FHWA Deep Foundation Load Test Database Version 2.0 User Manual

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Foreword

This Federal Highway Administration (FHWA) project (DTFH61-14-R-00036) seeks to research and update FHWA technical references for design of large diameter open-end piles (LDOEPs) using the load and resistance factor design (LRFD) framework. One task of this study is the development of a database of LDOEP load tests and performance data for the evaluation of bearing resistance methods and calibration of LRFD resistance factors. As part of this task, an updated version of the FHWA Deep Foundation Load Test Database (DLFTD) was created, bringing in all of the existing data as well as the new data collected during this study.

This database user manual provides an overview of the new deep foundation load test database developed for the project. The document describes database installation procedures and the DeepFoundationView module. This user manual also describes the database query tools along with the process for data retrieval, data entry, and data visualization.

This report will be of interest to geotechnical and foundation engineers and those concerned with the axial performance of LDOEPs and other deep foundation elements, who intend to use the new deep foundation load test database (DLFTD v.2).

Notice

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16. Abstract This Federal Highway Administration (FHWA) began the development of the first version of the Deep Foundation Load Test Database (DLFTD) in the 1980s. Over 1,500 load tests were collected and stored for various types of piles and drilled shafts in different soil conditions. As part of a new FHWA research study initiated in 2014 to investigate and update FHWA technical references for the design of large diameter open-end piles (LDOEPs) using the load and resistance factor design (LRFD) framework, load tests on LDOEPs had to be collected. As part of this task, an updated version of the FHWA Deep Foundation Load Test Database (DLFTD v.2) was created, bringing in all of the existing data as well as the new data collected during this study. This DFLTD v.2 user manual provides an overview and instruction and the use of the new deep foundation load test database developed for the project. The document describes database installation procedures and the DeepFoundationView module. This user manual also describes the database query tools along with the process for data retrieval, data entry, and data visualization.			
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SI* (MODERN METRIC) CONVERSION FACTORS

APPROXIMATE CONVERSIONS TO SI UNITS

Symbol	When You Know	Multiply By	To Find	Symbol
		LENGTH		
in	inches	25.4	millimeters	mm
ft	feet	0.305	meters	m
yd	yards	0.914	meters	m
mi	miles	1.61	kilometers	km
		AREA		
in^2	square inches	645.2	square millimeters	mm^2
ft^2	square feet	0.093	square meters	m^2
yd^2	square yard	0.836	square meters	m^2
ac	acres	0.405	hectares	ha
mi^2	square miles	2.59	square kilometers	km^2
		VOLUME		
fl oz	fluid ounces	29.57	milliliters	mL
gal	gallons	3.785	liters	L
ft^3	cubic feet	0.028	cubic meters	m^3
yd^3	cubic yards	0.765	cubic meters	m^3
	NOTE: volumes greater than 1000 L shall be shown in m^3			
		MASS		
oz	ounces	28.35	grams	g
lb	pounds	0.454	kilograms	kg
T	short tons (2000 lb)	0.907	megagrams (or "metric ton")	Mg (or "t")
		TEMPERATURE (exact degrees)		
°F	Fahrenheit	5 (F-32)/9 or (F-32)/1.8	Celsius	°C
		ILLUMINATION		
fc	foot-candles	10.76	lux	lx
fl	foot-Lamberts	3.426	$candela/m^2$	cd/m^2
		FORCE and PRESSURE or STRESS		
lbf	poundforce	4.45	newtons	N
lbf/in^2	poundforce per square inch	6.89	kilopascals	kPa

APPROXIMATE CONVERSIONS FROM SI UNITS

Symbol	When You Know	Multiply By	To Find	Symbol
		LENGTH		
mm	millimeters	0.039	inches	in
m	meters	3.28	feet	ft
m	meters	1.09	yards	yd
km	kilometers	0.621	miles	mi
		AREA		
mm^2	square millimeters	0.0016	square inches	in^2
m^2	square meters	10.764	square feet	ft^2
m^2	square meters	1.195	square yards	yd^2
ha	hectares	2.47	acres	ac
km^2	square kilometers	0.386	square miles	mi^2
		VOLUME		
mL	milliliters	0.034	fluid ounces	fl oz
L	liters	0.264	gallons	gal
m^3	cubic meters	35.314	cubic feet	ft^3
m^3	cubic meters	1.307	cubic yards	yd^3
		MASS		
g	grams	0.035	ounces	oz
kg	kilograms	2.202	pounds	lb
Mg (or "t")	megagrams (or "metric ton")	1.103	short tons (2000 lb)	T
		TEMPERATURE (exact degrees)		
°C	Celsius	1.8C+32	Fahrenheit	°F
		ILLUMINATION		
lx	lux	0.0929	foot-candles	fc
cd/m^2	candela/m2	0.2919	foot-Lamberts	fl
		FORCE and PRESSURE or STRESS		
N	newtons	2.225	poundforce	lbf
kPa	kilopascals	0.145	poundforce per square inch	lbf/in^2

*SI is the symbol for International System of Units. Appropriate rounding should be made to comply with Section 4 of ASTM E380.
(Revised March 2003)

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1. General Description

This updated version of the Deep Foundation Load Test Database (DFLTD v.2) was developed as part of the Federal Highway Administration (FHWA) research project, *Bearing Resistance of Large Diameter Open-End Piles* (2014–2017), and provides a collection of deep foundation load test data for researchers and practicing engineers. Potential applications of this database include reviewing previous load test case histories, estimating side and end bearing resistance (based on sites with similar conditions), and calibration of resistance factors. Load test types in the new database include axial static, rapid (Statnamic), and dynamic load tests. Foundation types include open- and closed-end steel pipe piles, concrete cylinder piles, steel H-piles, pre-stressed concrete piles, drilled shafts, augercast piles, micropiles, timber piles, and others. Deep foundation load test data from the existing FHWA Deep Foundations Load Test Database (DFLTD, Version 1.0, 2007) was transferred to the current database.

DFLTD v.2 is constructed with two separate Microsoft Access™ files. The individual files and their intended functions are:

- ***DeepFoundationData*** contains only data tables.
- ***DeepFoundationView*** contains the forms, queries, and auxiliary tables required for data inquiry, viewing, and export. This module allows users to access data in *DeepFoundationData*, but not to make any changes. *DeepFoundationView* is intended for those who would use the data for practical applications or research.

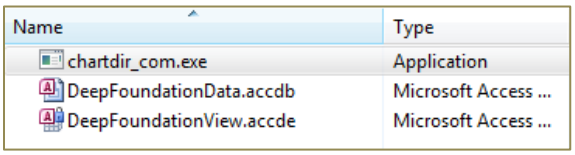
The load test database uses Microsoft Access 2013 database development software and Advanced Software Engineering's Chartdirector™ graphics utility. The database and applications have been created for use on a Microsoft Windows 7 or Windows 10 operating system and a Microsoft Access 2010 database or greater. The appendix includes a listing of all database lookup tables and defines all the field names in the database.

Data included in the database was obtained from a large number of sources. These sources primarily included conference proceedings, journal articles, and engineering reports. Native digital data for the various in situ and load tests was generally not available for these sources. Therefore, the LDOEP data including subsurface explorations, dynamic testing, and load test data (force, displacement, force distribution, and load transfer) is digitized from these publications. There may be some slight variation between the original publication and the digitized values included in the database.

2. Installation

The database is installed in the following steps:

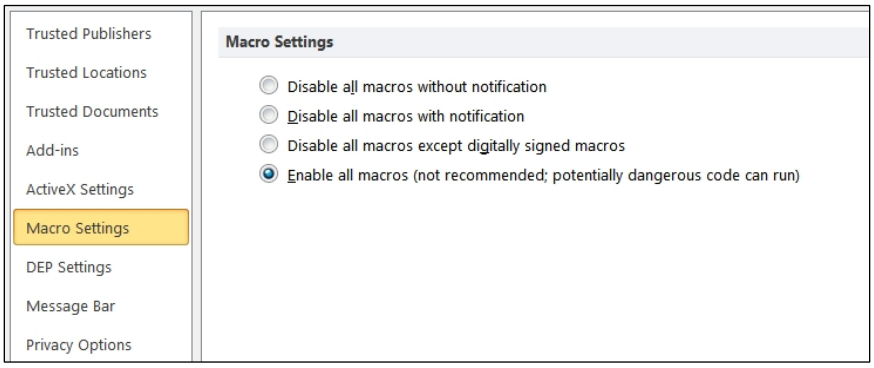
1. Download the database from FHWA DFLTD v.2
2. Save the downloaded compressed "zip" file in a folder of the user's choice. Extract the three files from the zip file. *Recommendation: the database will run faster if saved locally. Running the database from a network server may slow performance.*
3. The resulting folder should look similar to figure 1.



Source: FHWA

Figure 1. Zip file contents.

4. Run the application ***chartdir_com.exe*** to install the graphics utility.
5. Microsoft Access must be installed on the computer. Prior to running the database for the first time, the use of macros must be enabled on Microsoft Access. To enable macros, start Microsoft Access and go to *File>Options>Trust Center>Trust Center Settings>Macro Settings* and select *Enable All Macros*. Depending on the computer user's rights and permissions, a person with computer administrative privileges may be required to change these macro settings. Depending on the version of Microsoft Access, the databases may not function without macros enabled.



Source: FHWA

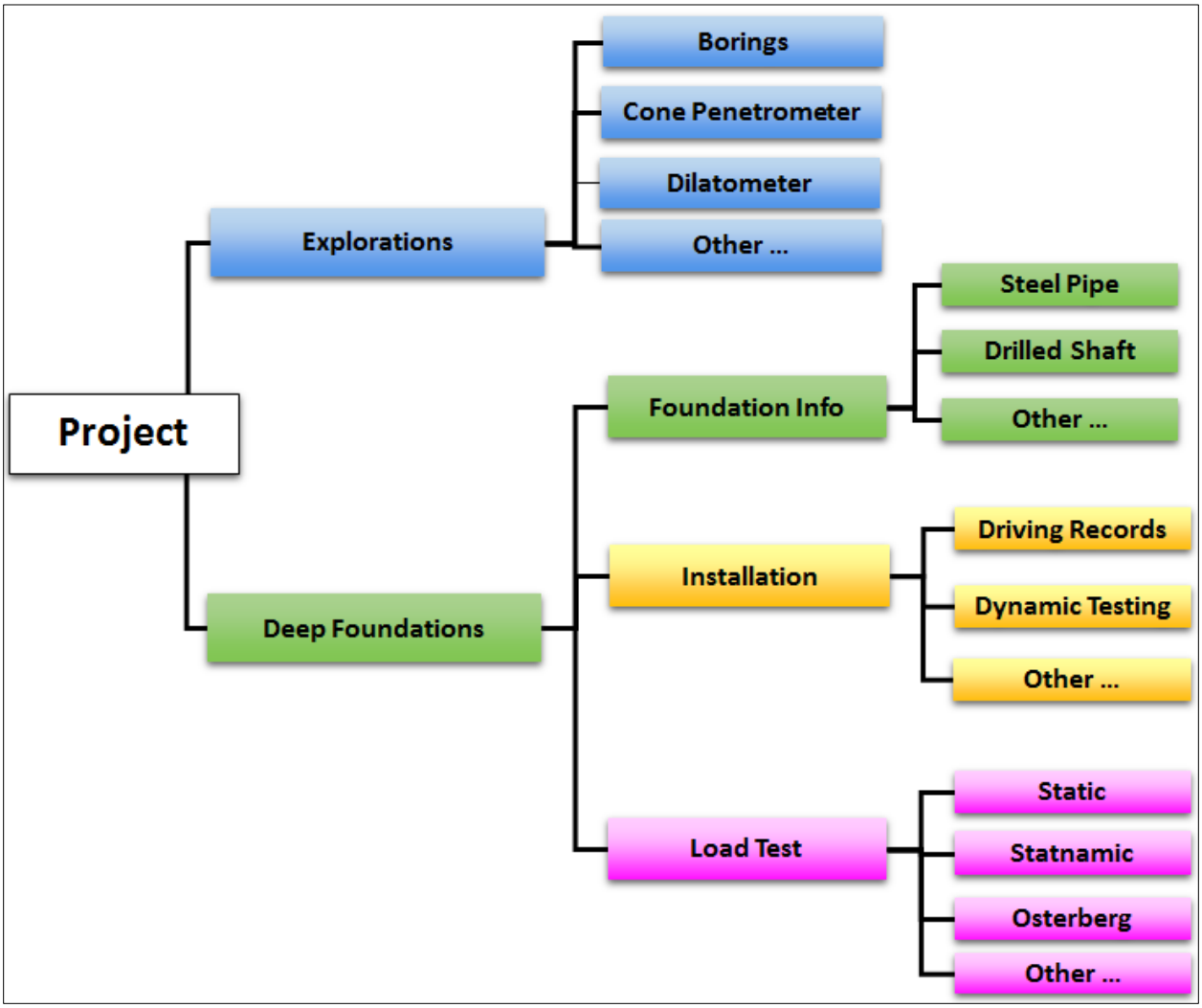
Figure 2. Microsoft Access macro settings.

6. Once macros are enabled, double-click on the *DeepFoundationView* application to run the database.

3. Application Overview

A general diagram showing the structure and operational flow of the database is presented in figure 3. See figure 28 in the appendix for a more detailed structural chart. This Users Guide discusses the *DeepFoundationView* application, which is used to search, view and export data to Microsoft Excel™ files.

The database sign convention is positive for compressive loads and upward displacement. Tension loads and downward displacement are negative. The sign convention is used for the LDOEP study data. The majority of the previous DFLTD data follow this sign convention with a few exceptions.

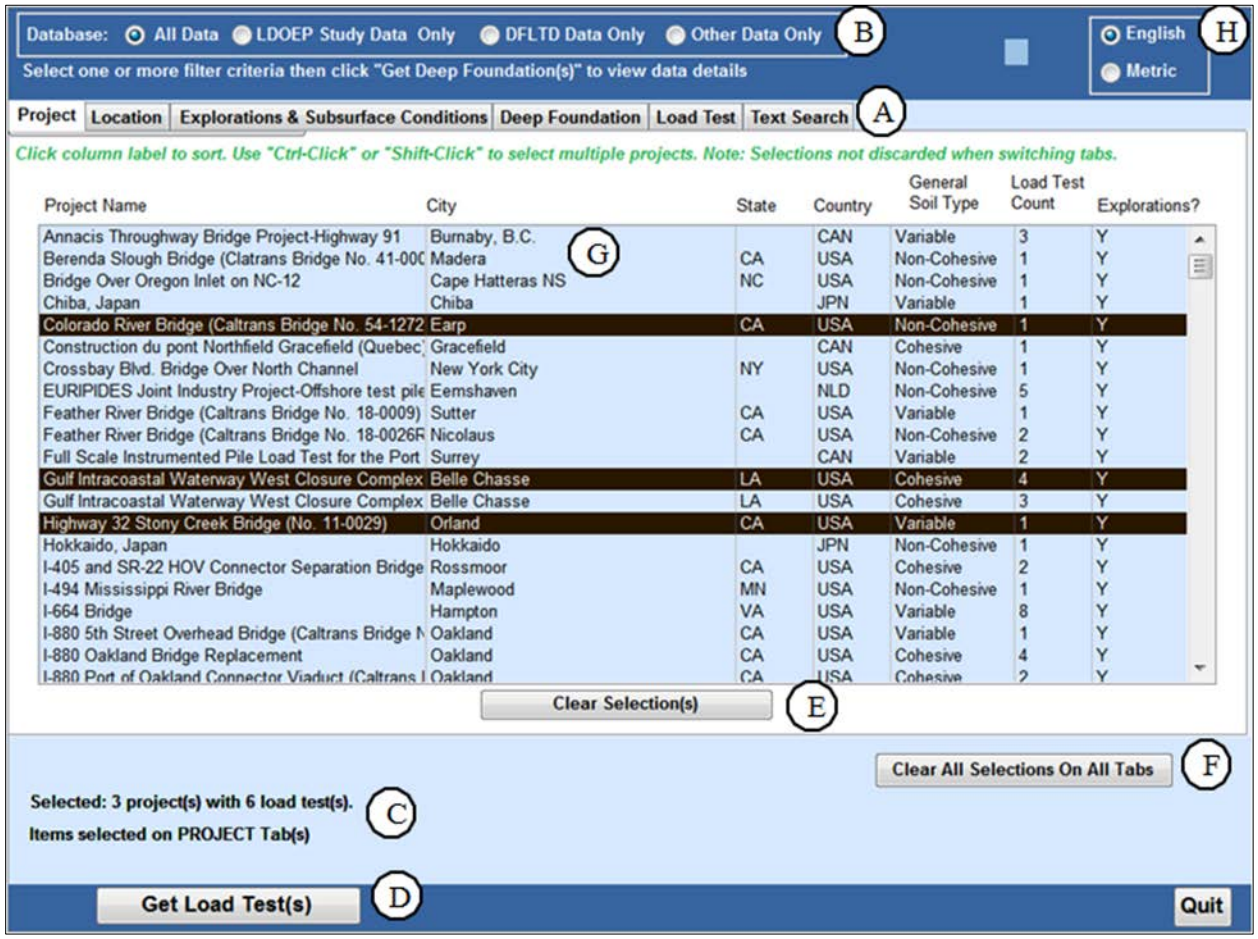


Source: FHWA

Figure 3. Database Organization.

4. DeepFoundationView Application

The *DeepFoundationView* application allows the user to query the database. When the application is first opened (figure 4), the user is able to create queries to identify the load test results by project; location; exploration and subsurface conditions; deep foundation type; installation methods; and load test criteria. The text search tab (figure 4-A) allows searching by the project name, description fields, and location fields.



Source: FHWA

Figure 4. Project tab.

4.1. Load Test Queries

Figures 4, 5, 6, 7, and 8 show the search tabs and criteria that can be used to create a query. Perform queries by selecting one or more criteria on any of the available tabs (figure 4-A). The radio buttons (figure 4-B) allow users to search various portions of the database including: all data, only LDOEP study data, DFLTD data, or other new data.

Perform queries by selecting one or more items within the Project, Location, Explorations & Subsurface Conditions, Deep Foundation, or Load Test tab(s). *Selections are cumulative for all the tabs, except Text Search.* The Text Search tab searches the database text fields including project name, project description, location, and deep foundation designation.

At the bottom of each tab (figures 4-C, 5-C, 6-C, 7-C, and 8-C), the number of results that match the selected criteria is displayed. Click on Get Load Tests (figure4-D) to see the query results.

Clear the selections on a single tab by clicking the "Clear Selection(s)" button (figure 4-E). Alternatively, clear all selections on all tabs by clicking the "Clear All Selection on All Tabs" button (figure 4-F).

Toggle between English and metric units by clicking the radio box (figure 4-H). Most tabs contain a radio button to switch between English and metric units.

4.1.1. Project Tab

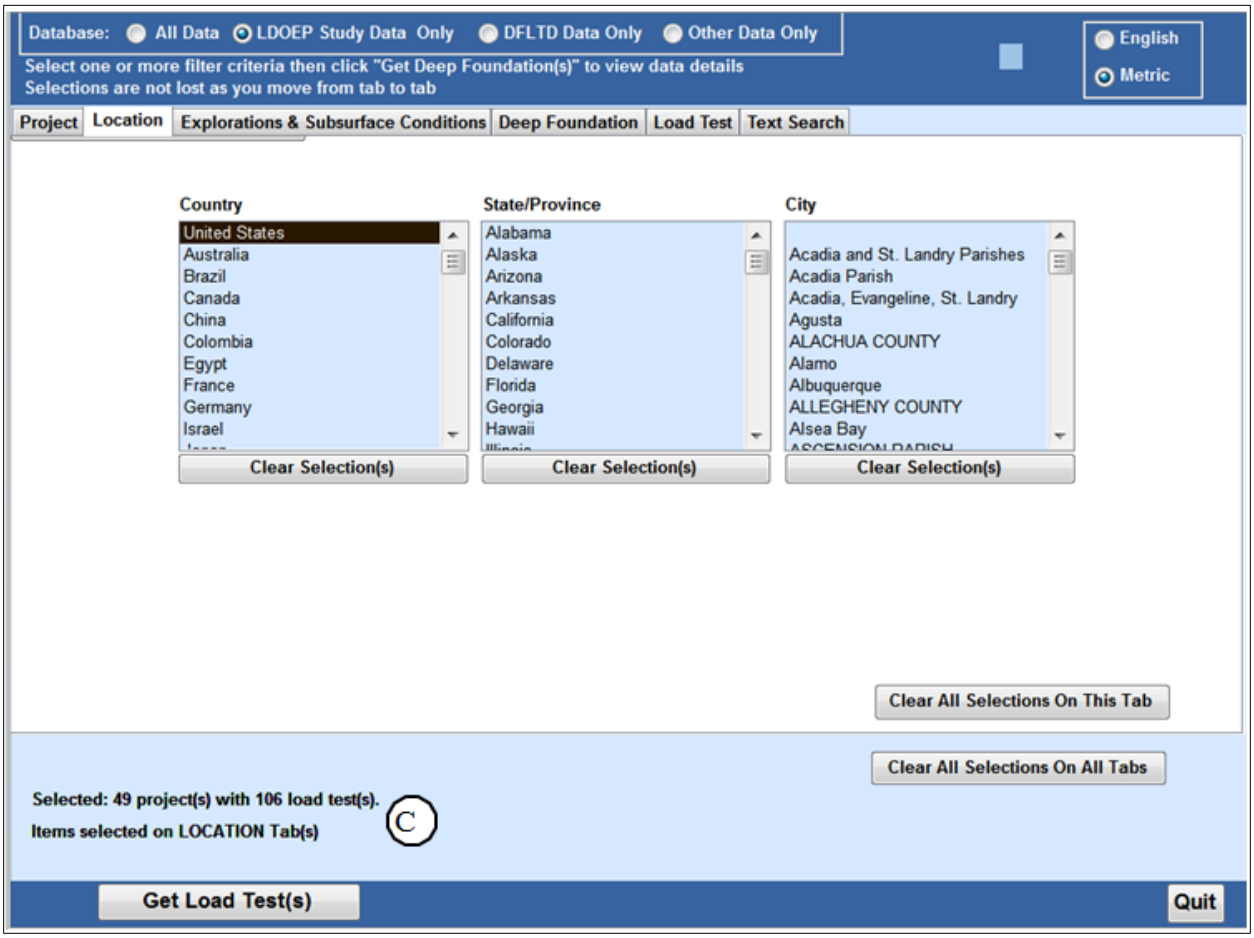
The project tab (figure 4) allows direct selection of load tests by project. The project tab provides summary info including project name, city, State, country, general soil type, load test count, and availability of explorations. Navigate within the project window (figure 4-G) using the mouse and scroll bar on the right.

4.1.2. Location Tab

The location tab (figure 5) allows the user to select load tests by the country, State, and city where the test was performed. The location tab only lists locations with load tests in the database. If a location is not listed, it does not have load tests in the database.

Selection Tip: ***(A)*** *Using the keyboard, quickly select an entry in the field by typing the first letter or number of the desired entry.*

(B) *Use Ctrl + left click and Shift + left click to select multiple database entries. Ctrl + left click selects multiple individual entries. Shift + left click selects multiple continuous entries. Combine Ctrl + left click and Shift + left click to select combinations of individual and grouped entries.*



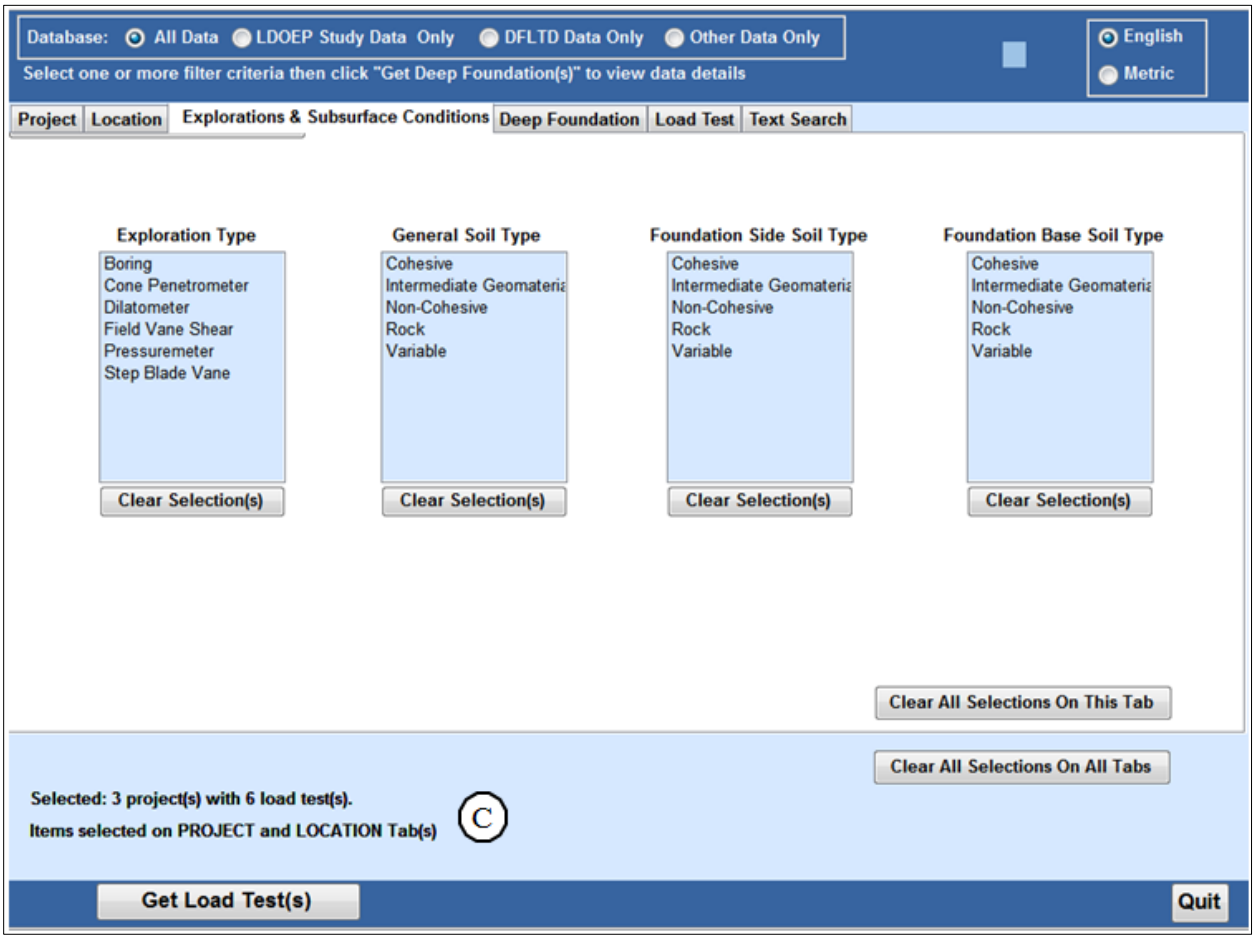
Source: FHWA

Figure 5. Locations tab.

4.1.3. Exploration & Subsurface Conditions Tab

The Exploration & Subsurface Conditions tab (figure 6) allows the user to select the exploration type, general soil type, foundation side soil type, and foundation base soil type.

The database uses the broad soil type classifications of cohesive, non-cohesive, intermediate geomaterial, rock, and variable. The soil type is classified as uniform condition if at least 70 percent of the soil along the pile side or base consists of the specified material type. Variable sites consist of a combination of soil types where combined layers for each soil type are less than 70 percent of the total.

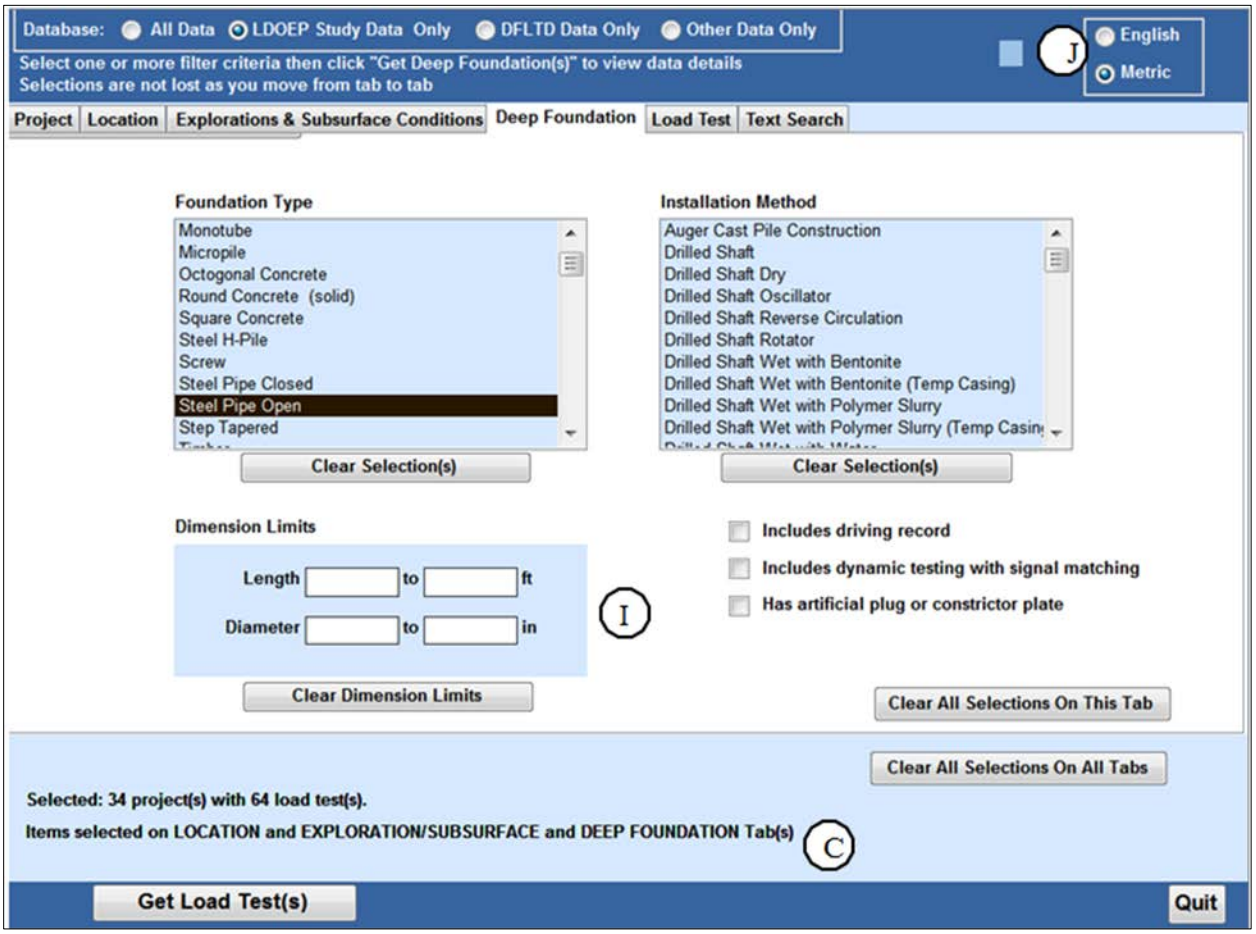


Source: FHWA

Figure 6. Explorations and Subsurface Conditions tab.

4.1.4. Deep Foundation Tab

The Deep Foundations tab (figure 7) allows the user to select foundation type and installation method. In addition, the foundation dimensions can be limited by entering the desired values into the dimension limits fields (figure 7-I). Toggle between English and metric units by clicking on the radio button (figure 7-J). This tab also includes check boxes that allow users to select projects that include driving records, dynamic testing, or have an artificial plug or constrictor plate.

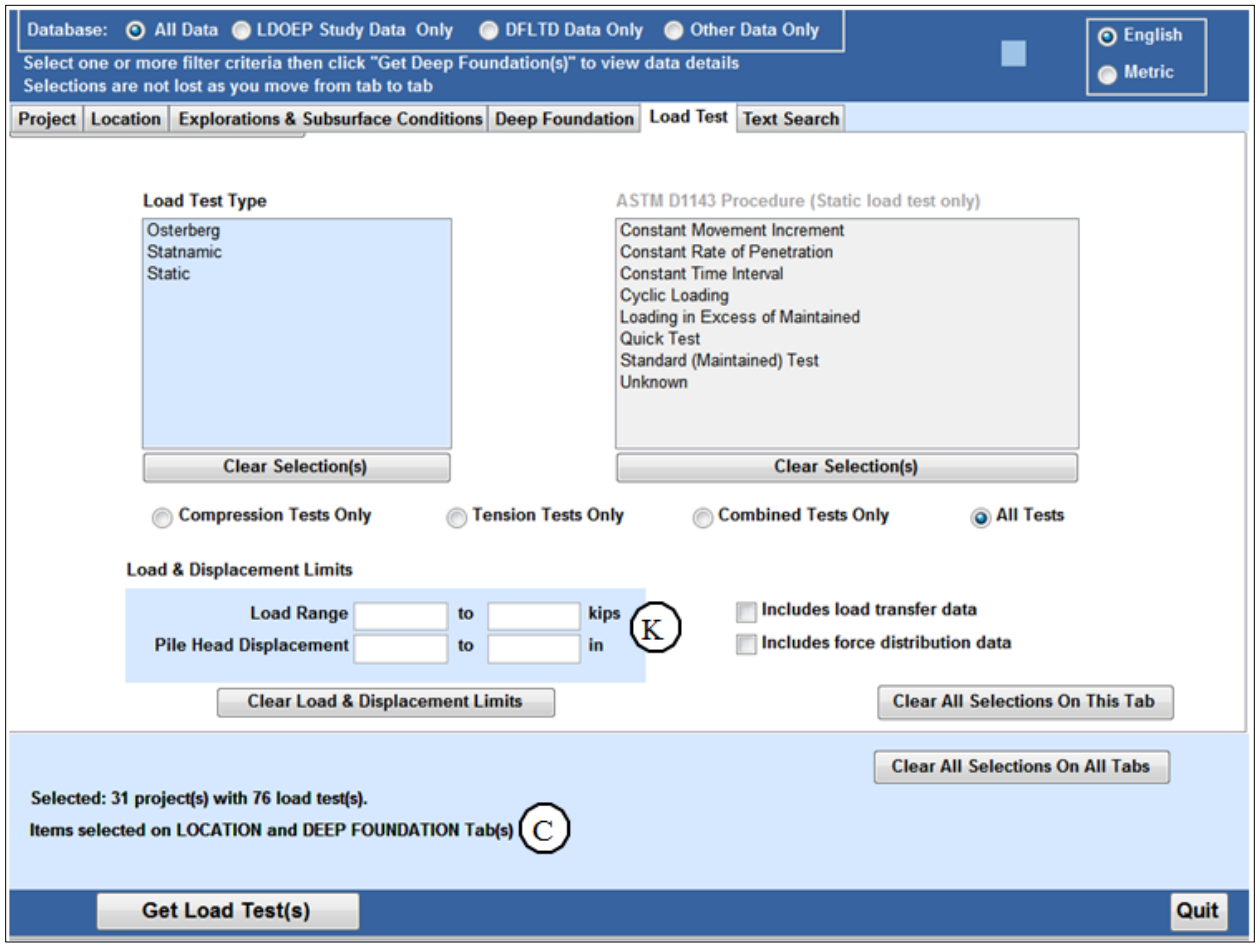


Source: FHWA

Figure 7. Deep Foundation tab.

4.1.5. Load Test Tab

The Load Test tab (figure 8) allows users to select the load test type and American Society for Testing and Materials (ASTM) International D1143 procedure for static load tests. Users can enter the desired limits for load range and pile head displacement (figure 8-K). Additional radio buttons allow users to select compression tests only, tension tests only, combined tests only, or all load test types. Check boxes allow users to include load transfer (i.e. t-z and q-z curves) and force distribution data.



Source: FHWA

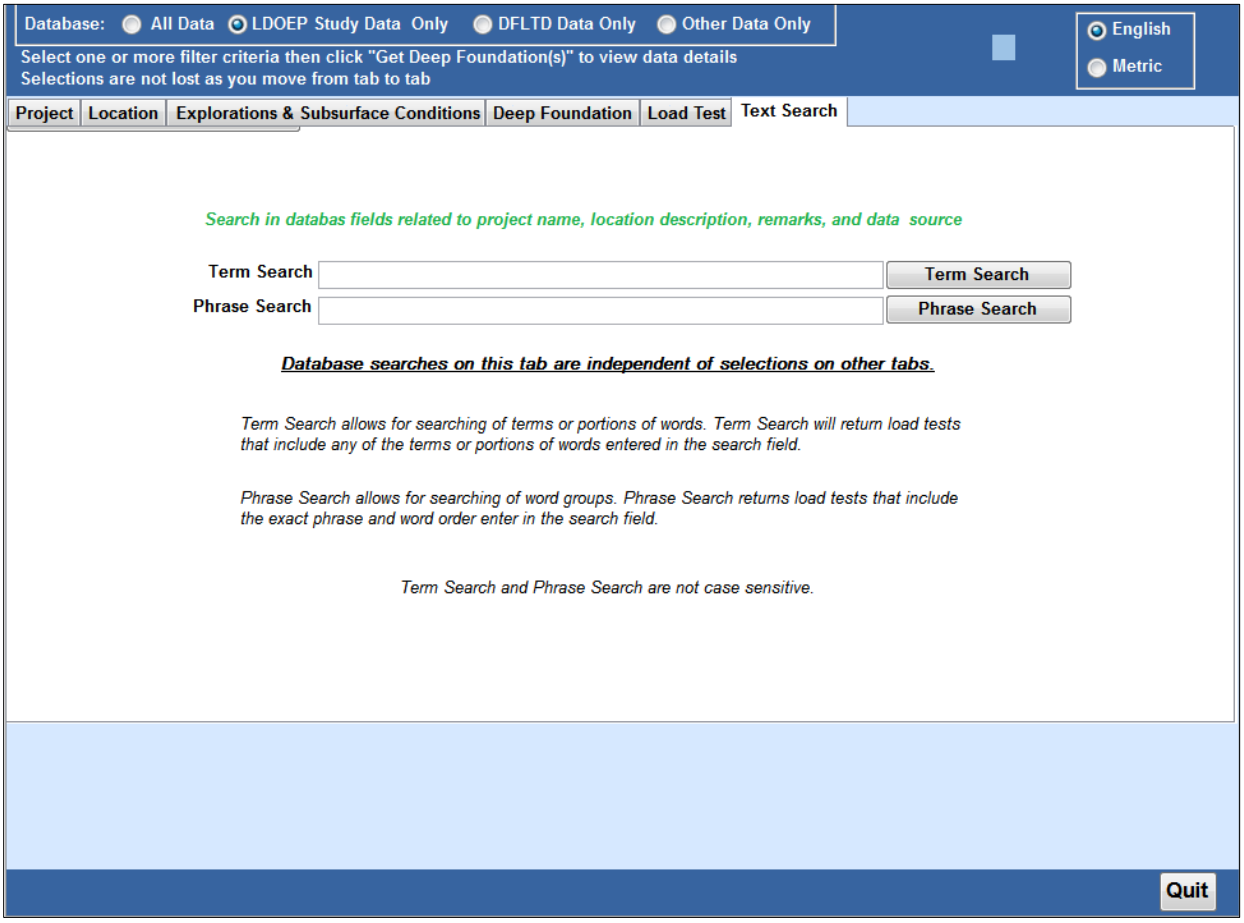
Figure 8. Load Test tab.

4.1.6. Text Search

The Text Search tab (figure 9) searches the database text fields including project name, project description, location, and deep foundation designation. Figures 11-E and 16-P provide examples of the fields that can be searched with text search.

Terms or phrases entered on the Text Search tab search the database independently of the other tabs shown on figure 9. Term Search allows users to search terms or portions of words. Using Term Search will return load tests that include any of the terms or portions of words included in the search field. Phrase Search allows for searching of word groups. Phrase search returns only load tests that include the exact phrase and word order.

For example, if a user enters “Port Said” into the Term Search field, the query returns all load tests with the word “Port” or “Said”. If a user enters “Port Said” into the Phrase Search field, the query returns only load tests with the phrase “Port Said.”



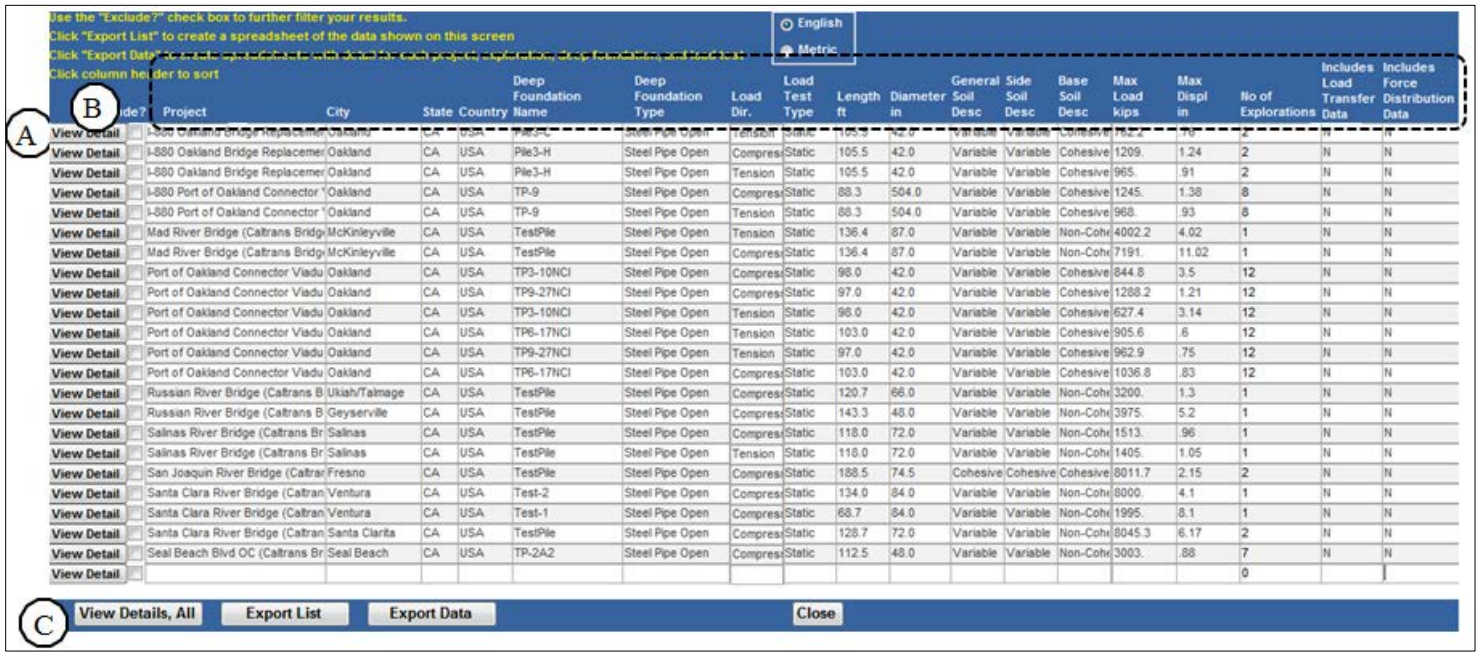
Source: FHWA

Figure 9. Text Search tab.

4.1.7. Query Results

Click the Get Load Test button on the bottom of any tab to create the query results window shown on figure 10. Query results are listed in alphanumerical order. Individual project records are viewed by clicking the View Detail button (figure 10-A). Alternatively, the set of projects can be viewed by clicking the View Details, All button (figure 10-C). Projects can be excluded by checking the exclude box (figure 10-B).

The Export List and Export Data functions are discussed in Section 4.3.



Exclude?	Project	City	State	Country	Deep Foundation Name	Deep Foundation Type	Load Dir.	Load Test Type	Length ft	Diameter in	General Soil Desc	Side Soil Desc	Base Soil Desc	Max Load kips	Max Displ in	No of Explorations	Includes Load Transfer Data	Includes Force Distribution Data
View Detail	I-880 Oakland Bridge Replacemer	Oakland	CA	USA	Pile3-H	Steel Pipe Open	Compres	Static	105.5	42.0	Variable	Variable	Cohesive	1209.	1.24	2	N	N
View Detail	I-880 Oakland Bridge Replacemer	Oakland	CA	USA	Pile3-H	Steel Pipe Open	Tension	Static	105.5	42.0	Variable	Variable	Cohesive	965.	.91	2	N	N
View Detail	I-880 Port of Oakland Connector '	Oakland	CA	USA	TP-9	Steel Pipe Open	Compres	Static	88.3	504.0	Variable	Variable	Cohesive	1245.	1.38	8	N	N
View Detail	I-880 Port of Oakland Connector '	Oakland	CA	USA	TP-9	Steel Pipe Open	Tension	Static	88.3	504.0	Variable	Variable	Cohesive	968.	.93	8	N	N
View Detail	Mad River Bridge (Caltrans Bridg	McKinleyville	CA	USA	TestPile	Steel Pipe Open	Tension	Static	136.4	87.0	Variable	Variable	Non-Cohe	4002.2	4.02	1	N	N
View Detail	Mad River Bridge (Caltrans Bridg	McKinleyville	CA	USA	TestPile	Steel Pipe Open	Compres	Static	136.4	87.0	Variable	Variable	Non-Cohe	7191.	11.02	1	N	N
View Detail	Port of Oakland Connector Viadu	Oakland	CA	USA	TP3-10NCI	Steel Pipe Open	Compres	Static	98.0	42.0	Variable	Variable	Cohesive	844.8	3.5	12	N	N
View Detail	Port of Oakland Connector Viadu	Oakland	CA	USA	TP9-27NCI	Steel Pipe Open	Compres	Static	97.0	42.0	Variable	Variable	Cohesive	1288.2	1.21	12	N	N
View Detail	Port of Oakland Connector Viadu	Oakland	CA	USA	TP3-10NCI	Steel Pipe Open	Tension	Static	98.0	42.0	Variable	Variable	Cohesive	627.4	3.14	12	N	N
View Detail	Port of Oakland Connector Viadu	Oakland	CA	USA	TP6-17NCI	Steel Pipe Open	Tension	Static	103.0	42.0	Variable	Variable	Cohesive	905.6	.6	12	N	N
View Detail	Port of Oakland Connector Viadu	Oakland	CA	USA	TP9-27NCI	Steel Pipe Open	Tension	Static	97.0	42.0	Variable	Variable	Cohesive	962.9	.75	12	N	N
View Detail	Port of Oakland Connector Viadu	Oakland	CA	USA	TP6-17NCI	Steel Pipe Open	Compres	Static	103.0	42.0	Variable	Variable	Cohesive	1036.8	.83	12	N	N
View Detail	Russian River Bridge (Caltrans B	Ukiah/Talmage	CA	USA	TestPile	Steel Pipe Open	Compres	Static	120.7	66.0	Variable	Variable	Non-Cohe	3200.	1.3	1	N	N
View Detail	Russian River Bridge (Caltrans B	Geyserville	CA	USA	TestPile	Steel Pipe Open	Compres	Static	143.3	48.0	Variable	Variable	Non-Cohe	3975.	5.2	1	N	N
View Detail	Salinas River Bridge (Caltrans Br	Salinas	CA	USA	TestPile	Steel Pipe Open	Compres	Static	118.0	72.0	Variable	Variable	Non-Cohe	1513.	.96	1	N	N
View Detail	Salinas River Bridge (Caltrans Br	Salinas	CA	USA	TestPile	Steel Pipe Open	Tension	Static	118.0	72.0	Variable	Variable	Non-Cohe	1405.	1.05	1	N	N
View Detail	San Joaquin River Bridge (Caltrar	Fresno	CA	USA	TestPile	Steel Pipe Open	Compres	Static	188.5	74.5	Cohesive	Cohesive	Cohesive	8011.7	2.15	2	N	N
View Detail	Santa Clara River Bridge (Caltran	Ventura	CA	USA	Test-2	Steel Pipe Open	Compres	Static	134.0	84.0	Variable	Variable	Non-Cohe	8000.	4.1	1	N	N
View Detail	Santa Clara River Bridge (Caltran	Ventura	CA	USA	Test-1	Steel Pipe Open	Compres	Static	68.7	84.0	Variable	Variable	Non-Cohe	1995.	8.1	1	N	N
View Detail	Santa Clara River Bridge (Caltran	Santa Clarita	CA	USA	TestPile	Steel Pipe Open	Compres	Static	128.7	72.0	Variable	Variable	Non-Cohe	8045.3	6.17	2	N	N
View Detail	Seal Beach Blvd OC (Caltrans Br	Seal Beach	CA	USA	TP-2A2	Steel Pipe Open	Compres	Static	112.5	48.0	Variable	Variable	Non-Cohe	3003.	.88	7	N	N
View Detail																0		

Source: FHWA

Figure 10. Query Results tab.

Sorting Tip: *Click the desired column heading to sort the columns of the query result. View additional columns using the scroll bar at the bottom of the application window.*

4.2. Viewing Load Test Data

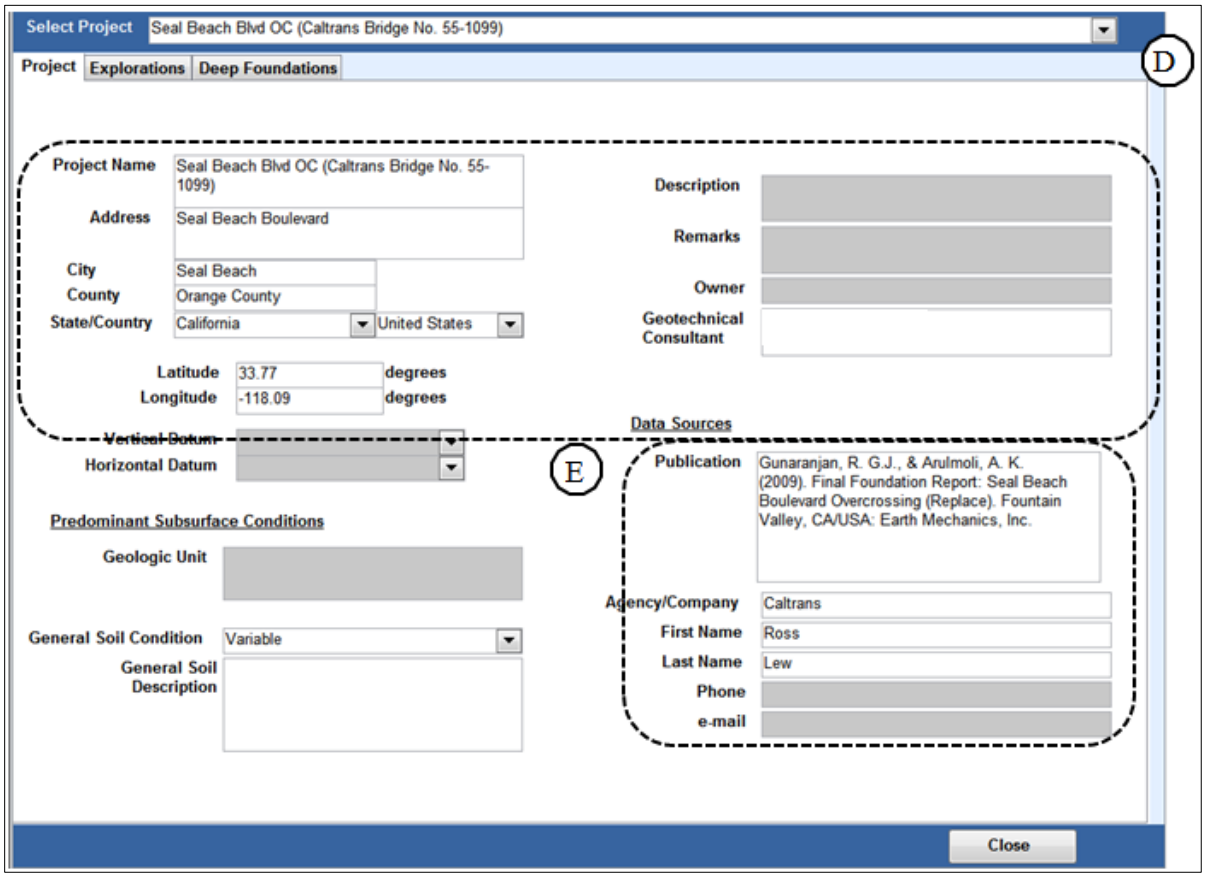
After performing a database query, the View Details and View Details, All buttons (figures 10-A and -C) open a new window displaying the desired load test data. The View Details button provides the results from a single project, whereas the View Details, All button provides the records from all projects returned by the query.

The new window provides available project, exploration, and deep foundation information on separate tabs and sub-tabs as shown in figure 11. The user can move between selected projects using the Select Project dropdown list in figure 11-D. Projects are listed in alphanumerical order.

The load test query results list, as shown in figure 10, will include only deep foundations that meet the criteria that the user specified on the database query tabs. However, View Details and View Details, All return load test data by project and therefore may include data that does not meet the criteria. For example, a user could search for open-end steel pipe piles loaded in tension. The query results from the Get Load Test(s) button will retrieve a list of tension load tests on open-end steel pipe piles. However, View Details and View Details, All would include projects with the tension load tests on open-end steel pipe piles, as well as all other load test and deep foundation types performed for those projects with tension load tests on open-end steel pipe piles (i.e. the dataset may include compression load tests along with the tension load tests). The key takeaway is that the list of projects will conform to the desired query criteria; however, the projects may contain additional explorations, deep foundations, and load tests that were not included in the query criteria.

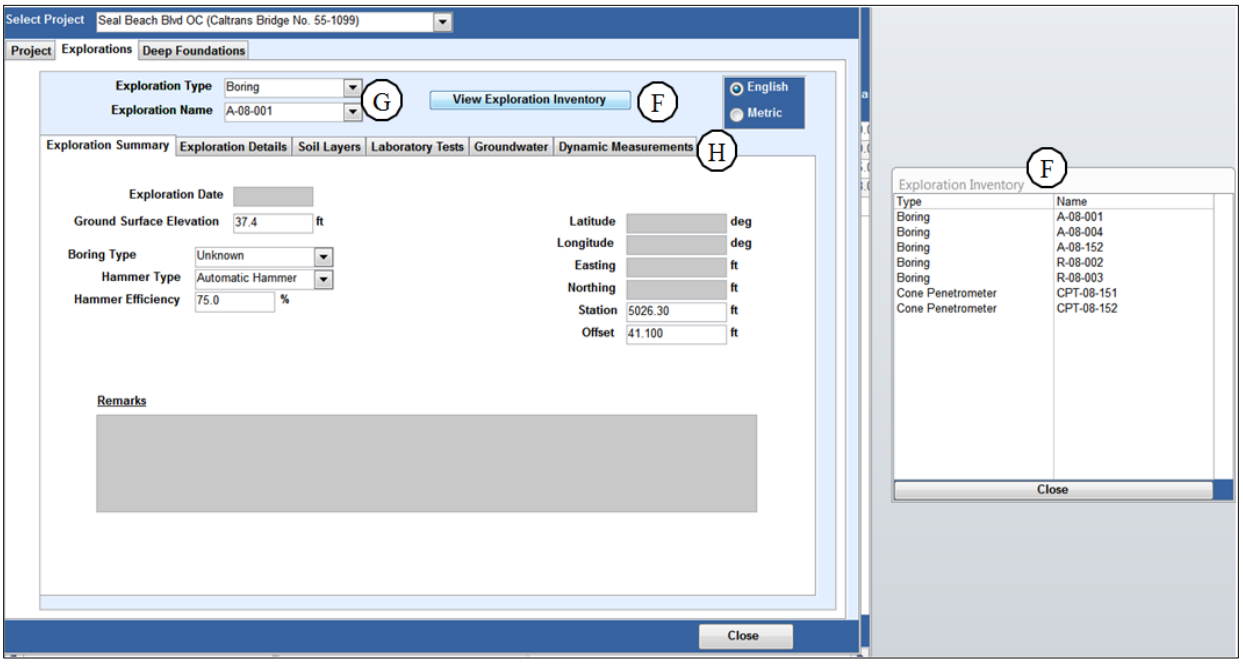
4.2.1. Project

This tab provides location, data source, and general project information that is applicable to all deep foundations and load tests within a project. The information contained on the Project tab within the View Details tab is shown on figure 11.



Source: FHWA

Figure 11. Project tab within View Details.



Source: FHWA

Figure 12. Explorations tab within View Details.

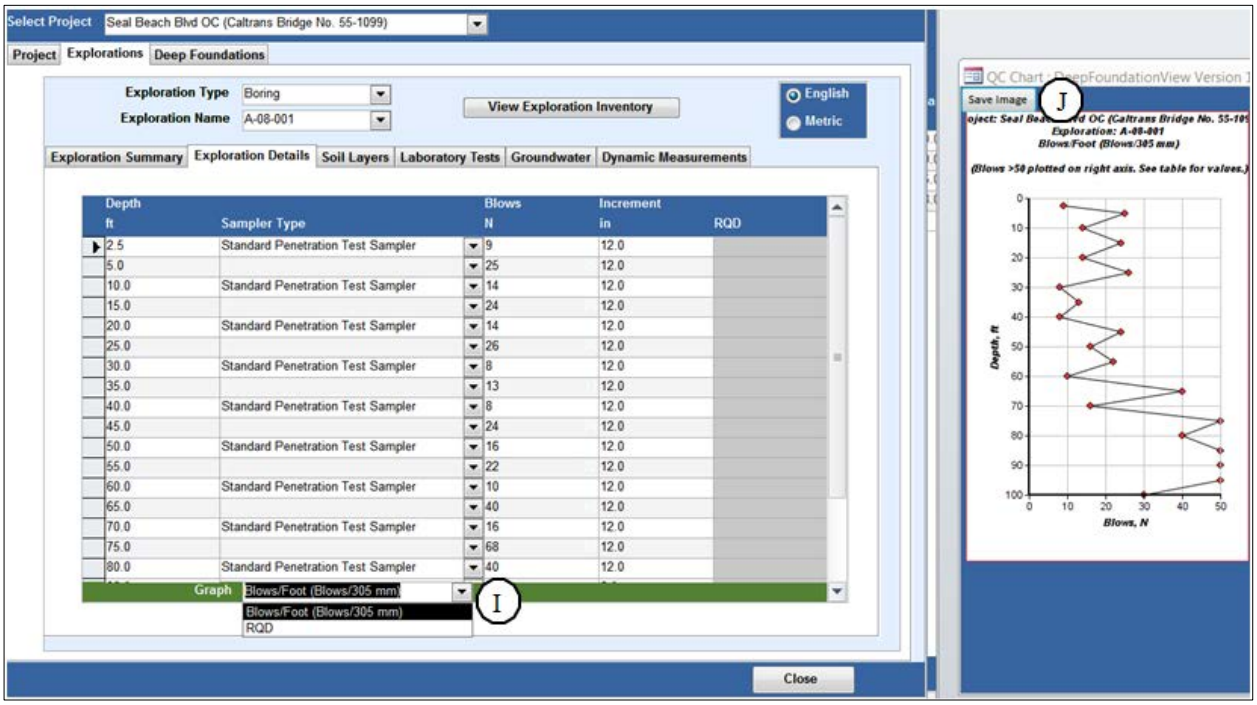
4.2.2. Explorations

Figure 12 shows the information contained on the Explorations tab. Clicking the View Exploration Inventory button (figure 12-F) provides a complete listing of the available exploration types for a specific project. Alternatively, clicking the dropdown arrows for exploration type and exploration name (figure 12-G) reveals the exploration inventory one by one. Additional exploration information for the selected exploration can be reviewed by clicking on any of the tabs shown at figure 12-H. The available types of exploration information include exploration details (standard penetration test (SPT), cone penetration test (CPT), etc.); soil layers; laboratory tests; groundwater; and dynamic measurements (shear wave, compression wave velocities, etc.). Different tabs are available depending on the exploration type.

Within the Exploration Details tab, the graphical plotting utility allows users to create plots of SPT blow count as a function of depth (figure 13-I) for borings, or any of the available parameters for the CPT (figure 14-K) explorations. Images for any of these plots are exported to a file by clicking the Save Image button (figures 13-J and 14-L). The digital data is exported using the Export Data function discussed in Section 4.3.

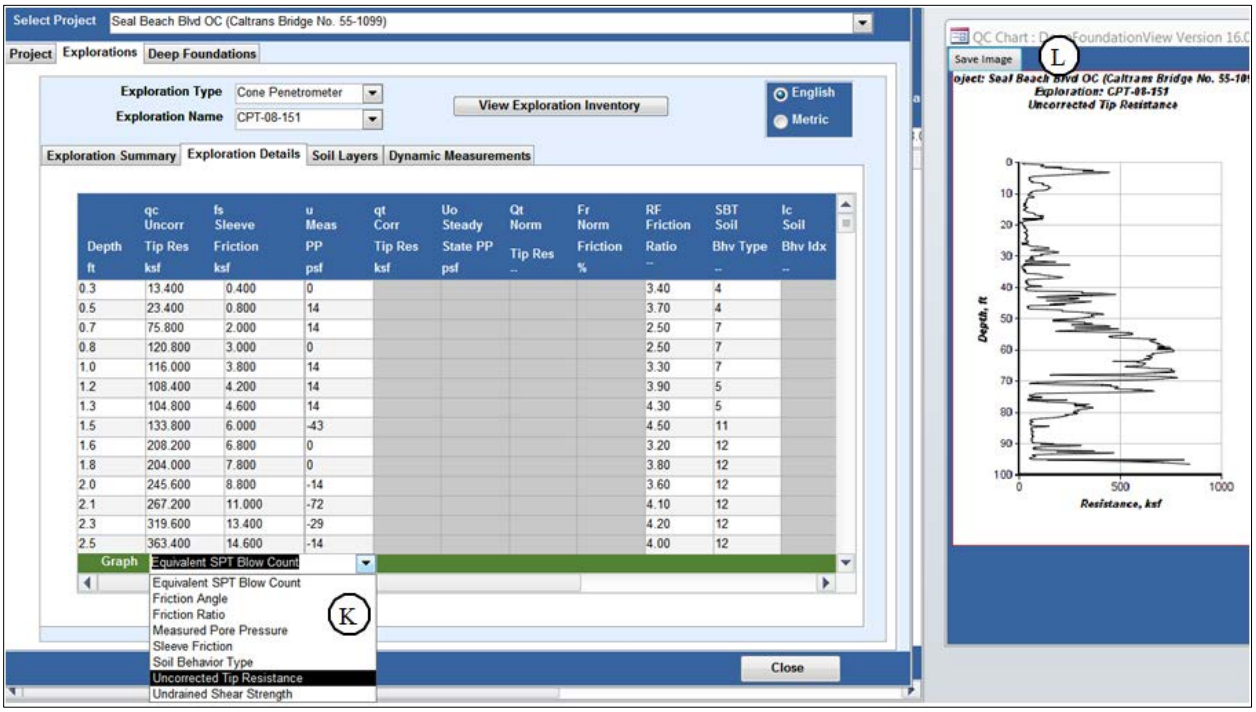
Native digital data for the various in situ tests was generally not available during data collection of the LDOEP study. The plots of SPT blow count are based on the numerical values shown in the Exploration Details tab. The LDOEP study CPT data was primarily

digitized from plots in publications. There may be slight variation between the original publication and the digitized CPT Test values included in the database. The source of the DFLTD data is unknown.



Source: FHWA

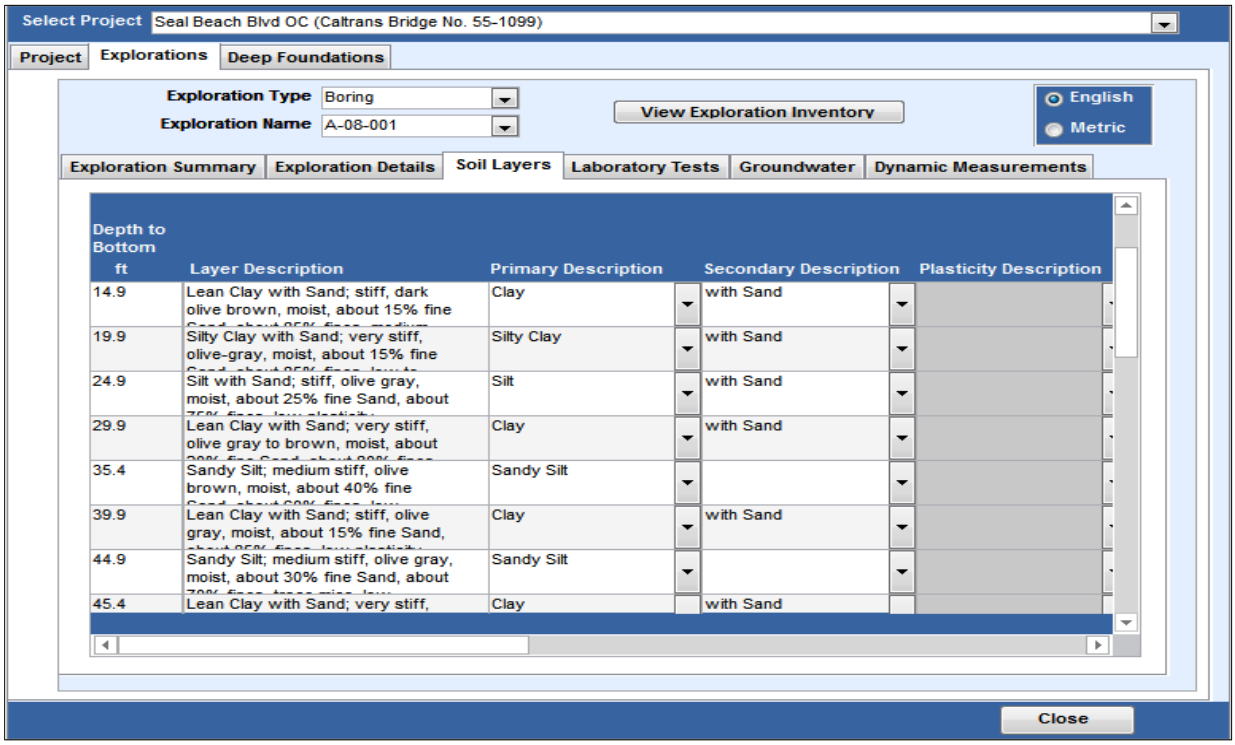
Figure 13. Exploration details within Explorations Tab. Standard Penetration Test.



Source: FHWA

Figure 14. Explorations Details within Explorations Tab. Cone Penetration Test.

Figure 15 shows the soil layers tab, where generalized soil layering is provided for the project. The generalized soil layering information may include engineering and index properties that can be viewed by scrolling right in the tab.

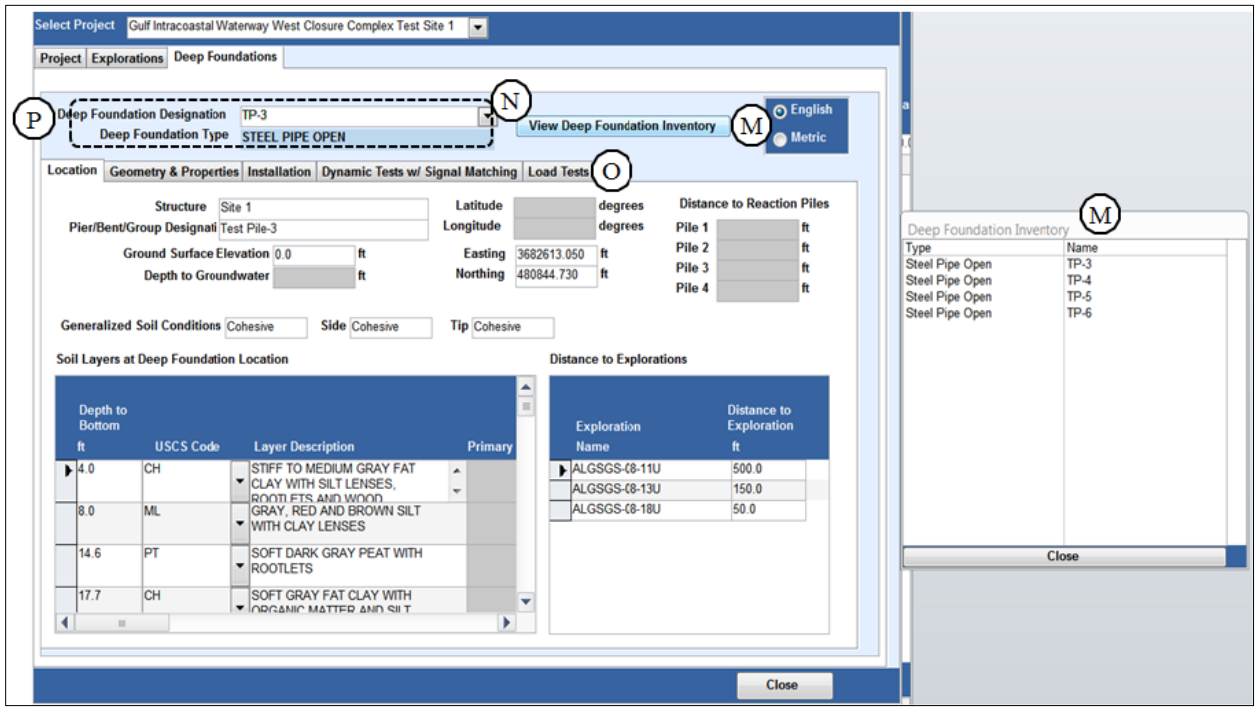


Source: FHWA

Figure 15. Soil Layers tab within Explorations.

4.2.3. Deep Foundations

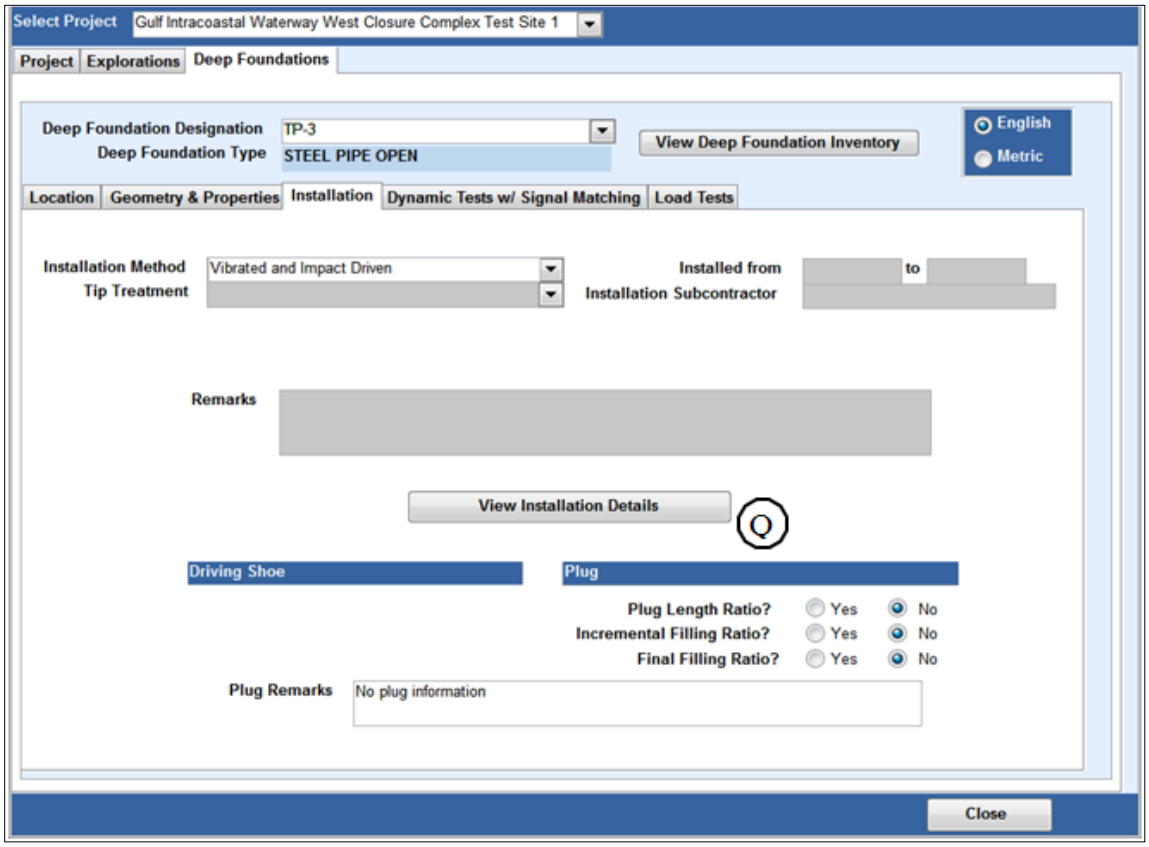
Figure 16 shows the information contained on the Deep Foundations tab. Clicking on the View Deep Foundation Inventory button (figure 16-M) provides a complete listing of the available deep foundation types and their respective designations for a specific project. Alternatively, clicking the dropdown arrows for deep foundation designation (figure 16-N) reveals the deep foundations inventory one by one. The available Deep Foundation information for the selected project can be reviewed by clicking on any of the tabs shown in figure 16-O. The available types of deep foundation information include location, geometry and properties, installation, dynamic tests, and load tests.



Source: FHWA

Figure 16. Deep Foundations tab within View Details.

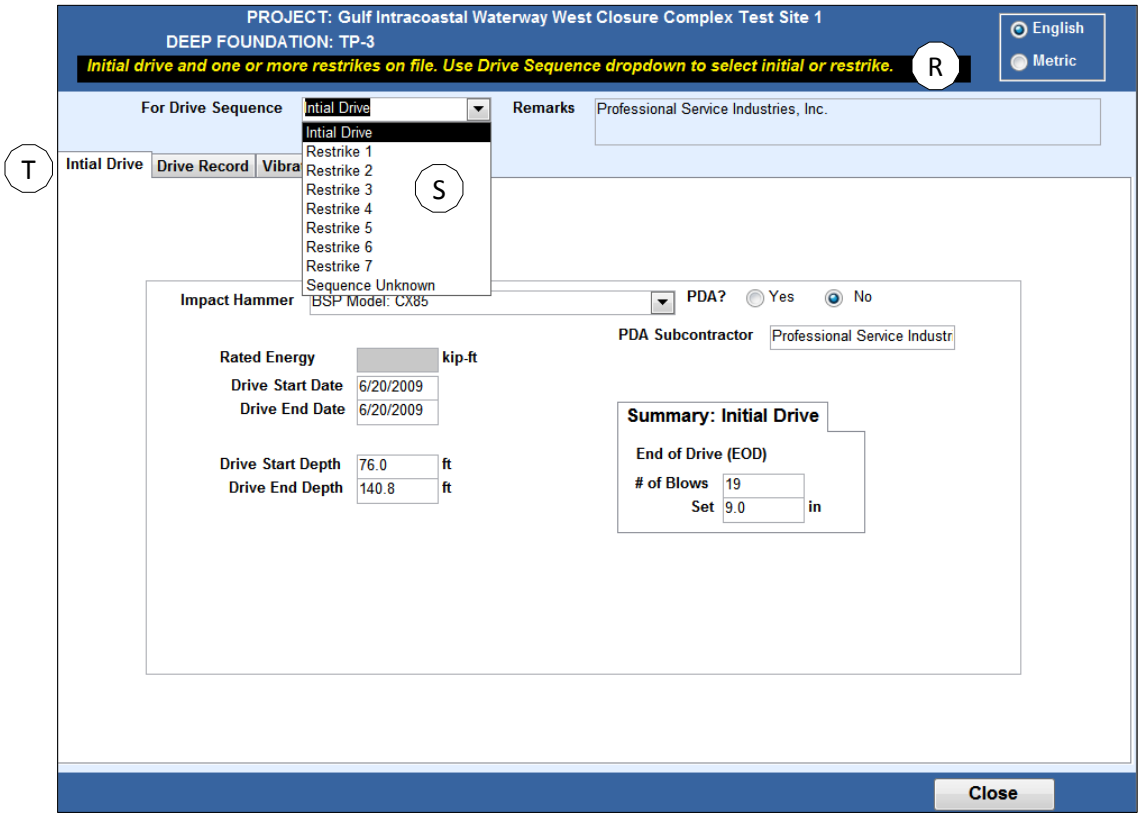
Figure 17 shows a view of the Installation tab for piles. The available fields depend on the deep foundation type. The View Installation Details button (figure 17-Q) opens a new window of installation details.



Source: FHWA

Figure 17. Installation tab within Deep Foundations.

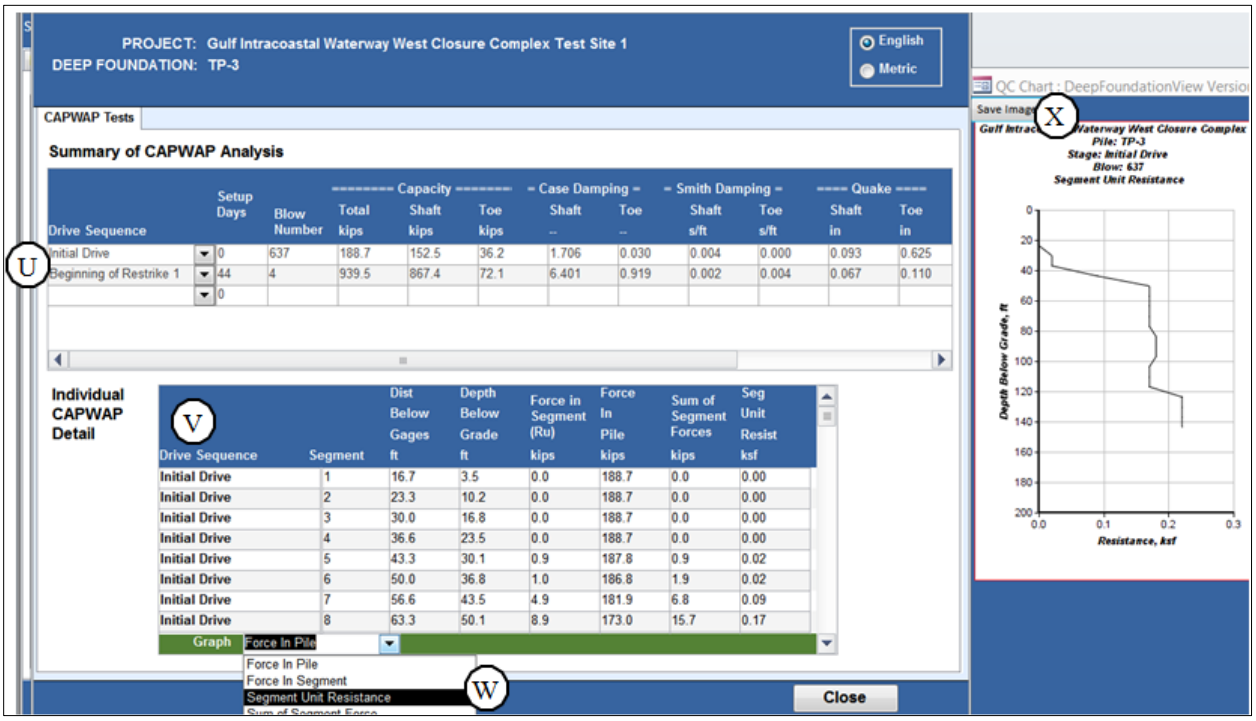
Figure 18 shows the Installation Details for a driven pile. The bar across the top of the window (figure 18-R) indicates the number of drive sequences on file that can be individually selected using the Drive Sequence dropdown list (figure 18-S). The initial drive/restrike information, driving record, and vibratory hammer information are available by clicking the corresponding tabs (figure 18-T).



Source: FHWA

Figure 18. View Installation Details.

Figure 19 provides a sample of the CAse Pile Wave Analysis Program (CAPWAP) Analysis data. To access this data, click on the Dynamic Test w/Signal Matching tab (figure 16-O), and then click the View CAPWAP Test button. The upper table provides a summary of the CAPWAP analyses with the total capacity and key parameters for each blow or drive sequence analyzed (figure 19-U). The lower table provides the detailed CAPWAP data along the pile length for an individual blow or drive sequence (figure 19-V). The detailed CAPWAP lower table data can be viewed for an individual drive sequence by clicking the respective row of the upper table (figure 19-U). Graphs of the Force in Pile, Force in Segment, Segment Unit Resistance, and Sum of Segment Force are created using the graphing utility (figure 19-W), if data is available. Images for any of these plots are exported to a file by clicking the Save Image button (figure 19-X). The digital data is exported using the Export Data function discussed in Section 4.3.

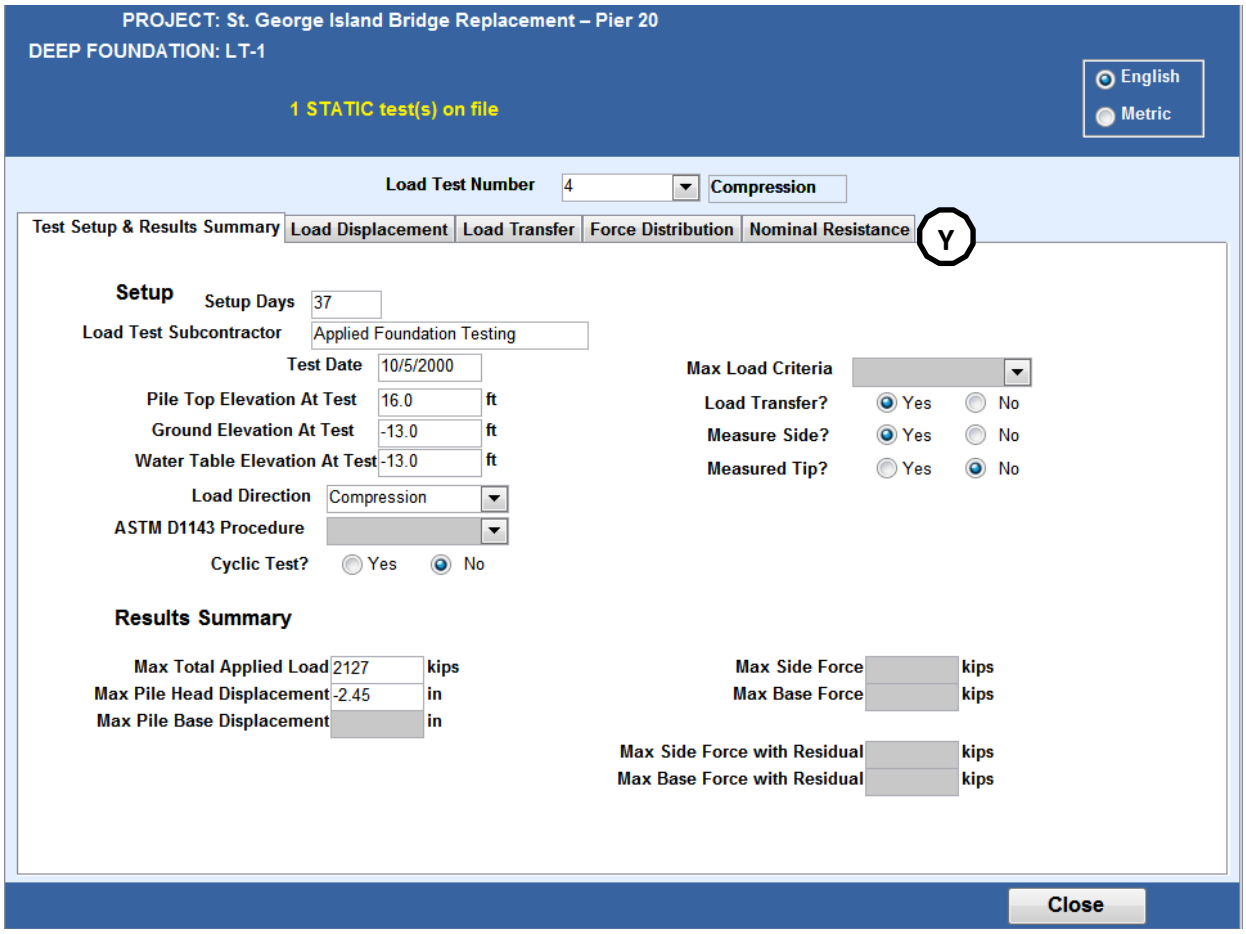


Source: FHWA

Figure 19. CAPWAP Test Results within Dynamic Tests w/ Signal Matching tab.

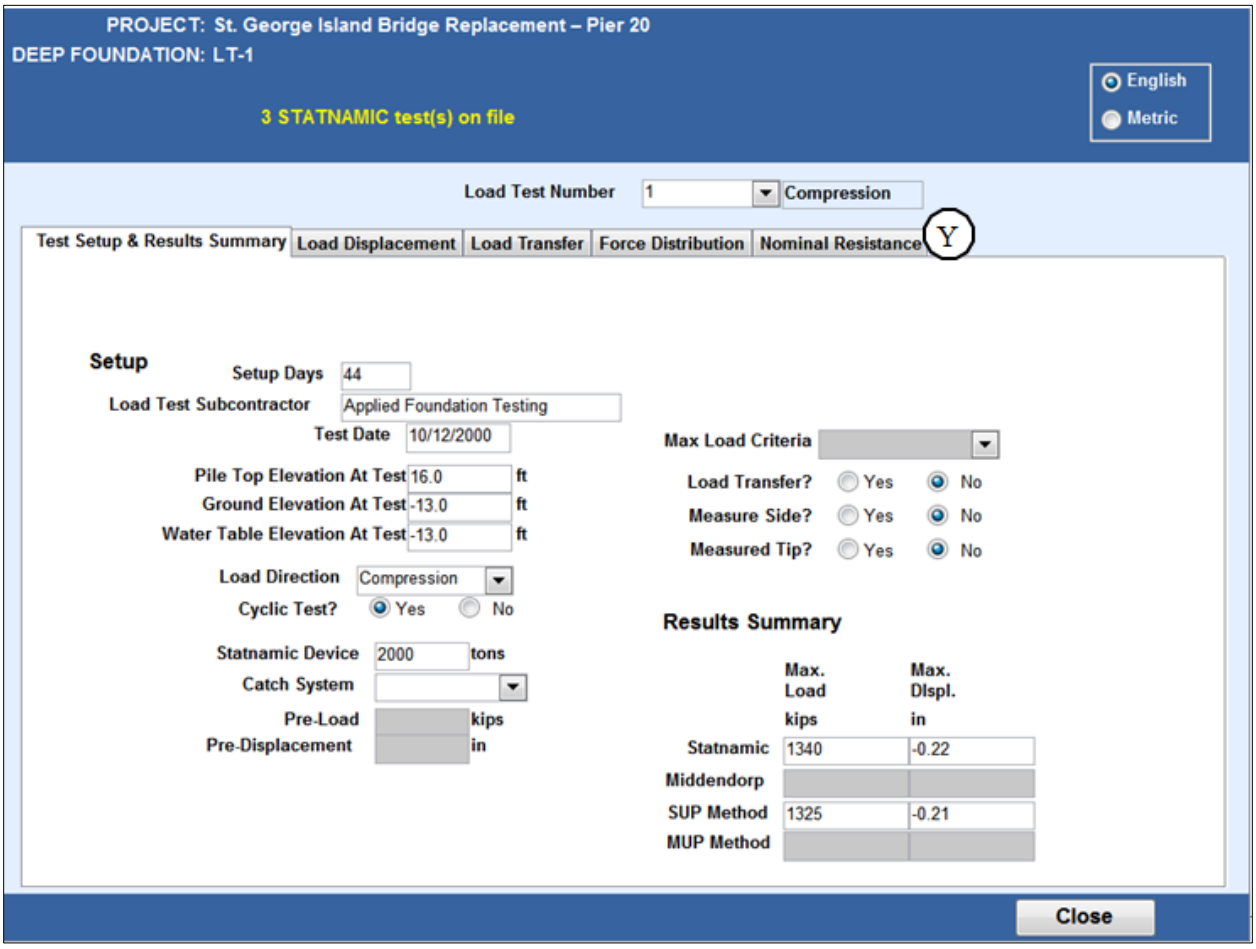
Load Tests

The Load Tests subtab (figure 16-O), within the Deep Foundations tab, contains information related to Static, Statnamic, and Osterberg axial load testing. Figures 20 and 21 provide examples of the Static and Statnamic load test results that are contained within the tab. Both the Static and Statnamic load test results (figure 20-Y and 21-Y) include tabs of Test Setup & Summary, Load Displacement, Load Transfer, Force Distribution, and Nominal Resistance. Examples of load displacement, load transfer, and force distribution data, including graphing options, are shown in figures 22, 23, and 24 for static load tests, and in figures 25, 26, and 27 for Statnamic load tests. The Osterberg test tab contains the same Load Displacement, Load Transfer, Force Distribution, and Nominal Resistance tabs, as well as information about the Osterberg capacity.



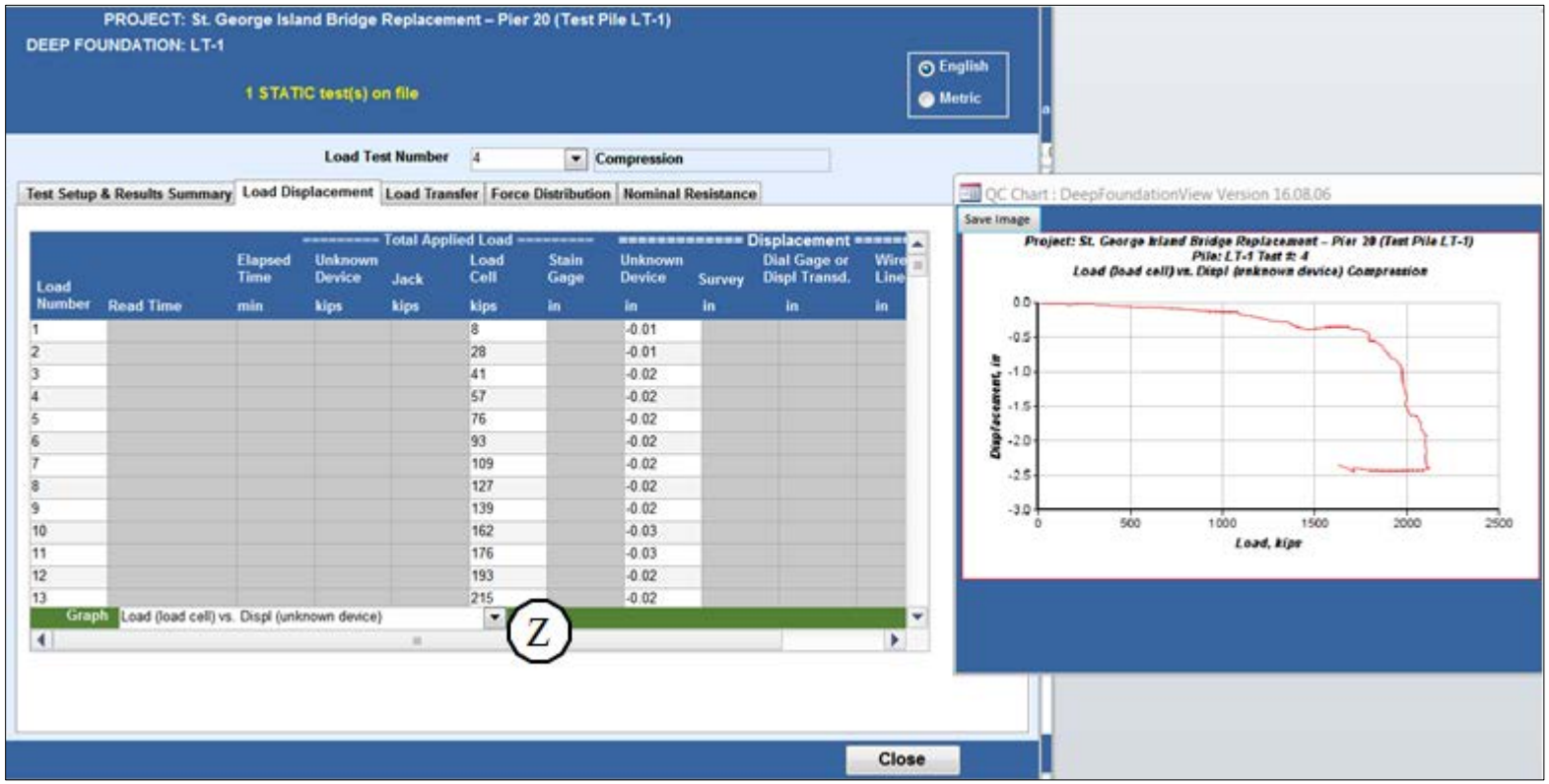
Source: FHWA

Figure 20. Load Test Results within Load Test tab. Static Load test.



Source: FHWA

Figure 21. Load Test Results within Load Test tab. Statnamic Load Test.



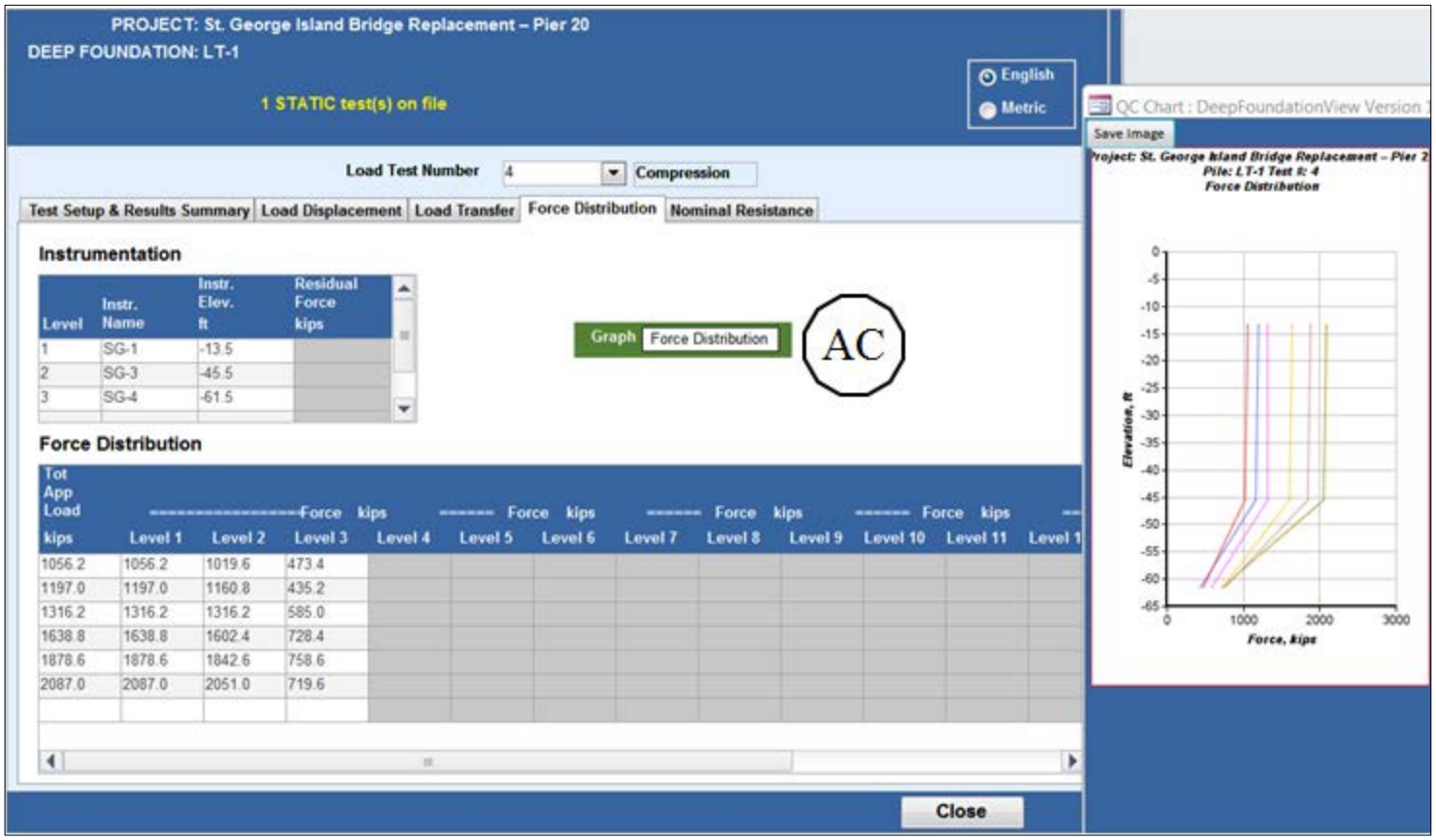
Source: FHWA

Figure 22. Static Load Test Graphics Options within Load Test tab. Load Displacement tab.

Graphs are generated using the dropdown lists shown in figures 22-Z, 23-AA and 23-AB, and 24-AC. The available plotting options for base resistance are shown in figure 23-AB. Side resistance transfer curves will be plotted for all available levels similar to figure 26-AD. The plotting options available for the static load test data are also available for the Statnamic and Osterberg cell load tests data.

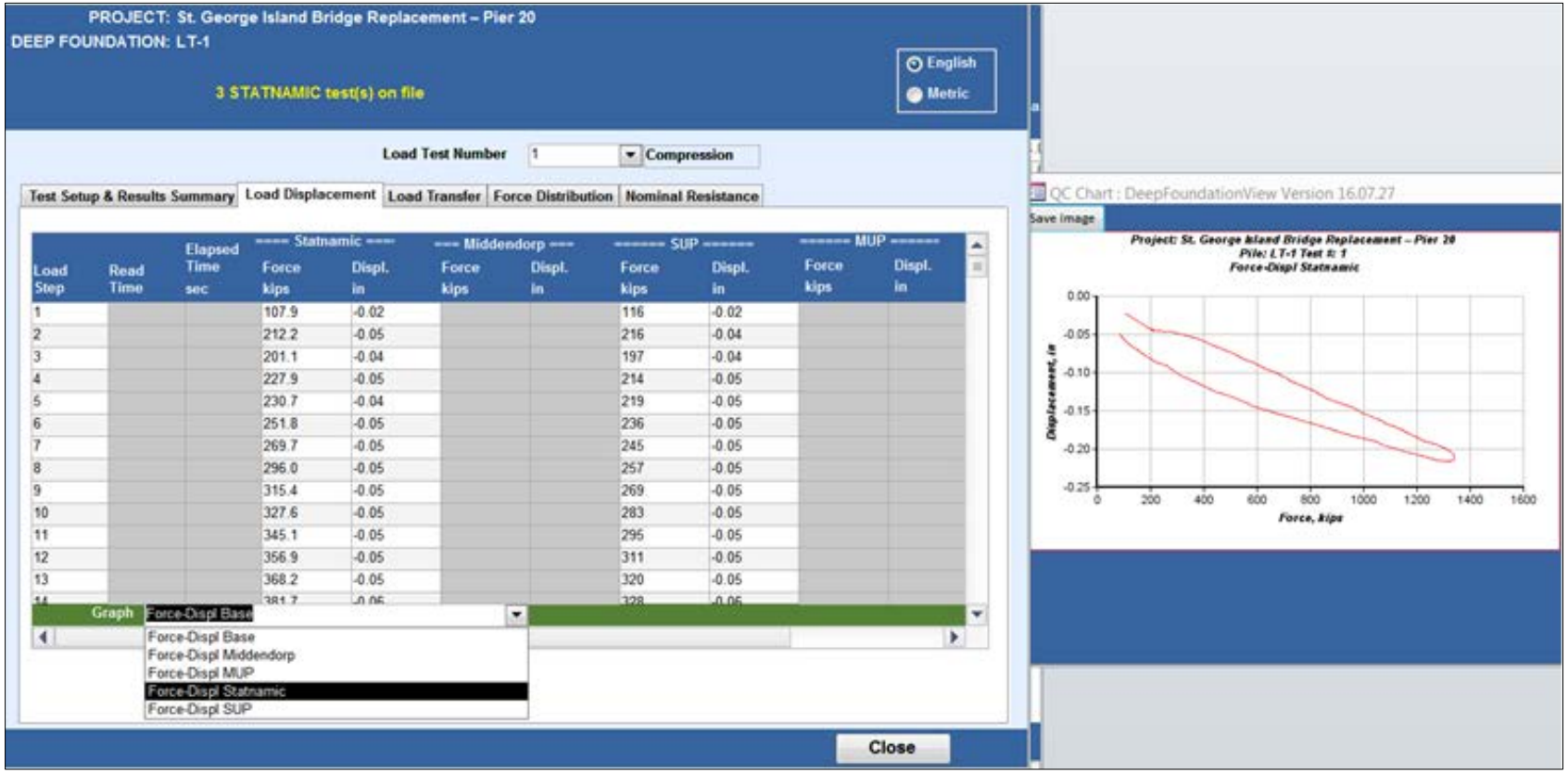
Source: FHWA

Figure 23. Static Load Test Graphics Options within Load Tab test. Load Transfer tab.



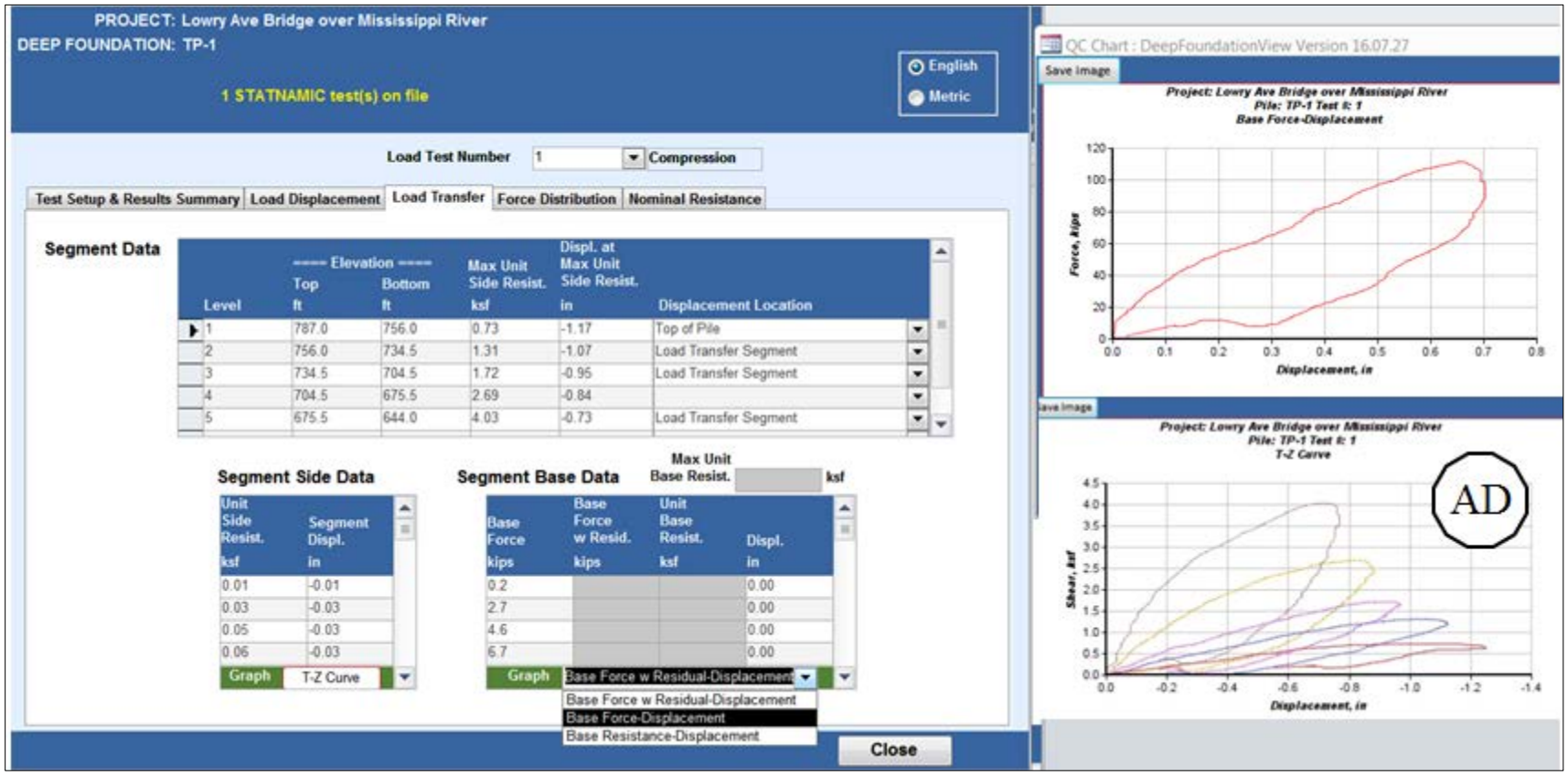
Source: FHWA

Figure 24. Static Load Test Graphics Options within Load Test tab. Force Distribution tab.



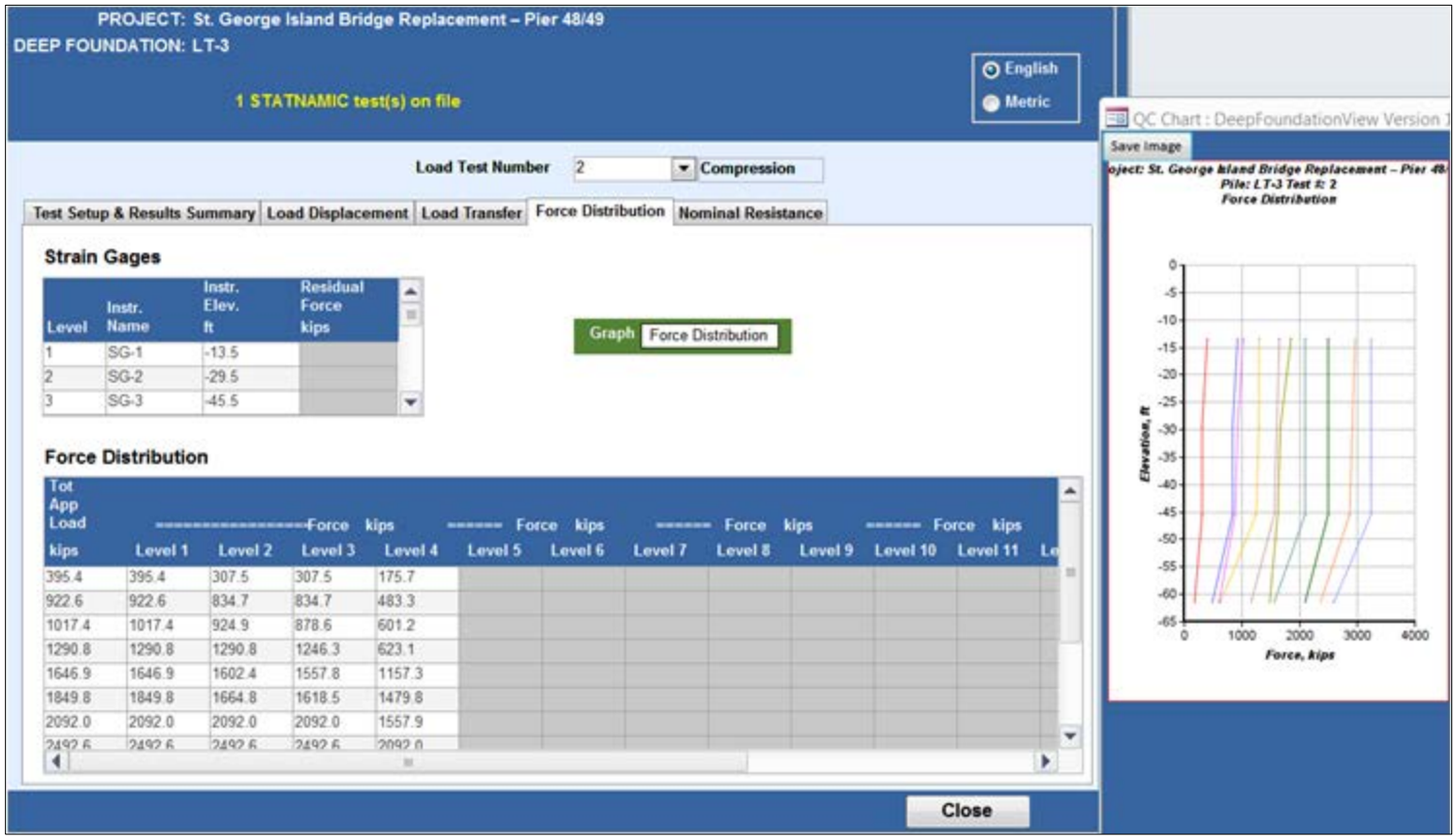
Source: FHWA

Figure 25. Statnamic Test Graphics Options with Load Test tab. Load Displacement Tab.



Source: FHWA

Figure 26. Statnamic Test Graphics Options within Load Test tab. Load Transfer tab.



Source: FHWA

Figure 27. Statnamic Test Graphics Options within Load Test tab. Force Distribution tab.

The database sign convention is positive for compressive loads and upward displacement. Tension loads and downward displacement are negative. This sign convention is used for the LDOEP study data. The majority of the previous DFLTD data follow this sign convention with some variations for individual cases.

Native digital data for the static and Statnamic load tests was generally not available during data collection of the LDOEP study. The load displacement, load transfer, and force distribution data was digitized from plots in the available publications. There may be some slight variation between the original publication and the digitized values included in the database.

4.3. Export List and Export Data

Query results from the Get Load Test(s) button can be exported using the Export List and Export Data buttons shown in figure 10-C. Both buttons export to Microsoft Excel format files.

The Export List file contains all the fields shown in figure 10 for the selected projects. The units for the Export List file will be in either English or metric as selected on the query results page. Row 1 of the Microsoft Excel file contains the column label and corresponding units at the end of the label as appropriate. Subsequent rows list the project details as shown in figure 10. Some row entries contain abbreviations; an alphabetical list of these abbreviations and associated descriptions is provided in the appendix, in table 2.

The Export Data button generates Microsoft Excel files that contain the data for the selected entries. One Microsoft Excel workbook is created for each project name. Ten or more worksheets are created within each project workbook to organize the large amount of project information. The worksheet names correspond to the database tables listed in figure 28 and table 1 in the appendix, with columns or rows for each of the table fields listed. Some entries contain abbreviations; an alphabetical list of these abbreviations and associated descriptions is provided in table 2 in the appendix.

Worksheet Navigation Tip: *To quickly cycle through worksheets press and hold down the Ctrl key on the keyboard and repeatedly press and release the PageDown (or PageUp) key on the keyboard.*

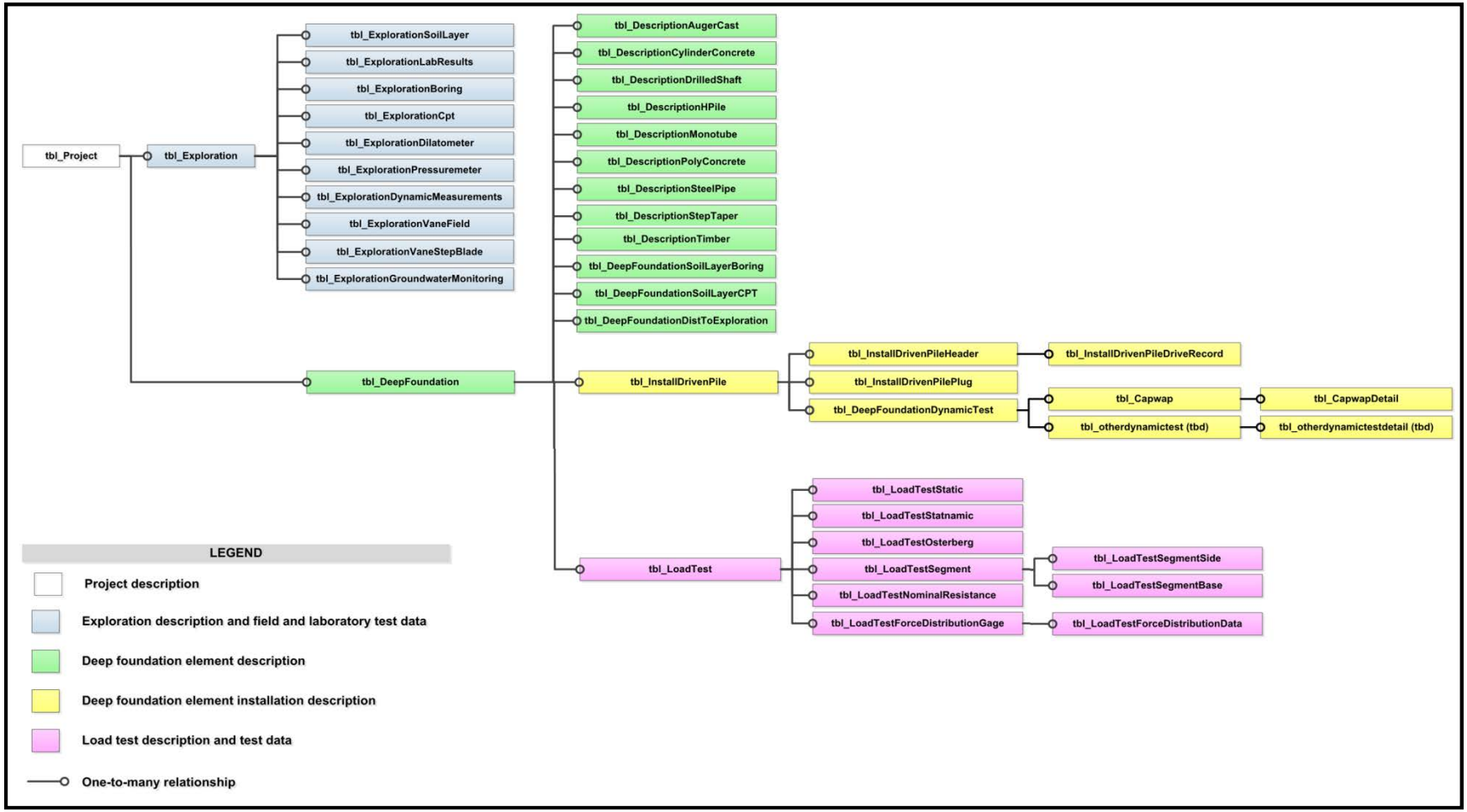
Alternatively, right click over the group of arrows ( *) in the lower left corner of a worksheet to reveal a list of all available worksheets; click on the desired worksheet to open it.*

The worksheet column and row labels contain the corresponding units at the end of the label as appropriate. The units will be in either English or metric as selected on the query results page.

Native digital data for the various in situ and load tests was generally not available. The in situ and load test data was digitized from plots in publications. Additionally, some projects include multiple in situ tests such as the CPT, with a single CPT containing over 1,000 data points. The Filter command, under the Data Menu in Microsoft Excel, can be used to quickly filter the data to present only the desired CPT, load test, load transfer curve, etc.

The database sign convention is positive for compressive loads and upward displacement. Tension loads and downward displacement are negative. The sign convention is used for the LDOEP study data. The majority of the previous DFLTD data follow this sign convention with some variations for individual cases.

Appendix



Source: FHWA

Figure 28. Database Table Relationships.

Table 1. List of Field Names

PROJECT TABLE	
Project	KeyProject
	SourceDb
	ProjectName
	Address
	City
	County
	StateCode
	CountryCode
	USCSPredominant
	ASTMPredominant
	ASTMLegacy
	Latitude
	Longitude
	VerticalDatumCode
	HorizontalDatumCode
	GeologicProvinceCode
	GeologicUnit
	GeneralSoilDescription
	ProjectID
	Title
	Remarks
	Owner
	DataSourceCompanyAgency
	DataSourceFirstname
	DataSourceLastname
	DataSourcePhone
	DataSourceEmail
	PrimeConsultant
	GeotechnicalConsultant
	GeneralContractor
	Publication
	CreatedBy
	AddDate
	ModifiedBy
	ModifiedDate
EXPLORATION TABLES	
Exploration	KeyProject
	KeyExplorationName
	KeyExplorationType
	ExplorationSubType
	ExplorationDate
	ExplorationHammerTypeCode
	HammerEfficiency
	ConeDiameter
	ConeAngle
	ConeBaseArea
	RodDiameter
	ConeType
	CPTRatioa
	CPTRatiob

	PMTInstallMethodCode
	PMTDeviceTypeCode
	Remarks
	DepthToWaterStatic
	MeasuringDepthWaterStatic
	DepthToWaterArtesian
	ArtesianMeasuringDepth
	FreshOrSaltWater
	GroundElevation
	Easting
	Northing
	Latitude
	Longitude
	Station
	Offset
	USCSCodePredominant
	ASTMCodePredominant
	CreatedBy
	AddDate
	ModifiedBy
	ModifiedDate
ExplorationBoring	KeyProject
	KeyExplorationName
	KeyDepth
	SamplerTypeCode
	FieldBlowCount
	BlowIncrement
	BlowEquivalent
	RQD
	USCSCodeLegacy
	ASTMCodeLegacy
	GeologicUnitCodeLegacy
	SptPhiLegacy
	SptCohesLegacy
	CreatedBy
	AddDate
	ModifiedBy
	ModifiedDate
ExplorationPressuremeter	KeyProject
	KeyExplorationName
	KeyDepth
	PressureLimiting
	LateralStress
	K0
	InitialModulus
	ReloadModulus
	ShearModulus
	UndrainedShearStrength
	FrictionAngle
	DilationAngle
	CreatedBy
	AddDate
	ModifiedBy

	ModifiedDate
ExplorationVaneField	KeyProject
	KeyExplorationName
	KeyDepth
	PeakShearStrength
	ResidualShearStrength
	RemoldedShearStrength
	CreatedBy
	AddDate
	ModifiedBy
	ModifiedDate
ExplorationVaneStepBlade	KeyProject
	KeyExplorationName
	KeyDepth
	LateralPressure
	K0
	CreatedBy
	AddDate
	ModifiedBy
	ModifiedDate
ExplorationGroundwaterMonitoring	KeyProject
	KeyExplorationName
	KeyDateTime
	DepthToWater
	CreatedBy
	AddDate
	ModifiedBy
	ModifiedDate
ExplorationDynamicMeasurements	KeyProject
	KeyExplorationName
	KeyDepth
	ShearVelocity
	CompressionVelocity
	ShearModulus
	BulkModulus
	YoungsModulus
	PoissonsRatio
	CreatedBy
	AddDate
	ModifiedBy
	ModifiedDate
ExplorationLabResults	KeyProject
	KeyExplorationName
	KeyDepth
	USCSCode
	ASTMCode
	MoistureContent
	TotalUnitWeight
	DryDensity
	RelativeDensity
	UnitWeightMax
	UnitWeightMin
	LiquidLimit

	PlasticLimit
	PlasticityIndex
	D10
	D30
	D60
	PercentGravel
	PercentSand
	PercentFines
	PercentClayFraction
	Permeability
	Saturation
	CompressionIndex
	ReCompressionIndex
	VoidRatio
	CoefficientOfConsolidation
	CoeffficientOfCompression
	T90
	PreconsolidationPressure
	OCR
	ShearTestCode
	Cohesion
	Phi
	EffectCohesion
	EffectPhi
	ShearStrLegacy
	ModulusLegacy
	TypeModLegacy
	CreatedBy
	AddDate
	ModifiedBy
	ModifiedDate
ExplorationSoilLayerBoring	KeyProject
	KeyExplorationName
	KeyDepthToBottom
	USCSCode
	ASTMCode
	PrimarySoilDescriptionCode
	SecondarySoilDescriptionCode
	PlasticityDescriptionCode
	LayerDescription
	GeologicUnit
	BlowCountInterpreted
	BlowIncrement
	CohesionInterpreted
	FrictionAngleInterpreted
	CptqcInterpreted
	CptfsInterpreted
	UnitWeightInterpreted
	ShearVelocityInterpreted
	YoungsModulusInterpreted
	ShearModulusInterpreted
	KoInterpreted
	OCRInterpreted

	WaterContentInterpreted
	LLInterpreted
	PLInterpreted
	PIInterpreted
	RQDInterpreted
	CreatedBy
	AddDate
	ModifiedBy
	ModifiedDate
ExplorationSoilLayerCPT	KeyProject
	KeyExplorationName
	KeyDepthToBottom
	USCSCode
	ASTMCode
	PrimarySoilDescriptionCode
	SecondarySoilDescriptionCode
	PlasticityDescriptionCode
	LayerDescription
	GeologicUnit
	BlowCountInterpreted
	BlowIncrement
	CohesionInterpreted
	FrictionAngleInterpreted
	CptqcInterpreted
	CptfsInterpreted
	UnitWeightInterpreted
	ShearVelocityInterpreted
	YoungsModulusInterpreted
	ShearModulusInterpreted
	KoInterpreted
	preted
	WaterContentInterpreted
	LLInterpreted
	PLInterpreted
	PIInterpreted
	RQDInterpreted
	CreatedBy
	AddDate
	ModifiedBy
	ModifiedDate
DEEP FOUNDATION TABLES	
DeepFoundation	KeyProject
	KeyDeepFoundation
	PileDesignation
	PileType
	ConstructionMethodCode
	StructureNumber
	PierGroupNumber
	SacrificialOrProductionPile
	NumberOfSections
	GeometryCode
	TipTreatmentCode
	GroundElevation

	DepthToWater
	SoilTypeGen
	SoilTypeSide
	SoilTypeTip
	TopElevation
	TipElevation
	TotalLength
	EmbeddedLength
	PermanentCasedLength
	PermanentCasingBottomElevation
	DistanceToReactionPile1
	DistanceToReactionPile2
	DistanceToReactionPile3
	DistanceToReactionPile4
	BatterAngle
	InstallStartDate
	InstallEndDate
	InstallationSubcontractor
	Easting
	Northing
	Station
	Offset
	Latitude
	Longitude
	Remarks
	CreatedBy
	AddDate
	ModifiedBy
	ModifiedDate
DeepFoundationDistToExploration	KeyProject
	KeyDeepFoundation
	KeyExplorationName
	DistanceToExploration
	CreatedBy
	AddDate
	ModifiedBy
	ModifiedDate
tbl_DeepFoundationSection	KeySite
	KeyProject
	KeyDeepFoundation
	KeySectionNumber
	FoundationType
	ConstructionMethodCode
	SectionLength
	TopDepth
	BottomDepth
	TopElevation
	BottomElevation
	ModifiedBy
	AddDate
	ModifiedDate
	CreatedBy
DeepFoundationSoilLayer	KeyProject

	KeyDeepFoundation
	KeyDepthToBottom
	DepthToWater
	USCSCodeInterpreted
	ASTMCodeInterpreted
	PrimarySoilDescriptionCode
	SecondarySoilDescriptionCode
	PlasticityDescriptionCode
	LayerDescription
	GeologicUnit
	BlowCountInterpreted
	BlowIncrement
	CohesionInterpreted
	FrictionAngleInterpreted
	CptqcInterpreted
	CptfsInterpreted
	UnitWeightInterpreted
	ShearVelocityInterpreted
	YoungsModulusInterpreted
	ShearModulusInterpreted
	KoInterpreted
	OCRInterpreted
	WaterContentInterpreted
	LLInterpreted
	PLInterpreted
	PIInterpreted
	RQDInterpreted
	CreatedBy
	AddDate
	ModifiedBy
	ModifiedDate
DescriptionAugerCast	KeyProject
	KeyDeepFoundation
	Diameter
	CrossSectionArea
	MomentInertia
	ConcreteStrength
	ConcreteModulus
	WeightPerUnitLength
	ReinforcementCode
	ReinforcementTotalXArea
	ReinforcementYieldStrength
	ReinforcementModulus
	CreatedBy
	AddDate
	ModifiedBy
	ModifiedDate
DescriptionCylinderConcrete	KeyProject
	KeyDeepFoundation
	OuterDiameter
	InnerDiameter
	WallThickness

	CrossSectionArea
	MomentInertia
	WeightPerUnitLength
	CompositeModulus
	ConcreteStrength
	PrestressPressure
	PostTensionStress
	PrestressYN
	PostTensionYN
	ReinforcementYN
	CreatedBy
	AddDate
	ModifiedBy
	ModifiedDate
DescriptionDrilledShaft	KeyProject
	KeyDeepFoundation
	DiameterMain
	DiameterSocket
	PermanentCasingInnerDiameter
	PermanentCasingThickness
	PermanentCasingOuterDiameter
	CrossSectionArea
	MomentInertia
	ConcreteStrength
	ConcreteModulus
	WeightPerUnitLength
	ReinforcementCode
	ReinforcementTotalXArea
	ReinforcementPctXArea
	ReinforcementYieldStrength
	ReinforcementModulus
	ModifiedBy
	AddDate
	ModifiedDate
	CreatedBy
DescriptionHPile	KeyProject
	KeyDeepFoundation
	HpileCode
	HpileCodeOld
	WeightPerUnitLength
	CrossSectionArea

	DepthSection
	FlangeWidth
	FlangeDepth
	WebThickness
	CoatingArea
	MomentInertiaXX
	MomentInertiaYY
	SteelModulus
	SteelYieldStrength
	ModifiedBy
	AddDate
	ModifiedDate
	CreatedBy
DescriptionMonotube	KeyProject
	KeyDeepFoundation
	TopDiameter
	TipDiameter
	Gauge
	TaperAngle
	Modulus
	ModifiedBy
	AddDate
	ModifiedDate
	CreatedBy
DescriptionPolyconcrete	KeyProject
	KeyDeepFoundation
	CoreDiameter
	NumberOfSides
	SideLength
	EquivalentDiameter
	Perimeter
	CrossSectionArea
	MomentInertia
	WeightPerUnitLength
	ConcreteModulus
	ConcreteStrength
	PrestressPressure
	PrestressLegacy
	ReinforceLegacy
	CreatedBy
	AddDate

	ModifiedBy
	ModifiedDate
DescriptionSteelPipe	KeyProject
	KeyDeepFoundation
	WallThickness
	OuterDiameter
	InnerDiameter
	CrossSectionArea
	EndArea
	MomentInertia
	WeightPerUnitLength
	SteelModulus
	SteelYieldStrength
	ConcreteFilledYN
	ConcreteDepth
	ConcreteStrength
	ConcreteModulus
	ReinforcementTotalXArea
	ReinforcementPctXArea
	ReinforcementYieldStrength
	ReinforcementModulus
	CompositeModulus
	ArtificialPlugYN
	ArtificialPlugNote
	CreatedBy
	AddDate
	ModifiedBy
	ModifiedDate
DescriptionStepTaper	KeyProject
	KeyDeepFoundation
	Diameter
	Gauge
	ConcreteFilledYN
	SurfaceArea
	CrossSectionArea
	MomentInertia
	Modulus
	CreatedBy
	AddDate
	ModifiedBy
	ModifiedDate

DescriptionTimber	KeyProject
	KeyDeepFoundation
	TopDiameter
	TipDiameter
	MomentInertia
	Modulus
	TaperAngle
	WoodTypeCode
	Strength
	UnitWeight
	CreatedBy
	AddDate
	ModifiedBy
	ModifiedDate
DEEP FOUNDATION INSTALLATION TABLES	
InstallAugerCast	KeyProject
	KeyDeepFoundation
	AugerDiameter
	AugerPitch
	TotalTheoreticalVolume
	TotalGroutVolume
	TimeDrilling
	TimeGrouting
	InstallationRemarks
	CreatedBy
	AddDate
	ModifiedBy
	ModifiedDate
InstallAugerCastConcreteVolume	KeyProject
	KeyDeepFoundation
	KeyDeepFoundationDepth
	TheoreticalVolume
	MeasuredVolume
	CreatedBy
	AddDate
	ModifiedBy
	ModifiedDate
InstallDrilledShaft	KeyProject
	KeyDeepFoundation
	ConcretePlacementCode
	BottomCleanOutCode

	ShaftCaliperYN
	ConcreteVolumeYN
	InstallationRemarks
	CreatedBy
	AddDate
	ModifiedBy
	ModifiedDate
InstallDrilledShaftCaliper	KeyProject
	KeyDeepFoundation
	KeyDeepFoundationDepth
	Diameter
	CreatedBy
	AddDate
	ModifiedBy
	ModifiedDate
InstallDrilledShaftConcreteVolume	KeyProject
	KeyDeepFoundation
	KeyDeepFoundationDepth
	TheoreticalVolume
	MeasuredVolume
	CreatedBy
	AddDate
	ModifiedBy
	ModifiedDate
InstallDrivenPile	KeyProject
	KeyDeepFoundation
	InstallationRemark
	VibratoryHammerCode
	VibratoryStartDepth
	VibratoryEndDepth
	VibratoryStartDate
	VibratoryEndDate
	VibratoryTotalTime
	VibratoryPenetrationRatePer305mm
	CreatedBy
	AddDate
	ModifiedBy
	ModifiedDate
InstallDrivenPileHeader	KeyProject
	KeyDeepFoundation
	KeyDriveSequenceCode

	ImpactHammerCode
	ImpactHammerName
	RatedEnergyEng
	RatedEnergyMet
	PDAYN
	PDASubcontractor
	DateDriveStart
	DateDriveEnd
	DriveNumberOfDays
	DepthDriveStart
	DepthDriveEnd
	NumberBlowsBOD
	SetBOD
	NumberBlowsEOD
	SetEOD
	HelmetWeight
	PileCushionMaterial
	PileCushionArea
	PileCushionThickness
	PileCushionModulus
	InstallationRemark
	CreatedBy
	AddDate
	ModifiedBy
	ModifiedDate
InstallDrivenPileDriveRecord	KeyProject
	KeyDeepFoundation
	KeyDriveSequenceCode
	KeyDeepFoundationDepth
	TimeMeasured
	BlowsPerIncrement
	BlowIncrement
	Stroke
	PDABlowDepth
	PDABlowNumber
	PDABlows
	PDACSXStress
	PDACSIStress
	PDAFMXForce
	PDAMaxTransferedEnergy
	PDAETREnergyTransferRatio

	PDAETHPotentialEnergyTransferRatio
	PDACaseCapacityJc0
	PDACaseCapacityJc1
	PDACaseCapacityJc2
	PDACaseCapacityJc3
	PDACaseCapacityJc4
	PDACaseCapacityJc5
	PDACaseCapacityJc6
	PDACaseCapacityJc7
	PDACaseCapacityJc8
	PDACaseCapacityJc9
	Remarks
	ModifiedBy
	AddDate
	ModifiedDate
	CreatedBy
InstallDrivenPilePlug	KeyProject
	KeyDeepFoundation
	DrivingShoeInnerDiameter
	DrivingShoeOuterDiameter
	PlugLengthRatioYN
	IncrementalFillingRatioYN
	FinalFillingRatioYN
	PlugRemarks
	CreatedBy
	AddDate
	ModifiedBy
	ModifiedDate
DeepFoundationDynamicTest	KeyProject
	KeyDeepFoundation
	CreatedBy
	AddDate
	ModifiedBy
	ModifiedDate
Capwap	KeyProject
	KeyDeepFoundation
	KeyBODEODCode
	KeyBlowNumber
	Remarks
	SetupDays
	CapacityTotal

	CapacityShaft
	CapacityToe
	UnitResistanceToe
	CaseDampingShaft
	CaseDampingToe
	SmithDampingShaft
	SmithDampingToe
	QuakeShaft
	QuakeToe
	UnldLegacy
	CsknLegacy
	CtoeLegacy
	LsknLegacy
	LtoeLegacy
	SkdpLegacy
	BtdpLegacy
	MsknLegacy
	MtoeLegacy
	TgapLegacy
	PlugLegacy
	CreatedBy
	AddDate
	ModifiedBy
	ModifiedDate
CapwapDetail	KeyProject
	KeyDeepFoundation
	KeyBODEODCode
	KeyBlowNumber
	KeySegment
	DistanceBelowGages
	DepthBelowGrade
	RuForceInSegment
	ForceInPile
	SumRuSumSegmentForcesSide
	SegmentUnitResistance
	CreatedBy
	AddDate
	ModifiedBy
	ModifiedDate
LOAD TEST TABLES	
LoadTest	KeyProject

	KeyDeepFoundation
	KeyLoadTest
	TestDate
	SetupDays
	LoadTestSubcontractor
	LoadTestCode
	LoadTypeCode
	LoadDirectionCode
	ASTMProcedureCode
	MaxLoadCriteriaCode
	FailCriteriaYN
	CyclicTestYN
	LoadXferDataYN
	MeasuredSideYN
	MeasuredTipYN
	PileTopElevAtTest
	GroundElevAtTest
	WaterTableAtTest
	StaticTotalLoadApplied
	StaticTotalDisplacement
	StaticSideForce
	StaticBaseForce
	StaticSideForceWithResidual
	StaticBaseForceWithResidual
	StaticBaseDisplacement
	StatnamicTestIDLegacy
	StatnamicDevice
	StatnamicCatchSystem
	StatnamicTotTime
	StatnamicPreLoad
	StatnamicPreDisplacement
	StatnamicMaxLoad
	StatnamicMaxDisplacement
	StatnamicMaxLoadMiddendorp
	StatnamicMaxDisplacementMiddendorp
	StatnamicMaxLoadSUP
	StatnamicMaxDisplacementSUP
	StatnamicMaxLoadMUP
	StatnamicMaxDisplacementMUP
	MaxUnitBaseResistance
	OCell1RatedCapacity

	OCell1Depth
	OCell1MaxUniDirectionalForce
	OCell1MaxUpDisplacement
	OCell1MaxDownDisplacement
	OCell1Remarks
	OCell2RatedCapacity
	OCell2Depth
	OCell2MaxUniDirectionalForce
	OCell2MaxUpDisplacement
	OCell2MaxDownDisplacement
	OCell2Remarks
	OCell3RatedCapacity
	OCell3Depth
	OCell3MaxUniDirectionalForce
	OCell3MaxUpDisplacement
	OCell3MaxDownDisplacement
	OCell3Remarks
	OCellMaxTopLoad
	OCellMaxTopDisplacement
	OCellMaxTipLoad
	OCellMaxTipDisplacement
	StaticLegacy
	LoadTestRemarks
	CreatedBy
	AddDate
	ModifiedBy
	ModifiedDate
LoadTestStatic	KeyProject
	KeyDeepFoundation
	KeyLoadTest
	KeyLoadStep
	ReadTime
	ElapsedTime
	TotalAppliedLoadGeneric
	TotalAppliedLoadCell
	TotalAppliedLoadJack
	TotalAppliedLoadStrainGage
	DisplGeneric
	DisplPileHeadSurvey
	DisplDialGage
	DisplWireLine

	DisplLiquidLevelGage
	CreatedBy
	AddDate
	ModifiedBy
	ModifiedDate
LoadTestStatnamic	KeyProject
	KeyDeepFoundation
	KeyLoadTest
	KeyLoadStep
	ReadTime
	ElapsedTIme
	StatnamicForce
	StatnamicDisplacement
	StatnamicForceMiddendorp
	StatnamicDisplacementMiddendorp
	StatnamicForceSUP
	StatnamicDisplacementSUP
	StatnamicForceMUP
	StatnamicDisplacementMUP
	StatnamicForceBase
	StatnamicDisplacementBase
	ModifiedBy
	AddDate
	ModifiedDate
	CreatedBy
LoadTestOsterberg	KeyProject
	KeyDeepFoundation
	KeyLoadTest
	KeyLoadStep
	ReadTime
	ElapsedTime
	TopLoad
	TopDisplacement
	TipLoad
	TipDisplacement
	OCell1Load
	OCell1NetLoad
	OCell1Expansion
	OCell1UpDisplacement
	OCell1DownDisplacement
	OCell2Load

	OCell2NetLoad
	OCell2Expansion
	OCell2UpDisplacement
	OCell2DownDisplacement
	OCell3Load
	OCell3NetLoad
	OCell3Expansion
	OCell3UpDisplacement
	OCell3DownDisplacement
	EquivalentMaxTopLoad
	EquivalentMaxTopDisplacement
	CreatedBy
	AddDate
	ModifiedBy
	ModifiedDate
LoadTestSegment	KeyProject
	KeyDeepFoundation
	KeyLoadTest
	KeyLevel
	TopElevation
	BottomElevation
	MaxUnitSideResistance
	DisplAtMaxSideResistance
	DisplLocationCode
	CreatedBy
	AddDate
	ModifiedBy
	ModifiedDate
LoadTestSegmentBase	KeyProject
	KeyDeepFoundation
	KeyLoadTest
	KeySequence
	BaseForce
	BaseForceWithResidual
	UnitBaseResistance
	BaseDisplacement
	CreatedBy
	AddDate
	ModifiedBy
	ModifiedDate
LoadTestSegmentSide	KeyProject

	KeyDeepFoundation
	KeyLoadTest
	KeyLevel
	KeySequence
	UnitSideResistance
	SegmentDisplacement
	CreatedBy
	AddDate
	ModifiedBy
	ModifiedDate
LoadTestForceDistributionData	KeyProject
	KeyDeepFoundation
	KeyLoadTest
	KeyTotalAppliedLoad
	Ptr
	Force01
	Force02
	Force03
	Force04
	Force05
	Force06
	Force07
	Force08
	Force09
	Force10
	Force11
	Force12
	Force13
	Force14
	Force15
	Force16
	AddDate
	CreatedBy
	ModifiedDate
	ModifiedBy
LoadTestForceDistributionGage	KeyProject
	KeyDeepFoundation
	KeyLoadTest
	KeyLevel
	KeyStrainGageName
	StrainGageElevation

	ResidualForce
	AddDate
	CreatedBy
	ModifiedDate
	ModifiedBy
LoadTestNominalResistance	KeyProject
	KeyDeepFoundation
	KeyLoadTest
	KeyFailureCriteriaCode
	FailureLoad
	SideResistance
	BaseResistance
	Displacement
	CreatedBy
	AddDate
	ModifiedBy
	ModifiedDate
LoadTestStaticInclinometer	KeyProject
	KeyDeepFoundation
	KeyLoadTest
	KeyLoadStep
	KeyProbeDepth
	Displacement
	ModifiedBy
	AddDate
	ModifiedDate
	CreatedBy

Table 2. Database Codes, Definitions and Usage in Database.

Code	Code Definition	Description of Usage in Database	Associated Database Table(s)
10percentD	10% Pile Diameter Displacement	Maximum load criteria for load test	tbl_LoadTest
12mmD	0.5 inch (12mm) Displacement	Maximum load criteria for load test	tbl_LoadTest
150DL	150% Design Load	Maximum load criteria for load test	tbl_LoadTest
200DL	200% Design Load	Maximum load criteria for load test	tbl_LoadTest
25mmD	1 inch (25mm) Displacement	Maximum load criteria for load test	tbl_LoadTest
50mmD	2 inch (50 mm) Displacement	Maximum load criteria for load test	tbl_LoadTest

5percentD	5% Pile Diameter Displacement	Maximum load criteria for load test	tbl_LoadTest
AA	AASHTO	Load test nominal resistance criteria	tbl_LoadTestNominalResistance
AB	Alberta	State, Province, or FHWA district	tbl_Project
ABW	Aruba	Country code	tbl_Project
AC	Auger Cast	Deep Foundation Type	tbl_DeepFoundation
ACNP	Auger Cast Pile Construction	Deep Foundation installation method	tbl_DeepFoundation
AF	AASHTO/FDOT	Load test nominal resistance criteria	tbl_LoadTestNominalResistance
AFG	Afghanistan	Country code	tbl_Project
AGO	Angola	Country code	tbl_Project
AH	Automatic Hammer	Exploration hammer type	tbl_ExplorationBoring
AIA	Anguilla	Country code	tbl_Project
AK	Alaska: 3" OD sampler w/ 340 lb @ 30"	Exploration sampler type	tbl_ExplorationBoring
AK	Alaska	State, Province, or FHWA district	tbl_Project
AL	Alabama	State, Province, or FHWA district	tbl_Project
ALA	Aland Islands	Country code	tbl_Project
ALB	Albania	Country code	tbl_Project
ALP	Air-Lift Pump	Drilled shaft bottom clean out method	tbl_InstallDrilledShaft
AND	Andorra	Country code	tbl_Project
AR	Air Rotary	Boring method type	tbl_Exploration
AR	Arkansas	State, Province, or FHWA district	tbl_Project
ARE	United Arab Emirates	Country code	tbl_Project
ARG	Argentina	Country code	tbl_Project
ARM	Armenia	Country code	tbl_Project
ASM	American Samoa	Country code	tbl_Project
ASPH	Asphalt	Soil layer primary description	tbl_ExplorationSoilLayerBoring, tbl_DeepFoundationSoilLayer
ATA	Antarctica	Country code	tbl_Project
ATF	French Southern Territories	Country code	tbl_Project
ATG	Antigua and Barbuda	Country code	tbl_Project
AUS	Australia	Country code	tbl_Project
AUT	Austria	Country code	tbl_Project
AZ	Arizona	State, Province, or FHWA district	tbl_Project
AZE	Azerbaijan	Country code	tbl_Project
B	Both Compression and Tension	Load type or direction	tbl_LoadTest
B	Bottom of Pile	Load transfer segment displacement measurement location	tbl_LoadTestSegment
BAS	Basalt	Soil layer primary description	tbl_ExplorationSoilLayerBoring, tbl_DeepFoundationSoilLayer
BC	Drilled Shaft, Caisson, or Pier	Deep Foundation Type	tbl_DeepFoundation

BC	British Columbia	State, Province, or FHWA district	tbl_Project
BDI	Burundi	Country code	tbl_Project
BEL	Belgium	Country code	tbl_Project
BEN	Benin	Country code	tbl_Project
BES	Bonaire	Country code	tbl_Project
BFA	Burkina Faso	Country code	tbl_Project
BGD	Bangladesh	Country code	tbl_Project
BGR	Bulgaria	Country code	tbl_Project
BH	Becker Hammer	Boring method type	tbl_Exploration
BHR	Bahrain	Country code	tbl_Project
BHS	Bahamas	Country code	tbl_Project
BIH	Bosnia and Herzegovina	Country code	tbl_Project
BLM	Saint Barthelemy	Country code	tbl_Project
BLR	Belarus	Country code	tbl_Project
BLZ	Belize	Country code	tbl_Project
BMU	Bermuda	Country code	tbl_Project
BO	Boca	Load test nominal resistance criteria	tbl_LoadTestNominalResistance
BOD	Initial Drive	Timing of CAPWAP measurement relative to driving sequence	tbl_Capwap
BOL	Bolivia	Country code	tbl_Project
BOR	Boring	Exploration Type	tbl_Exploration
BOR1	Beginning of Restrike 1	Timing of CAPWAP measurement relative to driving sequence	tbl_Capwap
BOR2	Beginning of Restrike 2	Timing of CAPWAP measurement relative to driving sequence	tbl_Capwap
BOR3	Beginning of Restrike 3	Timing of CAPWAP measurement relative to driving sequence	tbl_Capwap
BOR4	Beginning of Restrike 4	Timing of CAPWAP measurement relative to driving sequence	tbl_Capwap
Bpclo	Becker Penetration Test (Closed-End)	Exploration sampler type	tbl_ExplorationBoring
Bpopn	Becker Penetration Test (Open-End)	Exploration sampler type	tbl_ExplorationBoring
BRA	Brazil	Country code	tbl_Project
BRB	Barbados	Country code	tbl_Project
BRH80	Brinch Hansen 80%	Load test nominal resistance criteria	tbl_LoadTestNominalResistance
BRH90	Brinch Hansen 90%	Load test nominal resistance criteria	tbl_LoadTestNominalResistance
BRN	Brunei Darussalam	Country code	tbl_Project
BTN	Bhutan	Country code	tbl_Project
BUH	Butley Hoy	Load test nominal resistance criteria	tbl_LoadTestNominalResistance
BUR	Burmeister: 3.625" OD sampler w/ 250 lb @ 20"	Exploration sampler type	tbl_ExplorationBoring
BVT	Bouvet Island	Country code	tbl_Project
BWA	Botswana	Country code	tbl_Project
C	Cambridge	Pressuremeter type	tbl_Exploration

C	Compression	Load type or direction	tbl_LoadTest
CA	Casing Advance	Boring method type	tbl_Exploration
CA	California: 2.5" OD sampler w/140 lb @ 30 "	Exploration sampler type	tbl_ExplorationBoring
CA	California	State, Province, or FHWA district	tbl_Project
CAF	Central African Republic	Country code	tbl_Project
CAN	Canada	Country code	tbl_Project
CAPWAP	CAPWAP	Dynamic testing with signal matching method	tbl_Capwap
CB	Center Bar	Steel reinforcement type for drilled shafts and augercast piles	tbl_DescriptionAugerCast, tbl_DescriptionDrilledShaft
CC	Concrete Cylinder (hollow)	Deep Foundation Type	tbl_DeepFoundation
CCK	Cocos (Keeling) Islands	Country code	tbl_Project
CD	Triaxial: Consolidated Drained	Laboratory strength test type	tbl_ExplorationLabResults
CEM	Cemented	Additional terms for soil layer description	tbl_ExplorationSoilLayerBoring, tbl_DeepFoundationSoilLayer
CH	USGS Group Symbol: CH	USCS soil classification code (ASTM D2488)	tbl_ExplorationSoilLayerBoring, tbl_DeepFoundationSoilLayer
CH	Chin	Load test nominal resistance criteria	tbl_LoadTestNominalResistance
CHE	Switzerland	Country code	tbl_Project
CHL	Chile	Country code	tbl_Project
CH-MH	USGS Group Symbol: CH-MH	USCS soil classification code (ASTM D2488)	tbl_ExplorationSoilLayerBoring, tbl_DeepFoundationSoilLayer
CHN	China	Country code	tbl_Project
CIV	Côte d'Ivoire	Country code	tbl_Project
CL	Clay	Soil layer primary description	tbl_ExplorationSoilLayerBoring, tbl_DeepFoundationSoilLayer
CL	USGS Group Symbol: CL	USCS soil classification code (ASTM D2488)	tbl_ExplorationSoilLayerBoring, tbl_DeepFoundationSoilLayer
CL-CH	USGS Group Symbol: CL-CH	USCS soil classification code (ASTM D2488)	tbl_ExplorationSoilLayerBoring, tbl_DeepFoundationSoilLayer
CLGR	Clayey Gravel	Soil layer primary description	tbl_ExplorationSoilLayerBoring, tbl_DeepFoundationSoilLayer
CL-ML	USGS Group Symbol: CL-ML	USCS soil classification code (ASTM D2488)	tbl_ExplorationSoilLayerBoring, tbl_DeepFoundationSoilLayer
CL-OL	USGS Group Symbol: CL-OL	USCS soil classification code (ASTM D2488)	tbl_ExplorationSoilLayerBoring, tbl_DeepFoundationSoilLayer
CLSA	Clayey Sand	Soil layer primary description	tbl_ExplorationSoilLayerBoring, tbl_DeepFoundationSoilLayer
CLSI	Clayey Silt	Soil layer primary description	tbl_ExplorationSoilLayerBoring, tbl_DeepFoundationSoilLayer
CMI	Constant Movement Increment	ASTM D1143 Static Load Test Procedure	tbl_LoadTest
CMP	Composite	Deep Foundation Type	tbl_DeepFoundation
CMR	Cameroon	Country code	tbl_Project
CO	Core Drilling	Boring method type	tbl_Exploration
CO	Core	Exploration sampler type	tbl_ExplorationBoring

CO	Colorado	State, Province, or FHWA district	tbl_Project
COB	Clean-out Bucket	Drilled shaft bottom clean out method	tbl_InstallDrilledShaft
COD	Democratic Republic of the Congo	Country code	tbl_Project
COG	Congo	Country code	tbl_Project
Cohesive	Cohesive	Generalized soil type for classification of site, pile side, and pile base conditions	tbl_Project, tbl_DeepFoundation
COK	Cook Islands	Country code	tbl_Project
COL	Colombia	Country code	tbl_Project
COM	Comoros	Country code	tbl_Project
CONC	Concrete	Soil layer primary description	tbl_ExplorationSoilLayerBoring, tbl_DeepFoundationSoilLayer
CP	Closure Plate	Pile tip treatment code for closed-end steel pipe piles	tbl_DeepFoundation
CPT	Cone Penetrometer	Exploration Type	tbl_Exploration
CPT	Piezocone, Type Unknown	Cone penetration test type	tbl_Exploration
CPT10M	10-cm2 Type 1 Piezocone (midface porewater pressure)	Cone penetration test type	tbl_Exploration
CPT10S	10-cm2 Type 2 Piezocone (STANDARD) (shoulder porewater pressure)	Cone penetration test type	tbl_Exploration
CPT15	15-cm2 Type 2 Piezocone (shoulder pore water pressure)	Cone penetration test type	tbl_Exploration
CPV	Cape Verde	Country code	tbl_Project
CRI	Costa Rica	Country code	tbl_Project
CRP	Constant Rate of Penetration	ASTM D1143 Static Load Test Procedure	tbl_LoadTest
CSI	Cutting Shoe - Inside Fit	Pile tip treatment code for open-end steel pipe piles	tbl_DeepFoundation
CSO	Cutting Shoe - Outside Fit	Pile tip treatment code for open-end steel pipe piles	tbl_DeepFoundation
CSU	Cutting Shoe - Unknown	Pile tip treatment code for open-end steel pipe piles	tbl_DeepFoundation
CT	Connecticut	State, Province, or FHWA district	tbl_Project
CTDT	Drive-Tite Boot	Pile tip treatment code for closed-end steel pipe piles	tbl_DeepFoundation
CTI	Constant Time Interval	ASTM D1143 Static Load Test Procedure	tbl_LoadTest
CTTP	Conical Toe - Pointed	Pile tip treatment code for closed-end steel pipe piles	tbl_DeepFoundation
CTTR	Conical Toe - Rounded	Pile tip treatment code for closed-end steel pipe piles	tbl_DeepFoundation
CU	Triaxial: Consolidated Undrained	Laboratory strength test type	tbl_ExplorationLabResults
CU	Curvature	Load test nominal resistance criteria	tbl_LoadTestNominalResistance

CUB	Cuba	Country code	tbl_Project
CUW	Curaçao	Country code	tbl_Project
CXR	Christmas Island	Country code	tbl_Project
CYC	Cyclic Loading	ASTM D1143 Static Load Test Procedure	tbl_LoadTest
CYM	Cayman Islands	Country code	tbl_Project
CYP	Cyprus	Country code	tbl_Project
CZE	Czech Republic	Country code	tbl_Project
D	Driven	Pressuremeter installation method	tbl_Exploration
DA	Davisson	Load test nominal resistance criteria	tbl_LoadTestNominalResistance
DB	DeBeer	Load test nominal resistance criteria	tbl_LoadTestNominalResistance
DC	District of Columbia	State, Province, or FHWA district	tbl_Project
DE	Delaware	State, Province, or FHWA district	tbl_Project
DEB	DeBeer	Load test nominal resistance criteria	tbl_LoadTestNominalResistance
DEC	DeCourt	Load test nominal resistance criteria	tbl_LoadTestNominalResistance
DEU	Germany	Country code	tbl_Project
DFC	Douglas Fir - Coast	Timber pile wood type	tbl_DescriptionTimber
DFIN	Douglas Fir - Interior North	Timber pile wood type	tbl_DescriptionTimber
DFIS	Douglas Fir - Interior South	Timber pile wood type	tbl_DescriptionTimber
DFIW	Douglas Fir - Interior West	Timber pile wood type	tbl_DescriptionTimber
DH	Donut Hammer (Rope And Cathead)	Exploration hammer type	tbl_ExplorationBoring
DJI	Djibouti	Country code	tbl_Project
DL	Design Load	Maximum load criteria for load test	tbl_LoadTest
DM140	Dames & Moore (3 or 3.25” OD) w/ 140 lb @ 30”	Exploration sampler type	tbl_ExplorationBoring
DM300	Dames & Moore (3 or 3.25” OD) w/ 300 lb @ 20”	Exploration sampler type	tbl_ExplorationBoring
DMA	Dominica	Country code	tbl_Project
Dmoth	Dames & Moore (3 or 3.25” OD) w/ other	Exploration sampler type	tbl_ExplorationBoring
DMT	Dilatometer	Exploration Type	tbl_Exploration
DNK	Denmark	Country code	tbl_Project
DOM	Dominican Republic	Country code	tbl_Project
DS	Drilled Shaft	Deep Foundation installation method	tbl_DeepFoundation
DS	Driving Shoe	Pile tip treatment code for steel H-piles	tbl_DeepFoundation
DS	Direct Shear	Laboratory strength test type	tbl_ExplorationLabResults
DSD	Drilled Shaft Dry	Deep Foundation installation method	tbl_DeepFoundation
DSOSC	Drilled Shaft Oscillator	Deep Foundation installation	tbl_DeepFoundation

		method	
DSRC	Drilled Shaft Reverse Circulation	Deep Foundation installation method	tbl_DeepFoundation
DSRO	Drilled Shaft Rotator	Deep Foundation installation method	tbl_DeepFoundation
DSS	Direct Simple Shear	Laboratory strength test type	tbl_ExplorationLabResults
DSWB	Drilled Shaft Wet with Bentonite	Deep Foundation installation method	tbl_DeepFoundation
DSWBC	Drilled Shaft Wet with Bentonite (Temp Casing)	Deep Foundation installation method	tbl_DeepFoundation
DSWP	Drilled Shaft Wet with Polymer Slurry	Deep Foundation installation method	tbl_DeepFoundation
DSWPC	Drilled Shaft Wet with Polymer Slurry (Temp Casing)	Deep Foundation installation method	tbl_DeepFoundation
DSWW	Drilled Shaft Wet with Water	Deep Foundation installation method	tbl_DeepFoundation
DSWWC	Drilled Shaft Wet with Water (Temp Casing)	Deep Foundation installation method	tbl_DeepFoundation
DT	Double Tangent	Load test nominal resistance criteria	tbl_LoadTestNominalResistance
DZA	Algeria	Country code	tbl_Project
EC	10-cm2 Electric Cone	Cone penetration test type	tbl_Exploration
ECU	Ecuador	Country code	tbl_Project
EGY	Egypt	Country code	tbl_Project
EOD	End of Initial Drive	Timing of CAPWAP measurement relative to driving sequence	tbl_Capwap
EOR1	End of Restrike 1	Timing of CAPWAP measurement relative to driving sequence	tbl_Capwap
EOR2	End of Restrike 2	Timing of CAPWAP measurement relative to driving sequence	tbl_Capwap
EOR3	End of Restrike 3	Timing of CAPWAP measurement relative to driving sequence	tbl_Capwap
EOR4	End of Restrike 4	Timing of CAPWAP measurement relative to driving sequence	tbl_Capwap
ERI	Eritrea	Country code	tbl_Project
ESH	Western Sahara	Country code	tbl_Project
ESP	Spain	Country code	tbl_Project
EST	Estonia	Country code	tbl_Project
ETH	Ethiopia	Country code	tbl_Project
FC	Franki	Deep Foundation Type	tbl_DeepFoundation
FCC	Franki Pile Construction	Deep Foundation installation method	tbl_DeepFoundation
FD	FDOT	Load test nominal resistance criteria	tbl_LoadTestNominalResistance
FDRC	Full Depth Rebar Cage	Steel reinforcement type for drilled shafts and augercast piles	tbl_DescriptionAugerCast, tbl_DescriptionDrilledShaft
FF	Free fall	Drilled shaft concrete placement method	tbl_InstallDrilledShaft
FH	Fuller-Hoy	Load test nominal resistance criteria	tbl_LoadTestNominalResistance
FHWA	FHWA	Load test nominal resistance criteria	tbl_LoadTestNominalResistance

FIN	Finland	Country code	tbl_Project
FJI	Fiji	Country code	tbl_Project
FL	Florida	State, Province, or FHWA district	tbl_Project
FLK	Falkland Islands (Malvinas)	Country code	tbl_Project
FRA	France	Country code	tbl_Project
FRO	Faroe Islands	Country code	tbl_Project
FSM	Micronesia, Federated States of	Country code	tbl_Project
FV	Field Vane Shear	Exploration Type	tbl_Exploration
FV	Field Vane Shear Test	Laboratory strength test type	tbl_ExplorationLabResults
GA	Georgia	State, Province, or FHWA district	tbl_Project
GAB	Gabon	Country code	tbl_Project
GBR	United Kingdom	Country code	tbl_Project
GC	USGS Group Symbol: GC	USCS soil classification code (ASTM D2488)	tbl_ExplorationSoilLayerBoring, tbl_DeepFoundationSoilLayer
GEO	Georgia	Country code	tbl_Project
GGY	Guernsey	Country code	tbl_Project
GHA	Ghana	Country code	tbl_Project
GIB	Gibraltar	Country code	tbl_Project
GIN	Guinea	Country code	tbl_Project
GLP	Guadeloupe	Country code	tbl_Project
GM	USGS Group Symbol: GM	USCS soil classification code (ASTM D2488)	tbl_ExplorationSoilLayerBoring, tbl_DeepFoundationSoilLayer
GMB	Gambia	Country code	tbl_Project
GNB	Guinea-Bissau	Country code	tbl_Project
GNQ	Equatorial Guinea	Country code	tbl_Project
GP	USGS Group Symbol: GP	USCS soil classification code (ASTM D2488)	tbl_ExplorationSoilLayerBoring, tbl_DeepFoundationSoilLayer
GP-GC	USGS Group Symbol: GP-GC	USCS soil classification code (ASTM D2488)	tbl_ExplorationSoilLayerBoring, tbl_DeepFoundationSoilLayer
GP-GM	USGS Group Symbol: GP-GM	USCS soil classification code (ASTM D2488)	tbl_ExplorationSoilLayerBoring, tbl_DeepFoundationSoilLayer
GR	Gravel	Soil layer primary description	tbl_ExplorationSoilLayerBoring, tbl_DeepFoundationSoilLayer
GRA	Gravel	Statnamic load test catch system	tbl_LoadTest
GRC	Greece	Country code	tbl_Project
GRCL	Gravelly Clay	Soil layer primary description	tbl_ExplorationSoilLayerBoring, tbl_DeepFoundationSoilLayer
GRD	Grenada	Country code	tbl_Project
GRL	Greenland	Country code	tbl_Project
GRSA	Gravelly Sand	Soil layer primary description	tbl_ExplorationSoilLayerBoring, tbl_DeepFoundationSoilLayer
GRSI	Gravelly Silt	Soil layer primary description	tbl_ExplorationSoilLayerBoring, tbl_DeepFoundationSoilLayer
GSC28	Vertical Datum: GSC28	Vertical datum for project	tbl_Project

GTM	Guatemala	Country code	tbl_Project
GUF	French Guiana	Country code	tbl_Project
GUM	Guam	Country code	tbl_Project
GUY	Guyana	Country code	tbl_Project
GW	USGS Group Symbol: GW	USCS soil classification code (ASTM D2488)	tbl_ExplorationSoilLayerBoring, tbl_DeepFoundationSoilLayer
GW-GC	USGS Group Symbol: GW-GC	USCS soil classification code (ASTM D2488)	tbl_ExplorationSoilLayerBoring, tbl_DeepFoundationSoilLayer
GW-GM	USGS Group Symbol: GW-GM	USCS soil classification code (ASTM D2488)	tbl_ExplorationSoilLayerBoring, tbl_DeepFoundationSoilLayer
HA	Hansen	Load test nominal resistance criteria	tbl_LoadTestNominalResistance
HAS	Hollow Stem Auger	Boring method type	tbl_Exploration
HC	Hand Cleaned	Drilled shaft bottom clean out method	tbl_InstallDrilledShaft
HI	Hawaii	State, Province, or FHWA district	tbl_Project
HKG	Hong Kong	Country code	tbl_Project
HMD	Heard Island and McDonald Islands	Country code	tbl_Project
HND	Honduras	Country code	tbl_Project
HO	Housel	Load test nominal resistance criteria	tbl_LoadTestNominalResistance
HP	H Pile	Steel reinforcement type for drilled shafts and augercast piles	tbl_DescriptionAugerCast, tbl_DescriptionDrilledShaft
HP	High Plasticity (LL > 50)	Soil layer plasticity description	tbl_ExplorationSoilLayerBoring, tbl_DeepFoundationSoilLayer
HP	Hydraulic Pump	Drilled shaft bottom clean out method	tbl_InstallDrilledShaft
HPP	H-Pile Point	Pile tip treatment code for steel H-piles	tbl_DeepFoundation
HPT	H-Pile Thickened Section	Pile tip treatment code for steel H-piles	tbl_DeepFoundation
HRV	Croatia	Country code	tbl_Project
HTI	Haiti	Country code	tbl_Project
HUN	Hungary	Country code	tbl_Project
HYD	Hydraulic	Statnamic load test catch system	tbl_LoadTest
IA	Iowa	State, Province, or FHWA district	tbl_Project
ID	Impact Driven Only	Deep Foundation installation method	tbl_DeepFoundation
ID	Idaho	State, Province, or FHWA district	tbl_Project
IDN	Indonesia	Country code	tbl_Project
IL	Illinois	State, Province, or FHWA district	tbl_Project
IMN	Isle of Man	Country code	tbl_Project
IN	Indiana	State, Province, or FHWA district	tbl_Project
IND	India	Country code	tbl_Project
INIT	Initial Drive	Drive sequence for pile driving record	tbl_InstallPileDrivenPileHeader
Intermediate Geomaterials	Intermediate Geomaterials	Generalized soil type	tbl_Project, tbl_DeepFoundation

IOT	British Indian Ocean Territory	Country code	tbl_Project
IRL	Ireland	Country code	tbl_Project
IRN	Iran, Islamic Republic of	Country code	tbl_Project
IRQ	Iraq	Country code	tbl_Project
ISL	Iceland	Country code	tbl_Project
ISR	Israel	Country code	tbl_Project
ITA	Italy	Country code	tbl_Project
JACK	Jacked	Deep Foundation installation method	tbl_DeepFoundation
JAM	Jamaica	Country code	tbl_Project
JET	Jetted	Deep Foundation installation method	tbl_DeepFoundation
JETID	Jetted and Impact Driven	Deep Foundation installation method	tbl_DeepFoundation
JEY	Jersey	Country code	tbl_Project
JOR	Jordan	Country code	tbl_Project
JPN	Japan	Country code	tbl_Project
KAZ	Kazakhstan	Country code	tbl_Project
KEN	Kenya	Country code	tbl_Project
KGZ	Kyrgyzstan	Country code	tbl_Project
KHM	Cambodia	Country code	tbl_Project
KIR	Kiribati	Country code	tbl_Project
KNA	Saint Kitts and Nevis	Country code	tbl_Project
KOR	Korea, Republic of	Country code	tbl_Project
KS	Kansas	State, Province, or FHWA district	tbl_Project
KWT	Kuwait	Country code	tbl_Project
KY	Kentucky	State, Province, or FHWA district	tbl_Project
L	Lateral	Load type or direction	tbl_LoadTest
LA	Louisiana	State, Province, or FHWA district	tbl_Project
LAO	Lao People's Democratic Republic	Country code	tbl_Project
LB	Labrador	State, Province, or FHWA district	tbl_Project
LBN	Lebanon	Country code	tbl_Project
LBR	Liberia	Country code	tbl_Project
LBY	Libya	Country code	tbl_Project
LCA	Saint Lucia	Country code	tbl_Project
LEM	Loading in Excess of Maintained	ASTM D1143 Static Load Test Procedure	tbl_LoadTest
LFC	Load Frame Capacity	Maximum load criteria for load test	tbl_LoadTest
LIE	Liechtenstein	Country code	tbl_Project
LKA	Sri Lanka	Country code	tbl_Project
LL	Lateral Load	Load test nominal resistance criteria	tbl_LoadTestNominalResistance
LMSTN	Limestone	Soil layer primary description	tbl_ExplorationSoilLayerBoring,

			tbl_DeepFoundationSoilLayer
LOG	log-log	Load test nominal resistance criteria	tbl_LoadTestNominalResistance
LP	Low Plasticity (LL < 50)	Soil layer plasticity description	tbl_ExplorationSoilLayerBoring, tbl_DeepFoundationSoilLayer
LSO	Lesotho	Country code	tbl_Project
LTU	Lithuania	Country code	tbl_Project
LUX	Luxembourg	Country code	tbl_Project
LV	Lab Vane	Laboratory strength test type	tbl_ExplorationLabResults
LVA	Latvia	Country code	tbl_Project
M	Monotube	Deep Foundation Type	tbl_DeepFoundation
M	Menard	Pressuremeter type	tbl_Exploration
MA	Massachusetts	State, Province, or FHWA district	tbl_Project
MAC	Macao	Country code	tbl_Project
MAF	Saint Martin (French part)	Country code	tbl_Project
MAR	Morocco	Country code	tbl_Project
MAZ	Mazurkiewicz	Load test nominal resistance criteria	tbl_LoadTestNominalResistance
MB	Manitoba	State, Province, or FHWA district	tbl_Project
MC	Miniature Cone	Cone penetration test type	tbl_Exploration
MC	Maximum Curvature	Load test nominal resistance criteria	tbl_LoadTestNominalResistance
MCO	Monaco	Country code	tbl_Project
MD	Maryland	State, Province, or FHWA district	tbl_Project
MDA	Modified Davisson Offset Limit	Load test nominal resistance criteria	tbl_LoadTestNominalResistance
MDA	Moldova, Republic of	Country code	tbl_Project
MDC	Mandrel Driven Concrete Filled	Deep Foundation installation method	tbl_DeepFoundation
MDG	Madagascar	Country code	tbl_Project
MDV	Maldives	Country code	tbl_Project
ME	Maine	State, Province, or FHWA district	tbl_Project
Mean Sea Level	Vertical Datum: Mean Sea Level	Vertical datum for project	tbl_Project
MEC	Mechanical Cone (Dutch and Begemann)	Cone penetration test type	tbl_Exploration
MEC	Mechanical	Statnamic load test catch system	tbl_LoadTest
MEX	Mexico	Country code	tbl_Project
MH	USGS Group Symbol: MH	USCS soil classification code (ASTM D2488)	tbl_ExplorationSoilLayerBoring, tbl_DeepFoundationSoilLayer
MHHW	Vertical Datum: MHHW	Vertical datum for project	tbl_Project
MHL	Marshall Islands	Country code	tbl_Project
MHW	Vertical Datum: MHW	Vertical datum for project	tbl_Project
MI	Micropile	Deep Foundation Type	tbl_DeepFoundation
MI	Michigan	State, Province, or FHWA district	tbl_Project
MIP	Micro Pile Construction	Deep Foundation installation method	tbl_DeepFoundation

MKD	Macedonia, the Former Yugoslav Republic of	Country code	tbl_Project
ML	USGS Group Symbol: ML	USCS soil classification code (ASTM D2488)	tbl_ExplorationSoilLayerBoring, tbl_DeepFoundationSoilLayer
ML	Maximum Load	Load test nominal resistance criteria	tbl_LoadTestNominalResistance
MLI	Mali	Country code	tbl_Project
MLLW	Vertical Datum: MLLW	Vertical datum for project	tbl_Project
MLT	Malta	Country code	tbl_Project
MLW	Vertical Datum: MLW	Vertical datum for project	tbl_Project
MMR	Myanmar	Country code	tbl_Project
MN	Minnesota	State, Province, or FHWA district	tbl_Project
MNE	Montenegro	Country code	tbl_Project
MNG	Mongolia	Country code	tbl_Project
MNP	Northern Mariana Islands	Country code	tbl_Project
MO	Missouri	State, Province, or FHWA district	tbl_Project
MOZ	Mozambique	Country code	tbl_Project
MR	Mud Rotary	Boring method type	tbl_Exploration
MRT	Mauritania	Country code	tbl_Project
MS	Mississippi	State, Province, or FHWA district	tbl_Project
MSR	Montserrat	Country code	tbl_Project
MT	Montana	State, Province, or FHWA district	tbl_Project
MTQ	Martinique	Country code	tbl_Project
MUS	Mauritius	Country code	tbl_Project
MWI	Malawi	Country code	tbl_Project
MYS	Malaysia	Country code	tbl_Project
MYT	Mayotte	Country code	tbl_Project
NA	Not Applicable	Soil layer plasticity description	tbl_ExplorationSoilLayerBoring, tbl_DeepFoundationSoilLayer
NA	Not Applicable	Additional terms for soil layer description	tbl_ExplorationSoilLayerBoring, tbl_DeepFoundationSoilLayer
NA	USGS Group Symbol: NA	USCS soil classification code (ASTM D2488)	tbl_ExplorationSoilLayerBoring, tbl_DeepFoundationSoilLayer
NA	NA	Load test nominal resistance criteria	tbl_LoadTestNominalResistance
NA	Not Applicable	State, Province, or FHWA district	tbl_Project
NAD27	Horizontal Datum: NAD27	Horizontal datum for project	tbl_Project
NAD83	Horizontal Datum: NAD83	Horizontal datum for project	tbl_Project
NAM	Namibia	Country code	tbl_Project
NAVD88	Vertical Datum: NAVD88	Vertical datum for project	tbl_Project
NB	New Brunswick	State, Province, or FHWA district	tbl_Project
NC	Not Cleaned	Drilled shaft bottom clean out method	tbl_InstallDrilledShaft
NC	North Carolina	State, Province, or FHWA district	tbl_Project

NCL	New Caledonia	Country code	tbl_Project
ND	North Dakota	State, Province, or FHWA district	tbl_Project
NE	Nebraska	State, Province, or FHWA district	tbl_Project
NER	Niger	Country code	tbl_Project
NF	Newfoundland	State, Province, or FHWA district	tbl_Project
NFK	Norfolk Island	Country code	tbl_Project
NGA	Nigeria	Country code	tbl_Project
NGVD29	Vertical Datum: NGVD29	Vertical datum for project	tbl_Project
NH	New Hampshire	State, Province, or FHWA district	tbl_Project
NIC	Nicaragua	Country code	tbl_Project
NIU	Niue	Country code	tbl_Project
NJ	New Jersey	State, Province, or FHWA district	tbl_Project
NLD	Netherlands	Country code	tbl_Project
NM	New Mexico	State, Province, or FHWA district	tbl_Project
Non-Cohesive	Non-Cohesive	Generalized soil type	tbl_Project, tbl_DeepFoundation
NONE	None	Pile tip treatment code for steel H-piles	tbl_DeepFoundation
NONE	None	Pile tip treatment code for closed-end steel pipe piles	tbl_DeepFoundation
NONE	None	Pile tip treatment code for open-end steel pipe piles	tbl_DeepFoundation
NONE	None	Pile tip treatment code for timber piles	tbl_DeepFoundation
NONE	None	Steel reinforcement type for drilled shafts and augercast piles	tbl_DescriptionAugerCast, tbl_DescriptionDrilledShaft
NONE	No Hammer	Exploration hammer type	tbl_ExplorationBoring
NOR	Norway	Country code	tbl_Project
NOSMP	No Sample	Soil layer primary description	tbl_ExplorationSoilLayerBoring, tbl_DeepFoundationSoilLayer
NPL	Nepal	Country code	tbl_Project
NRU	Nauru	Country code	tbl_Project
NS	Nova Scotia	State, Province, or FHWA district	tbl_Project
NU	Nunavut	State, Province, or FHWA district	tbl_Project
NV	Nevada	State, Province, or FHWA district	tbl_Project
NW	North West Terr.	State, Province, or FHWA district	tbl_Project
NY	New York	State, Province, or FHWA district	tbl_Project
NZL	New Zealand	Country code	tbl_Project
O	Other	Steel reinforcement type for drilled shafts and augercast piles	tbl_DescriptionAugerCast, tbl_DescriptionDrilledShaft
OC	Octogonal Concrete	Deep Foundation Type	tbl_DeepFoundation
OH	USGS Group Symbol: OH	USCS soil classification code (ASTM D2488)	tbl_ExplorationSoilLayerBoring, tbl_DeepFoundationSoilLayer
OH	Ohio	State, Province, or FHWA district	tbl_Project
OK	Oklahoma	State, Province, or FHWA district	tbl_Project

OL	USGS Group Symbol: OL	USCS soil classification code (ASTM D2488)	tbl_ExplorationSoilLayerBoring, tbl_DeepFoundationSoilLayer
OL/OH	USGS Group Symbol: OL/OH	USCS soil classification code (ASTM D2488)	tbl_ExplorationSoilLayerBoring, tbl_DeepFoundationSoilLayer
OMN	Oman	Country code	tbl_Project
ON	Ontario	State, Province, or FHWA district	tbl_Project
OR	Oregon	State, Province, or FHWA district	tbl_Project
ORCL	Organic Clay	Soil layer primary description	tbl_ExplorationSoilLayerBoring, tbl_DeepFoundationSoilLayer
ORSI	Organic Silt	Soil layer primary description	tbl_ExplorationSoilLayerBoring, tbl_DeepFoundationSoilLayer
OST	Osterberg	Load test type	tbl_LoadTest
OTH	Other	Maximum load criteria for load test	tbl_LoadTest
OTH	Other	Statnamic load test catch system	tbl_LoadTest
OTHER	Other	Pile tip treatment code for steel H-piles	tbl_DeepFoundation
OTHER	Other	Pile tip treatment code for closed-end steel pipe piles	tbl_DeepFoundation
OTHER	Other	Pile tip treatment code for open-end steel pipe piles	tbl_DeepFoundation
OTHER	Other	Pile tip treatment code for timber piles	tbl_DeepFoundation
OTHER	Other	Timber pile wood type	tbl_DescriptionTimber
OTHER	Other	Boring method type	tbl_Exploration
OTHER	Other	Laboratory strength test type	tbl_ExplorationLabResults
OTHER	Other	Load test nominal resistance criteria	tbl_LoadTestNominalResistance
Other	Horizontal Datum: Other	Horizontal datum for project	tbl_Project
Other	Vertical Datum: Other	Vertical datum for project	tbl_Project
P	Pre-Drilled	Pressuremeter installation method	tbl_Exploration
PA	Pennsylvania	State, Province, or FHWA district	tbl_Project
PAK	Pakistan	Country code	tbl_Project
PAN	Panama	Country code	tbl_Project
PB	Pile Boot	Pile tip treatment code for timber piles	tbl_DeepFoundation
PCN	Pitcairn	Country code	tbl_Project
PE	Prince Edward Is.	State, Province, or FHWA district	tbl_Project
PER	Peru	Country code	tbl_Project
PHL	Philippines	Country code	tbl_Project
PIST	Piston	Exploration sampler type	tbl_ExplorationBoring
PITCH	Pitcher Barrel	Exploration sampler type	tbl_ExplorationBoring
PL	Plunging	Load test nominal resistance criteria	tbl_LoadTestNominalResistance
PLW	Palau	Country code	tbl_Project
PMT	Pressuremeter	Exploration Type	tbl_Exploration
PNG	Papua New Guinea	Country code	tbl_Project
POL	Poland	Country code	tbl_Project

PP	Pile Point	Pile tip treatment code for timber piles	tbl_DeepFoundation
PP	Pocket Penetrometer	Laboratory strength test type	tbl_ExplorationLabResults
PRC	Partial Rebar Cage	Steel reinforcement type for drilled shafts and augercast piles	tbl_DescriptionAugerCast, tbl_DescriptionDrilledShaft
PRI	Puerto Rico	Country code	tbl_Project
PRK	Korea, Democratic People's Republic of	Country code	tbl_Project
PRT	Portugal	Country code	tbl_Project
PRY	Paraguay	Country code	tbl_Project
PSE	Palestine, State of	Country code	tbl_Project
PT	Peat	Soil layer primary description	tbl_ExplorationSoilLayerBoring, tbl_DeepFoundationSoilLayer
PT	USGS Group Symbol: PT	USCS soil classification code (ASTM D2488)	tbl_ExplorationSoilLayerBoring, tbl_DeepFoundationSoilLayer
PYF	French Polynesia	Country code	tbl_Project
QAT	Qatar	Country code	tbl_Project
QC	Quebec	State, Province, or FHWA district	tbl_Project
QT	Quick Test	ASTM D1143 Static Load Test Procedure	tbl_LoadTest
QU	Quebec	State, Province, or FHWA district	tbl_Project
RC	Round Concrete (solid)	Deep Foundation Type	tbl_DeepFoundation
RC	Rock Crusher	Pile tip treatment code for closed-end steel pipe piles	tbl_DeepFoundation
RD1	Restrike 1	Drive sequence for pile driving record	tbl_InstallPileDrivenPileHeader
RD2	Restrike 2	Drive sequence for pile driving record	tbl_InstallPileDrivenPileHeader
RD3	Restrike 3	Drive sequence for pile driving record	tbl_InstallPileDrivenPileHeader
RD4	Restrike 4	Drive sequence for pile driving record	tbl_InstallPileDrivenPileHeader
RD5	Restrike 5	Drive sequence for pile driving record	tbl_InstallPileDrivenPileHeader
REU	Reunion	Country code	tbl_Project
RI	Rhode Island	State, Province, or FHWA district	tbl_Project
ROB	Red Oak - Black	Timber pile wood type	tbl_DescriptionTimber
ROCK	Rock	Soil layer primary description	tbl_ExplorationSoilLayerBoring, tbl_DeepFoundationSoilLayer
ROCK	USGS Group Symbol: ROCK	USCS soil classification code (ASTM D2488)	tbl_ExplorationSoilLayerBoring, tbl_DeepFoundationSoilLayer
Rock	Rock	Generalized soil type	tbl_Project, tbl_DeepFoundation
ROU	Romania	Country code	tbl_Project
RUS	Russian Federation	Country code	tbl_Project
RWA	Rwanda	Country code	tbl_Project
S	Self-Boring	Pressuremeter installation method	tbl_Exploration
S	Load Transfer Segment	Load transfer segment displacement measurement location	tbl_LoadTestSegment

SA	Sand	Soil layer primary description	tbl_ExplorationSoilLayerBoring, tbl_DeepFoundationSoilLayer
SACL	Sandy Clay	Soil layer primary description	tbl_ExplorationSoilLayerBoring, tbl_DeepFoundationSoilLayer
SAGR	Sandy Gravel	Soil layer primary description	tbl_ExplorationSoilLayerBoring, tbl_DeepFoundationSoilLayer
SASI	Sandy Silt	Soil layer primary description	tbl_ExplorationSoilLayerBoring, tbl_DeepFoundationSoilLayer
SASTN	Sandstone	Soil layer primary description	tbl_ExplorationSoilLayerBoring, tbl_DeepFoundationSoilLayer
SAU	Saudi Arabia	Country code	tbl_Project
SBV	Step Blade Vane	Exploration Type	tbl_Exploration
SC	Square Concrete	Deep Foundation Type	tbl_DeepFoundation
SC	USGS Group Symbol: SC	USCS soil classification code (ASTM D2488)	tbl_ExplorationSoilLayerBoring, tbl_DeepFoundationSoilLayer
SC	South Carolina	State, Province, or FHWA district	tbl_Project
SD	South Dakota	State, Province, or FHWA district	tbl_Project
SDN	Sudan	Country code	tbl_Project
SEN	Senegal	Country code	tbl_Project
SGP	Singapore	Country code	tbl_Project
SGS	South Georgia and the South Sandwich Islands	Country code	tbl_Project
SH	Steel H-Pile	Deep Foundation Type	tbl_DeepFoundation
SH	Safety Hammer (Rope And Cathead)	Exploration hammer type	tbl_ExplorationBoring
SHELB	Shelby Tube	Exploration sampler type	tbl_ExplorationBoring
SHN	Saint Helena	Country code	tbl_Project
SI	Silt	Soil layer primary description	tbl_ExplorationSoilLayerBoring, tbl_DeepFoundationSoilLayer
SICL	Silty Clay	Soil layer primary description	tbl_ExplorationSoilLayerBoring, tbl_DeepFoundationSoilLayer
SIGR	Silty Gravel	Soil layer primary description	tbl_ExplorationSoilLayerBoring, tbl_DeepFoundationSoilLayer
SISA	Silty Sand	Soil layer primary description	tbl_ExplorationSoilLayerBoring, tbl_DeepFoundationSoilLayer
SISTN	Siltstone	Soil layer primary description	tbl_ExplorationSoilLayerBoring, tbl_DeepFoundationSoilLayer
SJM	Svalbard and Jan Mayen	Country code	tbl_Project
SK	Saskatchewan	State, Province, or FHWA district	tbl_Project
SLB	Solomon Islands	Country code	tbl_Project
SLE	Sierra Leone	Country code	tbl_Project
SLV	El Salvador	Country code	tbl_Project
SM	USGS Group Symbol: SM	USCS soil classification code (ASTM D2488)	tbl_ExplorationSoilLayerBoring, tbl_DeepFoundationSoilLayer
SM-ML	USGS Group Symbol: SM-ML	USCS soil classification code (ASTM D2488)	tbl_ExplorationSoilLayerBoring, tbl_DeepFoundationSoilLayer
SMR	San Marino	Country code	tbl_Project
SO	Sonic Drilling	Boring method type	tbl_Exploration

SOM	Somalia	Country code	tbl_Project
SONIC	Sonic Core	Exploration sampler type	tbl_ExplorationBoring
SP	Screw Piles	Deep Foundation installation method	tbl_DeepFoundation
SP	Screw	Deep Foundation Type	tbl_DeepFoundation
SP	USGS Group Symbol: SP	USCS soil classification code (ASTM D2488)	tbl_ExplorationSoilLayerBoring, tbl_DeepFoundationSoilLayer
SPC	Steel Pipe Closed	Deep Foundation Type	tbl_DeepFoundation
SPC10	10-cm2 Seismic Cone	Cone penetration test type	tbl_Exploration
SPC15	15-cm2 Seismic Cone	Cone penetration test type	tbl_Exploration
SPM	Saint Pierre and Miquelon	Country code	tbl_Project
SPO	Steel Pipe Open	Deep Foundation Type	tbl_DeepFoundation
SP-SC	USGS Group Symbol: SP-SC	USCS soil classification code (ASTM D2488)	tbl_ExplorationSoilLayerBoring, tbl_DeepFoundationSoilLayer
SP-SM	USGS Group Symbol: SP-SM	USCS soil classification code (ASTM D2488)	tbl_ExplorationSoilLayerBoring, tbl_DeepFoundationSoilLayer
SPT	SPT: 2" OD sampler w/ 140 lb @ 30"	Exploration sampler type	tbl_ExplorationBoring
SRB	Serbia	Country code	tbl_Project
SSD	South Sudan	Country code	tbl_Project
ST	Step Tapered	Deep Foundation Type	tbl_DeepFoundation
ST	Slope Tangent	Load test nominal resistance criteria	tbl_LoadTestNominalResistance
STA	Statnamic	Load test type	tbl_LoadTest
STD	Standard (Maintained) Test	ASTM D1143 Static Load Test Procedure	tbl_LoadTest
STD	Static	Load test type	tbl_LoadTest
STP	Sao Tome and Principe	Country code	tbl_Project
SUR	Suriname	Country code	tbl_Project
SVK	Slovakia	Country code	tbl_Project
SVN	Slovenia	Country code	tbl_Project
SW	USGS Group Symbol: SW	USCS soil classification code (ASTM D2488)	tbl_ExplorationSoilLayerBoring, tbl_DeepFoundationSoilLayer
SWE	Sweden	Country code	tbl_Project
SW-SC	USGS Group Symbol: SW-SC	USCS soil classification code (ASTM D2488)	tbl_ExplorationSoilLayerBoring, tbl_DeepFoundationSoilLayer
SW-SM	USGS Group Symbol: SW-SM	USCS soil classification code (ASTM D2488)	tbl_ExplorationSoilLayerBoring, tbl_DeepFoundationSoilLayer
SWZ	Swaziland	Country code	tbl_Project
SXM	Sint Maarten (Dutch part)	Country code	tbl_Project
SYC	Seychelles	Country code	tbl_Project
SYR	Syrian Arab Republic	Country code	tbl_Project
T	Timber	Deep Foundation Type	tbl_DeepFoundation
T	Texam	Pressuremeter type	tbl_Exploration
T	Torvane	Laboratory strength test type	tbl_ExplorationLabResults

T	Tremie	Drilled shaft concrete placement method	tbl_InstallDrilledShaft
T	Tension	Load type or direction	tbl_LoadTest
T	Top of Pile	Load transfer segment displacement measurement location	tbl_LoadTestSegment
TA	Tangent	Load test nominal resistance criteria	tbl_LoadTestNominalResistance
TCA	Turks and Caicos Islands	Country code	tbl_Project
TCD	Chad	Country code	tbl_Project
TCP	Texas Cone Penetrometer	Boring method type	tbl_Exploration
TER	Terzaghi - 1 inch	Load test nominal resistance criteria	tbl_LoadTestNominalResistance
TEX	Texas Cone Penetrometer	Exploration sampler type	tbl_ExplorationBoring
TGO	Togo	Country code	tbl_Project
THA	Thailand	Country code	tbl_Project
TJK	Tajikistan	Country code	tbl_Project
TKL	Tokelau	Country code	tbl_Project
TKM	Turkmenistan	Country code	tbl_Project
TLS	Timor-Leste	Country code	tbl_Project
TN	Tennessee	State, Province, or FHWA district	tbl_Project
TON	Tonga	Country code	tbl_Project
TP	10% Pile Diameter	Load test nominal resistance criteria	tbl_LoadTestNominalResistance
TRASH	Debris/Trash	Soil layer primary description	tbl_ExplorationSoilLayerBoring, tbl_DeepFoundationSoilLayer
TTO	Trinidad and Tobago	Country code	tbl_Project
TUN	Tunisia	Country code	tbl_Project
TUR	Turkey	Country code	tbl_Project
TUV	Tuvalu	Country code	tbl_Project
TWB	Thicker Wall Bottom Section	Pile tip treatment code for open-end steel pipe piles	tbl_DeepFoundation
TWN	Taiwan, Province of China	Country code	tbl_Project
TX	Texas	State, Province, or FHWA district	tbl_Project
TZA	United Republic of Tanzania	Country code	tbl_Project
U	Uniform	Deep foundation geometry	tbl_DeepFoundation
U	Unknown	ASTM D1143 Static Load Test Procedure	tbl_LoadTest
UC	Unconfined Compression	Laboratory strength test type	tbl_ExplorationLabResults
UC	Ultimate Capacity	Maximum load criteria for load test	tbl_LoadTest
UD	Triaxial: Unconsolidated Drained	Laboratory strength test type	tbl_ExplorationLabResults
UGA	Uganda	Country code	tbl_Project
UKR	Ukraine	Country code	tbl_Project
UMI	United States Minor Outlying Islands	Country code	tbl_Project

UN	Unknown	Steel reinforcement type for drilled shafts and augercast piles	tbl_DescriptionAugerCast, tbl_DescriptionDrilledShaft
UNK	Unknown	Timing of CAPWAP measurement relative to driving sequence	tbl_Capwap
UNK	Unknown	Deep Foundation installation method	tbl_DeepFoundation
UNK	Unknown	Pile tip treatment code for steel H-piles	tbl_DeepFoundation
UNK	Unknown	Pile tip treatment code for closed-end steel pipe piles	tbl_DeepFoundation
UNK	Unknown	Pile tip treatment code for open-end steel pipe piles	tbl_DeepFoundation
UNK	Unknown	Pile tip treatment code for timber piles	tbl_DeepFoundation
UNK	Unknown	Timber pile wood type	tbl_DescriptionTimber
UNK	Unknown	Boring method type	tbl_Exploration
UNK	Unknown	Cone penetration test type	tbl_Exploration
UNK	Unknown	Pressuremeter installation method	tbl_Exploration
UNK	Unknown	Pressuremeter type	tbl_Exploration
UNK	Unknown	Exploration hammer type	tbl_ExplorationBoring
UNK	Unknown	Exploration sampler type	tbl_ExplorationBoring
UNK	Unknown	Laboratory strength test type	tbl_ExplorationLabResults
UNK	Unknown	Drilled shaft bottom clean out method	tbl_InstallDrilledShaft
UNK	Unknown	Drilled shaft concrete placement method	tbl_InstallDrilledShaft
UNK	Sequence Unknown	Drive sequence for pile driving record	tbl_InstallPileDrivenPileHeader
UNK	Unknown	Maximum load criteria for load test	tbl_LoadTest
UNK	Unknown	Statnamic load test catch system	tbl_LoadTest
UNK	Unknown/Not Specified	Load test nominal resistance criteria	tbl_LoadTestNominalResistance
UNKNOWN	USGS Group Symbol: UNKNOWN	USCS soil classification code (ASTM D2488)	tbl_ExplorationSoilLayerBoring, tbl_DeepFoundationSoilLayer
Unknown	Vertical Datum: Unknown	Vertical datum for project	tbl_Project
URY	Uruguay	Country code	tbl_Project
USA	United States	Country code	tbl_Project
USACE	US Army Corps of Engineers	Load test nominal resistance criteria	tbl_LoadTestNominalResistance
UT	Utah	State, Province, or FHWA district	tbl_Project
UU	Triaxial: Unconsolidated Undrained	Laboratory strength test type	tbl_ExplorationLabResults
UZB	Uzbekistan	Country code	tbl_Project
V	Variable	Deep foundation geometry	tbl_DeepFoundation
VA	Virginia	State, Province, or FHWA district	tbl_Project
Variable	Variable	Generalized soil type	tbl_Project, tbl_DeepFoundation
VAT	Holy See (Vatican City State)	Country code	tbl_Project

VCT	Saint Vincent and the Grenadines	Country code	tbl_Project
VD	Vibrated Only	Deep Foundation installation method	tbl_DeepFoundation
VDID	Vibrated and Impact Driven	Deep Foundation installation method	tbl_DeepFoundation
VE	Vesic	Load test nominal resistance criteria	tbl_LoadTestNominalResistance
VEN	Venezuela	Country code	tbl_Project
VGB	British Virgin Islands	Country code	tbl_Project
VIR	US Virgin Islands	Country code	tbl_Project
VNM	Viet Nam	Country code	tbl_Project
VT	Vermont	State, Province, or FHWA district	tbl_Project
VUT	Vanuatu	Country code	tbl_Project
WA	Washington	State, Province, or FHWA district	tbl_Project
WB	Wash Boring	Boring method type	tbl_Exploration
WCL	with Clay	Additional terms for soil layer description	tbl_ExplorationSoilLayerBoring, tbl_DeepFoundationSoilLayer
WGR	with Gravel	Additional terms for soil layer description	tbl_ExplorationSoilLayerBoring, tbl_DeepFoundationSoilLayer
WI	Wisconsin	State, Province, or FHWA district	tbl_Project
WLF	Wallis and Futuna	Country code	tbl_Project
WOR	with Organics	Additional terms for soil layer description	tbl_ExplorationSoilLayerBoring, tbl_DeepFoundationSoilLayer
WROCK	Weathered Rock	Soil layer primary description	tbl_ExplorationSoilLayerBoring, tbl_DeepFoundationSoilLayer
WSA	with Sand	Additional terms for soil layer description	tbl_ExplorationSoilLayerBoring, tbl_DeepFoundationSoilLayer
WSI	with Silt	Additional terms for soil layer description	tbl_ExplorationSoilLayerBoring, tbl_DeepFoundationSoilLayer
WSM	Samoa	Country code	tbl_Project
WV	West Virginia	State, Province, or FHWA district	tbl_Project
WY	Wyoming	State, Province, or FHWA district	tbl_Project
YEM	Yemen	Country code	tbl_Project
YU	Yukon	State, Province, or FHWA district	tbl_Project
ZAF	South Africa	Country code	tbl_Project
ZMB	Zambia	Country code	tbl_Project
ZWE	Zimbabwe	SW	tbl_Project