

GRANITE XP



Asset Inspection / Decision Support Software
for the Water, Wastewater, & Stormwater Industries

"The Standard of the Industry"



Version 050510

The Leading Manufacturer of Pipeline Inspection & Rehabilitation Systems for Over 40 Years

CUES is the world's leading manufacturer of closed circuit television video (CCTV) inspection/rehabilitation/pipe profiling equipment and data acquisition asset-based software for sanitary and storm sewers, industrial process lines, and water lines. For over 40 years, CUES has provided innovative pipeline inspection technology and solutions to the Water/Wastewater industry to enable accurate condition assessment and proactive maintenance programs for buried infrastructure.

CUES continues to be the industry leader by designing and manufacturing a full-circle solution of products for pipe profiling, pipe rehabilitation, closed circuit television systems, and data acquisition with bi-directional interfaces to ESRI ArcGIS and asset management software such as Hansen and Azteca Cityworks

In addition to inspection equipment, CUES also designs, manufactures, and sells a broad range of pipeline rehabilitation and profiling equipment. These include chemical grouting systems for sewer line pipe joints capable of using a wide variety of grouting products. CUES also makes lateral reinstatement cutting systems which enable the reinstating of laterals in mainline sewers after they have been relined with any of a wide variety of liner materials. Pipe profiling is accomplished via Laser or Sonar based systems.

CUES after-sales support is a foundation of our business model. We provide professional videotapes, manuals, and CD format for system operation, safety, and maintenance. We also provide loaner equipment and full-time customer support and training by experienced industry professionals. Operator training schools with resultant certification are provided for our customers. Our emphasis on innovation and customer support has made CUES the world's largest supplier in our industry.

CUES operates its manufacturing and development operations from over 50,000 square feet of facilities in Orlando, FL. We maintain facilities for sales, service and repair in California, Georgia, Canada, and The Netherlands.

We appreciate the opportunity to serve you and look forward to hearing from you at your earliest convenience.



World's Leading Manufacturer of
Pipeline Inspection Equipment

www.cuesinc.com



The Software Solution for Managing Your Asset Infrastructure

For over 40 years, CUES has provided innovative pipeline infrastructure inspection technology and equipment to the global Water/Wastewater industry.

From its 70,000 sq ft facility in Orlando, Florida, CUES combines highly refined electro-mechanical engineering disciplines with proven software engineering processes to produce nearly indestructible robotic equipment that is tightly integrated to a versatile software foundation, providing unrivaled solutions to the Water/Wastewater industry globally.

With the advent of various US regulatory compliance mandates such as GASB 34, CUES is committed to enabling its customers to conform to these requirements through the use of a comprehensive infrastructure inspection software solution called Granite XP.

Granite XP is architected using contemporary Microsoft technologies and offers unmatched flexibility, customization, and ease-of-use to meet the growing needs of the industry. Granite XP has many advantages which are critical to deploying a comprehensive Capacity Assurance, Management, Operation, and Maintenance program (CMOM) that is simultaneously aligned with Federal regulations.

What's unique about Granite XP and why should I care?

The Federal Government's *Governmental Accounting Standards Board* Statement No. 34 (GASB 34), has mandated that municipal utilities report current values for their infrastructure in their annual financial reports. In the past, municipalities did not have to report on the value of all capital assets which created unacceptable levels of risk to bond underwriters who are critical to ensuring that municipal infrastructure rehabilitation projects get funded sufficiently to support EPA guidelines. Failing to comply can carry an enormous financial penalty to a municipality, and in certain conditions, criminal liability to senior managers. For these reasons, CUES proactively innovated a solution which assists municipalities with these mandates to create computerized asset inventories which allow asset values to be documented and calculated more accurately.

Deploy a Comprehensive CMOM program that conforms to GASB 34 regulations!

...the difference between **asset-based** and **inspection-based** software.

How is Granite XP different than the other available packages to meet these mandates?

Because Granite XP is designed with an asset-based architecture, the ability to view infrastructure at an asset level is possible. Unlike any of its competitors in the space, Granite XP offers 2 ways to organize and view pipeline inspections: the classic "project-based" method and the "asset-based" view of pipeline infrastructure. We think the differences are critical for a regulated entity to meet or exceed the asset-management requirements for GASB 34, CMOM and the EPA.

There are two significant limitations associated with project-based software packages that Granite XP overcomes. The first limitation occurs when a new inspection is being performed on an existing physical location, or asset. An operator in the field can create a new inspection without any visibility to previously performed inspections done on the same location. Thus, there is a chance that the operator could be entering in the wrong data associated with that asset and the project-based software would offer him no help in alerting him to this fact. Consequently, the operator could record the asset as being eight inch pipe when the previous inspections correctly recorded that the pipe was actually six inch pipe. Project-based inspection systems have no ability to link the past to the present and are unable to remind people that, for example, they are about to change an attribute of the asset which conflicts with previously completed inspections. When bad data is entered into

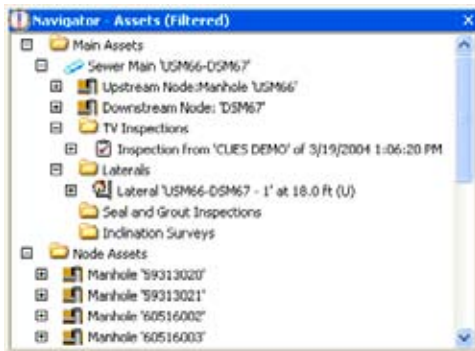


the system it is very expensive and time consuming to fix. Granite XP tracks all the history and can alert an operator to the fact that they are about to change something which was recorded differently during a previous inspection, and this reduces costly errors.

The second significant limitation associated with project-based software packages is that inspections performed on physical locations or assets are stored in multiple separate projects. Each project becomes its own separate database composed of manholes, pipe segments, laterals, etc. Thus, when the time comes to review the entire infrastructure or a particular subset such as a sub-basin, all of the associated projects created in the target area must be painstakingly reviewed and stitched together to answer frequently asked questions such as "show me all the inspection history on pipe segment XYZ or manhole ABC". Viewing historical data at the asset level becomes very difficult to accomplish with project-based inspection packages when this information is grouped into multiple separate projects. Some utilities with large systems even hire costly database administrators to merge this information on a full time basis due to this limitation. Managing infrastructure data in individual project databases complicates the process of proving to regulators that an effective CMOM program is in place. An asset-based system like Granite XP on the other hand is able to track everything at the asset level and seamlessly integrate this information to enterprise asset management and GIS systems. This feature successfully provides the granularity that decision makers, and sometimes regulators, require for an effective CMOM program.

Precise Asset Data Enables Effective Regulatory Compliance!

How can you tell if a pipeline inspection package is Asset-based?

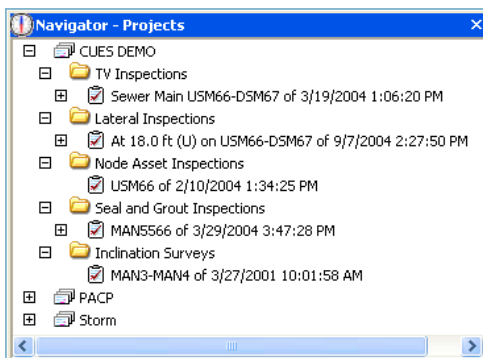


Browse/display by Assets

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Can your software import an entire asset database? In Granite XP, separate database tables are created and maintained which allow an entire GIS asset database to be imported into the software and enable the information to be constantly updated (synchronized) with 'official' asset information from the municipality or City's master GIS database. We know of no other package which can do this.

This means that people are all able to look at the same master data and able to eliminate costly manual data entry errors and avoid asset naming discrepancies often found in inspection-based systems. Imperfect information often originates out in the field in trucks which creates cascading errors and inefficiencies throughout the entire municipality to correct and translate inspection information into precise *asset* information. With Granite XP, what used to take hours of manual data entry can now be performed more efficiently and exactly, with the click of a mouse allowing enormous productivity gains by your most important assets....your employees!



Browse/display by Projects

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Precise Asset data enables effective regulatory compliance as well as creating the foundation for a proactive maintenance program. But Granite XP can still collect data the old fashioned way using the inspection-based method, should you prefer this, while simultaneously allowing for an Asset-based approach. You decide how you'd like to view the data - and that's one of the many powerful features that Granite XP provides.

Granite XP offers two ways to organize and display pipeline inspections: the classic "project-based" method and the "asset-based" view of pipeline infrastructure. A project is defined as a set of inspections. The "Project Navigator" will display the set of inspections defined by the user, where as the "Asset Navigator" will display all of the historical inspections of a particular asset.

Granite XP Editions

Which one is right for you?

Whether you're a truck operator, an IT professional, an Engineering firm, a municipality, or a GIS administrator, the CUES Granite XP Infrastructure Management Software is a solution designed to integrate all aspects of the TV inspection process. In order to meet the needs of different users, Granite XP offers 4 different Editions to meet your infrastructure assessment needs:

Inspection Edition - allows users to perform pipeline inspections out in the field often connected to camera systems to capture, assess and store inspection data.

Office Edition - allows users to manage inspection information and create customized inspection analysis in the form of reports, videos, still pictures, and database files to meet a wide array of data requirements. Capable of running on Enterprise databases such as Oracle 9i and SQL Server, the Granite XP Office Edition offers unmatched data synchronization power to enable multi-truck environments to manage disparate data within one master database. Additionally the Office Edition can import, export and manipulate data to meet virtually any requirement from GIS to PACP.

Engineering Edition - allows users to modify inspections and observations gathered in the field, to review existing data, synchronize inspections, capture images from playback and generate reports.

Viewer Edition - allows users to review and share information gathered during inspections and generate reports.



Key Advantages Unique to Granite XP!

Granite XP makes the inspection process faster and easier with less manual error!

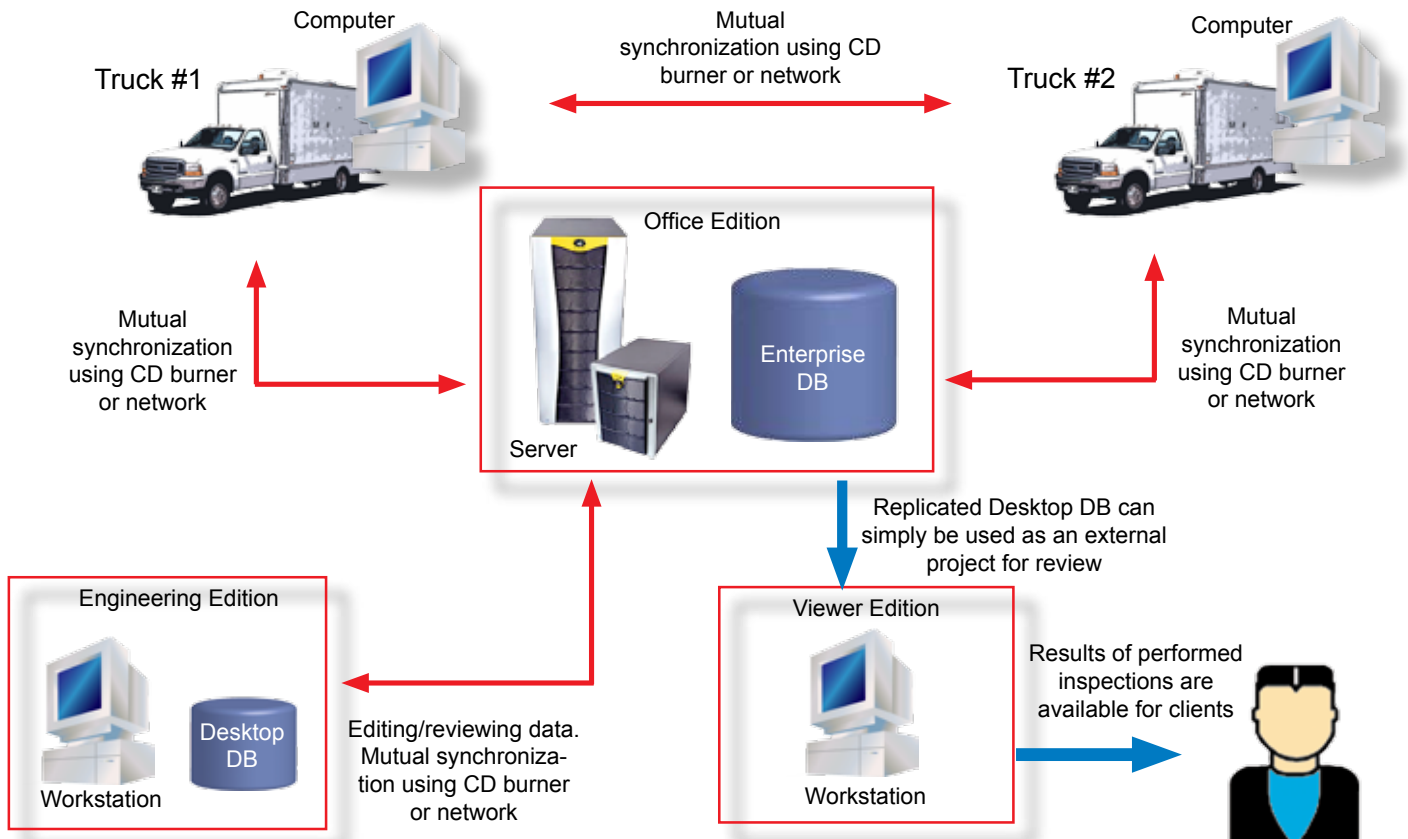
Robust Data Management Capabilities- Synchronization & Export

Granite XP has been designed from the ground up to facilitate the management of data and can support, synchronize, and run on multiple enterprise databases such as **Oracle** and **SQL Server** in addition to Microsoft Access.

Viewing and sharing data among disparate locations is very complex. Two extremely important capabilities in any data management system are Synchronization and Export:



- **Synchronization** is the process of bringing together two separate databases comprised of data, video, and pictures to make them each identical. Users with multiple trucks or separate offices can synchronize data between one another and/or with a master database from the GIS department, to ensure local and remote databases are identical. Synchronization assures that records are not duplicated and that changes made to an inspection are transferred identically to another location. If similar but conflicting information is found during synchronization, Granite XP allows the user to determine whether to update or skip a particular record.
- **Export** is the process of selecting portions of the original data, video, and pictures, and creating a complete and independent copy of this information which can then be used by any Granite XP Edition. This is especially useful for the initial creation of truck databases. Office users can select the Assets and Projects to transfer to a particular database. All or part of a database can be replicated from Granite XP, with or without videos and pictures. This new file can be burned to a CD/DVD and brought into the office from the truck, or vice versa.



Granite XP is enterprise-enabled and has the ability to support and synchronize with multiple data sources, such as Microsoft Access, Oracle, or SQL Server.



Key Advantages Unique to Granite XP!

Granite XP offers built-in flexibility and extensibility for continuous innovation and easy upgrading!

Extensibility - Granite XP is “future-proof”!

The revolutionary flexibility of Granite XP comes from the use of software plug-ins. Plug-ins provide the ability to add new features to Granite XP so that the core application can continually grow and accept new technologies from the vast spectrum of robotic devices that will enter the industry. With the use of plug-ins, third-party software, custom-designed modules, and asset infrastructure management systems can be easily integrated without rebuilding the program! What this means to our customers is that they can purchase various technology “modules” that they require on an “as needed” basis. When new equipment is purchased, a specific software module can be purchased as well when the time is right for your organization.

Multiple Compatibility Modes!

Compatibility Modes ensure that files and reports are fully compatible with other software products and standards. The Compatibility Modes that are currently available with Granite XP include Standard, Hansen, Azteca Cityworks, PACP, WRc, and WinCan. Each compatibility mode displays the correct fields and logic required for the selected system. You can activate multiple compatibility modes at the same time or change the mode without having to load different software! Contractors and Engineering firms who serve multiple customers can leverage Granite XP to accommodate the varying data format needs of their customers.

Flexible, Customizable Code Systems!

Granite XP includes a Code Editor that’s equipped with several standard code systems, including PACP, WRc, and supports user-defined code systems. Each project can have it’s own code system and measurement units based on individual inspection requirements! A code system not only includes observation codes, but also pipe types, surface condition, operators, etc. Code “hotkeys” can also be implemented per your preferences and can be linked to actions, such as “Start Lateral Inspection”. Granite XP also provides a quick and easy way to customize the fields and labels based on your specific requirements!



GRANITE XP'S SIMPLE USER INTERFACE



GRANITE XP'S INTEGRATED ONLINE HELP

Microsoft Windows™ Technology!

Granite XP uses familiar Microsoft Windows™ layout standards to provide simple, intuitive layout screens that are customizable to meet your needs depending on your preferences, including:

- Use of tool bars for operation
- Drop-down menus and auto-complete feature for quick and accurate selection and data entry
- Detailed HELP files available within the program
- Ability to create custom layouts with movable “panes” to create and save your favorite layout
- Easy navigation provided by Windows™ user-friendly tree-structure



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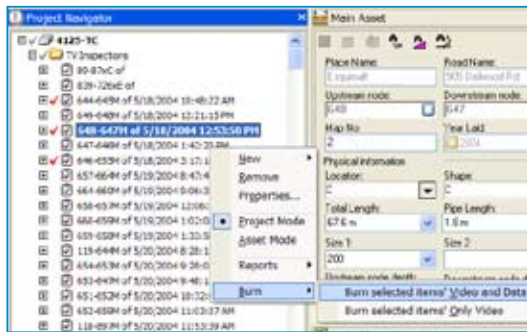


Key Features of Granite XP!

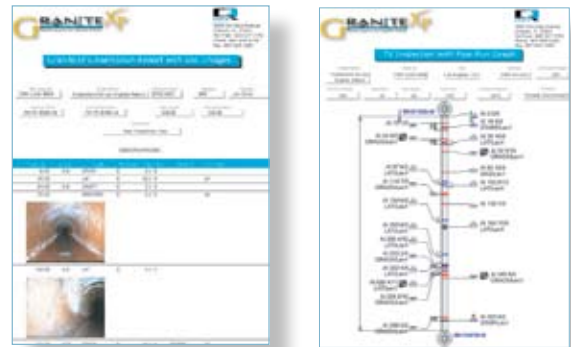
Granite XP includes special features that allow you to get the most from your infrastructure management system!

List of Key Features:

- Ability to import ESRI Asset Data into Granite XP from a Master GIS database
- “Single click” CD/DVD burning makes it simple
- “Single click” report creation and picture printing
- Create standard and custom Reports with built-in templates which include your logo and can be saved in PDF, HTML, or ASCII file format and can be emailed from Granite XP
- Export data in multiple formats including Oracle, SQL, Access, PACP, WRc Sewer.dat, Sewer1.dat, Hansen, Azteca Cityworks, WinCan and ASCII
- Powerful Search using keywords and Filtering capabilities by projects, assets, inspections, and observations
- Perform reverse setups in a single inspection, “upstream against the flow” or “downstream with the flow” to display upstream and downstream observations on the same inspection
- View live video and images simultaneously or select an observation on the Pipe Graph to access that precise point in a MPEG I, II & IV video instantly
- Software-based titling for post processing in the office
- Customize Granite XP with components of its source code to leverage your internal IT resources who maintain your existing systems
- Two Optional Annual Support Plans to choose from



GRANITE XP'S PROJECT NAVIGATOR WITH ONE-CLICK BURN



GRANITE XP'S REPORT CREATION AND PICTURE PRINTING

Generate a positive ROI!

An investment in Granite XP will generate a significant return on your investment because the software has been architected on Microsoft technology which can be leveraged for many years to come. The CUES Software Division will continue to broaden and enhance Granite XP to meet the needs of the changing Water/Wastewater industry. If you need help evaluating technology, have questions, or need solutions to maximize process efficiency gains for your organization, contact the CUES Software Division for more information at 800-327-7791 or email GXPinfo@cuesinc.com. The CUES Software Division can provide industry-specific consulting and offers a team of certified experts to help identify solutions to your specific Water/Wastewater needs. Make the investment in Granite XP today – your assets depend on it!

Optional software modules available in Granite XP:

- **ESRI Module** - bi-directional synchronization with ArcView
- **GPS Plug-in Module** - supports GPS devices (NMEA-0183 compatible), display and obtain current GPS coordinates
- **Manhole, Structure, and Nodes Module** - capture inspection and observation details, which are all linked to the structure, node or manhole
- **PACP Export Module (NAASCO certified)**
- **Inclination Module** - accurately capture and graph the slope of the pipe and evaluate pipe conditions as the inspection is performed
- **Lateral Assets Module** - capture inspection data, observation details, video, and pictures, which are all linked to the lateral structure
- **WRc Compatibility and Export Module** (Sewer.dat & Sewer1.dat)
- **Hansen Formula-Based Sewer Module** - certified bi-directional interface to all Hansen v7x
- **Hansen Storm Module** - certified bi-directional interface to all Hansen v7x
- **Azteca Cityworks Module** - bi-directional interface to Azteca Cityworks
- **WinCan Export Module** - allows data to be collected and exported to WinCan v7
- **Seal & Grout Module** - record pressure changes during air tests and graph pressure tests that show repair integrity and track grout usage
- **Scheduler Module** - allows you to schedule reoccurring tasks for transferring data, media files, and synchronizing databases. Plan daily, weekly or monthly schedules for automatically transfer or archive data.



THE MANHOLE NODES MODULE

Sewer Node

MH ID: USM66 Type: Manhole Year Laid: 2004
 City: Tampa Address: MAGNOLIA HOLMS

Parameters:

Manhole Type: Brick Built Cover Type: Bored Frame Type: Cast Iron
 Surface Cover: Driveway Ring Material: Concrete Channel Material: Concrete
 Depth: 0.00 ft Core Material: Concrete Base Material: Precast
 Cover Diam: 36.00 Wall Material: Concrete Steps Material: Other
 Barrel Diam: 60.00 Bench Material: Limer
 Dist. to Hydrant: 8.00 ft Metered Drop Manhole

Coordinates:
 X: 885522 Y: 66554 Z: 61155

Adjacent pipes:

Dir	ID	S
N	USM_	0
SW	USM_	0

Custom properties:

Property	Value

With the CUES Manhole Nodes Module, you can:

- Download coordinates and asset attributes from mapping applications
- Use graphical display to illustrate pipes connected to the manhole
- Record structure information for the manhole, catch basin or pumping station
- Record manhole inspection data, link video, and capture images to point out problem areas

Sewer Node Inspection

Start Suspend Stop Abort

Planned date: 2/10/2004 Start date/time: 2/10/2004 1:34 End date/time:
 Status: Stopped Code: SampleNodeC
 Advanced:
 Operator: John Smith Work Order No:
 Reason: Regular Weather: Fair Condition: Satisfactory
 Comments:
 Custom properties:

Property	Value

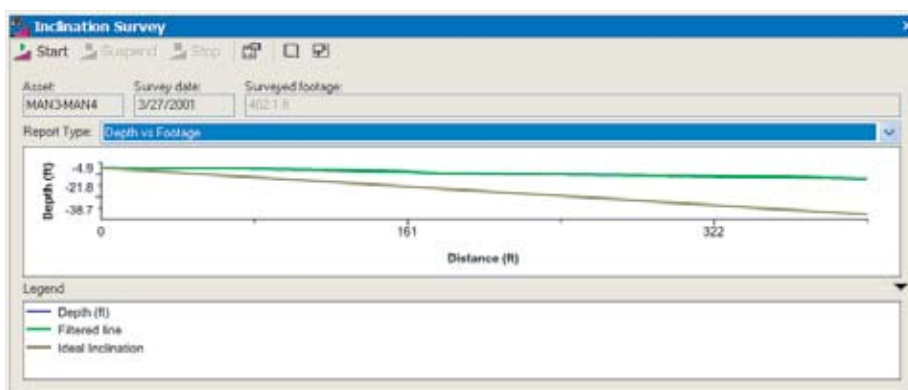


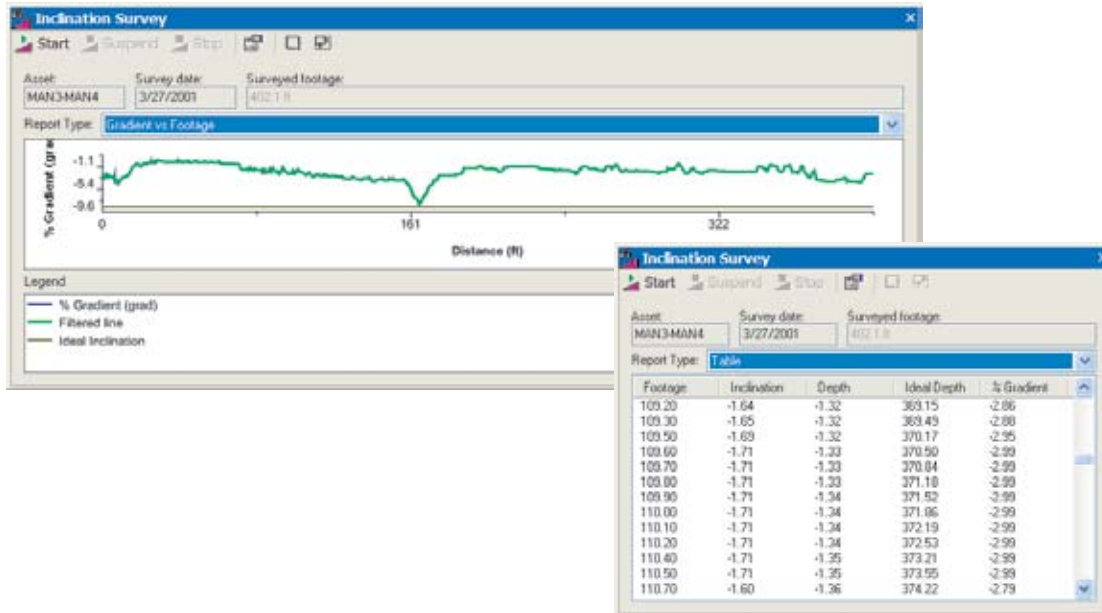
THE INCLINATION MODULE

The CUES Software Inclination Module is used to measure the asset incline or depth as a function of distance traversed by the camera during a TV inspection.

With the CUES Software Inclination Module, you can:

- Create, modify, conduct, and delete inclination surveys
- Record pipe gradient readings and apply statistical filters to the data to eliminate noise and invalid readings like debris and offsets
- Generate multiple graphical and tabular reports
- Perform inclination survey and mainline inspections simultaneously
- Estimate variances by comparing the actual readings to a graph of a perfect pipe
- Generate and view graph in real-time
- Display the following information:
 - The asset's site ID for each individual inclination survey
 - The survey date
 - The distance footage for each time the survey is stopped or suspended
- Using the auto-zoom feature, select a portion of the chart with a mouse and zoom to that specific portion
- Using the autofit feature, restore the content of the current chart's window back to the original size and restore the rescale mode during each survey
- Generate reports in four (4) different format options:
 - Chart (Inclination vs. Footage) – displays the chart whose Y axis is inclination
 - Chart (% Gradient vs. Footage) – displays the chart whose Y axis is inclination in gradients
 - Chart (Depth vs. Footage) – displays the chart whose Y axis is depth
 - Table – displays the inclination survey table





With the CUES Software Inclination Module, you can (continued):

- Display the following data taken by the inclinometer when operating in the Table Mode:
 - Footage – displays the footage where the inclinometer measured inclination
 - Inclination – displays the inclination (in degrees) that corresponds to the footage
 - Depth – displays the depth calculated
 - Ideal Depth – displays the ideal depth at the given footage
 - % Gradient – displays the inclination in gradients
- Display the dependence of inclination, % Gradient, or depth of footage when operating in the Chart Mode:
 - The chart contains at least two lines: one for the ideal asset inclination (black line/straight line whose inclination values are equal to the asset's inclination or depth) and another for the current inclination survey (red line).
 - Other inclination surveys are represented and displayed with different colors.
 - The x-axis of the chart represents the footage. The y-axis represents the inclination, % gradient, or depth depending on the chart type selected. X- and Y-axis scales are definable.
 - The axis titles include Footage and Inclination, % Gradient, or Depth depending on the chart type selected

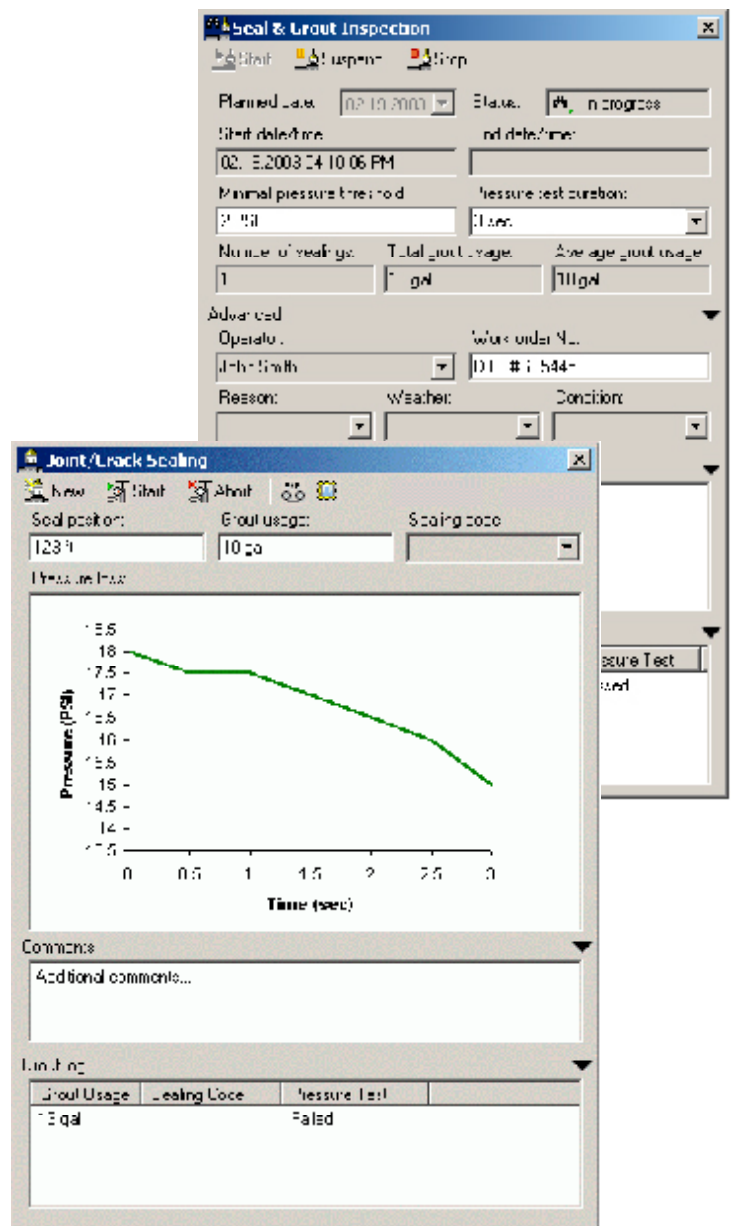


THE GROUT MODULE

The Grout Module is used to view, edit, and/or create new lateral inspections.

With the CUES Grout Module, you can:

- Display the details of the entire Seal and Grout inspection for an entire pipe
- Display all data regarding the Sealing procedures and the total grout usage for a sewer main
- Record the duration and pressure changes of air/water tests in pipelines
- Display and/or select one of the following statuses throughout the inspection process: pending, in progress, completed, and suspended
- Display the duration and pressure change data gathered from air/water tests in a graphical format
- Print the applicable graphs or be able to export the graphs and data to an external database
- Label the joint or lateral air/water tests to indicate a 'passed' or 'failed' condition



"The Standard of the Industry"





THE HANSEN SOFTWARE MODULE

Two-way Data Transfer for TV Inspections!

With the CUES Hansen Software Module, you can:

- Transfer data between Granite XP and the Hansen Software Module without the need for any user supplied programming, special scripts, distant 3rd party vendors, or macros.
- Transfer site and observation data from Granite XP directly into the Hansen Database.
- Import manhole ID's, addresses, and work order information from Hansen to Granite XP.
- Build a code system from active codes in Hansen.
- Generate scheduled inspections in the office and/or unscheduled inspections in the field.
- Check for invalid data. Data gathered from the field inspection is error checked.

CUES, the leading manufacturer of pipeline inspection equipment and software, introduces the new Hansen Software Module! CUES has integrated Granite XP and the Hansen Infrastructure Management System to provide the ability to interchange data between both systems, therefore providing a software solution for both Granite XP and Hansen users.

The Hansen Software Module is designed for Hansen and Granite XP users that want seamless integration with TV inspection vehicles. Unlike the competition, the CUES Hansen Software Module is designed to transfer and use the TV inspection and asset data within the Hansen system, therefore eliminating the need for duplicate entry when performing TV inspections in the field or transferring data back to the office!

The Hansen Software Module offers two modes of operation to accommodate the most widely-used inspection methods within the industry and is certified by Hansen for use with Versions 7.5, 7.6, and 7.7 (the Hansen Formula Based Module for Sewers is required). To learn more about the Hansen Software Module and how you can increase productivity while reducing the time required to perform TV inspections, contact CUES today!



Granite XP - The Software Solution for TV Inspections

CUES, the leading manufacturer of pipeline inspection equipment and software, introduced Granite XP in the summer of 2003. Designed as a full-feature data collection and management software, Granite XP has quickly become the software solution of the industry for pipeline/TV inspections.

Although Granite XP has far surpassed expectations within the industry, CUES and Hansen had many mutual customers that wanted an easy-to-use method to transfer and use TV inspection/asset data within the Hansen system.

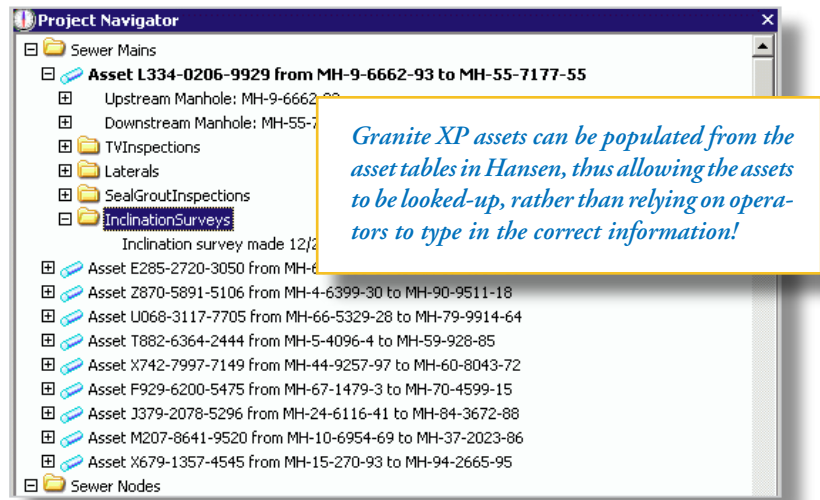
To provide a solution for Hansen users that wanted to have seamless integration with a TV inspection vehicle when using the Granite XP program, CUES designed and developed the Hansen Software Module. This software, certified by Hansen, facilitates the process of updating data in both Granite XP and Hansen, therefore ensuring smooth data integration while keeping the Hansen Service & Maintenance Agreement (SMA) valid.

The Hansen Software Module provides the ability to gather inspection data within Granite XP in a Hansen compatible format and

also export completed inspections and related information to the Hansen Infrastructure Management System.

Asset-based Architecture versus Inspection-based

Granite XP is designed with an asset-based architecture (see below) as opposed to the inspection-based design that's used by many others. In an asset-based system, information is stored in permanent tables, just like the Hansen system. Because this is the database structure on which asset management and Geographical Information System (GIS) are built, data integration is seamless.



Increase productivity and reduce the time required to perform TV inspections! The Hansen Software Module provides (2) ways to integrate inspection data based on individual municipality requirements:

'Hansen-generated Inspections' and 'From the Field, On-the-Fly'!

Mode 1: Hansen-generated Inspections (From the Office to the Field)

- The user initiates the inspection in Hansen.
- Using the Hansen Software Module, inspections are selected for transfer to Granite XP.
- The Hansen Software Module converts the Hansen data into a Granite XP compatible format.
- The data is physically moved via disk or network connection to the TV inspection vehicle.
- The operator connects to the selected database (through the import process).
- Inspections are completed by the operator and prepared for transfer (through the export process).
- Data is physically moved via disk or network connection to a computer with Hansen.
- HIF reads the Granite XP file, looks at the security selections, warns the user of any variances, and then updates Hansen.

"The Standard of the Industry"



Two (2) Operation Modes To Ensure Process Efficiency Gains

The Hansen Software Module offers two modes of operation to accommodate the following widely-use inspection methods within the industry:

- First is the integration between data and video, titlers, footage counters, etc. The Hansen Software Module prevents users from having to manually enter 'footage' or 'type' values into the Granite XP or Hansen systems in order to obtain text information on the video recording.
- Second, the Hansen Software Module significantly reduces tedious and redundant manual data entry, thus allowing imports and export processes to be completed more efficiently.

The first challenge is easily handled because CUES, the leading manufacturer of TV inspection equipment, designed the footage counter, titler, and image capture system, so there are no dependencies to arrive at a seamless exchange. Third-party software manufacturers have always had a problem interfacing with various types of equipment. With in-house Engineers, we understand how to talk to TV equipment.

On the second issue, prior to the Hansen Software Module, users would have to manually type the distance information because the Hansen system does not accept titling information on the video or the addition of audio comments made by the operator in the field. Thus, users would often enter Hansen information in a laptop and then re-enter the same data into the computer that's tied to their TV equipment. This duplicate manual data entry caused our customers to ask for a better solution.

The Hansen Software Module provides two (2) ways to integrate inspection data to Hansen depending on individual municipality requirements.

Mode 1: Hansen-generated Inspections

For many municipalities, inspections are generated from the Hansen application while in the office, either individually or from a Group Project.

Once selected, the appropriate inspections are transferred to the Granite XP software located on the individual inspection trucks in a ready-to-use format to be completed by the Operators in the field. The asset information is included, ready for the operator to easily select the Hansen-defined inspection to work from.

Mode 2: From the Field, "On-the-Fly" (then back to the office)

- The operator generates a new TV Inspection, enters SMH IDs, Start Date and optionally various other asset and inspection information.
- Inspections are completed by the operator and prepared for transfer (through the export process).
- Data is physically moved via disk or network connection from Granite XP to a computer with Hansen.
- Hansen reads the Granite XP file, looks at the security selections, warns the user of variances, and then updates Hansen directly without using an intermediate database.

The Hansen Software Module provides (2) operation modes to get the job done fast! What used to take hours of manual data entry can now be performed in seconds, allowing significant process efficiency gains by your most important assets... your employees!

Once the CCTV inspection has been completed by the operator, the resulting data is run through the Hansen Software Module to update Hansen directly, without using interim tables.

The Hansen Software Modules's rules-based validation schema eliminates the possibility of manual data entry errors on the part of the operator. In addition, the fields in both programs are identical to rule out the possibility of inconsistent/duplicate data entry.

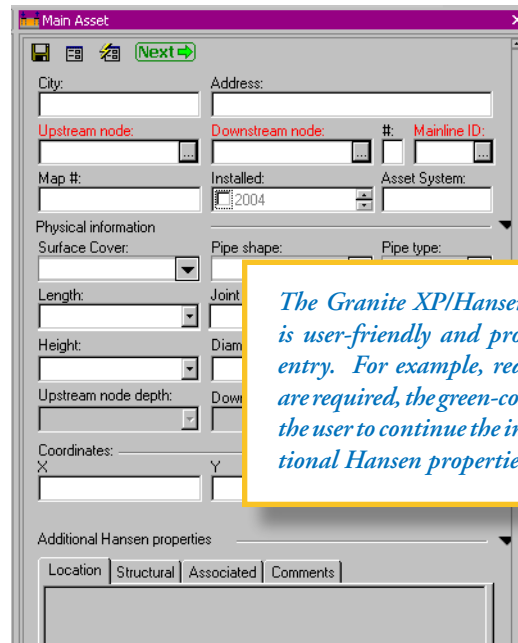
By allowing the operators to work directly from the Hansen-generated inspections, Hansen users can now experience significant efficiency gains, primarily through the ability to send out a large block of inspections with the subsequent ability to update Hansen multiple times from the same file without fear of duplication. These inspections can be completed and returned at any time, even if the entire project is not complete.

Mode 2: From the Field, "On the Fly"

In researching the needs of our mutual customers, we found that users do not always pre-schedule TV inspections. Many times the TV equipment may be dispatched at the last minute or the operator is given a specific area to cover. This mode of operation requires the flexibility to generate Hansen-compliant inspections while in the truck. The Hansen Software

Module allows users to generate an inspection in Granite XP that has not been initiated in the office with the Hansen system. The inspection is generated without any corresponding Work Order or inspection number. For this method of operation, a valid sewer ID number is required.

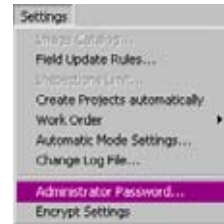
The operator enters the appropriate 'ID', 'Activity', 'Start date' and 'Completed' dates, and optionally, any specific asset information and/or observation details, and completes the inspection.



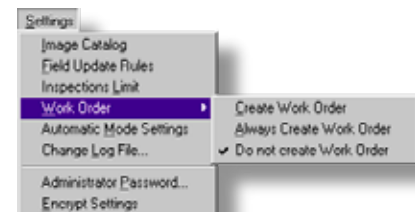
The Granite XP/Hansen Software Module is user-friendly and prompts end-users for entry. For example, red-colored field titles are required, the green-colored 'Next' prompts the user to continue the inspection, and additional Hansen properties are included.

Designed with the end-user in mind, the Hansen Software Module accelerates the data transformation between the Granite XP inspection software and Hansen and includes numerous special features!

The configuration is password-protected for security.



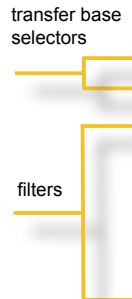
The Hansen Software Module provides an easy Administrator setup utility.



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When “on-the-fly” inspections are ready to be imported into the Hansen system at the office, the Hansen Software Module will query the appropriate tables, obtain an inspection number and, if requested, obtain a corresponding Work Order number. The Hansen sequential reference tables are then updated appropriately. The difference in the two modes is that more restrictions and validations are placed on the field-generated inspections such as, for example, the number of times a group of inspections can be imported. This ensures data integrity and prevents duplicate entries within Hansen for field-generated inspections.



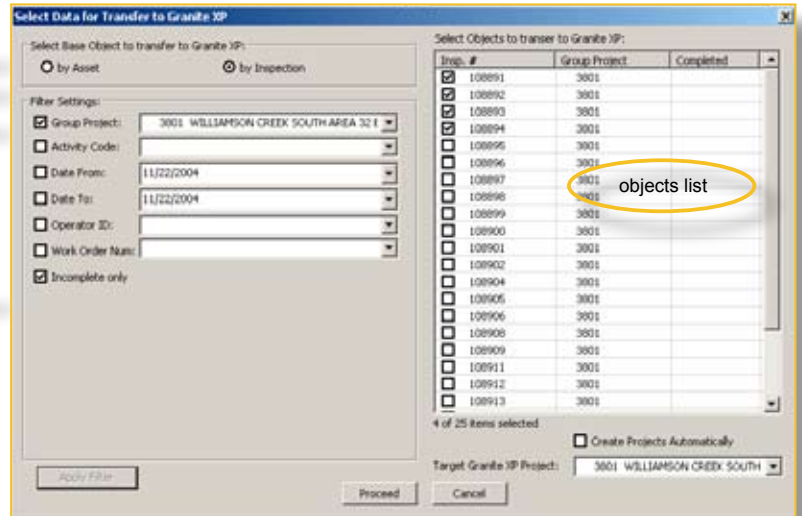
Special Features

Granite XP allows users to take unlimited pictures for each observation. To meet Hansen standards, the first picture is transferred to the user-selected location. This picture is then linked to the appropriate Hansen tables and made available through the Hansen user interface.

Other features of the Hansen Software Module include a code building process that reads Hansens’

observation codes and degree/severity classifications. Code ‘effective’ and ‘expiration’ dates conform to Hansen and the resulting active code list is used to update Granite XP. Only active Hansen codes are available to the operator for entry in the field.

When selecting inspections to transfer, as shown below, the user has a range of filters, including



date range, activity, Group Project or a combination of these. Transferable inspections are not limited to Group Projects and can easily be selected individually or along with Group Projects.

The Hansen Software Module is flexible and builds its Code System from the Hansen Codes.



The Hansen Software Module is an extremely versatile data transformation tool, compatible with Oracle 8i, Microsoft SQL Server, and Access.



The Hansen Software Module complies with the sophisticated rules within Hansen and writes directly to the Hansen database to ensure data integrity and proper data transfer!

The data file produced by the Hansen Software Module is directly usable by Granite XP and conversely, the resulting completed data file produced by Granite XP is read by the Hansen Software Module. The Hansen Software Module is designed to work with Oracle DB v.8x series, Microsoft SQL Server and Access tables on the Hansen side.

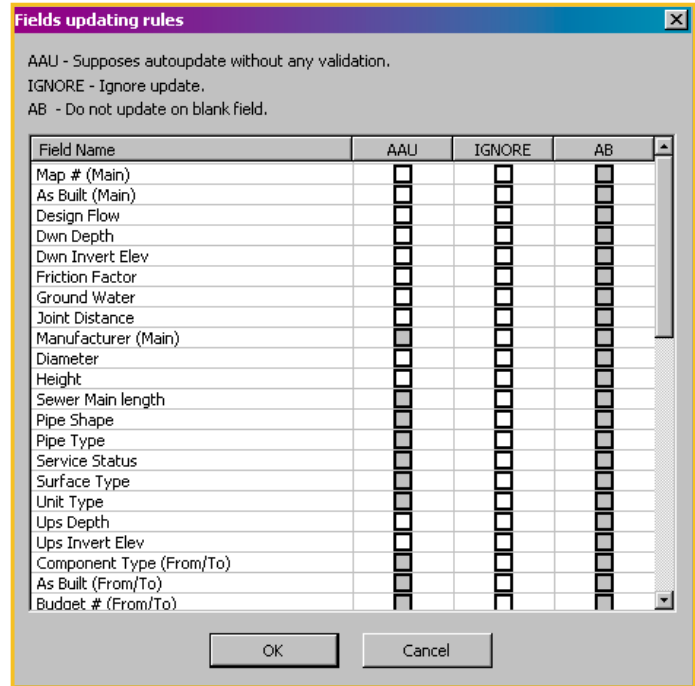
Variance reports are available to the user in the case of an operator using non-standard codes as defined in Hansen. Any such codes are blocked from transfer and added to the log file.

Administrative Controls

Depending on the needs of the municipality, the Hansen Software Module can be configured appropriately. For example, some supervisors/Administrators will require less detail from their field workers to ensure they complete a greater amount of inspections each day. Others will require significant detail and therefore obtain a more granular level of detail.

The Administrative setup utility is where the specific business rules are created for the needs of the supervisor/Administrator. Dialog boxes are provided to facilitate connection to the database. The administrator can configure which asset fields, if any, can be updated by the field personnel.

Generally, CUES recommend that supervisors or system Administrators limit the ability of an operator to change asset information without review. In the case of sewer IDs, for example, the person running the Hansen Software Module must manually accept or reject any new sewer IDs. If the ID entered by the field operator is not found in the Hansen tables, a message box will be displayed to allow the user to



Sales, Service, & Support!

Unlike the competition, CUES provides an integrated one-stop sales, service, and support solution! CUES stands behind its products and services so you can count on having support available to ensure product reliability and a smooth implementation.

IMPORTANT!

The Hansen Software Module works in conjunction with the Hansen Formula Based for Sewer Module (required). This enterprise module allows code generation flexibility as well as the ability to set up an evaluation model specific to their individual use.

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edit, accept, or reject the entry. On non-critical fields such as pipe size, the Administrator may allow entries to update the Hansen Asset Table automatically, or with further review, simply ignore changes that were made in the field by the operator. Authorization is given on a field-by-field basis in the configuration utility set-up screen as shown.

Sales, Service, & Support

The CUES Hansen Software Module is a powerful tool designed to help manage data and improve process times between the Granite XP and Hansen systems.

The expected results:

- * A faster operational process
- * Higher quality; less errors due to eliminated manual process
- * A streamlined process with (2) ways to integrate data
- * More flexibility to fulfill individual requirements

CUES knowledge of pipeline inspection equipment and software ensures the greatest return on your investment and the best customer support in the industry. Designed and supported by our in-house Engineers and Technical Support Representatives, CUES has a full understanding of the relationship

between your data collection system and your TV inspection components. See how the Hansen Software Module can work for your company! Ask your CUES Sales representative for a personal presentation today!

Contact **CUES** for more information!
 800-327-7791 or
www.cuesinc.com

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THE AZTECA / CITYWORKS SOFTWARE MODULE

With the CUES Azteca/Cityworks Software Module, you can:

- Import Azteca Codes, Project Names, Work Order ID's, and Asset ID's from the DataPump database to the Granite XP database.
- Automatically create new pending Granite XP inspections for each asset in every Azteca Work Order.
- Create inspections in a format that's compatible with Azteca by using the imported Azteca codes.
- Obtain all necessary inspection data while performing TV inspections, including footage-linked observations and video pictures.
- Complete Work Orders that have been generated by Cityworks by performing full-featured Granite XP TV inspections.
- Export inspection data to the Cityworks database.
- Check for invalid data. Data gathered during the inspections is rigorously error checked.

CUES, the leading manufacturer of pipeline inspection equipment and software, introduces the new Azteca/Cityworks Software Module! CUES has integrated Granite XP and the Azteca Cityworks software to create TV inspections in an Azteca compatible format, therefore providing a streamlined TV inspection process.

The Azteca/Cityworks Software Module is designed for Azteca and Granite XP users that want to improve the TV inspection process by ensuring consistency, data integrity, and accurate inspection data. The CUES Azteca/Cityworks Software Module will complete inspections in the field from Work Orders that have been transferred from the Cityworks program.

The Azteca/Cityworks Software Module offers the ability to collect TV inspection data by utilizing the existing Azteca Code System. By importing Azteca codes directly into Granite XP, as well as Work Order ID's, Asset ID's, and Project Names, data integrity is verified and assured when exporting inspection data to Cityworks. To learn more about the Azteca/Cityworks Software Module and how you can greatly increase productivity by implementing a more streamlined inspection process, contact CUES today!

*For those Customers who have also purchased the optional CUES ESRI Module (GX525), synchronization with the ESRI Geodatabase (in addition to DataPump) can be performed for Sewer Node assets (Manholes) by exporting the UP_MH; DOWN_MH; UP_DEPTH; DWN_DEPTH; and LENGTH fields from Granite XP to the Cityworks Geodatabase directly in the office, or indirectly by using a personal Geodatabase in the truck. Once this step has been completed, UP_MH and DOWN_MH assets in Azteca will reflect these new values when they are exported from Azteca back to Granite XP for new inspections to be completed in the field with a corresponding Work Order. Please contact the Cues Software Department for more information on this powerful GIS integration feature.

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Version 111406



GRANITE XP - THE SOFTWARE SOLUTION FOR TV INSPECTIONS

CUES, the leading manufacturer of pipeline inspection equipment and software, introduced Granite XP in the summer of 2003. Designed as full-feature data collection and management software, Granite XP has quickly become the software solution of the industry for pipeline TV inspections.

Although Granite XP has far surpassed expectations within the industry, CUES recognized a need to integrate data transfer between the Azteca Cityworks software and Granite XP.

To provide a solution for Azteca and Granite XP users, CUES designed and developed the Azteca/Cityworks Software Module. This module provides users with the ability to quickly and easily create Granite XP TV inspections in a Cityworks compatible format.

In short, the Azteca/Cityworks Software Module offers unmatched flexibility, data integrity, a streamlined inspection process, and accurate data collection when using TV inspection vehicles.

A SIMPLIFIED SOLUTION

The Azteca/Cityworks Software Module is a complete TV inspection solution that combines the newest version of Granite XP, CUES leading-edge data acquisition system, with the new Azteca/Cityworks Software Module.

One of the top priorities for the Azteca/Cityworks Software Module was to provide the ability to make the TV inspection process more efficient for Azteca users. To achieve this, the

Azteca/Cityworks Software Module introduces streamlined import and export features that make it easy to transfer data between the two systems.

After successfully importing all of the necessary data, the operator can reap the benefits of having these items automatically populate the Granite XP system, eliminating the need for manual data entry. In addition to transferring data back to the Cityworks system, this data is also maintained in the Granite XP system. Since these items are not imported if they already exist in the Granite XP system, duplicate entries are prevented and data integrity is ensured.

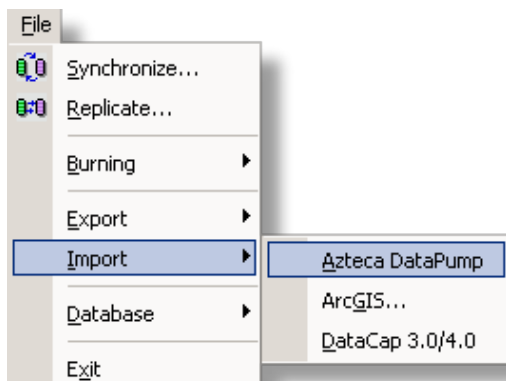
IMPORT PROCESS

During the import process, new pending Granite XP inspections are automatically generated for each Asset in every Azteca Work Order. The ability to import the Azteca Codes, Work Order ID's, and Asset ID's from the DataPump database directly into Granite XP eliminates the daunting task of manual data entry, which in turn saves time when performing TV inspections in the field!

The Azteca/Cityworks Software Module provides the ability to import the following data from an intermediate DataPump database:

Work Orders - During the import process, new projects with Azteca Work Order ID's are added to the Granite XP database. If the Work Order ID already exists for a particular project, the Work Order will not be imported. This process ensures data integrity by preventing duplicate entries.

Designed with the end-user in mind, the Azteca/Cityworks Software Module provides the ability to import Azteca codes, Work Order ID's, and Asset ID's to quickly and easily create TV inspections in the field using TV inspection vehicles!



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Project Names - Project Names in Granite XP are automatically generated based on the Azteca project name that's associated with each Work Order and Work Order ID. Projects are loaded into the Granite XP database and contain pending inspections on Assets that are specified by the Work Order.

Azteca Assets - When importing Asset ID's from the DataPump database, new Assets with Azteca ID's are automatically created in the Granite XP database. If the Asset ID already exists in the Granite XP database, the Asset ID will not be imported. This is another safeguard designed to prevent duplicate entries.

Azteca Codes - During the import process, a new 'Azteca code system' is added to Granite XP. The operator is able to import these codes and perform updates at any time. All existing codes are deleted from the Azteca code system before the new codes are imported, ensuring compatibility with Azteca's Code System.

INSPECTIONS

The Azteca/Cityworks Software Module provides powerful, flexible features for completing TV inspections. Now you can work with inspections in a format that's compatible with Azteca by using the imported Azteca Codes, Asset ID's, Work Order ID's, and Project Names.

Full Granite XP functionality is used to perform the inspection along with 2 additional Azteca menu items that have been added to easily access the desired selection. Once the Work Order ID, Asset ID, Azteca Codes, and Project Name have been

imported successfully, the Azteca/Cityworks Software Module will automatically create new pending Granite XP inspections for each Asset in the Work Order with names based on the Azteca project and Work Order ID.

The operator simply locates the desired project in Granite XP and then completes an inspection for each Asset in the Work Order. For ease-of-use, all of the imported data is automatically pre-loaded in the applicable fields after the operator completes the inspection(s) in the field. The data is then transferred to the DataPump database through the export process.

EXPORT PROCESS

The Azteca/Cityworks Software Module provides the ability to export the following data from Granite XP to the DataPump database:

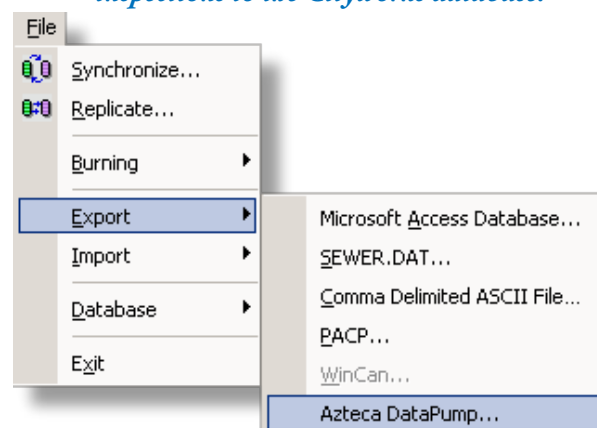
The operator is able to export individual inspections and/or projects as a whole. All TV inspection information, observations, and media files associated with the inspection will be transferred. Inspections are created in the DataPump database during the export process if the Work Order ID already exists. The operator can also elect to replace the inspection if it already exists in the DataPump database. Rigorous validation is always performed during the export process to ensure proper data transfer and data integrity.

To see how the Azteca/Cityworks Software Module can work for your company, ask your CUES Sales representative for a personal presentation today!

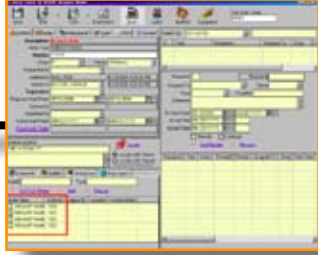
How to Create TV Inspections Using the Azteca/Cityworks Software Module:

- The operator ensures that the Azteca code system exists and is up to date.
- The operator imports the Azteca Code System, then simply imports the Work Orders from the Cityworks DataPump database.
- The operator performs the mainline TV inspection in the field on Assets in the Work Orders.
- The completed inspections are transferred to Azteca through the 'export to Azteca' feature.
- During the export, the data is transferred to the Cityworks intermediary database. To provide another level of validation/security, the data is then transferred to the main Cityworks data-base through their own software.

The Azteca/Cityworks Software Module provides the ability to gather inspection data within Granite XP in an Azteca compatible format and export completed inspections to the Cityworks database!



The Azteca/Cityworks Software Module - How it Works



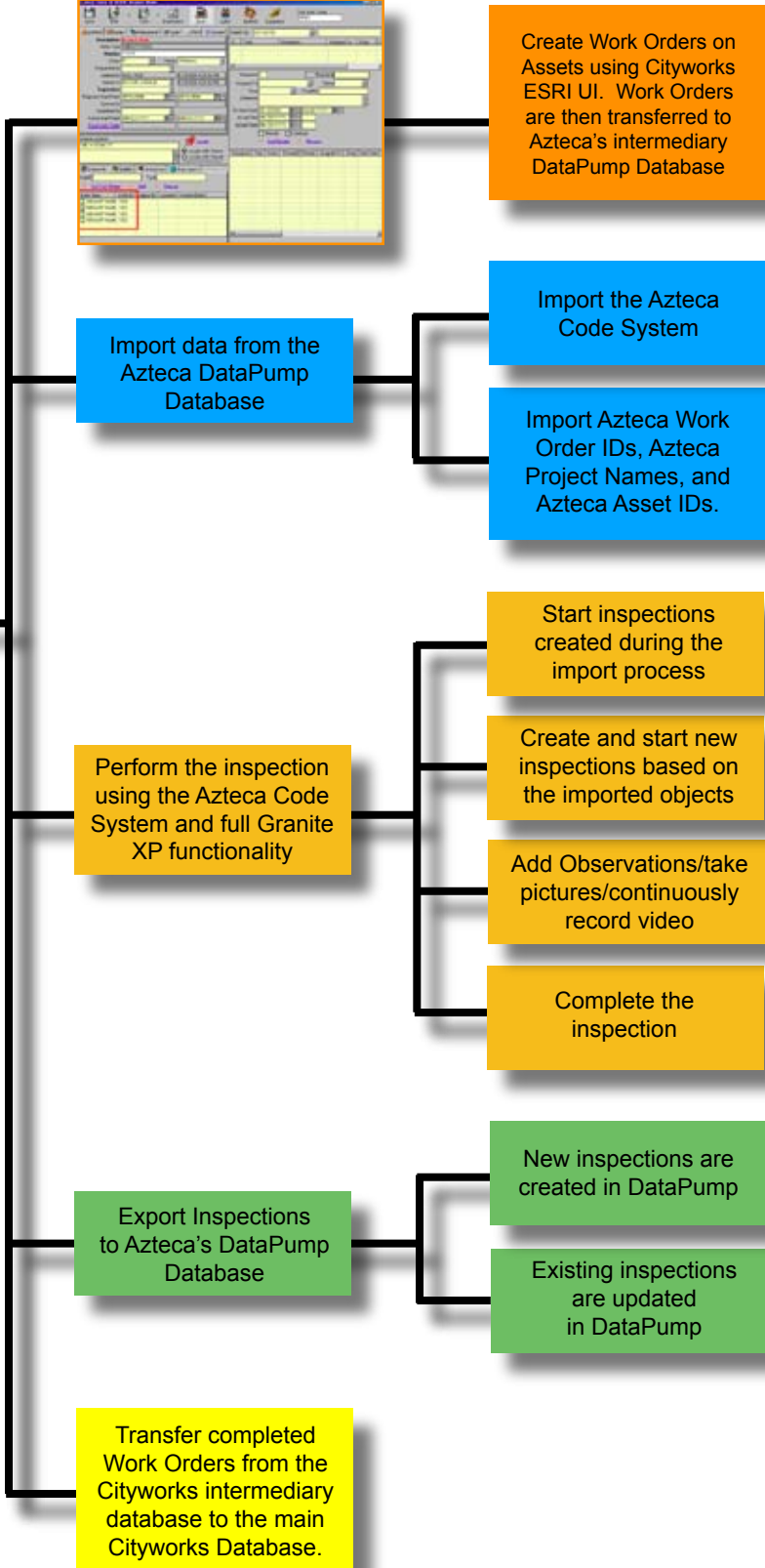
The operator in the office creates the Work Orders on Assets using Cityworks ESRI UI. Work Orders are then transferred to Azteca's intermediary DataPump Database

The operator ensures that the Azteca code system exists and is up to date. The operator imports the Azteca codes, Assets, Work Order IDs, and Project Names from the Azteca DataPump intermediate database.

The operator performs the Main TV inspection(s) in the field using the imported Azteca code system, Assets, and Projects that were created during the import process.

The inspection is completed and prepared for transfer through the 'export to Azteca' process. The operator identifies which projects (inspections) should be exported and then starts the export process.

The operator transfers completed Work Orders from the Cityworks intermediary database to the main Cityworks Database.



Create Work Orders on Assets using Cityworks ESRI UI. Work Orders are then transferred to Azteca's intermediary DataPump Database

Import the Azteca Code System

Import Azteca Work Order IDs, Azteca Project Names, and Azteca Asset IDs.

Start inspections created during the import process

Create and start new inspections based on the imported objects

Add Observations/take pictures/continuously record video

Complete the inspection

New inspections are created in DataPump

Existing inspections are updated in DataPump

Import data from the Azteca DataPump Database

Perform the inspection using the Azteca Code System and full Granite XP functionality

Export Inspections to Azteca's DataPump Database

Transfer completed Work Orders from the Cityworks intermediary database to the main Cityworks Database.

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GRANITE XP REPORT CAPABILITIES

Observations by Inspections

SITE

Site ID	City	Address	Upstream Node	Downstream Node
T399-1106-4964	Los Angeles, CA	2494 Art Blvd.	MH-97-8326-49	MH-75-8749-16
Pipe Type	Pipe Shape	Pipe Height	Pipe Width	
ZZZ	C	18	18	

INSPECTION DATA

Planned Footage	Planned Date	Start Date	End Date
328	8/26/1983	8/26/1983	8/26/1983
Surveyed Footage	Status	Operator	Work Order No.
328	Canceled	Jim Smith	716-5288-0096
Reason	Weather	Condition	
REGULAR	BAD	SAT1	

OBSERVATIONS

Footage	Length	Clock From	Clock To	Code	Modifiers/Severity	Rating
8.00	0.00	0	0	START		
15.50		10	9	LAT		Lev 1
24.00		3	3	CAVITY		Lev 2
35.50	0.00	1	5	GROUTED		Lev 1
108.50		4	4	LAT		Lev 1
131.50	15.50	11	6	CRACK	SEVERE	Lev 1
177.50	34.00	8	8	CRACK	SEVERE	Lev 1
35.50	0.00	1	5	GROUTED		Lev 1

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→ Granite XP includes robust Report Management capabilities. Reports can be generated and sent to a printer or another format such as an ODBC target, PDF, HTML or ASCII file. You can also e-mail reports directly from the application.

GraniteXP Observation Report with Still Images

Main Asset ID: T399-1106-4964	Project Name: Inspections for Los Angeles Waters	Inspection Date: 8/26/1983	Weather: BAD	Operator: Jim Smith
Upstream Node: MH-97-8326-49	Downstream Node: MH-75-8749-16	Main Length: 328.00	Planned Footage: 328.00	
Comments: New Inspection Crew				

OBSERVATIONS

Distance	Length	Code	Reversed	Clock Pos.	Severity	Comment
8.00	0.0	START	0	0 / 0		
15.50		LAT	0	10 / 9		24
24.00	0.0	CAVITY	0	3 / 3		
35.50		GROUTED	0	1 / 5		26



108.50	0.0	LAT	0	4 / 4		
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131.50	15.5	CRACK	0	11 / 6	SEVERE	32
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➔ Using the Office edition of Granite XP, you can create reports for clients, browse for specific data, make corrections and also add projects, assets, and inspections. You can also create new report templates using the Report Wizard. This wizard will prompt you to select objects and properties to display in the report, grouping and sorting options, and the report layout. Based on the custom settings you select, the wizard will generate a report template and save it as a file.

TV Inspections by Projects

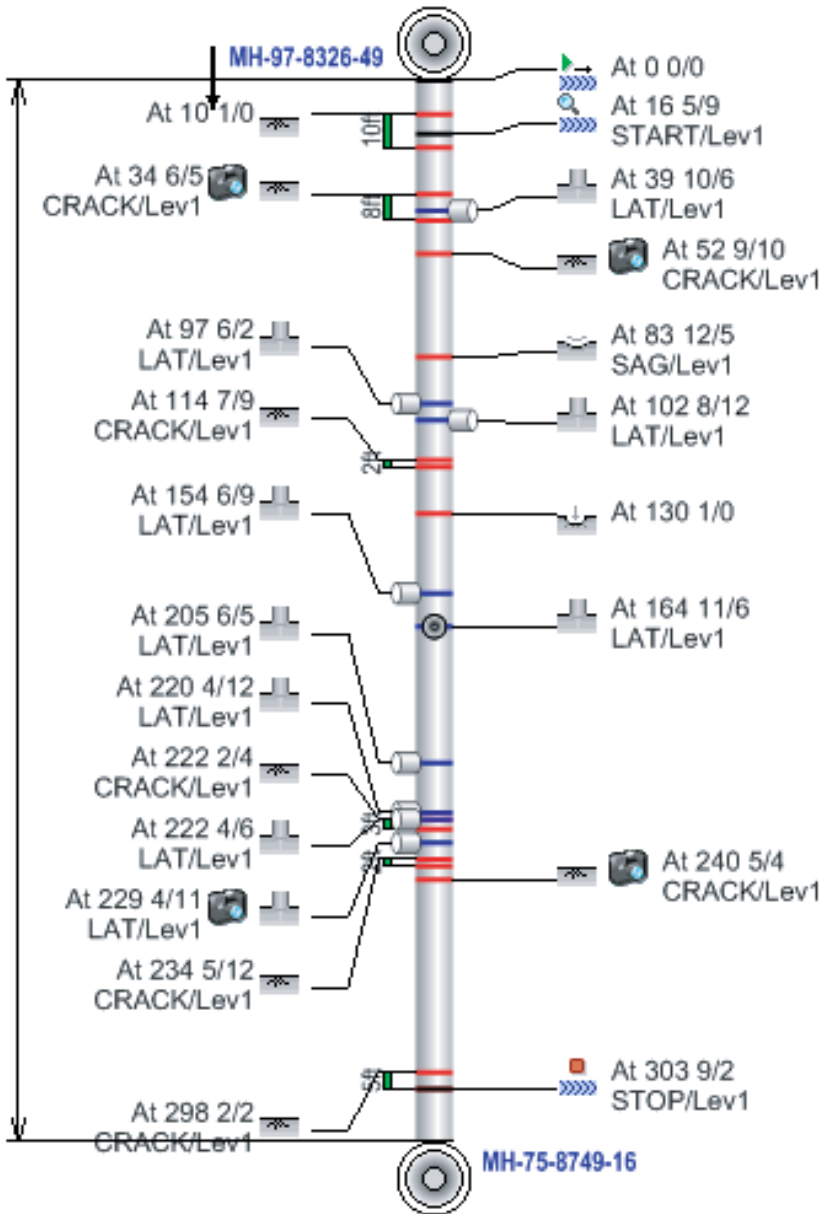
Project Name: <u>0778IL CITY OF BERWYN</u>	
Contractor Name: _____	
Client Name: _____	
Planned Date: <u>5/21/2001 12:54:51 PM</u>	Start Date: _____
Planned Footage: _____	End Date: _____
Status: _____ Canceled	Surveyed Footage: _____
Reason: _____	Operator: <u>GENE POSCHNER</u>
Weather: <u>Light Rain</u>	Work Order No.: _____
Condition: <u>Paved Asphalt</u>	
Comments: <u>FLOW IS WEST: REVERSE SETUP</u>	
Planned Date: <u>5/21/2001 12:07:32 PM</u>	Start Date: _____
Planned Footage: _____	End Date: _____
Status: _____ Canceled	Surveyed Footage: _____
Reason: _____	Operator: <u>GENE POSCHNER</u>
Weather: <u>Light Rain</u>	Work Order No.: _____
Condition: <u>Paved Asphalt</u>	
Comments: <u>FLOW IS WEST</u>	
Planned Date: <u>5/21/2001 11:09:44 AM</u>	Start Date: _____
Planned Footage: _____	End Date: _____
Status: _____ Canceled	Surveyed Footage: _____
Reason: _____	Operator: <u>GENE POSCHNER</u>
Weather: <u>Light Rain</u>	Work Order No.: _____
Condition: <u>Paved Asphalt</u>	
Comments: <u>FLOW IS SOUTH: REVERSE SETUP</u>	



Report Templates are used to define the content and look of a report. Most reports packaged with Granite XP will be represented as templates (in conjunction with report presets to set up filtering criteria). Each report template consists of a number of objects to be described. These objects are represented by a subset of their properties (report fields). Graphics and secondary fields can also be included. For example, values like averages or sums, sorting, and grouping.

TV Inspection with Pipe-Run Graph

Project Name: Inspections for Los Angeles Waters	Asset ID: T399-1106-4964	City: Los Angeles, CA	Address: 2494 Art blvd.	Surveyed Footage: 328	
Planned Footage: 328	Pipe Width: 18	Pipe Height: 18	Pipe Type: ZZZ	Surface Condition: SAT1	Direction: Towards Downstream



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Report Presets are used to speed up day-to-day report operations like printing and exporting daily or weekly reports. In Granite XP, it is useful to specify persistent filters for daily or weekly reports and for selecting and generating several reports at a time. By specifying persistent filters for report templates and selecting and generating several reports at a time, report processing time can be shortened.

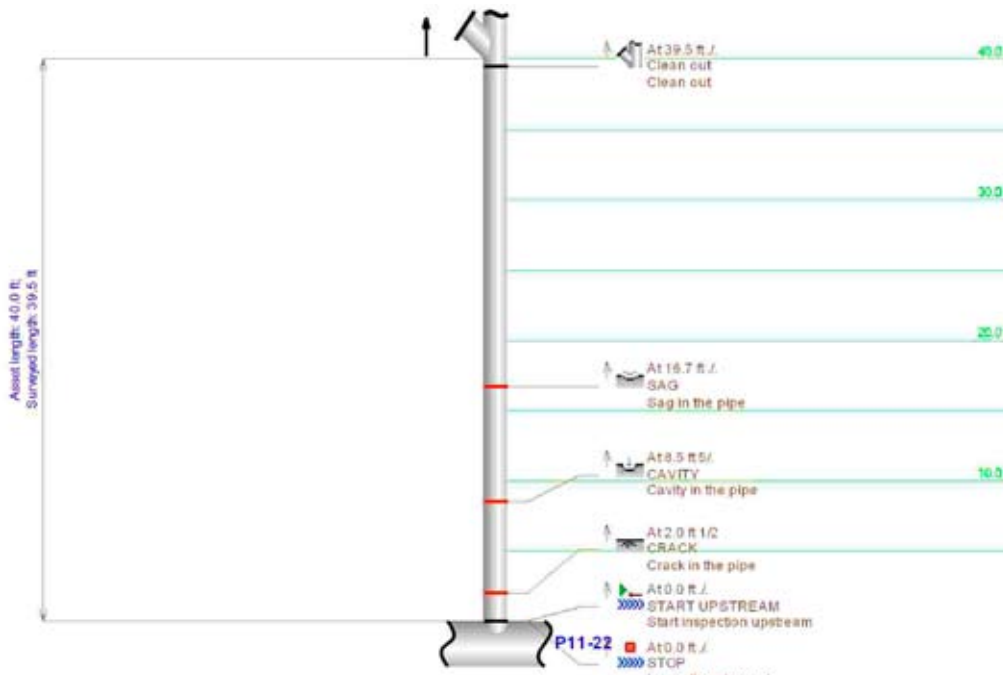
Lateral Inspection with Pipe-Run Graph

SITE DATA

Site ID	City	Address	Upstream Node	Downstream Node
P11-22	Orlando	9988 Main St	MAN11	MAN22
Pipe Type	Pipe Shape	Pipe Height	Pipe Width	Total Lateral Count
CAS	C	18	18	1

LATERAL AT 20.5

Lateral ID	Pipe Type	Pipe Shape	Pipe Height	Pipe Width	Clock position
P11-22 - 1	PE	C	6		3 O'Clock
Surveyed Footage	Status	Operator	Work Order No.		
39.5	Suspended	hEmployer1			
Reason	Weather	Condition	Start Date	End Date	
REGULAR	Light Rain	SAT1	6/2/2004		
Comments					



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Report filters are a means of selecting only relevant information to be presented in a report. In Granite XP, Reports can be filtered by applying a Report Template to include user-defined information for the Report. You can create and modify a report filter for a report based on a template.

PACP Sewer Report

Surveyors Name Scoby Doo	and Certificate Number t-1234-5678	System Owner my owner	Survey Customer my customer	Drainage Area my drain area	Sheet No. 1
P/O No. my po number	Pipeline Segment Reference section178	Date 2003/05/15	Time 13:44	Locality my city	
Location (Street Name and Number) my street		Upstream Manhole Number 123B		Rim to Invert 444.4	Grade to Invert 222.2
Further Location Details my location details		Downstream Manhole Number 123A		Rim to Invert 111.1	Rim to Grade 333.3
Shape C	Material OB	Ln. Method FF	Pipe Joint Length 7.5	Use of Sewer SW	Flow Control D
Width 14	Pre-Cleaning J	Cleaned 2003/07/27	Weather 2	Year Laid 1905	Year Rehabilitated 1905
Purpose B	Location Code G	Additional Information		Year Rehabilitated 1905	Tape/Media Number 123abc

Grade	Amount of Structural Defects	Structural Segment Grade	Structural Pipe Rating	Structural Quick Rating	Amount of O&M Defects	O&M Segment Grade	O&M Pipe Rating	O&M Quick Rating	O&M Pipe Rating Index	Overall Pipe Rating	Overall Pipe Rating Index
1	0	0			0	0					
2	1	2			1	2					
3	1	3	15	5231	0	0	2	2100	2	17	3.4
4	0	0			0	0					
5	2	10			0	0					

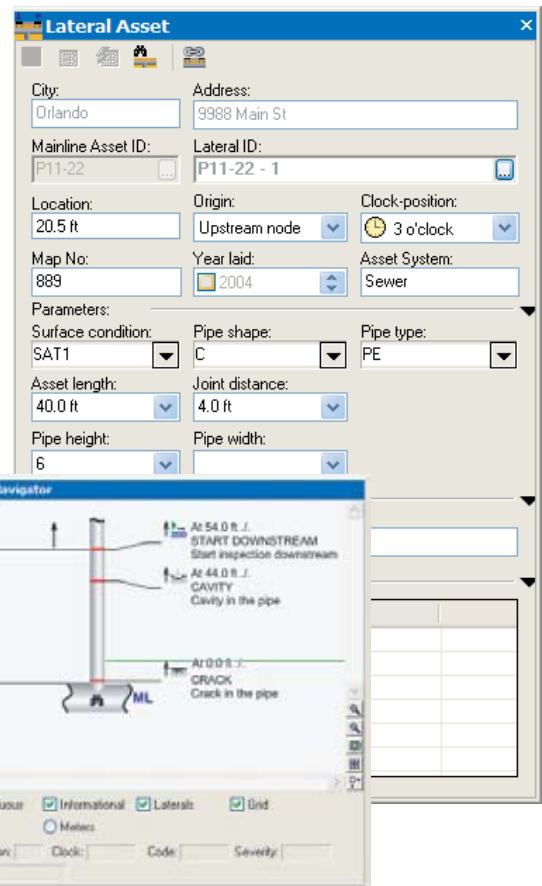


THE LATERAL ASSETS MODULE

The Lateral Assets Module is used to view, edit, and/or create new lateral inspections.

With the CUES Lateral Asset Module, you can:

- Create simultaneous and linked mainline/lateral inspections for use with portable inspection systems (to inspect the lateral from the house to the mainline) or with lateral inspection systems (to inspect from the mainline to the house)
- Capture automatic footage and titling
- Randomly create a new lateral inspection or a new lateral inspection based on an existing asset
- Customize the interface based on personal preferences
- Display lateral asset information as well as edit and/or create new lateral asset information
- Display the Mainline Asset data associated with the Lateral Asset
- Save and create a new lateral inspection directly from the new lateral asset
- View, edit, or create new lateral inspections while performing a mainline TV inspection
- Display the mainline TV inspection from which the lateral inspection was initiated
- Initiate a lateral inspection in the downstream or upstream direction, depending on the inspection requirements
- Create and manage lateral observations
- Create new pending lateral observations and add them as a spot defect, a continuous defect, or remove them from the list
- View all of the observation information in a list format; manage the lateral observations in the list
- Display the video/still images associated with the lateral observation
- Display a graphical representation of the inspection details along with the lateral observations that were made in the sewer main
- Customize the view that's displayed with various tools, such as zoom in, zoom out, fit best, fit one







Introducing the *NEW* Granite XP *Quick Find & Filter* Features!

The Granite XP *Quick Find and Filter* features are powerful and flexible tools that allow you to search the Granite XP database for desired inspection record(s) based on specific criteria. Designed with the end-user in mind, the *Quick Find and Filter* features provide a fast and easy way to find precise information about an asset or inspection.

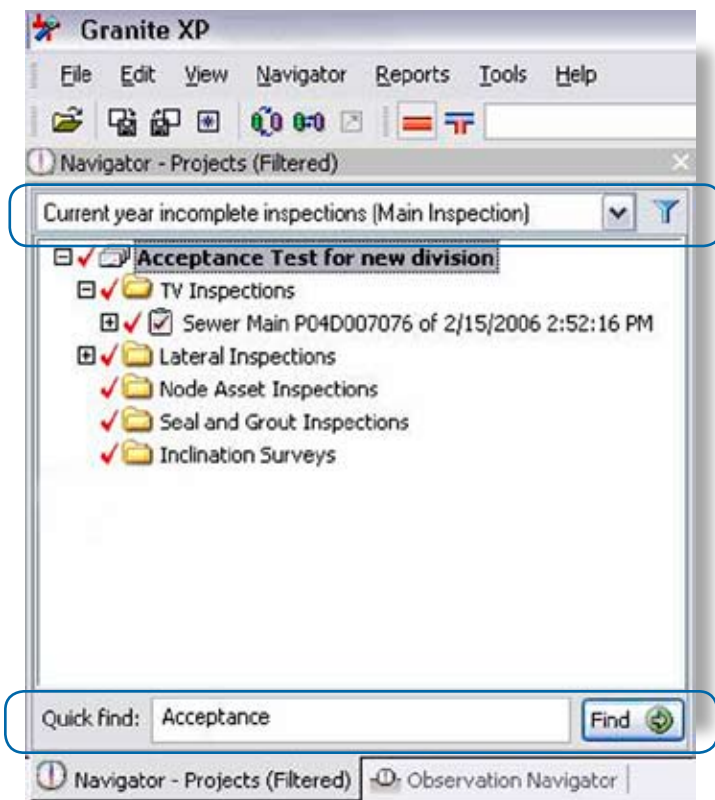
To meet the unique needs of each user, customized filters can be created/saved for future use. You can locate data within the database in two different ways: You can search for a specific project name or asset ID number using the *Quick Find* feature, or by selecting one of the existing filter profiles and/or creating your own customized filter profile.

With the **Filter** feature, you can:

- * Quickly select an existing filter preset or create custom filters
- * Manage and save custom filters for future reference
- * The system includes (2) filter modes, Simple and Advanced, to restrict the data displayed in the application and generated reports per the user's preferences. The results returned by the filters will match all specified properties simultaneously.
- * To aid in locating the correct structure upon which to initiate, view, report, or export an inspection, you can filter by Project, Structure, Inspection Information, Observation Information, and/or defined custom filters.

With the **Quick Find** feature, you can:

- * Quickly locate the needed structure or project



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Scenarios/Examples – How the *Quick Find & Filter* features can benefit your organization!

1. I need to generate a report that shows all the lines that have severity greater than 5 with root blockage. I only have 20 minutes before I leave the office to attend the meeting.
2. Show me all the manholes with cross-over storm lines so that I can dye test these first for I & I (inflow & infiltration).
3. Show me all the lines that have been inspected by John Smith in the last quarter of 2005.
4. The city has been finding problems with PVC piping in the new sub-divisions. The city needs to evaluate the extent of the lines' failure in the 8" PVC mainline. Generate a report of all the 8" PVC lines in the sub-divisions.
5. We are making plans for the expected rehabilitation of the 10" VCP mainlines. Please provide a list of all the 10" VCP mainline constructed between 1939 and 1970.
6. Print a list of pipelines inspected in the last 5 years to create the budget forecast.
7. Show me all mainlines and manholes inspected last week.
8. Show me all the manholes that are classified as 'high risk' so that I can create a budget forecast for a manhole inspection crew.

Create Custom Filters Based on Your Needs!

When you use a filter, you select/apply criteria to display records that meet specific conditions. With Granite XP, you can now manage your personal custom filters and extract the necessary information. Each custom filter can be applied to any Granite XP data object. The filter profile feature is available in the Asset and Project Navigators, as well as in the report filter. An optional ArcGIS export profile can be retained for use with custom filters.

Use the Report Filter to perform the following:

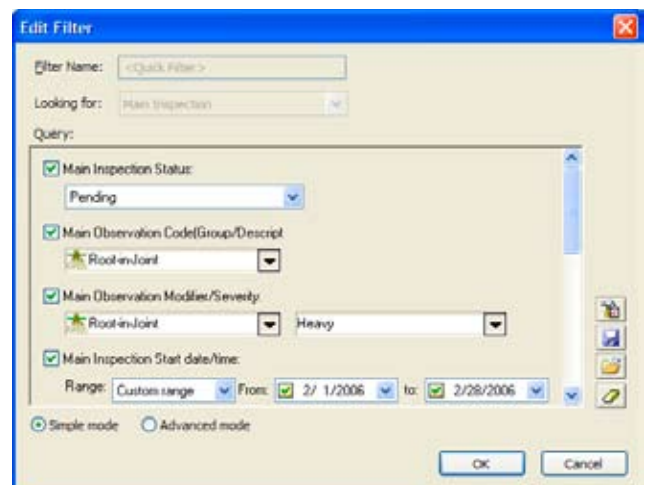
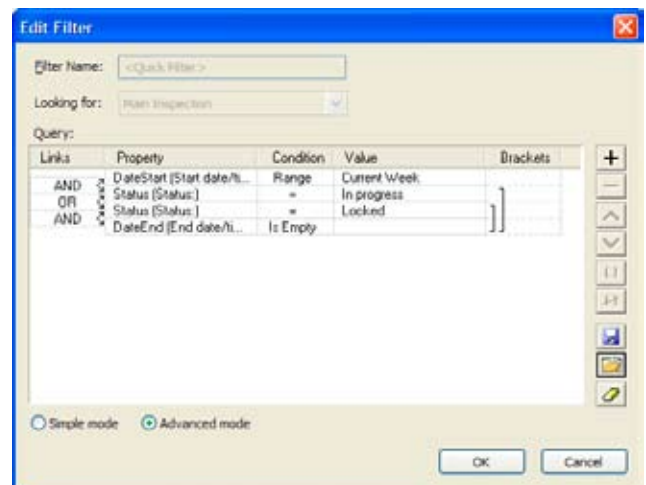
- * set up the filter name and profile
- * view query contents for the customized filter
- * preview/print the report filter

In the Edit Filter dialog box, you can:

- * view the desired objects to be filtered
- * select/deselect/reset the desired fields to be filtered

To filter Main Assets that are going to be exported from Granite XP to the ArcGIS database:

- * for any profile in the ArcGIS Integration Wizard dialog box, you can use the filter feature to select the asset records prior to exporting the asset data to ArcGIS.



The Filter feature gives you answers to tough questions - FAST!



Introducing the *Wireless GPS Mapping Stick!*

The Wireless GPS Mapping Stick works with the Granite XP Asset Inspection & Decision Support Software, in conjunction with the ESRI Module, to provide valuable locating and positioning solutions. The Wireless GPS Mapping Stick provides the ability to display and record Sewer (Manhole & Lateral Assets), Storm, Fiber, and Gas Pipeline coordinates from a GPS receiver and transfer this information seamlessly to Granite XP to map the location of these assets. The kit includes a Trimble ProXT receiver for a complete turnkey solution.

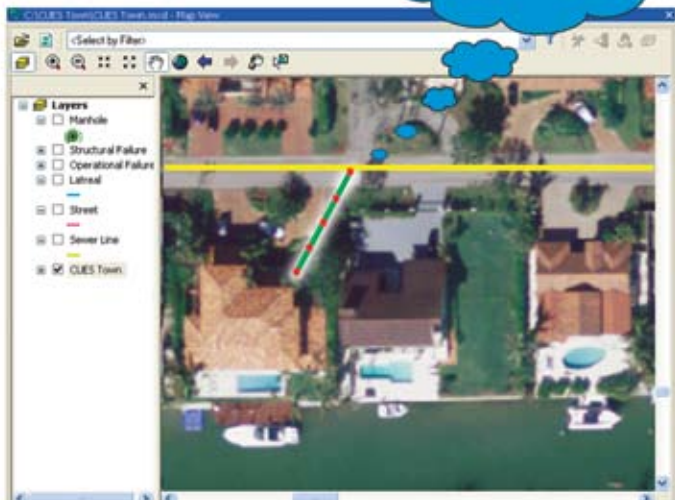


Wireless GPS Mapping Stick Benefits & Features:

With the Granite XP Wireless GPS Mapping Stick, you can:

- Freely capture GPS coordinates from a distance ranging from 500 ft to 1500 ft
- Display and obtain the GPS coordinate(s) for the following assets:
 - the single coordinate of the Sewer (lateral clean-out, lateral at the main, etc.), Storm, Gas, and Fiber Nodes
 - GPS coordinates of the Main or Lateral Assets (coordinates will be captured based on the precision of the GPS receiver (e.g. WAAS, SBAS, etc.)
 - the single coordinate of a specific observation
- Estimate a coordinate for an intermediate location based on the known coordinates of the nodes, footage, and lengths
- Connect to the GPS receiver device, extract the current coordinates from the device output, and share the information with other data acquisition system components
- In Granite XP, view the current state and coordinate that's transmitted by the GPS receiver in real time to the software.
- The Wireless GPS Mapping Stick supports the NMEA-0183 compatible GPS receivers working through the COM (RS-232) hardware interface.
- Gather GPS coordinates and estimate depth using optional built-in sonde within the camera to plot "No Dig" line traces

WIRELESS GPS RECEIVER PROVIDES A REAL TIME TRACE OF THE LATERAL



This product includes the Trimble ProXT Receiver!



Used in conjunction with the ESRI Module, the Wireless GPS Mapping Stick facilitates the capture and identification of the GPS coordinates, thereby developing and updating your GIS layers!

Includes patent-pending technology and the ability to map laterals to avoid crossbores!

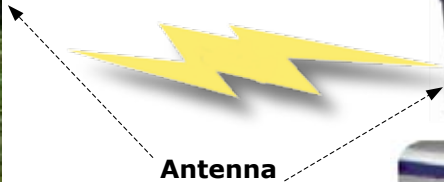
Capturing GPS Coordinates in Granite XP:

Wireless GPS Receiver (GPS data will be fed into the RF Modem and then the data will be transmitted to the other end of the wireless link)

Depth of the sewer system will be determined by using sonde device.

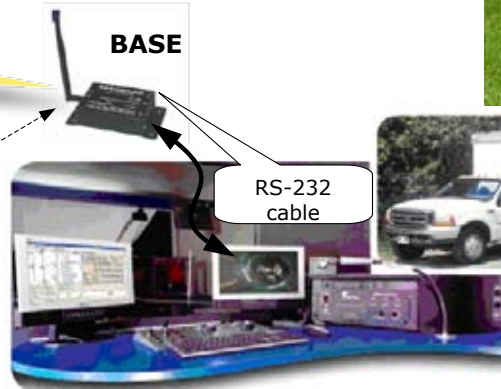


500 to 1500 Feet Wireless Link



Antenna

BASE



RS-232 cable



The GPS coordinates will be fed to the truck computer through the wireless GPS receiver



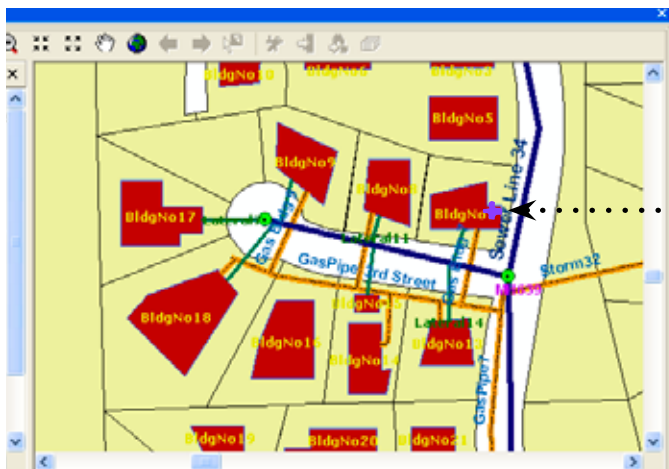
FIGURE: Capturing GPS Coordinates through a Wireless GPS Receiver

The Wireless GPS Mapping Stick provides the ability to obtain the current coordinates of the Sewer, Storm, Fiber, and Gas Pipeline segments, including Nodes, Main and Lateral Assets, in the following ways:

- GPS receiver that's directly connected with the PC
- a. capture GPS coordinates by using a GPS receiver that's connected directly to the computer via a cable
- b. capture GPS coordinates through a wireless GPS receiver from a 500 ft to 1500 ft range (shown in the diagram above)
- Enter the end points to obtain estimated coordinates
- Enter GPS coordinates manually

The GPS Data is Collected, Saved, and Presented in the ArcGIS Map:

To manage the inspection process more effectively, Granite XP can be used as an auditing tool to display and map various pipeline layers with the GPS coordinates. In the screen below, the GIS map depicts a blinking light to display the approximate location of the GPS receiver to the crew. This ensures safety for the operators in the field as well as any homes/facilities that may be too close to a possible hazard.



The + symbol represents the "cookie-crumbs" real-time GPS coordinates that are being collected in the field.

Field technicians can validate real-time GPS with actual footage counting that's provided by the camera robot to identify buried asset locations.



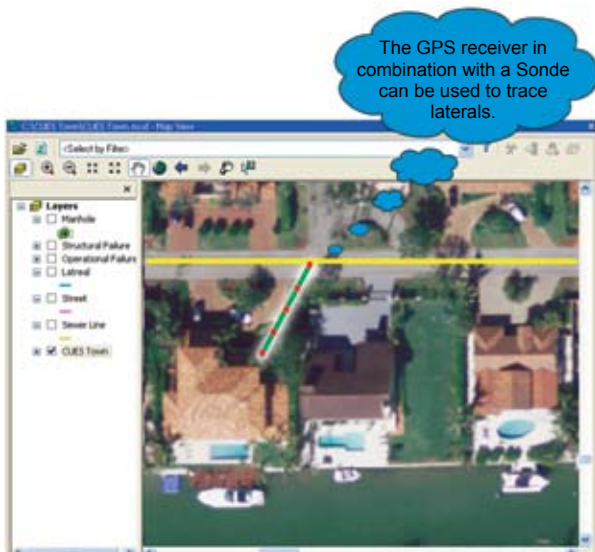
Introducing the *NEW* GPS Backpack Mapping Kit!

The CUES GPS Backpack Mapping Kit allows field users to collect GPS coordinates with a 'hands free' operation to conduct asset inspections and perform data entry while using a mobile PC. The GPS Backpack Mapping Kit works with the Granite XP Asset Inspection & Decision Support Software, in conjunction with the Granite XP ESRI module, to provide valuable locating and positioning solutions. The GPS Backpack Mapping Kit provides the ability to display and record Sewer (Manhole & Lateral Assets), Storm, Fiber, and Gas Pipeline coordinates from a GPS receiver and transfer this information seamlessly to Granite XP to map the location of these assets. The kit includes a Trimble® GPS Pathfinder® ProXT™ receiver for a complete turnkey solution.



Features & Benefits:

- Display and obtain the GPS coordinate(s) for the following assets:
 - the single coordinate of the Sewer (lateral clean-out, lateral at the main, etc.), Storm, Gas, and Fiber Nodes
 - GPS coordinates of the Main or Lateral Assets (coordinates will be captured based on the precision of the GPS receiver (e.g. WAAS, SBAS, etc.)
 - the single coordinate of a specific observation
- Estimate a coordinate for an intermediate location based on the known coordinates of the nodes, footage, and lengths of a line
- In Granite XP, view the current state and coordinate that's transmitted by the GPS receiver in real time to the software.
- The GPS Backpack Mapping Kit supports the NMEA-0183 compatible GPS receivers.
- Gather GPS coordinates and estimate depth using optional built-in sonde within the camera to plot "No Dig" line traces
- Use either a serial cable or Bluetooth® to connect the GPS Pathfinder ProXT receiver to the PC.
- The GPS Pathfinder ProXT receiver can be used to capture real-time coordinates for specific municipal assets.



This product includes the Trimble® ProXT™ Receiver!

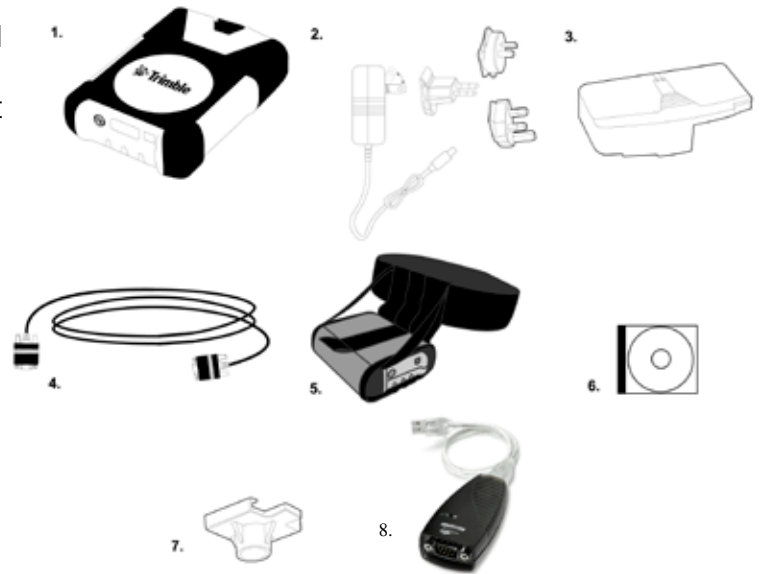


Used in conjunction with the ESRI Module, the GPS Backpack Mapping Kit facilitates the capture and identification of the GPS coordinates, thereby developing and updating your GIS layers! The system Includes patent-pending technology and the ability to map laterals to avoid crossbores!

GPS Backpack Mapping Kit

The CUES GPS Backpack Mapping Kit consists of the following items:

1. Trimble GPS Pathfinder ProXT receiver key features:
 - Real-time submeter GPS with integrated SBAS and EVEREST™ multipath rejection technology
 - Receiver, antenna, and battery in one compact unit
 - Rugged and weatherproof for all conditionsUser-replaceable battery lasts a full day in the field
2. Power supply & international AC adapter kit
3. Battery pack 5V
4. Null modem cable
5. GPS Pathfinder Pro Series Pouch
6. Software & Getting Started Guide CD
7. Screw thread mount adapter
8. USB to Serial adapter
9. 1 foot (1') Pole Segment
10. Trimble Backpack




The Trimble backpack is made from heavy-duty, high-visibility nylon. It has interior straps and pockets for securing equipment, padded adjustable shoulder straps and waist belt, and a rugged interior aluminum frame. This pack offers a convenient method of transporting and managing GIS instrumentation.

The GPS Data is collected; accuracy information (based on the number of satellites, signal quality, etc. available at the time of capture) is recorded; and in conjunction with the Granite XP ESRI Module, the coordinates can be presented in the ArcGIS Map!

To manage the inspection process more effectively, Granite XP can be used as an auditing tool to display and map various pipeline layers with the GPS coordinates. In the screen below, the GIS map depicts a blinking light to display the approximate location of the GPS receiver to the crew. This ensures safety for the operators in the field as well as any homes/facilities that may be too close to a possible hazard.



The  symbol represents the real-time GPS coordinates that are being collected in the field.

Field technicians can validate GPS coordinates with actual footage provided by the camera robot to identify buried asset locations.



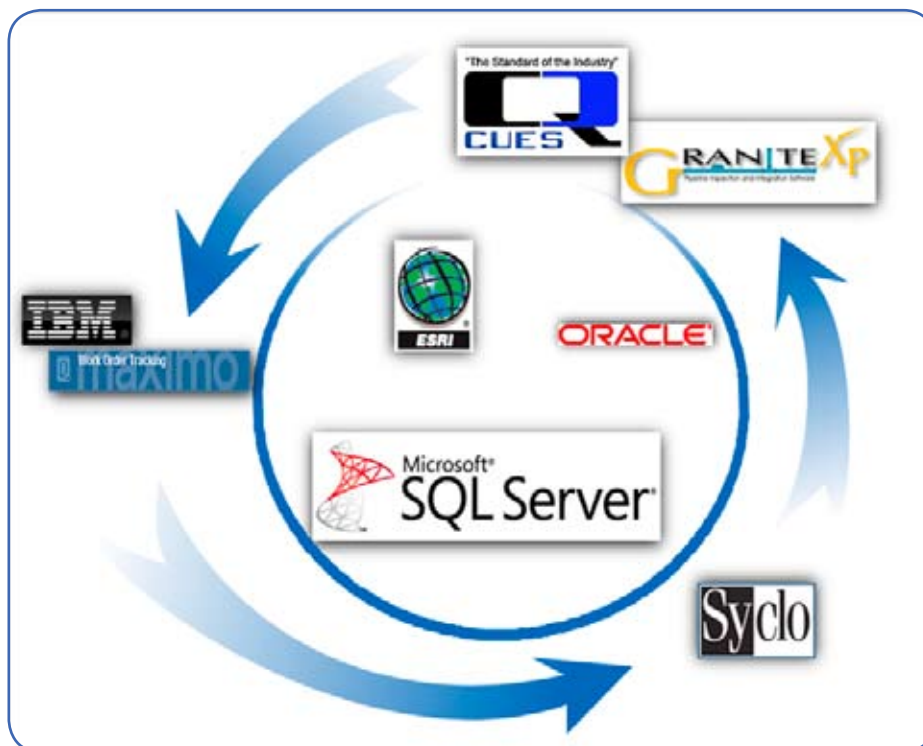
The Granite XP (GXP) MAXIMO interface is a work order and asset management system that moves data between MAXIMO and GXP. Users are able to track work orders and asset inspection management. When a large hub (city or county) integrates GXP with their IBM MAXIMO system, it has a cascading effect on all aspects of the hub's purchasing decisions, including contractors, neighboring cities, and nationwide.

The Granite XP Maximo Interface Module facilitates a highly coordinated data architecture for structuring CMOM. When combined with ESRI GIS integration, the solution enables the following:

- Creation of Work Orders in IBM's MAXIMO v6.x Work Order management system
- Wirelessly* transfer Work Orders from the office to the mobile field units via Syclo
- Ability to seamlessly initiate GXP inspections in the field, complete with all Work Order and Asset Attribute information, through a direct interface from Syclo Mobile
- Wirelessly* transfer inspection information back to MAXIMO using the Granite XP Scheduler and a MAXIMO Web service that will automatically link the MAXIMO Work Order to the inspection in GXP
- Wirelessly* transfer Work Orders from the field unit to the office that will include all Work Order Status information (open or closed + date completed), a Priority rating for the asset, and three (3) customized Score Values (requires GXP Universal Scoring Module) for the asset (Structural, O&M, PACP, etc.).

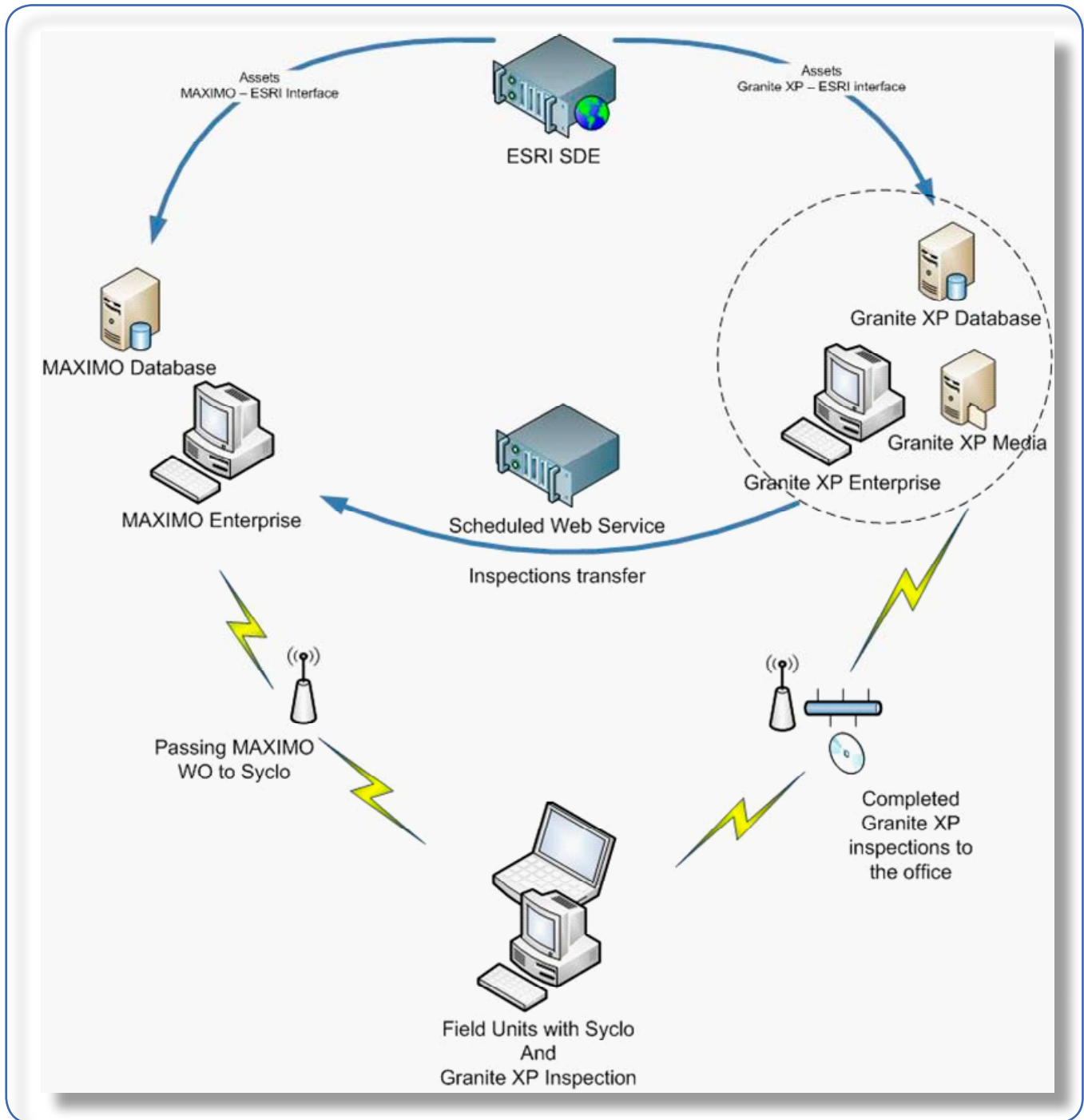
* Wireless communication requires additional wireless hardware

GIS is the source for all Asset Attribute and Spatial data; Maximo is the source for all Work Order and costing data; Granite XP is the source for all Inspection data. The graphic below summarizes the cycle of data movement:



ESRI GIS – the source of asset information

BASIC WORKFLOW EXAMPLE





Introducing the *NEW* Scheduler Module

Tired of manually handling removable hard drives, CD's and DVD's that come from your CCTV inspection vehicle?

Want to reduce the costs associated with buying CD's and DVD's that end up in a juke box or as coffee cup coasters?

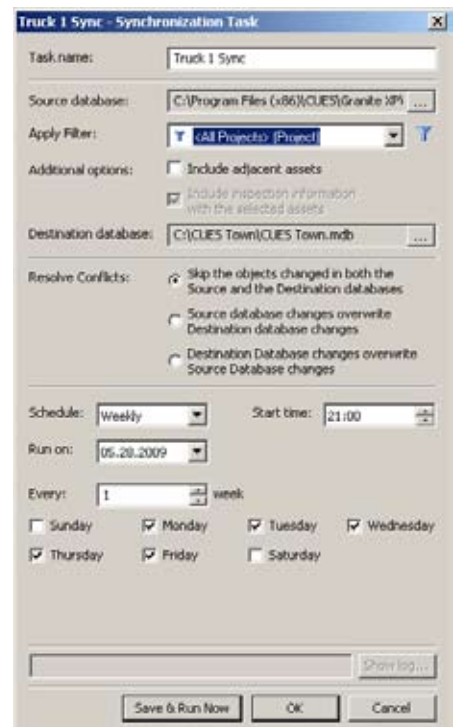
Take the inconvenience out of your busy day and let the computer do the work with more precision!

The Granite XP Scheduler Module allows users to schedule the transfer of CCTV data and media files, and perform database synchronization automatically. At specific times set by the administrator, i.e., each day after working hours when the network is less burdened, the CCTV inspection truck(s) can automatically export completed inspections from the truck to the office and synchronize incomplete inspections from the office to the truck to automate the transfer and archival of data on a daily, weekly or monthly schedule. On a daily basis, Supervisors can get their completed inspections, and CCTV crews can come in to work and find their new, incomplete inspections waiting for them to get started on. Physically carrying around disks is no longer necessary!

In addition to selecting complete or incomplete inspections, users will be able to create scheduled transfer tasks with specific pre-set filters to intelligently identify specific data to be transferred such as "inspections by " pipe type, operator, severity, date range, etc. Users can also schedule to send the data to an alternative destination for backup, third party review, regulatory requirement, etc. For example, on a daily basis, any inspection that has been found to have a collapsed pipe can be automatically transferred to a specific file location such as "Engineering_Dept.mdb" so that engineering staff can review and manage these inspected assets appropriately in a timely fashion.

In a typical configuration, the service is activated and started from a network-connected office machine which has Granite XP and the "Granite XP Scheduler Module" installed on it. The service will sequentially poll each vehicle and perform the synchronization tasks automatically. It is also possible to activate the Scheduler Service from the truck as well, or to do both, as long as the module has been installed on the computer that will initiate the service.

The Scheduler Module can be activated on the Granite XP Inspection Edition, the Engineering Edition, and the Enterprise Edition.



Scheduler Module

Additional Details:

- A wireless or wired network connection to the truck is required (a wired network is recommended when transferring video)
- The Truck must be logged into the network (permission can be granted to a single folder to restrict access control)
- The computer's Hard Drives must be shared from the truck and viewable from the office computer
- Media catalogs in the truck and office must be set for UNC paths
- A synchronization log is created for each scheduled service transaction so that the user can review the details and identify any interruptions or failures that might have occurred.

Data and media are always retained on the remote computer as backup should the service need to be run again due to connectivity problems.

Simplify and automate your CCTV Inspection program with the Granite XP Scheduler Module!

Please contact Cues for a discussion and demonstration today.



- 1 The Scheduler Module is only installed on the computer that will initiate the data transfer operation (Export or Synchronization). It doesn't matter if that computer has an Engineering, Inspection, or Enterprise Edition.

- 2 With the Granite XP Scheduler Module, you can schedule reoccurring tasks for transferring data, media files, and performing database synchronization. The administrator sets the specific time(s) after working hours when the network is less burdened.

Name	Type	Schedule	Next run time	Status
Truck 1 export	Transfer	Weekly: Every ...	05/28/2009 20:00	Pending
Truck 1 Sync	Synchronization	Weekly: Every ...	05/28/2009 21:00	Pending

- 3 Truck(s) automatically upload completed inspections and pull down incomplete inspections to automate the transfer and archival of data on a daily, weekly or monthly schedule.





Cleaning Inspection Features:

- Prioritize which pipelines to televise to avoid failures
- Customizable cleaning code system
- Flexible framework allows tracking of pipeline cleaning, grass cutting, shrubbery clearing, and other related maintenance activities
- Report designer for report creation and customization
- Inspection and observation export with ESRI module

Granite XP Cleaning Inspection Support



PERFORM PIPE CLEANING



ENTER CLEANING INSPECTION DATA



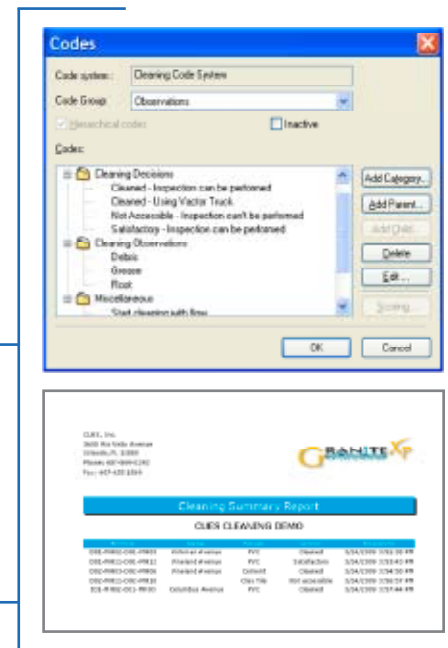
UPLOAD COMPLETED INSPECTION DATA TO THE OFFICE

New to Granite XP version 4 is out-of-the-box support for cleaning inspections. The software can be installed on sewer and storm water cleaning, jetting and pumping vehicles (Vactor, Vac-Con, Pipe Hunter, Guzzler, etc.) to integrate cleaning activities to closed-circuit television (CCTV) operations for more effective coordination, management, and prioritization of labor and equipment. Granite XP can be deployed to utilize cleaning equipment with or without video collection.

The purpose of a "Cleaning Inspection" is to collect status information on pipelines, often prior to performing a CCTV inspection to extend your CMOM activities. Using simple drop down menu selections in the software, the Cleaning operator can quickly do the following:

- Select the inspection type (CCTV, Cleaning, Sonar, etc) or create a custom type to track any related activities
- Create a pipe "cleaning" inspection
- Specify the reason for the cleaning (customer complaint, scheduled maintenance, etc.)
- Start the inspection and collect observations using special set of cleaning codes (observations and codes are customizable)
- Complete the inspection and input a condition code that reflects the overall status of the line and any key observations

At the end of the day, the vehicle can be configured to upload all of the Cleaning inspection data (and video if applicable) to a central location on the network while the following day's Cleaning assignments can be downloaded to the vehicle so that the operator can drive to the correct locations each morning. Multiple Cleaning Reports can be generated in Granite XP to identify lines cleaned, linear feet per vehicle, blocked lines, etc.



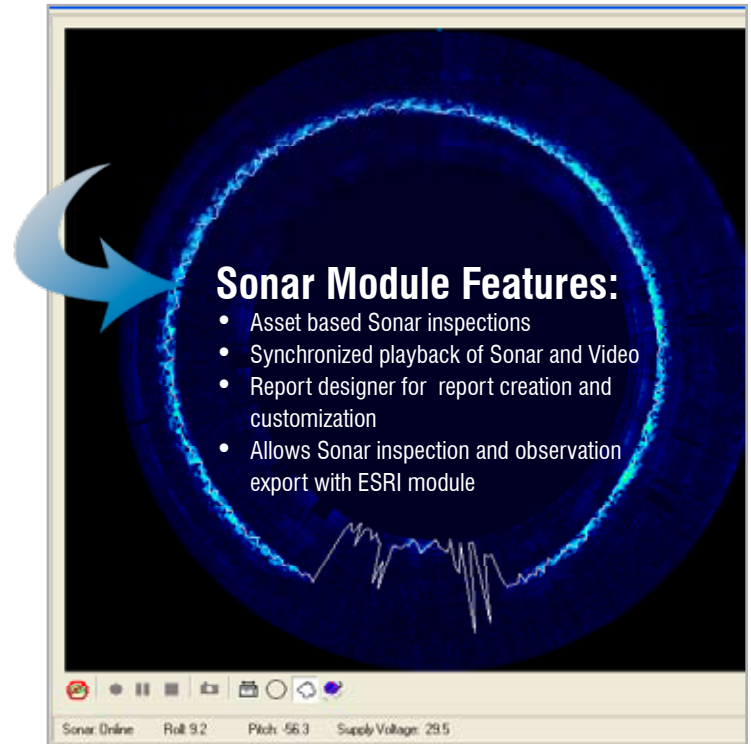
Cleaning Inspections and GIS

Each cleaning vehicle can be provided a GIS Map to assist the operator in identifying the correct lines and manhole access points. The maps can be maintained and color coded to reflect the status of each line. For example, lines cleaned in the previous six months can be color coded green with the "date cleaned" while any un-cleaned lines can be coded white. Once cleaned, CCTV operations can then be dispatched to those lines identified by the cleaners as being critical or ready for CCTV inspection. The mapping feature is optional and requires that the customer owns at least one Granite XP ESRI GIS Integration Module.

The Sonar Module for the Granite XP software operates with the CUES Sonar System to display, record, and playback all sonar data. The complete sonar information is digitally saved and can be used to perform measurements, reports, or capture still images in the truck or in the office.

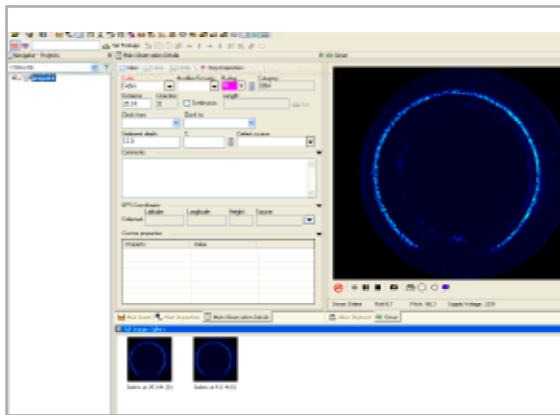
The Sonar Module allows user to display data from a Sonar underwater device to identify and measure structural and maintenance issues in Sewer or Storm pipes. The Sonar data is displayed in real-time on the new Sonar pane and is recorded simultaneously with the live video. Observations are linked to the right frame of both Sonar and Video recordings.

Sonar playback and video playback are synchronized automatically. Sonar still images can be captured from the live Sonar display or from the Sonar playback without any loss in quality.



Sonar Module Features:

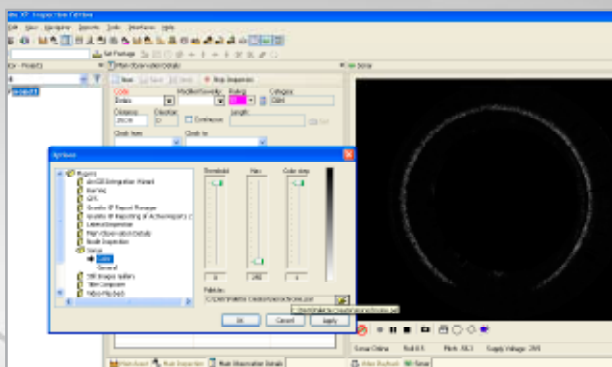
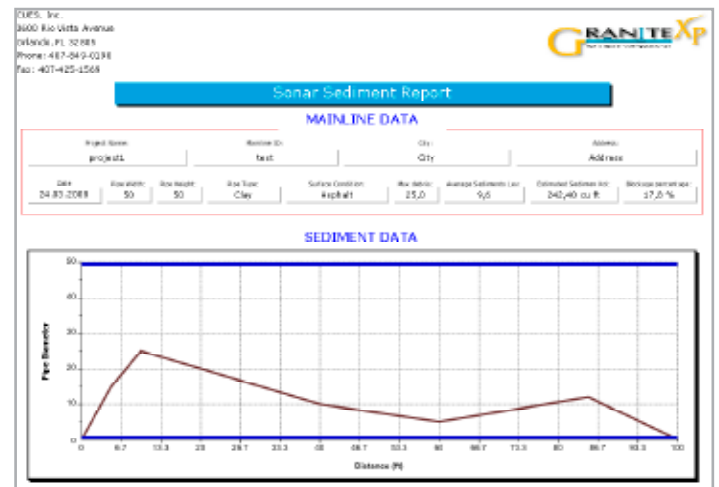
- Asset based Sonar inspections
- Synchronized playback of Sonar and Video
- Report designer for report creation and customization
- Allows Sonar inspection and observation export with ESRI module



Sonar scanning can be started or stopped from the Sonar pane. Additional controls also allow measuring of pipe features with the help of these tools:

- Measure: accurately measure distances between two points in the pipe.
- Circle: identify the radius of circular features and compare ovality.
- Outline: trace a cross sectional outline of the pipe.

Pipe capacity loss can be automatically calculated as a percentage of the total pipe flow capacity. The thickness of sediment or debris is used to graphically display the level of sediment along the pipe and estimate the total volume of sediment for removal purposes.



Sonar Inspections and GIS

If the system operator has purchased the ESRI GIS Integration Module for the Granite XP CCTV inspection software, each sonar vehicle can be provided a GIS Map to assist the operator in identifying the correct lines and manhole access points. The maps can be maintained and color coded to reflect the status of each line. For example, lines inspected in the previous six months can be color coded according to sediment levels or structural conditions. The mapping feature is available if with the purchase of an ESRI GIS Integration Module.