Award Number99HQGR0017

PORTLAND METRO
RELATIVE EARTHQUAKE HAZARD MAPPING PROJECT
SUBSURFACE DATABASE

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Abstract

The numerous distinct subsurface databases used to construct the Relative Earthquake Hazard Maps of the Portland Metropolitan area have been brought together into a single database. The data has been made as uniform as the source database content allowed. The database is accompanied by a program which allows the data to be view, plotted, and printed. The data can also be edited and data added for additional projects.

Overview

This program is designed to provide a convenient way to access the subsurface data that was compiled for the Portland Metropolitan Area Relative Earthquake Hazard Mapping Project. Most all of the features of the program include context sensitive help. The following overview is a description of the database itself which this program accesses.

The first plans for earthquake hazard maps of the Portland, Oregon area were made in the late 1980's as part of the National Earthquake Hazard Reduction Program (NEHRP). As a first step in these plans the Oregon Department of Geology and Mineral Industries examined data from geotechnical investigations found in government and consultant's files and entered summary data into a dBase III+ database constructed by DOGAMI staff for this specific purpose. The contents of this database were based on data needs expressed by staff of the U.S. Geological Survey that were planning on constructing an earthquake hazard map. This data was the basis of DOGAMI publication OF-90-2 Earthquake hazard geology maps of the Portland metro area (Madin, 1990). These maps depicted Quaternary surficial geology, structure contours, isopach contours, and subsurface data point locations. There were plates for 8 different 7.5 minute topographic quadrangle maps covering the majority of the metropolitan area. The descriptive report which accompanied the plates included general explanations of how the different geologic units and their thickness might influence the effects of an earthquake. Floppy diskettes containing the database, broken down by quadrangle, were also made available. After the USGS abandoned plans for interpretive earthquake hazard maps DOGAMI applied for and was awarded a NEHRP Grant to complete a pilot hazard map of the Portland, Oregon 7.5 minute topographic quadrangle (Mabey and Madin, 1993,Mabey, Madin, Drescher, Uba, and Bosworth, 1993, Mabey, Madin, Youd, and Jones, 1993). This map sheet was chosen because it covers the core downtown area of Portland. The previously collected subsurface data was supplemented with a number of geotechnical wells completed and logged for shear wave velocity. The results of this shear wave velocity data gathering were published as Shear wave velocity measurements in the Willamette Valley and the Portland Basin, Oregon (Mabey and Madin, 1992). Following the release of the Relative Earthquake Hazard Map, Portland, Oregon 7.5 Minute Quadrangle a grant was secured from the Federal Emergency Management Agency (FEMA) which funded 5 additional quadrangle maps in the Portland area (Mabey et al., 1996, Mabey, Madin, and Meier, 1995a, 1995b, Mabey, Madin, Meier, and Palmer, 1995a, 1995b). The subsurface data collected for these maps was published as O-95-07 Downhole and seismic cone penetrometer shear-wave velocity measurements for the Portland metropolitan area, 1993and 1994 (Mabey and Madin, 1995). The database was again made available on floppy diskette, this time as an Access database. A USGS database of water well information was also used (Gannet and Caldwell, 1998). At the same time a NEHRP grant funded maps of the Vancouver and Orchards quadrangles across the Columbia River in Washington (Mabey et al., 1994). Continued FEMA funds resulted in IMS-1 Relative Earthquake Hazard Map of the Portland Metro Region, Clackamas, Multnomah, and Washington Counties, Oregon that covered the entire Portland Metro region (Mabey et al., 1997). This map required that data again be gathered from government and consultant's files. This time detailed, rather than

summary, information was collected into an Access database. Additional shear wave data was also collected for this phase of the project.

The end product of this series of events was a 12 of separate and dissimilar dBaseIII+ and Access databases. The purpose of this database project is to bring all that data together in a single database and make it available to all interested parties.

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Separate Databases included with the unified database.

Included on the CD with the unified database are copies of the databases that were combined. Note that some of the later data was first entered into a database as part of this project.

O-90-2 supporting data:

BV.dbf	The result of the original effort to collect data from existing paper files for the Beaverton Quadrangle in dBase format.
CA.dbf	The result of the original effort to collect data from existing paper files for the Camas Quadrangle in dBase format.
CB.dbf	The result of the original effort to collect data from existing paper files for the Canby Quadrangle in dBase format.
DA.dbf	The result of the original effort to collect data from existing paper files for the Damascus Quadrangle in dBase format.
GS.dbf	The result of the original effort to collect data from existing paper files for the Gladstone Quadrangle in dBase format.
HB.dbf	The result of the original effort to collect data from existing paper files for the Hillsboro Quadrangle in dBase format.
LT.dbf	The result of the original effort to collect data from existing paper files for the Linnton Quadrangle in dBase format.
LO.dbf	The result of the original effort to collect data from existing paper files for the Lake Oswego Quadrangle in dBase format.
MT.dbf	The result of the original effort to collect data from existing paper files for the Mount Tabor Quadrangle in dBase format.
PT.dbf	The result of the original effort to collect data from existing paper files for the Portland Quadrangle in dBase format.
SC.dbf	The result of the original effort to collect data from existing paper files for the Scholls Ferry Quadrangle in dBase format.
SH.dbf	The result of the original effort to collect data from existing paper files for the Sherwood Quadrangle in dBase format.
O-90-2.mdb	The result of the original effort to collect data from existing paper files for all the above quadrangles in Access format.

USGS data:

WWtops2.dbf The USGS database of water well data in dBase format.
WWtops2.mdb The USGS database of water well data in Access format.

Open File O-95-7 database:

O-95-7.mdb The database of drilling done for the early phases of the Portland Relative Earthquake Hazard Mapping project in Access format.

Part of the Open File O-90-2 database and all of the Open File O-95-7 database were released for distribution. The documentation that accompanied O-95-7 is listed below.

O-95-7.doc brief explanation of the data file in Microsoft Word format
O-95-7.txt brief explanation of the data file in plain text format

File—Open Database

This menu choice brings up a standard dialog box where the database file to be worked with can be selected. This program currently works only with Microsoft Access format databases. These databases conventionally have a 'mdb' suffix.
When the file has been opened the Borehole Data Record Display is automatically opened.

File—Close Database

This menu choice causes any open database to be closed and all the display windows are closed with it.

File—Sort By

This menu choice allows the user to select which field in the main database table is used to sort the data.

File—Exit

This menu choice exits the program. All databases and Display windows will be closed at the same time.

Action—Print Borehole Record

This menu choice causes a (nominally) one page textual print out of the data for the currently selected borehole. Due to space limitations, CPT data may be thinned to fit on the page. This is only true for very deep CPT profile.

Action—Print Borehole Log

This menu choice causes a (nominally) one page graphical print out of most of the data for the currently selected borehole.

Action—Add CPT Data File

This menu choice brings up a standard dialog box for choosing a file of CPT data to be read in and loaded into the database for the currently selected borehole. This is for convenience in not have to type in all the numbers resulting from a CPT. The file must be an ASCII file in the following format:
General Information Header Line

Column Heading Line
(Depth) (Qc) (Friction) (PWP)
#####, ####, ####, ####
.
.
.
####, ####, ####, ####

The first number is depth, the second Vs, the third Vp. There is no end of data designation, the End-Of-File serves this purpose, therefore no blank lines should follow the last line of data.

The following is an example:

```
0209/17/96 08:29 BROWN
BJHS-1
   0.05    1.08   0.1226   -0.02
    0.1   19.16    0.202   -0.09
   0.15   28.96   0.2802   -1.57
    0.2   33.25   0.2509   -1.14
   0.25   36.94   0.2734    -0.9
    0.3   47.91   0.3488   -0.73
   0.35   49.37   0.4965    -0.6
    0.4   40.92     0.44   -0.15
   0.45   36.92   0.4612   -0.06
    0.5   41.34   0.4854   -0.19
   0.55   42.49   0.4867    -0.2
    0.6   39.86   0.4054   -0.13
```

(etc…)
Comma separated and space separated numeric values work equally well. The file must be in this format, converted to this format or else the numbers must be tediously typed in manually.

Action—Add Velocity Data File

This menu choice brings up a standard dialog box for choosing a file of Velocity data to be read in and loaded into the database for the currently selected borehole. This is for convenience in not have to type in all the numbers resulting from a Velocity investigation. The file must be an ASCII file in the following format:
General Information Header Line
Column Heading Line such as:(Depth), (Vs), (Vp)
#####, ####, ####
.
.
.
####, ####, ####

The first number is depth, the second Vs, the third Vp. There is no end of data designation, the End-Of-File serves this purpose, therefore no blank lines should follow the last line of data.

The following is an example:

```
J:\DH\test.txt, 03-01-2000, 11:42:21
Depth(m),    Vs(m/sec),      Vp(m/sec)
 0 , 250 , 1500
 2 , 250 , 1500
 4 , 250 , 1500
 6 , 250 , 1500
 8 , 250 , 1500
 10 , 250 , 1500
 12 , 250 , 1500
 14 , 250 , 1500
 16 , 250 , 1500
 18 , 250 , 1500
 20 , 250 , 1500
 22 , 250 , 1500
 24 , 250 , 1500
 26 , 250 , 1500
 28 , 250 , 1500
```

Comma separated and space separated numeric values work equally well. The file must be in this format, converted to this format or else the numbers must be tediously typed in manually.

File—Refresh Records

This menu choice forces the links of the various displays to the database to be refreshed so as to show recent changes made by editing the data.

Edit—Enable Editing Boreholes

This menu choice is a toggle. If unchecked, selecting it will cause it to be check and enable the changing of the borehole database. If editing is checked, selecting it will cause it to be unchecked and disable the changing of the borehole database. The default condition is to have editing disabled.

BE CAREFUL, THERE IS NO "UNDO". Once deleted a borehole will be gone from the database file and can only be restored by reentering the data. While the CD contains a read-only backup of the original database for you to fall back to, any data you've added must be restored from some other source of your own.

Edit—Enable Adding Borehole

This menu choice is a toggle. If unchecked, selecting it will cause it to be check and enable the adding of new boreholes to the database. If adding is checked, selecting it will cause it to be unchecked and disable the adding of new boreholes to the database. The

default condition is to have adding disabled. This choice is only available is editing has already been enabled and will be turned off if editing is disabled.

When editing is enabled the Borehole Data Record Display tables for Lithology, SPT, CPT, and Velocity data change to a slightly different format. This format is less easy to read but allows for unambiguous editing of the data.

Editng, when enabled can be accomplished in either the Borehole Data Record Display or the Add Borehole Display (and its sub-windows for Lithology, SPT, Water Level, and Confidential data). It is simply a matter of typing in the new data information is the appropriate display field.

Edit—Enable Delete Borehole

This menu choice is a toggle. If unchecked, selecting it will cause it to be check and enable the deleting of entire boreholes from the database. If deleting is checked, selecting it will cause it to be unchecked and disable the deleting of entire boreholes from the database. The default condition is to have deleting disabled. This choice is only available is editing has already been enabled and will be turned off if editing is disabled.

Perversely, Deleting is accomplished in the "Add Borehole Display" so as to not make it too easy.

BE CAREFUL, THERE IS NO "UNDO". Once deleted a borehole will be gone from the database file and can only be restored by reentering the data. While the CD contains a read-only backup of the original database for you to fall back to, any data you've added must be restored from some other source of your own.

Window—Display Borehole Data Record

This menu choice causes the Borehole Data Record Display Window to be shown. If the window is already loaded it will be brought to the foreground. While this window is loaded by default when a database is loaded it can be closed and reopened freely, whenever it is convenient, without affecting the database.

Window—Display Borehole Log

This menu choice causes the Borehole Log Display Window to be shown. If the window is already loaded it will be brought to the foreground. While this window is not loaded by default when a database is loaded it can be opened or closed freely, whenever it is convenient, without affecting the database. The view log button will display a file, if listed in the data base, which contains some sort of subsurface log information such as a scanned paper log. Several of the records in the data set distributed with this program include such files.

Window—Display Add Borehole Form

This menu choice causes the Add Borehole Display Window to be shown. If the window is already loaded it will be brought to the foreground. While this window is not loaded

by default when a database is loaded it can be opened or closed freely, whenever it is convenient, without affecting the database.
This option is only available when editing is enabled and will be closed whenever editing is disabled. The 'Add' and 'Delete' will only be available if the corresponding feature is enabled.

See also: Add Lithology Display, Add SPT Display, Add Water Level Display, Add Confidential Display, Enable Editing, Enable Adding, and Enable Deleting

Help—Help System
Some items have "context sensitive" help meaning that pressing "F1" when the item is selected will bring up the Help topic. Others, such as the plots, have "What's this" style help such that pressing the right mouse button over the object brings up a display of the help topic.

Since the standard Windows Help System is used you can browse the Contents of the Help File, choose from the index of the Help File, or search for terms.

Help—About the Database

Help—About
This menu item merely displays a dialog box that briefly describes the program.

Borehole Record Display—Overview

Borehole Record Display—Lithology Data Table
This is a tabular display of the lithologic data for the currently selected borehole. The data is sorted by depth. When editing is disabled (the default) adjacent entries, in a given column, that have the same value are grouped together. When editing is enabled all fields of all records are displayed to allow unambiguous editing.

The Formations (Units) and Lithotypes are drawn from separate tables in the database that can only be edited outside this program.

See also: Enable Editing

Borehole Record Display—SPT Data Table
This is a tabular display of the SPT data for the currently selected borehole. The data is sorted by depth. When editing is disabled (the default) adjacent entries, in a given column, that have the same value are grouped together. When editing is enabled all fields of all records are displayed to allow unambiguous editing.

See also: Enable Editing

Borehole Record Display—CPT Data Table

This is a tabular display of the CPT data for the currently selected borehole. The data is sorted by depth. When editing is disabled (the default) adjacent entries, in a given column, that have the same value are grouped together. When editing is enabled all fields of all records are displayed to allow unambiguous editing.

See also: Enable Editing

Borehole Record Display—Velocity Data Table

This is a tabular display of the Velocity data for the currently selected borehole. The data is sorted by depth. When editing is disabled (the default) adjacent entries, in a given column, that have the same value are grouped together. When editing is enabled all fields of all records are displayed to allow unambiguous editing.

See also: Enable Editing

Borehole Record Display/Borehole Log Display—Borehole Record Selector

This object allows sequential navigation through the boreholes in the database. The double arrow to the left button returns to the first borehole in the database. The single arrow to the left moves to the preceeding borehole. The text field displays the name of the currently loaded database file. The single right arrow advances to the next borehole in the database. The double right arrow advances to the last borehole in the database.

Borehole Record Display/Borehole Log Display—Find Button

This button launches a dialog box that allows a borehole to be located by its Borehole Name. The dialog box asks for the borehole name and then pressing “OK” will cause the currently displayed borehole to become the borehole corresponding to the name typed. The name must be type exactly.

Borehole Record Display—Borehole Number

The is a unique identifier for the borehole assigned by the database.

Borehole Record Display/Borehole Log Display—Borehole Name

This is an alphanumeric name the user assigns to the borehole

Borehole Record Display/Borehole Log Display—UTM X

This is the East-West coordinate for the location of the borehole in the Universal Transverse Mercator system. In this system the values are always positive and “East”. The standard units of meters are used here.

Borehole Record Display/Borehole Log Display—UTM Y

This is the North-South coordinate for the location of the borehole in the Universal Transverse Mercator system. In this system the values are always positive and “North” The standard units of meters are used here.

Borehole Record Display—Latitude

This is the North-South coordinate for the location of the borehole in the Latitude-Longitude Geographic Coordinate System. In this system positive values are North of the equator and negative values are to the South. Decimal Degrees are used here.

Borehole Record Display—Longitude

This is the East-West coordinate for the location of the borehole in the Latitude-Longitude Geographic Coordinate System. In this system positive values are East of the Greenwich Meridian and negative values are to the West. Decimal Degrees are used here.

Borehole Record Display/Borehole Log Display—Location

This is a brief alphanumeric description of the location of the borehole, such as a street address

Borehole Record Display/Borehole Log Display—Description

This is a description of the borehole that can be on any length and on any topic. It could be regarding drilling problems, the drill rig used, how to find the location, what the purpose was etc.

Borehole Record Display—Source/Project

This field is used to indicate the original source database for the included database. In general a project name for the borehole could be included here.

Borehole Record Display—Topographic Quadrangle

This field is the name of the map sheet on which the borehole can be located. The included database refers to the standard USGS 7.5 minute quadrangle maps.

Borehole Record Display—Water Level

This field shows water levels measured in the borehole. Since the value can change with time there may be more than one and the date of the measurement is included. Units are meters from the ground surface.

Borehole Record Display--Elevation

This field shows the surface elevation at the borehole's location. For the included database, most elevations were read off of USGS 7.5 minute quadrangle maps. Units are meters above mean sea-level.

Borehole Record Display—Total Depth

This field shows the total depth to which the borehole was reportedly advanced. Units are meters

Borehole Record Display—Hammer Energy

This is the reported, estimated, or measured Hammer Energy for the SPT values. Values are a percentage of the total energy available from the standard 140 lbs. dropped 30 inches.

Borehole Record Display—Hammer Type

This is actual type of hammer used to advance the SPT.

Borehole Record Display—Profile Type

This is the type/purpose of the hole. This refers to a table of Profile Types that can be edited outside this program. The 10 standard types are: Geotechnical Borehole, Geotechnical Borehole with Velocity, CPT, CPT with Velocity, Water well, DOGAMI Borehole with velocity, Test Pit, Anode/Cathode, Hand Auger, and Unknown.

Borehole Record Display—Date Drilled

This is the date which the borehole is reported to be "drilled." Ideally this would be the completion date.

Borehole Record Display—Date Velocity Logged

This is the date that the seismic velocities of the materials penetrated by the borehole were measured.

Borehole Log Display—Plots

The Borehole hole logs display consists of several plot, as well as some simple data values to identify the borehole. Details can be found under the topics listed below

Borehole Name
UTM X
UTM Y
Location
Description
Velocity Plot
SPT Plot
CPT Tip Resistance Plot
CPT Friction Ration Plot
Unit Plot
Lithologic Column Plot

Borehole Log Display—Velocity Plot

This is a graphical plot of the Velocity. Vs is in solid Red, Vp is dashed blue.

Borehole Log Display—SPT Plot

This is a graphical plot of the SPT N values (raw blow count for last 12 inches).

Borehole Log Display—CPT Tip Resistance Plot

This is a graphical plot of the cone tip resistance.

Borehole Log Display—CPT Friction Ratio Plot

This is a graphical plot of the ratio of the friction sleeve value to the tip resistance expressed as a percentage.

Borehole Log Display—Lithology Descriptions

This is a sequential list of the descriptions of the major lithologic units.

Borehole Log Display—Unit Plot
This is a plot to scale of the Formation assignments for the lithologies in the borehole.

Borehole Log Display—Lithologic Column
This is a graphical plot of the lithologic types in the borehole.

Borehole Log Display—Update Graphics Button
This button causes the graphical display to be redrawn/refreshed.

Borehole Log Display—View Log Image Button
This button attempts to invoke a viewer for an image file, if one is listed in the database. This depends on a program being associated with the file type listed in the database to function. For example "testfile.pdf" would likely be associated with Adobe's Acrobat Reader and "testimage.jpg" might be associated with your web browser.

Borehole Data Entry Form—Overview
This form is for adding, changing and deleting boreholes. Additional data for a given borehole can be added or changed by choosing the Lithology, SPT, Water Level, and Confidential Buttons.

If this form is displayed, editing is enabled. Any changed you make to the displayed fields will cause changes to the database.

BE CAREFUL, THERE IS NO "UNDO". Once deleted a borehole will be gone from the database file and can only be restored by reentering the data. While the CD contains a read-only backup of the original database for you to fall back to, any data you've added must be restored from some other source of your own.

Borehole Data Entry Form —Find Button
This button launches a dialog box that allows a borehole to be located by its Borehole Name. The dialog box asks for the borehole name and then pressing "OK" will cause the currently displayed borehole to become the borehole corresponding to the name typed. The name must be type exactly

Data Entry Forms—Add Button
This button causes a new borehole, lithology, SPT, water level, or confidential (depending on which form you are in) record to be created and blank or default values are displayed in the various fields.

Data Entry Forms—Delete Button
This button causes the current borehole, lithology, SPT, water level, or confidential (depending on which form you are in) record to be deleted. A second chance warning/confirmation dialog will appear first.

BE CAREFUL, THERE IS NO "UNDO". Once deleted a borehole will be gone from the database file and can only be restored by reentering the data. While the CD contains a

read-only backup of the original database for you to fall back to, any data you've added must be restored from some other source of your own.

Data Entry Forms—Cancel Button

This button causes the creation of a new borehole, lithology, SPT, water level, or confidential (depending on which form you are in) record to be abandon. This should not be confused with an Undo feature.

Data Entry Forms—Update Button

This button causes the creation of a new borehole, lithology, SPT, water level, or confidential (depending on which form you are in) record to be completed and committed without moving to a different borehole.

Borehole Data Entry Form —Lithology Button

The button invokes an additional form for adding lithology information that will be associated with the current borehole.

Borehole Data Entry Form —SPT Button

The button invokes an additional form for adding SPT information that will be associated with the current borehole.

Borehole Data Entry Form —Water Level Button

The button invokes an additional form for adding water level information that will be associated with the current borehole.

Borehole Data Entry Form —Confidential Button

The button invokes an additional form for adding Confidential information that will be associated with the current borehole. All confidential information for the boreholes in the included database were deleted for this distribution. Confidential information can be added for any new or existing borehole. This form is currently the only way to view the confidential information within this program.

Borehole Data Entry Form—CPT Button

The button invokes an additional form for adding CPT tip resistance and friction data that will be associated with the current borehole. The data is added one entry at a time. If the data is already in the form of an electronic file, the Action—Add CPT Data File menu item can be used.

Borehole Data Entry Form—Velocity Button

The button invokes an additional form for adding Velocity data that will be associated with the current borehole. The data is added one entry at a time. If the data is already in the form of an electronic file, the Action—Add Velocity Data File menu item can be used.

Appendix A

Documentation of Database

Properties

DatasheetFontHeight:	10	DatasheetFontItalic:	False
DatasheetFontName:	Arial	DatasheetFontUnderline:	False
DatasheetFontWeight:	Normal	DatasheetForeColor:	33554432
DateCreated:	5/23/1995 9:39:35 AM	DefaultView:	Datasheet
FrozenColumns:	1	LastUpdated:	6/23/2004 11:06:18 AM
LinkChildFields:	BoreholeNumber	LinkMasterFields:	BoreholeNumber
OrderBy:	Borehole.BoreholeNumber DESC	OrderByOn:	True
Orientation:	Left-to-Right	RecordCount:	3433
RowHeight:	1470	SubdatasheetName:	Table.UnitDepths
TabularCharSet:	0	TabularFamily:	34
Updatable:	True		

Columns

Name	Type	Size
BoreholeNumber	Long Integer	4

AllowZeroLength:	False
Attributes:	Fixed Size, Auto-Increment
CollatingOrder:	General
ColumnHidden:	False
ColumnOrder:	1
ColumnWidth:	1200
DataUpdatable:	False
Format:	General Number
OrdinalPosition:	1
Required:	False
SourceField:	BoreholeNumber
SourceTable:	Borehole

Borehole Name	Text	20

AllowZeroLength:	False
Attributes:	Variable Length
CollatingOrder:	General
ColumnHidden:	False
ColumnOrder:	Default
ColumnWidth:	1890
DataUpdatable:	False
DisplayControl:	Text Box
IMEMode:	0
IMESentenceMode:	3
OrdinalPosition:	2
Required:	True
SourceField:	Borehole Name
SourceTable:	Borehole
UnicodeCompression:	True

Source Database	Text	25

AllowZeroLength:	True
Attributes:	Variable Length
CollatingOrder:	General

	ColumnHidden:	True	
	ColumnOrder:	Default	
	ColumnWidth:	2970	
	DataUpdatable:	False	
	DisplayControl:	Text Box	
	IMEMode:	0	
	IMESentenceMode:	3	
	OrdinalPosition:	3	
	Required:	False	
	SourceField:	Source Database	
	SourceTable:	Borehole	
	UnicodeCompression:	True	
Elevation		Integer	2
	AllowZeroLength:	False	
	Attributes:	Fixed Size	
	CollatingOrder:	General	
	ColumnHidden:	False	
	ColumnOrder:	Default	
	ColumnWidth:	1008	
	DataUpdatable:	False	
	DecimalPlaces:	1	
	Description:	in meters	
	DisplayControl:	Text Box	
	Format:	Fixed	
	OrdinalPosition:	4	
	Required:	False	
	SourceField:	Elevation	
	SourceTable:	Borehole	
UTM Y		Long Integer	4
	AllowZeroLength:	False	
	Attributes:	Fixed Size	
	CollatingOrder:	General	
	ColumnHidden:	True	
	ColumnOrder:	Default	
	ColumnWidth:	1440	
	DataUpdatable:	False	
	DecimalPlaces:	0	
	Description:	in meters	
	DisplayControl:	Text Box	
	Format:	Fixed	
	OrdinalPosition:	5	
	Required:	False	
	SourceField:	UTM Y	
	SourceTable:	Borehole	
UTM X		Long Integer	4
	AllowZeroLength:	False	
	Attributes:	Fixed Size	
	CollatingOrder:	General	
	ColumnHidden:	True	
	ColumnOrder:	Default	
	ColumnWidth:	1440	
	DataUpdatable:	False	
	DecimalPlaces:	0	

	Description:	in meters	
	DisplayControl:	Text Box	
	Format:	Fixed	
	OrdinalPosition:	6	
	Required:	False	
	SourceField:	UTM X	
	SourceTable:	Borehole	
UTM zone		Byte	1
	AllowZeroLength:	False	
	Attributes:	Fixed Size	
	CollatingOrder:	General	
	ColumnHidden:	True	
	ColumnOrder:	Default	
	ColumnWidth:	Default	
	DataUpdatable:	False	
	DecimalPlaces:	0	
	DisplayControl:	Text Box	
	Format:	Fixed	
	OrdinalPosition:	7	
	Required:	False	
	SourceField:	UTM zone	
	SourceTable:	Borehole	
Longitude		Double	8
	AllowZeroLength:	False	
	Attributes:	Fixed Size	
	CollatingOrder:	General	
	ColumnHidden:	True	
	ColumnOrder:	Default	
	ColumnWidth:	1440	
	DataUpdatable:	False	
	DecimalPlaces:	Auto	
	Description:	"-" is West "+" is East	
	DisplayControl:	Text Box	
	OrdinalPosition:	8	
	Required:	False	
	SourceField:	Longitude	
	SourceTable:	Borehole	
Latitude		Double	8
	AllowZeroLength:	False	
	Attributes:	Fixed Size	
	CollatingOrder:	General	
	ColumnHidden:	True	
	ColumnOrder:	Default	
	ColumnWidth:	1440	
	DataUpdatable:	False	
	DecimalPlaces:	Auto	
	Description:	"+" is North "-" is South	
	DisplayControl:	Text Box	
	OrdinalPosition:	9	
	Required:	False	
	SourceField:	Latitude	
	SourceTable:	Borehole	

Hammer Energy		Byte	1
	AllowZeroLength:	False	
	Attributes:	Fixed Size	
	CollatingOrder:	General	
	ColumnHidden:	True	
	ColumnOrder:	Default	
	ColumnWidth:	1440	
	DataUpdatable:	False	
	DecimalPlaces:	0	
	DisplayControl:	Text Box	
	Format:	Fixed	
	OrdinalPosition:	10	
	Required:	False	
	SourceField:	Hammer Energy	
	SourceTable:	Borehole	
Hammer Type		Text	25
	AllowZeroLength:	False	
	Attributes:	Variable Length	
	CollatingOrder:	General	
	ColumnHidden:	True	
	ColumnOrder:	Default	
	ColumnWidth:	1440	
	DataUpdatable:	False	
	DisplayControl:	Text Box	
	IMEMode:	0	
	IMESentenceMode:	3	
	OrdinalPosition:	11	
	Required:	False	
	SourceField:	Hammer Type	
	SourceTable:	Borehole	
	UnicodeCompression:	True	
Date Drilled		Date/Time	8
	AllowZeroLength:	False	
	Attributes:	Fixed Size	
	CollatingOrder:	General	
	ColumnHidden:	True	
	ColumnOrder:	Default	
	ColumnWidth:	1440	
	DataUpdatable:	False	
	Format:	Medium Date	
	IMEMode:	0	
	IMESentenceMode:	3	
	OrdinalPosition:	12	
	Required:	False	
	SourceField:	Date Drilled	
	SourceTable:	Borehole	
Date Velocity Logged		Date/Time	8
	AllowZeroLength:	False	
	Attributes:	Fixed Size	
	CollatingOrder:	General	
	ColumnHidden:	True	
	ColumnOrder:	Default	
	ColumnWidth:	2010	

	DataUpdatable:	False	
	Format:	Medium Date	
	IMEMode:	0	
	IMESentenceMode:	3	
	OrdinalPosition:	13	
	Required:	False	
	SourceField:	Date Velocity Logged	
	SourceTable:	Borehole	
Description		Memo	-
	AllowZeroLength:	False	
	Attributes:	Variable Length	
	CollatingOrder:	General	
	ColumnHidden:	False	
	ColumnOrder:	Default	
	ColumnWidth:	10035	
	DataUpdatable:	False	
	IMEMode:	0	
	IMESentenceMode:	3	
	OrdinalPosition:	14	
	Required:	False	
	SourceField:	Description	
	SourceTable:	Borehole	
	UnicodeCompression:	True	
Total Depth		Single	4
	AllowZeroLength:	False	
	Attributes:	Fixed Size	
	CollatingOrder:	General	
	ColumnHidden:	True	
	ColumnOrder:	Default	
	ColumnWidth:	1152	
	DataUpdatable:	False	
	DecimalPlaces:	1	
	Description:	in meters	
	DisplayControl:	Text Box	
	Format:	Fixed	
	OrdinalPosition:	15	
	Required:	False	
	SourceField:	Total Depth	
	SourceTable:	Borehole	
Temp Total Depth		Single	4
	AllowZeroLength:	False	
	Attributes:	Fixed Size	
	CollatingOrder:	General	
	ColumnHidden:	True	
	ColumnOrder:	Default	
	ColumnWidth:	936	
	DataUpdatable:	False	
	DecimalPlaces:	Auto	
	DisplayControl:	Text Box	
	OrdinalPosition:	16	
	Required:	False	
	SourceField:	Temp Total Depth	
	SourceTable:	Borehole	

Profile Type Number	Long Integer	4

AllowZeroLength:	False
Attributes:	Fixed Size
BoundColumn:	1
CollatingOrder:	General
ColumnCount:	2
ColumnHeads:	False
ColumnHidden:	True
ColumnOrder:	Default
ColumnWidth:	2325
ColumnWidths:	0;1440
DataUpdatable:	False
DecimalPlaces:	0
Description:	refers to Profile Type Table
DisplayControl:	Combo Box
Format:	Fixed
LimitToList:	True
ListRows:	8
ListWidth:	1440twip
OrdinalPosition:	17
Required:	True
RowSource:	SELECT [ProfileType].[Profile Type Number], [ProfileType].[Profile Type] FROM [ProfileType]
RowSourceType:	Table/Query
SourceField:	Profile Type Number
SourceTable:	Borehole

Location	Text	100

AllowZeroLength:	False
Attributes:	Variable Length
CollatingOrder:	General
ColumnHidden:	True
ColumnOrder:	Default
ColumnWidth:	3555
DataUpdatable:	False
DisplayControl:	Text Box
IMEMode:	0
IMESentenceMode:	3
OrdinalPosition:	18
Required:	False
SourceField:	Location
SourceTable:	Borehole
UnicodeCompression:	True

Topo Quad	Text	20

AllowZeroLength:	False
Attributes:	Variable Length
CollatingOrder:	General
ColumnHidden:	True
ColumnOrder:	Default
ColumnWidth:	15
DataUpdatable:	False
Description:	USGS 7-1/2' quad name
DisplayControl:	Text Box
IMEMode:	0

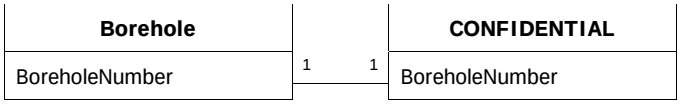
IMESentenceMode:	3
OrdinalPosition:	19
Required:	False
SourceField:	Topo Quad
SourceTable:	Borehole
UnicodeCompression:	True

Image File Name Text 50

AllowZeroLength:	True
Attributes:	Variable Length
CollatingOrder:	General
ColumnHidden:	False
ColumnOrder:	Default
ColumnWidth:	1095
DataUpdatable:	False
Description:	File name of PDF containing Image of paper subsurface log
DisplayControl:	Text Box
IMEMode:	0
IMESentenceMode:	3
OrdinalPosition:	20
Required:	True
SourceField:	Image File Name
SourceTable:	Borehole
UnicodeCompression:	True

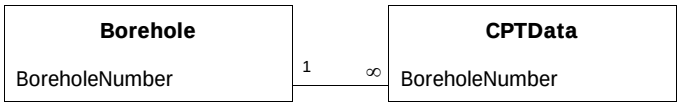
Relationships

BoreholeCONFIDENTIAL



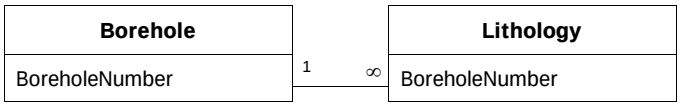
Attributes:	Unique, Enforced, Cascade Updates, Cascade Deletes
RelationshipType:	One-To-One

BoreholeCPTData



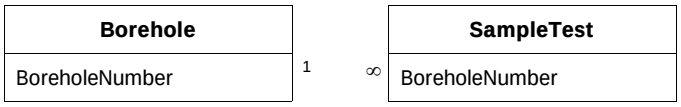
Attributes:	Enforced, Cascade Updates, Cascade Deletes
RelationshipType:	One-To-Many

BoreholeLithology



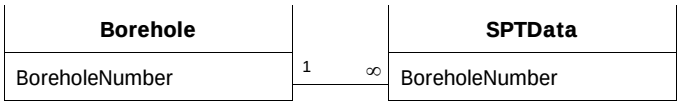
Attributes: Enforced, Cascade Updates, Cascade Deletes
RelationshipType: One-To-Many

BoreholeSampleTest



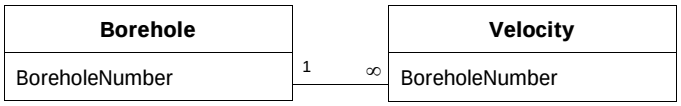
Attributes: Enforced, Cascade Updates, Cascade Deletes
RelationshipType: One-To-Many

BoreholeSPTData



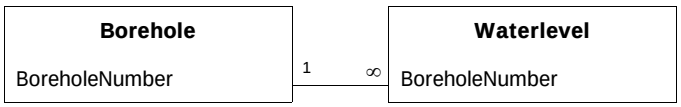
Attributes: Enforced, Cascade Updates, Cascade Deletes
RelationshipType: One-To-Many

BoreholeVelocity



Attributes: Enforced, Cascade Updates, Cascade Deletes
RelationshipType: One-To-Many

BoreholeWaterlevel



Attributes: Enforced, Cascade Updates, Cascade Deletes
RelationshipType: One-To-Many

ProfileTypeBorehole

ProfileType		Borehole
Profile Type Number	1 ∞	Profile Type Number

Attributes:	Enforced, Cascade Updates
RelationshipType:	One-To-Many

Table Indexes

Name	Number of Fields
Borehole Name	1
Clustered:	False
DistinctCount:	3433
Foreign:	False
IgnoreNulls:	False
Name:	Borehole Name
Primary:	False
Required:	False
Unique:	True
Fields:	
Borehole Name	Ascending
Borehole Number	1
Clustered:	False
DistinctCount:	3433
Foreign:	False
IgnoreNulls:	False
Name:	Borehole Number
Primary:	False
Required:	False
Unique:	True
Fields:	
BoreholeNumber	Ascending
PrimaryKey	1
Clustered:	False
DistinctCount:	3433
Foreign:	False
IgnoreNulls:	False
Name:	PrimaryKey
Primary:	True
Required:	True
Unique:	True
Fields:	
BoreholeNumber	Ascending
Profile Type Number	1
Clustered:	False
DistinctCount:	10
Foreign:	False
IgnoreNulls:	False
Name:	Profile Type Number
Primary:	False

Required:	False
Unique:	False
Fields:	
Profile Type Number	Ascending
ProfileTypeBorehole	1
Clustered:	False
DistinctCount:	10
Foreign:	True
IgnoreNulls:	False
Name:	ProfileTypeBorehole
Primary:	False
Required:	False
Unique:	False
Fields:	
Profile Type Number	Ascending

Properties

DatasheetFontHeight:	8	DatasheetFontItalic:	False
DatasheetFontName:	Arial	DatasheetFontUnderline:	False
DatasheetFontWeight:	Normal	DatasheetForeColor:	33554432
DateCreated:	8/24/1995 3:27:12 PM	DefaultView:	Datasheet
LastUpdated:	6/24/2004 7:45:14 AM	OrderByOn:	True
Orientation:	Left-to-Right	RecordCount:	3403
TabularCharSet:	0	TabularFamily:	34
Updatable:	True		

Columns

Name	Type	Size
BoreholeNumber	Long Integer	4

AllowZeroLength:	False
Attributes:	Fixed Size
CollatingOrder:	General
ColumnHidden:	False
ColumnOrder:	Default
ColumnWidth:	1545
DataUpdatable:	False
DecimalPlaces:	0
Description:	refers to Borehole Table
DisplayControl:	Text Box
Format:	Fixed
OrdinalPosition:	0
Required:	True
SourceField:	BoreholeNumber
SourceTable:	CONFIDENTIAL

Data Source	Text	50

AllowZeroLength:	False
Attributes:	Variable Length
CollatingOrder:	General
ColumnHidden:	False
ColumnOrder:	Default
ColumnWidth:	Default
DataUpdatable:	False
Description:	Company/Agency Name
DisplayControl:	Text Box
IMEMode:	0
IMESentenceMode:	3
OrdinalPosition:	2
Required:	False
SourceField:	Data Source
SourceTable:	CONFIDENTIAL
UnicodeCompression:	True

File Number	Text	10

AllowZeroLength:	False
Attributes:	Variable Length
CollatingOrder:	General

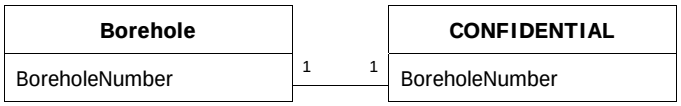
ColumnHidden:	False
ColumnOrder:	Default
ColumnWidth:	Default
DataUpdatable:	False
Description:	Source's cataloging number
DisplayControl:	Text Box
IMEMode:	0
IMESentenceMode:	3
OrdinalPosition:	3
Required:	False
SourceField:	File Number
SourceTable:	CONFIDENTIAL
UnicodeCompression:	True

Source Database	Text	20

AllowZeroLength:	False
Attributes:	Variable Length
CollatingOrder:	General
ColumnHidden:	False
ColumnOrder:	Default
ColumnWidth:	Default
DataUpdatable:	False
Description:	If an electronic source, name of database file
DisplayControl:	Text Box
IMEMode:	0
IMESentenceMode:	3
OrdinalPosition:	4
Required:	False
SourceField:	Source Database
SourceTable:	CONFIDENTIAL
UnicodeCompression:	True

Relationships

BoreholeCONFIDENTIAL



Attributes:	Unique, Enforced, Cascade Updates, Cascade Deletes
RelationshipType:	One-To-One

Table Indexes

Name	Number of Fields
Borehole Number	1

Clustered:	False
DistinctCount:	3403
Foreign:	False
IgnoreNulls:	False
Name:	Borehole Number
Primary:	False

	Required:	False
	Unique:	True
	Fields:	
	BoreholeNumber	Ascending
BoreholeCONFIDENTIAL		1
	Clustered:	False
	DistinctCount:	3403
	Foreign:	True
	IgnoreNulls:	False
	Name:	BoreholeCONFIDENTIAL
	Primary:	False
	Required:	False
	Unique:	True
	Fields:	
	BoreholeNumber	Ascending
PrimaryKey		1
	Clustered:	False
	DistinctCount:	3403
	Foreign:	False
	IgnoreNulls:	False
	Name:	PrimaryKey
	Primary:	True
	Required:	True
	Unique:	True
	Fields:	
	BoreholeNumber	Ascending

Properties

DateCreated:	5/23/1995 9:42:48 AM	DefaultView:	Datasheet
FrozenColumns:	1	LastUpdated:	6/24/2004 7:45:25 AM
OrderByOn:	False	Orientation:	Left-to-Right
RecordCount:	8356	RowHeight:	270
Updatable:	True		

Columns

Name	Type	Size
Number	Long Integer	4

AllowZeroLength:	False
Attributes:	Fixed Size, Auto-Increment
CollatingOrder:	General
ColumnHidden:	False
ColumnOrder:	Default
ColumnWidth:	1455
DataUpdatable:	False
OrdinalPosition:	1
Required:	False
SourceField:	Number
SourceTable:	CPTData

BoreholeNumber	Long Integer	4

AllowZeroLength:	False
Attributes:	Fixed Size
CollatingOrder:	General
ColumnHidden:	False
ColumnOrder:	Default
ColumnWidth:	1575
DataUpdatable:	False
DecimalPlaces:	Auto
Description:	refers to Borehole Table
DisplayControl:	Text Box
OrdinalPosition:	2
Required:	True
SourceField:	BoreholeNumber
SourceTable:	CPTData

Depth	Single	4

AllowZeroLength:	False
Attributes:	Fixed Size
CollatingOrder:	General
ColumnHidden:	False
ColumnOrder:	Default
ColumnWidth:	Default
DataUpdatable:	False
DecimalPlaces:	Auto
Description:	in meters
DisplayControl:	Text Box
OrdinalPosition:	4
Required:	True

	SourceField:	Depth	
	SourceTable:	CPTData	
Qc		Single	4
	AllowZeroLength:	False	
	Attributes:	Fixed Size	
	CollatingOrder:	General	
	ColumnHidden:	False	
	ColumnOrder:	Default	
	ColumnWidth:	Default	
	DataUpdatable:	False	
	DecimalPlaces:	1	
	Description:	in ????	
	DisplayControl:	Text Box	
	Format:	Fixed	
	OrdinalPosition:	5	
	Required:	True	
	SourceField:	Qc	
	SourceTable:	CPTData	
Friction		Single	4
	AllowZeroLength:	False	
	Attributes:	Fixed Size	
	CollatingOrder:	General	
	ColumnHidden:	False	
	ColumnOrder:	Default	
	ColumnWidth:	Default	
	DataUpdatable:	False	
	DecimalPlaces:	3	
	Description:	in ????	
	DisplayControl:	Text Box	
	Format:	Fixed	
	OrdinalPosition:	6	
	Required:	False	
	SourceField:	Friction	
	SourceTable:	CPTData	
Friction Ratio		Single	4
	AllowZeroLength:	False	
	Attributes:	Fixed Size	
	CollatingOrder:	General	
	ColumnHidden:	False	
	ColumnOrder:	Default	
	ColumnWidth:	Default	
	DataUpdatable:	False	
	DecimalPlaces:	4	
	DisplayControl:	Text Box	
	Format:	Fixed	
	OrdinalPosition:	7	
	Required:	False	
	SourceField:	Friction Ratio	
	SourceTable:	CPTData	
PWP		Single	4
	AllowZeroLength:	False	
	Attributes:	Fixed Size	

CollatingOrder:	General
ColumnHidden:	False
ColumnOrder:	Default
ColumnWidth:	Default
DataUpdatable:	False
DecimalPlaces:	3
Description:	in
DisplayControl:	Text Box
Format:	Fixed
OrdinalPosition:	8
Required:	False
SourceField:	PWP
SourceTable:	CPTData

Comments Memo -

AllowZeroLength:	False
Attributes:	Variable Length
CollatingOrder:	General
ColumnHidden:	False
ColumnOrder:	Default
ColumnWidth:	Default
DataUpdatable:	False
IMEMode:	0
IMESentenceMode:	3
OrdinalPosition:	9
Required:	False
SourceField:	Comments
SourceTable:	CPTData
UnicodeCompression:	True

Relationships

BoreholeCPTData

Borehole			CPTData
BoreholeNumber	1	∞	BoreholeNumber

Attributes:	Enforced, Cascade Updates, Cascade Deletes
RelationshipType:	One-To-Many

Table Indexes

Name	Number of Fields
Borehole Number	1

Clustered:	False
DistinctCount:	36
Foreign:	False
IgnoreNulls:	False
Name:	Borehole Number
Primary:	False
Required:	False
Unique:	False

	Fields:	
	BoreholeNumber	Ascending
BoreholeCPTData		1
	Clustered:	False
	DistinctCount:	36
	Foreign:	True
	IgnoreNulls:	False
	Name:	BoreholeCPTData
	Primary:	False
	Required:	False
	Unique:	False
	Fields:	
	BoreholeNumber	Ascending
Depth		1
	Clustered:	False
	DistinctCount:	527
	Foreign:	False
	IgnoreNulls:	False
	Name:	Depth
	Primary:	False
	Required:	False
	Unique:	False
	Fields:	
	Depth	Ascending
PrimaryKey		1
	Clustered:	False
	DistinctCount:	8356
	Foreign:	False
	IgnoreNulls:	False
	Name:	PrimaryKey
	Primary:	True
	Required:	True
	Unique:	True
	Fields:	
	Number	Ascending

Properties

DatasheetFontHeight:	8	DatasheetFontItalic:	False
DatasheetFontName:	Arial	DatasheetFontUnderline:	False
DatasheetFontWeight:	Normal	DatasheetForeColor:	33554432
DateCreated:	5/23/1995 9:56:08 AM	DefaultView:	Datasheet
LastUpdated:	6/24/2004 7:45:34 AM	OrderByOn:	True
Orientation:	Left-to-Right	RecordCount:	12227
TabularCharSet:	0	TabularFamily:	34
Updatable:	True		

Columns

Name	Type	Size
Number	Long Integer	4

AllowZeroLength:	False
Attributes:	Fixed Size, Auto-Increment
CollatingOrder:	General
ColumnHidden:	False
ColumnOrder:	Default
ColumnWidth:	1476
DataUpdatable:	False
OrdinalPosition:	1
Required:	False
SourceField:	Number
SourceTable:	Lithology

BoreholeNumber	Long Integer	4

AllowZeroLength:	False
Attributes:	Fixed Size
CollatingOrder:	General
ColumnHidden:	False
ColumnOrder:	Default
ColumnWidth:	528
DataUpdatable:	False
DecimalPlaces:	0
Description:	refers to Borehole Table
DisplayControl:	Text Box
Format:	Fixed
OrdinalPosition:	2
Required:	True
SourceField:	BoreholeNumber
SourceTable:	Lithology

Top	Single	4

AllowZeroLength:	False
Attributes:	Fixed Size
CollatingOrder:	General
ColumnHidden:	False
ColumnOrder:	Default
ColumnWidth:	612
DataUpdatable:	False
DecimalPlaces:	1

	Description:	Depth from ground surface in meters	
	DisplayControl:	Text Box	
	Format:	Fixed	
	OrdinalPosition:	4	
	Required:	True	
	SourceField:	Top	
	SourceTable:	Lithology	
Bottom		Single	4
	AllowZeroLength:	False	
	Attributes:	Fixed Size	
	CollatingOrder:	General	
	ColumnHidden:	False	
	ColumnOrder:	Default	
	ColumnWidth:	600	
	DataUpdatable:	False	
	DecimalPlaces:	1	
	Description:	Depth from ground surface in meters	
	DisplayControl:	Text Box	
	Format:	Fixed	
	OrdinalPosition:	5	
	Required:	False	
	SourceField:	Bottom	
	SourceTable:	Lithology	
Lithology Number		Long Integer	4
	AllowZeroLength:	False	
	Attributes:	Fixed Size	
	BoundColumn:	1	
	Caption:	Lithology	
	CollatingOrder:	General	
	ColumnCount:	2	
	ColumnHeads:	False	
	ColumnHidden:	False	
	ColumnOrder:	Default	
	ColumnWidth:	1512	
	ColumnWidths:	0;1440	
	DataUpdatable:	False	
	DecimalPlaces:	0	
	Description:	refers to Lithotype Table	
	DisplayControl:	Combo Box	
	Format:	Fixed	
	LimitToList:	True	
	ListRows:	8	
	ListWidth:	1440twip	
	OrdinalPosition:	6	
	Required:	False	
	RowSource:	SELECT Lithotypes.[Lithology Number], Lithotypes.[Lithology Text] FROM Lithotypes;	
	RowSourceType:	Table/Query	
	SourceField:	Lithology Number	
	SourceTable:	Lithology	
USCS Number		Long Integer	4
	AllowZeroLength:	False	

Attributes:	Fixed Size
BoundColumn:	1
Caption:	USCS
CollatingOrder:	General
ColumnCount:	3
ColumnHeads:	False
ColumnHidden:	False
ColumnOrder:	Default
ColumnWidth:	876
ColumnWidths:	0;1440;1440
DataUpdatable:	False
DecimalPlaces:	0
Description:	refers to USCS Table
DisplayControl:	Combo Box
Format:	Fixed
LimitToList:	True
ListRows:	8
ListWidth:	2880twip
OrdinalPosition:	7
Required:	False
RowSource:	SELECT [USCS].[USCS Number], [USCS].[USCS Abbreviation], [USCS].[USCS Text] FROM [USCS]
RowSourceType:	Table/Query
SourceField:	USCS Number
SourceTable:	Lithology

Description Memo -

AllowZeroLength:	False
Attributes:	Variable Length
CollatingOrder:	General
ColumnHidden:	False
ColumnOrder:	Default
ColumnWidth:	4080
DataUpdatable:	False
IMEMode:	0
IMESentenceMode:	3
OrdinalPosition:	8
Required:	False
SourceField:	Description
SourceTable:	Lithology
UnicodeCompression:	True

Unit Number Long Integer 4

AllowZeroLength:	False
Attributes:	Fixed Size
BoundColumn:	1
Caption:	Unit
CollatingOrder:	General
ColumnCount:	3
ColumnHeads:	False
ColumnHidden:	False
ColumnOrder:	Default
ColumnWidth:	1056
ColumnWidths:	1440;1440;1440
DataUpdatable:	False

DecimalPlaces:	0
Description:	refers to Unit Table
DisplayControl:	Combo Box
Format:	Fixed
LimitToList:	True
ListRows:	8
ListWidth:	2880twip
OrdinalPosition:	9
Required:	False
RowSource:	SELECT Units.[Unit Number], Units.[Unit Abbreviation], Units.Unit FROM Units;
RowSourceType:	Table/Query
SourceField:	Unit Number
SourceTable:	Lithology

Model Unit Long Integer 4

AllowZeroLength:	False
Attributes:	Fixed Size
BoundColumn:	1
CollatingOrder:	General
ColumnCount:	3
ColumnHeads:	False
ColumnHidden:	False
ColumnOrder:	Default
ColumnWidth:	Default
ColumnWidths:	0;1440;1440
DataUpdatable:	False
DecimalPlaces:	Auto
Description:	Refers to Unit Table contains Unit in model that correlates closest to this lithology's top
DisplayControl:	Combo Box
LimitToList:	True
ListRows:	8
ListWidth:	2880twip
OrdinalPosition:	10
Required:	False
RowSource:	SELECT Units.[Unit Number], Units.[Unit Abbreviation], Units.Unit FROM Units;
RowSourceType:	Table/Query
SourceField:	Model Unit
SourceTable:	Lithology

Model Unit Depth Single 4

AllowZeroLength:	False
Attributes:	Fixed Size
CollatingOrder:	General
ColumnHidden:	False
ColumnOrder:	Default
ColumnWidth:	Default
DataUpdatable:	False
DecimalPlaces:	Auto
Description:	depth to Model Unit
DisplayControl:	Text Box
OrdinalPosition:	11
Required:	False

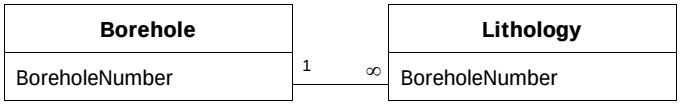
	SourceField:	Model Unit Depth	
	SourceTable:	Lithology	
Unit Weight		Integer	2
	AllowZeroLength:	False	
	Attributes:	Fixed Size	
	CollatingOrder:	General	
	ColumnHidden:	True	
	ColumnOrder:	Default	
	ColumnWidth:	1368	
	DataUpdatable:	False	
	DecimalPlaces:	0	
	Description:	average for layer, in kg/m3	
	DisplayControl:	Text Box	
	Format:	Fixed	
	OrdinalPosition:	12	
	Required:	False	
	SourceField:	Unit Weight	
	SourceTable:	Lithology	
Void Ratio		Single	4
	AllowZeroLength:	False	
	Attributes:	Fixed Size	
	CollatingOrder:	General	
	ColumnHidden:	True	
	ColumnOrder:	Default	
	ColumnWidth:	1440	
	DataUpdatable:	False	
	DecimalPlaces:	2	
	Description:	average for layer	
	DisplayControl:	Text Box	
	Format:	Fixed	
	OrdinalPosition:	13	
	Required:	False	
	SourceField:	Void Ratio	
	SourceTable:	Lithology	
Plastic Limit		Integer	2
	AllowZeroLength:	False	
	Attributes:	Fixed Size	
	CollatingOrder:	General	
	ColumnHidden:	True	
	ColumnOrder:	Default	
	ColumnWidth:	1440	
	DataUpdatable:	False	
	DecimalPlaces:	0	
	Description:	average for layer	
	DisplayControl:	Text Box	
	Format:	Fixed	
	OrdinalPosition:	14	
	Required:	False	
	SourceField:	Plastic Limit	
	SourceTable:	Lithology	
Liquid Limit		Integer	2
	AllowZeroLength:	False	

	Attributes:	Fixed Size	
	CollatingOrder:	General	
	ColumnHidden:	True	
	ColumnOrder:	Default	
	ColumnWidth:	1440	
	DataUpdatable:	False	
	DecimalPlaces:	0	
	Description:	average for layer	
	DisplayControl:	Text Box	
	Format:	Fixed	
	OrdinalPosition:	15	
	Required:	False	
	SourceField:	Liquid Limit	
	SourceTable:	Lithology	
Water Content		Integer	2
	AllowZeroLength:	False	
	Attributes:	Fixed Size	
	CollatingOrder:	General	
	ColumnHidden:	False	
	ColumnOrder:	Default	
	ColumnWidth:	Default	
	DataUpdatable:	False	
	DecimalPlaces:	0	
	DisplayControl:	Text Box	
	Format:	Fixed	
	OrdinalPosition:	16	
	Required:	False	
	SourceField:	Water Content	
	SourceTable:	Lithology	
D50		Single	4
	AllowZeroLength:	False	
	Attributes:	Fixed Size	
	CollatingOrder:	General	
	ColumnHidden:	True	
	ColumnOrder:	Default	
	ColumnWidth:	1440	
	DataUpdatable:	False	
	DecimalPlaces:	Auto	
	Description:	average for layer, in ??????	
	DisplayControl:	Text Box	
	OrdinalPosition:	17	
	Required:	False	
	SourceField:	D50	
	SourceTable:	Lithology	
% Fines		Single	4
	AllowZeroLength:	False	
	Attributes:	Fixed Size	
	CollatingOrder:	General	
	ColumnHidden:	True	
	ColumnOrder:	Default	
	ColumnWidth:	1440	
	DataUpdatable:	False	
	DecimalPlaces:	Auto	

	Description:	average for layer, % passing the #200 seive	
	DisplayControl:	Text Box	
	OrdinalPosition:	18	
	Required:	False	
	SourceField:	% Fines	
	SourceTable:	Lithology	
% Clay		Single	4
	AllowZeroLength:	False	
	Attributes:	Fixed Size	
	CollatingOrder:	General	
	ColumnHidden:	True	
	ColumnOrder:	Default	
	ColumnWidth:	1440	
	DataUpdatable:	False	
	DecimalPlaces:	Auto	
	Description:	average for layer, % by ??????	
	DisplayControl:	Text Box	
	OrdinalPosition:	19	
	Required:	False	
	SourceField:	% Clay	
	SourceTable:	Lithology	
SPT Minimum		Integer	2
	AllowZeroLength:	False	
	Attributes:	Fixed Size	
	CollatingOrder:	General	
	ColumnHidden:	True	
	ColumnOrder:	Default	
	ColumnWidth:	Default	
	DataUpdatable:	False	
	DecimalPlaces:	0	
	Description:	range for layer	
	DisplayControl:	Text Box	
	Format:	Fixed	
	OrdinalPosition:	20	
	Required:	False	
	SourceField:	SPT Minimum	
	SourceTable:	Lithology	
SPT Maximum		Integer	2
	AllowZeroLength:	False	
	Attributes:	Fixed Size	
	CollatingOrder:	General	
	ColumnHidden:	True	
	ColumnOrder:	Default	
	ColumnWidth:	Default	
	DataUpdatable:	False	
	DecimalPlaces:	0	
	Description:	range for layer	
	DisplayControl:	Text Box	
	Format:	Fixed	
	OrdinalPosition:	21	
	Required:	False	
	SourceField:	SPT Maximum	
	SourceTable:	Lithology	

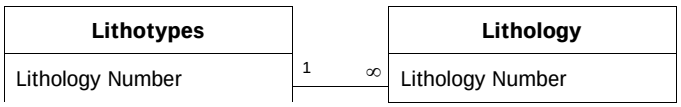
Relationships

BoreholeLithology



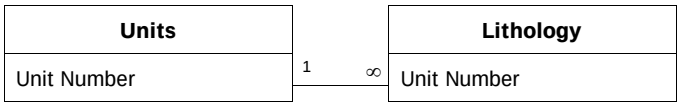
Attributes:	Enforced, Cascade Updates, Cascade Deletes
RelationshipType:	One-To-Many

LithotypesLithology



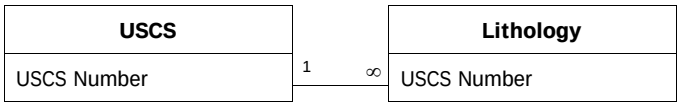
Attributes:	Enforced, Cascade Updates
RelationshipType:	One-To-Many

UnitsLithology



Attributes:	Enforced, Cascade Updates
RelationshipType:	One-To-Many

USCSLithology



Attributes:	Enforced, Cascade Updates
RelationshipType:	One-To-Many

Table Indexes

Name	Number of Fields
BoreholeLithology	1

Clustered:	False
DistinctCount:	3310
Foreign:	True
IgnoreNulls:	False
Name:	BoreholeLithology
Primary:	False
Required:	False

	Unique:	False
	Fields:	
	BoreholeNumber	Ascending
BoreholeNumber		1
	Clustered:	False
	DistinctCount:	3310
	Foreign:	False
	IgnoreNulls:	False
	Name:	BoreholeNumber
	Primary:	False
	Required:	False
	Unique:	False
	Fields:	
	BoreholeNumber	Ascending
LithotypesLithology		1
	Clustered:	False
	DistinctCount:	29
	Foreign:	True
	IgnoreNulls:	False
	Name:	LithotypesLithology
	Primary:	False
	Required:	False
	Unique:	False
	Fields:	
	Lithology Number	Ascending
Number		1
	Clustered:	False
	DistinctCount:	12227
	Foreign:	False
	IgnoreNulls:	False
	Name:	Number
	Primary:	False
	Required:	False
	Unique:	True
	Fields:	
	Number	Ascending
Top		1
	Clustered:	False
	DistinctCount:	1338
	Foreign:	False
	IgnoreNulls:	False
	Name:	Top
	Primary:	False
	Required:	False
	Unique:	False
	Fields:	
	Top	Ascending
UnitsLithology		1
	Clustered:	False
	DistinctCount:	24
	Foreign:	True
	IgnoreNulls:	False
	Name:	UnitsLithology

	Primary:	False
	Required:	False
	Unique:	False
	Fields:	
	Unit Number	Ascending
USCSLithology		1
	Clustered:	False
	DistinctCount:	1
	Foreign:	True
	IgnoreNulls:	False
	Name:	USCSLithology
	Primary:	False
	Required:	False
	Unique:	False
	Fields:	
	USCS Number	Ascending

Properties

DatasheetFontHeight:	8	DatasheetFontItalic:	False
DatasheetFontName:	Arial	DatasheetFontUnderline:	False
DatasheetFontWeight:	Normal	DatasheetForeColor:	33554432
DateCreated:	3/6/2000 4:01:14 PM	DefaultView:	Datasheet
LastUpdated:	6/23/2004 11:16:24 AM	OrderByOn:	False
Orientation:	Left-to-Right	RecordCount:	36
TabularCharSet:	0	TabularFamily:	34
Updatable:	True		

Columns

Name	Type	Size
Lithology Number	Long Integer	4

AllowZeroLength:	False
Attributes:	Fixed Size, Auto-Increment
CollatingOrder:	General
ColumnHidden:	False
ColumnOrder:	Default
ColumnWidth:	756
DataUpdatable:	False
OrdinalPosition:	1
Required:	False
SourceField:	Lithology Number
SourceTable:	Lithotypes

Lithology Text	Text	50

AllowZeroLength:	False
Attributes:	Variable Length
CollatingOrder:	General
ColumnHidden:	False
ColumnOrder:	Default
ColumnWidth:	2352
DataUpdatable:	False
DisplayControl:	Text Box
IMEMode:	0
IMESentenceMode:	3
OrdinalPosition:	2
Required:	True
SourceField:	Lithology Text
SourceTable:	Lithotypes
UnicodeCompression:	True

Fill Style	Byte	1

AllowZeroLength:	False
Attributes:	Fixed Size
CollatingOrder:	General
ColumnHidden:	False
ColumnOrder:	Default
ColumnWidth:	756
DataUpdatable:	False
DecimalPlaces:	0

Description:	used for plotting the lith-log if no fill file is listed or available (Integer from 0 to 7, 0=solid, 1=transparent)
DisplayControl:	Text Box
Format:	Fixed
OrdinalPosition:	3
Required:	True
SourceField:	Fill Style
SourceTable:	Lithotypes

Fill Foreground Long Integer 4

AllowZeroLength:	False
Attributes:	Fixed Size
CollatingOrder:	General
ColumnHidden:	False
ColumnOrder:	Default
ColumnWidth:	1224
DataUpdatable:	False
DecimalPlaces:	0
Description:	used for plotting the lith-log if no fill file is listed or available (Integer from 0 to 15, 0=black)
DisplayControl:	Text Box
Format:	Fixed
OrdinalPosition:	4
Required:	True
SourceField:	Fill Foreground
SourceTable:	Lithotypes

Fill Background Long Integer 4

AllowZeroLength:	False
Attributes:	Fixed Size
CollatingOrder:	General
ColumnHidden:	False
ColumnOrder:	Default
ColumnWidth:	1008
DataUpdatable:	False
DecimalPlaces:	0
Description:	used for plotting the lith-log if no fill file is listed or available (Integer from 0 to 15, 7=lt. grey)
DisplayControl:	Text Box
Format:	Fixed
OrdinalPosition:	5
Required:	True
SourceField:	Fill Background
SourceTable:	Lithotypes

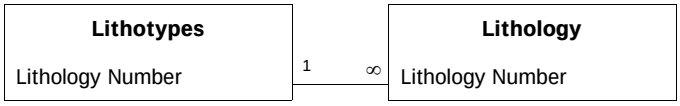
Pattern File Text 23

AllowZeroLength:	False
Attributes:	Variable Length
CollatingOrder:	General
ColumnHidden:	False
ColumnOrder:	Default
ColumnWidth:	1632
DataUpdatable:	False
Description:	file to be used to fill in the lith-log

DisplayControl:	Text Box
IMEMode:	0
IMESentenceMode:	3
OrdinalPosition:	6
Required:	False
SourceField:	Pattern File
SourceTable:	Lithotypes
UnicodeCompression:	True

Relationships

LithotypesLithology



Attributes:	Enforced, Cascade Updates
RelationshipType:	One-To-Many

Table Indexes

Name	Number of Fields
Lithology Number	1
Clustered:	False
DistinctCount:	36
Foreign:	False
IgnoreNulls:	False
Name:	Lithology Number
Primary:	False
Required:	False
Unique:	True
Fields:	
Lithology Number	Ascending
PrimaryKey	1
Clustered:	False
DistinctCount:	36
Foreign:	False
IgnoreNulls:	False
Name:	PrimaryKey
Primary:	True
Required:	True
Unique:	True
Fields:	
Lithology Number	Ascending

Properties

DateCreated:	8/17/1995 10:37:38 AM	LastUpdated:	5/4/2000 12:37:58 PM
OrderByOn:	False	RecordCount:	11
Updatable:	True		

Columns

Name	Type	Size
Profile Type Number	Long Integer	4

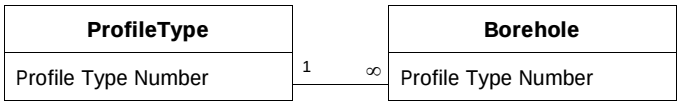
AllowZeroLength:	False
Attributes:	Fixed Size, Auto-Increment
CollatingOrder:	General
ColumnHidden:	False
ColumnOrder:	Default
ColumnWidth:	1860
DataUpdatable:	False
DecimalPlaces:	0
OrdinalPosition:	1
Required:	False
SourceField:	Profile Type Number
SourceTable:	ProfileType

Profile Type	Text	32

AllowZeroLength:	False
Attributes:	Variable Length
CollatingOrder:	General
ColumnHidden:	False
ColumnOrder:	Default
ColumnWidth:	2325
DataUpdatable:	False
DisplayControl:	Text Box
OrdinalPosition:	2
Required:	False
SourceField:	Profile Type
SourceTable:	ProfileType

Relationships

ProfileTypeBorehole



Attributes:	Enforced, Cascade Updates
RelationshipType:	One-To-Many

Table Indexes

Name	Number of Fields

PrimaryKey		1
	Clustered:	False
	DistinctCount:	11
	Foreign:	False
	IgnoreNulls:	False
	Name:	PrimaryKey
	Primary:	True
	Required:	True
	Unique:	True
	Fields:	
	Profile Type Number	Ascending
Profile Type Number		1
	Clustered:	False
	DistinctCount:	11
	Foreign:	False
	IgnoreNulls:	False
	Name:	Profile Type Number
	Primary:	False
	Required:	False
	Unique:	True
	Fields:	
	Profile Type Number	Ascending

Properties

DateCreated:	8/30/1995 11:15:35 AM	DefaultView:	Datasheet
LastUpdated:	6/24/2004 7:45:55 AM	OrderByOn:	False
Orientation:	Left-to-Right	RecordCount:	528
Updatable:	True		

Columns

Name	Type	Size
Number	Long Integer	4

AllowZeroLength:	False
Attributes:	Fixed Size, Auto-Increment
CollatingOrder:	General
ColumnHidden:	False
ColumnOrder:	Default
ColumnWidth:	Default
DataUpdatable:	False
OrdinalPosition:	1
Required:	False
SourceField:	Number
SourceTable:	SampleTest

BoreholeNumber	Long Integer	4

AllowZeroLength:	False
Attributes:	Fixed Size
CollatingOrder:	General
ColumnHidden:	False
ColumnOrder:	Default
ColumnWidth:	Default
DataUpdatable:	False
DecimalPlaces:	Auto
Description:	refers to Borehole Table
DisplayControl:	Text Box
OrdinalPosition:	2
Required:	True
SourceField:	BoreholeNumber
SourceTable:	SampleTest

Depth	Single	4

AllowZeroLength:	False
Attributes:	Fixed Size
CollatingOrder:	General
ColumnHidden:	False
ColumnOrder:	Default
ColumnWidth:	Default
DataUpdatable:	False
DecimalPlaces:	Auto
Description:	in meters, top of sampler or depth of actual sample if available
DisplayControl:	Text Box
OrdinalPosition:	4
Required:	False
SourceField:	Depth

	SourceTable:	SampleTest	
Top in Feet		Single	4
	AllowZeroLength:	False	
	Attributes:	Fixed Size	
	CollatingOrder:	General	
	ColumnHidden:	False	
	ColumnOrder:	Default	
	ColumnWidth:	Default	
	DataUpdatable:	False	
	DecimalPlaces:	1	
	Description:	in feet	
	DisplayControl:	Text Box	
	Format:	Fixed	
	OrdinalPosition:	5	
	Required:	False	
	SourceField:	Top in Feet	
	SourceTable:	SampleTest	
Bottom in Feet		Single	4
	AllowZeroLength:	False	
	Attributes:	Fixed Size	
	CollatingOrder:	General	
	ColumnHidden:	False	
	ColumnOrder:	Default	
	ColumnWidth:	Default	
	DataUpdatable:	False	
	DecimalPlaces:	1	
	Description:	in feet	
	DisplayControl:	Text Box	
	Format:	Fixed	
	OrdinalPosition:	6	
	Required:	False	
	SourceField:	Bottom in Feet	
	SourceTable:	SampleTest	
Unit Weight		Integer	2
	AllowZeroLength:	False	
	Attributes:	Fixed Size	
	CollatingOrder:	General	
	ColumnHidden:	False	
	ColumnOrder:	Default	
	ColumnWidth:	Default	
	DataUpdatable:	False	
	DecimalPlaces:	0	
	Description:	in Kg/m3	
	DisplayControl:	Text Box	
	Format:	Fixed	
	OrdinalPosition:	7	
	Required:	False	
	SourceField:	Unit Weight	
	SourceTable:	SampleTest	
Void Ratio		Single	4
	AllowZeroLength:	False	
	Attributes:	Fixed Size	

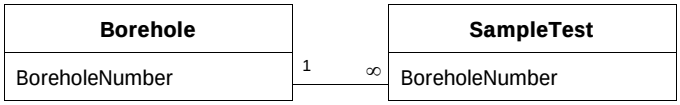
	CollatingOrder:	General	
	ColumnHidden:	False	
	ColumnOrder:	Default	
	ColumnWidth:	Default	
	DataUpdatable:	False	
	DecimalPlaces:	2	
	DisplayControl:	Text Box	
	Format:	Fixed	
	OrdinalPosition:	8	
	Required:	False	
	SourceField:	Void Ratio	
	SourceTable:	SampleTest	
Shear Strength		Integer	2
	AllowZeroLength:	False	
	Attributes:	Fixed Size	
	CollatingOrder:	General	
	ColumnHidden:	False	
	ColumnOrder:	Default	
	ColumnWidth:	Default	
	DataUpdatable:	False	
	DecimalPlaces:	0	
	Description:	in N/m2	
	DisplayControl:	Text Box	
	Format:	Fixed	
	OrdinalPosition:	9	
	Required:	False	
	SourceField:	Shear Strength	
	SourceTable:	SampleTest	
Liquid Limit		Integer	2
	AllowZeroLength:	False	
	Attributes:	Fixed Size	
	CollatingOrder:	General	
	ColumnHidden:	False	
	ColumnOrder:	Default	
	ColumnWidth:	Default	
	DataUpdatable:	False	
	DecimalPlaces:	0	
	DisplayControl:	Text Box	
	Format:	Fixed	
	OrdinalPosition:	10	
	Required:	False	
	SourceField:	Liquid Limit	
	SourceTable:	SampleTest	
Plastic Limit		Integer	2
	AllowZeroLength:	False	
	Attributes:	Fixed Size	
	CollatingOrder:	General	
	ColumnHidden:	False	
	ColumnOrder:	Default	
	ColumnWidth:	Default	
	DataUpdatable:	False	
	DecimalPlaces:	0	
	DisplayControl:	Text Box	

	Format:	Fixed	
	OrdinalPosition:	11	
	Required:	False	
	SourceField:	Plastic Limit	
	SourceTable:	SampleTest	
D50		Single	4
	AllowZeroLength:	False	
	Attributes:	Fixed Size	
	CollatingOrder:	General	
	ColumnHidden:	False	
	ColumnOrder:	Default	
	ColumnWidth:	Default	
	DataUpdatable:	False	
	DecimalPlaces:	3	
	Description:	in ??????	
	DisplayControl:	Text Box	
	Format:	Fixed	
	OrdinalPosition:	12	
	Required:	False	
	SourceField:	D50	
	SourceTable:	SampleTest	
% Fines		Integer	2
	AllowZeroLength:	False	
	Attributes:	Fixed Size	
	CollatingOrder:	General	
	ColumnHidden:	False	
	ColumnOrder:	Default	
	ColumnWidth:	Default	
	DataUpdatable:	False	
	DecimalPlaces:	0	
	Description:	% passing # 200 sieve	
	DisplayControl:	Text Box	
	Format:	Fixed	
	OrdinalPosition:	13	
	Required:	False	
	SourceField:	% Fines	
	SourceTable:	SampleTest	
% Clay		Integer	2
	AllowZeroLength:	False	
	Attributes:	Fixed Size	
	CollatingOrder:	General	
	ColumnHidden:	False	
	ColumnOrder:	Default	
	ColumnWidth:	Default	
	DataUpdatable:	False	
	DecimalPlaces:	0	
	Description:	% by ???????	
	DisplayControl:	Text Box	
	Format:	Fixed	
	OrdinalPosition:	14	
	Required:	False	
	SourceField:	% Clay	
	SourceTable:	SampleTest	

Comments		Memo	-
	AllowZeroLength:	False	
	Attributes:	Variable Length	
	CollatingOrder:	General	
	ColumnHidden:	False	
	ColumnOrder:	Default	
	ColumnWidth:	Default	
	DataUpdatable:	False	
	IMEMode:	0	
	IMESentenceMode:	3	
	OrdinalPosition:	15	
	Required:	False	
	SourceField:	Comments	
	SourceTable:	SampleTest	
	UnicodeCompression:	True	

Relationships

BoreholeSampleTest



Attributes:	Enforced, Cascade Updates, Cascade Deletes
RelationshipType:	One-To-Many

Table Indexes

Name	Number of Fields
Borehole Number	1
Clustered:	False
DistinctCount:	191
Foreign:	False
IgnoreNulls:	False
Name:	Borehole Number
Primary:	False
Required:	False
Unique:	False
Fields:	
BoreholeNumber	Ascending
BoreholeSampleTest	1
Clustered:	False
DistinctCount:	191
Foreign:	True
IgnoreNulls:	False
Name:	BoreholeSampleTest
Primary:	False
Required:	False
Unique:	False
Fields:	
BoreholeNumber	Ascending

Number		1
	Clustered:	False
	DistinctCount:	528
	Foreign:	False
	IgnoreNulls:	False
	Name:	Number
	Primary:	False
	Required:	False
	Unique:	True
	Fields:	
	Number	Ascending
PrimaryKey		1
	Clustered:	False
	DistinctCount:	528
	Foreign:	False
	IgnoreNulls:	False
	Name:	PrimaryKey
	Primary:	True
	Required:	True
	Unique:	True
	Fields:	
	Number	Ascending

Properties

DateCreated:	5/23/1995 10:00:27 AM	DefaultView:	Datasheet
LastUpdated:	6/24/2004 7:46:05 AM	OrderByOn:	True
Orientation:	Left-to-Right	RecordCount:	3993
Updatable:	True		

Columns

Name	Type	Size
Number	Long Integer	4

AllowZeroLength:	False
Attributes:	Fixed Size, Auto-Increment
CollatingOrder:	General
ColumnHidden:	False
ColumnOrder:	Default
ColumnWidth:	1080
DataUpdatable:	False
OrdinalPosition:	1
Required:	False
SourceField:	Number
SourceTable:	SPTData

BoreholeNumber	Long Integer	4

AllowZeroLength:	False
Attributes:	Fixed Size
CollatingOrder:	General
ColumnHidden:	False
ColumnOrder:	Default
ColumnWidth:	1605
DataUpdatable:	False
DecimalPlaces:	0
Description:	refers to Borehole Table
DisplayControl:	Text Box
Format:	Fixed
OrdinalPosition:	2
Required:	True
SourceField:	BoreholeNumber
SourceTable:	SPTData

Depth	Single	4

AllowZeroLength:	False
Attributes:	Fixed Size
CollatingOrder:	General
ColumnHidden:	False
ColumnOrder:	Default
ColumnWidth:	Default
DataUpdatable:	False
DecimalPlaces:	1
Description:	in meters
DisplayControl:	Text Box
Format:	Fixed
OrdinalPosition:	4

	Required:	True	
	SourceField:	Depth	
	SourceTable:	SPTData	
SPT Raw N		Integer	2
	AllowZeroLength:	False	
	Attributes:	Fixed Size	
	CollatingOrder:	General	
	ColumnHidden:	False	
	ColumnOrder:	Default	
	ColumnWidth:	1350	
	DataUpdatable:	False	
	DecimalPlaces:	0	
	DisplayControl:	Text Box	
	Format:	Fixed	
	OrdinalPosition:	5	
	Required:	False	
	SourceField:	SPT Raw N	
	SourceTable:	SPTData	
Corrected N		Integer	2
	AllowZeroLength:	False	
	Attributes:	Fixed Size	
	CollatingOrder:	General	
	ColumnHidden:	False	
	ColumnOrder:	Default	
	ColumnWidth:	Default	
	DataUpdatable:	False	
	DecimalPlaces:	0	
	DisplayControl:	Text Box	
	Format:	Fixed	
	OrdinalPosition:	6	
	Required:	False	
	SourceField:	Corrected N	
	SourceTable:	SPTData	
Easy Push		Yes/No	1
	AllowZeroLength:	False	
	Attributes:	Fixed Size	
	CollatingOrder:	General	
	ColumnHidden:	False	
	ColumnOrder:	Default	
	ColumnWidth:	Default	
	DataUpdatable:	False	
	DisplayControl:	Text Box	
	Format:	Yes/No	
	OrdinalPosition:	7	
	Required:	False	
	SourceField:	Easy Push	
	SourceTable:	SPTData	
Refusal		Yes/No	1
	AllowZeroLength:	False	
	Attributes:	Fixed Size	
	CollatingOrder:	General	
	ColumnHidden:	False	

ColumnOrder:	Default
ColumnWidth:	Default
DataUpdatable:	False
DisplayControl:	Text Box
Format:	Yes/No
OrdinalPosition:	8
Required:	False
SourceField:	Refusal
SourceTable:	SPTData

Comments Memo -

AllowZeroLength:	False
Attributes:	Variable Length
CollatingOrder:	General
ColumnHidden:	False
ColumnOrder:	Default
ColumnWidth:	Default
DataUpdatable:	False
IMEMode:	0
IMESentenceMode:	3
OrdinalPosition:	9
Required:	False
SourceField:	Comments
SourceTable:	SPTData
UnicodeCompression:	True

Relationships

BoreholeSPTData

Borehole		SPTData
BoreholeNumber	1 ∞	BoreholeNumber

Attributes:	Enforced, Cascade Updates, Cascade Deletes
RelationshipType:	One-To-Many

Table Indexes

Name	Number of Fields
Borehole Number	1

Clustered:	False
DistinctCount:	516
Foreign:	False
IgnoreNulls:	False
Name:	Borehole Number
Primary:	False
Required:	False
Unique:	False
Fields:	
BoreholeNumber	Ascending

BoreholeSPTData 1

Clustered:	False

	DistinctCount:	516
	Foreign:	True
	IgnoreNulls:	False
	Name:	BoreholeSPTData
	Primary:	False
	Required:	False
	Unique:	False
	Fields:	
	BoreholeNumber	Ascending
Depth		1
	Clustered:	False
	DistinctCount:	242
	Foreign:	False
	IgnoreNulls:	False
	Name:	Depth
	Primary:	False
	Required:	False
	Unique:	False
	Fields:	
	Depth	Ascending
Number		1
	Clustered:	False
	DistinctCount:	3993
	Foreign:	False
	IgnoreNulls:	False
	Name:	Number
	Primary:	False
	Required:	False
	Unique:	True
	Fields:	
	Number	Ascending
PrimaryKey		1
	Clustered:	False
	DistinctCount:	3993
	Foreign:	False
	IgnoreNulls:	False
	Name:	PrimaryKey
	Primary:	True
	Required:	True
	Unique:	True
	Fields:	
	Number	Ascending

Properties

DatasheetFontHeight:	10	DatasheetFontItalic:	False
DatasheetFontName:	Arial	DatasheetFontUnderline:	False
DatasheetFontWeight:	Normal	DatasheetForeColor:	33554432
DateCreated:	8/17/1995 4:30:27 PM	DefaultView:	Datasheet
LastUpdated:	6/23/2004 3:41:49 PM	OrderByOn:	False
Orientation:	Left-to-Right	RecordCount:	26
TabularCharSet:	0	TabularFamily:	34
Updatable:	True		

Columns

Name	Type	Size
Unit Number	Long Integer	4

AllowZeroLength:	False
Attributes:	Fixed Size, Auto-Increment
CollatingOrder:	General
ColumnHidden:	False
ColumnOrder:	Default
ColumnWidth:	984
DataUpdatable:	False
OrdinalPosition:	1
Required:	False
SourceField:	Unit Number
SourceTable:	Units

Unit	Text	40

AllowZeroLength:	False
Attributes:	Variable Length
CollatingOrder:	General
ColumnHidden:	False
ColumnOrder:	Default
ColumnWidth:	3525
DataUpdatable:	False
DisplayControl:	Text Box
IMEMode:	0
IMESentenceMode:	3
OrdinalPosition:	2
Required:	True
SourceField:	Unit
SourceTable:	Units
UnicodeCompression:	True

Unit Abbreviation	Text	9

AllowZeroLength:	False
Attributes:	Variable Length
CollatingOrder:	General
ColumnHidden:	False
ColumnOrder:	Default
ColumnWidth:	Default
DataUpdatable:	False
DisplayControl:	Text Box

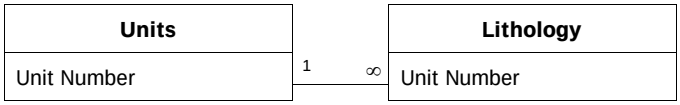
IMEMode:	0
IMESentenceMode:	3
OrdinalPosition:	3
Required:	True
SourceField:	Unit Abbreviation
SourceTable:	Units
UnicodeCompression:	True

Unit Color — Long Integer — 4

AllowZeroLength:	False
Attributes:	Fixed Size
CollatingOrder:	General
ColumnHidden:	False
ColumnOrder:	Default
ColumnWidth:	1296
DataUpdatable:	False
DecimalPlaces:	0
DisplayControl:	Text Box
OrdinalPosition:	4
Required:	False
SourceField:	Unit Color
SourceTable:	Units

Relationships

UnitsLithology



Attributes:	Enforced, Cascade Updates
RelationshipType:	One-To-Many

Table Indexes

Name	Number of Fields
PrimaryKey	1

Clustered:	False
DistinctCount:	26
Foreign:	False
IgnoreNulls:	False
Name:	PrimaryKey
Primary:	True
Required:	True
Unique:	True
Fields:	
Unit Number	Ascending

Unit Abbreviation — 1

Clustered:	False
DistinctCount:	26
Foreign:	False
IgnoreNulls:	False

	Name:	Unit Abbreviation
	Primary:	False
	Required:	False
	Unique:	False
	Fields:	
	Unit Abbreviation	Ascending
Unit Number		1
	Clustered:	False
	DistinctCount:	26
	Foreign:	False
	IgnoreNulls:	False
	Name:	Unit Number
	Primary:	False
	Required:	False
	Unique:	True
	Fields:	
	Unit Number	Ascending
UnitsUnit		1
	Clustered:	False
	DistinctCount:	26
	Foreign:	False
	IgnoreNulls:	False
	Name:	UnitsUnit
	Primary:	False
	Required:	False
	Unique:	False
	Fields:	
	Unit	Ascending

Properties

DateCreated:	8/24/1995 5:00:52 PM	LastUpdated:	5/4/2000 12:38:47 PM
OrderByOn:	False	RecordCount:	22
Updatable:	True		

Columns

Name	Type	Size
USCS Number	Long Integer	4

AllowZeroLength:	False
Attributes:	Fixed Size, Auto-Increment
CollatingOrder:	General
ColumnHidden:	False
ColumnOrder:	1
ColumnWidth:	1620
DataUpdatable:	False
OrdinalPosition:	1
Required:	False
SourceField:	USCS Number
SourceTable:	USCS

USCS Text	Text	30

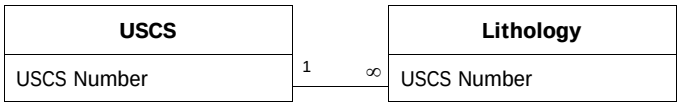
AllowZeroLength:	False
Attributes:	Variable Length
CollatingOrder:	General
ColumnHidden:	False
ColumnOrder:	Default
ColumnWidth:	2376
DataUpdatable:	False
DisplayControl:	Text Box
OrdinalPosition:	2
Required:	True
SourceField:	USCS Text
SourceTable:	USCS

USCS Abbreviation	Text	5

AllowZeroLength:	False
Attributes:	Variable Length
CollatingOrder:	General
ColumnHidden:	False
ColumnOrder:	Default
ColumnWidth:	2010
DataUpdatable:	False
DisplayControl:	Text Box
OrdinalPosition:	3
Required:	True
SourceField:	USCS Abbreviation
SourceTable:	USCS

Relationships

USCSLithology



Attributes:	Enforced, Cascade Updates
RelationshipType:	One-To-Many

Table Indexes

Name	Number of Fields
Lithology Number	1
Clustered:	False
DistinctCount:	22
Foreign:	False
IgnoreNulls:	False
Name:	Lithology Number
Primary:	False
Required:	False
Unique:	True
Fields:	
USCS Number	Ascending
PrimaryKey	1
Clustered:	False
DistinctCount:	22
Foreign:	False
IgnoreNulls:	False
Name:	PrimaryKey
Primary:	True
Required:	True
Unique:	True
Fields:	
USCS Number	Ascending

Properties

DateCreated:	5/23/1995 9:46:33 AM	DefaultView:	Datasheet
LastUpdated:	6/24/2004 7:46:21 AM	OrderByOn:	True
Orientation:	Left-to-Right	RecordCount:	3633
Updatable:	True		

Columns

Name	Type	Size
Number	Long Integer	4

AllowZeroLength:	False
Attributes:	Fixed Size, Auto-Increment
CollatingOrder:	General
ColumnHidden:	False
ColumnOrder:	Default
ColumnWidth:	Default
DataUpdatable:	False
OrdinalPosition:	1
Required:	False
SourceField:	Number
SourceTable:	Velocity

BoreholeNumber	Long Integer	4

AllowZeroLength:	False
Attributes:	Fixed Size
CollatingOrder:	General
ColumnHidden:	False
ColumnOrder:	Default
ColumnWidth:	1575
DataUpdatable:	False
DecimalPlaces:	Auto
Description:	refers to Borehole Table
DisplayControl:	Text Box
OrdinalPosition:	2
Required:	True
SourceField:	BoreholeNumber
SourceTable:	Velocity

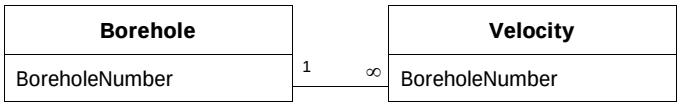
Depth	Single	4

AllowZeroLength:	False
Attributes:	Fixed Size
CollatingOrder:	General
ColumnHidden:	False
ColumnOrder:	Default
ColumnWidth:	Default
DataUpdatable:	False
DecimalPlaces:	1
Description:	in meters
DisplayControl:	Text Box
Format:	Fixed
OrdinalPosition:	4
Required:	True

	SourceField:	Depth	
	SourceTable:	Velocity	
Vp		Integer	2
	AllowZeroLength:	False	
	Attributes:	Fixed Size	
	CollatingOrder:	General	
	ColumnHidden:	False	
	ColumnOrder:	Default	
	ColumnWidth:	Default	
	DataUpdatable:	False	
	DecimalPlaces:	0	
	Description:	in meters/second	
	DisplayControl:	Text Box	
	Format:	Fixed	
	OrdinalPosition:	5	
	Required:	False	
	SourceField:	Vp	
	SourceTable:	Velocity	
Vs		Integer	2
	AllowZeroLength:	False	
	Attributes:	Fixed Size	
	CollatingOrder:	General	
	ColumnHidden:	False	
	ColumnOrder:	Default	
	ColumnWidth:	Default	
	DataUpdatable:	False	
	DecimalPlaces:	0	
	Description:	in meters/second	
	DisplayControl:	Text Box	
	Format:	Fixed	
	OrdinalPosition:	6	
	Required:	False	
	SourceField:	Vs	
	SourceTable:	Velocity	
Comments		Memo	-
	AllowZeroLength:	False	
	Attributes:	Variable Length	
	CollatingOrder:	General	
	ColumnHidden:	False	
	ColumnOrder:	Default	
	ColumnWidth:	Default	
	DataUpdatable:	False	
	IMEMode:	0	
	IMESentenceMode:	3	
	OrdinalPosition:	7	
	Required:	False	
	SourceField:	Comments	
	SourceTable:	Velocity	
	UnicodeCompression:	True	

Relationships

BoreholeVelocity



Attributes:	Enforced, Cascade Updates, Cascade Deletes
RelationshipType:	One-To-Many

Table Indexes

Name	Number of Fields
Borehole Number	1
Clustered:	False
DistinctCount:	95
Foreign:	False
IgnoreNulls:	False
Name:	Borehole Number
Primary:	False
Required:	False
Unique:	False
Fields:	
BoreholeNumber	Ascending
BoreholeVelocity	1
Clustered:	False
DistinctCount:	95
Foreign:	True
IgnoreNulls:	False
Name:	BoreholeVelocity
Primary:	False
Required:	False
Unique:	False
Fields:	
BoreholeNumber	Ascending
Depth	1
Clustered:	False
DistinctCount:	322
Foreign:	False
IgnoreNulls:	False
Name:	Depth
Primary:	False
Required:	False
Unique:	False
Fields:	
Depth	Ascending
Number	1
Clustered:	False
DistinctCount:	3633
Foreign:	False
IgnoreNulls:	False
Name:	Number
Primary:	False

	Required:	False
	Unique:	True
	Fields:	
	Number	Ascending
PrimaryKey		1
	Clustered:	False
	DistinctCount:	3633
	Foreign:	False
	IgnoreNulls:	False
	Name:	PrimaryKey
	Primary:	True
	Required:	True
	Unique:	True
	Fields:	
	Number	Ascending

Properties

DateCreated:	8/28/1995 5:08:01 PM	DefaultView:	Datasheet
LastUpdated:	6/24/2004 7:46:31 AM	OrderByOn:	True
Orientation:	Left-to-Right	RecordCount:	2499
Updatable:	True		

Columns

Name	Type	Size
Number	Long Integer	4

AllowZeroLength:	False
Attributes:	Fixed Size, Auto-Increment
CollatingOrder:	General
ColumnHidden:	False
ColumnOrder:	Default
ColumnWidth:	Default
DataUpdatable:	False
OrdinalPosition:	1
Required:	False
SourceField:	Number
SourceTable:	Waterlevel

BoreholeNumber	Long Integer	4

AllowZeroLength:	False
Attributes:	Fixed Size
CollatingOrder:	General
ColumnHidden:	False
ColumnOrder:	Default
ColumnWidth:	Default
DataUpdatable:	False
DecimalPlaces:	0
Description:	refers to Borehole Table
DisplayControl:	Text Box
Format:	Fixed
OrdinalPosition:	2
Required:	True
SourceField:	BoreholeNumber
SourceTable:	Waterlevel

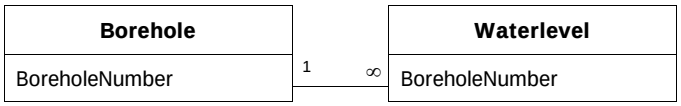
Depth	Single	4

AllowZeroLength:	False
Attributes:	Fixed Size
CollatingOrder:	General
ColumnHidden:	False
ColumnOrder:	Default
ColumnWidth:	Default
DataUpdatable:	False
DecimalPlaces:	2
Description:	in meters
DisplayControl:	Text Box
Format:	Fixed
OrdinalPosition:	4

	Required:	True	
	SourceField:	Depth	
	SourceTable:	Waterlevel	
Water Level "zero" in original		Yes/No	1
	AllowZeroLength:	False	
	Attributes:	Fixed Size	
	CollatingOrder:	General	
	ColumnHidden:	False	
	ColumnOrder:	Default	
	ColumnWidth:	Default	
	DataUpdatable:	False	
	DisplayControl:	106	
	Format:	Yes/No	
	OrdinalPosition:	5	
	Required:	False	
	SourceField:	Water Level "zero" in original	
	SourceTable:	Waterlevel	
Date Measured		Date/Time	8
	AllowZeroLength:	False	
	Attributes:	Fixed Size	
	CollatingOrder:	General	
	ColumnHidden:	False	
	ColumnOrder:	Default	
	ColumnWidth:	Default	
	DataUpdatable:	False	
	IMEMode:	0	
	IMESentenceMode:	3	
	InputMask:	99/99/00;0;#	
	OrdinalPosition:	6	
	Required:	False	
	SourceField:	Date Measured	
	SourceTable:	Waterlevel	
Comments		Text	50
	AllowZeroLength:	False	
	Attributes:	Variable Length	
	CollatingOrder:	General	
	ColumnHidden:	False	
	ColumnOrder:	Default	
	ColumnWidth:	Default	
	DataUpdatable:	False	
	DisplayControl:	Text Box	
	IMEMode:	0	
	IMESentenceMode:	3	
	OrdinalPosition:	7	
	Required:	False	
	SourceField:	Comments	
	SourceTable:	Waterlevel	
	UnicodeCompression:	True	

Relationships

BoreholeWaterlevel



Attributes:	Enforced, Cascade Updates, Cascade Deletes
RelationshipType:	One-To-Many

Table Indexes

Name	Number of Fields
Borehole Number	1
Clustered:	False
DistinctCount:	2436
Foreign:	False
IgnoreNulls:	False
Name:	Borehole Number
Primary:	False
Required:	False
Unique:	False
Fields:	
BoreholeNumber	Ascending
BoreholeWaterlevel	1
Clustered:	False
DistinctCount:	2436
Foreign:	True
IgnoreNulls:	False
Name:	BoreholeWaterlevel
Primary:	False
Required:	False
Unique:	False
Fields:	
BoreholeNumber	Ascending
PrimaryKey	1
Clustered:	False
DistinctCount:	2499
Foreign:	False
IgnoreNulls:	False
Name:	PrimaryKey
Primary:	True
Required:	True
Unique:	True
Fields:	
Number	Ascending