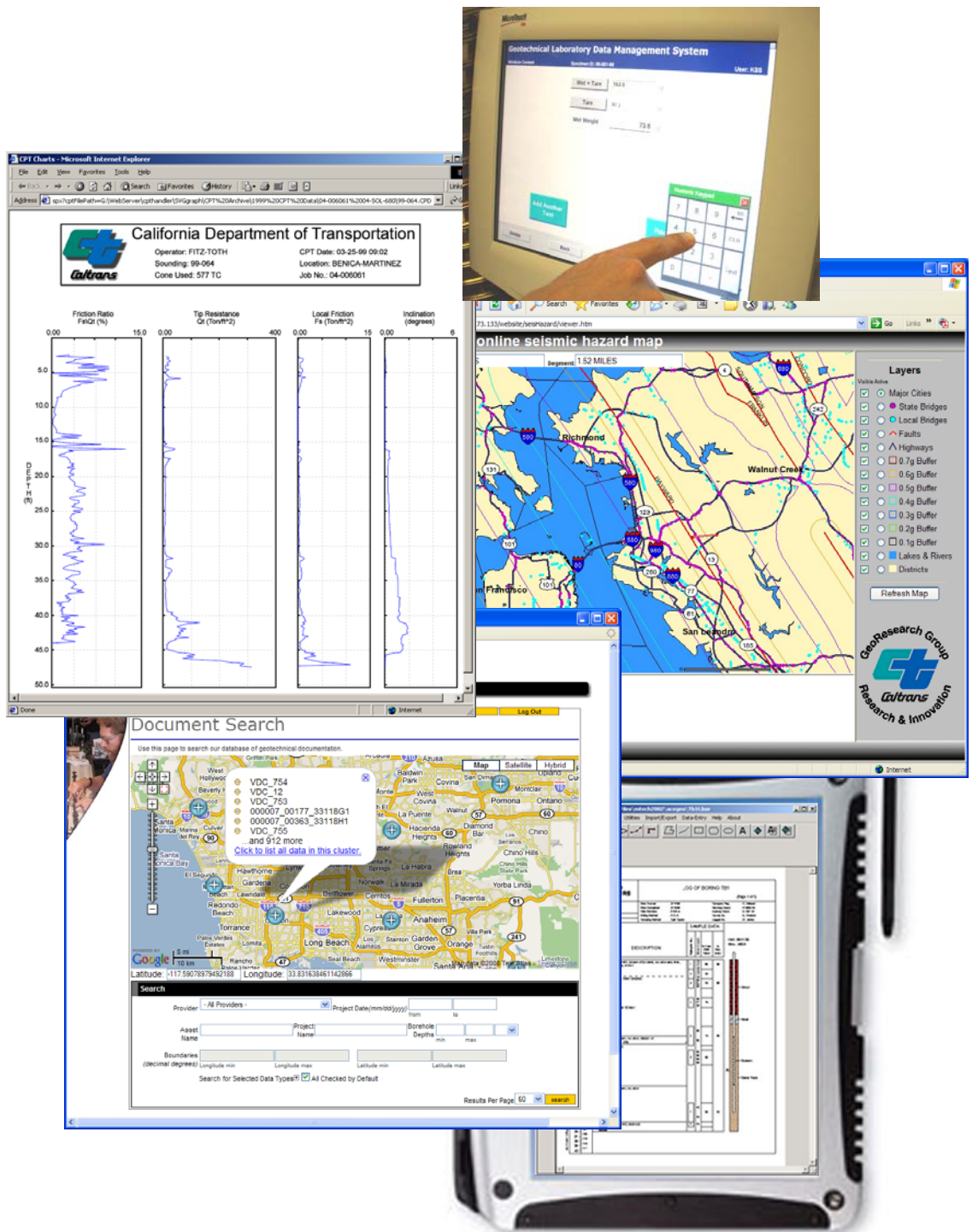




Division of Research
& Innovation

End-User Interest in Geotechnical Data Management Systems

Final Report



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End-User Interest in Geotechnical Data Management Systems

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16. ABSTRACT

In conducting geotechnical site investigations, large volumes of subsurface information and associated test data are generated. The current practice relies on paper-based filing systems that are often difficult and cumbersome to access by users. Misplaced files, deteriorated paper records, incomplete documentation, and a lack of awareness that certain data even exists have all contributed to inefficient or incomplete utilization of existing data. Furthermore, the pressures to expedite project delivery only heighten the need for more efficient data management practices and more productive field data collection methods.

This research task has been a coordinated effort between the GeoResearch Group (GRG) and Geotechnical Services (GS), focusing on realizing internal operational efficiencies. Current practices in field data collection, laboratory testing, and boring log creation have been examined for potential improvements. This research task focused on three critical components of developing an effective data management system: (1) data modeling, (2) data collection, and (3) data exchange and dissemination.

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1 INTRODUCTION

In conducting geotechnical site investigations, large volumes of subsurface information and associated test data are generated. The current practice relies on paper-based filing systems that are often difficult and cumbersome to access by users. Misplaced files, deteriorated paper records, incomplete documentation, and a lack of awareness that certain data even exists have all contributed to inefficient or incomplete utilization of existing data. Furthermore, the pressures to expedite project delivery only heighten the need for more efficient data management practices and more productive field data collection methods.

This research task has been a coordinated effort between the GeoResearch Group (GRG) and Geotechnical Services (GS), focusing on realizing internal operational efficiencies. Current practices in field data collection, laboratory testing, and boring log creation have been examined for potential improvements.

This task focused on assessing three critical components of developing an effective data management system: (1) data modeling, (2) data collection, and (3) data exchange and dissemination.

The *data modeling* component provides the basis from which the other components are built. In the past, Caltrans' practice of generating geotechnical data products (e.g. borehole log data, lab test data, etc.) had not been standardized, impairing the progress of systematically capturing data in a comprehensive system. This research task provided resources to develop a draft data model for Caltrans geotechnical practice. Significant deliverables include:

- Consensus building through the development of the 2007 *Soil and Rock Logging, Classification, and Presentation Manual*. This was necessary in order to establish a standard from which a data model could be built.
- A draft data model was constructed and implemented in commercial software (i.e. gINT) to reflect the new standards.

The research task delivered a number of pilot *data collection* tools:

- A pilot Geotechnical Laboratory Data Management System (GLDMS) was developed for the lab, utilizing a network of touchscreen workstations located throughout the lab, replacing redundant processes once done on paper (Figure 1).

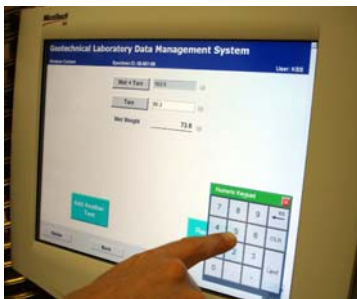


Figure 1 – GLDMS



Figure 2 – Tablet PC

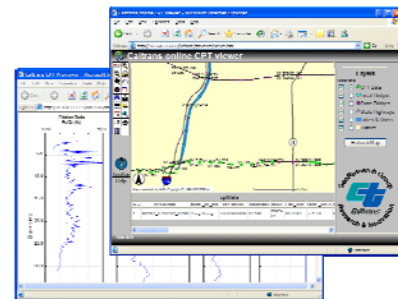


Figure 3 – Online CPT

- Tablet PCs were made available to GS staff to assess the effectiveness of field logging electronically. Ruggedized tablet PCs were test deployed to evaluate their use in field logging. With logging software and an integrated GPS receiver, they provide staff the ability to generate near-complete borehole logs before leaving the field (Figure 2).

The research task produced a number of pilot tools to explore the benefits of various *data exchange* and web-based data dissemination technologies.

- A prototype web-based repository for Caltrans' Cone Penetration Test (CPT) data was unveiled in early 2002, allowing operators to upload data files over the web and clients to browse, preview, print, or download data going back ten years. A web-based map interface and on-demand plotting are central features to the system (Figure 3).
- Test deployment of the pilot Geotechnical Virtual Data Center (GVDC) through participation with the Consortium of Strong-Motion Observation Systems (COSMOS) and the Pacific Earthquake Engineering Research (PEER) Lifelines Program. This parallel effort demonstrated improved methods of geotechnical data dissemination through use of the internet and data harvesting technologies. The project involved the active participation of a number of state, federal, and private organizations, including Caltrans. Using a test region in the Southern California area, the GVDC successfully demonstrated to the geotechnical community the benefits that data exchange can bring.
- Test deployment of a web-based Geographic Information Systems (GIS) tool for the *Caltrans California Seismic Hazard Map 1996*, which is a contour map of peak ground acceleration (PGA) for soft California-type rock conditions. This tool was developed in March 2003 following discussions with users about current practices and applications of the maps. Although the maps have been widely available in PDF or printed format, as well as in ArcView shapefile format for experienced GIS users, a simplified intranet tool for Caltrans designers with little or no GIS training had not been available to date.

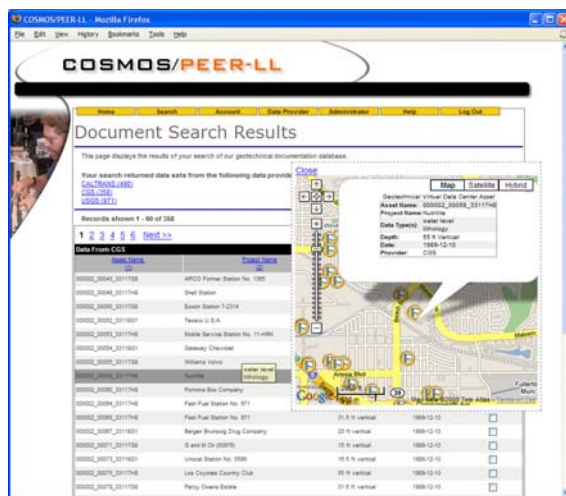


Figure 4 – COSMOS GVDC

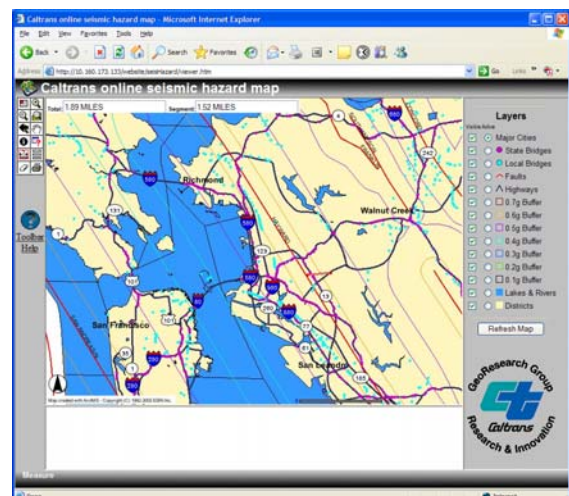


Figure 5 – Seismic Hazards

2 DATA MODELING & INTERCHANGE

2.1 Development of a Caltrans Geotechnical Data Model

A data model is necessary to ensure consistency in logging practices while enabling the creation of a geotechnical data repository for statewide geotechnical data. It's the basis for geotechnical data management tools. The data model defines the individual data entities that comprise the tables of the database as well as the relationships between tables. This documentation usually consists of information such as the parameter name, description, type (integer, real, string, etc.), units, or other descriptors.

A comprehensive data model for Caltrans' geotechnical practice has been under development since the inception of the project. In the early stages of the project, data models for specific data sets (e.g. Cone Penetration Test) were defined to support specific application test development. Later in the project, interagency research activities, such as the COSMOS-PEER Geotechnical Virtual Data Center, prompted an examination of the broader scope of Caltrans practice. Development of the *2007 Soil and Rock Logging, Classification, and Presentation Manual* required a detailed examination of Caltrans logging and classification practices which helped further define the data model.

2.1.1 Caltrans Logging Practice

The publication of the Caltrans *2007 Soil and Rock Logging, Classification, and Presentation Manual* was the result of a two year effort by a committee comprised of engineers and geologists within Geotechnical Services and the Division of Research and Innovation (Figure 6). Prior to the publication of the manual, staff relied upon the 1996 publication, *Soil & Rock Logging, Classification Manual, Field Guide*. However, as the 1996 manual only covered field operations, it didn't represent the breath of information processed by Geotechnical Services for typical site investigations. Standards for metadata coding for information associated with laboratory tests, for example, were not well defined prior to the 2007 manual. Furthermore, since the 1996 manual was considered a guideline, not a required standard, its use was not consistently applied throughout Geotechnical Services and was often supplemented or replaced by standards published by the FHWA, AASHTO, EPRI, ASTM, and other standards groups. The 2007 manual was issued as a comprehensive standard with mandatory requirements for geotechnical data collection, compilation, and reporting.

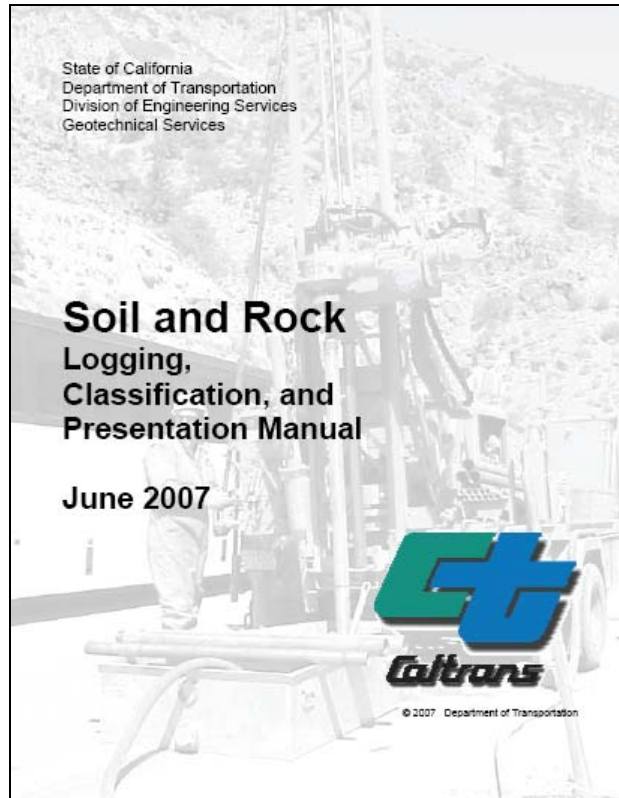


Figure 6 – Logging Manual

The revised logging requirements adopted a component-based descriptive approach. That is, soil and rock are described in a sequence of specific attributes with pre-defined value lists as summarized in the tables below (Figure 7).

Identification and Description Sequence

Sequence	Identification Components	Refer to Section	Required	Optional
1	Group Name	2.4.2	●	
2	Group Symbol	2.4.2	●	
	Description Components			
3	Consistency (for cohesive soils)	2.4.3	●	
4	Apparent Density (for cohesionless soils)	2.4.4	●	
5	Color (in moist condition)	2.4.5	●	
6	Moisture	2.4.6	●	
7	Percent of cobbles or boulders	2.4.7	●	
8	Percent or proportion of soils	2.4.8	●	
9	Particle Size Range	2.4.9	●	
10	Particle Angularity	2.4.10		○
11	Particle Shape	2.4.11		○
12	Plasticity (for fine-grained soils)	2.4.12	●	
13	Dry Strength (for fine-grained soils)	2.4.13		○
14	Dilatancy (for fine-grained soils)	2.4.14		○
15	Toughness (for fine-grained soils)	2.4.15		○
16	Structure	2.4.16		○
17	Cementation	2.4.17	●	
18	Description of Cobbles and Boulders	2.4.18	●	
19	Additional Comments	2.4.19		○

Rock Identification and Descriptive Sequence

Sequence	Identification Components	Refer to Section	Required	Optional
1	Rock Name	2.5.2	●	
	Description Components			
2	Rock Grain-size	2.5.3		○
3	Bedding Spacing	2.5.4	●	
4	Color	2.5.5	●	
5	Texture	2.5.6		○
6	Weathering Descriptors for Intact Rock	2.5.7	●	
7	Rock Hardness	2.5.8	●	
8	Fracture Density	2.5.9	●	
9	Discontinuity Type	2.5.10		○
10	Discontinuity Condition (Weathering, Infilling and Healing)	2.5.11		○
11	Discontinuity Dip Magnitude	2.5.12		○
12	Rate of Slaking (Jar Slake Test)	2.5.13		○
13	Odor	2.5.14		○
14	Additional Comments	2.5.15		○

Figure 7 – Component-based descriptions

This approach enforces consistency in soil and rock description in addition to lending itself to database design.

Detailed soil and rock descriptions and classifications are an essential part of the information developed to support design and construction processes. Subsurface information for any given area is, and can be, generated and accumulated over a prolonged period of time by various geotechnical practitioners for different projects and purposes. Maintaining consistency in borehole logging and reporting practices is critical to assuring uniformity in geotechnical products. The manual accomplishes this by addressing the following:

- Serves as a comprehensive reference for Departmental staff, consultants, and contractors
- Provides standardized soil description and identification procedures utilizing field data
- Provides standardized soil classification procedures utilizing laboratory data
- Provides standardized rock description and identification procedures utilizing field and laboratory data
- Serves as a basis for Departmental products and tools, such as:
 - Boring Log presentation formats,
 - Log of Test Boring (LOTB) legend sheets,
 - Descriptive terminology presented in geotechnical reports, and
 - Geotechnical Data Management System

In addition to soil and rock identification, description, or classification, the manual contains instructions that present Departmental standards for borehole and sample identification, minimum material requirements for various laboratory tests, and boring log presentation formats.

2.1.2 Soil and Rock Laboratory Test Data Models

In the process of developing the Geotechnical Laboratory Data Management System (GLDMS), an extensive data model for soil and rock index properties was defined and implemented. Specifically, the following tests incorporated into the GLDMS were considered:

- Moisture Content
- Unit Weight
- Specific Gravity
- Atterberg Limits
- Mechanical Analysis
- Point Load Index
- Compaction Curve
- Expansion Index

The complete data dictionary can be found in the appendices to this report.

2.1.3 Implementation of the Data Model into gINT Software

Caltrans Geotechnical Services has been using a commercial borehole data management and presentation software package called gINT. The software enables users to create customizable database structures and user-definable reports to capture soil and rock data logged in the field. Once data is entered into gINT, the user can generate Microstation compatible CAD drawings of boring logs and records, laboratory test reports, profiles, and other design reports. The software requires that the user define the various soil and rock attributes to be captured in addition to how the information is synthesized and presented in report products.

Depth (ft)	<= Graphic	Line Type	Group Name	Group Symbol	Borderline Group Symbol	Interim Change	Density	Consistency	Color	Color Joiner	Additional Color
0.0	ASPHALT	Solid		CL-ML	CL-ML		very dense				
0.5		Dash	Well-graded SAND with GRAVEL	SW	SP		dense		olive brown (2.5Y 4/3)	to	brown (7.5Y 4/3)
8.0		Dash	SANDY SILT	ML			very loose loose medium dense dense very dense	Cohesionless soils: SPT N-value = 0-4 blows Cohesionless soils: SPT N-value = 5-10 blows Cohesionless soils: SPT N-value = 11-30 blows Cohesionless soils: SPT N-value = 31-50 blows Cohesionless soils: SPT N-value = >50 blows			(10Y)
12.0		Dash	FAT CLAY	SP	GP		very loose to loose loose to medium dense medium dense to dense dense to very dense				

Figure 8 – gINT interface

The gINT interface is structured similar to a spreadsheet software interface. Related attributes are presented within worksheet tabs (Figure 8). Records are entered in rows with columns for attributes. The user enters borehole information using series of pull-down lists in accordance with the logging manual. Once data is entered, the software can auto-generate graphical representations of the information for use in CAD applications or as report attachments (Figure 9).

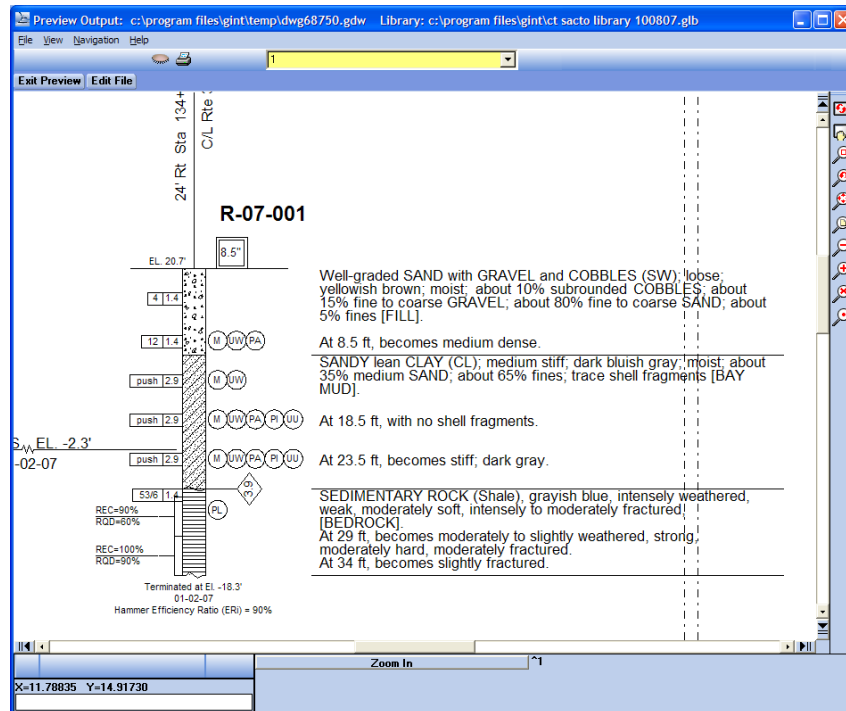


Figure 9 – gINT output

The Caltrans 2007 *Soil and Rock Logging, Classification, and Presentation Manual* was used as the basis for the data model that was implemented into a gINT library and made available to staff. This Caltrans-specific version of the gINT data model and associated import tools were tailored for Caltrans geotechnical practices and is compatible with version 8 of the software. The data model and tools feature:

- An enhanced data dictionary to accommodate data related to soils lab testing, specifically, triaxial, consolidation, direct shear, moisture, density, water content, atterberg limits, specific gravity, permeability, gradation, point load, and relative compaction. Attributes for these data sets include those found in the Caltrans data dictionaries in addition to capturing comparable ASTM and/or CTM reporting requirements.
- A data file translation tool to import data sets from automated data acquisition systems from Vertek CPT equipment into the Caltrans-gINT data model.

A more detailed description of the data model implemented into gINT can be found in the appendices.

2.2 Data Interchange Standards

Where a data model facilitates the standardized collection and storage of data, the data interchange standard facilitates the exchange of that data within an organization or between

organizations. Data exchange can occur at many steps in the lifecycle of data. For example, data can be electronically collected by field testing equipment, such as a CPT rig. The data is passed to the client as a file containing the field measurements. The client may use that data in an analysis and then provide the resulting data to their client. That data may ultimately end up in a larger data repository or some type for that particular organization. Multiple organizations may want to exchange this data to. At each stage in the data's lifecycle, the data is transformed through a series of import, modification, and export steps. Standardization of the data transformation and exchange vehicle can make for a more efficient process.

Over the course of this research, two significant data interchange standards efforts were initiated: (1) the COSMOS Extensible Markup Language (XML) schema, and (2) the Data Interchange for Geotechnical & Geoenvironmental Specialists (DIGGS) Extensible Markup Language (XML) schema. In both efforts the Caltrans data model served as the basis for many of the interchange standards components. Furthermore, this research task provided the necessary funding and resources to support Caltrans participation in these important efforts.

2.2.1 COSMOS XML

In May 2002 the Pacific Earthquake Engineering Research (PEER) Lifelines Program initiated a project through the Consortium of Strong-Motion Observation Systems (COSMOS) to demonstrate improved methods of geotechnical data dissemination through use of the internet and data harvesting technologies. The result of the effort was the test deployment of the pilot Geotechnical Virtual Data Center (GVDC) (<https://geodata.cosmos-data.org/index.asp>). The project involved the participation of a number of entities, including Caltrans, California Energy Commission, Pacific Gas & Electric, PEER-Lifelines Program, Pacific Earthquake Engineering Research Center, United States Geological Survey, California Geological Survey, University of Southern California, and COSMOS. Many of the organizations made significant contributions to the project, participating as workgroup leaders, system developers, and data providers.

Using a test region in the Southern California area, the GVDC successfully demonstrated to the geotechnical community the benefits that data exchange can bring. A number of innovative technologies were incorporated into the GVDC, including: database harvesting, XML geotechnical data interchange standards, web-GIS interface, and SVG on-demand previewers. The system was presented in a joint COSMOS/PEER-LL and Federal Highway Administration (FHWA) workshop in June 2004 in Newport Beach, California. The final report, "Archiving and Web Dissemination of Geotechnical Data: Development of a Pilot Geotechnical Virtual Data Center," is available online at the PEER website (http://peer.berkeley.edu/lifelines/LL-CEC/reports/final_reports/2L02-FR.pdf).

The COSMOS Extensible Markup Language (XML) schema is the primary mechanism for data exchange within the GVDC. The XML schema is web-based file format, built from the COSMOS data model (Figure 10) with input from the data models of the participants.

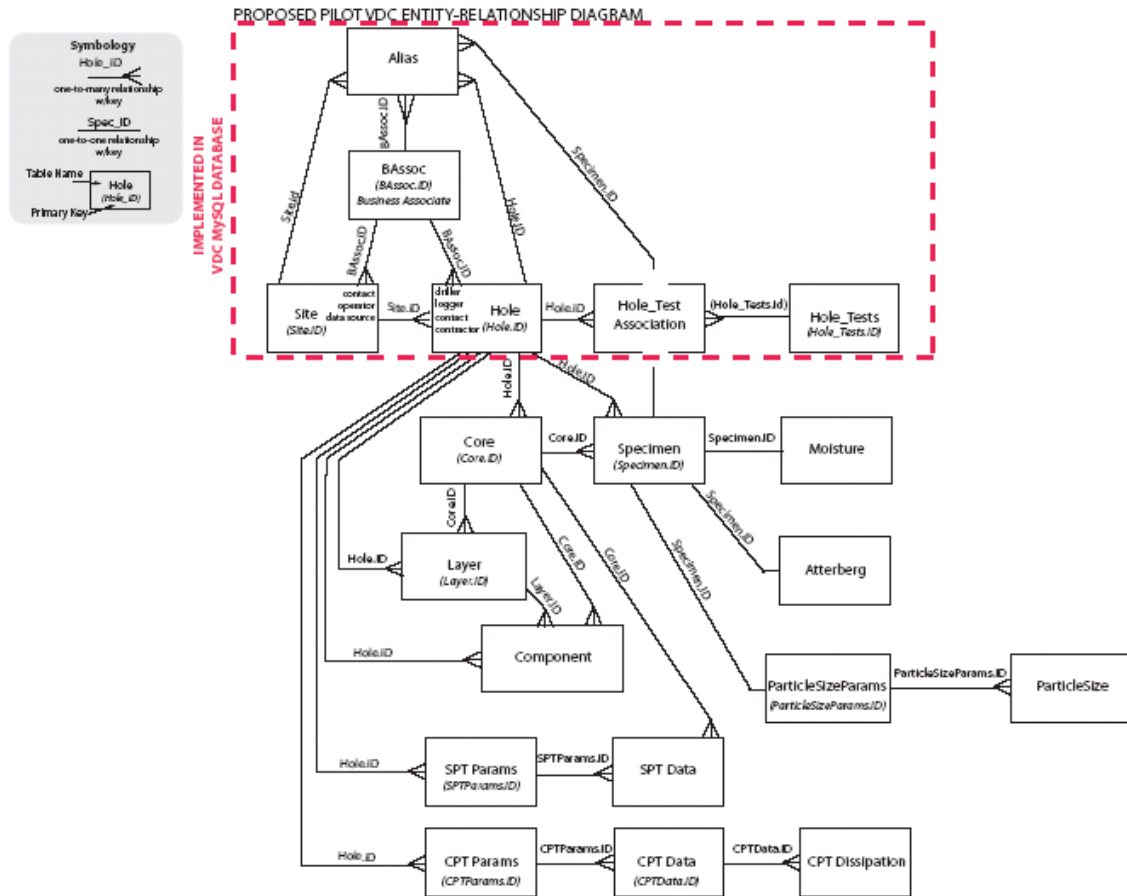


Figure 10 – COSMOS data model

2.2.2 Data Interchange for Geotechnical & Geoenvironmental Specialists (DIGGS)

Following the success of the GVDC, a group of State Transportation agencies, led by the Ohio Department of Transportation and FHWA, organized to initiate a Transportation Pooled Fund (TPF) project. The focus of the TPF project would be to compile the standards development work of COSMOS, the Association of Geotechnical & Geoenvironmental Specialists (AGS) from the United Kingdom, and others to create a new international data exchange format. The resulting data interchange format would have global application and allow software vendors and users in the geotechnical community to seamlessly exchange data. The project, “Development of Standards for Geotechnical Management Systems, Project TPF-5(111),” was approved and funded in the Summer of 2005 at a funding level of approximately \$700k over three years (www.pooledfund.org).

The *Geotechnical Management Systems* (GMS) Group was formed from the project’s funding partners and sponsors to oversee and guide the work of the project (Figure 11). The group is comprised of representatives from a number of State Transportation Agencies, Federal Agencies, and the United Kingdom Highway Agency. The *Geotechnical Data Coalition* (GDC) was created by the GMS Group to involve in the process representatives from the various national and international organizations that are currently developing and maintaining geotechnical data exchange standards and data management and/or exchange systems. The technical work is being carried out by the *Core Team* under the direction of the GDC. The focus of the GDC is to

develop consensus on a single data exchange standard for the broader geotechnical community that combines the best features of existing standards.

Geotechnical Management Systems (GMS) Group	Geotechnical Data Coalition (GDC)
<ul style="list-style-type: none"> • California Department of Transportation • Connecticut Department of Transportation • Eastern Federal Lands Highway Division • Federal Highway Administration • Florida Department of Transportation • Georgia Department of Transportation • Kansas Department of Transportation • Kentucky Transportation Cabinet • Minnesota Department of Transportation • Missouri Department of Transportation • North Carolina Department of Transportation • Nevada Department of Transportation • Ohio Department of Transportation • Tennessee Department of Transportation • Virginia Department of Transportation • United Kingdom Highway Agency • United States Army Corps of Engineers • United States Environmental Protection Agency • United States Geological Survey 	<ul style="list-style-type: none"> • Association of Geotechnical and Geoenvironmental Specialists (AGS) • Consortium of Strong Motion Observation Systems (COSMOS) • Construction Industry Research and Information Association (CIRIA) • Federal Highway Administration (FHWA) • Ohio Department of Transportation • University of Florida (UF)

Figure 11 - GMS

Significant progress has been made to date in the development of a new geotechnical data exchange standard, DIGGS. An initial meeting of the Geotechnical Data Coalition was held in May 2005 in Atlanta, Georgia. At that meeting consensus was reached by the group that it was in the best interest of the geotechnical community to pursue the development of a single data exchange standard. Fundamental decisions about the structure and approach for the new data model, DIGGS, were made, and a workplan and schedule to carry forth the effort by the partnering entities were established.

In July 2005 the COSMOS/PEER-LL project team hosted a workshop in San Francisco, California, to expand the current GVDC Data Dictionary (COSMOS XML v1.0) to include data standards for various seismic velocity tests (e.g., PS-Logger, Downhole Logging, Crosshole velocity data, and velocity profiles derived using surface wave profiling, SASW), laboratory geotechnical tests (e.g., triaxial, consolidation, and so on), and insitu tests (e.g., pressuremeter, vane shear). Participants from government agencies, industry organizations, and academia with expertise in specific test procedures were brought together to develop the expanded data dictionary.

In August 2005 the Core Team met in Richmond, California, to continue the task of developing the initial draft version of DIGGS. The team worked to develop a data dictionary for the comprehensive set of borehole, insitu/lab test, and geophysical test related data using existing data models from the Association of Geotechnical and Geoenvironmental Specialists (AGS), COSMOS, and the University of Florida as a starting point. They also incorporated the data dictionary produced by the earlier July 2005 COSMOS/PEER-LL workshop. Although a substantial part of the data dictionary was developed, the work could not be completed at that time. A second workshop was held in November 2005 to complete that work.

For the GVDC, DIGGS will replace the existing COSMOS XML v1.0 as the format for exchanging data between the unique data providers, the GVDC, and the end users (Figure 12). DIGGS will bring many benefits to the GVDC, most notably a broader acceptance and standardization of information management within the national and international geotechnical communities. Additionally, DIGGS will have the benefit of being GML compliant, facilitating the use of data within Geographic Information Systems (GIS). Finally, DIGGS will eventually encompass a broader range of geotechnical data beyond strictly borehole data, such as assets (e.g. data on piles, retaining structures, etc.) to meet the needs of a greater number of users.

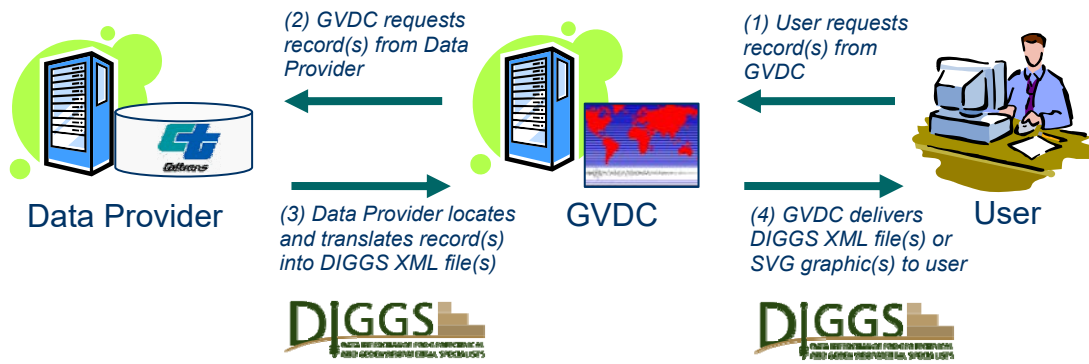


Figure 12 – Data interchange with DIGGS

3 DATA COLLECTION TOOLS

3.1 The Geotechnical Laboratory Data Management System (GLDMS)

The Geotechnical Laboratory Data Management System (GLDMS) is one of the most significant deployable, developed as a result of this research task, modernizing soil test data collection and management practices at the Geotechnical Laboratory. The development of the system was conducted over a 12 month period. A computer science graduate student assistant, Toru Saito, carried out the programming and hardware integration tasks under the guidance of the task's Principal Investigator, Loren Turner, and the Geotechnical Laboratory Manager, Craig Hannenian.

The system is comprised of a network of touch screen stations (Figure 13) installed throughout the lab facility that enables technicians to enter and retrieve test data while conducting their work. A single web server is at the hub of the system and provides data storage, processing, and validation. (Figure 12)

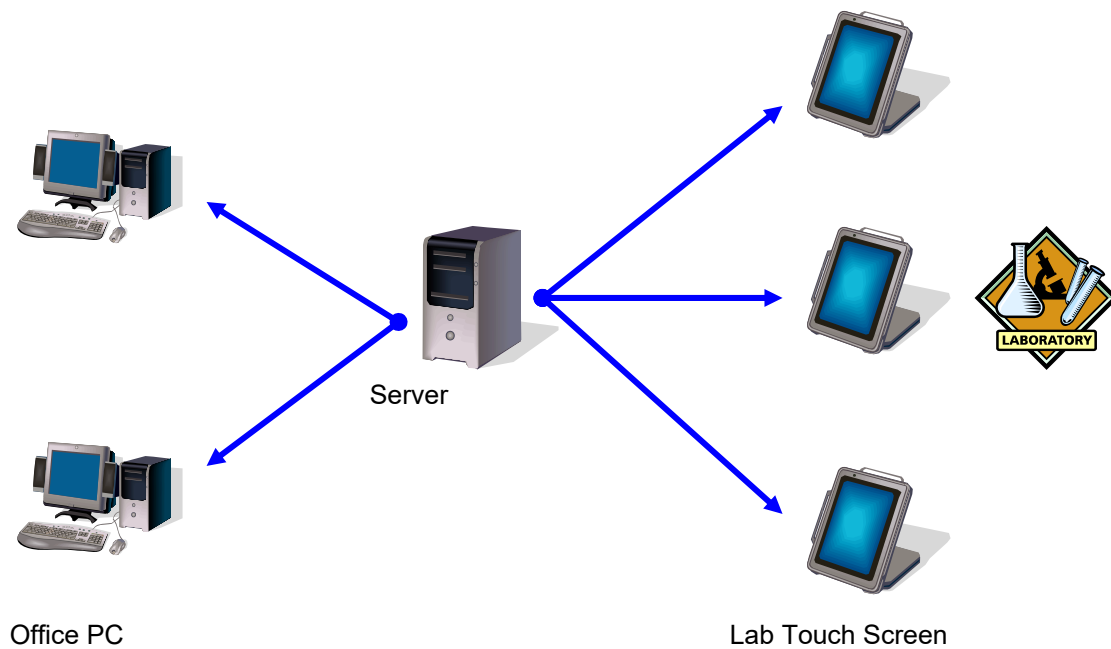


Figure 12 – GLDMS architecture

The GLDMS architecture was designed to store test data in a central database. Having a central repository eliminates many of the redundancies in data collection and analysis, and makes the data much more accessible to end users.

3.1.1 Background

The Caltrans Geotechnical Laboratory is an *AASHTO Materials Reference Laboratory (AMRL)* accredited facility located in Sacramento, California. The Geotechnical Laboratory provides a wide variety of soil and rock testing services for various Caltrans units throughout the state. Annually, the lab processes approximately 90 job requests, consisting of an estimated 5000 samples and 10,000 soil and rock tests. The Geotechnical Laboratory has the equipment and capacity to carry out 24 types of soil and rock tests.

Prior to the development of the GLDMS, technicians recorded data manually on paper-based forms during testing. The data was then entered into Excel spreadsheets and used to prepare printed reports and charts for review by lab managers. Reports were then printed for clients and the paper archived for storage in the fileroom. This cycle of data collection and reporting involved redundant data entry, difficult retrieval of archived data, and possibly introduced transcription errors.

Within the lab, paper-based data entry also created redundancies. For example, in the past, a technician would have to manually search for moisture data in a binder of past moisture measurements (the “Moisture Book”) in order to proceed with a related test such as Plasticity Index testing. The GLDMS has eliminated the need to cross reference test results, since the tests are cross-referenced within the GLDMS database. As such, technicians are able to perform Plasticity Index tests without using the Moisture Book or other redundant procedures.



Figure 13 – GLDMS touchscreen station

3.1.2 Scope of Work

The GLDMS development effort was planned as a two phase approach. The first phase would involve development of the interface and data models to support the common index property tests. In most cases, index property testing to date has required manual data collection by technicians. Phase 2 would integrate the remaining tests, in particular, the tests where standalone data acquisition units produced digital test files.

The following eight tests are handled by the GLDMS as part of Phase 1.

- Moisture Content
- Unit Weight
- Specific Gravity
- Atterberg Limits
- Mechanical Analysis
- Point Load Index
- Compaction Curve
- Expansion Index

Phase 2 will focus on capturing data generated by the following test equipment:

- Direct Shear (ASTM D 3080)
- Consolidation (ASTM D 2435)
- Triaxial CU (3 points) (ASTM D 4767,)
- Triaxial UU (1 point) (ASTM D 2850)
- Unconfined Compression (ASTM D 2166, ASTM D 2938)

In addition the GLDMS will accommodate test results associated with the remaining tests.

3.1.3 Benefits

The GLDMS provides three key benefits:

- Improves efficiencies in collecting and processing test data,
- Reduces errors in data handling, and
- Facilitates easy access to archived test data

By implementing the GLDMS, the processes of collecting and analyzing test data have become more efficient. In the past, the processes of recording, processing, validating, and reporting test data were handled by utilizing printed forms and several different computer applications, including Microsoft Excel and FileMaker Pro. Since the test data were stored in incompatible file formats and mediums, technicians would have to find and re-enter the same test data repeatedly during each process, from initial collection to final reporting.

For example, a soil sample test may require a technician to determine the moisture content as part of a mechanical analysis report. Before the GLDMS was implemented, the technician had to search through handwritten data entries to find the moisture content associated with the mechanical analysis. Whereas in the GLDMS, data collection and retrieval process is streamlined, so when the technician enters moisture content data, the newly entered data is automatically associated with soil sample's mechanical analysis test.

To increase the reliability of test results, the GLDMS reduces calculation errors by:

- Eliminating duplicative data entries.
- Automating and centralizing the calculation of test result parameters.
- Enforcing data validation at the time of data entry. (e.g. A user enters *10.8* for the *wet+tare weight* field but then enters *15.5* for the *tare weight* field. Since the *wet+tare weight* value must be larger than *tare weight* value, there is clearly a data entry error. The GLDMS can identify these types of input errors, send notification of the error, and prevent further data entry until the data is corrected.)
- Storing all test data for a particular sample in a central database that makes test data available for other tests. (e.g. The results from a moisture content test for a sample can be used in the calculations for a unit weight test or a mechanical analysis test on the same sample automatically.)
- Performing necessary calculations as test data gets entered.

With data archived on paper, it has been difficult to locate old test results that match a particular set of criteria. Using the GLDMS, old test records can be retrieved easily and quickly. For example, a user may need to retrieve a set of test records that were conducted on soil samples from District 04 during the period between February 2006 and March 2006. The GLDMS can perform the search and return the results with a few mouse clicks.

Another advantage of the GLDMS is that the test data can be exported for use in other software applications or data management systems, using standardized data interchange file formats for geotechnical data such as Data Interchange for Geotechnical and Geoenvironmental Specialists (DIGGS). These data exchange technologies will decrease the amount of work, not only for the Geotechnical Laboratory, but also for its clients who further utilize soil test data.

3.1.4 Main Features

The GLDMS stores and manages lab data in a central data management server. Using client PCs and touch-screen terminals, users input their lab data which gets stored on the server. The system is extensible, and the Geotechnical Laboratory can expand the capacity of the system as it increases number of terminals in the future.

The GLDMS provides search functionality to look up all available lab data with various criteria. The criteria includes common project and job attributes (e.g. GL Track No., Dist-EA, Structure, No., Boring ID, Sample No., Test Type, Test Status, and others). (Figure 14)

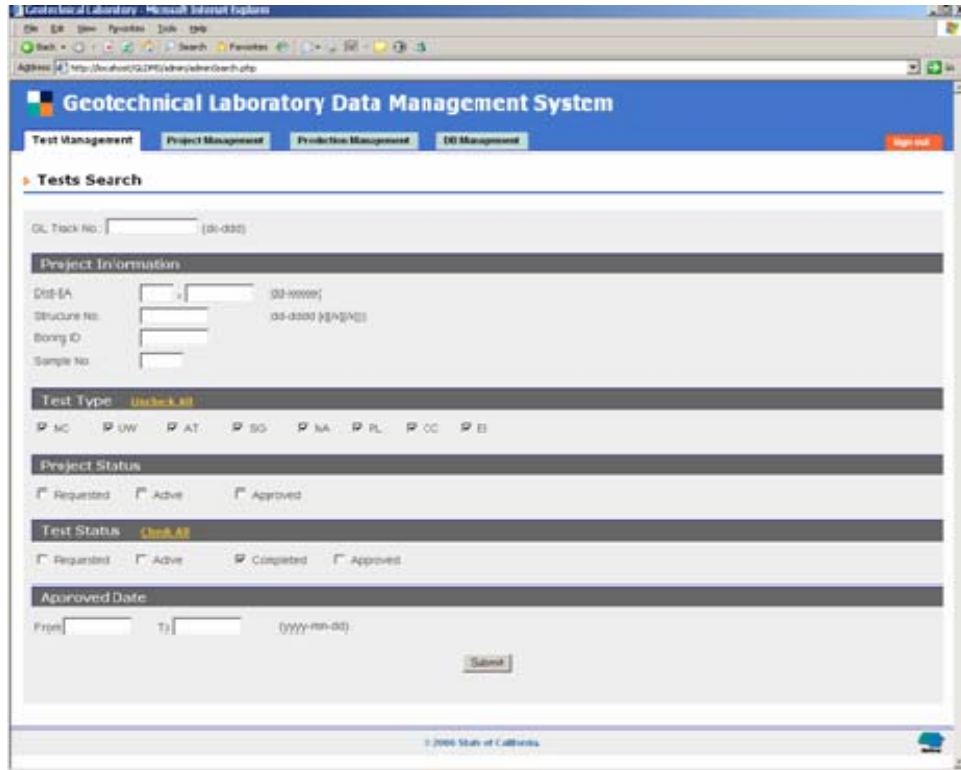


Figure 14 – Search screen

The GLDMS can produce printable test summary reports (Figure 15) while performing necessary calculations automatically. The figure below shows samples of printed reports generated by the GLDMS. These reports include summaries of index properties, mechanical analysis, atterberg limits, etc.



Figure 15 – Summary reports

The GLDMS monitors current testing activities and can generate daily, monthly, and annual production reports to evaluate the productivity of the lab (Figure 16).

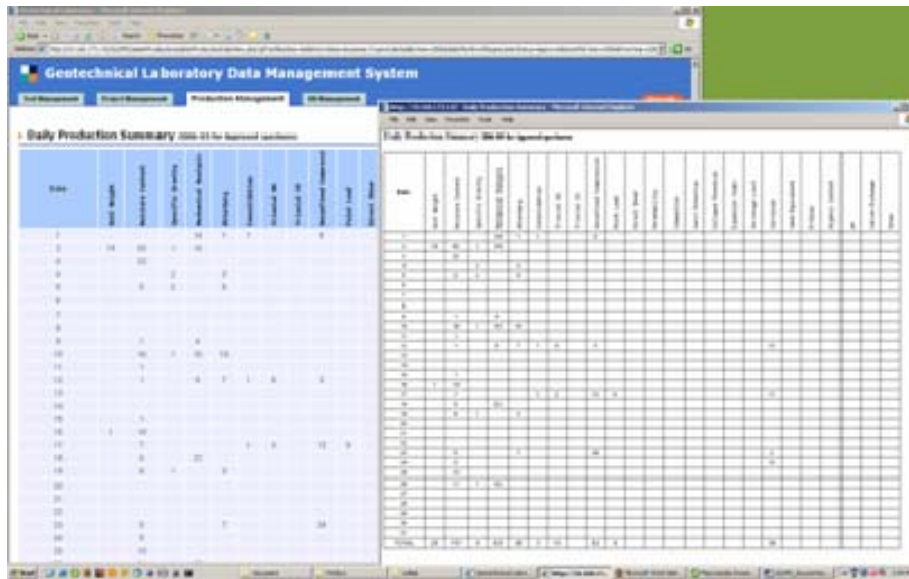


Figure 16 – Production Reporting

By maintaining individual user logins, the GLDMS can control users' access and keep logs of their activity for future reference.

Commonly used web browsers are used to access the GLDMS. Since most of the technicians are familiar with web browsers, they can navigate the system easily.



Figure 17 – Touchscreen data entry

The GLDMS utilizes space-saving touch screen devices for data entry wherever space for a conventional keyboard and mouse is not available (Figure 17).

At some locations, the touch screen stations are connected with digital scales (Figure 18) and the measurement reading from the digital scale is entered into the GLDMS interface automatically.

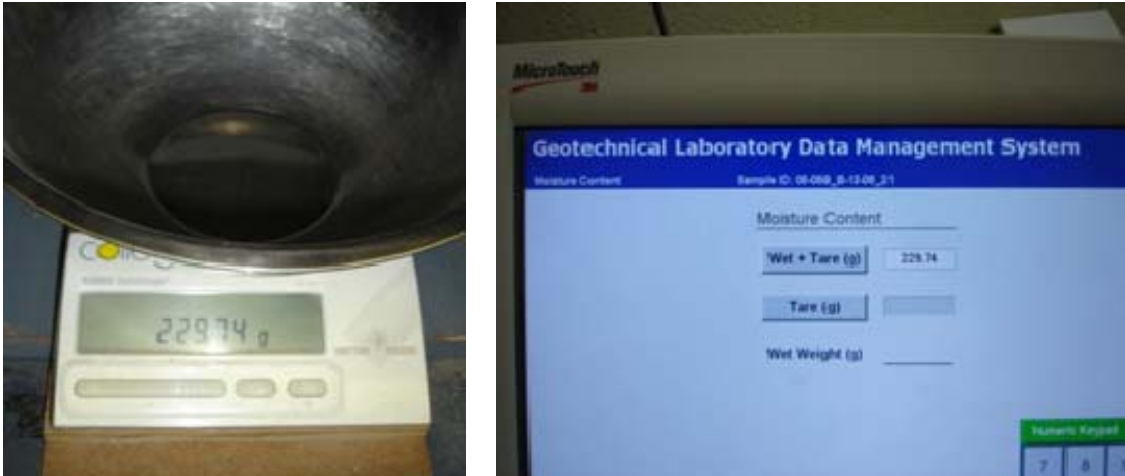


Figure 18 – Digital scale connected to touchscreen

The GLDMS provides a level of data validation to prevent common input errors that happen during manual data entry, such as decimal point entry errors.

For increased data integrity and performance, the GLDMS stores lab data on two separate hard drives. A full backup of the entire database is performed daily on the server, and a copy of the daily backups is archived on an off-site network hard drive for data files for the past month.

3.2 Tablet PCs for Field Borehole Logging

As part of this research task, the use of ruggedized tablet PCs were evaluated for their effectiveness in documenting and collecting borehole logging data in the field. Five ruggedized tablet PCs were deployed over the course of two years beginning in July 2005. The units function as a standard laptop, or can be converted to a tablet, complete with pen stylus and handwriting recognition interface. A Caltrans-specific version of the gINT logging software was installed on each unit. The combination of features and software provided field staff with the capability of generating near-complete borehole logs while still in the field. In addition these units minimized errors from multiple handling of data between field and office operations.

3.2.1 Hardware

Panasonic Toughbook model CF-18 tablets were selected for their durability in outdoor environments and sunlight readable display. These units also incorporate an integrated GPS receiver to provide positioning information. The specifications for the tablet PCs include 1.1 Ghz Intel Pentium M Centrino processor, Windows XP Tablet Edition, 768MB RAM, 40 GB hard drive, integrated WIFI, and onboard GPS.

The following physical components constitute each unit (Figure 19):

- Panasonic Toughbook CF-18
- Power supply for CF-18
- Stylus Pen
- LCD cleaning towel
- External USB DVD/CDRW drive
- SimpleTech 512MB USB memory stick
- Pelican shipping case



Figure 19 – Field borehole logging hardware

3.2.2 Software

The Toughbooks were configured with a basic suite of software suitable for borehole logging and field operations. The following software was installed on each PC:

- gINT version 8
- Corpscon version 6
- Microsoft Office Professional 2000
- CoPilot Live 7

gINT version 8 is the primary software for entry and management of borehole logging data and is the primary tool in the field. Corpscon version 6 is a software tool that allows staff to easily convert between geodetic latitude-longitude (typically output by GPS receivers) and State Plane Northing-Easting (typically provided by Caltrans survey crews). Microsoft Office was installed to facilitate additional note taking and data manipulation. CoPilot Live version 7 was installed to utilize the integrated GPS unit.

3.2.3 User Feedback

Over the course of the evaluation period, feedback was mixed with regards to the effectiveness of the tablet PCs in the field. At one extreme there were the early adopters that had an overall positive experience with the tool. On the other extreme, some expressed concerns with the complexity of the device and its impracticality for logging during a drilling operation. Feedback from this group of users are listed here:

- Many commented that they liked the idea of being able to produce boring logs while in the field.
- Some logged directly into the gINT software on the tablet, while others would log on paper forms and transfer their notes into gINT later at the hotel or during drilling breaks.
- Differences between the logging standards implemented into gINT and those published in the 1996 and 2007 editions of the Caltrans Soil & Rock Logging Manuals created problems for many users.
- The handwriting recognition feature in the tablet PCs was not frequently used.
- The integrated GPS and related software was not frequently used.
- gINT data entry via the graphical method was not used as often as the direct table data entry method.
- Many expressed the need for more specific training in the use of gINT software and the Caltrans-specific gINT library.
- Some users were concerned with the potential for loss of data due to hardware failure. Consequently, many of these users tended to collect information on paper and transfer to the tablet PCs at a later time.
- A number of users reported that the tablet PC method for direct data collection was not practical in the context of a drilling operation. Often times it was quicker to write notes on paper rather than enter data in multiple fields on a tablet PC. Some users attempted data entry directly, but found that this process delayed drilling operations unnecessarily.

4 DATA EXCHANGE AND DISSEMINATION TECHNOLOGIES

4.1 Online Data Warehouse for Cone Penetration Test (CPT) Data

In early 2002 a pilot study was initiated to explore the feasibility and effectiveness of a web-based repository for Caltrans' Cone Penetration Test (CPT) data. The result of this work was a fully functional prototype data warehouse system which allowed CPT operators to upload data files using a web browser, and allowed clients to browse, preview, print, or download any Caltrans CPT data file generated since 1994.

Features integrated into this prototype system included:

- **File Upload:** CPT field operators log into a password protected area of the web site, and use a file browser to select files to be uploaded to the data warehouse. This function can be performed while in the field, at a hotel or office near the jobsite (using a conventional modem), or back in the office (over the network). The operator only needs to select the file(s) to upload (Figure 20). The server software automatically extracts information from the file including job number, location, sounding number, operator, etc, and creates new directory structures on the web server.

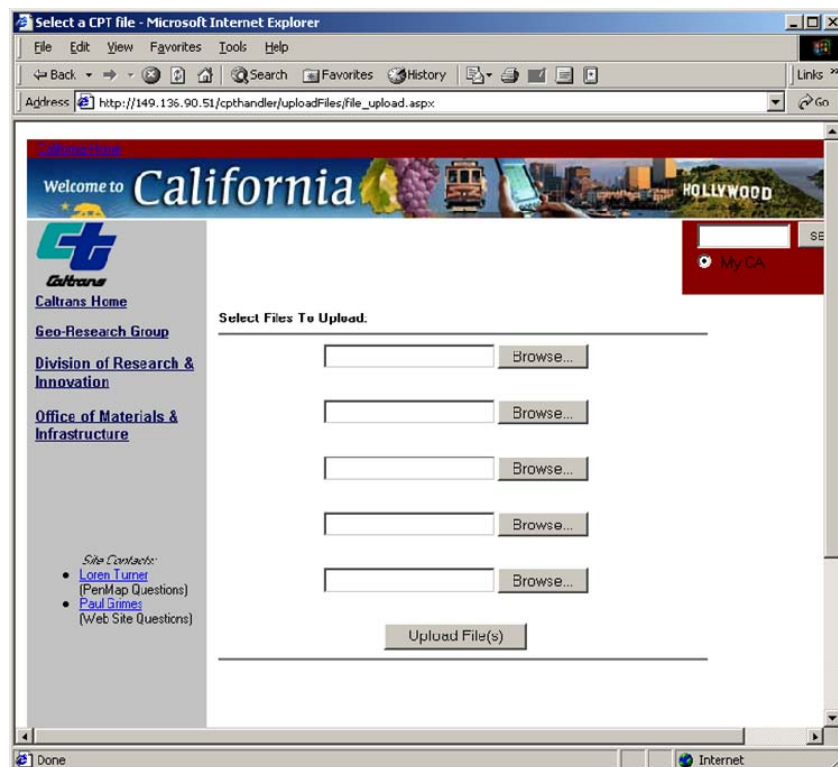


Figure 20 – File uploading

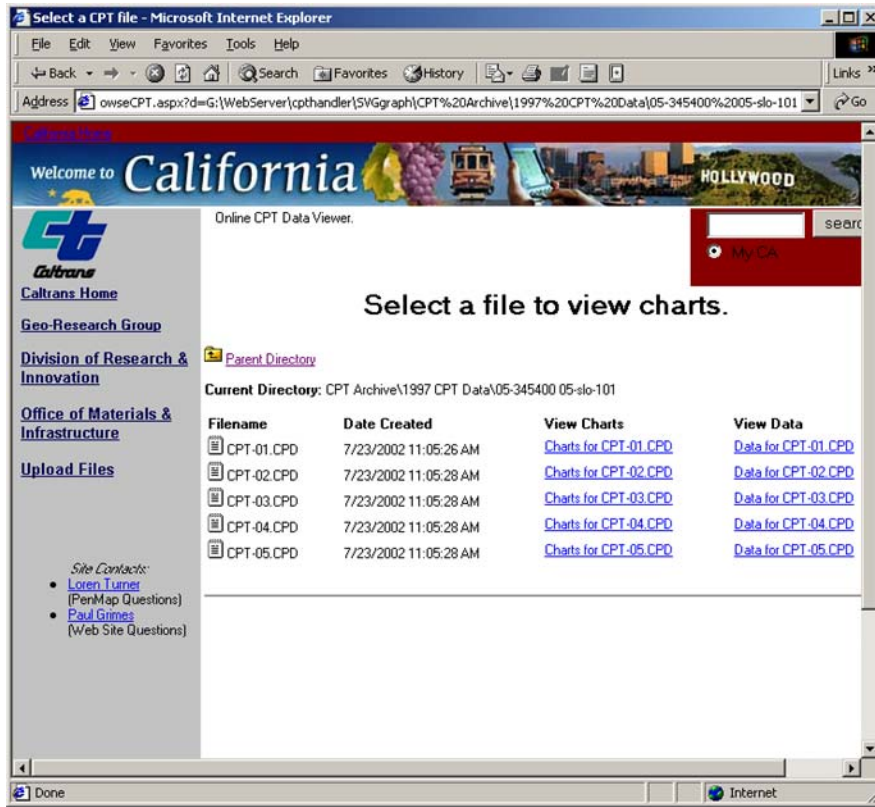


Figure 21 – Browse for CPT data online

- Searching for Data: Users needing access to CPT data can go the CPT website and browse for files based upon the year, job number, and CPT sounding number (Figure 21). Files uploaded from CPT field crews are immediately available on the system. Alternatively, users can use an web-based map interface (developed with ESRI's ArcIMS) to search for available CPT data (Figure 22).

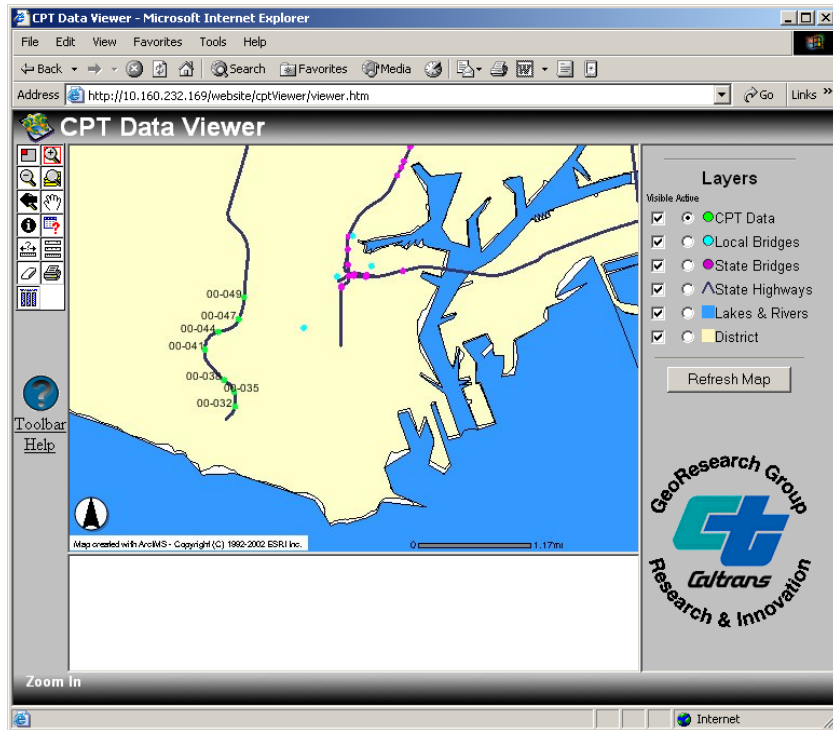


Figure 22 – Browse for CPT using ArcIMS interface

- Preview Data: Once the correct data file is identified, the user can click the link under the "View Data" heading to open a new window with the raw data (Figure 23), or click the link under the "View Charts" heading to generate a plot of the data (Figure 24) These plots were designed to print neatly on standard 8.5"x11" paper for use in geotechnical reports. The raw data file is also available using the links below the "View Data" header. This file can be used to conduct further analyses.

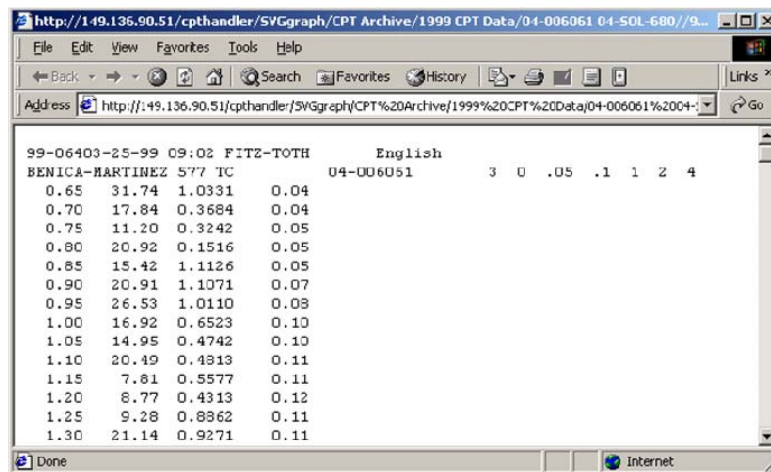


Figure 23 – Data view

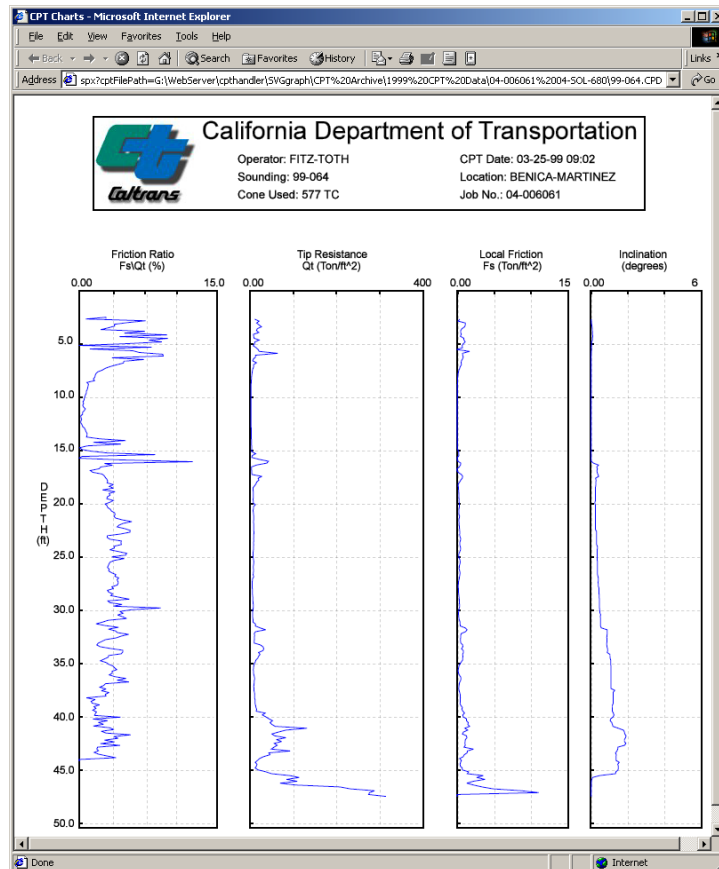


Figure 24 – Chart view

The CPT previewer was coded in VB.NET by Paul Grimes (Caltrans Student Assistant), to allow end users to view graphical charts of CPT data. When the “View Charts” link is clicked, CPT charts are generated on-the-fly and are displayed in a new browser window (Figure 24).

The CPT previewer application is first passed a URL corresponding to the location or path of an XML file containing Caltrans CPT data. The XML file is parsed and the required CPT data is processed to dynamically generate multiple SVG images (charts) per CPT. The CPT charts and related metadata are displayed using HTML within a new browser window on the end user’s computer. The SVG images provide the user with a graphical representation of the CPT data.

4.2 The COSMOS/PEER-LL Geotechnical Virtual Data Center (GVDC)

The Geotechnical Virtual Data Center (GVDC) was developed under the leadership of the Consortium of Strong-Motion Observation Systems (COSMOS) in partnership with the Pacific Earthquake Engineering Research (PEER) Lifelines Program. Caltrans participation through this research task was crucial to the development of both the initial pilot system in 2004 as well as the second generation production system expected to be unveiled in late 2008.

4.2.1 The End-User Experience

The Geotechnical Virtual Data Center (GVDC) can be thought of as a virtual gateway to data repositories from multiple agencies, relying upon DIGGS for standardized data exchange. The GVDC functions as a “data broker” rather than a “data repository.”

When the user navigates to the GVDC home page, they are presented with general information about the project and the system (Figure 25).



Figure 25 – GVDC main page

Standard user account and login tools are provided for security and a personalized end-user experience (Figure 26).

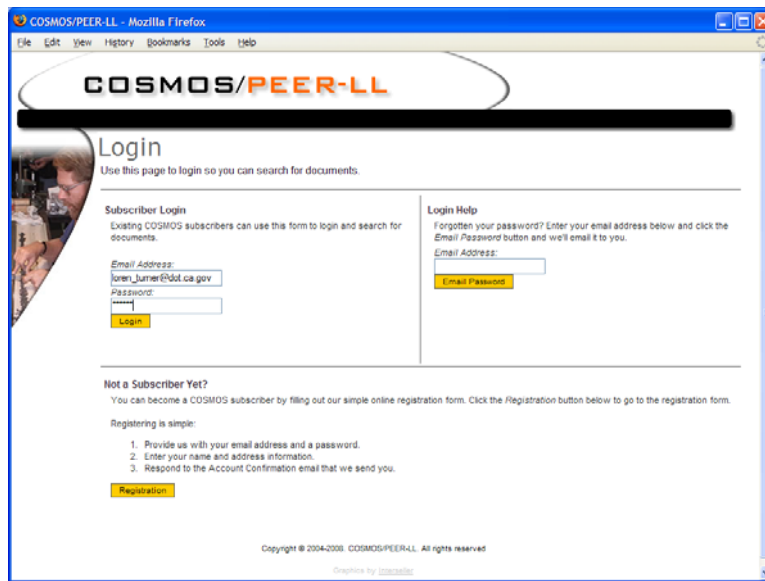


Figure 26 – Login page

The primary interface for the user is the map-based search tool (Figure 27). Within this interface, the user can browse the map and view placemarks where data exists.

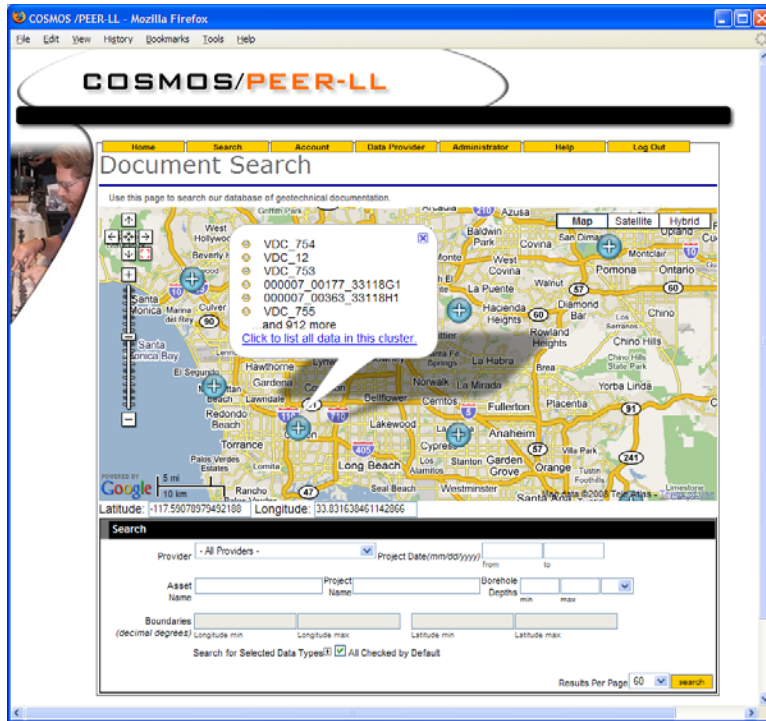


Figure 27 – Map-based search tool

The search criteria tool consists of an expandable area selection tool as well as an advanced search criteria section in the lower part of the screen (Figure 28).

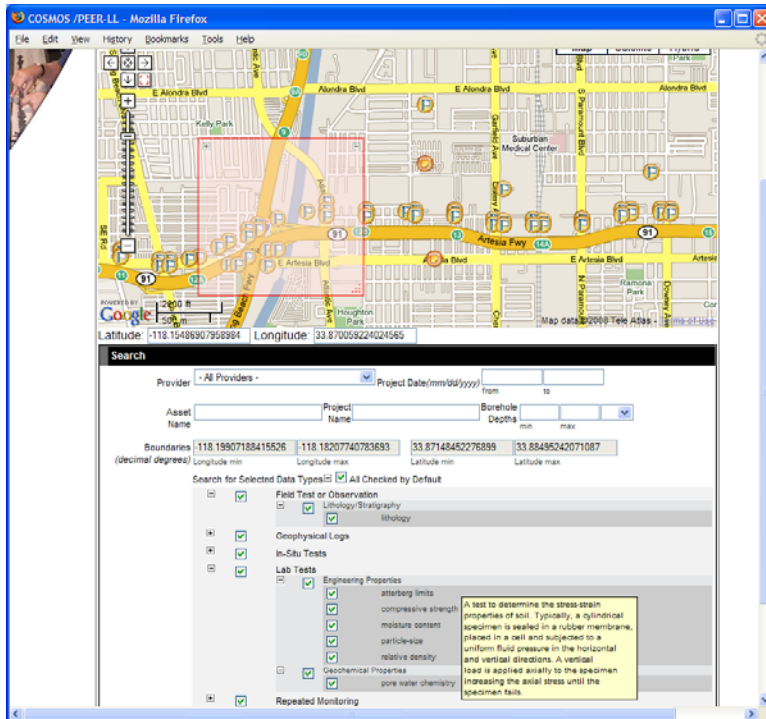


Figure 28 – Advanced searching

The user can choose to search by specific types of data, dates of investigation, data provider, and borehole depths.

Search results are presented to the user in series of interactive tables (Figure 29). Results are grouped at the highest level by each data provider. Tabular lists are presented and can be sorted by various data attributes. The user can select a single data set for view within a pop-up map to provide spatial context.

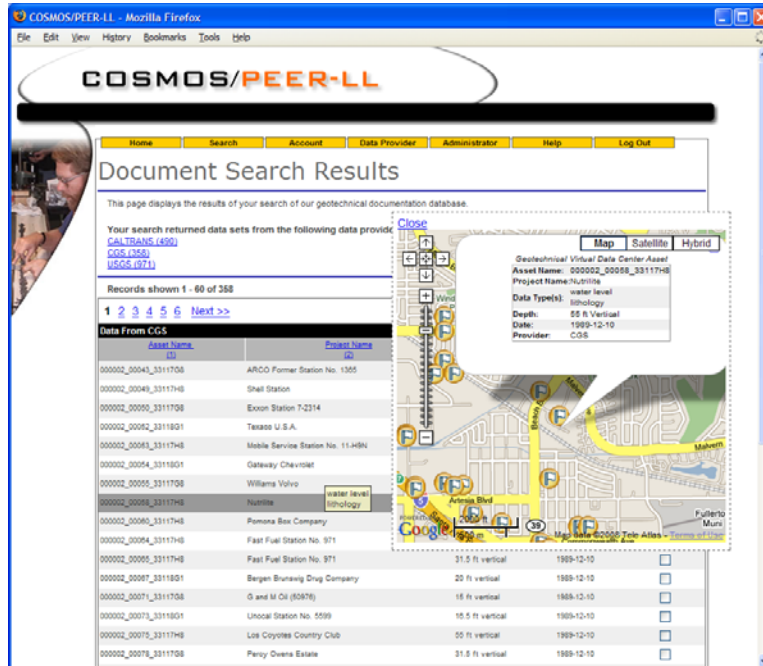


Figure 29 – Search results

The user uses the check-boxes in the table to specify which data files they'd like to download. The user is then presented with a use agreement prior to obtaining the DIGGS files (Figure 30).

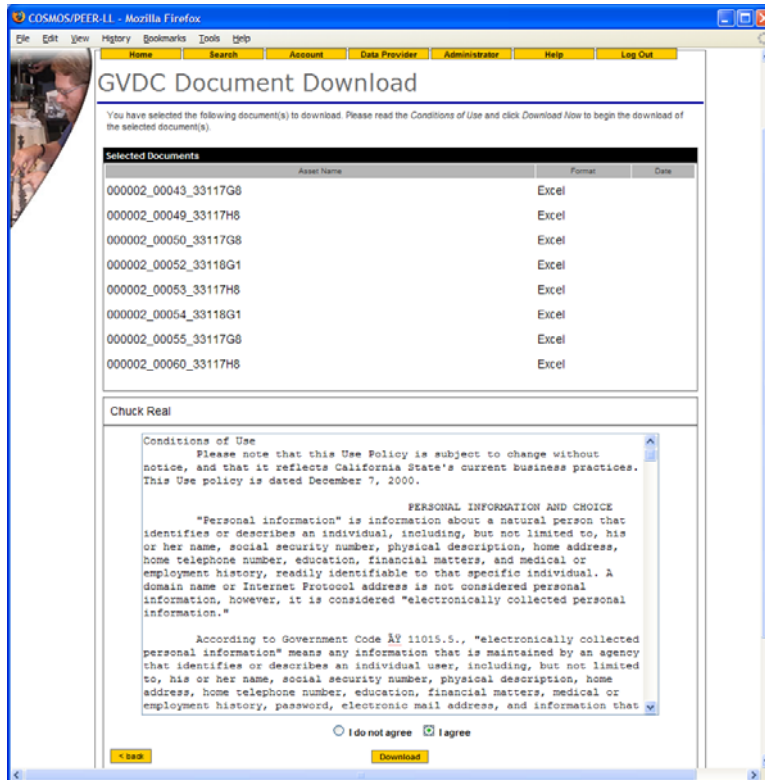


Figure 30 – Data download

4.2.2 Harvesting Architecture for the GVDC

The Geotechnical Virtual Data Center (GVDC) system architecture facilitates the dissemination of geotechnical and geophysical data from a Data Provider to an end-user through the GVDC web portal. There are two major components to the system, the GVDC Server and the Data Provider Server.

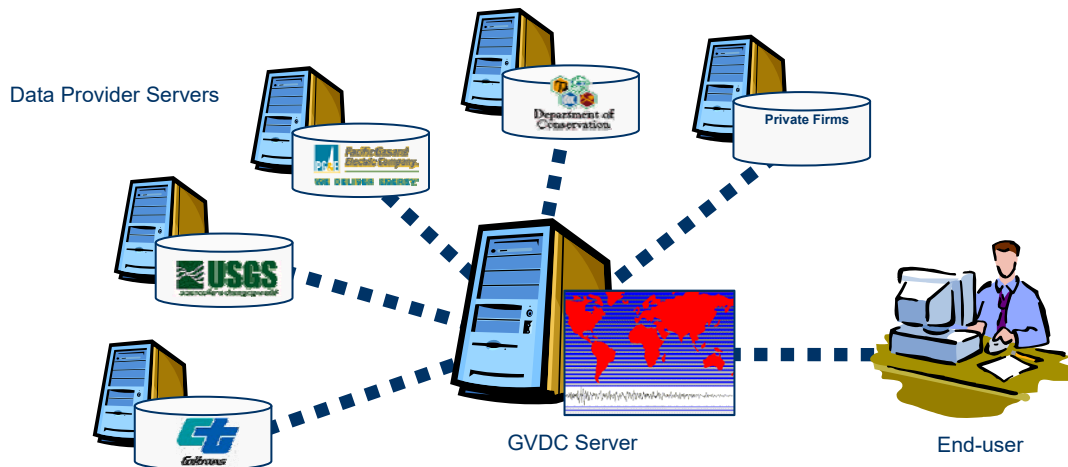


Figure 31 – GVDC harvesting architecture

The GVDC Server provides web hosting for the GVDC's web site, maintains an database of metadata of available data sets, harvests metadata from Data Providers, hosts map and text based search interfaces, manages user accounts, and tracks data usage statistics.

The *Data Provider Server* functions as either a web server or a FTP server. It hosts the collection of available DIGGSml files, or, alternatively, a server-side application that automatically generates DIGGSml files on demand. It also hosts a single MetaDIGGS file that can be harvested by the GVDC. This server may also host the Data Provider's data in its original form (e.g. database, flat files, Excel files, gINT files, etc.), data transform applications, and MetaDIGGS file generators. However, this is not a requirement. A Data Provider need only host the DIGGSml files and the MetaDIGGS file in order to participate as a Data Provider for the GVDC.

The GVDC Server has two primary functions: (1) harvest metadata from Data Providers, and (2) deliver DIGGSml data sets to end users. The original GVDC accomplished metadata harvesting through the implementation of OAIB, requiring a communication link between the GVDC's database and the Data Provider's database. In the revised GVDC system, the function of OAIB is replaced with a modular approach. Notably:

- The Data Provider needs to generate DIGGSml files for their data sets. This can be accomplished in a variety of ways; however, the Data Provider will need to develop this component. Using a *DIGGS Generator* application is one possibility.
- The Data Provider needs to generate a single MetaDIGGS file that contains the metadata for their entire data repository. A single standard application, *MetaDIGGS*, will accomplish this. This application can be used by any Data Provider to extract metadata from a collection of DIGGSml files.
- The Data Provider hosts the MetaDIGGS and DIGGSml files on a web or FTP server.
- The GVDC server runs an application, *Harvester*, that retrieves the MetaDIGGS file from the Data Provider, and completely replaces that Data Provider's data in the GVDC's PostgreSQL database with this new information.

Delivery of DIGGSml files to the end user is accomplished through the following mechanisms:

- The Data Provider hosts DIGGSml files on their web or FTP server. These can be static files on the server, or they can be generated dynamically, depending upon the Data Provider's specific system and preferences.
- The MetaDIGGS file contains the URL to where DIGGSml files are located.
- When user requests a particular data set, the GVDC retrieves the specific DIGGSml file and provides it to the user in its original format, as an Excel file, or in a graphical preview.

4.2.3 GVDC Applications

There are four separate applications to support harvesting in the system: (1) *DIGGSml Generator*, (2) *MetaDIGGS Transform*, (3) *MetaDIGGS Extension Suite*, and (4) *Harvester*. These applications are illustrated in the system diagram below (Figure 32):

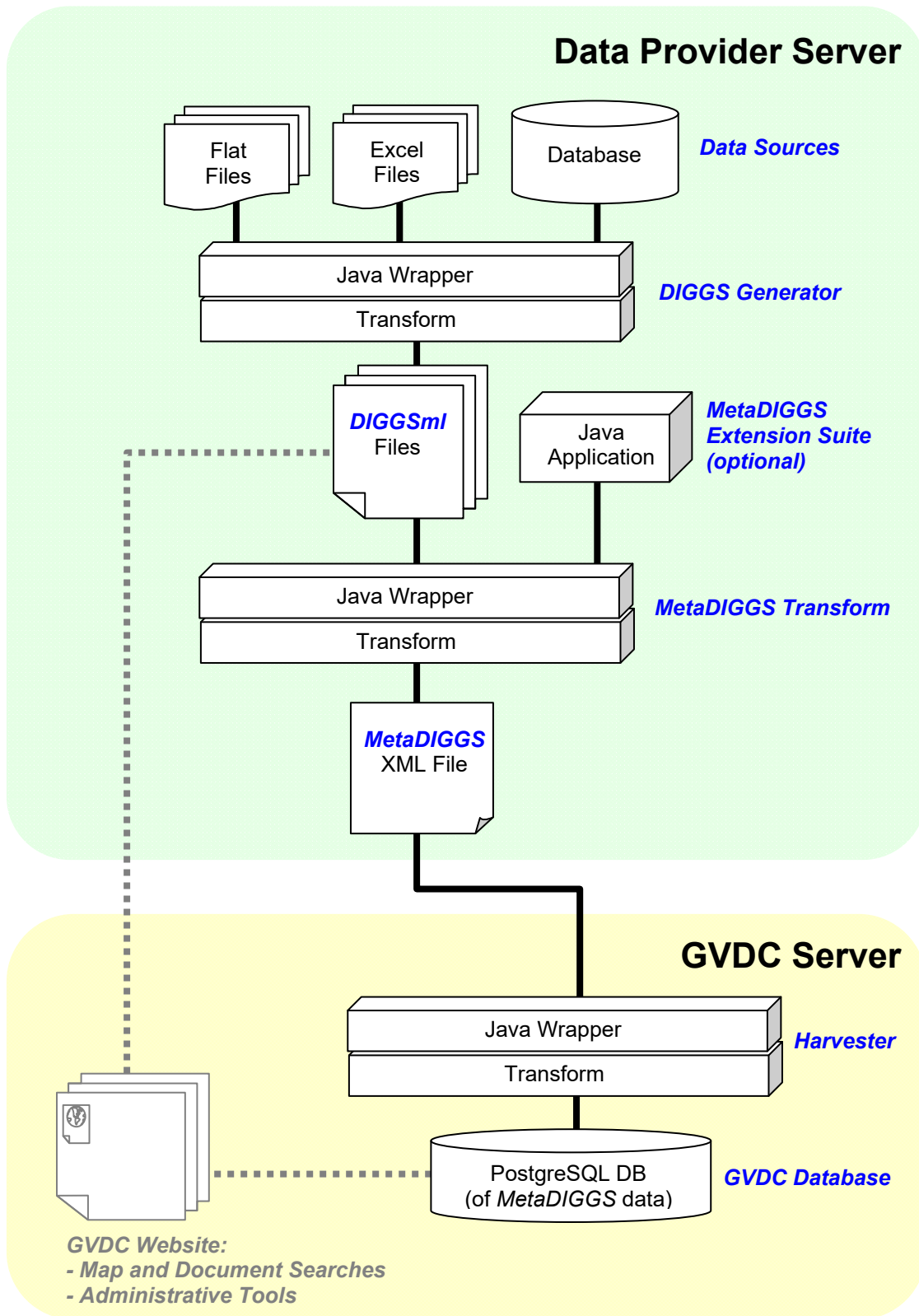


Figure 32– GVDC applications

DIGGS Generator is an application that is very specific to the particular Data Provider. In fact, this may be a standalone application, a function of another application, a web service, or some other form. In its simplest implementation, this could be an export function in commercial logging software, such as *giNT*, that creates a DIGGSml file. Or, perhaps one could capture data in an Excel spreadsheet and export to a DIGGSml compatible file. This could take the form of a data mapping application that one uses to convert from flat files, Excel files, or other file types to a DIGGSml file. The data mapping application or transform code may be wrapped within another application and used to automate the creation of DIGGSml files. Some Data Providers might choose to batch convert and just host the resulting static DIGGSml files. Others might choose not to host static files, and instead, create the DIGGSml files only when requested by the GVDC. Since each Data Provider is unique in the way they store and manage their data, the *DIGGS Generator* functionality will need to be developed and implemented by the Data Provider.

MetaDIGGS Transform is an application that a Data Provider uses to facilitate the generation of the MetaDIGGS file. The purpose of the application is to provide simple, automated metadata generation functionality for Data Providers. The application will output a metadata file, in the form of *MetaDIGGS XML*, summarizing a data provider's geo-technical information.

The *MetaDIGGS Extension Suite* is an application that adds functionality to the *MetaDIGGS Transform* application. *MetaDIGGS Extension Suite* is not required to be installed or run by a Data Provider in order to participate in the GVDC. This is a standalone Java application that invokes *MetaDIGGS Transform* and automatically passes input parameters to it. This application provides features that are frequently needed by most Data Providers, such as:

- Schedule *MetaDIGGS Transform* to run daily, monthly, quarterly, etc.
- Provide an interface to call *MetaDIGGS Transform* as a dynamic servlet.
- Have a DIGGSml "watcher" feature, such that a new MetaDIGGS file is only created when a DIGGSml file is added, modified, or removed from the target directory.

The *Harvester* is an application that executes on the GVDC server. The purpose of the application is to retrieve MetaDIGGS XML files from all Data Providers and ingest that data into the GVDC's database.

4.3 Seismic Hazard Map

Since the publication of the *Caltrans California Seismic Hazard Map 1996* and the implementation of the *Caltrans Seismic Design Criteria (SDC)*, Caltrans engineers have had to assess seismic hazards using a series of published maps and measuring distances from new project sites to nearest faults. This design procedure required either: (1) physical measurements on printed maps, or (2) use of ArcView software to perform distance calculations. For preliminary studies, the first method was often employed due to its simplicity. The second method presented challenges since most of the engineers did not have the necessary software on their PC or the proper training to effectively utilize the software.

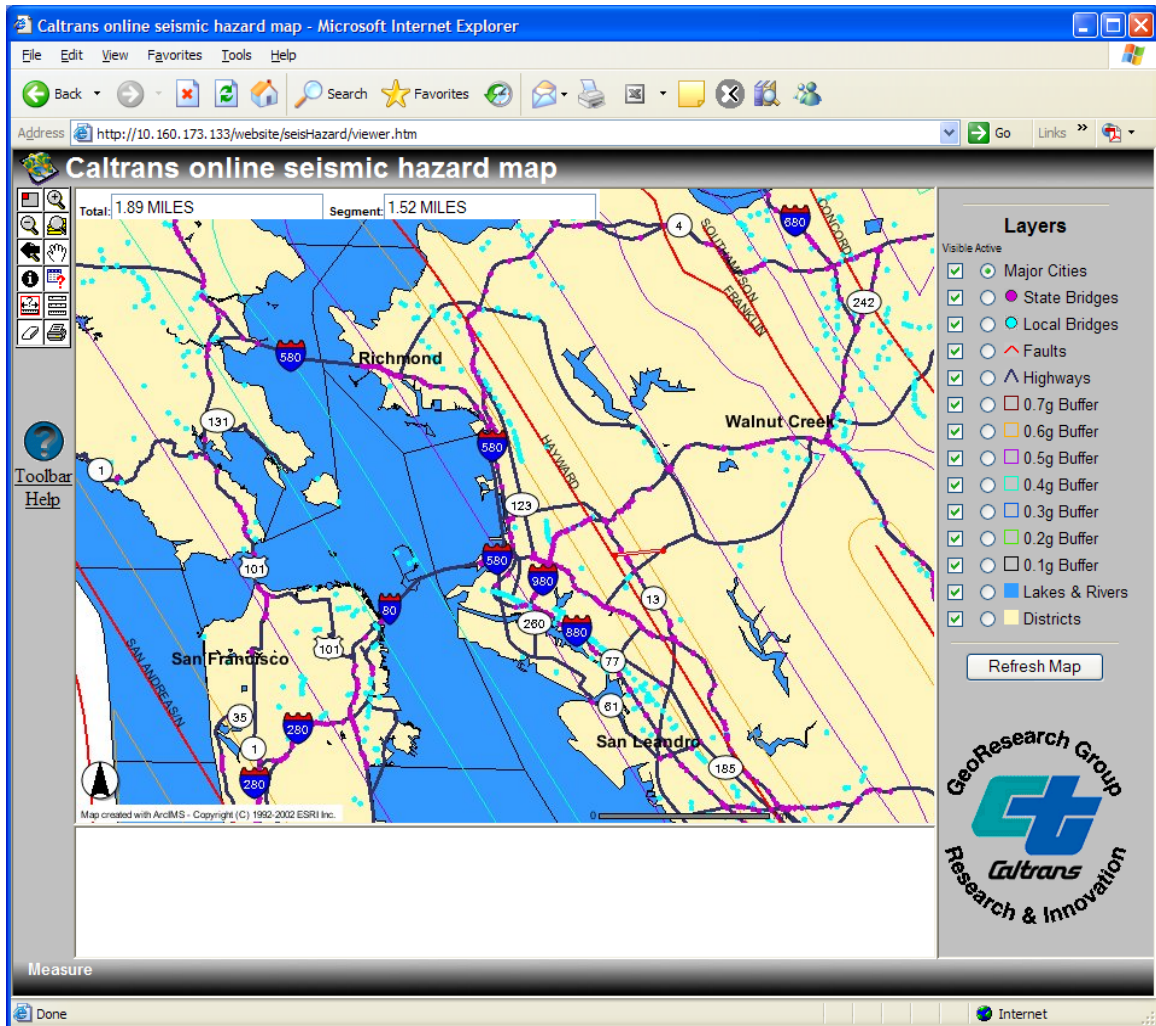


Figure 33 – Online seismic hazard map application

In 2003 the GeoResearch Group unveiled an online tool to facilitate the measurement of fault distance determination (Figure 33). The tool was developed using ESRI's Internet Map Server (ArcIMS) software running on a web server under a Windows Server 2003 operating system. The application displayed general map data, such as Caltrans Districts, lakes, rivers, major cities, and highways. In addition, the map interface also displayed the fault locations and attenuation buffers based upon the 1996 Seismic Hazard Map as well as state and local bridges. A measurement tool was incorporated into the interface that allowed users to select two points. Upon selection,

the application would provide the user with the measured distance on the map. Information on the faults was also available through the interface.

5 SUMMARY AND RESEARCH NEEDS

5.1 Identifying Subsequent Research Tasks

This task focused on assessing three critical components of developing an effective data management system:

- Data modeling
- Data collection
- Data exchange and dissemination

As described in this report, significant progress has been made in all three areas of research. However, continued research work is required to carry this project through to a fully deployed suite of products that more comprehensively manage geotechnical products produced by Caltrans.

The Caltrans geotechnical data model is continually evolving. With every revision of the *Soil and Rock Logging, Classification, and Presentation Manual*, or adoption of new practices, standards, or policies, the data model requires revision. This, in turn, has implications for the various data management systems that are built from the fundamental data model, including data collection, exchange, and dissemination systems. Although this requires considerable effort, work under this task has produced methods and tools to make the updating process easier.

A number of pilot data collection tools were developed and evaluated over the course of this task. Continued work is needed in this area to facilitate alignment of existing and new data collection tools with the Caltrans data model, while providing data interchange tools to insure that this data can be captured and curated in data management systems.

The most significant research need at this time, however, is in the area of data exchange and dissemination. In recent years, Geotechnical Services has been aggressively migrating from a paper-based organization to a digital-based one. This research task produced a number of tools that are now producing digital data repositories for various functional groups. This year, Geotechnical Services initiated a contract with a document scanning company to convert more than 2 million documents, covering more than 30,000 projects, and 80 years of historical data. This massive effort will produce a collection of digital documents with associated metadata. The challenge for Caltrans is to provide a system that enables users to easily access these documents based upon a variety of search criteria. As such, a follow-up task has been proposed to develop *GeoDOG*, short for “Digital Repository of Geotechnical Services.”

5.2 GeoDOG

The primary deliverable of this proposed research project, when completed, is a pilot geotechnical data management system for Geotechnical Services, that builds off of the work completed to date in this task. This system will be comprised of the following elements:

- Central data repository on the web that houses digital files for Geotechnical Services as well as geotechnical data generated through gINT, which includes borehole logs and laboratory test data.

- Capability for users to search for and download data on the repository using web-based map interface.
- A streamlined mechanism to pass data digitally between the soils lab, engineers/geologists, drafting services, and the data repository.
- Integration with the Department’s document management system.

The test deployment of the pilot data management system will serve as the basis for a Caltrans Feasibility Study Report (FSR) for full deployment and ongoing maintenance support.

This research directly supports the 2007 Geotechnical Research Roadmap, under the project family, “Geotechnical Data Management.” Specifically, the outcome supported is the “demonstration of geotechnical data management technologies through implementation.”

Geotechnical data management research is considered the top priority by the Geotechnical Technical Advisory Panel (GTAP). The potential benefits to GS and the Department are substantial. For example, the recently deployed soils lab touchscreen system has resulted in an estimated 20% reduction in staff time associated with data entry and report preparation.

The scope of work for the project will consist of the following activities:

Task	Description
A	<p>Finalize the Caltrans Geotechnical Data Model</p> <ul style="list-style-type: none"> • Work with Geotechnical Services team to revise the <i>Soil & Rock Logging, Classification, and Presentation Manual</i>, as needed. • Translate the standards from the manual into a geotechnical data dictionary, with elements to comprehensively describe Caltrans soil and rock logging and testing practices.
B	<p>Facilitate the deployment and implementation geotechnical software within Geotechnical Services</p> <ul style="list-style-type: none"> • Work with Geotechnical Services team to coordinate the statewide deployment of gINT software. • Develop a Caltrans GS specific gINT configuration based upon the data model resulting from Task A. • Develop a suite of standardized geotechnical products that can be easily produced in gINT (e.g. boring records, subsurface profiles and fences, laboratory test summaries). • Assist GS with training in use of the Caltrans GS specific gINT configuration.
C	<p>Develop pilot web application for document and data management</p> <ul style="list-style-type: none"> • Work with Geotechnical Services to develop system specifications document. • Develop pilot web application: <ul style="list-style-type: none"> ○ User account management ○ Upload/download documents/data ○ Search interface with interactive map • Assist GS in establishing contract for statewide legacy document scanning. Define metadata standards and requirements consistent with Caltrans geotechnical data model from Task A. Facilitate import of files into system.
D	<p>Geotechnical Lab Data Management System (GLDMS)</p> <ul style="list-style-type: none"> • Fix UI issues identified during prior evaluation period. • Implement admin tool to extract summary of results into gINT compatible import file.

E	<p>Data Transfer Tools and Processes</p> <ul style="list-style-type: none"> • Develop procedure and accompanying tool to transfer Geotechnical Laboratory data to geoprofessional client using gINT. • Develop procedure and accompanying tool to transfer insitu testing data to geoprofessional client using gINT. • Develop procedure and accompanying tool to transfer gINT generated LOTB graphics from geoprofessional client to Drafting Services.
F	<p>Develop tools and processes for drafting geotechnical products for contract documents</p> <ul style="list-style-type: none"> • Develop an import tool to get gINT generated borings and CPT into MicroStation at proper scale, lineweight, levels, etc. • Minimize time for drafters to assemble final LOTB. • Minimize/eliminate need for redline process.
G	<p>Deployment and Implementation Support</p> <ul style="list-style-type: none"> • Assist GS in preparation of FSR and supporting documents to implement tools into production. • Procure hardware for initial systems deployment.

Appendix A – GLDMS Documentation

State of California
Department of Transportation
Division of Research and Innovation

The Geotechnical Laboratory Data Management System (GLDMS)

August 13, 2007



Preface

This manual serves as a technical reference and maintenance guide for the *Geotechnical Laboratory Data Management System (GLDMS)*. It discusses installation, setup, and maintenance instructions for system administrators. It also includes detailed information regarding troubleshooting, which will support future development of the system.

Acknowledgements

The GLDMS Development Team would like to acknowledge the staff in the Caltrans Geotechnical Laboratory for their feedback and testing during the early development stages. The team also extends its appreciation to the management in Geotechnical Services and the Division of Research & Innovation for their support of this effort.

The GLDMS Development Team:

- Toru Saito, System Developer
- Loren Turner, Project Manager
- Craig Hannenian, Customer Representative

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Appendix A — File and Directory Structure

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1 Introduction

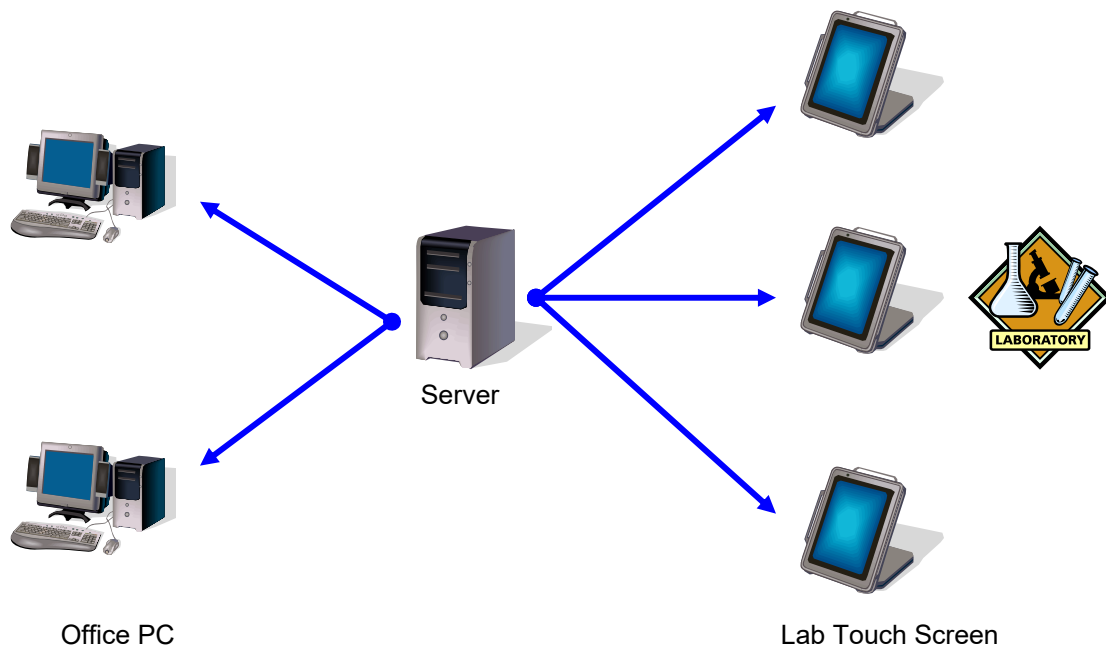
1.1 Overview

The *Geotechnical Laboratory Data Management System (GLDMS)* is the result of a year-long research effort to modernize soil test data collection and management practices at the Geotechnical Laboratory.

The system is comprised of a network of touch screen stations installed throughout the lab facility that enable technicians to enter and retrieve test data while conducting their work. A single web server is at the hub of the system and provides data storage, processing, and validation. (See *Figure 1-1.*)

The GLDMS architecture was designed to store test data in a central database. Having a central repository eliminates many of the redundancies in data collection and analysis, and makes the data much more accessible to end users.

Figure 1-1 – Overview of the GLDMS



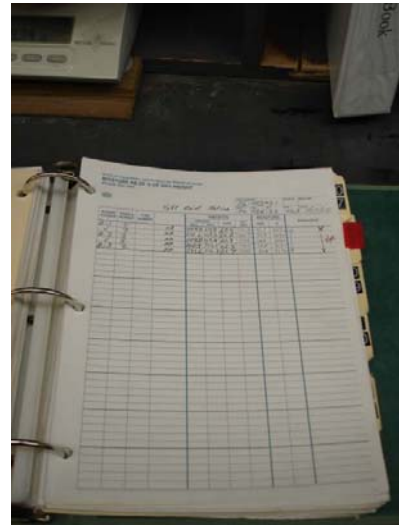
1.2 Background

The Caltrans Geotechnical Laboratory is an *AASHTO Materials Reference Laboratory (AMRL)* accredited facility located in Sacramento, California. The Geotechnical Laboratory provides a wide variety of soil and rock testing services for various Caltrans units throughout the state. Annually, the lab processes approximately 90 job requests, consisting of an estimated 5000 samples and 10,000 soil and rock tests. The Geotechnical Laboratory has the equipment and capacity to carry out 24 types of soil and rock tests. (See Figure 1-4, next page.)

Prior to the development of the GLDMS, technicians recorded data manually on paper-based forms during testing. The data was then entered into Excel spreadsheets and used to prepare printed reports and charts for review by lab managers. Reports were then printed for clients and the paper archived for storage in the fileroom. This cycle of data collection and reporting involved redundant data entry, difficult retrieval of archived data, and possibly introduced transcription errors.

Within the lab, paper-based data entry also created redundancies. For example, in the past, a technician would have to manually search for moisture data in a binder of past moisture measurements (the “Moisture Book”) in order to proceed with a related test such as Plasticity Index testing. The GLDMS has eliminated the need to cross reference test results, since the tests are cross-referenced within the GLDMS database. As such, technicians are able to perform Plasticity Index tests without using the Moisture Book or other redundant procedures.

**Figure 1-2
The Moisture Book**



**Figure 1-3
Performing tests using GLDMS**



Figure 1-4 – Common tests performed by the Geotechnical Laboratory

Laboratory Tests
Atterberg Limits (AASHTO T 89, AASHTO T 90)
Cation Exchange (EPA 9081)
Chlorides (CTM 422)
Collapse Potential (ASTM D 5333)
Consolidation (ASTM D 2435)
Corrosion (CTM 643)
Direct Shear (ASTM D 3080)
Expansion Index (ASTM D4829)
Mechanical Analysis (ASTM D 422)
Moisture Content (AASHTO T 265, ASTM D 2216)
Organic Content
Permeability (CTM 220)
PH
Point Load (ASTM 5731)
Relative Compaction (CTM 216)
R-Value (CTM 301, AASHTO T190)
Sand Equivalent (CTM 217, AASHTO T176)
Shrinkage Limit (ASTM D427)
Specific Gravity (AASHTO T 100)
Sulfates (CTM 417)
Swell Potential (ASTM D 4546)
Triaxial CU (3 points) (ASTM D 4767,)
Triaxial UU (1 point) (ASTM D 2850)
Unconfined Compression (ASTM D 2166, ASTM D 2938)
Unit weight (ASTM D 4767)

1.3 Scope of Work

The GLDMS development effort was planned as a two phase approach. The first phase would involve development of the interface and data models to support the common index property tests. In most cases, index property testing to date has required manual data collection by technicians. Phase 2 would integrate the remaining tests, in particular, the tests where standalone data acquisition units produced digital test files.

1.3.1 Phase 1

The following eight tests are handled by the GLDMS as part of Phase 1.

- Moisture Content
- Unit Weight
- Specific Gravity
- Atterberg Limits
- Mechanical Analysis
- Point Load Index
- Compaction Curve
- Expansion Index

1.3.2 Phase 2

Phase 2 will focus on capturing data generated by the following test equipment:

- Direct Shear (ASTM D 3080)
- Consolidation (ASTM D 2435)
- Triaxial CU (3 points) (ASTM D 4767,)
- Triaxial UU (1 point) (ASTM D 2850)
- Unconfined Compression (ASTM D 2166, ASTM D 2938)

In addition the GLDMS will accommodate test results associated with the remaining tests.

1.4 Benefits

The GLDMS provides three key benefits:

- Improves efficiencies in collecting and processing test data,
- Reduces errors in data handling, and
- Facilitates easy access to archived test data

1.4.1 Improved Efficiencies

By implementing the GLDMS, the processes of collecting and analyzing test data have become more efficient. In the past, the processes of recording, processing, validating, and reporting test data were handled by utilizing printed forms and several different computer applications, including Microsoft Excel and FileMaker Pro. Since the test data were stored in incompatible file formats and mediums, technicians would have to find and re-enter the same test data repeatedly during each process, from initial collection to final reporting.

For example, a soil sample test may require a technician to determine the moisture content as part of a mechanical analysis report. Before the GLDMS was implemented, the technician had to search through handwritten data entries to find the moisture content associated with the mechanical analysis. Whereas in the GLDMS, data collection and retrieval process is streamlined, so when the technician enters moisture content data, the newly entered data is automatically associated with soil sample's mechanical analysis test.

1.4.2 Reduced Errors

To increase the reliability of test results, the GLDMS reduces calculation errors by:

- Eliminating duplicative data entries.
- Automating and centralizing the calculation of test result parameters.
- Enforcing data validation at the time of data entry. (e.g. A user enters *10.8* for the *wet+tare weight* field but then enters *15.5* for the *tare weight* field. Since the *wet+tare weight* value must be larger than *tare weight* value, there is clearly a data entry error. The GLDMS can identify these types of input errors, send notification of the error, and prevent further data entry until the data is corrected.)
- Storing all test data for a particular sample in a central database that makes test data available for other tests. (e.g. The results from a moisture content test for a sample can be used in the calculations for a unit weight test or a mechanical analysis test on the same sample automatically.)
- Performing necessary calculations as test data gets entered.

1.4.3 Easy Access to Archived Data

With data archived on paper, it has been difficult to locate old test results that match a particular set of criteria. Using the GLDMS, old test records can be retrieved

easily and quickly. For example, a user may need to retrieve a set of test records that were conducted on soil samples from District 04 during the period between February 2006 and March 2006. The GLDMS can perform the search and return the results with a few mouse clicks.

Another advantage of the GLDMS is that the test data can be exported for use in other software applications or data management systems. For example, in the near future, a standardized data interchange file format for geotechnical data, called Data Interchange for Geotechnical and Geoenvironmental Specialists (DIGGS), will be implemented in many of the commercially available geotechnical software packages, such as gINT. The GLDMS can be configured to generate DIGGS-formatted files. These data exchange technologies will decrease the amount of work, not only for the Geotechnical Laboratory, but also for its clients who further utilize soil test data.

1.5 Main Features

1.5.1 Central Data Management Server

The GLDMS stores and manages lab data in a central data management server. (See Figure 1.5). Using client PCs and touch-screen terminals, users input their lab data which gets stored on the server. The system is extensible, and the Geotechnical Laboratory can expand the capacity of the system as it increases number of terminals in the future.

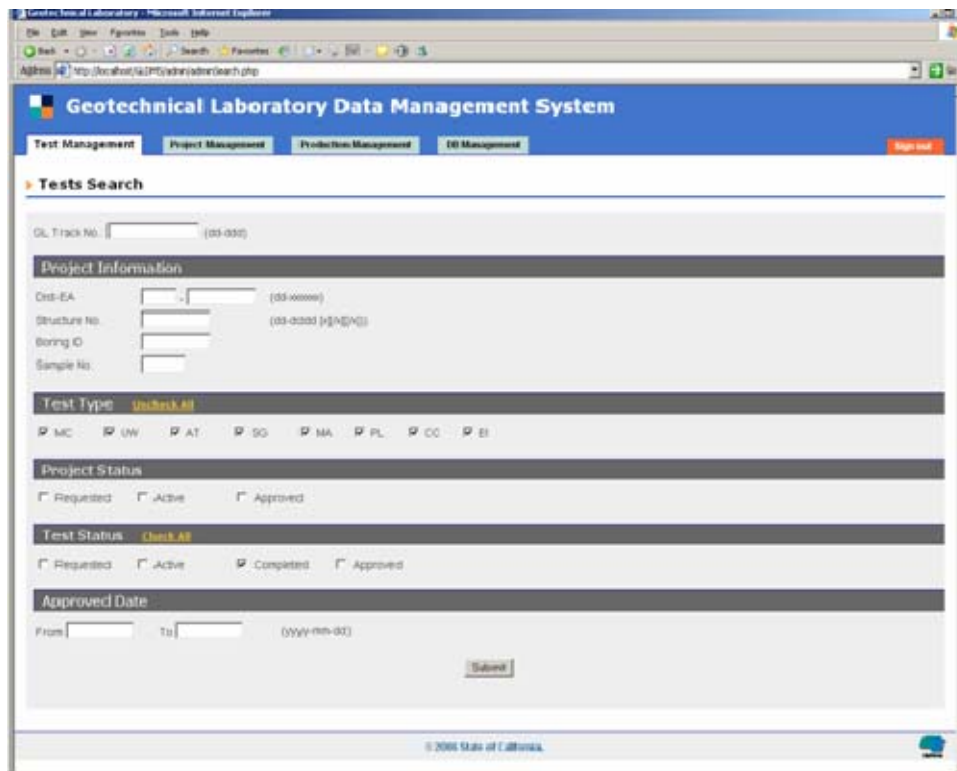
1.5.2 Search Functionality

The GLDMS provides search functionality to look up all available lab data with various criteria. (See Figure 1.6 below.) The criteria includes common project and job attributes (e.g. GL Track No., Dist-EA, Structure, No., Boring ID, Sample No., Test Type, Test Status, and others).

Figure 1-5
The GLDMS Server



Figure 1-6 - Search screen



1.5.3 Automated Report Generation

The GLDMS can produce printable test summary reports while performing necessary calculations automatically. Figure 1-7 shows samples of printed reports generated by the GLDMS. These reports include summaries of index properties, mechanical analysis, atterberg limits, etc.

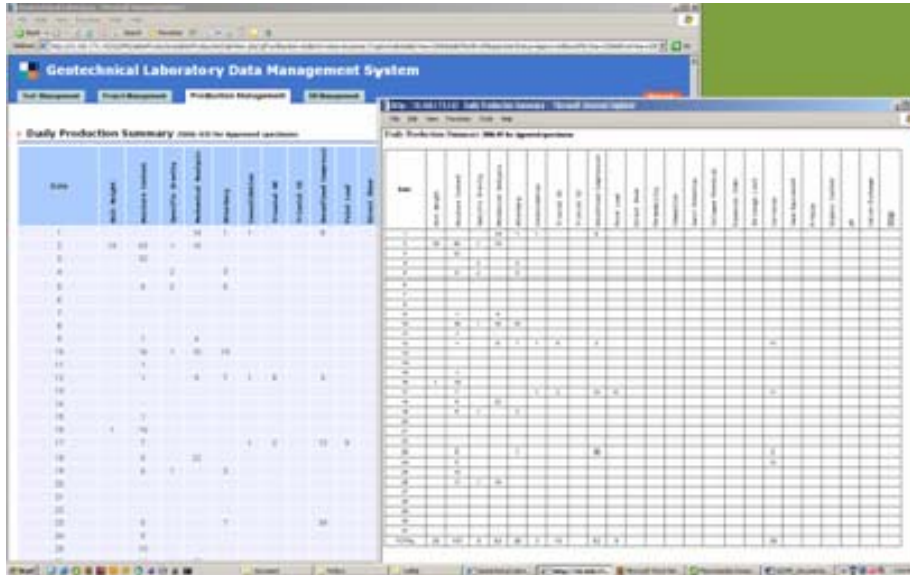
Figure 1-7 – Sample reports



1.5.4 Production Report

The GLDMS monitors current testing activities and can generate daily, monthly, and annual production reports to evaluate the productivity of the lab.

Figure 1-8 – Productivity report screen



The screenshot displays two overlapping windows from the Geotechnical Laboratory Data Management System. The left window, titled "Daily Production Summary (0000-00-00 for spreadsheet generation)", shows a table with columns for "Date", "Soil Weight", "Moisture Content", "Number of Tests", "Number of Samples", "Number of Tests", "Number of Samples", "Number of Tests", "Number of Samples", "Number of Tests", and "Number of Samples". The right window, titled "Daily Production Summary (0000-00-00 for spreadsheet generation)", shows a similar table with columns for "Date", "Soil Weight", "Moisture Content", "Number of Tests", "Number of Samples", "Number of Tests", "Number of Samples", "Number of Tests", "Number of Samples", "Number of Tests", and "Number of Samples".

1.5.5 User Management and Security

By maintaining individual user logins, the GLDMS can control users' access and keep logs of their activity for future reference.

1.5.6 Web Interface

Commonly used web browsers are used to access the GLDMS. Since most of the technicians are familiar with web browsers, they can navigate the system easily.

1.5.7 Touch Screen Data Entry

The GLDMS utilizes space-saving touch screen devices for data entry wherever space for a conventional keyboard and mouse is not available.

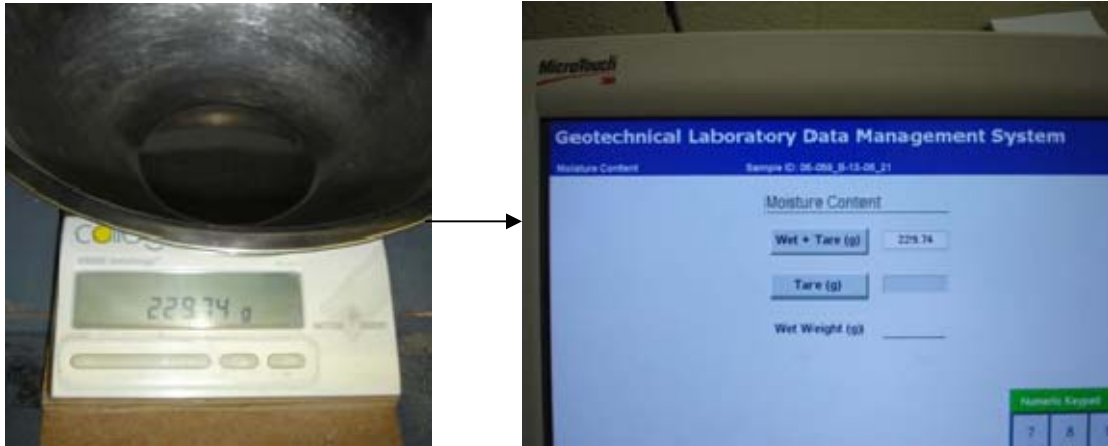
1.5.8 Automated Scale Reading

At some locations, the touch screen stations are connected with digital scales and the measurement reading from the digital scale is entered into the GLDMS interface automatically. (See Figure 1.10 for an example.)

Figure 1-9 – Using the touch screen



Figure 1-10 – Capturing a reading from digital scale



1.5.9 Data Validation

The GLDMS provides a level of data validation to prevent common input errors that happen during manual data entry, such as decimal point entry errors.

1.5.10 Data Storage and Backup

For increased data integrity and performance, the GLDMS stores lab data on two separate hard drives. A full backup of the entire database is performed daily on the server, and a copy of the daily backups is archived on an off-site network hard drive for data files for the past month.

Figure 1-11 – Off-site backup hard drive

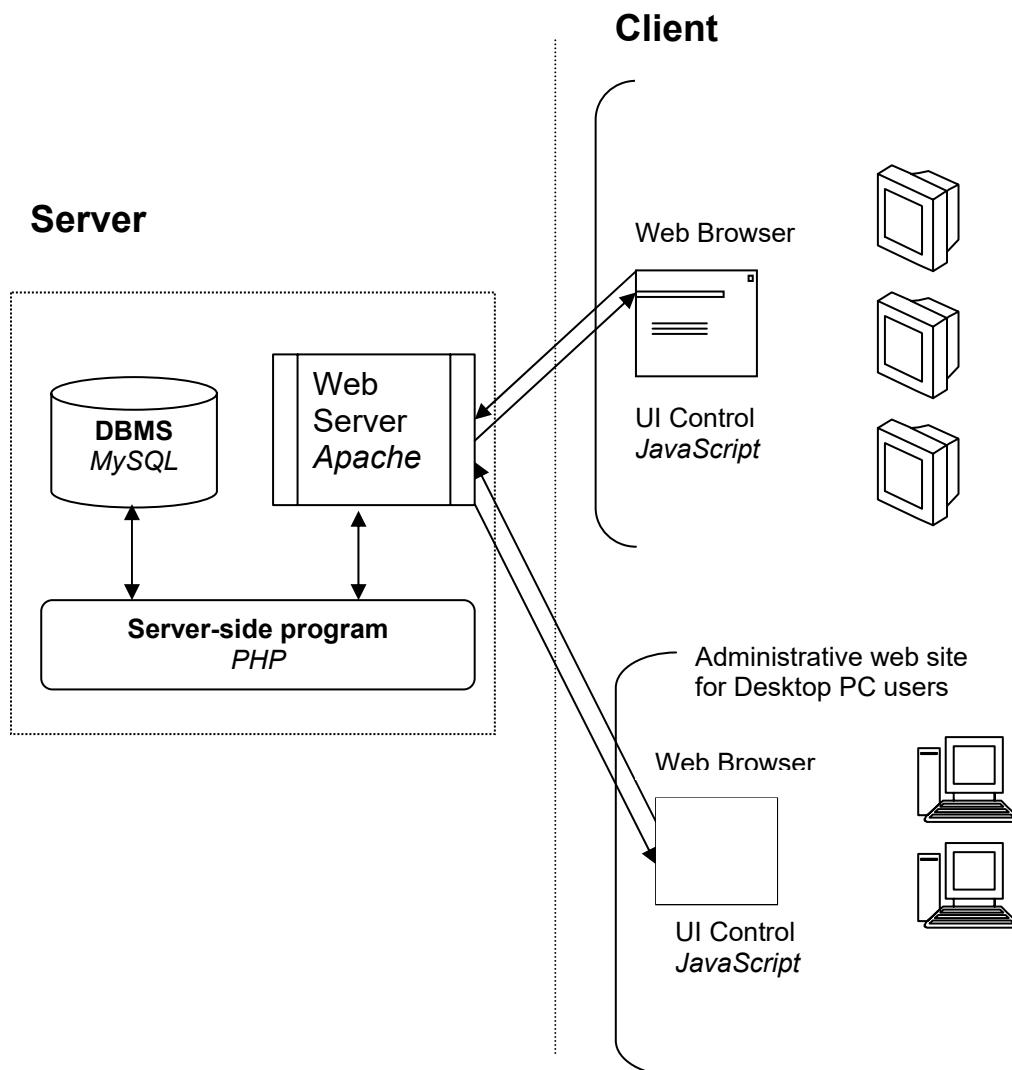


2 System Architecture

2.1 Overview

The GLDMS is implemented using a client-server architecture in which a central server provides the logic and execution of programs and remote clients provide the user interface (UI). (See Figure 2-1.) Client-server architecture is widely employed on the internet to operate web sites. Take, for example, Yahoo.com. When a user searches for information using Yahoo's search engine, Yahoo's servers perform the search and return the results to the user's computer. The user's web browser (the client) communicates with Yahoo's server and displays the web page. Interactions with GLDMS follow this exact same architecture, except that the system is implemented on an intranet, a local network of computers in the lab facility.

Figure 2-1 – Client-server environment in GLDMS



2.2 Server

The server software consists of three components:

- Web server
- Database management system (DBMS)
- Server-side programs

When a user requests to view a web page in a web browser, the browser sends a message known as a *HTTP request* to the web server. Once the web server receives the HTTP request, it runs a special server-side program to handle the request. The program, in turn, performs a function according to the request. Usually, the program communicates with the DBMS to extract or insert data that the user specified. Finally, the program generates a HTML file and sends it to the user's web browser.

The server software provides various data-entry forms for the user to input lab data. Once the user submits these forms to the server, the server software stores the data in the DBMS that resides on the server.

The server's hardware is described in Figure 2-2.

Figure 2-2 – Current hardware and software specifications of the server

Component	Specification
Hardware	HPX2000 Pentium IV RAM 512M HDD IBM IDE 115G HDD Segate SETA 300G * 2
Operating System	Windows 2000 Professional Service Pack 4
Web Server	Apache HTTP Server 2.0 PHP 5.1.2
DBMS	MySQL Server 5.0
Server-side Programs	Files containing PHP and HTML code

2.3 Client

The GLDMS provides two different web interfaces:

- A *laboratory* interface for technicians that conduct the tests and enter data.
- An *administrative* interface for lab managers and system administrators.

The laboratory interface is specially designed for technicians that enter test data through a touch screen device. Touch screen devices allow the user to enter test data without the need for a keyboard or mouse. This facilitates the devices being easily placed in various lab locations and less susceptible to damage. The laboratory interface is optimized for the touch screen interface, using large fonts, large buttons, and removal of unnecessary menu bars and other conventional web browser features.

The administrative interface provides a tool for lab managers and system administrators to review, revise, approve, and generate test reports for lab data. Because administrative tasks are typically performed away from the laboratory environment, the administrative interface is optimized for a typical web browser interface.

The server-side application generates these two kinds of web interfaces by providing different set of JavaScript and Cascading Style Sheet (CSS) files to the user's browser software.

New client PCs can be configured to operate on the GLDMS without complex software installation. Client PCs need only to run Internet Explorer 6 software. New features can be added to the GLDMS by simply updating software on the server, and these features become available immediately to the clients.

Typical hardware and software requirements for client PCs are shown below.

Figure 2-3 – Hardware and software specifications of clients

Component	Specification
Typical Client PC	HP X2000 Pentium IV RAM 256M HD 40G
Touch screen	3M MicroTouch M150
Operating System	Windows 2000 Pro Service Pack 4.
Web Browser	Internet Explorer 6.028

2.4 Network

The GLDMS architecture is based upon an intranet, using Category 5 Ethernet cable to connect the server and the clients in a *star* network topology. In a *star* topology, all network devices connect to a central node. (See Figure 2-5.) In the GLDMS Intranet, a networking switch acts as the central node and manages all the communications between clients and the server on the network. (See Figure 2-6.)

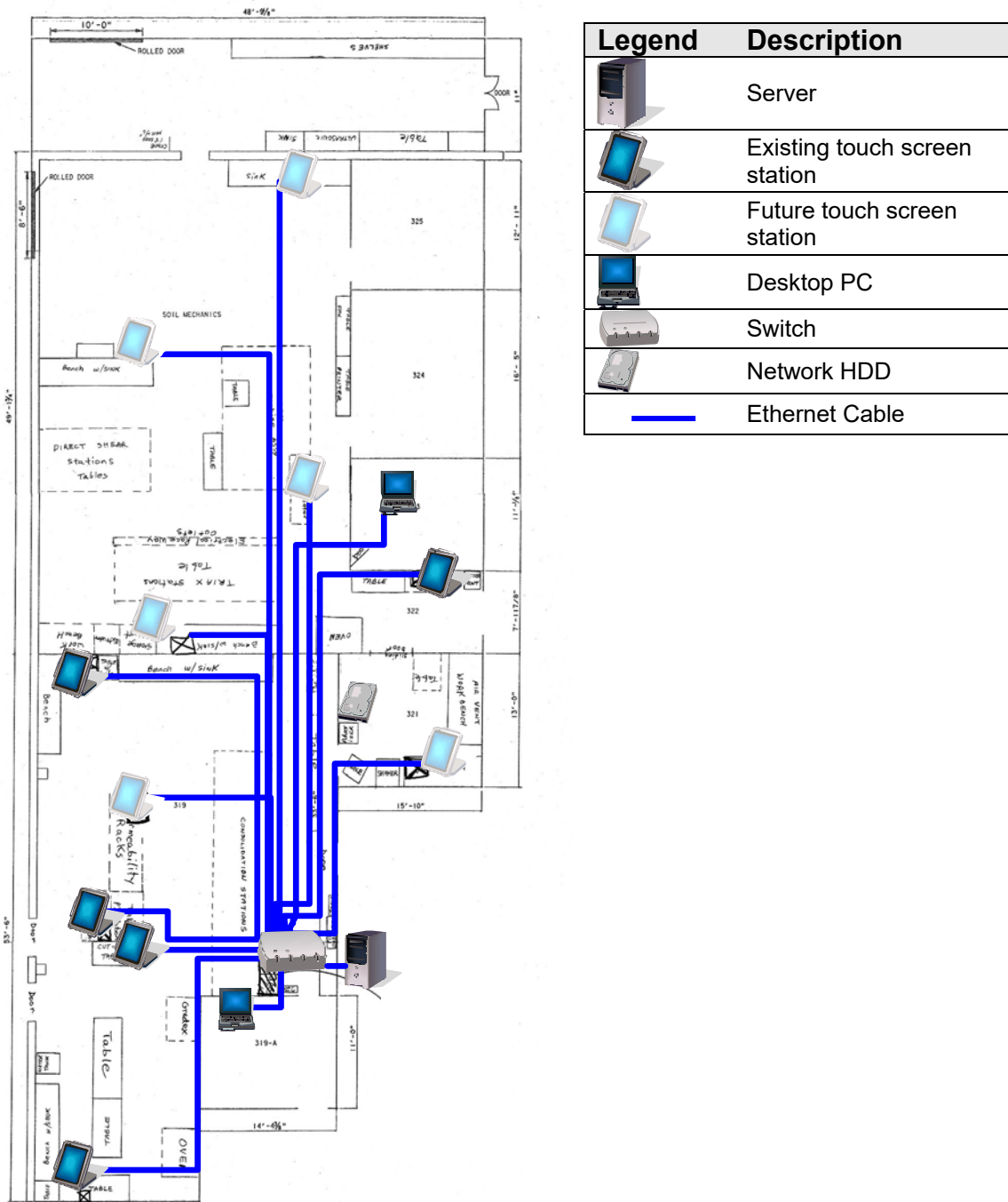
Figure 2-4 – Hardware and software specifications of the Intranet

Component	Specification
Switch	NETGEAR ProSafe 48 Port 10/100 Stackable Smart Switch + 4 Gigabit Ports
Ethernet Cables	Category 5

Figure 2-5 – Networking switch as the central node



Figure 2-6 – Physical layout of the Intranet



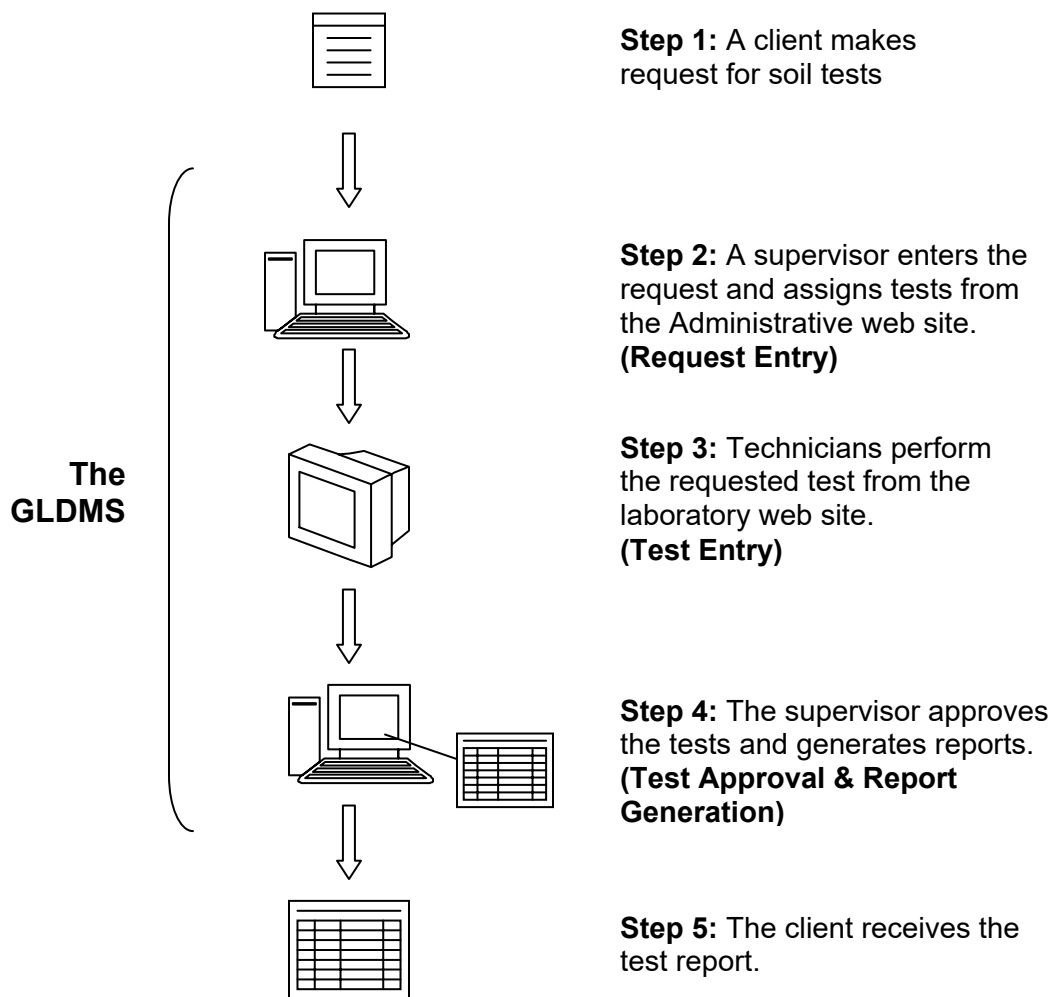
3 Soil Testing Procedure with GLDMS

The Geotechnical Laboratory conducts soil testing in a series of well-defined steps:

- A client requests tests.
- A supervisor assigns each test to a technician.
- The technicians perform requested tests and calculations.
- The supervisor approves the test results submitted by the technicians.
- The supervisor sends the testing reports to the client.

The GLDMS maintains this work flow by mimicking it within the system, making the transition between each step transparent to the users. Figure 3-1 shows the soil testing procedure and how GLDMS takes part in these steps.

Figure 3-1 – Soil testing procedure



3.1 Request Entry (Step 2)

Once a request is received from a client, a supervisor creates a new project in GLDMS. Using the *Add Project* page, the supervisor enters information for the new project.

Figure 3-2 — ADD PROJECT page

The screenshot shows the 'Add Project' page in the Geotechnical Laboratory Data Management System. The page is organized into several sections:

- Project Information:** Includes fields for Project Name, Structure No., District, County, Route, PM Begin, and End.
- Project Charging:** Includes fields for District, EA, FA, Activity Code, MSA Code, Sub Job, and Special Designation.
- Client Information:** Includes fields for Last Name, First Name, Office, and Phone.
- Dates:** Includes fields for Dates Sampled, Samples Received, Samples to Grade Bench, Client's Due, GL Staff Due, and Estimated Delivery.
- Misc.:** Includes a dropdown for TL-101 Numbers and a text area for Comments.

After creating the new project, the supervisor enters information for project samples while specifying which tests should be performed. Using the *Add Sample* page, the supervisor can add as many samples as the project requires.

Figure 3-3 — ADD SAMPLE page

The screenshot shows the 'Add Sample' page in the Geotechnical Laboratory Data Management System. The page is organized into two main sections:

- Sample Identification:** Includes fields for Boring ID, Sample No., Tube, and Depth (From and To).
- Test Information:** Includes a list of test types with checkboxes and corresponding input fields for parameters like Chamber Pressure, Consolidation Pressure, and Foundation Load.

Callout boxes highlight the following areas:

- Sample information fields:** Points to the Boring ID, Sample No., Tube, and Depth fields.
- Tests information entries:** Points to the list of test types and their corresponding input fields.

3.2 Test Entry (Step 3)

After the project and its samples are successfully added, the technicians start the testing process in the lab. The technicians utilize touch screen terminals to access the *Requested Tests* and navigate to *Data Entry* pages. (See Figure 3-4 and Figure 3-5.)

Figure 3-4 — REQUESTED TESTS page for moisture content test

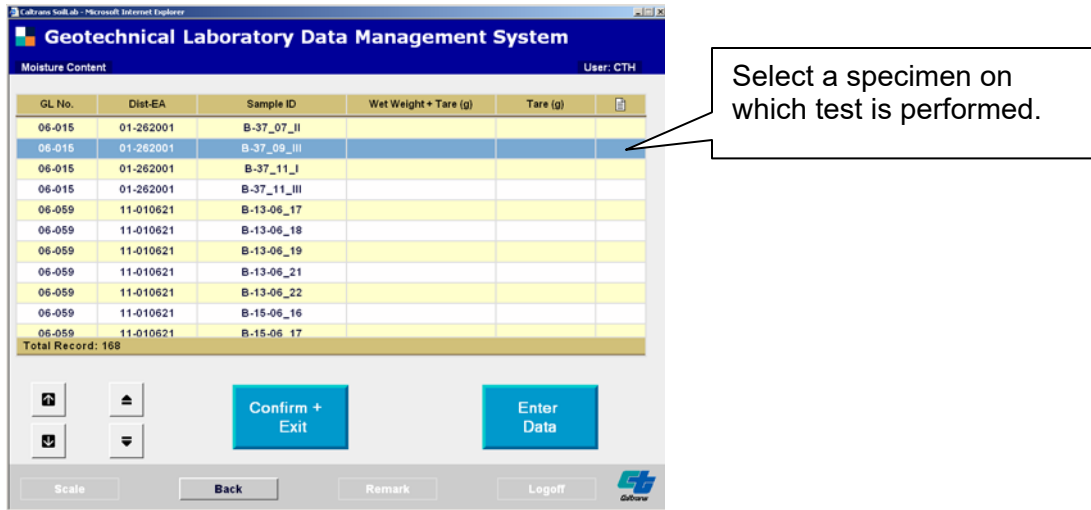
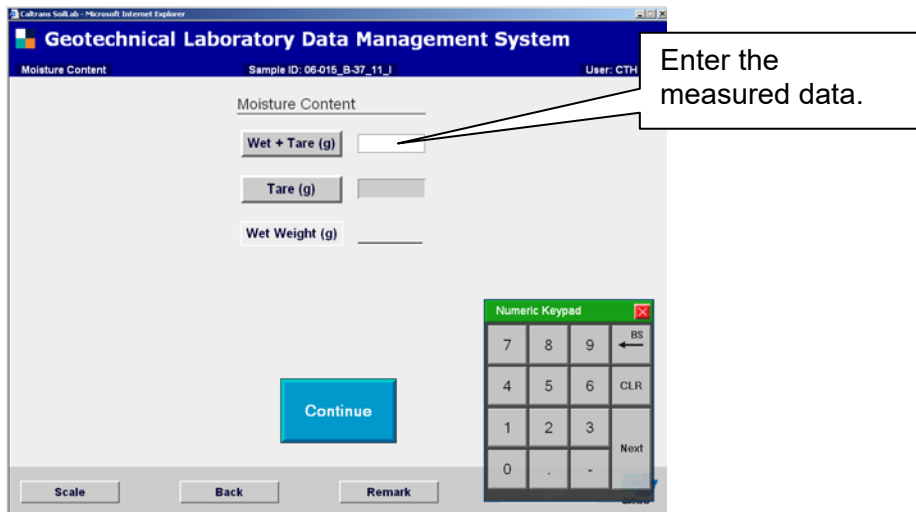


Figure 3-5 — DATA ENTRY page for a moisture content specimen



3.3 Test Approval (Step 4)

After the technician completes the tests, the supervisor reviews and may approve the test results. Figure 3-6 shows the *Review and Approval* page that lists, in this example, a test being reviewed for mechanical analysis. A detailed test report, as shown in Figure 3-7, can be accessed by clicking on *Report* link.

Figure 3-6 — REVIEW AND APPROVAL page for mechanical analysis test

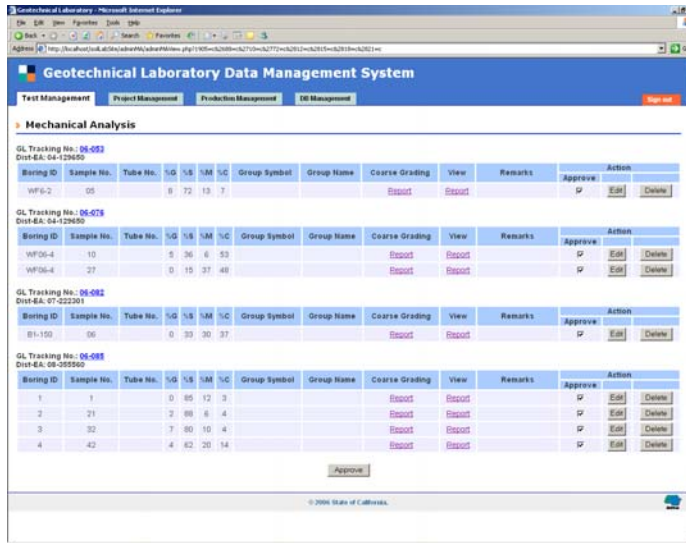
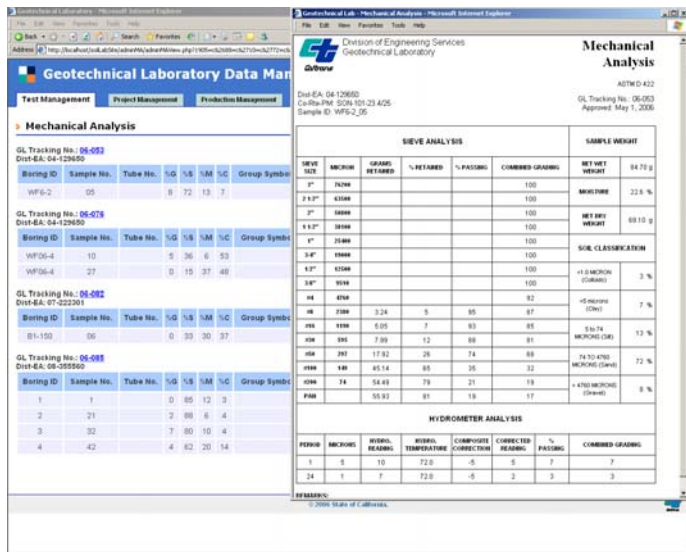


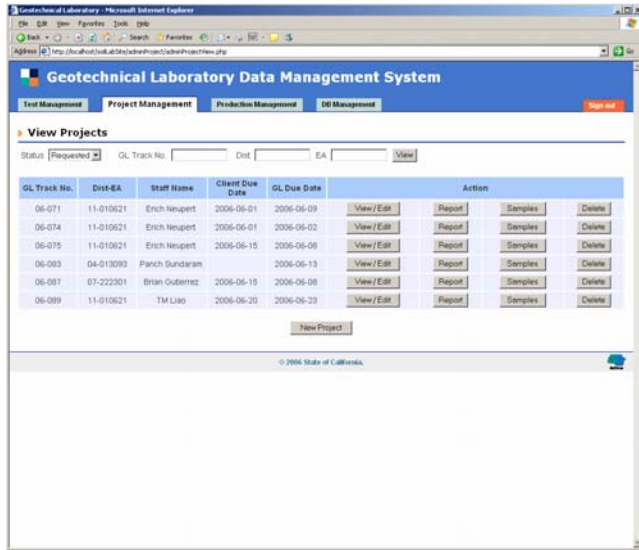
Figure 3-7 — Detailed report of mechanical analysis test



3.4 Report generation (Step 4)

After all tests for a project are approved, the supervisor generates a test summary report from the *View Project* page.

Figure 3-8 — VIEW PROJECT page



The following is an example of a summary report generated.

Figure 3-9 — Test summary report

CALIFORNIA DEPARTMENT OF TRANSPORTATION
 GEOTECHNICAL LABORATORY

GL TRACKING NO: 06-016
 Dist - EA: 10-400-400
 Report Date: June 8, 2006
 Page: 1/1

CLASSIFICATION TEST SUMMARY

SAMPLE ID	% FINER THAN														ATTERBERG LIMITS		AS RECEIVED		Gs				
	3"	2 1/2"	2"	1 1/2"	1"	3/4"	1/2"	3/8"	No. 4	No. 8	No. 16	No. 30	No. 50	No. 100	No. 200	5 μ	1 μ	LL		PI	Y ₁₀ (pct)	%m	
06-01_01																						60.0	2.53
06-01_04										100	99	99	97	93	39	17						27.0	2.72
06-03_02																						58.3	2.57
06-03_03											100	97	80	56	14	7						2.87	
06-03_04																						24.4	2.75
06-03_06												100	99	86	19	9						26.0	2.74
06-04_01																			NP			261.5	2.06
06-05_01																							
06-05_02												100	99	83	36	9	4					32.3	2.72
06-06_03																						34.0	2.73
06-06_06																						24.5	2.74
06-09_03												100	91	38	16	6	1					23.0	
06-09_05																						30.2	2.73
06-10_02										100	99	99	98	97	84	40	20	45	20			55.8	
B7_02																		28	3			30.5	
B7_04a																						24.7	
B7_04b																		31	14			22.8	
B7_04c																						22.1	

4 Laboratory Web Site

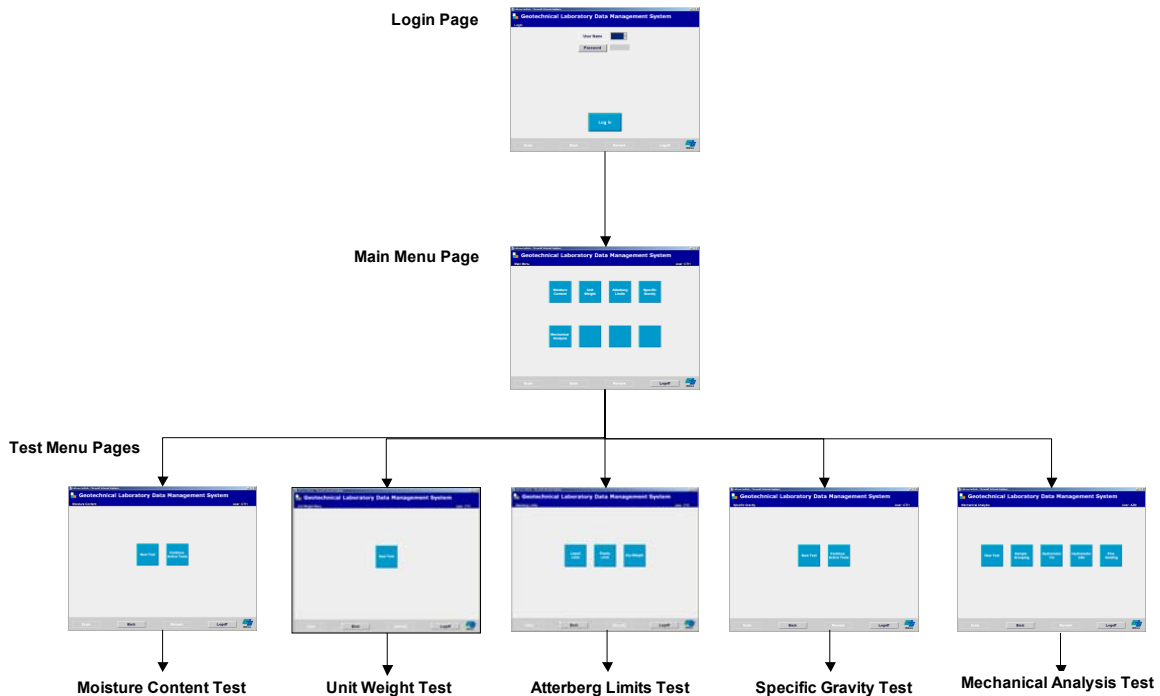
The GLDMS provides a dedicated web site with a custom designed user interface (UI) for touch-screen users. There is no keyboard or mouse at the touch-screen stations; users navigate and input data using the screen.

4.1 Overview of Navigation

Figure 4-2 shows the navigational structure of the laboratory web site for touch screen users.



Figure 4-2 – Structure of the laboratory web site



Login Page – Provides a login form where each user logs in with a unique username and password

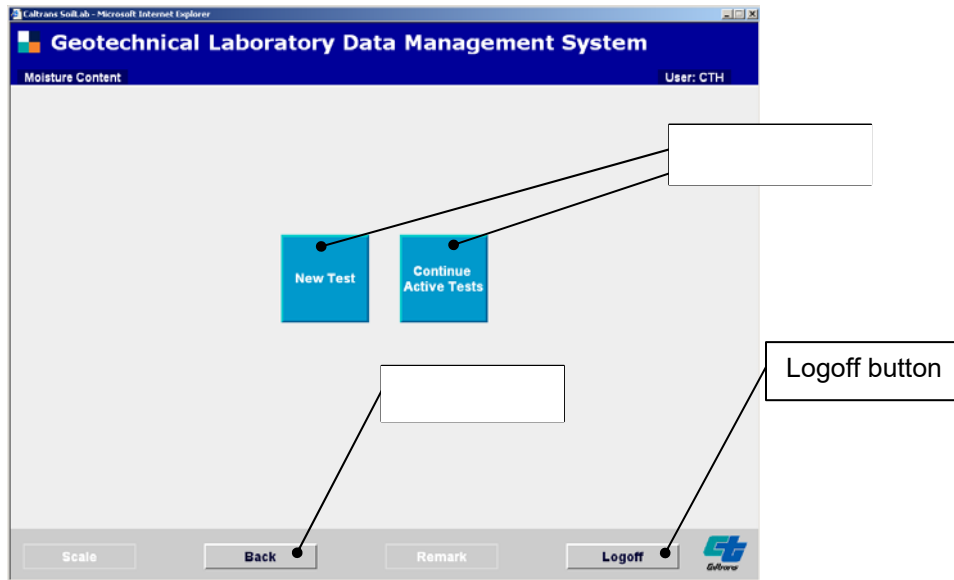
Main Menu – Displays tests that users can perform

Test Menu – Displays the particular tests that the user selected in Main Menu

4.2 Main Menu Web Page

Figure 4-3 shows the *Main Menu* web page that consists of menu buttons, a back button, and a logoff button. Users navigate GLDMS by using these buttons.

Figure 4-3 – Menu Screen



Menu buttons – Display web page name for performing a different task

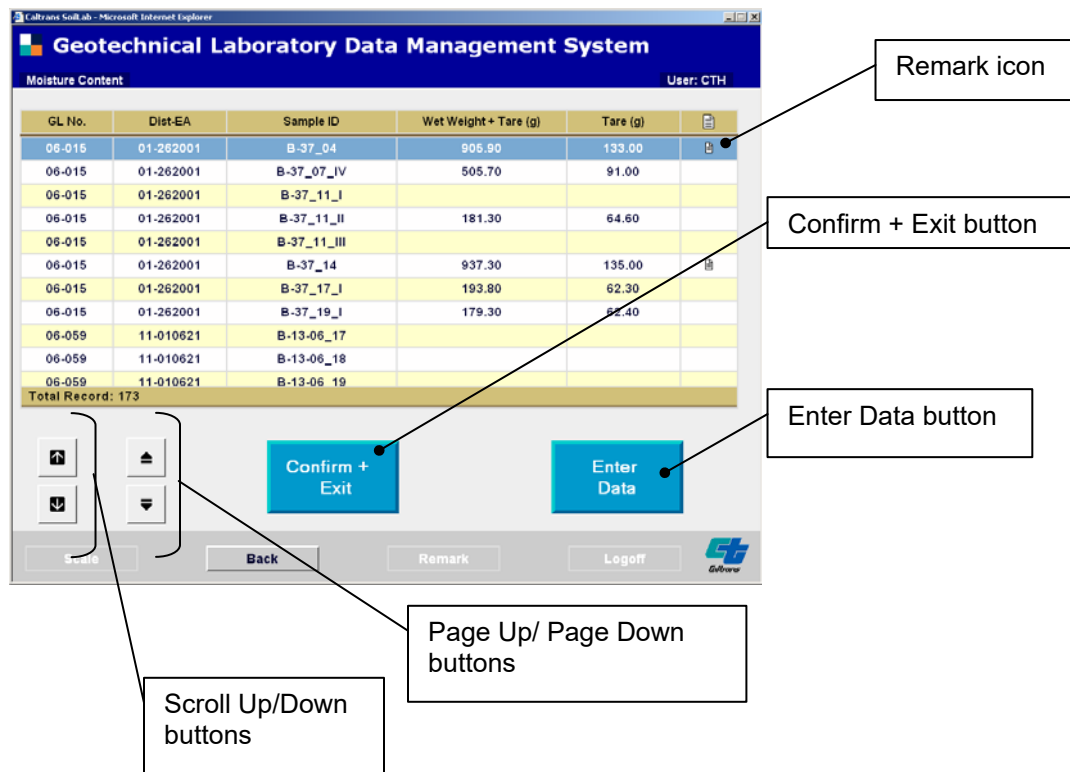
Back button – Displays the previous web page or goes up one level in the navigation

Logoff button – Logs the user off

4.3 Test Listing Web Page

The *Test Listing* web page shows a list of all available tests. Users can choose a test from here, enter additional data, or review data.

Figure 4-4 – Test Listing web page

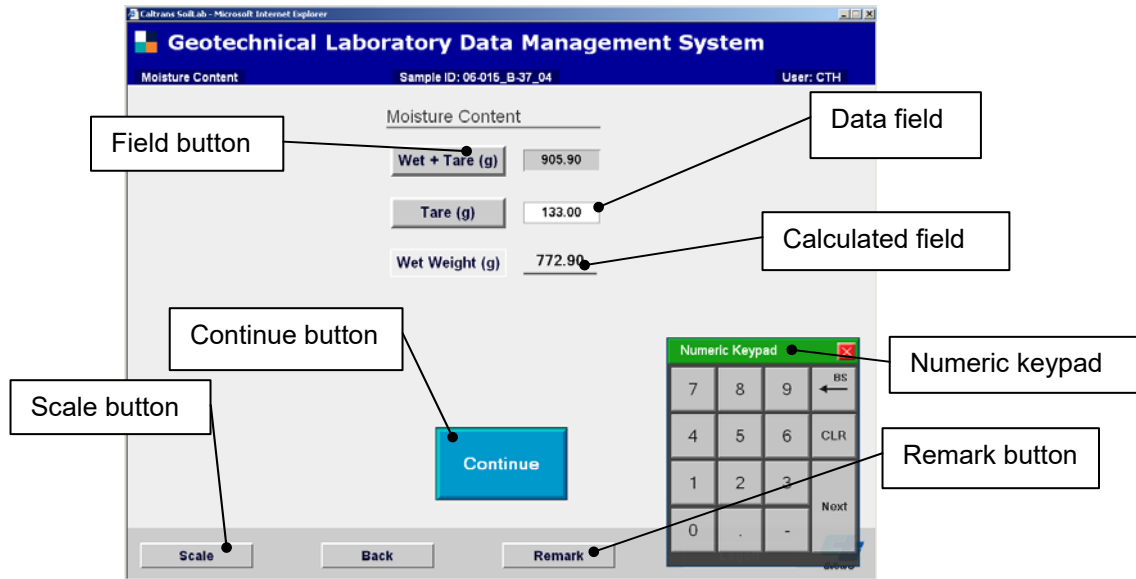


- Scroll** buttons – Scrolls up/down the listing, one line at a time
- Page up/down** buttons – Scrolls the listing, many lines at a time
- Confirm + Exit** button – Saves the listed data to the database and closes the screen
- Enter Data** button – Displays data entry web page for entering a new data
- Remark** icon – Displays a remark for the record

4.4 Data Entry Web Page

The Data Entry screen allows users to enter values for a sample.

Figure 4-5 – Data Entry web page



Field button – Displays a data input box for data entry

Data field – Allows the user to enter a value

Calculated field – Displays a calculated value based on the user's input

Numeric Keypad – Simulates a virtual keyboard number pad

Scale button – Activates the automated scale reading functionality

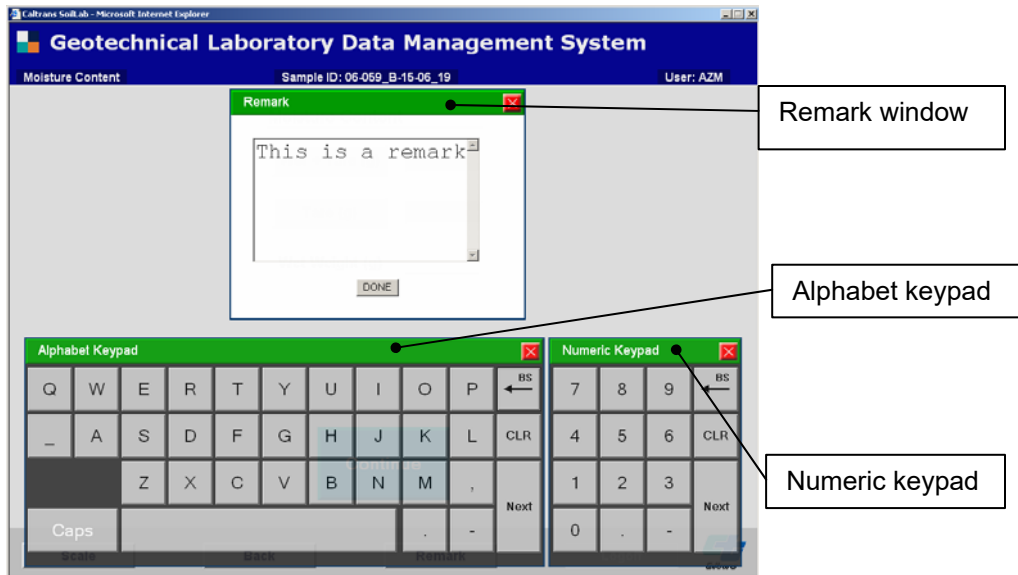
Continue button – Displays the next web page relevant for the test

Remark button – Shows a pop-up window to input remark text

4.5 Remark Pop-Up Window

The Remark window pops open after the *Remark* button is clicked. Users can enter a comment using the virtual keypad provided on the screen.

Figure 4-6 – Remark window



- Alphabet Keypad** – Lets user input letters
- Numeric Keypad** – Lets user input numbers
- Remark window** – Shows the current remark

4.6 Active Tests Web Page

The *Active Tests* web page shows a list of active tests. Users can choose a test from this list, enter additional data, or review the data.

Figure 4-7 – Active Test web page

The screenshot displays the 'Geotechnical Laboratory Data Management System' interface. The page title is 'Mechanical Analysis' and the user is identified as 'User: CTH'. A table lists test records with columns for GL No., Dist-EA, Sample ID, MA Lot No., Container ID, Oven Dry, Wet Weight (g), Moisture, and Dry Weight (g). A callout box labeled 'Data field' points to the 'Moisture' column of the record with Sample ID 'B2-15_B2-3-06'. A 'Numeric Keypad' overlay is visible in the bottom right corner, and a 'Record + Exit' button is located at the bottom center of the page.

GL No.	Dist-EA	Sample ID	MA Lot No.	Container ID	Oven Dry	Wet Weight (g)	Moisture	Dry Weight (g)
06-015	01-262001	B-37_11_I	06-09-06		<input type="radio"/> Yes <input type="radio"/> No			
06-015	01-262001	B-37_11_III	06-09-06		<input type="radio"/> Yes <input type="radio"/> No			
06-086	08-355560	5_52	06-09-06		<input type="radio"/> Yes <input type="radio"/> No		0.4	
06-086	08-355560	B1-15_B1-1-06	06-09-06		<input type="radio"/> Yes <input type="radio"/> No			
06-086	08-355560	B1-15_B1-5-06	06-09-06		<input type="radio"/> Yes <input type="radio"/> No			
06-086	08-355560	B2-15_B2-3-06	06-09-06		<input type="radio"/> Yes <input type="radio"/> No			
06-086	08-355560	B2-15_B2-5-06	06-09-06		<input checked="" type="radio"/> Yes <input type="radio"/> No			
06-086	08-355560	B3-15_B3-5-06	06-09-06		<input type="radio"/> Yes <input type="radio"/> No			
06-086	08-355560	B4-15_B4-3-06	06-09-06		<input type="radio"/> Yes <input type="radio"/> No			
06-086	08-355560	B4-15_B4-5-06	06-09-06		<input type="radio"/> Yes <input type="radio"/> No			

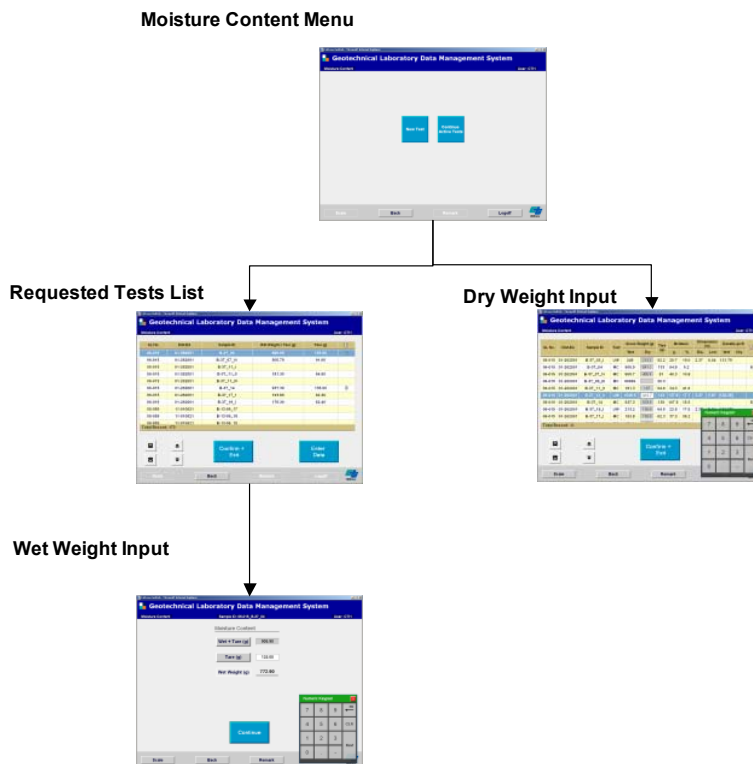
Data field – unlike the **Test Listing** web page, new values can be entered directly from within the screen

4.7 Navigation of Moisture Content Test

After clicking on the **Moisture Content Test** button located in the **Main Menu** web page, the user will access the **Moisture Content Menu** web page. The user can go back to the **Main Menu** by either:

- Clicking on the **Back** button
- Complete the test by clicking on the **Confirm + Exit** button

Figure 4-8 – Navigation of Moisture Content Test



Moisture Content Menu – Shows options to select to start a new test or continue active tests.

Requested Tests List – Lists available specimens (parts of a sample on which a test is performed).

Wet Weight Input – Displays data-entry web page for the selected specimen. Wet weight and tare weight can be entered.

Dry Weight Input – Lists specimens for which there is already wet weight data. Dry weight can be entered on the screen.

4.8 Navigation of Unit Weight Test

After clicking on the **Unit Weight Test** button located in the **Main Menu** web page, the user will access the **Unit Weight Menu** web page. The user can go back to the **Main Menu** by either:

- Clicking on the **Back** button
- Complete the test by clicking on the **Confirm + Exit** button

Figure 4-9 – Navigation of Unit Weight Test

Unit Weight Menu



Requested Tests List



Diameter & Length Input



Wet Weight Input for Density



Wet Weight Input for Moisture Content



Unit Weight Menu – Starts the Unit Weight test process

Requested Tests List - Lists available specimens (parts of a sample on which a test is performed).

Diameter & Length Input - Displays data-entry web page for the selected specimen. Three different diameter and length values will be entered.

Wet Weight Input for Density - Wet weight and tare weight values will be entered and density value will be automatically calculated for the specimen.

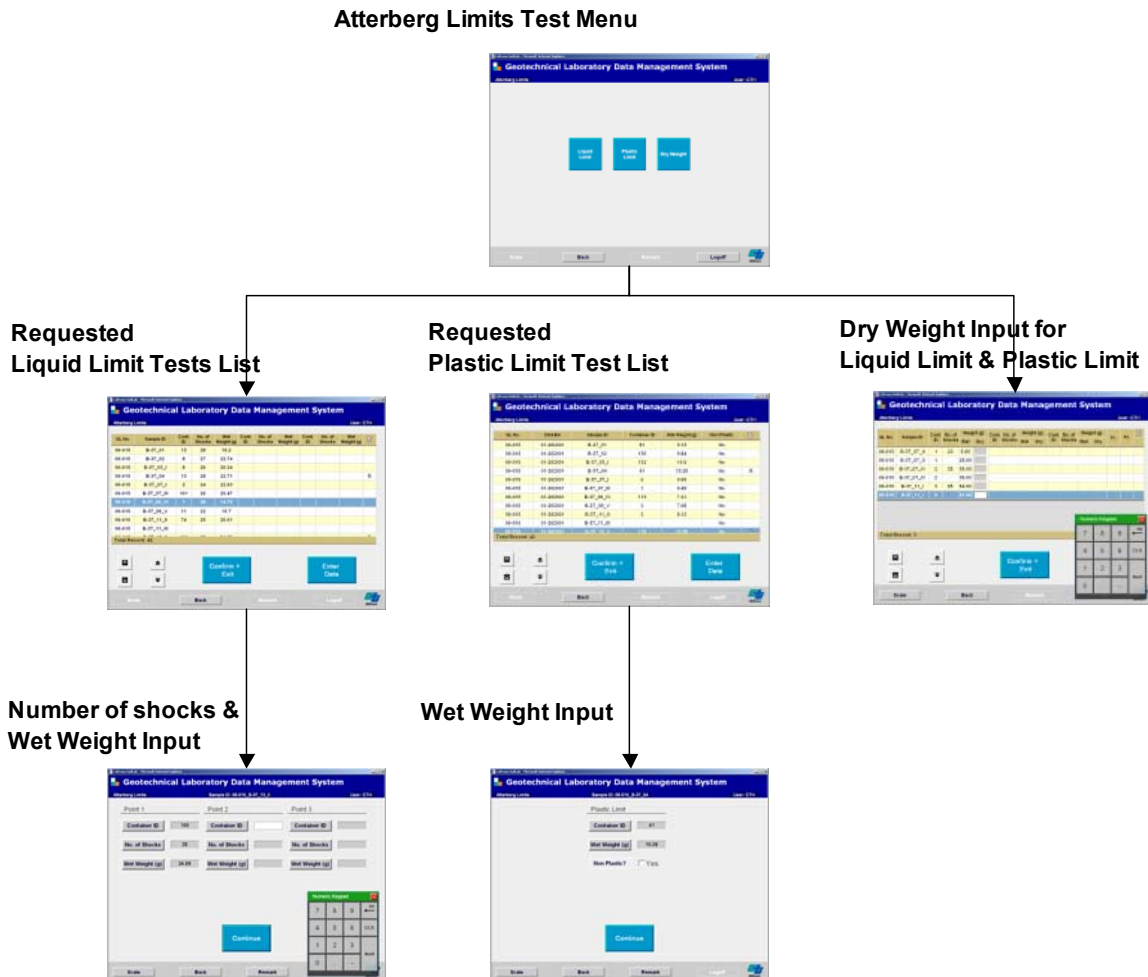
Wet Weight Input for Moisture Content – Wet weight and tare weight values will be entered and moisture content value will be automatically calculated for the specimen.

4.9 Navigation of Atterberg Limits Test

After clicking on the **Atterberg Limits Test** button in the **Main Menu** web page, the user will access the **Atterberg Limits Test Menu** web page. The user can go back to the **Main Menu** by either:

- Clicking on the **Back** button
- Complete the test by clicking on the **Confirm + Exit** button

Figure 4-10 – Navigation of Atterberg Limits Test



Atterberg Limits Menu – Starts the Atterberg Limits test process.

Requested Liquid Limit Tests – Lists specimens (parts of a sample on which a test is performed) that need liquid limit test performed.

Number of shocks & Wet Weight Input – Displays data-entry web page for the selected specimen. *Container ID*, *number of shocks* and *wet weight* values will need to be entered for the selected liquid limit specimen. Values will be entered either once or three times depending on the test method used.

Requested Plastic Limit Tests - Lists specimens that need plastic limit test performed.

Wet Weight Input – Displays data-entry web page for the selected specimen. Container ID and wet weight values can be entered.

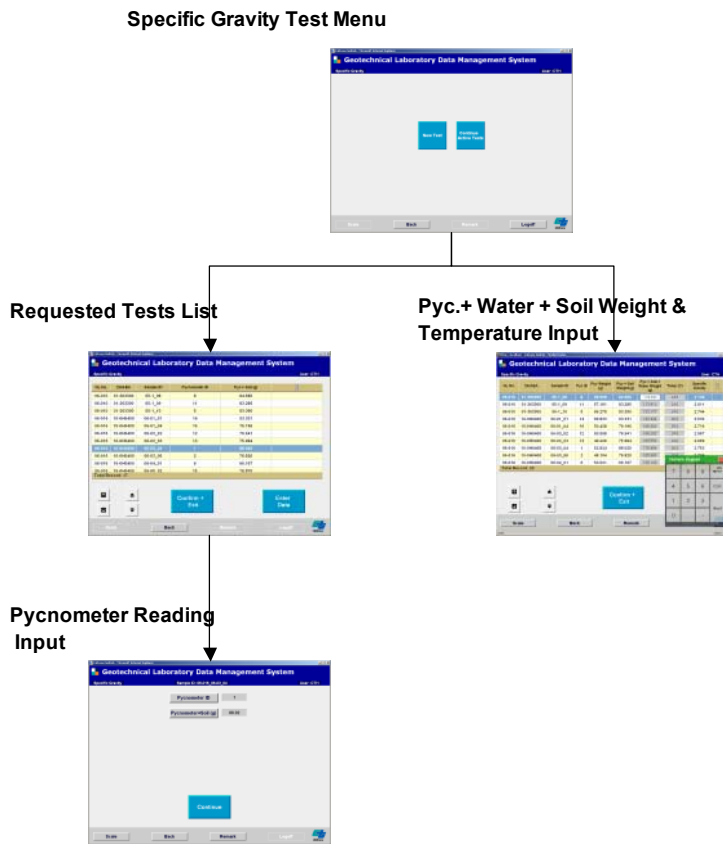
Dry Weight Input for Liquid Limit & Plastic Limit – Lists specimens for which the plastic limit test and liquid limit test have already been performed. Dry weights for plastic limit test and liquid limit test will need to be entered.

4.10 Navigation of Specific Gravity Test

After clicking on the **Specific Gravity Test** button in the **Main Menu** web page, the user will access the **Specific Gravity Test Menu** web page. The user can go back to the **Main Menu** by either:

- Clicking on the **Back** button
- Complete the test by clicking on the **Confirm + Exit** button

Figure 4-11 – Navigation of Specific Gravity Test



Specific Gravity Test Menu – Starts the specific gravity test process.

Requested Tests List – Lists specimens (parts of a sample on which a test is performed) that need specific gravity test performed.

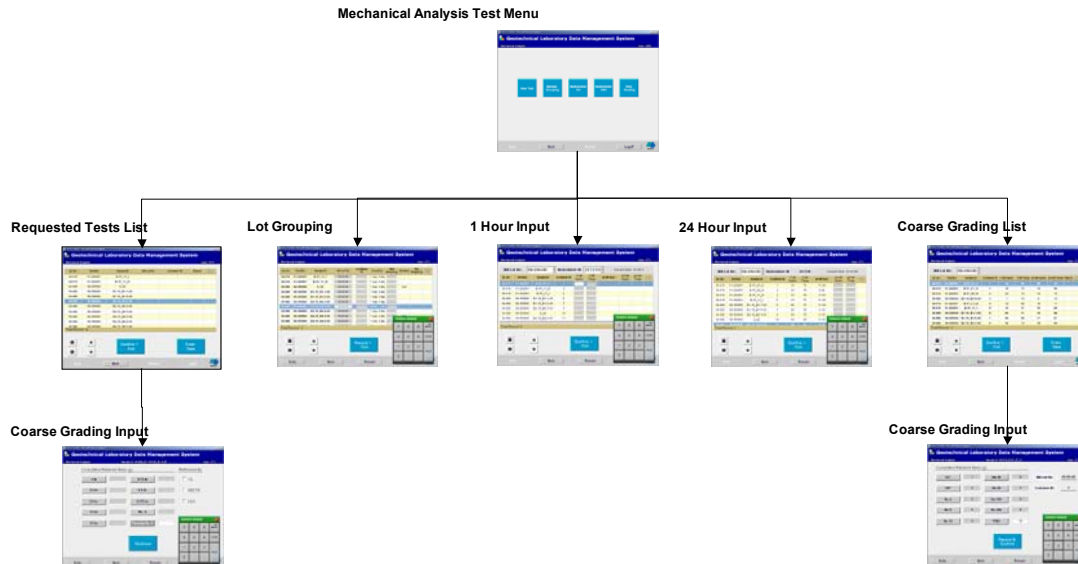
Pycnometer Reading – Displays data-entry web page for the selected specimen. *Pycnometer ID*, *pycnometer* and soil weight values will need to be entered for the selected specimen.

Pyc.+Water + Soil Weight and Temperature Input – Lists specimens for which pycnometer readings have already been entered.

4.11 Navigation of Mechanical Analysis Test

After clicking on the **Mechanical Analysis Test** button in the **Main Menu** web page, the user will access the **Mechanical Analysis Test Menu** web page.

Figure 4-12 – Navigation of Mechanical Analysis Test



Mechanical Analysis Test Menu – Starts the mechanical analysis test process.

Requested Tests List – Lists specimens (parts of a sample on which a test is performed) that need coarse grading value.

Coarse Grading Input – Displays data-entry web page for the selected specimen. Cumulative retained mass for coarse grading and the name of the person who performed the coarse grading test.

Lot Grouping – Lists specimens that already have coarse-grading value. On this screen, *MA Lot No.*, *Container ID*, and *wet weight* values can be entered.

1-Hour Input – Lists specimens that are grouped by a *MA Lot No.* assigned during Lot Grouping stage. Users should choose a *Hydrometer ID* for the group, and enter 1-hour temperature reading of each specimen in the group.

24-Hour Input – Lists specimens that have completed 1-hour readings grouped by *MA Lot No.* Users will enter 24-hour temperature readings of each specimen in the group

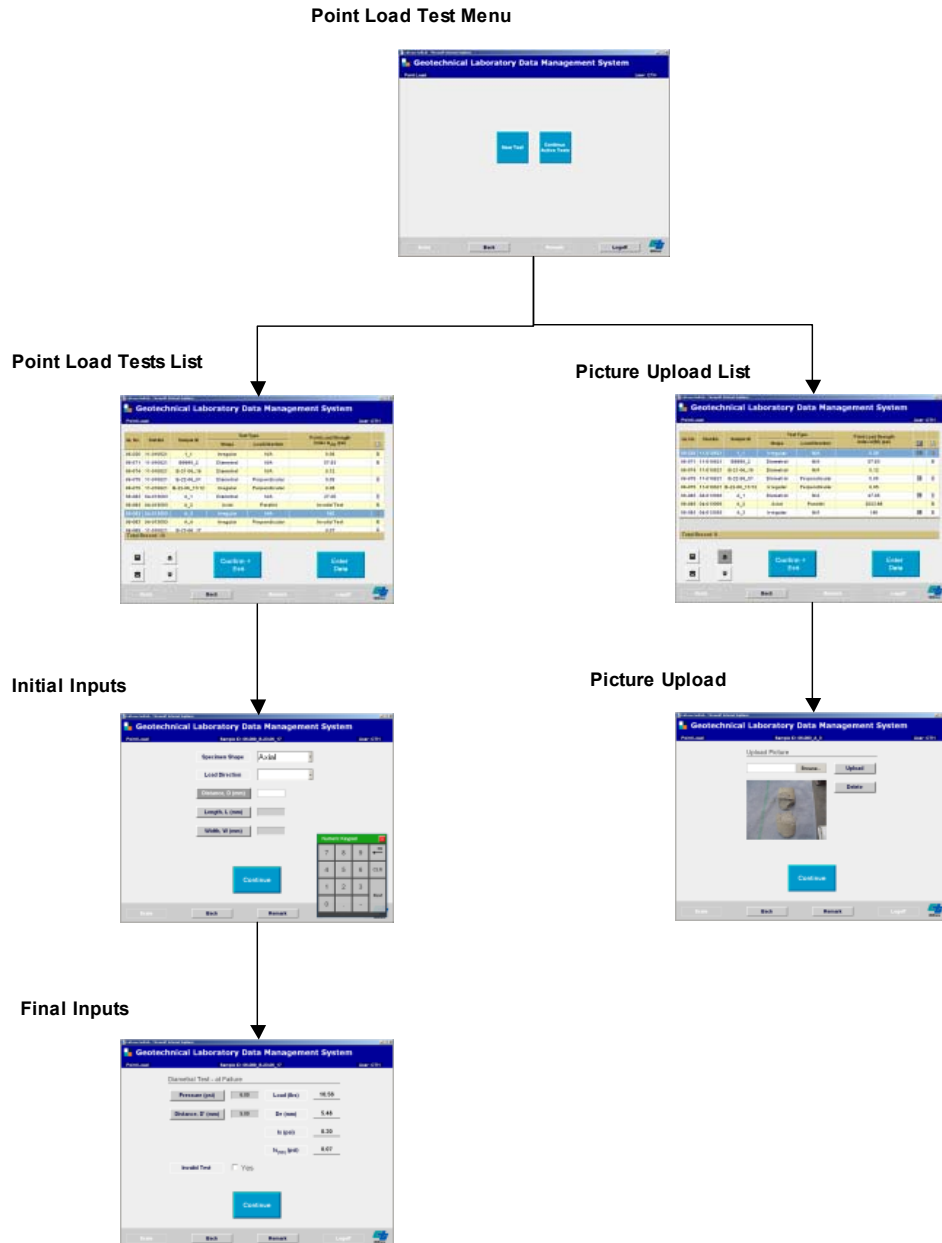
Fine Grading List – Lists specimens that have completed 24-hour readings and need fine grading value.

Fine Grading Input – Displays data-entry web page for the selected specimen. Cumulative retained mass for fine grading will need to be entered.

4.12 Navigation of Point Load Test

After clicking on the **Point Load Test** button located in the **Main Menu** web page, the user will access the **Point Load Test Menu** web page.

Figure 4-13 – Navigation of Mechanical Analysis Test



Point Load Test Menu – Starts the point load test process.


Point Load Tests List – Lists specimens (parts of a sample on which a test is performed) that need point load test performed.

Initial Input – Displays data-entry web page for the selected specimen. Using pull down menus, users can select a shape of the specimen and a load direction. Depending on the selected shape, users will be asked to fill out additional data fields

After Failure Input – Users can either check the **Invalid Test** checkbox or enter two values:

1. Pressure at Failure in *psi*
2. Final Distance in *mm*

As these values are being entered, GLDMS will automatically calculate pressure failure, D_e (*mm*), I_s (*psi*), and $I_s(50)$ (*psi*) values and show them on the right side of the web page.

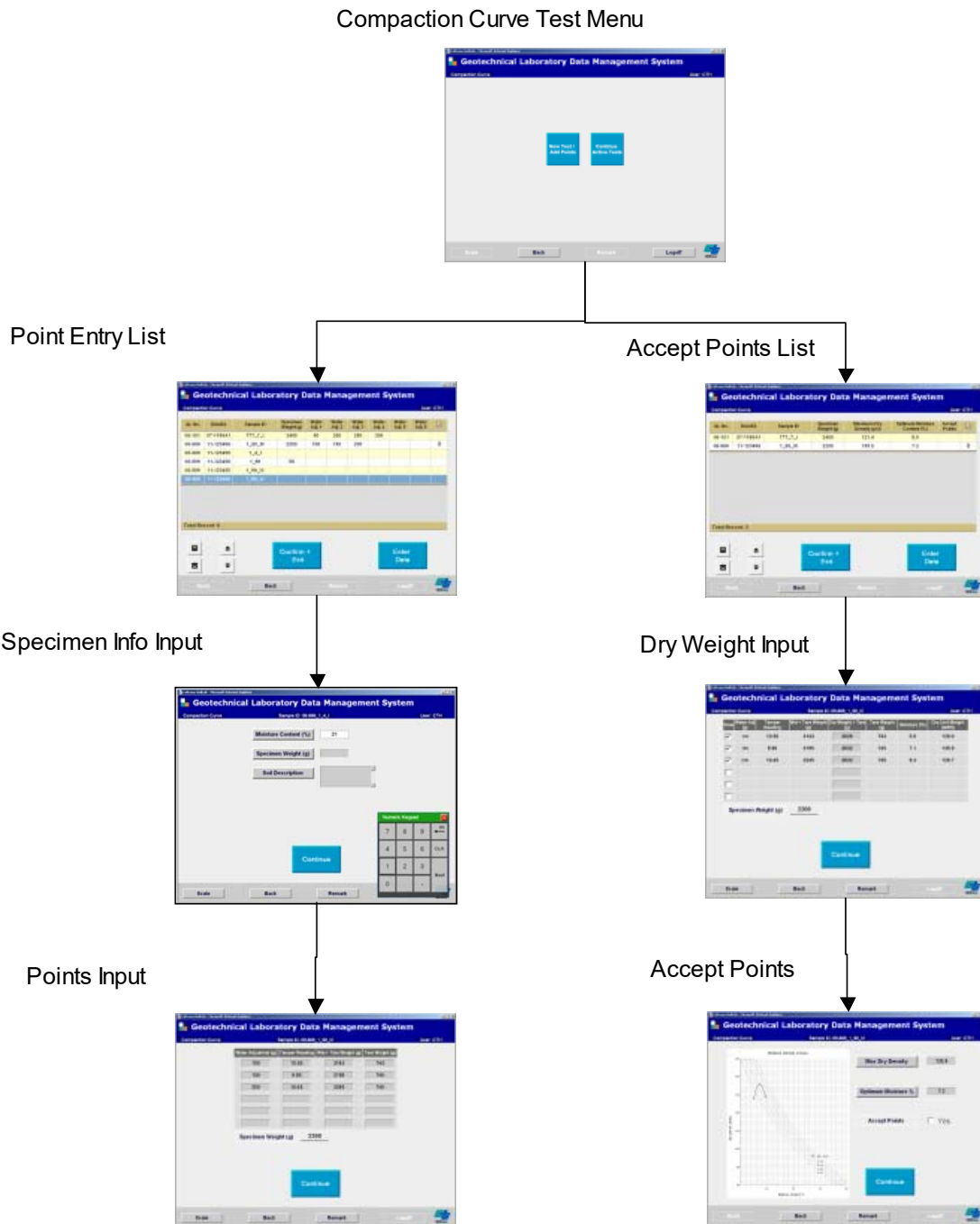
Picture Upload List – Lists specimens that completed initial input and after failure input. Specimens that have  icon indicated they have a photo uploaded.

Picture Upload – Users can delete or overwrite existing photo. If no previous photos exist, users can upload new photo for the selected specimen.

4.13 Navigation of Compaction Curve Test

After clicking on the **Compaction Curve Test** button in the **Main Menu** web page, the user will access the **Compaction Curve Test Menu** web page.

Figure 4-14 – Navigation of Compaction Curve Test



Compaction Curve Test Menu – Starts the compaction curve test process.

Point Entry List – Lists specimens (parts of a sample on which a test is performed) of active or requested point-load tests.

Specimen Info Input – If the specimen has not been confirmed, users will need to provide the following values:

1. Moisture content received from METS
2. Specimen's weights
3. Soil description

Points Input – For each test point, users enter:

- 1) *Water Adjustment (g)*
- 2) *Tamper Reading*
- 3) *Wet + Tare Weight (g)*
- 4) *Tare Weight (g)*

Up to six different test points can be entered.

Accept Points List – Lists specimens from active compaction curve tests. Users can complete the specimen by accepting the points for it.

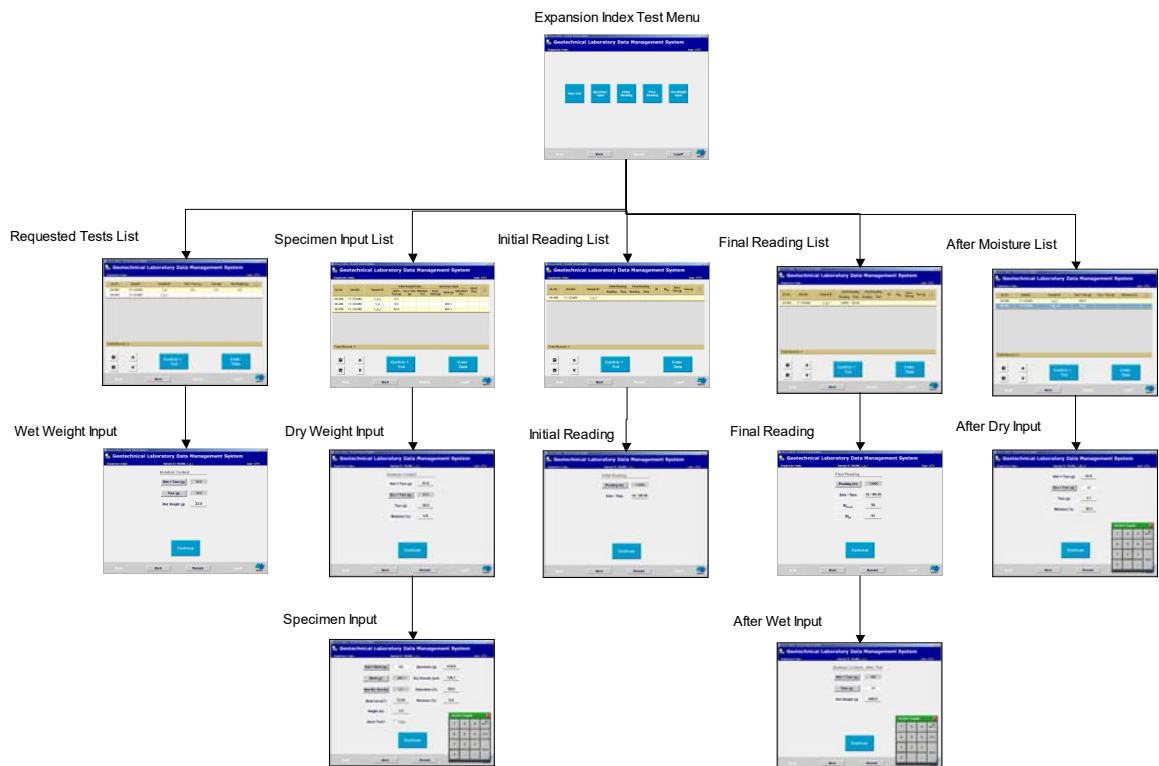
Dry Weight Input – Displays data entry form for the points associated with the selected specimen. Dry weight needs to be entered for each point.

Accept Points – Displays a graph showing the moisture density curve based on the points. If needed, users can enter the maximum dry density and optimum moisture manually.

4.14 Navigation of Expansion Index Test

After clicking on the **Expansion Index Test** button in the **Main Menu** web page, the user will access the **Expansion Index Test Menu** web page.

Figure 4-15 – Navigation of Expansion Index Test



Expansion Index Test Menu – Starts the expansion index test process.

Requested Test List – Lists specimens that may need *wet* weight values.

Wet Weight Input – Displays a form asking for the *wet + tare* weight and tare weight for the mixed sample for the selected specimen.

Specimen Input List – Lists specimens that have wet weight values. Only specimens belonging to active expansion index tests will be listed.

Dry Weight Input – Displays a form asking the *dry + tare* weight for the selected specimen. The moisture content will be calculated automatically.

Specimen Input – Displays a form requiring *soil + mold* weight, *mold* weigh, and *specific gravity*. The *weight*, *dry density*, *saturation*, and *moisture* of the specimen are calculated automatically. The saturation value has to be in the range of 40-60 to continue the test.

Initial Reading List – Lists specimens that completed specimen input process. Only specimens belonging to active expansion index tests will be listed.

Initial Reading – Displays a form to enter a value from the initial reading. Date and time of the input is recorded automatically.

Final Reading List- Lists specimens that completed initial reading process. Only specimens belonging to active expansion index tests will be listed.

Final Reading - Displays a form to enter a value from the final reading. *Date and time* of the input is recorded automatically.

After Wet Input – Displays form to enter the *wet + tare* weight and *tare* weight for the specimen after the expansion test.

After Moisture List – Lists specimens that completed final reading process. Only specimens belonging to active expansion index tests will be listed.

After Dry Input - Displays form to enter the *dry* weight for the specimen after the expansion test.

5 Administrative Web Site

The administrative web site is designed to be accessed from typical computers equipped with keyboard and mouse. It features a user interface designed using standard web page design conventions. Unlike the laboratory web site, virtual keypad or navigational buttons are not used; instead, the administrative web site features printer-friendly views and ability to see a large set of data entries.

Figure 5-1 – Typical administrative UI screen

The screenshot displays the Geotechnical Laboratory Data Management System (GLDMS) administrative interface. The browser window title is "Geotechnical Laboratory - Microsoft Internet Explorer". The address bar shows a URL starting with "http://localhost/soil.abSite/adminSG/adminSGView.php?". The main header includes the system name and navigation tabs: "Test Management", "Project Management", "Production Management", and "DB Management". A "Sign out" button is visible in the top right corner. Below the header, there is a "Printable Version" link. The main content area displays three tables of "Specific Gravity" data, each with a "Navigation Link" and "Action Buttons" (Approve, Edit, Delete). Callouts point to these elements: "Sign-out Button", "Printable-Version icon", "Categories Tab", "Navigation Link", and "Action Buttons".

Boring ID	Sample No.	Tube No.	Pycnometer No.	Weights (g)		Temp (C)	Specific Gravity	Remarks	Action	
				Pycnometer + Soil	Pycnometer + Soil + Water				Approve	Edit
B-2	S-02		14.0	94.514	183.907	25.0	2.717		<input checked="" type="checkbox"/>	Edit
B-3	S-02		10.0	83.651	173.687	25.0	2.723		<input checked="" type="checkbox"/>	Edit
B-3	S-06				166.130	22.0	2.742		<input checked="" type="checkbox"/>	Edit
B-3	S-09				165.603	22.0	2.748		<input checked="" type="checkbox"/>	Edit
B-3	S-12				165.567	22.0	2.764		<input checked="" type="checkbox"/>	Edit
B-4	S-02		2.0	78.915	167.224	21.0	2.705		<input checked="" type="checkbox"/>	Edit Delete

Boring ID	Sample No.	Tube No.	Pycnometer No.	Weights (g)		Temp (C)	Specific Gravity	Remarks	Action	
				Pycnometer + Soil	Pycnometer + Soil + Water				Approve	Edit
P-02	6A	I	1.0	88.152	178.591	24.0	2.755		<input checked="" type="checkbox"/>	Edit Delete
P-05	4	IV	6.0	76.962	166.774	23.0	2.701		<input checked="" type="checkbox"/>	Edit Delete
P-05	5	III	15.0	73.478	163.797	23.0	2.760		<input checked="" type="checkbox"/>	Edit Delete
P-08	3	II	16.0	78.776	168.053	24.0	2.752		<input checked="" type="checkbox"/>	Edit Delete
P-08	5	IV	12.0	78.291	167.669	25.0	2.725		<input checked="" type="checkbox"/>	Edit Delete
P-11	7A	I	17.0	93.775	183.536	25.0	2.704		<input checked="" type="checkbox"/>	Edit Delete
P-12	4A	I	20.0	93.582	183.351	25.0	2.756		<input checked="" type="checkbox"/>	Edit Delete

Boring ID	Sample No.	Tube No.	Pycnometer No.	Weights (g)		Temp (C)	Specific Gravity	Remarks	Action	
				Pycnometer + Soil	Pycnometer + Soil + Water				Approve	Edit
06-06	4		7.0	91.546	181.824	23.0	2.733		<input checked="" type="checkbox"/>	Edit Delete

Categories tab – Displays different category

Sign-out button – Signs the user out from GLDMS

Printable-Version icon – Displays a printer-friendly version of the web page

Action button – Makes change or removes the record

Navigation Link – Displays a screen that shows more detailed information

5.1 Overview of User Groups and Privileges

After logging in to the GLDMS, users can navigate through the web site using categories tabs as shown in Figure 4-1. Unlike the laboratory web site, the administrative web site provides different contents for different groups of users according to their privilege.

The GLDMS users are divided into the following groups: staff, supervisor, or administrator. The privileges for each group assigned as follows:

- Staff – These users can only input new test data and review past data.
- Supervisors – In addition to the staff privileges, supervisors can edit, delete tests, samples, and project records.
- Administrators – Besides being able to do everything supervisors can do, administrators can view, edit, and delete records for users, pycnometers, and hydrometers.

Figure 5-2 – User Groups and Assigned Privileges

User Group	Assigned Privileges	Accessible Tabs
Staff	Input new test data Review old data	Test Management
Supervisors	Input new test data Review old data Edit/Delete tests Edit/Delete samples Edit/Delete projects	Test Management Project Management Production Management
Administrators	Input new test data Review old data Edit/Delete tests Edit/Delete samples Edit/Delete projects Edit/Delete users Edit/Delete pycnometers Edit/Delete hydrometers	Test Management Project Management Production Management Database Management

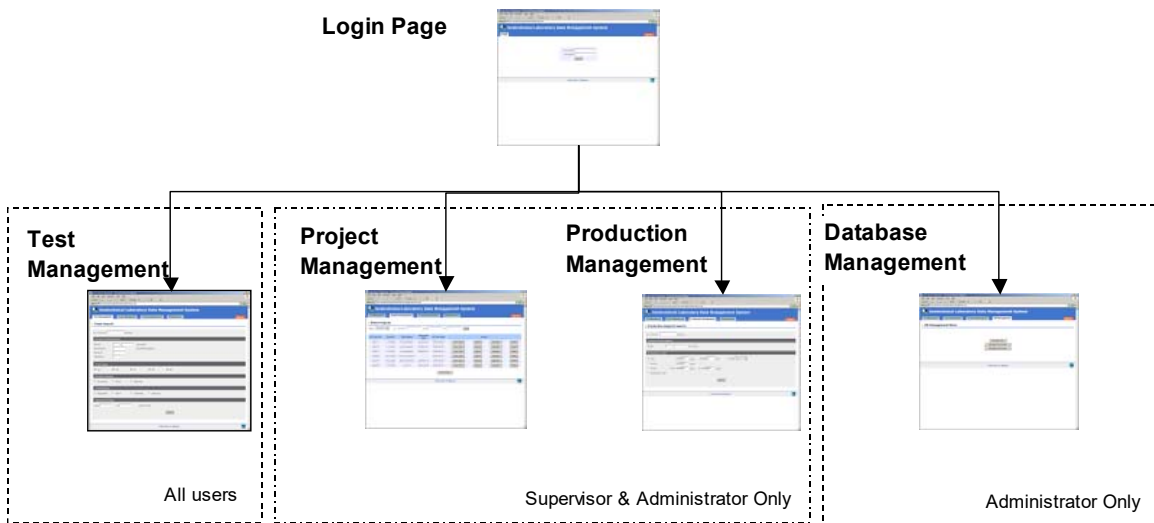
5.2 Navigation of Main Categories

The administrative web site has four categories for managing the test data:

1. Test management
2. Project management
3. Production management
4. Database management

These categories are shown as tabs in the web site. (See Figure 5-1.) After logging in to GLDMS, all users can access to the Test Management tab. Supervisors and administrators have access to the Test Management, Project Management, and Production Management tabs. Administrators have an additional privilege to the Database Management tab.

Figure 5-3 – Navigation of Main Categories



Login Page – Provides a login form where each user logs in with a unique username and password.

Test Management – Lists tests and provides search form to lookup past tests.

Project Management – Lists projects and provides search capability to find past projects.

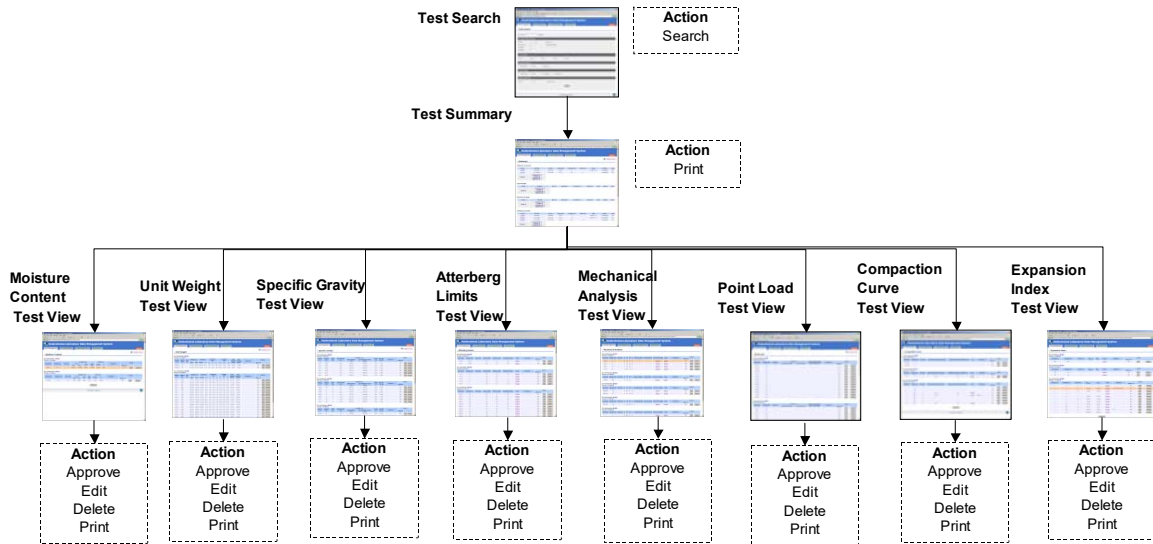
Production Management – Provides a form with search criteria and then displays a production report based on the criteria.

Database Management – Lists database tables and provides buttons to modify them.

5.3 Navigation of Test Management

Users can access the testing data using the test management web pages. In the test management category, staff can view and print test records, while supervisors and administrators can view, print, approve, edit, and delete test records.

Figure 5-4 – Navigation of Test Management



Test Search – Provides a search form where users can select criteria for specific tests.

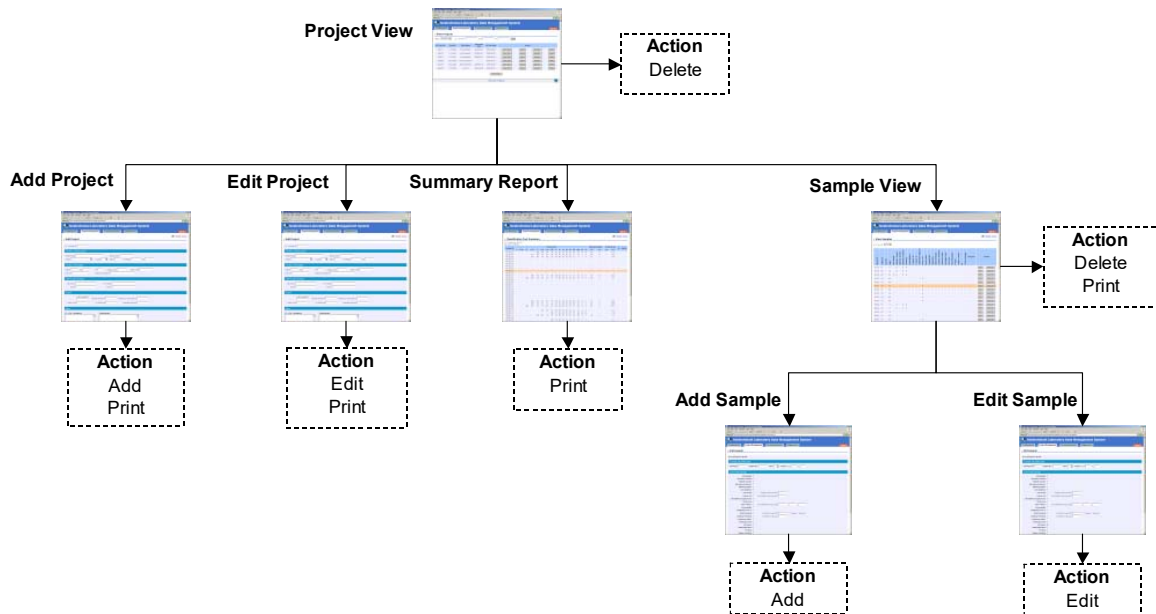
Test Summary – Lists tests that match the search criteria and displays their summary. Users can read and print the summaries or go to web pages that have more detailed test information.

Specific Test Screens – Each test has its own screen that displays detailed information about the selected tests. Staff can access test results and can print them out. Supervisors and administrators can approve, edit, and delete the selected tests.

5.4 Navigation of Project Management

Only supervisors and administrators can access the project management category. They can view, add, edit, and delete projects and associated samples.

Figure 5-5 – Navigation of Project Management



Project View – Lists available projects and provides action buttons to view, search, and delete projects from this screen.

Add Project – Displays a form to add a new project.

Edit Project – Displays a form to edit project details.

Summary Report – Lists available soil classification test summary reports. Reports can be printed and sent to clients.

Sample View – Lists available samples associated with the selected project and provides action buttons to view, search, and delete samples.

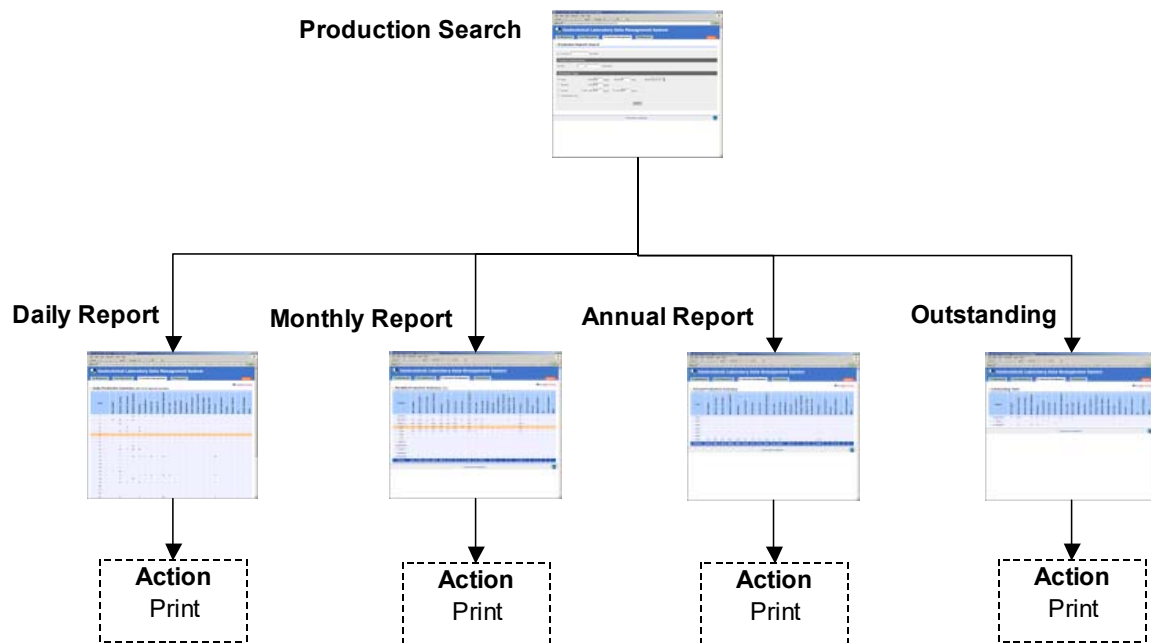
Add Sample– Displays a form to add a new sample and associate it to the project.

Edit Sample – Displays a form to edit selected sample.

5.5 Navigation of Production Management

Supervisors and administrators can monitor the current state of tests for a given period of time. For example, a supervisor can find out how many tests were approved for a particular month.

Figure 5-6 – Navigation of Production Management



Production Search – Provides a search form where users can select criteria for production reports.

Daily Report – Lists available daily production reports.

Monthly Report – Lists available monthly production reports.

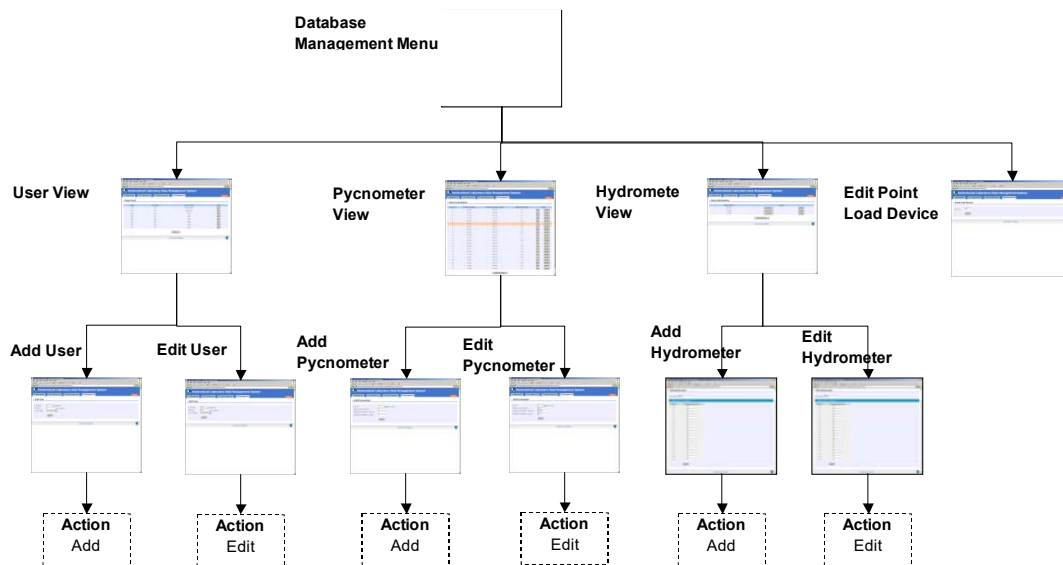
Annual Report – Lists available annual production reports.

Outstanding – Lists available outstanding production reports.

5.6 Navigation of Database Management

Only users with administrator's privileges can access the database management screens. Administrators can modify the following database tables: *user* table, *pycnometer* table, *hydrometer* table, and *point load device* table. When administrators make changes to these database tables, the changes reflect to GLDMS immediately.

Figure 5-7 – Navigation of Database Management



Database Management Menu – Lists databases tables that administrators can manage records.

User View – Displays current listing of user logins.

Add User – Displays a form to add a new user login to GLDMS.

Edit User – Provides a form to edit selected user login information.

Pycnometer View – Lists pycnometers available in GLDMS.

Add Pycnometer – Displays a form to add a new pycnometer to GLDMS.

Edit Pycnometer – Provides a form to edit selected pycnometer details.

Hydrometer View – Lists hydrometers available in GLDMS.

Add Hydrometer – Displays a form to add a new hydrometer to GLDMS.

Edit Hydrometer – Provides a form to edit selected hydrometer details.

Edit Point Load device – Provides a form to edit details of the selected point load device.

6 System Implementation

6.1 Technologies and Applications Used in GLDMS

Figure 6-1 – Technologies used in GLDMS

Name	Description
PHP	Server-side programming language
PEAR Libraries	The PHP extension and application repository
HTML	A markup language for web pages.
JavaScript	Client-side programming language
Document Object Model (DOM)	Object model used in web browsers to display web pages
Cascading Style Sheet (CSS)	Simple mechanism to specify the presentation of HTML documents
Perl	Scripting language that was utilized for serial port communication

Figure 6-2 – Applications used in GLDMS

Name	Description
Apache HTTP Server 2.0	Web Server
PHP 5.1.2	Server Side Programming Language
PEAR HTML_Template_IT library	HTML template management
PEAR Image_Graph	Chart drawing library
PEAR Math_Matrix	Matrix calculation library
MySQL server 5.0	Database Management Server
mysql admin 1.1.9	Database administrative tool
phpMyAdmin 2.8	Database management tool
ActivePerl 5.8	Programming Language used for scale reading
Win32::API	Perl module for Win32 API (for serial port)
Win32::SerialPort	Perl module for Win32 serial port connection
Win32::CommPort	Perl module for Win32 comm port connection

6.1.1 PHP

The GLDMS uses PHP programming language to dynamically generate web pages on the web server. PHP is the most widely used web scripting language to build database-driven web sites. There are many advantages of using PHP as a server-side programming language because PHP is:

- Platform independent – PHP can run on many different web servers and operating system unlike Microsoft’s Active Server Pages technology.
- Widely used – There are plenty of resources available to solve problems.
- Open source – PHP’s open source community of volunteer programmers continually improve and expand the capabilities of PHP. In addition, PHP is provided free of charge.
- Fast execution speed – PHP generates web pages faster than any other popular scripting tools.

6.1.2 PEAR Integrated Templates

To efficiently organize the large PHP code base of the GLDMS, PEAR Integrated Templates (PEAR IT) was utilized. PEAR IT can be downloaded from http://pear.php.net/package/HTML_Template_IT. PEAR IT provides a library of PHP classes to be used to separate the programming logic written in PHP from the presentation code written in HTML.

With PEAR IT, a web page is generated from one or more *HTML template* files and a PHP file. HTML template files do not contain any PHP code. They only contain HTML presentation code and placeholders for PHP variables. In contrast, PHP files do not contain any HTML code, and they only contain PHP codes and are linked to their relevant HTML template files by using PHP’s *include* statement. PHP code performs calculations and assigns values to the variable placeholders located in HTML template files.

By separating PHP code from HTML code, a change in web page appearance can be made without changing any PHP code. However, quite often a change in appearance may add/remove PHP variable placeholders. In that case, the corresponding PHP code needs to be updated to provide a required value for placeholders.

6.1.3 Dynamic HTML (JavaScript, CSS, and DOM)

Dynamic HTML (DHTML) technology is used to create the user interface functionalities in the GLDMS. DHTML is a combination of a client-side scripting language JavaScript, the presentation definition language CSS, and DOM. Some of the functionalities achieved by DHTML are:

- Touch Screen Keypad – implemented in *includejs/common.js* file
- Page Up/Down and Scroll buttons – implemented in *includejs/common.js* file
- Input validations – implemented in *includejs/common.js* and a JavaScript code embedded in each HTML template file

6.1.4 MySQL

The GLDMS uses MySQL for the database management system. MySQL is a relational database system widely used in database-driven web sites. Advantages of the MySQL are:

- Platform independent
- Open source community – MySQL is provided free of charge
- Reliable – MySQL provides industry proven stability and reliability

6.1.5 Apache HTTP Server

The GLDMS uses Apache HTTP Server for a web server. The primary reason to use Apache HTTP Server was the limitation of the Internet Information Service (IIS) on Windows 2000 Professional that limits concurrent connections to only 10. Apache web server has more advantages, such as:

- No limitation on concurrent connections
- Platform independent
- Popularity
- Open source community – Apache is provided free of charge

6.2 Generating Pages for Touch Screen Users

A typical web page in the laboratory web site is generated by one PHP file that includes several other files. The other files may include: two HTML template files, two JavaScript files and few other PHP files. The following seven files are almost always included:

- *touchscreen.tpl.html* – the template file that defines the basic layout of the laboratory UI.
- *common.js* – the main JavaScript file to provide client-side functionalities, such as the touch screen keypads and scroll buttons.
- *HTML/Template/ITX.php* – PEAR Integrated Template classes
- *include/db.php* – the database connection code
- *include/sqlCommon.php* – the library of SQL functions
- *include/authentication.php* – the library of user authentication functions
- *include/common.php* – the library of miscellaneous functions

Each web page (a PHP file) in the laboratory web site must have references to a HTML template file that defines the main layout for the page and a Javascript file that defines the client-side logic specific to the page. The references to these files can be found at the top of the PHP file. For example, *maCoarseConfirm.php* file has the following references:

```
@template          maCoarseConfirm.tpl.html
@javascript        recordConfirm.js
```

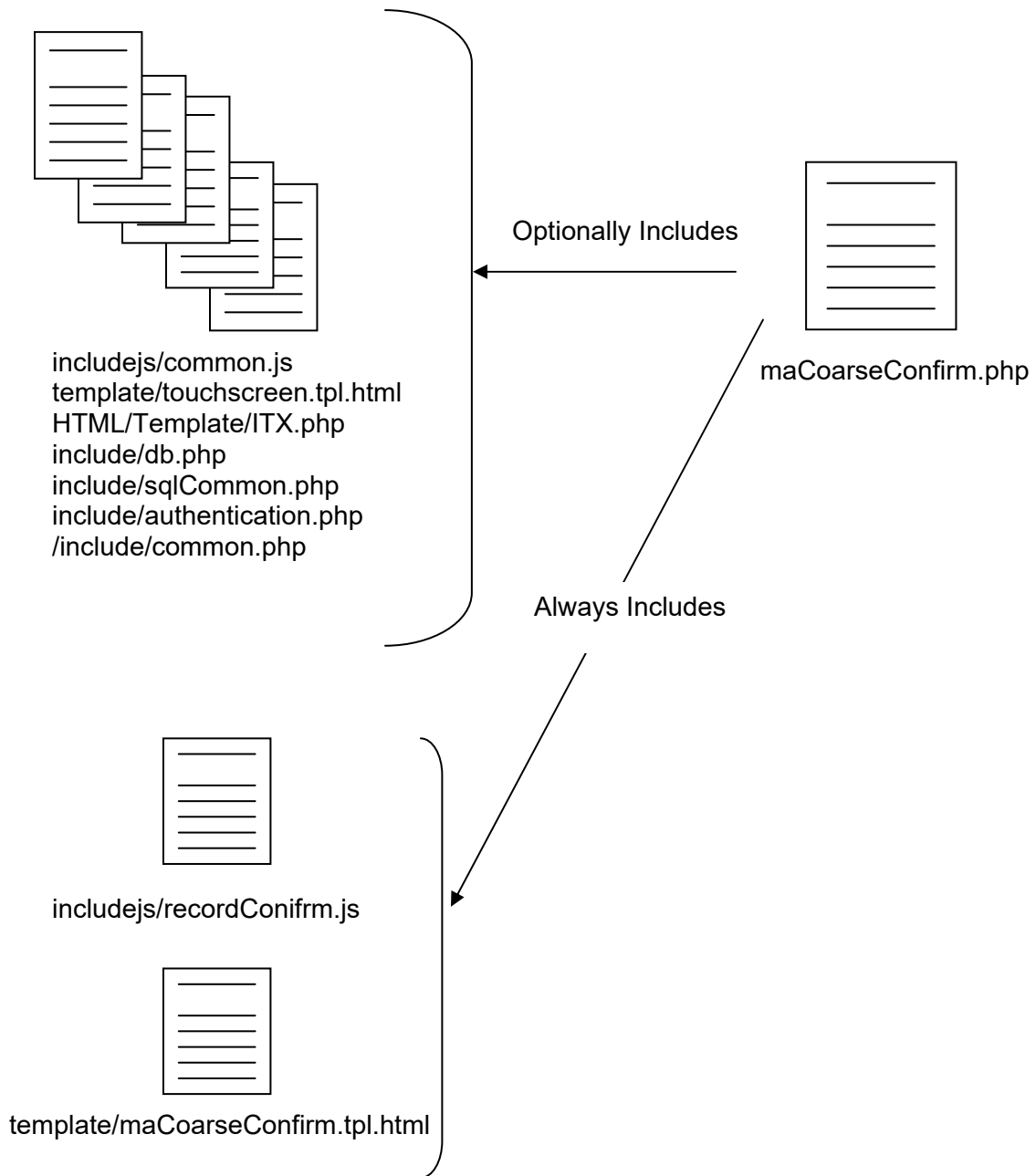
All template files for the web pages reside in the *template* directory, and all the JavaScript files reside in *includejs* directory. Therefore, the actual paths to the files shown above code snippet are: *template/maCoarseConfirm.tpl.html* and *includejs/recordConfirm.js*.

There are additional PHP files may be referenced in a web page. You can find out these file references by reading the *require_once* statements at the beginning of each web page. For example, *maCoarseConfirm.php* file has the following files included:

```
require_once "HTML/Template/ITX.php";
require_once          "../include/db.php";
require_once          "../include/sqlCommon.php";
require_once          "../include/authentication.php";
require_once          "../include/common.php";
```

Figure 6-3 illustrates the file generation process of *maCoarseConfirm.php* file.

Figure 6-3 – Overview of Include Process



6.3 Generating Pages for Desktop PC Users

A typical web page in the administrative web site is generated by one PHP file that includes several other files. The other files may include: two HTML template files, two JavaScript files, and a few other PHP files. The following seven files are almost always included:

- *adminTemplate/admin.tpl.html* – the template file that defines the basic layout of the administrative UI.
- *adminIncludejs/common.js* – the main JavaScript file to provide client-side functionalities such as form input validation.
- *HTML/Template/ITX.php* – PEAR Integrated Template classes
- *include/db.php* – the database connection code
- *include/sqlCommon.php* – the library of SQL functions
- *include/authentication.php* – the library of user authentication functions
- *include/common.php* – the library of miscellaneous functions

Like web pages in the laboratory web site, each web page in the administrative web site must have references to an HTML template file that defines the main layout for the page and a Javascript file that defines the client-side logic specific to the page. The references to these files can be found at the top of the PHP file. For example, *adminMCView.php* file has the following references:

```
@template      adminMCView.tpl.html
@javascript    adminMCView.js
```

All template files for the web pages reside in the *adminTemplate* directory, and all the JavaScript files reside in *adminIncludejs* directory. There are additional PHP files may be referenced in an web page. You can find out these file references by reading the *require_once* statements at the beginning of each web page.

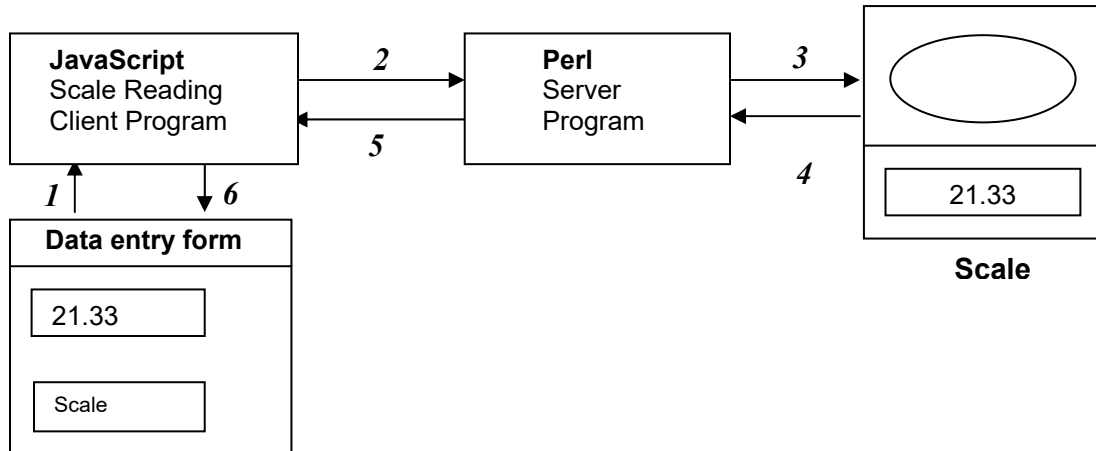
6.4 Automated Scale Reading

GLDMS provides functionality to automatically take a reading from a scale into a data entry form field. This functionality cannot be implemented on the web server because server-side programs are prevented from accessing a local resource (like a COM port) on a client computer. A digital scale is connected to a client computer; hence, it is a client resource. To overcome this technical limitation, a custom designed Perl program that acts as a small server is installed on a client computer. This Perl program captures a reading from a scale and passes the reading to a data entry form.

The following components were needed to implement this functionality:

- Data entry form – a web page displaying a form that needs a reading from a scale.
- Scale reading client program– a JavaScript script that sends a request to the Perl program.
- Perl server program – a server program running on the local computer that responds to a scale reading request.
- Scale – a scale that has serial port connector.

Figure 6-4 – Automated Scale Reading Process



1. A user clicks the *Scale* button on a data entry form to initiate the scale reading client program.
2. The scale reading client program sends an HTTP request to the Perl server program.
3. The Perl server program sends a command to the scale through a serial port connection.
4. The scale returns the reading to the Perl server program.
5. The Perl server program sends an HTTP response containing the reading to the client.
6. The scale reading client program dynamically inserts the reading to the data entry form by changing the corresponding DOM element.

6.5 Touch Screen Keypad System

The touch screen keypad system is developed using CSS and JavaScript. When a page that needs the user to input some characters, required keypad is also loaded on to the user's computer. However, the keypad is not visible until the user selects a form field that needs character input. This effect is achieved by a JavaScript code changing the CSS property of the keypad elements from *hidden* to *visible*.

Figure 6-5 – Touch Screen Keypads



6.5.1 Touch Screen Keypad Usage

Every web page that need the touch screen keypads must contain necessary keypad code. This can be accomplished by including the following lines:

```
$tpl->touchBlock("NUMPAD"); // include the numeric keypad  
$tpl->touchBlock("ALPHAPAD"); // include the alphabet keypad
```

Once the keypads are included to the page, the keypads are displayed using the following JavaScript functions:

- *enterNumField()* – Displays the numeric keypad if not already visible. Also validates the input for numeric values only. If the input is valid, the user can fill out the rest of the form. If the input is invalid, the cursor is moved to the current form field.
- *enterAlphaField()* - Displays the alphabet keypad if not already visible. Also validates the input for text string values only. If the input is valid, the user can fill out the rest of the form. If the input is invalid, the cursor is moved to the current form field.

These two functions can be called from JavaScript events, such as the *onClick* event of a HTML form element.

All of the functions related the touch screen keypads are defined in *includejs/common.js* file except the following JavaScript functions:

- *updateFields()* - Updates the form fields according to the input. This function must be written specifically for each form input pages according to the formatting requirements of the form.

- *nextField()* – Moves the cursor to the next input field. This function must be written specifically for each form input pages that has the *Next* button because each page may have different names for form fields.
- *validatePreviousInput()* - Checks if the last input was a valid input. If not this function moves the cursor back to the last input field. Because the validation requirements are different for each form input page, this function must be written specifically for each page that needs data validation.

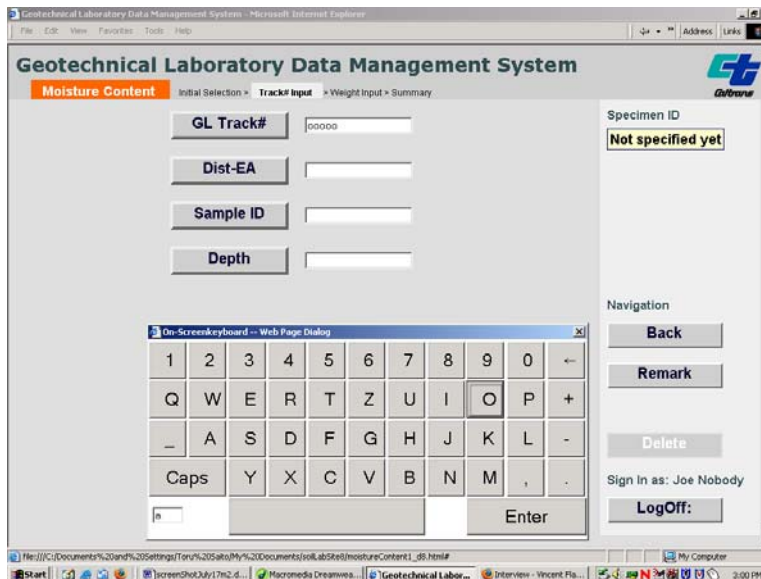
6.5.2 Previous Keypad Implementations

During the development of the GLDMS, three other methods were tested but none of them satisfied all the requirements.

Method 1: Pop-up window with a keypad

A new, smaller browser window with a keypad can be popped-up whenever users need to input characters. The main disadvantage of using a pop-up window was that users had to manually close the pop-up window in order to continue. Figure 6-6 shows an early prototype of the GLDMS form input page. Until the user closes the keypad window, all other buttons are disabled.

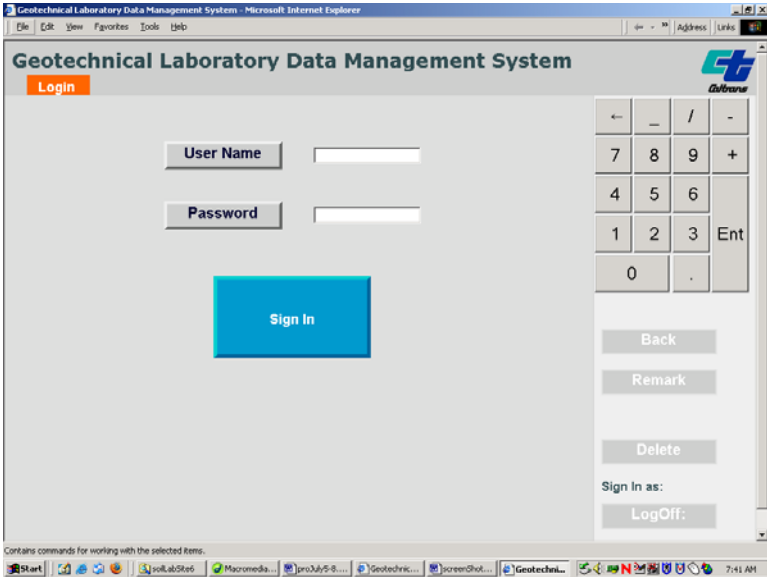
Figure 6-6 – Pop-Up Window Keypad



Method 2: HTML frame window with a keypad

A part of the screen is reserved for displaying a touch screen keypad. The main disadvantage was that it takes up too much screen real estate.

Figure 6-7 – In Frame Keypad



Method 3: MS Windows On-Screen Keyboard
MS Windows has a built-in on-screen keyboard that was considered as touch screen keypad in the GLDMS. It was not used because the keyboard did not allow any customizations like hiding unnecessary keys or changing size of the buttons.

Figure 6-8 – MS Windows On-Screen Keyboard



Appendix A File and Directory Structure

A.1 Directories Shared by both administrative and laboratory web sites

The files in the following directories are used in both web sites.

Directory Name	Contained Files
image	Images files
style	CSS files
include	PHP libraries and class files for the GLDMS
tool	Contains tools that are not directly used as web pages.

A.2 Directories for the administrative web site

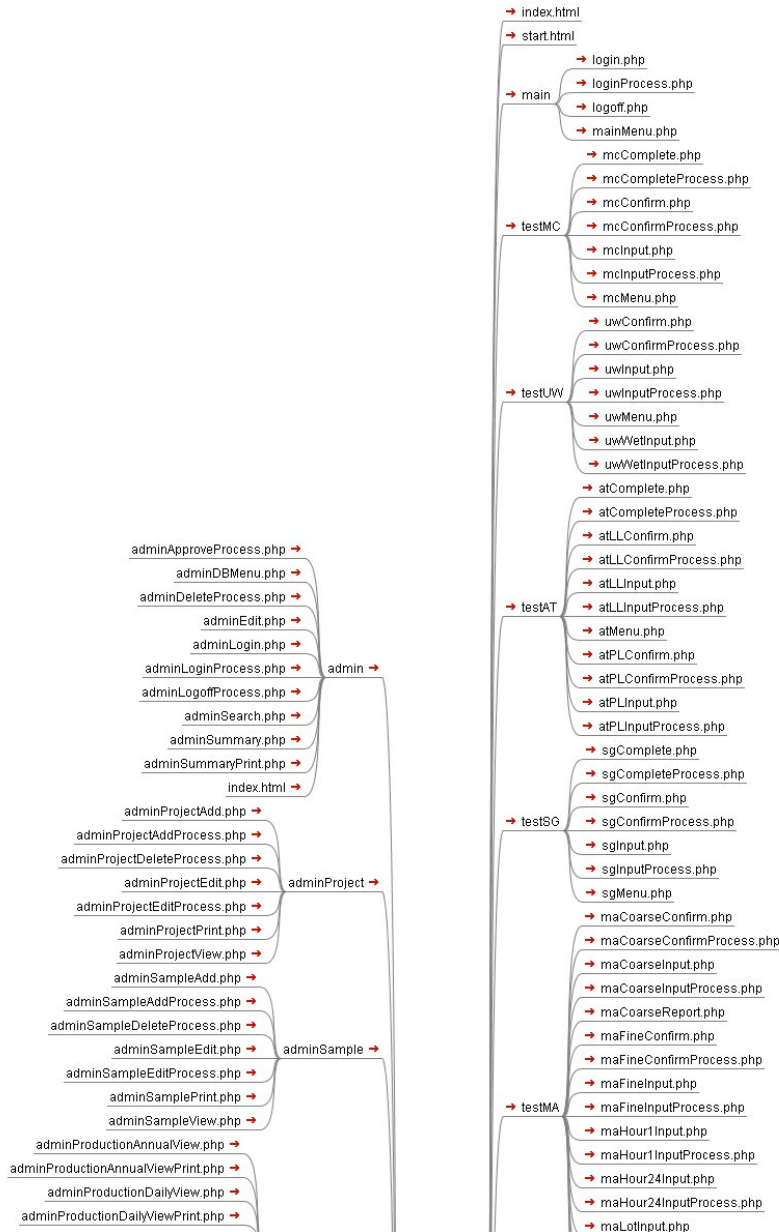
Directory Name	Contained Files
admin	PHP files to manage main functionalities
adminIncludejs	JavaScript files for the administrative web site
adminTemplate	HTML templates files for the administrative web site
adminProject	PHP files to manage projects
adminSample	PHP files to manage samples
adminReport	PHP files to generate summary reports
adminMC	PHP files to manage moisture content tests
adminUW	PHP files to manage unit weight tests
adminSG	PHP files to manage specific gravity tests
adminAT	PHP files to manage atterberg limits tests
adminMA	PHP files to manage mechanical analysis tests
adminPL	PHP files to manage point load tests
adminCC	PHP files to manage compaction curve tests
adminEI	PHP files to manage expansion index tests
adminProduction	PHP files to generate production reports
adminHydrometer	PHP files to manage hydrometers
adminPycnometer	PHP files to manage pycnometers
adminUser	PHP files to manage users

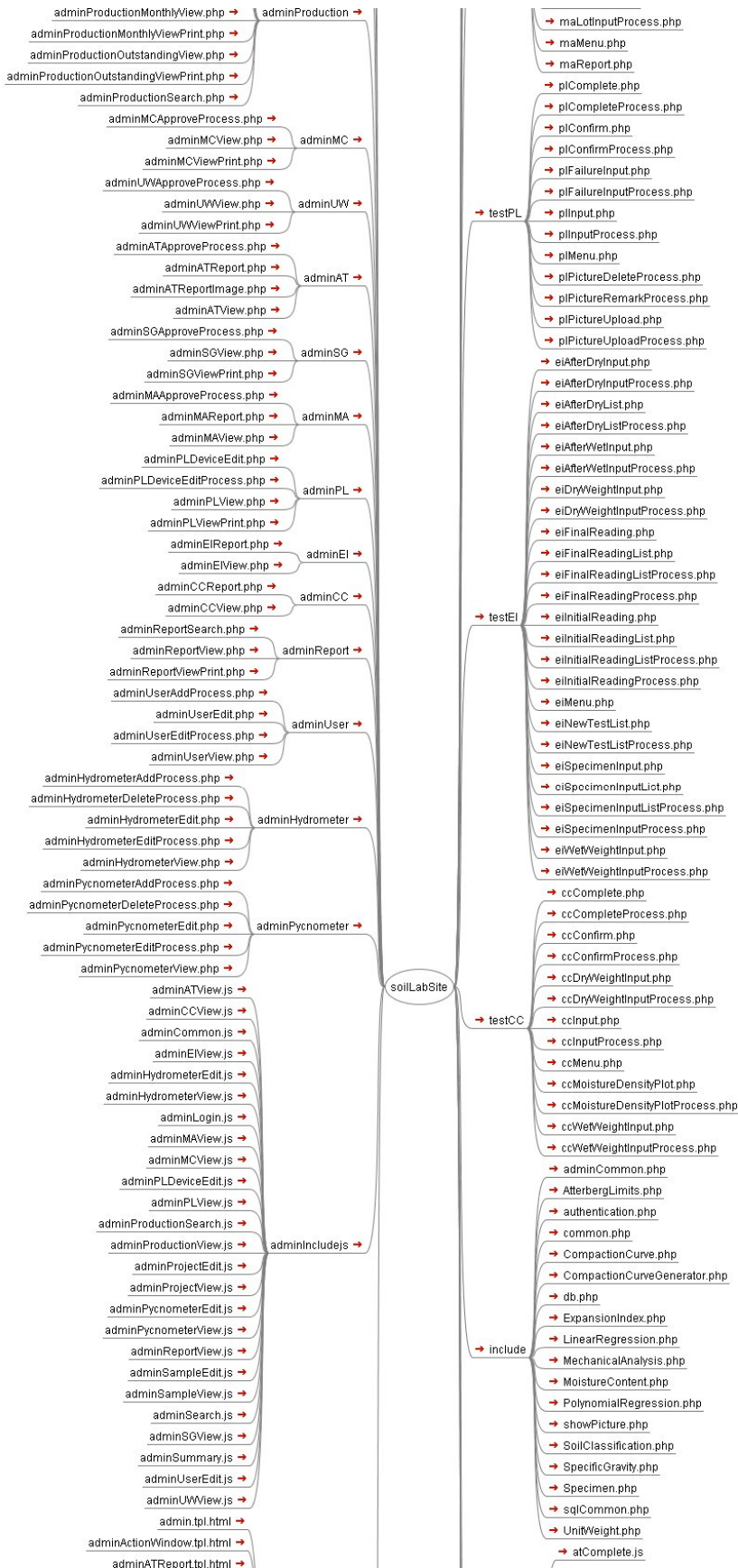
A.3 Directories for the laboratory web site

Directory Name	Contained Files
main	PHP files to manage main pages
template	HTML template files for the laboratory web site
includejs	Java script files for the laboratory web site
testMC	PHP files for moisture content test data entry
testUW	PHP files for unit weight test data entry
testSG	PHP files for specific gravity test data entry
testAT	PHP files for atterberg limits test data entry
testMA	PHP files for mechanical analysis test data entry
testPL	PHP files for point load test data entry
testCC	PHP files for compaction curve test data entry
testEI	PHP files for expansion index test data entry

A.4 File Structure

The following two pages show the file structure for the GLDMS. The root directory for the site is *soilLabSite*. The left side of the tree represents the administrative web site files, and the right side of the tree represents the laboratory web site files.







A.5 PHP Include Files

The following are the library of include files used in GLDMS. These files are located in the *include* directory.

File Name	Description
authentication.php	Authenticates login names and passwords
db.php	Establishes the connection to the DB
sqlCommon.php	Library for the most of SQL queries
common.php	Library for touch screen site and admin site
adminCommon.php	Library for the administrative web site
common.js	Library for the touch screen client
adminCommon.js	Library for the administrative web site client
Specimen.php	Specimen class
MoistureContent.php	MositureContent class extends Specimen class
UnitWeight.php	UniWeight class extends Specimen class
SpecificGravity.php	SpecificGravity class extends Specimen class
AtterbergLimits.php	AtterbergLimits.class extends Specimen class
MechanicalAnalysis.php	MechanicalAnalysis class extends Specimen class
CompactionCurve.php	CompactionCurve class extends Specimen class
ExpansionIndex.php	ExpansionIndex class extends Specimen class
PolynomialRegression.php	Calculate the 2 nd degree polynomial curve
CompactionCurveGenerator.php	Create a png file of compaction curve chart
showPicture.php	Display the jpg file of the specimen

A.6 File Naming Convention

- The PHP file names for test pages have the prefix of the test name abbreviation with lower case. For example, *mcConfirm.php* indicates that this is a web page for Moisture Content test.
- The PHP file names for the pages that process data such as saving data to the database end with the word “Process.” For example, *maCoarseConfirmProcess.php* indicates that this page process the inputs from *maCoarseConfirm.php* web page.
- The PHP file names for the administrative web site have the prefix “admin.” For example, *adminMAREport.php* indicates that this is a web page for the administrative web site that belongs to Mechanical Analysis test category.

Appendix B Formulas

The followings are the formulas used to calculate the calculated fields in the database. The calculated fields that are stored in the database are indicated by **bold and underline**.

B.1 Moisture Content

$$\mathbf{WetWeight} = (Wet \& TareWeight) - TareWeight$$

$$\mathbf{MoistureGram} = (Wet \& Tare Weight) - (Dry \& Tare Weight)$$

$$\mathbf{MoisturePercentage} = (MoistureWeight) / (Dry \& Tare Weight - TareWight) * 100$$

B.2 Unit Weight

$$AveDiameter = (Diameter1 + Diameter2 + Diameter3) / 3$$

$$AveLength = (Length1 + Length2 + Length3) / 3$$

$$\mathbf{WetDensity} = \frac{((MoistureWeightForDensity) / 453.6)}{\pi / 4 * AveDiameter^2 * AveLength / 1728}$$

$$\mathbf{DryDensity} = Wet Density / (1 + (MoisturePercentage) / 100)$$

MoisturePercentage comes from *moisture_content_test* database table.

B.3 Specific Gravity

$$Wax = (Dwx / Dwi) * (Wai - Wf) + Wf$$

Dwx: Water Density of the current temperature from *temperature_density_coefficient* table

Dwi: Water Density of the calibration temperature from *pycnometer* and *temperature_density_coefficient* tables

Wai: Pycnometer & Water weight from pycnometer table

Wf: Pycnometer weight from pycnometer table

$$\mathbf{SpecificGravity} = Kx * ((Wsi - Wf) / ((Wsi - Wf) + (Wax - PycSoilWaterWeight)))$$

Kx: Coefficient of the current temperature from *temperature_density_coefficient* table

Wsi: Pycnometer & Soil weight

B.4 Atterberg Limits

$$\underline{\text{PlasticLimit}} = (\text{Wet Weight} - \text{Dry Weight}) / (\text{Dry Weight}) * 100$$

1 point method

$$\underline{\text{LiquidLimit}} = (\text{WetWeight} - \text{DryWeight}) / (\text{DryWeight}) * (\text{Num of Shocks} / 25)^{0.121}$$

3 points method

$$M_i = (\text{WetWeight}_i - \text{DryWeight}_i) / (\text{DryWeight}_i) * 100$$

$$NS_i = \log (\text{Num Of Shocks}_i)$$

$$\text{Slope} = \frac{3 * \sum_{i=1}^3 M_i * NS_i - \sum_{i=1}^3 M_i * \sum_{i=1}^3 NS_i}{3 * \sum_{i=1}^3 M_i^2 - \sum_{i=1}^3 M_i * \sum_{i=1}^3 M_i}$$

$$\text{Intercept} = \frac{\sum_{i=1}^3 NS_i - \text{Slope} * \sum_{i=1}^3 M_i}{3}$$

$$\underline{\text{LiquidLimit}} = (\log(25) - \text{Intercept}) / \text{Slope}$$

B.5 Mechanical Analysis

$$\underline{\text{TotalCoarseWeight}} = \text{No4} + \text{Passing No4}$$

$$\underline{\text{Moisture}} = \text{MoisturePercentage OR 0 when it's oven dry}$$

MoisturePercentage from moisture_content_test table

$$\underline{\text{DryWeight}} = \text{TotalCoarseWeight} * \text{Moisture}$$

$$\underline{\text{CorrectedHydro1hr}} = \text{1hour hydrometer reading} + \text{composite correction}$$

composite correction from hydrometer table

$$\underline{\text{CorrectedHydro24hr}} = \text{24 hour hydrometer reading} + \text{composite correction}$$

composite correction from hydrometer table

Combined Grading with Coarse Inputs

$$\underline{\text{Grading}[i]} = 100 - ((100 * \text{RetainedMass}[i] / \text{TotalCoarseWeight})$$

$$i \in \{ 3.0in, 2.5in, 2.0in, 1.5in, 1.0in, 0.75in, 0.5in, 0.375in, \text{No4} \}$$

$$\text{FineRatio} = \text{GradingNo4}$$

$$\underline{\text{Grading}[i]} = (100 - \text{Retained}[i]) * \text{FineRatio} / 100$$

$$i \in \{ \text{No8}, \text{No16}, \text{No30}, \text{No50}, \text{No100}, \text{No200}, \text{Pan} \}$$

$$\underline{\text{Grade1hr}} = \text{FineRatio} * \text{CorrectedHydro1hr} / \text{DryWeight}$$

$$\underline{\text{Grade24hr}} = \text{FineRatio} * \text{CorrectedHydro24hr} / \text{DryWeight}$$

Combined Grading without Coarse Inputs

$$\underline{\text{Grading}[i]} = 0$$

$$i \in \{ 3.0in, 2.5in, 2.0in, 1.5in, 1.0in, 0.75in \}$$

$$\text{Retained}[i] = \text{RetainedMass}[i] / \text{DryWeight} * 100$$

$$\text{Grading}[i] = (100 - \text{Retained}[i])$$

$$i \in \{ 0.5in, 0.375in, \text{No4}, \text{No8}, \text{No16}, \text{No30}, \text{No50}, \text{No100}, \text{No200}, \text{Pan} \}$$

$$\underline{\text{Grading1hr}} = 100 * \text{CorrectedHydro1hr} / \text{DryWeight}$$

$$\underline{\text{Grading24hr}} = 100 * \text{CorrectedHydro24hr} / \text{DryWeight}$$

B.6 Point Load

$$\underline{\text{LoadAtFailure}} = \text{PressureAtFailure} * \text{AreaOfDevice}$$

The value of *AreaOfDevice* is derived from the database.

For diametric shape

$$De = \text{sqrt}(D * D') \text{ (mm}^2\text{)}$$

For other shapes

$$De = \text{sqrt}(4/\pi * W * D') \text{ (mm)}$$

$$\underline{Is} = \text{LoadatFailure (lbs)} / (De/25.4)^2$$

$$\underline{Is50} = Is * (De / 50)^{0.45}$$

B.7 Compaction Curve

The compaction curve for drawing is expressed as

$$y = c_0 + c_1 * x + c_2 * x^2$$

Coefficient c_0 , c_1 , and c_2 are derived using least square distance

$$C = (A^t A)^{-1} A^t Y$$

Where

(x_1, x_2, \dots, x_n) : Moisture of the sample points

(y_1, y_2, \dots, y_n) : Dry Density of the sample points

$$A = \begin{pmatrix} 1 & x_1 & x_1^2 \\ 1 & x_2 & x_2^2 \\ 1 & : & \\ 1 & x_n & x_n^2 \end{pmatrix} \quad Y = \begin{pmatrix} y_1 \\ y_2 \\ : \\ y_n \end{pmatrix} \quad C = \begin{pmatrix} c_0 \\ c_1 \\ c_2 \end{pmatrix}$$

The estimation of the optimum moisture and the max dry density are give by the following equations.

$$\text{OptimumMoisture} = -2 c_1 / c_2$$

$$\text{MaxDryDensity} = c_0 + c_1 * \text{OptimumMoisture} + c_2 * \text{OptimumMoisture}^2$$

B.8 Expansion Index

$$\text{WetWeight} = \text{Wet\&Tare} - \text{Tare}$$

$$\text{Moisture} = 100 * (\text{Wet\&Tare} - \text{Dry\&Tare}) / (\text{Dry\&Tare} - \text{Tare})$$

$$\text{Specimen} = \text{Soil\&Mold} - \text{Mold}$$

$$\text{DryDensity} = ((\text{Specimen} * 100 / (100 + \text{Moisture})) / \text{MoldVolume}) * (1728 / 453.6)$$

$$\text{Saturation} = (\text{Moisture} * \text{SpecificGravity} * \text{DryDensity}) / ((\text{Gs} * 62.4) - \text{DryDensity})$$

$$\text{ExpansionIndex} = 1000 * (\text{FinalReading} - \text{InitialReading}) / \text{SampleHeight}$$

$$\text{ExpansionIndex}_{50} = \text{ExpansionIndex} - (50 - \text{Saturation}) * (65 + \text{ExpansionIndex}) / (220 - \text{Saturation})$$

Appendix C GLDMS Backup System

C.1 Overview

The GLDMS utilizes a three-tiered data backup strategy implemented by two software applications (a backup program written in PHP and Windows Scheduler) to maintain the integrity and security of the database. (See Figure C-1.) A working copy of the lab database is stored on two separate hard drives on the server. Daily backup copies of the data is automatically get created on the server and then archived to an off-site network hard drive.

C.2 Disk Components

Redundant Array of Independent Disks (RAID)

The RAID Level 1 (RAID1) also known as “the mirroring” automatically creates exact duplicate copies of the data and stores them to separate hard drives in order to increase the reliability of data storage. The GLDMS database resides on a set of RAID1 hard drives; therefore, in an event of a hard drive failure, the server can continue to normally operate using the “mirrored” hard drive. RAID1 operations are fully automated and transparent to the end users, so the set of hard drives appears a single hard drive.

Daily Backup on the RAID

The server is configured to perform a daily backup of the database. Once a day a snapshot of the database is taken and copied to a specific folder on the server. The name of the daily backup file contains the current day of the month (e.g. *soillab_03.sql*). Daily backup files remain available for restore on the RAID1 hard drives until the following month when they get overwritten.

Daily Backup on the Network Storage Device

After a daily snapshot of the database is saved on the RAID1 hard drives, the snapshot file is also backed up to a network hard drive, which is physically located away from the server. This step ensures the ability to restore the database in the event when the data on the RAID1 hard drives get corrupted or lost.

Figure C-1 – Hardware specification for backups

Component	Specification
RAID card	Promise Technology FastTrak Tx2300
Hard Drive Disk	2 × Seagate 300GB Serial ATA 150/7200rpm
Network Storage Drive	Maxtor Shared Storage Plus+ 300GB

C.3 Program Components

The daily backup program creates a database snapshot and copies the snapshot to the network hard drive.

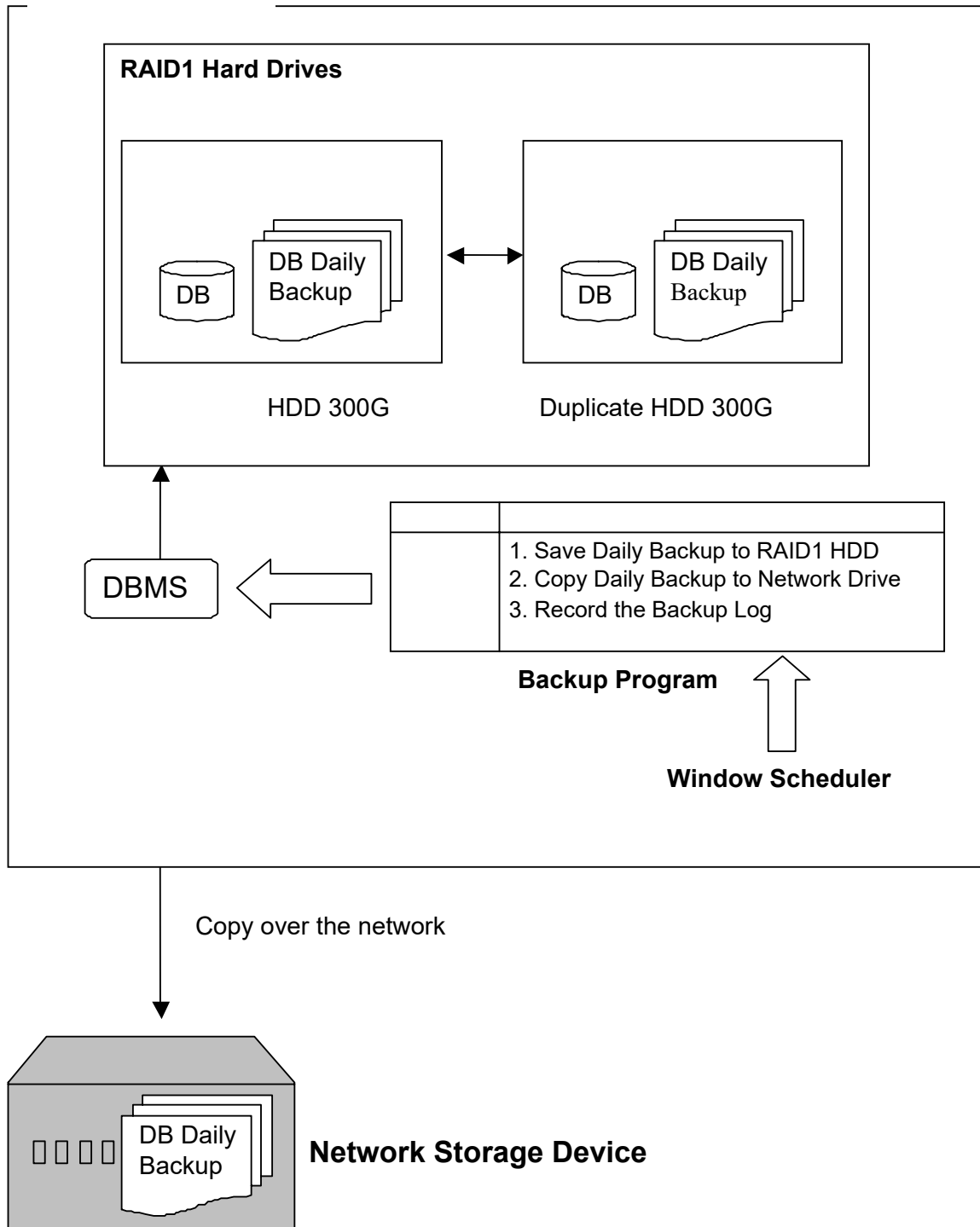
Backup Program

The backup program is written in PHP language and should be placed in the same directory where the daily backup files reside. The program contains specific commands to take a snapshot of the database and create a backup file with a properly formatted name (e.g. *soillab_03.sql*). The program then copies the file to the network drive and logs the actions back to the database for system administrators to monitor the backup process in GLDMS.

Windows Scheduler

A built-in Windows utility, Windows Scheduler, is used to schedule the daily execution of the Backup program.

Figure C-2 – Overview of the backup process



C.4 Configuring RAID 1 Hard Drive on the Server

The RAID 1 hard drive has a directory/folder for storing backup files. The current directory name is “e:\MySQLBackup.” However, the name can be anything, the backup system doesn’t have any dependencies to the directory name.

The directory called “e:\ MySQL Datafiles” must be created and should not be changed or removed. This directory is used by MySQL and specified in “c:\Program Files\MySQL\my.ini” file.

Figure C-3 – The current configuration

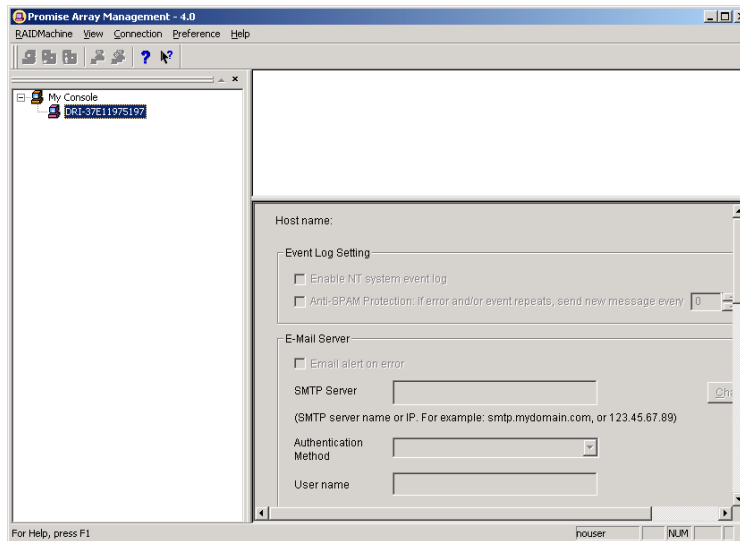
Promise Array Management User Name	Promise Array Management Password	Backup Directory	MySQL Directory
administrator	lab	e:\MySQLBackup	e:\ MySQL Datafiles

Logging into Promise Array Management

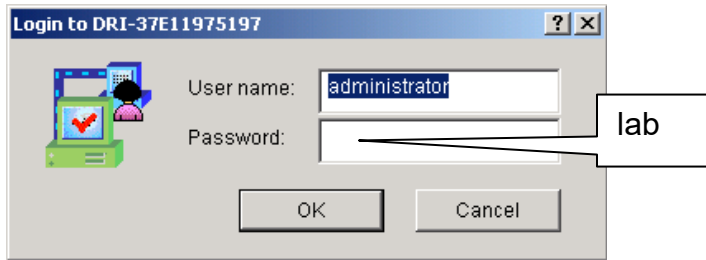
Promise FastTrak Tx2300 RAID card comes with a RAID drive management tool.

To start the program from Windows menu:

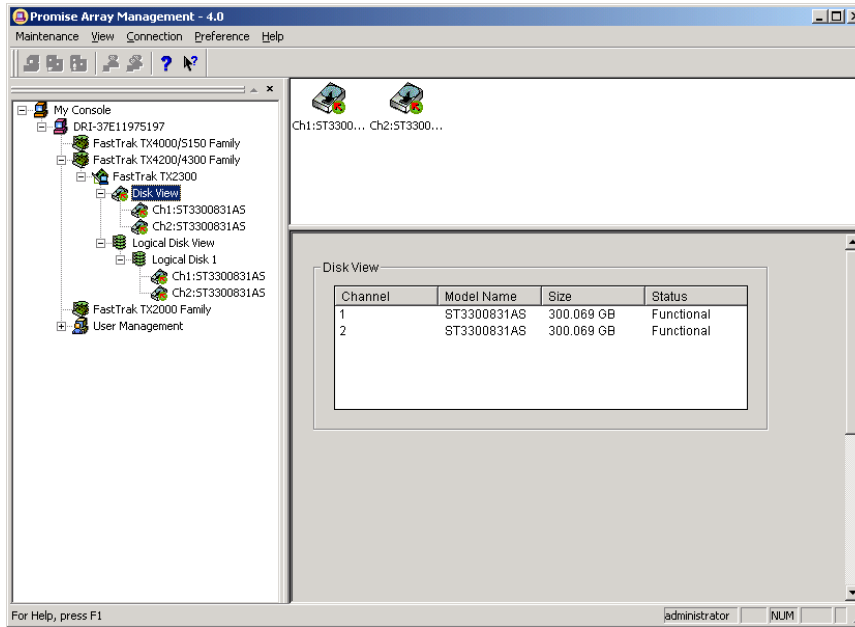
1. Start -> Programs -> Promise Array Management -> Local PAM
2. Choose DRI-37E11975197 icon.



3. Then from menu RAID Machine ->Login menu



Then you can view the status of the RAID1 drives.



C.5 Configuring the Network Hard Drive

- The configuration of the network hard drive is done through its own web interface.
- The address for the interface is 192.168.0.250
- The login is “*admin*” and password is “*lab*”.

Figure C-4 – The current configuration



Figure C-5 – The current configuration

Backup user name	soil
Backup user password	lab
Shared Storage Drive	GLDMS_backup
Directory	MySQLBackup (soil has full access privileges)
Drive Letter	Z:

C.6 Creating Batch Scripts

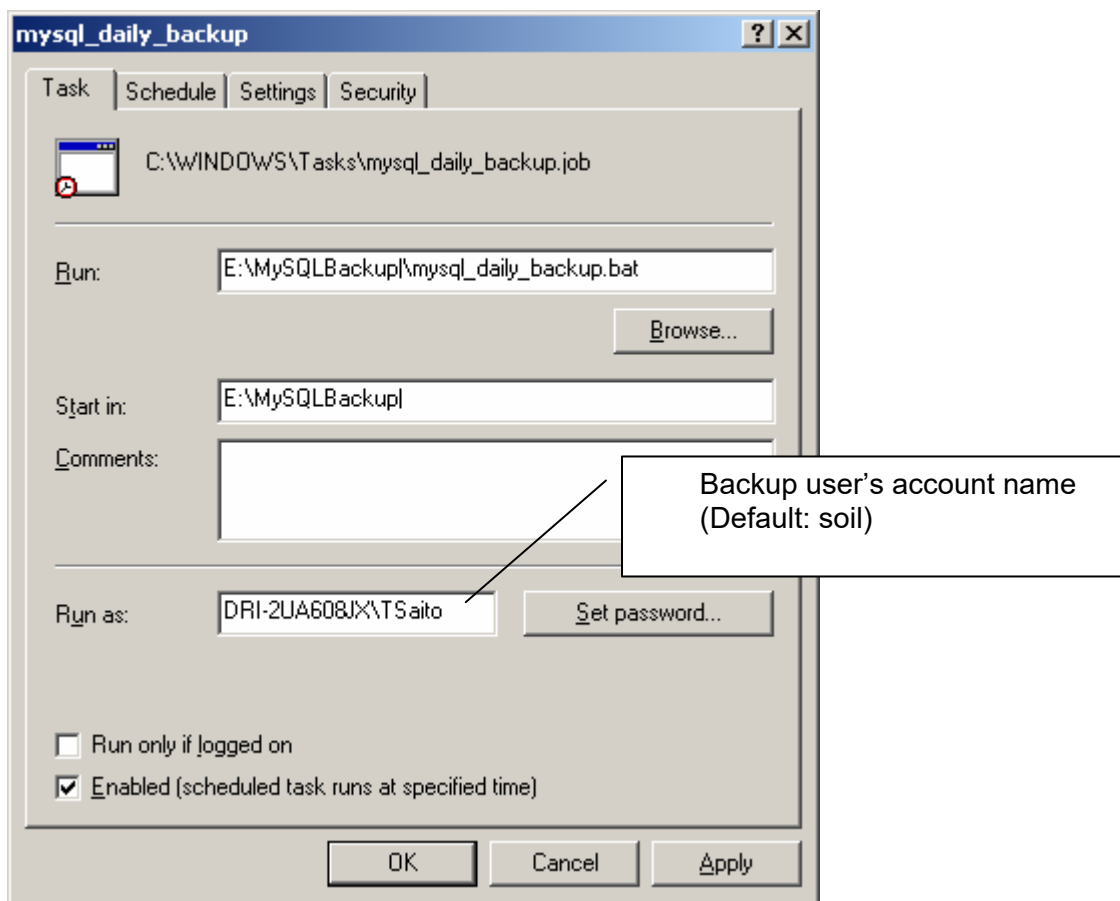
Two batch script files are created for backup:

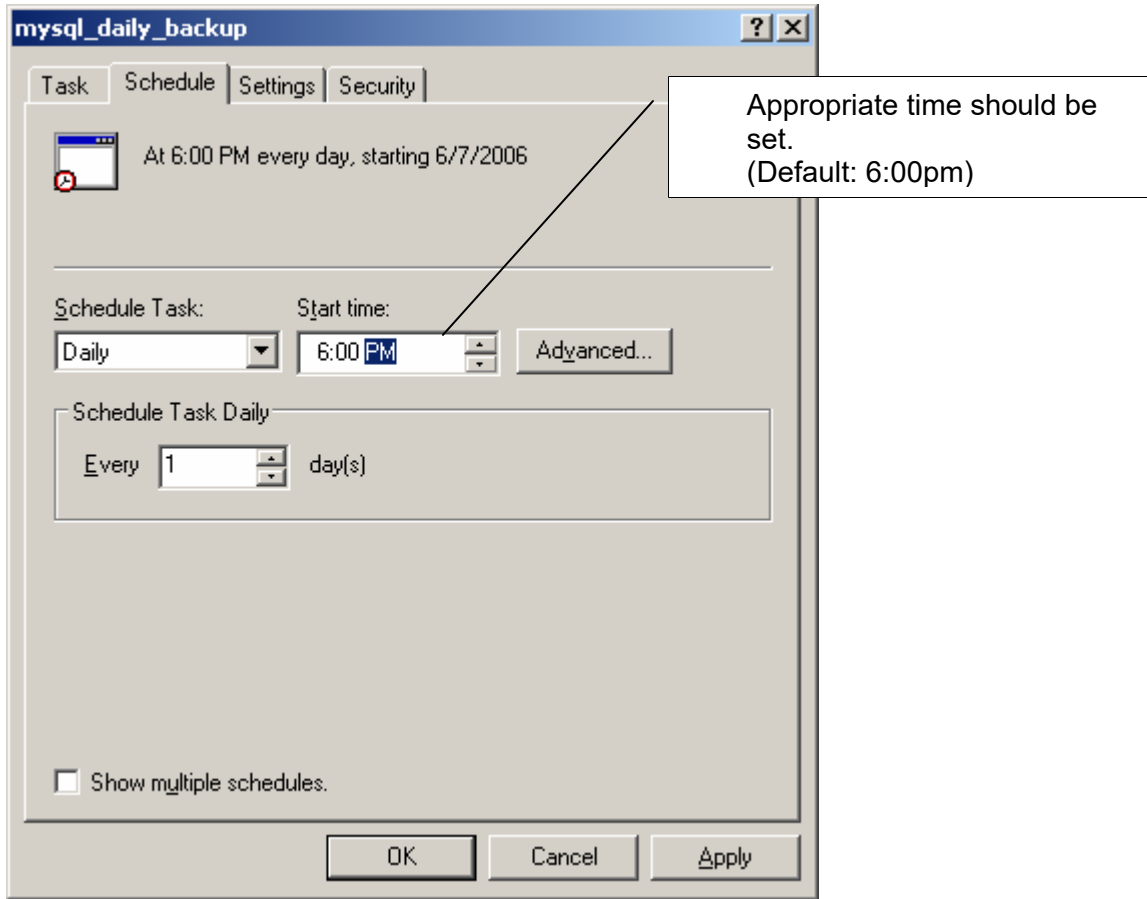
- *mysql_daily_backup.bat*
- *mysql_daily_backup.php*

These batch files copy the GLDMS files to the backup directory (*e:\MySQLBackup*) located in the RAID1 drive.

C.7 Scheduling Backup Task

Set up a new Windows Scheduled Task from “Start->Setting->Control Panel->Scheduled Tasks.”





NOTE

Run as and *Start time* fields should be changed appropriately.

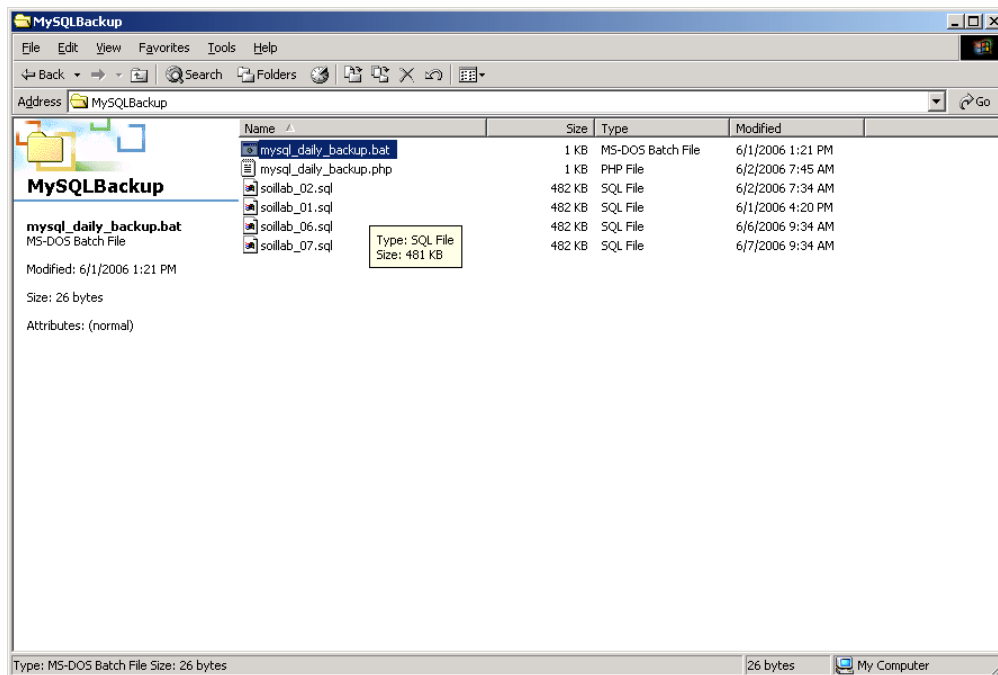
The backup user has to be logged in to the system to perform network backups, though the system can and should be locked.

C.8 Performing Manual Backups

Manual backups can be done by double-clicking on “*mysql_daily_backup.bat*” file. This program makes a back up and copies the backup file to the network hard drive, and update the system log.

NOTE

This process will overwrite the file if a file with the same name already exists. For example, if this process is performed at 7:00pm on the 12th, the files *soillab_12.sql* located in the RAID1 drives and the network drive created at 6:00pm will be overwritten by newly created *soillab_12.sql*.



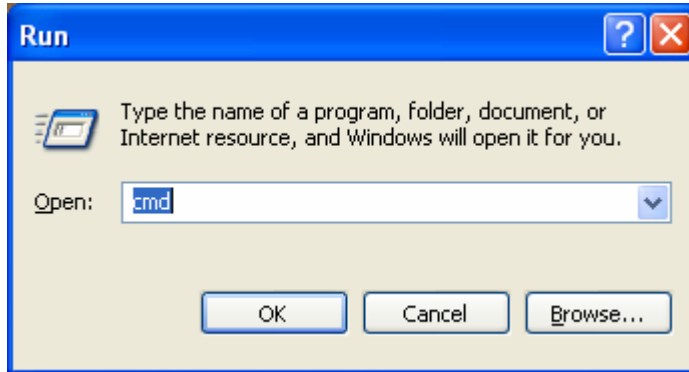
If you want to backup the database only, execute the following command from the command line:

```
mysqldump -uroot -poracle --database soillab5 > {File Name for you backup DB}
```

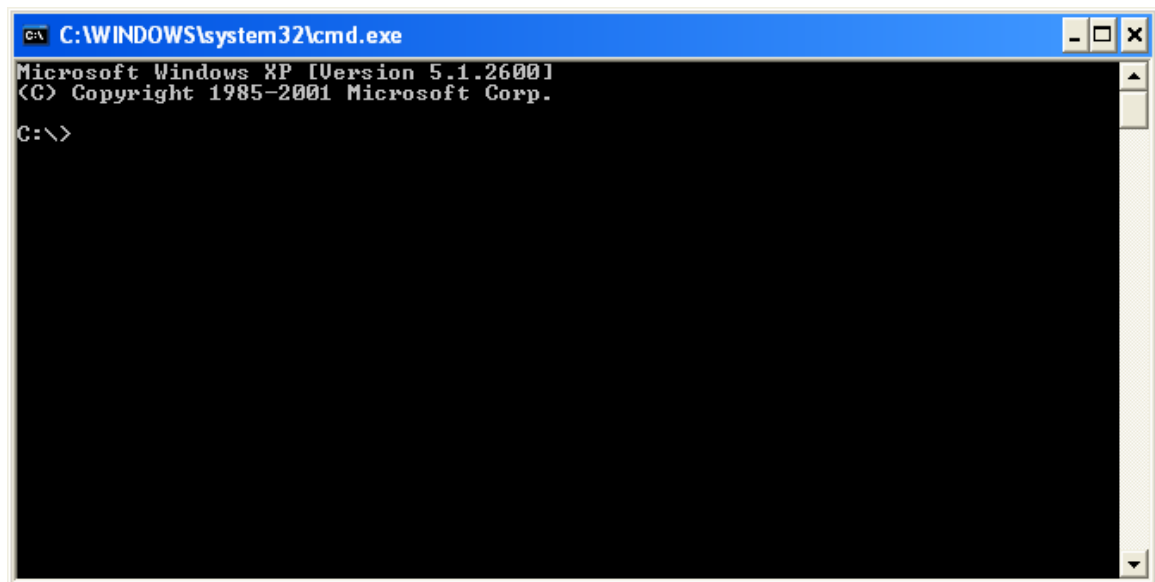

C.9 Restoring Database Backup

The database restoration can be performed only on the server.

1. In Windows, click *Start->Run*
2. Type “cmd”, and hit “OK”



3. A command prompt window will open.



4. Change the current working directory to where the backup files are located. For example, if the file is in “Z:\MySQLBackup”

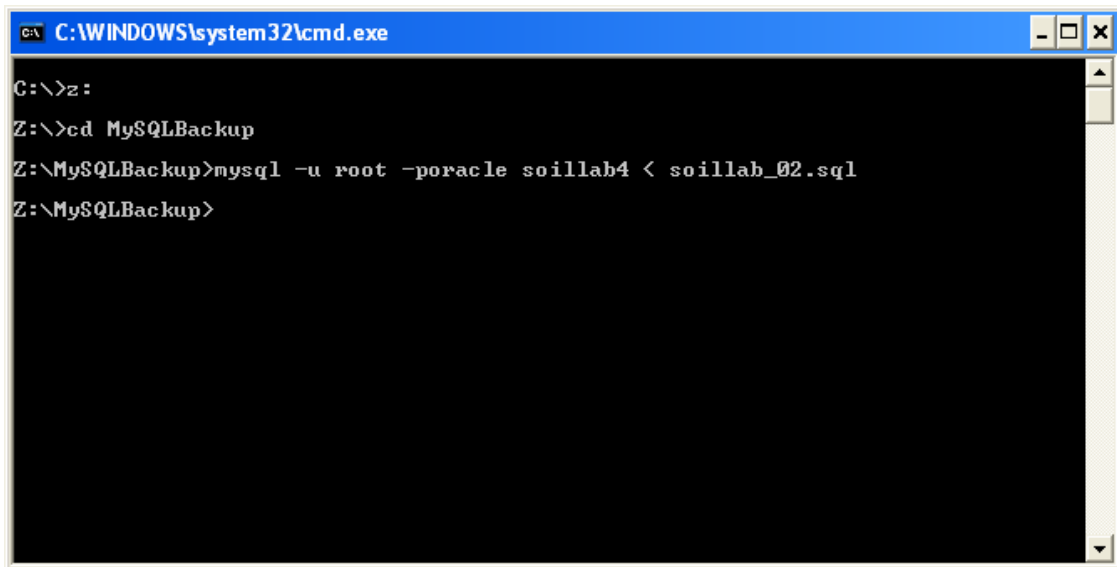
- Type “z:” to change drive to the z drive.
- Type “cd MySQLBackup”

5. The command for restoring database is: “*mysql -u root -p{password}{database name} < bakup_file_name*”.

For example, the backup file name is “soillab_02.sql”, the password is “oracle”, and the database name is “soillab5”.

Type `mysql -u root -poracle soillab5 < soillab_02.sql`.

6. There won't be any messages if the restore succeeded like the following figure.



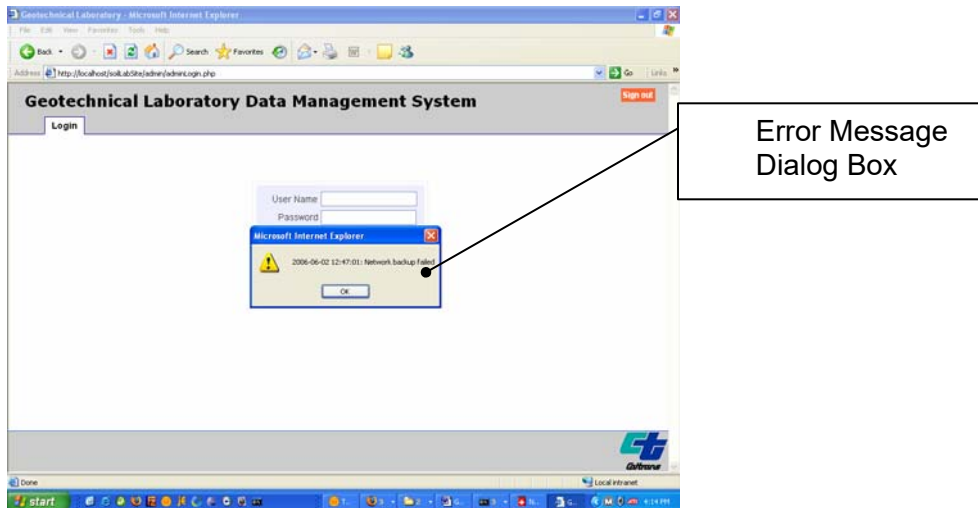
```
C:\WINDOWS\system32\cmd.exe
C:\>Z:
Z:\>cd MySQLBackup
Z:\MySQLBackup>mysql -u root -poracle soillab4 < soillab_02.sql
Z:\MySQLBackup>
```

7. You can confirm the successful database restoration using your web browser by connecting to the phpMyAdmin located at <http://localhost/phpMyAdmin/index.php>

C.10 Handling Errors in Backup Process

In the event of a backup failure, the backup program records the backup process log to the database. The GLDMS admin login page will show a pop-up message that indicates the time and a type of error occurred last. Two kind of errors are detected and reported by the system.

Figure C-6 – Alert message



Error Message: Network backup failed

This message indicates that a daily backup file was not copied to the network hard drive. Possible causes are:

- The network hard drive was turned off. This can happen if the building's power was interrupted. The network hard drive won't turn on automatically after a power failure.
- The server could not access the network drive. If the back up user is not logged in to the system at the time of backup, the server cannot access the network drive.
- The network cable to the hard drive was unplugged.

Error Message: MySQL Dump Failed

This message indicates that a daily snapshot of the database was not created. When this error occurs, please make sure the MySQL server is running normally.

NOTE

Once the problem is resolved, please run the backup program manually following the instructions in Section C.8.

Appendix D GLDMS Installation and Setup

This section contains detailed installation procedures to install and maintain GLDMS.

The GLDMS server requires the following software:

- Apache HTTP Server Version 2.0
- PHP 5.1.2
- PEAR Library
- HTML_Template_IT
- Image_Graph
- Math_Matrix
- MySQL server 5.0
- mysql admin 1.1.9
- phpMyAdmin 2.8

The GLDMS client requires the following software:

- ActivePerl 5.8.8 (Win32::API, Win32::SerialPort, Win32API::CommPort)
- scaleServer3.pl

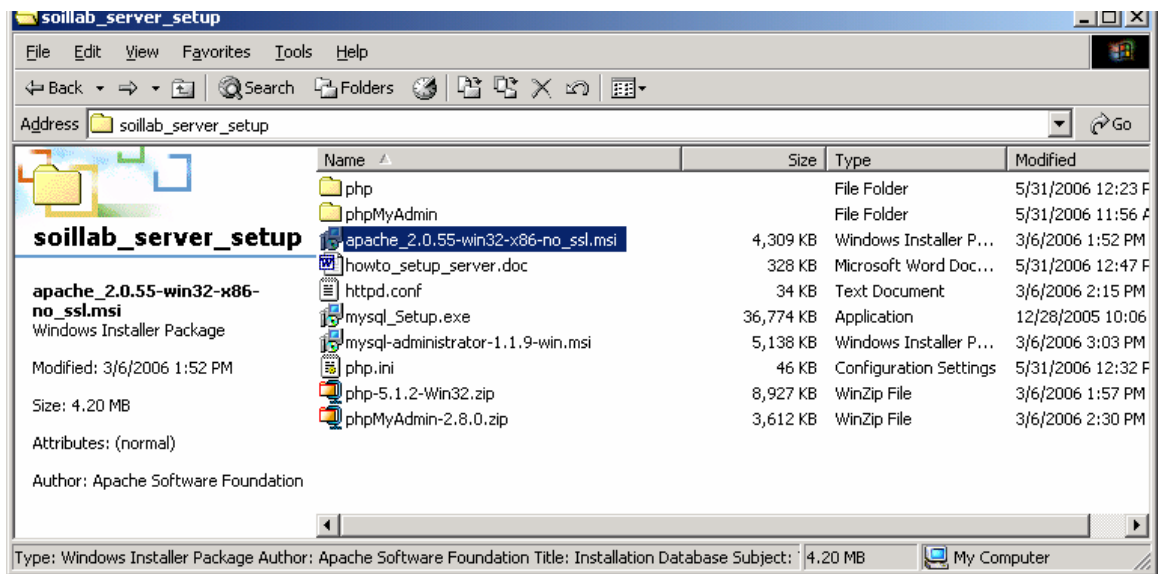
D.1 Apache HTTP Server Version 2.0

GLDMS uses the Apache HTTP Server as its web server. However, the system does not have any Apache specific functionalities, so it can run on any other web servers that support PHP.

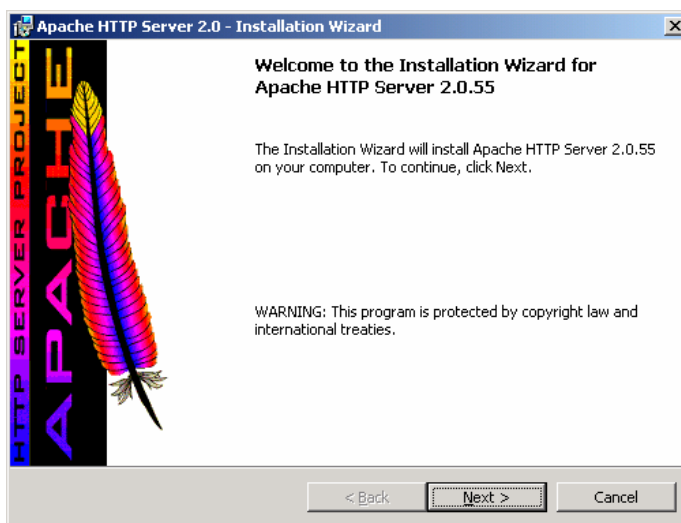
The configuration for Apache is almost same as the default version except loading the PHP server module.

Installing Apache

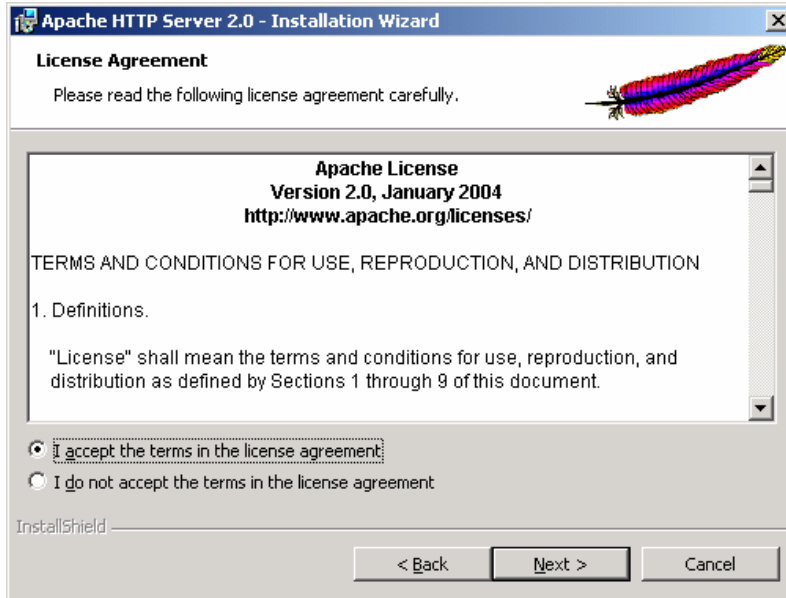
1. Double click on *apache_2.0.55_win32-x86-no_ssl.msi* file



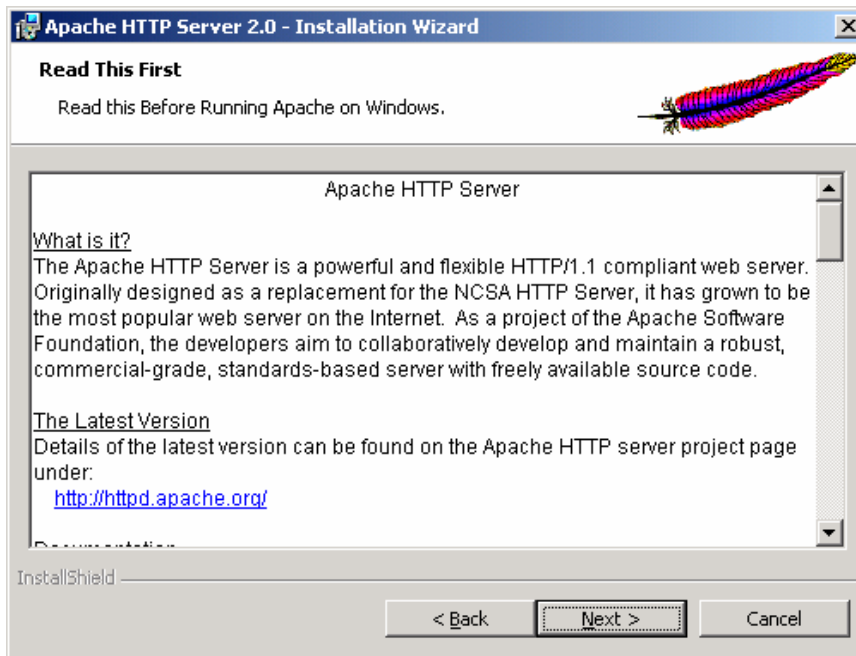
2. Click "Next >"



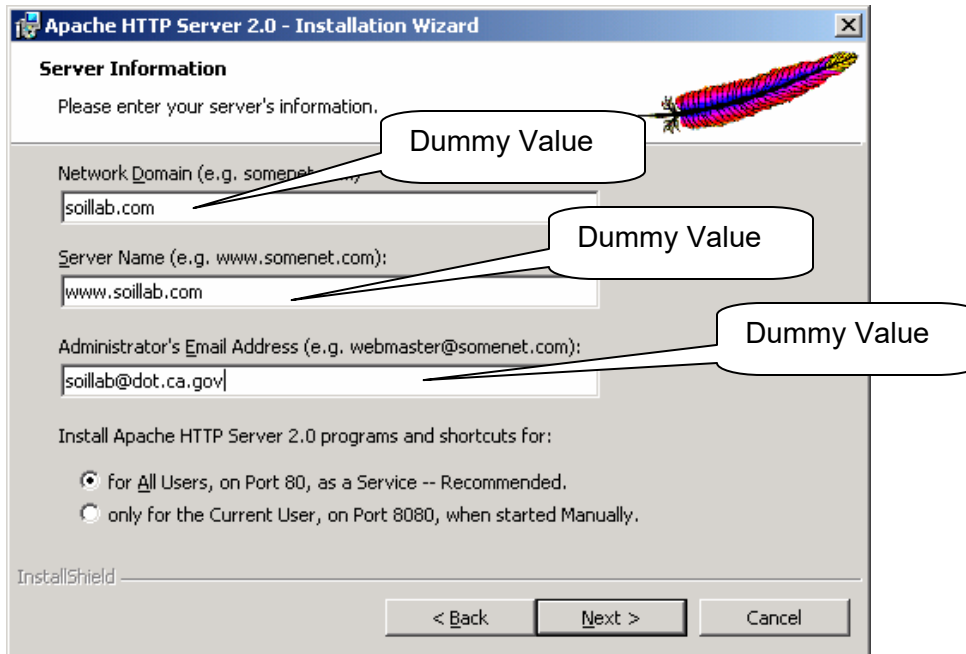
3. Choose “I accept the terms in the license agreement”, then click “Next>”



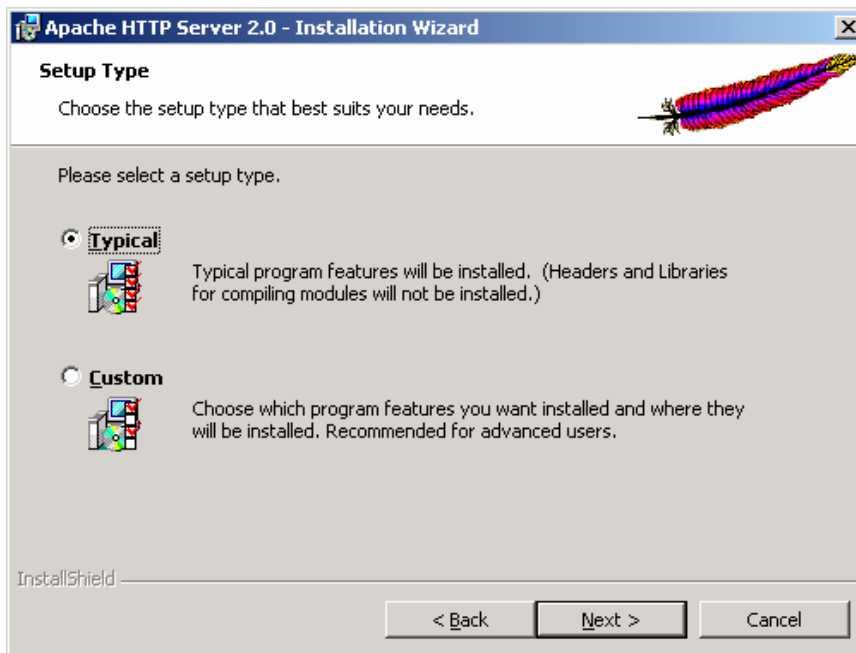
4. Click “Next >” on the next screen.



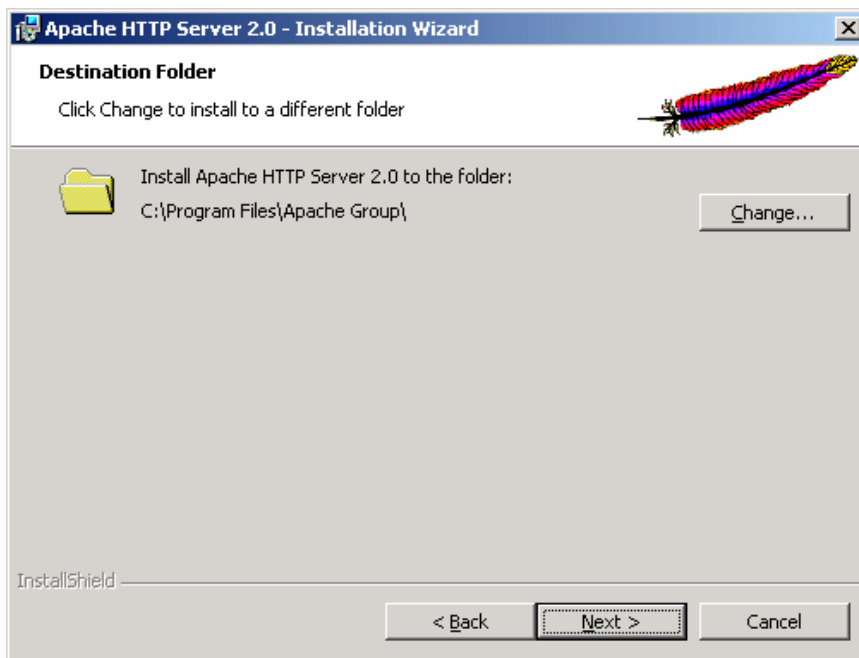
5. Enter some information and click “Next >”.



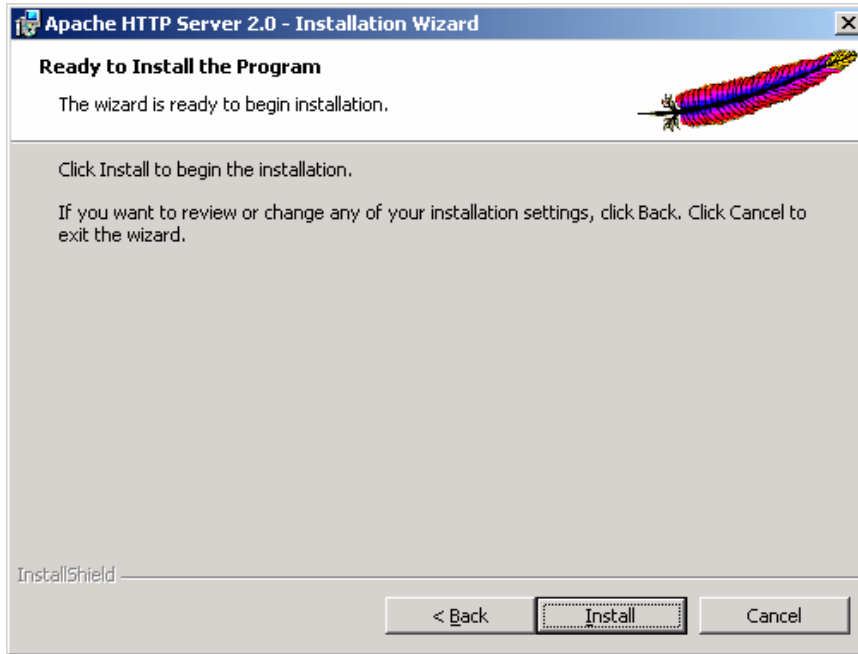
6. Choose Typical, and click “Next >”.



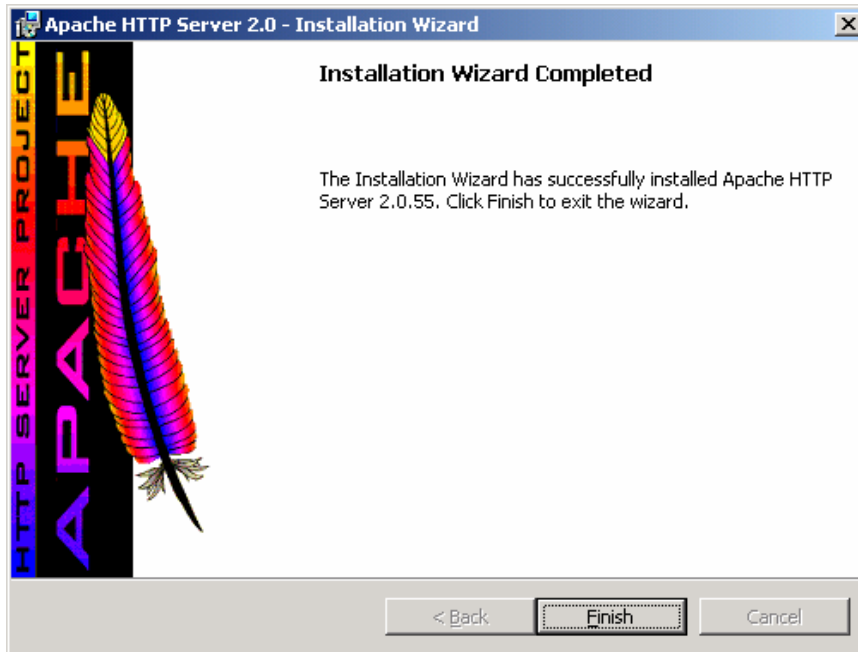
Accept the default directory, and click “Next >.”



7. Click “Install” to start the installation.

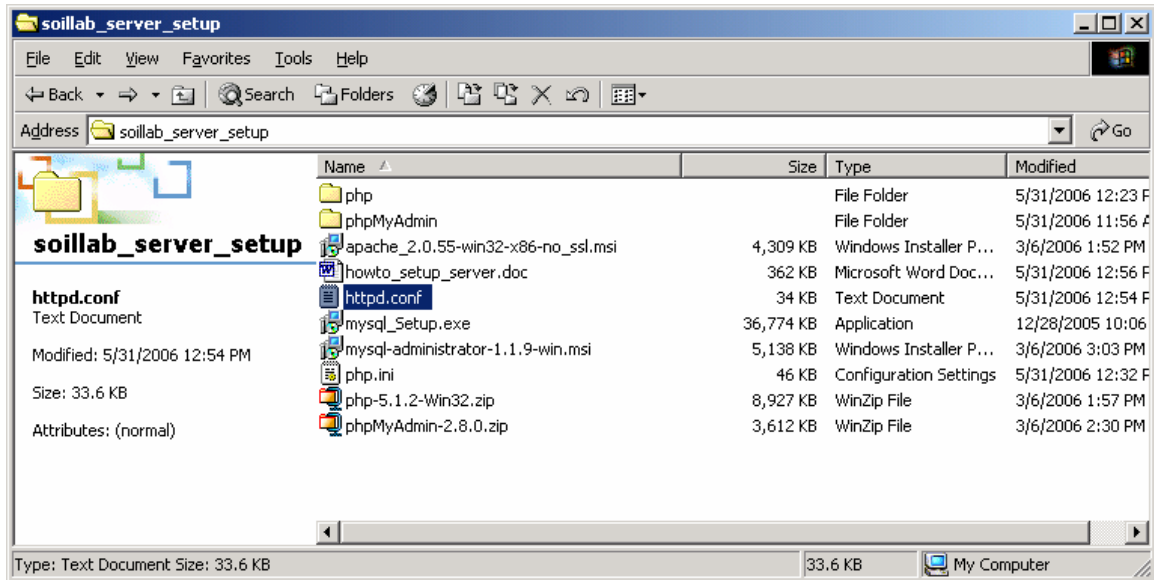


8. Click “Finish”. The installation is done.



Configuring Apache Server

1. Copy *soillab_server_app\httpd.conf* to
c:\Program Files\Apache phpGroup\Apache2\conf



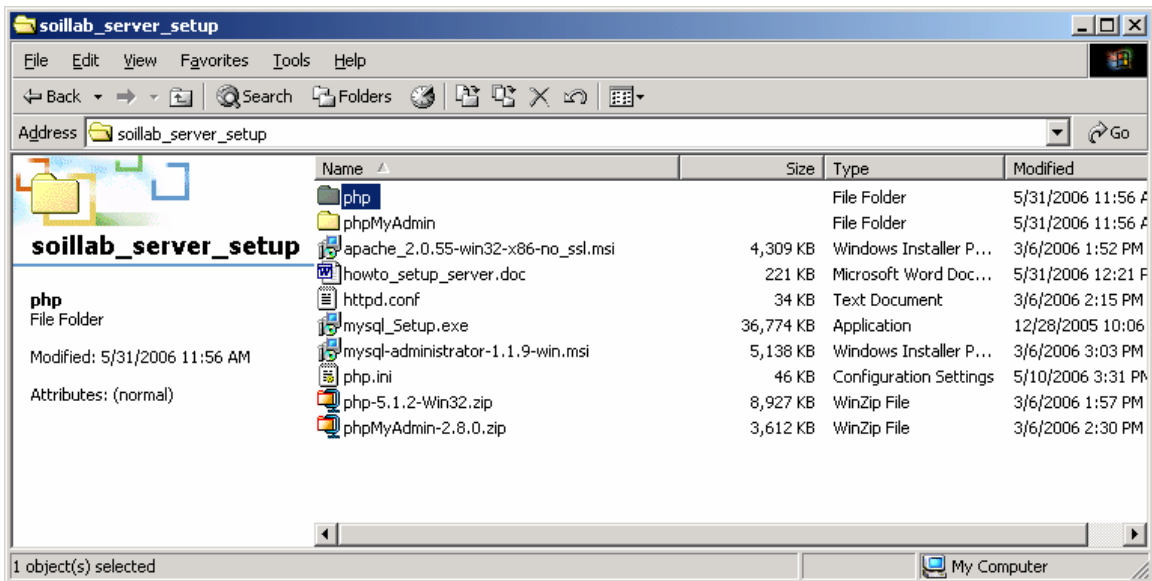
D.2 PHP 5.1.2

PHP is the scripting language to generate the server side content for GLDMS. Because GLDMS uses PHP objects, the PHP version has to be 5.0 or greater.

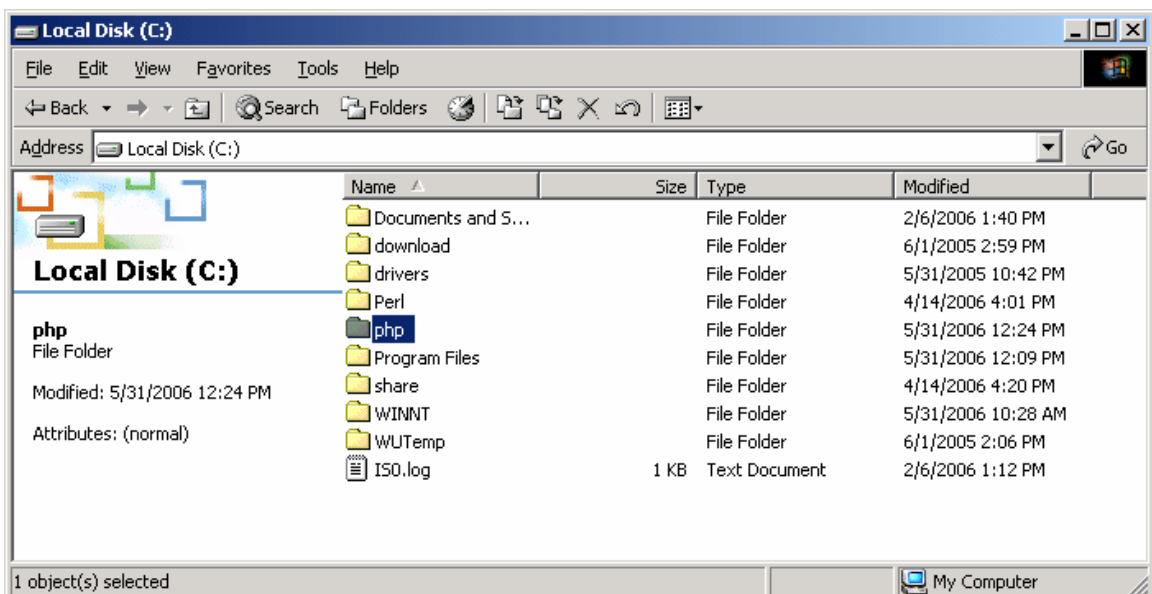
Installation

1. Copy directory “soillab_server_setup\php” under c: drive.

NOTE: When copied from CD you may have to uncheck the read-only properties of the php directory.



It should look like the following:



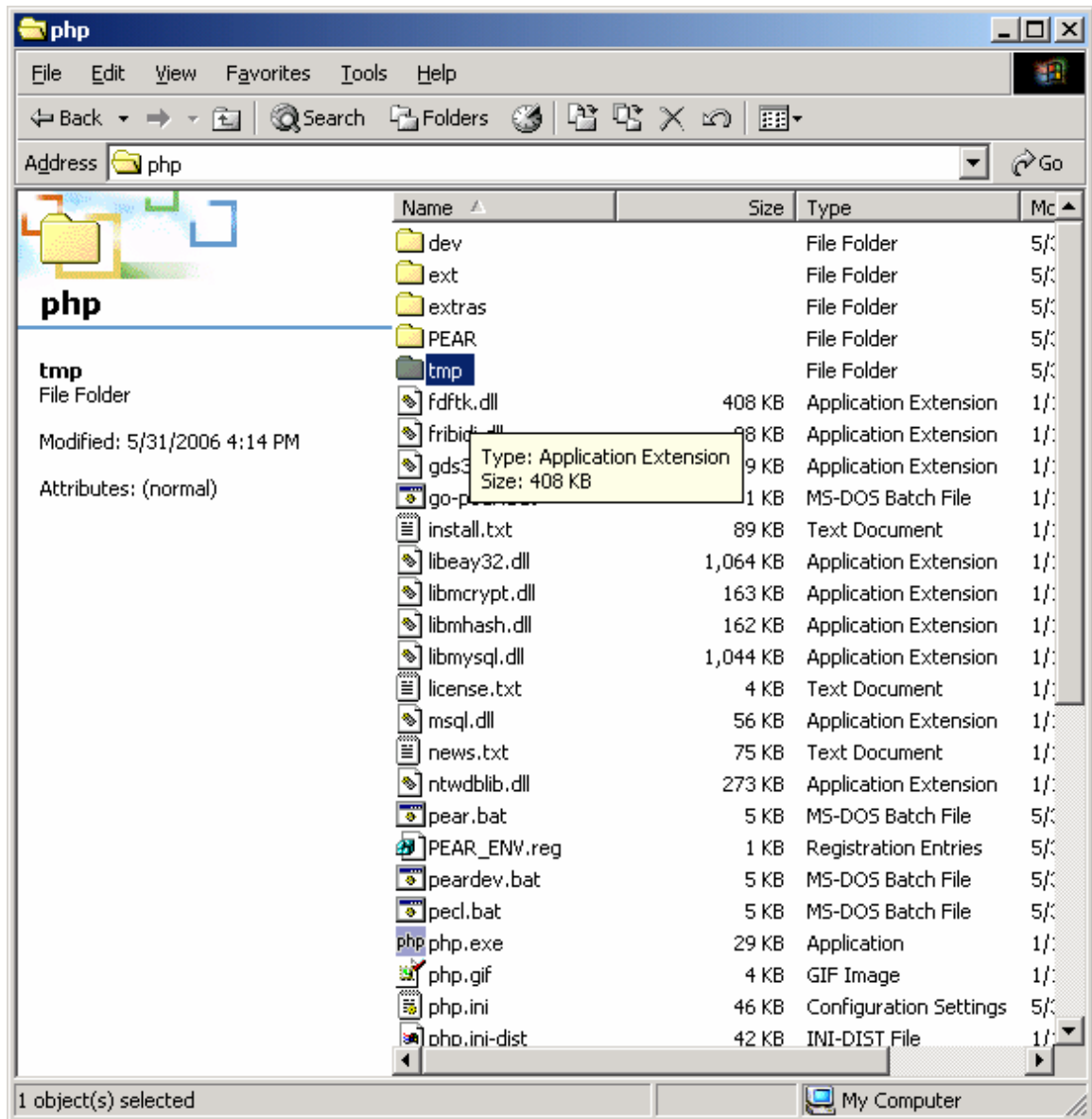
Configuring PHP

The directory “soillab_server_setup\php” already contains php.ini, which was already modified from a default ini file. If the configuration has to be modified in future, the modified lines are marked with the comments with “; ts.”

Preparing for PHP sessions

PHP session functionality requires a temporary folder.

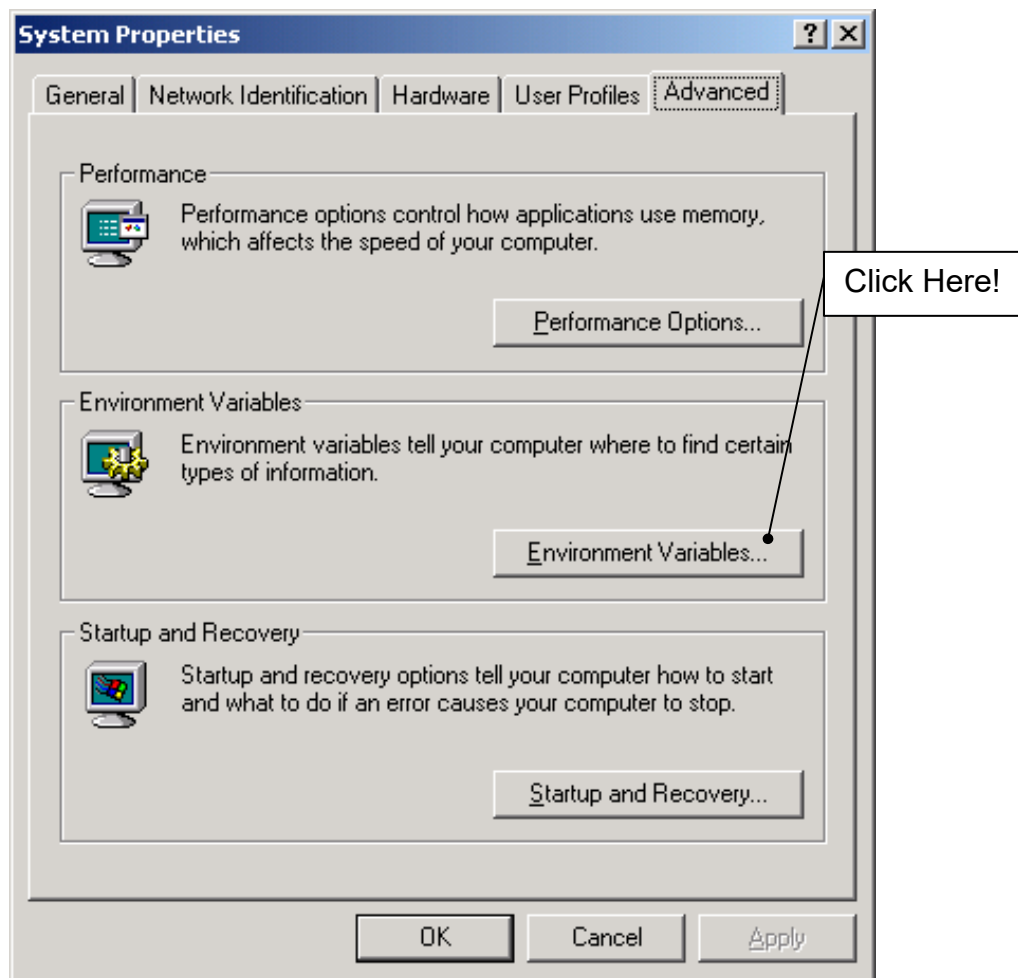
1. Create a temporary directory, “c:\php\tmp” for session.



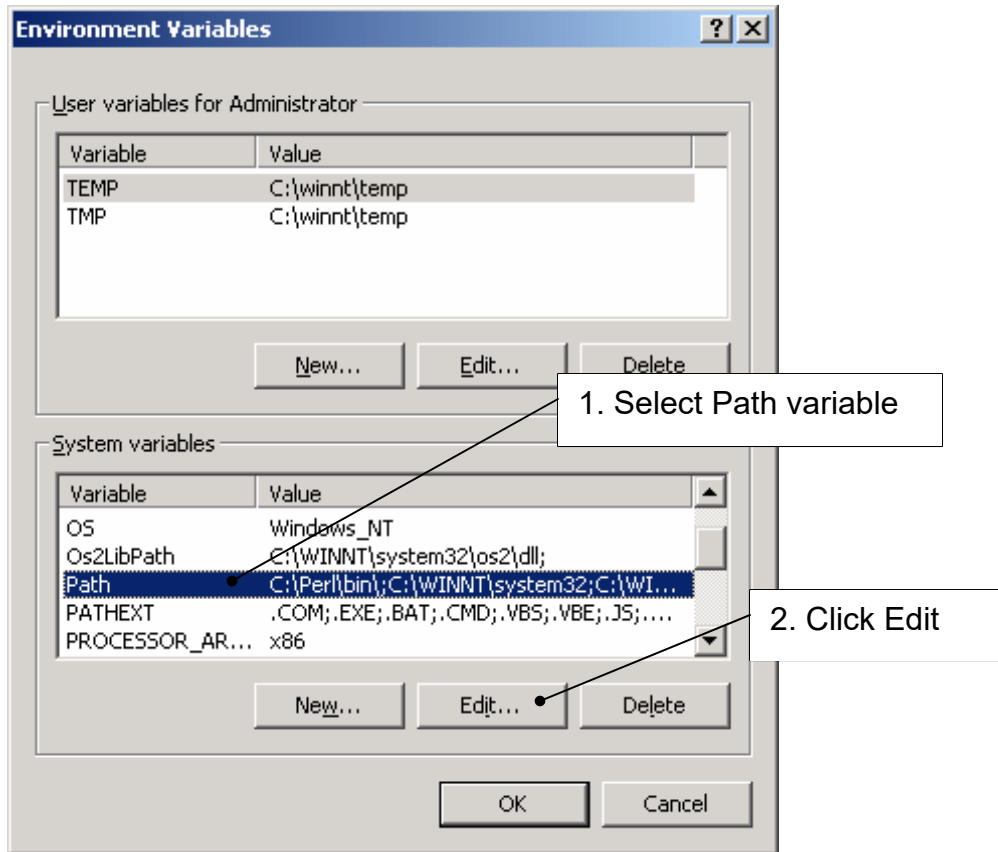
Configuring Environment Variables

The path to the php directory needs to be added in Windows environment variables.

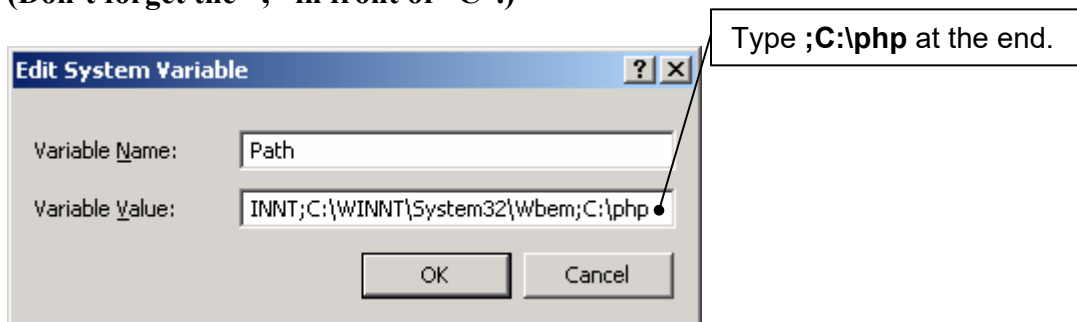
1. Right click “My Computer” and click “Property”.
2. In “System Properties” dialog box, choose “Advanced” tab.
3. Then click “Environment Variable” button.



4. Select “Path” variable, then click “Edit”.



5. Type “;C:\php” at the end of Variable value.
(Don’t forget the “;” in front of “C”.)



6. Then click “OK” 3 times to close, “Edit System Variable”, “Environment Variables”, and “System Properties” dialog boxes.

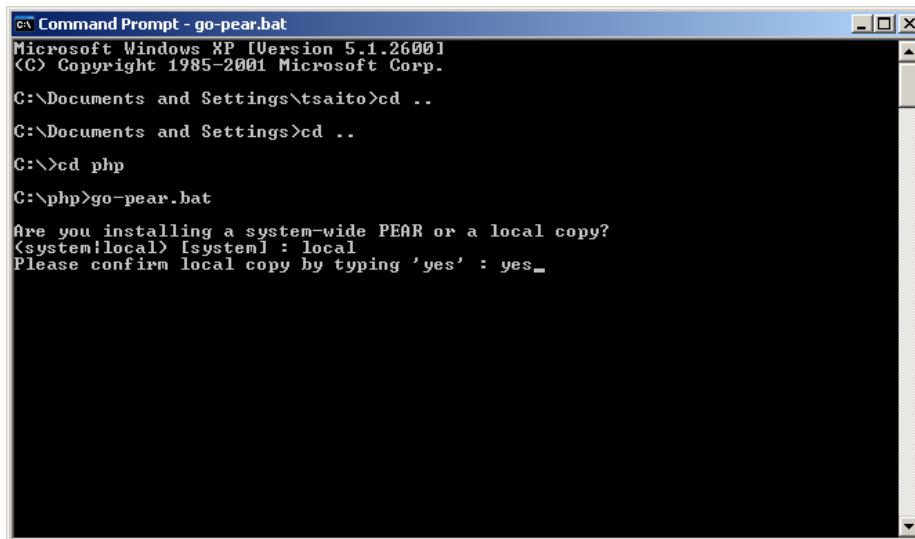
7. You will need to RESTART the server.

D.3 PEAR (PHP Extension and Application Repository)

PEAR is a framework for reusable PHP components. GLDMS uses the HTML_Template_IT, Image_Graph, and Math_Matrix libraries.

Installing the PEAR Package Manager.

1. From the command prompt, go to the directory “c:\php”.
2. Type “go-pear.bat”.
3. Type “local“. (It means local copy install.)
4. Type “yes”

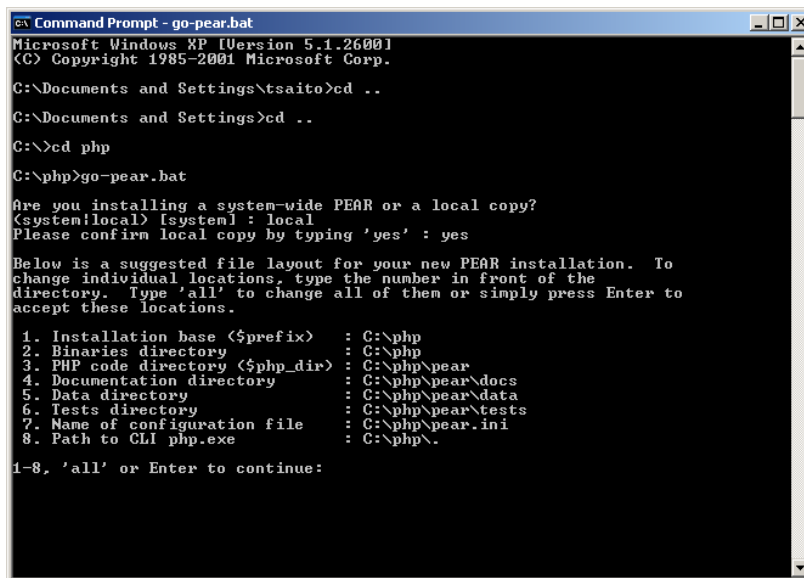


```
Command Prompt - go-pear.bat
Microsoft Windows XP [Version 5.1.2600]
(C) Copyright 1985-2001 Microsoft Corp.

C:\Documents and Settings\tsaito>cd ..
C:\Documents and Settings>cd ..
C:\>cd php
C:\php>go-pear.bat

Are you installing a system-wide PEAR or a local copy?
(system!local) [system] : local
Please confirm local copy by typing 'yes' : yes_
```

5. Press “Enter” to accept the default values.



```
Command Prompt - go-pear.bat
Microsoft Windows XP [Version 5.1.2600]
(C) Copyright 1985-2001 Microsoft Corp.

C:\Documents and Settings\tsaito>cd ..
C:\Documents and Settings>cd ..
C:\>cd php
C:\php>go-pear.bat

Are you installing a system-wide PEAR or a local copy?
(system!local) [system] : local
Please confirm local copy by typing 'yes' : yes

Below is a suggested file layout for your new PEAR installation. To
change individual locations, type the number in front of the
directory. Type 'all' to change all of them or simply press Enter to
accept these locations.

1. Installation base (<$prefix)      : C:\php
2. Binaries directory                : C:\php
3. PHP code directory (<$php_dir)    : C:\php\pear
4. Documentation directory           : C:\php\pear\docs
5. Data directory                    : C:\php\pear\data
6. Tests directory                   : C:\php\pear\tests
7. Name of configuration file        : C:\php\pear.ini
8. Path to CLI php.exe               : C:\php\

1-8, 'all' or Enter to continue:
```

6. If the message “* WINDOWS ENVIRONMENT VARIABLES *” is displayed, complete the following instruction. Otherwise the installation of PEAR package manager is done.

```

C:\WINNT\system32\cmd.exe - go-pear
** WARNING! Old version found at C:\php, please remove it or be sure to use the
new c:\php\pear.bat command

The 'pear' command is now at your service at c:\php\pear.bat

** The 'pear' command is not currently in your PATH, so you need to
** use 'c:\php\pear.bat' until you have added
** 'C:\php' to your PATH environment variable.

Run it without parameters to see the available actions, try 'pear list'
to see what packages are installed, or 'pear help' for help.

For more information about PEAR, see:

    http://pear.php.net/faq.php
    http://pear.php.net/manual/

Thanks for using go-pear!

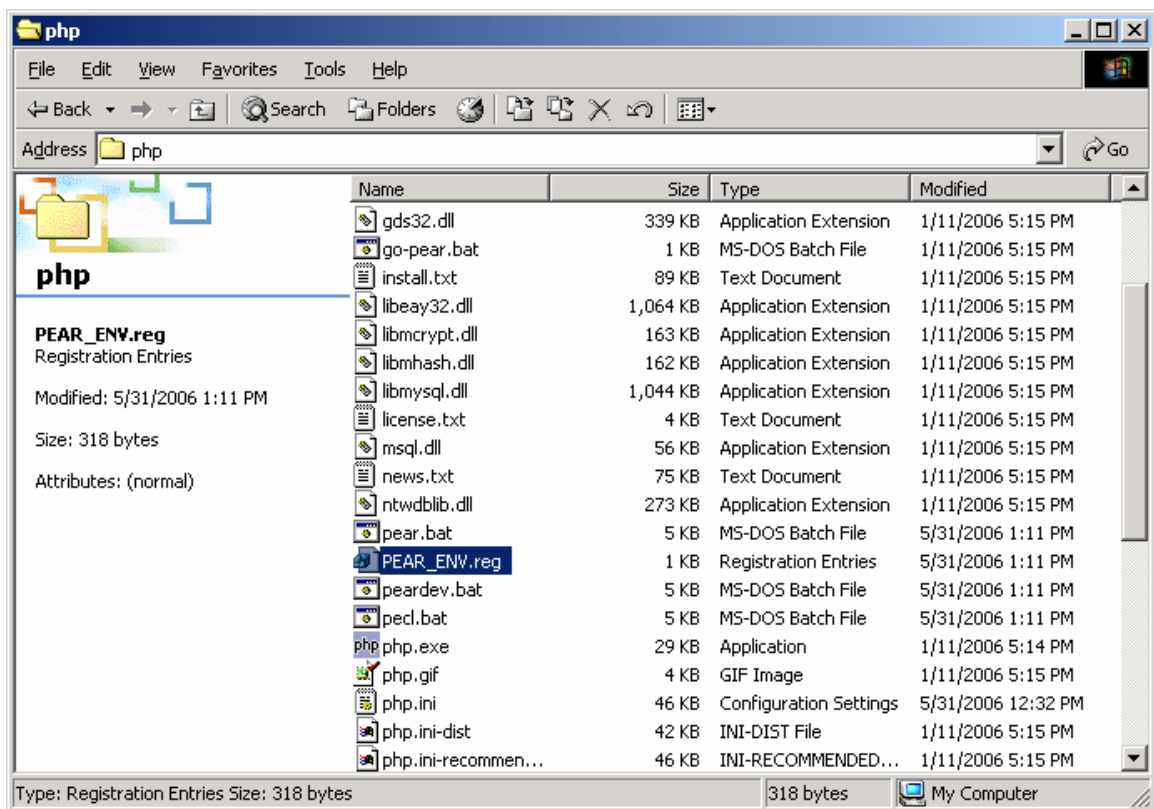
* WINDOWS ENVIRONMENT VARIABLES *
For convenience, a REG file is available under C:\php\PEAR_ENV.reg .
This file creates ENV variables for the current user.

Double-click this file to add it to the current user registry.

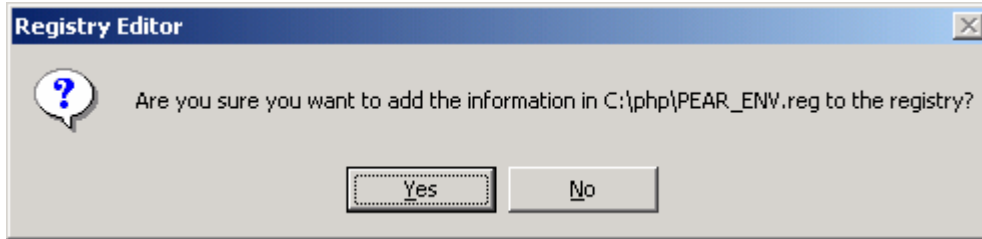
Press any key to continue . . .

```

6.1. From Windows Explorer, go to c:\php and double-click on “PEAR_ENV.reg.” file to change the environmental value.



6.2. Then click “Yes”.



6.3. Then click “OK.”



Installing the HTML_Template_IT library

HTML_Template is used to separate the presentation layer and the business logic layer of the web pages.

1. Go to the directory `soillab_server_setup\pear`.
2. Type the following commands from the command prompt.

```
pear install HTML_Template_IT-1.1.3.tgz
```

Installing Image_Graph

Image_Graph is a library to draw graphs dynamically.

1. Go to the directory `soillab_server_setup\pear`.
2. Type the following commands from the command prompt.

```
pear install Numbers_Roman-1.0.1.tgz  
pear install Numbers-Words-0.15.0.tgz  
pear install Image_Color-1.0.2.tgz  
pear install Image_Canvas-0.3.0.tgz  
pear install Image_Graph-0.7.2.tgz
```

Installing Math_Matrix

Math_Matrix is a class to represent matrices and matrix operations.

1. Go to the directory `soillab_server_setup\pear`.
2. Type the following commands from the command prompt.

```
pear install Math_Vector-0.6.2.tgz
pear install Math_Matrix-0.8.5.tgz
```
3. **IMPORTANT** Copy the file `soillab_server_setup\pear\Matrix.php` to the directory `c:\php\PEAR\Math\`
4. When asked “Would you like to replace the existing file” click “Yes”.

This is because MATH_Matrix library was developed for PHP4, and there are a few issues using with PHP5.

Note

In PHP5, *clone* is a reserved keyword. Unfortunately, the Math_Matrix class has a method named *clone()* which performs the exactly same functions as the PHP5 keyword *clone*. Because of this, the keyword causes a conflict when MATH_Matrix library is used with the PHP5 engine. Also in PHP5, objects are always assigned and passed by reference; whereas in PHP4, objects are always assigned by values. Therefore, the following parts of the MATH_Matrix library were modified.

The file `Matrix.php` was modified on the following lines.

- Comments out the definition of the function *&clone()* between line 308 to 314.
- Change *\$this->clone()* to *clone \$this* on lines 728 and 845.
- Change *\$a->clone()* to *clone \$a* on line 1581.
- Delete *&* on lines 934, 1196, 1229, 1333, 1353, 1367, 1385, 1410, 1424 and 1456

All the above modifications are marked with comment `// ts_modified` for future reference.

D.4 MySQL Server 5.0

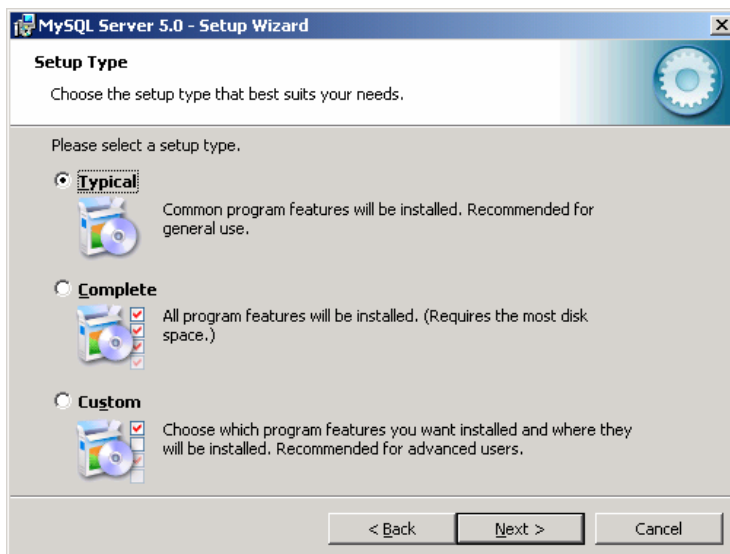
GLDMS uses MySQL 5.0 for the DB server. The system requires version 5.0 or higher.

Installing MySQL 5.0

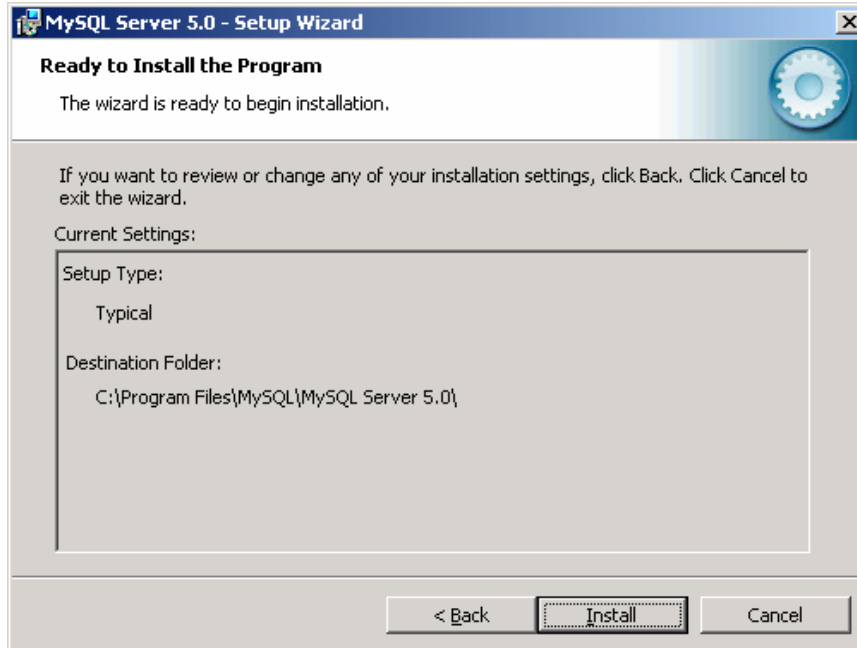
1. Double-click on *mysql_Setup.exe* file.
2. Click Next.



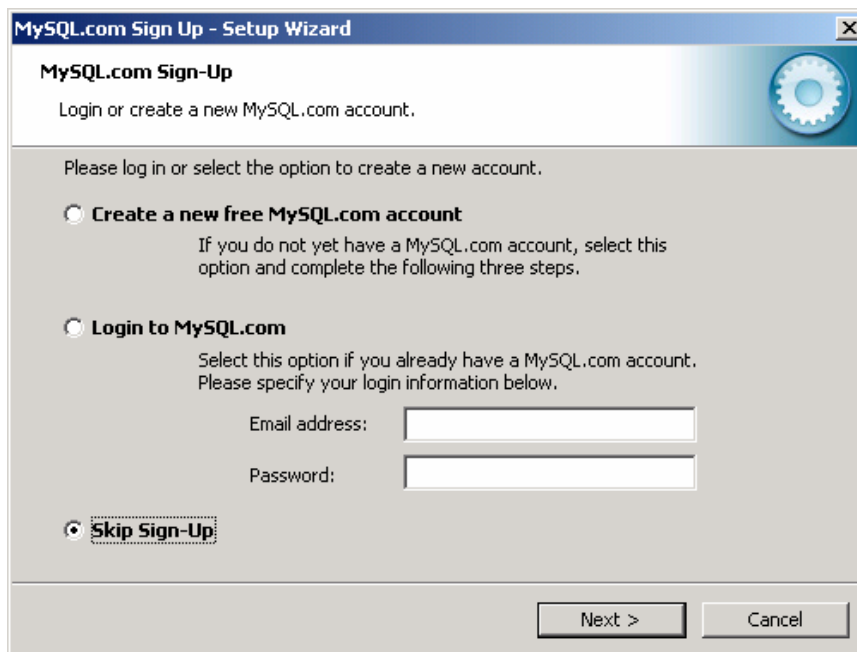
3. Choose "Typical." Then, click "Next >."



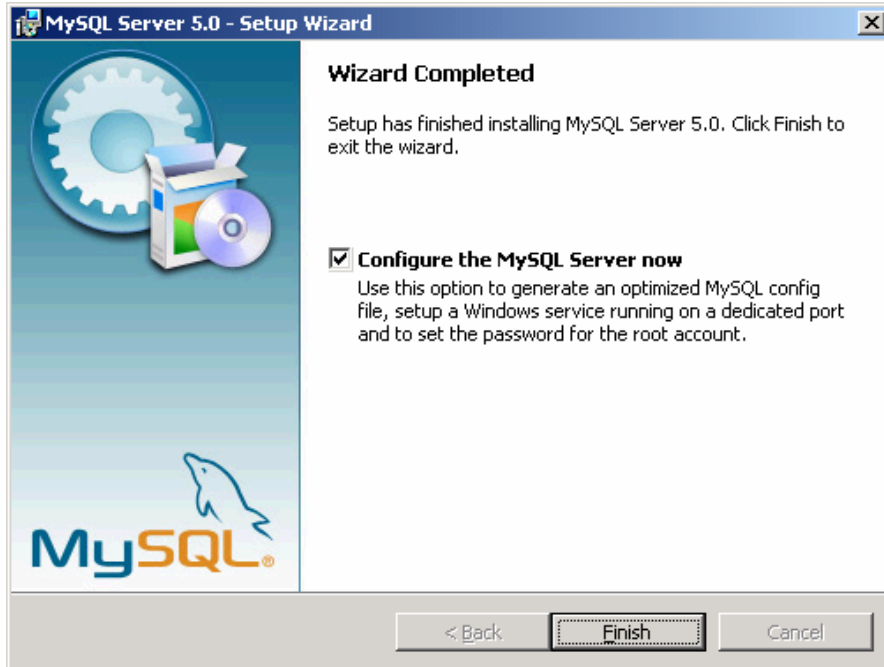
4. Click “Install.”



5. Choose “Skip Sign-Up” and click “Next >.”

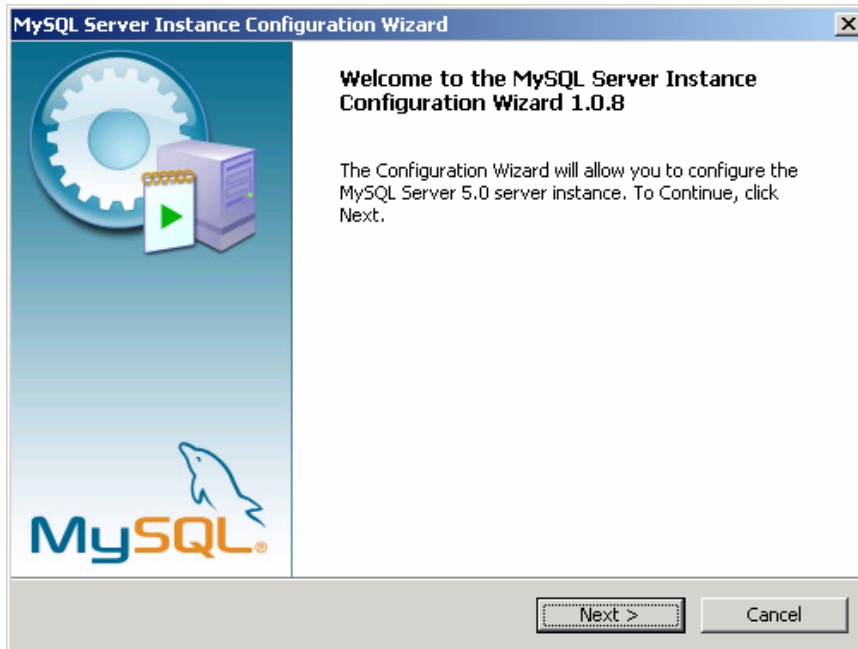


6. Make sure the “Configure ...” checkbox is checked then click “Finish”.

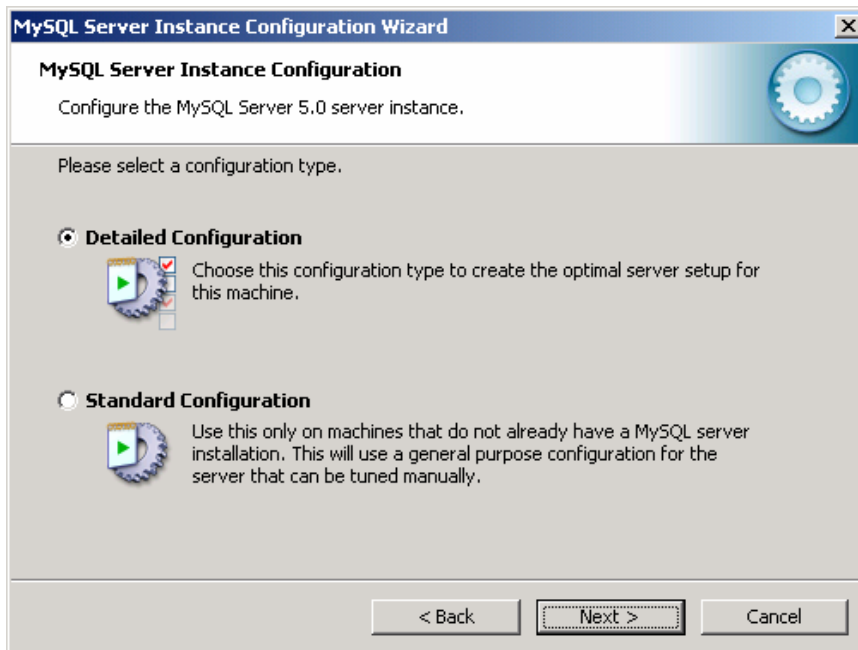


Configuring MySQL 5.0

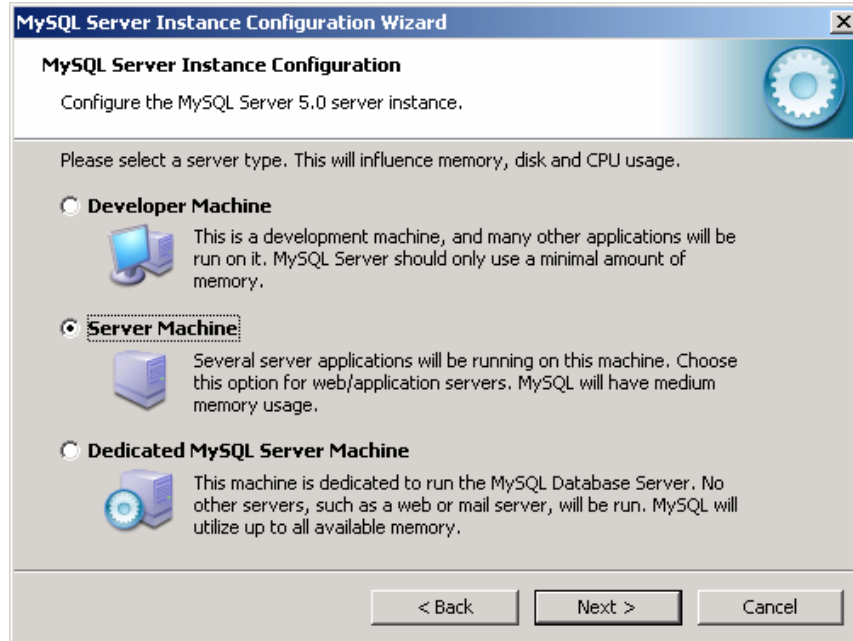
1. Click “Next >”



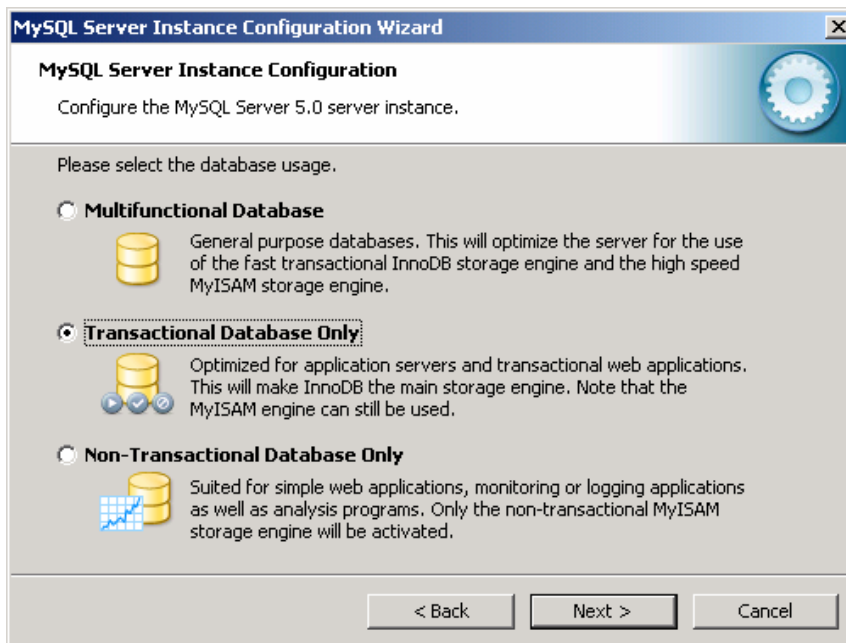
2. Check “Detailed Configuration,” then click “Next”.



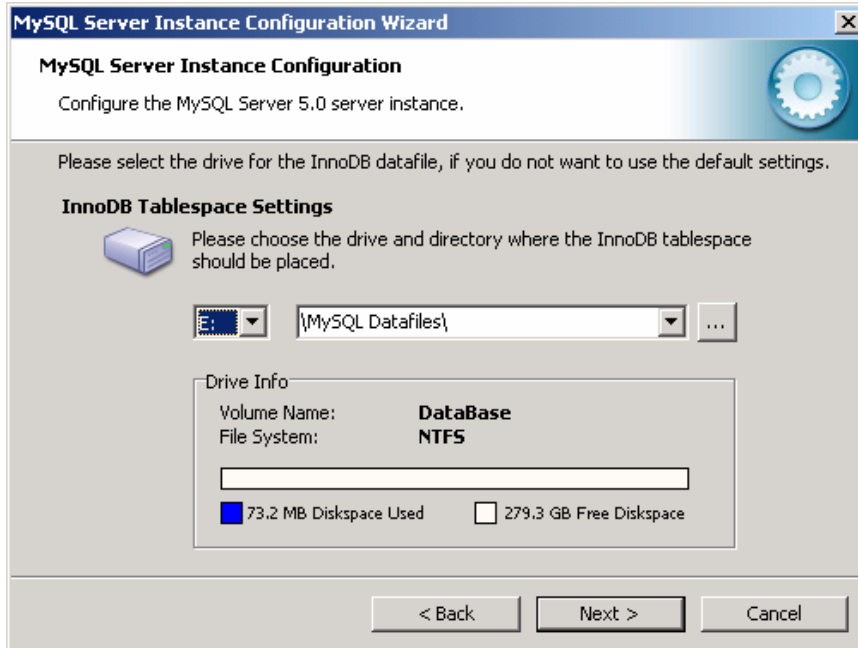
3. Check “Server Machine”, then click “Next >”



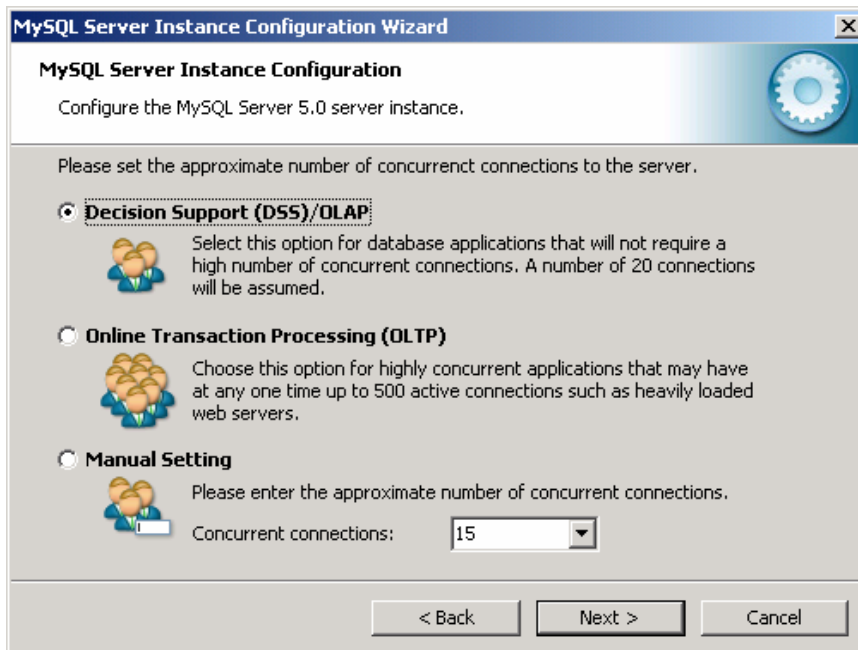
3. Check “Transactional Database Only,” then click “Next >.”



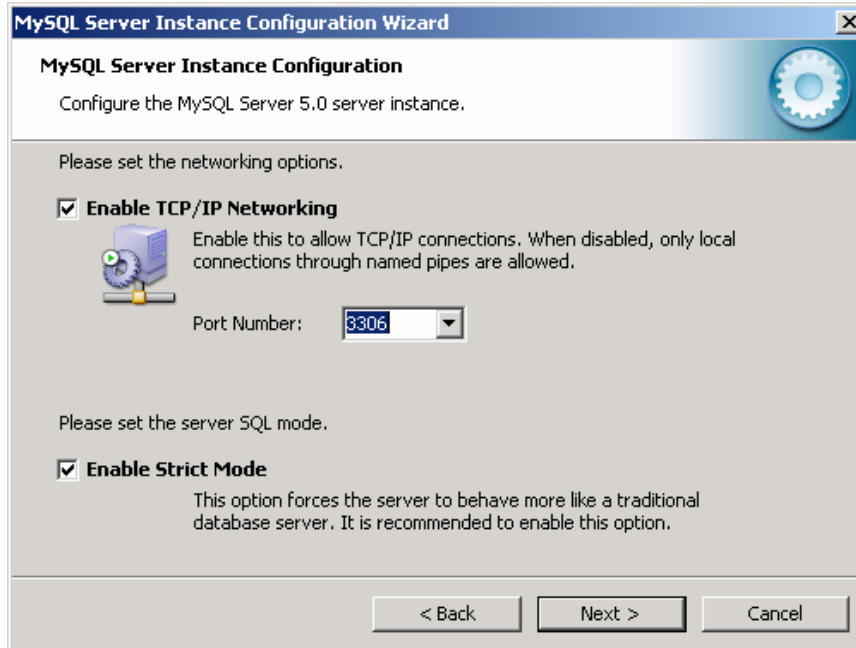
4. Select the InnoDB datafile location as *E:\MySQL Datafiles* (RAID1 drive).



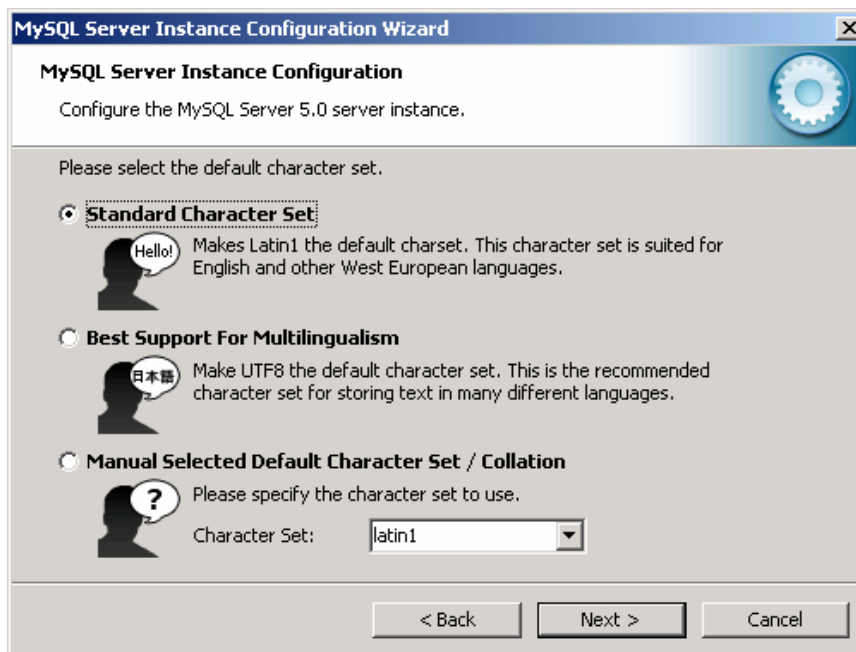
3. Select “Decision Support (DSS)/OLAP”



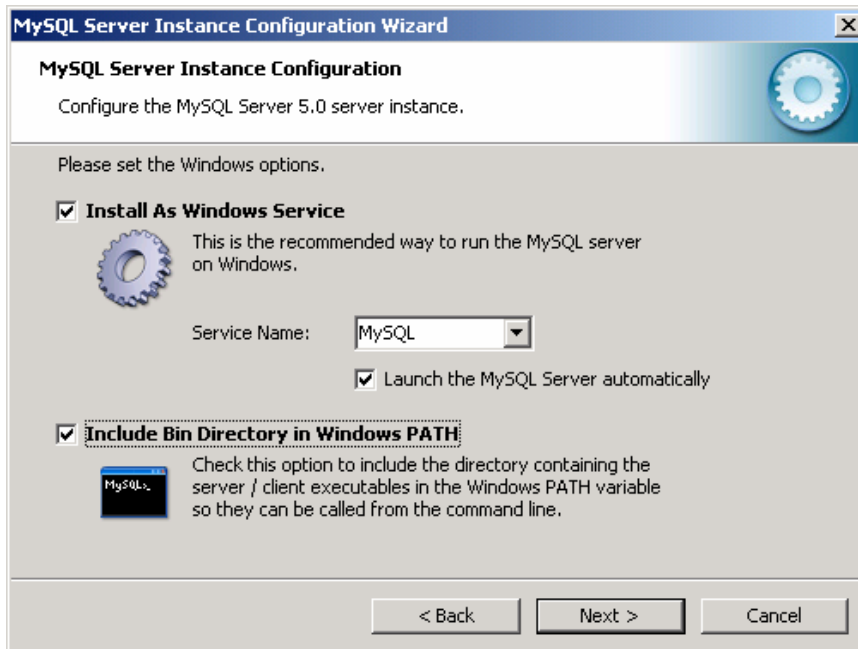
4. Click “Next >.”



5. Click “Next >.”



6. Check both “Install As Windows Service” and “Include Bin Directory in Windows PATH.” Then click “Next >.”



7. Set password.

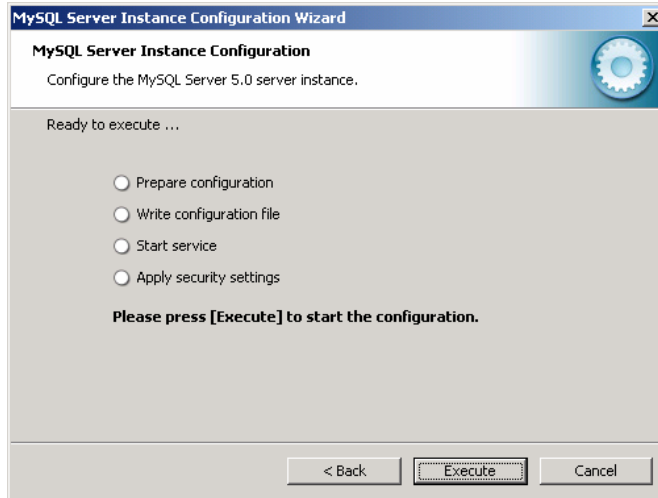
The password was set to “oracle”

NOTE: The password, of course, can be changed to anything. However, a line in the file “include/db.php” for the system must be modified accordingly.

```
if(!$connection = mysql_connect("localhost", "root", "PASSWORD"))
```



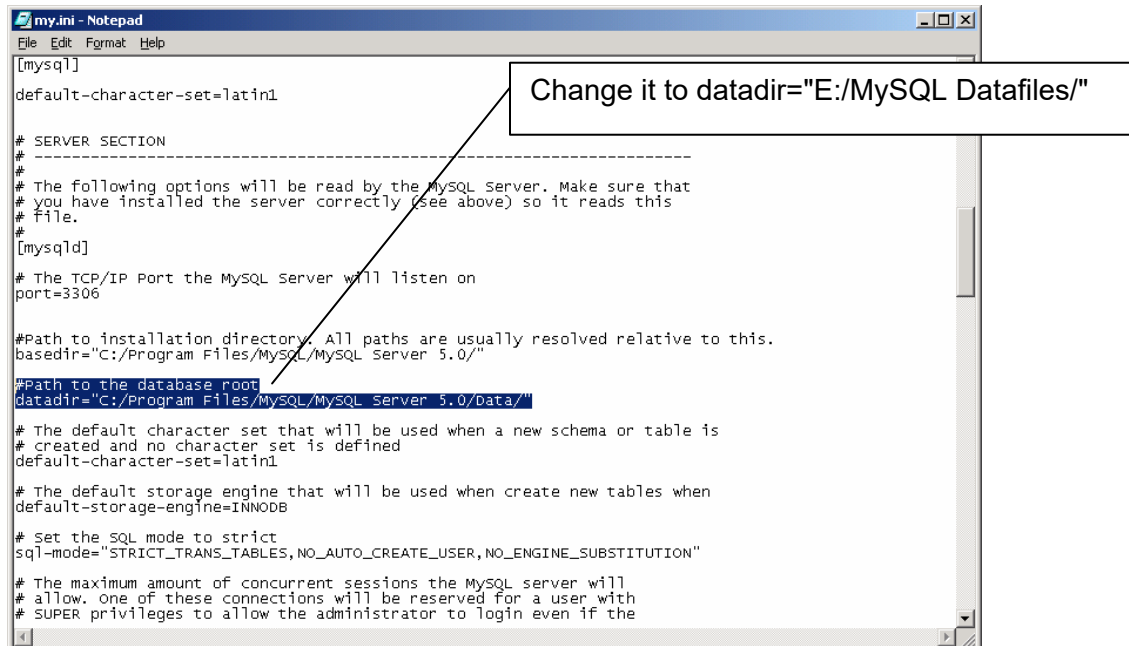
8. Click “Execute.”



Relocating the Database File on the RAID1

Move the database root directory from C: drive to E: drive.

1. Open “c:/Program Files/MySQL/my.ini” file.
2. Find the line `datadir="C:/Program Files/MySQL/MySQL Server 5.0/Data/"`.
3. Change it to `datadir="E:/MySQL Datafiles/"`



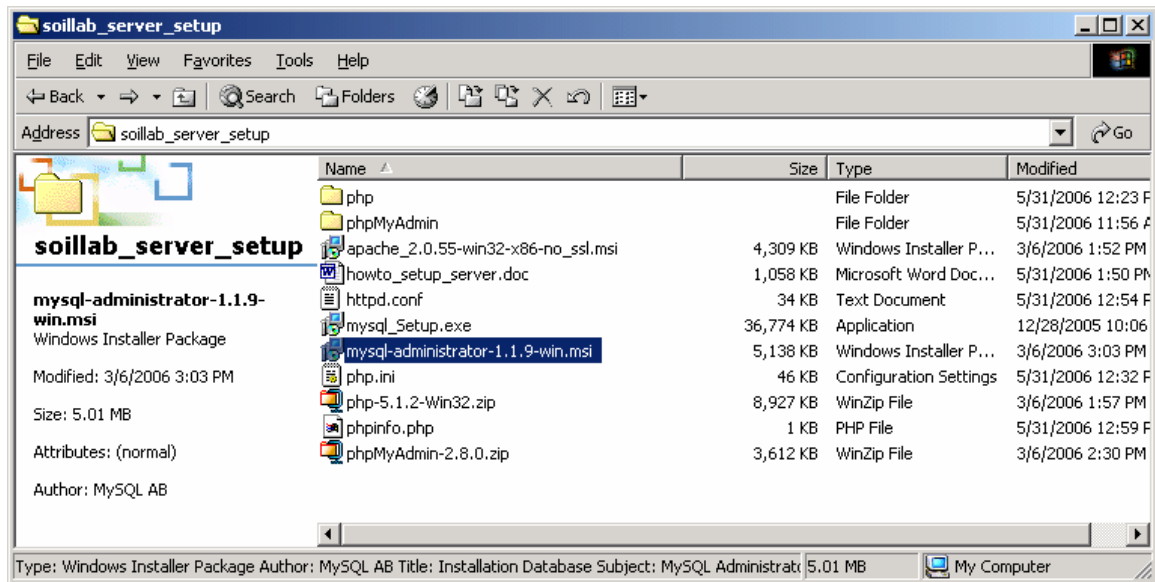
4. Move the all contents from “C:\Program Files\MySQL\data” to “E:\MySQL Datafiles”

D.5 MySQL Administrator

The MySQL Administrator is used for managing MySQL database.

Installing MySQL Administrator

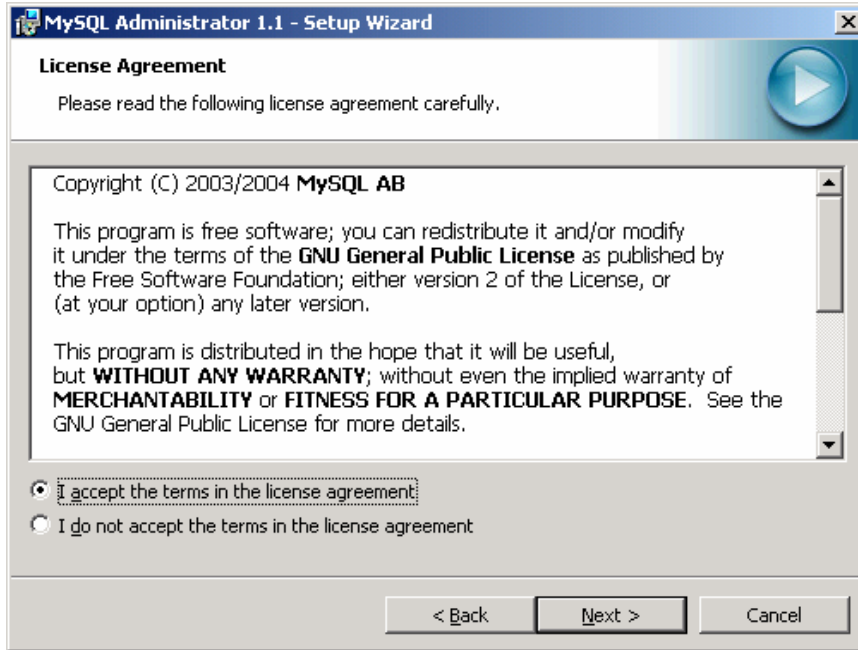
1. Double-click on *mysql-administrator-1.1.9-win.msi* file



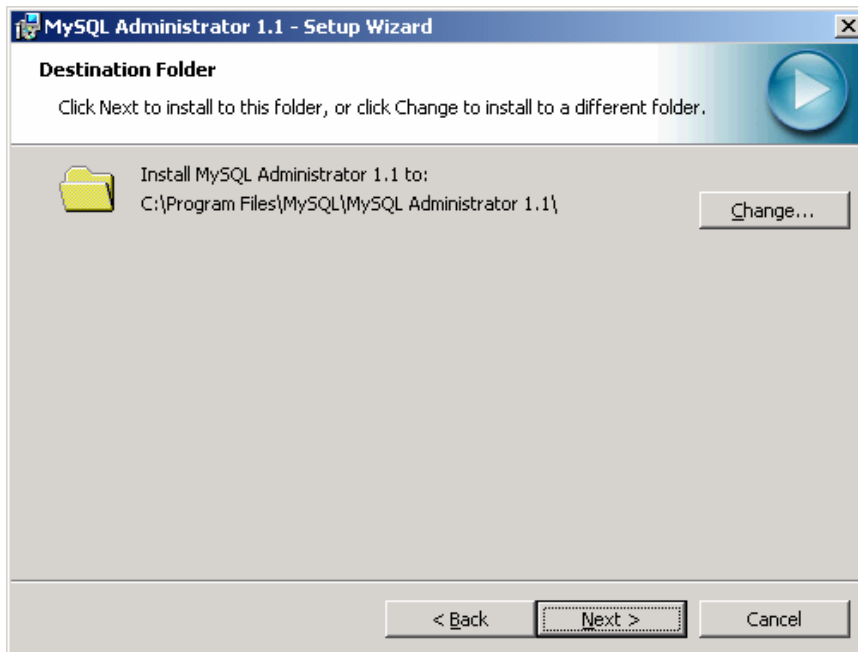
2. Click "Next >."



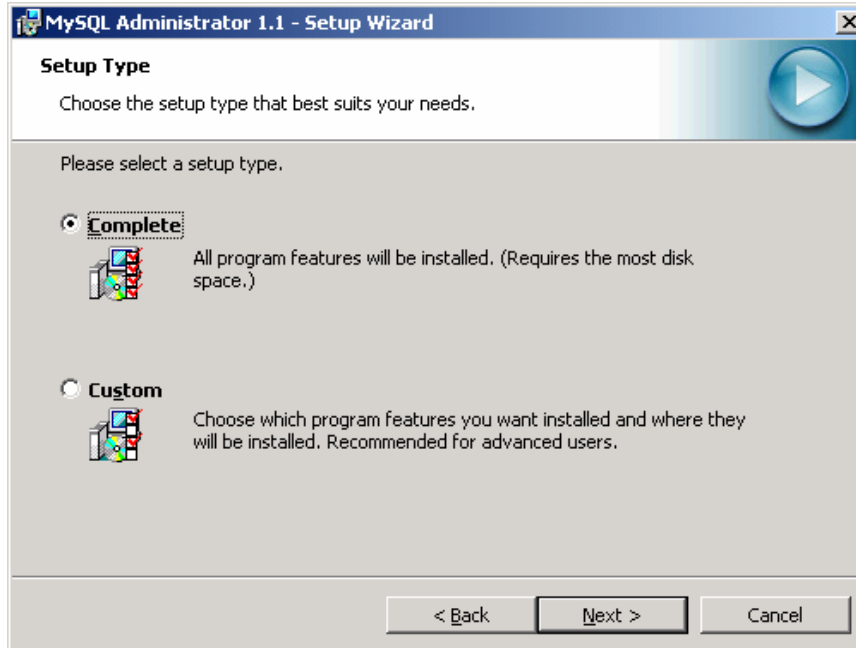
3. Check “I accept” and click “Next >.”



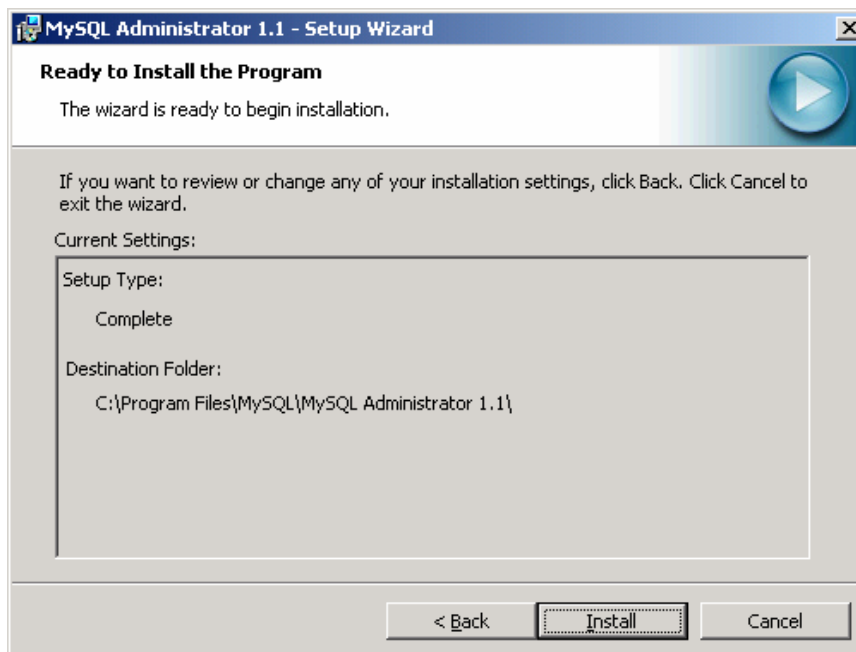
4. Click “Next >.”



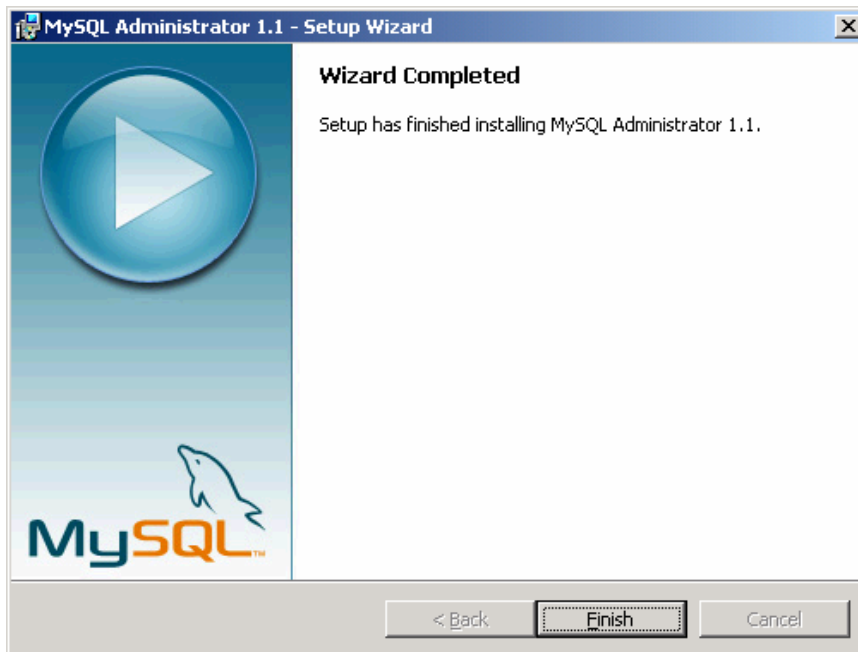
5. Choose “Complete” and click “Next >.”



6. Click “Install.”



7. Click “Finish”.



D.6 phpMyAdmin 2.8.0

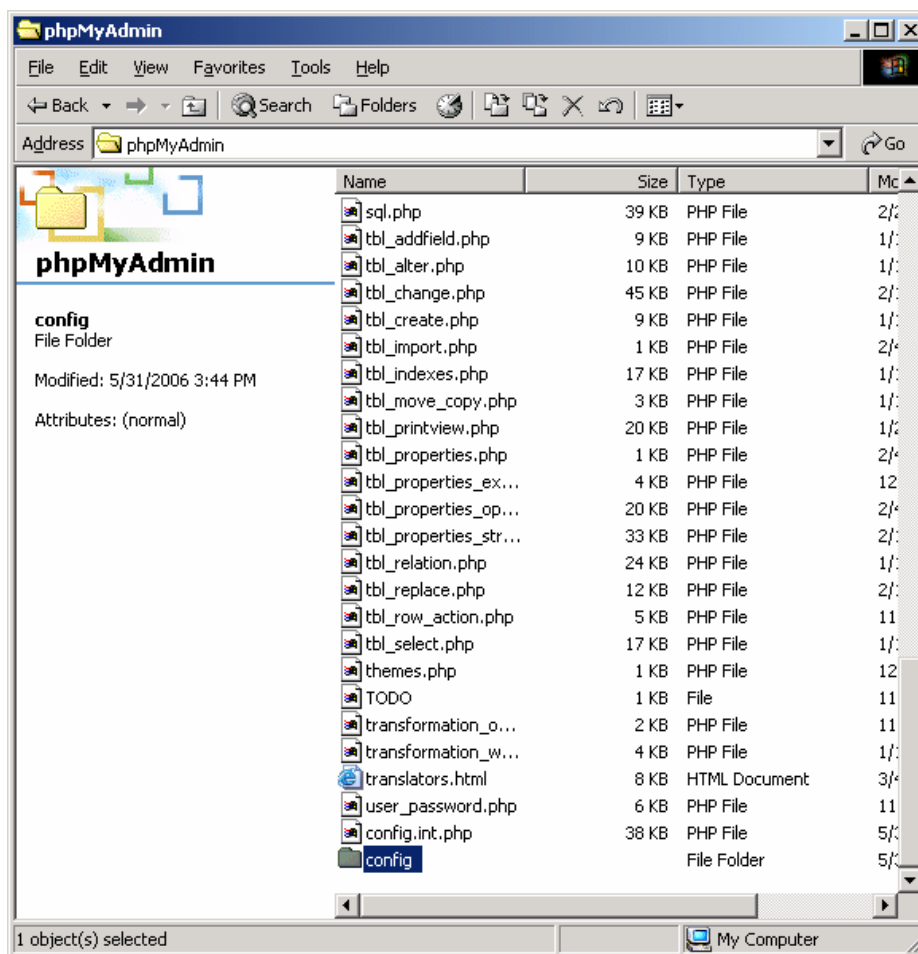
The phpMyAdmin is a required application to run GLDMS; however, it is a handy tool for viewing and executing SQL commands for database maintenance.

Installing phpMyAdmin

1. Copy the directory “soillab_server_setup\phpMyAdmin” to “c:\Program Files\Apache Group\Apache2\htdocs\”.

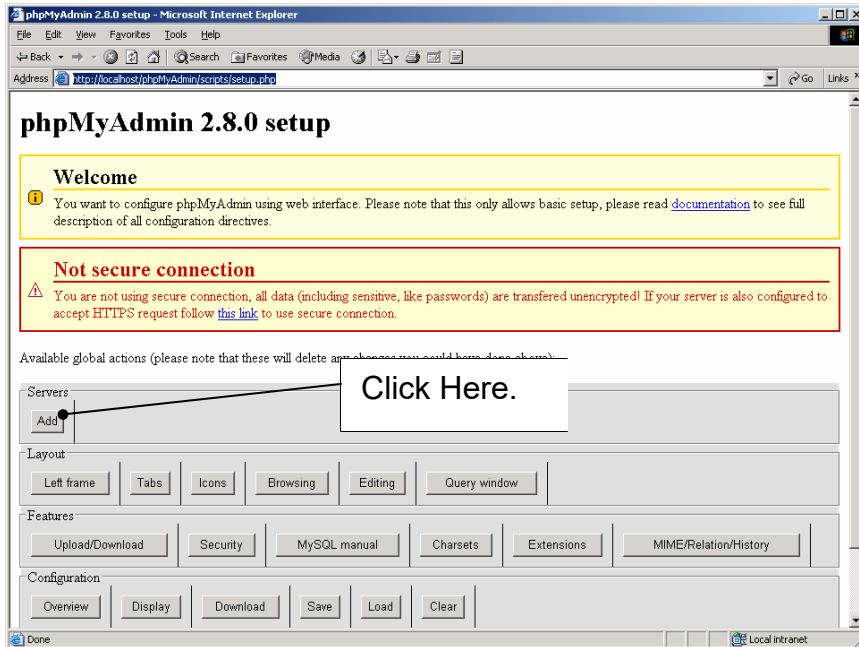
Configuring phpMyAdmin

1. Create “config” directory under the phpMyAdmin directory.

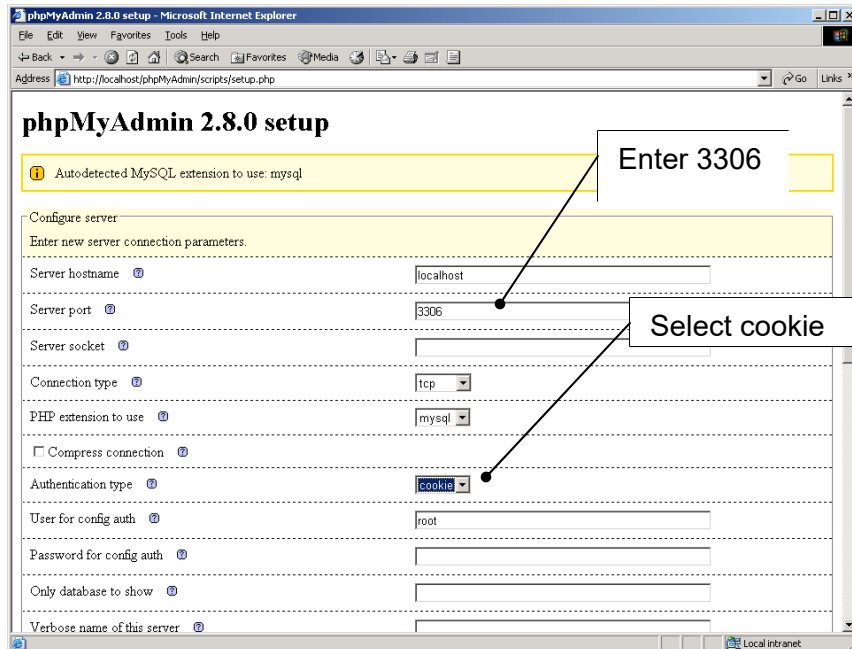


2. Open the setup script from a web browser by visiting:
<http://localhost/phpMyAdmin/scripts/setup.php>

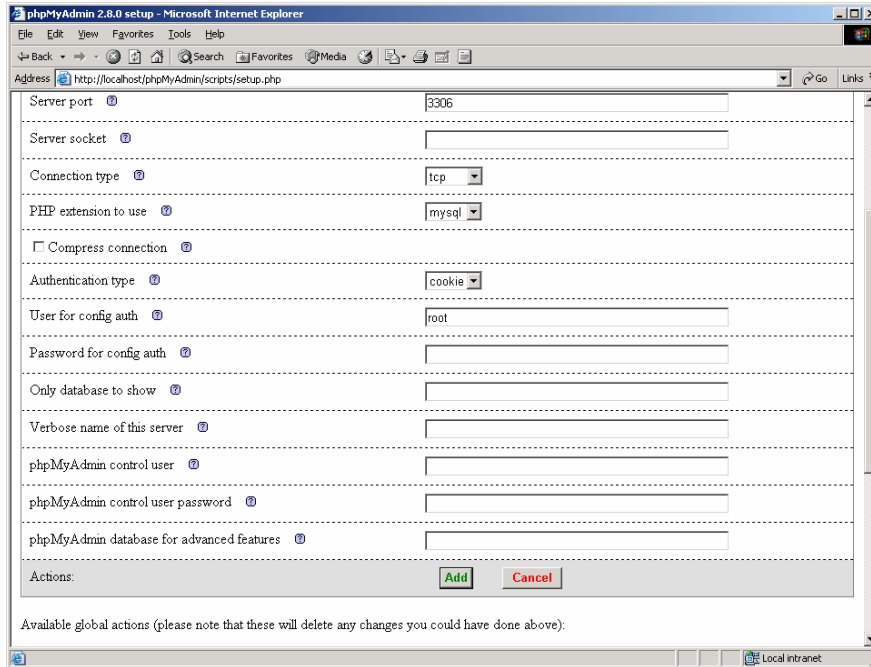
Then click “Add” button.



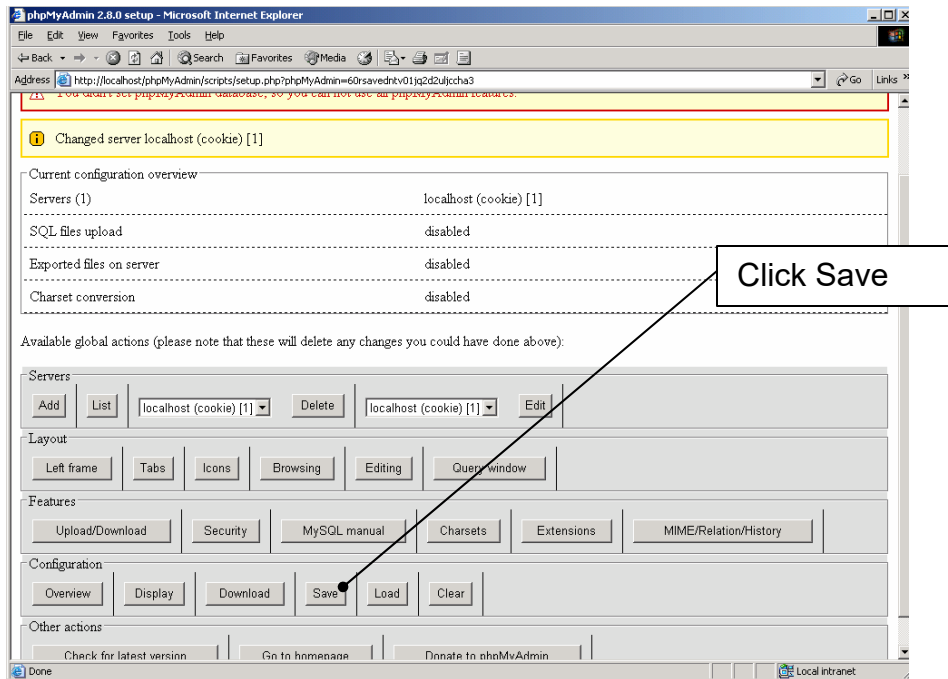
3. Enter Server port “3306” and select Authentication type “cookie”.



4. On the same web page, scroll down and click “Add”.



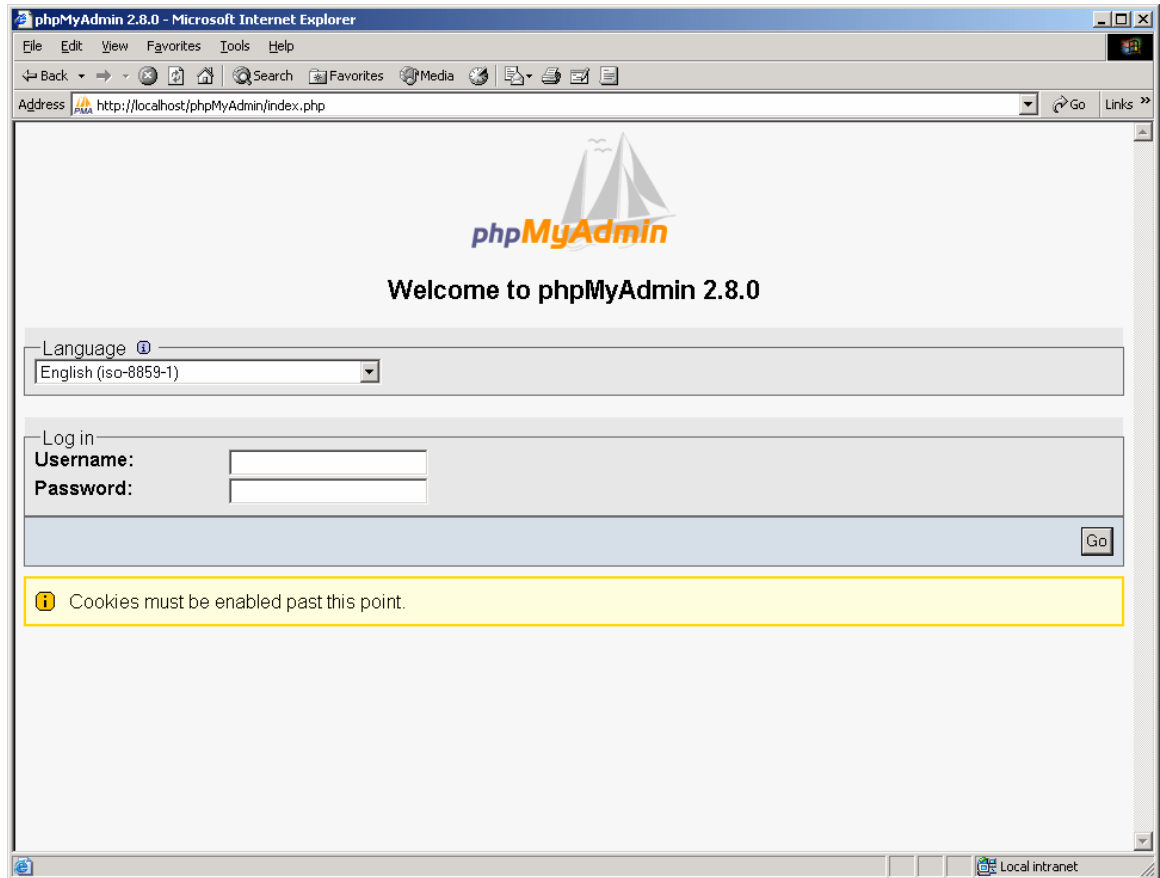
5. Then save the configuration file by clicking “Save” button. This will create the file “phpMyAdmin\config\config.inc.php.”



6. Move the file “phpMyAdmin\config\config.inc.php” to “phpMyAdmin” directory.

Now you can use phpMyAdmin from the URL

<http://localhost/phpMyAdmin/index.php>

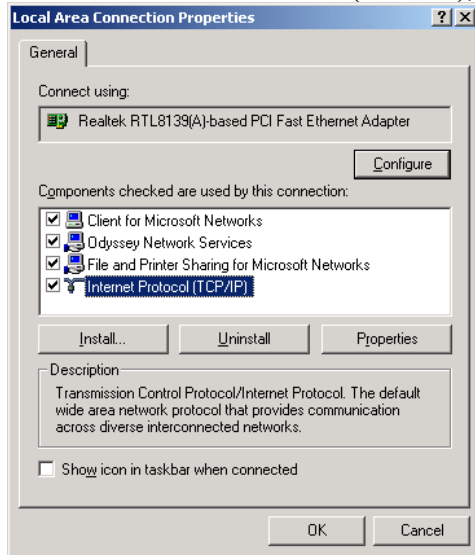


D.7 Client PC Setup

Configuring the Network Settings

GLDMS uses static IP addresses for its network; therefore, the IP address for each computer must be assigned manually.

1. Open: *Start- > Settings -> Control Panel -> Network and Dial Connections*
2. Right-click on *Local Area Connection* to select Properties.
3. Select Internet Protocol (TCP/IP), then click Properties.



4. Enter the IP address using the table shown in Figure D-1. The default gateway can be anything.

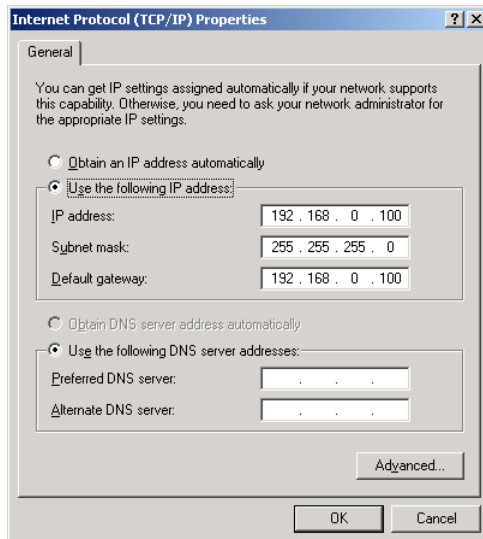


Figure D-1 – Table of assigned IP addresses

Name	IP address	Subnet mask
The GLDMS server	192.168.0.100	255.255.255.0
Network HDD	192.168.0.250	255.255.255.0
Switch	192.168.0.239	255.255.255.0
Admin Station	192.168.0.200	255.255.255.0
Moisture Content Station	192.168.0.101	255.255.255.0
Unit Weight Station	192.168.0.102	255.255.255.0
Atterberg Limits Station	192.168.0.103	255.255.255.0
Specific Gravity Station	192.168.0.104	255.255.255.0
Mechanical Analysis Station	192.168.0.105	255.255.255.0

For new touch screen clients, you can use IP addresses starting from 192.168.0.106.

Setting Up New User Accounts

New Windows user accounts must be created for both the server computer and for client computers.

1. Start->Settings->Control Panel->User Accounts

Figure D-2 – User account for the SERVER computer

User Name	Group	Password
Soil	Administrators	lab

Figure D-3 – User account for Client computers

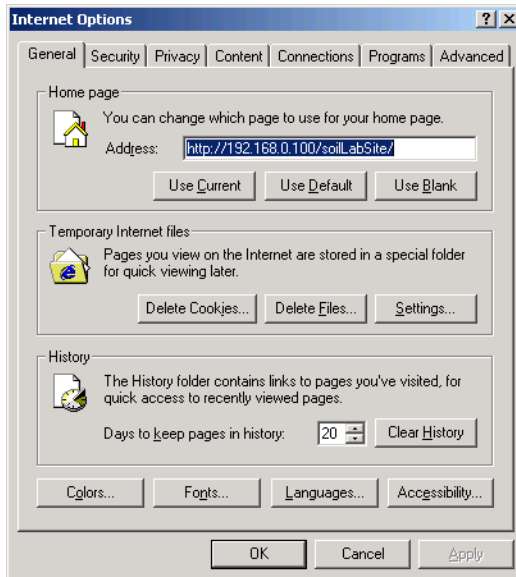
User Name	Group	Password
soil	Users	(NONE)

Configuring Internet Explorer Browser

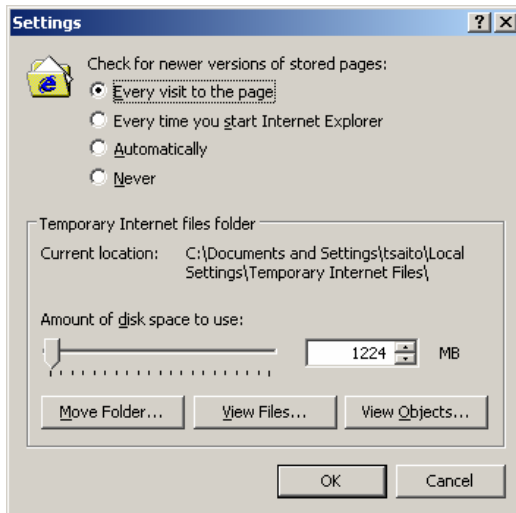
Touch-screen clients need a special configuration for Internet Explorer so the GLDMS site will open when the computer starts.

All the following setting performed for the user account 'soil.'

1. Select Tools->Internet Options
2. General Tab -> Home page Address: ***http://192.168.0.100/soilLabSite/***

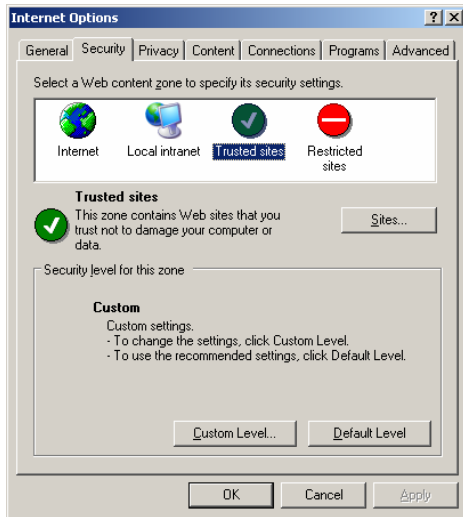


3. Click *Settings...* button in the “Temporary Internet files” section
4. Check radio button for “Every visit to the page.”

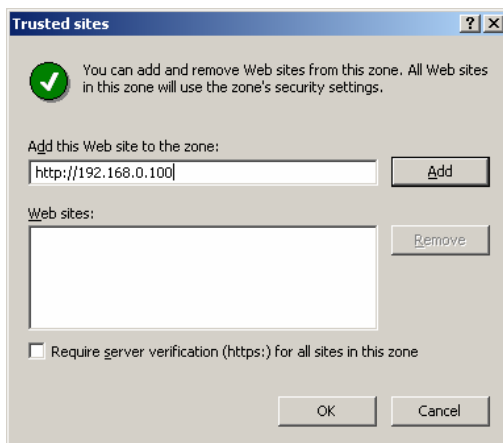


5. This setting is needed only for a client that uses automated scale reading functionality.

From Security tab, select the *Trusted sites* icon. Then click Sites... button.



6. Type *http://192.168.0.100/soilLabSite*
Uncheck “Require server verification (https:) for all sites in this zone.”



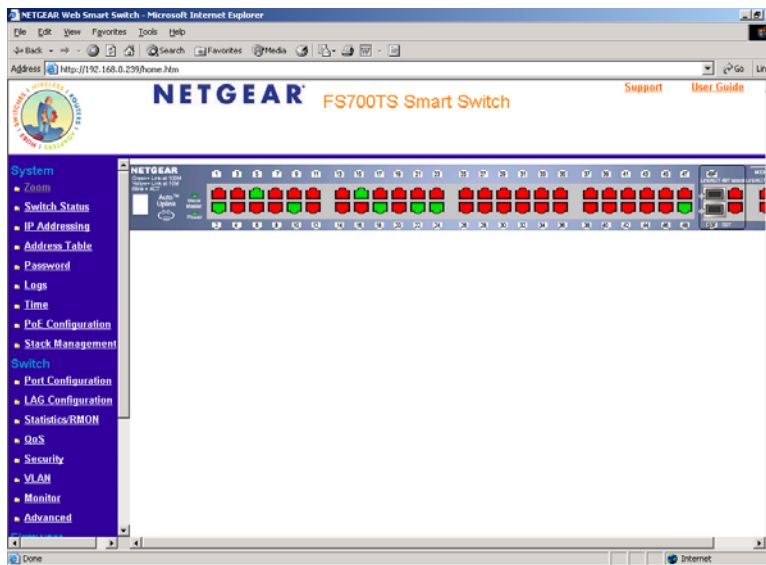
7. Copy the shortcut to Internet Explorer to the directory “C:\Document and Settings\soil\Start Menu\Programs\Startup.”

D.8 Configuring the Switch

NETGEAR FS700TS Smart Switch comes with a web-based management tool. The management site is accessed by the following address and password.

IP Address	192.168.0.239
Password	Lab

Figure D-4 –Web interface for the switch



D.9 Scale Reading Server Installation

The scale reading functionality requires a client to have a Perl programming language environment and three Perl modules. All the necessary files are located “*soillab_server_setup\perl*” directory.

Installing Perl Environment

ActivePerl 5.8.8

- Open the directory *soillab_server_setup\perl* with Explorer.
- Install "ActivePerl-5.8.8.817-MSWin32-X86-257965.msi" with default setting.

Win32::API (using PPM Package)

- Go to the directory *soillab_server_setup\perl\Win32-API-0.41* in Windows command prompt.
- Type the following command from the command prompt.
> ***ppm install Win32-API.ppd***

Win32::SerialPort and Win32API::CommPort

(Not available with PPM Package)

- Go to the directory *soillab_server_setup\perl\SerialPort-0.19*
- Type the following commands from the command prompt
> ***perl Makefile.PL***
> ***perl test.pl***
> ***perl install.pl***

Installing the scale server program

1. Copy the "scaleServer3.pl" file to the directory *c:\Document and Settings\soil*
2. Create a shortcut of scaleServer3.pl under the directory “*c:\Document and Settings\soil\Start Menu\Programs\Startup*”.

Configure the security setting for the web browser (if you have not already done so)

During the scale reading process, a browser sending an asynchronous request to a scale reading server program is considered insecure by Internet Explorer, and it prompts the user to continue. Because the repeated confirmations interrupt the user, the following procedure should be performed to disable it.

1. Start the Internet Explorer.
2. Open the Internet Option dialog box. (Tools Internet Options)
3. Select the "Security Tab."
4. Click the "Trusted sites" icon.
5. Click the "Sites" button.
6. Type the IP address for the GLDMS server. (192.168.0.100)
7. Uncheck the "Required server verification (https:) checkbox.

Testing the Scale Reading Functionality

The program, scaleTest.pl, can test the connection to the scale without using the touch-screen web interface. To use it, just double-click the file from Windows Explorer. Then type the command for the scale. (SI: for reading, and SIR for continuous reading.)

D.10 GLDMS Web Site installation

1. Copy the folder *server_client_setup\soilLabSite* to *c:\Program Files\Apache Group\Apache2\htdocs* on the server.

Then the web sites are accessed at the following URLs:

- <http://192.168.0.100/soilLabSite> - the laboratory web site
- <http://192.168.0.100/soilLabSiteadmin> - the administrative web site

D.11 Database Setup

If the database *soillab5* does not exist yet, create it from a command prompt.

```
> mysqladmin -uroot -poracle create soillab5
```

Once the database is created, the database can be restored from a backup file. Within a command prompt, go to the directory that contains the backup file. Then type:

```
> mysql -uroot -poracle --database soillab5 < {backupFilename}
```

Appendix E Database Structure

GLDMS utilizes MySQL, a relational database management system, to store lab tests and other system data such as login information and backup logs. In a relational database, data is stored in a set of logically-related *tables* in order to conserve disk space and increase the flexibility to generate new view of the data in the system.

In July 2005, GLDMS was first developed using MySQL 4.1 with MyISAM database engine. By the end of 2005, the stable version of MySQL 5.0 became available, and the GLDMS database was upgraded to MySQL5.0 and InnoDB database engine. In July 2006, the foreign key constraints between project, sample, specimen, and tests are assigned to ensure the integrity of the database. The foreign key constraints provides cascaded deletions so when a project is deleted all tests and samples that are associated with the project also gets deleted.

E.1 Basic Structure

There are four basic table structures in the GLDMS database.

1. Project
2. Sample
3. Specimen
4. Test

Project

A project corresponds to a specific request from a client. A project record contains the information related to the request, such as GL Tracking Number, Project Name, and District-EA. The GL Tracking Number is a unique name for the project.

Sample

Each project contains one or more samples. A sample record contains soil sample data, such as Boring ID, Sample No., Tube Number, and Depth. A combination of Boring ID, Sample No., and Tube identifies a sample.

Specimen

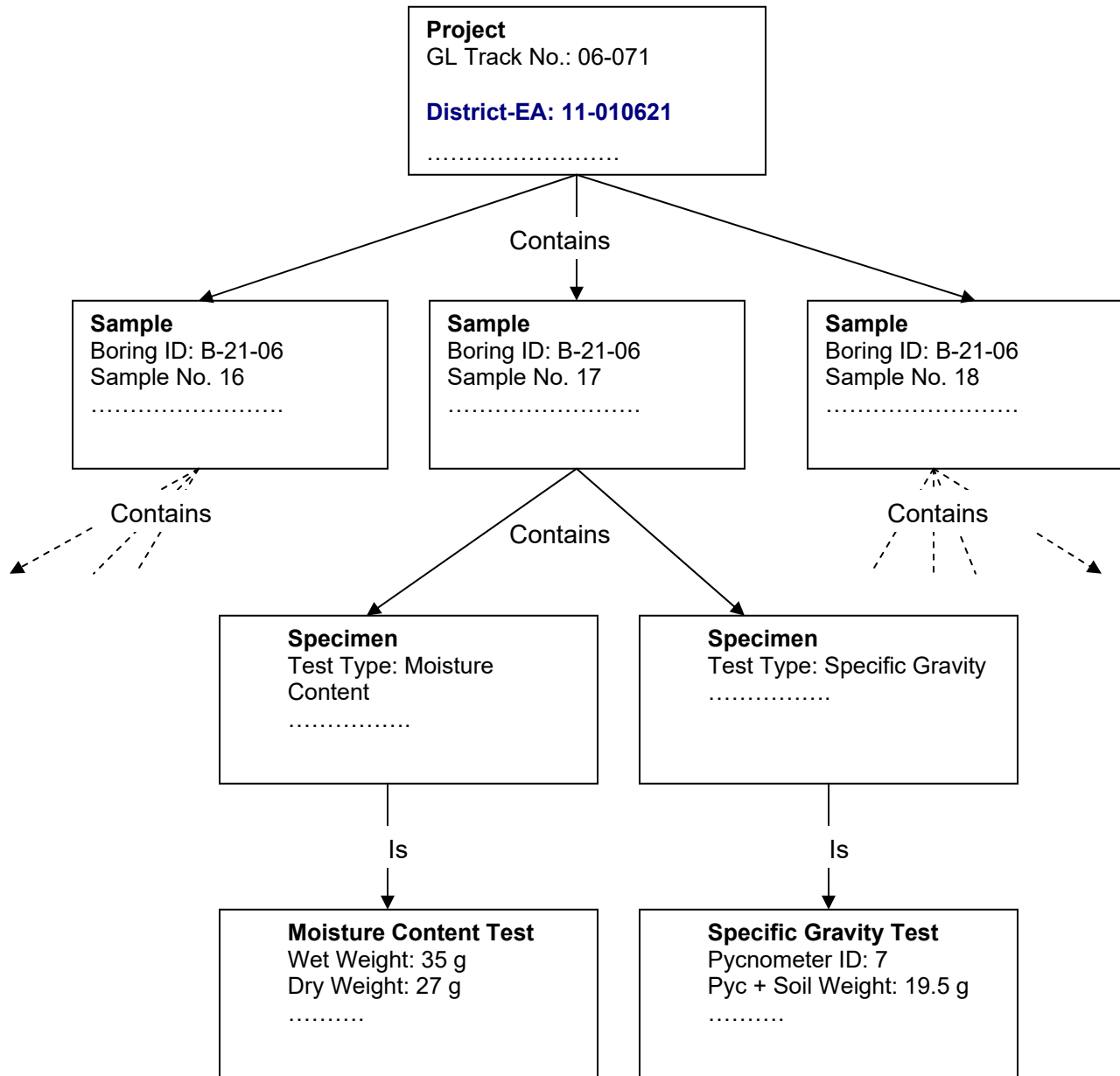
A sample contains one or more specimens. A specimen is a portion of the sample on which a test is performed. A specimen record contains the information that is common in all types of tests, such as Sample ID, Test Type, Status, and Dates. A specimen may have a corresponding test record if the test type requires additional test fields.

Test

A test is an instance of specimen. A test record contains the fields that are specific to the test. For example, a test table for specific gravity test contains a field Pycnometer ID that is a specific field for specific gravity test.

Figure E-1 shows an example of a data structure encapsulating a project identified with GL Track Number 06-071. In this example, the project contains three samples; one of the samples contains two specimens; the each specimen corresponds to one test. Without relational structure, duplicated project and sample information would be stored in specimen tables.

Figure E-1 – Architecture used in the GLDMS



E.2 Database Table Relationships

Figure E-2 – MySQL database tables

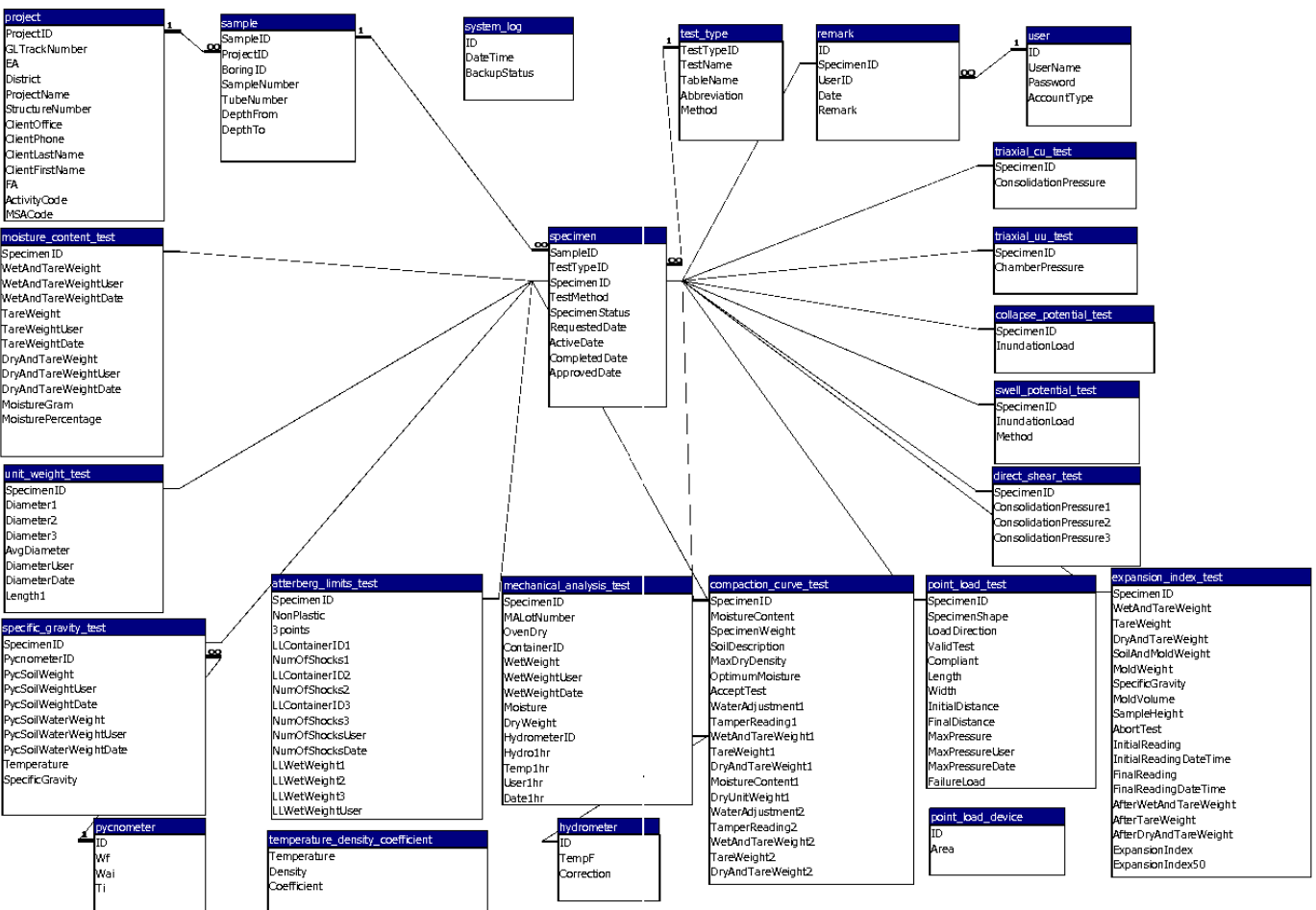


Figure E-3

Table Name	Description
atterberg_limits_test	Stores the measured and calculated values for atterberg limits test: liquid limit test and plastic limit test
collapse_potential_test	Stores the testing values for collapse potential test
compaction_curve_test	Stores the measured and calculated values for compaction curve test.
direct_shear_test	Stores the testing values for direct shear test
expansion_index_test	Stores the measured and calculated values for expansion index test
hydrometer	Contains the temperature correction for hydrometers
mechanical_analysis_test	Stores the measured and calculate values for mechanical analysis test
moisture_content_test	Stores the measured and calculated values for moisture content test
point_load_device	Store the calibration factor of the point load device.
point_load_test	Stores the measured and calculated values for point load test
project	Stores the project information
phycnometer	Contains the pycnometer information
remark	Store the remarks
sample	Stores the sample information
specific_gravity_test	Stores the measured and calculated values for specific gravity test
specimen	Stores the information common in all tests, such as status and date information
swell_potential_test	Stores the testing values for swell potential test
system_log	Stores the backup status log
temperature_density_coefficient	Look up table of temperature density coefficient
test_type	Look up table for test type
triaxial_cu_test	Stores the testing values for triaxial cu test
triaxial_uu_test	Stores the testing values for triaxial uu test
unit_weight_test	Stores the testing values for unit weight test
user	Stores the user information

Appendix F Data Dictionary

F.1 atterberg_limits_test

Field	Type	Comments
<u>SpecimenID</u>	int(10)	PK ; FK: specimen.SpecimenID
NonPlastic	enum('Yes', 'No')	Whether specimen is non-plastic or not
3points	enum('Yes', 'No')	Whether 3-point method is used or not for liquid limit test
LLContainerID1	tinyint(3)	Container ID for Liquid Limit Test - Point 1
NumOfShocks1	tinyint(3)	Number of shocks for Liquid Limit Test - Point 1
LLContainerID2	tinyint(3)	Container ID for Liquid Limit Test - Point 2
NumOfShocks2	tinyint(3)	Number of shocks for Liquid Limit Test - Point 2
LLContainerID3	tinyint(3)	Container ID for Liquid Limit Test - Point 3
NumOfShocks3	tinyint(3)	Number of shocks for Liquid Limit Test - Point 3
NumOfShocksUser	tinyint(3)	User ID of person entering number of shocks ; FK: user.ID
NumOfShocksDate	date	Date on which the number of shocks were entered
LLWetWeight1	float	Wet Weight (g) for Liquid Limit Test - Point 1
LLWetWeight2	float	Wet Weight (g) for Liquid Limit Test - Point 2
LLWetWeight3	float	Wet Weight (g) for Liquid Limit Test - Point 3
LLWetWeightUser	tinyint(3)	User ID of person entering wet weight ; FK: user.ID
LLWetWeightDate	date	Date on which the wet weight was entered
LLDryWeight1	float	Dry Weight (g) for Liquid Limit Test - Point 1
LLDryWeight2	float	Dry Weight (g) for Liquid Limit Test - Point 2
LLDryWeight3	float	Dry Weight (g) for Liquid Limit Test - Point 3
LLDryWeightUser	tinyint(3)	User ID of person entering the dry weight for Liquid Limit Test ; FK: user.ID
LLDryWeightDate	date	Date on which the dry weight was entered for liquid limit test
LLMoisture	float	CALC: Liquid Limit
PLContainerID	tinyint(3)	Container ID for Plastic Limit Test
PLWetWeight	float	Wet Weight (g) for Plastic Limit Test
PLWetWeightUser	tinyint(3)	User ID of person entering FK: user.ID
PLWetWeightDate	date	Date on which the wet weight was entered for plastic limit test
PLDryWeight	float	Dry Weight (g) for Plastic Limit Test
PLDryWeightUser	tinyint(3)	User ID of person entering the dry weight for Plastic Limit Test ; FK: user.ID
PLDryWeightDate	date	Date on which the dry weight was entered for plastic limit test
PLMoisture	float	CALC: Plastic Limit

F.2 collapse_potential_test

Field	Type	Comments
<u>SpecimenID</u>	int(10)	PK ; FK: specimen.SpecimenID
InundationLoad	float	Load at which water is to be added to the specimen (psf)

F.3 compaction_curve_test

Field	Type	Comments
SpecimenID	int(10)	PK; FK: specimen.SpecimenID
MoistureContent	float	Moisture content (%) as received from METS
SpecimenWeight	float	Weight of test (g) specimen prior to water adjustment
SoilDescription	varchar(80)	Description of soil type
MaxDryDensity	float	Maximum Dry Density (lb/ft3)
OptimumMoisture	float	Optimum Moisture (%)
AcceptTest	enum('Yes', 'No')	Flag to indicate if the compaction curve is acceptable, yes - test complete, no - edit data or add more points
WaterAdjustment1	float	Amount of water (g) added or subtracted from specimen
TamperReading1	float	Tamper reading for specimen once its been compacted
WetAndTareWeight1	float	Wet weight (g) of specimen + tare weight for point 1
TareWeight1	float	Tare weight (g) of container holding specimen for point 1
DryAndTareWeight1	float	Dry weight (g) of specimen + tare for point 1
MoistureContent1	float	Moisture content (%) of specimen for point 1
DryUnitWeight1	float	Dry unit weight (lb/ft3) of specimen for point 1
WaterAdjustment2	float	Amount of water (g) added or subtracted from specimen
TamperReading2	float	Tamper reading for specimen once its been compacted
WetAndTareWeight2	float	Wet weight (g) of specimen + tare weight for point 2
TareWeight2	float	Tare weight (g) of container holding specimen for point 2
DryAndTareWeight2	float	Dry weight (g) of specimen + tare for point 2
MoistureContent2	float	Moisture content (%) of specimen for point 2
DryUnitWeight2	float	Dry unit weight (lb/ft3) of specimen for point 2
WaterAdjustment3	float	Amount of water (g) added or subtracted from specimen
TamperReading3	float	Tamper reading for specimen once its been compacted
WetAndTareWeight3	float	Wet weight (g) of specimen + tare weight for point 3
TareWeight3	float	Tare weight (g) of container holding specimen for point 3
DryAndTareWeight3	float	Dry weight (g) of specimen + tare for point 3
MoistureContent3	float	Moisture content (%) of specimen for point 3
DryUnitWeight3	float	Dry unit weight (lb/ft3) of specimen for point 3
WaterAdjustment4	float	Amount of water (g) added or subtracted from specimen
TamperReading4	float	Tamper reading for specimen once its been compacted
WetAndTareWeight4	float	Wet weight (g) of specimen + tare weight for point 4
TareWeight4	float	Tare weight (g) of container holding specimen for point 4
DryAndTareWeight4	float	Dry weight (g) of specimen + tare for point 4
MoistureContent4	float	Moisture content (%) of specimen for point 4

DryUnitWeight4	float	Dry unit weight (lb/ft3) of specimen for point 4
WaterAdjustment5	float	Amount of water (g) added or subtracted from specimen
TamperReading5	float	Tamper reading for specimen once its been compacted
WetAndTareWeight5	float	Wet weight (g) of specimen + tare weight for point 5
TareWeight5	float	Tare weight (g) of container holding specimen for point 5
DryAndTareWeight5	float	Dry weight (g) of specimen + tare for point 5
MoistureContent5	float	Moisture content (%) of specimen for point 5
DryUnitWeight5	float	Dry unit weight (lb/ft3) of specimen for point 5
WaterAdjustment6	float	Amount of water (g) added or subtracted from specimen
TamperReading6	float	Tamper reading for specimen once its been compacted
WetAndTareWeight6	float	Wet weight (g) of specimen + tare weight for point 6
TareWeight6	float	Tare weight (g) of container holding specimen for point 6
DryAndTareWeight6	float	Dry weight (g) of specimen + tare for point 6
MoistureContent6	float	Moisture content (%) of specimen for point 6
DryUnitWeight6	float	Dry unit weight (lb/ft3) of specimen for point 6

F.4 direct_shear_test

Field	Type	Comments
<u>SpecimenID</u>	int(10)	PK ; FK: specimen.SpecimenID
ConsolidationPressure1	float	Consolidation pressure (psf) to which the specimen is subjected prior to shear phase - Point 1
ConsolidationPressure2	float	Consolidation pressure (psf) to which the specimen is subjected prior to shear phase - Point 2
ConsolidationPressure3	float	Consolidation pressure (psf) to which the specimen is subjected prior to shear phase - Point 3

F.5 expansion_index_test

Field	Type	Comments
SpecimenID	int(10)	PK: FK: specimen.SpecimenID
WetAndTareWeight	float	Wet + Tare Weight (g) for moisture content sample
TareWeight	float	Tare Weight (g) for moisture content sample
DryAndTareWeight	float	Dry Weight (g) for moisture content sample
SoilAndMoldWeight	float	Weight (g) of compacted soil and mold
MoldWeight	float	Weight of mold (g)
SpecificGravity	float	Specific Gravity of soil solids used for phase calculations
MoldVolume	float	Volume of Mold (in ³) used to calculate dry unit weight
SampleHeight	float	Sample Height (in) of the specimen. Default value is give.
AbortTest	enum('Yes')	Whether the test is aborted or not
InitialReading	float	Reading at beginning of expansion test (in)
InitialReadingDateTime	datetime	Date and time of initial reading of expansion test
FinalReading	float	Reading at end of expansion test (in)
FinalReadingDateTime	datetime	Date and time of final reading of expansion test
AfterWetAndTareWeight	float	Weight of soil + tare (g) for after expansion test moisture
AfterTareWeight	float	Weight of tare (g) for after expansion test moisture content
AfterDryAndTareWeight	float	Weight of dry soil + tare (g) for after expansion test moisture content
ExpansionIndex	float	Expansion Index measured at test saturation
ExpansionIndex50	float	Expansion Index normalized to 50% saturation

F.6 hydrometer

Field	Type	Comments
<u>ID</u>	mediumint(8)	Identification number unique to a specific hydrometer ; PK
<u>TempF</u>	tinyint(4)	Calibration temperatures (always between 60-79 inclusive)
Correction	tinyint(4)	Numeric correction corresponding to a specific temperature

F.7 mechanical_analysis_test

Field	Type	Comments
<u>SpecimenID</u>	int(10)	PK ; FK: specimen.SpecimenID
MALotNumber	varchar(20)	A unique number identifying a group of specimens working through the test procedure ; formatted as DD-MM-YY
OvenDry	enum('Yes', 'No')	Whether the specimen is oven dry or not
ContainerID	tinyint(3)	Container ID for a specimen
WetWeight	float	Weight (g) of specimen prior to saturation
WetWeightUser	tinyint(3)	User ID of person entering the wet weight ; FK: user.ID
WetWeightDate	date	Date on which the wet weight was entered
Moisture	float	Moisture content (%) which is called from moisture_content_test.MoisturePercentage ; or 0 (if specimen is oven dry)
DryWeight	float	CALC: dry weight using wet weight and moisture content
HydrometerID	varchar(20)	hydrometer used to measure 1 hr and 24 hr readings ; FK: hydrometer.ID
Hydro1hr	float	1-hour hydrometer reading
Temp1hr	float	Temperature of solution at the 1-hour hydrometer reading
User1hr	tinyint(3)	User ID of person entering 1-hour reading ; FK: user.ID
Date1hr	date	Date on which the 1-hour hydrometer reading is entered
Time1hr	time	Time at which the 1-hour hydrometer reading is entered
Hydro24hr	float	24-hour hydrometer reading
Temp24hr	float	Temperature of solution at the 24-hour hydrometer reading
User24hr	tinyint(3)	User ID of person entering 24-hour reading ; FK: user.ID
Date24hr	date	Date on which the 24-hour hydrometer reading is entered
Time24hr	time	Time at which the 24-hour hydrometer reading is entered
CGPerformedBy	varchar(10)	Who performed the Coarse Grading for this specimen
CoarseGradeUser	tinyint(3)	User ID of person entering Coarse Grading ; FK: user.ID
CoarseGradeDate	date	Date on which the coarse grading was entered
3_0in	float	Cumulative Retained Mass on the 3-inch sieve (g)
2_5in	float	Cumulative Retained Mass on the 2.5-inch sieve (g)
2_0in	float	Cumulative Retained Mass on the 2-inch sieve (g)
1_5in	float	Cumulative Retained Mass on the 1.5-inch sieve (g)
1_0in	float	Cumulative Retained Mass on the 1-inch sieve (g)
0_75in	float	Cumulative Retained Mass on the 0.75-inch sieve (g)
0_5in	float	Cumulative Retained Mass on the 0.5-inch sieve (g)
0_375in	float	Cumulative Retained Mass on the 0.375-inch sieve (g)
No4	float	Cumulative Retained Mass on the No. 4 sieve (g)
TotalCoarseWeight	float	Total weight of coarse (No. 4 + Pan)
FineGradeUser	tinyint(3)	User ID of person entering the fine grading ; FK: user.ID
FineGradeDate	date	Date on which the fine grading is entered
No8	float	Cumulative Retained Mass on the No. 8 sieve (g)
No16	float	Cumulative Retained Mass on the No. 16 sieve (g)
No30	float	Cumulative Retained Mass on the No. 30 sieve (g)

No50	float	Cumulative Retained Mass on the No. 50 seive (g)
No100	float	Cumulative Retained Mass on the No. 100 seive (g)
No200	float	Cumulative Retained Mass on the No. 200 seive (g)
Pan	float	Cumulative Retained Mass on the pan (g)
CorrectedHydro1hr	float	CALC: 1-hr hydrometer reading + correction (from Hydrometer table)
CorrectedHydro24hr	float	CALC: 24-hr hydrometer reading + correction (from Hydrometer table)
Grading3_0in	float	CALC: Combined Grading (%) for 3-in seive
Grading2_5in	float	CALC: Combined Grading (%) for 2.5-in seive
Grading2_0in	float	CALC: Combined Grading (%) for 2-in seive
Grading1_5in	float	CALC: Combined Grading (%) for 1.5-in seive
Grading1_0in	float	CALC: Combined Grading (%) for 1-in seive
Grading0_75in	float	CALC: Combined Grading (%) for 0.75-in seive
Grading0_5in	float	CALC: Combined Grading (%) for 0.5-in seive
Grading0_375in	float	CALC: Combined Grading (%) for 0.375-in seive
GradingNo4	float	CALC: Combined Grading (%) for No. 4 seive
GradingNo8	float	CALC: Combined Grading (%) for No. 8 seive
GradingNo16	float	CALC: Combined Grading (%) for No. 16 seive
GradingNo30	float	CALC: Combined Grading (%) for No. 30 seive
GradingNo50	float	CALC: Combined Grading (%) for No. 50 seive
GradingNo100	float	CALC: Combined Grading (%) for No. 100 seive
GradingNo200	float	CALC: Combined Grading (%) for No. 200 seive
GradingPan	float	CALC: Combined Grading (%) for pan
Grading1hr	float	CALC: Combined Grading (%) 1-hr (clay)
Grading24hr	float	CALC: Combined Grading (%) for 24-hr (colloids)
USCSclassification	varchar(50)	NOTUSED: USCS Classification Name
GroupName	varchar(50)	NOTUSED: USCS Classification Group Name

F.8 moisture_content_test

Field	Type	Comments
<u>SpecimenID</u>	int(10)	PK ; FK: specimen.SpecimenID
WetAndTareWeight	float	Weight of wet specimen and container (tare) (g)
WetAndTareWeightUser	tinyint(3)	User ID of person entering the weight of wet specimen and container ; FK: user.ID
WetAndTareWeightDate	date	Date on which the weight of wet specimen and container was entered
TareWeight	float	Weight of container (g)
TareWeightUser	tinyint(3)	User ID of person entering the weight of container ; FK: user.ID
TareWeightDate	date	Date on which the the weight of container was entered
DryAndTareWeight	float	Weight of dried specimen and container (tare) (g)
DryAndTareWeightUser	tinyint(3)	User ID of person entering the weight of dried sample and container ; FK: user.ID
DryAndTareWeightDate	date	Date on which the weight of dried specimen was entered
MoistureGram	float	CALC: Water Content (g)
MoisturePercentage	float	CALC: Water Content (%)

F.9 point_load_device

Field	Type	Comments
ID	int(10)	PK: Only one record
Area	float	The area of the contact point. (in2)

F.10 point_load_test

Field	Type	Comments
SpecimenID	int(10)	PK; FK: specimen.SpecimenID
SpecimenShape	enum('Diametral', 'Axial', 'Block', 'Irregular')	The shape of the specimen
LoadDirection	enum('N/A', 'Perpendicular', 'Parallel')	The direction to which the force is given
ValidTest	enum('Valid', 'Invalid')	Whether if the test is valid or invalid
Compliant	enum('Yes', 'No')	Indicate if the test is compliant to the ASTM D5731-02 or not
Length	float	The length between the contact points and the nearest free end (mm)
Width	float	The width of the specimen (mm)
InitialDistance	float	The initial distance between the platens (mm)
FinalDistance	float	The final distance between the platens (mm)
MaxPressure	float	The pressure at which the failure occurred (psi)
MaxPressureUser	tinyint(3)	User ID of person entering max pressure; FK: user.ID
MaxPressureDate	date	Date on which the max pressure was entered
FailureLoad	float	CALC: (lbs) from the Max Pressure and point_load_device area
EquivalentCoreDiameter	float	CALC: (mm) from Initial and Final Distance, Width and Failure Load
StrengthIndex	float	CALC: (psi) Uncorrected Point Load Strength Index
StrengthIndex50	float	CALC: (psi) Corrected Point Load Strength Index
Picture	mediumblob	jpg picture of the specimen

F.11 project

Field	Type	Comments
<u>ProjectID</u>	mediumint(10)	PK
GLTrackNumber	varchar(6)	Geotechnical Laboratory tracking number
EA	varchar(6)	Charge number for project ; expenditure authorization
District	char(2)	Caltrans charge district (01-12)
ProjectName	varchar(60)	Name of project
StructureNumber	varchar(20)	Bridge or Structure Number
ClientOffice	varchar(50)	Office of client requesting test
ClientPhone	varchar(20)	Phone number of client requesting test
ClientLastName	varchar(30)	Last name of the client
ClientFirstName	varchar(30)	First name of the client
FA	tinyint(3)	FA charge code
ActivityCode	smallint(3)	Activity charge code
MSACode	varchar(20)	MSA charge code
SubJob	varchar(40)	Subjob charge code
SpecialDesignation	varchar(40)	Special designation charge code
DistrictLocation	char(2)	District location of project
County	char(3)	County location of project
Route	smallint(5)	Route number of project
PMFrom	varchar(10)	Beginning post mile of project
PMTTo	varchar(10)	Ending post mile of project
ClientDueDate	date	Due date requested by client
EstimatedDeliveryDate	date	Estimated delivery date of test results by geotechnical laboratory
RequestedDate	date	Date the request for testing was received by geotechnical laboratory
StartedDate	date	Date testing began
ApprovedDate	date	Date all testing approved
SampledDate	date	Date sampling occurred in field
SampleReceivedDate	date	Date samples received by geotechnical laboratory
ToGradeBenchDate	date	Date samples submitted to METS grade bench
StaffDueDate	date	Testing due date assigned to Geotechnical laboratory staff
T_101Numbers	varchar(200)	TL-101 form numbers used for samples on project
Comments	varchar(200)	Space for additional commentary
ProjectStatus	enum('Requested', 'Active', 'Approved')	Status of project

F.12 pycnometer

Field	Type	Comments
<u>ID</u>	tinyint(3)	Flask No. ; PK
Wf	float	Wt (g) of Pycnometer
Wai	float	Wt (g) of Pycnometer + Water
Ti	float	Calibration Temperature (deg C)

F.13 remark

Field	Type	Comments
<u>ID</u>	int(10)	PK
SpecimenID	int(10)	FK: specimen.SpecimenID
UserID	tinyint(3)	User ID of person entering the remark ; FK: user.ID
Date	date	Date remark is posted
Remark	varchar(200)	Comments specific to test

F.14 sample

Field	Type	Comments
<u>SampleID</u>	mediumint(8)	PK
ProjectID	int(5)	FK: project.ProjectID
BoringID	varchar(20)	Boring number from which specimen was retrieved
SampleNumber	varchar(20)	Sample number from which specimen was retrieved
TubeNumber	varchar(10)	Tube number from which specimen was retrieved
DepthFrom	float	Upper limit of sample interval (ft)
DepthTo	float	Lower limit of sample interval (ft)

F.15 specific_gravity_test

Field	Type	Comments
<u>SpecimenID</u>	int(10)	PK ; FK: specimen.SpecimenID
PycnometerID	tinyint(3)	FK: pycnometer.ID
PycSoilWeight	float	Weight of pycnometer + soil (g)
PycSoilWeightUser	tinyint(3)	User ID of person entering the weight of pycnometer + soil ; FK: user.ID
PycSoilWeightDate	date	Date on which the weight of pycnometer + soil was entered
PycSoilWaterWeight	float	Weight of pycnometer + soil + water (g)
PycSoilWaterWeightUser	tinyint(3)	User ID of person entering the weight of pycnometer + soil + water ; FK: user.ID
PycSoilWaterWeightDate	date	Date on which the weight of pycnometer + soil + water was entered
Temperature	float	Temperature (deg C) at which pycnometer ; soil and water is measured
SpecificGravity	float	CALC: using pycnometer and temperature_density_coefficient tables

F.16 specimen

Field	Type	Comments
<u>SpecimenID</u>	int(10)	PK
SampleID	mediumint(8)	FK: sample.SampleID
TestTypeID	tinyint(3)	The type of test that this specimen will be subjected to
TestMethod	varchar(50)	NOTUSED: A formal test method name.
SpecimenStatus	enum('Requested', 'Active1', 'Active2', 'Active3', 'Active4', 'ActiveLast', 'Completed', 'Approved')	Status of specimen (requested ; active ; complete ; approved)
RequestedDate	date	Date when specimen is requested
ActiveDate	date	Date when specimen becomes active
CompletedDate	date	Date when specimen becomes complete
ApprovedDate	date	Date when specimen is approved

F.17 swell_potential_test

Field	Type	Comments
<u>SpecimenID</u>	int(10)	PK ; FK: specimen.SpecimenID
InundationLoad	float	Load at which water is to be added to the specimen (psf)
Method	enum('Volume', 'Pressure')	Type of swell potential test (pressure or volume)

F.18 system_log

Field	Type	Comments
<u>ID</u>	int(10)	PK
DateTime	datetime	The date and time on which the backup was performed
BackupStatus	char(30)	The status of the backup

F.19 temperature_density_coefficient

Field	Type	Comments
Temperature	float	Temperature (deg C) NOTE: temperature MUST be one decimal point number; PK
Density	float	Water Density (g ; mL)^B
Coefficient	float	Temperature coefficient (K)

F.20 test_type

Field	Type	Comments
TestTypeID	tinyint(3)	PK
TestName	varchar(50)	Name of test being performed on specimen
TableName	varchar(50)	
Abbreviation	varchar(20)	Abbreviation of the test name
Method	varchar(50)	NOTUSED:

F.21 triaxial_cu_test

Field	Type	Comments
SpecimenID	int(10)	PK ; FK: specimen.SpecimenID
ConsolidationPressure	float	Consolidation pressure (psf) to which the specimen is subjected prior to shear phase

F.22 triaxial_uu_test

Field	Type	Comments
SpecimenID	int(10)	PK ; FK: specimen.SpecimenID
ChamberPressure	float	Chamber pressure (psf) to which the specimen is subjected prior to shear phase

F.23 unit_weight_test

Field	Type	Comments
<u>SpecimenID</u>	int(10)	PK ; FK: specimen.SpecimenID
Diameter1	float	Diameter (in) of the specimen - first measurement
Diameter2	float	Diameter (in) of the specimen - second measurement
Diameter3	float	Diameter (in) of the specimen - third measurement
AvgDiameter	float	CALC: Average of 3 diameters (in)
DiameterUser	tinyint(3)	User ID of person entering the diameters ; FK: user.ID
DiameterDate	date	Date on which the diameters of the specimen was entered
Length1	float	Length (in) of the specimen - first measurement
Length2	float	Length (in) of the specimen - second measurement
Length3	float	Length (in) of the specimen - third measurement
AvgLength	float	CALC: Average of 3 lengths.
LengthUser	tinyint(3)	User ID of person entering the length ; FK: user.ID
LengthDate	date	Date on which the lengths of the specimen was entered
WetAndTareWeight	float	Weight of wet specimen and container (g)
WetAndTareWeightUser	tinyint(3)	User ID of person entering the weight of wet specimen and container ; FK: user.ID
WetAndTareWeightDate	date	Date on which the weight of wet specimen and container was entered
TareWeight	float	Weight of container (g)
TareWeightUser	tinyint(3)	User ID of person entering the weight of container ; FK: user.ID
TareWeightDate	date	Date on which the tare weight was entered.
WetDensity	float	CALC: Density of the wet specimen (pcf)
DryDensity	float	CALC: Density of the dried specimen (pcf)

F.24 user

Field	Type	Comments
<u>ID</u>	tinyint(3)	PK
UserName	varchar(10)	Name of user ; up to 10 characters
Password	varchar(20)	NOTE: Must be a number up to 8 digits
AccountType	enum('Administrator', 'Supervisor', 'Staff')	Privileges assigned to users based on account type

Appendix B – Field Logging PC User's Guide

PROCEDURES FOR FIELD BOREHOLE LOGGING WITH TABLET COMPUTERS

Unit: ___ CT: _____

December 22, 2006



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Introduction

The GeoResearch Group (GRG) in cooperation with Geotechnical Services (GS) is evaluating the use of ruggedized tablet PCs to document and collect borehole logging data in the field. Four ruggedized tablet PCs are being deployed over the course of a year beginning in July 2005. The units can function as a standard laptop, or can be converted to a tablet, complete with pen stylus and handwriting recognition interface. A Caltrans-specific version of the gINT logging software is installed on each unit. The combination of features and software provides field staff with the capability of generating near-complete borehole logs while still in the field. In addition these units will minimize errors from multiple handling of data between field and office operations.

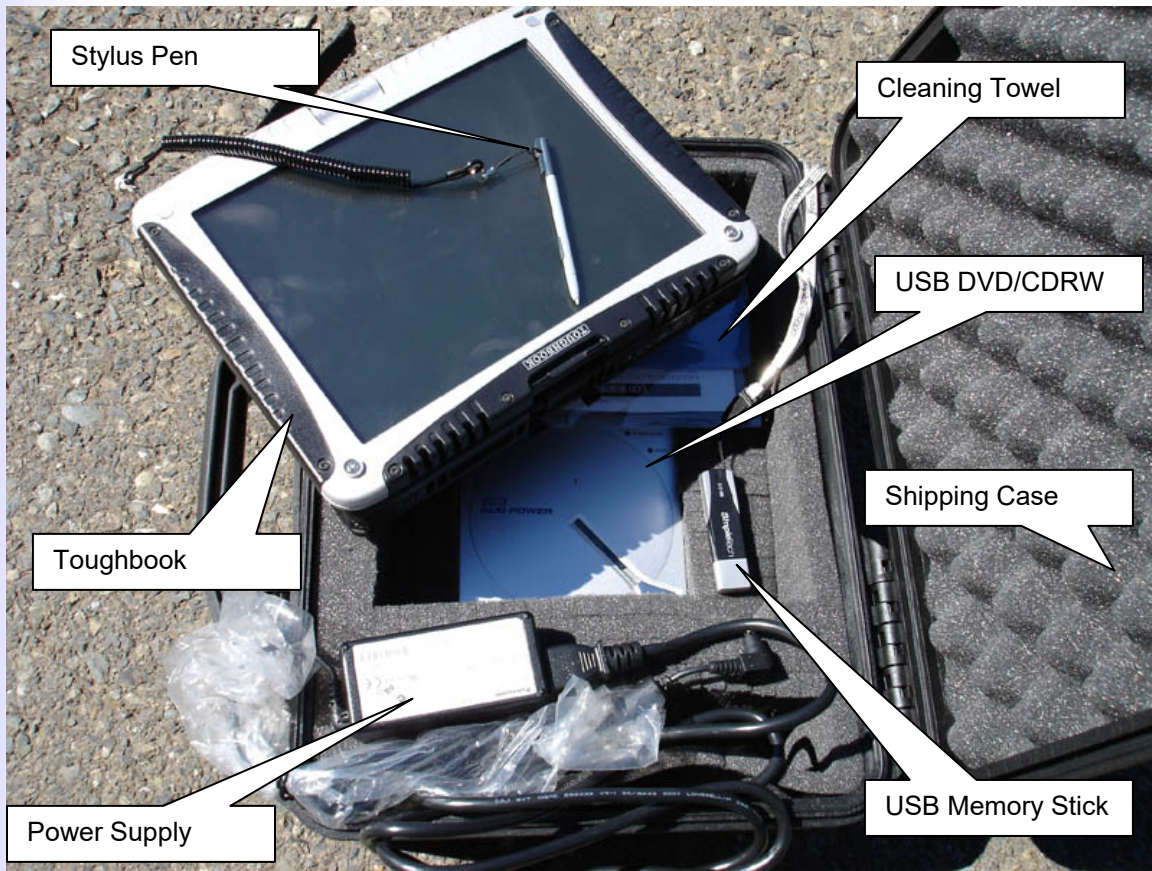
Hardware

Five tablet PCs will be made available to staff within the Geotechnical Design offices over an evaluation period of 12 months. Panasonic Toughbook model CF-18 tablets were selected for their durability in outdoor environments and sunlight readable display. These units also incorporate an integrated GPS receiver to provide positioning information. The specifications for the tablet PCs include 1.1 Ghz Intel Pentium M Centrino processor, Windows XP Tablet Edition, 768MB RAM, 40 GB hard drive, integrated WIFI, and onboard GPS. The units are designated as follows:

Unit		
A	CT 89920	4HKSA57124
B	CT 89929	4HKSA57091
C	CT 89928	4HKSA57114
D	CT 89927	4HKSA57176
E	CT 89930	4HKSA57157

The following physical components constitute each unit:

- Panasonic Toughbook CF-18
- Power supply for CF-18
- Stylus Pen
- LCD cleaning towel
- External USB DVD/CDRW drive
- SimpleTech 512MB USB memory stick
- Pelican shipping case



Software

The Toughbooks are configured with a basic suite of software suitable for borehole logging and field operations. The following software is installed on each PC:

- gINT version 7
- Corpscon version 6
- Microsoft Office Professional 2000
- CoPilot Live 7

gINT version 7 is the primary software for entry and management of borehole logging data and is the primary tool in the field. Corpscon version 6 is a software tool that allows staff to easily convert between geodetic latitude-longitude (typically output by GPS receivers) and State Plane Northing-Easting (typically provided by Caltrans survey crews). Microsoft Office was installed to facilitate additional note taking and data manipulation. CoPilot Live version 7 was installed to utilize the integrated GPS unit.

Usage Guidelines

The tablet PCs are being test deployed as part of a technology demonstration project. The intent of the project is to assess the effectiveness of using tablet PCs in field borehole logging operations. In order to make this project successful, please follow these guidelines:

- Tablet PCs should not be connected to the Caltrans network, since Caltrans standard software is not installed.
- A 512MB USB memory stick is provided to facilitate the transfer of data files from the Toughbook to your desktop workstation.
- Tablet PCs should be used exclusively for field work. When back in the office, desktop workstations should be used to further process gINT project files. gINT network licenses should be available for your use. This will free up the field units for others to evaluate, maximizing their use in field operations.
- Users will log in to the Toughbooks using the “gINT User” account. No password is required.
- The general configuration of the Toughbook should not be changed (e.g. adding/removing icons, moving directories, etc.). This will reduce the confusion of having multiple users on different PCs at different times over the course of the project.
- New software should not be installed on the PCs. If you’d like to have new software on the PC, please submit a request, so that the same software can be installed on all of the tablet PCs. Again, this will reduce the confusion of having multiple users on different PCs at different times over the course of the project.
- When finished using the computer, check to make sure that all the accessories are in the shipping case. Check the Lotus Notes calendar to see if anyone has reserved the unit after you. If so, contact that person and make arrangements to have the unit delivered or shipped to him or her.
- If you’ve made a reservation, be sure to contact the person who had it before you at least a few days prior to arrange delivery or shipment of the unit. Use the Lotus Notes calendar to check on who has the unit. When you receive the unit, make sure that all the parts and accessories are intact.
- At the conclusion of the project, you will be asked to complete a survey about your experience with using the Toughbooks. Any notes that you can keep related to your experiences, both good and bad, will be valuable.
- If you notice any problems with the units, please notify Loren Turner.
- Finally, your participation in this project is greatly appreciated.

Windows Login

The Windows login account is as follows:

Username:	gint user
Password:	(none)

Note that a password is not required to login.

Encryption

Per Caltrans policy, all laptops needed to be encrypted. The toughbooks have been encrypted and require a username and password in order to use. The initial password has been set as follows:

Username: gint
Password: gint.001

The password will need to be reset every 30 days. If the laptop prompts you to specify a new password, please do so. The new password should be the old password incremented by 1. For example: gint.001, gint.002, etc. Please record this new password here in this manual.

Date	Person who reset password	New Password
12/22/06	Loren Turner	<i>gint.001</i>
		<i>gint.002</i>
		<i>gint.003</i>
		<i>gint.004</i>
		<i>gint.005</i>
		<i>gint.006</i>
		<i>gint.007</i>
		<i>gint.008</i>
		<i>gint.009</i>
		<i>gint.010</i>
		<i>gint.011</i>
		<i>gint.012</i>
		<i>gint.013</i>
		<i>gint.014</i>
		<i>gint.015</i>
		<i>gint.016</i>
		<i>gint.017</i>
		<i>gint.018</i>
		<i>gint.019</i>
		<i>gint.019</i>

In the event that you forget the password, you will be prompted for a series of questions. The responses to those questions are as follows:

Q: What is you Caltrans S ID Number?

A: gint

Q: What is your favorite movie?

A: gint

Appendix C – Data Model Implemented in GINT Software

Properties

DateCreated:	12/12/2000 11:30:35 AM	gintAutoCreateImport:	False
gintAutoCreateInput:	False	gintCaption:	
gintColHeadingLines:	3	gintDate:	39531.3660185185
gintDesc:	Atterberg Limits: Readings	gintDisplayPs:	8
gintGintRulesProc:	706,Table Procedures\atterbergreadings ave	gintGroupName:	Lab Testing
gintGroupParent:		gintHelpText:	See the Table Help in the Parent.
gintKeepDataInClone:	False	gintKeysCounter:	True
gintLookupFieldCount:	0	gintLookupKeyHide:	False
gintNoDisplay:	False	gintPostProc:	AtterbergLimitsReadings
gintPreviewReport:		gintShowAllParentKeys:	False
gintSourceName:	ATTB LIMITS READINGS	gintSplitScreenChild:	
gintSystemTable:	False	gintTablePreviewOnly:	False
gintViewRowHtTwips:	240	gintViewWidTwips:	0
LastUpdated:	5/15/2006 2:08:08 PM	RecordCount:	0
Updatable:	True		

Columns

Name	Type	Size
GintRecID	Long Integer	4
AllowZeroLength: False AppendOnly: False Attributes: Fixed Size, Auto-Increment CollatingOrder: General DataUpdatable: False gintBackColor: 0 gintBlobType: 0 gintCaption: gintCaptionVertical: False gintDefaultExpr: gintDesc: System requirement. Not user editable. gintFileRefData: 2 gintFlags: gintLookup: gintLookupFilter: gintRules: gintUnits: gintViewWidTwips: 1008 OrdinalPosition: 1 Required: False SourceField: GintRecID SourceTable: ATTB READINGS		
PointID	Text	255
AllowZeroLength: False AppendOnly: False Attributes: Variable Length CollatingOrder: General DataUpdatable: False		

	gintBackColor:	0		
	gintBlobType:	0		
	gintCaption:			
	gintCaptionVertical:	False		
	gintDefaultExpr:			
	gintDesc:			
	gintFileRefData:			
	gintFlags:	0		
	gintLookup:			
	gintLookupFilter:			
	gintRules:			
	gintUnits:			
	gintViewWidTwips:	753		
	OrdinalPosition:	2		
	Required:	True		
	SourceField:	PointID		
	SourceTable:	ATTB READINGS		
Depth	AllowZeroLength:	False	Double	8
	AppendOnly:	False		
	Attributes:	Fixed Size		
	CollatingOrder:	General		
	DataUpdatable:	False		
	gintBackColor:	0		
	gintBlobType:	0		
	gintCaption:			
	gintCaptionVertical:	False		
	gintDefaultExpr:			
	gintDesc:			
	gintFileRefData:			
	gintFlags:	0		
	gintLookup:			
	gintLookupFilter:			
	gintRules:			
	gintUnits:			
	gintViewWidTwips:	633		
	OrdinalPosition:	3		
	Required:	True		
	SourceField:	Depth		
	SourceTable:	ATTB READINGS		
Reading	AllowZeroLength:	False	Double	8
	AppendOnly:	False		
	Attributes:	Fixed Size		
	CollatingOrder:	General		
	DataUpdatable:	False		
	gintBackColor:	0		
	gintBlobType:	0		
	gintCaption:			
	gintCaptionVertical:	False		
	gintDefaultExpr:			
	gintDesc:	Arbitrary Counter		
	gintFileRefData:			
	gintFlags:	2		

gintLookup:			
gintLookupFilter:			
gintRules:			
gintUnits:			
gintViewWidTwips:	1032		
OrdinalPosition:	4		
Required:	True		
SourceField:	Reading		
SourceTable:	ATTB READINGS		
WC_Wt_Wet		Single	4
AllowZeroLength:	False		
AppendOnly:	False		
Attributes:	Fixed Size		
CollatingOrder:	General		
DataUpdatable:	False		
gintBackColor:	0		
gintBlobType:	0		
gintCaption:	Water Content Wet Wt+Tare		
gintCaptionVertical:	False		
gintDefaultExpr:			
gintDesc:	Water Content Determination: Weight Wet Soil + Tare, any consistent units		
gintFileRefData:			
gintFlags:	64		
gintLookup:			
gintLookupFilter:			
gintRules:			
gintUnits:			
gintViewWidTwips:	1200		
OrdinalPosition:	5		
Required:	False		
SourceField:	WC_Wt_Wet		
SourceTable:	ATTB READINGS		
WC_Wt_Dry		Single	4
AllowZeroLength:	False		
AppendOnly:	False		
Attributes:	Fixed Size		
CollatingOrder:	General		
DataUpdatable:	False		
gintBackColor:	0		
gintBlobType:	0		
gintCaption:	Water Content Dry Wt+Tare		
gintCaptionVertical:	False		
gintDefaultExpr:			
gintDesc:	Water Content Determination: Weight Dry Soil + Tare, any consistent units		
gintFileRefData:			
gintFlags:	64		
gintLookup:			
gintLookupFilter:			
gintRules:			
gintUnits:			
gintViewWidTwips:	1140		

OrdinalPosition:	6		
Required:	False		
SourceField:	WC_Wt_Dry		
SourceTable:	ATTB READINGS		
WC_Wt_Tare		Single	4
AllowZeroLength:	False		
AppendOnly:	False		
Attributes:	Fixed Size		
CollatingOrder:	General		
DataUpdatable:	False		
gintBackColor:	0		
gintBlobType:	0		
gintCaption:	Water Content Wt Tare		
gintCaptionVertical:	False		
gintDefaultExpr:			
gintDesc:	Water Content Determination: Weight Tare, any consistent units		
gintFileRefData:			
gintFlags:	64		
gintLookup:			
gintLookupFilter:			
gintRules:			
gintUnits:			
gintViewWidTwips:	870		
OrdinalPosition:	7		
Required:	False		
SourceField:	WC_Wt_Tare		
SourceTable:	ATTB READINGS		
Water_Content		Single	4
AllowZeroLength:	False		
AppendOnly:	False		
Attributes:	Fixed Size		
CollatingOrder:	General		
DataUpdatable:	False		
gintBackColor:	0		
gintBlobType:	0		
gintCaption:			
gintCaptionVertical:	False		
gintDefaultExpr:			
gintDesc:	Will be calculated if the data exists.		
gintFileRefData:			
gintFlags:	64		
gintLookup:			
gintLookupFilter:			
gintRules:			
gintUnits:	%		
gintViewWidTwips:	990		
OrdinalPosition:	8		
Required:	False		
SourceField:	Water_Content		
SourceTable:	ATTB READINGS		
Number_Blows		Integer	2
AllowZeroLength:	False		
AppendOnly:	False		

Attributes: Fixed Size
CollatingOrder: General
DataUpdatable: False
gintBackColor: 0
gintBlobType: 0
gintCaption: Number of Blows
gintCaptionVertical: False
gintDefaultExpr: Liquid Limit: Casegrande cup method. Leave blank for plastic limit determination readings.
gintDesc:
gintFileRefData:
gintFlags: 64
gintLookup:
gintLookupFilter:
gintRules:
gintUnits:
gintViewWidTwips: 810
OrdinalPosition: 9
Required: False
SourceField: Number_Blow
SourceTable: ATTB READINGS

Cone_Pen_Initial Single 4

AllowZeroLength: False
AppendOnly: False
Attributes: Fixed Size
CollatingOrder: General
DataUpdatable: False
gintBackColor: 0
gintBlobType: 0
gintCaption:
gintCaptionVertical: False
gintDefaultExpr: Liquid Limit: Cone Penetrometer Method. Leave blank for plastic limit determination readings.
gintDesc:
gintFileRefData:
gintFlags: 64
gintLookup:
gintLookupFilter:
gintRules:
gintUnits: mm
gintViewWidTwips: 810
OrdinalPosition: 10
Required: False
SourceField: Cone_Pen_Initial
SourceTable: ATTB READINGS

Cone_Pen_Final Single 4

AllowZeroLength: False
AppendOnly: False
Attributes: Fixed Size
CollatingOrder: General
DataUpdatable: False
gintBackColor: 0
gintBlobType: 0

gintCaption:
gintCaptionVertical: False
gintDefaultExpr:
gintDesc: mm; Liquid Limit: Cone Penetrometer Method. Leave blank for plastic limit determination readings.
gintFileRefData:
gintFlags: 64
gintLookup:
gintLookupFilter:
gintRules:
gintUnits: mm
gintViewWidTwips: 750
OrdinalPosition: 11
Required: False
SourceField: Cone_Pen_Final
SourceTable: ATTB READINGS

Relationships

ATTERBERGATTB READINGS

ATTERBERG

ATTB READINGS

PointID 1 ∞ PointID
Depth 1 ∞ Depth

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

Table Indexes

Name	Number of Fields
GINTINDEX	3
Clustered:	False
DistinctCount:	0
Foreign:	False
IgnoreNulls:	False
Name:	GINTINDEX
Primary:	False
Required:	False
Unique:	True
Fields:	
PointID	Ascending
Depth	Ascending
Reading	Ascending
Primary	1
Clustered:	False
DistinctCount:	0
Foreign:	False
IgnoreNulls:	False
Name:	Primary
Primary:	True

Required:	True
Unique:	True
Fields:	
GintRecID	Ascending
REL8	2
Clustered:	False
DistinctCount:	0
Foreign:	True
IgnoreNulls:	False
Name:	REL8
Primary:	False
Required:	False
Unique:	False
Fields:	
PointID	Ascending
Depth	Ascending

User Permissions

admin	Delete, Read Permissions, Set Permissions, Change Owner, Read Definition, Write Definition, Read Data, Insert Data, Update Data, Delete Data
-------	--

Group Permissions

Admins	Delete, Read Permissions, Set Permissions, Change Owner, Read Definition, Write Definition, Read Data, Insert Data, Update Data, Delete Data
Users	

Properties

DateCreated:	12/12/2000 11:30:36 AM	gintAutoCreateImport:	False
gintAutoCreateInput:	False	gintCaption:	
gintColHeadingLines:	2	gintDate:	39531.3660185185
gintDesc:	Atterberg Limits: Parent table	gintDisplayPs:	7
gintGintRulesProc:	706,Table Procedures\atterbergsave,874 ,Table Procedures\deletingparentrow sinsplitscreen	gintGroupName:	Lab Testing
gintGroupParent:		gintHelpText:	Liquid and Plastic limits can be input into those fields in the parent record. If readings data exist, Liquid and Plastic limits will be calculated.

Can have as many Liquid and Plastic limits readings as desired. The program distinguishes between the two types by the blows/cone penetration fields. If these have values, then the reading is taken as a Liquid Limit reading, otherwise it is assumed to be a Plastic Limit reading.

You can use either the Casagrande rotating cup method of Liquid Limit determination by filling in values for the blows field. Use the cone penetrometer method by filling in those fields.

Casagrande Method Liquid Limit Calculations:
=====
=====
=====
If only one reading exists, the ASTM D4318 one point method is used. If two readings, two one point method calculations are averaged. If three or more, a best fit line through a graph of logarithm of blows vs. arithmetic water contents is used and the Liquid Limit is defined as the water content at 25 blows on this best fit line.

Cone Penetrometer Liquid Limit Calculation:
=====
=====
=====
You must have a minimum of three readings. A best fit line through a graph of arithmetic

penetration vs. arithmetic water contents is used and the Liquid Limit is defined as the water content at 20mm on this best fit line.

Plastic Limit Calculation:
=====
=====
Only one reading is required. The average of all the Plastic Limit readings is used as the final Plastic Limit value.

gintKeyIsCounter:	False	gintLookupFieldCount:	0
gintLookupKeyHide:	False	gintNoDisplay:	False
gintPostProc:		gintPreviewReport:	
gintShowAllParentKeys:	False	gintSourceName:	ATTERBERG LIMITS
gintSplitScreenChild:	ATTB READINGS	gintSystemTable:	False
gintTablePreviewOnly:	False	gintViewRowHtTwips:	285
gintViewWidTwips:	0	LastUpdated:	5/26/2007 9:03:25 AM
RecordCount:	0	Updatable:	True

Columns

Name	Type	Size
GintRecID	Long Integer	4
AllowZeroLength:	False	
AppendOnly:	False	
Attributes:	Fixed Size, Auto-Increment	
CollatingOrder:	General	
DataUpdatable:	False	
gintBackColor:	0	
gintBlobType:	0	
gintCaption:		
gintCaptionVertical:	False	
gintDefaultExpr:		
gintDesc:	System requirement. Not user editable.	
gintFileRefData:		
gintFlags:	2	
gintLookup:		
gintLookupFilter:		
gintRules:		
gintUnits:		
gintViewWidTwips:	1008	
OrdinalPosition:	1	
Required:	False	
SourceField:	GintRecID	
SourceTable:	ATTERBERG	
PointID	Text	255
AllowZeroLength:	False	
AppendOnly:	False	
Attributes:	Variable Length	
CollatingOrder:	General	
DataUpdatable:	False	

gintBackColor:	0
gintBlobType:	0
gintCaption:	Boring Designation
gintCaptionVertical:	False
gintDefaultExpr:	
gintDesc:	
gintFileRefData:	
gintFlags:	0
gintLookup:	
gintLookupFilter:	
gintRules:	
gintUnits:	
gintViewWidTwips:	753
OrdinalPosition:	2
Required:	True
SourceField:	PointID
SourceTable:	ATTERBERG

Depth	Double	8
AllowZeroLength:	False	
AppendOnly:	False	
Attributes:	Fixed Size	
CollatingOrder:	General	
DataUpdatable:	False	
gintBackColor:	0	
gintBlobType:	0	
gintCaption:		
gintCaptionVertical:	False	
gintDefaultExpr:		
gintDesc:		
gintFileRefData:		
gintFlags:	0	
gintLookup:		
gintLookupFilter:		
gintRules:	186 1	
gintUnits:	ft	
gintViewWidTwips:	870	
OrdinalPosition:	3	
Required:	True	
SourceField:	Depth	
SourceTable:	ATTERBERG	
Liquid_Limit	Single	4
AllowZeroLength:	False	
AppendOnly:	False	
Attributes:	Fixed Size	
CollatingOrder:	General	
DataUpdatable:	False	
gintBackColor:	0	
gintBlobType:	0	
gintCaption:		
gintCaptionVertical:	False	
gintDefaultExpr:		
gintDesc:	Will be calculated from the readings data, if the data exist.	
gintFileRefData:		
gintFlags:	64	

gintLookup:
gintLookupFilter:
gintRules:
gintUnits: %
gintViewWidTwips: 915
OrdinalPosition: 4
Required: False
SourceField: Liquid_Limit
SourceTable: ATTERBERG

Plastic_Limit Single 4

AllowZeroLength: False
AppendOnly: False
Attributes: Fixed Size
CollatingOrder: General
DataUpdatable: False
gintBackColor: 0
gintBlobType: 0
gintCaption:
gintCaptionVertical: False
gintDefaultExpr:
gintDesc: Will be calculated from the readings data, if the data exist.
gintFileRefData:
gintFlags: 64
gintLookup:
gintLookupFilter:
gintRules:
gintUnits: %
gintViewWidTwips: 900
OrdinalPosition: 5
Required: False
SourceField: Plastic_Limit
SourceTable: ATTERBERG

Organic Yes/No 1

AllowZeroLength: False
AppendOnly: False
Attributes: Fixed Size
CollatingOrder: General
DataUpdatable: False
gintBackColor: 0
gintBlobType: 0
gintCaption:
gintCaptionVertical: False
gintDefaultExpr:
gintDesc: Affects ASTM classification
gintFileRefData:
gintFlags: 64
gintLookup:
gintLookupFilter:
gintRules:
gintUnits:
gintViewWidTwips: 783
OrdinalPosition: 6
Required: False
SourceField: Organic

SourceTable: ATTERBERG

Relationships

LAB SPECIMEN

LAB SPECIMEN ATTERBERG

PointID 1 1 PointID
Depth 1 1 Depth

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

ATTERBERGATTB READINGS

ATTERBERG ATTB READINGS

PointID 1 ∞ PointID
Depth 1 ∞ Depth

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

Table Indexes

Name	Number of Fields
GINTINDEX	2
Clustered:	False
DistinctCount:	0
Foreign:	False
IgnoreNulls:	False
Name:	GINTINDEX
Primary:	False
Required:	False
Unique:	True
Fields:	
PointID	Ascending
Depth	Ascending
Primary	1
Clustered:	False
DistinctCount:	0
Foreign:	False
IgnoreNulls:	False
Name:	Primary
Primary:	True
Required:	True
Unique:	True
Fields:	
GintRecID	Ascending

Reference4	2
Clustered:	False
DistinctCount:	0
Foreign:	True
IgnoreNulls:	False
Name:	Reference4
Primary:	False
Required:	False
Unique:	True
Fields:	
PointID	Ascending
Depth	Ascending

User Permissions

admin	Delete, Read Permissions, Set Permissions, Change Owner, Read Definition, Write Definition, Read Data, Insert Data, Update Data, Delete Data
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Group Permissions

Admins	
Users	Delete, Read Permissions, Set Permissions, Change Owner, Read Definition, Write Definition, Read Data, Insert Data, Update Data, Delete Data

Properties

DateCreated:	2/22/2006 5:56:58 PM	gintAutoCreateImport:	False
gintAutoCreateInput:	False	gintCaption:	
gintColHeadingLines:	1	gintDate:	38783.7055555556
gintDesc:		gintDisplayPs:	33
gintGintRulesProc:		gintGroupName:	
gintGroupParent:		gintHelpText:	
gintKeepDataInClone:	False	gintKeysCounter:	False
gintLookupFieldCount:	0	gintLookupKeyHide:	False
gintNoDisplay:	True	gintPostProc:	
gintPreviewReport:		gintShowAllParentKeys:	False
gintSourceName:	AUDIT TRAIL	gintSplitScreenChild:	
gintSystemTable:	False	gintTablePreviewOnly:	False
gintViewRowHTwips:	435	LastUpdated:	5/15/2006 2:08:11 PM
RecordCount:	0	Updatable:	True

Columns

Name	Type	Size
GintRecID	Long Integer	4
AllowZeroLength:	False	
AppendOnly:	False	
Attributes:	Fixed Size, Auto-Increment	
CollatingOrder:	General	
DataUpdatable:	False	
gintBlobType:	0	
gintCaption:		
gintCaptionVertical:	False	
gintDefaultExpr:		
gintDesc:	System requirement. Not user editable.	
gintFileRefData:		
gintFlags:	2	
gintLookup:		
gintLookupFilter:		
gintRules:		
gintUnits:		
gintViewWidTwips:	1182	
OrdinalPosition:	1	
Required:	True	
SourceField:	GintRecID	
SourceTable:	AUDIT TRAIL	
DateTime	Date/Time	8
AllowZeroLength:	False	
AppendOnly:	False	
Attributes:	Fixed Size	
CollatingOrder:	General	
DataUpdatable:	False	
gintBlobType:	0	
gintCaption:		
gintCaptionVertical:	False	
gintDefaultExpr:		

	gintDesc:			
	gintFileRefData:			
	gintFlags:	0		
	gintLookup:			
	gintLookupFilter:			
	gintRules:			
	gintUnits:			
	gintViewWidTwips:	2160		
	OrdinalPosition:	2		
	Required:	True		
	SourceField:	DateTime		
	SourceTable:	AUDIT TRAIL		
Editor			Text	255
	AllowZeroLength:	True		
	AppendOnly:	False		
	Attributes:	Variable Length		
	CollatingOrder:	General		
	DataUpdatable:	False		
	gintBlobType:	0		
	gintCaption:			
	gintCaptionVertical:	False		
	gintDefaultExpr:			
	gintDesc:			
	gintFileRefData:			
	gintFlags:	0		
	gintLookup:			
	gintLookupFilter:			
	gintRules:			
	gintUnits:			
	gintViewWidTwips:	1785		
	OrdinalPosition:	3		
	Required:	False		
	SourceField:	Editor		
	SourceTable:	AUDIT TRAIL		
Table			Text	255
	AllowZeroLength:	True		
	AppendOnly:	False		
	Attributes:	Variable Length		
	CollatingOrder:	General		
	DataUpdatable:	False		
	gintBlobType:	0		
	gintCaption:			
	gintCaptionVertical:	False		
	gintDefaultExpr:			
	gintDesc:			
	gintFileRefData:			
	gintFlags:	0		
	gintLookup:			
	gintLookupFilter:			
	gintRules:			
	gintUnits:			
	gintViewWidTwips:	1710		
	OrdinalPosition:	4		
	Required:	False		

	SourceField:	Table		
	SourceTable:	AUDIT TRAIL		
Records Added			Memo	-
	AllowZeroLength:	True		
	AppendOnly:	False		
	Attributes:	Variable Length		
	CollatingOrder:	General		
	DataUpdatable:	False		
	gintBlobType:	0		
	gintCaption:			
	gintCaptionVertical:	False		
	gintDefaultExpr:			
	gintDesc:			
	gintFileRefData:			
	gintFlags:	0		
	gintLookup:			
	gintLookupFilter:			
	gintRules:			
	gintUnits:			
	gintViewWidTwips:	1542		
	OrdinalPosition:	5		
	Required:	False		
	SourceField:	Records Added		
	SourceTable:	AUDIT TRAIL		
Records Modified			Memo	-
	AllowZeroLength:	True		
	AppendOnly:	False		
	Attributes:	Variable Length		
	CollatingOrder:	General		
	DataUpdatable:	False		
	gintBlobType:	0		
	gintCaption:			
	gintCaptionVertical:	False		
	gintDefaultExpr:			
	gintDesc:			
	gintFileRefData:			
	gintFlags:	0		
	gintLookup:			
	gintLookupFilter:			
	gintRules:			
	gintUnits:			
	gintViewWidTwips:	1677		
	OrdinalPosition:	6		
	Required:	False		
	SourceField:	Records Modified		
	SourceTable:	AUDIT TRAIL		
Records Deleted			Memo	-
	AllowZeroLength:	True		
	AppendOnly:	False		
	Attributes:	Variable Length		
	CollatingOrder:	General		
	DataUpdatable:	False		
	gintBlobType:	0		

gintCaption:
gintCaptionVertical: False
gintDefaultExpr:
gintDesc:
gintFileRefData:
gintFlags: 0
gintLookup:
gintLookupFilter:
gintRules:
gintUnits:
gintViewWidTwips: 1632
OrdinalPosition: 7
Required: False
SourceField: Records Deleted
SourceTable: AUDIT TRAIL

Table Indexes

Name	Number of Fields
GINTINDEX	1
Clustered:	False
DistinctCount:	0
Foreign:	False
IgnoreNulls:	False
Name:	GINTINDEX
Primary:	False
Required:	False
Unique:	True
Fields:	
DateTime	Ascending
Primary	1
Clustered:	False
DistinctCount:	0
Foreign:	False
IgnoreNulls:	False
Name:	Primary
Primary:	True
Required:	True
Unique:	True
Fields:	
GintRecID	Ascending

User Permissions

admin Delete, Read Permissions, Set Permissions, Change Owner, Read Definition, Write Definition, Read Data, Insert Data, Update Data, Delete Data

Group Permissions

Admins
Users Delete, Read Permissions, Set Permissions, Change Owner, Read Definition, Write Definition, Read Data, Insert Data, Update Data, Delete Data

Properties

DateCreated:	12/12/2000 11:30:37 AM	gintAutoCreateImport:	False
gintAutoCreateInput:	False	gintCaption:	
gintColHeadingLines:	2	gintDate:	39517.4013773148
gintDesc:	Compaction Test: Readings	gintDisplayPs:	16
gintGintRulesProc:	706,Table Procedures\compactionreadin gssave	gintGroupName:	Lab Testing
gintGroupParent:		gintHelpText:	See the Table Help in the Parent.
gintKeepDataInClone:	False	gintKeysCounter:	True
gintLookupFieldCount:	0	gintLookupKeyHide:	False
gintNoDisplay:	False	gintPostProc:	CompactionReadings
gintPreviewReport:		gintShowAllParentKeys:	False
gintSourceName:	COMPACTION READINGS	gintSplitScreenChild:	
gintSystemTable:	False	gintTablePreviewOnly:	False
gintViewRowHtTwips:	228	gintViewWidTwips:	0
LastUpdated:	5/15/2006 2:08:14 PM	RecordCount:	0
Updatable:	True		

Columns

Name	Type	Size
GintRecID	Long Integer	4
AllowZeroLength: False AppendOnly: False Attributes: Fixed Size, Auto-Increment CollatingOrder: General DataUpdatable: False gintBackColor: 0 gintBlobType: 0 gintCaption: gintCaptionVertical: False gintDefaultExpr: gintDesc: System requirement. Not user editable. gintFileRefData: 2 gintFlags: gintLookup: gintLookupFilter: gintRules: gintUnits: gintViewWidTwips: 1008 OrdinalPosition: 1 Required: False SourceField: GintRecID SourceTable: COMP READINGS		
PointID	Text	255
AllowZeroLength: False AppendOnly: False Attributes: Variable Length CollatingOrder: General DataUpdatable: False		

gintBackColor:	0
gintBlobType:	0
gintCaption:	
gintCaptionVertical:	False
gintDefaultExpr:	
gintDesc:	
gintFileRefData:	
gintFlags:	0
gintLookup:	
gintLookupFilter:	
gintRules:	
gintUnits:	
gintViewWidTwips:	753
OrdinalPosition:	2
Required:	True
SourceField:	PointID
SourceTable:	COMP READINGS

Depth Double 8

AllowZeroLength:	False
AppendOnly:	False
Attributes:	Fixed Size
CollatingOrder:	General
DataUpdatable:	False
gintBackColor:	0
gintBlobType:	0
gintCaption:	
gintCaptionVertical:	False
gintDefaultExpr:	
gintDesc:	
gintFileRefData:	
gintFlags:	0
gintLookup:	
gintLookupFilter:	
gintRules:	
gintUnits:	
gintViewWidTwips:	633
OrdinalPosition:	3
Required:	True
SourceField:	Depth
SourceTable:	COMP READINGS

Reading Double 8

AllowZeroLength:	False
AppendOnly:	False
Attributes:	Fixed Size
CollatingOrder:	General
DataUpdatable:	False
gintBackColor:	0
gintBlobType:	0
gintCaption:	
gintCaptionVertical:	False
gintDefaultExpr:	
gintDesc:	Arbitrary counter.
gintFileRefData:	
gintFlags:	2

gintLookup:			
gintLookupFilter:			
gintRules:			
gintUnits:			
gintViewWidTwips:	828		
OrdinalPosition:	4		
Required:	True		
SourceField:	Reading		
SourceTable:	COMP READINGS		
Wt_Soil_Mold		Single	4
AllowZeroLength:	False		
AppendOnly:	False		
Attributes:	Fixed Size		
CollatingOrder:	General		
DataUpdatable:	False		
gintBackColor:	0		
gintBlobType:	0		
gintCaption:	Wt Soil + Mold		
gintCaptionVertical:	False		
gintDefaultExpr:			
gintDesc:	Weight of soil plus mold in the units specified in the Weight_Units field of the parent table.		
gintFileRefData:			
gintFlags:	64		
gintLookup:			
gintLookupFilter:			
gintRules:			
gintUnits:			
gintViewWidTwips:	930		
OrdinalPosition:	5		
Required:	False		
SourceField:	Wt_Soil_Mold		
SourceTable:	COMP READINGS		
WC_Wt_Wet		Single	4
AllowZeroLength:	False		
AppendOnly:	False		
Attributes:	Fixed Size		
CollatingOrder:	General		
DataUpdatable:	False		
gintBackColor:	0		
gintBlobType:	0		
gintCaption:	Water Content Wet Wt+Tare		
gintCaptionVertical:	False		
gintDefaultExpr:			
gintDesc:	Water Content Determination: Weight Wet Soil + Tare, any consistent units		
gintFileRefData:			
gintFlags:	64		
gintLookup:			
gintLookupFilter:			
gintRules:			
gintUnits:			
gintViewWidTwips:	1218		

OrdinalPosition:	6		
Required:	False		
SourceField:	WC_Wt_Wet		
SourceTable:	COMP READINGS		
WC_Wt_Dry		Single	4
AllowZeroLength:	False		
AppendOnly:	False		
Attributes:	Fixed Size		
CollatingOrder:	General		
DataUpdatable:	False		
gintBackColor:	0		
gintBlobType:	0		
gintCaption:	Water Content Dry Wt+Tare		
gintCaptionVertical:	False		
gintDefaultExpr:			
gintDesc:	Water Content Determination: Weight Dry Soil + Tare, any consistent units		
gintFileRefData:			
gintFlags:	64		
gintLookup:			
gintLookupFilter:			
gintRules:			
gintUnits:			
gintViewWidTwips:	1158		
OrdinalPosition:	7		
Required:	False		
SourceField:	WC_Wt_Dry		
SourceTable:	COMP READINGS		
WC_Wt_Tare		Single	4
AllowZeroLength:	False		
AppendOnly:	False		
Attributes:	Fixed Size		
CollatingOrder:	General		
DataUpdatable:	False		
gintBackColor:	0		
gintBlobType:	0		
gintCaption:	Water Content Wt Tare		
gintCaptionVertical:	False		
gintDefaultExpr:			
gintDesc:	Water Content Determination: Weight Tare, any consistent units		
gintFileRefData:			
gintFlags:	64		
gintLookup:			
gintLookupFilter:			
gintRules:			
gintUnits:			
gintViewWidTwips:	1155		
OrdinalPosition:	8		
Required:	False		
SourceField:	WC_Wt_Tare		
SourceTable:	COMP READINGS		
Water_Content		Single	4

AllowZeroLength: False
 AppendOnly: False
 Attributes: Fixed Size
 CollatingOrder: General
 DataUpdatable: False
 gintBackColor: 0
 gintBlobType: 0
 gintCaption:
 gintCaptionVertical: False
 gintDefaultExpr:
 gintDesc: Will be calculated if the data exists.
 gintFileRefData:
 gintFlags: 64
 gintLookup:
 gintLookupFilter:
 gintRules:
 gintUnits: %
 gintViewWidTwips: 900
 OrdinalPosition: 9
 Required: False
 SourceField: Water_Content
 SourceTable: COMP READINGS

Wet_Density Single 4

AllowZeroLength: False
 AppendOnly: False
 Attributes: Fixed Size
 CollatingOrder: General
 DataUpdatable: False
 gintBackColor: 0
 gintBlobType: 0
 gintCaption:
 gintCaptionVertical: False
 gintDefaultExpr:
 gintDesc: In units determined by the PROJECT.Water_Unit_Wt field. Will be calculated if the data exists.

gintFileRefData:
 gintFlags: 64
 gintLookup:
 gintLookupFilter:
 gintRules:
 gintUnits:
 gintViewWidTwips: 930
 OrdinalPosition: 10
 Required: False
 SourceField: Wet_Density
 SourceTable: COMP READINGS

Dry_Density Single 4

AllowZeroLength: False
 AppendOnly: False
 Attributes: Fixed Size
 CollatingOrder: General
 DataUpdatable: False
 gintBackColor: 0

gintBlobType: 0
 gintCaption:
 gintCaptionVertical: False
 gintDefaultExpr:
 gintDesc: In units determined by the PROJECT.Water_Unit_Wt field. Will be calculated if the data exists.
 gintFileRefData:
 gintFlags: 64
 gintLookup:
 gintLookupFilter:
 gintRules:
 gintUnits:
 gintViewWidTwips: 945
 OrdinalPosition: 11
 Required: False
 SourceField: Dry_Density
 SourceTable: COMP READINGS

Relationships

COMPACTIONCOMP READINGS

COMPACTION		COMP READINGS	
PointID	1	∞	PointID
Depth	1	∞	Depth

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

Table Indexes

Name	Number of Fields
GINTINDEX	3
Clustered:	False
DistinctCount:	0
Foreign:	False
IgnoreNulls:	False
Name:	GINTINDEX
Primary:	False
Required:	False
Unique:	True
Fields:	
PointID	Ascending
Depth	Ascending
Reading	Ascending
Primary	1
Clustered:	False
DistinctCount:	0
Foreign:	False
IgnoreNulls:	False
Name:	Primary

Primary: True
Required: True
Unique: True
Fields:
GintRecID Ascending
REL0016 2
Clustered: False
DistinctCount: 0
Foreign: True
IgnoreNulls: False
Name: REL0016
Primary: False
Required: False
Unique: False
Fields:
PointID Ascending
Depth Ascending

User Permissions

admin Delete, Read Permissions, Set Permissions, Change Owner, Read Definition, Write Definition, Read Data, Insert Data, Update Data, Delete Data

Group Permissions

Admins Users Delete, Read Permissions, Set Permissions, Change Owner, Read Definition, Write Definition, Read Data, Insert Data, Update Data, Delete Data

Properties

DateCreated: 12/12/2000 11:30:38 AM gintAutoCreateImport: False
gintAutoCreateInput: False gintCaption: gintDate: 39517.4013773148
gintColHeadingLines: 3 gintDisplayPs: 15
gintDesc: Compaction Test: Parent table
gintGintRulesProc: 706,Table gintGroupName: Lab Testing
Procedures\compactionsave,8
74,Table
Procedures\deletingparentrow
sinsplitscreen
gintGroupParent: gintHelpText: The maximum dry density and optimum moisture content are NOT calculated by the program. These must be supplied manually.

The method is optional. It is for documentation purposes only. Methods and their characteristics can be added in Data Design:Library Data under the COMPACTION METHODS table.

The weight and volume units are necessary if density readings will be calculated. The mold and soil filling the mold must be input in the weight units specified. The weights for the water content readings can be in any consistent units.

The density units will be consistent with the PROJECT.Water_Unit_Wt field. For example, if Water_Unit_Wt = 62.4, the units will be in pounds per cubic foot, if 1, grams/cubic centimeter (or metric tons/cubic meter).

gintKeepDataInClone: False gintKeyIsCounter: False
gintLookupFieldCount: 0 gintLookupKeyHide: False
gintNoDisplay: False gintPostProc: CompactionParent
gintPreviewReport: False gintShowAllParentKeys: False
gintSourceName: COMPACTION gintSplitScreenChild: COMP READINGS
gintSystemTable: False gintTablePreviewOnly: False
gintViewRowHTwips: 420 gintViewWidTwips: 0
LastUpdated: 5/26/2007 9:08:39 AM RecordCount: 0
Updatable: True

Columns

Name	Type	Size
GintRecID	Long Integer	4

	AllowZeroLength:	False		
	AppendOnly:	False		
	Attributes:	Fixed Size, Auto-Increment		
	CollatingOrder:	General		
	DataUpdatable:	False		
	gintBackColor:	0		
	gintBlobType:	0		
	gintCaption:			
	gintCaptionVertical:	False		
	gintDefaultExpr:			
	gintDesc:	System requirement. Not user editable.		
	gintFileRefData:			
	gintFlags:	2		
	gintLookup:			
	gintLookupFilter:			
	gintRules:			
	gintUnits:			
	gintViewWidTwips:	1008		
	OrdinalPosition:	1		
	Required:	False		
	SourceField:	GintRecID		
	SourceTable:	COMPACTION		
PointID			Text	255
	AllowZeroLength:	False		
	AppendOnly:	False		
	Attributes:	Variable Length		
	CollatingOrder:	General		
	DataUpdatable:	False		
	gintBackColor:	0		
	gintBlobType:	0		
	gintCaption:	Boring Designation		
	gintCaptionVertical:	False		
	gintDefaultExpr:			
	gintDesc:			
	gintFileRefData:			
	gintFlags:	0		
	gintLookup:			
	gintLookupFilter:			
	gintRules:			
	gintUnits:			
	gintViewWidTwips:	753		
	OrdinalPosition:	2		
	Required:	True		
	SourceField:	PointID		
	SourceTable:	COMPACTION		
Depth			Double	8
	AllowZeroLength:	False		
	AppendOnly:	False		
	Attributes:	Fixed Size		
	CollatingOrder:	General		
	DataUpdatable:	False		
	gintBackColor:	0		
	gintBlobType:	0		
	gintCaption:			

	gintCaptionVertical:	False		
	gintDefaultExpr:			
	gintDesc:			
	gintFileRefData:			
	gintFlags:	0		
	gintLookup:			
	gintLookupFilter:			
	gintRules:			
	gintUnits:	186 1		
	gintViewWidTwips:	ft		
	OrdinalPosition:	870		
	Required:	3		
	SourceField:	True		
	SourceTable:	Depth		
		COMPACTION		
Max_Dry_Density			Single	4
	AllowZeroLength:	False		
	AppendOnly:	False		
	Attributes:	Fixed Size		
	CollatingOrder:	General		
	DataUpdatable:	False		
	gintBackColor:	0		
	gintBlobType:	0		
	gintCaption:			
	gintCaptionVertical:	False		
	gintDefaultExpr:			
	gintDesc:	Not calculated by program.		
	gintFileRefData:			
	gintFlags:	64		
	gintLookup:			
	gintLookupFilter:			
	gintRules:			
	gintUnits:	pcf		
	gintViewWidTwips:	1020		
	OrdinalPosition:	4		
	Required:	False		
	SourceField:	Max_Dry_Density		
	SourceTable:	COMPACTION		
Opt_Moisture_Content			Single	4
	AllowZeroLength:	False		
	AppendOnly:	False		
	Attributes:	Fixed Size		
	CollatingOrder:	General		
	DataUpdatable:	False		
	gintBackColor:	0		
	gintBlobType:	0		
	gintCaption:	Optimum Moisture Content		
	gintCaptionVertical:	False		
	gintDefaultExpr:			
	gintDesc:	Not calculated by program.		
	gintFileRefData:			
	gintFlags:	64		
	gintLookup:			
	gintLookupFilter:			
	gintRules:			

	gintUnits:	%		
	gintViewWidTwips:	975		
	OrdinalPosition:	5		
	Required:	False		
	SourceField:	Opt_Moisture_Content		
	SourceTable:	COMPACTION		
Method			Text	255
	AllowZeroLength:	True		
	AppendOnly:	False		
	Attributes:	Variable Length		
	CollatingOrder:	General		
	DataUpdatable:	False		
	gintBackColor:	0		
	gintBlobType:	0		
	gintCaption:			
	gintCaptionVertical:	False		
	gintDefaultExpr:			
	gintDesc:			
	gintFileRefData:			
	gintFlags:	64		
	gintLookup:	Libtbl\compaction methods		
	gintLookupFilter:			
	gintRules:			
	gintUnits:			
	gintViewWidTwips:	1425		
	OrdinalPosition:	6		
	Required:	False		
	SourceField:	Method		
	SourceTable:	COMPACTION		
Mold_Volume			Single	4
	AllowZeroLength:	False		
	AppendOnly:	False		
	Attributes:	Fixed Size		
	CollatingOrder:	General		
	DataUpdatable:	False		
	gintBackColor:	0		
	gintBlobType:	0		
	gintCaption:			
	gintCaptionVertical:	False		
	gintDefaultExpr:			
	gintDesc:			
	gintFileRefData:			
	gintFlags:	64		
	gintLookup:			
	gintLookupFilter:			
	gintRules:			
	gintUnits:			
	gintViewWidTwips:	990		
	OrdinalPosition:	7		
	Required:	False		
	SourceField:	Mold_Volume		
	SourceTable:	COMPACTION		
Volume_Units			Text	255

	AllowZeroLength:	True		
	AppendOnly:	False		
	Attributes:	Variable Length		
	CollatingOrder:	General		
	DataUpdatable:	False		
	gintBackColor:	0		
	gintBlobType:	0		
	gintCaption:			
	gintCaptionVertical:	False		
	gintDefaultExpr:			
	gintDesc:	Volume units taken as the cube of that selected, i.e., cubic feet, cubic meters, etc.		
	gintFileRefData:			
	gintFlags:	65		
	gintLookup:	Lookup\lab length units		
	gintLookupFilter:			
	gintRules:			
	gintUnits:			
	gintViewWidTwips:	750		
	OrdinalPosition:	8		
	Required:	False		
	SourceField:	Volume_Units		
	SourceTable:	COMPACTION		
Mold_Weight			Single	4
	AllowZeroLength:	False		
	AppendOnly:	False		
	Attributes:	Fixed Size		
	CollatingOrder:	General		
	DataUpdatable:	False		
	gintBackColor:	0		
	gintBlobType:	0		
	gintCaption:			
	gintCaptionVertical:	False		
	gintDefaultExpr:			
	gintDesc:			
	gintFileRefData:			
	gintFlags:	64		
	gintLookup:			
	gintLookupFilter:			
	gintRules:			
	gintUnits:			
	gintViewWidTwips:	825		
	OrdinalPosition:	9		
	Required:	False		
	SourceField:	Mold_Weight		
	SourceTable:	COMPACTION		
Weight_Units			Text	255
	AllowZeroLength:	True		
	AppendOnly:	False		
	Attributes:	Variable Length		
	CollatingOrder:	General		
	DataUpdatable:	False		
	gintBackColor:	0		

gintBlobType: 0
 gintCaption:
 gintCaptionVertical: False
 gintDefaultExpr:
 gintDesc:
 gintFileRefData:
 gintFlags: 65
 gintLookup: Lookup!lab weight units
 gintLookupFilter:
 gintRules:
 gintUnits:
 gintViewWidTwips: 765
 OrdinalPosition: 10
 Required: False
 SourceField: Weight_Units
 SourceTable: COMPACTION

Relationships

LAB SPECIMENCOMPACTION

LAB SPECIMEN		COMPACTION
PointID	1 1	PointID
Depth	1 1	Depth

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

COMPACTIONCOMP READINGS

COMPACTION		COMP READINGS
PointID	1 ∞	PointID
Depth	1 ∞	Depth

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

Table Indexes

Name	Number of Fields
GINTINDEX	2
Clustered:	False
DistinctCount:	0
Foreign:	False
IgnoreNulls:	False
Name:	GINTINDEX
Primary:	False
Required:	False
Unique:	True

Fields:
 PointID Ascending
 Depth Ascending
 Primary 1
 Clustered: False
 DistinctCount: 0
 Foreign: False
 IgnoreNulls: False
 Name: Primary
 Primary: True
 Required: True
 Unique: True
 Fields:
 GintRecID Ascending
 Reference6 2
 Clustered: False
 DistinctCount: 0
 Foreign: True
 IgnoreNulls: False
 Name: Reference6
 Primary: False
 Required: False
 Unique: True
 Fields:
 PointID Ascending
 Depth Ascending

User Permissions

admin Delete, Read Permissions, Set Permissions, Change Owner, Read Definition, Write Definition, Read Data, Insert Data, Update Data, Delete Data

Group Permissions

Admins Delete, Read Permissions, Set Permissions, Change Owner, Read Definition, Write Definition, Read Data, Insert Data, Update Data, Delete Data
 Users

Properties

DateCreated:	12/12/2000 11:30:40 AM	gintAutoCreateImport:	False
gintAutoCreateInput:	False	gintCaption:	
gintColHeadingLines:	1	gintDate:	39230.5339814815
gintDesc:	Consolidation Test: Readings	gintDisplayPs:	20
gintGintRulesProc:	706,Table Procedures\consolidationreadi ngsave	gintGroupName:	Lab Testing
gintGroupParent:		gintHelpText:	See the Table Help in the Parent.
gintKeepDataInClone:	False	gintKeysCounter:	True
gintLookupFieldCount:	0	gintLookupKeyHide:	False
gintNoDisplay:	False	gintPostProc:	ConsolidationReadings
gintPreviewReport:		gintShowAllParentKeys:	False
gintSourceName:	CONSOL READINGS	gintSplitScreenChild:	
gintSystemTable:	False	gintTablePreviewOnly:	False
gintViewRowHtTwips:	228	gintViewWidTwips:	0
LastUpdated:	5/15/2006 2:08:16 PM	RecordCount:	0
Updatable:	True		

Columns

Name	Type	Size
GintRecID	Long Integer	4
AllowZeroLength: False AppendOnly: False Attributes: Fixed Size, Auto-Increment CollatingOrder: General DataUpdatable: False gintBackColor: 0 gintBlobType: 0 gintCaption: gintCaptionVertical: False gintDefaultExpr: gintDesc: System requirement. Not user editable. gintFileRefData: 2 gintFlags: gintLookup: gintLookupFilter: gintRules: gintUnits: gintViewWidTwips: 1008 OrdinalPosition: 1 Required: False SourceField: GintRecID SourceTable: CONSOL READINGS		
PointID	Text	255
AllowZeroLength: False AppendOnly: False Attributes: Variable Length CollatingOrder: General DataUpdatable: False		

gintBackColor:	0
gintBlobType:	0
gintCaption:	
gintCaptionVertical:	False
gintDefaultExpr:	
gintDesc:	
gintFileRefData:	
gintFlags:	0
gintLookup:	
gintLookupFilter:	
gintRules:	
gintUnits:	
gintViewWidTwips:	753
OrdinalPosition:	2
Required:	True
SourceField:	PointID
SourceTable:	CONSOL READINGS

Depth Double 8

AllowZeroLength:	False
AppendOnly:	False
Attributes:	Fixed Size
CollatingOrder:	General
DataUpdatable:	False
gintBackColor:	0
gintBlobType:	0
gintCaption:	
gintCaptionVertical:	False
gintDefaultExpr:	
gintDesc:	
gintFileRefData:	
gintFlags:	0
gintLookup:	
gintLookupFilter:	
gintRules:	
gintUnits:	
gintViewWidTwips:	633
OrdinalPosition:	3
Required:	True
SourceField:	Depth
SourceTable:	CONSOL READINGS

Reading Double 8

AllowZeroLength:	False
AppendOnly:	False
Attributes:	Fixed Size
CollatingOrder:	General
DataUpdatable:	False
gintBackColor:	0
gintBlobType:	0
gintCaption:	
gintCaptionVertical:	False
gintDefaultExpr:	
gintDesc:	Arbitrary counter.
gintFileRefData:	
gintFlags:	2

	gintLookup:			
	gintLookupFilter:			
	gintRules:			
	gintUnits:			
	gintViewWidTwips:	828		
	OrdinalPosition:	4		
	Required:	True		
	SourceField:	Reading		
	SourceTable:	CONSOL READINGS		
Stress			Single	4
	AllowZeroLength:	False		
	AppendOnly:	False		
	Attributes:	Fixed Size		
	CollatingOrder:	General		
	DataUpdatable:	False		
	gintBackColor:	0		
	gintBlobType:	0		
	gintCaption:			
	gintCaptionVertical:	False		
	gintDefaultExpr:			
	gintDesc:	In any units.		
	gintFileRefData:			
	gintFlags:	64		
	gintLookup:			
	gintLookupFilter:			
	gintRules:			
	gintUnits:			
	gintViewWidTwips:	975		
	OrdinalPosition:	5		
	Required:	True		
	SourceField:	Stress		
	SourceTable:	CONSOL READINGS		
Cummulative_Deflection			Single	4
	AllowZeroLength:	False		
	AppendOnly:	False		
	Attributes:	Fixed Size		
	CollatingOrder:	General		
	DataUpdatable:	False		
	gintBackColor:	0		
	gintBlobType:	0		
	gintCaption:			
	gintCaptionVertical:	False		
	gintDefaultExpr:			
	gintDesc:	In units specified in the parent record.		
	gintFileRefData:			
	gintFlags:	64		
	gintLookup:			
	gintLookupFilter:			
	gintRules:			
	gintUnits:			
	gintViewWidTwips:	1245		
	OrdinalPosition:	6		
	Required:	False		
	SourceField:	Cummulative_Deflection		

	SourceTable:	CONSOL READINGS		
Strain			Single	4
	AllowZeroLength:	False		
	AppendOnly:	False		
	Attributes:	Fixed Size		
	CollatingOrder:	General		
	DataUpdatable:	False		
	gintBackColor:	0		
	gintBlobType:	0		
	gintCaption:			
	gintCaptionVertical:	False		
	gintDefaultExpr:			
	gintDesc:			
	gintFileRefData:			
	gintFlags:	64		
	gintLookup:			
	gintLookupFilter:			
	gintRules:			
	gintUnits:	%		
	gintViewWidTwips:	1275		
	OrdinalPosition:	7		
	Required:	False		
	SourceField:	Strain		
	SourceTable:	CONSOL READINGS		
T50			Single	4
	AllowZeroLength:	False		
	AppendOnly:	False		
	Attributes:	Fixed Size		
	CollatingOrder:	General		
	DataUpdatable:	False		
	gintBackColor:	0		
	gintBlobType:	0		
	gintCaption:			
	gintCaptionVertical:	False		
	gintDefaultExpr:			
	gintDesc:	Used to calculate Cv50.		
	gintFileRefData:			
	gintFlags:	64		
	gintLookup:			
	gintLookupFilter:			
	gintRules:			
	gintUnits:	min		
	gintViewWidTwips:	1050		
	OrdinalPosition:	8		
	Required:	False		
	SourceField:	T50		
	SourceTable:	CONSOL READINGS		
T90			Single	4
	AllowZeroLength:	False		
	AppendOnly:	False		
	Attributes:	Fixed Size		
	CollatingOrder:	General		
	DataUpdatable:	False		

gintBackColor: 0
gintBlobType: 0
gintCaption:
gintCaptionVertical: False
gintDefaultExpr:
gintDesc: Used to calculate Cv90.
gintFileRefData:
gintFlags: 64
gintLookup:
gintLookupFilter:
gintRules:
gintUnits: min
gintViewWidTwips: 1035
OrdinalPosition: 9
Required: False
SourceField: T90
SourceTable: CONSOL READINGS

Cv50 Single 4

AllowZeroLength: False
AppendOnly: False
Attributes: Fixed Size
CollatingOrder: General
DataUpdatable: False
gintBackColor: 0
gintBlobType: 0
gintCaption:
gintCaptionVertical: False
gintDefaultExpr:
gintDesc: In units specified by the Coeff of Consol Factor field in the PROJECT table.

gintFileRefData:
gintFlags: 64
gintLookup:
gintLookupFilter:
gintRules:
gintUnits:
gintViewWidTwips: 960
OrdinalPosition: 10
Required: False
SourceField: Cv50
SourceTable: CONSOL READINGS

Cv90 Single 4

AllowZeroLength: False
AppendOnly: False
Attributes: Fixed Size
CollatingOrder: General
DataUpdatable: False
gintBackColor: 0
gintBlobType: 0
gintCaption:
gintCaptionVertical: False
gintDefaultExpr:
gintDesc: In units specified by the Coeff of Consol Factor field in the PROJECT table.

gintFileRefData:
gintFlags: 64
gintLookup:
gintLookupFilter:
gintRules:
gintUnits:
gintViewWidTwips: 1155
OrdinalPosition: 11
Required: False
SourceField: Cv90
SourceTable: CONSOL READINGS

Relationships

CONSOLIDATIONCONSOL READINGS

CONSOLIDATION		CONSOL READINGS	
PointID	1	∞	PointID
Depth	1	∞	Depth
Attributes:		Enforced, Cascade Updates, Cascade Deletes	
RelationshipType:		One-To-Many	

Table Indexes

Name	Number of Fields
GINTINDEX	3
Clustered:	False
DistinctCount:	0
Foreign:	False
IgnoreNulls:	False
Name:	GINTINDEX
Primary:	False
Required:	False
Unique:	True
Fields:	
PointID	Ascending
Depth	Ascending
Reading	Ascending
Primary	1
Clustered:	False
DistinctCount:	0
Foreign:	False
IgnoreNulls:	False
Name:	Primary
Primary:	True
Required:	True
Unique:	True
Fields:	
GintRecID	Ascending

REL0012 2
Clustered: False
DistinctCount: 0
Foreign: True
IgnoreNulls: False
Name: REL0012
Primary: False
Required: False
Unique: False
Fields:
PointID Ascending
Depth Ascending

User Permissions

admin Delete, Read Permissions, Set Permissions, Change Owner, Read Definition, Write Definition, Read Data, Insert Data, Update Data, Delete Data

Group Permissions

Admins Delete, Read Permissions, Set Permissions, Change Owner, Read Definition, Write Definition, Read Data, Insert Data, Update Data, Delete Data
Users

Properties

DateCreated: 12/12/2000 11:30:41 AM gintAutoCreateImport: False
gintAutoCreateInput: False gintCaption: 39230.5339814815
gintColHeadingLines: 3 gintDate: 19
gintDesc: Consolidation Test: Parent table
706,Table gintDisplayPs:
gintGintRulesProc: Procedures\consolidationsave, 874,Table
Procedures\deletingparentrow
sinspltscreen gintGroupName: Lab Testing
gintGroupParent: gintHelpText:

If only the final readings (Stress and Strain) will be input, nothing (except depth) is required in the parent table.

If you wish to perform the readings calculations, only the Height and Deflection units are required. The rest of the information in the parent table is for documentation and additional information that you may wish to report.

The stress readings can be in any units. These values are required but not used in the calculations.

The deflection readings are actual deflection from the initial height in the units specified in the deflection units field in the parent table. A positive deflection indicates compression of the specimen, a negative value indicates swell. The strain values are determined from the deflection readings. If you wish to report Void Ratio, you can calculate those values from the specific gravity and the strain values.

The T50 and T90 values are the time in minutes for 50 and 90% consolidation, respectively. The Cv50 and Cv90 are calculated from these values. Note that Cv50 and Cv90 can be input directly but if T50/T90 values are given, the program will recalculate Cv50/Cv90. Note also that the Cv50 and Cv90 values in the parent record are not calculated from the readings. You need to supply

gintKeepDataInClone: False gintKeyIsCounter: False
gintLookupFieldCount: 0 gintLookupKeyHide: False

gintNoDisplay:	False	gintPostProc:	ConsolidationParent
gintPreviewReport:		gintShowAllParentKeys:	False
gintSourceName:	CONSOLIDATION	gintSplitScreenChild:	CONSOL READINGS
gintSystemTable:	False	gintTablePreviewOnly:	False
gintViewRowHtTwips:	288	gintViewWidTwips:	0
LastUpdated:	5/26/2007 9:09:09 AM	RecordCount:	0
Updatable:	True		

Columns

Name	Type	Size
GintRecID	Long Integer	4
AllowZeroLength: False AppendOnly: False Attributes: Fixed Size, Auto-Increment CollatingOrder: General DataUpdatable: False gintBackColor: 0 gintBlobType: 0 gintCaption: False gintCaptionVertical: False gintDefaultExpr: System requirement. Not user editable. gintDesc: 2 gintFileRefData: 2 gintFlags: 2 gintLookup: 2 gintLookupFilter: 2 gintRules: 2 gintUnits: 2 gintViewWidTwips: 1008 OrdinalPosition: 1 Required: False SourceField: GintRecID SourceTable: CONSOLIDATION		
PointID	Text	255
AllowZeroLength: False AppendOnly: False Attributes: Variable Length CollatingOrder: General DataUpdatable: False gintBackColor: 0 gintBlobType: 0 gintCaption: Boring Designation gintCaptionVertical: False gintDefaultExpr: False gintDesc: 0 gintFileRefData: 0 gintFlags: 0 gintLookup: 0 gintLookupFilter: 0 gintRules: 0 gintUnits: 0 gintViewWidTwips: 753		

OrdinalPosition:	2		
Required:	True		
SourceField:	PointID		
SourceTable:	CONSOLIDATION		
Depth		Double	8
AllowZeroLength: False AppendOnly: False Attributes: Fixed Size CollatingOrder: General DataUpdatable: False gintBackColor: 0 gintBlobType: 0 gintCaption: False gintCaptionVertical: False gintDefaultExpr: False gintDesc: 0 gintFlags: 0 gintLookup: 0 gintLookupFilter: 0 gintRules: 186 1 gintUnits: ft gintViewWidTwips: 900 OrdinalPosition: 3 Required: True SourceField: Depth SourceTable: CONSOLIDATION			
Deflection_Units		Text	255
AllowZeroLength: True AppendOnly: False Attributes: Variable Length CollatingOrder: General DataUpdatable: False gintBackColor: 0 gintBlobType: 0 gintCaption: False gintCaptionVertical: False gintDefaultExpr: False gintDesc: 65 gintFileRefData: 65 gintFlags: Lookup lab in or mm gintLookup: 65 gintLookupFilter: 65 gintRules: 65 gintUnits: 1005 OrdinalPosition: 4 Required: False SourceField: Deflection_Units SourceTable: CONSOLIDATION			
Diameter		Single	4
AllowZeroLength: False AppendOnly: False			

	Attributes:	Fixed Size		
	CollatingOrder:	General		
	DataUpdatable:	False		
	gintBackColor:	0		
	gintBlobType:	0		
	gintCaption:			
	gintCaptionVertical:	False		
	gintDefaultExpr:			
	gintDesc:			
	gintFileRefData:			
	gintFlags:	64		
	gintLookup:			
	gintLookupFilter:			
	gintRules:			
	gintUnits:	mm		
	gintViewWidTwips:	873		
	OrdinalPosition:	5		
	Required:	False		
	SourceField:	Diameter		
	SourceTable:	CONSOLIDATION		
Height			Single	4
	AllowZeroLength:	False		
	AppendOnly:	False		
	Attributes:	Fixed Size		
	CollatingOrder:	General		
	DataUpdatable:	False		
	gintBackColor:	0		
	gintBlobType:	0		
	gintCaption:			
	gintCaptionVertical:	False		
	gintDefaultExpr:			
	gintDesc:			
	gintFileRefData:			
	gintFlags:	64		
	gintLookup:			
	gintLookupFilter:			
	gintRules:			
	gintUnits:	mm		
	gintViewWidTwips:	678		
	OrdinalPosition:	6		
	Required:	False		
	SourceField:	Height		
	SourceTable:	CONSOLIDATION		
Wet_Density			Single	4
	AllowZeroLength:	False		
	AppendOnly:	False		
	Attributes:	Fixed Size		
	CollatingOrder:	General		
	DataUpdatable:	False		
	gintBackColor:	0		
	gintBlobType:	0		
	gintCaption:			
	gintCaptionVertical:	False		
	gintDefaultExpr:			

	gintDesc:	In units determined by the PROJECT.Water_Unit_Wt field. Will be calculated if the data exists.		
	gintFileRefData:			
	gintFlags:	64		
	gintLookup:			
	gintLookupFilter:			
	gintRules:			
	gintUnits:			
	gintViewWidTwips:	945		
	OrdinalPosition:	7		
	Required:	False		
	SourceField:	Wet_Density		
	SourceTable:	CONSOLIDATION		
Dry_Density			Single	4
	AllowZeroLength:	False		
	AppendOnly:	False		
	Attributes:	Fixed Size		
	CollatingOrder:	General		
	DataUpdatable:	False		
	gintBackColor:	0		
	gintBlobType:	0		
	gintCaption:			
	gintCaptionVertical:	False		
	gintDefaultExpr:			
	gintDesc:	In units determined by the PROJECT.Water_Unit_Wt field. Will be calculated if the data exists.		
	gintFileRefData:			
	gintFlags:	64		
	gintLookup:			
	gintLookupFilter:			
	gintRules:			
	gintUnits:			
	gintViewWidTwips:	945		
	OrdinalPosition:	8		
	Required:	False		
	SourceField:	Dry_Density		
	SourceTable:	CONSOLIDATION		
Water_Content			Single	4
	AllowZeroLength:	False		
	AppendOnly:	False		
	Attributes:	Fixed Size		
	CollatingOrder:	General		
	DataUpdatable:	False		
	gintBackColor:	0		
	gintBlobType:	0		
	gintCaption:			
	gintCaptionVertical:	False		
	gintDefaultExpr:			
	gintDesc:	Will be calculated if the data exists.		
	gintFileRefData:			
	gintFlags:	64		
	gintLookup:			
	gintLookupFilter:			

gintRules:			
gintUnits:	%		
gintViewWidTwips:	990		
OrdinalPosition:	9		
Required:	False		
SourceField:	Water_Content		
SourceTable:	CONSOLIDATION		
Wt_Spec_Tare		Single	4
AllowZeroLength:	False		
AppendOnly:	False		
Attributes:	Fixed Size		
CollatingOrder:	General		
DataUpdatable:	False		
gintBackColor:	0		
gintBlobType:	0		
gintCaption:	Wt Specimen + Tare		
gintCaptionVertical:	False		
gintDefaultExpr:			
gintDesc:	Weight of total specimen + tare		
gintFileRefData:			
gintFlags:	64		
gintLookup:			
gintLookupFilter:			
gintRules:			
gintUnits:	g		
gintViewWidTwips:	1290		
OrdinalPosition:	10		
Required:	False		
SourceField:	Wt_Spec_Tare		
SourceTable:	CONSOLIDATION		
Wt_Tare		Single	4
AllowZeroLength:	False		
AppendOnly:	False		
Attributes:	Fixed Size		
CollatingOrder:	General		
DataUpdatable:	False		
gintBackColor:	0		
gintBlobType:	0		
gintCaption:			
gintCaptionVertical:	False		
gintDefaultExpr:			
gintDesc:			
gintFileRefData:			
gintFlags:	64		
gintLookup:			
gintLookupFilter:			
gintRules:			
gintUnits:	g		
gintViewWidTwips:	858		
OrdinalPosition:	11		
Required:	False		
SourceField:	Wt_Tare		
SourceTable:	CONSOLIDATION		

WC_Wt_Wet		Single	4
AllowZeroLength:	False		
AppendOnly:	False		
Attributes:	Fixed Size		
CollatingOrder:	General		
DataUpdatable:	False		
gintBackColor:	0		
gintBlobType:	0		
gintCaption:	Water Content Wet Wt+Tare		
gintCaptionVertical:	False		
gintDefaultExpr:			
gintDesc:	Water Content Determination: Weight Wet Soil + Tare, any consistent units		
gintFileRefData:			
gintFlags:	64		
gintLookup:			
gintLookupFilter:			
gintRules:			
gintUnits:			
gintViewWidTwips:	1065		
OrdinalPosition:	12		
Required:	False		
SourceField:	WC_Wt_Wet		
SourceTable:	CONSOLIDATION		
WC_Wt_Dry		Single	4
AllowZeroLength:	False		
AppendOnly:	False		
Attributes:	Fixed Size		
CollatingOrder:	General		
DataUpdatable:	False		
gintBackColor:	0		
gintBlobType:	0		
gintCaption:	Water Content Dry Wt+Tare		
gintCaptionVertical:	False		
gintDefaultExpr:			
gintDesc:	Water Content Determination: Weight Dry Soil + Tare, any consistent units		
gintFileRefData:			
gintFlags:	64		
gintLookup:			
gintLookupFilter:			
gintRules:			
gintUnits:			
gintViewWidTwips:	975		
OrdinalPosition:	13		
Required:	False		
SourceField:	WC_Wt_Dry		
SourceTable:	CONSOLIDATION		
WC_Wt_Tare		Single	4
AllowZeroLength:	False		
AppendOnly:	False		
Attributes:	Fixed Size		
CollatingOrder:	General		

DataUpdatable: False
 gintBackColor: 0
 gintBlobType: 0
 gintCaption: Water Content Wt Tare
 gintCaptionVertical: False
 gintDefaultExpr:
 gintDesc: Water Content Determination: Weight Tare, any consistent units
 gintFileRefData:
 gintFlags: 64
 gintLookup:
 gintLookupFilter:
 gintRules:
 gintUnits:
 gintViewWidTwips: 930
 OrdinalPosition: 14
 Required: False
 SourceField: WC_Wt_Tare
 SourceTable: CONSOLIDATION

Dry_Density_After Single 4

AllowZeroLength: False
 AppendOnly: False
 Attributes: Fixed Size
 CollatingOrder: General
 DataUpdatable: False
 gintBackColor: 0
 gintBlobType: 0
 gintCaption:
 gintCaptionVertical: False
 gintDefaultExpr:
 gintDesc: After test
 gintFileRefData:
 gintFlags: 64
 gintLookup:
 gintLookupFilter:
 gintRules:
 gintUnits:
 gintViewWidTwips: 840
 OrdinalPosition: 15
 Required: False
 SourceField: Dry_Density_After
 SourceTable: CONSOLIDATION

Water_Content_After Single 4

AllowZeroLength: False
 AppendOnly: False
 Attributes: Fixed Size
 CollatingOrder: General
 DataUpdatable: False
 gintBackColor: 0
 gintBlobType: 0
 gintCaption:
 gintCaptionVertical: False
 gintDefaultExpr:
 gintDesc: After test
 gintFileRefData:

gintFlags: 64
 gintLookup:
 gintLookupFilter:
 gintRules:
 gintUnits: %
 gintViewWidTwips: 870
 OrdinalPosition: 16
 Required: False
 SourceField: Water_Content_After
 SourceTable: CONSOLIDATION

Relationships

LAB SPECIMENCONSOLIDATION

LAB SPECIMEN CONSOLIDATION

PointID	1	1	PointID
Depth	1	1	Depth

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

CONSOLIDATIONCONSOL READINGS

CONSOLIDATION CONSOL READINGS

PointID	1	∞	PointID
Depth	1	∞	Depth

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

Table Indexes

Name	Number of Fields
GINTINDEX	2
Clustered:	False
DistinctCount:	0
Foreign:	False
IgnoreNulls:	False
Name:	GINTINDEX
Primary:	False
Required:	False
Unique:	True
Fields:	
PointID	Ascending
Depth	Ascending
Primary	1
Clustered:	False

DistinctCount:	0
Foreign:	False
IgnoreNulls:	False
Name:	Primary
Primary:	True
Required:	True
Unique:	True
Fields:	
GintRecID	Ascending
Reference8	2
Clustered:	False
DistinctCount:	0
Foreign:	True
IgnoreNulls:	False
Name:	Reference8
Primary:	False
Required:	False
Unique:	True
Fields:	
PointID	Ascending
Depth	Ascending

User Permissions

admin	Delete, Read Permissions, Set Permissions, Change Owner, Read Definition, Write Definition, Read Data, Insert Data, Update Data, Delete Data
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Group Permissions

Admins	Delete, Read Permissions, Set Permissions, Change Owner, Read Definition, Write Definition, Read Data, Insert Data, Update Data, Delete Data
Users	

Properties

DateCreated:	11/29/2006 3:45:52 PM	gintAutoCreateImport:	False
gintAutoCreateInput:	False	gintCaption:	
gintColHeadingLines:	1	gintDate:	39476.372974537
gintDesc:		gintDisplayPs:	27
gintGintRulesProc:		gintGroupName:	
gintGroupParent:		gintHelpText:	
gintKeepDataInClone:	False	gintKeysCounter:	False
gintLookupFieldCount:	0	gintLookupKeyHide:	False
gintNoDisplay:	False	gintPostProc:	
gintPreviewReport:	Log cpt in log format	gintShowAllParentKeys:	False
gintSourceName:	CPT_DATA	gintSplitScreenChild:	
gintSystemTable:	False	gintTablePreviewOnly:	False
gintViewRowHTwips:	288	LastUpdated:	11/29/2006 3:45:52 PM
RecordCount:	0	Updatable:	True

Columns

Name	Type	Size
GintRecID	Long Integer	4
AllowZeroLength:	False	
AppendOnly:	False	
Attributes:	Fixed Size, Auto-Increment	
CollatingOrder:	General	
DataUpdatable:	False	
gintBackColor:	0	
gintBlobType:	0	
gintCaption:		
gintCaptionVertical:	False	
gintDefaultExpr:		
gintDesc:	System requirement. Not user editable.	
gintFileRefData:		
gintFlags:	2	
gintLookup:		
gintLookupFilter:		
gintRules:		
gintUnits:		
gintViewWidTwips:	1008	
OrdinalPosition:	1	
Required:	False	
SourceField:	GintRecID	
SourceTable:	CPT_DATA	
PointID	Text	255
AllowZeroLength:	False	
AppendOnly:	False	
Attributes:	Variable Length	
CollatingOrder:	General	
DataUpdatable:	False	
gintBackColor:	0	
gintBlobType:	0	
gintCaption:		

	gintCaptionVertical:	False		
	gintDefaultExpr:			
	gintDesc:			
	gintFileRefData:			
	gintFlags:	0		
	gintLookup:			
	gintLookupFilter:			
	gintRules:			
	gintUnits:			
	gintViewWidTwips:	753		
	OrdinalPosition:	2		
	Required:	True		
	SourceField:	PointID		
	SourceTable:	CPT_DATA		
Depth			Double	8
	AllowZeroLength:	False		
	AppendOnly:	False		
	Attributes:	Fixed Size		
	CollatingOrder:	General		
	DataUpdatable:	False		
	gintBackColor:	0		
	gintBlobType:	0		
	gintCaption:			
	gintCaptionVertical:	False		
	gintDefaultExpr:			
	gintDesc:			
	gintFileRefData:			
	gintFlags:	0		
	gintLookup:			
	gintLookupFilter:			
	gintRules:			
	gintUnits:			
	gintViewWidTwips:	1005		
	OrdinalPosition:	3		
	Required:	True		
	SourceField:	Depth		
	SourceTable:	CPT_DATA		
Friction			Single	4
	AllowZeroLength:	False		
	AppendOnly:	False		
	Attributes:	Fixed Size		
	CollatingOrder:	General		
	DataUpdatable:	False		
	gintBackColor:	0		
	gintBlobType:	0		
	gintCaption:			
	gintCaptionVertical:	False		
	gintDefaultExpr:			
	gintDesc:			
	gintFileRefData:			
	gintFlags:	0		
	gintLookup:			
	gintLookupFilter:			
	gintRules:			

	gintUnits:			
	gintViewWidTwips:	1110		
	OrdinalPosition:	4		
	Required:	False		
	SourceField:	Friction		
	SourceTable:	CPT_DATA		
Cone_Resistance			Single	4
	AllowZeroLength:	False		
	AppendOnly:	False		
	Attributes:	Fixed Size		
	CollatingOrder:	General		
	DataUpdatable:	False		
	gintBackColor:	0		
	gintBlobType:	0		
	gintCaption:			
	gintCaptionVertical:	False		
	gintDefaultExpr:			
	gintDesc:			
	gintFileRefData:			
	gintFlags:	0		
	gintLookup:			
	gintLookupFilter:			
	gintRules:			
	gintUnits:			
	gintViewWidTwips:	2010		
	OrdinalPosition:	5		
	Required:	False		
	SourceField:	Cone_Resistance		
	SourceTable:	CPT_DATA		
Friction_Ratio			Single	4
	AllowZeroLength:	False		
	AppendOnly:	False		
	Attributes:	Fixed Size		
	CollatingOrder:	General		
	DataUpdatable:	False		
	gintBackColor:	0		
	gintBlobType:	0		
	gintCaption:			
	gintCaptionVertical:	False		
	gintDefaultExpr:			
	gintDesc:			
	gintFileRefData:			
	gintFlags:	0		
	gintLookup:			
	gintLookupFilter:			
	gintRules:			
	gintUnits:			
	gintViewWidTwips:	1587		
	OrdinalPosition:	6		
	Required:	False		
	SourceField:	Friction_Ratio		
	SourceTable:	CPT_DATA		
Pore_Pressure			Single	4

Group Permissions

Admins Users	Delete, Read Permissions, Set Permissions, Change Owner, Read Definition, Write Definition, Read Data, Insert Data, Update Data, Delete Data
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Properties

DateCreated:	11/29/2006 3:45:52 PM	gintAutoCreateImport:	False
gintAutoCreateInput:	False	gintCaption:	CPT
gintColHeadingLines:	1	gintDate:	39476.372974537
gintDesc:		gintDisplayPs:	6
gintGintRulesProc:		gintGroupName:	
gintGroupParent:		gintHelpText:	
gintKeepDataInClone:	False	gintKeyIsCounter:	False
gintLookupFieldCount:	0	gintLookupKeyHide:	False
gintNoDisplay:	False	gintPostProc:	
gintPreviewReport:	Log\caltrans cpt record 052007 met+eng	gintShowAllParentKeys:	False
gintSourceName:	CPT_GEN_INFO	gintSplitScreenChild:	CPT_DATA
gintSystemTable:	False	gintTablePreviewOnly:	False
gintViewRowHTwips:	288	LastUpdated:	12/20/2006 4:55:21 PM
RecordCount:	0	Updatable:	True

Columns

Name	Type	Size
GintRecID	Long Integer	4
AllowZeroLength:	False	
AppendOnly:	False	
Attributes:	Fixed Size, Auto-Increment	
CollatingOrder:	General	
DataUpdatable:	False	
gintBackColor:	0	
gintBlobType:	0	
gintCaption:		
gintCaptionVertical:	False	
gintDefaultExpr:		
gintDesc:	System requirement. Not user editable.	
gintFileRefData:		
gintFlags:	2	
gintLookup:		
gintLookupFilter:		
gintRules:		
gintUnits:		
gintViewWidTwips:	1332	
OrdinalPosition:	1	
Required:	False	
SourceField:	GintRecID	
SourceTable:	CPT_GEN_INFO	
PointID	Text	255
AllowZeroLength:	False	
AppendOnly:	False	
Attributes:	Variable Length	
CollatingOrder:	General	
DataUpdatable:	False	
gintBackColor:	0	
gintBlobType:	0	

gintCaption:			
gintCaptionVertical:	False		
gintDefaultExpr:			
gintDesc:			
gintFileRefData:			
gintFlags:	0		
gintLookup:			
gintLookupFilter:			
gintRules:			
gintUnits:			
gintViewWidTwips:	2175		
OrdinalPosition:	2		
Required:	True		
SourceField:	PointID		
SourceTable:	CPT_GEN_INFO		
Cone_tip_Max		Text	255
AllowZeroLength:	True		
AppendOnly:	False		
Attributes:	Variable Length		
CollatingOrder:	General		
DataUpdatable:	False		
gintBackColor:	0		
gintBlobType:	0		
gintCaption:			
gintCaptionVertical:	False		
gintDefaultExpr:			
gintDesc:	Maximum value on cone resistance plot in TSF		
gintFileRefData:			
gintFlags:	0		
gintLookup:			
gintLookupFilter:			
gintRules:			
gintUnits:			
gintViewWidTwips:	1557		
OrdinalPosition:	3		
Required:	False		
SourceField:	Cone_tip_Max		
SourceTable:	CPT_GEN_INFO		
Friction_max		Text	255
AllowZeroLength:	True		
AppendOnly:	False		
Attributes:	Variable Length		
CollatingOrder:	General		
DataUpdatable:	False		
gintBackColor:	0		
gintBlobType:	0		
gintCaption:			
gintCaptionVertical:	False		
gintDefaultExpr:			
gintDesc:	Maximum value on friction plot in TSF		
gintFileRefData:			
gintFlags:	0		
gintLookup:			
gintLookupFilter:			

gintRules:			
gintUnits:			
gintViewWidTwips:	1467		
OrdinalPosition:	4		
Required:	False		
SourceField:	Friction_max		
SourceTable:	CPT_GEN_INFO		
Fric_ratio_max		Text	255
AllowZeroLength:	True		
AppendOnly:	False		
Attributes:	Variable Length		
CollatingOrder:	General		
DataUpdatable:	False		
gintBackColor:	0		
gintBlobType:	0		
gintCaption:			
gintCaptionVertical:	False		
gintDefaultExpr:			
gintDesc:	Maximum value on friction ratio plot in TSF		
gintFileRefData:			
gintFlags:	0		
gintLookup:			
gintLookupFilter:			
gintRules:			
gintUnits:			
gintViewWidTwips:	1587		
OrdinalPosition:	5		
Required:	False		
SourceField:	Fric_ratio_max		
SourceTable:	CPT_GEN_INFO		
Pore_press_min		Text	255
AllowZeroLength:	True		
AppendOnly:	False		
Attributes:	Variable Length		
CollatingOrder:	General		
DataUpdatable:	False		
gintBackColor:	0		
gintBlobType:	0		
gintCaption:			
gintCaptionVertical:	False		
gintDefaultExpr:			
gintDesc:	Minimum value on pore pressure plot in TSF		
gintFileRefData:			
gintFlags:	0		
gintLookup:			
gintLookupFilter:			
gintRules:			
gintUnits:			
gintViewWidTwips:	1692		
OrdinalPosition:	6		
Required:	False		
SourceField:	Pore_press_min		
SourceTable:	CPT_GEN_INFO		

Pore_press_max	Text	255
AllowZeroLength:	True	
AppendOnly:	False	
Attributes:	Variable Length	
CollatingOrder:	General	
DataUpdatable:	False	
gintBackColor:	0	
gintBlobType:	0	
gintCaption:		
gintCaptionVertical:	False	
gintDefaultExpr:		
gintDesc:	Maximum value on pore pressure plot in TSF	
gintFileRefData:		
gintFlags:	0	
gintLookup:		
gintLookupFilter:		
gintRules:		
gintUnits:		
gintViewWidTwips:	1737	
OrdinalPosition:	7	
Required:	False	
SourceField:	Pore_press_max	
SourceTable:	CPT_GEN_INFO	
Plot_types	Text	255
AllowZeroLength:	True	
AppendOnly:	False	
Attributes:	Variable Length	
CollatingOrder:	General	
DataUpdatable:	False	
gintBackColor:	0	
gintBlobType:	0	
gintCaption:		
gintCaptionVertical:	False	
gintDefaultExpr:		
gintDesc:	Use the lookup to designate which plots you want on the cross section.	
gintFileRefData:		
gintFlags:	0	
gintLookup:	Lookup\cpt input data	
gintLookupFilter:		
gintRules:		
gintUnits:		
gintViewWidTwips:	1287	
OrdinalPosition:	8	
Required:	False	
SourceField:	Plot_types	
SourceTable:	CPT_GEN_INFO	

Relationships

POINTCPT_GEN_INFO

POINT	CPT_GEN_INFO
PointID	1 1 PointID

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

CPT_GEN_INFOCPT_DATA

CPT_GEN_INFO	CPT_DATA
PointID	1 ∞ PointID

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

Table Indexes

Name	Number of Fields
GINTINDEX	1
Clustered:	False
DistinctCount:	0
Foreign:	False
IgnoreNulls:	False
Name:	GINTINDEX
Primary:	False
Required:	False
Unique:	True
Fields:	
PointID	Ascending
Primary	1
Clustered:	False
DistinctCount:	0
Foreign:	False
IgnoreNulls:	False
Name:	Primary
Primary:	True
Required:	True
Unique:	True
Fields:	
GintRecID	Ascending
REL0027	1
Clustered:	False
DistinctCount:	0
Foreign:	True
IgnoreNulls:	False
Name:	REL0027
Primary:	False
Required:	False

Unique: True
 Fields:
 PointID Ascending

User Permissions

admin Delete, Read Permissions, Set Permissions, Change Owner, Read Definition, Write Definition, Read Data, Insert Data, Update Data, Delete Data

Group Permissions

Admins
 Users Delete, Read Permissions, Set Permissions, Change Owner, Read Definition, Write Definition, Read Data, Insert Data, Update Data, Delete Data

Properties

DateCreated: 12/12/2000 11:30:43 AM gintAutoCreateImport: False
 gintAutoCreateInput: False gintCaption: 39230.376400463
 gintColHeadingLines: 2 gintDate: 21
 gintDesc: Direct Shear Test: Parent table gintDisplayPs:
 gintGintRulesProc: 706,Table Procedures\directshearsave,8
 74,Table Procedures\deletingparentrow gintGroupName: Lab Testing
 sinsplitscreen
 gintGroupParent: gintHelpText:

The Cohesion and Friction Angle can be input directly into the two "...Assigned" fields. They will be calculated if readings exist. The results will be written into the two "...Calc" fields. If there are values in the "...Calc" fields and no readings exist, they will be cleared.

The cohesion and friction angle are calculated as the intercept and slope angle, respectively, of the best fit line that is calculated from an arithmetic plot of failure stress versus normal stress. However, readings where the Not_Used_In_Calc field is True will not be used in this calculation.

The water content and densities in the parent record can be input directly. However, if these values exist in the readings, the average water content and densities will be written to these fields in the parent.

gintKeepDataInClone: False gintKeyIsCounter: False
 gintLookupFieldCount: 0 gintLookupKeyHide: False
 gintNoDisplay: False gintPostProc: DirectShearParent
 gintPreviewReport: False gintShowAllParentKeys: DSHR READINGS
 gintSourceName: DIRECT SHEAR gintSplitScreenChild: False
 gintSystemTable: False gintTablePreviewOnly: False
 gintViewRowHTwips: 516 gintViewWidTwips: 0
 LastUpdated: 5/26/2007 9:09:26 AM RecordCount: 0
 Updatable: True

Columns

Name	Type	Size
GintRecID	Long Integer	4
AllowZeroLength:	False	
AppendOnly:	False	

Attributes:	Fixed Size, Auto-Increment		
CollatingOrder:	General		
DataUpdatable:	False		
gintBlobType:	0		
gintCaption:			
gintCaptionVertical:	False		
gintDefaultExpr:			
gintDesc:	System requirement. Not user editable.		
gintFileRefData:			
gintFlags:	2		
gintLookup:			
gintLookupFilter:			
gintRules:			
gintUnits:			
gintViewWidTwips:	1008		
OrdinalPosition:	1		
Required:	False		
SourceField:	GintRecID		
SourceTable:	DIRECT SHEAR		
PointID		Text	255
AllowZeroLength:	False		
AppendOnly:	False		
Attributes:	Variable Length		
CollatingOrder:	General		
DataUpdatable:	False		
gintBlobType:	0		
gintCaption:	Boring Designation		
gintCaptionVertical:	False		
gintDefaultExpr:			
gintDesc:			
gintFileRefData:			
gintFlags:	0		
gintLookup:			
gintLookupFilter:			
gintRules:			
gintUnits:			
gintViewWidTwips:	753		
OrdinalPosition:	2		
Required:	True		
SourceField:	PointID		
SourceTable:	DIRECT SHEAR		
Depth		Double	8
AllowZeroLength:	False		
AppendOnly:	False		
Attributes:	Fixed Size		
CollatingOrder:	General		
DataUpdatable:	False		
gintBlobType:	0		
gintCaption:			
gintCaptionVertical:	False		
gintDefaultExpr:			
gintDesc:			
gintFileRefData:			
gintFlags:	0		

gintLookup:			
gintLookupFilter:			
gintRules:	186 1		
gintUnits:	ft		
gintViewWidTwips:	870		
OrdinalPosition:	3		
Required:	True		
SourceField:	Depth		
SourceTable:	DIRECT SHEAR		
Ring_Area		Single	4
AllowZeroLength:	False		
AppendOnly:	False		
Attributes:	Fixed Size		
CollatingOrder:	General		
DataUpdatable:	False		
gintBlobType:	0		
gintCaption:			
gintCaptionVertical:	False		
gintDefaultExpr:			
gintDesc:			
gintFileRefData:			
gintFlags:	64		
gintLookup:			
gintLookupFilter:			
gintRules:			
gintUnits:	mm2		
gintViewWidTwips:	735		
OrdinalPosition:	4		
Required:	False		
SourceField:	Ring_Area		
SourceTable:	DIRECT SHEAR		
Ring_Ht		Single	4
AllowZeroLength:	False		
AppendOnly:	False		
Attributes:	Fixed Size		
CollatingOrder:	General		
DataUpdatable:	False		
gintBlobType:	0		
gintCaption:			
gintCaptionVertical:	False		
gintDefaultExpr:			
gintDesc:			
gintFileRefData:			
gintFlags:	64		
gintLookup:			
gintLookupFilter:			
gintRules:			
gintUnits:	mm		
gintViewWidTwips:	630		
OrdinalPosition:	5		
Required:	False		
SourceField:	Ring_Ht		
SourceTable:	DIRECT SHEAR		

Cohesion_Calc	Single	4
AllowZeroLength:	False	
AppendOnly:	False	
Attributes:	Fixed Size	
CollatingOrder:	General	
DataUpdatable:	False	
gintBlobType:	0	
gintCaption:		
gintCaptionVertical:	False	
gintDefaultExpr:		
gintDesc:	Calculated from readings.	
gintFileRefData:		
gintFlags:	64	
gintLookup:		
gintLookupFilter:		
gintRules:		
gintUnits:		
gintViewWidTwips:	975	
OrdinalPosition:	6	
Required:	False	
SourceField:	Cohesion_Calc	
SourceTable:	DIRECT SHEAR	
Friction_Angle_Calc	Single	4
AllowZeroLength:	False	
AppendOnly:	False	
Attributes:	Fixed Size	
CollatingOrder:	General	
DataUpdatable:	False	
gintBlobType:	0	
gintCaption:		
gintCaptionVertical:	False	
gintDefaultExpr:		
gintDesc:	Calculated from readings.	
gintFileRefData:		
gintFlags:	64	
gintLookup:		
gintLookupFilter:		
gintRules:		
gintUnits:		
gintViewWidTwips:	915	
OrdinalPosition:	7	
Required:	False	
SourceField:	Friction_Angle_Calc	
SourceTable:	DIRECT SHEAR	
Cohesion_Assigned	Single	4
AllowZeroLength:	False	
AppendOnly:	False	
Attributes:	Fixed Size	
CollatingOrder:	General	
DataUpdatable:	False	
gintBlobType:	0	
gintCaption:		
gintCaptionVertical:	False	
gintDefaultExpr:		

gintDesc:		
gintFileRefData:		
gintFlags:	64	
gintLookup:		
gintLookupFilter:		
gintRules:		
gintUnits:		
gintViewWidTwips:	1035	
OrdinalPosition:	8	
Required:	False	
SourceField:	Cohesion_Assigned	
SourceTable:	DIRECT SHEAR	
Friction_Angle_Assigned	Single	4
AllowZeroLength:	False	
AppendOnly:	False	
Attributes:	Fixed Size	
CollatingOrder:	General	
DataUpdatable:	False	
gintBlobType:	0	
gintCaption:		
gintCaptionVertical:	False	
gintDefaultExpr:		
gintDesc:		
gintFileRefData:		
gintFlags:	64	
gintLookup:		
gintLookupFilter:		
gintRules:		
gintUnits:		
gintViewWidTwips:	1005	
OrdinalPosition:	9	
Required:	False	
SourceField:	Friction_Angle_Assigned	
SourceTable:	DIRECT SHEAR	
Wet_Density	Single	4
AllowZeroLength:	False	
AppendOnly:	False	
Attributes:	Fixed Size	
CollatingOrder:	General	
DataUpdatable:	False	
gintBlobType:	0	
gintCaption:		
gintCaptionVertical:	False	
gintDefaultExpr:		
gintDesc:	In units determined by the PROJECT.Water_Unit_Wt field. If data is supplied in the readings, this will the average of all the reading values. Otherwise, can be input directly.	
gintFileRefData:		
gintFlags:	64	
gintLookup:		
gintLookupFilter:		
gintRules:		
gintUnits:		
gintViewWidTwips:	930	

OrdinalPosition:	10		
Required:	False		
SourceField:	Wet_Density		
SourceTable:	DIRECT SHEAR		
Dry_Density		Single	4
AllowZeroLength:	False		
AppendOnly:	False		
Attributes:	Fixed Size		
CollatingOrder:	General		
DataUpdatable:	False		
gintBlobType:	0		
gintCaption:			
gintCaptionVertical:	False		
gintDefaultExpr:			
gintDesc:	In units determined by the PROJECT.Water_Unit_Wt field. If data is supplied in the readings, this will be the average of all the reading values. Otherwise, can be input directly.		
gintFileRefData:			
gintFlags:	64		
gintLookup:			
gintLookupFilter:			
gintRules:			
gintUnits:			
gintViewWidTwips:	870		
OrdinalPosition:	11		
Required:	False		
SourceField:	Dry_Density		
SourceTable:	DIRECT SHEAR		
Water_Content		Single	4
AllowZeroLength:	False		
AppendOnly:	False		
Attributes:	Fixed Size		
CollatingOrder:	General		
DataUpdatable:	False		
gintBlobType:	0		
gintCaption:			
gintCaptionVertical:	False		
gintDefaultExpr:			
gintDesc:	If data is supplied in the readings, this will be the average of all the readings values. Otherwise, can be input directly.		
gintFileRefData:			
gintFlags:	64		
gintLookup:			
gintLookupFilter:			
gintRules:			
gintUnits:	%		
gintViewWidTwips:	915		
OrdinalPosition:	12		
Required:	False		
SourceField:	Water_Content		
SourceTable:	DIRECT SHEAR		

Soaked		Yes/No	1
AllowZeroLength:	False		
AppendOnly:	False		
Attributes:	Fixed Size		
CollatingOrder:	General		
DataUpdatable:	False		
gintBlobType:	0		
gintCaption:			
gintCaptionVertical:	False		
gintDefaultExpr:			
gintDesc:	True indicates that the specimen was soaked prior to testing.		
gintFileRefData:			
gintFlags:	64		
gintLookup:			
gintLookupFilter:			
gintRules:			
gintUnits:			
gintViewWidTwips:	768		
OrdinalPosition:	13		
Required:	False		
SourceField:	Soaked		
SourceTable:	DIRECT SHEAR		

Relationships

LAB SPECIMENDIRECT SHEAR

	LAB SPECIMEN		DIRECT SHEAR	
PointID	1	1	PointID	
Depth	1	1	Depth	

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

DIRECT SHEARDSHR READINGS

	DIRECT SHEAR		DSHR READINGS	
PointID	1	∞	PointID	
Depth	1	∞	Depth	

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

Table Indexes

Name	Number of Fields
GINTINDEX	2
Clustered:	False
DistinctCount:	0

Foreign:	False
IgnoreNulls:	False
Name:	GINTINDEX
Primary:	False
Required:	False
Unique:	True
Fields:	
PointID	Ascending
Depth	Ascending
Primary	1
Clustered:	False
DistinctCount:	0
Foreign:	False
IgnoreNulls:	False
Name:	Primary
Primary:	True
Required:	True
Unique:	True
Fields:	
GintRecID	Ascending
Reference11	2
Clustered:	False
DistinctCount:	0
Foreign:	True
IgnoreNulls:	False
Name:	Reference11
Primary:	False
Required:	False
Unique:	True
Fields:	
PointID	Ascending
Depth	Ascending

User Permissions

admin	Delete, Read Permissions, Set Permissions, Change Owner, Read Definition, Write Definition, Read Data, Insert Data, Update Data, Delete Data
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Group Permissions

Admins	Delete, Read Permissions, Set Permissions, Change Owner, Read Definition, Write Definition, Read Data, Insert Data, Update Data, Delete Data
Users	

Properties

DateCreated:	3/8/2007 3:14:07 PM	gintAutoCreateImport:	False
gintAutoCreateInput:	False	gintCaption:	
gintColHeadingLines:	1	gintDate:	39235.6433564815
gintDesc:		gintDisplayPs:	9
gintGintRulesProc:		gintGroupName:	
gintGroupParent:		gintHelpText:	
gintKeepDataInClone:	False	gintKeysCounter:	False
gintLookupFieldCount:	0	gintLookupKeyHide:	False
gintNoDisplay:	False	gintPostProc:	
gintPreviewReport:		gintShowAllParentKeys:	False
gintSourceName:	DRILLING NOTES	gintSplitScreenChild:	
gintSystemTable:	False	gintTablePreviewOnly:	False
gintViewRowHTwips:	225	LastUpdated:	6/2/2007 3:42:26 PM
RecordCount:	0	Updatable:	True

Columns

Name	Type	Size
GintRecID	Long Integer	4
AllowZeroLength:	False	
AppendOnly:	False	
Attributes:	Fixed Size, Auto-Increment	
CollatingOrder:	General	
DataUpdatable:	False	
gintBlobType:	0	
gintCaption:		
gintCaptionVertical:	False	
gintDefaultExpr:		
gintDesc:	System requirement. Not user editable.	
gintFileRefData:		
gintFlags:	2	
gintLookup:		
gintLookupFilter:		
gintRules:		
gintUnits:		
gintViewWidTwips:	1182	
OrdinalPosition:	1	
Required:	True	
SourceField:	GintRecID	
SourceTable:	DRILLING NOTES	
PointID	Text	255
AllowZeroLength:	False	
AppendOnly:	False	
Attributes:	Variable Length	
CollatingOrder:	General	
DataUpdatable:	False	
gintBlobType:	0	
gintCaption:	Boring Designation	
gintCaptionVertical:	False	
gintDefaultExpr:		

	gintDesc:			
	gintFileRefData:			
	gintFlags:	0		
	gintLookup:			
	gintLookupFilter:			
	gintRules:			
	gintUnits:			
	gintViewWidTwips:	1662		
	OrdinalPosition:	2		
	Required:	True		
	SourceField:	PointID		
	SourceTable:	DRILLING NOTES		
Depth			Double	8
	AllowZeroLength:	False		
	AppendOnly:	False		
	Attributes:	Fixed Size		
	CollatingOrder:	General		
	DataUpdatable:	False		
	gintBlobType:	0		
	gintCaption:			
	gintCaptionVertical:	False		
	gintDefaultExpr:			
	gintDesc:	Only needed to delimit the top of the Type.		
	gintFileRefData:			
	gintFlags:	0		
	gintLookup:			
	gintLookupFilter:			
	gintRules:			
	gintUnits:	ft		
	gintViewWidTwips:	780		
	OrdinalPosition:	3		
	Required:	True		
	SourceField:	Depth		
	SourceTable:	DRILLING NOTES		
Bottom			Double	8
	AllowZeroLength:	False		
	AppendOnly:	False		
	Attributes:	Fixed Size		
	CollatingOrder:	General		
	DataUpdatable:	False		
	gintBlobType:	0		
	gintCaption:			
	gintCaptionVertical:	False		
	gintDefaultExpr:			
	gintDesc:	Only needed to delimit the bottom extent of the Type.		
	gintFileRefData:			
	gintFlags:	0		
	gintLookup:			
	gintLookupFilter:			
	gintRules:			
	gintUnits:	ft		
	gintViewWidTwips:	795		
	OrdinalPosition:	4		
	Required:	True		

	SourceField:	Bottom		
	SourceTable:	DRILLING NOTES		
Type			Text	255
	AllowZeroLength:	False		
	AppendOnly:	False		
	Attributes:	Variable Length		
	CollatingOrder:	General		
	DataUpdatable:	False		
	gintBlobType:	0		
	gintCaption:			
	gintCaptionVertical:	False		
	gintDefaultExpr:			
	gintDesc:	Drilling method utilized to advance the hole		
	gintFileRefData:			
	gintFlags:	1		
	gintLookup:	Graphic!gnrl		
	gintLookupFilter:			
	gintRules:			
	gintUnits:			
	gintViewWidTwips:	1815		
	OrdinalPosition:	5		
	Required:	True		
	SourceField:	Type		
	SourceTable:	DRILLING NOTES		
Description			Text	255
	AllowZeroLength:	True		
	AppendOnly:	False		
	Attributes:	Variable Length		
	CollatingOrder:	General		
	DataUpdatable:	False		
	gintBlobType:	0		
	gintCaption:			
	gintCaptionVertical:	False		
	gintDefaultExpr:			
	gintDesc:	For documentation only; does not print on log report. Use Remarks table for notes that should be recorded on the BR.		
	gintFileRefData:			
	gintFlags:	0		
	gintLookup:			
	gintLookupFilter:			
	gintRules:			
	gintUnits:			
	gintViewWidTwips:	6255		
	OrdinalPosition:	6		
	Required:	False		
	SourceField:	Description		
	SourceTable:	DRILLING NOTES		

Relationships

POINTDRILLING NOTES

POINT	DRILLING NOTES
PointID	1 ∞ PointID

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

Table Indexes

Name	Number of Fields
GINTINDEX	2
Clustered:	False
DistinctCount:	0
Foreign:	False
IgnoreNulls:	False
Name:	GINTINDEX
Primary:	False
Required:	False
Unique:	True
Fields:	
PointID	Ascending
Depth	Ascending
Primary	1
Clustered:	False
DistinctCount:	0
Foreign:	False
IgnoreNulls:	False
Name:	Primary
Primary:	True
Required:	True
Unique:	True
Fields:	
GintRecID	Ascending
REL0035	1
Clustered:	False
DistinctCount:	0
Foreign:	True
IgnoreNulls:	False
Name:	REL0035
Primary:	False
Required:	False
Unique:	False
Fields:	
PointID	Ascending

User Permissions

admin Delete, Read Permissions, Set Permissions, Change Owner, Read Definition, Write Definition, Read Data, Insert Data, Update Data, Delete Data

Group Permissions

Admins
 Users Delete, Read Permissions, Set Permissions, Change Owner, Read Definition, Write Definition, Read Data, Insert Data, Update Data, Delete Data

Properties

DateCreated:	12/12/2000 11:30:44 AM	gintAutoCreateImport:	False
gintAutoCreateInput:	False	gintCaption:	
gintColHeadingLines:	3	gintDate:	39230.376400463
gintDesc:	Direct Shear Test: Readings	gintDisplayPs:	22
gintGintRulesProc:	706,Table Procedures\directshearreading ssave	gintGroupName:	Lab Testing
gintGroupParent:		gintHelpText:	See the Table Help in the Parent.
gintKeepDataInClone:	False	gintKeysCounter:	False
gintLookupFieldCount:	0	gintLookupKeyHide:	False
gintNoDisplay:	False	gintPostProc:	DirectShearReadings
gintPreviewReport:		gintShowAllParentKeys:	False
gintSourceName:	DIR SHR READINGS	gintSplitScreenChild:	
gintSystemTable:	False	gintTablePreviewOnly:	False
gintViewRowHTwips:	228	gintViewWidTwips:	0
LastUpdated:	5/15/2006 2:08:29 PM	RecordCount:	0
Updatable:	True		

Columns

Name	Type	Size
GintRecID	Long Integer	4
AllowZeroLength: False AppendOnly: False Attributes: Fixed Size, Auto-Increment CollatingOrder: General DataUpdatable: False gintBlobType: 0 gintCaption: gintCaptionVertical: False gintDefaultExpr: gintDesc: System requirement. Not user editable. gintFileRefData: gintFlags: 2 gintLookup: gintLookupFilter: gintRules: gintUnits: gintViewWidTwips: 1008 OrdinalPosition: 1 Required: False SourceField: GintRecID SourceTable: DSHR READINGS		
PointID	Text	255
AllowZeroLength: False AppendOnly: False Attributes: Variable Length CollatingOrder: General DataUpdatable: False gintBlobType: 0		

gintCaption:			
gintCaptionVertical:	False		
gintDefaultExpr:			
gintDesc:			
gintFileRefData:			
gintFlags:	0		
gintLookup:			
gintLookupFilter:			
gintRules:			
gintUnits:			
gintViewWidTwips:	753		
OrdinalPosition:	2		
Required:	True		
SourceField:	PointID		
SourceTable:	DSHR READINGS		
Depth		Double	8
AllowZeroLength: False AppendOnly: False Attributes: Fixed Size CollatingOrder: General DataUpdatable: False gintBlobType: 0 gintCaption: gintCaptionVertical: False gintDefaultExpr: gintDesc: gintFileRefData: gintFlags: 0 gintLookup: gintLookupFilter: gintRules: gintUnits: gintViewWidTwips: 633 OrdinalPosition: 3 Required: True SourceField: Depth SourceTable: DSHR READINGS			
Reading		Double	8
AllowZeroLength: False AppendOnly: False Attributes: Fixed Size CollatingOrder: General DataUpdatable: False gintBlobType: 0 gintCaption: Normal Stress gintCaptionVertical: False gintDefaultExpr: gintDesc: Normal Stress gintFileRefData: gintFlags: 0 gintLookup: gintLookupFilter: gintRules: gintUnits:			

gintViewWidTwips:	780		
OrdinalPosition:	4		
Required:	True		
SourceField:	Reading		
SourceTable:	DSHR READINGS		
Failure_Stress		Single	4
AllowZeroLength:	False		
AppendOnly:	False		
Attributes:	Fixed Size		
CollatingOrder:	General		
DataUpdatable:	False		
gintBlobType:	0		
gintCaption:			
gintCaptionVertical:	False		
gintDefaultExpr:			
gintDesc:			
gintFileRefData:			
gintFlags:	64		
gintLookup:			
gintLookupFilter:			
gintRules:			
gintUnits:			
gintViewWidTwips:	810		
OrdinalPosition:	5		
Required:	True		
SourceField:	Failure_Stress		
SourceTable:	DSHR READINGS		
Wet_Density		Single	4
AllowZeroLength:	False		
AppendOnly:	False		
Attributes:	Fixed Size		
CollatingOrder:	General		
DataUpdatable:	False		
gintBlobType:	0		
gintCaption:			
gintCaptionVertical:	False		
gintDefaultExpr:			
gintDesc:	In units determined by the PROJECT.Water_Unit_Wt field. Will be calculated if the data exists.		
gintFileRefData:			
gintFlags:	64		
gintLookup:			
gintLookupFilter:			
gintRules:			
gintUnits:			
gintViewWidTwips:	885		
OrdinalPosition:	6		
Required:	False		
SourceField:	Wet_Density		
SourceTable:	DSHR READINGS		
Dry_Density		Single	4
AllowZeroLength:	False		

AppendOnly:	False		
Attributes:	Fixed Size		
CollatingOrder:	General		
DataUpdatable:	False		
gintBlobType:	0		
gintCaption:			
gintCaptionVertical:	False		
gintDefaultExpr:			
gintDesc:	In units determined by the PROJECT.Water_Unit_Wt field. Will be calculated if the data exists.		
gintFileRefData:			
gintFlags:	64		
gintLookup:			
gintLookupFilter:			
gintRules:			
gintUnits:			
gintViewWidTwips:	885		
OrdinalPosition:	7		
Required:	False		
SourceField:	Dry_Density		
SourceTable:	DSHR READINGS		
Water_Content		Single	4
AllowZeroLength:	False		
AppendOnly:	False		
Attributes:	Fixed Size		
CollatingOrder:	General		
DataUpdatable:	False		
gintBlobType:	0		
gintCaption:			
gintCaptionVertical:	False		
gintDefaultExpr:			
gintDesc:			
gintFileRefData:			
gintFlags:	64		
gintLookup:			
gintLookupFilter:			
gintRules:			
gintUnits:	%		
gintViewWidTwips:	885		
OrdinalPosition:	8		
Required:	False		
SourceField:	Water_Content		
SourceTable:	DSHR READINGS		
Wt_Spec_Tare		Single	4
AllowZeroLength:	False		
AppendOnly:	False		
Attributes:	Fixed Size		
CollatingOrder:	General		
DataUpdatable:	False		
gintBlobType:	0		
gintCaption:	Wt Specimen + Tare		
gintCaptionVertical:	False		
gintDefaultExpr:			

	gintDesc:	Weight of total specimen + tare		
	gintFileRefData:			
	gintFlags:	64		
	gintLookup:			
	gintLookupFilter:			
	gintRules:			
	gintUnits:	g		
	gintViewWidTwips:	990		
	OrdinalPosition:	9		
	Required:	False		
	SourceField:	Wt_Spec_Tare		
	SourceTable:	DSHR READINGS		
Wt_Tare			Single	4
	AllowZeroLength:	False		
	AppendOnly:	False		
	Attributes:	Fixed Size		
	CollatingOrder:	General		
	DataUpdatable:	False		
	gintBlobType:	0		
	gintCaption:			
	gintCaptionVertical:	False		
	gintDefaultExpr:			
	gintDesc:			
	gintFileRefData:			
	gintFlags:	64		
	gintLookup:			
	gintLookupFilter:			
	gintRules:			
	gintUnits:	g		
	gintViewWidTwips:	858		
	OrdinalPosition:	10		
	Required:	False		
	SourceField:	Wt_Tare		
	SourceTable:	DSHR READINGS		
WC_Wt_Wet			Single	4
	AllowZeroLength:	False		
	AppendOnly:	False		
	Attributes:	Fixed Size		
	CollatingOrder:	General		
	DataUpdatable:	False		
	gintBlobType:	0		
	gintCaption:	Water Content Wet Wt+Tare		
	gintCaptionVertical:	False		
	gintDefaultExpr:			
	gintDesc:	Water Content Determination: Weight Wet Soil + Tare, any consistent units		
	gintFileRefData:			
	gintFlags:	64		
	gintLookup:			
	gintLookupFilter:			
	gintRules:			
	gintUnits:			
	gintViewWidTwips:	960		
	OrdinalPosition:	11		

	Required:	False		
	SourceField:	WC_Wt_Wet		
	SourceTable:	DSHR READINGS		
WC_Wt_Dry			Single	4
	AllowZeroLength:	False		
	AppendOnly:	False		
	Attributes:	Fixed Size		
	CollatingOrder:	General		
	DataUpdatable:	False		
	gintBlobType:	0		
	gintCaption:	Water Content Dry Wt+Tare		
	gintCaptionVertical:	False		
	gintDefaultExpr:			
	gintDesc:	Water Content Determination: Weight Dry Soil + Tare, any consistent units		
	gintFileRefData:			
	gintFlags:	64		
	gintLookup:			
	gintLookupFilter:			
	gintRules:			
	gintUnits:			
	gintViewWidTwips:	975		
	OrdinalPosition:	12		
	Required:	False		
	SourceField:	WC_Wt_Dry		
	SourceTable:	DSHR READINGS		
WC_Wt_Tare			Single	4
	AllowZeroLength:	False		
	AppendOnly:	False		
	Attributes:	Fixed Size		
	CollatingOrder:	General		
	DataUpdatable:	False		
	gintBlobType:	0		
	gintCaption:	Water Content Wt Tare		
	gintCaptionVertical:	False		
	gintDefaultExpr:			
	gintDesc:	Water Content Determination: Weight Tare, any consistent units		
	gintFileRefData:			
	gintFlags:	64		
	gintLookup:			
	gintLookupFilter:			
	gintRules:			
	gintUnits:			
	gintViewWidTwips:	915		
	OrdinalPosition:	13		
	Required:	False		
	SourceField:	WC_Wt_Tare		
	SourceTable:	DSHR READINGS		
Not_Used_In_Calc			Yes/No	1
	AllowZeroLength:	False		
	AppendOnly:	False		
	Attributes:	Fixed Size		

CollatingOrder: General
 DataUpdatable: False
 gintBlobType: 0
 gintCaption: 0
 gintCaptionVertical: False
 gintDefaultExpr: If True, this reading will not be used in calculating the Cohesion and Friction Angle.
 gintDesc: If True, this reading will not be used in calculating the Cohesion and Friction Angle.
 gintFileRefData: 64
 gintFlags: 64
 gintLookup: 0
 gintLookupFilter: 0
 gintRules: 0
 gintUnits: 0
 gintViewWidTwips: 960
 OrdinalPosition: 14
 Required: False
 SourceField: Not_Used_In_Calc
 SourceTable: DSHR READINGS

Relationships

DIRECT SHEAR DSHR READINGS

DIRECT SHEAR		DSHR READINGS	
PointID	1	∞	PointID
Depth	1	∞	Depth

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

Table Indexes

Name	Number of Fields
GINTINDEX	3
Clustered:	False
DistinctCount:	0
Foreign:	False
IgnoreNulls:	False
Name:	GINTINDEX
Primary:	False
Required:	False
Unique:	True
Fields:	
PointID	Ascending
Depth	Ascending
Reading	Ascending
Primary	1
Clustered:	False
DistinctCount:	0
Foreign:	False

IgnoreNulls: False
 Name: Primary
 Primary: True
 Required: True
 Unique: True
 Fields: 0
 GintRecID: Ascending
 REL0014: 2
 Clustered: False
 DistinctCount: 0
 Foreign: True
 IgnoreNulls: False
 Name: REL0014
 Primary: False
 Required: False
 Unique: False
 Fields: 0
 PointID: Ascending
 Depth: Ascending

User Permissions

admin: Delete, Read Permissions, Set Permissions, Change Owner, Read Definition, Write Definition, Read Data, Insert Data, Update Data, Delete Data

Group Permissions

Admins: Delete, Read Permissions, Set Permissions, Change Owner, Read Definition, Write Definition, Read Data, Insert Data, Update Data, Delete Data
 Users: Delete, Read Permissions, Set Permissions, Change Owner, Read Definition, Write Definition, Read Data, Insert Data, Update Data, Delete Data

Properties

DateCreated:	12/12/2000 11:30:45 AM	gintAutoCreateImport:	False
gintAutoCreateInput:	False	gintCaption:	
gintCollHeadingLines:	3	gintDate:	39508.6980324074
gintDesc:	Falling Head Permeability: Parent table	gintDisplayPs:	23
gintGintRulesProc:	706,Table Procedures\fallingheadksave,8 74,Table Procedures\deletingparentrow sinsplitscreen	gintGroupName:	Lab Testing
gintGroupParent:		gintHelpText:	The Permeability can be input directly into the assigned field. It will be calculated if readings exist. The results will be written into the calculated field. If there are values in the calculated field and no readings exist, it will be cleared. To perform the calculation of the readings, the following fields are required in the parent record: Permeability Units Factor Initial Head Burette Area Height Diameter Temperature Units The Change in Height is also used but is not required. If blank, the change in height is assumed to be 0. The other fields are for documentation purposes. A permeability units factor of 1 indicates units of mm/time unit used in the readings. E.g., if time units are minutes and you want final results to be cm/sec, the units factor would be 0.00167. Note that the time units field is not used by the calculations. It is there for your documentation. The permeability is calculated for each reading and the final permeability is taken as the weighted average of all the permeability readings.
gintKeepDataInClone:	False	gintKeysCounter:	False
gintLookupFieldCount:	0	gintLookupKeyHide:	False
gintNoDisplay:	False	gintPostProc:	FallingHeadKParent
gintPreviewReport:		gintShowAllParentKeys:	False

gintSourceName:	FALL HEAD K	gintSplitScreenChild:	FHK READINGS
gintSystemTable:	False	gintTablePreviewOnly:	False
gintViewRowHTwips:	288	gintViewWidTwips:	0
LastUpdated:	5/26/2007 9:09:39 AM	RecordCount:	0
Updatable:	True		

Columns

Name	Type	Size
GintRecID	Long Integer	4
AllowZeroLength:	False	
AppendOnly:	False	
Attributes:	Fixed Size, Auto-Increment	
CollatingOrder:	General	
DataUpdatable:	False	
gintBackColor:	0	
gintBlobType:	0	
gintCaption:		
gintCaptionVertical:	False	
gintDefaultExpr:		
gintDesc:	System requirement. Not user editable.	
gintFileRefData:		
gintFlags:	2	
gintLookup:		
gintLookupFilter:		
gintRules:		
gintUnits:		
gintViewWidTwips:	1008	
OrdinalPosition:	1	
Required:	False	
SourceField:	GintRecID	
SourceTable:	FALL HEAD K	
PointID	Text	255
AllowZeroLength:	False	
AppendOnly:	False	
Attributes:	Variable Length	
CollatingOrder:	General	
DataUpdatable:	False	
gintBackColor:	0	
gintBlobType:	0	
gintCaption:	Boring Designation	
gintCaptionVertical:	False	
gintDefaultExpr:		
gintDesc:		
gintFileRefData:		
gintFlags:	0	
gintLookup:		
gintLookupFilter:		
gintRules:		
gintUnits:		
gintViewWidTwips:	753	
OrdinalPosition:	2	
Required:	True	

	SourceField:	PointID		
	SourceTable:	FALL HEAD K		
Depth			Double	8
	AllowZeroLength:	False		
	AppendOnly:	False		
	Attributes:	Fixed Size		
	CollatingOrder:	General		
	DataUpdatable:	False		
	gintBackColor:	0		
	gintBlobType:	0		
	gintCaption:			
	gintCaptionVertical:	False		
	gintDefaultExpr:			
	gintDesc:			
	gintFileRefData:			
	gintFlags:	0		
	gintLookup:			
	gintLookupFilter:			
	gintRules:	186 1		
	gintUnits:	ft		
	gintViewWidTwips:	870		
	OrdinalPosition:	3		
	Required:	True		
	SourceField:	Depth		
	SourceTable:	FALL HEAD K		
K_Assigned			Single	4
	AllowZeroLength:	False		
	AppendOnly:	False		
	Attributes:	Fixed Size		
	CollatingOrder:	General		
	DataUpdatable:	False		
	gintBackColor:	0		
	gintBlobType:	0		
	gintCaption:			
	gintCaptionVertical:	False		
	gintDefaultExpr:			
	gintDesc:	Permeability assigned		
	gintFileRefData:			
	gintFlags:	64		
	gintLookup:			
	gintLookupFilter:			
	gintRules:			
	gintUnits:			
	gintViewWidTwips:	1608		
	OrdinalPosition:	4		
	Required:	False		
	SourceField:	K_Assigned		
	SourceTable:	FALL HEAD K		
K_Calculated			Single	4
	AllowZeroLength:	False		
	AppendOnly:	False		
	Attributes:	Fixed Size		
	CollatingOrder:	General		

	DataUpdatable:	False		
	gintBackColor:	0		
	gintBlobType:	0		
	gintCaption:			
	gintCaptionVertical:	False		
	gintDefaultExpr:			
	gintDesc:	Permeability calculated from readings. Calculated at 20°C.		
	gintFileRefData:			
	gintFlags:	64		
	gintLookup:			
	gintLookupFilter:			
	gintRules:			
	gintUnits:			
	gintViewWidTwips:	1050		
	OrdinalPosition:	5		
	Required:	False		
	SourceField:	K_Calculated		
	SourceTable:	FALL HEAD K		
K_Units_Fac			Single	4
	AllowZeroLength:	False		
	AppendOnly:	False		
	Attributes:	Fixed Size		
	CollatingOrder:	General		
	DataUpdatable:	False		
	gintBackColor:	0		
	gintBlobType:	0		
	gintCaption:			
	gintCaptionVertical:	False		
	gintDefaultExpr:			
	gintDesc:	Only used if there are readings data. 1 indicates units of mm/time unit used in the readings. E.g., if time units are minutes and want final results to be cm/sec, the units factor would be 0.00167.		
	gintFileRefData:			
	gintFlags:	64		
	gintLookup:			
	gintLookupFilter:			
	gintRules:			
	gintUnits:			
	gintViewWidTwips:	975		
	OrdinalPosition:	6		
	Required:	False		
	SourceField:	K_Units_Fac		
	SourceTable:	FALL HEAD K		
Initial_Head			Single	4
	AllowZeroLength:	False		
	AppendOnly:	False		
	Attributes:	Fixed Size		
	CollatingOrder:	General		
	DataUpdatable:	False		
	gintBackColor:	0		
	gintBlobType:	0		

gintCaption: False
gintCaptionVertical: False
gintDefaultExpr:
gintDesc: Only used if the there are readings data. Any units. However, the
Init_Head and the Head in the readings table must be in the same
units.

gintFileRefData: 64
gintFlags:
gintLookup:
gintLookupFilter:
gintRules:
gintUnits:
gintViewWidTwips: 870
OrdinalPosition: 7
Required: False
SourceField: Initial_Head
SourceTable: FALL HEAD K

Temperature_Units Text 255
AllowZeroLength: True
AppendOnly: False
Attributes: Variable Length
CollatingOrder: General
DataUpdatable: False
gintBackColor: 0
gintBlobType: 0
gintCaption: False
gintCaptionVertical: False
gintDefaultExpr:
gintDesc: Only used if there are readings data.
gintFileRefData: 65
gintFlags:
gintLookup: Lookuplab temp units
gintLookupFilter:
gintRules:
gintUnits:
gintViewWidTwips: 1245
OrdinalPosition: 8
Required: False
SourceField: Temperature_Units
SourceTable: FALL HEAD K

Burette_Area Single 4
AllowZeroLength: False
AppendOnly: False
Attributes: Fixed Size
CollatingOrder: General
DataUpdatable: False
gintBackColor: 0
gintBlobType: 0
gintCaption:
gintCaptionVertical: False
gintDefaultExpr:
gintDesc: Only used if the there are readings data.
gintFileRefData:

gintFlags: 64
gintLookup:
gintLookupFilter:
gintRules:
gintUnits: mm2
gintViewWidTwips: 810
OrdinalPosition: 9
Required: False
SourceField: Burette_Area
SourceTable: FALL HEAD K

Diameter Single 4
AllowZeroLength: False
AppendOnly: False
Attributes: Fixed Size
CollatingOrder: General
DataUpdatable: False
gintBackColor: 0
gintBlobType: 0
gintCaption:
gintCaptionVertical: False
gintDefaultExpr:
gintDesc:
gintFileRefData: 64
gintFlags:
gintLookup:
gintLookupFilter:
gintRules:
gintUnits: mm
gintViewWidTwips: 873
OrdinalPosition: 10
Required: False
SourceField: Diameter
SourceTable: FALL HEAD K

Height Single 4
AllowZeroLength: False
AppendOnly: False
Attributes: Fixed Size
CollatingOrder: General
DataUpdatable: False
gintBackColor: 0
gintBlobType: 0
gintCaption:
gintCaptionVertical: False
gintDefaultExpr:
gintDesc:
gintFileRefData: 64
gintFlags:
gintLookup:
gintLookupFilter:
gintRules:
gintUnits: mm
gintViewWidTwips: 678
OrdinalPosition: 11
Required: False

SourceField:	Height		
SourceTable:	FALL HEAD K		
Change_In_Ht		Single	4
AllowZeroLength:	False		
AppendOnly:	False		
Attributes:	Fixed Size		
CollatingOrder:	General		
DataUpdatable:	False		
gintBackColor:	0		
gintBlobType:	0		
gintCaption:			
gintCaptionVertical:	False		
gintDefaultExpr:			
gintDesc:	Change in speimen height on wetting. A positive value indicates swell, a negative value indicates compression. Used in permeability calculations and calculation of density and saturation after the test.		
gintFileRefData:			
gintFlags:	64		
gintLookup:			
gintLookupFilter:			
gintRules:			
gintUnits:	mm		
gintViewWidTwips:	825		
OrdinalPosition:	12		
Required:	False		
SourceField:	Change_In_Ht		
SourceTable:	FALL HEAD K		
Wt_Spec_Tare		Single	4
AllowZeroLength:	False		
AppendOnly:	False		
Attributes:	Fixed Size		
CollatingOrder:	General		
DataUpdatable:	False		
gintBackColor:	0		
gintBlobType:	0		
gintCaption:	Wt Specimen + Tare		
gintCaptionVertical:	False		
gintDefaultExpr:			
gintDesc:	Weight of total specimen + tare		
gintFileRefData:			
gintFlags:	64		
gintLookup:			
gintLookupFilter:			
gintRules:			
gintUnits:	g		
gintViewWidTwips:	975		
OrdinalPosition:	13		
Required:	False		
SourceField:	Wt_Spec_Tare		
SourceTable:	FALL HEAD K		
Wt_Tare		Single	4
AllowZeroLength:	False		

AppendOnly:	False		
Attributes:	Fixed Size		
CollatingOrder:	General		
DataUpdatable:	False		
gintBackColor:	0		
gintBlobType:	0		
gintCaption:			
gintCaptionVertical:	False		
gintDefaultExpr:			
gintDesc:			
gintFileRefData:			
gintFlags:	64		
gintLookup:			
gintLookupFilter:			
gintRules:			
gintUnits:	g		
gintViewWidTwips:	858		
OrdinalPosition:	14		
Required:	False		
SourceField:	Wt_Tare		
SourceTable:	FALL HEAD K		
WC_Wt_Wet_Before		Single	4
AllowZeroLength:	False		
AppendOnly:	False		
Attributes:	Fixed Size		
CollatingOrder:	General		
DataUpdatable:	False		
gintBackColor:	0		
gintBlobType:	0		
gintCaption:	Water Content Before Wet Wt+Tare		
gintCaptionVertical:	False		
gintDefaultExpr:			
gintDesc:	Before test: Water Content Determination: Weight Wet Soil + Tare, any consistent units		
gintFileRefData:			
gintFlags:	64		
gintLookup:			
gintLookupFilter:			
gintRules:			
gintUnits:			
gintViewWidTwips:	1140		
OrdinalPosition:	15		
Required:	False		
SourceField:	WC_Wt_Wet_Before		
SourceTable:	FALL HEAD K		
WC_Wt_Dry_Before		Single	4
AllowZeroLength:	False		
AppendOnly:	False		
Attributes:	Fixed Size		
CollatingOrder:	General		
DataUpdatable:	False		
gintBackColor:	0		
gintBlobType:	0		

gintCaption: Water Content Before Dry Wt+Tare
gintCaptionVertical: False
gintDefaultExpr:
gintDesc: Before test: Water Content Determination: Weight Dry Soil + Tare, any consistent units

gintFileRefData:
gintFlags: 64
gintLookup:
gintLookupFilter:
gintRules:
gintUnits:
gintViewWidTwips: 1080
OrdinalPosition: 16
Required: False
SourceField: WC_Wt_Dry_Before
SourceTable: FALL HEAD K

WC_Wt_Tare_Before Single 4

AllowZeroLength: False
AppendOnly: False
Attributes: Fixed Size
CollatingOrder: General
DataUpdatable: False
gintBackColor: 0
gintBlobType: 0
gintCaption: Water Content Before Wt Tare
gintCaptionVertical: False
gintDefaultExpr:
gintDesc: Before test: Water Content Determination: Weight Tare, any consistent units

gintFileRefData:
gintFlags: 64
gintLookup:
gintLookupFilter:
gintRules:
gintUnits:
gintViewWidTwips: 1170
OrdinalPosition: 17
Required: False
SourceField: WC_Wt_Tare_Before
SourceTable: FALL HEAD K

Water_Content_Before Single 4

AllowZeroLength: False
AppendOnly: False
Attributes: Fixed Size
CollatingOrder: General
DataUpdatable: False
gintBackColor: 0
gintBlobType: 0
gintCaption:
gintCaptionVertical: False
gintDefaultExpr:
gintDesc: Before test. Will be calculated if the data exists.
gintFileRefData:

gintFlags: 64
gintLookup:
gintLookupFilter:
gintRules:
gintUnits: %
gintViewWidTwips: 900
OrdinalPosition: 18
Required: False
SourceField: Water_Content_Before
SourceTable: FALL HEAD K

Wet_Density_Before Single 4

AllowZeroLength: False
AppendOnly: False
Attributes: Fixed Size
CollatingOrder: General
DataUpdatable: False
gintBackColor: 0
gintBlobType: 0
gintCaption:
gintCaptionVertical: False
gintDefaultExpr:
gintDesc: Before test. In units determined by the PROJECT.Water_Unit_Wt field. Will be calculated if the data exists.

gintFileRefData:
gintFlags: 64
gintLookup:
gintLookupFilter:
gintRules:
gintUnits: 1005
gintViewWidTwips: 19
OrdinalPosition: 19
Required: False
SourceField: Wet_Density_Before
SourceTable: FALL HEAD K

Dry_Density_Before Single 4

AllowZeroLength: False
AppendOnly: False
Attributes: Fixed Size
CollatingOrder: General
DataUpdatable: False
gintBackColor: 0
gintBlobType: 0
gintCaption:
gintCaptionVertical: False
gintDefaultExpr:
gintDesc: Before test. In units determined by the PROJECT.Water_Unit_Wt field. Will be calculated if the data exists.

gintFileRefData:
gintFlags: 64
gintLookup:
gintLookupFilter:
gintRules:
gintUnits:

gintViewWidTwips: 915
OrdinalPosition: 20
Required: False
SourceField: Dry_Density_Before
SourceTable: FALL HEAD K

WC_Wt_Wet_After Single 4
AllowZeroLength: False
AppendOnly: False
Attributes: Fixed Size
CollatingOrder: General
DataUpdatable: False
gintBackColor: 0
gintBlobType: 0
gintCaption: Water Content After Wet Wt+Tare
gintCaptionVertical: False
gintDefaultExpr: After test: Water Content Determination: Weight Wet Soil + Tare, any consistent units
gintFileRefData:
gintFlags: 64
gintLookup:
gintLookupFilter:
gintRules:
gintUnits:
gintViewWidTwips: 1065
OrdinalPosition: 21
Required: False
SourceField: WC_Wt_Wet_After
SourceTable: FALL HEAD K

WC_Wt_Dry_After Single 4
AllowZeroLength: False
AppendOnly: False
Attributes: Fixed Size
CollatingOrder: General
DataUpdatable: False
gintBackColor: 0
gintBlobType: 0
gintCaption: Water Content After Dry Wt+Tare
gintCaptionVertical: False
gintDefaultExpr: After test: Water Content Determination: Weight Dry Soil + Tare, any consistent units
gintFileRefData:
gintFlags: 64
gintLookup:
gintLookupFilter:
gintRules:
gintUnits:
gintViewWidTwips: 1035
OrdinalPosition: 22
Required: False
SourceField: WC_Wt_Dry_After
SourceTable: FALL HEAD K

WC_Wt_Tare_After Single 4
AllowZeroLength: False
AppendOnly: False
Attributes: Fixed Size
CollatingOrder: General
DataUpdatable: False
gintBackColor: 0
gintBlobType: 0
gintCaption: Water Content After Wt Tare
gintCaptionVertical: False
gintDefaultExpr: After test: Water Content Determination: Weight Tare, any consistent units
gintFileRefData:
gintFlags: 64
gintLookup:
gintLookupFilter:
gintRules:
gintUnits:
gintViewWidTwips: 960
OrdinalPosition: 23
Required: False
SourceField: WC_Wt_Tare_After
SourceTable: FALL HEAD K

Water_Content_After Single 4
AllowZeroLength: False
AppendOnly: False
Attributes: Fixed Size
CollatingOrder: General
DataUpdatable: False
gintBackColor: 0
gintBlobType: 0
gintCaption:
gintCaptionVertical: False
gintDefaultExpr: After test: Will be calculated if the data exists.
gintFileRefData:
gintFlags: 64
gintLookup:
gintLookupFilter:
gintRules:
gintUnits: %
gintViewWidTwips: 945
OrdinalPosition: 24
Required: False
SourceField: Water_Content_After
SourceTable: FALL HEAD K

Wet_Density_After Single 4
AllowZeroLength: False
AppendOnly: False
Attributes: Fixed Size
CollatingOrder: General
DataUpdatable: False

gintBackColor: 0
gintBlobType: 0
gintCaption:
gintCaptionVertical: False
gintDefaultExpr:
gintDesc: After test. In units determined by the PROJECT.Water_Unit_Wt field.
Will be calculated if the data exists.
gintFileRefData:
gintFlags: 64
gintLookup:
gintLookupFilter:
gintRules:
gintUnits:
gintViewWidTwips: 945
OrdinalPosition: 25
Required: False
SourceField: Wet_Density_After
SourceTable: FALL HEAD K

Dry_Density_After Single 4
AllowZeroLength: False
AppendOnly: False
Attributes: Fixed Size
CollatingOrder: General
DataUpdatable: False
gintBackColor: 0
gintBlobType: 0
gintCaption:
gintCaptionVertical: False
gintDefaultExpr:
gintDesc: After test. In units determined by the PROJECT.Water_Unit_Wt field.
Will be calculated if the data exists.

gintFileRefData:
gintFlags: 64
gintLookup:
gintLookupFilter:
gintRules:
gintUnits:
gintViewWidTwips: 915
OrdinalPosition: 26
Required: False
SourceField: Dry_Density_After
SourceTable: FALL HEAD K

Time Units Text 255
AllowZeroLength: True
AppendOnly: False
Attributes: Variable Length
CollatingOrder: General
DataUpdatable: False
gintBackColor: 0
gintBlobType: 0
gintCaption:
gintCaptionVertical: False
gintDefaultExpr:

gintDesc: Not used by calculations. For documentation of the Time units in the
readings table.
gintFileRefData:
gintFlags: 0
gintLookup:
gintLookupFilter:
gintRules:
gintUnits:
gintViewWidTwips: 675
OrdinalPosition: 27
Required: False
SourceField: Time Units
SourceTable: FALL HEAD K

Chamber Pressure Text 255
AllowZeroLength: True
AppendOnly: False
Attributes: Variable Length
CollatingOrder: General
DataUpdatable: False
gintBackColor: 0
gintBlobType: 0
gintCaption:
gintCaptionVertical: False
gintDefaultExpr:
gintDesc: For documentation purposes. Not used in calculations.
gintFileRefData:
gintFlags: 0
gintLookup:
gintLookupFilter:
gintRules:
gintUnits:
gintViewWidTwips: 1080
OrdinalPosition: 28
Required: False
SourceField: Chamber Pressure
SourceTable: FALL HEAD K

Back Pressure Text 255
AllowZeroLength: True
AppendOnly: False
Attributes: Variable Length
CollatingOrder: General
DataUpdatable: False
gintBackColor: 0
gintBlobType: 0
gintCaption:
gintCaptionVertical: False
gintDefaultExpr:
gintDesc: For documentation purposes. Not used in calculations.
gintFileRefData:
gintFlags: 0
gintLookup:
gintLookupFilter:
gintRules:

gintUnits:
 gintViewWidTwips: 900
 OrdinalPosition: 29
 Required: False
 SourceField: Back Pressure
 SourceTable: FALL HEAD K

Fluid Used Text 255

AllowZeroLength: True
 AppendOnly: False
 Attributes: Variable Length
 CollatingOrder: General
 DataUpdatable: False
 gintBackColor: 0
 gintBlobType: 0
 gintCaption:
 gintCaptionVertical: False
 gintDefaultExpr:
 gintDesc: For documentation purposes. Not used in calculations.
 gintFileRefData:
 gintFlags: 0
 gintLookup:
 gintLookupFilter:
 gintRules:
 gintUnits:
 gintViewWidTwips: 1068
 OrdinalPosition: 30
 Required: False
 SourceField: Fluid Used
 SourceTable: FALL HEAD K

Relationships

LAB SPECIMENFALL HEAD K

	LAB SPECIMEN		FALL HEAD K
PointID	1	1	PointID
Depth	1	1	Depth

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

FALL HEAD KFKH READINGS

	FALL HEAD K		FKH READINGS
PointID	1	∞	PointID
Depth	1	∞	Depth

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

Table Indexes

Name	Number of Fields
GINTINDEX	2
Clustered:	False
DistinctCount:	0
Foreign:	False
IgnoreNulls:	False
Name:	GINTINDEX
Primary:	False
Required:	False
Unique:	True
Fields:	
PointID	Ascending
Depth	Ascending
Primary	1
Clustered:	False
DistinctCount:	0
Foreign:	False
IgnoreNulls:	False
Name:	Primary
Primary:	True
Required:	True
Unique:	True
Fields:	
GintRecID	Ascending
Reference10	2
Clustered:	False
DistinctCount:	0
Foreign:	True
IgnoreNulls:	False
Name:	Reference10
Primary:	False
Required:	False
Unique:	True
Fields:	
PointID	Ascending
Depth	Ascending

User Permissions

admin	Delete, Read Permissions, Set Permissions, Change Owner, Read Definition, Write Definition, Read Data, Insert Data, Update Data, Delete Data
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Group Permissions

Admins	Delete, Read Permissions, Set Permissions, Change Owner, Read Definition, Write Definition, Read Data, Insert Data, Update Data, Delete Data
Users	

Properties

DateCreated:	12/12/2000 11:30:49 AM	gintAutoCreateImport:	False
gintAutoCreateInput:	False	gintCaption:	
gintColHeadingLines:	1	gintDate:	39508.6949652778
gintDesc:	Falling Head Permeability: Readings	gintDisplayPs:	24
gintGintRulesProc:	706, Table Proceduresifallingheadreadin gssave	gintGroupName:	Lab Testing
gintGroupParent:		gintHelpText:	See the Table Help in the Parent.
gintKeepDataInClone:	False	gintKeyIsCounter:	False
gintLookupFieldCount:	0	gintLookupKeyHide:	False
gintNoDisplay:	False	gintPostProc:	FallingHeadKReadings
gintPreviewReport:		gintShowAllParentKeys:	False
gintSourceName:	FHK READINGS	gintSplitScreenChild:	
gintSystemTable:	False	gintTablePreviewOnly:	False
gintViewRowHTwips:	228	gintViewWidTwips:	0
LastUpdated:	5/15/2006 2:08:31 PM	RecordCount:	0
Updatable:	True		

Columns

Name	Type	Size
GintRecID	Long Integer	4
AllowZeroLength:	False	
AppendOnly:	False	
Attributes:	Fixed Size, Auto-Increment	
CollatingOrder:	General	
DataUpdatable:	False	
gintBackColor:	0	
gintBlobType:	0	
gintCaption:		
gintCaptionVertical:	False	
gintDefaultExpr:		
gintDesc:	System requirement. Not user editable.	
gintFileRefData:		
gintFlags:	2	
gintLookup:		
gintLookupFilter:		
gintRules:		
gintUnits:		
gintViewWidTwips:	1008	
OrdinalPosition:	1	
Required:	False	
SourceField:	GintRecID	
SourceTable:	FHK READINGS	
PointID	Text	255
AllowZeroLength:	False	
AppendOnly:	False	
Attributes:	Variable Length	
CollatingOrder:	General	

	DataUpdatable:	False		
	gintBackColor:	0		
	gintBlobType:	0		
	gintCaption:			
	gintCaptionVertical:	False		
	gintDefaultExpr:			
	gintDesc:			
	gintFileRefData:			
	gintFlags:	0		
	gintLookup:			
	gintLookupFilter:			
	gintRules:			
	gintUnits:			
	gintViewWidTwips:	753		
	OrdinalPosition:	2		
	Required:	True		
	SourceField:	PointID		
	SourceTable:	FHK READINGS		
Depth			Double	8
	AllowZeroLength:	False		
	AppendOnly:	False		
	Attributes:	Fixed Size		
	CollatingOrder:	General		
	DataUpdatable:	False		
	gintBackColor:	0		
	gintBlobType:	0		
	gintCaption:			
	gintCaptionVertical:	False		
	gintDefaultExpr:			
	gintDesc:			
	gintFileRefData:			
	gintFlags:	0		
	gintLookup:			
	gintLookupFilter:			
	gintRules:			
	gintUnits:			
	gintViewWidTwips:	633		
	OrdinalPosition:	3		
	Required:	True		
	SourceField:	Depth		
	SourceTable:	FHK READINGS		
Reading			Double	8
	AllowZeroLength:	False		
	AppendOnly:	False		
	Attributes:	Fixed Size		
	CollatingOrder:	General		
	DataUpdatable:	False		
	gintBackColor:	0		
	gintBlobType:	0		
	gintCaption:	Time		
	gintCaptionVertical:	False		
	gintDefaultExpr:			
	gintDesc:	Time in the units specified in the Time_Units field of the parent table.		
	gintFileRefData:			

	gintFlags:	0		
	gintLookup:			
	gintLookupFilter:			
	gintRules:			
	gintUnits:			
	gintViewWidTwips:	828		
	OrdinalPosition:	4		
	Required:	True		
	SourceField:	Reading		
	SourceTable:	FHK READINGS		
Head			Single	4
	AllowZeroLength:	False		
	AppendOnly:	False		
	Attributes:	Fixed Size		
	CollatingOrder:	General		
	DataUpdatable:	False		
	gintBackColor:	0		
	gintBlobType:	0		
	gintCaption:			
	gintCaptionVertical:	False		
	gintDefaultExpr:			
	gintDesc:	Any units. However, Head readings and the Initial_Head in the parent table must be in the same units.		
	gintFileRefData:			
	gintFlags:	64		
	gintLookup:			
	gintLookupFilter:			
	gintRules:			
	gintUnits:			
	gintViewWidTwips:	855		
	OrdinalPosition:	5		
	Required:	False		
	SourceField:	Head		
	SourceTable:	FHK READINGS		
Temperature			Single	4
	AllowZeroLength:	False		
	AppendOnly:	False		
	Attributes:	Fixed Size		
	CollatingOrder:	General		
	DataUpdatable:	False		
	gintBackColor:	0		
	gintBlobType:	0		
	gintCaption:			
	gintCaptionVertical:	False		
	gintDefaultExpr:			
	gintDesc:	In units specified in the Temperature_Units field in the parent table. Blank fields will take the values of the reading above it.		
	gintFileRefData:			
	gintFlags:	64		
	gintLookup:			
	gintLookupFilter:			
	gintRules:			
	gintUnits:			

gintViewWidTwips: 1188
 OrdinalPosition: 6
 Required: False
 SourceField: Temperature
 SourceTable: FHK READINGS

Permeability Single 4

AllowZeroLength: False
 AppendOnly: False
 Attributes: Fixed Size
 CollatingOrder: General
 DataUpdatable: False
 gintBackColor: 0
 gintBlobType: 0
 gintCaption:
 gintCaptionVertical: False
 gintDefaultExpr:
 gintDesc:
 gintFileRefData:
 gintFlags: 64
 gintLookup:
 gintLookupFilter:
 gintRules:
 gintUnits:
 gintViewWidTwips: 1290
 OrdinalPosition: 7
 Required: False
 SourceField: Permeability
 SourceTable: FHK READINGS

Relationships

FALL HEAD KFHK READINGS

FALL HEAD K		FHK READINGS	
PointID	1	∞	PointID
Depth	1	∞	Depth

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

Table Indexes

Name	Number of Fields
GINTINDEX	3
Clustered:	False
DistinctCount:	0
Foreign:	False
IgnoreNulls:	False
Name:	GINTINDEX
Primary:	False
Required:	False

Unique: True
 Fields:
 PointID Ascending
 Depth Ascending
 Reading Ascending
 Primary 1
 Clustered: False
 DistinctCount: 0
 Foreign: False
 IgnoreNulls: False
 Name: Primary
 Primary: True
 Required: True
 Unique: True
 Fields:
 GintRecID Ascending
 REL0018 2
 Clustered: False
 DistinctCount: 0
 Foreign: True
 IgnoreNulls: False
 Name: REL0018
 Primary: False
 Required: False
 Unique: False
 Fields:
 PointID Ascending
 Depth Ascending

User Permissions

admin Delete, Read Permissions, Set Permissions, Change Owner, Read Definition, Write Definition, Read Data, Insert Data, Update Data, Delete Data

Group Permissions

Admins Delete, Read Permissions, Set Permissions, Change Owner, Read Definition, Write Definition, Read Data, Insert Data, Update Data, Delete Data
 Users

Properties

DateCreated:	12/12/2000 11:30:50 AM	gintAutoCreateImport:	False
gintAutoCreateInput:	False	gintCaption:	39437.6614583333
gintColHeadingLines:	3	gintDate:	13
gintDesc:	Fine Specific Gravity: Parent table	gintDisplayPs:	
gintGintRulesProc:	706,Table Procedures\finesgsave,874,Table Procedures\deletingparentrow sinsplitscreen	gintGroupName:	Lab Testing
gintGroupParent:		gintHelpText:	Note that the specific gravity input or calculated in this table is not by the program in any internal calculations. The value here is not necessarily the same as the Specific Gravity value in the Lab Specimen table. The latter is used in the standard reports produced by GCA to determine void ratio and degree of saturation. The Specific Gravity will be calculated as the average of the readings. If no readings are input, you can type in the value directly. The Temperature Units field is only used if readings are input. The program always calculates the specific gravity at 20°C (68°F).
gintKeepDataInClone:	False	gintKeysCounter:	False
gintLookupFieldCount:	0	gintLookupKeyHide:	False
gintNoDisplay:	False	gintPostProc:	
gintPreviewReport:		gintShowAllParentKeys:	False
gintSourceName:	FINE SPECIFIC GRAVITY	gintSplitScreenChild:	FINE SG READINGS
gintSystemTable:	False	gintTablePreviewOnly:	False
gintViewRowHTwips:	288	gintViewWidTwips:	0
LastUpdated:	5/26/2007 9:08:12 AM	RecordCount:	0
Updatable:	True		

Columns

Name	Type	Size
GintRecID	Long Integer	4
AllowZeroLength:	False	
AppendOnly:	False	
Attributes:	Fixed Size, Auto-Increment	
CollatingOrder:	General	
DataUpdatable:	False	
gintBackColor:	0	
gintBlobType:	0	
gintCaption:		

gintCaptionVertical:	False	
gintDefaultExpr:		
gintDesc:	System requirement. Not user editable.	
gintFileRefData:		
gintFlags:	2	
gintLookup:		
gintLookupFilter:		
gintRules:		
gintUnits:	1008	
gintViewWidTwips:	1	
OrdinalPosition:	False	
Required:	GintRecID	
SourceField:	FINE SG	
SourceTable:		
PointID	Text	255
AllowZeroLength:	False	
AppendOnly:	False	
Attributes:	Variable Length	
CollatingOrder:	General	
DataUpdatable:	False	
gintBackColor:	0	
gintBlobType:	0	
gintCaption:	Boring Designation	
gintCaptionVertical:	False	
gintDefaultExpr:		
gintDesc:		
gintFileRefData:	0	
gintFlags:		
gintLookup:		
gintLookupFilter:		
gintRules:		
gintUnits:	753	
gintViewWidTwips:	2	
OrdinalPosition:	True	
Required:	PointID	
SourceField:	FINE SG	
SourceTable:		
Depth	Double	8
AllowZeroLength:	False	
AppendOnly:	False	
Attributes:	Fixed Size	
CollatingOrder:	General	
DataUpdatable:	False	
gintBackColor:	0	
gintBlobType:	0	
gintCaption:		
gintCaptionVertical:	False	
gintDefaultExpr:		
gintDesc:		
gintFileRefData:	0	
gintFlags:		
gintLookup:		
gintLookupFilter:		
gintRules:	186 1	

gintUnits:	ft		
gintViewWidTwips:	870		
OrdinalPosition:	3		
Required:	True		
SourceField:	Depth		
SourceTable:	FINE SG		
Specific_Gravity		Single	4
AllowZeroLength:	False		
AppendOnly:	False		
Attributes:	Fixed Size		
CollatingOrder:	General		
DataUpdatable:	False		
gintBackColor:	0		
gintBlobType:	0		
gintCaption:			
gintCaptionVertical:	False		
gintDefaultExpr:			
gintDesc:	Will be calculated from the readings, if the data exists.		
gintFileRefData:			
gintFlags:	64		
gintLookup:			
gintLookupFilter:			
gintRules:			
gintUnits:			
gintViewWidTwips:	885		
OrdinalPosition:	4		
Required:	False		
SourceField:	Specific_Gravity		
SourceTable:	FINE SG		
Readings_Temperature_Units		Text	255
AllowZeroLength:	True		
AppendOnly:	False		
Attributes:	Variable Length		
CollatingOrder:	General		
DataUpdatable:	False		
gintBackColor:	0		
gintBlobType:	0		
gintCaption:			
gintCaptionVertical:	False		
gintDefaultExpr:			
gintDesc:	Required if calculation is used to determine the specific gravity.		
gintFileRefData:			
gintFlags:	65		
gintLookup:	Lookup\lab temp units		
gintLookupFilter:			
gintRules:			
gintUnits:			
gintViewWidTwips:	1305		
OrdinalPosition:	5		
Required:	False		
SourceField:	Readings_Temperature_Units		
SourceTable:	FINE SG		

Relationships

LAB SPECIMEN		FINE SG	
PointID	1	1	PointID
Depth	1	1	Depth
Attributes:		Unique, Enforced, Cascade Updates, Cascade Deletes	
RelationshipType:		One-To-One	
FINE SG		FINE SG READINGS	
PointID	1	∞	PointID
Depth	1	∞	Depth
Attributes:		Enforced, Cascade Updates, Cascade Deletes	
RelationshipType:		One-To-Many	

Table Indexes

Name	Number of Fields
GINTINDEX	2
Clustered:	False
DistinctCount:	0
Foreign:	False
IgnoreNulls:	False
Name:	GINTINDEX
Primary:	False
Required:	False
Unique:	True
Fields:	
PointID	Ascending
Depth	Ascending
Primary	1
Clustered:	False
DistinctCount:	0
Foreign:	False
IgnoreNulls:	False
Name:	Primary
Primary:	True
Required:	True
Unique:	True
Fields:	
GintRecID	Ascending
Reference5	2
Clustered:	False
DistinctCount:	0

Foreign:	True
IgnoreNulls:	False
Name:	Reference5
Primary:	False
Required:	False
Unique:	True
Fields:	
PointID	Ascending
Depth	Ascending

User Permissions

admin	Delete, Read Permissions, Set Permissions, Change Owner, Read Definition, Write Definition, Read Data, Insert Data, Update Data, Delete Data
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Group Permissions

Admins	Delete, Read Permissions, Set Permissions, Change Owner, Read Definition, Write Definition, Read Data, Insert Data, Update Data, Delete Data
Users	

Properties

DateCreated:	12/12/2000 11:30:50 AM	gintAutoCreateImport:	False
gintAutoCreateInput:	False	gintCaption:	
gintColHeadingLines:	2	gintDate:	39437.6614583333
gintDesc:	Fine Specific Gravity: Readings	gintDisplayPs:	14
gintGintRulesProc:	706, Table Procedures\ finesreadings\ save	gintGroupName:	Lab Testing
gintGroupParent:		gintHelpText:	See the Table Help in the Parent.
gintKeepDataInClone:	False	gintKeyIsCounter:	True
gintLookupFieldCount:	0	gintLookupKeyHide:	False
gintNoDisplay:	False	gintPostProc:	FineSpecificGravityReadings
gintPreviewReport:		gintShowAllParentKeys:	False
gintSourceName:	F SPEC GRAV READINGS	gintSplitScreenChild:	
gintSystemTable:	False	gintTablePreviewOnly:	False
gintViewRowHTwips:	228	gintViewWidTwips:	0
LastUpdated:	5/15/2006 2:08:33 PM	RecordCount:	0
Updatable:	True		

Columns

Name	Type	Size
GintRecID	Long Integer	4
AllowZeroLength:	False	
AppendOnly:	False	
Attributes:	Fixed Size, Auto-Increment	
CollatingOrder:	General	
DataUpdatable:	False	
gintBackColor:	0	
gintBlobType:	0	
gintCaption:		
gintCaptionVertical:	False	
gintDefaultExpr:		
gintDesc:	System requirement. Not user editable.	
gintFileRefData:		
gintFlags:	2	
gintLookup:		
gintLookupFilter:		
gintRules:		
gintUnits:		
gintViewWidTwips:	1008	
OrdinalPosition:	1	
Required:	False	
SourceField:	GintRecID	
SourceTable:	FINE SG READINGS	
PointID	Text	255
AllowZeroLength:	False	
AppendOnly:	False	
Attributes:	Variable Length	
CollatingOrder:	General	

	DataUpdatable:	False		
	gintBackColor:	0		
	gintBlobType:	0		
	gintCaption:			
	gintCaptionVertical:	False		
	gintDefaultExpr:			
	gintDesc:			
	gintFileRefData:			
	gintFlags:	0		
	gintLookup:			
	gintLookupFilter:			
	gintRules:			
	gintUnits:			
	gintViewWidTwips:	753		
	OrdinalPosition:	2		
	Required:	True		
	SourceField:	PointID		
	SourceTable:	FINE SG READINGS		
Depth			Double	8
	AllowZeroLength:	False		
	AppendOnly:	False		
	Attributes:	Fixed Size		
	CollatingOrder:	General		
	DataUpdatable:	False		
	gintBackColor:	0		
	gintBlobType:	0		
	gintCaption:			
	gintCaptionVertical:	False		
	gintDefaultExpr:			
	gintDesc:			
	gintFileRefData:			
	gintFlags:	0		
	gintLookup:			
	gintLookupFilter:			
	gintRules:			
	gintUnits:			
	gintViewWidTwips:	633		
	OrdinalPosition:	3		
	Required:	True		
	SourceField:	Depth		
	SourceTable:	FINE SG READINGS		
Reading			Double	8
	AllowZeroLength:	False		
	AppendOnly:	False		
	Attributes:	Fixed Size		
	CollatingOrder:	General		
	DataUpdatable:	False		
	gintBackColor:	0		
	gintBlobType:	0		
	gintCaption:			
	gintCaptionVertical:	False		
	gintDefaultExpr:			
	gintDesc:	Arbitrary Counter		
	gintFileRefData:			

	gintFlags:	2		
	gintLookup:			
	gintLookupFilter:			
	gintRules:			
	gintUnits:			
	gintViewWidTwips:	1032		
	OrdinalPosition:	4		
	Required:	True		
	SourceField:	Reading		
	SourceTable:	FINE SG READINGS		
Wt_Bottle_Water			Single	4
	AllowZeroLength:	False		
	AppendOnly:	False		
	Attributes:	Fixed Size		
	CollatingOrder:	General		
	DataUpdatable:	False		
	gintBackColor:	0		
	gintBlobType:	0		
	gintCaption:	Wt Bottle + Water		
	gintCaptionVertical:	False		
	gintDefaultExpr:			
	gintDesc:	Any consistent units.		
	gintFileRefData:			
	gintFlags:	64		
	gintLookup:			
	gintLookupFilter:			
	gintRules:			
	gintUnits:			
	gintViewWidTwips:	945		
	OrdinalPosition:	5		
	Required:	False		
	SourceField:	Wt_Bottle_Water		
	SourceTable:	FINE SG READINGS		
Wt_Bottle_Water_Soil			Single	4
	AllowZeroLength:	False		
	AppendOnly:	False		
	Attributes:	Fixed Size		
	CollatingOrder:	General		
	DataUpdatable:	False		
	gintBackColor:	0		
	gintBlobType:	0		
	gintCaption:	Wt Bottle + Water + Soil		
	gintCaptionVertical:	False		
	gintDefaultExpr:			
	gintDesc:	Any consistent units.		
	gintFileRefData:			
	gintFlags:	64		
	gintLookup:			
	gintLookupFilter:			
	gintRules:			
	gintUnits:			
	gintViewWidTwips:	1170		
	OrdinalPosition:	6		
	Required:	False		

SourceField:	Wt_Bottle_Water_Soil		
SourceTable:	FINE SG READINGS		
Wt_Dry_Soil_Tare		Single	4
AllowZeroLength:	False		
AppendOnly:	False		
Attributes:	Fixed Size		
CollatingOrder:	General		
DataUpdatable:	False		
gintBackColor:	0		
gintBlobType:	0		
gintCaption:	Wt Dry Soil + Tare		
gintCaptionVertical:	False		
gintDefaultExpr:			
gintDesc:	Any consistent units.		
gintFileRefData:			
gintFlags:	64		
gintLookup:			
gintLookupFilter:			
gintRules:			
gintUnits:			
gintViewWidTwips:	1125		
OrdinalPosition:	7		
Required:	False		
SourceField:	Wt_Dry_Soil_Tare		
SourceTable:	FINE SG READINGS		
Wt_Tare		Single	4
AllowZeroLength:	False		
AppendOnly:	False		
Attributes:	Fixed Size		
CollatingOrder:	General		
DataUpdatable:	False		
gintBackColor:	0		
gintBlobType:	0		
gintCaption:			
gintCaptionVertical:	False		
gintDefaultExpr:			
gintDesc:	Any consistent units.		
gintFileRefData:			
gintFlags:	64		
gintLookup:			
gintLookupFilter:			
gintRules:			
gintUnits:			
gintViewWidTwips:	858		
OrdinalPosition:	8		
Required:	False		
SourceField:	Wt_Tare		
SourceTable:	FINE SG READINGS		
Temperature		Single	4
AllowZeroLength:	False		
AppendOnly:	False		
Attributes:	Fixed Size		
CollatingOrder:	General		

DataUpdatable:	False		
gintBackColor:	0		
gintBlobType:	0		
gintCaption:			
gintCaptionVertical:	False		
gintDefaultExpr:			
gintDesc:	In units supplied in parent record.		
gintFileRefData:			
gintFlags:	64		
gintLookup:			
gintLookupFilter:			
gintRules:			
gintUnits:			
gintViewWidTwips:	1188		
OrdinalPosition:	9		
Required:	False		
SourceField:	Temperature		
SourceTable:	FINE SG READINGS		
Specific_Gravity		Single	4
AllowZeroLength:	False		
AppendOnly:	False		
Attributes:	Fixed Size		
CollatingOrder:	General		
DataUpdatable:	False		
gintBackColor:	0		
gintBlobType:	0		
gintCaption:			
gintCaptionVertical:	False		
gintDefaultExpr:			
gintDesc:	At 20°C (68°F). Will be calculated if the data exists.		
gintFileRefData:			
gintFlags:	64		
gintLookup:			
gintLookupFilter:			
gintRules:			
gintUnits:			
gintViewWidTwips:	885		
OrdinalPosition:	10		
Required:	False		
SourceField:	Specific_Gravity		
SourceTable:	FINE SG READINGS		

Relationships

FINE SG FINE SG READINGS

	FINE SG	FINE SG READINGS
PointID	1	∞ PointID
Depth	1	∞ Depth

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

Table Indexes

Name	Number of Fields
GINTINDEX	3
Clustered:	False
DistinctCount:	0
Foreign:	False
IgnoreNulls:	False
Name:	GINTINDEX
Primary:	False
Required:	False
Unique:	True
Fields:	
PointID	Ascending
Depth	Ascending
Reading	Ascending
Primary	1
Clustered:	False
DistinctCount:	0
Foreign:	False
IgnoreNulls:	False
Name:	Primary
Primary:	True
Required:	True
Unique:	True
Fields:	
GintRecID	Ascending
REL10	2
Clustered:	False
DistinctCount:	0
Foreign:	True
IgnoreNulls:	False
Name:	REL10
Primary:	False
Required:	False
Unique:	False
Fields:	
PointID	Ascending
Depth	Ascending

User Permissions

admin Delete, Read Permissions, Set Permissions, Change Owner, Read Definition, Write Definition, Read Data, Insert Data, Update Data, Delete Data

Group Permissions

Admins Delete, Read Permissions, Set Permissions, Change Owner, Read Definition, Write Definition, Read Data, Insert Data, Update Data, Delete Data
Users

Properties

DateCreated:	12/14/2000 3:05:53 PM	gintCaption:	
gintColHeadingLines:	1	gintDate:	37026.3247106482
gintDesc:		gintDisplayPs:	-1
gintGroupName:		gintGroupParent:	
gintHelpText:		gintKeysCounter:	False
gintNoDisplay:	False	gintPostProc:	
gintPreviewReport:		gintSourceName:	
gintSplitScreenChild:		gintTablePreviewOnly:	False
gintViewRowHtTwips:	0	LastUpdated:	6/22/2005 2:24:23 PM
RecordCount:	0	Updatable:	True

Columns

Name	Type	Size
LayerID	Long Integer	4
AllowZeroLength: False AppendOnly: False Attributes: Fixed Size CollatingOrder: General DataUpdatable: False OrdinalPosition: 0 Required: False SourceField: LayerID SourceTable: □GIDENTITY		
EntityID	Long Integer	4
AllowZeroLength: False AppendOnly: False Attributes: Fixed Size, Auto-Increment CollatingOrder: General DataUpdatable: False OrdinalPosition: 1 Required: False SourceField: EntityID SourceTable: □GIDENTITY		
Type	Integer	2
AllowZeroLength: False AppendOnly: False Attributes: Fixed Size CollatingOrder: General DataUpdatable: False OrdinalPosition: 2 Required: False SourceField: Type SourceTable: □GIDENTITY		
MinX	Double	8
AllowZeroLength: False AppendOnly: False Attributes: Fixed Size		

	CollatingOrder: General DataUpdatable: False OrdinalPosition: 3 Required: False SourceField: MinX SourceTable: □GIDENTITY		
MinY	AllowZeroLength: False AppendOnly: False Attributes: Fixed Size CollatingOrder: General DataUpdatable: False OrdinalPosition: 4 Required: False SourceField: MinY SourceTable: □GIDENTITY	Double	8
MaxX	AllowZeroLength: False AppendOnly: False Attributes: Fixed Size CollatingOrder: General DataUpdatable: False OrdinalPosition: 5 Required: False SourceField: MaxX SourceTable: □GIDENTITY	Double	8
MaxY	AllowZeroLength: False AppendOnly: False Attributes: Fixed Size CollatingOrder: General DataUpdatable: False OrdinalPosition: 6 Required: False SourceField: MaxY SourceTable: □GIDENTITY	Double	8
Coor	AllowZeroLength: False AppendOnly: False Attributes: Variable Length CollatingOrder: General DataUpdatable: False OrdinalPosition: 7 Required: False SourceField: Coor SourceTable: □GIDENTITY	OLE Object	-
Properties	AllowZeroLength: False AppendOnly: False Attributes: Variable Length CollatingOrder: General	OLE Object	-

DataUpdatable:	False		
OrdinalPosition:	8		
Required:	False		
SourceField:	Properties		
SourceTable:	□GIDENTITY		
PrivateBlock		Text	255
AllowZeroLength:	True		
AppendOnly:	False		
Attributes:	Variable Length		
CollatingOrder:	General		
DataUpdatable:	False		
OrdinalPosition:	9		
Required:	False		
SourceField:	PrivateBlock		
SourceTable:	□GIDENTITY		
PrintOrder		Integer	2
AllowZeroLength:	False		
AppendOnly:	False		
Attributes:	Fixed Size		
CollatingOrder:	General		
DataUpdatable:	False		
OrdinalPosition:	10		
Required:	False		
SourceField:	PrintOrder		
SourceTable:	□GIDENTITY		
Opaque		Yes/No	1
AllowZeroLength:	False		
AppendOnly:	False		
Attributes:	Fixed Size		
CollatingOrder:	General		
DataUpdatable:	False		
OrdinalPosition:	11		
Required:	False		
SourceField:	Opaque		
SourceTable:	□GIDENTITY		

Table Indexes

Name	Number of Fields
LAYERENTITY	1
Clustered:	False
DistinctCount:	0
Foreign:	True
IgnoreNulls:	False
Name:	LAYERENTITY
Primary:	False
Required:	False
Unique:	False
Fields:	
LayerID	Ascending
LayerID	1
Clustered:	False

DistinctCount:	0
Foreign:	False
IgnoreNulls:	False
Name:	LayerID
Primary:	False
Required:	False
Unique:	False
Fields:	
LayerID	Ascending
Primary	1
Clustered:	False
DistinctCount:	0
Foreign:	False
IgnoreNulls:	False
Name:	Primary
Primary:	True
Required:	True
Unique:	True
Fields:	
EntityID	Ascending

User Permissions

admin	Delete, Read Permissions, Set Permissions, Change Owner, Read Definition, Write Definition, Read Data, Insert Data, Update Data, Delete Data
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Group Permissions

Admins	Delete, Read Permissions, Set Permissions, Change Owner, Read Definition, Write Definition, Read Data, Insert Data, Update Data, Delete Data
Users	

Properties

DateCreated:	12/14/2000 3:05:53 PM	gintCaption:	
gintColHeadingLines:	1	gintDate:	37026.3247106482
gintDesc:		gintDisplayPs:	-1
gintGroupName:		gintGroupParent:	
gintHelpText:		gintKeysCounter:	False
gintNoDisplay:	False	gintPostProc:	
gintPreviewReport:		gintSourceName:	False
gintSplitScreenChild:		gintTablePreviewOnly:	False
gintViewRowHTwips:	0	LastUpdated:	12/14/2000 3:05:53 PM
RecordCount:	0	Updatable:	True

Columns

Name	Type	Size
PageID	Long Integer	4
AllowZeroLength: False AppendOnly: False Attributes: Fixed Size CollatingOrder: General DataUpdatable: False OrdinalPosition: 0 Required: False SourceField: PageID SourceTable: □GIDLAYER		
LayerID	Long Integer	4
AllowZeroLength: False AppendOnly: False Attributes: Fixed Size, Auto-Increment CollatingOrder: General DataUpdatable: False OrdinalPosition: 1 Required: False SourceField: LayerID SourceTable: □GIDLAYER		
Name	Text	255
AllowZeroLength: True AppendOnly: False Attributes: Variable Length CollatingOrder: General DataUpdatable: False OrdinalPosition: 2 Required: False SourceField: Name SourceTable: □GIDLAYER		
Date	Date/Time	8
AllowZeroLength: False AppendOnly: False Attributes: Fixed Size		

CollatingOrder: General DataUpdatable: False OrdinalPosition: 3 Required: False SourceField: Date SourceTable: □GIDLAYER		
Description	Text	255
AllowZeroLength: True AppendOnly: False Attributes: Variable Length CollatingOrder: General DataUpdatable: False OrdinalPosition: 4 Required: False SourceField: Description SourceTable: □GIDLAYER		
Color	Long Integer	4
AllowZeroLength: False AppendOnly: False Attributes: Fixed Size CollatingOrder: General DataUpdatable: False OrdinalPosition: 5 Required: False SourceField: Color SourceTable: □GIDLAYER		
Hidden	Yes/No	1
AllowZeroLength: False AppendOnly: False Attributes: Fixed Size CollatingOrder: General DataUpdatable: False OrdinalPosition: 6 Required: False SourceField: Hidden SourceTable: □GIDLAYER		
Locked	Yes/No	1
AllowZeroLength: False AppendOnly: False Attributes: Fixed Size CollatingOrder: General DataUpdatable: False OrdinalPosition: 7 Required: False SourceField: Locked SourceTable: □GIDLAYER		
System	Yes/No	1
AllowZeroLength: False AppendOnly: False Attributes: Fixed Size CollatingOrder: General		

DataUpdatable: False
OrdinalPosition: 8
Required: False
SourceField: System
SourceTable: □GIDLAYER

Table Indexes

Name	Number of Fields
PageID	1
Clustered:	False
DistinctCount:	0
Foreign:	False
IgnoreNulls:	False
Name:	PageID
Primary:	False
Required:	False
Unique:	False
Fields:	
PageID	Ascending
PAGELAYER	1
Clustered:	False
DistinctCount:	0
Foreign:	True
IgnoreNulls:	False
Name:	PAGELAYER
Primary:	False
Required:	False
Unique:	False
Fields:	
PageID	Ascending
Primary	1
Clustered:	False
DistinctCount:	0
Foreign:	False
IgnoreNulls:	False
Name:	Primary
Primary:	True
Required:	True
Unique:	True
Fields:	
LayerID	Ascending

User Permissions

admin Delete, Read Permissions, Set Permissions, Change Owner, Read Definition,
Write Definition, Read Data, Insert Data, Update Data, Delete Data

Group Permissions

Admins
Users Delete, Read Permissions, Set Permissions, Change Owner, Read Definition,
Write Definition, Read Data, Insert Data, Update Data, Delete Data

Properties

DateCreated:	12/14/2000 3:05:52 PM	gintCaption:	
gintColHeadingLines:	1	gintDate:	36634.768587963
gintDesc:		gintDisplayPs:	-1
gintGroupName:		gintGroupParent:	
gintHelpText:		gintKeyIsCounter:	False
gintNoDisplay:	False	gintPostProc:	
gintPreviewReport:		gintSourceName:	False
gintSplitScreenChild:		gintTablePreviewOnly:	False
gintViewRowHtTwips:	285	gintViewWidTwips:	0
LastUpdated:	6/22/2005 2:24:23 PM	RecordCount:	1
Updatable:	True		

Columns

Name	Type	Size
PageType	Integer	2
AllowZeroLength: False AppendOnly: False Attributes: Fixed Size CollatingOrder: General DataUpdatable: False OrdinalPosition: 0 Required: False SourceField: PageType SourceTable: □GIDPAGE		
PageID	Long Integer	4
AllowZeroLength: False AppendOnly: False Attributes: Fixed Size, Auto-Increment CollatingOrder: General DataUpdatable: False gintViewWidTwips: 0 OrdinalPosition: 1 Required: False SourceField: PageID SourceTable: □GIDPAGE		
Name	Text	255
AllowZeroLength: True AppendOnly: False Attributes: Variable Length CollatingOrder: General DataUpdatable: False gintViewWidTwips: 3069 OrdinalPosition: 2 Required: False SourceField: Name SourceTable: □GIDPAGE		
Date	Date/Time	8

AllowZeroLength:	False
AppendOnly:	False
Attributes:	Fixed Size
CollatingOrder:	General
DataUpdatable:	False
gintViewWidTwips:	3069
OrdinalPosition:	3
Required:	False
SourceField:	Date
SourceTable:	□GIDPAGE

Description	Memo
AllowZeroLength: True AppendOnly: False Attributes: Variable Length CollatingOrder: General DataUpdatable: False gintViewWidTwips: 8594 OrdinalPosition: 4 Required: False SourceField: Description SourceTable: □GIDPAGE	

Thumbnail	OLE Object
AllowZeroLength: False AppendOnly: False Attributes: Variable Length CollatingOrder: General DataUpdatable: False OrdinalPosition: 5 Required: False SourceField: Thumbnail SourceTable: □GIDPAGE	

Properties	OLE Object
AllowZeroLength: False AppendOnly: False Attributes: Variable Length CollatingOrder: General DataUpdatable: False OrdinalPosition: 6 Required: False SourceField: Properties SourceTable: □GIDPAGE	

Table Indexes

Name	Number of Fields
PageType	1
Clustered:	False
DistinctCount:	1
Foreign:	False
IgnoreNulls:	False
Name:	PageType
Primary:	False

Required:	False
Unique:	False
Fields:	
PageType	Ascending
Primary	1
Clustered:	False
DistinctCount:	1
Foreign:	False
IgnoreNulls:	False
Name:	Primary
Primary:	True
Required:	True
Unique:	True
Fields:	
PageID	Ascending
TypeAndName	2
Clustered:	False
DistinctCount:	1
Foreign:	False
IgnoreNulls:	False
Name:	TypeAndName
Primary:	False
Required:	False
Unique:	True
Fields:	
PageType	Ascending
Name	Ascending

User Permissions

admin	Delete, Read Permissions, Set Permissions, Change Owner, Read Definition, Write Definition, Read Data, Insert Data, Update Data, Delete Data
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Group Permissions

Admins	
Users	Delete, Read Permissions, Set Permissions, Change Owner, Read Definition, Write Definition, Read Data, Insert Data, Update Data, Delete Data

Properties

DateCreated:	12/12/2000 11:30:51 AM	gintAutoCreateImport:	False
gintAutoCreateInput:	False	gintCaption:	
gintColHeadingLines:	2	gintDate:	39530.675162037
gintDesc:	Hydrometer Analysis:	gintDisplayPs:	12
	Readings		
gintGintRulesProc:	706,Table	gintGroupName:	Lab Testing
	Procedures\hydrometerreadin		
	gssave		
gintGroupParent:		gintHelpText:	See the Table Help in the Parent.
gintKeepDataInClone:	False	gintKeyIsCounter:	True
gintLookupFieldCount:	0	gintLookupKeyHide:	False
gintNoDisplay:	False	gintPostProc:	HydrometerReadings
gintPreviewReport:		gintShowAllParentKeys:	False
gintSourceName:	HYD ANAL READINGS	gintSplitScreenChild:	
gintSystemTable:	False	gintTablePreviewOnly:	False
gintViewRowHTwips:	240	gintViewWidTwips:	0
LastUpdated:	5/15/2006 2:08:38 PM	RecordCount:	0
Updatable:	True		

Columns

Name	Type	Size
GintRecID	Long Integer	4
AllowZeroLength:	False	
AppendOnly:	False	
Attributes:	Fixed Size, Auto-Increment	
CollatingOrder:	General	
DataUpdatable:	False	
gintBlobType:	0	
gintCaption:		
gintCaptionVertical:	False	
gintDefaultExpr:		
gintDesc:	System requirement. Not user editable.	
gintFileRefData:		
gintFlags:	2	
gintLookup:		
gintLookupFilter:		
gintRules:		
gintUnits:		
gintViewWidTwips:	1008	
OrdinalPosition:	1	
Required:	False	
SourceField:	GintRecID	
SourceTable:	HYD READINGS	
PointID	Text	255
AllowZeroLength:	False	
AppendOnly:	False	
Attributes:	Variable Length	
CollatingOrder:	General	
DataUpdatable:	False	

	gintBlobType:	0		
	gintCaption:			
	gintCaptionVertical:	False		
	gintDefaultExpr:			
	gintDesc:			
	gintFileRefData:			
	gintFlags:	0		
	gintLookup:			
	gintLookupFilter:			
	gintRules:			
	gintUnits:			
	gintViewWidTwips:	753		
	OrdinalPosition:	2		
	Required:	True		
	SourceField:	PointID		
	SourceTable:	HYD READINGS		
Depth	AllowZeroLength:	False	Double	8
	AppendOnly:	False		
	Attributes:	Fixed Size		
	CollatingOrder:	General		
	DataUpdatable:	False		
	gintBlobType:	0		
	gintCaption:			
	gintCaptionVertical:	False		
	gintDefaultExpr:			
	gintDesc:			
	gintFileRefData:			
	gintFlags:	0		
	gintLookup:			
	gintLookupFilter:			
	gintRules:			
	gintUnits:			
	gintViewWidTwips:	633		
	OrdinalPosition:	3		
	Required:	True		
	SourceField:	Depth		
	SourceTable:	HYD READINGS		
Reading	AllowZeroLength:	False	Double	8
	AppendOnly:	False		
	Attributes:	Fixed Size		
	CollatingOrder:	General		
	DataUpdatable:	False		
	gintBlobType:	0		
	gintCaption:			
	gintCaptionVertical:	False		
	gintDefaultExpr:			
	gintDesc:	Arbitrary counter.		
	gintFileRefData:			
	gintFlags:	2		
	gintLookup:			
	gintLookupFilter:			
	gintRules:			

	gintUnits:			
	gintViewWidTwips:	1032		
	OrdinalPosition:	4		
	Required:	True		
	SourceField:	Reading		
	SourceTable:	HYD READINGS		
Time	AllowZeroLength:	False	Single	4
	AppendOnly:	False		
	Attributes:	Fixed Size		
	CollatingOrder:	General		
	DataUpdatable:	False		
	gintBlobType:	0		
	gintCaption:			
	gintCaptionVertical:	False		
	gintDefaultExpr:			
	gintDesc:			
	gintFileRefData:			
	gintFlags:	64		
	gintLookup:			
	gintLookupFilter:			
	gintRules:			
	gintUnits:	min		
	gintViewWidTwips:	528		
	OrdinalPosition:	5		
	Required:	False		
	SourceField:	Time		
	SourceTable:	HYD READINGS		
Hydrometer_Reading	AllowZeroLength:	False	Single	4
	AppendOnly:	False		
	Attributes:	Fixed Size		
	CollatingOrder:	General		
	DataUpdatable:	False		
	gintBlobType:	0		
	gintCaption:			
	gintCaptionVertical:	False		
	gintDefaultExpr:			
	gintDesc:	For hydrometer type 151H, this is the digits after "1.0", e.g., input 1.013 as 13, 1.0135 as 13.5.		
	gintFileRefData:			
	gintFlags:	64		
	gintLookup:			
	gintLookupFilter:			
	gintRules:			
	gintUnits:			
	gintViewWidTwips:	1260		
	OrdinalPosition:	6		
	Required:	False		
	SourceField:	Hydrometer_Reading		
	SourceTable:	HYD READINGS		
Temperature	AllowZeroLength:	False	Single	4
	AppendOnly:	False		
	Attributes:	Fixed Size		
	CollatingOrder:	General		
	DataUpdatable:	False		
	gintBlobType:	0		
	gintCaption:			
	gintCaptionVertical:	False		
	gintDefaultExpr:			
	gintDesc:			
	gintFileRefData:			
	gintFlags:			
	gintLookup:			
	gintLookupFilter:			
	gintRules:			

AllowZeroLength: False
 AppendOnly: False
 Attributes: Fixed Size
 CollatingOrder: General
 DataUpdatable: False
 gintBlobType: 0
 gintCaption:
 gintCaptionVertical: False
 gintDefaultExpr:
 gintDesc: Blank fields will take the values of the reading above it.
 gintFileRefData:
 gintFlags: 64
 gintLookup:
 gintLookupFilter:
 gintRules:
 gintUnits:
 gintViewWidTwips: 1188
 OrdinalPosition: 7
 Required: False
 SourceField: Temperature
 SourceTable: HYD READINGS

Particle_Size Single 4

AllowZeroLength: False
 AppendOnly: False
 Attributes: Fixed Size
 CollatingOrder: General
 DataUpdatable: False
 gintBlobType: 0
 gintCaption:
 gintCaptionVertical: False
 gintDefaultExpr:
 gintDesc:
 gintFileRefData:
 gintFlags: 64
 gintLookup:
 gintLookupFilter:
 gintRules:
 gintUnits: mm
 gintViewWidTwips: 1035
 OrdinalPosition: 8
 Required: False
 SourceField: Particle_Size
 SourceTable: HYD READINGS

Percent_Finer Single 4

AllowZeroLength: False
 AppendOnly: False
 Attributes: Fixed Size
 CollatingOrder: General
 DataUpdatable: False
 gintBlobType: 0
 gintCaption:
 gintCaptionVertical: False
 gintDefaultExpr:
 gintDesc:
 gintFileRefData:
 gintFlags:
 gintLookup:
 gintLookupFilter:
 gintRules:
 gintUnits:
 gintViewWidTwips:
 OrdinalPosition:
 Required:
 SourceField:
 SourceTable:

gintFileRefData:
 gintFlags: 64
 gintLookup:
 gintLookupFilter:
 gintRules:
 gintUnits:
 gintViewWidTwips: 990
 OrdinalPosition: 9
 Required: False
 SourceField: Percent_Finer
 SourceTable: HYD READINGS

Relationships

HYDROMETER

PointID 1 ∞ PointID
 Depth 1 ∞ Depth

HYD READINGS

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

Table Indexes

Name	Number of Fields
GINTINDEX	3
Clustered:	False
DistinctCount:	0
Foreign:	False
IgnoreNulls:	False
Name:	GINTINDEX
Primary:	False
Required:	False
Unique:	True
Fields:	
PointID	Ascending
Depth	Ascending
Reading	Ascending
Primary	1
Clustered:	False
DistinctCount:	0
Foreign:	False
IgnoreNulls:	False
Name:	Primary
Primary:	True
Required:	True
Unique:	True
Fields:	
GintRecID	Ascending
REL0020	2

Clustered:	False
DistinctCount:	0
Foreign:	True
IgnoreNulls:	False
Name:	REL0020
Primary:	False
Required:	False
Unique:	False
Fields:	
PointID	Ascending
Depth	Ascending

User Permissions

admin	Delete, Read Permissions, Set Permissions, Change Owner, Read Definition, Write Definition, Read Data, Insert Data, Update Data, Delete Data
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Group Permissions

Admins	
Users	Delete, Read Permissions, Set Permissions, Change Owner, Read Definition, Write Definition, Read Data, Insert Data, Update Data, Delete Data

Properties

DateCreated:	12/12/2000 11:30:52 AM	gintAutoCreateImport:	False
gintAutoCreateInput:	False	gintCaption:	39530.675162037
gintColHeadingLines:	2	gintDate:	11
gintDesc:	Hydrometer Analysis: Parent table	gintDisplayPs:	
gintGintRulesProc:	706,Table Procedures\hydrometersave,874,Table Procedures\deletingparentrow sinsplitscreen	gintGroupName:	Lab Testing
gintGroupParent:		gintHelpText:	If only final results are to be input, all of the parent record information (except Depth) can be left blank.

To perform calculations, you must supply the following:
The Weight of Dry Specimen is the net (just soil; no tare) weight in grams of the specimen that was actually used in the test.

The total specimen percentage that is represented by the hydrometer test specimen, for example, if hydrometer specimen split on #40 sieve, this field contains the % passing the #40 sieve.

The Specific Gravity is that of the hydrometer specimen and is not necessarily the same as the specific gravity given in the LAB SPECIMEN or FINE SG tables.

The temperature units used in the test. This may or may not be the same as the calibration units (see below).

The composite correction (see ASTM D422) is applied to the readings calculations. Each hydrometer/dispersing agent combination has its own correction versus temperature characteristics. You define each in Data Design:Library Data under the HYDROMETER CALIBRATIONS table. Each hydrometer is identified with a unique name. The list of defined hydrometers from the HYDROMETER CALIBRATIONS table appears in the drop-down list when on the HydrometerID field.

On supplying a HydrometerID

and saving, the program will copy the calibration parameters from the HYDROMETER CALIBRATIONS table to the corresponding fields in the parent record.

The HydrometerID is not required. You could input the parameters manually. If a HydrometerID is supplied along with the parameters, if the parameters do not match those of the specified hydrometer in the HYDROMETER CALIBRATIONS table, you will be warned on saving.

READINGS:

=====
Supply the time in minutes, the temperature in the specified testing temperature units, and the hydrometer reading. The particle diameter (mm) and percent finer will be calculated. Note that only the first temperature is required. If a temperature field is blank, the value from the record above is used.

gintKeyIsCounter:	False	gintLookupFieldCount:	0
gintLookupKeyHide:	False	gintNoDisplay:	False
gintPostProc:	HydrometerParent	gintPreviewReport:	
gintShowAllParentKeys:	False	gintSourceName:	HYDROMETER ANALYSIS
gintSplitScreenChild:	HYD READINGS	gintSystemTable:	False
gintTablePreviewOnly:	False	gintViewRowHTwips:	285
gintViewWidTwips:	0	LastUpdated:	5/26/2007 9:08:01 AM
RecordCount:	0	Updatable:	True

Columns

Name	Type	Size
GintRecID	Long Integer	4
AllowZeroLength:	False	
AppendOnly:	False	
Attributes:	Fixed Size, Auto-Increment	
CollatingOrder:	General	
DataUpdatable:	False	
gintBlobType:	0	
gintCaption:		
gintCaptionVertical:	False	
gintDefaultExpr:		
gintDesc:	System requirement. Not user editable.	
gintFileRefData:		
gintFlags:	2	
gintLookup:		
gintLookupFilter:		

gintRules:
gintUnits:
gintViewWidTwips: 1008
OrdinalPosition: 1
Required: False
SourceField: GintRecID
SourceTable: HYDROMETER

PointID Text 255

AllowZeroLength: False
AppendOnly: False
Attributes: Variable Length
CollatingOrder: General
DataUpdatable: False
gintBlobType: 0
gintCaption: Boring Designation
gintCaptionVertical: False
gintDefaultExpr:
gintDesc:
gintFileRefData:
gintFlags: 0
gintLookup:
gintLookupFilter:
gintRules:
gintUnits:
gintViewWidTwips: 753
OrdinalPosition: 2
Required: True
SourceField: PointID
SourceTable: HYDROMETER

Depth Double 8

AllowZeroLength: False
AppendOnly: False
Attributes: Fixed Size
CollatingOrder: General
DataUpdatable: False
gintBlobType: 0
gintCaption:
gintCaptionVertical: False
gintDefaultExpr:
gintDesc:
gintFileRefData:
gintFlags: 0
gintLookup:
gintLookupFilter: 186|1
gintRules:
gintUnits:
gintViewWidTwips: 690
OrdinalPosition: 3
Required: True
SourceField: Depth
SourceTable: HYDROMETER

Wt_Dry_Specimen Single 4

AllowZeroLength: False

AppendOnly:	False		
Attributes:	Fixed Size		
CollatingOrder:	General		
DataUpdatable:	False		
gintBlobType:	0		
gintCaption:			
gintCaptionVertical:	False		
gintDefaultExpr:			
gintDesc:			
gintFileRefData:			
gintFlags:	64		
gintLookup:			
gintLookupFilter:			
gintRules:			
gintUnits:	g		
gintViewWidTwips:	975		
OrdinalPosition:	4		
Required:	False		
SourceField:	Wt_Dry_Specimen		
SourceTable:	HYDROMETER		
Percent_Of_Total		Single	4
AllowZeroLength:	False		
AppendOnly:	False		
Attributes:	Fixed Size		
CollatingOrder:	General		
DataUpdatable:	False		
gintBlobType:	0		
gintCaption:			
gintCaptionVertical:	False		
gintDefaultExpr:			
gintDesc:	Percent of the total specimen that is represented by the hydrometer test specimen, e.g., if hydrometer specimen split on #40 sieve, this field contains the % passing the #40 sieve.		
gintFileRefData:			
gintFlags:	64		
gintLookup:			
gintLookupFilter:			
gintRules:			
gintUnits:			
gintViewWidTwips:	810		
OrdinalPosition:	5		
Required:	False		
SourceField:	Percent_Of_Total		
SourceTable:	HYDROMETER		
Specific_Gravity		Single	4
AllowZeroLength:	False		
AppendOnly:	False		
Attributes:	Fixed Size		
CollatingOrder:	General		
DataUpdatable:	False		
gintBlobType:	0		
gintCaption:			
gintCaptionVertical:	False		

gintDefaultExpr:			
gintDesc:			
gintFileRefData:			
gintFlags:	64		
gintLookup:			
gintLookupFilter:			
gintRules:			
gintUnits:			
gintViewWidTwips:	840		
OrdinalPosition:	6		
Required:	False		
SourceField:	Specific_Gravity		
SourceTable:	HYDROMETER		
Temperature_Units_Test		Text	255
AllowZeroLength:	True		
AppendOnly:	False		
Attributes:	Variable Length		
CollatingOrder:	General		
DataUpdatable:	False		
gintBlobType:	0		
gintCaption:			
gintCaptionVertical:	False		
gintDefaultExpr:			
gintDesc:			
gintFileRefData:			
gintFlags:	65		
gintLookup:	Lookuplab temp units		
gintLookupFilter:			
gintRules:			
gintUnits:			
gintViewWidTwips:	1275		
OrdinalPosition:	7		
Required:	False		
SourceField:	Temperature_Units_Test		
SourceTable:	HYDROMETER		
HydrometerID		Text	255
AllowZeroLength:	True		
AppendOnly:	False		
Attributes:	Variable Length		
CollatingOrder:	General		
DataUpdatable:	False		
gintBlobType:	0		
gintCaption:			
gintCaptionVertical:	False		
gintDefaultExpr:			
gintDesc:			
gintFileRefData:			
gintFlags:	65		
gintLookup:	Libtblhydrometer calibrations		
gintLookupFilter:			
gintRules:			
gintUnits:			
gintViewWidTwips:	1278		
OrdinalPosition:	8		

	Required:	False		
	SourceField:	HydrometerID		
	SourceTable:	HYDROMETER		
Type			Text	255
	AllowZeroLength:	True		
	AppendOnly:	False		
	Attributes:	Variable Length		
	CollatingOrder:	General		
	DataUpdatable:	False		
	gintBlobType:	0		
	gintCaption:			
	gintCaptionVertical:	False		
	gintDefaultExpr:			
	gintDesc:	Can be input manually or program will read it from the HYDROMETER CALIBRATIONS table using the HydrometerID field. New calibrations can be input in Data Design:Library Data.		
	gintFileRefData:			
	gintFlags:	65		
	gintLookup:	Lookup\lab hydrometer type		
	gintLookupFilter:			
	gintRules:			
	gintUnits:			
	gintViewWidTwips:	543		
	OrdinalPosition:	9		
	Required:	False		
	SourceField:	Type		
	SourceTable:	HYDROMETER		
Temperature_Units_Calibration			Text	255
	AllowZeroLength:	True		
	AppendOnly:	False		
	Attributes:	Variable Length		
	CollatingOrder:	General		
	DataUpdatable:	False		
	gintBlobType:	0		
	gintCaption:			
	gintCaptionVertical:	False		
	gintDefaultExpr:			
	gintDesc:	Can be input manually or program will read it from the HYDROMETER CALIBRATIONS table using the HydrometerID field. New calibrations can be input in Data Design:Library Data.		
	gintFileRefData:			
	gintFlags:	65		
	gintLookup:	Lookup\lab temp units		
	gintLookupFilter:			
	gintRules:			
	gintUnits:			
	gintViewWidTwips:	1275		
	OrdinalPosition:	10		
	Required:	False		
	SourceField:	Temperature_Units_Calibration		
	SourceTable:	HYDROMETER		

Calibration_Intercept			Single	4
	AllowZeroLength:	False		
	AppendOnly:	False		
	Attributes:	Fixed Size		
	CollatingOrder:	General		
	DataUpdatable:	False		
	gintBlobType:	0		
	gintCaption:			
	gintCaptionVertical:	False		
	gintDefaultExpr:			
	gintDesc:	Can be input manually or program will read it from the HYDROMETER CALIBRATIONS table using the HydrometerID field. New calibrations can be input in Data Design:Library Data.		
	gintFileRefData:			
	gintFlags:	64		
	gintLookup:			
	gintLookupFilter:			
	gintRules:			
	gintUnits:			
	gintViewWidTwips:	1095		
	OrdinalPosition:	11		
	Required:	False		
	SourceField:	Calibration_Intercept		
	SourceTable:	HYDROMETER		
Calibration_Slope			Single	4
	AllowZeroLength:	False		
	AppendOnly:	False		
	Attributes:	Fixed Size		
	CollatingOrder:	General		
	DataUpdatable:	False		
	gintBlobType:	0		
	gintCaption:			
	gintCaptionVertical:	False		
	gintDefaultExpr:			
	gintDesc:	Can be input manually or program will read it from the HYDROMETER CALIBRATIONS table using the HydrometerID field. New calibrations can be input in Data Design:Library Data.		
	gintFileRefData:			
	gintFlags:	64		
	gintLookup:			
	gintLookupFilter:			
	gintRules:			
	gintUnits:			
	gintViewWidTwips:	1050		
	OrdinalPosition:	12		
	Required:	False		
	SourceField:	Calibration_Slope		
	SourceTable:	HYDROMETER		
Calibration_2ndOrderTerm			Single	4
	AllowZeroLength:	False		
	AppendOnly:	False		

Attributes: Fixed Size
 CollatingOrder: General
 DataUpdatable: False
 gintBlobType: 0
 gintCaption:
 gintCaptionVertical: False
 gintDefaultExpr:
 gintDesc: Can be input manually or program will read it from the HYDROMETER CALIBRATIONS table using the HydrometerID field. New calibrations can be input in Data Design:Library Data.
 gintFileRefData:
 gintFlags: 64
 gintLookup:
 gintLookupFilter:
 gintRules:
 gintUnits:
 gintViewWidTwips: 1305
 OrdinalPosition: 13
 Required: False
 SourceField: Calibration_2ndOrderTerm
 SourceTable: HYDROMETER

Relationships

LAB SPECIMENHYDROMETER

LAB SPECIMEN		HYDROMETER	
PointID	1	1	PointID
Depth	1	1	Depth

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

HYDROMETERHYD READINGS

HYDROMETER		HYD READINGS	
PointID	1	∞	PointID
Depth	1	∞	Depth

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

Table Indexes

Name	Number of Fields
GINTINDEX	2
Clustered:	False
DistinctCount:	0
Foreign:	False

IgnoreNulls: False
 Name: GINTINDEX
 Primary: False
 Required: False
 Unique: True
 Fields:
 PointID Ascending
 Depth Ascending
 Primary
 Clustered: 1
 DistinctCount: False
 Foreign: 0
 IgnoreNulls: False
 Name: Primary
 Primary: True
 Required: True
 Unique: True
 Fields:
 GintRecID Ascending
 Reference9
 Clustered: 2
 DistinctCount: False
 Foreign: 0
 IgnoreNulls: True
 Name: Reference9
 Primary: False
 Required: False
 Unique: True
 Fields:
 PointID Ascending
 Depth Ascending

User Permissions

admin Delete, Read Permissions, Set Permissions, Change Owner, Read Definition, Write Definition, Read Data, Insert Data, Update Data, Delete Data

Group Permissions

Admins Delete, Read Permissions, Set Permissions, Change Owner, Read Definition, Write Definition, Read Data, Insert Data, Update Data, Delete Data
 Users

Properties

DateCreated:	12/12/2000 11:30:54 AM	gintAutoCreateImport:	True
gintAutoCreateInput:	True	gintCaption:	
gintColHeadingLines:	2	gintDate:	39530.6826851852
gintDesc:		gintDisplayPs:	2
gintGintRulesProc:	706,Table Procedures\labspecimensave	gintGroupName:	Lab Testing
gintGroupParent:		gintHelpText:	The Lab Specimen table is the "parent" for all the lab testing tables. The PointID and Depth of each test specimen must be defined here before any data can be input elsewhere. Nothing is required in this table. However, if you wish to show void ratios or degrees of saturation in reports, the specific gravity must be input.
gintKeepDataInClone:	False	gintKeysIsCounter:	False
gintLookupFieldCount:	0	gintLookupKeyHide:	False
gintNoDisplay:	False	gintPostProc:	
gintPreviewReport:	Log\caltrans boring record 052007	gintShowAllParentKeys:	False
gintSourceName:		gintSplitScreenChild:	
gintSystemTable:	False	gintTablePreviewOnly:	False
gintViewRowHtTwips:	450	gintViewWidTwips:	0
LastUpdated:	3/25/2008 11:58:55 AM	RecordCount:	0
Updatable:	True		

Columns

Name	Type	Size
GintRecID	Long Integer	4
AllowZeroLength:	False	
AppendOnly:	False	
Attributes:	Fixed Size, Auto-Increment	
CollatingOrder:	General	
ColumnHidden:	False	
ColumnOrder:	Default	
ColumnWidth:	Default	
DataUpdatable:	False	
gintBackColor:	0	
gintBlobType:	0	
gintCaption:		
gintCaptionVertical:	False	
gintDefaultExpr:		
gintDesc:		
gintFileRefData:		
gintFlags:	2	
gintLookup:		
gintLookupFilter:		
gintRules:		

gintUnits:			
gintViewWidTwips:	1008		
OrdinalPosition:	1		
Required:	False		
SourceField:	GintRecID		
SourceTable:	LAB SPECIMEN		
PointID		Text	255
AllowZeroLength:	False		
AppendOnly:	False		
Attributes:	Variable Length		
CollatingOrder:	General		
ColumnHidden:	False		
ColumnOrder:	Default		
ColumnWidth:	Default		
DataUpdatable:	False		
gintBackColor:	0		
gintBlobType:	0		
gintCaption:	Boring Designation		
gintCaptionVertical:	False		
gintDefaultExpr:			
gintDesc:			
gintFileRefData:			
gintFlags:	0		
gintLookup:			
gintLookupFilter:			
gintRules:			
gintUnits:			
gintViewWidTwips:	957		
OrdinalPosition:	2		
Required:	True		
SourceField:	PointID		
SourceTable:	LAB SPECIMEN		
Depth		Double	8
AllowZeroLength:	False		
AppendOnly:	False		
Attributes:	Fixed Size		
CollatingOrder:	General		
ColumnHidden:	False		
ColumnOrder:	Default		
ColumnWidth:	Default		
DataUpdatable:	False		
DecimalPlaces:	Auto		
gintBackColor:	0		
gintBlobType:	0		
gintCaption:			
gintCaptionVertical:	False		
gintDefaultExpr:			
gintDesc:			
gintFileRefData:			
gintFlags:	0		
gintLookup:			
gintLookupFilter:			
gintRules:	186 2		
gintUnits:	ft		

	gintViewWidTwips:	1944		
	OrdinalPosition:	3		
	Required:	True		
	SourceField:	Depth		
	SourceTable:	LAB SPECIMEN		
Number			Text	255
	AllowZeroLength:	True		
	AppendOnly:	False		
	Attributes:	Variable Length		
	CollatingOrder:	General		
	DataUpdatable:	False		
	gintBackColor:	0		
	gintBlobType:	0		
	gintCaption:	Sample ID		
	gintCaptionVertical:	False		
	gintDefaultExpr:			
	gintDesc:			
	gintFileRefData:			
	gintFlags:	0		
	gintLookup:			
	gintLookupFilter:			
	gintRules:			
	gintUnits:			
	gintViewWidTwips:	1275		
	OrdinalPosition:	4		
	Required:	False		
	SourceField:	Number		
	SourceTable:	LAB SPECIMEN		
Length			Single	4
	AllowZeroLength:	False		
	AppendOnly:	False		
	Attributes:	Fixed Size		
	CollatingOrder:	General		
	DataUpdatable:	False		
	gintBackColor:	0		
	gintBlobType:	0		
	gintCaption:			
	gintCaptionVertical:	False		
	gintDefaultExpr:			
	gintDesc:	Record length of sampling interval (actual penetration)		
	gintFileRefData:			
	gintFlags:	0		
	gintLookup:			
	gintLookupFilter:			
	gintRules:			
	gintUnits:	in		
	gintViewWidTwips:	1035		
	OrdinalPosition:	5		
	Required:	False		
	SourceField:	Length		
	SourceTable:	LAB SPECIMEN		
Recovery			Single	4
	AllowZeroLength:	False		

	AppendOnly:	False		
	Attributes:	Fixed Size		
	CollatingOrder:	General		
	DataUpdatable:	False		
	gintBackColor:	0		
	gintBlobType:	0		
	gintCaption:			
	gintCaptionVertical:	False		
	gintDefaultExpr:			
	gintDesc:	Record sample recovery in inches, the gINT report calculates %.		
	gintFileRefData:			
	gintFlags:	0		
	gintLookup:			
	gintLookupFilter:			
	gintRules:			
	gintUnits:	in		
	gintViewWidTwips:	1035		
	OrdinalPosition:	6		
	Required:	False		
	SourceField:	Recovery		
	SourceTable:	LAB SPECIMEN		
Type			Text	255
	AllowZeroLength:	True		
	AppendOnly:	False		
	Attributes:	Variable Length		
	CollatingOrder:	General		
	DataUpdatable:	False		
	gintBackColor:	0		
	gintBlobType:	0		
	gintCaption:			
	gintCaptionVertical:	False		
	gintDefaultExpr:			
	gintDesc:	Choose type of sample from lookup list.		
	gintFileRefData:			
	gintFlags:	1		
	gintLookup:	Graphicsamp		
	gintLookupFilter:			
	gintRules:			
	gintUnits:			
	gintViewWidTwips:	1245		
	OrdinalPosition:	7		
	Required:	False		
	SourceField:	Type		
	SourceTable:	LAB SPECIMEN		
Description			Text	255
	AllowZeroLength:	True		
	AppendOnly:	False		
	Attributes:	Variable Length		
	CollatingOrder:	General		
	ColumnHidden:	False		
	ColumnOrder:	Default		
	ColumnWidth:	Default		
	DataUpdatable:	False		
	gintBackColor:	0		

gintBlobType: 0
gintCaption: False
gintCaptionVertical: False
gintDefaultExpr: ASTM Group Name; gINT will supply correct classification on tables if both sieve and Atterberg data are available.
gintDesc: ASTM Group Name; gINT will supply correct classification on tables if both sieve and Atterberg data are available.
gintFileRefData: 0
gintFlags: Libtblgroup names + uscs +graphic
gintLookup: Libtblgroup names + uscs +graphic
gintLookupFilter:
gintRules:
gintUnits:
gintViewWidTwips: 3795
OrdinalPosition: 8
Required: False
SourceField: Description
SourceTable: LAB SPECIMEN

USCS Text 255

AllowZeroLength: True
AppendOnly: False
Attributes: Variable Length
CollatingOrder: General
DataUpdatable: False
gintBackColor: 0
gintBlobType: 0
gintCaption: False
gintCaptionVertical: False
gintDefaultExpr: ASTM Group Symbol; gINT will supply correct Group Symbol on tables if both sieve and Atterberg data are available.
gintDesc: ASTM Group Symbol; gINT will supply correct Group Symbol on tables if both sieve and Atterberg data are available.
gintFileRefData: 1
gintFlags: Lookup+uscs codes
gintLookup: Lookup+uscs codes
gintLookupFilter:
gintRules:
gintUnits:
gintViewWidTwips: 868
OrdinalPosition: 9
Required: False
SourceField: USCS
SourceTable: LAB SPECIMEN

Specific_Gravity Single 4

AllowZeroLength: False
AppendOnly: False
Attributes: Fixed Size
CollatingOrder: General
ColumnHidden: False
ColumnOrder: Default
ColumnWidth: Default
DataUpdatable: False
DecimalPlaces: Auto
gintBackColor: 0
gintBlobType: 0

gintCaption: False
gintCaptionVertical: False
gintDefaultExpr: Not necessarily the same as Fine Specific Gravity result. Needed in Reports to determine void ratios and degrees of saturation.
gintDesc: Not necessarily the same as Fine Specific Gravity result. Needed in Reports to determine void ratios and degrees of saturation.
gintFileRefData: 64
gintFlags: 64
gintLookup:
gintLookupFilter:
gintRules:
gintUnits:
gintViewWidTwips: 900
OrdinalPosition: 10
Required: False
SourceField: Specific_Gravity
SourceTable: LAB SPECIMEN

Specific Gravity Tested Yes/No 1

AllowZeroLength: False
AppendOnly: False
Attributes: Fixed Size
CollatingOrder: General
DataUpdatable: False
gintBackColor: 0
gintBlobType: 0
gintCaption: False
gintCaptionVertical: False
gintDefaultExpr: Use this field to indicate that Specific Gravity was tested in the laboratory.
gintDesc: Use this field to indicate that Specific Gravity was tested in the laboratory.
gintFileRefData: 0
gintFlags: 0
gintLookup:
gintLookupFilter:
gintRules:
gintUnits:
gintViewWidTwips: 1356
OrdinalPosition: 11
Required: False
SourceField: Specific Gravity Tested
SourceTable: LAB SPECIMEN

Shear Test Type Text 255

AllowZeroLength: True
AppendOnly: False
Attributes: Variable Length
CollatingOrder: General
DataUpdatable: False
gintBackColor: 0
gintBlobType: 0
gintCaption: False
gintCaptionVertical: False
gintDefaultExpr: Enter one or two letter code for test type such as CU, UU, UC, or RU (rock uniaxial).
gintDesc: Enter one or two letter code for test type such as CU, UU, UC, or RU (rock uniaxial).

gintFileRefData:	1		
gintFlags:	Lookup	shear strength test type	
gintLookup:			
gintLookupFilter:			
gintRules:			
gintUnits:			
gintViewWidTwips:	915		
OrdinalPosition:	12		
Required:	False		
SourceField:	Shear Test Type		
SourceTable:	LAB SPECIMEN		
Shear Test Result		Text	255
AllowZeroLength:	True		
AppendOnly:	False		
Attributes:	Variable Length		
CollatingOrder:	General		
DataUpdatable:	False		
gintBackColor:	0		
gintBlobType:	0		
gintCaption:			
gintCaptionVertical:	False		
gintDefaultExpr:			
gintDesc:			
gintFileRefData:			
gintFlags:	0		
gintLookup:			
gintLookupFilter:			
gintRules:			
gintUnits:			
gintViewWidTwips:	924		
OrdinalPosition:	13		
Required:	False		
SourceField:	Shear Test Result		
SourceTable:	LAB SPECIMEN		
Pocket Pen		Yes/No	1
AllowZeroLength:	False		
AppendOnly:	False		
Attributes:	Fixed Size		
CollatingOrder:	General		
DataUpdatable:	False		
gintBackColor:	0		
gintBlobType:	0		
gintCaption:			
gintCaptionVertical:	False		
gintDefaultExpr:			
gintDesc:	Record results in Soil Sample Tab.		
gintFileRefData:			
gintFlags:	0		
gintLookup:			
gintLookupFilter:			
gintRules:			
gintUnits:			
gintViewWidTwips:	852		
OrdinalPosition:	14		

Required:	False		
SourceField:	Pocket Pen		
SourceTable:	LAB SPECIMEN		
Torvane		Yes/No	1
AllowZeroLength:	False		
AppendOnly:	False		
Attributes:	Fixed Size		
CollatingOrder:	General		
DataUpdatable:	False		
gintBackColor:	0		
gintBlobType:	0		
gintCaption:			
gintCaptionVertical:	False		
gintDefaultExpr:			
gintDesc:	Record results in Soil Sample Tab.		
gintFileRefData:			
gintFlags:	0		
gintLookup:			
gintLookupFilter:			
gintRules:			
gintUnits:			
gintViewWidTwips:	816		
OrdinalPosition:	15		
Required:	False		
SourceField:	Torvane		
SourceTable:	LAB SPECIMEN		
Point Load Index		Text	255
AllowZeroLength:	True		
AppendOnly:	False		
Attributes:	Variable Length		
CollatingOrder:	General		
DataUpdatable:	False		
gintBackColor:	0		
gintBlobType:	0		
gintCaption:	Point Load Result		
gintCaptionVertical:	False		
gintDefaultExpr:			
gintDesc:			
gintFileRefData:			
gintFlags:	0		
gintLookup:			
gintLookupFilter:			
gintRules:			
gintUnits:			
gintViewWidTwips:	1140		
OrdinalPosition:	16		
Required:	False		
SourceField:	Point Load Index		
SourceTable:	LAB SPECIMEN		
Cation Exchange		Yes/No	1
AllowZeroLength:	False		
AppendOnly:	False		
Attributes:	Fixed Size		

CollatingOrder: General
DataUpdatable: False
gintBackColor: 0
gintBlobType: 0
gintCaption:
gintCaptionVertical: False
gintDefaultExpr:
gintDesc:
gintFileRefData:
gintFlags: 0
gintLookup:
gintLookupFilter:
gintRules:
gintUnits:
gintViewWidTwips: 1212
OrdinalPosition: 17
Required: False
SourceField: Cation Exchange
SourceTable: LAB SPECIMEN

Chlorides Yes/No 1

AllowZeroLength: False
AppendOnly: False
Attributes: Fixed Size
CollatingOrder: General
DataUpdatable: False
gintBackColor: 0
gintBlobType: 0
gintCaption:
gintCaptionVertical: False
gintDefaultExpr:
gintDesc:
gintFileRefData:
gintFlags: 0
gintLookup:
gintLookupFilter:
gintRules:
gintUnits:
gintViewWidTwips: 948
OrdinalPosition: 18
Required: False
SourceField: Chlorides
SourceTable: LAB SPECIMEN

Collapse Potential Yes/No 1

AllowZeroLength: False
AppendOnly: False
Attributes: Fixed Size
CollatingOrder: General
DataUpdatable: False
gintBackColor: 0
gintBlobType: 0
gintCaption:
gintCaptionVertical: False
gintDefaultExpr:
gintDesc:

gintFileRefData:
gintFlags: 0
gintLookup:
gintLookupFilter:
gintRules:
gintUnits:
gintViewWidTwips: 936
OrdinalPosition: 19
Required: False
SourceField: Collapse Potential
SourceTable: LAB SPECIMEN

Compaction Curve Yes/No 1

AllowZeroLength: False
AppendOnly: False
Attributes: Fixed Size
CollatingOrder: General
DataUpdatable: False
gintBackColor: 0
gintBlobType: 0
gintCaption:
gintCaptionVertical: False
gintDefaultExpr:
gintDesc:
gintFileRefData:
gintFlags: 0
gintLookup:
gintLookupFilter:
gintRules:
gintUnits:
gintViewWidTwips: 1152
OrdinalPosition: 20
Required: False
SourceField: Compaction Curve
SourceTable: LAB SPECIMEN

Consolidation Yes/No 1

AllowZeroLength: False
AppendOnly: False
Attributes: Fixed Size
CollatingOrder: General
DataUpdatable: False
gintBackColor: 0
gintBlobType: 0
gintCaption:
gintCaptionVertical: False
gintDefaultExpr:
gintDesc:
gintFileRefData:
gintFlags: 0
gintLookup:
gintLookupFilter:
gintRules:
gintUnits:
gintViewWidTwips: 1236
OrdinalPosition: 21

	Required:	False		
	SourceField:	Consolidation		
	SourceTable:	LAB SPECIMEN		
Corrosion			Yes/No	1
	AllowZeroLength:	False		
	AppendOnly:	False		
	Attributes:	Fixed Size		
	CollatingOrder:	General		
	DataUpdatable:	False		
	gintBackColor:	0		
	gintBlobType:	0		
	gintCaption:			
	gintCaptionVertical:	False		
	gintDefaultExpr:			
	gintDesc:			
	gintFileRefData:			
	gintFlags:	0		
	gintLookup:			
	gintLookupFilter:			
	gintRules:			
	gintUnits:			
	gintViewWidTwips:	996		
	OrdinalPosition:	22		
	Required:	False		
	SourceField:	Corrosion		
	SourceTable:	LAB SPECIMEN		
Direct Shear			Yes/No	1
	AllowZeroLength:	False		
	AppendOnly:	False		
	Attributes:	Fixed Size		
	CollatingOrder:	General		
	DataUpdatable:	False		
	gintBackColor:	0		
	gintBlobType:	0		
	gintCaption:			
	gintCaptionVertical:	False		
	gintDefaultExpr:			
	gintDesc:			
	gintFileRefData:			
	gintFlags:	0		
	gintLookup:			
	gintLookupFilter:			
	gintRules:			
	gintUnits:			
	gintViewWidTwips:	828		
	OrdinalPosition:	23		
	Required:	False		
	SourceField:	Direct Shear		
	SourceTable:	LAB SPECIMEN		
Other Test 4			Text	255
	AllowZeroLength:	True		
	AppendOnly:	False		
	Attributes:	Variable Length		

	CollatingOrder:	General		
	DataUpdatable:	False		
	gintBackColor:	0		
	gintBlobType:	0		
	gintCaption:	Expansion Index Result		
	gintCaptionVertical:	False		
	gintDefaultExpr:			
	gintDesc:			
	gintFileRefData:			
	gintFlags:	0		
	gintLookup:			
	gintLookupFilter:			
	gintRules:			
	gintUnits:			
	gintViewWidTwips:	900		
	OrdinalPosition:	24		
	Required:	False		
	SourceField:	Other Test 4		
	SourceTable:	LAB SPECIMEN		
Organic Content			Yes/No	1
	AllowZeroLength:	False		
	AppendOnly:	False		
	Attributes:	Fixed Size		
	CollatingOrder:	General		
	DataUpdatable:	False		
	gintBackColor:	0		
	gintBlobType:	0		
	gintCaption:			
	gintCaptionVertical:	False		
	gintDefaultExpr:			
	gintDesc:			
	gintFileRefData:			
	gintFlags:	0		
	gintLookup:			
	gintLookupFilter:			
	gintRules:			
	gintUnits:	%		
	gintViewWidTwips:	1104		
	OrdinalPosition:	25		
	Required:	False		
	SourceField:	Organic Content		
	SourceTable:	LAB SPECIMEN		
Permeability			Yes/No	1
	AllowZeroLength:	False		
	AppendOnly:	False		
	Attributes:	Fixed Size		
	CollatingOrder:	General		
	DataUpdatable:	False		
	gintBackColor:	0		
	gintBlobType:	0		
	gintCaption:			
	gintCaptionVertical:	False		
	gintDefaultExpr:			
	gintDesc:			

	gintFileRefData:	0		
	gintFlags:			
	gintLookup:			
	gintLookupFilter:			
	gintRules:			
	gintUnits:			
	gintViewWidTwips:	1324		
	OrdinalPosition:	26		
	Required:	False		
	SourceField:	Permeability		
	SourceTable:	LAB SPECIMEN		
pH	AllowZeroLength:	False	Yes/No	1
	AppendOnly:	False		
	Attributes:	Fixed Size		
	CollatingOrder:	General		
	DataUpdatable:	False		
	gintBackColor:	0		
	gintBlobType:	0		
	gintCaption:			
	gintCaptionVertical:	False		
	gintDefaultExpr:			
	gintDesc:			
	gintFileRefData:			
	gintFlags:	0		
	gintLookup:			
	gintLookupFilter:			
	gintRules:			
	gintUnits:			
	gintViewWidTwips:	640		
	OrdinalPosition:	27		
	Required:	False		
	SourceField:	pH		
	SourceTable:	LAB SPECIMEN		
Pressure Meter	AllowZeroLength:	False	Yes/No	1
	AppendOnly:	False		
	Attributes:	Fixed Size		
	CollatingOrder:	General		
	DataUpdatable:	False		
	gintBackColor:	0		
	gintBlobType:	0		
	gintCaption:			
	gintCaptionVertical:	False		
	gintDefaultExpr:			
	gintDesc:			
	gintFileRefData:			
	gintFlags:	0		
	gintLookup:			
	gintLookupFilter:			
	gintRules:			
	gintUnits:			
	gintViewWidTwips:	1008		
	OrdinalPosition:	28		

	Required:	False		
	SourceField:	Pressure Meter		
	SourceTable:	LAB SPECIMEN		
R-Value	AllowZeroLength:	False	Yes/No	1
	AppendOnly:	False		
	Attributes:	Fixed Size		
	CollatingOrder:	General		
	DataUpdatable:	False		
	gintBackColor:	0		
	gintBlobType:	0		
	gintCaption:			
	gintCaptionVertical:	False		
	gintDefaultExpr:			
	gintDesc:			
	gintFileRefData:			
	gintFlags:	0		
	gintLookup:			
	gintLookupFilter:			
	gintRules:			
	gintUnits:			
	gintViewWidTwips:	840		
	OrdinalPosition:	29		
	Required:	False		
	SourceField:	R-Value		
	SourceTable:	LAB SPECIMEN		
Sand Equivalent	AllowZeroLength:	False	Yes/No	1
	AppendOnly:	False		
	Attributes:	Fixed Size		
	CollatingOrder:	General		
	DataUpdatable:	False		
	gintBackColor:	0		
	gintBlobType:	0		
	gintCaption:			
	gintCaptionVertical:	False		
	gintDefaultExpr:			
	gintDesc:			
	gintFileRefData:			
	gintFlags:	0		
	gintLookup:			
	gintLookupFilter:			
	gintRules:			
	gintUnits:			
	gintViewWidTwips:	1252		
	OrdinalPosition:	30		
	Required:	False		
	SourceField:	Sand Equivalent		
	SourceTable:	LAB SPECIMEN		
Shrinkage Limit	AllowZeroLength:	False	Yes/No	1
	AppendOnly:	False		
	Attributes:	Fixed Size		

CollatingOrder: General
DataUpdatable: False
gintBackColor: 0
gintBlobType: 0
gintCaption:
gintCaptionVertical: False
gintDefaultExpr:
gintDesc:
gintFileRefData:
gintFlags: 0
gintLookup:
gintLookupFilter:
gintRules:
gintUnits:
gintViewWidTwips: 1008
OrdinalPosition: 31
Required: False
SourceField: Shrinkage Limit
SourceTable: LAB SPECIMEN

Sulfates Yes/No 1

AllowZeroLength: False
AppendOnly: False
Attributes: Fixed Size
CollatingOrder: General
DataUpdatable: False
gintBackColor: 0
gintBlobType: 0
gintCaption:
gintCaptionVertical: False
gintDefaultExpr:
gintDesc:
gintFileRefData:
gintFlags: 0
gintLookup:
gintLookupFilter:
gintRules:
gintUnits:
gintViewWidTwips: 1000
OrdinalPosition: 32
Required: False
SourceField: Sulfates
SourceTable: LAB SPECIMEN

Swell Potential Yes/No 1

AllowZeroLength: False
AppendOnly: False
Attributes: Fixed Size
CollatingOrder: General
DataUpdatable: False
gintBackColor: 0
gintBlobType: 0
gintCaption:
gintCaptionVertical: False
gintDefaultExpr:
gintDesc:

gintFileRefData:
gintFlags: 0
gintLookup:
gintLookupFilter:
gintRules:
gintUnits:
gintViewWidTwips: 1020
OrdinalPosition: 33
Required: False
SourceField: Swell Potential
SourceTable: LAB SPECIMEN

Vane Shear Yes/No 1

AllowZeroLength: False
AppendOnly: False
Attributes: Fixed Size
CollatingOrder: General
DataUpdatable: False
gintBackColor: 0
gintBlobType: 0
gintCaption:
gintCaptionVertical: False
gintDefaultExpr:
gintDesc:
gintFileRefData:
gintFlags: 0
gintLookup:
gintLookupFilter:
gintRules:
gintUnits:
gintViewWidTwips: 840
OrdinalPosition: 34
Required: False
SourceField: Vane Shear
SourceTable: LAB SPECIMEN

Other Test 1 Text 255

AllowZeroLength: True
AppendOnly: False
Attributes: Variable Length
CollatingOrder: General
DataUpdatable: False
gintBackColor: 0
gintBlobType: 0
gintCaption:
gintCaptionVertical: False
gintDefaultExpr:
gintDesc: Single test for which data not entered in lab module
gintFileRefData:
gintFlags: 0
gintLookup:
gintLookupFilter:
gintRules:
gintUnits:
gintViewWidTwips: 588
OrdinalPosition: 35

Required:	False		
SourceField:	Other Test 1		
SourceTable:	LAB SPECIMEN		
Other Test 2		Text	255
AllowZeroLength:	True		
AppendOnly:	False		
Attributes:	Variable Length		
CollatingOrder:	General		
DataUpdatable:	False		
gintBackColor:	0		
gintBlobType:	0		
gintCaption:			
gintCaptionVertical:	False		
gintDefaultExpr:			
gintDesc:	Single test for which data not entered in lab module		
gintFileRefData:			
gintFlags:	2		
gintLookup:			
gintLookupFilter:			
gintRules:			
gintUnits:			
gintViewWidTwips:	564		
OrdinalPosition:	36		
Required:	False		
SourceField:	Other Test 2		
SourceTable:	LAB SPECIMEN		
Other Test 3		Text	255
AllowZeroLength:	True		
AppendOnly:	False		
Attributes:	Variable Length		
CollatingOrder:	General		
DataUpdatable:	False		
gintBackColor:	0		
gintBlobType:	0		
gintCaption:			
gintCaptionVertical:	False		
gintDefaultExpr:			
gintDesc:	Single test for which data not entered in lab module		
gintFileRefData:			
gintFlags:	2		
gintLookup:			
gintLookupFilter:			
gintRules:			
gintUnits:			
gintViewWidTwips:	528		
OrdinalPosition:	37		
Required:	False		
SourceField:	Other Test 3		
SourceTable:	LAB SPECIMEN		

Relationships

POINTLAB SPECIMEN

POINT		LAB SPECIMEN
PointID	1	∞ PointID

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

LAB SPECIMENSIEVE

LAB SPECIMEN		SIEVE
PointID	1	1 PointID
Depth	1	1 Depth

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

LAB SPECIMENFALL HEAD K

LAB SPECIMEN		FALL HEAD K
PointID	1	1 PointID
Depth	1	1 Depth

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

LAB SPECIMENDIRECT SHEAR

LAB SPECIMEN		DIRECT SHEAR
PointID	1	1 PointID
Depth	1	1 Depth

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

LAB SPECIMENUNCONF COMPR

LAB SPECIMEN			UNCONF COMPR
PointID	1	1	PointID
Depth	1	1	Depth

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

LAB SPECIMENATTERBERG

LAB SPECIMEN			ATTERBERG
PointID	1	1	PointID
Depth	1	1	Depth

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

LAB SPECIMENFINE SG

LAB SPECIMEN			FINE SG
PointID	1	1	PointID
Depth	1	1	Depth

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

LAB SPECIMENCOMPACTION

LAB SPECIMEN			COMPACTION
PointID	1	1	PointID
Depth	1	1	Depth

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

LAB SPECIMENWC DENSITY

LAB SPECIMEN			WC DENSITY
PointID	1	1	PointID
Depth	1	1	Depth

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

LAB SPECIMENCONSOLIDATION

LAB SPECIMEN			CONSOLIDATION
PointID	1	1	PointID
Depth	1	1	Depth

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

LAB SPECIMENHYDROMETER

LAB SPECIMEN			HYDROMETER
PointID	1	1	PointID
Depth	1	1	Depth

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

Table Indexes

Name	Number of Fields
GintIndex	2
Clustered:	False
DistinctCount:	0
Foreign:	False
IgnoreNulls:	False
Name:	GintIndex
Primary:	False
Required:	False
Unique:	True
Fields:	
PointID	Ascending
Depth	Ascending
Primary	1
Clustered:	False
DistinctCount:	0
Foreign:	False

IgnoreNulls:	False
Name:	Primary
Primary:	True
Required:	True
Unique:	True
Fields:	
GintRecID	Ascending
Reference	1
Clustered:	False
DistinctCount:	0
Foreign:	True
IgnoreNulls:	False
Name:	Reference
Primary:	False
Required:	False
Unique:	False
Fields:	
PointID	Ascending

User Permissions

admin	Delete, Read Permissions, Set Permissions, Change Owner, Read Definition, Write Definition, Read Data, Insert Data, Update Data, Delete Data
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Group Permissions

Admins	Delete, Read Permissions, Set Permissions, Change Owner, Read Definition, Write Definition, Read Data, Insert Data, Update Data, Delete Data
Users	

Properties

DateCreated:	4/10/1997 1:48:38 AM	gintAutoCreateImport:	False
gintAutoCreateInput:	False	gintCaption:	Borehole
gintColHeadingLines:	3	gintDataCheckProc:	
gintDate:	39548.4615740741	gintDesc:	706,Table
gintDisplayPs:	1	gintGintRulesProc:	Procedures\boreholesave
gintGroupName:		gintGroupParent:	
gintHelpText:		gintKeepDataInClone:	False
gintKeyIsCounter:	False	gintLookupFieldCount:	0
gintLookupKeyHide:	False	gintNoDisplay:	False
gintPostProc:		gintPreviewReport:	Log\caltrans rotary lotb met+eng
gintShowAllParentKeys:	False	gintSourceName:	POINT
gintSplitScreenChild:		gintSystemTable:	False
gintTablePreviewOnly:	False	gintViewRowHtTwips:	516
gintViewWidTwips:	0	LastUpdated:	3/25/2008 11:38:54 AM
RecordCount:	0	Updatable:	True

Columns

Name	Type	Size
GintRecID	Long Integer	4
AllowZeroLength:	False	
AppendOnly:	False	
Attributes:	Fixed Size, Auto-Increment	
CollatingOrder:	General	
DataUpdatable:	False	
gintBackColor:	0	
gintBlobType:	0	
gintCaption:		
gintCaptionVertical:	False	
gintDefaultExpr:		
gintDesc:	System requirement. Not user editable.	
gintFileRefData:		
gintFlags:	2	
gintLookup:		
gintLookupFilter:		
gintRules:		
gintUnits:		
gintViewWidTwips:	1116	
OrdinalPosition:	1	
Required:	False	
SourceField:	GintRecID	
SourceTable:	POINT	
PointID	Text	255
AllowZeroLength:	False	
AppendOnly:	False	
Attributes:	Variable Length	
CollatingOrder:	General	
DataUpdatable:	False	

gintBackColor: 0
gintBlobType: 0
gintCaption: Boring Designation
gintCaptionVertical: False
gintDefaultExpr:
gintDesc:
gintFileRefData:
gintFlags: 0
gintLookup:
gintLookupFilter:
gintRules:
gintUnits:
gintViewWidTwips: 1410
OrdinalPosition: 2
Required: True
SourceField: PointID
SourceTable: POINT

Hole Type Text 255

AllowZeroLength: True
AppendOnly: False
Attributes: Variable Length
CollatingOrder: General
DataUpdatable: False
gintBackColor: 0
gintBlobType: 0
gintCaption:
gintCaptionVertical: False
gintDefaultExpr:
gintDesc: Hole type determines prefix of boring identification.
gintFileRefData:
gintFlags: 1
gintLookup: Lookuphole type
gintLookupFilter:
gintRules:
gintUnits:
gintViewWidTwips: 1167
OrdinalPosition: 3
Required: False
SourceField: Hole Type
SourceTable: POINT

HoleDepth Double 8

AllowZeroLength: False
AppendOnly: False
Attributes: Fixed Size
CollatingOrder: General
DataUpdatable: False
gintBackColor: 0
gintBlobType: 0
gintCaption: Total Depth of Hole
gintCaptionVertical: False
gintDefaultExpr:
gintDesc:
gintFileRefData:
gintFlags: 4

gintLookup:
gintLookupFilter:
gintRules:
gintUnits: ft
gintViewWidTwips: 870
OrdinalPosition: 4
Required: True
SourceField: HoleDepth
SourceTable: POINT

Elevation Text 255

AllowZeroLength: True
AppendOnly: False
Attributes: Variable Length
CollatingOrder: General
DataUpdatable: False
gintBackColor: 0
gintBlobType: 0
gintCaption:
gintCaptionVertical: False
gintDefaultExpr:
gintDesc:
gintFileRefData:
gintFlags: 4
gintLookup:
gintLookupFilter:
gintRules:
gintUnits: ft
gintViewWidTwips: 945
OrdinalPosition: 5
Required: False
SourceField: Elevation
SourceTable: POINT

Elevation Basis Text 255

AllowZeroLength: True
AppendOnly: False
Attributes: Variable Length
CollatingOrder: General
DataUpdatable: False
gintBackColor: 0
gintBlobType: 0
gintCaption:
gintCaptionVertical: False
gintDefaultExpr:
gintDesc: Elevation basis determines accuracy of elevation on Boring Record, LOTB, and fence; topo map = integer; GPS = 0.0; survey crew = 0.00

gintFileRefData:
gintFlags: 1
gintLookup: Lookuptsurvey method
gintLookupFilter:
gintRules:
gintUnits:
gintViewWidTwips: 1540
OrdinalPosition: 6

Required:	False		
SourceField:	Elevation Basis		
SourceTable:	POINT		
Bridge Number		Text	255
AllowZeroLength:	True		
AppendOnly:	False		
Attributes:	Variable Length		
CollatingOrder:	General		
DataUpdatable:	False		
gintBackColor:	0		
gintBlobType:	0		
gintCaption:	Structure Number		
gintCaptionVertical:	False		
gintDefaultExpr:			
gintDesc:			
gintFileRefData:			
gintFlags:	0		
gintLookup:			
gintLookupFilter:			
gintRules:			
gintUnits:			
gintViewWidTwips:	900		
OrdinalPosition:	7		
Required:	False		
SourceField:	Bridge Number		
SourceTable:	POINT		
Structure Name		Text	255
AllowZeroLength:	True		
AppendOnly:	False		
Attributes:	Variable Length		
CollatingOrder:	General		
DataUpdatable:	False		
gintBackColor:	0		
gintBlobType:	0		
gintCaption:			
gintCaptionVertical:	False		
gintDefaultExpr:			
gintDesc:	Name of structure or bridge		
gintFileRefData:			
gintFlags:	0		
gintLookup:			
gintLookupFilter:			
gintRules:			
gintUnits:			
gintViewWidTwips:	1528		
OrdinalPosition:	8		
Required:	False		
SourceField:	Structure Name		
SourceTable:	POINT		
Location Accuracy		Text	255
AllowZeroLength:	True		
AppendOnly:	False		
Attributes:	Variable Length		

CollatingOrder:	General		
DataUpdatable:	False		
gintBackColor:	0		
gintBlobType:	0		
gintCaption:			
gintCaptionVertical:	False		
gintDefaultExpr:			
gintDesc:			
gintFileRefData:			
gintFlags:	0		
gintLookup:	Lookup\location accuracy		
gintLookupFilter:			
gintRules:			
gintUnits:			
gintViewWidTwips:	852		
OrdinalPosition:	9		
Required:	False		
SourceField:	Location Accuracy		
SourceTable:	POINT		
Station Line		Text	255
AllowZeroLength:	True		
AppendOnly:	False		
Attributes:	Variable Length		
CollatingOrder:	General		
DataUpdatable:	False		
gintBackColor:	0		
gintBlobType:	0		
gintCaption:			
gintCaptionVertical:	False		
gintDefaultExpr:			
gintDesc:			
gintFileRefData:			
gintFlags:	0		
gintLookup:			
gintLookupFilter:			
gintRules:			
gintUnits:			
gintViewWidTwips:	708		
OrdinalPosition:	10		
Required:	False		
SourceField:	Station Line		
SourceTable:	POINT		
Station		Text	255
AllowZeroLength:	True		
AppendOnly:	False		
Attributes:	Variable Length		
CollatingOrder:	General		
DataUpdatable:	False		
gintBackColor:	0		
gintBlobType:	0		
gintCaption:			
gintCaptionVertical:	False		
gintDefaultExpr:			
gintDesc:			

	gintFileRefData:	0		
	gintFlags:			
	gintLookup:			
	gintLookupFilter:			
	gintRules:			
	gintUnits:	ft		
	gintViewWidTwips:	957		
	OrdinalPosition:	11		
	Required:	False		
	SourceField:	Station		
	SourceTable:	POINT		
Offset	AllowZeroLength:	False	Single	4
	AppendOnly:	False		
	Attributes:	Fixed Size		
	CollatingOrder:	General		
	DataUpdatable:	False		
	gintBackColor:	0		
	gintBlobType:	0		
	gintCaption:			
	gintCaptionVertical:	False		
	gintDefaultExpr:			
	gintDesc:	Negative offsets are offsets left of centerline. So 30L would be entered as -30, 30R would be entered as 30.		
	gintFileRefData:			
	gintFlags:	0		
	gintLookup:			
	gintLookupFilter:			
	gintRules:			
	gintUnits:	ft		
	gintViewWidTwips:	957		
	OrdinalPosition:	12		
	Required:	False		
	SourceField:	Offset		
	SourceTable:	POINT		
North	AllowZeroLength:	False	Double	8
	AppendOnly:	False		
	Attributes:	Fixed Size		
	CollatingOrder:	General		
	DataUpdatable:	False		
	gintBackColor:	0		
	gintBlobType:	0		
	gintCaption:	Northing		
	gintCaptionVertical:	False		
	gintDefaultExpr:			
	gintDesc:			
	gintFileRefData:			
	gintFlags:	4		
	gintLookup:			
	gintLookupFilter:			
	gintRules:			
	gintUnits:	ft		

	gintViewWidTwips:	1080		
	OrdinalPosition:	13		
	Required:	False		
	SourceField:	North		
	SourceTable:	POINT		
East	AllowZeroLength:	False	Double	8
	AppendOnly:	False		
	Attributes:	Fixed Size		
	CollatingOrder:	General		
	DataUpdatable:	False		
	gintBackColor:	0		
	gintBlobType:	0		
	gintCaption:	Easting		
	gintCaptionVertical:	False		
	gintDefaultExpr:			
	gintDesc:			
	gintFileRefData:			
	gintFlags:	4		
	gintLookup:			
	gintLookupFilter:			
	gintRules:			
	gintUnits:	ft		
	gintViewWidTwips:	960		
	OrdinalPosition:	14		
	Required:	False		
	SourceField:	East		
	SourceTable:	POINT		
Local Coordinate Reference System	AllowZeroLength:	True	Text	255
	AppendOnly:	False		
	Attributes:	Variable Length		
	CollatingOrder:	General		
	DataUpdatable:	False		
	gintBackColor:	0		
	gintBlobType:	0		
	gintCaption:			
	gintCaptionVertical:	False		
	gintDefaultExpr:			
	gintDesc:			
	gintFileRefData:			
	gintFlags:	0		
	gintLookup:	Lookuplocal crs		
	gintLookupFilter:			
	gintRules:			
	gintUnits:			
	gintViewWidTwips:	2724		
	OrdinalPosition:	15		
	Required:	False		
	SourceField:	Local Coordinate Reference System		
	SourceTable:	POINT		
Lat Deg	AllowZeroLength:	False	Integer	2

AppendOnly: False
 Attributes: Fixed Size
 CollatingOrder: General
 DataUpdatable: False
 gintBackColor: 0
 gintBlobType: 0
 gintCaption:
 gintCaptionVertical: False
 gintDefaultExpr:
 gintDesc:
 gintFileRefData:
 gintFlags: 0
 gintLookup:
 gintLookupFilter:
 gintRules:
 gintUnits:
 gintViewWidTwips: 585
 OrdinalPosition: 16
 Required: False
 SourceField: Lat Deg
 SourceTable: POINT

Lat Min Integer 2

AllowZeroLength: False
 AppendOnly: False
 Attributes: Fixed Size
 CollatingOrder: General
 DataUpdatable: False
 gintBackColor: 0
 gintBlobType: 0
 gintCaption:
 gintCaptionVertical: False
 gintDefaultExpr:
 gintDesc:
 gintFileRefData:
 gintFlags: 0
 gintLookup:
 gintLookupFilter:
 gintRules:
 gintUnits:
 gintViewWidTwips: 555
 OrdinalPosition: 17
 Required: False
 SourceField: Lat Min
 SourceTable: POINT

Lat Sec Single 4

AllowZeroLength: False
 AppendOnly: False
 Attributes: Fixed Size
 CollatingOrder: General
 DataUpdatable: False
 gintBackColor: 0
 gintBlobType: 0
 gintCaption:
 gintCaptionVertical: False

gintDefaultExpr:
 gintDesc:
 gintFileRefData:
 gintFlags: 0
 gintLookup:
 gintLookupFilter:
 gintRules:
 gintUnits:
 gintViewWidTwips: 585
 OrdinalPosition: 18
 Required: False
 SourceField: Lat Sec
 SourceTable: POINT

Long Deg Integer 2

AllowZeroLength: False
 AppendOnly: False
 Attributes: Fixed Size
 CollatingOrder: General
 DataUpdatable: False
 gintBackColor: 0
 gintBlobType: 0
 gintCaption:
 gintCaptionVertical: False
 gintDefaultExpr:
 gintDesc:
 gintFileRefData:
 gintFlags: 0
 gintLookup:
 gintLookupFilter:
 gintRules:
 gintUnits:
 gintViewWidTwips: 600
 OrdinalPosition: 19
 Required: False
 SourceField: Long Deg
 SourceTable: POINT

Long Min Integer 2

AllowZeroLength: False
 AppendOnly: False
 Attributes: Fixed Size
 CollatingOrder: General
 DataUpdatable: False
 gintBackColor: 0
 gintBlobType: 0
 gintCaption:
 gintCaptionVertical: False
 gintDefaultExpr:
 gintDesc:
 gintFileRefData:
 gintFlags: 0
 gintLookup:
 gintLookupFilter:
 gintRules:
 gintUnits:

	gintViewWidTwips:	615		
	OrdinalPosition:	20		
	Required:	False		
	SourceField:	Long Min		
	SourceTable:	POINT		
Long Sec			Single	4
	AllowZeroLength:	False		
	AppendOnly:	False		
	Attributes:	Fixed Size		
	CollatingOrder:	General		
	DataUpdatable:	False		
	gintBackColor:	0		
	gintBlobType:	0		
	gintCaption:			
	gintCaptionVertical:	False		
	gintDefaultExpr:			
	gintDesc:			
	gintFileRefData:			
	gintFlags:	0		
	gintLookup:			
	gintLookupFilter:			
	gintRules:			
	gintUnits:			
	gintViewWidTwips:	585		
	OrdinalPosition:	21		
	Required:	False		
	SourceField:	Long Sec		
	SourceTable:	POINT		
Location			Text	255
	AllowZeroLength:	True		
	AppendOnly:	False		
	Attributes:	Variable Length		
	CollatingOrder:	General		
	DataUpdatable:	False		
	gintBackColor:	0		
	gintBlobType:	0		
	gintCaption:			
	gintCaptionVertical:	False		
	gintDefaultExpr:			
	gintDesc:	Temporary location such as distance to fixed object or benchmark if no accurate Station/Offset, Lat/Long, or North/East available		
	gintFileRefData:			
	gintFlags:	0		
	gintLookup:			
	gintLookupFilter:			
	gintRules:			
	gintUnits:			
	gintViewWidTwips:	2250		
	OrdinalPosition:	22		
	Required:	False		
	SourceField:	Location		
	SourceTable:	POINT		

Date Started			Date/Time	8
	AllowZeroLength:	False		
	AppendOnly:	False		
	Attributes:	Fixed Size		
	CollatingOrder:	General		
	DataUpdatable:	False		
	gintBackColor:	0		
	gintBlobType:	0		
	gintCaption:			
	gintCaptionVertical:	False		
	gintDefaultExpr:			
	gintDesc:	Date drilling started		
	gintFileRefData:			
	gintFlags:	0		
	gintLookup:			
	gintLookupFilter:			
	gintRules:			
	gintUnits:			
	gintViewWidTwips:	1200		
	OrdinalPosition:	23		
	Required:	False		
	SourceField:	Date Started		
	SourceTable:	POINT		
Date Completed			Date/Time	8
	AllowZeroLength:	False		
	AppendOnly:	False		
	Attributes:	Fixed Size		
	CollatingOrder:	General		
	DataUpdatable:	False		
	gintBackColor:	0		
	gintBlobType:	0		
	gintCaption:			
	gintCaptionVertical:	False		
	gintDefaultExpr:			
	gintDesc:	Date drilling completed		
	gintFileRefData:			
	gintFlags:	0		
	gintLookup:			
	gintLookupFilter:			
	gintRules:			
	gintUnits:			
	gintViewWidTwips:	1275		
	OrdinalPosition:	24		
	Required:	False		
	SourceField:	Date Completed		
	SourceTable:	POINT		
Log Draft Date			Date/Time	8
	AllowZeroLength:	False		
	AppendOnly:	False		
	Attributes:	Fixed Size		
	CollatingOrder:	General		
	DataUpdatable:	False		
	gintBackColor:	0		
	gintBlobType:	0		

gintCaption:
gintCaptionVertical: False
gintDefaultExpr:
gintDesc: Log input data, then date draft modified thereafter
gintFileRefData:
gintFlags: 0
gintLookup:
gintLookupFilter:
gintRules:
gintUnits:
gintViewWidTwips: 1360
OrdinalPosition: 25
Required: False
SourceField: Log Draft Date
SourceTable: POINT

Field Logger Text 255

AllowZeroLength: True
AppendOnly: False
Attributes: Variable Length
CollatingOrder: General
DataUpdatable: False
gintBackColor: 0
gintBlobType: 0
gintCaption:
gintCaptionVertical: False
gintDefaultExpr:
gintDesc:
gintFileRefData:
gintFlags: 0
gintLookup:
gintLookupFilter:
gintRules:
gintUnits:
gintViewWidTwips: 1336
OrdinalPosition: 26
Required: False
SourceField: Field Logger
SourceTable: POINT

Drilling Contractor Text 255

AllowZeroLength: True
AppendOnly: False
Attributes: Variable Length
CollatingOrder: General
DataUpdatable: False
gintBackColor: 0
gintBlobType: 0
gintCaption:
gintCaptionVertical: False
gintDefaultExpr: <<Copy previous record>>
gintDesc:
gintFileRefData:
gintFlags: 0
gintLookup: Lookup!drilling contractors
gintLookupFilter:

gintRules:
gintUnits:
gintViewWidTwips: 1635
OrdinalPosition: 27
Required: False
SourceField: Drilling Contractor
SourceTable: POINT

Driller Name Text 255

AllowZeroLength: True
AppendOnly: False
Attributes: Variable Length
CollatingOrder: General
DataUpdatable: False
gintBackColor: 0
gintBlobType: 0
gintCaption:
gintCaptionVertical: False
gintDefaultExpr:
gintDesc:
gintFileRefData:
gintFlags: 0
gintLookup: Lookup!driller name
gintLookupFilter:
gintRules:
gintUnits:
gintViewWidTwips: 816
OrdinalPosition: 28
Required: False
SourceField: Driller Name
SourceTable: POINT

Drilling Method Text 255

AllowZeroLength: True
AppendOnly: False
Attributes: Variable Length
CollatingOrder: General
DataUpdatable: False
gintBackColor: 0
gintBlobType: 0
gintCaption:
gintCaptionVertical: False
gintDefaultExpr:
gintDesc:
gintFileRefData:
gintFlags: 0
gintLookup: Lookup!drilling method
gintLookupFilter:
gintRules:
gintUnits:
gintViewWidTwips: 1492
OrdinalPosition: 29
Required: False
SourceField: Drilling Method
SourceTable: POINT

Drilling Equipment	Text	255
AllowZeroLength:	True	
AppendOnly:	False	
Attributes:	Variable Length	
CollatingOrder:	General	
DataUpdatable:	False	
gintBackColor:	0	
gintBlobType:	0	
gintCaption:		
gintCaptionVertical:	False	
gintDefaultExpr:		
gintDesc:	Rig type, manufacturer and model, Caltrans equipment ID	
gintFileRefData:		
gintFlags:	0	
gintLookup:	Lookup!drilling equipment	
gintLookupFilter:		
gintRules:		
gintUnits:		
gintViewWidTwips:	1935	
OrdinalPosition:	30	
Required:	False	
SourceField:	Drilling Equipment	
SourceTable:	POINT	
Caltrans Drill Rig ID	Text	255
AllowZeroLength:	True	
AppendOnly:	False	
Attributes:	Variable Length	
CollatingOrder:	General	
DataUpdatable:	False	
gintBackColor:	0	
gintBlobType:	0	
gintCaption:		
gintCaptionVertical:	False	
gintDefaultExpr:		
gintDesc:		
gintFileRefData:		
gintFlags:	0	
gintLookup:		
gintLookupFilter:		
gintRules:		
gintUnits:		
gintViewWidTwips:	2008	
OrdinalPosition:	31	
Required:	False	
SourceField:	Caltrans Drill Rig ID	
SourceTable:	POINT	
Hole Diameter	Text	255
AllowZeroLength:	True	
AppendOnly:	False	
Attributes:	Variable Length	
CollatingOrder:	General	
DataUpdatable:	False	
gintBackColor:	0	
gintBlobType:	0	

gintCaption:		
gintCaptionVertical:	False	
gintDefaultExpr:		
gintDesc:	Diameter of borehole determined by bit or auger size; may be multiple if, for example, rotary wash to bedrock then HQ coring below. If multiple, enter the soil hole diameter at the beginning of a text string such as 8.5 in. (soil); 4 in. (rock)	
gintFileRefData:		
gintFlags:	0	
gintLookup:		
gintLookupFilter:		
gintRules:		
gintUnits:	in	
gintViewWidTwips:	1152	
OrdinalPosition:	32	
Required:	False	
SourceField:	Hole Diameter	
SourceTable:	POINT	
Drill Rod	Text	255
AllowZeroLength:	True	
AppendOnly:	False	
Attributes:	Variable Length	
CollatingOrder:	General	
DataUpdatable:	False	
gintBackColor:	0	
gintBlobType:	0	
gintCaption:		
gintCaptionVertical:	False	
gintDefaultExpr:		
gintDesc:	Type and diameter of rod	
gintFileRefData:		
gintFlags:	0	
gintLookup:		
gintLookupFilter:		
gintRules:		
gintUnits:		
gintViewWidTwips:	1048	
OrdinalPosition:	33	
Required:	False	
SourceField:	Drill Rod	
SourceTable:	POINT	
Casing Diameter	Text	255
AllowZeroLength:	True	
AppendOnly:	False	
Attributes:	Variable Length	
CollatingOrder:	General	
DataUpdatable:	False	
gintBackColor:	0	
gintBlobType:	0	
gintCaption:		
gintCaptionVertical:	False	
gintDefaultExpr:		

```

gintDesc:
gintFileRefData:
gintFlags: 0
gintLookup:
gintLookupFilter:
gintRules:
gintUnits: in
gintViewWidTwips: 876
OrdinalPosition: 34
Required: False
SourceField: Casing Diameter
SourceTable: POINT

Driven Casing Depth Single 4
AllowZeroLength: False
AppendOnly: False
Attributes: Fixed Size
CollatingOrder: General
DataUpdatable: False
gintBackColor: 0
gintBlobType: 0
gintCaption:
gintCaptionVertical: False
gintDefaultExpr:
gintDesc: A graphic column will appear to right of the drilling method graphic
from a depth of 0 to the depth specified in this field.
gintFileRefData:
gintFlags: 0
gintLookup:
gintLookupFilter:
gintRules: ft
gintUnits: 804
gintViewWidTwips: 35
OrdinalPosition: 35
Required: False
SourceField: Driven Casing Depth
SourceTable: POINT

Hammer Type Wt Drop Text 255
AllowZeroLength: True
AppendOnly: False
Attributes: Variable Length
CollatingOrder: General
DataUpdatable: False
gintBackColor: 0
gintBlobType: 0
gintCaption:
gintCaptionVertical: False
gintDefaultExpr:
gintDesc: SPT hammer type (safety or automatic), lifting mechanism (for safety
hammer), manufacturer and model.
gintFileRefData:
gintFlags: 0
gintLookup:
gintLookupFilter:

```

```

gintRules:
gintUnits:
gintViewWidTwips: 2092
OrdinalPosition: 36
Required: False
SourceField: Hammer Type Wt Drop
SourceTable: POINT

Caltrans Hammer ID Text 255
AllowZeroLength: True
AppendOnly: False
Attributes: Variable Length
CollatingOrder: General
DataUpdatable: False
gintBackColor: 0
gintBlobType: 0
gintCaption:
gintCaptionVertical: False
gintDefaultExpr:
gintDesc:
gintFileRefData:
gintFlags: 0
gintLookup:
gintLookupFilter:
gintRules:
gintUnits:
gintViewWidTwips: 1864
OrdinalPosition: 37
Required: False
SourceField: Caltrans Hammer ID
SourceTable: POINT

Hammer Efficiency Text 255
AllowZeroLength: True
AppendOnly: False
Attributes: Variable Length
CollatingOrder: General
DataUpdatable: False
gintBackColor: 0
gintBlobType: 0
gintCaption:
gintCaptionVertical: False
gintDefaultExpr:
gintDesc: Measured energy efficiency ratio (if available)
gintFileRefData:
gintFlags: 0
gintLookup:
gintLookupFilter:
gintRules:
gintUnits:
gintViewWidTwips: 1768
OrdinalPosition: 38
Required: False
SourceField: Hammer Efficiency
SourceTable: POINT

```

Sampling Method Text 255

AllowZeroLength: True
 AppendOnly: False
 Attributes: Variable Length
 CollatingOrder: General
 DataUpdatable: False
 gintBackColor: 0
 gintBlobType: 0
 gintCaption: 0
 gintCaptionVertical: False
 gintDefaultExpr: 0
 gintDesc: Enter list of all sampler types used in borehole sampling and inside diameters: SPT (1.4"), Mod Cal (2.0"), Cal (2.5"), Shelby or Piston (2.87"). If blank, soil sample types used will be automatically generated from Soil Sample data entry; if both soil sampling and rock coring (data entry in Rock Core Sample table), enter rock core sample type at single depth without length in Soil Sample table to get complete automatic list; if only rock coring in borehole, core sample type(s) used will be automatically generated from Rock Core Sample data entry.

gintFileRefData: 0
 gintFlags: 0
 gintLookup: 0
 gintLookupFilter: 0
 gintRules: 0
 gintUnits: 1965
 gintViewWidTwips: 39
 OrdinalPosition: False
 Required: False
 SourceField: Sampling Method
 SourceTable: POINT

Depth of Fill Single 4

AllowZeroLength: False
 AppendOnly: False
 Attributes: Fixed Size
 CollatingOrder: General
 DataUpdatable: False
 gintBackColor: 0
 gintBlobType: 0
 gintCaption: 0
 gintCaptionVertical: False
 gintDefaultExpr: 0
 gintDesc: 0
 gintFileRefData: 0
 gintFlags: 0
 gintLookup: 0
 gintLookupFilter: 0
 gintRules: 0
 gintUnits: ft
 gintViewWidTwips: 960

OrdinalPosition: 40
 Required: False
 SourceField: Depth of Fill
 SourceTable: POINT

Rock Coring Start Depth Text 255

AllowZeroLength: True
 AppendOnly: False
 Attributes: Variable Length
 CollatingOrder: General
 DataUpdatable: False
 gintBackColor: 0
 gintBlobType: 0
 gintCaption: 0
 gintCaptionVertical: False
 gintDefaultExpr: 0
 gintDesc: Depth at which rock coring commenced; determines depth of "diamond" start of rock core indicator on Rotary LOTB.

gintFileRefData: 0
 gintFlags: 0
 gintLookup: 0
 gintLookupFilter: 0
 gintRules: 0
 gintUnits: ft
 gintViewWidTwips: 1125
 OrdinalPosition: 41
 Required: False
 SourceField: Rock Coring Start Depth
 SourceTable: POINT

Termination Notes Memo -

AllowZeroLength: True
 AppendOnly: False
 Attributes: Variable Length
 CollatingOrder: General
 DataUpdatable: False
 gintBackColor: 0
 gintBlobType: 0
 gintCaption: 0
 gintCaptionVertical: False
 gintDefaultExpr: Data entered here will be printed at the bottom of borehole.
 gintFileRefData: 0
 gintFlags: 0
 gintLookup: 0
 gintLookupFilter: 0
 gintRules: 0
 gintUnits: 4425
 gintViewWidTwips: 42
 OrdinalPosition: False
 Required: False
 SourceField: Termination Notes
 SourceTable: POINT

Borehole Backfill or Completion Text 255

AllowZeroLength: True
AppendOnly: False
Attributes: Variable Length
CollatingOrder: General
DataUpdatable: False
gintBackColor: 0
gintBlobType: 0
gintCaption:
gintCaptionVertical: False
gintDefaultExpr:
gintDesc:
gintFileRefData:
gintFlags: 0
gintLookup:
gintLookupFilter:
gintRules:
gintUnits:
gintViewWidTwips: 3216
OrdinalPosition: 43
Required: False
SourceField: Borehole Backfill or Completion
SourceTable: POINT

GW Depth During Drilling Text 255

AllowZeroLength: True
AppendOnly: False
Attributes: Variable Length
CollatingOrder: General
DataUpdatable: False
gintBackColor: 0
gintBlobType: 0
gintCaption:
gintCaptionVertical: False
gintDefaultExpr:
gintDesc: Depth to first water while drilling.
gintFileRefData: 0
gintFlags:
gintLookup:
gintLookupFilter:
gintRules:
gintUnits: ft
gintViewWidTwips: 2200
OrdinalPosition: 44
Required: False
SourceField: GW Depth During Drilling
SourceTable: POINT

GW Depth After Text 255

AllowZeroLength: True
AppendOnly: False
Attributes: Variable Length
CollatingOrder: General
DataUpdatable: False
gintBackColor: 0
gintBlobType: 0
gintCaption:

gintCaptionVertical: False
gintDefaultExpr:
gintDesc: Will appear as "after drilling" groundwater reading UNLESS additional readings / dates are entered in Water Levels table. If additional readings, most current reading / date will be listed as "after drilling" reading.
gintFileRefData:
gintFlags: 0
gintLookup:
gintLookupFilter:
gintRules:
gintUnits: ft
gintViewWidTwips: 855
OrdinalPosition: 45
Required: False
SourceField: GW Depth After
SourceTable: POINT

GW After Date Date/Time 8

AllowZeroLength: False
AppendOnly: Fixed Size
Attributes: General
CollatingOrder: General
DataUpdatable: False
gintBackColor: 0
gintBlobType: 0
gintCaption:
gintCaptionVertical: False
gintDefaultExpr:
gintDesc:
gintFileRefData: 0
gintFlags:
gintLookup:
gintLookupFilter:
gintRules:
gintUnits:
gintViewWidTwips: 1575
OrdinalPosition: 46
Required: False
SourceField: GW After Date
SourceTable: POINT

Geoengineering Contractor Text 255

AllowZeroLength: True
AppendOnly: False
Attributes: Variable Length
CollatingOrder: General
DataUpdatable: False
gintBackColor: 0
gintBlobType: 0
gintCaption:
gintCaptionVertical: False
gintDefaultExpr:
gintDesc: Record if geoengineering firm contracted by Caltrans to perform project or share responsibility for project with firm

gintFileRefData:
gintFlags: 0
gintLookup:
gintLookupFilter:
gintRules:
gintUnits:
gintViewWidTwips: 3225
OrdinalPosition: 47
Required: False
SourceField: Geoengineering Contractor
SourceTable: POINT

Plunge Double 8

AllowZeroLength: False
AppendOnly: False
Attributes: Fixed Size
CollatingOrder: General
DataUpdatable: False
gintBackColor: 0
gintBlobType: 0
gintCaption: Angle from Horizontal
gintCaptionVertical: False
gintDefaultExpr:
gintDesc: Hole angle from horizontal, -90 to 90. -90 = vertical down. Default is -90. Report converts to angle from vertical.

gintFileRefData:
gintFlags: 4
gintLookup:
gintLookupFilter:
gintRules:
gintUnits: deg
gintViewWidTwips: 1035
OrdinalPosition: 48
Required: False
SourceField: Plunge
SourceTable: POINT

Bearing Text 255

AllowZeroLength: True
AppendOnly: False
Attributes: Variable Length
CollatingOrder: General
DataUpdatable: False
gintBackColor: 0
gintBlobType: 0
gintCaption: False
gintCaptionVertical: False
gintDefaultExpr:
gintDesc: For example: N30E
gintFileRefData:
gintFlags: 4096
gintLookup:
gintLookupFilter:
gintRules: 744|85

gintUnits:
gintViewWidTwips: 972
OrdinalPosition: 49
Required: False
SourceField: Bearing
SourceTable: POINT

Depth Log Page Single 4

AllowZeroLength: False
AppendOnly: False
Attributes: Fixed Size
CollatingOrder: General
DataUpdatable: False
gintBackColor: 0
gintBlobType: 0
gintCaption:
gintCaptionVertical: False
gintDefaultExpr:
gintDesc: Depth in PROJECT Output Units (ft/m) on first page of log. Overrides the Depth Log Page field in the PROJECT table. If both are blank, default is 25 ft.

gintFileRefData:
gintFlags: 0
gintLookup:
gintLookupFilter:
gintRules:
gintUnits: ft
gintViewWidTwips: 810
OrdinalPosition: 50
Required: False
SourceField: Depth Log Page
SourceTable: POINT

Log Prepared By Text 255

AllowZeroLength: True
AppendOnly: False
Attributes: Variable Length
CollatingOrder: General
DataUpdatable: False
gintBackColor: 0
gintBlobType: 0
gintCaption:
gintCaptionVertical: False
gintDefaultExpr:
gintDesc:
gintFileRefData:
gintFlags: 0
gintLookup:
gintLookupFilter:
gintRules:
gintUnits:
gintViewWidTwips: 1648
OrdinalPosition: 51
Required: False
SourceField: Log Prepared By

SourceTable:	POINT		
Add Column 1		Text	255
AllowZeroLength:	True		
AppendOnly:	False		
Attributes:	Variable Length		
CollatingOrder:	General		
DataUpdatable:	False		
gintBackColor:	0		
gintBlobType:	0		
gintCaption:			
gintCaptionVertical:	False		
gintDefaultExpr:			
gintDesc:	Type of data (from pull-down list) in first column to right of sample number on Variable BR. Entry here will override all entries for "Add Column X" in Project Tab.		
gintFileRefData:			
gintFlags:	1		
gintLookup:	Libtbl\variable columns		
gintLookupFilter:			
gintRules:			
gintUnits:			
gintViewWidTwips:	1420		
OrdinalPosition:	52		
Required:	False		
SourceField:	Add Column 1		
SourceTable:	POINT		
Add Column 2		Text	255
AllowZeroLength:	True		
AppendOnly:	False		
Attributes:	Variable Length		
CollatingOrder:	General		
DataUpdatable:	False		
gintBackColor:	0		
gintBlobType:	0		
gintCaption:			
gintCaptionVertical:	False		
gintDefaultExpr:			
gintDesc:	Type of data (from pull-down list) in second column to right of sample number on Variable BR.		
gintFileRefData:			
gintFlags:	1		
gintLookup:	Libtbl\variable columns		
gintLookupFilter:			
gintRules:			
gintUnits:			
gintViewWidTwips:	1420		
OrdinalPosition:	53		
Required:	False		
SourceField:	Add Column 2		
SourceTable:	POINT		
Add Column 3		Text	255

AllowZeroLength:	True		
AppendOnly:	False		
Attributes:	Variable Length		
CollatingOrder:	General		
DataUpdatable:	False		
gintBackColor:	0		
gintBlobType:	0		
gintCaption:			
gintCaptionVertical:	False		
gintDefaultExpr:			
gintDesc:	Type of data (from pull-down list) in third column to right of sample number on Variable BR.		
gintFileRefData:			
gintFlags:	1		
gintLookup:	Libtbl\variable columns		
gintLookupFilter:			
gintRules:			
gintUnits:			
gintViewWidTwips:	1420		
OrdinalPosition:	54		
Required:	False		
SourceField:	Add Column 3		
SourceTable:	POINT		
Add Column 4		Text	255
AllowZeroLength:	True		
AppendOnly:	False		
Attributes:	Variable Length		
CollatingOrder:	General		
DataUpdatable:	False		
gintBackColor:	0		
gintBlobType:	0		
gintCaption:			
gintCaptionVertical:	False		
gintDefaultExpr:			
gintDesc:	Type of data (from pull-down list) in fourth column to right of sample number on Variable BR.		
gintFileRefData:			
gintFlags:	1		
gintLookup:	Libtbl\variable columns		
gintLookupFilter:			
gintRules:			
gintUnits:			
gintViewWidTwips:	1420		
OrdinalPosition:	55		
Required:	False		
SourceField:	Add Column 4		
SourceTable:	POINT		
Add Column 5		Text	255
AllowZeroLength:	True		
AppendOnly:	False		
Attributes:	Variable Length		
CollatingOrder:	General		
DataUpdatable:	False		

POINTROCK DESCRIPTION

POINT	ROCK DESCRIPTION
PointID	1 ∞ PointID
Attributes:	Enforced, Cascade Updates, Cascade Deletes
RelationshipType:	One-To-Many

POINTDRILLING NOTES

POINT	DRILLING NOTES
PointID	1 ∞ PointID
Attributes:	Enforced, Cascade Updates, Cascade Deletes
RelationshipType:	One-To-Many

POINTWATER LEVELS

POINT	WATER LEVELS
PointID	1 ∞ PointID
Attributes:	Enforced, Cascade Updates, Cascade Deletes
RelationshipType:	One-To-Many

Table Indexes

Name	Number of Fields
GINTINDEX	1
Clustered:	False
DistinctCount:	0
Foreign:	False
IgnoreNulls:	False
Name:	GINTINDEX
Primary:	False
Required:	False
Unique:	True
Fields:	
PointID	Ascending
Primary	1
Clustered:	False
DistinctCount:	0
Foreign:	False
IgnoreNulls:	False
Name:	Primary
Primary:	True
Required:	True
Unique:	True

Fields:
 GintRecID Ascending

User Permissions

admin	Delete, Read Permissions, Set Permissions, Change Owner, Read Definition, Write Definition, Read Data, Insert Data, Update Data, Delete Data
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Group Permissions

Admins	Delete, Read Permissions, Set Permissions, Change Owner, Read Definition, Write Definition, Read Data, Insert Data, Update Data, Delete Data
Users	

Properties

DateCreated:	4/10/1997 1:48:40 AM	gintAutoCreateImport:	False
gintAutoCreateInput:	False	gintCaption:	
gintColHeadingLines:	1	gintDate:	39532.4781134259
gintDesc:		gintDisplayPs:	0
gintGintRulesProc:	706,Table Procedures\projectsave	gintGroupName:	
gintGroupParent:		gintHelpText:	
gintKeepDataInClone:	False	gintKeysCounter:	False
gintLookupFieldCount:	0	gintLookupKeyHide:	False
gintNoDisplay:	False	gintPostProc:	
gintPreviewReport:		gintShowAllParentKeys:	False
gintSourceName:	PROJECT	gintSplitScreenChild:	
gintSystemTable:	False	gintTablePreviewOnly:	False
gintViewRowHtTwips:	405	gintViewWidTwips:	0
LastUpdated:	4/8/2008 2:20:34 PM	RecordCount:	0
Updatable:	True		

Columns

Name	Type	Size
GintRecID	Long Integer	4
AllowZeroLength: False AppendOnly: False Attributes: Fixed Size, Auto-Increment CollatingOrder: General DataUpdatable: False gintBackColor: 0 gintBlobType: 0 gintCaption: False gintCaptionVertical: False gintDefaultExpr: System requirement. Not user editable. gintDesc: System requirement. Not user editable. gintFileRefData: 2 gintFlags: 2 gintLookup: 2 gintLookupFilter: 2 gintRules: 2 gintUnits: 1116 gintViewWidTwips: 1 OrdinalPosition: 1 Required: False SourceField: GintRecID SourceTable: PROJECT		
Project Name	Text	255
AllowZeroLength: True AppendOnly: False Attributes: Variable Length CollatingOrder: General DataUpdatable: False gintBackColor: 0		

gintBlobType:	0
gintCaption:	False
gintCaptionVertical:	False
gintDefaultExpr:	Name of the entire project; could be structure name or bridge number if it is used on the entire project.
gintDesc:	
gintFileRefData:	
gintFlags:	0
gintLookup:	
gintLookupFilter:	
gintRules:	
gintUnits:	
gintViewWidTwips:	1408
OrdinalPosition:	2
Required:	False
SourceField:	Project Name
SourceTable:	PROJECT

Project Number	Text	255
AllowZeroLength: False AppendOnly: False Attributes: Variable Length CollatingOrder: General DataUpdatable: False gintBackColor: 0 gintBlobType: 0 gintCaption: False gintCaptionVertical: False gintDefaultExpr: Project Number is 8 digits (e.g. 12-123456) with hyphen gintDesc: Project Number is 8 digits (e.g. 12-123456) with hyphen gintFileRefData: 0 gintFlags: 0 gintLookup: 0 gintLookupFilter: 743 9 gintRules: 743 9 gintUnits: 1242 gintViewWidTwips: 3 OrdinalPosition: 3 Required: True SourceField: Project Number SourceTable: PROJECT		
Add Column 1	Text	255
AllowZeroLength: True AppendOnly: False Attributes: Variable Length CollatingOrder: General DataUpdatable: False gintBackColor: 0 gintBlobType: 0 gintCaption: False gintCaptionVertical: False gintDefaultExpr: Type of data (from pull-down list) in first column to right of sample number on Variable BR. Entry in Borehole Tab "Add Column 1" will override all entries for Project Tab "Add Column 1-6." gintDesc: Type of data (from pull-down list) in first column to right of sample number on Variable BR. Entry in Borehole Tab "Add Column 1" will override all entries for Project Tab "Add Column 1-6."		

```
gintFileRefData:
gintFlags: 1
gintLookup: Libtbl\variable columns
gintLookupFilter:
gintRules:
gintUnits: 1420
gintViewWidTwips: 4
OrdinalPosition: 4
Required: False
SourceField: Add Column 1
SourceTable: PROJECT

Add Column 2 255 Text
AllowZeroLength: True
AppendOnly: False
Attributes: Variable Length
CollatingOrder: General
DataUpdatable: False
gintBackColor: 0
gintBlobType: 0
gintCaption:
gintCaptionVertical: False
gintDefaultExpr:
gintDesc: Type of data (from pull-down list) in second column to right of
sample number on Variable BR.

gintFileRefData:
gintFlags: 1
gintLookup: Libtbl\variable columns
gintLookupFilter:
gintRules:
gintUnits: 1420
gintViewWidTwips: 5
OrdinalPosition: 5
Required: False
SourceField: Add Column 2
SourceTable: PROJECT

Add Column 3 255 Text
AllowZeroLength: True
AppendOnly: False
Attributes: Variable Length
CollatingOrder: General
DataUpdatable: False
gintBackColor: 0
gintBlobType: 0
gintCaption:
gintCaptionVertical: False
gintDefaultExpr:
gintDesc: Type of data (from pull-down list) in third column to right of sample
number on Variable BR.

gintFileRefData:
gintFlags: 1
gintLookup: Libtbl\variable columns
gintLookupFilter:
gintRules:
```

```
gintUnits:
gintViewWidTwips: 1420
OrdinalPosition: 6
Required: False
SourceField: Add Column 3
SourceTable: PROJECT

Add Column 4 255 Text
AllowZeroLength: True
AppendOnly: False
Attributes: Variable Length
CollatingOrder: General
DataUpdatable: False
gintBackColor: 0
gintBlobType: 0
gintCaption:
gintCaptionVertical: False
gintDefaultExpr:
gintDesc: Type of data (from pull-down list) in fourth column to right of sample
number on Variable BR.

gintFileRefData:
gintFlags: 1
gintLookup: Libtbl\variable columns
gintLookupFilter:
gintRules:
gintUnits: 1420
gintViewWidTwips: 7
OrdinalPosition: 7
Required: False
SourceField: Add Column 4
SourceTable: PROJECT

Add Column 5 255 Text
AllowZeroLength: True
AppendOnly: False
Attributes: Variable Length
CollatingOrder: General
DataUpdatable: False
gintBackColor: 0
gintBlobType: 0
gintCaption:
gintCaptionVertical: False
gintDefaultExpr:
gintDesc: Type of data (from pull-down list) in fifth column to right of sample
number on Variable BR.

gintFileRefData:
gintFlags: 1
gintLookup: Libtbl\variable columns
gintLookupFilter:
gintRules:
gintUnits: 1420
gintViewWidTwips: 8
OrdinalPosition: 8
Required: False
SourceField: Add Column 5
```

SourceTable:	PROJECT		
Add Column 6		Text	255
AllowZeroLength:	True		
AppendOnly:	False		
Attributes:	Variable Length		
CollatingOrder:	General		
DataUpdatable:	False		
gintBackColor:	0		
gintBlobType:	0		
gintCaption:			
gintCaptionVertical:	False		
gintDefaultExpr:			
gintDesc:	Type of data (from pull-down list) in sixth column to right of sample number on Variable BR.		
gintFileRefData:			
gintFlags:	1		
gintLookup:	Libtbl\variable columns		
gintLookupFilter:			
gintRules:			
gintUnits:			
gintViewWidTwips:	1420		
OrdinalPosition:	9		
Required:	False		
SourceField:	Add Column 6		
SourceTable:	PROJECT		
Office		Text	255
AllowZeroLength:	False		
AppendOnly:	False		
Attributes:	Variable Length		
CollatingOrder:	General		
DataUpdatable:	False		
gintBackColor:	0		
gintBlobType:	0		
gintCaption:			
gintCaptionVertical:	False		
gintDefaultExpr:			
gintDesc:	Design Office		
gintFileRefData:			
gintFlags:	1		
gintLookup:	Lookup\caltrans office		
gintLookupFilter:			
gintRules:			
gintUnits:			
gintViewWidTwips:	897		
OrdinalPosition:	10		
Required:	True		
SourceField:	Office		
SourceTable:	PROJECT		
District		Text	255
AllowZeroLength:	False		
AppendOnly:	False		
Attributes:	Variable Length		

CollatingOrder:	General		
DataUpdatable:	False		
gintBackColor:	0		
gintBlobType:	0		
gintCaption:			
gintCaptionVertical:	False		
gintDefaultExpr:			
gintDesc:	Two digit district number		
gintFileRefData:			
gintFlags:	1		
gintLookup:	Lookup\caltrans district		
gintLookupFilter:			
gintRules:	743 2		
gintUnits:			
gintViewWidTwips:	912		
OrdinalPosition:	11		
Required:	True		
SourceField:	District		
SourceTable:	PROJECT		
County		Text	255
AllowZeroLength:	False		
AppendOnly:	False		
Attributes:	Variable Length		
CollatingOrder:	General		
DataUpdatable:	False		
gintBackColor:	0		
gintBlobType:	0		
gintCaption:			
gintCaptionVertical:	False		
gintDefaultExpr:			
gintDesc:	Counties in CA, use Lookup list		
gintFileRefData:			
gintFlags:	1		
gintLookup:	Lookup\counties		
gintLookupFilter:			
gintRules:			
gintUnits:			
gintViewWidTwips:	927		
OrdinalPosition:	12		
Required:	True		
SourceField:	County		
SourceTable:	PROJECT		
Route		Text	255
AllowZeroLength:	True		
AppendOnly:	False		
Attributes:	Variable Length		
CollatingOrder:	General		
DataUpdatable:	False		
gintBackColor:	0		
gintBlobType:	0		
gintCaption:			
gintCaptionVertical:	False		
gintDefaultExpr:			
gintDesc:			

gintFileRefData:
gintFlags: 0
gintLookup:
gintLookupFilter:
gintRules:
gintUnits:
gintViewWidTwips: 867
OrdinalPosition: 13
Required: False
SourceField: Route
SourceTable: PROJECT

Output Units Text 255

AllowZeroLength: False
AppendOnly: False
Attributes: Variable Length
CollatingOrder: General
DataUpdatable: False
gintBackColor: 0
gintBlobType: 0
gintCaption:
gintCaptionVertical: False
gintDefaultExpr:
gintDesc:

Default is English. Input assumed to be in English units. Unit dependent information embedded in text must be input in metric if output is to be in metric.

gintFileRefData:
gintFlags: 1
gintLookup: LookupUnits
gintLookupFilter:
gintRules:
gintUnits:
gintViewWidTwips: 1233
OrdinalPosition: 14
Required: True
SourceField: Output Units
SourceTable: PROJECT

Starting Post Mile Prefix Text 255

AllowZeroLength: True
AppendOnly: False
Attributes: Variable Length
CollatingOrder: General
DataUpdatable: False
gintBackColor: 0
gintBlobType: 0
gintCaption:
gintCaptionVertical: False
gintDefaultExpr:
gintDesc: Prefix that is before the starting PM/KP; refer to lookup list.
gintFileRefData:
gintFlags: 1
gintLookup: Lookup|post mile prefixes
gintLookupFilter:
gintRules:

gintUnits:
gintViewWidTwips: 2092
OrdinalPosition: 15
Required: False
SourceField: Starting Post Mile Prefix
SourceTable: PROJECT

Post Mile Single 4

AllowZeroLength: False
AppendOnly: False
Attributes: Fixed Size
CollatingOrder: General
DataUpdatable: False
gintBackColor: 0
gintBlobType: 0
gintCaption: Starting Post Mile
gintCaptionVertical: False
gintDefaultExpr:
gintDesc:
gintFileRefData:
gintFlags: 0
gintLookup:
gintLookupFilter:
gintRules:
gintUnits: mi
gintViewWidTwips: 1362
OrdinalPosition: 16
Required: False
SourceField: Post Mile
SourceTable: PROJECT

Final Post Mile Prefix Text 255

AllowZeroLength: True
AppendOnly: False
Attributes: Variable Length
CollatingOrder: General
DataUpdatable: False
gintBackColor: 0
gintBlobType: 0
gintCaption:
gintCaptionVertical: False
gintDefaultExpr:
gintDesc:

Prefix that is before the final PM/KP; refer to lookup list. Leave blank if only a single Post Mile is given for the project

gintFileRefData:
gintFlags: 1
gintLookup: Lookup|post mile prefixes
gintLookupFilter:
gintRules:
gintUnits:
gintViewWidTwips: 1900
OrdinalPosition: 17
Required: False
SourceField: Final Post Mile Prefix
SourceTable: PROJECT

Final Post Mile	Single	4
AllowZeroLength:	False	
AppendOnly:	False	
Attributes:	Fixed Size	
CollatingOrder:	General	
DataUpdatable:	False	
gintBackColor:	0	
gintBlobType:	0	
gintCaption:		
gintCaptionVertical:	False	
gintDefaultExpr:		
gintDesc:	Enter the final post mile only if there is a range of post miles; otherwise leave blank.	
gintFileRefData:		
gintFlags:	0	
gintLookup:		
gintLookupFilter:		
gintRules:		
gintUnits:	mi	
gintViewWidTwips:	1768	
OrdinalPosition:	18	
Required:	False	
SourceField:	Final Post Mile	
SourceTable:	PROJECT	
Purpose of Work	Text	255
AllowZeroLength:	True	
AppendOnly:	False	
Attributes:	Variable Length	
CollatingOrder:	General	
DataUpdatable:	False	
gintBackColor:	0	
gintBlobType:	0	
gintCaption:		
gintCaptionVertical:	False	
gintDefaultExpr:		
gintDesc:	Name of report or product	
gintFileRefData:		
gintFlags:	1	
gintLookup:	Lookup!purpose of work	
gintLookupFilter:		
gintRules:		
gintUnits:		
gintViewWidTwips:	1632	
OrdinalPosition:	19	
Required:	False	
SourceField:	Purpose of Work	
SourceTable:	PROJECT	
Project Date	Date/Time	8
AllowZeroLength:	False	
AppendOnly:	False	
Attributes:	Fixed Size	
CollatingOrder:	General	
DataUpdatable:	False	

gintBackColor:	0	
gintBlobType:	0	
gintCaption:		
gintCaptionVertical:	False	
gintDefaultExpr:		
gintDesc:	Report date or date logs are printed. Not the date the log was drilled.	
gintFileRefData:		
gintFlags:	0	
gintLookup:		
gintLookupFilter:		
gintRules:		
gintUnits:		
gintViewWidTwips:	1362	
OrdinalPosition:	20	
Required:	True	
SourceField:	Project Date	
SourceTable:	PROJECT	
Draft Log Figure Prefix	Text	255
AllowZeroLength:	True	
AppendOnly:	False	
Attributes:	Variable Length	
CollatingOrder:	General	
DataUpdatable:	False	
gintBackColor:	0	
gintBlobType:	0	
gintCaption:		
gintCaptionVertical:	False	
gintDefaultExpr:		
gintDesc:	Typically the letter of the Appendix (e.g., A)	
gintFileRefData:		
gintFlags:	0	
gintLookup:		
gintLookupFilter:		
gintRules:		
gintUnits:		
gintViewWidTwips:	2052	
OrdinalPosition:	21	
Required:	False	
SourceField:	Draft Log Figure Prefix	
SourceTable:	PROJECT	
Elevations Approximate	Yes/No	1
AllowZeroLength:	False	
AppendOnly:	False	
Attributes:	Fixed Size	
CollatingOrder:	General	
DataUpdatable:	False	
gintBackColor:	0	
gintBlobType:	0	
gintCaption:		
gintCaptionVertical:	False	
gintDefaultExpr:		
gintDesc:	If marked, surface elevations prefixed with a "~".	
gintFileRefData:		
gintFlags:	0	

gintLookup:			
gintLookupFilter:			
gintRules:			
gintUnits:			
gintViewWidTwips:	2082		
OrdinalPosition:	22		
Required:	False		
SourceField:	Elevations Approximate		
SourceTable:	PROJECT		
Stationing Approximate		Yes/No	1
AllowZeroLength:	False		
AppendOnly:	False		
Attributes:	Fixed Size		
CollatingOrder:	General		
DataUpdatable:	False		
gintBackColor:	0		
gintBlobType:	0		
gintCaption:			
gintCaptionVertical:	False		
gintDefaultExpr:			
gintDesc:	If marked, stationing prefixed with a "~".		
gintFileRefData:			
gintFlags:	0		
gintLookup:			
gintLookupFilter:			
gintRules:			
gintUnits:			
gintViewWidTwips:	2080		
OrdinalPosition:	23		
Required:	False		
SourceField:	Stationing Approximate		
SourceTable:	PROJECT		
Water Level Approximate		Yes/No	1
AllowZeroLength:	False		
AppendOnly:	False		
Attributes:	Fixed Size		
CollatingOrder:	General		
DataUpdatable:	False		
gintBackColor:	0		
gintBlobType:	0		
gintCaption:			
gintCaptionVertical:	False		
gintDefaultExpr:			
gintDesc:	If marked, water depths labeled with a "~".		
gintFileRefData:			
gintFlags:	0		
gintLookup:			
gintLookupFilter:			
gintRules:			
gintUnits:			
gintViewWidTwips:	2236		
OrdinalPosition:	24		
Required:	False		
SourceField:	Water Level Approximate		

SourceTable:	PROJECT		
Coordinate System		Text	255
AllowZeroLength:	True		
AppendOnly:	False		
Attributes:	Variable Length		
CollatingOrder:	General		
DataUpdatable:	False		
gintBackColor:	0		
gintBlobType:	0		
gintCaption:			
gintCaptionVertical:	Local Coordinate Reference System		
gintDefaultExpr:	False		
gintDesc:			
gintFileRefData:			
gintFlags:	1		
gintLookup:	Lookup\coordinate system		
gintLookupFilter:			
gintRules:			
gintUnits:			
gintViewWidTwips:	1752		
OrdinalPosition:	25		
Required:	False		
SourceField:	Coordinate System		
SourceTable:	PROJECT		
Datum Horizontal		Text	255
AllowZeroLength:	True		
AppendOnly:	False		
Attributes:	Variable Length		
CollatingOrder:	General		
DataUpdatable:	False		
gintBackColor:	0		
gintBlobType:	0		
gintCaption:			
gintCaptionVertical:	False		
gintDefaultExpr:			
gintDesc:			
gintFileRefData:			
gintFlags:	1		
gintLookup:	Lookup\datum horizontal		
gintLookupFilter:			
gintRules:			
gintUnits:			
gintViewWidTwips:	1647		
OrdinalPosition:	26		
Required:	False		
SourceField:	Datum Horizontal		
SourceTable:	PROJECT		
Elevation Datum		Text	255
AllowZeroLength:	True		
AppendOnly:	False		
Attributes:	Variable Length		
CollatingOrder:	General		
DataUpdatable:	False		

gintBackColor: 0
gintBlobType: 0
gintCaption: Datum Vertical
gintCaptionVertical: False
gintDefaultExpr:
gintDesc:
gintFileRefData:
gintFlags: 1
gintLookup: Lookup\datum vertical
gintLookupFilter:
gintRules:
gintUnits:
gintViewWidTwips: 1146
OrdinalPosition: 27
Required: False
SourceField: Elevation Datum
SourceTable: PROJECT

Depth Log Page Single 4

AllowZeroLength: False
AppendOnly: False
Attributes: Fixed Size
CollatingOrder: General
DataUpdatable: False
gintBackColor: 0
gintBlobType: 0
gintCaption:
gintCaptionVertical: False
gintDefaultExpr:
gintDesc: Depth on first page of log in Output Units. Default is 24ft. Can be overridden for specific boreholes with the Depth_Log_Page field in the BOREHOLE (POINT) table.

gintFileRefData:
gintFlags: 0
gintLookup:
gintLookupFilter:
gintRules:
gintUnits: ft
gintViewWidTwips: 1593
OrdinalPosition: 28
Required: False
SourceField: Depth Log Page
SourceTable: PROJECT

Log Scale Single 4

AllowZeroLength: False
AppendOnly: False
Attributes: Fixed Size
CollatingOrder: General
DataUpdatable: False
gintBackColor: 0
gintBlobType: 0
gintCaption:
gintCaptionVertical: False
gintDefaultExpr:

gintDesc: Default is 200, that is, 200 in/in or mm/mm (16.667ft/in or 5mm/m). Can be overridden for specific boreholes by the Log Scale field in the BOREHOLE (POINT) table.

gintFileRefData:
gintFlags: 0
gintLookup:
gintLookupFilter:
gintRules:
gintUnits: ratio
gintViewWidTwips: 1398
OrdinalPosition: 29
Required: False
SourceField: Log Scale
SourceTable: PROJECT

Water_Unit_Wt Single 4

AllowZeroLength: False
AppendOnly: False
Attributes: Fixed Size
CollatingOrder: General
DataUpdatable: False
gintBackColor: 0
gintBlobType: 0
gintCaption:
gintCaptionVertical: False
gintDefaultExpr: Unit weight of water. Needed for density calculations in lab testing.
gintDesc:
gintFileRefData:
gintFlags: 64
gintLookup:
gintLookupFilter:
gintRules:
gintUnits:
gintViewWidTwips: 1428
OrdinalPosition: 30
Required: False
SourceField: Water_Unit_Wt
SourceTable: PROJECT

Coeff_of_Consol_Factor Single 4

AllowZeroLength: False
AppendOnly: False
Attributes: Fixed Size
CollatingOrder: General
DataUpdatable: False
gintBackColor: 0
gintBlobType: 0
gintCaption:
gintCaptionVertical: False
gintDefaultExpr:
gintDesc: Equivalent of Cv = 1 meter^2/year. For example, ft/year would be 10.76391. Only needed in Consolidation test if calculating Cv50 and Cv90 from T50 and T90.

gintFileRefData:
gintFlags: 64

gintLookup:
gintLookupFilter:
gintRules:
gintUnits:
gintViewWidTwips: 603
OrdinalPosition: 31
Required: False
SourceField: Coeff_of_Consol_Factor
SourceTable: PROJECT

Table Indexes

Name	Number of Fields
Primary	1
Clustered:	False
DistinctCount:	0
Foreign:	False
IgnoreNulls:	False
Name:	Primary
Primary:	True
Required:	True
Unique:	True
Fields:	
GintRecID	Ascending

User Permissions

admin Delete, Read Permissions, Set Permissions, Change Owner, Read Definition, Write Definition, Read Data, Insert Data, Update Data, Delete Data

Group Permissions

Admins
Users Delete, Read Permissions, Set Permissions, Change Owner, Read Definition, Write Definition, Read Data, Insert Data, Update Data, Delete Data

Properties

DateCreated:	2/2/2006 11:09:56 AM	gintAutoCreateImport:	False
gintAutoCreateInput:	False	gintCaption:	39398.6395138889
gintColHeadingLines:	1	gintDate:	8
gintDesc:	706, Table Procedures\remarkssave	gintDisplayPs:	8
gintGintRulesProc:	706, Table Procedures\remarkssave	gintGroupName:	
gintGroupParent:		gintHelpText:	
gintKeepDataInClone:	False	gintKeysCounter:	False
gintLookupFieldCount:	0	gintLookupKeyHide:	False
gintNoDisplay:	False	gintPostProc:	
gintPreviewReport:	Log\ldwr levee field boring log rev0	gintShowAllParentKeys:	False
gintSourceName:	REMARKS	gintSplitScreenChild:	
gintSystemTable:	False	gintTablePreviewOnly:	False
gintViewRowHTwips:	960	LastUpdated:	3/25/2008 12:01:51 PM
RecordCount:	0	Updatable:	True

Columns

Name	Type	Size
GintRecID	Long Integer	4
AllowZeroLength:	False	
AppendOnly:	False	
Attributes:	Fixed Size, Auto-Increment	
CollatingOrder:	General	
DataUpdatable:	False	
gintBlobType:	0	
gintCaption:		
gintCaptionVertical:	False	
gintDefaultExpr:		
gintDesc:	System requirement. Not user editable.	
gintFileRefData:		
gintFlags:	2	
gintLookup:		
gintLookupFilter:		
gintRules:		
gintUnits:		
gintViewWidTwips:	1182	
OrdinalPosition:	1	
Required:	True	
SourceField:	GintRecID	
SourceTable:	REMARKS	
PointID	Text	255
AllowZeroLength:	False	
AppendOnly:	False	
Attributes:	Variable Length	
CollatingOrder:	General	
DataUpdatable:	False	
gintBlobType:	0	
gintCaption:	Boring Designation	

gintCaptionVertical:	False		
gintDefaultExpr:			
gintDesc:			
gintFileRefData:			
gintFlags:	0		
gintLookup:			
gintLookupFilter:			
gintRules:			
gintUnits:			
gintViewWidTwips:	1767		
OrdinalPosition:	2		
Required:	True		
SourceField:	PointID		
SourceTable:	REMARKS		
Depth		Double	8
AllowZeroLength:	False		
AppendOnly:	False		
Attributes:	Fixed Size		
CollatingOrder:	General		
DataUpdatable:	False		
gintBlobType:	0		
gintCaption:			
gintCaptionVertical:	False		
gintDefaultExpr:			
gintDesc:			
gintFileRefData:			
gintFlags:	0		
gintLookup:			
gintLookupFilter:			
gintRules:	186 1		
gintUnits:	ft		
gintViewWidTwips:	957		
OrdinalPosition:	3		
Required:	True		
SourceField:	Depth		
SourceTable:	REMARKS		
Description		Memo	-
AllowZeroLength:	True		
AppendOnly:	False		
Attributes:	Variable Length		
CollatingOrder:	General		
DataUpdatable:	False		
gintBlobType:	0		
gintCaption:			
gintCaptionVertical:	False		
gintDefaultExpr:			
gintDesc:	Enter miscellaneous remarks / field notes at depth you want them to appear. List of lab tests performed on sample will be generated from Lab Specimen Tab or other Lab Module data entry.		
gintFileRefData:			
gintFlags:	0		
gintLookup:			
gintLookupFilter:			
gintRules:			

gintUnits:	
gintViewWidTwips:	6540
OrdinalPosition:	4
Required:	False
SourceField:	Description
SourceTable:	REMARKS

Relationships

POINTREMARKS

POINT		REMARKS
PointID	1	∞ PointID

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

Table Indexes

Name	Number of Fields
GINTINDEX	2
Clustered:	False
DistinctCount:	0
Foreign:	False
IgnoreNulls:	False
Name:	GINTINDEX
Primary:	False
Required:	False
Unique:	True
Fields:	
PointID	Ascending
Depth	Ascending
Primary	1
Clustered:	False
DistinctCount:	0
Foreign:	False
IgnoreNulls:	False
Name:	Primary
Primary:	True
Required:	True
Unique:	True
Fields:	
GintRecID	Ascending
REL0028	1
Clustered:	False
DistinctCount:	0
Foreign:	True
IgnoreNulls:	False
Name:	REL0028
Primary:	False
Required:	False

Unique: False
 Fields: Ascending
 PointID

User Permissions

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Group Permissions

Admins
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Properties

DateCreated:	2/6/2007 4:16:02 PM	gintAutoCreateImport:	False
gintAutoCreateInput:	False	gintCaption:	
gintColHeadingLines:	2	gintDate:	39548.4589930556
gintDesc:	706, Table	gintDisplayPs:	4
gintGintRulesProc:	Procedures\rockcoredatasave	gintGroupName:	
gintGroupParent:		gintHelpText:	
gintKeepDataInClone:	False	gintKeysCounter:	False
gintLookupFieldCount:	0	gintLookupKeyHide:	False
gintNoDisplay:	False	gintPostProc:	
gintPreviewReport:	Log\caltrans boring log 031807	gintShowAllParentKeys:	False
gintSourceName:	ROCK CORE DATA	gintSplitScreenChild:	ROCK DISCONTINUITIES
gintSystemTable:	False	gintTablePreviewOnly:	False
gintViewRowHTwips:	348	LastUpdated:	3/25/2008 12:06:06 PM
RecordCount:	0	Updatable:	True

Columns

Name	Type	Size
GintRecID	Long Integer	4
AllowZeroLength:	False	
AppendOnly:	False	
Attributes:	Fixed Size, Auto-Increment	
CollatingOrder:	General	
DataUpdatable:	False	
gintBackColor:	0	
gintBlobType:	0	
gintCaption:		
gintCaptionVertical:	False	
gintDefaultExpr:		
gintDesc:	System requirement. Not user editable.	
gintFileRefData:		
gintFlags:	2	
gintLookup:		
gintLookupFilter:		
gintRules:		
gintUnits:		
gintViewWidTwips:	1182	
OrdinalPosition:	1	
Required:	True	
SourceField:	GintRecID	
SourceTable:	ROCK CORE SAMPLE	
PointID	Text	255
AllowZeroLength:	False	
AppendOnly:	False	
Attributes:	Variable Length	
CollatingOrder:	General	
DataUpdatable:	False	
gintBackColor:	0	

	gintBlobType:	0		
	gintCaption:	Boring Designation		
	gintCaptionVertical:	False		
	gintDefaultExpr:			
	gintDesc:			
	gintFileRefData:			
	gintFlags:	0		
	gintLookup:			
	gintLookupFilter:			
	gintRules:			
	gintUnits:			
	gintViewWidTwips:	1767		
	OrdinalPosition:	2		
	Required:	True		
	SourceField:	PointID		
	SourceTable:	ROCK CORE SAMPLE		
Depth			Double	8
	AllowZeroLength:	False		
	AppendOnly:	False		
	Attributes:	Fixed Size		
	CollatingOrder:	General		
	DataUpdatable:	False		
	gintBackColor:	0		
	gintBlobType:	0		
	gintCaption:			
	gintCaptionVertical:	False		
	gintDefaultExpr:			
	gintDesc:			
	gintFileRefData:			
	gintFlags:	0		
	gintLookup:			
	gintLookupFilter:			
	gintRules:			
	gintUnits:	ft		
	gintViewWidTwips:	957		
	OrdinalPosition:	3		
	Required:	True		
	SourceField:	Depth		
	SourceTable:	ROCK CORE SAMPLE		
Run Number			Text	255
	AllowZeroLength:	True		
	AppendOnly:	False		
	Attributes:	Variable Length		
	CollatingOrder:	General		
	DataUpdatable:	False		
	gintBackColor:	0		
	gintBlobType:	0		
	gintCaption:			
	gintCaptionVertical:	False		
	gintDefaultExpr:			
	gintDesc:	Enter single letter sample type (C=core) followed by consecutive sample number with leading 0 for <10		
	gintFileRefData:			
	gintFlags:	0		

	gintLookup:			
	gintLookupFilter:			
	gintRules:			
	gintUnits:			
	gintViewWidTwips:	930		
	OrdinalPosition:	4		
	Required:	False		
	SourceField:	Run Number		
	SourceTable:	ROCK CORE SAMPLE		
Length			Single	4
	AllowZeroLength:	False		
	AppendOnly:	False		
	Attributes:	Fixed Size		
	CollatingOrder:	General		
	DataUpdatable:	False		
	gintBackColor:	0		
	gintBlobType:	0		
	gintCaption:			
	gintCaptionVertical:	False		
	gintDefaultExpr:			
	gintDesc:	Record length of core run.		
	gintFileRefData:			
	gintFlags:	0		
	gintLookup:			
	gintLookupFilter:			
	gintRules:			
	gintUnits:	in		
	gintViewWidTwips:	1035		
	OrdinalPosition:	5		
	Required:	False		
	SourceField:	Length		
	SourceTable:	ROCK CORE SAMPLE		
Recovery			Single	4
	AllowZeroLength:	False		
	AppendOnly:	False		
	Attributes:	Fixed Size		
	CollatingOrder:	General		
	DataUpdatable:	False		
	gintBackColor:	0		
	gintBlobType:	0		
	gintCaption:			
	gintCaptionVertical:	False		
	gintDefaultExpr:			
	gintDesc:	Record sum of lengths of recovered core pieces; report calculates %.		
	gintFileRefData:			
	gintFlags:	0		
	gintLookup:			
	gintLookupFilter:			
	gintRules:			
	gintUnits:	in		
	gintViewWidTwips:	1035		
	OrdinalPosition:	6		
	Required:	False		
	SourceField:	Recovery		

SourceTable:	ROCK CORE SAMPLE		
Type	Text	255	
AllowZeroLength:	True		
AppendOnly:	False		
Attributes:	Variable Length		
CollatingOrder:	General		
DataUpdatable:	False		
gintBackColor:	0		
gintBlobType:	0		
gintCaption:			
gintCaptionVertical:	False		
gintDefaultExpr:			
gintDesc:	Choose type from lookup list. If choose "RCORE OTHER", list diameter of core barrel in Core Diameter.		
gintFileRefData:			
gintFlags:	1		
gintLookup:	Graphic!samp		
gintLookupFilter:			
gintRules:			
gintUnits:			
gintViewWidTwips:	1536		
OrdinalPosition:	7		
Required:	False		
SourceField:	Type		
SourceTable:	ROCK CORE SAMPLE		
Core Diameter	Text	255	
AllowZeroLength:	True		
AppendOnly:	False		
Attributes:	Variable Length		
CollatingOrder:	General		
DataUpdatable:	False		
gintBackColor:	0		
gintBlobType:	0		
gintCaption:			
gintCaptionVertical:	False		
gintDefaultExpr:			
gintDesc:	If core not HQ or NX or other listed core type, choose "RCORE OTHER" and enter diameter (numeric only, no " or mm) in this field; must choose listed core type OR core diameter to trigger RQD/REC on LOTB.		
gintFileRefData:			
gintFlags:	0		
gintLookup:			
gintLookupFilter:			
gintRules:			
gintUnits:			
gintViewWidTwips:	1468		
OrdinalPosition:	8		
Required:	False		
SourceField:	Core Diameter		
SourceTable:	ROCK CORE SAMPLE		

RQD	Single	4	
AllowZeroLength:	False		
AppendOnly:	False		
Attributes:	Fixed Size		
CollatingOrder:	General		
DataUpdatable:	False		
gintBackColor:	0		
gintBlobType:	0		
gintCaption:			
gintCaptionVertical:	False		
gintDefaultExpr:			
gintDesc:	Record sum of lengths of intact core pieces >4 inches; report will calculate %.		
gintFileRefData:			
gintFlags:	0		
gintLookup:			
gintLookupFilter:			
gintRules:			
gintUnits:	in		
gintViewWidTwips:	990		
OrdinalPosition:	9		
Required:	False		
SourceField:	RQD		
SourceTable:	ROCK CORE SAMPLE		
Box Number	Text	255	
AllowZeroLength:	True		
AppendOnly:	False		
Attributes:	Variable Length		
CollatingOrder:	General		
DataUpdatable:	False		
gintBackColor:	0		
gintBlobType:	0		
gintCaption:			
gintCaptionVertical:	False		
gintDefaultExpr:			
gintDesc:			
gintFileRefData:			
gintFlags:	0		
gintLookup:			
gintLookupFilter:			
gintRules:			
gintUnits:			
gintViewWidTwips:	1140		
OrdinalPosition:	10		
Required:	False		
SourceField:	Box Number		
SourceTable:	ROCK CORE SAMPLE		
Start Time	Integer	2	
AllowZeroLength:	False		
AppendOnly:	False		
Attributes:	Fixed Size		
CollatingOrder:	General		
DataUpdatable:	False		

gintBackColor: 0
 gintBlobType: 0
 gintCaption: 0
 gintCaptionVertical: False
 gintDefaultExpr: 0
 gintDesc: Enter as 24-hour time, i.e., 1135.
 gintFileRefData: 0
 gintFlags: 0
 gintLookup: 0
 gintLookupFilter: 0
 gintRules: 0
 gintUnits: 0
 gintViewWidTwips: 1152
 OrdinalPosition: 11
 Required: False
 SourceField: Start Time
 SourceTable: ROCK CORE SAMPLE

Stop Time Integer 2

AllowZeroLength: False
 AppendOnly: False
 Attributes: Fixed Size
 CollatingOrder: General
 DataUpdatable: False
 gintBackColor: 0
 gintBlobType: 0
 gintCaption: 0
 gintCaptionVertical: False
 gintDefaultExpr: 0
 gintDesc: Enter as 24-hour time, i.e., 1145.
 gintFileRefData: 0
 gintFlags: 0
 gintLookup: 0
 gintLookupFilter: 0
 gintRules: 0
 gintUnits: 0
 gintViewWidTwips: 1152
 OrdinalPosition: 12
 Required: False
 SourceField: Stop Time
 SourceTable: ROCK CORE SAMPLE

Fracture Density Text 255

AllowZeroLength: True
 AppendOnly: False
 Attributes: Variable Length
 CollatingOrder: General
 DataUpdatable: False
 gintBackColor: 0
 gintBlobType: 0
 gintCaption: 0
 gintCaptionVertical: False
 gintDefaultExpr: 0
 gintDesc: Measurement based on spacing of all fractures observed in recovered core lengths of run; excludes mechanical breaks, incipient joints, shears, faults, foliations, bedding plane separations, veins, and totally healed fractures. Lookup is called "Fracture Density" and is located in

Data Design:Lookup Lists.

gintFileRefData: 0
 gintFlags: 1
 gintLookup: LookupFracture density
 gintLookupFilter: 0
 gintRules: 0
 gintUnits: 0
 gintViewWidTwips: 1440
 OrdinalPosition: 13
 Required: False
 SourceField: Fracture Density
 SourceTable: ROCK CORE SAMPLE

Notes Text 255

AllowZeroLength: True
 AppendOnly: False
 Attributes: Variable Length
 CollatingOrder: General
 DataUpdatable: False
 gintBackColor: 0
 gintBlobType: 0
 gintCaption: 0
 gintCaptionVertical: False
 gintDefaultExpr: 0
 gintDesc: Data entered here is for documentation purposes only. It is not printed on any report.

gintFileRefData: 0
 gintFlags: 0
 gintLookup: 0
 gintLookupFilter: 0
 gintRules: 0
 gintUnits: 0
 gintViewWidTwips: 3975
 OrdinalPosition: 14
 Required: False
 SourceField: Notes
 SourceTable: ROCK CORE SAMPLE

Relationships

POINTROCK CORE SAMPLE

POINT

ROCK CORE SAMPLE

PointID 1 ∞ PointID

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

ROCK CORE SAMPLEROCK DISCONTINUITIES

ROCK CORE SAMPLE		ROCK
PointID	1	∞ PointID
Depth	1	∞ Depth

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

Table Indexes

Name	Number of Fields
GINTINDEX	2
Clustered:	False
DistinctCount:	0
Foreign:	False
IgnoreNulls:	False
Name:	GINTINDEX
Primary:	False
Required:	False
Unique:	True
Fields:	
PointID	Ascending
Depth	Ascending
Primary	1
Clustered:	False
DistinctCount:	0
Foreign:	False
IgnoreNulls:	False
Name:	Primary
Primary:	True
Required:	True
Unique:	True
Fields:	
GintRecID	Ascending
REL0032	1
Clustered:	False
DistinctCount:	0
Foreign:	True
IgnoreNulls:	False
Name:	REL0032
Primary:	False
Required:	False
Unique:	False
Fields:	
PointID	Ascending

User Permissions

admin Delete, Read Permissions, Set Permissions, Change Owner, Read Definition,
 Write Definition, Read Data, Insert Data, Update Data, Delete Data

Group Permissions

Admins
 Users Delete, Read Permissions, Set Permissions, Change Owner, Read Definition,
 Write Definition, Read Data, Insert Data, Update Data, Delete Data

Properties

DateCreated:	2/6/2007 4:16:03 PM	gintAutoCreateImport:	False
gintAutoCreateInput:	False	gintCaption:	
gintColHeadingLines:	2	gintDate:	39548.5983101852
gintDesc:	ROCK DESCRIPTION	gintDisplayPs:	5
gintGintRulesProc:	706,Table Procedures\rockdescriptionsave	gintGroupName:	
gintGroupParent:		gintHelpText:	
gintKeepDataInClone:	False	gintKeysCounter:	False
gintLookupFieldCount:	0	gintLookupKeyHide:	False
gintNoDisplay:	False	gintPostProc:	
gintPreviewReport:	Log\caltrans boring record 052007 met+eng	gintShowAllParentKeys:	False
gintSourceName:	ROCK DESCRIPTION	gintSplitScreenChild:	
gintSystemTable:	False	gintTablePreviewOnly:	False
gintViewRowHTwips:	516	LastUpdated:	4/10/2008 2:27:23 PM
RecordCount:	0	Updatable:	True

Columns

Name	Type	Size
GintRecID	Long Integer	4
AllowZeroLength: False AppendOnly: False Attributes: Fixed Size, Auto-Increment CollatingOrder: General DataUpdatable: False gintBackColor: 0 gintBlobType: 0 gintCaption: gintCaptionVertical: False gintDefaultExpr: gintDesc: System requirement. Not user editable. gintFileRefData: gintFlags: 2 gintLookup: gintLookupFilter: gintRules: gintUnits: gintViewWidTwips: 1182 OrdinalPosition: 1 Required: True SourceField: GintRecID SourceTable: ROCK DESCRIPTION		
PointID	Text	255
AllowZeroLength: False AppendOnly: False Attributes: Variable Length CollatingOrder: General DataUpdatable: False gintBackColor: 0		

	gintBlobType:	0	
	gintCaption:	Boring Designation	
	gintCaptionVertical:	False	
	gintDefaultExpr:		
	gintDesc:		
	gintFileRefData:		
	gintFlags:	0	
	gintLookup:		
	gintLookupFilter:		
	gintRules:		
	gintUnits:		
	gintViewWidTwips:	1482	
	OrdinalPosition:	2	
	Required:	True	
	SourceField:	PointID	
	SourceTable:	ROCK DESCRIPTION	
Depth		Double	8
	AllowZeroLength:	False	
	AppendOnly:	False	
	Attributes:	Fixed Size	
	CollatingOrder:	General	
	DataUpdatable:	False	
	gintBackColor:	0	
	gintBlobType:	0	
	gintCaption:		
	gintCaptionVertical:	False	
	gintDefaultExpr:		
	gintDesc:	Top depth of rock unit, or depth at which feature or change occurs	
	gintFileRefData:		
	gintFlags:	0	
	gintLookup:		
	gintLookupFilter:		
	gintRules:	186 1	
	gintUnits:	ft	
	gintViewWidTwips:	867	
	OrdinalPosition:	3	
	Required:	True	
	SourceField:	Depth	
	SourceTable:	ROCK DESCRIPTION	
Bottom		Text	255
	AllowZeroLength:	True	
	AppendOnly:	False	
	Attributes:	Variable Length	
	CollatingOrder:	General	
	DataUpdatable:	False	
	gintBackColor:	0	
	gintBlobType:	0	
	gintCaption:		
	gintCaptionVertical:	False	
	gintDefaultExpr:		
	gintDesc:	Bottom of rock unit	
	gintFileRefData:		
	gintFlags:	0	
	gintLookup:		

gintLookupFilter:			
gintRules:			
gintUnits:	ft		
gintViewWidTwips:	927		
OrdinalPosition:	4		
Required:	False		
SourceField:	Bottom		
SourceTable:	ROCK DESCRIPTION		
Line Type		Text	255
AllowZeroLength:	True		
AppendOnly:	False		
Attributes:	Variable Length		
CollatingOrder:	General		
DataUpdatable:	False		
gintBackColor:	0		
gintBlobType:	0		
gintCaption:			
gintCaptionVertical:	False		
gintDefaultExpr:			
gintDesc:	Choose from pull-down list for line type at bottom of rock unit; default is solid line.		
gintFileRefData:			
gintFlags:	1		
gintLookup:	Graphic!linetype		
gintLookupFilter:			
gintRules:			
gintUnits:			
gintViewWidTwips:	1137		
OrdinalPosition:	5		
Required:	False		
SourceField:	Line Type		
SourceTable:	ROCK DESCRIPTION		
Rock Type General		Text	255
AllowZeroLength:	True		
AppendOnly:	False		
Attributes:	Variable Length		
CollatingOrder:	General		
DataUpdatable:	False		
gintBackColor:	0		
gintBlobType:	0		
gintCaption:	Rock Family Name		
gintCaptionVertical:	False		
gintDefaultExpr:			
gintDesc:	Sedimentary, Igneous, Metamorphic; from Lookup:Rock Type; determines rock Graphic.		
gintFileRefData:			
gintFlags:	1		
gintLookup:	Lookup!rock type		
gintLookupFilter:			
gintRules:			
gintUnits:			
gintViewWidTwips:	1827		
OrdinalPosition:	6		

Required:	False		
SourceField:	Rock Type General		
SourceTable:	ROCK DESCRIPTION		
Rock Type Detailed		Text	255
AllowZeroLength:	True		
AppendOnly:	False		
Attributes:	Variable Length		
CollatingOrder:	General		
DataUpdatable:	False		
gintBackColor:	0		
gintBlobType:	0		
gintCaption:	Rock Identification		
gintCaptionVertical:	False		
gintDefaultExpr:			
gintDesc:	Choose from lookup list. Will be recorded in parentheses after Rock Family Name.		
gintFileRefData:			
gintFlags:	1		
gintLookup:	Lookup!rock id - rock family		
gintLookupFilter:			
gintRules:			
gintUnits:			
gintViewWidTwips:	1797		
OrdinalPosition:	7		
Required:	False		
SourceField:	Rock Type Detailed		
SourceTable:	ROCK DESCRIPTION		
Rock Type Additional		Text	255
AllowZeroLength:	True		
AppendOnly:	False		
Attributes:	Variable Length		
CollatingOrder:	General		
DataUpdatable:	False		
gintBackColor:	0		
gintBlobType:	0		
gintCaption:			
gintCaptionVertical:	False		
gintDefaultExpr:			
gintDesc:	Additional descriptor for rock type, e.g., (cemented)		
gintFileRefData:			
gintFlags:	0		
gintLookup:			
gintLookupFilter:			
gintRules:			
gintUnits:			
gintViewWidTwips:	1962		
OrdinalPosition:	8		
Required:	False		
SourceField:	Rock Type Additional		
SourceTable:	ROCK DESCRIPTION		
Interim Change		Text	255
AllowZeroLength:	True		

AppendOnly: False
 Attributes: Variable Length
 CollatingOrder: General
 DataUpdatable: False
 gintBackColor: 0
 gintBlobType: 0
 gintCaption: 0
 gintCaptionVertical: False
 gintDefaultExpr: 0
 gintDesc: Choose words to preface changes to rock characteristics within a rock unit entered in specific component fields or occurrence at a particular depth. When this field has an entry, the entry will be preceded by "At El. xx ft".
 gintFileRefData: 0
 gintFlags: 0
 gintLookup: LookupInterim change phrases
 gintLookupFilter: 0
 gintRules: 0
 gintUnits: 0
 gintViewWidTwips: 1497
 OrdinalPosition: 9
 Required: False
 SourceField: Interim Change
 SourceTable: ROCK DESCRIPTION

Grain Size 1 Text 255

AllowZeroLength: True
 AppendOnly: False
 Attributes: Variable Length
 CollatingOrder: General
 DataUpdatable: False
 gintBackColor: 0
 gintBlobType: 0
 gintCaption: Grain Size From
 gintCaptionVertical: False
 gintDefaultExpr: 0
 gintDesc: If only one grain size, enter here. If range of grain sizes, enter lower bound of range here, add joiner (to or and), and enter upper bound in "Grain Size To". Lookup is called "Rock Grain Size" and is located in Data Design:Lookup Lists.
 gintFileRefData: 1
 gintFlags: 1
 gintLookup: Lookuprock grain size
 gintLookupFilter: 0
 gintRules: 0
 gintUnits: 0
 gintViewWidTwips: 1152
 OrdinalPosition: 10
 Required: False
 SourceField: Grain Size 1
 SourceTable: ROCK DESCRIPTION

Grain Size Joiner Text 255
 AllowZeroLength: True
 AppendOnly: False
 Attributes: Variable Length
 CollatingOrder: General
 DataUpdatable: False
 gintBackColor: 0
 gintBlobType: 0
 gintCaption: 0
 gintCaptionVertical: False
 gintDefaultExpr: 0
 gintDesc: Enter connector for range of grain sizes, such as "and" or "to" or "with zones of", etc.
 gintFileRefData: 0
 gintFlags: 0
 gintLookup: 0
 gintLookupFilter: 0
 gintRules: 0
 gintUnits: 0
 gintViewWidTwips: 1617
 OrdinalPosition: 11
 Required: False
 SourceField: Grain Size Joiner
 SourceTable: ROCK DESCRIPTION

Grain Size 2 Text 255

AllowZeroLength: True
 AppendOnly: False
 Attributes: Variable Length
 CollatingOrder: General
 DataUpdatable: False
 gintBackColor: 0
 gintBlobType: 0
 gintCaption: Grain Size To
 gintCaptionVertical: False
 gintDefaultExpr: 0
 gintDesc: If range of grain sizes, enter upper bound of range here, connected with joiner (e.g., "to" or "and") to "Grain Size From".
 gintFileRefData: 1
 gintFlags: 1
 gintLookup: Lookuprock grain size
 gintLookupFilter: 0
 gintRules: 0
 gintUnits: 0
 gintViewWidTwips: 1392
 OrdinalPosition: 12
 Required: False
 SourceField: Grain Size 2
 SourceTable: ROCK DESCRIPTION

Bedding Spacing Text 255

AllowZeroLength: True
 AppendOnly: False
 Attributes: Variable Length
 CollatingOrder: General

DataUpdatable: False
gintBackColor: 0
gintBlobType: 0
gintCaption:
gintCaptionVertical: False
gintDefaultExpr:
gintDesc: Lookup list is called "Rock Bedding" and is located in Data Design:Lookup Lists.
gintFileRefData:
gintFlags: 1
gintLookup: Lookup/rock bedding
gintLookupFilter:
gintRules:
gintUnits:
gintViewWidTwips: 1647
OrdinalPosition: 13
Required: False
SourceField: Bedding Spacing
SourceTable: ROCK DESCRIPTION

Color True Text 255

AllowZeroLength: True
AppendOnly: False
Attributes: Variable Length
CollatingOrder: General
DataUpdatable: False
gintBackColor: 0
gintBlobType: 0
gintCaption:
gintCaptionVertical: False
gintDefaultExpr:
gintDesc: Lookup is called "GSA Rock Colors - names only" and is located in Data Design:Library Data.
gintFileRefData:
gintFlags: 1
gintLookup: Libtblgsa rock colors - name code
gintLookupFilter:
gintRules:
gintUnits:
gintViewWidTwips: 1995
OrdinalPosition: 14
Required: False
SourceField: Color
SourceTable: ROCK DESCRIPTION

Munsell Code True Text 255

AllowZeroLength: True
AppendOnly: False
Attributes: Variable Length
CollatingOrder: General
DataUpdatable: False
gintBackColor: 0
gintBlobType: 0
gintCaption:
gintCaptionVertical: False

gintDefaultExpr:
gintDesc:
gintFileRefData:
gintFlags: 3
gintLookup: Libtblgsa rock colors - codes & names
gintLookupFilter:
gintRules:
gintUnits:
gintViewWidTwips: 1392
OrdinalPosition: 15
Required: False
SourceField: Munsell Code
SourceTable: ROCK DESCRIPTION

Color Joiner True Text 255

AllowZeroLength: True
AppendOnly: False
Attributes: Variable Length
CollatingOrder: General
DataUpdatable: False
gintBackColor: 0
gintBlobType: 0
gintCaption:
gintCaptionVertical: False
gintDefaultExpr:
gintDesc: Lookup is called "Color Joiner" and is located in Data Design:Library Data.
gintFileRefData:
gintFlags: 129
gintLookup: Libtblcolor joiner
gintLookupFilter:
gintRules:
gintUnits:
gintViewWidTwips: 1257
OrdinalPosition: 16
Required: False
SourceField: Color Joiner
SourceTable: ROCK DESCRIPTION

Additional Color True Text 255

AllowZeroLength: True
AppendOnly: False
Attributes: Variable Length
CollatingOrder: General
DataUpdatable: False
gintBackColor: 0
gintBlobType: 0
gintCaption:
gintCaptionVertical: False
gintDefaultExpr:
gintDesc: Lookup is called "GSA Rock Colors - names only" and is located in Data Design:Library Data.
gintFileRefData:
gintFlags: 1
gintLookup: Libtblgsa rock colors - name code

gintLookupFilter:
 gintRules:
 gintUnits:
 gintViewWidTwips: 1527
 OrdinalPosition: 17
 Required: False
 SourceField: Additional Color
 SourceTable: ROCK DESCRIPTION

Additional Munsell Code Text 255

AllowZeroLength: True
 AppendOnly: False
 Attributes: Variable Length
 CollatingOrder: General
 DataUpdatable: False
 gintBackColor: 0
 gintBlobType: 0
 gintCaption:
 gintCaptionVertical: False
 gintDefaultExpr:
 gintDesc:
 gintFileRefData:
 gintFlags: 3
 gintLookup: Libtblgsa rock colors - codes & names
 gintLookupFilter:
 gintRules:
 gintUnits:
 gintViewWidTwips: 2127
 OrdinalPosition: 18
 Required: False
 SourceField: Additional Munsell Code
 SourceTable: ROCK DESCRIPTION

Texture Text 255

AllowZeroLength: True
 AppendOnly: False
 Attributes: Variable Length
 CollatingOrder: General
 DataUpdatable: False
 gintBackColor: 0
 gintBlobType: 0
 gintCaption:
 gintCaptionVertical: False
 gintDefaultExpr:
 gintDesc: Describe size and shape of voids within the rock mass visible to unaided eye. Lookup list is called "Rock Texture" and is located in Data Design:Lookup List.

gintFileRefData:
 gintFlags: 1
 gintLookup: Lookup!rock texture
 gintLookupFilter:
 gintRules:
 gintUnits:
 gintViewWidTwips: 1320
 OrdinalPosition: 19
 Required: False

SourceField: Texture
 SourceTable: ROCK DESCRIPTION

Weathering Text 255

AllowZeroLength: True
 AppendOnly: False
 Attributes: Variable Length
 CollatingOrder: General
 DataUpdatable: False
 gintBackColor: 0
 gintBlobType: 0
 gintCaption:
 gintCaptionVertical: False
 gintDefaultExpr:
 gintDesc: Degree of weathering based on discoloration or oxidation, grain boundary conditions, texture condition, solutioning, and hardness and strength assessments. Lookup list is called "Rock Weathering" and is located in Data Design:Lookup Lists.

gintFileRefData:
 gintFlags: 1
 gintLookup: Lookup!rock weathering
 gintLookupFilter:
 gintRules:
 gintUnits:
 gintViewWidTwips: 1257
 OrdinalPosition: 20
 Required: False
 SourceField: Weathering
 SourceTable: ROCK DESCRIPTION

Relative Strength Text 255

AllowZeroLength: True
 AppendOnly: False
 Attributes: Variable Length
 CollatingOrder: General
 DataUpdatable: False
 gintBackColor: 0
 gintBlobType: 0
 gintCaption:
 gintCaptionVertical: False
 gintDefaultExpr:
 gintDesc: Field estimate of strength or strength correlated with point load or unconfined compressive strength test results. Lookup is called "Rock Strength" and is located in Data Design:Lookup Lists.

gintFileRefData:
 gintFlags: 1
 gintLookup: Lookup!rock strength
 gintLookupFilter:
 gintRules:
 gintUnits:
 gintViewWidTwips: 1032
 OrdinalPosition: 21
 Required: False
 SourceField: Relative Strength

SourceTable:	ROCK DESCRIPTION		
Rock Hardness	Text	255	
AllowZeroLength:	True		
AppendOnly:	False		
Attributes:	Variable Length		
CollatingOrder:	General		
DataUpdatable:	False		
gintBackColor:	0		
gintBlobType:	0		
gintCaption:			
gintCaptionVertical:	False		
gintDefaultExpr:			
gintDesc:	Field estimate of rock scratch hardness . Lookup is called "Rock Hardness" and is located in Data Design:Lookup Lists.		
gintFileRefData:			
gintFlags:	1		
gintLookup:	Lookuprock hardness		
gintLookupFilter:			
gintRules:			
gintUnits:			
gintViewWidTwips:	1542		
OrdinalPosition:	22		
Required:	False		
SourceField:	Rock Hardness		
SourceTable:	ROCK DESCRIPTION		
Fracture Density	Text	255	
AllowZeroLength:	True		
AppendOnly:	False		
Attributes:	Variable Length		
CollatingOrder:	General		
DataUpdatable:	False		
gintBackColor:	0		
gintBlobType:	0		
gintCaption:			
gintCaptionVertical:	False		
gintDefaultExpr:			
gintDesc:	Measurement based on spacing of all fractures observed in recovered core lengths; excludes mechanical breaks, incipient joints, shears, faults, foliations, bedding plane separations, veins, and totally healed fractures. Lookup is called "Fracture Density" and is located in Data Design:Lookup Lists.		
gintFileRefData:			
gintFlags:	1		
gintLookup:	Lookupfracture density		
gintLookupFilter:			
gintRules:			
gintUnits:			
gintViewWidTwips:	1272		
OrdinalPosition:	23		
Required:	False		
SourceField:	Fracture Density		
SourceTable:	ROCK DESCRIPTION		

Discontinuity Type	Text	255	
AllowZeroLength:	True		
AppendOnly:	False		
Attributes:	Variable Length		
CollatingOrder:	General		
DataUpdatable:	False		
gintBackColor:	0		
gintBlobType:	0		
gintCaption:			
gintCaptionVertical:	False		
gintDefaultExpr:			
gintDesc:	General		
gintFileRefData:			
gintFlags:	1		
gintLookup:	Libtblrock discontinuity type		
gintLookupFilter:			
gintRules:			
gintUnits:			
gintViewWidTwips:	1737		
OrdinalPosition:	24		
Required:	False		
SourceField:	Discontinuity Type		
SourceTable:	ROCK DESCRIPTION		
Discontinuity Weathering	Text	255	
AllowZeroLength:	True		
AppendOnly:	False		
Attributes:	Variable Length		
CollatingOrder:	General		
DataUpdatable:	False		
gintBackColor:	0		
gintBlobType:	0		
gintCaption:			
gintCaptionVertical:	False		
gintDefaultExpr:			
gintDesc:	Choose descriptor for discontinuity weathering or alteration of fractured surfaces. Will appear parenthetically after discontinuity type it describes.		
gintFileRefData:			
gintFlags:	0		
gintLookup:	Lookuprock weathering		
gintLookupFilter:			
gintRules:			
gintUnits:			
gintViewWidTwips:	2188		
OrdinalPosition:	25		
Required:	False		
SourceField:	Discontinuity Weathering		
SourceTable:	ROCK DESCRIPTION		
Discontinuity Infilling	Text	255	
AllowZeroLength:	True		
AppendOnly:	False		
Attributes:	Variable Length		
CollatingOrder:	General		

DataUpdatable: False
 gintBackColor: 0
 gintBlobType: 0
 gintCaption:
 gintCaptionVertical: False
 gintDefaultExpr:
 gintDesc: Describe approximate amount e.g., (filled, partially filled, spotty filled, or surface stained) and the type of infilling (e.g., clay, biotite, calcite, chlorite, iron oxide, gypsum, potassium, manganese, none, pyrite, quartz, sand, silt, or unknown).
 gintFileRefData:
 gintFlags: 0
 gintLookup:
 gintLookupFilter:
 gintRules:
 gintUnits:
 gintViewWidTwips: 1840
 OrdinalPosition: 26
 Required: False
 SourceField: Discontinuity Infilling
 SourceTable: ROCK DESCRIPTION

Discontinuity Healing Text 255

AllowZeroLength: True
 AppendOnly: False
 Attributes: Variable Length
 CollatingOrder: General
 DataUpdatable: False
 gintBackColor: 0
 gintBlobType: 0
 gintCaption:
 gintCaptionVertical: False
 gintDefaultExpr:
 gintDesc: Choose descriptor for observation of discontinuity healing from color contrast with bordering intact rock. Will appear parenthetically after discontinuity type it describes.
 gintFileRefData:
 gintFlags: 0
 gintLookup: Lookup\rock discontinuity healing
 gintLookupFilter:
 gintRules:
 gintUnits:
 gintViewWidTwips: 2037
 OrdinalPosition: 27
 Required: False
 SourceField: Discontinuity Healing
 SourceTable: ROCK DESCRIPTION

Discontinuity Dip From Integer 2

AllowZeroLength: False
 AppendOnly: False
 Attributes: Fixed Size
 CollatingOrder: General

DataUpdatable: False
 gintBackColor: 0
 gintBlobType: 0
 gintCaption:
 gintCaptionVertical: False
 gintDefaultExpr:
 gintDesc:
 gintFileRefData:
 gintFlags: 0
 gintLookup:
 gintLookupFilter:
 gintRules:
 gintUnits: °
 gintViewWidTwips: 2007
 OrdinalPosition: 28
 Required: False
 SourceField: Discontinuity Dip From
 SourceTable: ROCK DESCRIPTION

Discontinuity Dip To Integer 2

AllowZeroLength: False
 AppendOnly: False
 Attributes: Fixed Size
 CollatingOrder: General
 DataUpdatable: False
 gintBackColor: 0
 gintBlobType: 0
 gintCaption:
 gintCaptionVertical: False
 gintDefaultExpr:
 gintDesc:
 gintFileRefData:
 gintFlags: 0
 gintLookup:
 gintLookupFilter:
 gintRules:
 gintUnits: °
 gintViewWidTwips: 2985
 OrdinalPosition: 29
 Required: False
 SourceField: Discontinuity Dip To
 SourceTable: ROCK DESCRIPTION

Rate of Slaking Text 255

AllowZeroLength: True
 AppendOnly: False
 Attributes: Variable Length
 CollatingOrder: General
 DataUpdatable: False
 gintBackColor: 0
 gintBlobType: 0
 gintCaption:
 gintCaptionVertical: False
 gintDefaultExpr:
 gintDesc: Jar Slake Index I<<SUB>>J<<SUB>> from Jar Slake Test
 gintFileRefData:

	gintFlags:	1		
	gintLookup:	Lookuprock slaking		
	gintLookupFilter:			
	gintRules:			
	gintUnits:			
	gintViewWidTwips:	1527		
	OrdinalPosition:	30		
	Required:	False		
	SourceField:	Rate of Slaking		
	SourceTable:	ROCK DESCRIPTION		
Odor			Text	255
	AllowZeroLength:	True		
	AppendOnly:	False		
	Attributes:	Variable Length		
	CollatingOrder:	General		
	DataUpdatable:	False		
	gintBackColor:	0		
	gintBlobType:	0		
	gintCaption:			
	gintCaptionVertical:	False		
	gintDefaultExpr:			
	gintDesc:			
	gintFileRefData:			
	gintFlags:	0		
	gintLookup:	LookupIodor		
	gintLookupFilter:			
	gintRules:			
	gintUnits:			
	gintViewWidTwips:	777		
	OrdinalPosition:	31		
	Required:	False		
	SourceField:	Odor		
	SourceTable:	ROCK DESCRIPTION		
Additional Comments			Text	255
	AllowZeroLength:	True		
	AppendOnly:	False		
	Attributes:	Variable Length		
	CollatingOrder:	General		
	DataUpdatable:	False		
	gintBackColor:	0		
	gintBlobType:	0		
	gintCaption:			
	gintCaptionVertical:	False		
	gintDefaultExpr:			
	gintDesc:	Other rock characteristics, including moisture.		
	gintFileRefData:			
	gintFlags:	0		
	gintLookup:			
	gintLookupFilter:			
	gintRules:			
	gintUnits:			
	gintViewWidTwips:	4380		
	OrdinalPosition:	32		
	Required:	False		

	SourceField:	Additional Comments		
	SourceTable:	ROCK DESCRIPTION		
Formation			Text	255
	AllowZeroLength:	True		
	AppendOnly:	False		
	Attributes:	Variable Length		
	CollatingOrder:	General		
	DataUpdatable:	False		
	gintBackColor:	0		
	gintBlobType:	0		
	gintCaption:			
	gintCaptionVertical:	False		
	gintDefaultExpr:			
	gintDesc:	Lookup is called "Formation" and is located in Data Design:Library Data. Will be recorded in brackets at end of rock component description.		
	gintFileRefData:			
	gintFlags:	0		
	gintLookup:	Libtblformation		
	gintLookupFilter:			
	gintRules:			
	gintUnits:			
	gintViewWidTwips:	1122		
	OrdinalPosition:	33		
	Required:	False		
	SourceField:	Formation		
	SourceTable:	ROCK DESCRIPTION		

Relationships

POINTROCK DESCRIPTION

	POINT	ROCK DESCRIPTION
PointID	1	∞ PointID
Attributes:		Enforced, Cascade Updates, Cascade Deletes
RelationshipType:		One-To-Many

Table Indexes

Name	Number of Fields
GINTINDEX	2
Clustered:	False
DistinctCount:	0
Foreign:	False
IgnoreNulls:	False
Name:	GINTINDEX
Primary:	False
Required:	False
Unique:	True

Fields:	
PointID	Ascending
Depth	Ascending
Primary	1
Clustered:	False
DistinctCount:	0
Foreign:	False
IgnoreNulls:	False
Name:	Primary
Primary:	True
Required:	True
Unique:	True
Fields:	
GintRecID	Ascending
REL0034	1
Clustered:	False
DistinctCount:	0
Foreign:	True
IgnoreNulls:	False
Name:	REL0034
Primary:	False
Required:	False
Unique:	False
Fields:	
PointID	Ascending

User Permissions

admin	Delete, Read Permissions, Set Permissions, Change Owner, Read Definition, Write Definition, Read Data, Insert Data, Update Data, Delete Data
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Group Permissions

Admins	Delete, Read Permissions, Set Permissions, Change Owner, Read Definition, Write Definition, Read Data, Insert Data, Update Data, Delete Data
Users	

Properties

DateCreated:	2/6/2007 4:16:03 PM	gintAutoCreateImport:	False
gintAutoCreateInput:	False	gintCaption:	
gintColHeadingLines:	2	gintDate:	39531.4328819444
gintDesc:		gintDisplayPs:	31
gintGintRulesProc:	706,Table Procedures\rockdiscontinuities save	gintGroupName:	
gintGroupParent:		gintHelpText:	
gintKeepDataInClone:	False	gintKeysCounter:	False
gintLookupFieldCount:	0	gintLookupKeyHide:	False
gintNoDisplay:	False	gintPostProc:	
gintPreviewReport:		gintShowAllParentKeys:	False
gintSourceName:	ROCK DISCONTINUITIES	gintSplitScreenChild:	
gintSystemTable:	False	gintTablePreviewOnly:	False
gintViewRowHTwips:	210	LastUpdated:	2/6/2007 4:16:03 PM
RecordCount:	0	Updatable:	True

Columns

Name	Type	Size
GintRecID	Long Integer	4
AllowZeroLength:	False	
AppendOnly:	False	
Attributes:	Fixed Size, Auto-Increment	
CollatingOrder:	General	
DataUpdatable:	False	
gintBackColor:	0	
gintBlobType:	0	
gintCaption:		
gintCaptionVertical:	False	
gintDefaultExpr:		
gintDesc:	System requirement. Not user editable.	
gintFileRefData:		
gintFlags:	2	
gintLookup:		
gintLookupFilter:		
gintRules:		
gintUnits:		
gintViewWidTwips:	1182	
OrdinalPosition:	1	
Required:	True	
SourceField:	GintRecID	
SourceTable:	ROCK DISCONTINUITIES	
PointID	Text	255
AllowZeroLength:	False	
AppendOnly:	False	
Attributes:	Variable Length	
CollatingOrder:	General	
DataUpdatable:	False	
gintBackColor:	0	

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gintBlobType: 0
gintCaption: Boring Designation
gintCaptionVertical: False
gintDefaultExpr:
gintDesc:
gintFileRefData:
gintFlags: 0
gintLookup:
gintLookupFilter:
gintRules:
gintUnits:
gintViewWidTwips: 1767
OrdinalPosition: 2
Required: True
SourceField: PointID
SourceTable: ROCK DISCONTINUITIES

Depth AllowZeroLength: False Double 8
AppendOnly: False
Attributes: Fixed Size
CollatingOrder: General
DataUpdatable: False
gintBackColor: 0
gintBlobType: 0
gintCaption:
gintCaptionVertical: False
gintDefaultExpr:
gintDesc:
gintFileRefData: 0
gintFlags:
gintLookup:
gintLookupFilter:
gintRules:
gintUnits: ft or m
gintViewWidTwips: 957
OrdinalPosition: 3
Required: True
SourceField: Depth
SourceTable: ROCK DISCONTINUITIES

ItemKey AllowZeroLength: False Text 255
AppendOnly: False
Attributes: Variable Length
CollatingOrder: General
DataUpdatable: False
gintBackColor: 0
gintBlobType: 0
gintCaption: Fracture Number
gintCaptionVertical: False
gintDefaultExpr:
gintDesc:
gintFileRefData: 0
gintFlags:
gintLookup:
    
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gintLookupFilter:
gintRules:
gintUnits:
gintViewWidTwips: 1110
OrdinalPosition: 4
Required: True
SourceField: ItemKey
SourceTable: ROCK DISCONTINUITIES

Dip AllowZeroLength: False Integer 2
AppendOnly: False
Attributes: Fixed Size
CollatingOrder: General
DataUpdatable: False
gintBackColor: 0
gintBlobType: 0
gintCaption:
gintCaptionVertical: False
gintDefaultExpr:
gintDesc:
gintFileRefData:
gintFlags: 0
gintLookup:
gintLookupFilter:
gintRules:
gintUnits: deg
gintViewWidTwips: 672
OrdinalPosition: 5
Required: False
SourceField: Dip
SourceTable: ROCK DISCONTINUITIES

Dip Direction AllowZeroLength: True Text 255
AppendOnly: False
Attributes: Variable Length
CollatingOrder: General
DataUpdatable: False
gintBackColor: 0
gintBlobType: 0
gintCaption:
gintCaptionVertical: False
gintDefaultExpr: Enter data as Direction-Angle-Direction, i.e., N30E.
gintFileRefData: 4096
gintFlags:
gintLookup:
gintLookupFilter: 744|85
gintRules:
gintUnits:
gintViewWidTwips: 1050
OrdinalPosition: 6
Required: False
SourceField: Dip Direction
SourceTable: ROCK DISCONTINUITIES
    
```

Type	Text	255
AllowZeroLength:	True	
AppendOnly:	False	
Attributes:	Variable Length	
CollatingOrder:	General	
DataUpdatable:	False	
gintBackColor:	0	
gintBlobType:	0	
gintCaption:		
gintCaptionVertical:	False	
gintDefaultExpr:		
gintDesc:	Lookup is called "Rock Discontinuity Type" and is located in Data Design:Library Data.	
gintFileRefData:		
gintFlags:	1	
gintLookup:	Libtblrock discontinuity type	
gintLookupFilter:		
gintRules:		
gintUnits:		
gintViewWidTwips:	675	
OrdinalPosition:	7	
Required:	False	
SourceField:	Type	
SourceTable:	ROCK DISCONTINUITIES	
Aperture	Text	255
AllowZeroLength:	True	
AppendOnly:	False	
Attributes:	Variable Length	
CollatingOrder:	General	
DataUpdatable:	False	
gintBackColor:	0	
gintBlobType:	0	
gintCaption:		
gintCaptionVertical:	False	
gintDefaultExpr:		
gintDesc:	Lookup is called "Rock Discontinuity Aperture" and is located in Data Design:Library Data.	
gintFileRefData:		
gintFlags:	1	
gintLookup:	Libtblrock discontinuity aperture	
gintLookupFilter:		
gintRules:		
gintUnits:	in	
gintViewWidTwips:	930	
OrdinalPosition:	8	
Required:	False	
SourceField:	Aperture	
SourceTable:	ROCK DISCONTINUITIES	
Type of Infilling	Text	255
AllowZeroLength:	True	
AppendOnly:	False	
Attributes:	Variable Length	
CollatingOrder:	General	

DataUpdatable:	False	
gintBackColor:	0	
gintBlobType:	0	
gintCaption:		
gintCaptionVertical:	False	
gintDefaultExpr:		
gintDesc:	Lookup is called "Rock Discontinuity Type of Infilling" and is located in Data Design:Library Data.	
gintFileRefData:		
gintFlags:	1	
gintLookup:	Libtblrock discontinuity type of infilling	
gintLookupFilter:		
gintRules:		
gintUnits:		
gintViewWidTwips:	855	
OrdinalPosition:	9	
Required:	False	
SourceField:	Type of Infilling	
SourceTable:	ROCK DISCONTINUITIES	
Amount of Infilling	Text	255
AllowZeroLength:	True	
AppendOnly:	False	
Attributes:	Variable Length	
CollatingOrder:	General	
DataUpdatable:	False	
gintBackColor:	0	
gintBlobType:	0	
gintCaption:		
gintCaptionVertical:	False	
gintDefaultExpr:		
gintDesc:	Lookup is called "Rock Discontinuity Amount of Infilling" and is located in Data Design:Library Data.	
gintFileRefData:		
gintFlags:	1	
gintLookup:	Libtblrock discontinuity amount of infilling	
gintLookupFilter:		
gintRules:		
gintUnits:		
gintViewWidTwips:	855	
OrdinalPosition:	10	
Required:	False	
SourceField:	Amount of Infilling	
SourceTable:	ROCK DISCONTINUITIES	
Surface Shape of Joint	Text	255
AllowZeroLength:	True	
AppendOnly:	False	
Attributes:	Variable Length	
CollatingOrder:	General	
DataUpdatable:	False	
gintBackColor:	0	
gintBlobType:	0	
gintCaption:		
gintCaptionVertical:	False	

gintDefaultExpr:
gintDesc: Lookup is called "Rock Discontinuity Surface Shape" and is located in Data Design:Library Data.

gintFileRefData:
gintFlags: 1
gintLookup: Libtbl\rock discontinuity surface shape
gintLookupFilter:
gintRules:
gintUnits:
gintViewWidTwips: 990
OrdinalPosition: 11
Required: False
SourceField: Surface Shape of Joint
SourceTable: ROCK DISCONTINUITIES

Roughness of Surface Text 255

AllowZeroLength: True
AppendOnly: False
Attributes: Variable Length
CollatingOrder: General
DataUpdatable: False
gintBackColor: 0
gintBlobType: 0
gintCaption:
gintCaptionVertical: False
gintDefaultExpr:
gintDesc: Lookup is called "Rock Discontinuity Roughness" and is located in Data Design:Library Data.

gintFileRefData:
gintFlags: 1
gintLookup: Libtbl\rock discontinuity roughness
gintLookupFilter:
gintRules:
gintUnits:
gintViewWidTwips: 1200
OrdinalPosition: 12
Required: False
SourceField: Roughness of Surface
SourceTable: ROCK DISCONTINUITIES

Relationships

ROCK CORE SAMPLEROCK DISCONTINUITIES

ROCK CORE SAMPLE		ROCK
PointID	1	∞ PointID
Depth	1	∞ Depth

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

Table Indexes

Name	Number of Fields
GINTINDEX	3
Clustered:	False
DistinctCount:	0
Foreign:	False
IgnoreNulls:	False
Name:	GINTINDEX
Primary:	False
Required:	False
Unique:	True
Fields:	
PointID	Ascending
Depth	Ascending
ItemKey	Ascending
Primary	1
Clustered:	False
DistinctCount:	0
Foreign:	False
IgnoreNulls:	False
Name:	Primary
Primary:	True
Required:	True
Unique:	True
Fields:	
GintRecID	Ascending
REL0033	2
Clustered:	False
DistinctCount:	0
Foreign:	True
IgnoreNulls:	False
Name:	REL0033
Primary:	False
Required:	False
Unique:	False
Fields:	
PointID	Ascending
Depth	Ascending

User Permissions

admin Delete, Read Permissions, Set Permissions, Change Owner, Read Definition, Write Definition, Read Data, Insert Data, Update Data, Delete Data

Group Permissions

Admins
Users Delete, Read Permissions, Set Permissions, Change Owner, Read Definition, Write Definition, Read Data, Insert Data, Update Data, Delete Data

Properties

DateCreated:	12/12/2000 11:30:56 AM	gintAutoCreateImport:	False
gintAutoCreateInput:	False	gintCaption:	
gintColHeadingLines:	3	gintDate:	39531.3664583333
gintDesc:	Sieve Analysis: Parent table	gintDisplayPs:	9
gintGintRulesProc:	706,Table	gintGroupName:	Lab Testing
gintGroupParent:	Procedures\sievesave	gintHelpText:	If the final results will be input, nothing is required in the parent record, except Depth.

The program supports splitting the test specimen. This is commonly done when the soil has a large gravel fraction. The specimen is split into coarse and fine fractions. The entire coarse fraction, and a portion of the fine fraction, are sieved.

The weighing method is C for cumulative and I for incremental. Cumulative weighing sums the weights of all soil retained on each sieve and those coarser. Incremental weighing only records the weight retained on each sieve individually. This is the same for split and unsplit specimens.

With unsplit specimens the weight passing the split sieve and the fine weight tested are not used and the fields relating to "Coarse" are used and the "Fine" fields are ignored. If the specimen weight represented a wet condition, you must supply a "Coarse" water content. However, unsplit specimens are assumed to be sieved dry so the Coarse_Sieved_Wet field is ignored. Finally, supply the weight of the Coarse sieving tare. This can be 0.

With split specimens the weight passing the split sieve, the fines weight tested, and the split sieve size in mm must be supplied. If the soil was weighed wet, the water contents for coarse and fine fractions must be supplied. If the coarse fraction was sieved wet, input True in the Coarse_Sieved_Wet field. The fine fraction is assumed to be sieved dry. Finally, supply the

weight of the Coarse and Fine gintKeepDataInClone: False
sieving tares. They can be 0.

gintKeyIsCounter:	False	gintLookupFieldCount:	0
gintLookupKeyHide:	False	gintNoDisplay:	False
gintPostProc:	SieveAnalysisParent	gintPreviewReport:	
gintShowAllParentKeys:	False	gintSourceName:	
gintSplitScreenChild:	SV READINGS	gintSystemTable:	Sieve
gintTablePreviewOnly:	False	gintViewRowHtTwips:	285
gintViewWidTwips:	0	LastUpdated:	5/26/2007 9:07:46 AM
RecordCount:	0	Updatable:	True

Columns

Name	Type	Size
GintRecID	Long Integer	4
AllowZeroLength:	False	
AppendOnly:	False	
Attributes:	Fixed Size, Auto-Increment	
CollatingOrder:	General	
ColumnHidden:	False	
ColumnOrder:	Default	
ColumnWidth:	Default	
DataUpdatable:	False	
gintBackColor:	0	
gintBlobType:	0	
gintCaption:		
gintCaptionVertical:	False	
gintDefaultExpr:		
gintDesc:		
gintFileRefData:		
gintFlags:	2	
gintLookup:		
gintLookupFilter:		
gintRules:		
gintUnits:		
gintViewWidTwips:	1008	
OrdinalPosition:	1	
Required:	False	
SourceField:	GintRecID	
SourceTable:	SIEVE	
PointID	Text	255
AllowZeroLength:	False	
AppendOnly:	False	
Attributes:	Variable Length	
CollatingOrder:	General	
ColumnHidden:	False	
ColumnOrder:	Default	
ColumnWidth:	Default	
DataUpdatable:	False	
gintBackColor:	0	
gintBlobType:	0	
gintCaption:	Boring Designation	

	gintCaptionVertical:	False		
	gintDefaultExpr:			
	gintDesc:			
	gintFileRefData:			
	gintFlags:	0		
	gintLookup:			
	gintLookupFilter:			
	gintRules:			
	gintUnits:			
	gintViewWidTwips:	957		
	OrdinalPosition:	2		
	Required:	True		
	SourceField:	PointID		
	SourceTable:	SIEVE		
Depth			Double	8
	AllowZeroLength:	False		
	AppendOnly:	False		
	Attributes:	Fixed Size		
	CollatingOrder:	General		
	ColumnHidden:	False		
	ColumnOrder:	Default		
	ColumnWidth:	Default		
	DataUpdatable:	False		
	DecimalPlaces:	Auto		
	gintBackColor:	0		
	gintBlobType:	0		
	gintCaption:			
	gintCaptionVertical:	False		
	gintDefaultExpr:			
	gintDesc:			
	gintFileRefData:			
	gintFlags:	0		
	gintLookup:			
	gintLookupFilter:			
	gintRules:	186 1		
	gintUnits:	ft		
	gintViewWidTwips:	870		
	OrdinalPosition:	3		
	Required:	True		
	SourceField:	Depth		
	SourceTable:	SIEVE		
Wt_Total_Spec			Single	4
	AllowZeroLength:	False		
	AppendOnly:	False		
	Attributes:	Fixed Size		
	CollatingOrder:	General		
	ColumnHidden:	False		
	ColumnOrder:	Default		
	ColumnWidth:	Default		
	DataUpdatable:	False		
	DecimalPlaces:	Auto		
	gintBackColor:	0		
	gintBlobType:	0		
	gintCaption:			

	gintCaptionVertical:	False		
	gintDefaultExpr:			
	gintDesc:			
	gintFileRefData:			
	gintFlags:	64		
	gintLookup:			
	gintLookupFilter:			
	gintRules:			
	gintUnits:			
	gintViewWidTwips:	945		
	OrdinalPosition:	4		
	Required:	False		
	SourceField:	Wt_Total_Spec		
	SourceTable:	SIEVE		
Wt_Passing_Split_Sieve			Single	4
	AllowZeroLength:	False		
	AppendOnly:	False		
	Attributes:	Fixed Size		
	CollatingOrder:	General		
	ColumnHidden:	False		
	ColumnOrder:	Default		
	ColumnWidth:	Default		
	DataUpdatable:	False		
	DecimalPlaces:	Auto		
	gintBackColor:	0		
	gintBlobType:	0		
	gintCaption:			
	gintCaptionVertical:	False		
	gintDefaultExpr:			
	gintDesc:			
	gintFileRefData:			
	gintFlags:	64		
	gintLookup:			
	gintLookupFilter:			
	gintRules:			
	gintUnits:			
	gintViewWidTwips:	1125		
	OrdinalPosition:	5		
	Required:	False		
	SourceField:	Wt_Passing_Split_Sieve		
	SourceTable:	SIEVE		
Wt_Fines_Testesd			Single	4
	AllowZeroLength:	False		
	AppendOnly:	False		
	Attributes:	Fixed Size		
	CollatingOrder:	General		
	ColumnHidden:	False		
	ColumnOrder:	Default		
	ColumnWidth:	Default		
	DataUpdatable:	False		
	DecimalPlaces:	Auto		
	gintBackColor:	0		
	gintBlobType:	0		
	gintCaption:			

gintCaptionVertical: False
gintDefaultExpr:
gintDesc:
gintFileRefData:
gintFlags: 64
gintLookup:
gintLookupFilter:
gintRules:
gintUnits:
gintViewWidTwips: 930
OrdinalPosition: 6
Required: False
SourceField: Wt_Fines_Test
SourceTable: SIEVE

Size_Split_Sieve Single 4

AllowZeroLength: False
AppendOnly: False
Attributes: Fixed Size
CollatingOrder: General
ColumnHidden: False
ColumnOrder: Default
ColumnWidth: Default
DataUpdatable: False
DecimalPlaces: Auto
gintBackColor: 0
gintBlobType: 0
gintCaption:
gintCaptionVertical: False
gintDefaultExpr:
gintDesc:
gintFileRefData:
gintFlags: 64
gintLookup:
gintLookupFilter:
gintRules:
gintUnits: mm
gintViewWidTwips: 675
OrdinalPosition: 7
Required: False
SourceField: Size_Split_Sieve
SourceTable: SIEVE

Weighing_Method Text 255

AllowZeroLength: True
AppendOnly: False
Attributes: Variable Length
CollatingOrder: General
ColumnHidden: False
ColumnOrder: Default
ColumnWidth: Default
DataUpdatable: False
gintBackColor: 0
gintBlobType: 0
gintCaption:
gintCaptionVertical: False

gintDefaultExpr:
gintDesc:
gintFileRefData:
gintFlags: 65
gintLookup: Lookuplab sv weigh methods
gintLookupFilter:
gintRules:
gintUnits:
gintViewWidTwips: 975
OrdinalPosition: 8
Required: False
SourceField: Weighing_Method
SourceTable: SIEVE

Wt_Sieving_Tare_Coarse Single 4

AllowZeroLength: False
AppendOnly: False
Attributes: Fixed Size
CollatingOrder: General
ColumnHidden: False
ColumnOrder: Default
ColumnWidth: Default
DataUpdatable: False
DecimalPlaces: Auto
gintBackColor: 0
gintBlobType: 0
gintCaption:
gintCaptionVertical: False
gintDefaultExpr:
gintDesc:
gintFileRefData:
gintFlags: 64
gintLookup:
gintLookupFilter:
gintRules:
gintUnits:
gintViewWidTwips: 1185
OrdinalPosition: 9
Required: False
SourceField: Wt_Sieving_Tare_Coarse
SourceTable: SIEVE

Wt_Sieving_Tare_Fine Single 4

AllowZeroLength: False
AppendOnly: False
Attributes: Fixed Size
CollatingOrder: General
ColumnHidden: False
ColumnOrder: Default
ColumnWidth: Default
DataUpdatable: False
DecimalPlaces: Auto
gintBackColor: 0
gintBlobType: 0
gintCaption:
gintCaptionVertical: False

gintDefaultExpr:
gintDesc:
gintFileRefData:
gintFlags: 64
gintLookup:
gintLookupFilter:
gintRules:
gintUnits:
gintViewWidTwips: 1065
OrdinalPosition: 10
Required: False
SourceField: Wt_Sieving_Tare_Fine
SourceTable: SIEVE

WC_Wt_Wet_Coarse Single 4

AllowZeroLength: False
AppendOnly: False
Attributes: Fixed Size
CollatingOrder: General
ColumnHidden: False
ColumnOrder: Default
ColumnWidth: Default
DataUpdatable: False
DecimalPlaces: Auto
gintBackColor: 0
gintBlobType: 0
gintCaption: Water Content Coarse Wet Wt+Tare
gintCaptionVertical: False
gintDefaultExpr:
gintDesc: Water Content Determination: Weight Wet Soil + Tare, any consistent units

gintFileRefData:
gintFlags: 64
gintLookup:
gintLookupFilter:
gintRules:
gintUnits:
gintViewWidTwips: 1455
OrdinalPosition: 11
Required: False
SourceField: WC_Wt_Wet_Coarse
SourceTable: SIEVE

WC_Wt_Dry_Coarse Single 4

AllowZeroLength: False
AppendOnly: False
Attributes: Fixed Size
CollatingOrder: General
ColumnHidden: False
ColumnOrder: Default
ColumnWidth: Default
DataUpdatable: False
DecimalPlaces: Auto
gintBackColor: 0
gintBlobType: 0

gintCaption: Water Content Coarse Dry Wt+Tare
gintCaptionVertical: False
gintDefaultExpr:
gintDesc: Water Content Determination: Weight Dry Soil + Tare, any consistent units

gintFileRefData:
gintFlags: 64
gintLookup:
gintLookupFilter:
gintRules:
gintUnits:
gintViewWidTwips: 1425
OrdinalPosition: 12
Required: False
SourceField: WC_Wt_Dry_Coarse
SourceTable: SIEVE

WC_Wt_Tare_Coarse Single 4

AllowZeroLength: False
AppendOnly: False
Attributes: Fixed Size
CollatingOrder: General
ColumnHidden: False
ColumnOrder: Default
ColumnWidth: Default
DataUpdatable: False
DecimalPlaces: Auto
gintBackColor: 0
gintBlobType: 0
gintCaption: Water Content Coarse Wt Tare
gintCaptionVertical: False
gintDefaultExpr:
gintDesc: Water Content Determination: Weight Tare, any consistent units

gintFileRefData:
gintFlags: 64
gintLookup:
gintLookupFilter:
gintRules:
gintUnits:
gintViewWidTwips: 1410
OrdinalPosition: 13
Required: False
SourceField: WC_Wt_Tare_Coarse
SourceTable: SIEVE

Water_Content_Coarse Single 4

AllowZeroLength: False
AppendOnly: False
Attributes: Fixed Size
CollatingOrder: General
ColumnHidden: False
ColumnOrder: Default
ColumnWidth: Default
DataUpdatable: False
DecimalPlaces: Auto

gintBackColor: 0
gintBlobType: 0
gintCaption:
gintCaptionVertical: False
gintDefaultExpr:
gintDesc: Will be calculated if the data exists.
gintFileRefData:
gintFlags: 64
gintLookup:
gintLookupFilter:
gintRules:
gintUnits: %
gintViewWidTwips: 930
OrdinalPosition: 14
Required: False
SourceField: Water_Content_Coarse
SourceTable: SIEVE

WC_Wt_Wet_Fine Single 4

AllowZeroLength: False
AppendOnly: False
Attributes: Fixed Size
CollatingOrder: General
ColumnHidden: False
ColumnOrder: Default
ColumnWidth: Default
DataUpdatable: False
DecimalPlaces: Auto
gintBackColor: 0
gintBlobType: 0
gintCaption: Water Content Fine Wet Wt+Tare
gintCaptionVertical: False
gintDefaultExpr:
gintDesc: Water Content Determination: Weight Wet Soil + Tare, any consistent units

gintFileRefData:
gintFlags: 64
gintLookup:
gintLookupFilter:
gintRules:
gintUnits:
gintViewWidTwips: 1380
OrdinalPosition: 15
Required: False
SourceField: WC_Wt_Wet_Fine
SourceTable: SIEVE

WC_Wt_Dry_Fine Single 4

AllowZeroLength: False
AppendOnly: False
Attributes: Fixed Size
CollatingOrder: General
ColumnHidden: False
ColumnOrder: Default
ColumnWidth: Default

DataUpdatable: False
DecimalPlaces: Auto
gintBackColor: 0
gintBlobType: 0
gintCaption: Water Content Fine Dry Wt+Tare
gintCaptionVertical: False
gintDefaultExpr:
gintDesc: Water Content Determination: Weight Dry Soil + Tare, any consistent units

gintFileRefData:
gintFlags: 64
gintLookup:
gintLookupFilter:
gintRules:
gintUnits:
gintViewWidTwips: 1410
OrdinalPosition: 16
Required: False
SourceField: WC_Wt_Dry_Fine
SourceTable: SIEVE

WC_Wt_Tare_Fine Single 4

AllowZeroLength: False
AppendOnly: False
Attributes: Fixed Size
CollatingOrder: General
ColumnHidden: False
ColumnOrder: Default
ColumnWidth: Default
DataUpdatable: False
DecimalPlaces: Auto
gintBackColor: 0
gintBlobType: 0
gintCaption: Water Content Fine Wt Tare
gintCaptionVertical: False
gintDefaultExpr:
gintDesc: Water Content Determination: Weight Tare, any consistent units

gintFileRefData:
gintFlags: 64
gintLookup:
gintLookupFilter:
gintRules:
gintUnits:
gintViewWidTwips: 1230
OrdinalPosition: 17
Required: False
SourceField: WC_Wt_Tare_Fine
SourceTable: SIEVE

Water_Content_Fine Single 4

AllowZeroLength: False
AppendOnly: False
Attributes: Fixed Size
CollatingOrder: General
ColumnHidden: False

ColumnOrder: Default
 ColumnWidth: Default
 DataUpdatable: False
 DecimalPlaces: Auto
 gintBackColor: 0
 gintBlobType: 0
 gintCaption: 0
 gintCaptionVertical: False
 gintDefaultExpr: 0
 gintDesc: Will be calculated if the data exists.
 gintFileRefData: 0
 gintFlags: 64
 gintLookup: 0
 gintLookupFilter: 0
 gintRules: 0
 gintUnits: %
 gintViewWidTwips: 975
 OrdinalPosition: 18
 Required: False
 SourceField: Water_Content_Fine
 SourceTable: SIEVE

Coarse_Sieved_Wet Yes/No 1
 AllowZeroLength: False
 AppendOnly: False
 Attributes: Fixed Size
 CollatingOrder: General
 ColumnHidden: False
 ColumnOrder: Default
 ColumnWidth: Default
 DataUpdatable: False
 gintBackColor: 0
 gintBlobType: 0
 gintCaption: 0
 gintCaptionVertical: False
 gintDefaultExpr: 0
 gintDesc: Only used with split specimens. Unsplit specimens, and the fine portion of split specimens, are always assumed to be sieved dry.
 gintFileRefData: 0
 gintFlags: 64
 gintLookup: 0
 gintLookupFilter: 0
 gintRules: 0
 gintUnits: 0
 gintViewWidTwips: 720
 OrdinalPosition: 19
 Required: False
 SourceField: Coarse_Sieved_Wet
 SourceTable: SIEVE

Relationships

LAB SPECIMENSIEVE

LAB SPECIMEN			SIEVE
PointID	1	1	PointID
Depth	1	1	Depth

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

SIEVESV READINGS

SIEVE			SV READINGS
PointID	1	∞	PointID
Depth	1	∞	Depth

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

Table Indexes

Name	Number of Fields
GintIndex	2
Clustered:	False
DistinctCount:	0
Foreign:	False
IgnoreNulls:	False
Name:	GintIndex
Primary:	False
Required:	False
Unique:	True
Fields:	
PointID	Ascending
Depth	Ascending
Primary	1
Clustered:	False
DistinctCount:	0
Foreign:	False
IgnoreNulls:	False
Name:	Primary
Primary:	True
Required:	True
Unique:	True
Fields:	
GintRecID	Ascending
Reference1	2
Clustered:	False
DistinctCount:	0
Foreign:	True

IgnoreNulls:	False
Name:	Reference1
Primary:	False
Required:	False
Unique:	True
Fields:	
PointID	Ascending
Depth	Ascending

User Permissions

admin	Delete, Read Permissions, Set Permissions, Change Owner, Read Definition, Write Definition, Read Data, Insert Data, Update Data, Delete Data
-------	--

Group Permissions

Admins	Delete, Read Permissions, Set Permissions, Change Owner, Read Definition, Write Definition, Read Data, Insert Data, Update Data, Delete Data
Users	

Properties

DateCreated:	4/10/1997 1:48:38 AM	gintAutoCreateImport:	False
gintAutoCreateInput:	False	gintCaption:	
gintColHeadingLines:	3	gintDataCheckProc:	
gintDate:	39548.5983217593	gintDesc:	706,Table
gintDisplayPs:	3	gintGintRulesProc:	Procedures\Lithologysave
gintGroupName:		gintGroupParent:	
gintHelpText:		gintKeepDataInClone:	False
gintKeyIsCounter:	False	gintLookupFieldCount:	0
gintLookupKeyHide:	False	gintNoDisplay:	False
gintPostProc:		gintPreviewReport:	Log\caltrans rotary lotb met+eng
gintShowAllParentKeys:	False	gintSourceName:	LITHOLOGY
gintSplitScreenChild:		gintSystemTable:	False
gintTablePreviewOnly:	False	gintViewRowHtTwips:	840
gintViewWidTwips:	0	LastUpdated:	4/10/2008 2:26:25 PM
RecordCount:	0	Updatable:	True

Columns

Name	Type	Size
GintRecID	Long Integer	4
AllowZeroLength:	False	
AppendOnly:	False	
Attributes:	Fixed Size, Auto-Increment	
CollatingOrder:	General	
DataUpdatable:	False	
gintBackColor:	0	
gintBlobType:	0	
gintCaption:		
gintCaptionVertical:	False	
gintDefaultExpr:		
gintDesc:	System requirement. Not user editable.	
gintFileRefData:		
gintFlags:	2	
gintLookup:		
gintLookupFilter:		
gintRules:		
gintUnits:		
gintViewWidTwips:	1116	
OrdinalPosition:	1	
Required:	False	
SourceField:	GintRecID	
SourceTable:	SOIL DESCRIPTION	
PointID	Text	255
AllowZeroLength:	False	
AppendOnly:	False	
Attributes:	Variable Length	
CollatingOrder:	General	
DataUpdatable:	False	

gintBackColor: 0
gintBlobType: 0
gintCaption: Boring Designation
gintCaptionVertical: False
gintDefaultExpr:
gintDesc:
gintFileRefData:
gintFlags: 0
gintLookup:
gintLookupFilter:
gintRules:
gintUnits:
gintViewWidTwips: 861
OrdinalPosition: 2
Required: True
SourceField: PointID
SourceTable: SOIL DESCRIPTION

Depth Double 8

AllowZeroLength: False
AppendOnly: False
Attributes: Fixed Size
CollatingOrder: General
DataUpdatable: False
gintBackColor: 0
gintBlobType: 0
gintCaption:
gintCaptionVertical: False
gintDefaultExpr:
gintDesc: Top depth of soil unit, or depth at which a minor change to or special feature within a soil unit occurs. Do not put bottom depth for minor change or special feature.

gintFileRefData:
gintFlags: 0
gintLookup:
gintLookupFilter:
gintRules: 186|1
gintUnits: ft
gintViewWidTwips: 924
OrdinalPosition: 3
Required: True
SourceField: Depth
SourceTable: SOIL DESCRIPTION

Bottom Double 8

AllowZeroLength: False
AppendOnly: False
Attributes: Fixed Size
CollatingOrder: General
DataUpdatable: False
gintBackColor: 0
gintBlobType: 0
gintCaption:
gintCaptionVertical: False
gintDefaultExpr:

gintDesc: Bottom depth of soil unit.
gintFileRefData:
gintFlags: 0
gintLookup:
gintLookupFilter:
gintRules:
gintUnits: ft
gintViewWidTwips: 1050
OrdinalPosition: 4
Required: False
SourceField: Bottom
SourceTable: SOIL DESCRIPTION

Line Type Text 255

AllowZeroLength: True
AppendOnly: False
Attributes: Variable Length
CollatingOrder: General
DataUpdatable: False
gintBackColor: 0
gintBlobType: 0
gintCaption:
gintCaptionVertical: False
gintDefaultExpr:
gintDesc: Line type across Description column at bottom of soil unit; default is solid line.

gintFileRefData:
gintFlags: 1
gintLookup: Graphic!linetype
gintLookupFilter:
gintRules:
gintUnits:
gintViewWidTwips: 930
OrdinalPosition: 5
Required: False
SourceField: Line Type
SourceTable: SOIL DESCRIPTION

Interim Change Text 255

AllowZeroLength: True
AppendOnly: False
Attributes: Variable Length
CollatingOrder: General
DataUpdatable: False
gintBackColor: 0
gintBlobType: 0
gintCaption: Interim Change or layer observation
gintCaptionVertical: False
gintDefaultExpr:
gintDesc: Choose words to preface changes to soil characteristics (or layer or seam of different soil type) within a soil unit entered in specific component fields or occurrence at a particular depth. When this field has an entry, the entry will be preceded by "At El. xx ft".

gintFileRefData:
gintFlags: 0
gintLookup: Lookup!interim change phrases

gintLookupFilter:			
gintRules:			
gintUnits:			
gintViewWidTwips:	1497		
OrdinalPosition:	6		
Required:	False		
SourceField:	Interim Change		
SourceTable:	SOIL DESCRIPTION		
Group Name		Text	255
AllowZeroLength:	True		
AppendOnly:	False		
Attributes:	Variable Length		
CollatingOrder:	General		
DataUpdatable:	False		
gintBackColor:	0		
gintBlobType:	0		
gintCaption:			
gintCaptionVertical:	False		
gintDefaultExpr:			
gintDesc:	Choice of Group Name automatically determine USCS and material graphic pattern. If COBBLES and/or BOULDERS are primary constituent (total > 50%), put soil matrix classification in "Additional Comments" (e.g. COBBLES with some well-graded SAND with GRAVEL).		
gintFileRefData:			
gintFlags:	1		
gintLookup:	Libtbl!group names + uscs +graphic		
gintLookupFilter:			
gintRules:			
gintViewWidTwips:	1665		
OrdinalPosition:	7		
Required:	False		
SourceField:	Group Name		
SourceTable:	SOIL DESCRIPTION		
Borderline Group Symbol		Text	255
AllowZeroLength:	True		
AppendOnly:	False		
Attributes:	Variable Length		
CollatingOrder:	General		
DataUpdatable:	False		
gintBackColor:	0		
gintBlobType:	0		
gintCaption:			
gintCaptionVertical:	False		
gintDefaultExpr:			
gintDesc:	Second symbol for borderline classification, joined with "Group Symbol" by "/". NOTE group name is always singular (first of group symbols) except CL/CH (lean to fat clay), ML/CL (clayey silt), and CL/ML (silty clay -- not official USCS CL-ML).		
gintFileRefData:			
gintFlags:	1		

gintLookup:	Lookupuscs codes		
gintLookupFilter:			
gintRules:			
gintUnits:			
gintViewWidTwips:	1668		
OrdinalPosition:	8		
Required:	False		
SourceField:	Borderline Group Symbol		
SourceTable:	SOIL DESCRIPTION		
Density		Text	255
AllowZeroLength:	True		
AppendOnly:	False		
Attributes:	Variable Length		
CollatingOrder:	General		
DataUpdatable:	False		
gintBackColor:	0		
gintBlobType:	0		
gintCaption:	Apparent Density		
gintCaptionVertical:	False		
gintDefaultExpr:	Apparent density of coarse-grained soil.		
gintDesc:			
gintFileRefData:			
gintFlags:	1		
gintLookup:	Lookup!density		
gintLookupFilter:			
gintRules:			
gintUnits:			
gintViewWidTwips:	1290		
OrdinalPosition:	9		
Required:	False		
SourceField:	Density		
SourceTable:	SOIL DESCRIPTION		
Consistency		Text	255
AllowZeroLength:	True		
AppendOnly:	False		
Attributes:	Variable Length		
CollatingOrder:	General		
DataUpdatable:	False		
gintBackColor:	0		
gintBlobType:	0		
gintCaption:			
gintCaptionVertical:	False		
gintDefaultExpr:	Consistency for fine-grained or cohesive soil. Lookup is called "Consistency" and is located in Data Design:Lookup Lists.		
gintDesc:			
gintFileRefData:			
gintFlags:	1		
gintLookup:	Lookup!consistency		
gintLookupFilter:			
gintRules:			
gintUnits:			
gintViewWidTwips:	1200		
OrdinalPosition:	10		
Required:	False		

	SourceField:	Consistency	
	SourceTable:	SOIL DESCRIPTION	
Color			Text 255
	AllowZeroLength:	True	
	AppendOnly:	False	
	Attributes:	Variable Length	
	CollatingOrder:	General	
	DataUpdatable:	False	
	gintBackColor:	0	
	gintBlobType:	0	
	gintCaption:		
	gintCaptionVertical:	False	
	gintDefaultExpr:		
	gintDesc:	Primary color of the lithologic unit. Lookup is called "Munsell Colors - Name Code" and is located in Data Design:Library Data.	
	gintFileRefData:		
	gintFlags:	1	
	gintLookup:	Libtbl\munsell colors - name code	
	gintLookupFilter:		
	gintRules:		
	gintUnits:		
	gintViewWidTwips:	1365	
	OrdinalPosition:	11	
	Required:	False	
	SourceField:	Color	
	SourceTable:	SOIL DESCRIPTION	
Munsell Code			Text 255
	AllowZeroLength:	True	
	AppendOnly:	False	
	Attributes:	Variable Length	
	CollatingOrder:	General	
	DataUpdatable:	False	
	gintBackColor:	0	
	gintBlobType:	0	
	gintCaption:		
	gintCaptionVertical:	False	
	gintDefaultExpr:		
	gintDesc:		
	gintFileRefData:		
	gintFlags:	3	
	gintLookup:	Libtbl\munsell colors - codes & names	
	gintLookupFilter:		
	gintRules:		
	gintUnits:		
	gintViewWidTwips:	1392	
	OrdinalPosition:	12	
	Required:	False	
	SourceField:	Munsell Code	
	SourceTable:	SOIL DESCRIPTION	
Color Joiner			Text 255
	AllowZeroLength:	True	
	AppendOnly:	False	

	Attributes:	Variable Length	
	CollatingOrder:	General	
	DataUpdatable:	False	
	gintBackColor:	0	
	gintBlobType:	0	
	gintCaption:		
	gintCaptionVertical:	False	
	gintDefaultExpr:		
	gintDesc:	Choose text such as "mottled with" or "to" from pull-down to join "color" with "additional color".	
	gintFileRefData:		
	gintFlags:	1	
	gintLookup:	Libtbl\color joiner	
	gintLookupFilter:		
	gintRules:		
	gintUnits:		
	gintViewWidTwips:	1257	
	OrdinalPosition:	13	
	Required:	False	
	SourceField:	Color Joiner	
	SourceTable:	SOIL DESCRIPTION	
Additional Color			Text 255
	AllowZeroLength:	True	
	AppendOnly:	False	
	Attributes:	Variable Length	
	CollatingOrder:	General	
	DataUpdatable:	False	
	gintBackColor:	0	
	gintBlobType:	0	
	gintCaption:		
	gintCaptionVertical:	False	
	gintDefaultExpr:		
	gintDesc:	Secondary color of the lithologic unit. Lookup is called "Munsell Colors" and is located in Data Design:Lookup Lists.	
	gintFileRefData:		
	gintFlags:	1	
	gintLookup:	Libtbl\munsell colors - name code	
	gintLookupFilter:		
	gintRules:		
	gintUnits:		
	gintViewWidTwips:	1260	
	OrdinalPosition:	14	
	Required:	False	
	SourceField:	Additional Color	
	SourceTable:	SOIL DESCRIPTION	
Additional Munsell Code			Text 255
	AllowZeroLength:	True	
	AppendOnly:	False	
	Attributes:	Variable Length	
	CollatingOrder:	General	
	DataUpdatable:	False	
	gintBackColor:	0	
	gintBlobType:	0	

gintCaption:			
gintCaptionVertical:	False		
gintDefaultExpr:			
gintDesc:			
gintFileRefData:			
gintFlags:	3		
gintLookup:	Libtbl\munsell colors - codes & names		
gintLookupFilter:			
gintRules:			
gintUnits:			
gintViewWidTwips:	1365		
OrdinalPosition:	15		
Required:	False		
SourceField:	Additional Munsell Code		
SourceTable:	SOIL DESCRIPTION		
Miscellaneous Color		Text	255
AllowZeroLength:	True		
AppendOnly:	False		
Attributes:	Variable Length		
CollatingOrder:	General		
DataUpdatable:	False		
gintBackColor:	0		
gintBlobType:	0		
gintCaption:			
gintCaptionVertical:	False		
gintDefaultExpr:			
gintDesc:	Use this field if you want a color combination that you cannot do with the other Color fields.		
gintFileRefData:			
gintFlags:	0		
gintLookup:			
gintLookupFilter:			
gintRules:			
gintUnits:			
gintViewWidTwips:	1842		
OrdinalPosition:	16		
Required:	False		
SourceField:	Miscellaneous Color		
SourceTable:	SOIL DESCRIPTION		
Moisture		Text	255
AllowZeroLength:	True		
AppendOnly:	False		
Attributes:	Variable Length		
CollatingOrder:	General		
DataUpdatable:	False		
gintBackColor:	0		
gintBlobType:	0		
gintCaption:	Moisture		
gintCaptionVertical:	False		
gintDefaultExpr:			
gintDesc:	Lookup is called "Moisture" and is located in Data Design:Lookup Lists.		
gintFileRefData:			

gintFlags:	1		
gintLookup:	Lookup\moisture		
gintLookupFilter:			
gintRules:			
gintUnits:			
gintViewWidTwips:	900		
OrdinalPosition:	17		
Required:	False		
SourceField:	Moisture		
SourceTable:	SOIL DESCRIPTION		
Boulders 1		Integer	2
AllowZeroLength:	False		
AppendOnly:	False		
Attributes:	Fixed Size		
CollatingOrder:	General		
DataUpdatable:	False		
gintBackColor:	0		
gintBlobType:	0		
gintCaption:	Boulders % From		
gintCaptionVertical:	False		
gintDefaultExpr:			
gintDesc:	Percentage of boulders (by volume); lower percentage if range recorded. If data entered in field, Group Name will automatically adjust to include "with Boulders".		
gintFileRefData:			
gintFlags:	0		
gintLookup:			
gintLookupFilter:			
gintRules:			
gintUnits:	%		
gintViewWidTwips:	1128		
OrdinalPosition:	18		
Required:	False		
SourceField:	Boulders 1		
SourceTable:	SOIL DESCRIPTION		
Boulders 2		Integer	2
AllowZeroLength:	False		
AppendOnly:	False		
Attributes:	Fixed Size		
CollatingOrder:	General		
DataUpdatable:	False		
gintBackColor:	0		
gintBlobType:	0		
gintCaption:	Boulders % To		
gintCaptionVertical:	False		
gintDefaultExpr:			
gintDesc:	Higher percentage of boulders (by volume) if range recorded.		
gintFileRefData:			
gintFlags:	0		
gintLookup:			
gintLookupFilter:			
gintRules:			
gintUnits:	%		

gintViewWidTwips:	1044		
OrdinalPosition:	19		
Required:	False		
SourceField:	Boulders 2		
SourceTable:	SOIL DESCRIPTION		
Boulders Rock ID		Text	255
AllowZeroLength:	True		
AppendOnly:	False		
Attributes:	Variable Length		
CollatingOrder:	General		
DataUpdatable:	False		
gintBackColor:	0		
gintBlobType:	0		
gintCaption:			
gintCaptionVertical:	False		
gintDefaultExpr:			
gintDesc:	Will appear at end of soil description as "BOULDERS consist of ..."		
gintFileRefData:			
gintFlags:	1		
gintLookup:	Lookuprock id - rock family		
gintLookupFilter:			
gintRules:			
gintUnits:			
gintViewWidTwips:	1684		
OrdinalPosition:	20		
Required:	False		
SourceField:	Boulders Rock ID		
SourceTable:	SOIL DESCRIPTION		
Boulders Intersected Lenght of Core		Text	255
AllowZeroLength:	True		
AppendOnly:	False		
Attributes:	Variable Length		
CollatingOrder:	General		
DataUpdatable:	False		
gintBackColor:	0		
gintBlobType:	0		
gintCaption:	Boulders Intersected Length of Core		
gintCaptionVertical:	False		
gintDefaultExpr:			
gintDesc:	Enter entire phrase such as: "intersecting lengths from 8 to 10 inches". Will appear at end of soil description as "BOULDERS consist of ..."		
gintFileRefData:			
gintFlags:	0		
gintLookup:			
gintLookupFilter:			
gintRules:			
gintUnits:			
gintViewWidTwips:	2184		
OrdinalPosition:	21		
Required:	False		
SourceField:	Boulders Intersected Lenght of Core		
SourceTable:	SOIL DESCRIPTION		

Boulders Weathering		Text	255
AllowZeroLength:	True		
AppendOnly:	False		
Attributes:	Variable Length		
CollatingOrder:	General		
DataUpdatable:	False		
gintBackColor:	0		
gintBlobType:	0		
gintCaption:			
gintCaptionVertical:	False		
gintDefaultExpr:			
gintDesc:	Will appear at end of soil description as "BOULDERS consist of ..."		
gintFileRefData:			
gintFlags:	1		
gintLookup:	Lookuprock weathering		
gintLookupFilter:			
gintRules:			
gintUnits:			
gintViewWidTwips:	1996		
OrdinalPosition:	22		
Required:	False		
SourceField:	Boulders Weathering		
SourceTable:	SOIL DESCRIPTION		
Boulders Hardness		Text	255
AllowZeroLength:	True		
AppendOnly:	False		
Attributes:	Variable Length		
CollatingOrder:	General		
DataUpdatable:	False		
gintBackColor:	0		
gintBlobType:	0		
gintCaption:			
gintCaptionVertical:	False		
gintDefaultExpr:			
gintDesc:	Will appear at end of soil description as "BOULDERS consist of ..."		
gintFileRefData:			
gintFlags:	1		
gintLookup:	Lookuprock hardness		
gintLookupFilter:			
gintRules:			
gintUnits:			
gintViewWidTwips:	1816		
OrdinalPosition:	23		
Required:	False		
SourceField:	Boulders Hardness		
SourceTable:	SOIL DESCRIPTION		
Boulder Angularity		Text	255
AllowZeroLength:	True		
AppendOnly:	False		
Attributes:	Variable Length		
CollatingOrder:	General		
DataUpdatable:	False		
gintBackColor:	0		
gintBlobType:	0		

gintCaption:
 gintCaptionVertical: False
 gintDefaultExpr:
 gintDesc: Will appear at end of soil description as "BOULDERS consist of ..."
 gintFileRefData:
 gintFlags: 1
 gintLookup: Lookup|particle angularity
 gintLookupFilter:
 gintRules:
 gintUnits:
 gintViewWidTwips: 1732
 OrdinalPosition: 24
 Required: False
 SourceField: Boulder Angularity
 SourceTable: SOIL DESCRIPTION

Boulder Shape Text 255

AllowZeroLength: True
 AppendOnly: False
 Attributes: Variable Length
 CollatingOrder: General
 DataUpdatable: False
 gintBackColor: 0
 gintBlobType: 0
 gintCaption:
 gintCaptionVertical: False
 gintDefaultExpr:
 gintDesc: Will appear at end of soil description as "BOULDERS consist of ..."
 gintFileRefData:
 gintFlags: 1
 gintLookup: Lookup|particle shape
 gintLookupFilter:
 gintRules:
 gintUnits:
 gintViewWidTwips: 1504
 OrdinalPosition: 25
 Required: False
 SourceField: Boulder Shape
 SourceTable: SOIL DESCRIPTION

Cobbles 1 Integer 2

AllowZeroLength: False
 AppendOnly: False
 Attributes: Fixed Size
 CollatingOrder: General
 DataUpdatable: False
 gintBackColor: 0
 gintBlobType: 0
 gintCaption: Cobble % From
 gintCaptionVertical: False
 gintDefaultExpr:
 gintDesc: Percentage of cobbles (estimated by volume); lower percentage if range recorded. If data entered in field, Group Name will automatically adjust to include "with Cobbles".
 gintFileRefData:
 gintFlags: 0

gintLookup:
 gintLookupFilter:
 gintRules:
 gintUnits: %
 gintViewWidTwips: 1224
 OrdinalPosition: 26
 Required: False
 SourceField: Cobbles 1
 SourceTable: SOIL DESCRIPTION

Cobbles 2 Integer 2

AllowZeroLength: False
 AppendOnly: False
 Attributes: Fixed Size
 CollatingOrder: General
 DataUpdatable: False
 gintBackColor: 0
 gintBlobType: 0
 gintCaption: Cobbles % To
 gintCaptionVertical: False
 gintDefaultExpr:
 gintDesc: Higher percentage of cobbles (by volume) if range recorded.
 gintFileRefData:
 gintFlags: 0
 gintLookup:
 gintLookupFilter:
 gintRules:
 gintUnits:
 gintViewWidTwips: 1092
 OrdinalPosition: 27
 Required: False
 SourceField: Cobbles 2
 SourceTable: SOIL DESCRIPTION

Cobbles Rock ID Text 255

AllowZeroLength: True
 AppendOnly: False
 Attributes: Variable Length
 CollatingOrder: General
 DataUpdatable: False
 gintBackColor: 0
 gintBlobType: 0
 gintCaption:
 gintCaptionVertical: False
 gintDefaultExpr:
 gintDesc: Will appear at end of soil description as "COBBLES consist of ..."
 gintFileRefData:
 gintFlags: 1
 gintLookup: Lookup|rock id - rock family
 gintLookupFilter:
 gintRules:
 gintUnits:
 gintViewWidTwips: 1648
 OrdinalPosition: 28
 Required: False
 SourceField: Cobbles Rock ID

SourceTable:	SOIL DESCRIPTION		
Cobbles Weathering	Text	255	
AllowZeroLength:	True		
AppendOnly:	False		
Attributes:	Variable Length		
CollatingOrder:	General		
DataUpdatable:	False		
gintBackColor:	0		
gintBlobType:	0		
gintCaption:			
gintCaptionVertical:	False		
gintDefaultExpr:			
gintDesc:	Will appear at end of soil description as "COBBLES consist of ..."		
gintFileRefData:			
gintFlags:	1		
gintLookup:	Lookuprock weathering		
gintLookupFilter:			
gintRules:			
gintUnits:			
gintViewWidTwips:	1960		
OrdinalPosition:	29		
Required:	False		
SourceField:	Cobbles Weathering		
SourceTable:	SOIL DESCRIPTION		
Cobbles Hardness	Text	255	
AllowZeroLength:	True		
AppendOnly:	False		
Attributes:	Variable Length		
CollatingOrder:	General		
DataUpdatable:	False		
gintBackColor:	0		
gintBlobType:	0		
gintCaption:			
gintCaptionVertical:	False		
gintDefaultExpr:			
gintDesc:	Will appear at end of soil description as "COBBLES consist of ..."		
gintFileRefData:			
gintFlags:	1		
gintLookup:	Lookuprock hardness		
gintLookupFilter:			
gintRules:			
gintUnits:			
gintViewWidTwips:	1780		
OrdinalPosition:	30		
Required:	False		
SourceField:	Cobbles Hardness		
SourceTable:	SOIL DESCRIPTION		
Cobbles Intersected Length of Core	Text	255	
AllowZeroLength:	True		
AppendOnly:	False		
Attributes:	Variable Length		
CollatingOrder:	General		
DataUpdatable:	False		

gintBackColor:	0		
gintBlobType:	0		
gintCaption:	Cobbles Intersected Length of Core		
gintCaptionVertical:	False		
gintDefaultExpr:			
gintDesc:	Enter entire phrase such as: "intersecting lengths from 8 to 10 inches". Will appear at end of soil description as "COBBLES consist of ..."		
gintFileRefData:			
gintFlags:	0		
gintLookup:			
gintLookupFilter:			
gintRules:			
gintUnits:			
gintViewWidTwips:	2932		
OrdinalPosition:	31		
Required:	False		
SourceField:	Cobbles Intersected Length of Core		
SourceTable:	SOIL DESCRIPTION		
Cobble Angularity	Text	255	
AllowZeroLength:	True		
AppendOnly:	False		
Attributes:	Variable Length		
CollatingOrder:	General		
DataUpdatable:	False		
gintBackColor:	0		
gintBlobType:	0		
gintCaption:			
gintCaptionVertical:	False		
gintDefaultExpr:			
gintDesc:	Will appear at end of soil description as "COBBLES consist of ..."		
gintFileRefData:			
gintFlags:	1		
gintLookup:	Lookupparticle angularity		
gintLookupFilter:			
gintRules:			
gintUnits:			
gintViewWidTwips:	1696		
OrdinalPosition:	32		
Required:	False		
SourceField:	Cobble Angularity		
SourceTable:	SOIL DESCRIPTION		
Cobble Shape	Text	255	
AllowZeroLength:	True		
AppendOnly:	False		
Attributes:	Variable Length		
CollatingOrder:	General		
DataUpdatable:	False		
gintBackColor:	0		
gintBlobType:	0		
gintCaption:			
gintCaptionVertical:	False		
gintDefaultExpr:			

	gintDesc:	Will appear at end of soil description as "COBBLES consist of ..."	
	gintFileRefData:		
	gintFlags:	1	
	gintLookup:	Lookup!particle shape	
	gintLookupFilter:		
	gintRules:		
	gintUnits:		
	gintViewWidTwips:	1468	
	OrdinalPosition:	33	
	Required:	False	
	SourceField:	Cobble Shape	
	SourceTable:	SOIL DESCRIPTION	
Gravel 1		Integer	2
	AllowZeroLength:	False	
	AppendOnly:	False	
	Attributes:	Fixed Size	
	CollatingOrder:	General	
	DataUpdatable:	False	
	gintBackColor:	0	
	gintBlobType:	0	
	gintCaption:	Gravel % From	
	gintCaptionVertical:	False	
	gintDefaultExpr:		
	gintDesc:	Percentage of gravel (by weight); lower percentage if range	
	gintFileRefData:		
	gintFlags:	0	
	gintLookup:		
	gintLookupFilter:		
	gintRules:		
	gintUnits:	%	
	gintViewWidTwips:	765	
	OrdinalPosition:	34	
	Required:	False	
	SourceField:	Gravel 1	
	SourceTable:	SOIL DESCRIPTION	
Gravel 2		Integer	2
	AllowZeroLength:	False	
	AppendOnly:	False	
	Attributes:	Fixed Size	
	CollatingOrder:	General	
	DataUpdatable:	False	
	gintBackColor:	0	
	gintBlobType:	0	
	gintCaption:	Gravel % To	
	gintCaptionVertical:	False	
	gintDefaultExpr:		
	gintDesc:	Higher percentage of gravel (by weight) if range recorded.	
	gintFileRefData:		
	gintFlags:	0	
	gintLookup:		
	gintLookupFilter:		
	gintRules:		
	gintUnits:		
	gintViewWidTwips:	1324	

	OrdinalPosition:	35	
	Required:	False	
	SourceField:	Gravel 2	
	SourceTable:	SOIL DESCRIPTION	
Gravel Proportion		Text	255
	AllowZeroLength:	True	
	AppendOnly:	False	
	Attributes:	Variable Length	
	CollatingOrder:	General	
	DataUpdatable:	False	
	gintBackColor:	0	
	gintBlobType:	0	
	gintCaption:		
	gintCaptionVertical:	False	
	gintDefaultExpr:		
	gintDesc:	Alternative to estimating percentage of gravel by weight in soil; option only if lab gradation analysis not performed.	
	gintFileRefData:		
	gintFlags:	1	
	gintLookup:	Lookup!soil proportion terms	
	gintLookupFilter:		
	gintRules:		
	gintUnits:		
	gintViewWidTwips:	1684	
	OrdinalPosition:	36	
	Required:	False	
	SourceField:	Gravel Proportion	
	SourceTable:	SOIL DESCRIPTION	
Gravel Size		Text	255
	AllowZeroLength:	True	
	AppendOnly:	False	
	Attributes:	Variable Length	
	CollatingOrder:	General	
	DataUpdatable:	False	
	gintBackColor:	0	
	gintBlobType:	0	
	gintCaption:		
	gintCaptionVertical:	False	
	gintDefaultExpr:		
	gintDesc:	Lookup is called "Gravel Size" and is located in Data Design:Lookup Lists.	
	gintFileRefData:		
	gintFlags:	1	
	gintLookup:	Lookup!gravel size	
	gintLookupFilter:		
	gintRules:		
	gintUnits:		
	gintViewWidTwips:	1500	
	OrdinalPosition:	37	
	Required:	False	
	SourceField:	Gravel Size	
	SourceTable:	SOIL DESCRIPTION	

Gravel Angularity	Text	255
AllowZeroLength:	True	
AppendOnly:	False	
Attributes:	Variable Length	
CollatingOrder:	General	
DataUpdatable:	False	
gintBackColor:	0	
gintBlobType:	0	
gintCaption:		
gintCaptionVertical:	False	
gintDefaultExpr:		
gintDesc:	Lookup is called "Particle Angularity" and is located in Data Design:Lookup Lists.	
gintFileRefData:		
gintFlags:	1	
gintLookup:	Lookup!particle angularity	
gintLookupFilter:		
gintRules:		
gintUnits:		
gintViewWidTwips:	1350	
OrdinalPosition:	38	
Required:	False	
SourceField:	Gravel Angularity	
SourceTable:	SOIL DESCRIPTION	
Gravel Shape	Text	255
AllowZeroLength:	True	
AppendOnly:	False	
Attributes:	Variable Length	
CollatingOrder:	General	
DataUpdatable:	False	
gintBackColor:	0	
gintBlobType:	0	
gintCaption:		
gintCaptionVertical:	False	
gintDefaultExpr:		
gintDesc:	Lookup is called "Shape" and is located in Data Design:Lookup Lists.	
gintFileRefData:		
gintFlags:	1	
gintLookup:	Lookup!particle shape	
gintLookupFilter:		
gintRules:		
gintUnits:		
gintViewWidTwips:	1407	
OrdinalPosition:	39	
Required:	False	
SourceField:	Gravel Shape	
SourceTable:	SOIL DESCRIPTION	
Gravel Maximum Diameter	Text	255
AllowZeroLength:	True	
AppendOnly:	False	
Attributes:	Variable Length	
CollatingOrder:	General	
DataUpdatable:	False	

	gintBackColor:	0
	gintBlobType:	0
	gintCaption:	
	gintCaptionVertical:	False
	gintDefaultExpr:	
	gintDesc:	Enter number / fraction only. Will be preceded by "max." and followed by "in." in gravel description string.
	gintFileRefData:	
	gintFlags:	0
	gintLookup:	
	gintLookupFilter:	
	gintRules:	
	gintUnits:	in
	gintViewWidTwips:	1680
	OrdinalPosition:	40
	Required:	False
	SourceField:	Gravel Maximum Diameter
	SourceTable:	SOIL DESCRIPTION
Sand 1	Integer	2
	AllowZeroLength:	False
	AppendOnly:	False
	Attributes:	Fixed Size
	CollatingOrder:	General
	DataUpdatable:	False
	gintBackColor:	0
	gintBlobType:	0
	gintCaption:	Sand % From
	gintCaptionVertical:	False
	gintDefaultExpr:	
	gintDesc:	Percentage of sand (by weight); lower percentage if range recorded.
	gintFileRefData:	
	gintFlags:	0
	gintLookup:	
	gintLookupFilter:	
	gintRules:	
	gintUnits:	%
	gintViewWidTwips:	645
	OrdinalPosition:	41
	Required:	False
	SourceField:	Sand 1
	SourceTable:	SOIL DESCRIPTION
Sand 2	Integer	2
	AllowZeroLength:	False
	AppendOnly:	False
	Attributes:	Fixed Size
	CollatingOrder:	General
	DataUpdatable:	False
	gintBackColor:	0
	gintBlobType:	0
	gintCaption:	Sand % To
	gintCaptionVertical:	False
	gintDefaultExpr:	
	gintDesc:	Higher percentage of sand (by weight) if range recorded.

gintFileRefData:	0		
gintFlags:			
gintLookup:			
gintLookupFilter:			
gintRules:			
gintUnits:			
gintViewWidTwips:	1228		
OrdinalPosition:	42		
Required:	False		
SourceField:	Sand 2		
SourceTable:	SOIL DESCRIPTION		
Sand Proportion		Text	255
AllowZeroLength:	True		
AppendOnly:	False		
Attributes:	Variable Length		
CollatingOrder:	General		
DataUpdatable:	False		
gintBackColor:	0		
gintBlobType:	0		
gintCaption:			
gintCaptionVertical:	False		
gintDefaultExpr:			
gintDesc:	Alternative to estimating percentage of sand by weight in soil; option only if lab gradation analysis not performed.		
gintFileRefData:			
gintFlags:	1		
gintLookup:	Lookup!soil proportion terms		
gintLookupFilter:			
gintRules:			
gintUnits:			
gintViewWidTwips:	1380		
OrdinalPosition:	43		
Required:	False		
SourceField:	Sand Proportion		
SourceTable:	SOIL DESCRIPTION		
Sand Size		Text	255
AllowZeroLength:	True		
AppendOnly:	False		
Attributes:	Variable Length		
CollatingOrder:	General		
DataUpdatable:	False		
gintBackColor:	0		
gintBlobType:	0		
gintCaption:			
gintCaptionVertical:	False		
gintDefaultExpr:			
gintDesc:	Size or range of size of sand grains.		
gintFileRefData:			
gintFlags:	1		
gintLookup:	Lookup!sand size		
gintLookupFilter:			
gintRules:			
gintUnits:			

gintViewWidTwips:	1110		
OrdinalPosition:	44		
Required:	False		
SourceField:	Sand Size		
SourceTable:	SOIL DESCRIPTION		
Sand Angularity		Text	255
AllowZeroLength:	True		
AppendOnly:	False		
Attributes:	Variable Length		
CollatingOrder:	General		
DataUpdatable:	False		
gintBackColor:	0		
gintBlobType:	0		
gintCaption:			
gintCaptionVertical:	False		
gintDefaultExpr:			
gintDesc:	Angularity of sand grains.		
gintFileRefData:			
gintFlags:	1		
gintLookup:	Lookup!particle angularity		
gintLookupFilter:			
gintRules:			
gintUnits:			
gintViewWidTwips:	1305		
OrdinalPosition:	45		
Required:	False		
SourceField:	Sand Angularity		
SourceTable:	SOIL DESCRIPTION		
Fines 1		Integer	2
AllowZeroLength:	False		
AppendOnly:	False		
Attributes:	Fixed Size		
CollatingOrder:	General		
DataUpdatable:	False		
gintBackColor:	0		
gintBlobType:	0		
gintCaption:	Fines % From		
gintCaptionVertical:	False		
gintDefaultExpr:			
gintDesc:	Percentage of fines (by weight); lower percentage if range recorded.		
gintFileRefData:			
gintFlags:	0		
gintLookup:			
gintLookupFilter:			
gintRules:			
gintUnits:	%		
gintViewWidTwips:	660		
OrdinalPosition:	46		
Required:	False		
SourceField:	Fines 1		
SourceTable:	SOIL DESCRIPTION		
Fines 2		Integer	2
AllowZeroLength:	False		

AppendOnly: False
 Attributes: Fixed Size
 CollatingOrder: General
 DataUpdatable: False
 gintBackColor: 0
 gintBlobType: 0
 gintCaption: Fines % To
 gintCaptionVertical: False
 gintDefaultExpr: Higher percentage of fines (by weight) if range recorded.
 gintDesc:
 gintFileRefData: 0
 gintFlags:
 gintLookup: 1240
 gintLookupFilter: 47
 gintRules: False
 gintUnits: Fines 2
 gintViewWidTwips: SOIL DESCRIPTION
 OrdinalPosition:
 Required:
 SourceField:
 SourceTable:

Fines Proportion Text 255

AllowZeroLength: True
 AppendOnly: False
 Attributes: Variable Length
 CollatingOrder: General
 DataUpdatable: False
 gintBackColor: 0
 gintBlobType: 0
 gintCaption: False
 gintCaptionVertical: False
 gintDefaultExpr: Alternative to estimating percentage of fines by weight in soil; option only if lab gradation analysis not performed.
 gintDesc:
 gintFileRefData: 1
 gintFlags: Lookup|soil proportion terms
 gintLookup:
 gintLookupFilter:
 gintRules:
 gintUnits: 1600
 gintViewWidTwips: 48
 OrdinalPosition:
 Required: False
 SourceField: Fines Proportion
 SourceTable: SOIL DESCRIPTION

Plasticity Text 255

AllowZeroLength: True
 AppendOnly: False
 Attributes: Variable Length
 CollatingOrder: General
 DataUpdatable: False
 gintBackColor: 0
 gintBlobType: 0

gintCaption: Plasticity
 gintCaptionVertical: False
 gintDefaultExpr: Plasticity or range of plasticity determined in the field during toughness test. Field-based plasticity descriptor is eliminated if Atterberg Limits performed on sample within lith layer.
 gintDesc:
 gintFileRefData: 1
 gintFlags: Lookup|plasticity
 gintLookup:
 gintLookupFilter:
 gintRules:
 gintUnits: 1290
 gintViewWidTwips: 49
 OrdinalPosition:
 Required: False
 SourceField: Plasticity
 SourceTable: SOIL DESCRIPTION

Dry Strength Text 255

AllowZeroLength: True
 AppendOnly: False
 Attributes: Variable Length
 CollatingOrder: General
 DataUpdatable: False
 gintBackColor: 0
 gintBlobType: 0
 gintCaption: False
 gintCaptionVertical: False
 gintDefaultExpr: Lookup is called "Dry Strength" and is located in Data Design:Lookup Lists.
 gintDesc:
 gintFileRefData: 1
 gintFlags: Lookup|dry strength
 gintLookup:
 gintLookupFilter:
 gintRules:
 gintUnits: 1317
 gintViewWidTwips: 50
 OrdinalPosition:
 Required: False
 SourceField: Dry Strength
 SourceTable: SOIL DESCRIPTION

Dilatancy Text 255

AllowZeroLength: True
 AppendOnly: False
 Attributes: Variable Length
 CollatingOrder: General
 DataUpdatable: False
 gintBackColor: 0
 gintBlobType: 0
 gintCaption: Dilatancy
 gintCaptionVertical: False
 gintDefaultExpr:

gintDesc: Lookup is called "Dilatancy" and is located in Data Design:Lookup Lists.
 gintFileRefData:
 gintFlags: 1
 gintLookup: Lookup\dilatancy
 gintLookupFilter:
 gintRules:
 gintUnits:
 gintViewWidTwips: 1110
 OrdinalPosition: 51
 Required: False
 SourceField: Dilatancy
 SourceTable: SOIL DESCRIPTION

Toughness True Text 255

AllowZeroLength: True
 AppendOnly: False
 Attributes: Variable Length
 CollatingOrder: General
 DataUpdatable: False
 gintBackColor: 0
 gintBlobType: 0
 gintCaption:
 gintCaptionVertical: False
 gintDefaultExpr:
 gintDesc: Lookup is called "Toughness" and is located in Data Design:Lookup Lists.

gintFileRefData:
 gintFlags: 1
 gintLookup: Lookup\toughness
 gintLookupFilter:
 gintRules:
 gintUnits:
 gintViewWidTwips: 1395
 OrdinalPosition: 52
 Required: False
 SourceField: Toughness
 SourceTable: SOIL DESCRIPTION

Structure True Text 255

AllowZeroLength: True
 AppendOnly: False
 Attributes: Variable Length
 CollatingOrder: General
 DataUpdatable: False
 gintBackColor: 0
 gintBlobType: 0
 gintCaption:
 gintCaptionVertical: False
 gintDefaultExpr:
 gintDesc: Lookup is called "Soil Structure" and is located in Data Design:Lookup Lists.

gintFileRefData:
 gintFlags: 1
 gintLookup: Lookup\soil structure

gintLookupFilter:
 gintRules:
 gintUnits:
 gintViewWidTwips: 1077
 OrdinalPosition: 53
 Required: False
 SourceField: Structure
 SourceTable: SOIL DESCRIPTION

Cementation True Text 255

AllowZeroLength: True
 AppendOnly: False
 Attributes: Variable Length
 CollatingOrder: General
 DataUpdatable: False
 gintBackColor: 0
 gintBlobType: 0
 gintCaption:
 gintCaptionVertical: False
 gintDefaultExpr:
 gintDesc: Lookup is called "Cementation" and is located in Data Design:Lookup Lists.

gintFileRefData:
 gintFlags: 1
 gintLookup: Lookup\cementation
 gintLookupFilter:
 gintRules:
 gintUnits:
 gintViewWidTwips: 1317
 OrdinalPosition: 54
 Required: False
 SourceField: Cementation
 SourceTable: SOIL DESCRIPTION

Description of Cobbles and Boulders True Text 255

AllowZeroLength: True
 AppendOnly: False
 Attributes: Variable Length
 CollatingOrder: General
 DataUpdatable: False
 gintBackColor: 0
 gintBlobType: 0
 gintCaption:
 gintCaptionVertical: False
 gintDefaultExpr:
 gintDesc: Describe cobbles and boulders using descriptive sequence for rock: Rock general and specific type, weathering, relative strength, scratch hardness, range of intersected core lengths.

gintFileRefData:
 gintFlags: 2
 gintLookup:
 gintLookupFilter:
 gintRules:
 gintUnits:
 gintViewWidTwips: 3052
 OrdinalPosition: 55

Required:	False		
SourceField:	Description of Cobbles and Boulders		
SourceTable:	SOIL DESCRIPTION		
Additional Comments:		Memo	-
AllowZeroLength:	True		
AppendOnly:	False		
Attributes:	Variable Length		
CollatingOrder:	General		
DataUpdatable:	False		
gintBackColor:	0		
gintBlobType:	0		
gintCaption:			
gintCaptionVertical:	False		
gintDefaultExpr:			
gintDesc:	Use this field to include additional text describing the layer, e.g., presence of roots, rootholes, mica, gypsum, shell fragments, surface coatings on grains, oxidation, fill materials. Also list matrix where COBBLES and/or BOULDERS > 50% of soil volume.		
gintFileRefData:			
gintFlags:	0		
gintLookup:			
gintLookupFilter:			
gintRules:			
gintUnits:			
gintViewWidTwips:	3840		
OrdinalPosition:	56		
Required:	False		
SourceField:	Additional Comments		
SourceTable:	SOIL DESCRIPTION		
Formation:		Text	255
AllowZeroLength:	True		
AppendOnly:	False		
Attributes:	Variable Length		
CollatingOrder:	General		
DataUpdatable:	False		
gintBackColor:	0		
gintBlobType:	0		
gintCaption:			
gintCaptionVertical:	False		
gintDefaultExpr:			
gintDesc:	Formation, if recorded, appears in brackets at end of soil component description.		
gintFileRefData:			
gintFlags:	0		
gintLookup:	Libtbl\formation		
gintLookupFilter:			
gintRules:			
gintUnits:			
gintViewWidTwips:	1680		
OrdinalPosition:	57		
Required:	False		
SourceField:	Formation		

SourceTable:	SOIL DESCRIPTION		
Override Graphic Color:		Text	255
AllowZeroLength:	True		
AppendOnly:	False		
Attributes:	Variable Length		
CollatingOrder:	General		
DataUpdatable:	False		
gintBackColor:	0		
gintBlobType:	0		
gintCaption:			
gintCaptionVertical:	False		
gintDefaultExpr:			
gintDesc:	For use in preparing fence reports only; assignment of color does not impact standard boring log reports or LOTB stick logs.		
gintFileRefData:			
gintFlags:	3		
gintLookup:	Graphic\colors		
gintLookupFilter:			
gintRules:			
gintUnits:			
gintViewWidTwips:	1650		
OrdinalPosition:	58		
Required:	False		
SourceField:	Override Graphic Color		
SourceTable:	SOIL DESCRIPTION		

Relationships

POINTSOIL DESCRIPTION

POINT

SOIL DESCRIPTION

PointID 1 ∞ PointID

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

Table Indexes

Name	Number of Fields
GINTINDEX	2
Clustered:	False
DistinctCount:	0
Foreign:	False
IgnoreNulls:	False
Name:	GINTINDEX
Primary:	False
Required:	False
Unique:	True
Fields:	
PointID	Ascending
Depth	Ascending

Primary 1
 Clustered: False
 DistinctCount: 0
 Foreign: False
 IgnoreNulls: False
 Name: Primary
 Primary: True
 Required: True
 Unique: True
 Fields:
 GintRecID Ascending

REL0026 1
 Clustered: False
 DistinctCount: 0
 Foreign: True
 IgnoreNulls: False
 Name: REL0026
 Primary: False
 Required: False
 Unique: False
 Fields:
 PointID Ascending

User Permissions

admin Delete, Read Permissions, Set Permissions, Change Owner, Read Definition, Write Definition, Read Data, Insert Data, Update Data, Delete Data

Group Permissions

Admins Delete, Read Permissions, Set Permissions, Change Owner, Read Definition, Write Definition, Read Data, Insert Data, Update Data, Delete Data
 Users

Properties

DateCreated:	4/10/1997 1:48:40 AM	gintAutoCreateImport:	False
gintAutoCreateInput:	False	gintCaption:	
gintColHeadingLines:	2	gintDataCheckProc:	
gintDate:	39547.516412037	gintDesc:	706,Table
gintDisplayPs:	2	gintGintRulesProc:	Procedures!samplesave
gintGroupName:		gintGroupParent:	
gintHelpText:		gintKeepDataInClone:	False
gintKeyIsCounter:	False	gintLookupFieldCount:	0
gintLookupKeyHide:	False	gintNoDisplay:	False
gintPostProc:		gintPreviewReport:	Log\caltrans boring record 052007
gintShowAllParentKeys:	False	gintSourceName:	SAMPLE
gintSplitScreenChild:		gintSystemTable:	False
gintTablePreviewOnly:	False	gintViewRowHtTwips:	432
gintViewWidTwips:	0	LastUpdated:	3/25/2008 11:44:24 AM
RecordCount:	0	Updatable:	True

Columns

Name	Type	Size
GintRecID	Long Integer	4
AllowZeroLength:	False	
AppendOnly:	False	
Attributes:	Fixed Size, Auto-Increment	
CollatingOrder:	General	
DataUpdatable:	False	
gintBackColor:	0	
gintBlobType:	0	
gintCaption:		
gintCaptionVertical:	False	
gintDefaultExpr:		
gintDesc:	System requirement. Not user editable.	
gintFileRefData:		
gintFlags:	2	
gintLookup:		
gintLookupFilter:		
gintRules:		
gintUnits:		
gintViewWidTwips:	1116	
OrdinalPosition:	1	
Required:	False	
SourceField:	GintRecID	
SourceTable:	SOIL SAMPLE	
PointID	Text	255
AllowZeroLength:	False	
AppendOnly:	False	
Attributes:	Variable Length	
CollatingOrder:	General	
DataUpdatable:	False	

	gintBackColor:	0		
	gintBlobType:	0		
	gintCaption:	Boring Designation		
	gintCaptionVertical:	False		
	gintDefaultExpr:			
	gintDesc:			
	gintFileRefData:			
	gintFlags:	0		
	gintLookup:			
	gintLookupFilter:			
	gintRules:			
	gintUnits:			
	gintViewWidTwips:	861		
	OrdinalPosition:	2		
	Required:	True		
	SourceField:	PointID		
	SourceTable:	SOIL SAMPLE		
Depth			Double	8
	AllowZeroLength:	False		
	AppendOnly:	False		
	Attributes:	Fixed Size		
	CollatingOrder:	General		
	DataUpdatable:	False		
	gintBackColor:	0		
	gintBlobType:	0		
	gintCaption:			
	gintCaptionVertical:	False		
	gintDefaultExpr:			
	gintDesc:	Top of sampling depth		
	gintFileRefData:			
	gintFlags:	0		
	gintLookup:			
	gintLookupFilter:			
	gintRules:	186 1		
	gintUnits:	ft		
	gintViewWidTwips:	915		
	OrdinalPosition:	3		
	Required:	True		
	SourceField:	Depth		
	SourceTable:	SOIL SAMPLE		
Sample No			Text	255
	AllowZeroLength:	True		
	AppendOnly:	False		
	Attributes:	Variable Length		
	CollatingOrder:	General		
	DataUpdatable:	False		
	gintBackColor:	0		
	gintBlobType:	0		
	gintCaption:	Sample ID		
	gintCaptionVertical:	False		
	gintDefaultExpr:			
	gintDesc:	Enter single-letter sample type (S=split spoon SPT or MC; U=undisturbed Shelby; P=undisturbed Piston; C=core) followed by sequential sample number with leading 0 for <10; not complex sample number that includes boring designation.		

	gintFileRefData:			
	gintFlags:	0		
	gintLookup:			
	gintLookupFilter:			
	gintRules:			
	gintUnits:			
	gintViewWidTwips:	1140		
	OrdinalPosition:	4		
	Required:	False		
	SourceField:	Sample No		
	SourceTable:	SOIL SAMPLE		
Length			Single	4
	AllowZeroLength:	False		
	AppendOnly:	False		
	Attributes:	Fixed Size		
	CollatingOrder:	General		
	DataUpdatable:	False		
	gintBackColor:	0		
	gintBlobType:	0		
	gintCaption:			
	gintCaptionVertical:	False		
	gintDefaultExpr:			
	gintDesc:	Record length of sampling interval (actual penetration)		
	gintFileRefData:			
	gintFlags:	0		
	gintLookup:			
	gintLookupFilter:			
	gintRules:			
	gintUnits:	in		
	gintViewWidTwips:	1035		
	OrdinalPosition:	5		
	Required:	False		
	SourceField:	Length		
	SourceTable:	SOIL SAMPLE		
Recovery			Single	4
	AllowZeroLength:	False		
	AppendOnly:	False		
	Attributes:	Fixed Size		
	CollatingOrder:	General		
	DataUpdatable:	False		
	gintBackColor:	0		
	gintBlobType:	0		
	gintCaption:			
	gintCaptionVertical:	False		
	gintDefaultExpr:			
	gintDesc:	Record sample recovery in inches, the gINT report calculates %.		
	gintFileRefData:			
	gintFlags:	0		
	gintLookup:			
	gintLookupFilter:			
	gintRules:			
	gintUnits:	in		
	gintViewWidTwips:	1035		

Type	OrdinalPosition: 6 Required: False SourceField: Recovery SourceTable: SOIL SAMPLE	Text	255
Blows 1st	AllowZeroLength: True AppendOnly: False Attributes: Variable Length CollatingOrder: General DataUpdatable: False gintBackColor: 0 gintBlobType: 0 gintCaption: gintCaptionVertical: False gintDefaultExpr: gintDesc: gintFileRefData: gintFlags: 1 gintLookup: Graphic1samp gintLookupFilter: gintRules: gintUnits: gintViewWidTwips: 1245 OrdinalPosition: 7 Required: False SourceField: Type SourceTable: SOIL SAMPLE	Text	255
Blows 2nd	AllowZeroLength: True AppendOnly: False Attributes: Variable Length CollatingOrder: General DataUpdatable: False gintBackColor: 0 gintBlobType: 0 gintCaption: gintCaptionVertical: False gintDefaultExpr: gintDesc: For less than 6-inch drive, record the blows as in the following example: 50/5" gintFileRefData: gintFlags: 0 gintLookup: gintLookupFilter: gintRules: gintUnits: gintViewWidTwips: 735 OrdinalPosition: 8 Required: False SourceField: Blows 1st SourceTable: SOIL SAMPLE	Text	255

Blows 2nd Text 255

Blows 3rd	AllowZeroLength: True AppendOnly: False Attributes: Variable Length CollatingOrder: General DataUpdatable: False gintBackColor: 0 gintBlobType: 0 gintCaption: gintCaptionVertical: False gintDefaultExpr: gintDesc: For less than 6-inch drive, record the blows as in the following example: 50/6" gintFileRefData: gintFlags: 0 gintLookup: gintLookupFilter: gintRules: gintUnits: gintViewWidTwips: 825 OrdinalPosition: 9 Required: False SourceField: Blows 2nd SourceTable: SOIL SAMPLE	Text	255
PP	AllowZeroLength: True AppendOnly: False Attributes: Variable Length CollatingOrder: General DataUpdatable: False	Text	255

PP Text 255

gintBackColor: 0
gintBlobType: 0
gintCaption:
gintCaptionVertical: False
gintDefaultExpr:
gintDesc: Pocket penetrometer field reading; record numeric value only, report will precede with "PP="

gintFileRefData:
gintFlags: 0
gintLookup:
gintLookupFilter:
gintRules:
gintUnits: tsf
gintViewWidTwips: 1072
OrdinalPosition: 11
Required: False
SourceField: PP
SourceTable: SOIL SAMPLE

TV Text 255

AllowZeroLength: True
AppendOnly: False
Attributes: Variable Length
CollatingOrder: General
DataUpdatable: False
gintBackColor: 0
gintBlobType: 0
gintCaption:
gintCaptionVertical: False
gintDefaultExpr:
gintDesc: Torvane field reading; record numeric value only, report will precede with "TV="

gintFileRefData:
gintFlags: 0
gintLookup:
gintLookupFilter:
gintRules:
gintUnits: tsf
gintViewWidTwips: 630
OrdinalPosition: 12
Required: False
SourceField: TV
SourceTable: SOIL SAMPLE

Dynamic Cone Rate Text 255

AllowZeroLength: True
AppendOnly: False
Attributes: Variable Length
CollatingOrder: General
DataUpdatable: False
gintBackColor: 0
gintBlobType: 0
gintCaption:
gintCaptionVertical: False
gintDefaultExpr:

gintDesc: Driving rate in seconds per 12 inches using a standard percussion hammer and 2.24-inch cone; record "NC" for no count recorded and "P" for pushed.

gintFileRefData:
gintFlags: 0
gintLookup:
gintLookupFilter:
gintRules:
gintUnits: sec/ft
gintViewWidTwips: 1912
OrdinalPosition: 13
Required: False
SourceField: Dynamic Cone Rate
SourceTable: SOIL SAMPLE

Hand Drive Data Text 255

AllowZeroLength: True
AppendOnly: False
Attributes: Variable Length
CollatingOrder: General
DataUpdatable: False
gintBackColor: 0
gintBlobType: 0
gintCaption:
gintCaptionVertical: False
gintDefaultExpr:
gintDesc: Enter blows per foot with hand hammer, P (pulled pipe), and other data to be shown to left of LOTB graphic log.

gintFileRefData:
gintFlags: 0
gintLookup:
gintLookupFilter:
gintRules:
gintUnits:
gintViewWidTwips: 1624
OrdinalPosition: 14
Required: False
SourceField: Hand Drive Data
SourceTable: SOIL SAMPLE

Hand Drive Sample Text 255

AllowZeroLength: True
AppendOnly: False
Attributes: Variable Length
CollatingOrder: General
DataUpdatable: False
gintBackColor: 0
gintBlobType: 0
gintCaption:
gintCaptionVertical: False
gintDefaultExpr:
gintDesc: Enter "S" to indicate sample was taken at this depth. Will show as "(S)" to right of LOTB graphic log.

gintFileRefData:

gintFlags: 0
 gintLookup:
 gintLookupFilter:
 gintRules:
 gintUnits:
 gintViewWidTwips: 1840
 OrdinalPosition: 15
 Required: False
 SourceField: Hand Drive Sample
 SourceTable: SOIL SAMPLE

Notes Memo

AllowZeroLength: True
 AppendOnly: False
 Attributes: Variable Length
 CollatingOrder: General
 DataUpdatable: False
 gintBackColor: 0
 gintBlobType: 0
 gintCaption: Retained Sample ID
 gintCaptionVertical: False
 gintDefaultExpr:
 gintDesc: Data entered here is for documentation purposes only. It is not printed on any report.

gintFileRefData:
 gintFlags: 0
 gintLookup:
 gintLookupFilter:
 gintRules:
 gintUnits:
 gintViewWidTwips: 3012
 OrdinalPosition: 16
 Required: False
 SourceField: Notes
 SourceTable: SOIL SAMPLE

Relationships

POINTSOIL SAMPLE

POINT **SOIL SAMPLE**
 PointID 1 ∞ PointID

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

Table Indexes

Name	Number of Fields
GINTINDEX	2
Clustered:	False
DistinctCount:	0

Foreign: False
 IgnoreNulls: False
 Name: GINTINDEX
 Primary: False
 Required: False
 Unique: True
 Fields:
 PointID Ascending
 Depth Ascending
 Primary 1
 Clustered: False
 DistinctCount: 0
 Foreign: False
 IgnoreNulls: False
 Name: Primary
 Primary: True
 Required: True
 Unique: True
 Fields:
 GintRecID Ascending
 REL0031 1
 Clustered: False
 DistinctCount: 0
 Foreign: True
 IgnoreNulls: False
 Name: REL0031
 Primary: False
 Required: False
 Unique: False
 Fields:
 PointID Ascending

User Permissions

admin Delete, Read Permissions, Set Permissions, Change Owner, Read Definition, Write Definition, Read Data, Insert Data, Update Data, Delete Data

Group Permissions

Admins Users Delete, Read Permissions, Set Permissions, Change Owner, Read Definition, Write Definition, Read Data, Insert Data, Update Data, Delete Data

Properties

DateCreated:	12/12/2000 11:30:58 AM	gintAutoCreateImport:	False
gintAutoCreateInput:	False	gintCaption:	
gintColHeadingLines:	2	gintDate:	39531.3664583333
gintDesc:	Sieve Analysis: Readings	gintDisplayPs:	10
gintGintRulesProc:	706,Table Procedures\sievereadingssave	gintGroupName:	Lab Testing
gintGroupParent:		gintHelpText:	See the Table Help in the Parent.
gintKeepDataInClone:	False	gintKeyIsCounter:	False
gintLookupFieldCount:	0	gintLookupKeyHide:	False
gintNoDisplay:	False	gintPostProc:	SieveAnalysisReadings
gintPreviewReport:		gintShowAllParentKeys:	False
gintSourceName:		gintSplitScreenChild:	False
gintSystemTable:	False	gintTablePreviewOnly:	False
gintViewRowHtTwips:	240	gintViewWidTwips:	0
LastUpdated:	5/26/2006 9:39:15 AM	RecordCount:	0
Updatable:	True		

Columns

Name	Type	Size
GintRecID	Long Integer	4
AllowZeroLength: False AppendOnly: False Attributes: Fixed Size, Auto-Increment CollatingOrder: General ColumnHidden: False ColumnOrder: Default ColumnWidth: Default DataUpdatable: False gintBackColor: 0 gintBlobType: 0 gintCaption: gintCaptionVertical: False gintDefaultExpr: gintDesc: gintFileRefData: 2 gintFlags: gintLookup: gintLookupFilter: gintRules: gintUnits: gintViewWidTwips: 1008 OrdinalPosition: 1 Required: False SourceField: GintRecID SourceTable: SV READINGS		
PointID	Text	255
AllowZeroLength: False AppendOnly: False		

Attributes:	Variable Length
CollatingOrder:	General
ColumnHidden:	False
ColumnOrder:	Default
ColumnWidth:	Default
DataUpdatable:	False
gintBackColor:	0
gintBlobType:	0
gintCaption:	
gintCaptionVertical:	False
gintDefaultExpr:	
gintDesc:	
gintFileRefData:	
gintFlags:	0
gintLookup:	
gintLookupFilter:	
gintRules:	
gintUnits:	
gintViewWidTwips:	957
OrdinalPosition:	2
Required:	True
SourceField:	PointID
SourceTable:	SV READINGS

Depth	Double	8
AllowZeroLength: False AppendOnly: False Attributes: Fixed Size CollatingOrder: General ColumnHidden: False ColumnOrder: Default ColumnWidth: Default DataUpdatable: False DecimalPlaces: Auto gintBackColor: 0 gintBlobType: 0 gintCaption: gintCaptionVertical: False gintDefaultExpr: gintDesc: gintFileRefData: 0 gintFlags: gintLookup: gintLookupFilter: gintRules: gintUnits: gintViewWidTwips: 633 OrdinalPosition: 3 Required: True SourceField: Depth SourceTable: SV READINGS		
Reading	Double	8
AllowZeroLength: False AppendOnly: False Attributes: Fixed Size		

CollatingOrder: General
 ColumnHidden: False
 ColumnOrder: Default
 ColumnWidth: Default
 DataUpdatable: False
 DecimalPlaces: Auto
 Description: Sieve size, mm
 gintBackColor: 0
 gintBlobType: 0
 gintCaption: Sieve Size
 gintCaptionVertical: False
 gintDefaultExpr:
 gintDesc: Sieve size, mm
 gintFileRefData:
 gintFlags: 0
 gintLookup: DFTRDGSIEVE SIZES
 gintLookupFilter:
 gintRules:
 gintUnits: mm
 gintViewWidTwips: 828
 OrdinalPosition: 4
 Required: True
 SourceField: Reading
 SourceTable: SV READINGS

Soil_Tare Single 4

AllowZeroLength: False
 AppendOnly: False
 Attributes: Fixed Size
 CollatingOrder: General
 ColumnHidden: False
 ColumnOrder: Default
 ColumnWidth: Default
 DataUpdatable: False
 DecimalPlaces: Auto
 gintBackColor: 0
 gintBlobType: 0
 gintCaption: Soil + Tare
 gintCaptionVertical: False
 gintDefaultExpr:
 gintDesc: Soil plus Tare weight. Tare weight supplied in parent table.
 gintFileRefData:
 gintFlags: 64
 gintLookup:
 gintLookupFilter:
 gintRules:
 gintUnits: 840
 gintViewWidTwips: 5
 OrdinalPosition: 5
 Required: False
 SourceField: Soil_Tare
 SourceTable: SV READINGS

Percent_Finer Single 4

AllowZeroLength: False
 AppendOnly: False

Attributes: Fixed Size
 CollatingOrder: General
 ColumnHidden: False
 ColumnOrder: Default
 ColumnWidth: Default
 DataUpdatable: False
 DecimalPlaces: Auto
 gintBackColor: 0
 gintBlobType: 0
 gintCaption:
 gintCaptionVertical: False
 gintDefaultExpr:
 gintDesc:
 gintFileRefData:
 gintFlags: 64
 gintLookup:
 gintLookupFilter:
 gintRules:
 gintUnits:
 gintViewWidTwips: 960
 OrdinalPosition: 6
 Required: False
 SourceField: Percent_Finer
 SourceTable: SV READINGS

Name Text 255

AllowZeroLength: True
 AppendOnly: False
 Attributes: Variable Length
 CollatingOrder: General
 DataUpdatable: False
 gintBackColor: 0
 gintBlobType: 0
 gintCaption:
 gintCaptionVertical: False
 gintDefaultExpr:
 gintDesc:
 gintFileRefData:
 gintFlags: 0
 gintLookup:
 gintLookupFilter:
 gintRules:
 gintUnits:
 gintViewWidTwips: 852
 OrdinalPosition: 7
 Required: False
 SourceField: Name
 SourceTable: SV READINGS

Relationships

SIEVESV READINGS

SIEVE	1	∞	SV READINGS
PointID	1	∞	PointID
Depth	1	∞	Depth
Attributes: Enforced, Cascade Updates, Cascade Deletes			
RelationshipType: One-To-Many			

Table Indexes

Name	Number of Fields
GintIndex	3
Clustered:	False
DistinctCount:	0
Foreign:	False
IgnoreNulls:	False
Name:	GintIndex
Primary:	False
Required:	False
Unique:	True
Fields:	
PointID	Ascending
Depth	Ascending
Reading	Descending
Primary	1
Clustered:	False
DistinctCount:	0
Foreign:	False
IgnoreNulls:	False
Name:	Primary
Primary:	True
Required:	True
Unique:	True
Fields:	
GintRecID	Ascending
Reference2	2
Clustered:	False
DistinctCount:	0
Foreign:	True
IgnoreNulls:	False
Name:	Reference2
Primary:	False
Required:	False
Unique:	False
Fields:	
PointID	Ascending
Depth	Ascending

User Permissions

admin	Delete, Read Permissions, Set Permissions, Change Owner, Read Definition, Write Definition, Read Data, Insert Data, Update Data, Delete Data
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Group Permissions

Admins	Delete, Read Permissions, Set Permissions, Change Owner, Read Definition, Write Definition, Read Data, Insert Data, Update Data, Delete Data
Users	Delete, Read Permissions, Set Permissions, Change Owner, Read Definition, Write Definition, Read Data, Insert Data, Update Data, Delete Data

Properties

DateCreated:	12/12/2000 11:30:59 AM	gintAutoCreateImport:	False
gintAutoCreateInput:	False	gintCaption:	
gintColHeadingLines:	1	gintDate:	39193.7373263889
gintDesc:	Unconfined Compressive Strength: Readings	gintDisplayPs:	18
gintGintRulesProc:	706,Table Procedures\unconfinedreading ssave	gintGroupName:	Lab Testing
gintGroupParent:		gintHelpText:	See the Table Help in the Parent.
gintKeepDataInClone:	False	gintKeyIsCounter:	True
gintLookupFieldCount:	0	gintLookupKeyHide:	False
gintNoDisplay:	False	gintPostProc:	UnconfinedReadings
gintPreviewReport:		gintShowAllParentKeys:	False
gintSourceName:	UNC COMP READINGS	gintSplitScreenChild:	
gintSystemTable:	False	gintTablePreviewOnly:	False
gintViewRowHTwips:	228	gintViewWidTwips:	0
LastUpdated:	5/15/2006 2:09:14 PM	RecordCount:	0
Updatable:	True		

Columns

Name	Type	Size
GintRecID	Long Integer	4
AllowZeroLength: False AppendOnly: False Attributes: Fixed Size, Auto-Increment CollatingOrder: General DataUpdatable: False gintBackColor: 0 gintBlobType: 0 gintCaption: False gintCaptionVertical: False gintDefaultExpr: System requirement. Not user editable. gintDesc: 2 gintFileRefData: 2 gintFlags: 2 gintLookup: 2 gintLookupFilter: 2 gintRules: 2 gintUnits: 2 gintViewWidTwips: 1008 OrdinalPosition: 1 Required: False SourceField: GintRecID SourceTable: UNC READINGS		
PointID	Text	255
AllowZeroLength: False AppendOnly: False Attributes: Variable Length CollatingOrder: General		

	DataUpdatable:	False	
	gintBackColor:	0	
	gintBlobType:	0	
	gintCaption:		
	gintCaptionVertical:	False	
	gintDefaultExpr:		
	gintDesc:		
	gintFileRefData:		
	gintFlags:	0	
	gintLookup:		
	gintLookupFilter:		
	gintRules:		
	gintUnits:		
	gintViewWidTwips:	753	
	OrdinalPosition:	2	
	Required:	True	
	SourceField:	PointID	
	SourceTable:	UNC READINGS	
Depth			8
	AllowZeroLength:	False	
	AppendOnly:	False	
	Attributes:	Fixed Size	
	CollatingOrder:	General	
	DataUpdatable:	False	
	gintBackColor:	0	
	gintBlobType:	0	
	gintCaption:		
	gintCaptionVertical:	False	
	gintDefaultExpr:		
	gintDesc:		
	gintFileRefData:		
	gintFlags:	0	
	gintLookup:		
	gintLookupFilter:		
	gintRules:		
	gintUnits:		
	gintViewWidTwips:	633	
	OrdinalPosition:	3	
	Required:	True	
	SourceField:	Depth	
	SourceTable:	UNC READINGS	
Reading			8
	AllowZeroLength:	False	
	AppendOnly:	False	
	Attributes:	Fixed Size	
	CollatingOrder:	General	
	DataUpdatable:	False	
	gintBackColor:	0	
	gintBlobType:	0	
	gintCaption:		
	gintCaptionVertical:	False	
	gintDefaultExpr:		
	gintDesc:	Arbitrary counter.	
	gintFileRefData:		

gintFlags: 2
gintLookup:
gintLookupFilter:
gintRules:
gintUnits:
gintViewWidTwips: 828
OrdinalPosition: 4
Required: True
SourceField: Reading
SourceTable: UNC READINGS

Load_Reading Single 4

AllowZeroLength: False
AppendOnly: False
Attributes: Fixed Size
CollatingOrder: General
DataUpdatable: False
gintBackColor: 0
gintBlobType: 0
gintCaption:
gintCaptionVertical: False
gintDefaultExpr:
gintDesc: Converted to a load value through the specified load ring calibration.
gintFileRefData:
gintFlags: 64
gintLookup:
gintLookupFilter:
gintRules:
gintUnits:
gintViewWidTwips: 975
OrdinalPosition: 5
Required: False
SourceField: Load_Reading
SourceTable: UNC READINGS

Deflection_Reading Single 4

AllowZeroLength: False
AppendOnly: False
Attributes: Fixed Size
CollatingOrder: General
DataUpdatable: False
gintBackColor: 0
gintBlobType: 0
gintCaption:
gintCaptionVertical: False
gintDefaultExpr:
gintDesc: In units specified in the parent record.
gintFileRefData:
gintFlags: 64
gintLookup:
gintLookupFilter:
gintRules:
gintUnits:
gintViewWidTwips: 1020
OrdinalPosition: 6
Required: False

SourceField: Deflection_Reading
SourceTable: UNC READINGS

Stress Single 4

AllowZeroLength: False
AppendOnly: False
Attributes: Fixed Size
CollatingOrder: General
DataUpdatable: False
gintBackColor: 0
gintBlobType: 0
gintCaption:
gintCaptionVertical: False
gintDefaultExpr:
gintDesc: In units of the load ring calibration load units/stress area units specified in parent record.

gintFileRefData:
gintFlags: 64
gintLookup:
gintLookupFilter:
gintRules:
gintUnits:
gintViewWidTwips: 1065
OrdinalPosition: 7
Required: False
SourceField: Stress
SourceTable: UNC READINGS

Strain Single 4

AllowZeroLength: False
AppendOnly: False
Attributes: Fixed Size
CollatingOrder: General
DataUpdatable: False
gintBackColor: 0
gintBlobType: 0
gintCaption:
gintCaptionVertical: False
gintDefaultExpr:
gintDesc:
gintFileRefData:
gintFlags: 64
gintLookup:
gintLookupFilter:
gintRules:
gintUnits: %
gintViewWidTwips: 1305
OrdinalPosition: 8
Required: False
SourceField: Strain
SourceTable: UNC READINGS

Relationships

UNCONF COMPRUNC READINGS

UNCONF COMPR	UNC READINGS
PointID	1 ∞ PointID
Depth	1 ∞ Depth
Attributes:	Enforced, Cascade Updates, Cascade Deletes
RelationshipType:	One-To-Many

Table Indexes

Name	Number of Fields
GINTINDEX	3
Clustered:	False
DistinctCount:	0
Foreign:	False
IgnoreNulls:	False
Name:	GINTINDEX
Primary:	False
Required:	False
Unique:	True
Fields:	
PointID	Ascending
Depth	Ascending
Reading	Ascending
Primary	1
Clustered:	False
DistinctCount:	0
Foreign:	False
IgnoreNulls:	False
Name:	Primary
Primary:	True
Required:	True
Unique:	True
Fields:	
GintRecID	Ascending
REL12	2
Clustered:	False
DistinctCount:	0
Foreign:	True
IgnoreNulls:	False
Name:	REL12
Primary:	False
Required:	False
Unique:	False
Fields:	
PointID	Ascending
Depth	Ascending

User Permissions

admin	Delete, Read Permissions, Set Permissions, Change Owner, Read Definition, Write Definition, Read Data, Insert Data, Update Data, Delete Data
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Group Permissions

Admins	Delete, Read Permissions, Set Permissions, Change Owner, Read Definition, Write Definition, Read Data, Insert Data, Update Data, Delete Data
Users	Delete, Read Permissions, Set Permissions, Change Owner, Read Definition, Write Definition, Read Data, Insert Data, Update Data, Delete Data

Properties

DateCreated:	12/12/2000 11:31:00 AM	gintAutoCreateImport:	False
gintAutoCreateInput:	False	gintCaption:	
gintColHeadingLines:	3	gintDate:	39193.7373263889
gintDesc:	Unconfined Compressive Strength: Parent table 706,Table	gintDisplayPs:	17
gintGintRulesProc:	Procedures\unconfinedcompr ave,874,Table Procedures\deletingparentrow sinsplitscreen	gintGroupName:	Lab Testing
gintGroupParent:		gintHelpText:	The strength and strain at failure will be supplied if readings exist. If not, you are free to input values. The calculated strength is the maximum stress value and the strain at failure is the strain at that stress. A load ring is required for the calculations. You define each in Data Design:Library Data under the LOAD RINGS table. Each load ring is identified with a unique name. The list of defined rings from the LOAD RINGS table appears in the drop-down list when on the Load_Ring field. On supplying a Load_Ring and saving, the program will copy the calibration parameters from the LOAD RINGS table to the corresponding fields in the parent record. The Load_Ring is not required. You could input the parameters manually. If a Load_Ring is supplied along with the parameters, if the parameters do not match those of the specified load ring in the LOAD RINGS table, you will be warned on saving. The deflection units and stress area, diameter, and height are required for readings calculations. The moisture content and density data are optional. The seating correction is used to shift the curve to account for loose, initial seating. It is in units of % strain. READINGS: ===== The first record is assumed to be the initial condition before

loading occurs. The initial load and deflection readings can be gage readings which are not necessarily 0. The calculations use the differences between the readings and these initial readings.

The load ring readings must be in the same units of deflection used in calculating the load ring calibrations.

gintKeepDataInClone: False

gintKeyIsCounter:	False	gintLookupFieldCount:	0
gintLookupKeyHide:	False	gintNoDisplay:	False
gintPostProc:	UnconfinedParent	gintPreviewReport:	
gintShowAllParentKeys:	False	gintSourceName:	UNCONFINED COMPRESSION
gintSplitScreenChild:	UNC READINGS	gintSystemTable:	False
gintTablePreviewOnly:	False	gintViewRowHTwips:	396
gintViewWidTwips:	0	LastUpdated:	5/26/2007 9:08:54 AM
RecordCount:	0	Updatable:	True

Columns

Name	Type	Size
GintRecID	Long Integer	4
AllowZeroLength:	False	
AppendOnly:	False	
Attributes:	Fixed Size, Auto-Increment	
CollatingOrder:	General	
DataUpdatable:	False	
gintBackColor:	0	
gintBlobType:	0	
gintCaption:		
gintCaptionVertical:	False	
gintDefaultExpr:		
gintDesc:	System requirement. Not user editable.	
gintFileRefData:		
gintFlags:	2	
gintLookup:		
gintLookupFilter:		
gintRules:		
gintUnits:		
gintViewWidTwips:	1008	
OrdinalPosition:	1	
Required:	False	
SourceField:	GintRecID	
SourceTable:	UNCONF COMPR	
PointID	Text	255
AllowZeroLength:	False	
AppendOnly:	False	
Attributes:	Variable Length	
CollatingOrder:	General	
DataUpdatable:	False	

```

gintBackColor: 0
gintBlobType: 0
gintCaption: Boring Designation
gintCaptionVertical: False
gintDefaultExpr:
gintDesc:
gintFileRefData:
gintFlags: 0
gintLookup:
gintLookupFilter:
gintRules:
gintUnits:
gintViewWidTwips: 753
OrdinalPosition: 2
Required: True
SourceField: PointID
SourceTable: UNCONF COMPR

Depth          Double          8
AllowZeroLength: False
AppendOnly: False
Attributes: Fixed Size
CollatingOrder: General
DataUpdatable: False
gintBackColor: 0
gintBlobType: 0
gintCaption:
gintCaptionVertical: False
gintDefaultExpr:
gintDesc:
gintFileRefData:
gintFlags: 0
gintLookup:
gintLookupFilter:
gintRules: 186|1
gintUnits: ft
gintViewWidTwips: 870
OrdinalPosition: 3
Required: True
SourceField: Depth
SourceTable: UNCONF COMPR

Strength       Single          4
AllowZeroLength: False
AppendOnly: False
Attributes: Fixed Size
CollatingOrder: General
DataUpdatable: False
gintBackColor: 0
gintBlobType: 0
gintCaption:
gintCaptionVertical: False
gintDefaultExpr:
gintDesc:
gintFileRefData:
gintFlags: 64

```

```

gintLookup:
gintLookupFilter:
gintRules:
gintUnits:
gintViewWidTwips: 990
OrdinalPosition: 4
Required: False
SourceField: Strength
SourceTable: UNCONF COMPR

Strain_At_Failure  Single          4
AllowZeroLength: False
AppendOnly: False
Attributes: Fixed Size
CollatingOrder: General
DataUpdatable: False
gintBackColor: 0
gintBlobType: 0
gintCaption:
gintCaptionVertical: False
gintDefaultExpr:
gintDesc:
gintFileRefData:
gintFlags: 64
gintLookup:
gintLookupFilter:
gintRules:
gintUnits: %
gintViewWidTwips: 975
OrdinalPosition: 5
Required: False
SourceField: Strain_At_Failure
SourceTable: UNCONF COMPR

Load_Ring        Text          255
AllowZeroLength: True
AppendOnly: False
Attributes: Variable Length
CollatingOrder: General
DataUpdatable: False
gintBackColor: 0
gintBlobType: 0
gintCaption:
gintCaptionVertical: False
gintDefaultExpr:
gintDesc:
gintFileRefData:
gintFlags: 65
gintLookup: Libtblload rings
gintLookupFilter:
gintRules:
gintUnits:
gintViewWidTwips: 1110
OrdinalPosition: 6
Required: False
SourceField: Load_Ring

```

SourceTable:	UNCONF COMPR		
Slope_Initial		Single	4
AllowZeroLength:	False		
AppendOnly:	False		
Attributes:	Fixed Size		
CollatingOrder:	General		
DataUpdatable:	False		
gintBackColor:	0		
gintBlobType:	0		
gintCaption:			
gintCaptionVertical:	False		
gintDefaultExpr:			
gintDesc:	Can be input manually or program will read it from the LOAD RINGS table using the Load_Ring field. New rings can be input in Data Design:Library Data.		
gintFileRefData:			
gintFlags:	64		
gintLookup:			
gintLookupFilter:			
gintRules:			
gintUnits:			
gintViewWidTwips:	900		
OrdinalPosition:	7		
Required:	False		
SourceField:	Slope_Initial		
SourceTable:	UNCONF COMPR		
Slope_Break		Single	4
AllowZeroLength:	False		
AppendOnly:	False		
Attributes:	Fixed Size		
CollatingOrder:	General		
DataUpdatable:	False		
gintBackColor:	0		
gintBlobType:	0		
gintCaption:			
gintCaptionVertical:	False		
gintDefaultExpr:			
gintDesc:	Can be input manually or program will read it from the LOAD RINGS table using the Load_Ring field. New rings can be input in Data Design:Library Data.		
gintFileRefData:			
gintFlags:	64		
gintLookup:			
gintLookupFilter:			
gintRules:			
gintUnits:			
gintViewWidTwips:	915		
OrdinalPosition:	8		
Required:	False		
SourceField:	Slope_Break		
SourceTable:	UNCONF COMPR		

Slope_2ndary		Single	4
AllowZeroLength:	False		
AppendOnly:	False		
Attributes:	Fixed Size		
CollatingOrder:	General		
DataUpdatable:	False		
gintBackColor:	0		
gintBlobType:	0		
gintCaption:			
gintCaptionVertical:	False		
gintDefaultExpr:			
gintDesc:	Can be input manually or program will read it from the LOAD RINGS table using the Load_Ring field. New rings can be input in Data Design:Library Data.		
gintFileRefData:			
gintFlags:	64		
gintLookup:			
gintLookupFilter:			
gintRules:			
gintUnits:			
gintViewWidTwips:	1005		
OrdinalPosition:	9		
Required:	False		
SourceField:	Slope_2ndary		
SourceTable:	UNCONF COMPR		
Deflection_Units		Text	255
AllowZeroLength:	True		
AppendOnly:	False		
Attributes:	Variable Length		
CollatingOrder:	General		
DataUpdatable:	False		
gintBackColor:	0		
gintBlobType:	0		
gintCaption:			
gintCaptionVertical:	False		
gintDefaultExpr:			
gintDesc:			
gintFileRefData:			
gintFlags:	65		
gintLookup:	Lookuplab in or mm		
gintLookupFilter:			
gintRules:			
gintUnits:			
gintViewWidTwips:	1035		
OrdinalPosition:	10		
Required:	False		
SourceField:	Deflection_Units		
SourceTable:	UNCONF COMPR		
Stress_Area		Text	255
AllowZeroLength:	True		
AppendOnly:	False		
Attributes:	Variable Length		
CollatingOrder:	General		

DataUpdatable: False
gintBackColor: 0
gintBlobType: 0
gintCaption:
gintCaptionVertical: False
gintDefaultExpr:
gintDesc: Area units taken as the square of that selected, i.e., square feet, square meters, etc.
gintFileRefData:
gintFlags: 65
gintLookup: Lookup\lab length units
gintLookupFilter:
gintRules:
gintUnits:
gintViewWidTwips: 675
OrdinalPosition: 11
Required: False
SourceField: Stress_Area
SourceTable: UNCONF COMPR

Seating_Correction Single 4

AllowZeroLength: False
AppendOnly: False
Attributes: Fixed Size
CollatingOrder: General
DataUpdatable: False
gintBackColor: 0
gintBlobType: 0
gintCaption:
gintCaptionVertical: False
gintDefaultExpr:
gintDesc: % This shifts the curve to the left to account for initial seating deflections.
gintFileRefData:
gintFlags: 64
gintLookup:
gintLookupFilter:
gintRules:
gintUnits:
gintViewWidTwips: 1035
OrdinalPosition: 12
Required: False
SourceField: Seating_Correction
SourceTable: UNCONF COMPR

Diameter Single 4

AllowZeroLength: False
AppendOnly: False
Attributes: Fixed Size
CollatingOrder: General
DataUpdatable: False
gintBackColor: 0
gintBlobType: 0
gintCaption:
gintCaptionVertical: False

gintDefaultExpr:
gintDesc:
gintFileRefData:
gintFlags: 64
gintLookup:
gintLookupFilter:
gintRules:
gintUnits: mm
gintViewWidTwips: 873
OrdinalPosition: 13
Required: False
SourceField: Diameter
SourceTable: UNCONF COMPR

Height Single 4

AllowZeroLength: False
AppendOnly: False
Attributes: Fixed Size
CollatingOrder: General
DataUpdatable: False
gintBackColor: 0
gintBlobType: 0
gintCaption:
gintCaptionVertical: False
gintDefaultExpr:
gintDesc:
gintFileRefData:
gintFlags: 64
gintLookup:
gintLookupFilter:
gintRules:
gintUnits: mm
gintViewWidTwips: 678
OrdinalPosition: 14
Required: False
SourceField: Height
SourceTable: UNCONF COMPR

Wet_Density Single 4

AllowZeroLength: False
AppendOnly: False
Attributes: Fixed Size
CollatingOrder: General
DataUpdatable: False
gintBackColor: 0
gintBlobType: 0
gintCaption:
gintCaptionVertical: False
gintDefaultExpr:
gintDesc: In units determined by the PROJECT.Water_Unit_Wt field. Will be calculated if the data exists.
gintFileRefData:
gintFlags: 64
gintLookup:
gintLookupFilter:
gintRules:

gintUnits:			
gintViewWidTwips:	990		
OrdinalPosition:	15		
Required:	False		
SourceField:	Wet_Density		
SourceTable:	UNCONF COMPR		
Dry_Density		Single	4
AllowZeroLength:	False		
AppendOnly:	False		
Attributes:	Fixed Size		
CollatingOrder:	General		
DataUpdatable:	False		
gintBackColor:	0		
gintBlobType:	0		
gintCaption:			
gintCaptionVertical:	False		
gintDefaultExpr:			
gintDesc:	In units determined by the PROJECT.Water_Unit_Wt field. Will be calculated if the data exists.		
gintFileRefData:			
gintFlags:	64		
gintLookup:			
gintLookupFilter:			
gintRules:			
gintUnits:			
gintViewWidTwips:	960		
OrdinalPosition:	16		
Required:	False		
SourceField:	Dry_Density		
SourceTable:	UNCONF COMPR		
Water_Content		Single	4
AllowZeroLength:	False		
AppendOnly:	False		
Attributes:	Fixed Size		
CollatingOrder:	General		
DataUpdatable:	False		
gintBackColor:	0		
gintBlobType:	0		
gintCaption:			
gintCaptionVertical:	False		
gintDefaultExpr:			
gintDesc:	Will be calculated if the data exists.		
gintFileRefData:			
gintFlags:	64		
gintLookup:			
gintLookupFilter:			
gintRules:			
gintUnits:	%		
gintViewWidTwips:	1005		
OrdinalPosition:	17		
Required:	False		
SourceField:	Water_Content		
SourceTable:	UNCONF COMPR		

WT_Spec_Tare		Single	4
AllowZeroLength:	False		
AppendOnly:	False		
Attributes:	Fixed Size		
CollatingOrder:	General		
DataUpdatable:	False		
gintBackColor:	0		
gintBlobType:	0		
gintCaption:			
gintCaptionVertical:	False		
gintDefaultExpr:			
gintDesc:	Weight of total specimen + tare		
gintFileRefData:			
gintFlags:	64		
gintLookup:			
gintLookupFilter:			
gintRules:			
gintUnits:	g		
gintViewWidTwips:	960		
OrdinalPosition:	18		
Required:	False		
SourceField:	WT_Spec_Tare		
SourceTable:	UNCONF COMPR		
WT_Tare		Single	4
AllowZeroLength:	False		
AppendOnly:	False		
Attributes:	Fixed Size		
CollatingOrder:	General		
DataUpdatable:	False		
gintBackColor:	0		
gintBlobType:	0		
gintCaption:			
gintCaptionVertical:	False		
gintDefaultExpr:			
gintDesc:			
gintFileRefData:			
gintFlags:	64		
gintLookup:			
gintLookupFilter:			
gintRules:			
gintUnits:	g		
gintViewWidTwips:	858		
OrdinalPosition:	19		
Required:	False		
SourceField:	WT_Tare		
SourceTable:	UNCONF COMPR		
WC_Wt_Wet		Single	4
AllowZeroLength:	False		
AppendOnly:	False		
Attributes:	Fixed Size		
CollatingOrder:	General		
DataUpdatable:	False		
gintBackColor:	0		
gintBlobType:	0		

gintCaption: Water Content Wet Wt+Tare
 gintCaptionVertical: False
 gintDefaultExpr:
 gintDesc: Water Content Determination: Weight Wet + Tare, any consistent units
 gintFileRefData:
 gintFlags: 64
 gintLookup:
 gintLookupFilter:
 gintRules:
 gintUnits:
 gintViewWidTwips: 1065
 OrdinalPosition: 20
 Required: False
 SourceField: WC_Wt_Wet
 SourceTable: UNCONF COMPR

WC_Wt_Dry Single 4

AllowZeroLength: False
 AppendOnly: False
 Attributes: Fixed Size
 CollatingOrder: General
 DataUpdatable: False
 gintBackColor: 0
 gintBlobType: 0
 gintCaption: Water Content Dry Wt+Tare
 gintCaptionVertical: False
 gintDefaultExpr:
 gintDesc: Water Content Determination: Weight Dry + Tare, any consistent units

gintFileRefData:
 gintFlags: 64
 gintLookup:
 gintLookupFilter:
 gintRules:
 gintUnits:
 gintViewWidTwips: 1005
 OrdinalPosition: 21
 Required: False
 SourceField: WC_Wt_Dry
 SourceTable: UNCONF COMPR

WC_Wt_Tare Single 4

AllowZeroLength: False
 AppendOnly: False
 Attributes: Fixed Size
 CollatingOrder: General
 DataUpdatable: False
 gintBackColor: 0
 gintBlobType: 0
 gintCaption: Water Content Wt Tare
 gintCaptionVertical: False
 gintDefaultExpr:
 gintDesc: Water Content Determination: Weight Tare, any consistent units
 gintFileRefData:

gintFlags: 64
 gintLookup:
 gintLookupFilter:
 gintRules:
 gintUnits:
 gintViewWidTwips: 930
 OrdinalPosition: 22
 Required: False
 SourceField: WC_Wt_Tare
 SourceTable: UNCONF COMPR

Relationships

LAB SPECIMENUNCONF COMPR

LAB SPECIMEN UNCONF COMPR

PointID 1 1 PointID
 Depth 1 1 Depth

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

UNCONF COMPRUNC READINGS

UNCONF COMPR UNC READINGS

PointID 1 ∞ PointID
 Depth 1 ∞ Depth

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

Table Indexes

Name	Number of Fields
GINTINDEX	2
Clustered:	False
DistinctCount:	0
Foreign:	False
IgnoreNulls:	False
Name:	GINTINDEX
Primary:	False
Required:	False
Unique:	True
Fields:	
PointID	Ascending
Depth	Ascending
Primary	1
Clustered:	False

DistinctCount:	0
Foreign:	False
IgnoreNulls:	False
Name:	Primary
Primary:	True
Required:	True
Unique:	True
Fields:	
GintRecID	Ascending
Reference3	2
Clustered:	False
DistinctCount:	0
Foreign:	True
IgnoreNulls:	False
Name:	Reference3
Primary:	False
Required:	False
Unique:	True
Fields:	
PointID	Ascending
Depth	Ascending

User Permissions

admin	Delete, Read Permissions, Set Permissions, Change Owner, Read Definition, Write Definition, Read Data, Insert Data, Update Data, Delete Data
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Group Permissions

Admins Users	Delete, Read Permissions, Set Permissions, Change Owner, Read Definition, Write Definition, Read Data, Insert Data, Update Data, Delete Data
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Properties

DateCreated:	3/8/2007 3:14:08 PM	gintAutoCreateImport:	False
gintAutoCreateInput:	False	gintCaption:	
gintColHeadingLines:	1	gintDate:	39530.3497106481
gintDesc:		gintDisplayPs:	7
gintGintRulesProc:		gintGroupName:	
gintGroupParent:		gintHelpText:	
gintKeepDataInClone:	False	gintKeysCounter:	False
gintLookupFieldCount:	0	gintLookupKeyHide:	False
gintNoDisplay:	False	gintPostProc:	
gintPreviewReport:	Log\caltrans boring record 052007 met+eng	gintShowAllParentKeys:	False
gintSourceName:	WATER LEVELS	gintSplitScreenChild:	
gintSystemTable:	False	gintTablePreviewOnly:	False
gintViewRowHTwips:	210	LastUpdated:	3/25/2008 2:03:28 PM
RecordCount:	0	Updatable:	True

Columns

Name	Type	Size
GintRecID	Long Integer	4
AllowZeroLength:	False	
AppendOnly:	False	
Attributes:	Fixed Size, Auto-Increment	
CollatingOrder:	General	
DataUpdatable:	False	
gintBackColor:	0	
gintBlobType:	0	
gintCaption:		
gintCaptionVertical:	False	
gintDefaultExpr:		
gintDesc:	System requirement. Not user editable.	
gintFileRefData:		
gintFlags:	2	
gintLookup:		
gintLookupFilter:		
gintRules:		
gintUnits:		
gintViewWidTwips:	1182	
OrdinalPosition:	1	
Required:	True	
SourceField:	GintRecID	
SourceTable:	WATER LEVELS	
PointID	Text	255
AllowZeroLength:	False	
AppendOnly:	False	
Attributes:	Variable Length	
CollatingOrder:	General	
DataUpdatable:	False	
gintBackColor:	0	
gintBlobType:	0	

gintCaption:	Boring Designation		
gintCaptionVertical:	False		
gintDefaultExpr:			
gintDesc:			
gintFileRefData:			
gintFlags:	0		
gintLookup:			
gintLookupFilter:			
gintRules:			
gintUnits:			
gintViewWidTwips:	1662		
OrdinalPosition:	2		
Required:	True		
SourceField:	PointID		
SourceTable:	WATER LEVELS		
Date/Time		Date/Time	8
AllowZeroLength:	False		
AppendOnly:	False		
Attributes:	Fixed Size		
CollatingOrder:	General		
DataUpdatable:	False		
gintBackColor:	0		
gintBlobType:	0		
gintCaption:	Date / Time		
gintCaptionVertical:	False		
gintDefaultExpr:			
gintDesc:	The level at the last date/time appears as "after drilling" groundwater reading on the Boring Record log.		
gintFileRefData:			
gintFlags:	0		
gintLookup:			
gintLookupFilter:			
gintRules:			
gintUnits:			
gintViewWidTwips:	2385		
OrdinalPosition:	3		
Required:	True		
SourceField:	Date/Time		
SourceTable:	WATER LEVELS		
Depth		Text	255
AllowZeroLength:	False		
AppendOnly:	False		
Attributes:	Variable Length		
CollatingOrder:	General		
DataUpdatable:	False		
gintBackColor:	0		
gintBlobType:	0		
gintCaption:			
gintCaptionVertical:	False		
gintDefaultExpr:			
gintDesc:	If not encountered, enter "not encountered" here and a date in the previous field		
gintFileRefData:			

gintFlags:	0		
gintLookup:	Lookup\groundwater		
gintLookupFilter:			
gintRules:			
gintUnits:	ft		
gintViewWidTwips:	1836		
OrdinalPosition:	4		
Required:	True		
SourceField:	Depth		
SourceTable:	WATER LEVELS		
Displayed Time		Text	255
AllowZeroLength:	True		
AppendOnly:	False		
Attributes:	Variable Length		
CollatingOrder:	General		
DataUpdatable:	False		
gintBackColor:	0		
gintBlobType:	0		
gintCaption:			
gintCaptionVertical:	False		
gintDefaultExpr:			
gintDesc:	By default report shows Date / Time value. If a value is input in this field, the data here are shown instead.		
gintFileRefData:			
gintFlags:	0		
gintLookup:			
gintLookupFilter:			
gintRules:			
gintUnits:			
gintViewWidTwips:	1500		
OrdinalPosition:	5		
Required:	False		
SourceField:	Displayed Time		
SourceTable:	WATER LEVELS		
Method		Text	255
AllowZeroLength:	True		
AppendOnly:	False		
Attributes:	Variable Length		
CollatingOrder:	General		
DataUpdatable:	False		
gintBackColor:	0		
gintBlobType:	0		
gintCaption:			
gintCaptionVertical:	False		
gintDefaultExpr:			
gintDesc:	Method (measured in hole, measured in well, etc.)		
gintFileRefData:			
gintFlags:	0		
gintLookup:			
gintLookupFilter:			
gintRules:			
gintUnits:			
gintViewWidTwips:	5988		

OrdinalPosition: 6
 Required: False
 SourceField: Method
 SourceTable: WATER LEVELS

Relationships

POINTWATER LEVELS

POINT		WATER LEVELS
PointID	1 ∞	PointID

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

Table Indexes

Name	Number of Fields
GINTINDEX	2
Clustered:	False
DistinctCount:	0
Foreign:	False
IgnoreNulls:	False
Name:	GINTINDEX
Primary:	False
Required:	False
Unique:	True
Fields:	
PointID	Ascending
DateTime	Ascending
Primary	1
Clustered:	False
DistinctCount:	0
Foreign:	False
IgnoreNulls:	False
Name:	Primary
Primary:	True
Required:	True
Unique:	True
Fields:	
GintRecID	Ascending
REL0036	1
Clustered:	False
DistinctCount:	0
Foreign:	True
IgnoreNulls:	False
Name:	REL0036
Primary:	False
Required:	False
Unique:	False

Fields:
 PointID Ascending

User Permissions

admin	Delete, Read Permissions, Set Permissions, Change Owner, Read Definition, Write Definition, Read Data, Insert Data, Update Data, Delete Data
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Group Permissions

Admins Users	Delete, Read Permissions, Set Permissions, Change Owner, Read Definition, Write Definition, Read Data, Insert Data, Update Data, Delete Data
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Properties

DateCreated:	12/12/2000 11:31:02 AM	gintAutoCreateImport:	False
gintAutoCreateInput:	False	gintCaption:	
gintColHeadingLines:	3	gintDate:	39507.5237384259
gintDesc:	Water Content and Densities	gintDisplayPs:	6
gintGintRulesProc:	706,Table Procedures\watercontentdensi tysave	gintGroupName:	Lab Testing
gintGroupParent:		gintHelpText:	The final results (Water Content, Wet and Dry Densities) can be input directly. If the data exists for calculating these values, the program will do so and overwrite any values that are in those fields. Note that the diameter and height must be in millimeters and the weight of the total specimen and its tare must be in grams. The weights for the water content determination can be in any consistent units. The units for final values of the densities are determined by the water unit weight value in the PROJECT table. Densities cannot be calculated without a value in that field. Note that changing the water unit weight will NOT change existing results. You must force a recalculation if you
gintKeepDataInClone:	False	gintKeysCounter:	False
gintLookupFieldCount:	0	gintLookupKeyHide:	False
gintNoDisplay:	False	gintPostProc:	WaterContentDensity
gintPreviewReport:	Log\caltrans boring log 031807	gintShowAllParentKeys:	False
gintSourceName:		gintSplitScreenChild:	
gintSystemTable:	False	gintTablePreviewOnly:	False
gintViewRowHtTwips:	288	gintViewWidTwips:	0
LastUpdated:	5/26/2007 9:07:30 AM	RecordCount:	0
Updatable:	True		

Columns

Name	Type	Size
GintRecID	Long Integer	4
AllowZeroLength:	False	
AppendOnly:	False	
Attributes:	Fixed Size, Auto-Increment	
CollatingOrder:	General	
ColumnHidden:	False	
ColumnOrder:	Default	

ColumnWidth:	Default	
DataUpdatable:	False	
gintBackColor:	0	
gintBlobType:	0	
gintCaption:		
gintCaptionVertical:	False	
gintDefaultExpr:		
gintDesc:		
gintFileRefData:		
gintFlags:	2	
gintLookup:		
gintLookupFilter:		
gintRules:		
gintUnits:		
gintViewWidTwips:	1008	
OrdinalPosition:	1	
Required:	False	
SourceField:	GintRecID	
SourceTable:	WC DENSITY	
PointID	Text	255
AllowZeroLength:	False	
AppendOnly:	False	
Attributes:	Variable Length	
CollatingOrder:	General	
ColumnHidden:	False	
ColumnOrder:	Default	
ColumnWidth:	Default	
DataUpdatable:	False	
gintBackColor:	0	
gintBlobType:	0	
gintCaption:	Boring Designation	
gintCaptionVertical:	False	
gintDefaultExpr:		
gintDesc:		
gintFileRefData:		
gintFlags:	0	
gintLookup:		
gintLookupFilter:		
gintRules:		
gintUnits:		
gintViewWidTwips:	957	
OrdinalPosition:	2	
Required:	True	
SourceField:	PointID	
SourceTable:	WC DENSITY	
Depth	Double	8
AllowZeroLength:	False	
AppendOnly:	False	
Attributes:	Fixed Size	
CollatingOrder:	General	
ColumnHidden:	False	
ColumnOrder:	Default	
ColumnWidth:	Default	
DataUpdatable:	False	

DecimalPlaces: Auto
gintBackColor: 0
gintBlobType: 0
gintCaption:
gintCaptionVertical: False
gintDefaultExpr:
gintDesc:
gintFileRefData:
gintFlags: 0
gintLookup:
gintLookupFilter:
gintRules: 1861
gintUnits: ft
gintViewWidTwips: 870
OrdinalPosition: 3
Required: True
SourceField: Depth
SourceTable: WC DENSITY

WC_Wt_Wet Single 4

AllowZeroLength: False
AppendOnly: False
Attributes: Fixed Size
CollatingOrder: General
ColumnHidden: False
ColumnOrder: Default
ColumnWidth: Default
DataUpdatable: False
DecimalPlaces: Auto
gintBackColor: 0
gintBlobType: 0
gintCaption: Water Content Wet Wt+Tare
gintCaptionVertical: False
gintDefaultExpr:
gintDesc: Water Content Determination: Weight Wet Soil + Tare, any consistent units
gintFileRefData:
gintFlags: 64
gintLookup:
gintLookupFilter:
gintRules:
gintUnits:
gintViewWidTwips: 1215
OrdinalPosition: 4
Required: False
SourceField: WC_Wt_Wet
SourceTable: WC DENSITY

WC_Wt_Dry Single 4

AllowZeroLength: False
AppendOnly: False
Attributes: Fixed Size
CollatingOrder: General
ColumnHidden: False
ColumnOrder: Default

ColumnWidth: Default
DataUpdatable: False
DecimalPlaces: Auto
gintBackColor: 0
gintBlobType: 0
gintCaption: Water Content Dry Wt+Tare
gintCaptionVertical: False
gintDefaultExpr:
gintDesc: Water Content Determination: Weight Dry Soil + Tare, any consistent units

gintFileRefData:
gintFlags: 64
gintLookup:
gintLookupFilter:
gintRules:
gintUnits:
gintViewWidTwips: 1158
OrdinalPosition: 5
Required: False
SourceField: WC_Wt_Dry
SourceTable: WC DENSITY

WC_Wt_Tare Single 4

AllowZeroLength: False
AppendOnly: False
Attributes: Fixed Size
CollatingOrder: General
ColumnHidden: False
ColumnOrder: Default
ColumnWidth: Default
DataUpdatable: False
DecimalPlaces: Auto
gintBackColor: 0
gintBlobType: 0
gintCaption: Water Content Wt Tare
gintCaptionVertical: False
gintDefaultExpr:
gintDesc: Water Content Determination: Weight Tare, any consistent units
gintFileRefData:
gintFlags: 64
gintLookup:
gintLookupFilter:
gintRules:
gintUnits:
gintViewWidTwips: 1095
OrdinalPosition: 6
Required: False
SourceField: WC_Wt_Tare
SourceTable: WC DENSITY

Water_Content Single 4

AllowZeroLength: False
AppendOnly: False
Attributes: Fixed Size
CollatingOrder: General

ColumnHidden: False
 ColumnOrder: Default
 ColumnWidth: Default
 DataUpdatable: False
 DecimalPlaces: Auto
 gintBackColor: 0
 gintBlobType: 0
 gintCaption:
 gintCaptionVertical: False
 gintDefaultExpr:
 gintDesc: Will be calculated if the data exists.
 gintFileRefData:
 gintFlags: 64
 gintLookup:
 gintLookupFilter:
 gintRules:
 gintUnits: %
 gintViewWidTwips: 960
 OrdinalPosition: 7
 Required: False
 SourceField: Water_Content
 SourceTable: WC DENSITY

Diameter Single 4

AllowZeroLength: False
 AppendOnly: False
 Attributes: Fixed Size
 CollatingOrder: General
 ColumnHidden: False
 ColumnOrder: Default
 ColumnWidth: Default
 DataUpdatable: False
 DecimalPlaces: Auto
 gintBackColor: 0
 gintBlobType: 0
 gintCaption:
 gintCaptionVertical: False
 gintDefaultExpr:
 gintDesc:
 gintFileRefData: 64
 gintFlags:
 gintLookup:
 gintLookupFilter:
 gintRules:
 gintUnits: mm
 gintViewWidTwips: 873
 OrdinalPosition: 8
 Required: False
 SourceField: Diameter
 SourceTable: WC DENSITY

Height Single 4

AllowZeroLength: False
 AppendOnly: False
 Attributes: Fixed Size
 CollatingOrder: General

ColumnHidden: False
 ColumnOrder: Default
 ColumnWidth: Default
 DataUpdatable: False
 DecimalPlaces: Auto
 gintBackColor: 0
 gintBlobType: 0
 gintCaption:
 gintCaptionVertical: False
 gintDefaultExpr:
 gintDesc:
 gintFileRefData:
 gintFlags: 64
 gintLookup:
 gintLookupFilter:
 gintRules:
 gintUnits: mm
 gintViewWidTwips: 678
 OrdinalPosition: 9
 Required: False
 SourceField: Height
 SourceTable: WC DENSITY

Wt_Spec_Tare Single 4

AllowZeroLength: False
 AppendOnly: False
 Attributes: Fixed Size
 CollatingOrder: General
 ColumnHidden: False
 ColumnOrder: Default
 ColumnWidth: Default
 DataUpdatable: False
 DecimalPlaces: Auto
 gintBackColor: 0
 gintBlobType: 0
 gintCaption: Wt Specimen + Tare
 gintCaptionVertical: False
 gintDefaultExpr:
 gintDesc: Weight of total specimen + tare
 gintFileRefData: 64
 gintFlags:
 gintLookup:
 gintLookupFilter:
 gintRules:
 gintUnits: g
 gintViewWidTwips: 975
 OrdinalPosition: 10
 Required: False
 SourceField: Wt_Spec_Tare
 SourceTable: WC DENSITY

Wt_Tare Single 4

AllowZeroLength: False
 AppendOnly: False
 Attributes: Fixed Size
 CollatingOrder: General

ColumnHidden: False
 ColumnOrder: Default
 ColumnWidth: Default
 DataUpdatable: False
 DecimalPlaces: Auto
 gintBackColor: 0
 gintBlobType: 0
 gintCaption:
 gintCaptionVertical: False
 gintDefaultExpr:
 gintDesc:
 gintFileRefData:
 gintFlags: 64
 gintLookup:
 gintLookupFilter:
 gintRules:
 gintUnits: 9
 gintViewWidTwips: 780
 OrdinalPosition: 11
 Required: False
 SourceField: Wt_Tare
 SourceTable: WC DENSITY

Wet_Density Single 4

AllowZeroLength: False
 AppendOnly: False
 Attributes: Fixed Size
 CollatingOrder: General
 ColumnHidden: False
 ColumnOrder: Default
 ColumnWidth: Default
 DataUpdatable: False
 DecimalPlaces: Auto
 gintBackColor: 0
 gintBlobType: 0
 gintCaption:
 gintCaptionVertical: False
 gintDefaultExpr:
 gintDesc: In units determined by the PROJECT.Water_Unit_Wt field. Will be calculated if the data exists.

gintFileRefData:
 gintFlags: 64
 gintLookup:
 gintLookupFilter:
 gintRules:
 gintUnits:
 gintViewWidTwips: 915
 OrdinalPosition: 12
 Required: False
 SourceField: Wet_Density
 SourceTable: WC DENSITY

Dry_Density Single 4

AllowZeroLength: False
 AppendOnly: False

Attributes: Fixed Size
 CollatingOrder: General
 ColumnHidden: False
 ColumnOrder: Default
 ColumnWidth: Default
 DataUpdatable: False
 DecimalPlaces: Auto
 gintBackColor: 0
 gintBlobType: 0
 gintCaption:
 gintCaptionVertical: False
 gintDefaultExpr:
 gintDesc: In units determined by the PROJECT.Water_Unit_Wt field. Will be calculated if the data exists.

gintFileRefData:
 gintFlags: 64
 gintLookup:
 gintLookupFilter:
 gintRules:
 gintUnits:
 gintViewWidTwips: 885
 OrdinalPosition: 13
 Required: False
 SourceField: Dry_Density
 SourceTable: WC DENSITY

Relationships

LAB SPECIMEN WC DENSITY

LAB SPECIMEN		WC DENSITY	
PointID	1	1	PointID
Depth	1	1	Depth

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

Table Indexes

Name	Number of Fields
GintIndex	2
Clustered:	False
DistinctCount:	0
Foreign:	False
IgnoreNulls:	False
Name:	GintIndex
Primary:	False
Required:	False
Unique:	True

Fields:	
PointID	Ascending
Depth	Ascending
Primary	1
Clustered:	False
DistinctCount:	0
Foreign:	False
IgnoreNulls:	False
Name:	Primary
Primary:	True
Required:	True
Unique:	True
Fields:	
GintRecID	Ascending
Reference7	2
Clustered:	False
DistinctCount:	0
Foreign:	True
IgnoreNulls:	False
Name:	Reference7
Primary:	False
Required:	False
Unique:	True
Fields:	
PointID	Ascending
Depth	Ascending

User Permissions

admin Delete, Read Permissions, Set Permissions, Change Owner, Read Definition,
Write Definition, Read Data, Insert Data, Update Data, Delete Data

Group Permissions

Admins
Users Delete, Read Permissions, Set Permissions, Change Owner, Read Definition,
Write Definition, Read Data, Insert Data, Update Data, Delete Data