

USACE Surveying and Mapping Community of Practice



Corpscon, TEQC, and U-SMART

Presented by:

Mark W. Huber

Army Geospatial Center



US Army Corps of Engineers
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USACE

Surveying and Mapping

Community of Practice

Activities

- **CORPSCON**
- **TEQC Editor and GPS Utilities**
- **U-SMART**



CoP Membership Form

- Sign Up
- Specify Interest
- Indicate Subscriptions
- Modify Options
- Cancel Membership



CoP Membership

For Immediate Release:
September 07, 2010
Distribution Unlimited

Contact:
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SURVEYING AND MAPPING COMMUNITY OF PRACTICE POC MEMBERSHIP

Please take a few moments to complete the questions below to be added to the membership list. Once completed, simply hit the submit button to have your information submitted or modified.

The list will be used to disseminate information to the S&M Community of Practice. Please forward the form on to anyone that may be interested in becoming a member.

If you want to cancel your membership, please check the Cancel Membership box below and hit the Submit button. (Email address required)

Thanks,
Mark

First Name: <input type="text" value="John"/> MI: <input type="checkbox"/>	Subscriptions	Interests (check all that apply)
Last Name: <input type="text" value="Rodman"/> DD: <input checked="" type="checkbox"/>	<input checked="" type="checkbox"/> CoP Newsletter	<input checked="" type="checkbox"/> Hydrographic
Title: <input type="text" value="Rodman"/> PL: <input type="checkbox"/>	<input checked="" type="checkbox"/> CoP Bulletin	<input type="checkbox"/> Topographic/Control
Branch: <input type="text" value="John"/> OS: <input type="checkbox"/>	<input checked="" type="checkbox"/> USACE Bulletin	<input checked="" type="checkbox"/> USAR
Email: <input type="text" value="jll@usace.army.mil"/>		<input type="checkbox"/> Photogrammetry
Comments: <input type="text"/>		

Cancel Membership (Email address required)

U.S. ARMY CORPS OF ENGINEERS - Surveying and Mapping Community of Practice
Army Geospatial Center www.agc.army.mil/index.html


September 07, 2010





CoP Newsletter

- Current Activities
- Announcements
- NGS News
- Tips and Tricks
- Lessons Learned



June 01, 2012
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SURVEYING AND MAPPING COMMUNITY OF PRACTICE NEWSLETTER

Survey IV, GPS Surveying PROSPECT Class:
This year Survey IV was conducted at the National Geographic Institute (NGI) that the class was held at a location other than The Blevill Center waiting list to attend. But this year that was not the case. We Joe Elyan, NGS' Project Manager for OPUS was able to send Managers. Joe stressed the importance of documenting our work what makes a good control point. <http://www.usace.army.mil/ce/ce/bad/>, and the Ugly.

The old Extant SharePoint Site has been removed. If you have a link to <http://www.usace.army.mil/ce/ce/bad/> make all of you coordinates which gives you the ability to contribute in the discussion forum. This is how we should be contributing, go to the discussion section and post it. We should when a new question is asked or when someone post a response.

GPS FOR GIS APPLICATIONS PROSPECT Class:
This is your chance to get into the next class. There are 7 seats in Hampshire. This course covers basic GPS/GIS concepts using related error factors, GIS database development, absolute and relative GPS data collection, reduction, accuracy, and analysis and Stacy English to reserve your seat.

Browser Function:
Did you know that you can hit the [Ctrl]+[F] and [Ctrl]+[H] keys in and out when in your web browser? My old eyes sometimes help seeing the webpage and this can come in very handy. The link!

TEQC RINEX Editor – TGO Bug Exterminator
I have updated a utility in TEQC r11w.exe.com which will edit RINEX files, but should modify the RINEX file to run in TGO in mind that all stations will have to be modified. I have 1 to do. If you have a few minutes, download the zip and unzip it folder. Then just run it. No need to put in a ticket. Let me let it work.

Surveyor Connect:
I stumbled upon a pretty good forum for surveyors. You can find it at <http://surveyorconnect.com/index.php>. It looks good.

U.S. ARMY CORPS OF ENGINEERS – Surveying and Mapping Community of Practice
Army Geospatial Center www.usace.army.mil/ce/ce/bad/
Page 1



For Immediate Release:
August 01, 2011
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SURVEYING AND MAPPING COMMUNITY OF PRACTICE NEWSLETTER

NAD83(2011) vs. NAD83(CORS96)
I was recently asked the following question, "We recently performed a RTK survey utilizing a OPUS derived solution as our RTK base for horizontal coordinates. The scope of the job required that horizontal coordinates be in NAD83(07). I assume that since OPUS is in NAD83(CORS96) that we are not working in the same realization of NAD83. We're not really sure how to convert between the two realizations. Do you know of any way to convert between these realizations?"

The NAD Final Report on the adjustment states "NAD 83(NRS2007) was created by adjusting GPS data collected during various campaigns to the specific surveys performed between mid-1980 and 2005. The NAD 83(CORS96) positional coordinates for 665 CORS were held fixed (predominantly at the 2002.0 epoch for the stable North American plate, but 2003.0 in Alaska and 2007.0 in western CONUS). Derived NAD 83(NRS2007) positional coordinates should be consistent with corresponding NAD 83(CORS96) positional coordinates to within the accuracy of the GPS data used in the adjustment."

So you can consider both the CORS96 and NRS2007 realizations to be the same, at least at the accuracies needed for our civil works projects. So while the requirements may specify the NAD83(07) as the reference frame, using the CORS96 is virtually the same and does not need any conversion.

Afghanistan Troops Reaching Back to the S&M CoP:
It is very satisfying to see the community at work. Let me share a recent success story with you. Late last month I received a request for help from a Staff Sergeant currently serving in Afghanistan who needed help with the operation of his GPS system. I sent out his request for help to several community members that I knew had firsthand knowledge of the system being used and his issue was resolved within a couple of hours. Thanks to the community for helping out. And many thanks to all of you currently serving to protect our country's liberty and our freedoms. **See... collaboration can make a difference!**

ISO Standards:
ISO standards require surveying equipment to be measured/ tested per national standards. There are national accuracy standards as far as data closure but nothing on equipment. To say per manufacturer's standard is not sufficient. Some districts have referenced local procedures such as using a calibration baseline or the "two-peg" test for the level which are good practices, but how does that align with the ISO or some national standard? Have any of you gone through the certification process and if so, can you please send in something on your experiences?

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CORPSCON v7.0

- v6.0 has bug
- v7.0 beta version
 - KML
 - VDatum

<http://corpscon.silkwerks.com/beta>

The screenshot shows the Corpscon v7.0 application window. The title bar reads "Corpscon v7.0". The menu bar includes "File", "Tools", and "Help". There are "Convert" and "Exit" buttons in the top right. Below the menu bar are tabs for "Setup", "Input", "Output", and "Tools". The "Input" tab is active, showing two sections: "Horizontal" and "Vertical".

Section	System	Datum	Zone	Unit
Horizontal	2 - State Plane	1983 - NAD 83(86)	1702 - Louisiana South	1 - US Survey Foot
Vertical	1988 - NAVD88	1 - US Survey Foot		

The "Output" tab is also visible, showing similar settings:

Section	System	Datum	Zone	Unit
Horizontal	1 - Geodetic	1927 - NAD 27	1702 - Louisiana South	3 - Meter
Vertical	1929 - NGVD29	1 - US Survey Foot		

At the bottom, there are two text boxes with "Browse" buttons:

Nadcon Path: C:\Corpscon7\Nadcon [Browse]

VDatum Path: C:\Corpscon7\VDatum [Browse]

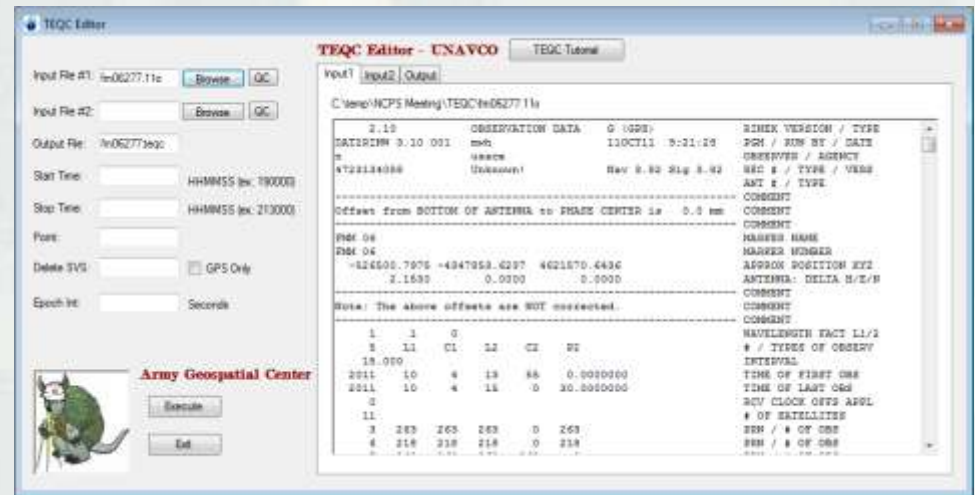
At the very bottom, a status bar displays the following information:

Input - S:State Plane HD:NAD 83(86) SP:1702 HU:US Survey Foot VD:NAVD88 VU:US Survey Foot
Output - S:Geodetic HD:NAD 27 VD:NGVD29 VU:US Survey Foot No Output



TEQC Editor

- TEQC Frontend
- Still in development
 - OPUS Reporting Tools
 - OPUS-Projects Loop Closures
 - TGO Workaround
 - Suggestions

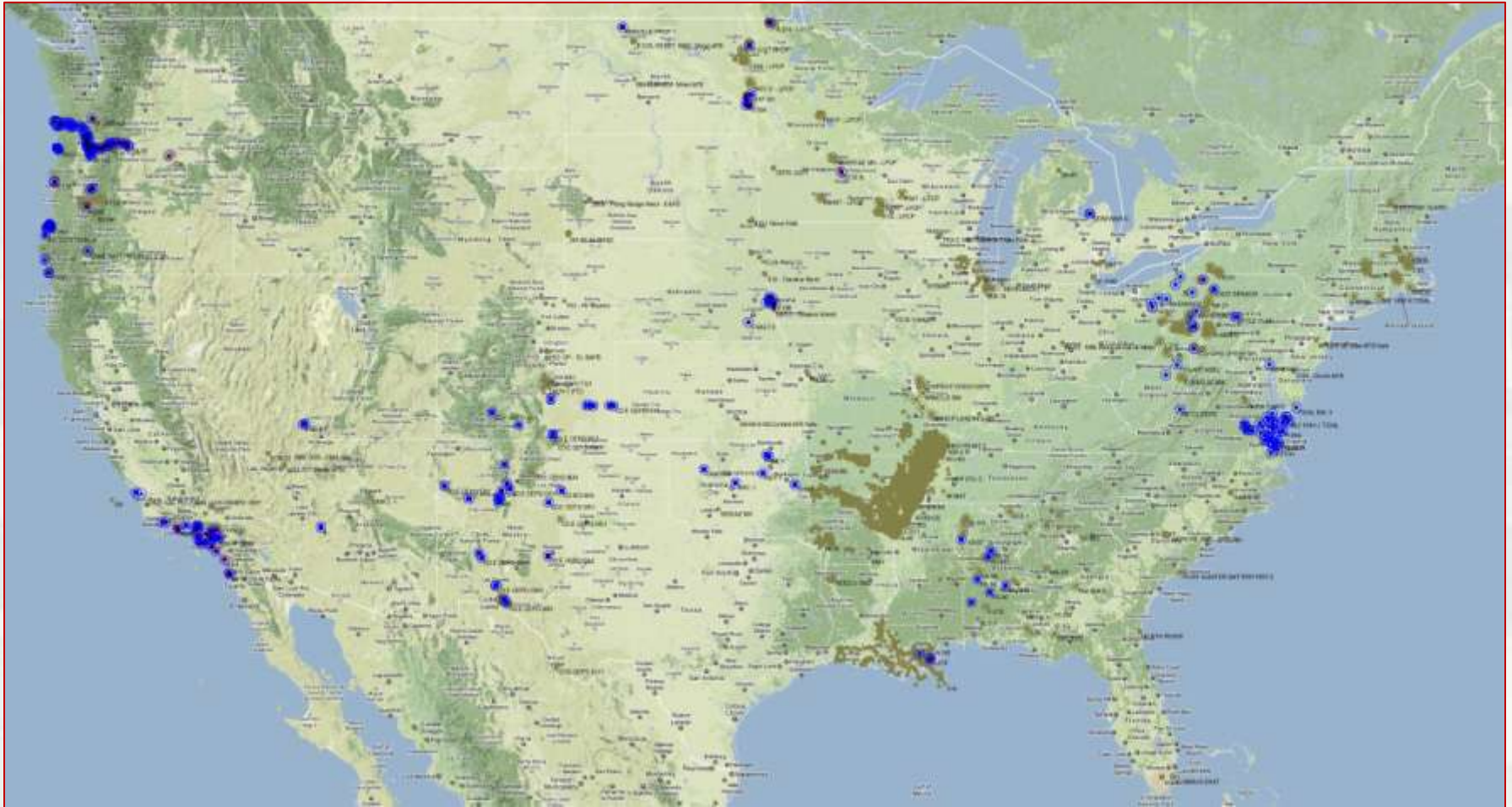


<http://teqc.silkwerks.com>

Trim time from observation
Delete satellites
Decimate interval
Concatenate two files
Convert .dat files to RINEX
Strip off other GNSS observations



USACE Survey Monument and Retrieval Tool (U-SMART)

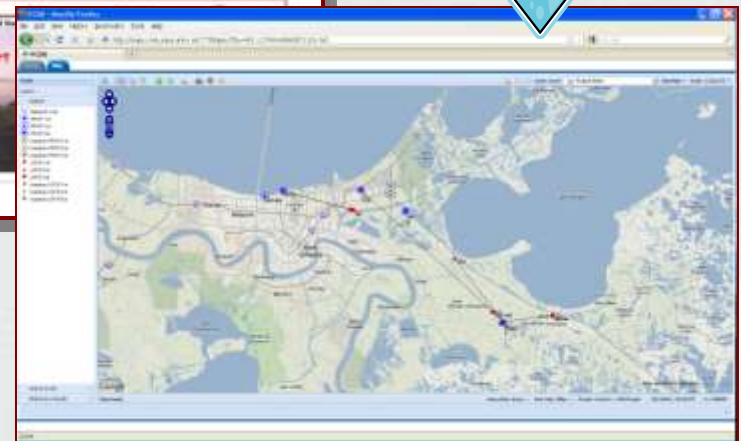
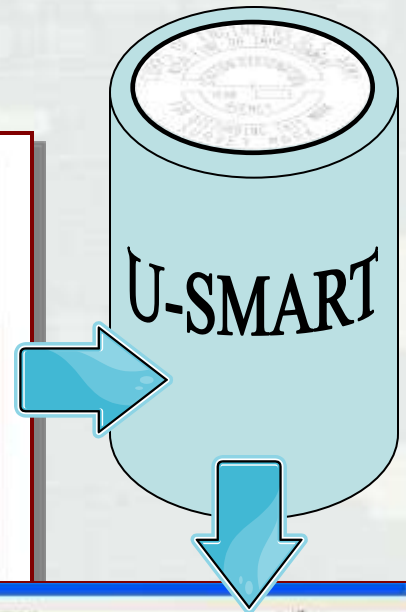


U-SMART

USACE Survey Monument Archival and Retrieval Tool

General Capabilities

- Control Point Description Form To Input
 - ▶ Horizontal And Vertical Coordinates
 - ▶ New, Recovery, History, Editing
- DDC - Use Submit Function In PDF
- Hyperlink To NGS Datasheet And OPUS-DB
- Displayed In CorpsMap
- Checks Against NGS Published Coordinates
- Linked To Projects In CPN
- Versioning For Superseded Control



U-SMART

USACE Survey Monument Archival and Retrieval Tool

Control Point Form

- Control Point Description Form To Input
 - Horizontal And Vertical Coordinates
 - New, Recovery, History, Editing
- Easy To Populate Pulldowns, Checkboxes, And Radio Buttons
- Images Populated Via Browse Function
- Completed By Field Crews/Contractors
- Imported Into U-SMART By DDC

USACE Survey Marker Archive & Retrieval Tool Datasheet



Project: MRCO Basin District
Stamp: Engg 1
ID: 866-21000-000
State: Louisiana
County: St. Bernard
District: New Orleans
Nearest Town: Chalmette
UNOS-Quad: Chalmette
E.A.S.:
Nearest Bench:
S.I. System:

Date Recovered: Jan 13, 2010
By: Adam Satterberg, Inc.
Condition/Status: Good
Setting/Recovery Type: not defined to RT
Owner: NOAA, NGS
GPS Station: Yes No
Observations: M E F W

Horizontal:
Date: 8/3/2008
Lat: 29 09 40.70476 N
Lon: 90 41 31.41038 W
Local Accuracy: 2.0m
NAD83 Accuracy: 2.0m
Survey/Computation Method: Static GPS Network
Date Observed: Aug 3, 2008

Vertical:
Date: 8/3/2008
Elevation (IC): 251
Ellip (ID): 74.0
Local Accuracy: 2.0m
NAD83 Accuracy: 2.0m
Survey/Computation Method: Static GPS Network
Date Observed: Aug 3, 2008

Tidal/Hydraulic Gauge Relationships:
Owner Code: NOAA
Group ID: 4311204
Epoch: 43-05
ELLIP: 4.0
Elevation:

Horizontal View: 
Close-Up View: 

Required Fields in Red **Reset Form** **Submit** **U-SMART ver 1.1 10/02/2009**

U-SMART

USACE Survey Monument Archival and Retrieval Tool

Import Utility to Load Legacy Control Points

CEMVN-ED-SS PBM

Name: SAMPLE Quad: 230901 Line: 116 Recovered: NGS 1985
Parish: ORLEANS Condition: G Monument: B Established: LA1690 LINK

Latitude	Longitude
29- 56- 52	90- 4- 11

LambertX	LambertY
NAD27 2400182.60183	468074.67715
NAD83 3680984.30762	528781.64634

Epoch	Elevation
1951	8.261
1964	7.434
1983	6.934
1985	6.68

Export All LatLongs Import All XYs

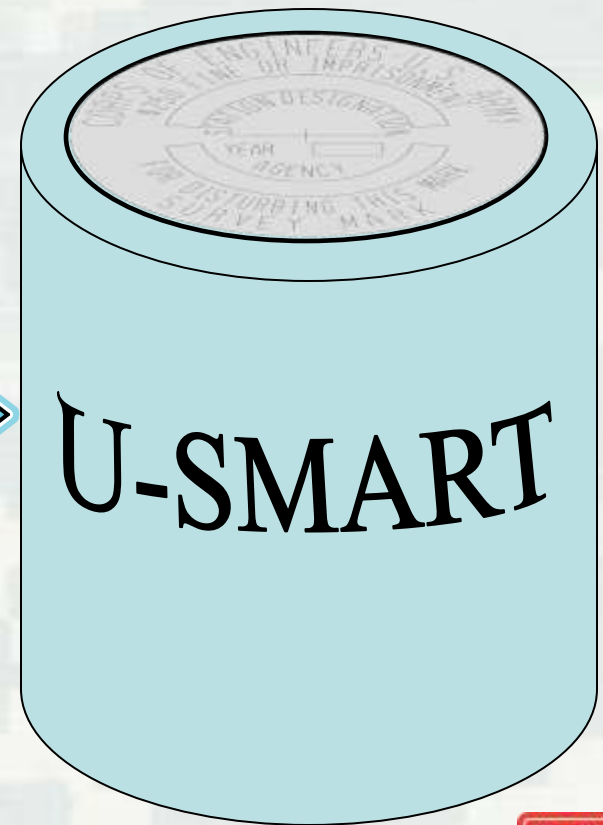
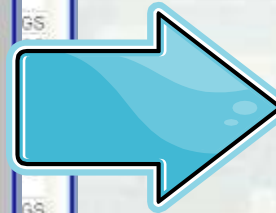
STOP TBM

Description

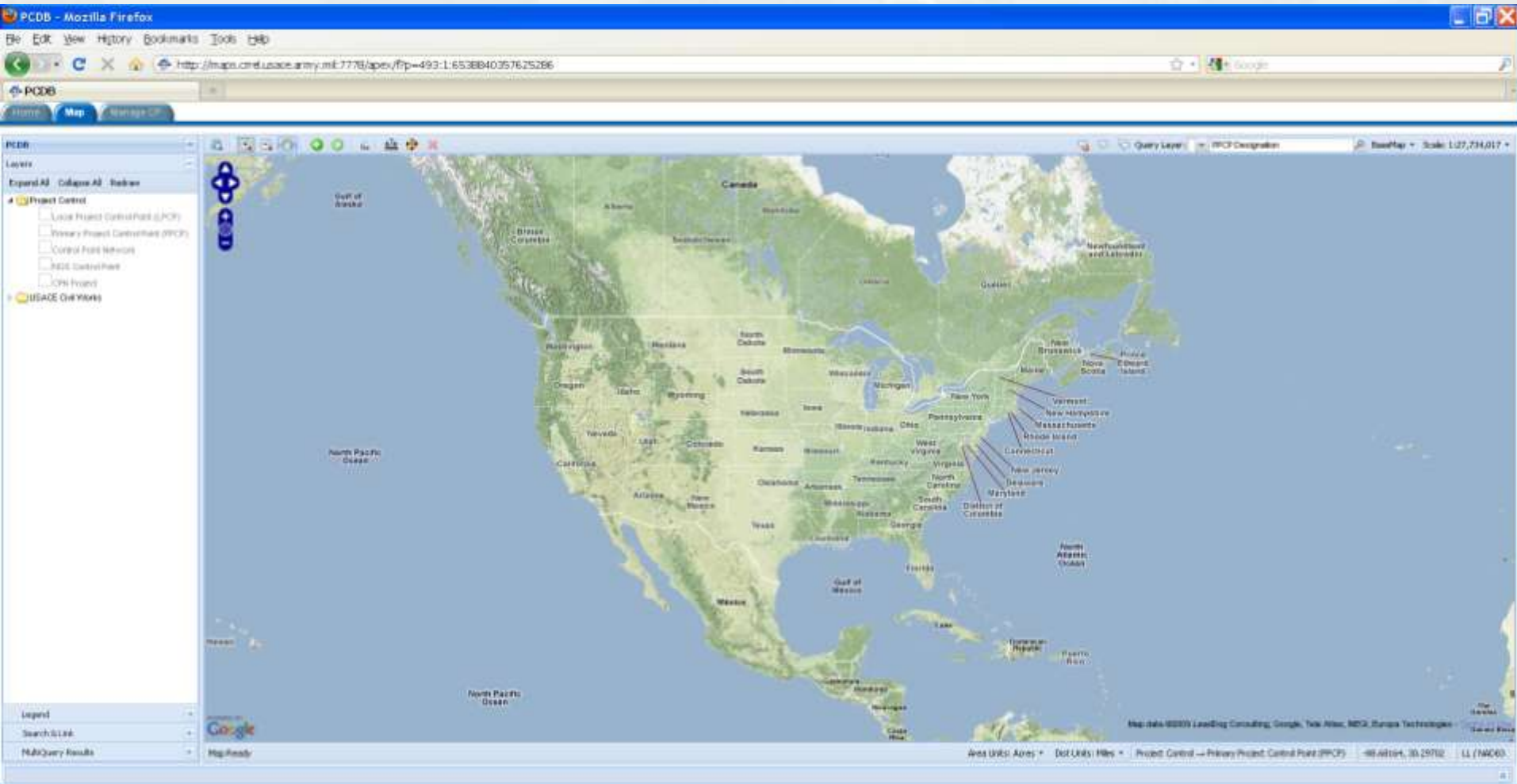
AT NEW ORLEANS, IN LAFAYETTE PARK, AT THE INTERSECTION OF SOUTH AND CAMP STREETS, 36.6 FEET NORTH OF THE NORTH CURB OF SOUTH STREET, 76 1/2 FEET WEST OF THE WEST CURB OF CAMP STREET, A COPPER BOLT SET IN THE TOP OF A ROUNDED GRANITE POST PROJECTING 5 INCHES.

***** REPORT BY-CGS DATE-1963 CONDITION- GOOD
***** REPORT BY-NGS DATE-1985 CONDITION- GOOD

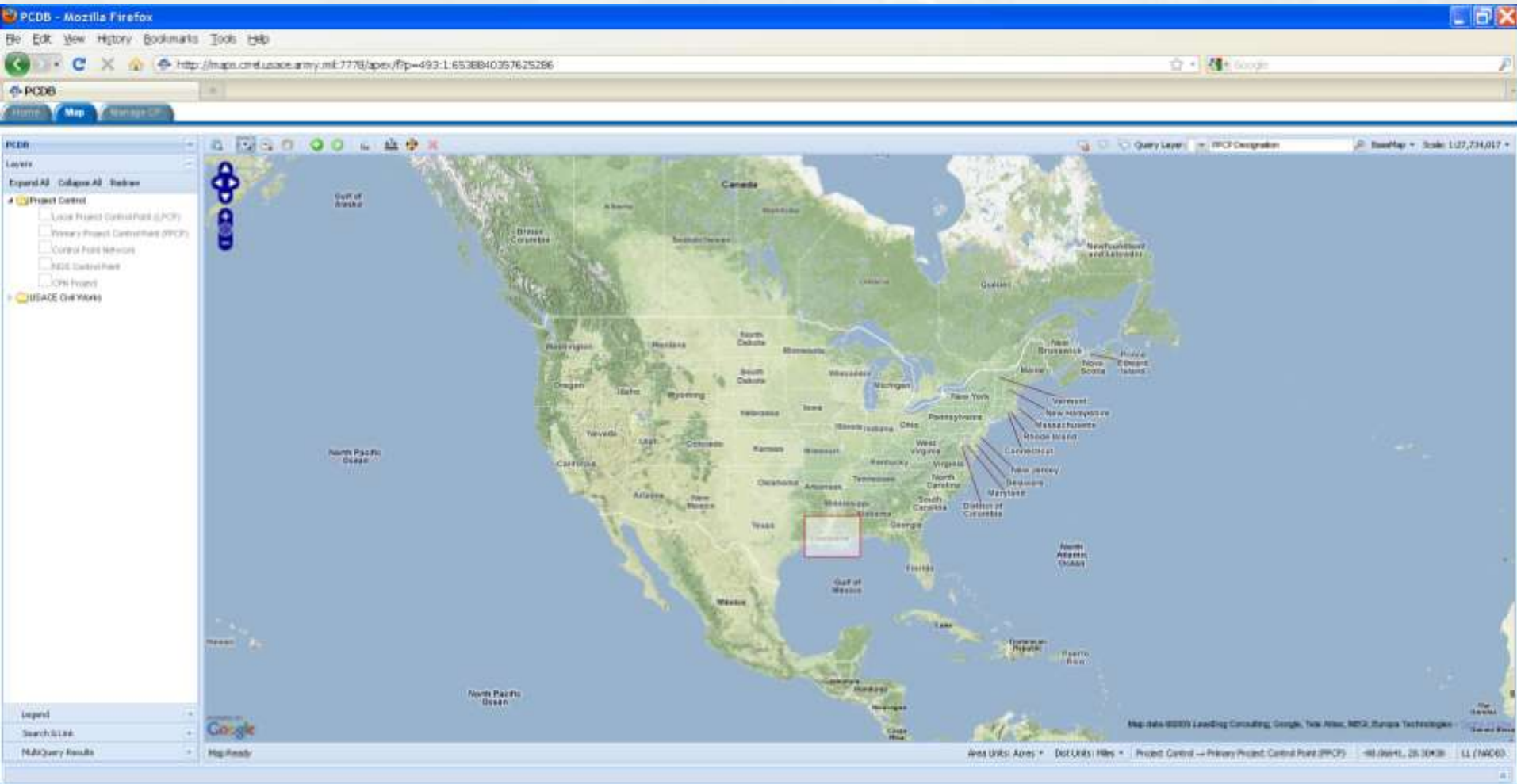
RECOVERED IN GOOD CONDITION, THE 1951 RECOVERY NOTE IS ADEQUATE WITH



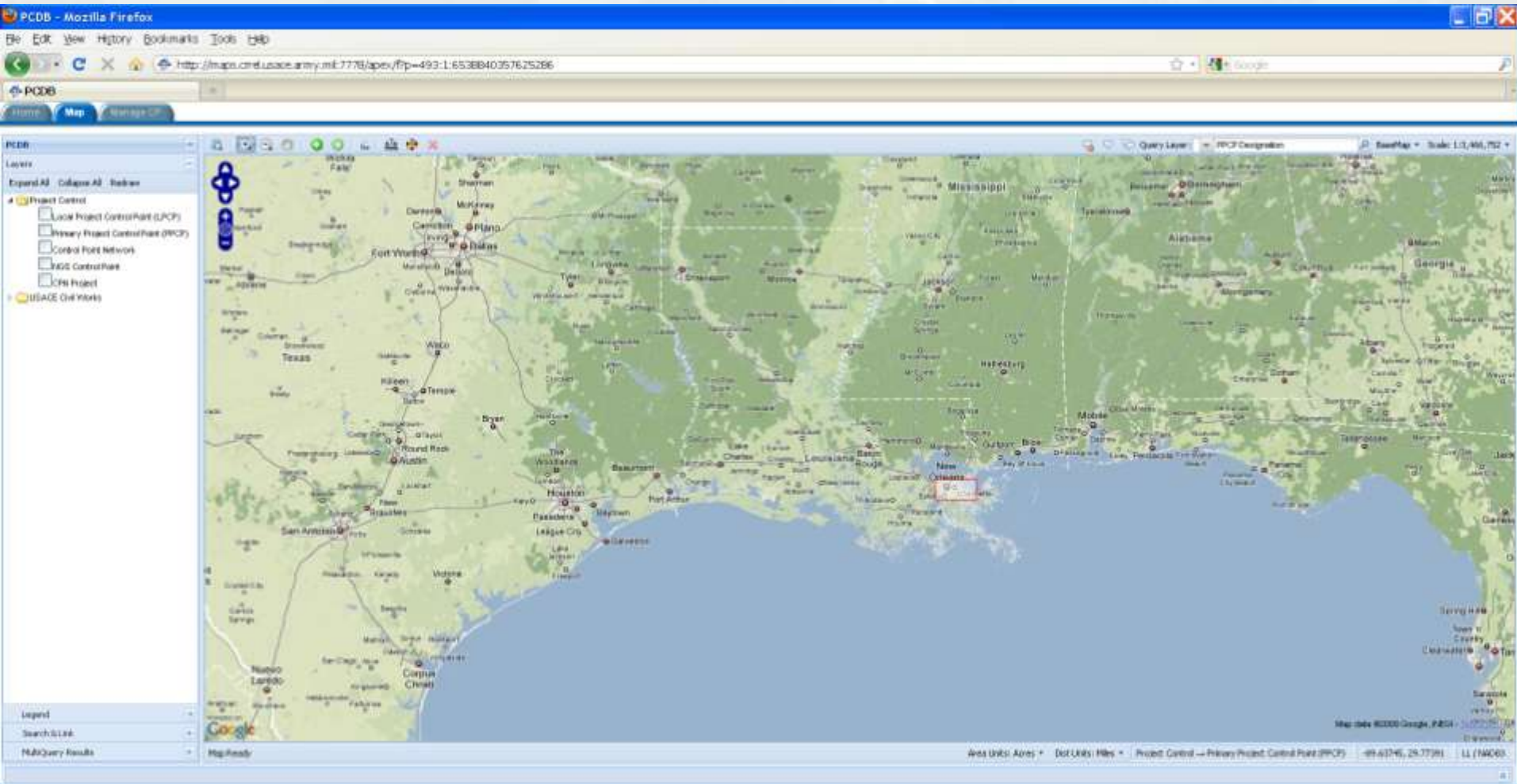
Initial View



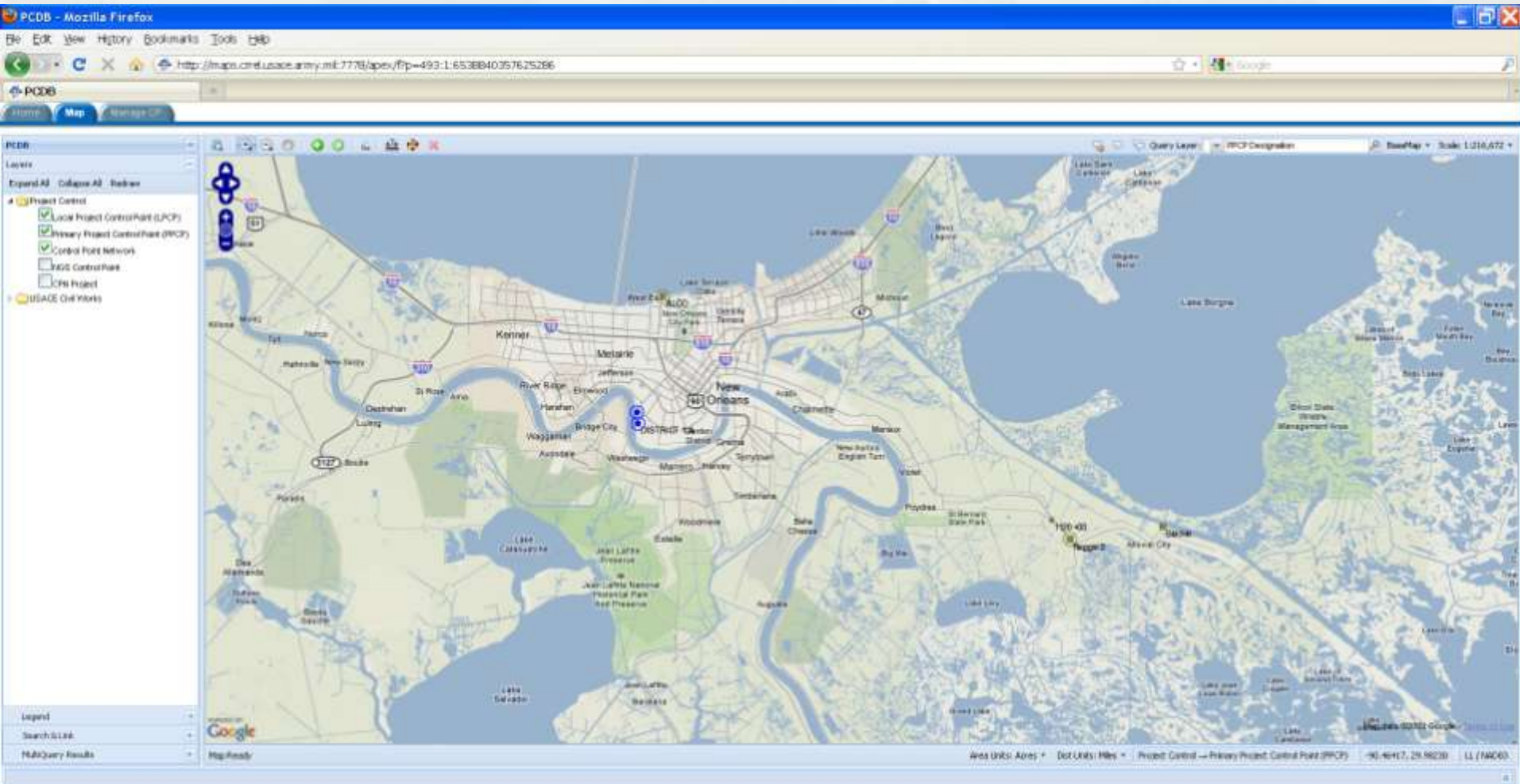
Zoom



Zoom



Layers



Link NGS Point to Project

The screenshot shows a Mozilla Firefox browser window displaying a web application. The address bar shows the URL: <http://maps.cnel.usace.army.mil:7776/apex/f?p=493:1:6538840357625266>. The browser title is "PCDB - Mozilla Firefox".

The application interface includes a left-hand sidebar with the following sections:

- Layers:** Legend, Search by LNK
- NGS Linking:** A dropdown menu set to "NGS Linking".
- Projects:** A search box and a "Refine Project" button.
- Project List:** A list of projects with radio buttons for selection:
 - LAKE PONTCHARTRAIN AND VICINITY HURRICANE PROTECTION PROJECT - JEFFERSON PARISH
 - LAKE PONTCHARTRAIN, LA
 - LAKE PONTCHARTRAIN & VICINITY RECONSTRUCTION (FCCE)
 - LAKE PONTCHARTRAIN AND VICINITY, LA (HURRICANE PROTECTION) - ORLEANS PARISH
 - BELA BETTERMENTS
 - LAKE PONTCHARTRAIN BETTERMENTS
 - SOUTHEAST LOUISIANA (BELA) (FCCE)
 - ORLEANS OUTFALL CANAL
 - DREDOE WHEELER
 - MISSISSIPPI RIVER, BATON ROUGE TO GULF OF MEXICO, LA
- NGS Points:** A search box containing "815297", a "Refine NGS" button, and a list of points:
 - 815297
 - 815297
- Link:** A "Link" button.

The main map area shows a street grid with a yellow marker at point 815297. The map is titled "Lake Pontchartrain" and includes a "Query Layer" dropdown set to "NGS PB". The bottom status bar displays: "Area Units: Acres", "Dist Units: Miles", "Project Control: NGS Control Point", "N: 19462, 30.02095", "LL: (NAC00)", and "Map data: ©2012 Google".

Point is Linked

The screenshot shows a Mozilla Firefox browser window displaying a map application. The browser's address bar shows the URL: <http://maps.cmf.usace.army.mil:7776/apex/f?p=493:1:6538840357625266>. The application interface includes a sidebar on the left with a 'Layers' section containing a search box and a list of project categories. The main map area displays a street grid with a blue location pin labeled 'SUBURBAN' and a red location pin labeled 'PONTCHARTRAIN'. The sidebar lists the following project categories:

- LAKE PONTCHARTRAIN AND VICINITY HURRICANE PROTECTION PROJECT - JEFFERSON PARISH
- LAKE PONTCHARTRAIN, LA
- LAKE PONTCHARTRAIN & VICINITY RECONSTRUCTION (FCCE)
- LAKE PONTCHARTRAIN AND VICINITY, LA (HURRICANE PROTECTION) - ORLEANS PARISH
- BELLA BETTERMENTS
- LAKE PONTCHARTRAIN BETTERMENTS
- SOUTHEAST LOUISIANA (BELLA) (FCCE)
- ORLEANS OUTFALL CANAL
- DREDOGE WHEELER
- MISSISSIPPI RIVER, BATON ROUGE TO GULF OF MEXICO, LA

Below the project categories, there is a 'NOS Points' section with a search box containing 'B75297', a 'Refine NOS' button, and a checked radio button for 'B75297'. A 'Link' button is located at the bottom of the sidebar. The main map area shows a street grid with a blue location pin labeled 'SUBURBAN' and a red location pin labeled 'PONTCHARTRAIN'. The map also shows various landmarks such as 'Poussation Plaza Shopping Center', 'Village Square Shopping Center', and 'Lakewood Plaza Shopping Center'. The bottom status bar of the application displays 'Arno LRM: Acres', 'DAP LRM: Miles', 'Project Control - AGC Control Point', and '91.17975, 30.00625 LL / NAD83'.

Details Provided

The screenshot shows a Mozilla Firefox browser window displaying a Google Maps interface. The address bar shows a URL: <http://maps.orel.usace.army.mil:7776/apex/f?p=493:1:6538840357625266>. The browser title is "PCDB - Mozilla Firefox".

The map displays a street grid with a blue location pin labeled "SUBURAN". A sidebar on the left contains a "PCDB" section with a table of results:

Name	Description	Details
SUBURAN		Details

Below the map, there is a "More Detailed Information" section with a table of data:

Designation	COORD	NIS PB	State	Cont	Condit	Stability	D-Type	V-RSFS	HMPS	Grv H	Slp H	PCF	NIS	History
SUBURAN	CB74T	6424T	LA	-	-	C	1-4	-	-	-	-23.91	View	View	View

At the bottom of the browser window, the URL is: https://maps.orel.usace.army.mil/apex/f?p=493:6:::CREATEEDIT::P6_CONTROL_POINT_ID:54926

Details Page

- Create Point
- View Point's Attributes
- Edit Point

U-SMART - CP Detail - Windows Internet Explorer

Horizontal/Vertical/Recovery Date: Unapproved Version 07-DEC-2010 [View CPUS Data Sheet](#)
[View PDF](#)
[View HTML](#)

Designation: STERLING LANDING
Type:
Submitted From: Application
Approved: No
Archived: No
Archived Date:
Submitted By User: Raymond Armstrong
Submitted Date: 08-FEB-2011 12:11:40
Updated By User:
Updated Date:

[Edit](#) [Delete](#) [Approve](#) [Archive](#)

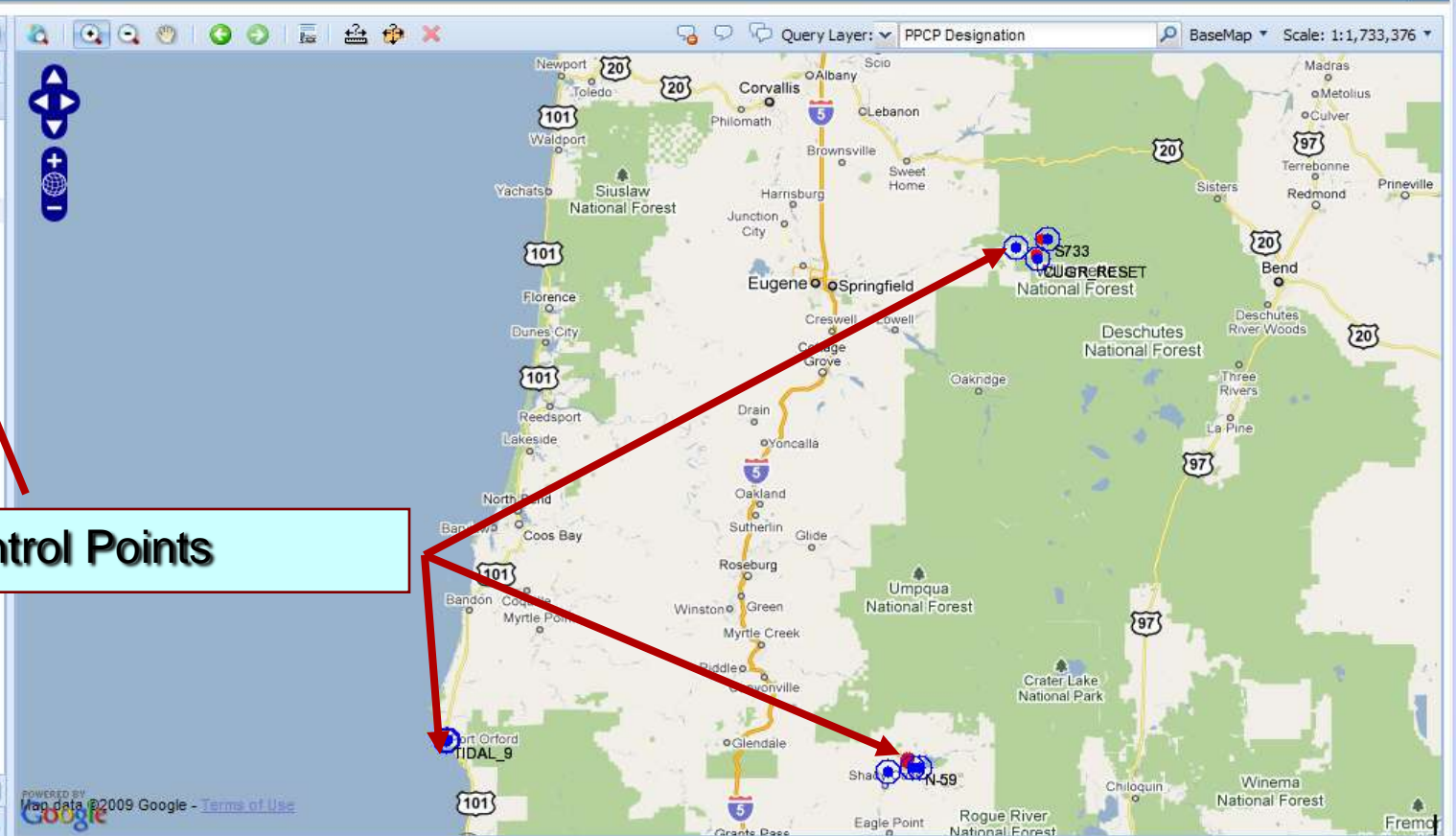
[Main](#) [Horizontal](#) [Vertical](#) [Tidal/Gage](#) [Description](#) [Associations and Documents](#) [Warnings and Differences](#)

• Designation: STERLING LANDING
COE PID: ACG981
Project:
Stamping: STERLING 2010
NGS/OPUS PID: BBCE46
State: Missouri
County: Lincoln
• District: St. Louis
Nearest Town: Elaberry, Mo/6.0
USGS Quad: Foley
T.R.S.: T50N R3E
Nearest Hwy/Mi: 794.0
Recovered Date: 07-DEC-2010
Recovered By: Hanson Professional Services Inc
Condition: Good
Stability:
Setting: G
Owner: USACE
GPS Suitable: Yes No
Obstruction: N E S W
Magnetic Indicator: Yes No



- Layers
- Expand All Collapse All Redraw
- USACE Control Points
 - Local Project Control Point (LPCP)
 - Primary Project Control Point (PPCP)
 - Control Point Network
 - NGS and OPUS Control Points
 - USACE Civil Works

Project Control Points



Designation	COE PID	NGS PID	OPUS PID	State	District	Condition	Stability	D-Type	V NSRS	H NSRS	Elev Ht	Ellip
GOLD	CB8018	QA1624	-	OR	NWP	Good	B	1-d	1-dm	10-m+	23.22	-

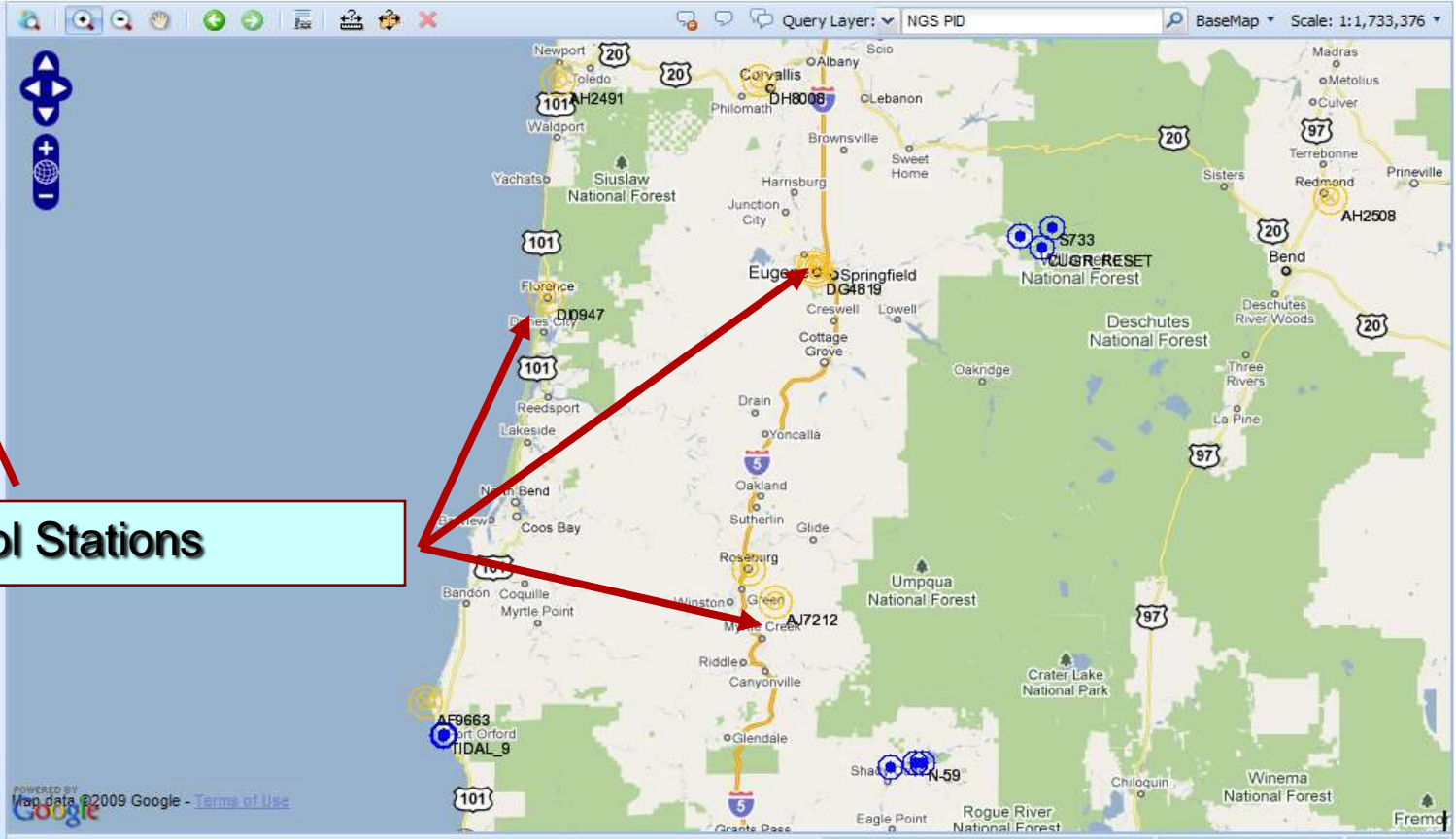
PCDB

Layers

Expand All Collapse All Redraw

- USACE Control Points
- NGS and OPUS Control Points
 - NGS Control Points
 - OPUS Control Point
 - NGS CORS
- USACE Civil Works

CORS Control Stations



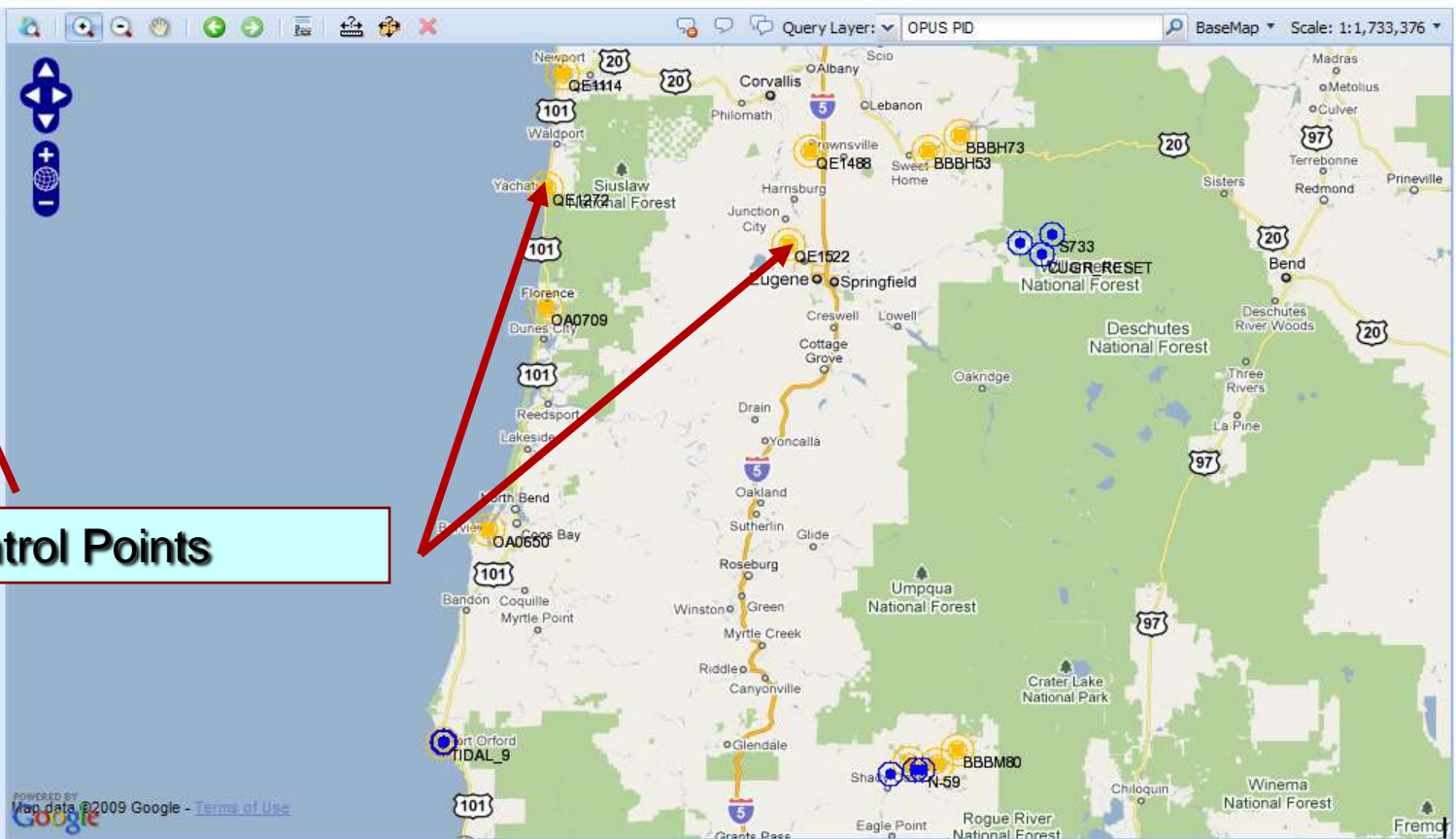
More Detailed Information

Designation	COE PID	NGS PID	OPUS PID	State	District	Condition	Stability	D-Type	V NSRS	H NSRS	Elev Ht	Ellip
GOLD	CB8018	QA1624	-	OR	NWP	Good	B	1-d	1-dm	10-m+	23.22	-

Layers

Expand All Collapse All Redraw

- USACE Control Points
- NGS and OPUS Control Points
 - NGS Control Points
 - OPUS Control Point
 - NGS CORS
- USACE Civil Works



OPUS-DB Control Points

Legend

Search & Link

MultiQuery Results

More Detailed Information

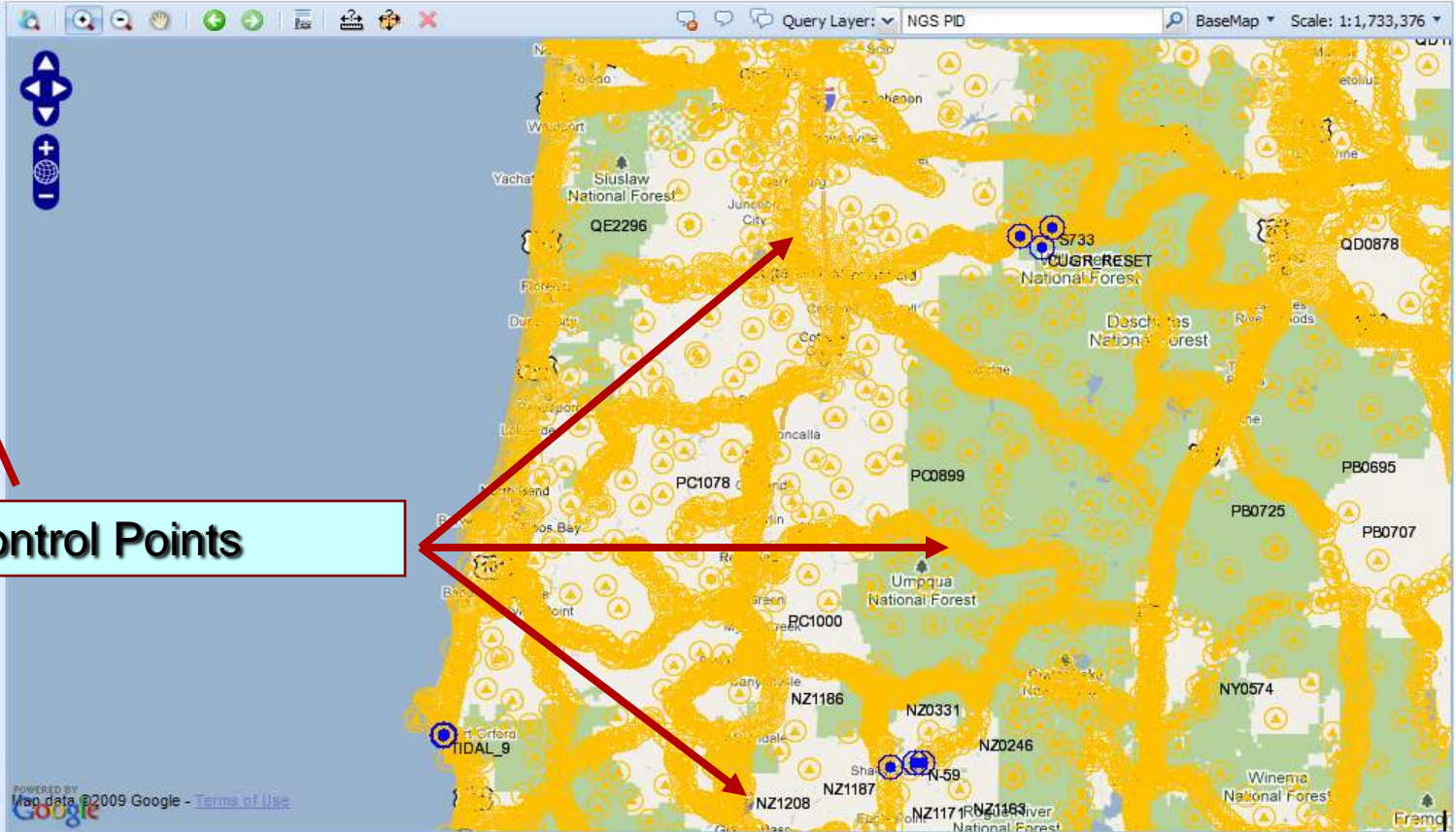
Designation	COE PID	NGS PID	OPUS PID	State	District	Condition	Stability	D-Type	V NSRS	H NSRS	Elev Ht	Ellip
GOLD	CB8018	QA1624	-	OR	NWP	Good	B	1-d	1-dm	10-m+	23.22	-

PCDB

Layers

Expand All Collapse All Redraw

- USACE Control Points
- NGS and OPUS Control Points
 - NGS Control Points
 - OPUS Control Point
- NGS CORS
- USACE Civil Works



NGS NSRS Control Points

More Detailed Information

Designation	COE PID	NGS PID	OPUS PID	State	District	Condition	Stability	D-Type	V NSRS	H NSRS	Elev Ht	Ellip
GOLD	CB8018	QA1624	-	OR	NWP	Good	B	1-d	1-dm	10-m+	23.22	-

USACE Surveying and Mapping Community of Practice



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Questions?



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TEQC-Editor:

<http://teqc.silkwerks.com>

U-SMART:

<https://rsgisias.crrel.usace.army.mil/apex/f?p=493>

CORPSCON:

<http://www.agc.army.mil/corpscon/> (v6.0)

<http://corpscon.silkwerks.com/beta/> (v7.0 beta)

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