
	Drained Cyclic Shear Modulus and Damping, Strain-Controlled	T_CYGDD	N	2	0
	Laboratory Vane Test	LVAN	N	2	0
	Direct Shear Test - Individual	SHBT	N	2	0
	Direct Simple Shear Test	DSST	N	2	0
	Resonant Column Test	RESC	N	2	0
	Laboratory Permeability Test	PERM	N	2	0

	Other Mechanical Laboratory Tests Performed	O_MECH	C	65	
	Date Added to Database	ADD_DATE	D	8	
	Date Modified within Database	MOD_DATE	D	8	
Look-up Table - LOOK_UPS.DBF					
	Database Alias	LT_ALIAS	C	20	
	Sort Number	LT_NUMBER	N	2	0
	Abreviation, acronym, etc.	LT_CODE	C	10	
	Meaning, description, etc.	LT_MEANING	C	50	
	Comments	COMMENTS	C	50	
Laboratory Vane Test - LVAN.DBF					
	Site Identification	SITEID	C	8	
	Exploratory Hole Identification Number	HOLE_ID	C	25	
	Specimen Identification Number	SPEC_ID	C	10	
	Vane Shape	LVAN_SHAP	C	25	
	Vane Height	LVAN_HGHT	N	3	0
	Vane Diameter	LVAN_DIAM	N	3	0
	Vane Thickness	LVAN_THCK	N	3	0
	Vane Remarks	LVAN_REM	M	10	
	Date Added to Database	ADD_DATE	D	8	
	Date Modified within Database	MOD_DATE	D	8	
Laboratory Vane Test - LVAN1.DBF					
	Site Identification	SITEID	C	8	
	Exploratory Hole Identification Number	HOLE_ID	C	25	
	Specimen Identification Number	SPEC_ID	C	10	
	Laboratory Vane Test Identification Number	LVAN_ID	N	2	0
	Depth to Test from Top of Specimen	LVAN_DPTH	N	3	0
	Vane Rotation Rate	LVAN_VPRM	N	3	1
	Maximum Torque for Undisturbed Test	LVAN_MXTU	N	3	0
	Number of Revolutions for Remolded Test	LVAN_RREV	N	2	0
	Elapsed Time to Maximum Torque	LVAN_MTIM	N	4	0
	Maximum Torque for Remolded Test	LVAN_MXTR	N	3	0
	Interpreted Undrained Shear Strength	LVAN_VCUU	N	4	0

	Interpreted Remolded Shear Strength	LVAN_VCUR	N	4	0
Soil Components Test - MDES.DBF					
	Site Identification	SITEID	C	8	
	Exploratory Hole Identification Number	HOLE_ID	C	25	
	Specimen Identification Number	SPEC_ID	C	10	
	Calcium Carbonate Content of Oven-Dried Soil	MDES_CARB	N	4	1
	Organic Matter Content of Oven-Dried Soil	MDES_ORG	N	4	1
	Mineralogy of Soil Specimen Qualitative (A) or Measured (M)	MDES_MINR	C	40	
	Angularity and Surface Texture of Grains	MDES_ANGS	C	40	
	Remarks	MDES_REM	M	10	
	Date Added to Database	ADD_DATE	D	8	
	Date Modified within Database	MOD_DATE	D	8	
Headers for Grumpfish Browse - MEMOHEAD.DBF					
	Database Name	DBF_NAME	C	8	
	Order to Appear in Browse	ORDER	N	2	0
	Field Name in Referred Database	FLD_NAME	C	10	
	Header for the Field	HEAD_NAME	C	50	
	Mini-Header for the Field	BROW_HEAD	C	8	
	Significant Digit to Round to	ROUND	N	1	0
	SI Units	SI_UNITS	C	10	
	British Units	BR_UNITS	C	10	
Micropiles - MICROPIL.DBF					
	Site Identification	SITEID	C	8	
	Description	DESCRIPTN	M	10	
	Date Added to Database	ADD_DATE	D	8	
	Date Modified within Database	MOD_DATE	D	8	
Miscellaneous Methods - MISCMETH.DBF					
	Site Identification	SITEID	C	8	
	Blasting?	BLASTING	N	2	0
	Thermal Stabilization?	THERM_STAB	N	2	0
	Electro-Osmosis?	ELC_OSMOS	N	2	0

	Chemical Stabilization?	CHEM_STAB	N	2	0
	Dewatering?	DEWATERING	N	2	0
	Other Miscellaneous Methods	O_MISCMETH	C	65	
	Date Added to Database	ADD_DATE	D	8	
	Date Modified within Database	MOD_DATE	D	8	
Strong Motion Accelerometer - MOTION_A.DBF					
	Site Identification	SITEID	C	8	
	Description	DESCRIPTN	M	10	
	Date Added to Database	ADD_DATE	D	8	
	Date Modified within Database	MOD_DATE	D	8	
Owner - OWNER.DBF					
	Site Identification	SITEID	C	8	
	Name of Owner	OWNER	C	60	
	Contact Person	CONTACT	C	35	
	Title of Contact	TITLE	C	40	
	Contact's Organization	ORGANIZATN	C	50	
	Line 0 of Contact's Address	ADDRESS0	C	35	
	Line 1 of Contact's Address	ADDRESS1	C	35	
	Line 2 of Contact's Address	ADDRESS2	C	35	
	Contact's City	CITY	C	15	
	Contact's State	STATE	C	2	
	Contact's Zip Code	ZIP	C	10	
	Contact's Phone Number	PHONE	C	14	
	Contact's Fax Number	FAX	C	14	
	Contact's Bitnet Number	BITNET	C	20	
	Date Added to Database	ADD_DATE	D	8	
	Date Modified within Database	MOD_DATE	D	8	
Push-In Earth Pressure Cell - PEPC.DBF					
	Site Identification	SITEID	C	8	
	Exploratory Hole Identification Number	HOLE_ID	C	25	
	Test Identification Number	TEST_ID	C	10	
	Depth to Center of Blade	PEPC_DPTH	N	6	2

	Push-In Earth Pressure Cell Brand Type	PEPC_TYPE	C	55	
	Spade Cell Width	PEPC_WDTH	N	3	0
	Spade Cell Thickness	PEPC_THCK	N	3	1
	Cell Capacity	PEPC_CAPA	N	2	0
	Installation Date	PEPC_INSD	D	8	
	Installation Time	PEPC_INST	C	8	
	Time of Initial Reading	PEPC_TIMZ	C	8	
	Zero Reading Before Test	PEPC_ZERB	N	4	0
	Zero Reading After Test	PEPC_ZERA	N	4	0
	Remarks	PEPC_REM	M	10	
	Date Added to Database	ADD_DATE	D	8	
	Date Modified within Database	MOD_DATE	D	8	
Push-In Earth Pressure Cell - PEPC1.DBF					
	Site Identification	SITEID	C	8	
	Exploratory Hole Identification Number	HOLE_ID	C	25	
	Test Identification Number	TEST_ID	C	10	
	Elapsed Time of Reading	PEPC_TIME	N	3	0
	Corrected Stress	PEPC_STRS	N	4	0
	Pore Pressure	PEPC_PORE	N	4	0
Laboratory Permeability Test - PERM.DBF					
	Site Identification	SITEID	C	8	
	Exploratory Hole Identification Number	HOLE_ID	C	25	
	Specimen Identification Number	SPEC_ID	C	10	
	Type of Permeability Test	PERM_TYPE	C	30	
	Horizontal or Vertical Permeability	PERM_DIR	C	10	
	Hydraulic Gradient Across Specimen	PERM_GRAD	N	3	0
	Permeability at 20° C	PERM_KVAL	N	8	6
	Remarks	PERM_REM	M	10	
	Date Added to Database	ADD_DATE	D	8	
	Date Modified within Database	MOD_DATE	D	8	
Permanent Field Instrumentation - PERMFIEL.DBF					
	Site Identification	SITEID	C	8	

	Piezometer: Standpipe?	PIEZOSTAND	N	2	0
	Piezometer: Vibrating Wire?	PIEZOVIBRA	N	2	0
	Piezometer: Pneumatic?	PIEZOPNEUM	N	2	0
	Piezometer: Strain-Gauge?	PIEZOSTRAI	N	2	0
	Strong Motion Accelerometer	MOTION_ACC	N	2	0
	Deep Benchmark	DEEP_BENCH	N	2	0
	Inclinometer	INCLINOMTR	N	2	0
	Other Permanent Field Instrumentation	O_PERMFIEL	C	65	
	Date Added to Database	ADD_DATE	D	8	
	Date Modified within Database	MOD_DATE	D	8	
Piers and Caissons - PIERS_CA.DBF					
	Site Identification	SITEID	C	8	
	Description	DESCRIPTN	M	10	
	Date Added to Database	ADD_DATE	D	8	
	Date Modified within Database	MOD_DATE	D	8	
Pile Group: Lateral Load - PILE_GRH.DBF					
	Site Identification	SITEID	C	8	
	Description	DESCRIPTN	M	10	
	Date Added to Database	ADD_DATE	D	8	
	Date Modified within Database	MOD_DATE	D	8	
Pile Group: Vertical Load - PILE_GRV.DBF					
	Site Identification	SITEID	C	8	
	Description	DESCRIPTN	M	10	
	Date Added to Database	ADD_DATE	D	8	
	Date Modified within Database	MOD_DATE	D	8	
Pile, Single: Lateral Load - PILE_SIH.DBF					
	Site Identification	SITEID	C	8	
	Description	DESCRIPTN	M	10	
	Date Added to Database	ADD_DATE	D	8	
	Date Modified within Database	MOD_DATE	D	8	

Pile, Single: Vertical Load - PILE_SIV.DBF					
	Site Identification	SITEID	C	8	
	Description	DESCRIPTN	M	10	
	Date Added to Database	ADD_DATE	D	8	
	Date Modified within Database	MOD_DATE	D	8	
Plate Load Test - PLT.DBF					
	Site Identification	SITEID	C	8	
	Exploratory Hole Identification Number	HOLE_ID	C	25	
	Test Identification Number	TEST_ID	C	10	
	Plate Load Test Depth	PLT_DPTH	N	4	2
	Plate Diameter or Equivalent for Square Plate	PLT_DIAP	N	3	0
	Test Type	PLT_TEST	C	30	
	Remarks	PLT_REM	M	10	
	Date Added to Database	ADD_DATE	D	8	
	Date Modified within Database	MOD_DATE	D	8	
Plate Load Test - PLT1.DBF					
	Site Identification	SITEID	C	8	
	Exploratory Hole Identification Number	HOLE_ID	C	25	
	Test Identification Number	TEST_ID	C	10	
	Load Increment	PLT_LOAD	N	4	0
	Time Interval of Loading	PLT_TIML	N	2	0
	Settlement for that Load Increment	PLT_SETL	N	3	0
	Settlement Increment	PLT_SETI	N	3	0
	Load Corresponding to Settlement Increments	PLT_LDCH	N	4	0
	Corresponding Time for Load Reading	PLT_TIME	N	3	0
Pressuremeters, Pre-Bored - PMT.DBF					
	Site Identification	SITEID	C	8	
	Exploratory Hole Identification Number	HOLE_ID	C	25	
	Test Identification Number	TEST_ID	C	10	
	Pressuremeter Manufacturer	PMT_TYPE	C	40	
	Depth to Center of Expanding Portion of Probe	PMT_DPTH	N	6	2

	Pressuremeter Model	PMT_MODL	C	55	
	Probe Design Type	PMT_DSGN	C	55	
	Number of Cells	PMT_CELL	C	40	
	Outside Diameter of Expandable Section of Probe	PMT_DIAM	N	4	1
	Length of Expandable Probe Section	PMT_LGTH	N	5	1
	Rubber Membrane Thickness	PMT_MEMT	N	4	0
	Protective Sheath Thickness	PMT_CHLT	N	4	0
	Membrane Resistance at Expansion Corresponding to Limit Pressure	PMT_MEMR	N	4	0
	Volume of Measuring Portion of Uninflated Probe at Zero Volume Reading at Ground Surface	PMT_VOLO	N	4	1
	Corrected Volume Reading at Pressure Where Probe Made Contact with Borehole	PMT_VOLI	N	4	1
	Change in Volume at Control Unit Between 500 and 2500 kPa with Probe in Steel Tube	PMT_VOLC	N	4	1
	Time Elapsed Between End of Borehole Preparation and Start of Test	PMT_TIME	N	2	0
	Test Procedure	PMT_TEST	C	55	
	Pressuremeter Modulus Ep	PMT_EPM	N	8	1
	Pressuremeter Limit Pressure Pl at Twice the Original Soil Cavity Volume	PMT_PL	N	6	1
	Pressuremeter Unload-Reload Modulus Er	PMT_ER	N	6	0
	Remarks	PMT_REM	M	10	
	Date Added to Database	ADD_DATE	D	8	
	Date Modified within Database	MOD_DATE	D	8	
Pressuremeters, Pre-Bored - PMT1.DBF					
	Site Identification	SITEID	C	8	
	Exploratory Hole Identification Number	HOLE_ID	C	25	
	Test Identification Number	TEST_ID	C	10	
	Total Cavity Pressure at Instant at which Unloading Begins	PMT_UNCP	N	4	0
	Circumferential Strain Corresponding to Unloading Start	PMT_UNCS	N	5	2
	Total Cavity Pressure at Crossover Point of Unloading Loop	PMT_UNPC	N	4	0
	Circumferential Strain Corresponding to Crossover Point	PMT_UNSC	N	4	2
	Total Cavity Pressure at Bottom of Unloading Loop	PMT_UNPB	N	4	0
	Circumferential Strain Corresponding to Bottom of Loop	PMT_UNSB	N	5	2
Pressuremeters, Pre-Bored - PMT2.DBF					
	Site Identification	SITEID	C	8	
	Exploratory Hole Identification Number	HOLE_ID	C	25	
	Test Identification Number	TEST_ID	C	10	

	Corrected Pressure	PMT_PREC	N	4	0
	Corrected Volume	PMT_VOLC	N	3	0
	Time Associated to Corrected Pressure or Volume at 30 and 60 Seconds	PMT_TIME	N	2	0
Preloading - PRELOADI.DBF					
	Site Identification	SITEID	C	8	
	Description	DESCRIPTN	M	10	
	Date Added to Database	ADD_DATE	D	8	
	Date Modified within Database	MOD_DATE	D	8	
Prototype and Model Foundations - PROTOTYP.DBF					
	Site Identification	SITEID	C	8	
	Footings?	FOOTINGS	N	2	
	Single Pile: Vertical Load?	PILE_SIV	N	2	
	Single Pile: Lateral Load?	PILE_SIH	N	2	
	Pile Group: Vertical Load?	PILE_GRV	N	2	
	Pile Group: Lateral Load?	PILE_GRH	N	2	
	Piers and Caissons?	PIERS_CA	N	2	
	Embankments Over Soft Soils?	EMBANKSS	N	2	
	Retaining Structures?	RETAINING	N	2	
	Slurry Trenches?	SLURRY	N	2	
	Other Prototype and Model Foundations	O_PROTOTYP	C	65	
	Date Added to Database	ADD_DATE	D	8	
	Date Modified within Database	MOD_DATE	D	8	
Pumping Test- PUMP.DBF					
	Site Identification	SITEID	C	8	
	Exploratory Hole Identification Number	HOLE_ID	C	25	
	Test Identification Number	TEST_ID	C	10	
	Piezometer Identification Number	PZOI_ID	C	10	
	Date of Pumping Start	PUMP_DATE	D	8	
	Time of Pumping Start	PUMP_TIME	C	8	
	Pumping Rate From Hole	PUMP_QUAT	N	4	0
	Remarks	PUMP_REM	M	10	
	Date Added to Database	ADD_DATE	D	8	

	Date Modified within Database	MOD_DATE	D	8	
Piezometer Test - PZOR.DBF (PZ_STAN, PZ_PNEU, PZ_STGA, PZ_VIBW)					
	Site Identification	SITEID	C	8	
	Exploratory Hole Identification Number	HOLE_ID	C	25	
	Piezometer Identification Number	TEST_ID	C	10	
	Depth of Piezometer Tip or Element	PZOR_TDEP	N	5	2
	Piezometer Installation Date	PZOR_DATE	D	8	
	Depth to Top of Response Zone	PZOR_TRPS	N	5	2
	Depth to Base of Response Zone	PZOR_BRPS	N	5	2
	Method Used to Determine Depth to Water Below Ground Surface	PZOR_MTD	C	50	
	Remarks Regarding Installation and Readings	PZOR_REM	M	10	
	Date Added to Database	ADD_DATE	D	8	
	Date Modified within Database	MOD_DATE	D	8	
Piezometer Test - PZOR1.DBF (PZ_STAN1, PZ_PNEU1, PZ_STGA1, PZ_VIBW1)					
	Site Identification	SITEID	C	8	
	Exploratory Hole Identification Number	HOLE_ID	C	25	
	Piezometer Identification Number	TEST_ID	C	10	
	Date of Piezometer Reading	PZOR_DATE	D	8	
	Time of Piezometer Reading	PZOR_TIME	C	8	
	Depth to Water Below Ground Surface	PZOR_DEPW	N	5	2
	Head of Water Above Piezometer Tip	PZOR_HEAD	N	5	2
Reinforcement of Constructed Earth - REINFORC.DBF					
	Site Identification	SITEID	C	8	
	Walls?	WALLS	N	2	0
	Embankments?	EMBANKMENT	N	2	0
	Foundations and Subgrade Improvement?	FOUNDATION	N	2	0
	Geotextiles?	GEOTEXTILE	N	2	0
	Other Reinforcement of Constructed Earth	O_REINFORC	C	65	
	Date Added to Database	ADD_DATE	D	8	
	Date Modified within Database	MOD_DATE	D	8	
Resonant Column Test - RESC.DBF					

	Site Identification	SITEID	C	8	
	Exploratory Hole Identification Number	HOLE_ID	C	25	
	Specimen Identification Number	SPEC_ID	C	10	
	Type of Resonant Column	RESC_TYPE	C	40	
	Manufacturer of Resonant Column	RESC_MFR	C	40	
	Specimen Type	RESC_SPET	C	15	
	For Reconstituted Specimens, Compaction Procedure	RESC_PREP	C	40	
	Specimen Initial Water Content	RESC_WCI	N	2	0
	Specimen Initial Void Ratio	RESC_VRI	N	4	2
	Specimen Initial Dry Density	RESC_GAMI	N	4	1
	Specimen Initial Height	RESC_SHI	N	5	1
	Specimen Initial Degree of Saturation	RESC_SATI	N	2	0
	Reported Material Damping Corrected for Equipment Damping	RESC_DCOR	L	1	
	Specimen Final Water Content	RESC_WCF	N	2	0
	Specimen Final Void Ratio	RESC_VRF	N	4	2
	Specimen Final Dry Density	RESC_GAMF	N	4	1
	Specimen Final Height	RESC_SHF	N	3	0
	Specimen Final Diameter	RESC_SDF	N	3	0
	Specimen Final Percent Saturation	RESC_SATF	N	2	0
	Remarks	RESC_REM	M	10	
	Date Added to Database	ADD_DATE	D	8	
	Date Modified within Database	MOD_DATE	D	8	
Resonant Column Test - RESC1.DBF					
	Site Identification	SITEID	C	8	
	Exploratory Hole Identification Number	HOLE_ID	C	25	
	Specimen Identification Number	SPEC_ID	C	10	
	Chamber Pressure at End of Consolidation	RESC_SRC	N	4	0
	Axial Stress at End of Consolidation	RESC_SAXC	N	6	2
	Time for 50% Consolidation	RESC_T50C	N	5	0
	Volume Change at End of Consolidation	RESC_DELV	N	3	0
	Final Back Pressure	RESC_BAPF	N	4	0
Resonant Column Test - RESC2.DBF					
	Site Identification	SITEID	C	8	

	Exploratory Hole Identification Number	HOLE_ID	C	25	
	Specimen Identification Number	SPEC_ID	C	10	
	Identification Number of Data Set	RESC_DSET	N	2	0
	Strain Amplitude	RESC_SAMP	N	5	3
	Time at Strain Amplitude	RESC_STIM	N	5	0
	Resonant Frequency	RESC_RFRQ	N	4	0
	Shear Modulus at Strain Amplitude	RESC_GMOD	N	6	2
	Damping Ratio at Strain Amplitude from Frequency Response Curve	RESC_DFR	N	2	0
	Damping Ratio at Strain Amplitude from Free Vibration	RESC_DFV	N	5	2
	Equipment Damping Ratio at Strain Amplitude	RESC_EDMP	N	2	0
Retaining Structures - RETAININ.DBF					
	Site Identification	SITEID	C	8	
	Description	DESCRIPTN	M	10	
	Date Added to Database	ADD_DATE	D	8	
	Date Modified within Database	MOD_DATE	D	8	
Sand Drain - SAND_DRA.DBF					
	Site Identification	SITEID	C	8	
	Description	DESCRIPTN	M	10	
	Date Added to Database	ADD_DATE	D	8	
	Date Modified within Database	MOD_DATE	D	8	
Pressuremeters, Self-Boring and Push-In - SBPP.DBF (FDPMT, KO, PPMT, SBPMT)					
	Site Identification	SITEID	C	8	
	Exploratory Hole Identification Number	HOLE_ID	C	25	
	Test Identification Number	TEST_ID	C	10	
	Depth to Center of Expanding Portion of Probe	SBPP_DPTH	N	6	2
	Pressuremeter Manufacturer	SBPP_BRND	C	40	
	Pressuremeter Model	SBPP_MODL	C	40	
	Outside Diameter of Expandable Section of Probe	SBPP_DIAM	N	5	1
	Length of Expandable Probe Section	SBPP_LGTH	N	4	0
	Pressure Measurement System	SBPP_PRES	C	40	
	Volume Measurement System	SBPP_VOLS	C	40	
	Number of Strain Arms	SBPP_ARMS	N	1	0

	Total Pressure Cell Range	SBPP_TPR	N	4	0
	Pore Pressure Measurement Type	SBPP_PORT	C	40	
	Effective or Pore Pressure Cell Range	SBPP_PPR	N	4	0
	Rubber Membrane Thickness	SBPP_MEMT	N	3	1
	Protective Sheath Thickness	SBPP_CHLT	N	3	0
	Membrane Stiffness at Lift-Off	SBPP_MEML	N	4	1
	Membrane System Stiffness During Expansion	SBPP_MEMS	N	4	2
	Corrected Volume Reading at Pressure where Probe Made Contact with Borehole	SBPP_VOLI	N	4	0
	Change in Volume at Control Unit Between 500 and 2500 kPa with Probe in Steel Tube	SBPP_VOLC	N	4	0
	Diameter of Cutting Shoe	SBPP_SHOE	N	4	1
	Remarks Regarding Cutting Shoe or Conical Tip	SBPP_TIPR	C	55	
	Stabilization Period Before Expansion Test	SBPP_STAB	N	2	0
	Expansion Rate	SBPP_INFR	N	4	0
	Advance Method	SBPP_BORG	C	40	
	Cutter Type	SBPP_CTYP	C	40	
	Diameter of Exit Orifice	SBPP_CDIA	N	3	1
	Cutter Position Relative to Edge of Cutting Shoe Measured from Tip to Cutter	SBPP_CPOS	N	4	0
	Cutter Rotation Rate	SBPP_CRPM	N	2	0
	Jetting Tip Type	SBPP_JTYP	C	40	
	Diameter of each Orifice	SBPP_JDIA	N	3	1
	Number of Orifices on Jetting Tip	SBPP_JNOR	N	2	0
	Position of Lower Edge of Orifice Relative to Edge of Cutting Shoe	SBPP_JPOS	N	5	2
	Drilling Fluid Flow Rate	SBPP_CJFR	N	4	1
	Drilling Fluid Pressure	SBPP_CJFP	N	4	0
	Advance Rate	SBPP_CJPR	N	4	0
	Advance Rig Hydraulic Down Pressure	SBPP_CJPP	N	4	2
	Corrected Electronic Average Total In Situ Horizontal Stress	SBPP_SHAV	N	4	0
	Remarks	SBPP_REM	M	10	
	Date Added to Database	ADD_DATE	D	8	
	Date Modified within Database	MOD_DATE	D	8	
Pressuremeters, Self-Boring and Push-In - SBPP1.DBF (FDPMT1, KO1, PPMT1, SBPMT1)					
	Site Identification	SITEID	C	8	
	Exploratory Hole Identification Number	HOLE_ID	C	25	
	Test Identification Number	TEST_ID	C	10	

	Corrected Total In Situ Horizontal Stress at Arm No. 1	SBPP_SH1	N	4	1
	Corrected Total In Situ Horizontal Stress at Arm No. 2	SBPP_SH2	N	4	1
	Corrected Total In Situ Horizontal Stress at Arm No. 3	SBPP_SH3	N	4	1
	Corrected Total In Situ Horizontal Stress at Other Arms	SBPP_SHA	C	55	
	Date Added to Database	ADD_DATE	D	8	
	Date Modified within Database	MOD_DATE	D	8	
Pressuremeters, Self-Boring and Push-In - SBPP2.DBF (FDPMT2, KO2, PPMT2, SBPMT2)					
	Site Identification	SITEID	C	8	
	Exploratory Hole Identification Number	HOLE_ID	C	25	
	Test Identification Number	TEST_ID	C	10	
	Pressuremeter Unload-Reload Modulus Gur	SBPP_GUR	N	4	1
	Total Cavity Pressure at Instant at which Unloading Begins	SBPP_UNCP	N	4	0
	Circumferential Strain Corresponding to Unloading Start	SBPP_UNCS	N	4	2
	Total Cavity Pressure at Crossover Point of Unloading Loop	SBPP_UNPC	N	4	0
	Circumferential Strain Corresponding to Crossover Point	SBPP_UNSC	N	4	2
	Total Cavity Pressure at Bottom of Unloading Loop	SBPP_UNPB	N	4	0
	Circumferential Strain Corresponding to Bottom of Loop	SBPP_UNSB	N	4	0
Pressuremeters, Self-Boring and Push-In - SBPP3.DBF (FDPMT3, KO3, PPMT3, SBPMT3)					
	Site Identification	SITEID	C	8	
	Exploratory Hole Identification Number	HOLE_ID	C	25	
	Test Identification Number	TEST_ID	C	10	
	Time of Reading	SBPP_TIME	N	3	0
	Corrected Total Radial Pressure	SBPP_STRS	N	7	3
	Total Pore Pressure Cell Number 1	SBPP_POR1	N	4	0
	Total Pore Pressure Cell Number 2	SBPP_POR2	N	4	0
	Corrected Circumferential Strain Arm No. 1	SBPP_STR1	N	4	2
	Corrected Circumferential Strain Arm No. 2	SBPP_STR2	N	4	2
	Corrected Circumferential Strain Arm No. 3	SBPP_STR3	N	4	2
	Corrected Circumferential Strain for Other Arms	SBPP_STRA	C	55	
	Corrected Electronic Average Circumferential Strain	SBPP_AVGS	N	4	2
Pressuremeters, Self-Boring and Push-In - SBPP4.DBF (FDPMT4, KO4, PPMT4, SBPMT4)					
	Site Identification	SITEID	C	8	

	Exploratory Hole Identification Number	HOLE_ID	C	25	
	Test Identification Number	TEST_ID	C	10	
	Elapsed Time of Reading for Holding Test	SBPP_HLDT	N	3	0
	Pore Pressure During Dissipation	SBPP_HLDU	N	4	0
	Total Stress During Dissipation	SBPP_HLDS	N	4	0
	Circumferential Strain During Dissipation	SBPP_HLDD	N	4	2
Screw Plate Test - SCRW.DBF					
	Site Identification	SITEID	C	8	
	Exploratory Hole Identification Number	HOLE_ID	C	25	
	Test Identification Number	TEST_ID	C	10	
	Test Depth	SCRW_DPTH	N	6	2
	Screw Plate Diameter	SCRW_DIA	N	3	0
	Test Type	SCRW_TEST	C	55	
	Remarks Regarding Test Results and Equipment	SCRW_REM	M	10	
	Date Added to Database	ADD_DATE	D	8	
	Date Modified within Database	MOD_DATE	D	8	
Specific Gravity Test - SGRA.DBF					
	Site Identification	SITEID	C	8	
	Exploratory Hole Identification Number	HOLE_ID	C	25	
	Specimen Identification Number	SPEC_ID	C	10	
	Pycnometer Capacity	SGRA_PYCN	N	3	0
	Number of Trials	SGRA_NUMB	N	2	0
	Specific Gravity	SGRA_SPG	N	4	2
	Remarks	SGRA_REM	M	10	
	Date Added to Database	ADD_DATE	D	8	
	Date Modified within Database	MOD_DATE	D	8	
Direct Shear Test Series: Results - SHBG.DBF					
	Site Identification	SITEID	C	8	
	Exploratory Hole Identification Number	HOLE_ID	C	25	
	Specimen Identification Numbers Used in Series	SHBG_NUMB	C	50	
	Peak Cohesion Intercept	SHBG_PCOH	N	2	0
	Peak Friction Angle	SHBG_PPHI	N	4	1

	Residual Cohesion Intercept	SHBG_RCOH	N	2	0
	Residual Friction Angle	SHBG_RPHI	N	4	1
	Stress Range for Cohesion and Friction Angle Reported	SHBG_STRA	C	25	
	Remarks	SHBG_REM	M	10	
	Date Added to Database	ADD_DATE	D	8	
	Date Modified within Database	MOD_DATE	D	8	
Direct Shear Test: Individual - SHBT.DBF					
	Site Identification	SITEID	C	8	
	Exploratory Hole Identification Number	HOLE_ID	C	25	
	Specimen Identification Number	SPEC_ID	C	10	
	For Reconstituted Specimen, Compaction Procedure	SHBT_PREP	C	35	
	Shear Box Specimen Holder Type	SHBT_TYPE	C	35	
	Shear Box Specimen Holder Diameter or Width	SHBT_BOXD	C	15	
	Specimen Initial Water Content	SHBT_WCI	N	2	0
	Specimen Initial Dry Density	SHBT_GAMI	N	4	1
	Normal Stress on Specimen	SHBT_NORM	N	6	1
	Shear Box Displacement Rate	SHBT_DISP	N	3	1
	Peak Shear Stress	SHBT_PEAK	N	4	0
	Residual Shear Stress	SHBT_RES	N	4	1
	Displacement at Peak Shear Stress	SHBT_PDIS	N	3	0
	Displacement at Residual Shear Stress	SHBT_RDIS	N	5	2
	Specimen Final Water Content	SHBT_WCF	N	2	0
	Remarks	SHBT_REM	M	10	
	Date Added to Database	ADD_DATE	D	8	
	Date Modified within Database	MOD_DATE	D	8	
Direct Shear Test: Individual - SHBT1.DBF					
	Site Identification	SITEID	C	8	
	Exploratory Hole Identification Number	HOLE_ID	C	25	
	Specimen Identification Number	SPEC_ID	C	10	
	Elapsed Time	SHBT_TIME	N	3	0
	Corrected Normal Stress	SHBT_NORC	N	4	0
	Corrected Shear Stress	SHBT_SHER	N	4	0

Site Description - SITES.DBF					
	Site Identification	SITEID	C	8	
	Name of Site	NAME	C	60	
	City where Site is Located	TOWN	C	25	
	State where Site is Located	STATE	C	2	
	Area of Site	AREA	N	7	1
	Depth to Groundwater Table	GWT	c	55	
	Maximum Depth Explored	MAX_DEPTH	N	5	1
	Seismic Zone	SEISMIC_ZN	N	1	0
	Seismicity	SEISMICITY	C	65	
	Site Description	SITE_DESC	M	10	
	Clay Description	CLAY	C	65	
	Clay Description Line 2	CLAY2	C	65	
	Sand Description	SAND	C	65	
	Sand Description Line 2	SAND2	C	65	
	Silt Description	SILT	C	65	
	Silt Description Line 2	SILT2	C	65	
	Gravel Description	GRAVEL	C	65	
	Organic Description	ORGANIC	C	65	
	Rock Description	ROCK	C	65	
	Other Soils Description	OTHER	C	65	
	Date Added to Database	ADD_DATE	C	65	
	Date Modified within Database	MOD_DATE	D	8	
Slurry Trenches - SLURRY.DBF					
	Site Identification	SITEID	C	8	
	Description	DESCRIPTN	M	10	
	Date Added to Database	ADD_DATE	D	8	
	Date Modified within Database	MOD_DATE	D	8	
Soil Properties - SOILPROP.DBF					
	Site Identification	SITEID	C	8	
	Layer Identification	LAYER_ID	C	10	
	Starting Depth of Layer	STARTDEPTH	N	5	1
	Ending Depth of Layer	ENDDEPTH	N	5	1

	Grain Size - 10% Passind	D10	N	4	2
	Grain Size - 30% Passing	D30	N	4	2
	Grain Size - 50% Passing	D50	N	4	2
	Natual Water Content - Low	NATURALLOW	N	3	0
	Natual Water Content - High	NATURALHI	N	3	0
	Liquid Limit - Low	LIQUIDLOW	N	3	0
	Liquid Limit - High	LIQUIDHI	N	3	0
	Plastic Limit - Low	PLASTICLOW	N	3	0
	Plastic Limit - High	PLASTICHI	N	3	0
	Unit Weight - Low	UNITWT_LOW	N	5	2
	Unit Weight - High	UNITWT_HI	N	5	2
	Overconsolidation Ratio - Low	OCR_LOW	N	3	1
	Overconsolidation Ratio - High	OCR_HI	N	4	1
	Uncorrected SPT Resistance - Low	SPT_LOW	N	3	0
	Uncorrected SPT Resistance - High	SPT_HI	N	3	0
	Cone Tip Resistance - Low	CONE_LOW	N	4	1
	Cone Tip Resistance - High	CONE_HI	N	4	1
	Undrained Shear Strength - Low	SHEAR_LOW	N	5	0
	Undrained Shear Strength - High	SHEAR_HI	N	5	0
	Shear Strength Measuring Tool	SHEAR_INST	C	20	
	Geological Description	GEOL_DESC	C	65	
	Date Added to Database	ADD_DATE	D	8	
	Date Modified within Database	MOD_DATE	D	8	
Deep Soil Mixing - SOIL_MIX.DBF					
	Site Identification	SITEID	C	8	
	Description	DESCRIPTN	M	10	
	Date Added to Database	ADD_DATE	D	8	
	Date Modified within Database	MOD_DATE	D	8	
Soil Nailing - SOIL_NAI.DBF					
	Site Identification	SITEID	C	8	
	Description	DESCRIPTN	M	10	
	Date Added to Database	ADD_DATE	D	8	
	Date Modified within Database	MOD_DATE	D	8	

Sample/Specimen Reference Information - SPEC.DBF					
	Site Identification	SITEID	C	8	
	Exploratory Hole Identification Number	HOLE_ID	C	25	
	Specimen Identification Number	SPEC_ID	C	10	
	Type of Sample	SPEC_TYPE	C	3	
	Tube Sample Recovery	SPEC_RECO	N	3	0
	Depth to Top of Specimen	SPEC_DPTH	N	6	2
	Depth to Base of Specimen	SPEC_BASE	N	6	2
	Sample or Specimen Description	SPEC_DESC	C	55	
	Total Density	SPEC_TDEN	N	4	2
	Specimen Natural Water Content	SPEC_WC	N	4	1
	Mean Vertical Effective Stress at Specimen Depth	SPEC_SIGV	N	6	2
	Remarks	SPEC_REM	M	10	
	Date Added to Database	ADD_DATE	D	8	
	Date Modified within Database	MOD_DATE	D	8	
Standard Penetration Test: Results - SPT.DBF					
	Site Identification	SITEID	C	8	
	Exploratory Hole Identification Number	HOLE_ID	C	25	
	Split-Spoon Sampler Internal Diameter	SPT_SSID	N	3	0
	Liner Was Used	SPT_LINR	L	1	
	Split-Spoon Sampler Length	SPT_LGTH	N	3	0
	Type of Rods	SPT_RODT	C	10	
	Drive Rod External Diameter	SPT_RODD	N	4	1
	Drive Rod Weight per Meter	SPT_RODW	N	5	0
	Hammer Type	SPT_HAMT	C	20	
	Hammer Mass	SPT_HAMW	N	4	1
	Free Fall Weight of Hammer	SPT_HAMF	N	4	2
	Hammer Release Mechanism	SPT_HAMR	C	20	
	Diameter of Cathead	SPT_CATD	N	4	1
	Number of Rope Turns	SPT_ROPE	N	4	2
	Diameter of Anvil	SPT_AVLD	N	4	1
	Equipment used to Measure Energy	SPT_ENEQ	C	55	
	Remarks Related to the Test and Equipment	SPT_REM	M	10	

	Date Added to Database	ADD_DATE	D	8	
	Date Modified within Database	MOD_DATE	D	8	
Standard Penetration Test: Results - SPT1.DBF					
	Site Identification	SITEID	C	8	
	Exploratory Hole Identification Number	HOLE_ID	C	25	
	Depth to Top of Test	SPT_TOP	N	6	2
	Casing Depth at Time of Test	SPT_CAS	N	6	2
	Water Depth in Casing at Time of Test	SPT_WAT	N	6	2
	Total Penetration for Test	SPT_NPEN	N	3	0
	Number of Blows for 1st 150mm (6 in.)	SPT_INC1	N	3	0
	Number of Blows for 2nd 150mm (6 in.)	SPT_INC2	N	3	0
	Number of Blows for 3rd 150mm (6 in.)	SPT_INC3	N	3	0
	Number of Blows for 4th 150mm (6 in.)	SPT_INC4	N	3	0
	SPT Uncorrected N Value (Blows/0.3 m)	SPT_NVAL	N	3	0
	Measured Energy Ratio	SPT_ENER	N	4	1
Stone Columns - STONE_CO.DBF					
	Site Identification	SITEID	C	8	
	Description	DESCRIPTN	M	10	
	Date Added to Database	ADD_DATE	D	8	
	Date Modified within Database	MOD_DATE	D	8	
Seismic Surface - S_SURFACE.DBF					
	Site Identification	SITEID	C	8	
	Description	DESCRIPTN	M	10	
	Date Added to Database	ADD_DATE	D	8	
	Date Modified within Database	MOD_DATE	D	8	
Thermal Stabilization - THERM_ST.DBF					
	Site Identification	SITEID	C	8	
	Description	DESCRIPTN	M	10	
	Date Added to Database	ADD_DATE	D	8	
	Date Modified within Database	MOD_DATE	D	8	

Static Triaxial Test Series: Results - TRIG.DBF					
	Site Identification	SITEID	C	8	
	Exploratory Hole Identification Number	HOLE_ID	C	25	
	Specimen Identification Numbers Used in Series	TRIG_NUMB	C	50	
	Effective Stress Friction Angle	TRIG_PHIE	N	3	0
	Effective Stress Cohesion	TRIG_COHE	N	5	2
	Total Stress Friction Angle	TRIG_PHIT	N	3	0
	Total Stress Cohesion	TRIG_COHT	N	5	2
	Stress Range for Effective and Total Stress Friction Angles	TRIG_STRK	C	25	
	Slope of Kf-Line	TRIG_PSI	N	3	0
	"a" Intercept of p'-q' Plot	TRIG_AINT	N	5	2
	Stress Range for Slope of Kf-Line and "a" Intercept	TRIG_STRA	C	25	
	Remarks	TRIG_REM	M	10	
	Date Added to Database	ADD_DATE	D	8	
	Date Modified within Database	MOD_DATE	D	8	
Triaxial Test: Individual: TRIX.DBF (T_ICUC, T_ICUE, T_ACUC, T_ACUE, T_CKUC, T_CKUE, T_KPSAU, T_KPSPU, T_UU, T_CYLQ, C_CYGDU, T_ICDC, T_ICDE, T_ACDC, T_ACDE, T_CKDC, T_CKDE, T_KPSAD, T_KPSPD, T_CYGDD)					
	Site Identification	SITEID	C	8	
	Exploratory Hole Identification Number	HOLE_ID	C	25	
	Specimen Identification Number	SPEC_ID	C	10	
	Pore Pressure Measurement Transducer Make & Model	TRIX_PPTM	C	30	
	Pore Pressure Transducer Range	TRIX_PPTR	N	4	0
	Compliance of Pore Pressure Measurement System	TRIX_PPCM	N	4	0
	Load Wave Form for Dynamic Test	TRIX_WAVF	C	20	
	Compaction Procedure for Reconstituted Specimens	TRIX_PREP	C	50	
	Specimen Initial Water Content	TRIX_WCI	N	4	1
	Specimen Initial Void Ratio	TRIX_VRI	N	4	2
	Specimen Initial Dry Density	TRIX_GAMI	N	4	1
	Specimen Initial Height	TRIX_SHI	N	5	1
	Accuracy of Initial Height Measurement (Smallest Division)	TRIX_HAC	N	4	2
	Specimen Initial Diameter	TRIX_SDI	N	4	1
	Accuracy of Initial Diameter Measurement (Smallest Division)	TRIX_SDAC	N	4	2
	Number of Diameter Measurements	TRIX_SDN	N	2	0

	Filter Paper Used	TRIX_FILT	C	30	
	Membrane Thickness	TRIX_MEMB	N	4	2
	Number of Membranes	TRIX_NMEM	N	2	0
	Final Back Pressure	TRIX_BAPF	N	4	0
	Skempton "B" Value After Saturation	TRIX_BFS	N	4	2
	Skempton "B" Value Immediately Before Shear	TRIX_BFT	N	4	2
	Final Effective Lateral Stress	TRIX_PRES	N	3	0
	Ko-Consolidation	TRIX_KOC	L	1	
	Final Ko	TRIX_KOF	N	4	2
	Ratio of Vertical to Horizontal Effective Consolidation Stress (Other than Ko-Consolidation)	TRIX_ANIS	N	4	2
	Monitoring System for Ko-Consolidation	TRIX_KOM	C	50	
	Axial Stress at End of Consolidation Stage	TRIX_SAXC	N	4	0
	Radial Stress at End of Consolidation Stage	TRIX_SRC	N	6	2
	Time for 50% Consolidation	TRIX_T50C	N	5	0
	Volume Change at End of Consolidation	TRIX_DELV	N	4	0
	Specimen Dry Unit Weight After Consolidation	TRIX_GAMC	N	3	1
	Water Content After Consolidation	TRIX_WCC	N	4	1
	Strain Rate for Shear Test	TRIX_SR	N	4	2
	Correction for Filter Paper	TRIX_CORP	N	4	0
	Correction for Membrane Strength	TRIX_CORM	N	4	0
	Strain Rate at Failure for Static Test	TRIX_SAFA	N	4	2
	Excess Pore Pressure at Failure for Static Test	TRIX_PPFA	N	6	2
	Major Principal Effective Stress at Failure	TRIX_SI1F	N	6	2
	Minor Principal Effective Stress at Failure	TRIX_SI3F	N	6	2
	Number of Cyclic Tests on Specimen	TRIX_TSTS	N	2	0
	Cyclic Test Number on Specimen	TRIX_TSTN	N	2	0
	Frequency of Loading	TRIX_FREQ	N	3	0
	Number of Loading Cycles	TRIX_NCYC	N	2	0
	Remarks	TRIX_REM	M	10	
	Date Added to Database	ADD_DATE	D	8	
	Date Modified within Database	MOD_DATE	D	8	
Triaxial Test: Individual: TRIX1.DBF (T_ICUC1, T_ICUE1, T_ACUC1, T_ACUE1, T_CKUC1,					
T_CKUE1, T_KPSAU1, T_KPSPU1, T_UU1, T_CYLQ1, C_CYGDU1, T_ICDC1, T_ICDE1,					
T_ACDC1, T_ACDE1, T_CKDC1, T_CKDE1, T_KPSAD1, T_KPSPD1, T_CYGDD1)					

	Site Identification	SITEID	C	8	
	Exploratory Hole Identification Number	HOLE_ID	C	25	
	Specimen Identification Number	SPEC_ID	C	10	
	Axial Strain - Static Loading	TRIX_ESPL	N	4	1
	Total Axial Stress	TRIX_SAXL	N	6	2
	Total Radial Stress	TRIX_SRT	N	6	2
	Pore Pressure Generated	TRIX_PPG	N	5	2
Triaxial Test: Individual: TRIX2.DBF (T_ICUC2, T_ICUE2, T_ACUC2, T_ACUE2, T_CKUC2,					
T_CKUE2, T_KPSAU2, T_KPSPU2, T_UU2, T_CYLQ2, C_CYGDU2, T_ICDC2, T_ICDE2,					
T_ACDC2, T_ACDE2, T_CKDC2, T_CKDE2, T_KPSAD2, T_KPSPD2, T_CYGDD2)					
	Site Identification	SITEID	C	8	
	Exploratory Hole Identification Number	HOLE_ID	C	25	
	Specimen Identification Number	SPEC_ID	C	10	
	Cycle Number	TRIX_CYCN	N	3	0
	Cycle Strain	TRIX_EPSC	N	5	3
	Shear Modulus	TRIX_GEQ	N	4	2
	Fraction of Critical Damping	TRIX_DAMP	N	4	2
	Pore Pressure Ratio at End of Cycle	TRIX_RU	N	5	3
	Ratio of Shear Modulus to Low-Strain Shear Modulus	TRIX_GRAT	N	4	2
Triaxial Test: Individual: TRIX3.DBF (T_ICUC3, T_ICUE3, T_ACUC3, T_ACUE3, T_CKUC3,					
T_CKUE3, T_KPSAU3, T_KPSPU3, T_UU3, T_CYLQ3, C_CYGDU3, T_ICDC3, T_ICDE3,					
T_ACDC3, T_ACDE3, T_CKDC3, T_CKDE3, T_KPSAD3, T_KPSPD3, T_CYGDD3)					
	Site Identification	SITEID	C	8	
	Exploratory Hole Identification Number	HOLE_ID	C	25	
	Specimen Identification Number	SPEC_ID	C	10	
	Pulsating Axial Stress in Liquefaction Test	TRIX_STRL	N	4	0
	Number of Cycles to Initial Liquefaction	TRIX_NCIL	N	3	0
	Ratio of Peak Pulsating Shear Stress to Initial Effective Confining Stress	TRIX_CSR	N	4	2
	Double Amplitude Cyclic Axial Strain Level	TRIX_ECL	N	2	0
	Number of Cycles to TRIX_ECL	TRIX_NECL	N	3	0
Triaxial Test: Individual: TRIX4.DBF (T_ICUC4, T_ICUE4, T_ACUC4, T_ACUE4, T_CKUC4,					
T_CKUE4, T_KPSAU4, T_KPSPU4, T_UU4, T_CYLQ4, C_CYGDU4, T_ICDC4, T_ICDE4,					

T_ACDC4, T_ACDE4, T_CKDC4, T_CKDE4, T_KPSAD4, T_KPSPD4, T_CYGDD4)					
	Site Identification	SITEID	C	8	
	Exploratory Hole Identification Number	HOLE_ID	C	25	
	Specimen Identification Number	SPEC_ID	C	10	
	Axial Load, % of Peak Load in Short-Term Test	TRIX_CRLD	N	2	0
	Elapsed Time in Creep Test	TRIX_CRT	N	6	0
	Axial Strain at Elapsed Time	TRIX_CEPS	N	4	2
	Excess Pore Pressure	TRIX_CPPG	N	2	0
Vibro Compaction - VIBRO_CM.DBF					
	Site Identification	SITEID	C	8	
	Description	DESCRIPTN	M	10	
	Date Added to Database	ADD_DATE	D	8	
	Date Modified within Database	MOD_DATE	D	8	
In Situ Vane Test - VST.DBF					
	Site Identification	SITEID	C	8	
	Exploratory Hole Identification Number	HOLE_ID	C	25	
	Test Identification Number	TEST_ID	C	10	
	Depth of Vane Test	VST_DPTH	N	6	2
	Vane Type	VST_TYPE	C	55	
	Vane Model	VST_MODL	C	55	
	Vane Shape	VST_SHAP	C	55	
	Vane Height	VST_HGHT	N	3	0
	Vane Diameter	VST_DIAM	N	3	0
	Vane Blade Thickness	VST_THCK	N	3	0
	Vane Rotation Rate	VST_VRPM	N	3	1
	Number of Revolutions for Remolded Test	VST_RREV	N	2	0
	Elapsed Time from Insertion to Rotation	VST_TIMT	N	2	0
	Maximum Torque for Undisturbed Test	VST_MXTU	N	6	2
	Maximum Torque for Remolded Test	VST_MXTR	N	6	2
	Corrected Undrained Shear Strength	VST_VCUU	N	5	1
	Corrected Remolded Shear Strength	VST_VCUR	N	5	1
	Remarks	VST_REM	M	10	
	Date Added to Database	ADD_DATE	D	8	

	Date Modified within Database	MOD_DATE	D	8	
In Situ Vane Test - VST1.DBF					
	Site Identification	SITEID	C	8	
	Exploratory Hole Identification Number	HOLE_ID	C	25	
	Test Identification Number	TEST_ID	C	10	
	Elapsed Time of Torque Reading	VST_TIME	N	5	2
	Torque	VST_TORQ	N	5	1
Pore Water Chemistry - WCHM.DBF					
	Site Identification	SITEID	C	8	
	Exploratory Hole Identification Number	HOLE_ID	C	25	
	Specimen Identification Number	SPEC_ID	C	10	
	Aluminum	WCHM_ALUM	N	2	0
	Antimony	WCHM_ANTI	N	2	0
	Arsenic	WCHM_ARSE	N	2	0
	Barium	WCHM_BARI	N	2	0
	Boron	WCHM_BORO	N	2	0
	Cadmium	WCHM_CAD	N	2	0
	Calcium	WCHM_CALC	N	2	0
	Chromium	WCHM_CHRO	N	2	0
	Cobalt	WCHM_COBA	N	2	0
	Copper	WCHM_COPP	N	2	0
	Iron	WCHM_IRON	N	2	0
	Lead	WCHM_LEAD	N	2	0
	Magnesium	WCHM_MAGN	N	2	0
	Manganese	WCHM_MANG	N	2	0
	Mercury	WCHM_MERC	N	2	0
	Molybdenum	WCHM_MOLY	N	2	0
	Nickel	WCHM_NICK	N	2	0
	Potassium	WCHM_POTA	N	2	0
	Selenium	WCHM_SELE	N	2	0
	Sodium	WCHM_SODI	N	2	0
	Tin	WCHM_TINS	N	2	0
	Vanadium	WCHM_VANA	N	2	0

	Zinc	WCHM_ZINC	N	2	0
	Biochemical Oxygen Demand (5 Day)	WCHM_BIOX	N	2	0
	Chemical Oxygen Demand (Soluble)	WCHM_CHOX	N	2	0
	Chloride	WCHM_CHLR	N	2	0
	Cyanide (Total)	WCHM_CYAT	N	2	0
	Cyanide (Free & Simple)	WCHM_CYAF	N	2	0
	Thiocyanate	WCHM_THIO	N	2	0
	Oxygen (Dissolved)	WCHM_OXYD	N	2	0
	Electrical Conductivity	WCHM_COND	N	6	4
	Fluoride	WCHM_FLUO	N	2	0
	Mineral Oils	WCHM_OILS	N	2	0
	Ammonia Nitrogen	WCHM_AMMO	N	2	0
	Nitrate Nitrogen	WCHM_NITA	N	2	0
	Nitrite Nitrogen	WCHM_NITI	N	2	0
	Kjeldahl Nitrogen (Total)	WCHM_NITR	N	2	0
	Total Oxidized Nitrogen	WCHM_TONI	N	2	0
	Chlorine (Organic)	WCHM_CHLO	N	2	0
	Petroleum Ether Extractable Matter	WCHM_PETR	N	2	0
	Phenol (total)	WHCM_PHET	N	2	0
	Phenol (Monohydric)	WHCM_PHEM	N	2	0
	Orthophosphate (Total)	WHCM_ORTH	N	2	0
	Phosphorus (Total)	WHCM_PHPT	N	2	0
	Polynuclear Aromatic Hydrocarbons	WHCM_HCAR	N	2	0
	Polychlorinated Biphenyls	WHCM_PCBS	N	2	0
	Polychlorinated Biphenyls - Presence of (< 50 micrograms/ liter or > 50 micrograms/liter)	WHCM_BIPO	C	3	
	Volatile Suspended Solids	WHCM_VSOL	N	2	0
	Sulfur (Elemental)	WHCM_ESUL	N	2	0
	Sulfate	WHCM_SULA	N	2	0
	Sulfide	WHCM_SULI	N	2	0
	Volatile Fatty Acids	WHCM_VFAT	N	2	0
	Acidity/Alkalinity	WHCM_ACAL	N	2	0
	Coal Tar Derivatives	WHCM_COTD	N	3	0
	pH	WHCM_PH	N	2	0
	Redox Potential	WHCM_REPT	N	2	0
	Chlorinated Hydrocarbons	WHCM_CHHY	N	2	0

	Total Organic Carbon	WHCM_TOC	N	2	0
	Total Hardness	WHCM_THRN	N	2	0
	Water Temperature	WHCM_TEMP	N	4	1
	Remarks	WHCM_REM	M	10	
	Date Added to Database	ADD_DATE	D	8	
	Date Modified within Database	MOD_DATE	D	8	
Pore Water Chemistry - WCHM1.DBF					
	Site Identification	SITEID	C	8	
	Exploratory Hole Identification Number	HOLE_ID	C	25	
	Specimen Identification Number	SPEC_ID	C	10	
	Other Types with Definition	WCHM_OTHR	C	40	
	Amount	WCHM_OTH	N	3	0
Walls - WALLS.DBF					
	Site Identification	SITEID	C	8	
	Description	DESCRIPTN	M	10	
	Date Added to Database	ADD_DATE	D	8	
	Date Modified within Database	MOD_DATE	D	8	
Wick Drains - WICK_DRA.DBF					
	Site Identification	SITEID	C	8	
	Description	DESCRIPTN	M	10	
	Date Added to Database	ADD_DATE	D	8	
	Date Modified within Database	MOD_DATE	D	8	

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