



Civil Pro Help v8.8.51

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Civil Pro 8

Lot Based Quality Assurance

by Dennis Gascoigne

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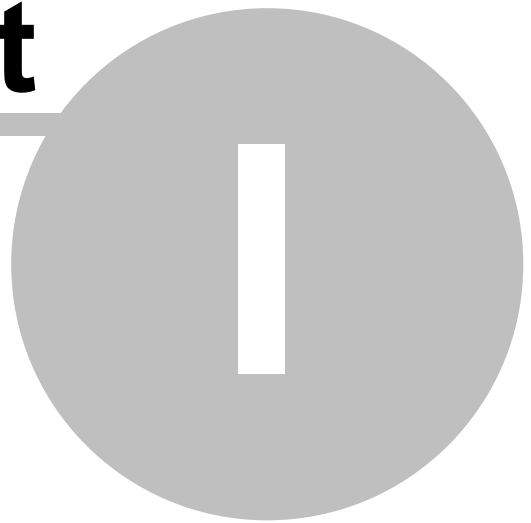
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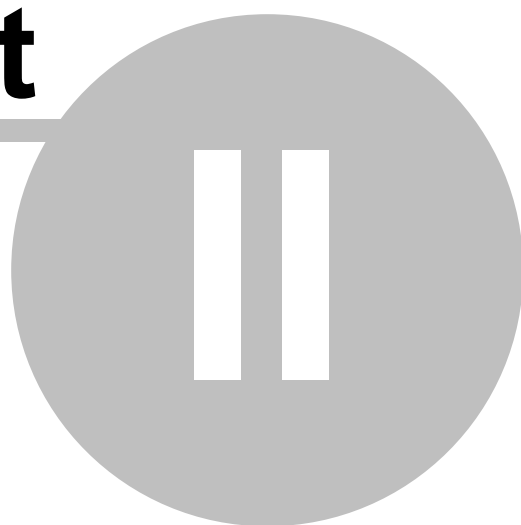
1 Introduction to civil pro

Civil pro is a quality assurance management application. It has been developed for and is tailored to the civil construction industry but is equally suitable for any complex quality assurance task. Civil pro can manage the QA requirements of any size project from the smallest to the largest serving as a simple lot register or a full blown payment and documentation tracking service.

Civil pro tracks;

1. Definition of discrete products or elements (Lots)
2. Non conformance identification
3. Testing administration
4. Checklists, ITPs and compliance
5. Project photographic records
6. Payment schedule
7. Variations
8. Document revisions, distributions and transmittals
9. Progress claims and payment
10. Relationships between objects and automatic reporting on relationships
11. Work Type, Area Code and Control Line registers
12. Analysis of test results
13. Compilation of all associated information for individual lots

Part



2 Lot based QA

The basic principal is that each part of the physical works (and / or each process) is included in one of a number of lots which are recorded on a [lot register](#). All of the testing, inspection, conformance checks and valuation of work completed is referenced back to the lot which contains the work in question. The records associated with each lot are compiled and managed as a separable record of completed work.

What comprises a lot is relatively simple and is explained in the section "[What is a lot?](#)"

2.1 Why lot based QA

Lot based quality assurance is structured and flexible. It can be as simple or comprehensive as is appropriate for your project. At its very basic level, you can maintain a list of the sections of your project and this list to collate records like tests and non-conformances. For more complex project it can be used to record the quantity of work associated with a lot, generate progress claims, track variations, manage checklists and ITPs and calculate appropriate numbers of tests.

Of course, sometimes you have no choice but to adopt lot based QA due to external factors such as your contracts or legislative requirements. In these situations you need an effective method of complying with your obligations.

2.2 What is a lot

The first step to understanding how lot based quality assurance (LQA) works is understanding the concept of a lot.

A lot is simply a specific, discrete section of the physical work or a process which forms part of the works being constructed. For a small, simple project you may simply break lots as;

- [Pavement](#)
- [Drainage](#)
- [Earthworks](#)
- [Management Plan Approvals](#)

Generally on larger projects, many lots would make up each of these categories. This may be because a section of work is too big to easily be managed in its entirety, works of a similar type occur at different times or locations, or because of other restrictions imposed on lot definition by the project specification.

An example of this may be the pavements where a lot could be restricted to a single day's production with a paving machine, of a single type of gravel (such as with Main Roads Qld projects). In this case the lots may be as follows;

- [Lot #ABCDEF001 – Subbase Ch 10,000 to 11,500 – day 1](#)
- [Lot #ABCDEF002 – Subbase Ch 11,500 to 12,750 – day 2](#)
- [Lot #ABCDEF003 – Base Ch 10,000 to 11,500 – day 3](#)
- [Lot #ABCDEF004 – Base Ch 11,500 to 12,750 – day 4](#)

When do I define a lot?

Lots can be defined before a project commences or, more commonly immediately prior to

commencement of a section of work. It is best practice to define a lot BEFORE work starts rather than completing work and then defining lots. Contracts are quite often very specific about the timing and definition of lots for particular work types.

Civil pro maintains your lot in the lot register, the central reference point for all of the individual elements of work that comprise your project.

2.3 Inspection and test planning

Each type of lot (i.e. a pavement lot, excavation lot, concrete pour lot etc.) has particular characteristics which are inspected and tested to ensure that the work complies with the requirements of the contract. Generally the required standard of work is defined by the contract specification or legislated standards. It is also common for contracts to define the elements of the works which must be inspected and tested, and how often this occurs.

Rather than trawl through the contract every time work is undertaken to determine the compliance requirements, an Inspection and Test Plan (ITP) can be authored. This communicates very clearly to the project team and also clients, what will be tested, how and when for each type of work.

This ITP may be simplified further, or reproduced in its entirety as a checklist which is printed off in hard copy for use as a record that individual items have been inspected.

Civil pro has an ITP creation and management tool which also produces checklists and determines the appropriate testing for individual Lot Types.

2.4 Testing and recording results

Tests are often required to verify that elements of work have been completed to a certain standard – such as compaction tests or concrete strength tests. These tests can occur prior to, during or after execution of the works. Testing requirements are generally specified in the contract documents.

It is usual that such tests are taken by a third party to ensure integrity of the results. To record the tests that have been requested and taken, a system of Test Requests and a method for recording Test Results is required.

Civil pro maintains a Test Request register which provides the capability to record results and generate testing locations randomly. Test Requests are linked back to the relevant lot.

2.5 Non conformance

No matter how good a project team is, sometimes things go wrong, whether it be unexpected rain damaging the presentation of your concrete, a supplier providing substandard product or a process that isn't executed correctly. In these instances, the only thing worse is when it happens again.

Identifying and managing non-conforming processes and products is an essential, and often contractually required element of a project. The process involves identifying problems, determining an appropriate course of action, getting that action approved and checking to see the actions are implemented.

Civil pro provides a mechanism for recording your non conformances, cross referencing them against lots, tracking the approval process and ensuring follow through.

2.6 Quantities and payment

Every project has a payment schedule. The extent to which contractors are entitled to progress payment for work completed is determined through the percentage of each item in the schedule that has been finished.

It is also not unusual that payment be dependent upon the work meeting certain standards. In order to make claims it is therefore useful to be able to identify the information demonstrating compliance (your lot records) and associate them with specific element of your construction payment schedule. As each lot is either complying or not, the contractor can sum the quantities across complying lots and use this as the basis for payment.

Civil pro manages these relationships between work completed, payment and compliance. Lots are statused as conforming, guaranteed or work in progress. Each status can be included in payment claims or not as is appropriate for your project. If you don't need to use lot assigned quantities, civil pro still manages your progress claim submissions independent of your lot records.

2.7 Variations

Most projects are subject to change during their life cycle. If this change incurs an increase or decrease in costs/payments, then this needs to be tracked.

Civil pro manages variations, their association with quality assurance records and their impact on the progress claim process through the Variation module.

2.8 Glossary

Random Stratified Sampling: In the context of civil pro this relates to a method of determining test locations in a random fashion, while still ensuring coverage of the area to be tested. For example, if 5 tests are to be taken over an area 10m x 100m, random stratified sampling will result in there being a single test in every 2m (10m/5m) section laterally and every 20m (100m/5m) longitudinally.

Lot A lot is simply a specific, discrete section of the physical work or a process which forms part of the works being constructed.

Conformed Lot

A conformed lot is a lot for which all testing has been performed and results received demonstrating compliance, all checklists are completed and any NCRs are closed out.

Guaranteed Lot

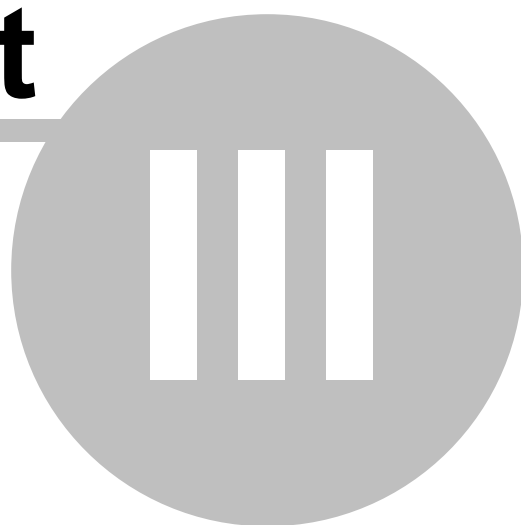
A guaranteed lot is completed and complies with the specification but is waiting on some results of testing (such as 28 day concrete tests) or other information.

Open Lot

A lot which is neither conformed or guaranteed

Non conformance Where a product or service exhibits characteristics that do not conform to specifications required and/or stated. This may include failures, deficiencies, defects, malfunctions and the like.

Part



3 Basics - read first

There are some important general things about civil pro that you need to know to get the best out of it. In fact, there are things you need to know to use it at all. This section goes through civil pro's general usage including topics such as;

- [How to enable editing](#)
- [Accessing Menus](#)
- [Interface](#)
 - [Main Menu](#)
 - [Using the Grid](#)
 - [Detail Panel](#)
 - [Related Items](#)
 - [Common Grid Functions](#)

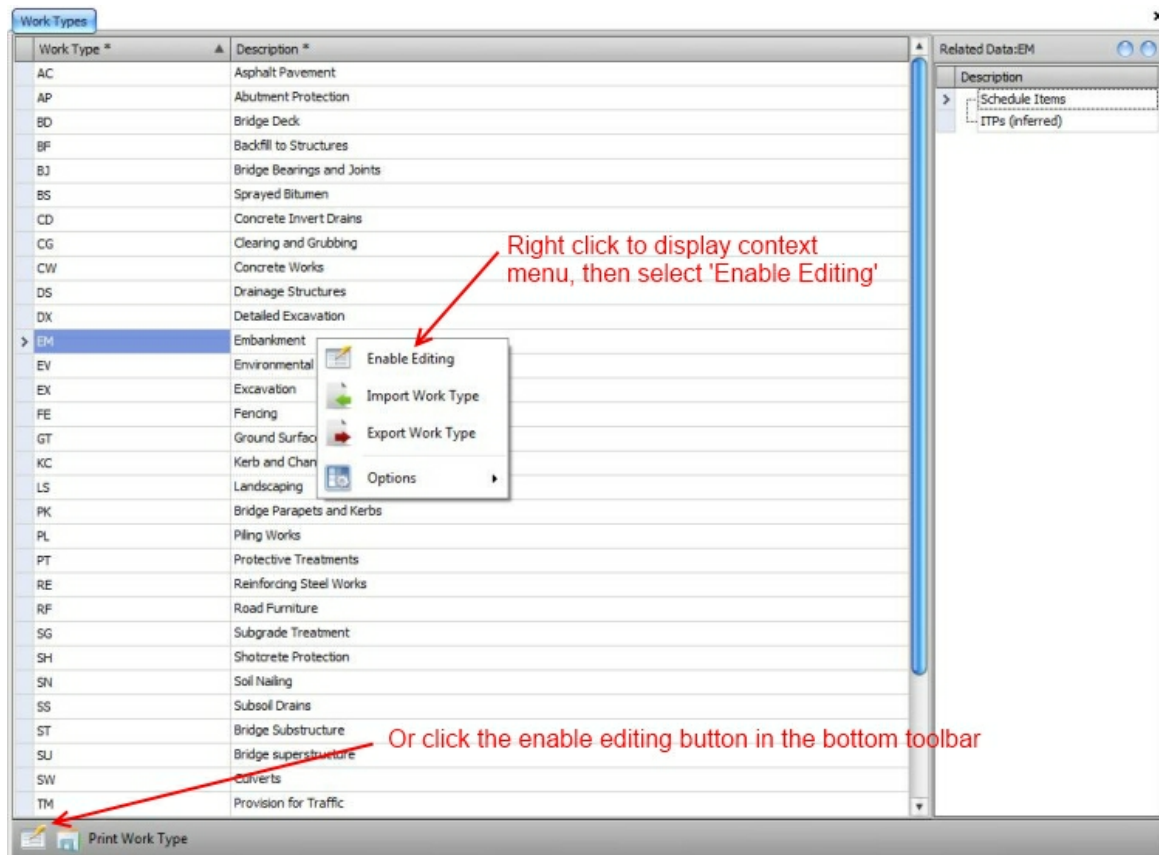
3.1 Enabling editing

The most common interface in civil pro is the grid, which is simply a user customizable list of a particular type of civil pro Data, such as the Lot Register.

Whenever you first open a register you will not be able to add, edit or delete records. You can enable adding, editing and deleting by opening the grid's context menu (right click on the grid) and clicking "enable editing", or by using the same button positioned in the bottom left of each register in the toolbar.

You can set your forms to be enabled for editing by default by selecting "Project => Grid Editable as Default" from the main menu. This can be set to enabled if you set the appropriate [constant](#).

Fig 1. Enabling editing



3.2 Accessing menus

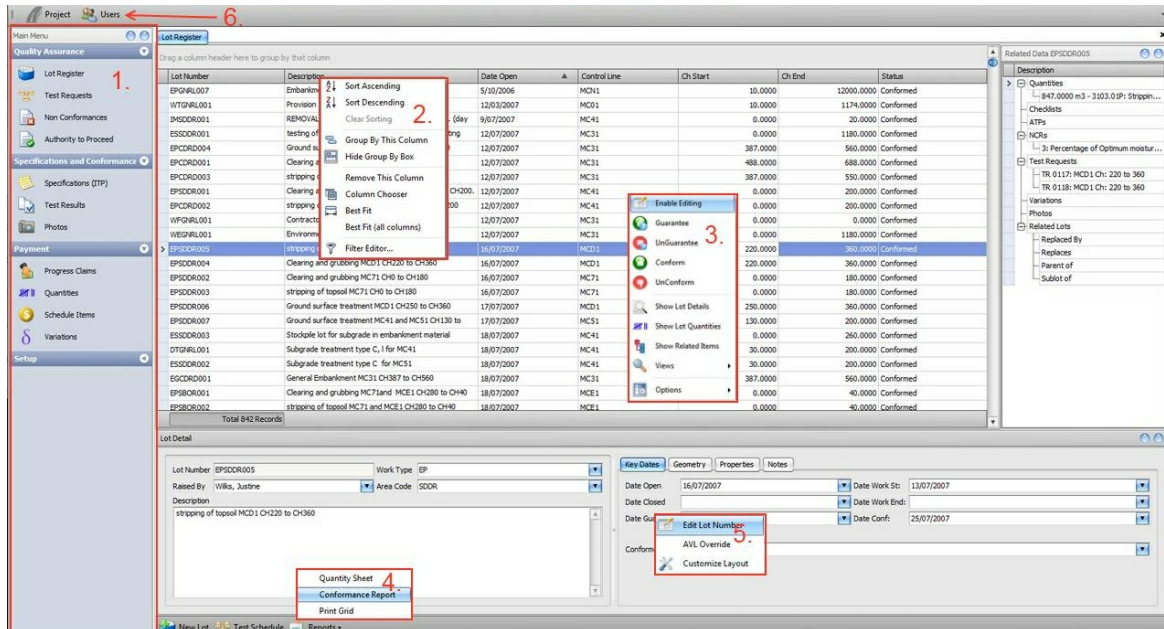
Civil pro has several different menus, some of which are "context" menus, meaning their content is different depending on what you are viewing and where you click. To make civil pro as simple to use and uncluttered as possible, we have implemented a range of different menu types which will become second nature to use after only a short while.

The menus are;

1. **Main Menu** - Found at the left of your screen once start civil pro, this is where you choose what information you want to view and update. Each type of view (or form) is contained within one of the panels, Quality Assurance, Payment, Specifications and conformance etc. Each of the panels () can be expanded and collapsed by clicking on the arrow. To access a form, click on the text or icon representing it.
2. **Header context menu** - This menu allows you to change sorting, group and show/hide different columns on the grid. It is accessed by right clicking on the column heading of any grid (the grey bar at the top of the lot register below).
3. **Grid context menu** - This provides access to a menu which is specific to the current data shown in the grid. For example below functions for Guaranteeing and Conforming lots are relevant only to the lot register and are not shown on other pages. It is accessed by right clicking anywhere on the grid. Please note that sub-grids have their own context menus which can be quite different to the main grid's context menu.
4. **Detail context menu** - The detail context menu provides access to a menu specific to the detail for an individual record. It is accessed by right clicking on the detail area.
5. **Footer Menu** - The footer menu is a quickly accessed menu at the bottom of the page for

commonly used operations. This menu can include sub-menus (such as the report menu shown below), buttons - such as the *New Lot* button and even drop down boxes.

6. **System Menu** - This is the main menu at the top of the page (below with headings Project and Users). These menus are accessed by left click and operate like standard menus in any other windows program.



3.3 Deleting

Related Items

Most relationships shown in the Related Items can be deleted by selecting them and pressing the delete key. Items that cannot be deleted this way are things like the test requests in the Lot Register where doing so would mean deleting an entire Test req. as the Lot Number is a property of the request itself.

Register Entries

Most items shown in a register grid or its sub-grids can be deleted after enabling editing in the grid context menu. Simply select the records to delete and press the delete key.

Editor Values / Clearing Editors

Sometimes you enter values in editors (like drop downs and text boxes) that you don't want. If you haven't moved away from the cell, you can usually undo the entry by using the escape key. If you need to go back and remove an entry, press ctrl+delete (please note any popup editors must be closed). This will change the value in the editor to NOTHING (or null in computer speak). It is important to understand that just because an editor does not display a value, it does not necessarily mean it contains nothing - it may be what is called an empty string or a white space. This is rarely a problem but if you are getting an error suggesting a value exists where you can't see one, and don't want one - just use ctrl+delete to clear it completely.

Cancelling Edits

To cancel an edit, press the escape key.

3.4 Performance Tweaking

Many things can affect the performance of civil pro and its responsiveness. The most important thing is the quality of the connection between where you are running civil pro and where your data is stored. If you have good communications, there is nothing to worry about and you can completely ignore this section. But if you don't...

1. Are you the only user for your database? Or are you the main user with others looking at your data once a month or so? In this case, you should consider switching to a file based version of civil pro (standalone) with the file on your (backed up) local machine. If someone needs to see your data once a month, just send them the file (make sure they have a log in).
2. Try the "slow connection" mode. This is activated by selecting the *slow connection* button in the Project main menu. This reduces the amount of checking civil pro does to make sure it shows the most recent data. By default, every time you change rows, print a report etc. civil pro checks to make sure the data is accurate and fetches [Related Items](#). If you only need to see related items for specific items rather than every time you change records, have few users accessing your project, or are happy to use the refresh button when you want to check data this may be the option for you. This can be set to default using a [constant](#).
3. Talk to us about terminal servers and project transfer options. These can be tricky and may require some server admin.

3.5 Printing and reports

Civil pro's registers can be printed or exported using the menu option in the bottom left of each screen (see Fig 1). When a report is printed, it is shown in a [print preview](#) form first where you can choose to export data to other formats, change margins and page orientation and scale the reports to fit pages.

When you print reports such as an NCR report or test request, one or more pages is printed for the record, as opposed to when a register is printed where each record is a single line in a table. With the NCR and test request like reports, civil pro will create reports for each record you currently have selected in the grid. For example, if you have three NCRs selected and you choose to print an NCR report, civil pro will open the print preview with each of the three NCRs printed sequentially with a page break in between. If of course you only want to print one report, simply select a single one to print.

One of the options on most registers is "print grid". This is a very flexible report that sends the current grid layout to the report. This means any [filters, grouping, column resizing or other customizations](#) you have applied will be reflected in the report. If you want to see information not shown in the grid as standard, use the [grid header context menu](#) to show the column list, and add the column with the information you require. It will then be displayed in the report.

If your column is cutting off text that doesn't fit in the cell, or you want to see the information in sub-grids, use the autofit and expand options available in the [grid context menu](#) - see [Common grid functions](#). If your column isn't wide enough on the report, change it in the grid and rerun the report.

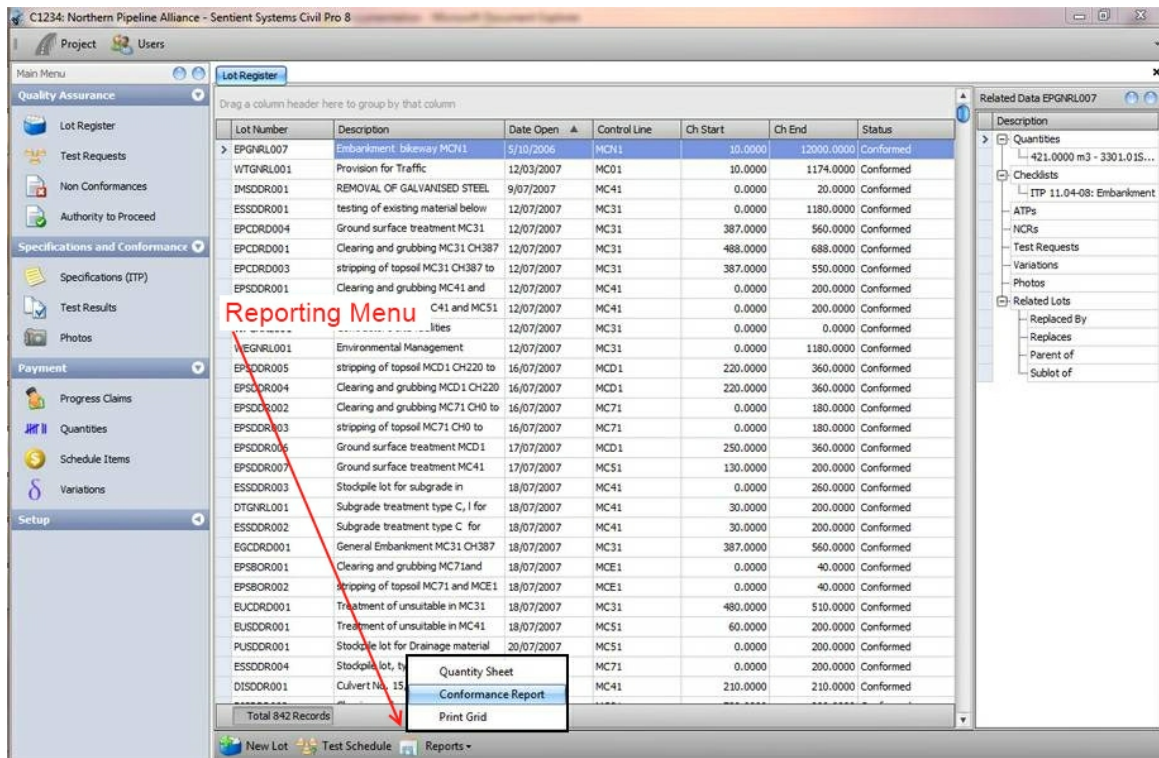


Fig 1. The lot register with the Reports menu opened

3.5.1 Print preview

When a [report](#) is opened in civil pro, it is shown in preview mode (Fig 1.). This allows you to tweak your report prior to sending to the printer.

NOTE: Some reports have additional tabs at the top of the page allowing for further customization of the report output. These reports include the conformance report, NCR and the checklists.

The menu bar options are;

1) Document

- a) Open - Opens a previously saved report
- b) Save - Save a report to disk (only viewable in the civil pro report viewer)

2) Print / Quickprint - sends to the printer

3) Page setup

- a) Header/Footer - Allows entry of additional information above and below the report
- b) Scale - change the zoom level of the report or fit to a set number of pages.
- c) Margins - change the top, bottom, left or right margin spaces
- d) Orientation - landscape or portrait
- e) Size - The output paper size - A3, A4, letter etc.

4) Navigation

- a) Find - Find words in the report
- b) Next / Previous / First / Last page - navigate through the pages

5) Zoom - These functions are as per standard word processing functions

6) Page Background

- a) Page Color - change the color of the page behind the report
- b) Watermark - prints a standard text or image behind the report to help with identification or discourage unauthorized duplication

7) Export

- a) Export To - exports the report to PDF, HTML, MHT, RTF, XLS, XLSX, CSV, Text or Image
- b) Email As - emails the report as PDF, HTML, MHT, RTF, XLS, XLSX, CSV, Text or Image

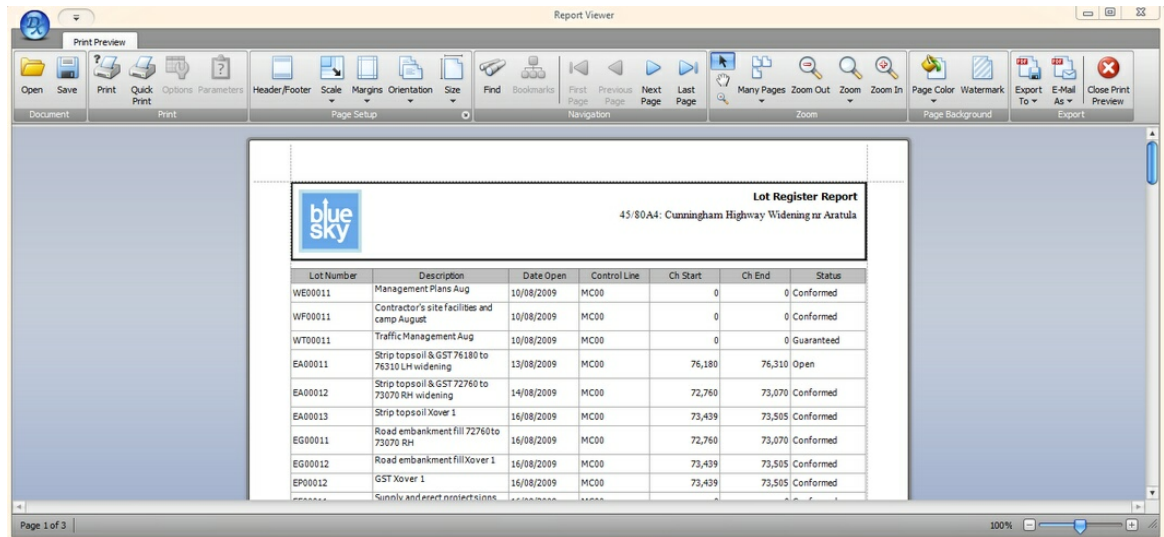


Fig 1. The Print Preview form

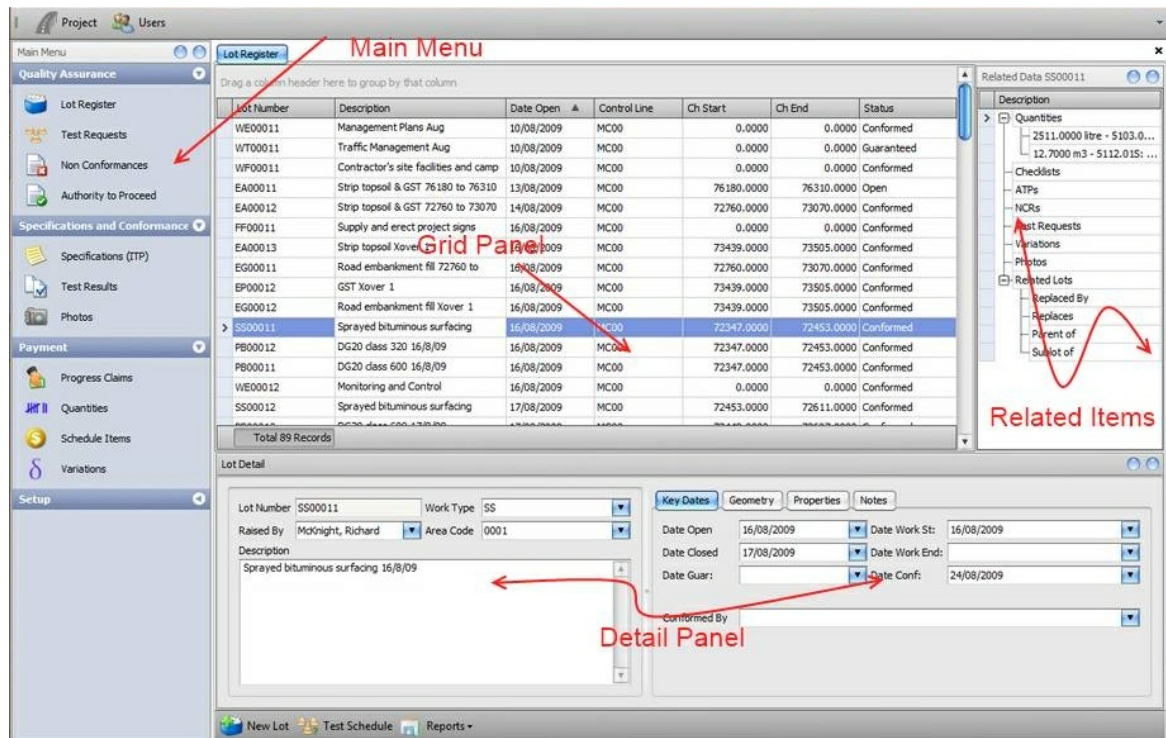
3.6 The interface

Most of the pages in civil pro are displayed in a grid containing lists of similar data (the lot register) with panels for related data and record detail, or in a single form containing information for a single record (New lot wizard).

This section focuses on the grid type interface which has a lot of functions common to each page. The most heavily featured grid page is the lot register so this section on the civil pro interface uses it as its example.

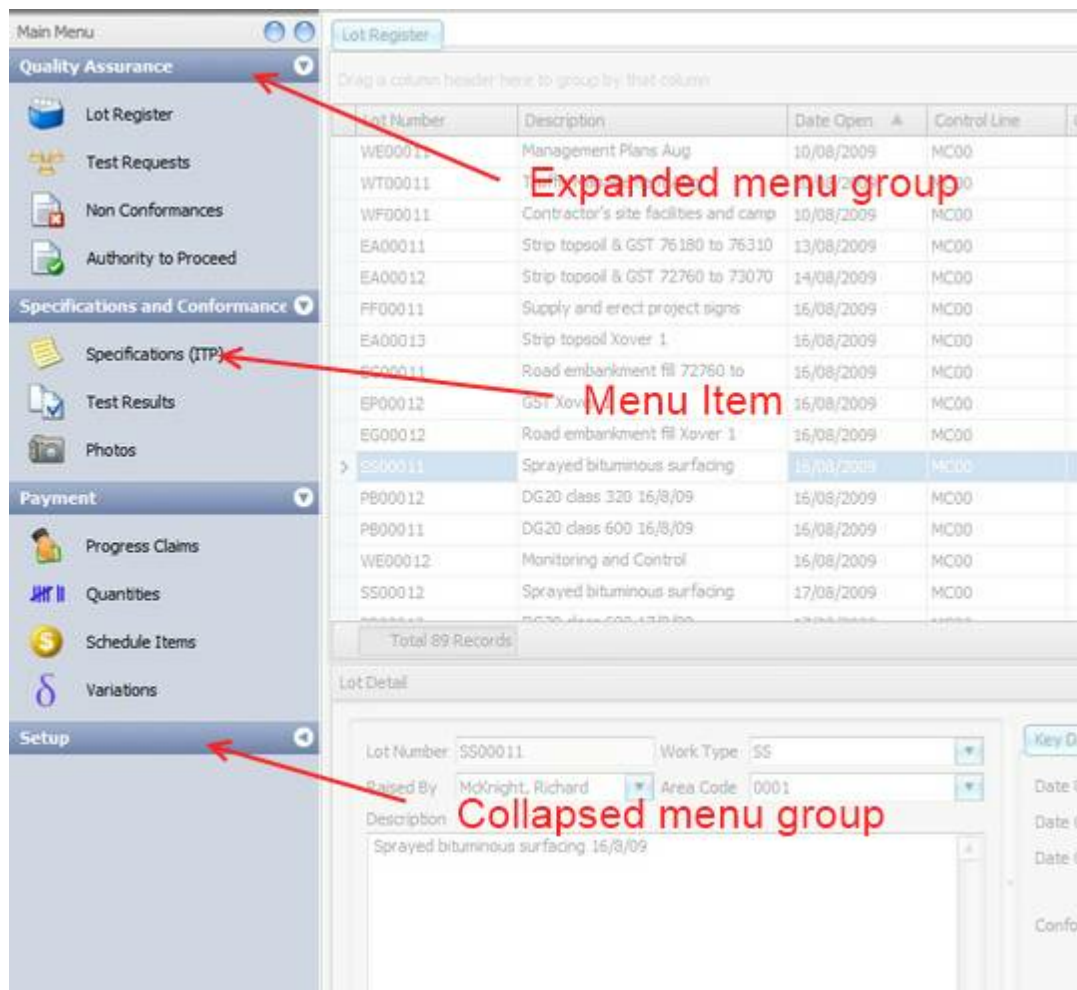
This section describes each of the main areas of the interface including;

- [Main Menu](#)
- [Grid Panel](#)
- [Related Items](#)
- [Detail Panel](#)



3.6.1 Main menu

Most of the civil pro registers are accessed from the main menu positioned at the left hand side of the screen. The main menu is split into 4 sections which can be collapsed or expanded to show the individual menu items.



3.6.2 Tool Tips

Most of the menu functions in civil pro have tool tips explaining what they do. Where there is a tool tip, simply hover over the button, and the tool tip will be displayed.

Tool tips work for context menus and items in the bottom menu.

Work Types **Lot Register**

Drag a column header here to group by that column

| Lot Number | Description | Date Open ▲ | Control Line | Ch Start | Ch End | St |
|-------------|---------------------|-------------|--------------|----------|--------|----|
| > EXMCWY001 | Excavation of stuff | 27/07/2011 | MC1A01 | 0 | 100 | Op |

- Enable Editing
- Lot Status ▶
- New Lot (like selected)
- New Related Item ▶
- Status Colouring**
- Show Lot Details
- Show Lot Quantities
- Show Related Items
- Views ▶
- Options ▶

Lot Colouring (toggle)

Colours lots based on their status. Open lots are black, guaranteed are blue and conformed are green. Rejected lots are red.

This option can be set by default using user preferences.

Tooltip is displayed when hovering

3.6.3 Using the grid

All of the civil pro registers are displayed in summary using an excel like grid. The civil pro grid is a very flexible interface. Understanding how to use it makes civil pro even more powerful.

Drag a Column header here to group by that column

| Lot Number | Description | Date Open | Control L... | Ch Start | Ch End | Status |
|-------------------|-----------------------------------|------------|--------------|-----------|-----------|-----------|
| > EPCDRD004 | Ground surface treatment MC31 | 12/07/2007 | MC31 | 387.0000 | 560.0000 | Conformed |
| DISDDR005 | Ground surface treatment MC31 | 30/07/2007 | MC31 | 680.0000 | 860.0000 | Conformed |
| EGGNRL002 | Preparation of special fill | 16/08/2007 | MC31 | 0.0000 | 0.0000 | Conformed |
| EPCDRD001 | Clearing and grubbing MC31 | 12/07/2007 | MC31 | 488.0000 | 688.0000 | Conformed |
| EPCDRD003 | stripping of topsoil MC31 CH387 | 12/07/2007 | MC31 | 387.0000 | 550.0000 | Conformed |
| DISDDR002 | Clearing and grubbing MC31 | 24/07/2007 | MC31 | 700.0000 | 800.0000 | Conformed |
| EPCDRD005 | stripping of topsoil MC31,MCA1, | 24/07/2007 | MC31 | 700.0000 | 800.0000 | Conformed |
| IPSDDR001 | Clearing and grubbing and | 27/08/2007 | MC31 | -124.0000 | 360.0000 | Conformed |
| EUGNRL005 | Earthworks preparation for | 23/10/2007 | MC31 | 500.0000 | 500.0000 | Conformed |
| PCGNRL056 | Clearing and grubbing including | 30/01/2008 | | | 0.0000 | Conformed |
| DIGNRL017 | Removal and Installation of | 29/08/2007 | | | 20.0000 | Conformed |
| BAGNRL001 | Collection pipes 100mm dia. Class | 30/08/2007 | | | 0.0000 | Conformed |
| BCGNRL002 | Access Track Turnout MC31 CH | 30/08/2007 | MC31 | -120.0000 | -115.0000 | Conformed |
| DIGNRL007 | Culvert No. 14, 9x 1200 RCPs as | 17/09/2007 | MC31 | 695.0000 | 715.0000 | Conformed |
| EGGNRL023 | Line U 825mm class 4 | 4/10/2007 | MC31 | 560.0000 | 560.0000 | Conformed |
| Total 842 Records | | | | | | |

Fig 1. Accessing common grid functions

By default, the grid is not editable and data cannot be deleted. To enable editing, right click to access the context menus and select "Enable Editing".

- 1. Reorder columns** - grabbing a column (left click and hold) with the mouse and dragging it will reorder columns.
- 2. Showing different columns** - A standard set of columns are shown when you open each register, generally there are many additional columns available. These can be accessed from the [header context menu](#) and clicking Column Chooser. Drag the column you want from the column chooser to the grid column header area and drop it.
- 3. Removing Columns** - A column can be hidden by grabbing it (left click and hold) and dragging it out of the column area.
- 4. Filtering Data** - When the left mouse cursor is over the column heading, the filter icon appears in the top right of the column header (see the Ch Start column in the figure). Clicking this opens the filter menu. Select the value you want to filter on, or select custom to enter a complex filter. The filter system is analogous to that found in Microsoft Excel.
- 5. Sorting Data** - Clicking on a column header sorts the data using the values in that column. Clicking it again reverses the sort order. To sort on multiple columns, click on the columns you want to sort on in order while holding shift. The figure shows the Control Line is sorted (there is a black triangle in the header)
- 6. Grouping Data** - dragging one or more columns into the grouping area at the top of the grid allows users to collect similar information together. In Fig 2. the grid is grouped by Control Line as can be seen by the control line column which has been dragged into the header. When the grid is grouped, the expansion state and whether the grouped column is shown can be controlled through the grid's [context menu](#). More than one grouping can be applied to further collate like information.

| Control Line ▲ | | | | | | |
|----------------------------|--|-------------|----------|---------|-----------|--|
| Lot Number | Description | Date Open ▲ | Ch Start | Ch End | Status | |
| [-] Control Line: LINE 20 | | | | | | |
| DISDDR035 | Culvert No. 20, 4/600 RCP. | 14/08/2007 | 0.0000 | 29.0000 | Conformed | |
| PBGNRL007 | Roadside Furniture - Signs Pour 1 - No Quantities | 11/12/2007 | 0.0000 | 0.0000 | Conformed | |
| PBGNRL008 | Roadside Furniture - Signs Pour 2 - No Quantities | 11/12/2007 | 0.0000 | 0.0000 | Conformed | |
| ELGNRL008 | 1800 Chainwire Fence line - pour 2 | 12/12/2007 | 0.0000 | 0.0000 | Conformed | |
| BSGNRL005 | 1800 Chainwire Fence line - pour 1 | 12/12/2007 | 0.0000 | 0.0000 | Conformed | |
| BSGNRL002 | Roadside Furniture - Signs Pour 3 - No Quantities | 12/12/2007 | 0.0000 | 0.0000 | Conformed | |
| [-] Control Line: LINE 21A | | | | | | |
| DISDDR034 | Line 21A: Culvert 21A 3/600mm class 4. | 13/08/2007 | 0.0000 | 23.0000 | Conformed | |
| ELSMWB001 | asdf | 10/01/2010 | 0.0000 | 0.0000 | Open | |
| [-] Control Line: LINE 21B | | | | | | |
| PCSDDR001 | Line 21B: Culvert 21B 600mm class 4. | 13/08/2007 | 0.0000 | 25.6000 | Conformed | |
| [-] Control Line: LINE 2D | | | | | | |
| DISDDR013 | Line 2D: 2/2D to 2/D 375mm class 4. | 1/08/2007 | 10.4000 | 30.6000 | Conformed | |
| DISDDR014 | Line 2D: 1/2D to 2/2D 375mm class 4. | 1/08/2007 | 0.0000 | 10.4000 | Conformed | |
| [-] Control Line: LINE 2G | | | | | | |
| [-] Control Line: LINE 3G | | | | | | |
| DICDRD002 | Line 3G: 1/3G TO 3/G 375mm class 4. | 9/08/2007 | 0.0000 | 24.5000 | Conformed | |
| PCGNRL016 | Cast-in-place concrete gully for 3/G CN NO. 20052 (No QTY'S) | 11/09/2007 | 70.0000 | 70.0000 | Conformed | |
| DIGNRL047 | Line 3G: 1/3G TO 3/G 375mm class 4. stage 2. | 9/10/2007 | 12.0000 | 24.0000 | Conformed | |
| [-] Control Line: LINE 7D | | | | | | |
| [-] Control Line: LINE B | | | | | | |
| [-] Control Line: LINE D | | | | | | |
| [-] Control Line: LINE F | | | | | | |
| [-] Control Line: LINE G | | | | | | |
| Total 842 Records | | | | | | |

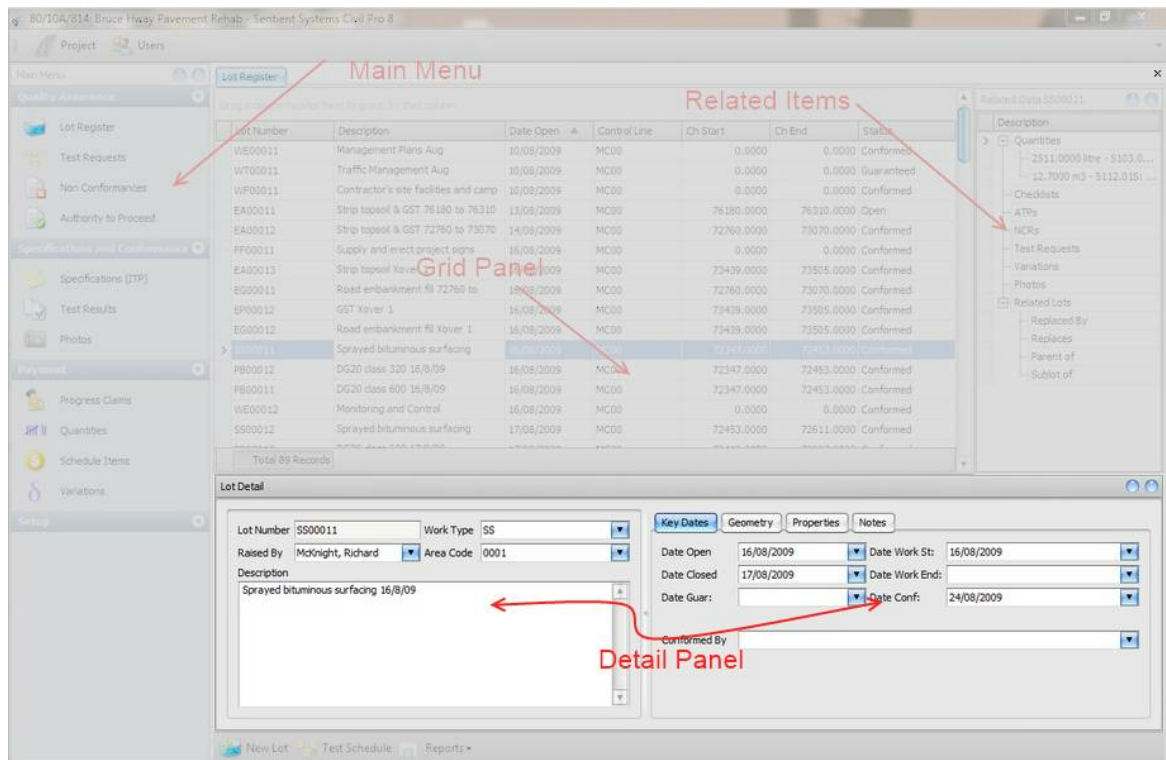
Fig 2. The lot register after the Control Line has been dragged into the group area.

3.6.4 Detail panel

When you first open the lot register you are seeing a summary of each lot. If you need to see additional information for a particular record you can view it in the detail panel at the bottom of the grid. This panel can be hidden or closed, and on most registers is hidden by default.

To re-open or unhide the detail pane either;

- Double click on the record in the grid, the panel will open showing details for the clicked item
- Access the context menu (by right clicking on the grid) and select the option to show the detail pane.



3.6.5 Panels and docking

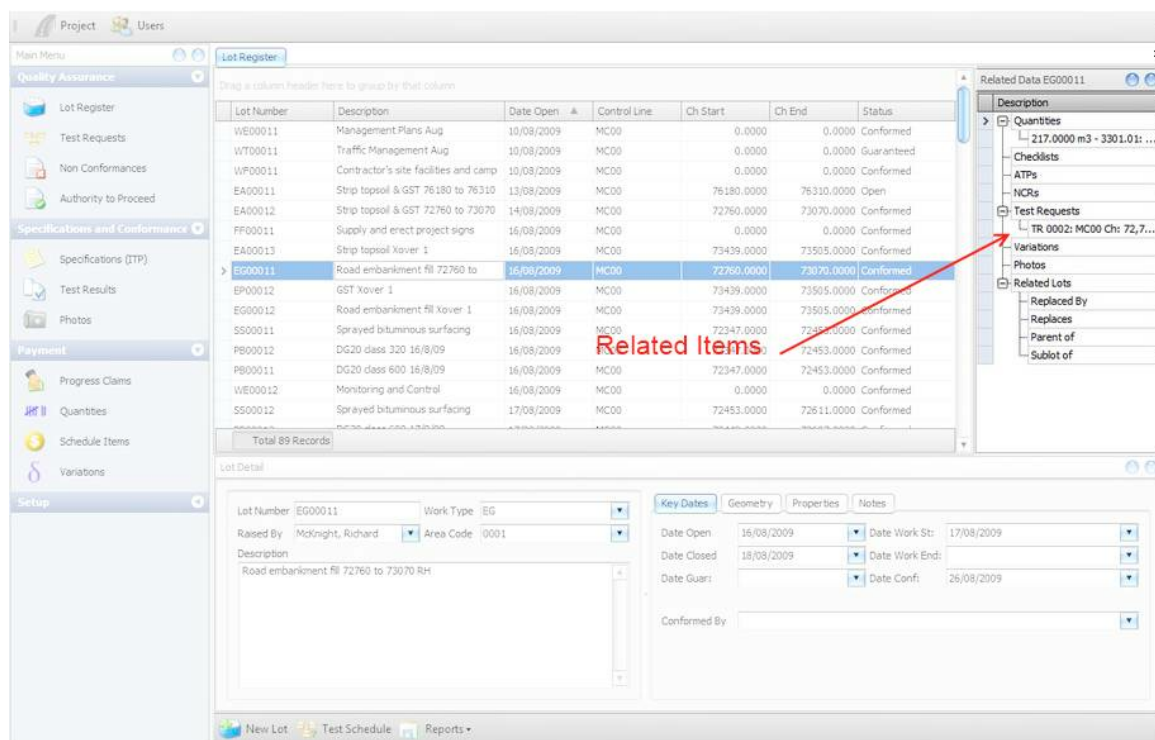
Civil pro's panels can be moved around to suit your needs. If you do not like where a panel such as the detail panel is located, grab its title bar and move it somewhere else. If you drag it over the main civil pro page you will see anchor marks where you can drop the panel to have it dock to civil pro at the bottom, sides or top. Alternatively you can drag it into its own window. This is especially useful if you are doing work requiring a large viewing area (such as creating ITPs) or if you have dual monitors where you can set the detail up on one page and the grid on another.

3.6.6 Related items

Many of the civil pro registers (the Lot, NCR, Test and ATP for a start) have a panel on the right called the related items panel. This panel displays information related to the currently selected item in the grid view. For example, in the figure below, lot EGGO011 is selected in the main grid and the related items panel shows that this lot has a quantity of 217m3 for schedule item 3310.01 and is linked to test request #2.

The related items list not only displays information, it is also a way to quickly create links to other information. If you want to add information - say a link to an NCR for a lot, double click on the heading (NCRs for example) and a list of NCRs for the project pops up. Select the NCR(s) you want to link to from the list and drag them onto the related items list. When you hover over the NCRs heading, the cursor will change - drop the items and they will be added to the list. To remove links, select them and click delete.

The related items list can be hidden or closed using the blue buttons at the top right of the menu. To display it again, select the "Show Related Items" option from the [grid context](#) menu (right click on the grid).



3.6.7 Common grid functions

There are a number of functions common to most (but not all) grid based displays in civil pro which are accessible from the [context menu](#) (right clicking on main part of the grid). This section of the help describes their function.

- Enable editing
- Grid options
 - Row autofit
 - Expand all
 - Show grouped columns
- Show detail
- Show related items

Enable editing

When you open a register it is not enabled for editing, adding or deleting (unless you have [enabled editing by default](#)). If you have the appropriate permissions you can enable editing, adding and deleting by selecting the [Enable Editing](#) function from the grid context menu, or using a similar button in the bottom menu. If a grid has child grids (a hierarchy where a row can be expanded to show more data) then editing for these is controlled by the editing settings for the parent grid.

The reason for this is that it is all too easy to accidentally overwrite information and we think an extra couple of mouse clicks is little pain compared to the likely errors that can otherwise arise. You can set the editing status of all grids to editable as they are opened using the option in the main Project menu at the top of the screen.

Grid options

Row Autofit

When selected, allows the row height to automatically adjust so that columns with long data wraps in the cell. When not selected, rows are one line high and text does not wrap.

Expand All

When a grid has a sub-grid, or is grouped this function toggles whether all of the data is expanded or collapsed.

Show Grouped Columns

When a grid is grouped by one or more columns you can use this option to choose whether the grouping column is also shown in the grid display.

Show detail, Show related items

If the detail pane or related item pane has been hidden or closed, this will make them visible again.

3.6.8 Finding Data

The most common ways to find data in a civil pro register are;

1. CTRL+f => when the grid is active, in most registers this will open the find dialog. To find data simply enter your search term (refer Fig 1.). In the schedule this behaves a little differently and the search terms are entered into the related items panel.

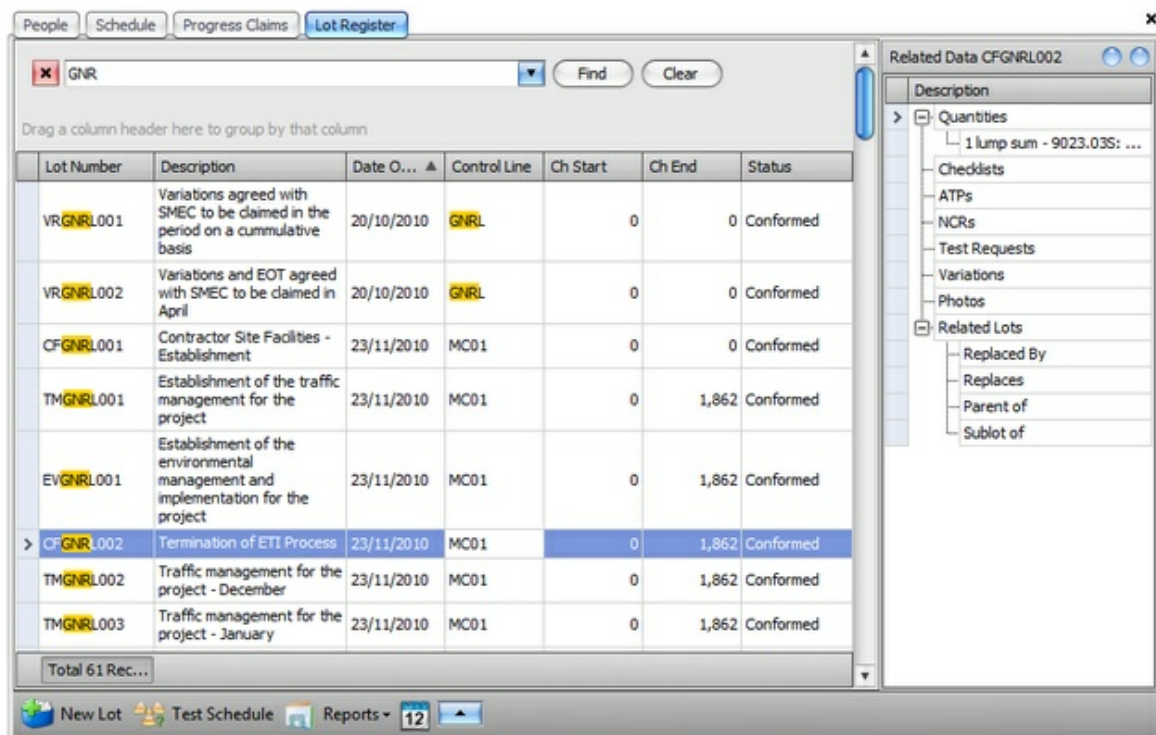


Fig 1: Using the find function

2. Using the filters. Filters are available for each column, similarly to excel (refer to [Using the grid](#) in the section Filtering Data). If you cannot see the column you want to filter in the grid, select it using the column chooser as described in the section showing different columns (also in the *Using the grid* section).

IMPORTANT: Filters behave differently than the find! Find looks for records with your search term anywhere in them. When using filters, they search for an exact match. You can use a wildcard (%) to extend your search to be like the find.

For example, to perform an equivalent search for GNR as that shown for the filter in Fig 1. in a filter would be %GNR%. If you just wanted to find lines starting with GNR, it would be GNR%.

Part



IV

4 Setting up Civil Pro

When you first start a new civil pro project there are a few relatively straight forward steps to take before it is ready for every day use. This section describes the steps from opening the project through creating basic information stores and importing existing data to the point you are ready to create your first lot.

4.1 Select standalone or server

Civil pro can be used as standalone, server or a combination of both. Which you use will depend on a few factors (refer below). If a standalone system suits your needs it is by far the simplest and if you need to change to a server based system later, civil pro will migrate your standalone file to a server in a matter of minutes.

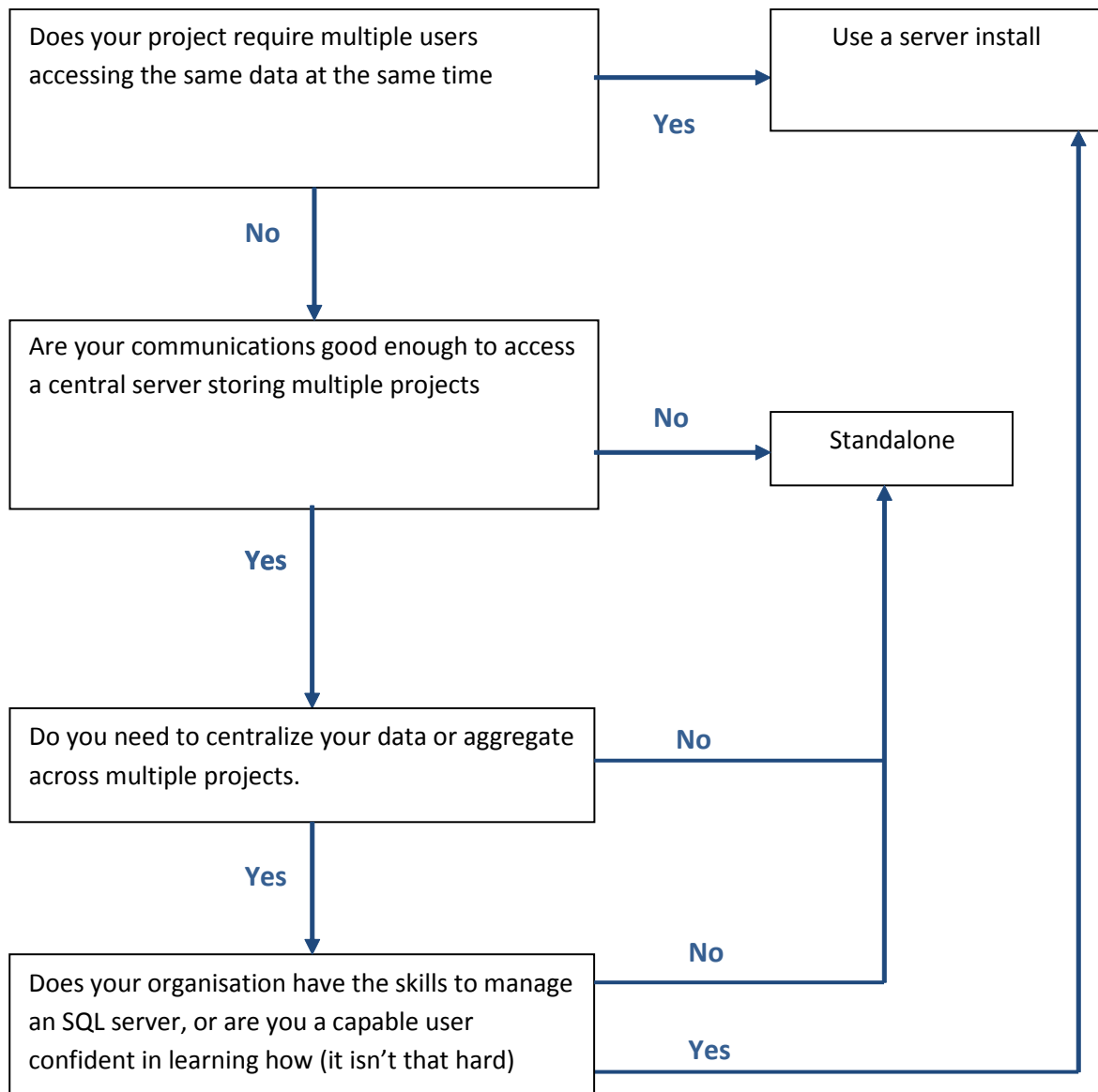
Standalone (file)

In a standalone system, all of your data is stored in a single file that you can copy just like any other file - it is analogous to a word or excel document. This is completely different to how standalone systems worked in previous versions. In a standalone system, each project has its own file.

Server

With a Server based system multiple projects are stored in a central location and users are common across projects (although permissions are customized on a project/role basis). Backups, restores and administration are all server based tasks requiring someone who knows about using a database server (or is willing to spend a few hours learning). If you need to use your project where you cannot access the server, you can temporarily convert it to a standalone file and back again.

[The following flowchart can be used as a guide](#)



4.2 Log in screen

When you first open civil pro, you will see the main application window overlaid with the Log In screen. You cannot use civil pro until you log in to an existing project, or create and log in to a new one.

To log in to;

- **the most recently used (MRU) project** (listed under *Current Connection* in the large grey box near the bottom of the login form), enter a valid user name and password for the project and click "log in".
- **a project you have recently used**, click on the "Select Connection" button and select the desired connection from the MRU file list (Fig 2 below).
- **a project you have not previously accessed, or a new project** click on the "Select Connection" button and select the "New Connection" button (Fig 2 below).

When you open a new project civil pro will check that your application and the project are compatible - i.e. whether your project was created by an earlier or later version of civil pro. There are three possible outcomes of this test;

1. The application and project are compatible and you will be logged on without any message
2. The project was created by, or has been updated by, a later version of civil pro than your application (i.e. it has been updated by someone else to work with a newer version of Civil Pro) in this case you will be prompted with advice that you must update your version of civil pro before you can access the project
3. The project was created by an earlier version of civil pro and has not been updated to the current version you are using. In this case you will be prompted and asked if you want to update the project (and any other projects on the same server in the case of a server install). If you continue, the project will be updated, otherwise you will be returned to the log in screen.

The reason Civil Pro prompts prior to updating the database is that if you update the project, all other users will experience case (2) and will have to update there version of civil pro as well.

For more information refer to [Connecting to an Existing Project](#) and [Creating a New Project](#).



4.3 Creating a new project

The initial tasks in creating a new project are slightly different for a standalone project vs. a server project (for an explanation on the difference between standalone and server projects, go [here](#)). Please select the appropriate topics.

- [Creating a standalone project](#)
- [Creating a server project](#)

Once you have done this, all other setup and usage topics are identical.

4.3.1 Standalone (file) project

New projects are created from the **Connection** page (accessed by clicking *Select connection* from the [login](#) page).

The **Connection** page looks like this;



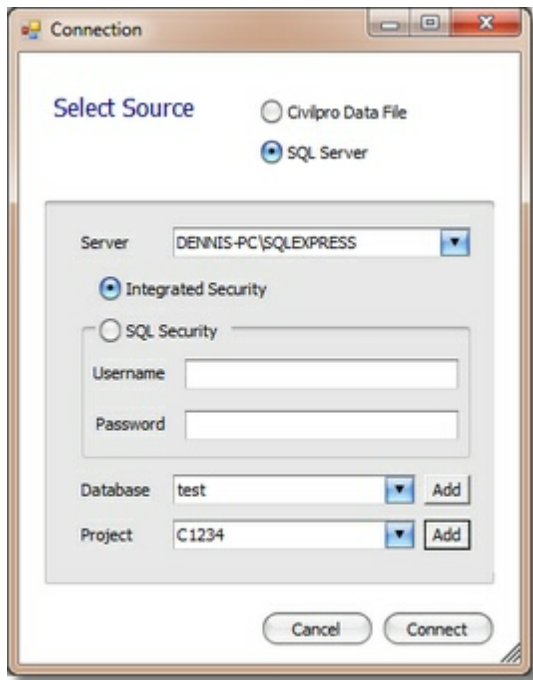
The screen above is shown if the *Civil Pro Data File* option is selected - this allows you to create a new Civil pro standalone project. To create a new project click on the *Select File* button navigate to the directory where you want the file to be created and enter a new file name in the file dialog.

The new [database initialization](#) will begin, followed by the [project initialization](#). Once complete, click on connect and you will be returned to the [log in screen](#).

4.3.2 Server project

A new project is created from the **Connection** page (accessed by clicking *Select Connection* from the [login](#) page).

After selecting the SQL Server option near the top of the form the **Connection** page looks like this;



To create a new project;

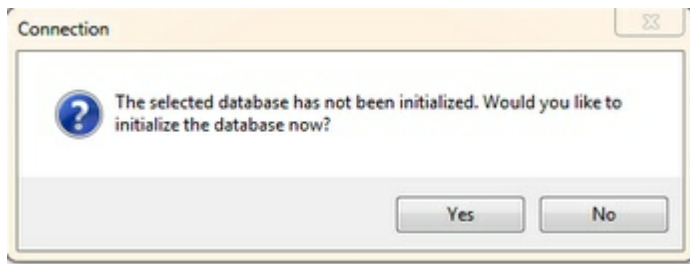
1. Select the server from the top drop down box. You will be prompted for Civilpro to search the whole network. If your server is on a network network, you need to say yes if you want civil pro to find it automatically. You would answer no if the server is on the local machine, or you know the server name and are typing it straight into the drop down instead of selecting it.
2. After selecting your server, you need to enter your credentials to access it. The type of security will depend on how your server is set up. Get these details from your SQL server administrator.
3. Once the correct credentials are added, selecting the database drop down will populate it with the available databases on the server. Select an available database or click add and enter a name (no spaces) for a new one.
4. Click the Add button to the right of the project drop down and enter a new contract number and project name.
5. Click Connect

If your project is also in a new database, the new [database initialization](#) will begin, followed by the [project initialization](#). If this is a new project in an existing database, only the [project initialization](#) is required.

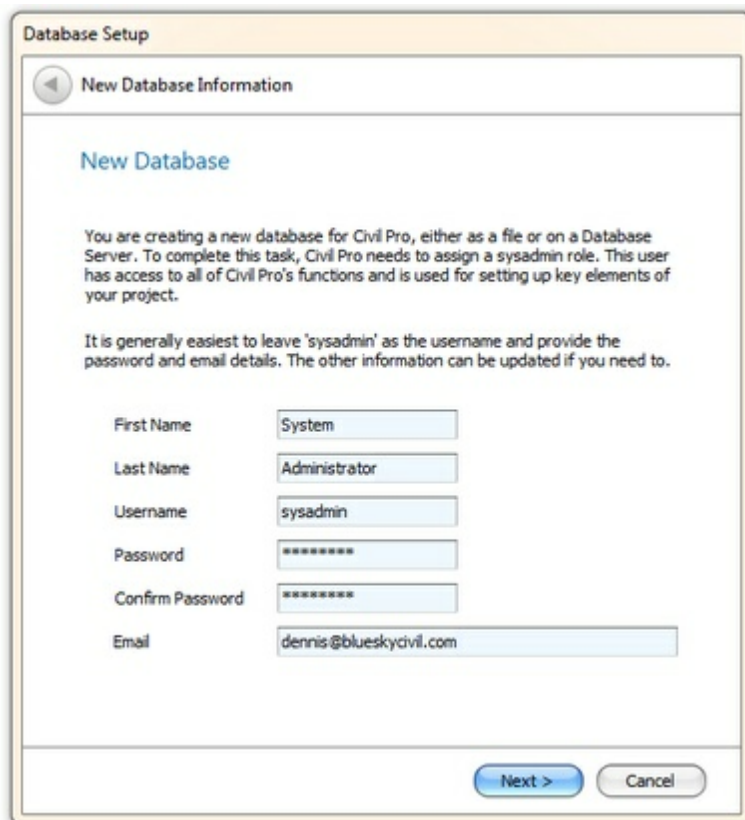
Once complete, click on connect and you will be returned to the [log in screen](#).

4.3.3 Database initialization

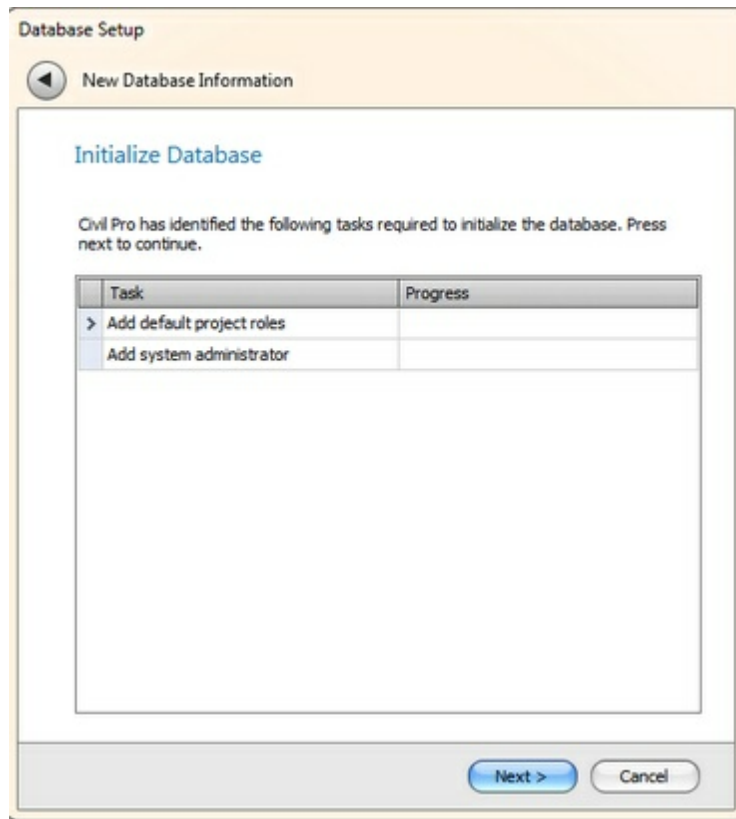
After creating either a new standalone file, or a new server database you will be prompted to initialize the database. Select Yes to start the new database wizard.



The new database wizard will start. The first step is to create a system administrator who will manage and administrative tasks and set up users. Some of the fields will be filled in by civil pro - while you can change them it is recommended to leave that information as it is. Fields with a coloured background are compulsory. Click Next.

A "Database Setup" dialog box with a "New Database Information" tab. The title is "New Database". The text explains that a new database is being created for Civil Pro and that a sysadmin role must be assigned. It suggests leaving 'sysadmin' as the username and providing password and email details. Below this, there are input fields for: First Name (System), Last Name (Administrator), Username (sysadmin), Password (masked with asterisks), Confirm Password (masked with asterisks), and Email (dennis@blueskycivil.com). At the bottom right, there are "Next >" and "Cancel" buttons.

You will be given a summary of the tasks to complete. Click next.



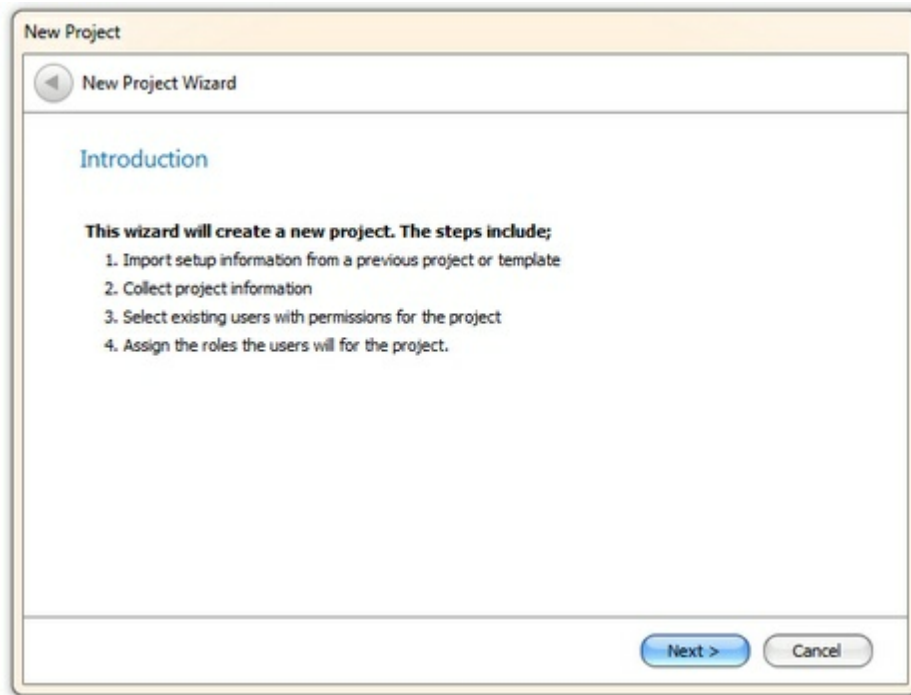
This step is finished. You will be prompted to complete the [Project Initialization](#).

4.3.4 Project initialization

When you create a new project, the project initialization wizard will be automatically started. The first screen explains the process.

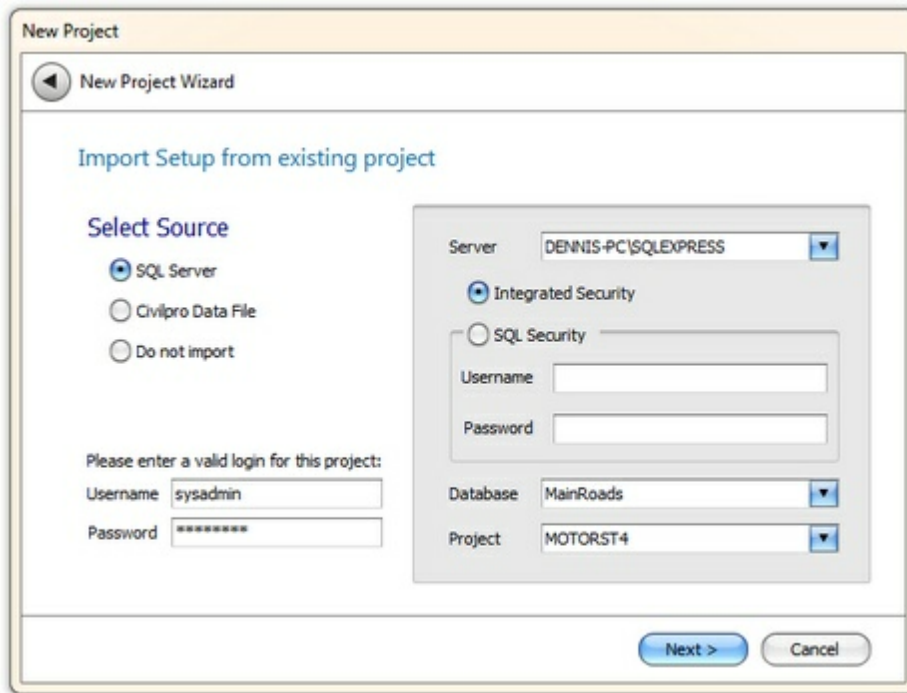
If you have entered the Project Initialization page without going through the Database Initialization, civil pro does not know if you have the appropriate permission (you must be a system administrator) to create a new project. In this case this page may also prompt for the user name and password of a valid system administrator - you will need to enter this information to continue. If you have just completed a database initialization, the credentials are not required and you will see the first page as shown below.

When you are ready, click *Next*.



When you start a new project, much of the information may be similar to a project you have previously worked on, or your company may have a set of standards you need to reuse. You can copy the set up from your previous project on the next page. Simply select the type of connection (SQL Server or Civil Pro file), enter the appropriate details and click next. If you are not importing, or you prefer to import specific information later - select Do Not Import.

IMPORTANT NOTE: Civil Pro can only import from projects with the same data structure as the current version. If you have problems importing, fix the target database by simply logging in to it, then try again.



New Project Wizard

Import Setup from existing project

Select Source

☒ SQL Server
☐ Civilpro Data File
☐ Do not import

Please enter a valid login for this project:

Username:
 Password:

Server:

☒ Integrated Security
☐ SQL Security

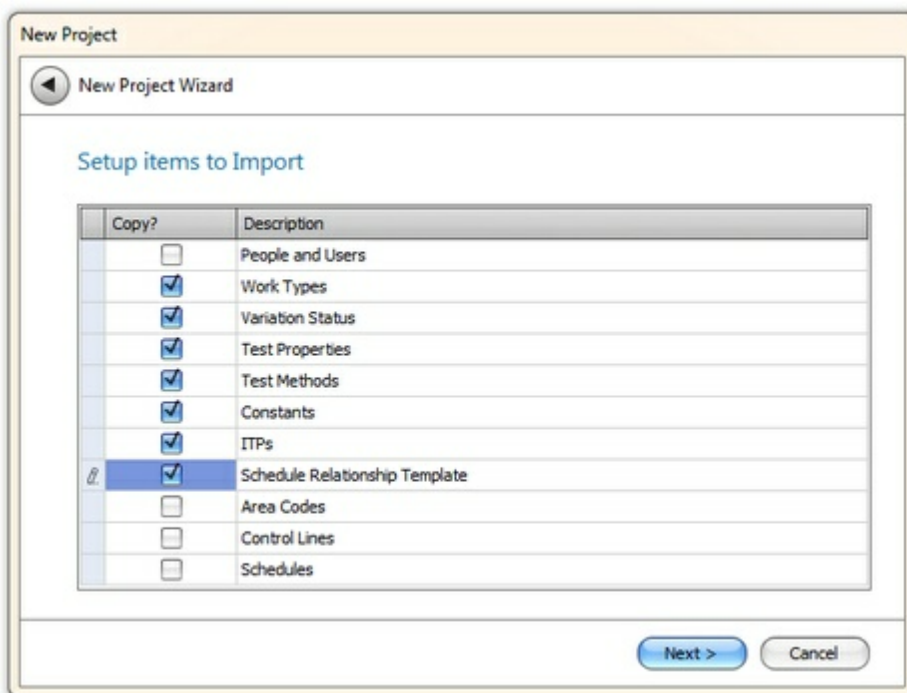
Username:
 Password:

Database:

Project:

Next > Cancel

If you selected to import from a project, you will be prompted with a list of the data you can import - the most common are selected by default. Review the list, and select the data you want. If you selected Do Not Import in the previous step, this page will be skipped.



New Project Wizard

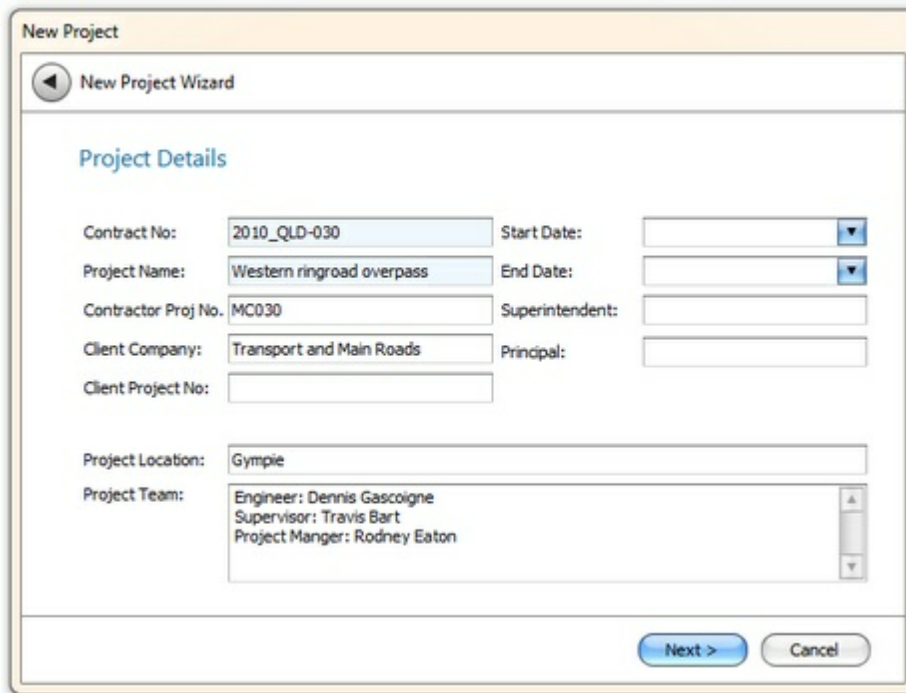
Setup items to Import

| Copy? | Description |
|-------------------------------------|--------------------------------|
| <input type="checkbox"/> | People and Users |
| <input checked="" type="checkbox"/> | Work Types |
| <input checked="" type="checkbox"/> | Variation Status |
| <input checked="" type="checkbox"/> | Test Properties |
| <input checked="" type="checkbox"/> | Test Methods |
| <input checked="" type="checkbox"/> | Constants |
| <input checked="" type="checkbox"/> | ITPs |
| <input checked="" type="checkbox"/> | Schedule Relationship Template |
| <input type="checkbox"/> | Area Codes |
| <input type="checkbox"/> | Control Lines |
| <input type="checkbox"/> | Schedules |

Next > Cancel

The next step is to collect key information about the project. If you have imported data, some of the source project's data will be shown here such as the project team, location, client and

superintendent. Enter the compulsory information (coloured boxes) and optional information, including changes to any imported data. When you are finished, click *Next*.



The 'New Project Wizard' window shows the 'Project Details' step. It contains several input fields for project information. The 'Contract No.' field is highlighted in light blue and contains '2010_QLD-030'. The 'Project Name' field is also highlighted in light blue and contains 'Western ringroad overpass'. Other fields include 'Start Date', 'End Date', 'Contractor Proj No.' (containing 'MC030'), 'Superintendent', 'Client Company' (containing 'Transport and Main Roads'), 'Principal', 'Client Project No.', 'Project Location' (containing 'Gympie'), and 'Project Team' (containing 'Engineer: Dennis Gascoigne', 'Supervisor: Travis Bart', and 'Project Manger: Rodney Eaton'). At the bottom right are 'Next >' and 'Cancel' buttons.

| | | | |
|---------------------|---|-----------------|--|
| Contract No: | 2010_QLD-030 | Start Date: | |
| Project Name: | Western ringroad overpass | End Date: | |
| Contractor Proj No. | MC030 | Superintendent: | |
| Client Company: | Transport and Main Roads | Principal: | |
| Client Project No: | | | |
| Project Location: | Gympie | | |
| Project Team: | Engineer: Dennis Gascoigne Supervisor: Travis Bart Project Manger: Rodney Eaton | | |

Each project must have at least one user who is granted log in permission. Select the users who will have some kind of access to the project from the left, then click the *Add* button. You can add new users after set up is complete. When you have finished assigning users, click *Next*.

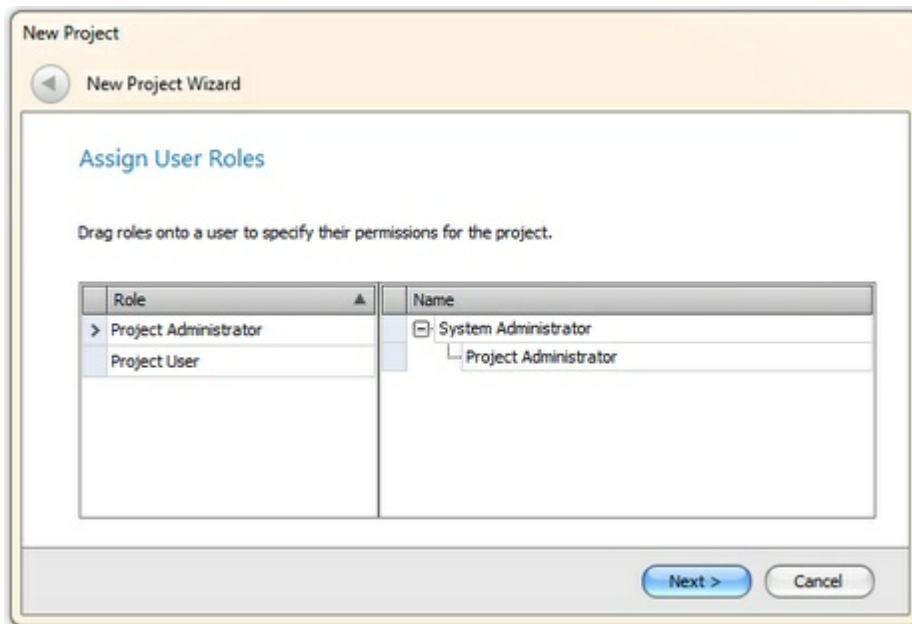


The 'New Project Wizard' window shows the 'Assign Users' step. It includes a text box stating: 'The system users in the database are shown on the left. Select the users you want to have permission to log in to your project and click the 'Add' button to give them permission to use your project.' Below this text are two empty rectangular boxes for user selection. Between these boxes are 'Add >' and '< Remove' buttons. The right box contains the text 'System Administrator'. At the bottom right are 'Next >' and 'Cancel' buttons.

The system users in the database are shown on the left. Select the users you want to have permission to log in to your project and click the 'Add' button to give them permission to use your project.

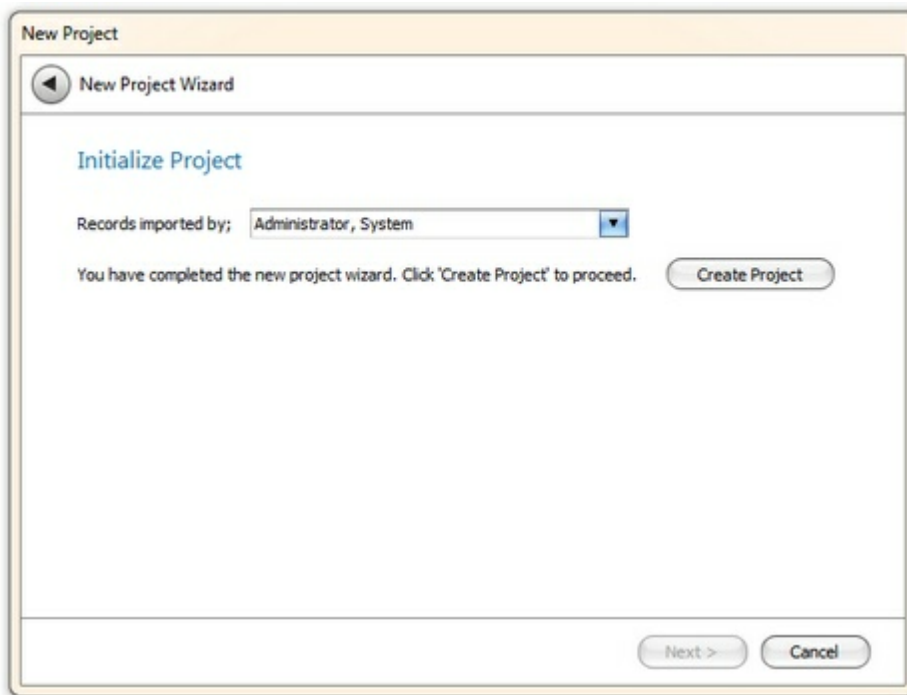
System Administrator

Each of the users you assigned to the project in the previous step need to have a role (for more information refer to [Access Control](#)). The role determines what responsibilities a user has for the project. The default roles are Project Administrator and Project User. Drag the appropriate role over to the user on the right. When each user has a role, click *Next*.



You are now ready to initialize your project. Click on the Create Project button. If you have selected to import People and Users, it is more than likely that at least one of the users you are importing will already exist in your current database (for example if you are copying from a project with a sysadmin user). In this case Civil Pro will prompt you, asking how to deal with it. Most of the time you will tell civil pro that it is the same user (default) but you can change it as needs be.

If you have selected to import data, you also need to select the user to whom the records will be assigned once they are imported into your project



The screenshot shows the 'New Project Wizard' window with the 'Initialize Project' step. The window has a title bar 'New Project' and a subtitle 'New Project Wizard'. The main content area is titled 'Initialize Project' and contains a dropdown menu for 'Records imported by;' with 'Administrator, System' selected. Below this, a message states: 'You have completed the new project wizard. Click 'Create Project' to proceed.' To the right of this message is a 'Create Project' button. At the bottom right of the window are 'Next >' and 'Cancel' buttons.

New Project

New Project Wizard

Initialize Project

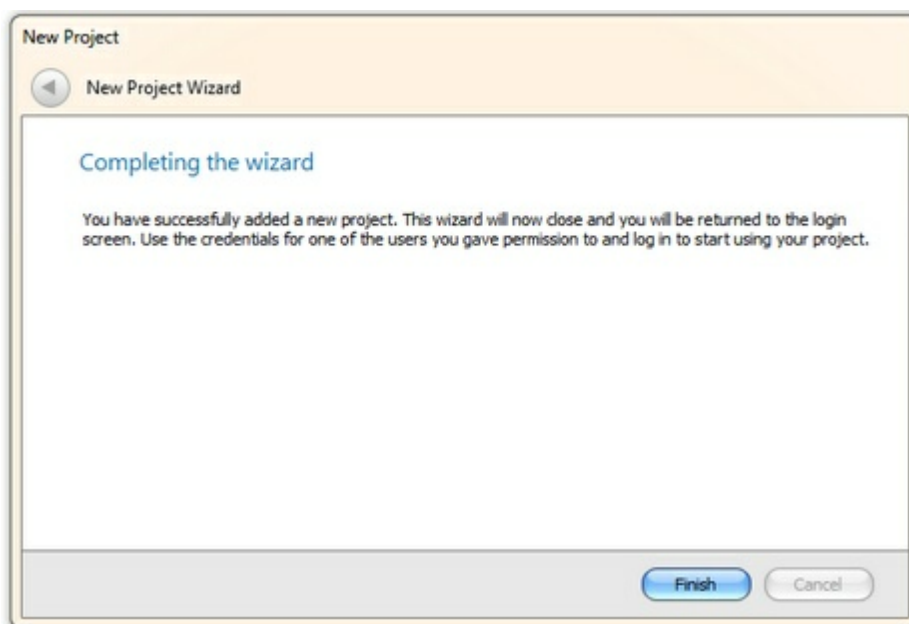
Records imported by: Administrator, System

You have completed the new project wizard. Click 'Create Project' to proceed.

Create Project

Next > Cancel

Assuming all goes well you will see the Finish page. Click Finish and be returned to the [Log In](#) screen.



The screenshot shows the 'New Project Wizard' window with the 'Completing the wizard' step. The window has a title bar 'New Project' and a subtitle 'New Project Wizard'. The main content area is titled 'Completing the wizard' and contains a message: 'You have successfully added a new project. This wizard will now close and you will be returned to the login screen. Use the credentials for one of the users you gave permission to and log in to start using your project.' At the bottom right of the window are 'Finish' and 'Cancel' buttons.

New Project

New Project Wizard

Completing the wizard

You have successfully added a new project. This wizard will now close and you will be returned to the login screen. Use the credentials for one of the users you gave permission to and log in to start using your project.

Finish Cancel

4.4 Project administration

Once your project is set up, you may want to update information about it or add additional information such as a logo to print on reports. This is completed in the project administration page - accessed from the project administration item on the project menu (located at the top left of the civil pro main page).

A user can edit the project details for project in which they are a project administrator, or all projects if they are a sysadmin.

Adding, editing and deleting; Users;

- Click on the Add Project button at the bottom of the screen and follow the New Project wizard. This is the same as described in [Project Initialization](#).
- Edit project details - simply change the appropriate details in the grid or detail panel (
- Delete a project - Click on the Delete Project button at the bottom of the page. Always complete a backup prior to deleting a project.

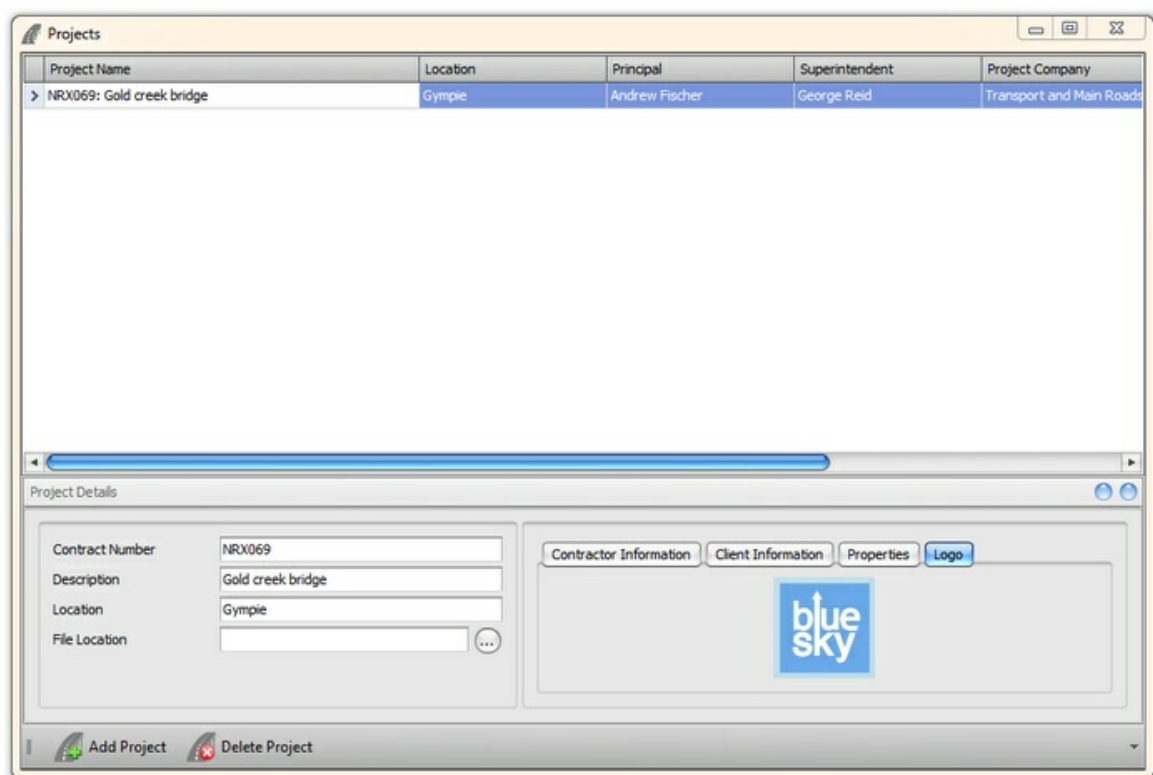


Fig 1 The Project Administration page

Managing Logos

To add /change a log, select the project and click on the "Get Logo" button accessed from the grid context menu (right click on the grid). To clear the logo for the current project, use the "Clear Logo" option also in the context menu.

File Location

The file location is used for storing files associated with Civil Pro - namely photographs. If this is a network install, it is important that this location is accessible for all users (i.e. a network share). To change the location, click on the ellipsis to the right of the file location box and select a folder.

4.5 Connecting to an existing project

The method for connecting to an existing project is slightly different for a standalone project vs. a server project for an explanation on the difference between standalone and server projects, go [here](#). Please select the appropriate topics.

- [Connect to a standalone project](#)
- [Connect to a server project](#)

Once you have done this, all other setup and usage topics are identical.

4.5.1 Connect - standalone (file)

You access existing standalone projects/files from the **Connection** page (accessed by clicking "Select connection" from the [login](#) page).

The **Connection** page looks like this;



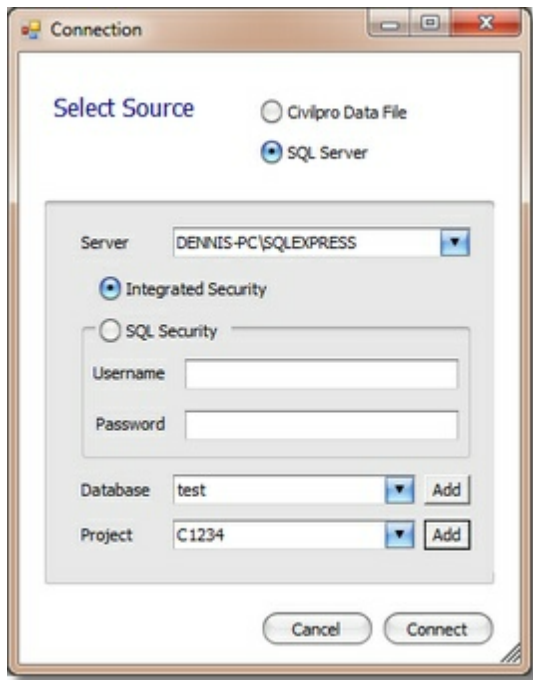
The screen above is shown if the civil pro data file option is selected - this will allow you to select an existing file by clicking on the "Select file" button, navigating to the directory your file is in and selecting the file.

Click the "Connect" button and you will be returned to the [log in screen](#).

4.5.2 Connect - server

You can change to a different server project from the **Connection** page (accessed by clicking "Select Connection" from the [login](#) page).

After selecting the SQL Server option near the top of the form the **Connection** page looks like this;



To connect to a project;

1. Select the server from the top drop down box. You will be prompted for civil pro to search the whole network. If your server is on your network, you need to say yes if you want civil pro to find it automatically. You would answer no if the server is on the local machine, or you know the server name and are typing it straight into the drop down instead of selecting it.
2. After selecting your server, you need to enter your credentials to access the server. The type of security will depend on how your server is set up. Get these details from your SQL server administrator.
3. Once the correct credentials are added, selecting the database drop down will populate it with the available databases on the server. Select an available database.
4. Select the project from the Project list.
5. Click Connect

Click on connect and you will be returned to the [log in screen](#).

4.6 Importing data

In addition to data transfers completed through the data transfer wizard or when a project is created, you can import specific data from csv and civil pro specific cpx files. This section explains the different formats.

Data imported into civil pro can be of three types.

1. Flat table like data from any program such as a csv or tabular data from the clipboard
2. Hierarchical data previously exported from civil pro
3. An entire project - either another CP8 project, or from a CP7 project

CSV (comma separated values)

Flat table like data (csv) can be imported using the [Import Wizard](#) and can be from any program such as excel or Expert Estimate that create this type of data. You can also copy data onto the

clipboard (ctrl+c) from a program like excel.

Hierarchical data

Hierarchical data is produced from civil pro for copying between projects and is used when data contains multiple levels - for example an ITP which has to record a list of ITPs, the line items for each ITP and then the testing for each line item. Imports of this nature do not occur very often and are described in the registers in which they are found i.e. ITP register, Test Method register.

Importing from other databases

Importing between projects is relatively simple but there are a couple of tricks. Please refer to the sections on [Backup and Restore](#) and [Transferring project data](#) in the [System Administration](#) topic.

4.6.1 The import wizard

When starting a new project, a lot of the data you need to enter into civil pro is already available electronically

- There will probably be a standard list of [work type](#) abbreviations your company uses - either on other civil pro projects or for other reasons
- The payment [schedule](#) is generally created as part of the tendering process
- [ITPs](#) are usually maintained in base form for customization for an individual project
- [Test methods](#) are also likely to be the same on different projects of the same general type
- Your surveyor may have a list of [control lines](#)
- The client will probably provide a list of project [documents](#) for the document register

Civil pro allows many types of information to be directly imported using a basic wizard. This wizard is available from the [context menu](#) of any grids for which data can be imported. To access the [context menu](#), right click anywhere on a register's grid.

On the first page of the wizard you will be prompted for the source of the data (Fig 1). This is either data you have copied to the clipboard or from a [csv](#) formatted file.

- csv formatted files are simply files in which the values are separated by commas. These can be generated from excel and other spreadsheet like programs, as well as from estimating programs such as Expert Estimator. If you select this option, you will be prompted for the file before continuing.
- Civil pro can read data you have stored on the clipboard if it is in a table like format - for example if you have selected some cells in excel or a web page and copied them

If the first row of your data contains the headings for the columns, select the check box 'First row contains column headings'. If this option is selected, civil pro will try and guess what data is in each column using the headings for the next step - if not you can do it manually without difficulty.

IMPORTANT NOTE: Special characters (such as apostrophes) can be stored using many different formats. This can lead to strange substitutions when importing data especially when using excel csv's. When using "Save As" in excel there is a "Tools" drop down next to the cancel button. Selecting "Web options" allows you to specify the encoding. We have had success selecting the UTF8 option when saving, then using the Windows 1252 import option in Civil Pro.

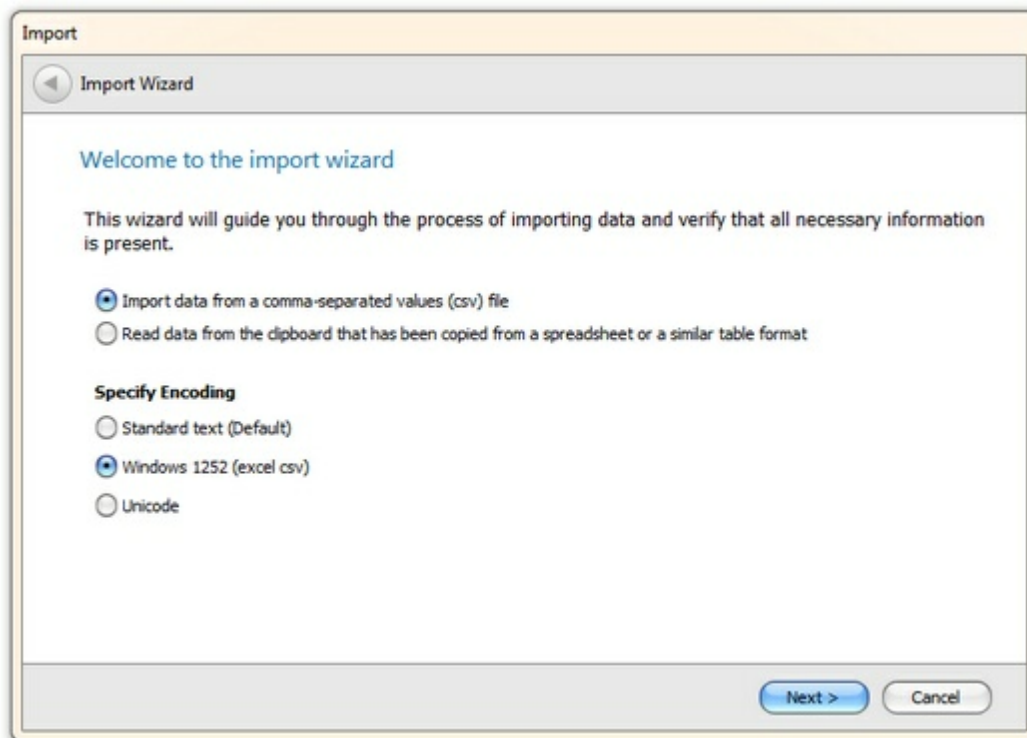


Fig 1 - Import wizard step 1

Once you have selected your data, it will be displayed in a grid (Fig 2). If you right click on the column that contains data you want to import, you will be given a list of data that can be assigned. Select an item from the list matching the data in the column. Repeat until you have matched the required data.

If you want to un-assign a column, select None from the the menu instead of a data type.

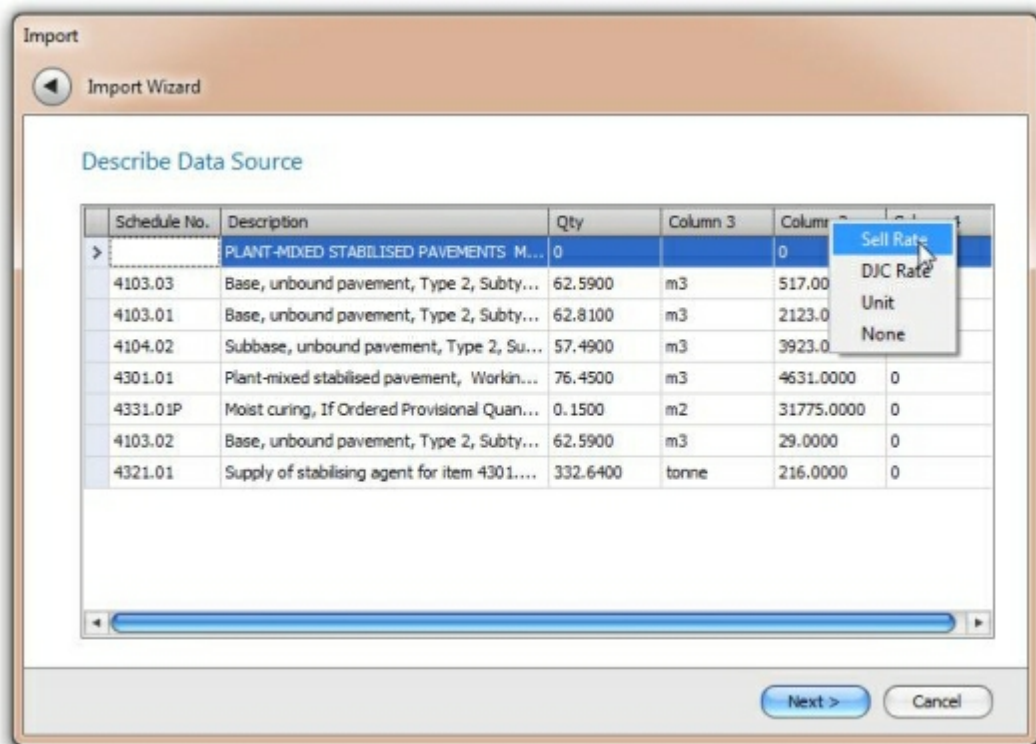


Fig 2 - Match columns to civil pro fields

When you are finished, click 'Next'. The following step confirms the tasks to be undertaken. Click import and if your job is successful - 'Finish'. Your data is imported.

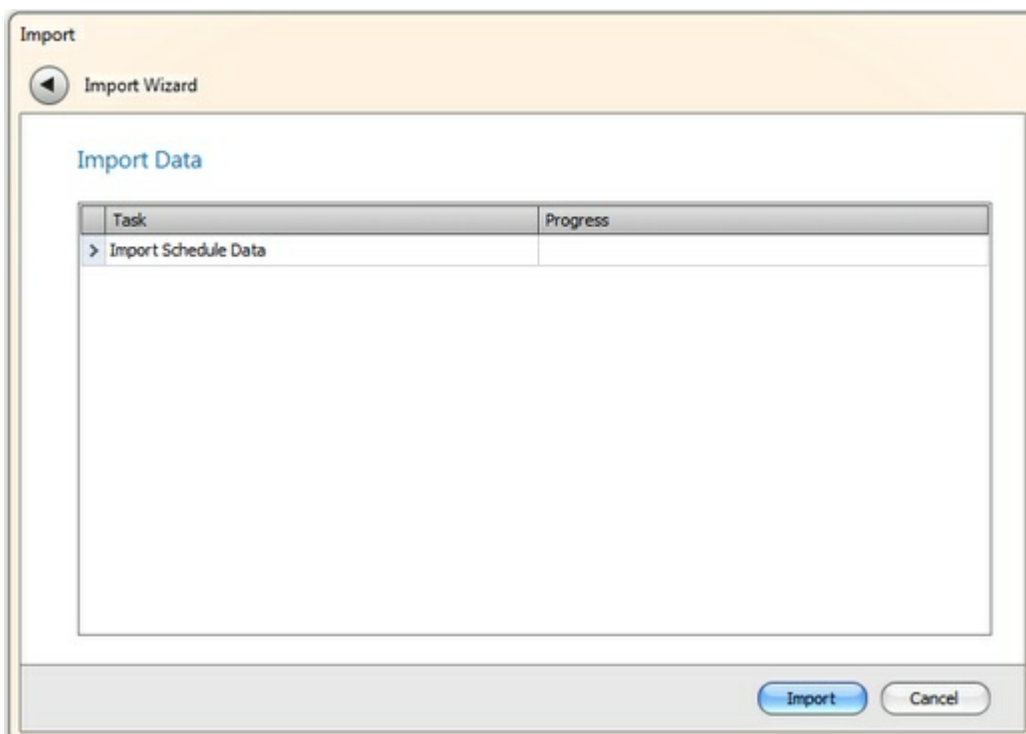


Fig 3 - Confirm jobs to run.

4.7 Exporting data

Data can be exported from a number of registers including the work type register, area code register, test methods register and schedule item register, or from the project as a whole. Data is saved in one of three types of file;

1. csv - a table like format that can be read by excel.
2. cpx - a civil pro export file used to store hierarchical data for importing into other civil pro project. While these files are an XML format, they are not easily read by other programs, but it is possible for a relatively skilled user to extract the information using programs such as excel.
3. cdb - civil pro database - used for copies of entire civil pro databases that can be used for backup or as templates. You can copy to and from templates by using the "[Transfer project data](#)" option.

Where a register can be exported, the option is accessed from the grid context menu.

Data can also be exported from all reports in excel, pdf, html, text and other formats - as well as email.

4.8 Creating registers

Before using your new project for every day tasks like lot management, NCRs and test requests, there are a few registers that need to be initialized. These are simply lists used by civil pro to categorize information and group similar data together.

- [Work types](#)
- [Area codes](#)
- [Control lines](#)

Depending on whether you will be using civil pro for test management, you may also set up;

- [Test method register](#)
- [Test properties register](#)

4.8.1 Work types

The work types register is simply a list of the different types of work executed on the project. A work code is two characters long and is used to group similar lots together and can also be used to create the default lot number when you create a new lot.

Adding, editing and deleting;

- To edit/add information you must [enable editing](#).
- Add a new record - click on the blank row at the bottom of the list and enter the required information (*work type* and *description*).
- Edit a new record - simply change it in the grid
- Delete a new row - select it and press the delete button.

Importing and exporting

- To import, open the grid context menu and select the "import work type" option and complete the

Import wizard

- To export, open the grid context menu and select the "export work type" option and select a save location.

For an overview of the more advanced features of the interface including filtering, sorting and printing - please refer to [using the Grid](#).

Related Items

Work types can be linked to schedule items. This can be used to restrict the number of schedule items users must select from when adding quantities to a lot. For more information on how this works, refer to [Schedule Item Links](#).

To add a schedule item, double click the Schedule Items heading in the related items panel (if it is not visible, select "show related items panel" from the context menu). A schedule item popup list will appear. Drag the schedule items(s) you want to link onto the Schedule Item heading in the related items panel.

The list of linked ITPs is not a direct relationship, it is inferred by an ITP and work types share link with a schedule item and as such cannot be changed.

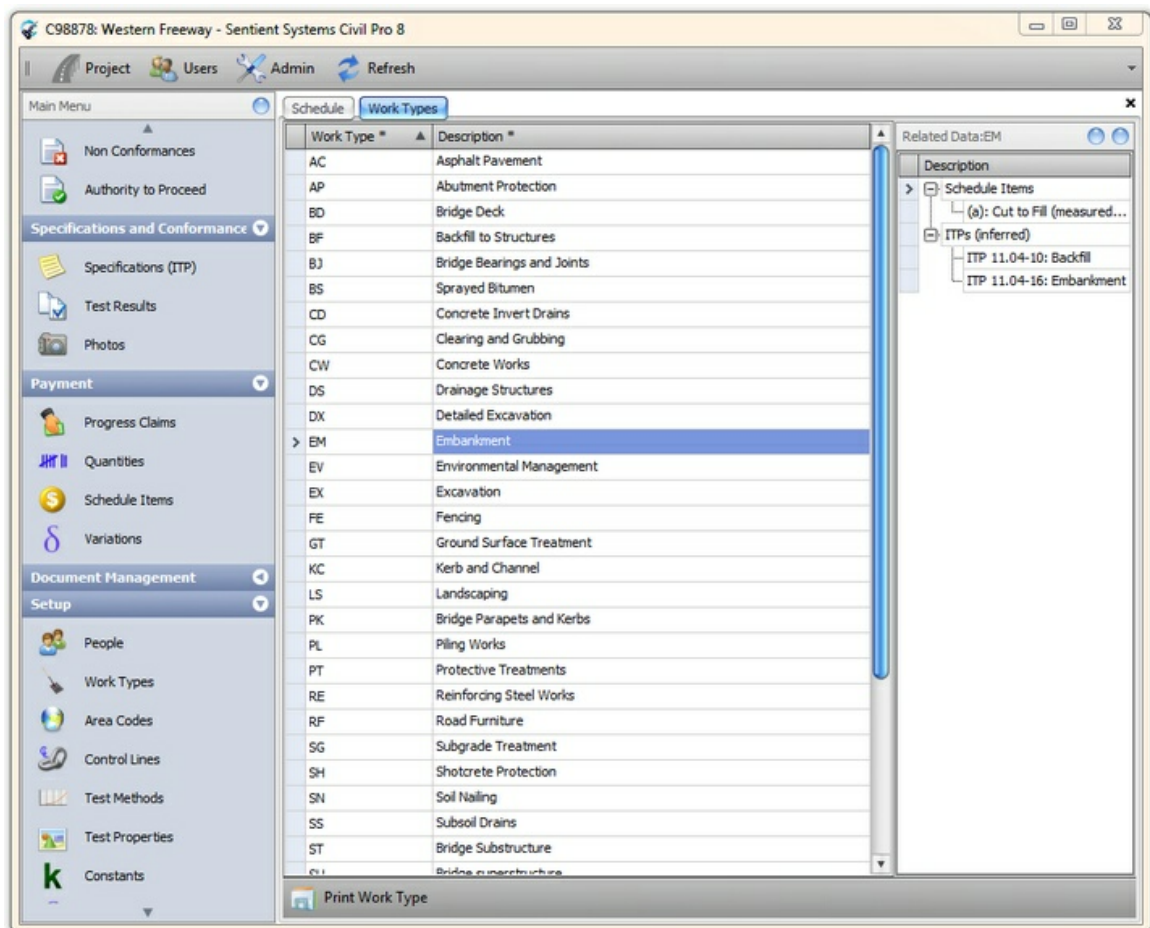


Fig 1. Work Type Register

4.8.2 Control lines

The control lines register is a list of references against which lot coordinates are defined. A control line may be

- a culvert alignment, and the coordinates the length along the line
- a survey line such as the centre line of a road formation, and the coordinates the length along the formation and offsets from the line
- any other definitive location to which lot coordinates can refer

Adding, editing and deleting;

- To edit/add information you must [enable editing](#).
- Add a new record - click on the blank row at the bottom of the list and enter the required information (*control line* and *description*).
- Edit a new record - simply change it in the grid
- Delete a new row - select it and press the delete button.

Importing and exporting

- To import, open the grid context menu and select the "import control lines" option and complete the Import wizard
- To export, open the grid context menu and select the "export control lines" option and select a save location.

For an overview of the more advanced features of the interface including filtering, sorting and printing - please refer to [using the grid](#).

| Control Line * | Description * |
|----------------|------------------------|
| LINE 20 | DRAINAGE |
| LINE 21A | DRAINAGE |
| LINE 21B | DRAINAGE |
| LINE 2D | DRAINAGE |
| LINE 2G | DRAINAGE |
| LINE 3G | DRAINAGE |
| LINE 7D | DRAINAGE |
| LINE A | DRAINAGE |
| LINE B | DRAINAGE |
| LINE D | DRAINAGE |
| LINE F | DRAINAGE |
| LINE G | DRAINAGE |
| LINE K | DRAINAGE |
| LINE T | DRAINAGE |
| MCD1 | EAST BOUND CARRIAGEWAY |
| MC11 | WESTBOUND CARRIAGEWAY |
| MC21 | ROUNDABOUT |
| MC31 | CLAYMORE/DIXON ROAD |
| MC41 | SIPPY DOWNS DRIVE WB |
| MC51 | SIPPY DOWNS DRIVE EB |
| MC61 | SIPPY DOWNS DRIVE NB |
| MC71 | SIPPY DOWNS DRIVE SB |
| MC81 | UNIVERSITY ACCESS ROAD |
| MCA1 | EASTBOUND OFF RAMP |
| MCB1 | EASTBOUND ON RAMP |
| MCC1 | EASTBOUND SLIP ON RAMP |
| MCD1 | SIPPY DOWNS DRIVE |
| MCE1 | WESTBOUND ON RAMP |
| MCB1 | CYCLIST PATH |

4.8.3 Area codes

The area codes register is simply a list of the different areas that comprise the project. An area code is four characters and is used to group similar lots together and also to create the default lot number when you create a new lot.

If you do not want to break up your project into areas, create a dummy area such as GNRL for general.

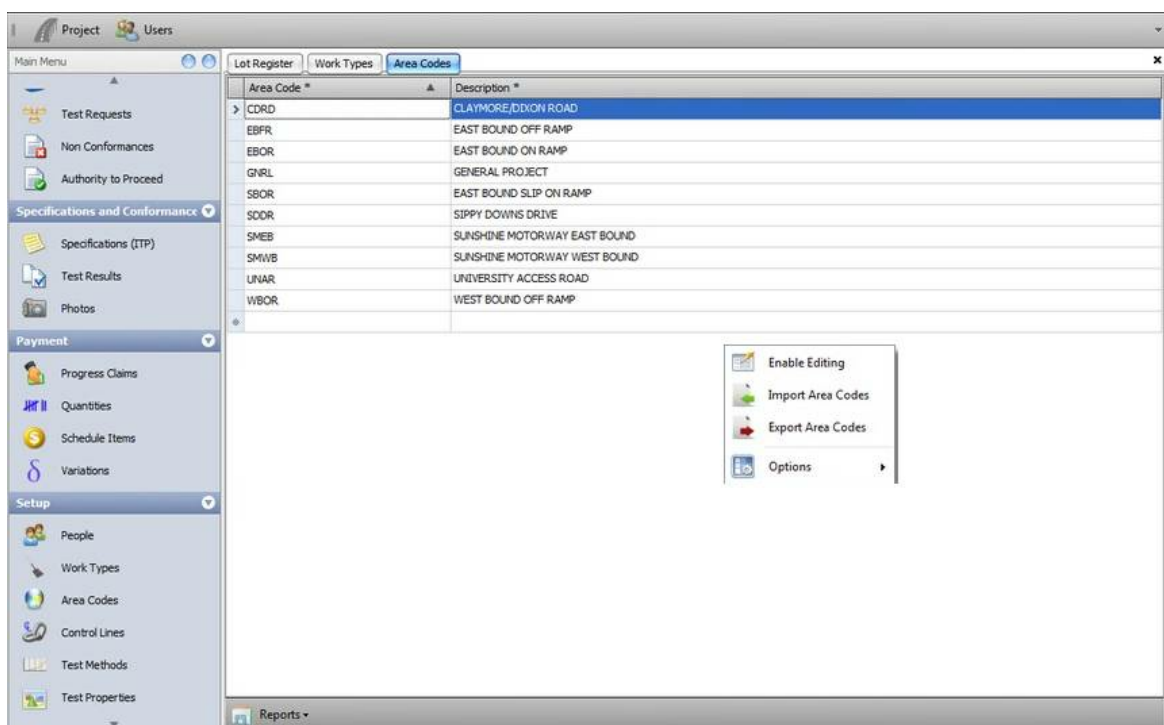
Adding, editing and deleting;

- To edit/add information you must [enable editing](#).
- Add a new record - click on the blank row at the bottom of the list and enter the required information (*area code* and *description*).
- Edit a new record - simply change it in the grid
- Delete a new row - select it and press the delete button.

Importing and exporting

- To import, open the grid context menu and select the "import area codes" option and complete the Import wizard
- To export, open the grid context menu and select the "export area codes" option and select a save location.

For an overview of the more advanced features of the interface including filtering, sorting and printing - please refer to [using the Grid](#).



4.8.4 Test properties

The test properties register is a list of preset property groups that can be applied to test requests. For example, when you create a test request for a concrete pour, you may want to add the same additional information for each request - in Fig 1, adding the group 25MPa concrete would add properties of concrete class, number of batches, target slump, cement type etc. to the test request.

Adding, editing and deleting; property groups;

- To edit/add information you must [enable editing](#).
- Add a new record - click on the blank row at the bottom of the list and enter the required information (property group).
- Edit a new record - simply change it in the grid
- Delete a new row - select it and press the delete button.

Adding, editing and deleting; Test Property Fields;

- Click on the "+" symbol to the left of the appropriate test property group and the test properties form will appear (see 25MPa in Fig 1). Enter the required information (at least a Property Name and optionally a default property value).

Importing and exporting

- Import test properties - imports a civil pro export (.cpx) file containing both the test property groups and the test properties for each group.
- To export, open the grid context menu and select the export "test methods and results" option and select a save location.

For an overview of the more advanced features of the interface including filtering, sorting and printing - please refer to [using the grid](#).

The screenshot displays the 'Test Properties' window with a sidebar menu on the left containing options like Test Requests, Non Conformances, Authority to Proceed, Specifications and Conformance, Test Results, Photos, Payment, Progress Claims, Quantities, Schedule Items, Variations, Setup, People, Work Types, Area Codes, Control Lines, Test Methods, Test Properties, Constants, and Variation Status. The main area shows three expandable property groups. The first group, '25MPa Concrete', is expanded to show a table with columns 'Property Name' and 'Default Value'. The table contains one row: 'Concrete Class' with a default value of '25MPa'. The second group, '32MPa Concrete', is also expanded and shows a similar table with 'Concrete Class' set to '32MPa'. The third group, '40 MPa Concrete', is collapsed. At the bottom, there is a 'Print Test Properties' button.

Fig 1 The test property group register showing test properties fields

4.8.5 Test methods

The test methods register is a list of all the test types that can be referenced from the [ITPs](#) and the [test requests](#). These tests may be defined in an industry standard, listed by the client or custom to your project.

Each test can also list the test result fields that are recorded for the test. These are required if you intend to record your test results in civil pro.

Adding, editing and deleting; test methods;

- To edit/add information you must [enable editing](#).
- Add a new record - click on the blank row at the bottom of the list and enter the required information (*test number* and *description* - The test number must be unique).
- Edit a new record - simply change it in the grid
- Delete a new row - select it and press the delete button.

Adding, editing and deleting; test result fields;

- Click on the "+" symbol to the left of the appropriate Test Method and the Test Result Field form will appear (see Q308C in Fig 1). Enter a new record for each different result you want to record for a test of that type. For example, you may record two pieces of information for a compaction test, the relative density and moisture content - you would add these as two lines recording the result name, data type (number) and unit for each, or if you were recording a grading you would create a row for each sieve size.

Importing and exporting

- Import test methods only - imports data from a flat .csv file: open the grid context menu and select the Import Test Methods option and complete the [import wizard](#)
- Import test methods and results - imports a civil pro export (.cpx) file containing both the test methods and the result fields for each method.
- To export, open the grid context menu and select the "export test methods and results" option and select a save location.

For an overview of the more advanced features of the interface including filtering, sorting and printing - please refer to [using the grid](#).

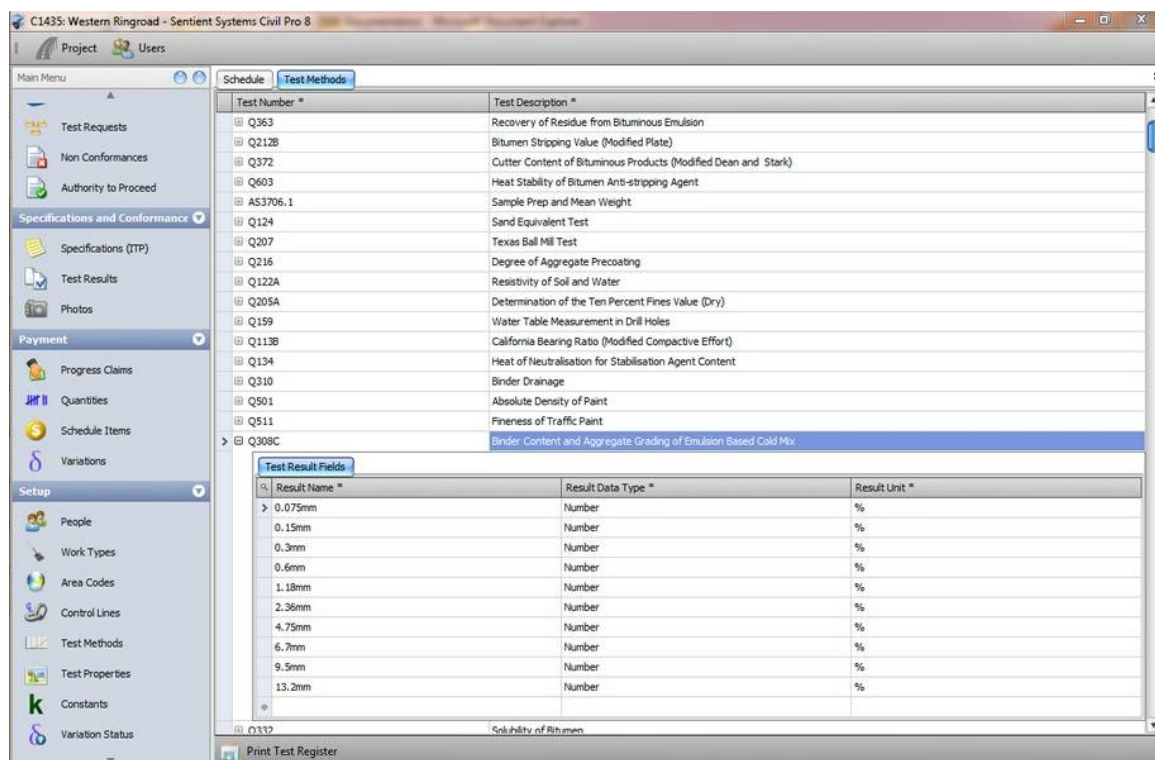


Fig 1 The test register showing test result fields

4.8.6 Variation status

Each [variation](#) is assigned a status to help track progress and group similarly statused variations together. The statuses that can be assigned to a variation are listed in the variation status register which is a simple list of allowable statuses.

Adding, editing and deleting;

- To edit/add information you must [enable editing](#).
- Add a new record - click on the blank row at the bottom of the list and enter the required information (variation status).
- Edit a new record - simply change it in the grid
- Delete a new row - select it and press the delete button.

For an overview of the more advanced features of the interface including filtering, sorting and printing - please refer to [using the Grid](#).

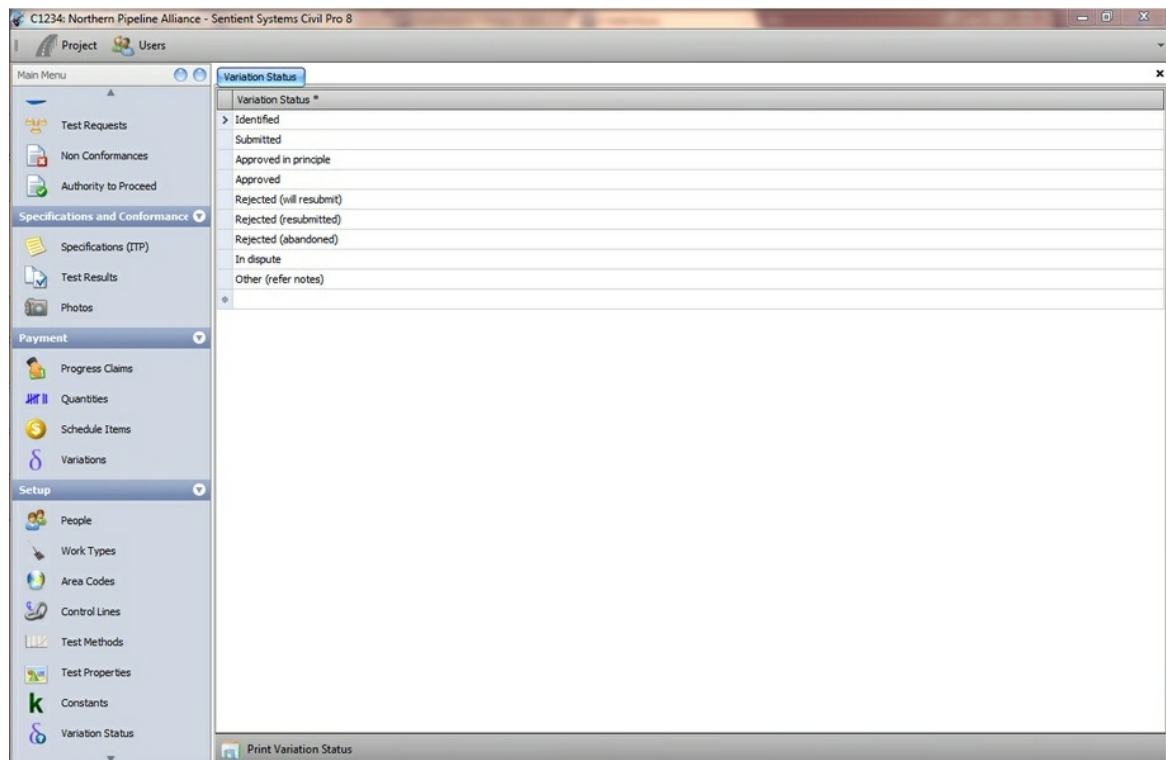


Fig 1 Variation Status Register

4.8.7 Constants

Civil pro has a register of constants that are used by civil pro for variation project functions. These constants are maintained in the Constants register. Any function requiring adjustment to constants will explain what constants are required and what their value should be.

The most common example of a constant is the LotNoDef constant which, when set, allows user customized lot numbering. Refer to the section on [lot numbers](#).

Adding, editing and deleting;

- To edit/add information you must [enable editing](#).
- Add a new record - click on the blank row at the bottom of the list and enter the required information (Constant Name / Value).
- Edit a new record - simply change it in the grid
- Delete a new row - select it and press the delete button.

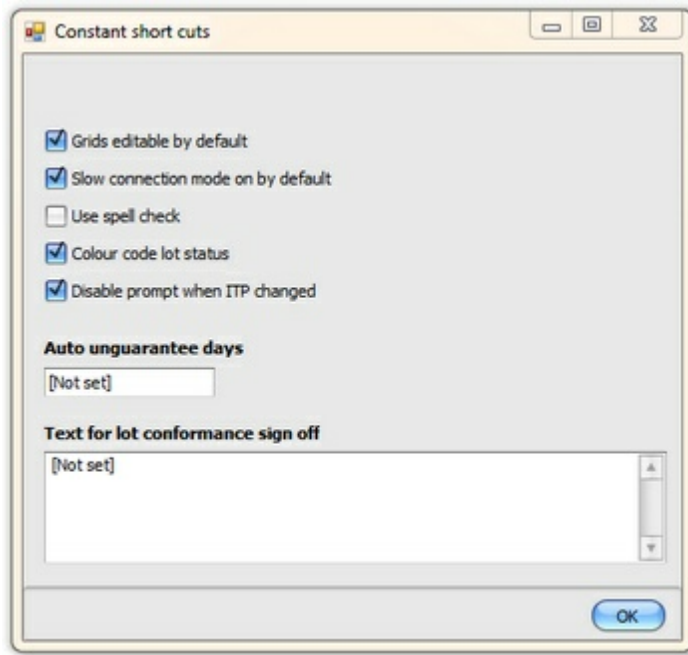
For an overview of the more advanced features of the interface including filtering, sorting and printing - please refer to [using the Grid](#).

Constants that can be entered to alter civil pro's behaviour are;

| Function Affected | Constant ID | Description |
|------------------------|-------------|---|
| Lot conformance report | signOffText | Changes the text in the lot conformance report sign off from the default |
| Lot numbering | LotNoDef | Changes the way lot numbers are automatically generated (refer to Lot Numbers for more details) |

| | | |
|---|----------------------------------|--|
| ITP renumbering | DisableITPPrompt | Prevents the ITP register prompting for a revision update when data is changed if set to value True |
| K value for calculation of characteristic value | k[n] | Changes the factor for a sample size of n when calculating k-values. For example a constant ID of k5 with a value of 0.75 would change the built in factoring (of 0.675) in the calculation of characteristic value to 0.75. |
| How often civil pro checks data currency | SlowConnection | set this constant with a value of "true" and every time civil pro opens for this project, slow connection mode will be selected. |
| Colouring of lots reflecting status | ColourCodeLotStatus | If you set this value to "true", lots will be coloured according to status as either conformed (green), guaranteed (blue), open (black) or rejected (red) by default. Can be manually turned off in the lot register from the context menu. |
| Grids editable by default | EditableDefault | set this constant with a value of "true" and every time civil pro opens for this project, new registers will be editable when opened. |
| Enable spell check | SpellCheck | set this constant with a value of "true" and spell checking will occur. |
| Automatically prompt to unguarantee | AutoUnguarantee | This constant prompts the user to automatically unguarantee lots older than a set number of days. Set this constant to an integer (i.e. 28) representing the number of days after which lots will be unguaranteed. |
| Specify an alternative list of root causes for NCRs | NCRRootCause | By adding a list of comma separated values, the default list of NCR root causes can be overridden. The default list would be specified by setting a value of Not Specified, Personnel or Training, Materials, Methods or Process, Machinery or Plant, Environmental or Conditions |
| Change the headings in the checklist | qvcVerBy qvcAppBy qvcChkBy | By setting each or any of these values, the default headings over the check columns in the checklist can be overridden. |

These constants can be entered directly into the constants register, or alternatively by using the splash screen which appears when the constants register is first opened or when accessed from the context menu. The splash screen allows visual alteration to the most common options, although some options such as k-values must still be entered manually.



To view the currently active k-values, select "Show K-Values" from the context menu in the constants register.

4.9 Schedule item register

The construction schedule is a list of payment items for your project including a description, the quantity you expect to build of that item (Schedule Qty) and how much you expect to be paid for each unit of that quantity.

While you can enter your schedule line by line, it is generally available electronically and can therefore be imported. To import a schedule, select the 'Import schedule' option from the grid context menu (accessed by right clicking on the main part of the grid). Refer to the section on [importing data](#). To insert lines into the schedule use the right click context menu as described in [schedule item operations](#).

When the data is imported (or entered), it is a flat unstructured file, i.e. there are no expandable or collapsible levels (Fig 1). For simple schedules, this could be the end of the schedule configuration, but generally you will want to [add some structure to the schedule by grouping some data under headings or reordering](#) - (see Fig 2).

The current schedule item will be coloured red. The details for the currently selected schedule item are shown in the detail pane at the bottom of the page. It can be closed or detached as required. If it is closed or hidden, double clicking a schedule item will make it visible again.

To find a schedule item, use the search box in the bottom of the related data panel on the right side of the page. If the related items panel is hidden, you can make it visible using the *Show Related Items* function from the context menu (right click on the grid)

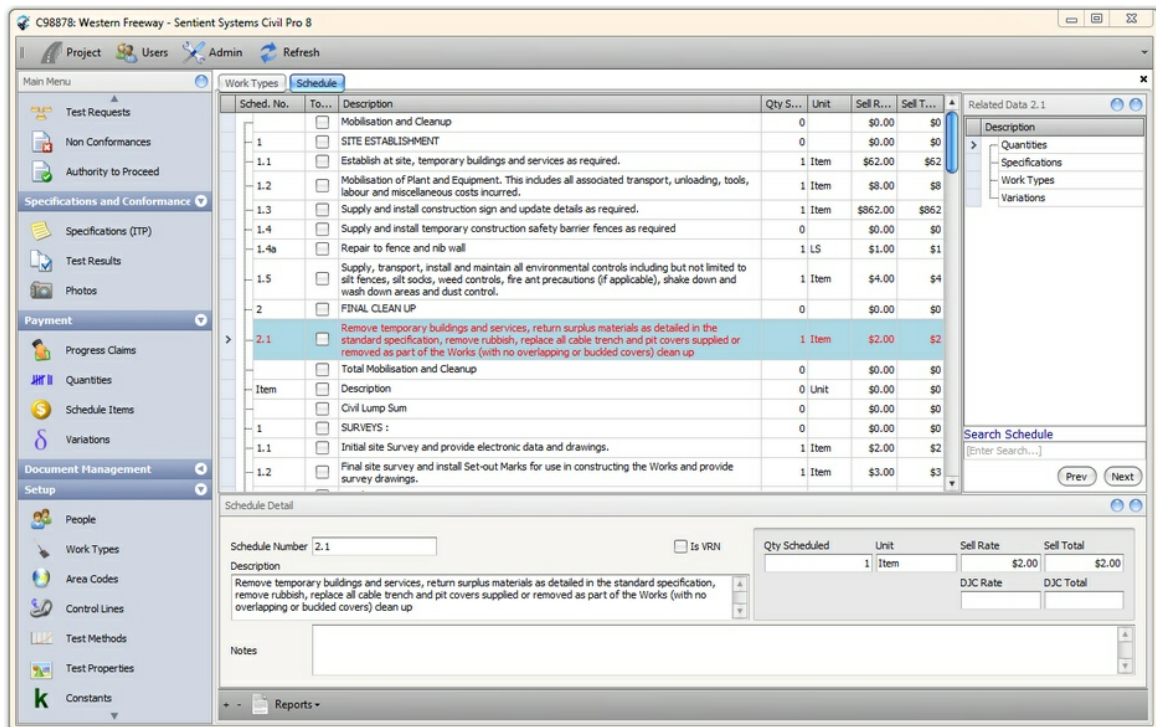


Fig 1 - A 'flat' schedule before structuring and reordering

The screenshot displays the Civil Pro 8 software interface for project C98878: Western Freeway. The main menu on the left includes sections for Quality Assurance, Specifications and Conformance, Payment, Document Management, and Setup. The central pane shows a schedule table with columns for Sched. No., Description, and related data. The schedule is organized into sections: Mobilisation and Cleanup, SURVEYS, EARTHWORKS, ROADWORKS, and DRAINAGE. The EARTHWORKS section includes items for removal of topsoil, rock pitching, bulk earthworks, cut to fill, and reuse of rock. The ROADWORKS section includes items for reforming earth drains and reuse of rock. The DRAINAGE section includes items for supply of materials and construction of drainage pits. The right-hand pane shows related data for the selected item, including quantities, specifications, work types, and variations. The bottom pane shows the schedule detail for the selected item, including the schedule number, description, quantity, unit, sell rate, and sell total.

| Sched. No. | Description | Qty | Unit | Sell Rate | Sell Total |
|------------|---|-----|------|-----------|------------|
| 1 | Mobilisation and Cleanup | | | | |
| 2 | SURVEYS : | | | | |
| 2.1 | Removal of topsoil from areas to be occupied by earthworks and roadwork formations and earth drains, including stockpiling on site for later reuse. | ... | m3 | ... | ... |
| 2.2 | Recover rock pitching and rock mattress from existing earth drainage channels in areas to be filled in by these Works | ... | m3 | ... | ... |
| 2.3 | Bulk earthworks in other than rock to form the Substation platform, batters and earth drains, including preparation and conditioning of the initial surface, compaction testing by a NATA registered laboratory and rolling and trimming of the finished surf | ... | m3 | ... | ... |
| (a) | Cut to Fill (measured as volume of fill) based on the total surveyed in final situ of fill volume subject to cut fill being suitable as approved by the Superintendent | ... | m3 | ... | ... |
| (b) | Cut to Spoil | ... | m3 | ... | ... |
| 2.4 | Reuse recovered rock, supply, transport and placing of loose rock to stabilise earth drains and outlets (size ~ 100mm) | ... | m3 | ... | ... |
| 2.5 | Reform existing earth drains to take discharge flow from HW1 | ... | LS | ... | \$2 |
| 2.6 | Reuse recovered rock, supply, transport and placing of loose rock and mattresses to stabilize earth drains and outlets (size 200 ~ 300mm) | ... | m3 | ... | ... |
| 2.7 | Supply, transport, placing, mixing and compacting to construct a 50mm thick surfacing layer on the Substation platform area and rolling and trimming of the final surface to achieve the required finish. | ... | m3 | ... | ... |
| 2.8 | Reclaim from topsoil stockpile, spread on disturbed areas to 100mm minimum depth, roll, level. | ... | m2 | ... | ... |
| 2.9 | Supply, transport, install and maintain all environmental controls including but not limited to silt fences, silt socks, weed controls, fire ant precautions, shake down and wash down areas and dust control - refer item 1.5 | ... | LS | ... | \$2 |
| 2.11 | Survey substation platform levels on 10m square grid after completion of Earthworks and provide survey drawing. | ... | m2 | ... | ... |
| 3 | ROADWORKS : | | | | |
| 3.1 | DRAINAGE : | | | | |
| (a) | Supply all materials and construction of the following: | | | | |
| (a) | Drainage Pits DP1 & DP2 | ... | ... | ... | \$6 |
| (b) | Drainage Pit DP3 | ... | ... | ... | \$3 |

Fig 2 - A structured and formatted schedule with headings

4.9.1 Schedule items related data

Related data for the schedule items includes;

- Quantities
- Specifications
- Work Types
- Variations

Quantities

When you do work in a lot, you add the quantity and the schedule item to which it relates to the lot in the lot register. The total of all quantities added to a schedule item are also shown here in the related items for each item.

Specifications (ITPs)

You can link one or more ITPs to each schedule item. This is one way you can reduce the number of items you have to choose from when selecting schedule items to add to a lot - refer to [Schedule Item Links](#)

Work Types

You can link one or more work types to each schedule item. This is one way you can reduce the number of items you have to choose from when selecting schedule items to add to a lot - refer to [Schedule Item Links](#)

Variations

When you raise variations, you will also need to create a schedule item so you can be paid. This allows users to create links between schedule and varied payment items to link to variations.

To add specifications, work types or variations, double click the heading in the related items panel (if it is not visible, select "show related items panel" from the context menu). The specifications item popup (or work type popup - depending on your selection) will appear. Drag the items(s) you want to link onto the appropriate heading in the related items panel.

You cannot add lot quantities to the schedule item register. This must be completed from the lot register.

4.9.2 Schedule item operations

The main functions available from the Schedule Items context menu are;

- [Enable Editing](#)
- [Insert Item](#)
- [Lock Structure](#)
- Schedule Manipulation
 - [Define Headings](#)
 - [Prepend characters](#)
 - [Strip leading characters](#)
- [Import and Exporting Schedule Items](#)
- [Show Schedule Details](#)
- [Show Related Items](#)
- [Grid Options](#)

Insert Item

Inserts an item immediately below the currently selected item in the list. This function can also be invoked by pressing the insert key.

Importing and exporting items

There are three different options for importing data into a civil pro schedule, all accessible under the File submenu in the context menu

1. *import schedule* - invokes the [import wizard](#) and adds the imported items to the root of the tree
2. *import schedule (as child)* - invokes the [import wizard](#) and adds the imported items as children to the currently selected node
3. *import (structured)* - This can only be used to import schedule created in civil pro and exported using the export(structured) option

There are two different ways to export the schedule, both are accessible under the File submenu in the context menu

1. *export schedule* - exports the currently select rows to a flat csv file (no tree structure). See

[exporting data](#) for more.

2. export (structure) - exports the schedule as a cpx file for importing back into civil pro using the import(structured) option

If you want an export that reflects the structure of the file, print a schedule report and export to excel/pdf etc. using the options in the report preview control.

Lock Structure

Prevents the structure of the treelist from being changed through drag and drop operations. The structure of the schedule items register is locked by default and must be unlocked before modifying the structure.

Define Headings

Invokes the [Schedule Heading Wizard](#)

4.9.3 Creating schedule structure and re-ordering

To create levels, select one or more of the 'child' rows and drag them over the parent row, waiting for the blue arrow. This will put the rows you dropped a level lower than the parent you dragged them onto and allow you to expand or collapse them. There is no limit to the number of levels you can create, though you probably want to keep it to four or less for report formatting reasons.

Alternatively, you can select a group of schedule items and indent/outdent using the ctrl+[left arrow] or ctrl+[right arrow]. This will set the selected items as children of the node above (right arrow) or, drop them down a level [left arrow].

The outdent behaviour may not give the result you immediately expect because the designed behaviour is to change the parent of the rows outdented to the same as that of their current parent, and place them immediately after their parent row. In fig. 1, this means the selected rows (1202 and 1203) will be moved to the same level as, and with the same parent as, PROVISION FOR TRAFFIC i.e. they are directly under Part A - Roadworks. They will become the next items at that level (Fig 2.). As you can see in the figure though, items 1201 and 1204 are above them in the schedule as they remain children of PROVISION FOR TRAFFIC.

| Sched. No. | Description | Q... |
|------------|---|-------|
| | Part A - Roadworks | |
| | CONTRACTOR'S SITE FACILITIES AND CAMP (MRS28 Jun 09) | |
| A1101... | Contractor's site facilities (MRS28 Jun 09) (Refer to Supplementary Specification SCRSS111) | 1.... |
| | PROVISION FOR TRAFFIC (MRS02 Jun 09) | |
| A1201... | Provision for traffic (MRS02 Jun 09) | 1.... |
| A1202... | Traffic Management Plan (MRS02 Jun 09) | 1.... |
| A1203... | Roadwork signing records (MRS02 Jun 09) | 1.... |
| A1204... | Travel Time Surveys (MRS02 Jun 09) | 1.... |
| | ENVIRONMENTAL MANAGEMENT (MRS51 Jun 09) | |
| | PROTECTIVE TREATMENTS (MRS03 Jun 09) | |

Fig 1. Items before outdent

| Sched. No. | Description | Q... |
|------------|---|-------|
| | Part A - Roadworks | |
| | CONTRACTOR'S SITE FACILITIES AND CAMP (MRS28 Jun 09) | |
| A1101... | Contractor's site facilities (MRS28 Jun 09) (Refer to Supplementary Specification SCR55111) | 1.... |
| | PROVISION FOR TRAFFIC (MRS02 Jun 09) | |
| A1201... | Provision for traffic (MRS02 Jun 09) | 1.... |
| A1204... | Travel Time Surveys (MRS02 Jun 09) | 1.... |
| A1202.01 | Traffic Management Plan (MRS02 Jun 09) | 1.... |
| A1203.01 | Roadwork signing records (MRS02 Jun 09) | 1.... |
| | ENVIRONMENTAL MANAGEMENT (MRS51 Jun 09) | |

Fig 2. Items after outdent

Reordering

Reordering rows is the same process except when you drag over the parent row, hovering over the top or bottom edge of the target row will change the drop indicator to a yellow arrow. This indicates the item will be dropped above or below the item instead of as a child.

Please note that drag and drop and reordering is disabled when the schedule register is first opened. To enable it de-select the Lock Structure option in the [grid context menu](#).

| Sched. No. | Description | Qty S... | Unit | Sell R... | Sell T... |
|------------|---|----------|------|-----------|-----------|
| | PROVISION FOR TRAFFIC MRS11.02 | | | | |
| | CONTRACTOR'S SITE FACILITIES AND CAMP MRS11.28 | | | | |
| 110... | Contractor's site facilities | 1.0000 | lump | \$245,... | \$245,... |
| 120... | Provision for traffic - refer SS 7 | 1.0000 | lump | \$540,... | \$540,... |
| 120... | Preparation of Traffic Management Plan | 1.0000 | lump | \$10,7... | \$10,710 |
| 121... | Construction of side tracks, including maintenance and removal of side tracks - refer SS 35 | 1.0000 | lump | \$57,9... | \$57,933 |
| | ENVIRONMENTAL MANAGEMENT MRS11.51 | | | | |
| | DRAINAGE, RETAINING STRUCTURES AND PROTECTIVE TREATMENTS MRS11.03 | | | | |
| | EARTHWORKS MRS11.04 | | | | |
| | EARTHWORKS, PREPARATION MRS11.04 | | | | |
| | EARTHWORKS, EXCAVATION MRS11.04 | | | | |
| ... | Road excavation, all materials - refer SS 16 | 28699... | m3 | \$5.72 | \$164,... |
| ... | Excavation for diversion channels, all materials | 581.0... | m3 | \$17.20 | \$9,993 |
| ... | Excavation and disposal of Unsuitable Material within lines of cuttings, rate additional to rate for Work Item 3201, (Provisional Quantity as directed) | 6913.... | m3 | \$8.13 | \$56,203 |
| | EARTHWORKS, EXCAVATION MRS11.04 | | | | |
| | EARTHWORKS, EMBANKMENT MRS11.04 | | | | |
| | EARTHWORKS, SUBGRADE MRS11.04 | | | | |
| | EARTHWORKS, BACKFILL MRS11.04 | | | | |
| | UNBOUND PAVEMENTS MRS11.05 | | | | |
| 410... | Base, unbound pavement, Type 2, Subtype 2.3, Pavement type T1 access tracks | 517.0... | m3 | \$62.59 | \$32,359 |
| 410... | Base, unbound pavement, Type 2, Subtype 2.1, Pavement Type C1, C2, C3 & D1 | 2123... | m3 | \$62.81 | \$133,... |
| 410... | Subbase, unbound pavement, Type 2, Subtype 2.5, Pavement Type C1, C2, C3 & D1 | 3923.... | m3 | \$57.49 | \$225,... |
| 410... | Plant-mixed stabilised pavement, Working Platform (Pavement Type A1, A2, A3, B1, B2 & B3) | 4631... | m3 | \$76.45 | \$354,... |

Fig 3 - A structured and formatted schedule

4.9.4 Prepending/Stripping characters

You may want to prepend/strip characters from a set of schedule items to easily differentiate them from similar items. For example, if you have different sections (Sections A, B, C and D for example) which have similar works and therefore similar or the same schedule item numbers, you can easily prepend the relevant section to the start of the schedule number.

To prepend to the start of a collection of schedule items,

1. select the items
2. choose "Schedule Manipulation=> Prepend characters"
3. You will be prompted to enter the character to prepend. Type in a character and check/uncheck the box to mark whether subitems will also be altered. Then click OK
4. Where the specified schedule items have schedule numbers, these will be updated to be preceded by the specified character(s)

Stripping characters does exactly the reverse and can be used to undo if you make a mistake.

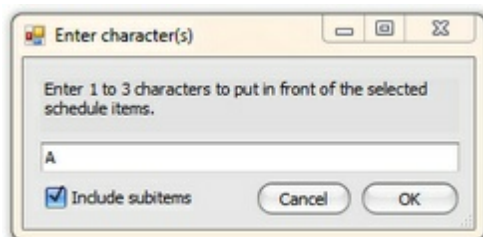


Fig 1. The prepend character prompt

4.9.5 Creating headings

Civil pro shows headings in the schedule using different formatting. Civil pro identifies headings as those schedule items that have no qty or rate. When your schedule is imported rows you want as headings may not show up as such. This may be because there are zeros or non-visible characters in the cell that were imported with the data.

To help with this, civil pro has a wizard available by selecting "Schedule Manipulation=> Define Headings" from the [context menu](#) of the Schedule Item Register.

The schedule heading wizard is a single page form (See Fig 1.) Select how you want to define headings by selecting or unselecting either of the two check boxes at the top. Selecting both will require that an item in the schedule has a zero or nothing in both the quantity and rate column.

The third checkbox defines whether civil pro subtotals child items of the heading when printing reports. The depth of the hierarchy for which subtotalling occurs is controlled by entering a value in the 'Limit totals to levels above:' text box which is only accessible when the 'Create subtotals for headings' option is selected. Please note that the subtotal headings can be added independently of the heading definitions, simply run this function again and do not select any criteria for assigning header rows.

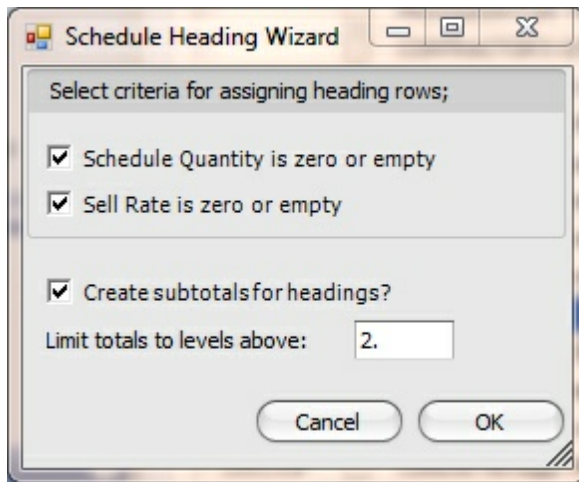


Fig 1. Schedule Setting

4.9.6 Schedule Item Links

You can create links between schedule items and either ITPs or Work Types. These links allow you to

1. restrict the list of schedule items you need to choose your lot quantities from. You can add links to schedule items from the [specification \(ITP\)](#) and [work type](#) registers.
2. restrict the list of ITPs you need to choose from when adding checklists.

When you select lot quantities for a lot, the schedule items shown in the [Schedule item selector](#) can be shown as;

- A full list
- A list of schedule items which are linked to the work type associated with the lot
- A list of schedule items which are linked to the checklists associated with the lot

When you select checklists for a lot, the ITPs shown in the [ITP selector](#) can be shown as;

- A full list
- A list of ITPs linked to the work type associated with the lot
- A list of ITPs which are linked to the schedule items linked with the lot

These links between schedule items, work types and itps can be created on an as-needs basis using the related items panel of the [work type register](#), [schedule item register](#) and [ITP register](#) respectively. Alternatively the link creation can be automated if you have a list relating schedule items, work types and itps from which the relationships can be created. Relationships can be identified if you provide;

- Schedule number OR schedule description
- ITP Number OR Description
- Work type code

To create links from a template,

1. select "File=> Build Template Schedule Relationships" from the right-click context menu of the [schedule item register](#). The form in Fig. 1 will be shown (without any data).
2. click either the *Data=>Get template from file* or *Data=>Get template from clipboard* or *Data=>Get template from database* buttons at the bottom of the newly opened schedule item form. Depending on your selection, you may now need to select the csv file containing your template relationships. You can only get the template from the database if you have previously used the option *Data => Save template to database*, or imported the data from a database where you have

saved the template.

3. Right click on the column headings to identify what data is in which columns. Where there are multiple ways to identify a column (i.e. schedule number and schedule description) you can select only one. The best option for matching is to select the most specific and accurate column. For example, if you match by schedule number and ITP description and you have a schedule number 7303 with an ITP description of Concrete, this will match every ITP with the word concrete in it to schedule item 7303 - probably not the desired effect. Alternatively, if you assign by ITPDocnumber and Schedule Number this will specifically match only the schedule number and document number. The different options for matching are provided to allow the formation of links from both templates with similar details to your ITP, schedule and work types, and different details.

In figure 1 you can see that the relationships are being made from the template using the schedule number, work type and ITP description (from the assigned heading names)

4. Click the preview button to see what links Civil Pro will automagically create (Civil Pro includes links that contain the template entries, not just perfect matches)
5. Click the Apply button to create the links.

You can create links

- between schedule items and ITPs,
- between schedule items and work types
- Between all 3

If you want to use similar relationships between similarly numberer/named itps, schedule items and work types you can use the context menu items in the schedule item register to create a template based on your current relationships.

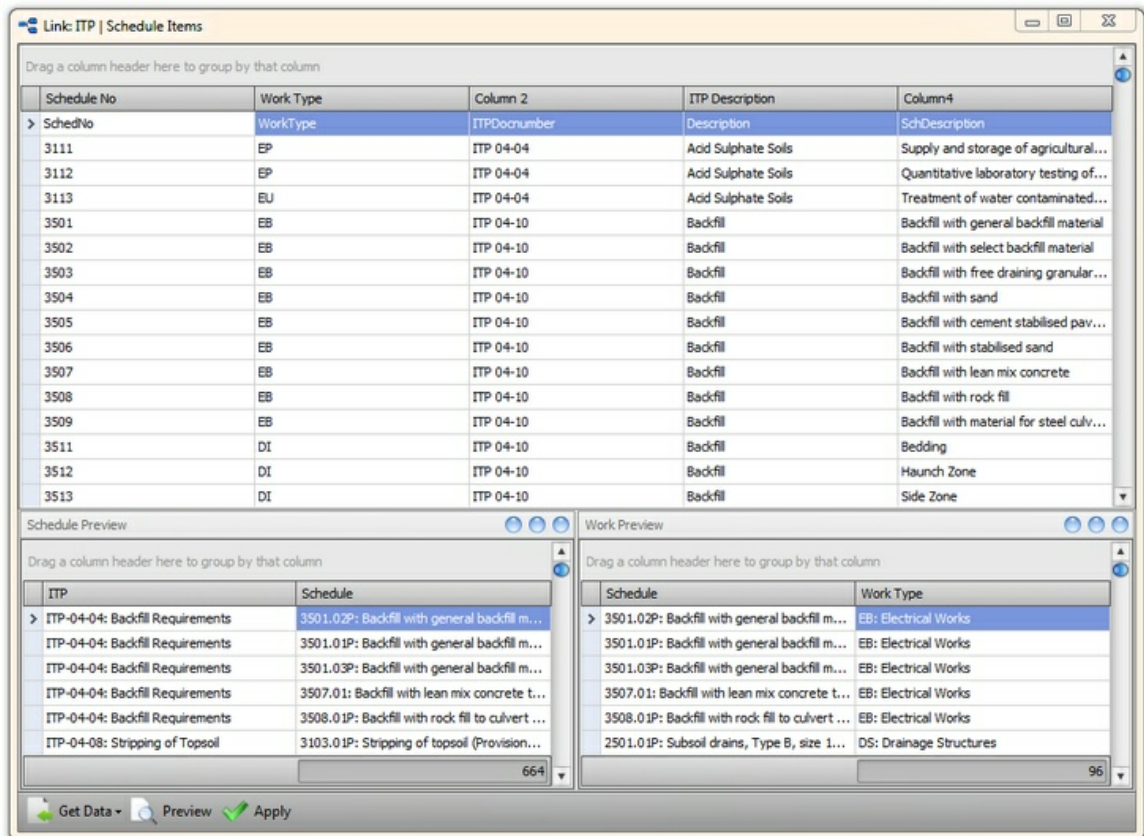


Fig 1. Schedule item linking from a template

4.9.7 Schedule item selector

The schedule item selector appears whenever a user;

- Adds/Edits a lot quantity
- Adds/Edits tests for a schedule item
- Selects schedule items in the lot quantity page
- Adds links to work types and itps

Generally, you will select your schedule items and drag them to their destination (for example the Quantities heading in the lot related items register). Some functions can be completed by double clicking the schedule item.

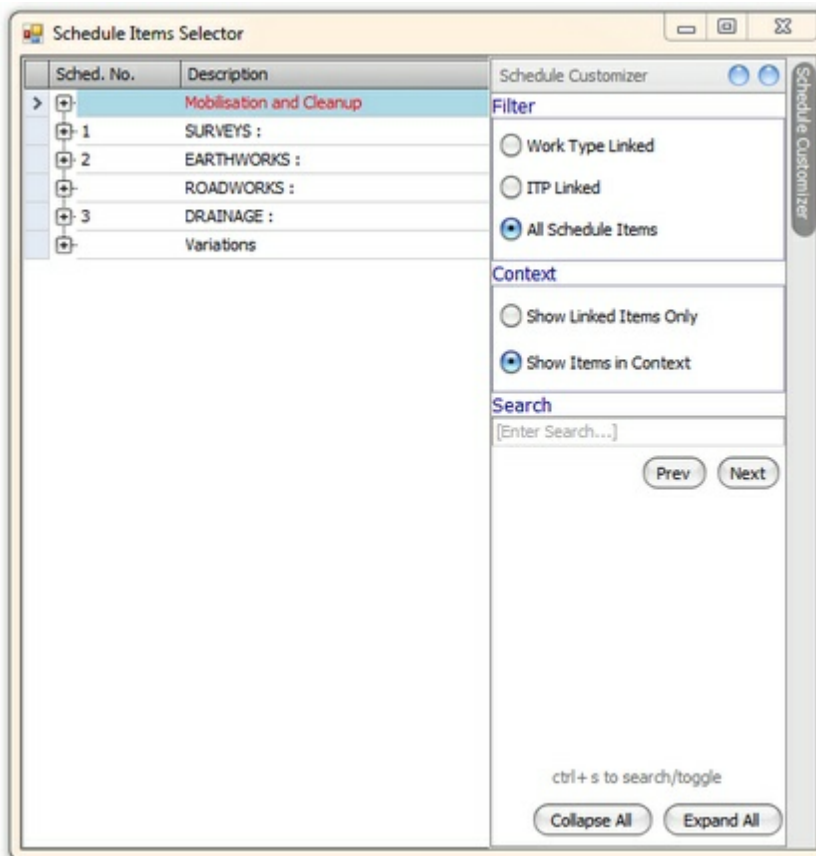


Fig 1. The schedule item selector

When the schedule selector is invoked from a lot the items shown in the schedule selector are either;

- The full list (All schedule items)
- The schedule items linked to ITPs connected to the lot as checklists (ITP Linked)
- The schedule items linked to the lot's work type (Work Type Linked)

When invoked to select a schedule item for a test (from the test request register or wizard), the restrictions are based on the test request lot. In other cases, only the full list is shown and filtering options are not available.

The search/filter pane can be navigated using either the mouse or the ctrl + s key shortcut. The first keypress of ctrl+s will focus the search box. Subsequent ctrl+s keypresses will change the applied filter (unless it is disabled).

Entering a search term will allow you to scan through the schedule for all entries with a particular search term using the next/prev buttons.

The collapse and expand buttons toggle the view stated of the schedule item list to show all data or just the top level.

The context toggle is used when a filter is applied to show;

- Linked Items Only - only the actual item that is linked to the work type/itp for filtering
- Items in context - the item that is linked plus its parent items in the schedule hierarchy

4.10 User and personnel management

There are two types of personnel records maintained in civil pro.

1. [Users](#) (Accessed from the Users option in the Application Menu) - Users are system wide records of people who may access one or multiple projects in a civil pro system.
2. [People](#) (Accessed from the People option in the Setup section of the [system menu](#)) - These are personnel who may be assigned responsibility for items in civil pro or may have documentation otherwise associated with them but who do not require a log in. People are project specific.

4.10.1 Access control

Access to civil pro is controlled by management of user accounts, accessed through the [users](#) page. Having a log in alone however, does not provide access to a project. Unless the login in is designated as a System Administrator, you must be explicitly granted a role in each project the user needs to access.

The different access roles in civil pro are;

- 1) System administrator - System administrators can access and perform all functions on any projects
- 2) Project administrator - A project administrator can perform all functions (including assigning/managing users) for a specific project
- 3) Project users - A project user can perform all functions in a project except;
 - a) User management
 - b) Project Administration (including data transfer)
 - c) Deleting records

For more information on managing user, refer to the [users](#) section.

4.10.2 People

The People register is a project specific list of persons to whom civil pro tasks can be assigned and records addressed. For example, you may want to send an NCR to Michael Rogerson - this person would need a record in the People register. Alternatively Simon Smith may be a foreman assigned responsibility for a lot - he too would be added to the people register.

If however, Peter Jones was responsible for some lots and was also expected to update the records in civil pro, he would need a log on and so, would become a [user](#). Users are also included in lists of people for a project, if they have permissions for the project or are a sysadmin.

The reason People and Users are separated is to prevent congestion of the list of people available in drop down lists for each project. An extraordinarily large list of people can become associated with a large project and they are of absolutely no interest to other civil pro projects. Keeping the People list project specific means multi-project civil pro installs can each have their own list of associated personnel (people) while maintaining a common Users register (users).

[Adding, editing and deleting people;](#)

- To edit/add information you must [enable editing](#). It is important to recognize that even with editing enabled people who are also [users](#) on other projects, or sysadmins, can only be edited by other

sysadmins.

- Add a new person, click on the "add person" button at the bottom of the screen, or enter their details directly into a new row of the grid. If entering details into the grid, you will only be able to add the basics such as name and company here (unless you use the grid heading context menu to add more columns). Additional information such as address etc. can be added using the detail panel at the bottom of the page. If you click the "add person" button, you will be presented with the same form as that used for the [new user wizard](#), except without the credentials.
- Edit a new record - simply change it in the grid or detail panel
- Delete a person - Click on the Delete Person button at the bottom of the page.

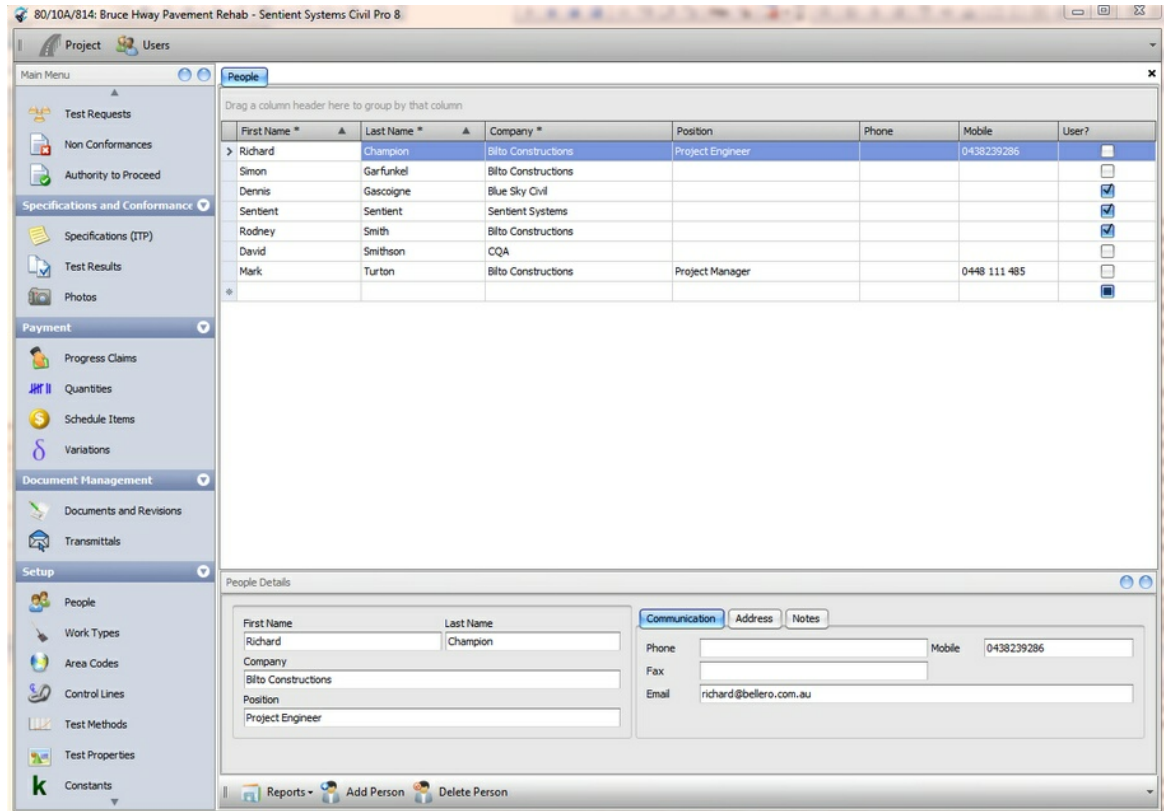


Fig 1 - The People register

Changing status from 'people' to 'user'

Using the context menu, you can promote a person to a user. Right click on the grid to access the context menu, then click on "Grant Login". If you have the appropriate permissions (Sys Admin or Project Administrator for the current project) you will be prompted to provide a username, password and role for the new user. The user will now be able to log in and work on the project. Management of the user can then only be undertaken in the [user](#) page.

4.10.3 Users

People who can log in to civil pro are called **users**. In a standalone system, each civil pro project has its own file so the differences between users and people end there. In a server based civil pro system, each civil pro database can have numerous projects and more differences between users and people are evident. In a server system, the users are common to all projects, that is a user can use the same user account to access all projects, as long as they have the appropriate [permissions](#).

The user page is accessed from civil pro's top menu. To manage users, you need to understand civil pro's [access control](#) model.

Adding, editing and deleting users;

- Click on the "add user" button at the bottom of the screen and follow the New User wizard.
- Edit a user - simply change it in the grid or detail panel
- Delete a user - Click on the "delete user" button at the bottom of the page.

To add or delete a user you must be either a System Administrator or Project Administrator. If you only have user level permissions on the current project, you can edit your own details (including changing your password) but not others.

| First Name * | Last Name * | Company * | Email * | Position | Phone | Mobile | Sys Admin |
|--------------|-------------|---------------------|-------------------------|----------|-------|--------|-------------------------------------|
| Dennis | Gascoigne | Blue Sky Civil | dennis@blueskycivil.com | | | | <input checked="" type="checkbox"/> |
| Rodney | Smith | Bilto Constructions | rodney@bilto.com.au | | | | <input type="checkbox"/> |

First Name
Dennis
 Last Name
Gascoigne
 Company
Blue Sky Civil
 Position

Phone
 Fax
 Email
dennis@blueskycivil.com

Mobile

User Name sysadmin
 System Administrator ☒
 Notes

Add User Delete User Change Password Roles

Fig 1 - The User register

Changing status from 'user' to 'people'

Using the context menu, you can demote a user to a person. This will remove their login and;

- If they have access to a single project, they will be assigned to that project
- If they have access to multiple projects, a copy of the user will be created for each project and the original user account will be deleted. Any references to the user in each project will be changed to the new users in the appropriate project.

Changing passwords'

Click on the "Change Password" button at the bottom of the User page, and enter the old and new passwords in the popup form.

4.10.3.1 New user wizard

Upon clicking the "add user" button on the [user](#) form, the [new user](#) wizard will open. Fill out the required (yellow) fields on the first page and click "next".



The screenshot shows a web form titled "New User Information" with a back arrow icon. The form is divided into two sections: "User Identification" and "Security Information".

User Identification

- First Name: Peter
- Last Name: Smith
- Position: (empty)
- Company: Hartford Contracting
- Email: peter@hartford.com

Security Information

- Username: psmith
- Password: ****
- Confirm: ****
- ☐ System Admin?

At the bottom right, there are two buttons: "Next >" (highlighted in blue) and "Cancel".

Fig 1 - New User Wizard - Pg1

None of the fields on the second page are compulsory, but can be completed to provide additional information.

New User Information

Optional User Details

Mobile: 0402 564 564

Business Ph: 07 33648598

Fax:

Address: 21 Pretend St

Suburb: Backabeyond

State: Qld

Postcode: 4123

Next > Cancel

Fig 2 - New User Wizard - Pg2

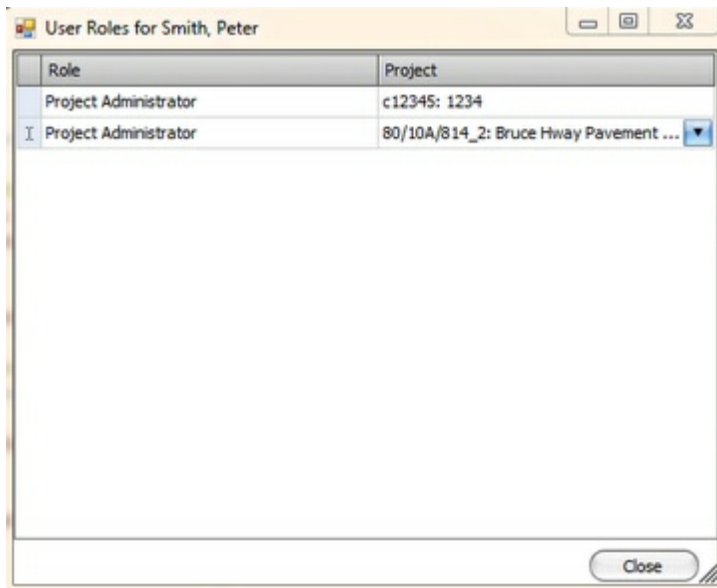
Upon completing the user wizard, provide the user with appropriate project permissions using the [user roles](#) form accessed by selecting the user and clicking on the "roles" button at the bottom of the [user](#) page.

4.10.3.2 User roles

Each user (that is not a sysadmin) must be explicitly granted permissions for a project before they can access it. Permissions for projects (refer to [Access Control](#)) are managed in the [user roles](#) form accessed by clicking on the "roles" button on the [users](#) form. Sysadmin users can grant and revoke permissions to any project. Project administrators can control permissions for only the projects for which they have administrator permissions.

Adding, editing and deleting; user roles;

- To add a user role, enter a new row, select a role and a project. Click close, or progress to another row. Sysadmins will get a list of all projects in the system, project admins will get a list of those projects for which they are granted admin permission.
- Edit a user role - simply change it in the grid
- Delete a user role - use the "delete role" option in the context menu.
-

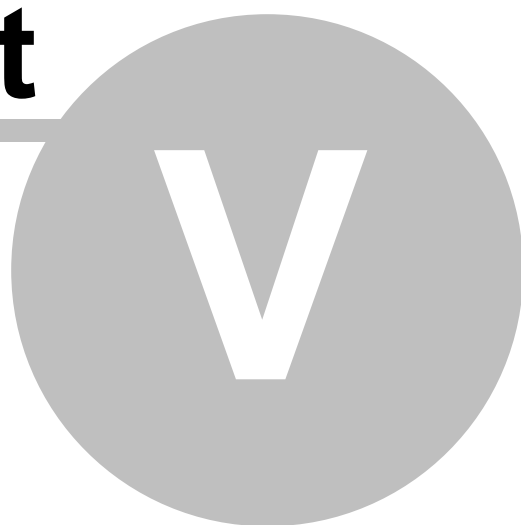


The image shows a dialog box titled "User Roles for Smith, Peter". It contains a table with two columns: "Role" and "Project". The table has two rows. The first row shows "Project Administrator" for "c12345: 1234". The second row shows "Project Administrator" for "80/10A/814_2: Bruce Hway Pavement ...". The second row is selected. Below the table is a large empty area. At the bottom right is a "Close" button.

| Role | Project |
|-----------------------|---------------------------------------|
| Project Administrator | c12345: 1234 |
| Project Administrator | 80/10A/814_2: Bruce Hway Pavement ... |

Fig 1 - The user roles form

Part



5 Using civil pro

This section describes the day to day use of civil pro to manage your project. This assumes you have completed the steps outlined previously, most notably "Setting up Civil Pro"

5.1 Log in

When you first open civil pro, you will see the main application window overlaid with the Log In screen. You cannot use civil pro until you log in to an existing project, or create and log in to a new one.

To log in to;

- **the most recently used (MRU) project** (listed under *Current Connection* in the large grey box near the bottom of the login form), enter a valid user name and password for the project and click "log in".
- **a project you have recently used**, click on the "Select Connection" button and select the desired connection from the MRU file list (Fig 2 below).
- **a project you have not previously accessed, or a new project** click on the "Select Connection" button and select the "New Connection" button (Fig 2 below).

For more information refer to [connecting to an existing project](#) and [creating a new project](#).



Fig 1 The civil pro log in screen.

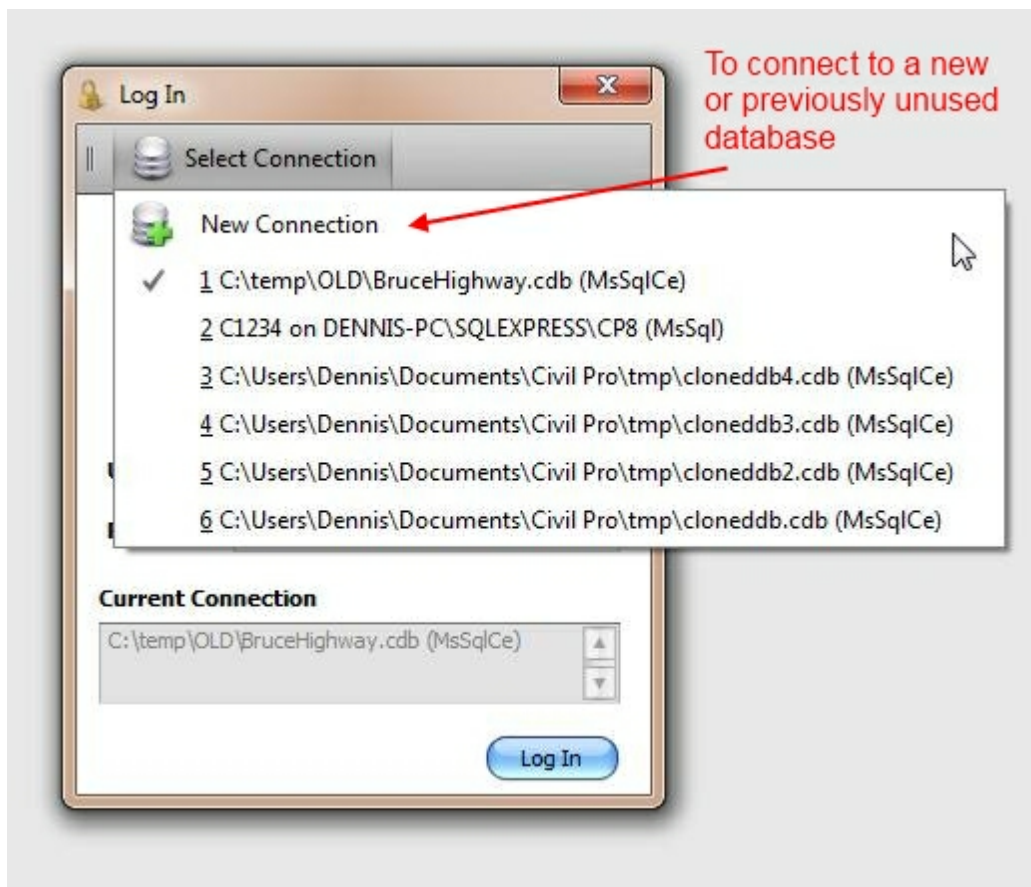


Fig 2 The MRU list

5.2 Lot register

The lot register is the main repository of information in the entire civil pro system. It contains a list of lots and their complete definitions. Using the lot register you can also easily see what other items are linked to each lot through the related items panel on the right. The Lot Register is a standard register with the [main grid](#) in the center, related items on the right and the detail for each record in a hidden panel that is made visible using by double clicking a record or using the [context menu](#) option.

Before adding a new lot, you need to ensure you have created at least one entry in the [work type](#), [area code](#) and [control line](#) registers. To create a new lot, click on the "new lot" button at the bottom right of the register and complete the [new lot wizard](#). The Lot register is accessed from the [main menu](#).

The screenshot shows the 'Lot Register' window with a list of 1107 records. The first record, CRSET1007, is highlighted. To the right, a 'Related Data CRSET1007' panel shows a hierarchical tree of related items including Quantities, Checklists, ATPs, NCRs, Test Requests, Variations, Photos, Documents, and Related Lots.

| Lot Number | Description | Date Open | Control Line | Ch Start | Ch End | Status |
|------------|--|------------|--------------|----------|--------|-----------|
| CRSET1007 | Replacement of Unsuitables beneath Concrete Retaining Wall at the Church - Pour 9-11 | 7/01/2011 | MC02 | 0 | 0 | Conformed |
| CRSET1008 | Concrete Retaining Wall at the Church - Sections 8 & 9 | 12/01/2011 | MC02 | 0 | 0 | Conformed |
| CRSET1009 | Concrete Retaining Wall Footings for Vet Surgery - Pour 1&2 | 12/01/2011 | MC02 | 0 | 0 | Conformed |
| LSSPMI001 | Surfers Paradise Motor Inn - Landscaping Works | 14/01/2011 | MC02 | 0 | 0 | Conformed |
| CRSET1010 | Concrete Retaining Wall Footings at the Church - Sections 8,9,10,11 | 15/01/2011 | MC02 | 0 | 0 | Conformed |
| FESPMI001 | Surfers Paradise Motor Inn - Timber Fence | 19/01/2011 | MC02 | 0 | 0 | Conformed |
| CRSET1011 | Concrete Retaining Wall - Sections 1, 2, 2B, 3, 5, 10 | 20/01/2011 | MC02 | 0 | 0 | Conformed |
| DEMC01006 | Demolition of Median - Monaco around fire signals | 21/01/2011 | MC01 | 0 | 0 | Conformed |
| DEMC01007 | Median Removal - Northbound Monaco traffic signals | 24/01/2011 | MC01 | 0 | 0 | Conformed |
| DEMC01008 | Demolition of Median around Fire Warning Signals adjacent Second Ave | 24/01/2011 | MC01 | 0 | 0 | Conformed |
| DSAJAV002 | Excavation and installation of pit 1/9A | 27/01/2011 | MC16 | 30 | 30 | Conformed |
| DSAJAV003 | Installation/excavation of pit 2/9A | 27/01/2011 | MC16 | 20 | 20 | Conformed |
| DSAJAV004 | Installation/Excavation of culvert (pipe) from pit 2/9A to 3/9A | 27/01/2011 | MC16 | 15 | 20 | Conformed |
| DSAJAV005 | Installation/Excavation of manhole/pit 3/9A | 27/01/2011 | MC16 | 15 | 15 | Conformed |
| PTSPMI001 | Surfers Paradise Motor Inn - Anti Graffiti to Blockwork Wall | 27/01/2011 | MC02 | 683 | 695 | Conformed |
| DSAJAV006 | Installation/Excavation of culvert (pipe) 1/9B to pit 2/9B | 28/01/2011 | MC16 | 23 | 30 | Conformed |
| DEAJAV001 | Kerb demolition from pit 1/9A to pit 2/9A and 1/9B to 2/9B | 28/01/2011 | MC16 | 0 | 0 | Conformed |
| CRSET1012 | Concrete Retaining Wall for Church - Sections 11, 12, 13, 14 | 31/01/2011 | MC02 | 0 | 0 | Conformed |

Fig 1 The lot register showing the detail register.

Lot Definition

The concept of a [lot](#) is explained in the [lot based QA](#) primer at the beginning of the help file. A civil pro lot record consists of the following (compulsory fields are marked with an asterisk (*));

| | |
|--------------------------------|--|
| Lot number * | Any unique identifier. By default is created from the work type, area code and an auto generated index. |
| Work type * | Two letter work code describing the main work undertaken in the lot |
| Area code * | Four letter code identifying where the lot is located |
| Description * | A text description of the work included in the lot |
| Raised by * | The person who raised the lot |
| Status | The lot status - this property is read only and calculated from the guaranteed date and conformed date as described in the topic lot status |
| Geometry | |
| Control line * | The control line to which the chainage and offsets refer |
| Chainage start / Chainage end | The longitudinal reference of distance along the control line where the lot begins / ends |
| Start left OS / Start right OS | The lateral distance from the control line to each edge of the lot at the start chainage. When facing direct of increasing chainage, a distance left of the control line is negative, while right is positive. |
| End left OS / End | The lateral distance from the control line to each edge of the lot at |

| | |
|------------------------------|--|
| right OS | the end chainage. When facing direct of increasing chainage, a distance left of the control line is negative, while right is positive |
| Date opened * / closed | The date the lot was opened / closed |
| Date work start / end | The date work physically started/ended on a lot |
| Date guaranteed | If a lot complies with the specification but is waiting on some results of testing (such as 28 day concrete tests) or other information, then it can be given the status 'guaranteed' by assigning a Guaranteed Date. This may be an important part of demonstrating compliance for the purpose of payment under some contracts. |
| Date conformed | A conforming lot can be give a 'Conformed Date'. Lots with a conformed date are given the status conformed |
| Conformed by | The person who conformed the lot |
| Level of testing | Some contracts allow a reduced level of testing once it is established that testing processes are effective. Depending on the ITP definition a lot with a reduced level of testing property will generally have less tests specified in the Test Schedule. |
| Percent complete | If a lot is open (neither guranteed or conformed), the percent complete will be used to ratio any quantities claimed in the progress claim |
| RL1 / RL 2 | 1 or both of these can be assigned to give a 3D definition to the lot. While the field is labeled RL - a survey term for Reduced Level, any vertical reference point can be used such as a landmark or a distance to a known level (i.e. FL -0.4m) |
| Depth | The thickness (in mm) of the lot. Used for calculating volumes. |
| Length, Area, Volume | Properties of the lot calculated automatically from the lot geometry. If the value for these differs to the calculated value on account of odd shaped lots or other reasons, these can be manually assigned |
| Notes | A text field for comments |

[Related Items](#)

Each lot can have different records associated with it including checklists, NCRs, ATP, Quantities, Other Lots and Variations. These associations can be easily created by double clicking on the appropriate heading in the [related items](#) list. A list will pop up with all of the records of that type (If you double clicked the NCR heading, it would show the NCR list) - simply drag the items you want onto the [related items](#) list. To quickly go to a related item, double click it in the list i.e. double clicking NCR 2 in Fig 1. would open the NCR register and select NCR 2. For more information on the related items list as it applies to the Lot register refer to the sub-topic [related items](#).

Related quantities can be adjusted by double clicking or right clicking on the quantity and completing the popup form. Refer to the topic on [Lot quantities](#).

You can add new items relating to a current lot by right clicking the lot and selecting "new related item => new test request" (or atp / ncr). This will start the new [test request/NCR/ATP](#) wizard based on the current lot.

[Checklists](#)

Using the [related items](#) list to associate a lot with a checklist creates a copy of the checklist specific to the current lot. The checklist can be accessed by double clicking it in the related items list. For more refer to the topic on [checklists](#).

Quantities

Adding [quantities](#) in civil pro is as simple as double clicking on the quantities item in the [related items](#) list, selecting the schedule items you want and dropping them on the related items list. This will add a new quantity to the lot with a schedule quantity of zero. To edit the quantities, double click on them and they will be opened in the quantities editing pane (see fig 2.). Alternatively, you can open the quantities pane using the context menu (right click on the lot register) and entering the quantities directly. Quantities are explained in detail in the [lot quantities](#) help topic.

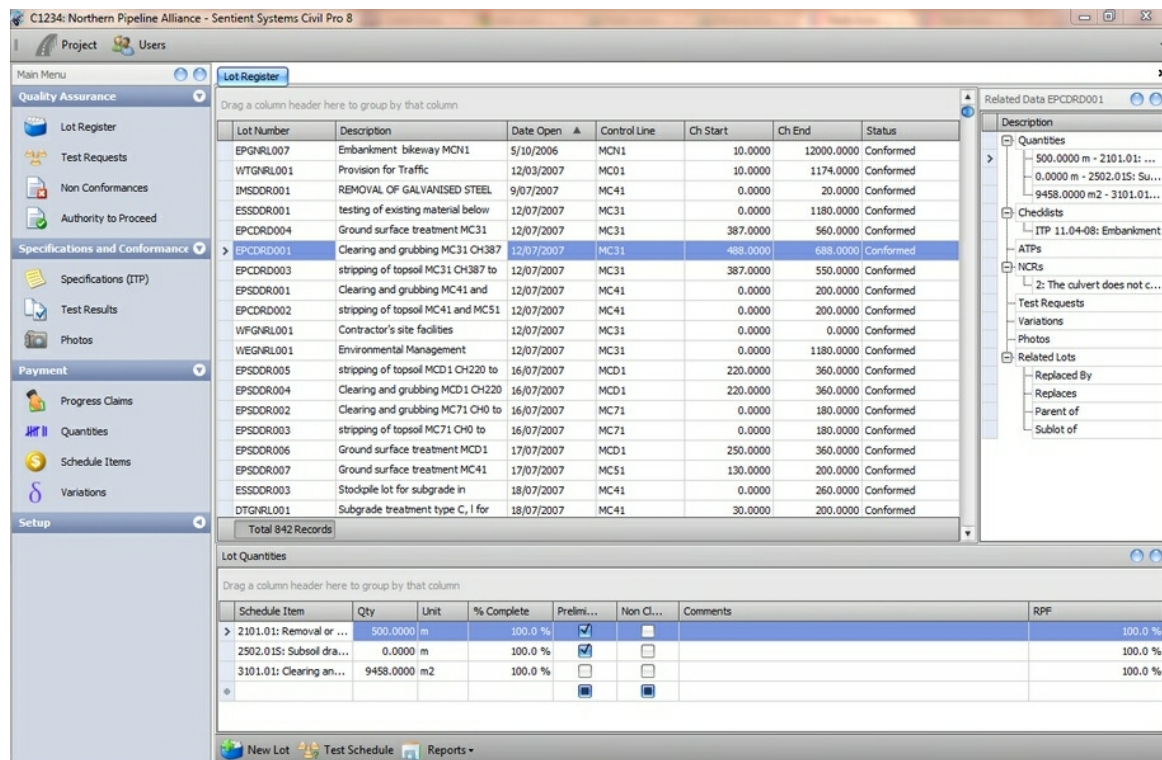


Fig 2 The Lot Register showing the quantity register.

Views

There are different columns you may want to see in the register to those presented by default. Civil pro allows you to easily change between a set of pre-defined view using options in the grid context menu. The available views are;

| | |
|------------------|--|
| Standard | Displays the default register - lot number, description, date open, ch. start, ch. end and status |
| Dates | Register shows the lot number, description, date open, date guaranteed, date conformed, date work started & end, date closed |
| Values | Shows the standard view with additional columns for lot value and lot reduced payment value |
| Work in Progress | Shows the standard view with an extra column for % complete. Only lots with status "Open" are displayed |
| NCR Value | Shows the values view but filters it to only show lots with an NCR |

Additional Properties

Civil pro also calculates some additional properties from the lot's properties and related items. These properties can be shown in the grid (and therefore a printed report) by selecting the different views or by accessing the grid header context menu (right click on the grey column headers) and selecting the "column chooser". Additional properties are;

| | |
|-------------------|--|
| Has NCR? | Selected if the lot has an NCR - show this column and apply a filter to show only those lots with NCRs |
| Has qty? | Selected if the lot has a quantity - show this column and apply a filter to show those lots without quantities to see if any are in error |
| Has Doc? | Selected if the lot has a document attached - show this column and apply a filter to show only those lots with attached documents |
| Is parent lot? | Selected if this lot has sub-lots |
| Is sub lot? | Selected if this lot is a sub-lot |
| Is replaced ? | Selected if this lot has been replaced by another |
| Is replacement ? | Selected if this lot is a replacement for another lot |
| Lot value | The total value of quantities assigned to this lot (not factored for reduced payment factors or % complete). Selecting this column and the Has NCR? column and filtering to only show NCRs will allow a report on the value of lots subject to NCRs. |
| Lot red. pay val. | The total value of reduced payment applied to each lot and % complete |

5.2.1 Lot numbers

Civil pro 8 now offers customizable lot number templates. This means that when you open a new lot, the lot number civil pro creates for you can be changed. By default civil pro creates a nine digit lot number based on the [work type](#), [area code](#) and an autoincrementing index (WWAAAIII).

For example, the third lot raised with work type SG and area MC01 will be labeled SGMC01003 using these default settings. Examples of custom lot numbers are shown below in tables 1 and 2.

Civil pro allows you to change this by specifying a new [constant](#) with the name "LotNoDef" (add a constant as shown on the [constants](#) register). The value for the Constant defines how your lot number appears and accepts the following;

- #W = the lot's [work type](#)
- #A = the lot's [area code](#)
- #I = an auto increment index
- | separates elements of the lot number
- <sometext> literal text
- (<int>) an integer defining how many characters to print for each lot property (work type/area code/index)

For example, the default lot behaviour is defined by the LotNoDef "#W(2)|#A(4)|#I(3)".

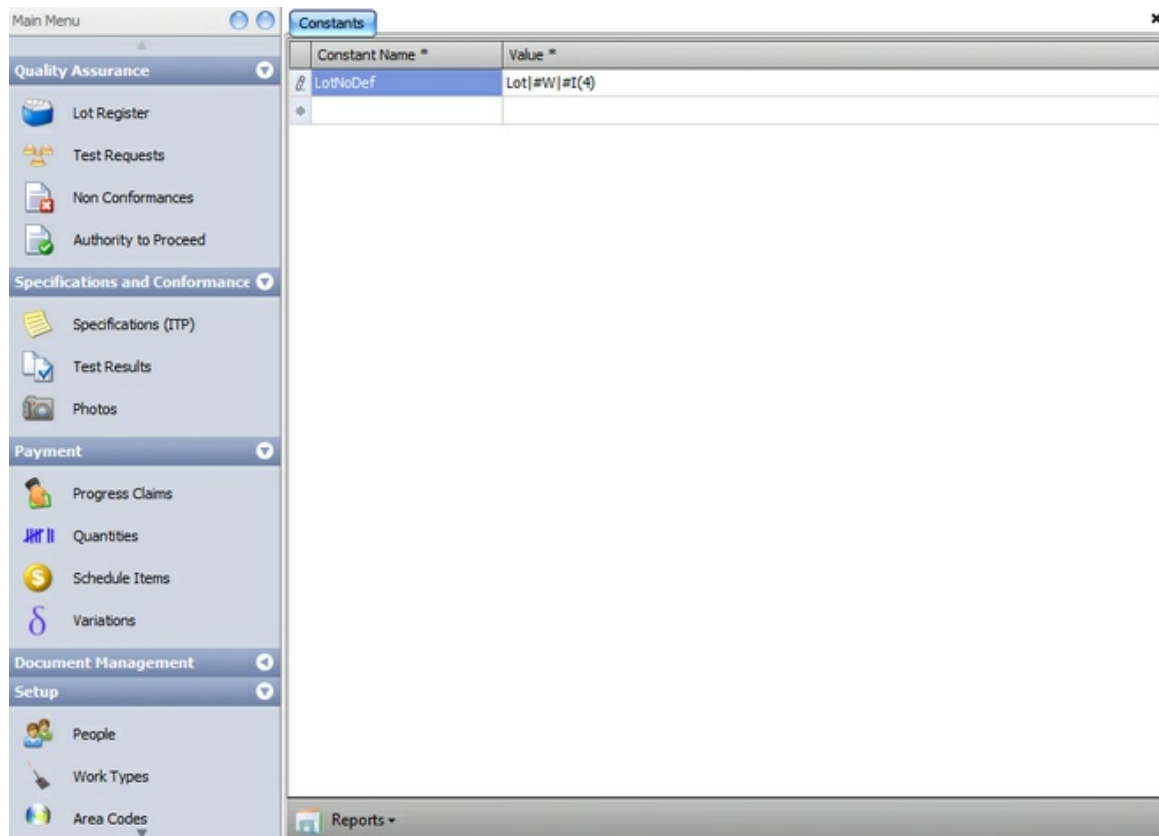


Fig 1: The constants page showing a custom lot definition as per the last example in table 2

Table 1: Sample data for the lots shown in table 2

| ID (not a lot property) | Work Type | Area Code |
|-------------------------|-----------|-----------|
| 1 | SG | MC00 |
| 2 | SG | MC00 |
| 3 | SG | MC01 |
| 4 | EX | MC00 |
| 5 | EM | MC01 |

Table 2: Sample custom lot definitions, and the resulting lots using data from table 1

| LotNoDef String | Lot Numbers |
|---|--|
| #W(2)#A(4)#I(3) - Default | SGMC000001,SGMC000002,SGMC010001,EXMC000001,EMMC010001 |
| myLot #I(4) | myLot0001, myLot0002, myLot0003, myLot0004, myLot0005 |
| #W(2)#I(2) | SG01,SG02,SG03,EX01,EM01 |
| #A(2)#I(2) - Not a definition you would use, for example only | MC01,MC02,MC03,MC04,MC05 |
| Lot #W #I(4) - As per Fig 1 | LotSG0001,LotSG0002,LotSG0003,LotEX0001,LotEM0001 |

5.2.2 Lot status

Civil pro lots can have one of four statuses - Open, Rejected Guaranteed or Conformed.

Conformed Lot

A conformed lot is a lot for which all testing has been performed and results received demonstrating compliance, all checklists are completed and any NCRs are closed out.

Guaranteed Lot

A guaranteed lot is completed and complies with the specification but is waiting on some results of testing (such as 28 day concrete tests) or other information.

Open Lot

A lot which is neither conformed or guaranteed

Rejected Lot

When a lot is explicitly marked as rejected

Statusing a lot

A lot is

- conformed if it has a value for Date Conformed
- guaranteed if it has a value for Date Guaranteed but no value for Date Conformed
- open lots have neither a Date Conformed or Date Guaranteed

Multiple lots can be rejected, un-rejected, guaranteed, un-guaranteed, conformed or un-conformed by using the functions available from the grid context menu (right click on the grid). For example, to guarantee 5 lots, select them (multi - select using the shift or ctrl keys), right click to get the context menu and select "Guarantee" from the menu.

You will be prompted to reject/un-reject a lot if you assign [replacement lots](#).

5.2.3 Lot detail

The lot detail panel (shown in Fig 1.) is displayed at the bottom of the lot register. It is hidden by default but can be shown by double clicking any lot record or selecting the "show lot details" option from the [grid context menu](#). To increase the screen area available to display the lot register grid, simply close or hide the panel using the blue buttons in the top right. When the mouse is over the buttons, the right one will show a cross - click to close, the left one will show a pin - clicking it toggles between autohide and fixed positioning.

Fig 1 Lot Detail panel showing the Properties

The lot detail page shows all of the available information for a single record and changes as you navigate to a different lot in the register. The form is editable by default, except for the Lot Number. The lot number can only be edited after selecting 'edit lot number' from the [detail panel context menu](#).

The right hand side of the detail panel displays groups of information depending on the selected tab (key dates, geometry, properties or notes).

Properties (incl Lot Length, Area and Volume)

In the Properties tab, (Fig 1) you can select the geometry type. This determines how the lot extents are determined. Refer to the [lot wizard](#) for more information.

The values for lot length, area and volume are also displayed. These are calculated automatically and will be updated whenever you change the geometry (for lots with chainage geometry or coordinate position). If the calculated values do not reflect the actual values for the lot due to an irregular shape not captured by the lot definition, you can overwrite them. This will prevent the values being calculated automatically unless you reverse the manual assignment. To manually override the AVL (area, volume, length) select "AVL override" from the [detail panel context menu](#). When a chainage position coordinate type is selected, an area will be calculated, and if there are only two points then a length is calculated.

Fig 2a) Lot Detail panel - Control Line geometry

| X Coordinate | Y Coordinate | Z Coordinate |
|--------------|--------------|--------------|
| 168543.1 | 112524 | 5.456 |
| 168999.2 | 112532 | 5.35 |

Fig 2b) Coordinate Position or Region geometry

For more information on the information stored for each lot, refer to the [lot register](#).

5.2.4 Lot quantities

Lot quantities are visible in two locations on the lot register. The first is in the [related items](#) panel (Fig 1), the second is in the lot quantity panel (Fig 3).

Related Items Panel

The [related items](#) panel shows the quantities registered against the lot currently selected in the grid. It is useful for quickly seeing what quantities are registered against lots, but also for quickly adding new quantities and deleting old ones. To add a new quantity, double click on the quantities heading on the [related items](#) panel - a [popup displaying schedule items](#) will appear (Fig 2). Drag the schedule item(s) you want onto the quantities heading and drop them. They will be assigned a zero quantity. To update the quantity, double click it and the Quantities panel will appear at the bottom of the page where the Lot Detail page appears.

TIP:

1. You can also add a single quantity to the currently selected lot by double clicking it instead of dragging it.
2. Right clicking a quantity from the related items list opens a dialog box where you can edit the quantity.

To delete a quantity using the related items list, select the quantity and press the delete key.

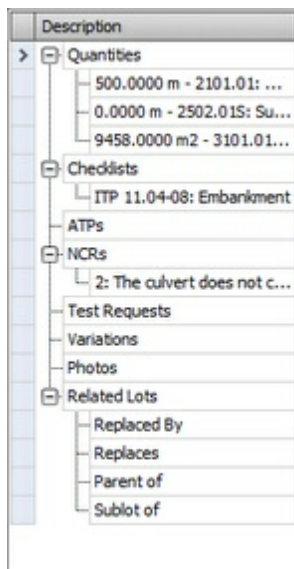


Fig 1 - Related Items

The popup for schedule items. Refer to [Schedule item selector](#)

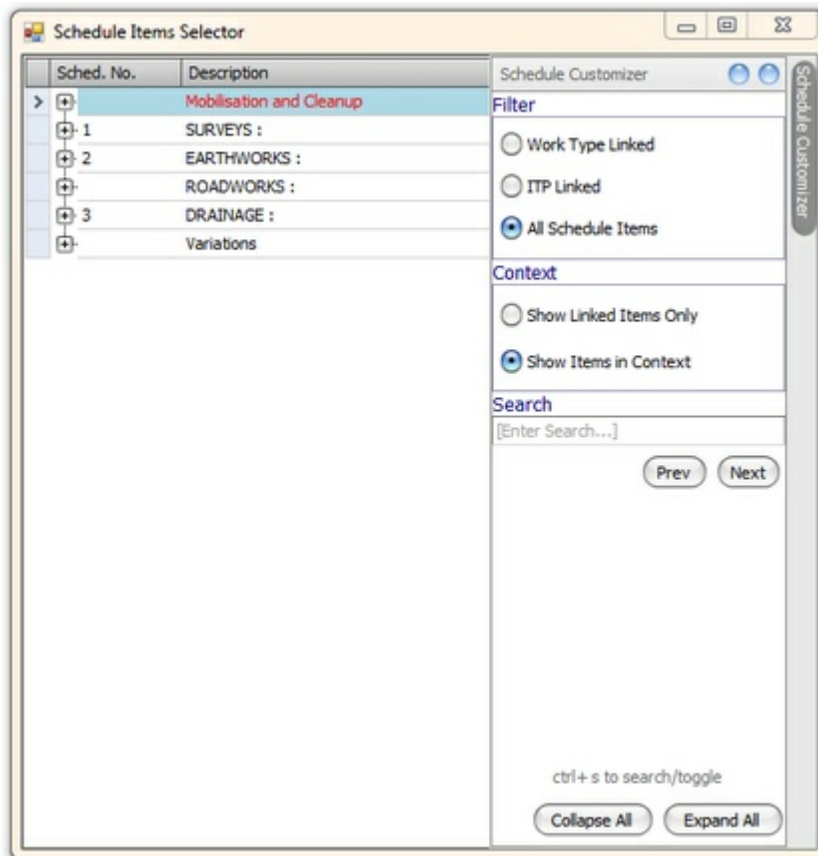


Fig 2. The schedule item selection panel

Lot Quantity Panel

The lot quantity panel can be accessed by double clicking a quantity or by selecting "show lot quantities" from the [grid context menu](#). While quantities are most easily assigned using the drag and drop described above, they can also be added directly into the grid using a new row with the appropriate details.

| Lot Quantities | | | | | | | |
|---|-----------|------|------------|-------------------------------------|-------------------------------------|----------|---------|
| Drag a column header here to group by that column | | | | | | | |
| Schedule Item | Qty | Unit | % Complete | Prelimi... | Non Cl... | Comments | RPF |
| > 2101.01: Removal or ... | 500.0000 | m | 100.0 % | <input checked="" type="checkbox"/> | <input type="checkbox"/> | | 100.0 % |
| 2502.015: Subsoil dra... | 0.0000 | m | 100.0 % | <input checked="" type="checkbox"/> | <input type="checkbox"/> | | 100.0 % |
| 3101.01: Clearing an... | 9458.0000 | m2 | 100.0 % | <input type="checkbox"/> | <input type="checkbox"/> | | 100.0 % |
| + | | | | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> | | |

Fig 3. The Lot Quantity Panel

Lot quantity records consist of;

| | |
|---------------|--|
| Schedule Item | The schedule item to which the quantity refers. This schedule item will be used to get the rate and unit used to calculate the progress claim and lot values |
| Quantity | The quantity of work complete for the item selected in the schedule |
| Unit | The unit for this quantity - defaults to the schedule item unit |

| | |
|---------------|---|
| % Complete | The percentage of work complete - defaults to 100% but can be adjusted independently of the lot % complete where different payment items for the same lot are in different stages of completion |
| Preliminary | Selected if the quantity is a preliminary quantity |
| Non Claimable | Selected if this quantity is not to be included in the progress claim. You may use this to register a quantity for calculating testing but not for payment. |
| Comments | A text field for any comments |
| RPF | Reduced Payment Factor: Some contracts allow acceptance of non-conforming work in exchange for a reduction in payment. |
| NCR# | Hidden: Any NCR relevant to this schedule quantity |
| VRN# | Hidden: Any VRN relevant to this schedule quantity |

Both the NCR and VRN columns are hidden by default. They are easily made visible by accessing the Quantity grid context menu (right click on the qty grid) and selecting Views => Quantity NCR / VRN.

5.2.5 Lot documents

You can attach documents of any kind to a lot - including spreadsheets, word documents, pdfs or images. Related documents are shown in the related items panel under the heading "Documents". Before adding an documents (or photos) you must have the project file path set up. Refer to the topic [Project administration](#)

To add a document, simply select the lot you want to add the document too, and double click on the "Documents" heading. In the file selector dialog, select the file and click "Open". You will be prompted to update the description (Fig 3.) which defaults to the file name. When ready, click on "OK". The document will now appear under the "Documents" heading for the lot.

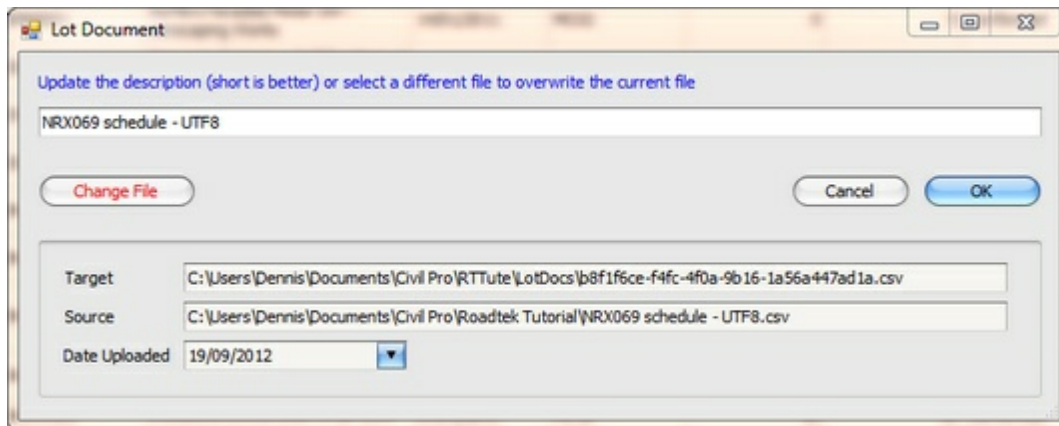


Fig 1. The lot document editor

Viewing Lot Documents

To view a lot document, double click it and civil pro will open it using the default program for the file type of the lot document. Civil Pro cannot open documents that do not have an associated program.

Printing Lot Documents

To print a lot document, right click it to get the context menu, and select the print option.

Editing Lot Document Records

To change the file a lot document refers to, or to update the description of the lot document, right click on it and select the edit option from the context menu.

Testing Documents

Lot Documents can also be added in the Test Request register. This is used for recording copies of test reports from testing authorities. Any document added to a test request is also listed in the Lot Documents for the lot tested on the test request.

5.2.6 Related items

The related items panel allows users to quickly see information associated with a lot. It is also the quickest (and sometimes only) way to create associations between lots and other registers, or between lots.

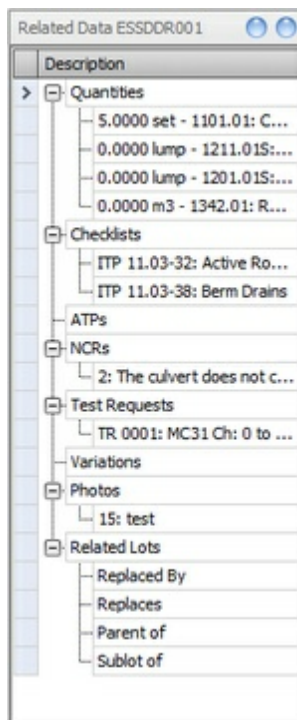


Fig 1. The related items panel

Quantities

To create a new quantity, double click on the "quantities" heading - a schedule list will pop up. Select the schedule item(s) you want and drag/drop them onto the quantities heading. If you can't find your schedule item, you can use the search facility at the bottom left of the schedule popup panel. Type in the string you want and click the "<" or ">" buttons to move through the instances present in your list. The search is exact match, meaning that if you type in "Seal", civil pro will find schedule item beginning with Seal. If you want to find all items containing Seal anywhere in the description, you need to prefix it with a question mark i.e. enter "?Seal". In the example in Fig 2, the search for "?amc" returned four hits.

After adding quantities you can see more detail by double clicking the relevant quantity. To delete, select the quantities to delete and press delete. For more detail on quantities refer to [Lot Quantities](#).

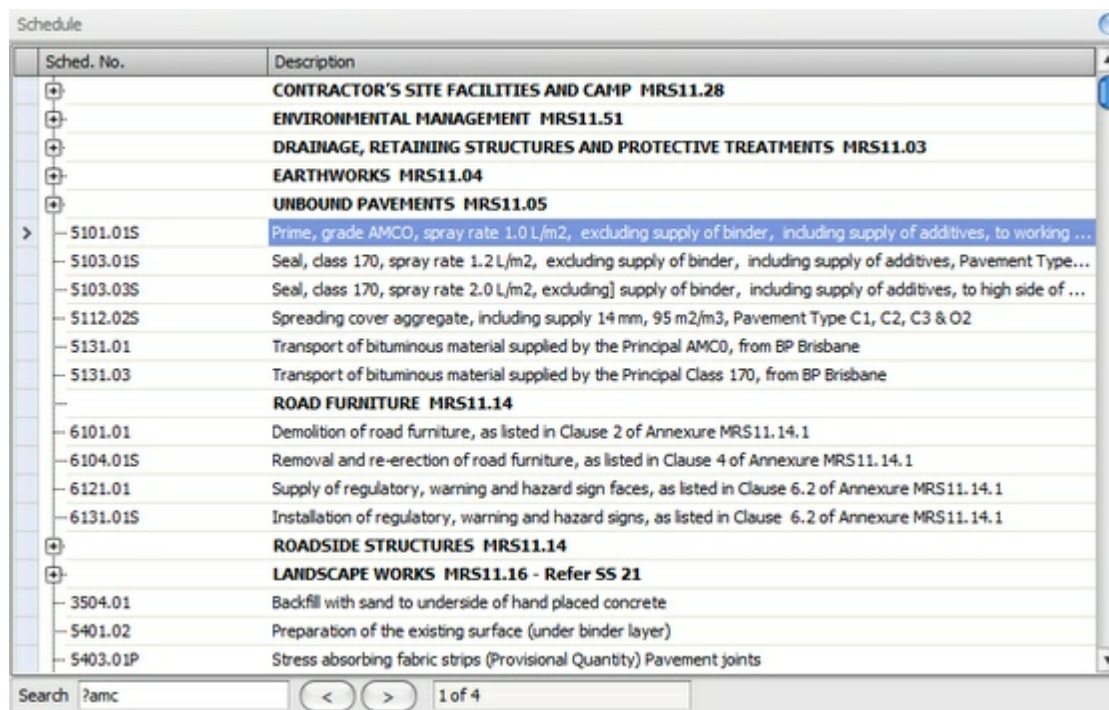


Fig 2. The schedule item selection panel

Checklists

To create a new checklist for a lot, double click on the "checklists" heading - a list of ITPs will pop up. Select the ITP(s) you want and drag them onto the checklists heading. To view the checklist, double click it. To delete a checklist, select it and press "Delete". For more information on Checklists, see [lot checklists](#)

ATPs, Variations, Photos and NCRs

Links between registers are shown in the related items list (refer NCR 2 in Fig 1 above). To add a new link, double click the relevant heading and a list of available ATPs/Variations/NCRs or photos will pop up. Select the desired items and drag and drop them on the appropriate heading. Double clicking on an item (i.e. NCR 2 above) will take you to that record in its register. To delete a link, select it and click delete - this will not delete the item, just the link between it and the lot.

Test Requests

Links between test requests and lots cannot be create using the related items register. This is because when a test request is created, it is assigned a lot and can only have one lot assigned to it. You cannot delete a link to a test request, because the reference is to the test request itself. If you need to remove an association between a test request and a lot, go to the test request (double click on it) and change the lot it is associated with, or delete the test request as appropriate.

Documents

Civil Pro can attach any electronic file to your lots. For more details refer to the topic [Lot Documents](#)

Related Lots

Lots can be related in two ways, one lot may replace another, or it may be a child lot (or have child lots). To establish either, double click the "related lots" heading - a list of lots will pop up. Select the lot you want to relate to the current lot and drag it onto either the "replaced by", "replaces", "parent of" or "child lot of" headings.

If you have Lot A selected in the grid, double clicking related lots and dragging Lot B onto the *Child of* heading will result in Lot B becoming a *child lot* of Lot A. If you then select Lot B in the lot register instead of Lot A, you will see that Lot A is listed in the related items as a *Parent Lot* for Lot B. Similarly if Lot C *Replaces* Lot D, navigating to Lot D will indicate that it is *Replaced By* Lot C.

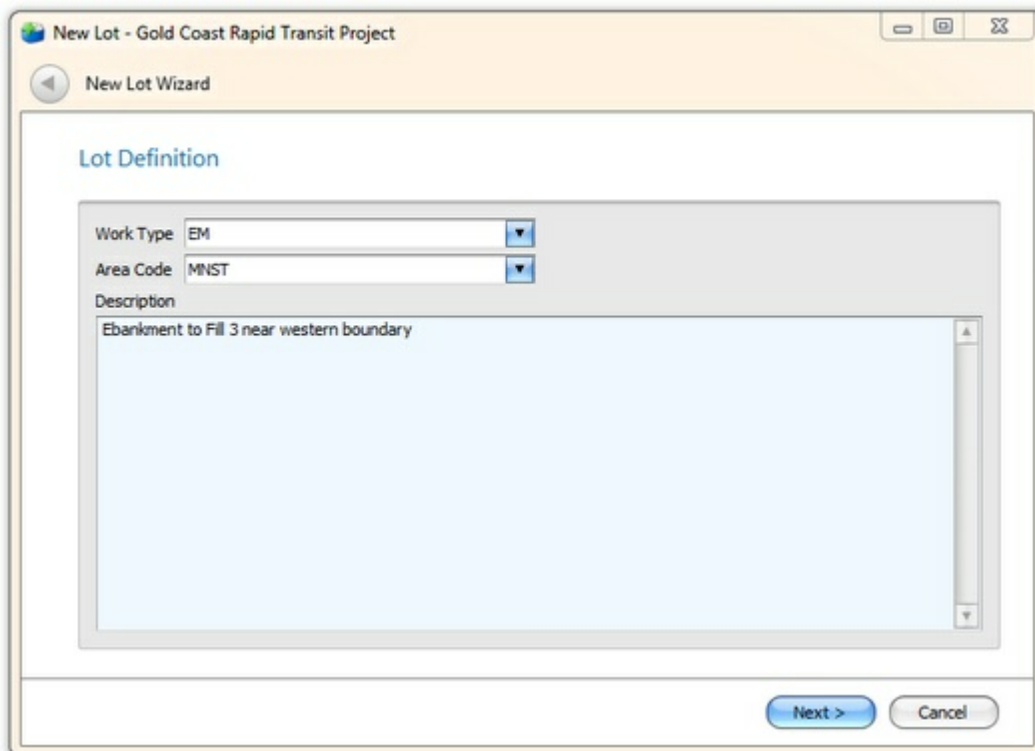
When you replace lots, you will be prompted as to whether you want to mark the lot as rejected. Rejected lots do not contribute to progress claims and are statused accordingly

5.2.7 New lot wizard

The new lot wizard simplifies the creation of a new lot by undertaking the task step by step. To access the new lot wizard, click on the New Lot button on the bottom of the [Lot Register](#).

TIP: Holding down the shift key while clicking on the new lot button will start the new lot wizard using the currently selected lot as a template. Alternatively you can use the New Lot (like selected) option from the context menu.

Step 1. Select an Area Code, Work Type and Description. The Description is compulsory.



The screenshot shows a software window titled "New Lot - Gold Coast Rapid Transit Project". Inside, there is a "New Lot Wizard" dialog box. The dialog has a "Lot Definition" section with three input fields: "Work Type" (set to "EM"), "Area Code" (set to "MNST"), and "Description" (containing the text "Ebankment to Fill 3 near western boundary"). At the bottom right of the dialog are two buttons: "Next >" and "Cancel".

Fig 1: New lot step 1 1 - work type, area code and description

Step 2. Enter the person raising the lot, the date the lot was opened and optionally the date that work started on the lot. Also specify if the level of testing is reduced.

Civil pro will recommend a lot number based on either the default lot number definition, or as in the case below, a [user defined lot number](#) definition. Most of the time this can be left as is.

In this step you also decide how the lot's position will be defined. Select from;

1. No Geometry - Sufficient information to describe the lot is contained in the description and no additional information is required
2. Chainage - The lot is defined by chainage / offset / RL
3. Coordinate Position - the lot contains features that identified by a series of coordinate positions x, y,z
4. Coordinate Region - the lot is a region bounded a series of points for which coordinates are provided as x,y,z

The screenshot shows a software window titled "New Lot - Gold Coast Rapid Transit Project". Inside, there's a "New Lot Wizard" section with a "Confirm Lot Details" heading. The form contains the following fields and options:

- Lot Number:** A text box containing "EMMNST001".
- Raised By:** A dropdown menu showing "Gascoigne, Dennis".
- Date Lot Opened:** A date picker showing "20/08/2011".
- Date Work Started:** An empty date picker.
- Level of Testing:** Two radio buttons, "Normal" (selected) and "Reduced".
- Geometry:** A group box containing four radio buttons: "No Geometry", "Chainage", "Coord. Position", and "Coord. Region" (selected).

At the bottom right, there are "Next >" and "Cancel" buttons.

Fig 2: New lot step 2

Step 3. (Not required for No Geometry)

1. No Geometry - Not Used
2. For chainage geometry enter the details of the lot geometry including the control line, chainage details and offsets (Fig 3a).
3. For coordinate position, enter the x,y,z coordinates for each feature (Fig 3b).
4. For each coordinate defining the region, enter its x,y,z (Fig 3b).

New Lot - Gold Coast Rapid Transit Project

New Lot Wizard

Lot Geometry - Control Line Type

Control Line: MC06

Start

Chainage: 11.000

Left Offset: -8.000

Right Offset: 7.500

End

Chainage: 400.000

Left Offset: -2.000

Right Offset: 17.000

Level Reference

Nom. Thickness (mm): 300.000

Base Level:

Top Level:

Next > Cancel

Fig 3a: New lot step 3

New Lot - Gold Coast Rapid Transit Project

New Lot Wizard

Lot Geometry - Coordinate Type

Control Line: GNRL

| X Coordinate | Y Coordinate | Z Coordinate |
|--------------|--------------|--------------|
| 898,245 | 1,244,455 | 5.7 |
| 898,201 | 1,244,765 | 7.9 |
| 898,754 | 1,244,998 | 6.4 |
| > 898,652 | 1,244,882 | 7.3 |

Next > Cancel

Fig 3b: New lot step 3

Step 4. Lot Calculations are performed and the results displayed on this page. If you want to used

different values to those automatically calculated, click on AVL override and enter the values you want.

New Lot - Gold Coast Rapid Transit Project

New Lot Wizard

Lot Calculations

☐ AVL Override?

Length (m) 0.000

Area (m2) 92,670.000

Volume (m3) 0.000

The lot calculations are performed using the lot geometry (incl. nominal lot thickness where relevant). These calculated values may be used in calculating required testing.

Where the lot calculations do not reflect the physical properties of the lot (i.e. step chainages, varying width etc.) they can be corrected by directly editing the information in the text fields.

Next > Cancel

Fig 4: New lot step 4

Step 5. The final page summarizes the information you have entered so you can confirm prior to committing the new record. If you are happy with the information, click on Finish. If at any point you want to revise your information, you can click on the back button in the top left corner.

New Lot - Gold Coast Rapid Transit Project

New Lot Wizard

Lot Information Complete.

You have completed the New Lot Wizard. Please review the information below and correct any problems before clicking finish to add the Lot to the Lot register.

Lot Number: EMMNST001
Work Type: EM
Area Code: MNST
Description: Ebankment to Fill 3 near western boundary
Raised By: Gascoigne, Dennis
Date Open: Saturday, 20 August 2011
Date Work Started:
Level of Testing: Normal
Length: 0
Area: 92670
Volume: 0

Geometry:
GNRL: General Project Works

Finish Cancel

Fig 5: New lot step 5

5.2.8 Lot checklists

A checklist is a list of items requiring verification during the execution of the work associated with a lot. Civil pro creates templates for checklists as part of the [Specification/Inspection Test Planning](#) process.

Lot checklists are customized copies of the template checklists. To create a new checklist for a lot;

- Double click the "checklists" heading in the [related items](#)
- Select one or more ITP/Checklist's and drag and drop onto the checklists heading in the [related items](#) list
- Your new checklist(s) will be added to the lot.

to view this, or any other checklist, double click on the checklist in the Related Items list. An example of a the checklist form that appears is shown in Fig 1.

Checklist - EPGNRL007: Embankment (Embankment bikeway MCN1 MCN1 - 0 to 120)

Lot ID: EPGNRL007 - Embankment bikeway MCN1
 ITP ID: ITP 11.04-08: Embankment
 Description: Embankment bikeway MCN1 MCN1 - 0 to 120

Geometry
 Length: 11,990
 Area: 2,398
 Volume: 0

Authorisation
 Checked By:
 Verified By:
 Approved By:
 Authorisation Date:
 Date Checked:
 Date Verified:
 Date Approved:

| HPWPC | ItemType | Description | Checked | Veri... | Approved | NCR | Comment |
|-------|------------|-------------|-------------------------------------|--------------------------|--------------------------|--------------------------|---------|
| I | Check Item | Quality | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | |
| | Check Item | Quality | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | |
| | Check Item | Quality | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | |
| | Check Item | Quality | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | |
| | Check Item | Quality | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | |
| | Check Item | Quality | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | |
| | Check Item | Quality | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | |
| | Check Item | Quality | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | |
| | Check Item | Quality | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | |
| | Check Item | Quality | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | |
| | Check Item | Quality | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | |
| | Check Item | Quality | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | |
| | Check Item | Quality | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | |
| | Check Item | Quality | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | |

Reports

Fig 1 Embankment Checklist for lot EPGNRL007

The checklist can be printed and manually completed in the field, or it can be completed electronically.

Check, Verification and Approval

Civil pro allows you to specify three different levels of inspection. For example, you may require that a field supervisor check some items, a site engineer verify others and that approval is required for key items (probably from the client). The inspection level of each line is defined when the template for the ITP is created. In Fig 1 all except 2 items require the supervisor to 'check' work, most require the engineer to verify (except rows 1,3,7 & 13) and the Client's approval is required for the 8th item.

Once the checklist is completed, you can complete the information recording who checked, verified and approved it and when (top right), or alternatively you can leave it blank and manage it all with printed hard copies.

5.2.9 Conformance reports

When a lot is completed and all of the data compiled, it is often necessary to create a printed report summarizing the lot. To create this "conformance report", select one or more lots and click on the "conformance report" button in the "reports" menu at the bottom of the lot register. You will be presented with a report similar to that shown in Fig 1. If you have more than one lot selected, they will all be compiled into a single document with a page break in between.

It is important to notice that there are two different tabs in the print preview header for the conformance report. The first (not shown) is the standard print preview menu - visible in Fig 1 of the [print preview](#) help topic. The second dictates what is included in the conformance report.

To include or remove information from a report, ensure it is checked/unchecked appropriately and click on the "update" button in the top right. If you click on the "make default" button, then your current options are recorded for when you print a conformance report in the future (for system or

project administrators only - project wide setting).

Report Viewer

Print Preview Select Output

☒ Work/Area
☒ Other Details
☒ Dates

☒ Geometry
☒ Notes

☐ Test Requests
☐ Test Results

☒ Quantities
☒ Variations

☒ NCRs
☒ ATPs

☐ Related Lots
☒ Photos

Update
 Make Default
 Commit

Conformance Report
 \$0/10A/\$14: Bruce Hwy Pavement Rehab
 Lot: EG00012

Lot: EG00012
Description: Road embankment fill Nover 1
Work Type: EG
Area: 0001

Other Details:
Raised By: Champion, Richard
Conformed By:
Testing Level: ☒ Normal ☐ Reduced

Key Dates:
Opened: 16 Aug 2009 **Closed:** 19 Aug 2009
Work St: 18 Aug 2009 **Work End:**
Guaranteed: **Conformed:** 25 Aug 2009

Geometry: **Control:** MC00: Bruce Highway Northbound
Chainage: **Left O/S:** **Right O/S:**
Start: 73439.0000 0.0000 0.0000
End: 73505.0000 0.0000 0.0000
Thickness: 0.0000 mm
Length: 66.0000 m
Area: 0.0000 m2
Volume: 0.0000 m3

Level 1: **Level 2:**

Notes:
Quantities:
Item: 1201.01 **Description:** Provision for traffic (MRS11.02 Jan 08) **Meas. Qty:** 0.0 **Eff. Qty:** 0.0 lump
NCRs:
ATPs:

Page 1 of 1 100%

Fig 1: Conformance report

5.2.10 Test schedules

If you assign a checklist to a lot, civil pro can use your checklist to create a test schedule. The test schedule is a list of the tests required for a lot's conformance and is created using any checklists assigned to a lot, and each lot's properties. Fig 1 shows the test schedule for a lot to which an embankment checklist is assigned.

All of the tests assigned to the checklist ITP are collated in the test schedule (refer to the [ITP register](#)). To calculate the number of tests required, the "qty for calc" column must be set by enabling editing and selecting an option from the list of different quantities. Fig 1 shows the test schedule prior to assignment and without test quantities. Fig 2 shows the same test schedule after assigning the quantity basis and calculating tests. To make it easier, you can select multiple rows with the same quantity basis and use the bulk assign show expanded in fig 1 below.

You will notice as you assign a quantity basis, the "calc tests" column is automatically updated with a required number of tests based on the assigned qty/freq, or the minimum no of tests, depending on which is greater. Once every line you will test has quantity basis assigned to it, you can use the "set no. of tests from calc" function from the context menu. This assigns the actual planned number of tests (in the "no. tests" column) using the "calc tests" theoretical value. If you need to vary the number of planned tests from that calculated, simply enable editing and change it as has been done for Q110A in Fig 2.

Or sets and optional tests

You will also notice that Q111A is coloured green. This is because it is part of an "or set". An or set is created when there are two different options for testing - this may be the case when you can use a nuclear densometer OR a sand replacement test to measure density. The default member of the or set will be shown when you first display the test schedule. To change which member of the or set is selected, double click the row and all options will be visible, double click the test you want to use and the others will disappear. You can make and undo or sets using the context menu - this is the same as described in the [ITP](#) help topic.

Tests can also be marked optional. Optional tests are coloured grey/blue (there are none of these in Fig 1, but Q113A is assigned as optional in Fig 2). Tests can be marked/unmarked using the options in the right click context menu.

Any changes to an or set or optional test are not reflected in the master ITP definitions.

Reports

Your test schedule can either be printed as its own report, or you can simply use the [checklist](#) which will be update to display the number of tests you have assigned for each test.

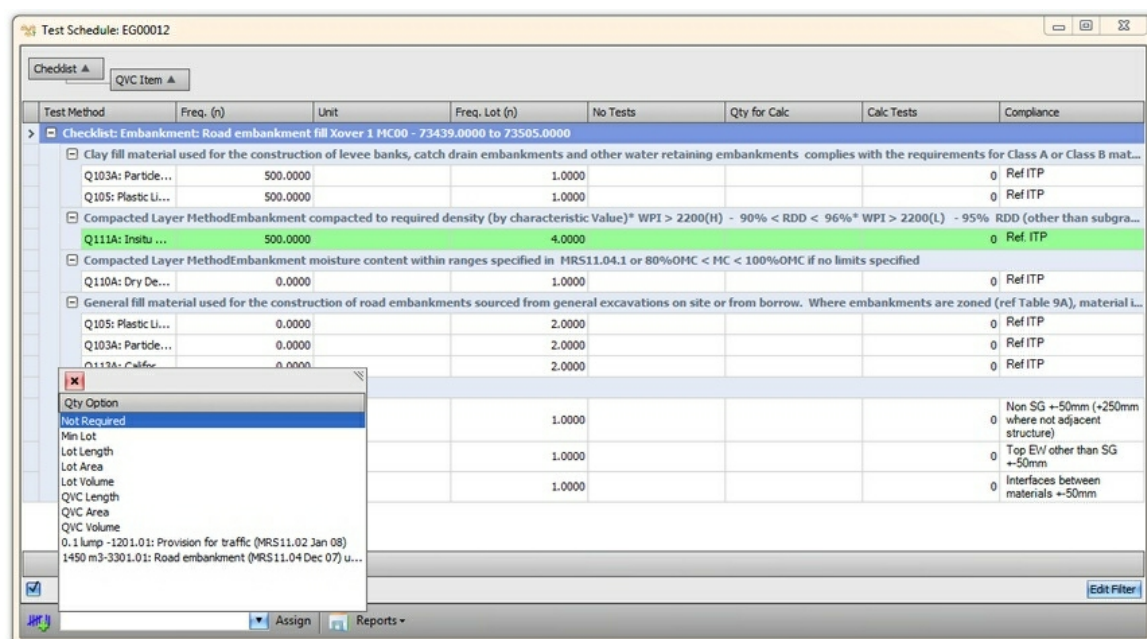


Fig 1 - A test schedule prior to assignment of qty basis for calculating required tests. The available options for quantities are shown in the pop up (bottom left)

| Test Method | Freq. (n) | Unit | Freq. Lot (n) | No Tests | Qty for Calc | Calc Tests | Compliance |
|--|-----------|------|---------------|----------|--------------------------|------------|--|
| Checklist: Embankment: Road embankment fill Xover 1 MC00 - 73439.0000 to 73505.0000 | | | | | | | |
| Clay fill material used for the construction of levee banks, catch drain embankments and other water retaining embankments complies with the requirements for Class A or Clas... | | | | | | | |
| Q103A: Partid... | 500.0000 | | 1.0000 | 3 | 1450 m3-330 1.01: Roa... | 3 | Ref ITP |
| Q105: Plastic L... | 500.0000 | | 1.0000 | 3 | 1450 m3-330 1.01: Roa... | 3 | Ref ITP |
| Compacted Layer MethodEmbankment compacted to required density (by characteristic Value)* WPI > 2200(H) - 90% < RDD < 96%* WPI > 2200(L) - 95% RDD (other than ... | | | | | | | |
| Q111A: Insitu ... | 500.0000 | | 4.0000 | 4 | 1450 m3-330 1.01: Roa... | 4 | Ref ITP |
| Compacted Layer MethodEmbankment moisture content within ranges specified in MRS11.04.1 or 80%OMC < MC < 100%OMC if no limits specified | | | | | | | |
| Q110A: Dry D... | 0.0000 | | 1.0000 | 2 | Min Lot | 1 | Ref ITP |
| General fill material used for the construction of road embankments sourced from general excavations on site or from borrow. Where embankments are zoned (ref Table 9A), m... | | | | | | | |
| Q105: Plastic L... | 0.0000 | | 2.0000 | 2 | Min Lot | 2 | Ref ITP |
| Q103A: Partid... | 0.0000 | | 2.0000 | 2 | Min Lot | 2 | Ref ITP |
| Q113A: Califor... | 0.0000 | | 2.0000 | 2 | Min Lot | 2 | Ref ITP |
| Geometric Tolerances | | | | | | | |
| Hor. Level: De... | 50.0000 | | 1.0000 | 2 | Lot Length | 2 | Non SG +50mm (+250mm where not adjacent structure) |
| Vert. Level: D... | 50.0000 | | 1.0000 | 2 | Lot Length | 2 | Top E/W other than SG +50mm |
| Vert. Level: D... | 50.0000 | | 1.0000 | 2 | Lot Length | 2 | Interfaces between materials +50mm |

Fig 2 - The test schedule after assigning qty basis and setting the no. tests. Note the new optional test Q113A

5.3 Non conformance

The non conformance report register (NCR register) is used to record products or processes that are not completed in accordance with the project specifications. Recording non-conformances, how the non-conformances are resolved and methods for preventing reoccurrence are central to any project and indeed any business.

The NCR register is accessed from the [main menu](#) and consists of the main grid, related items panel and detail panel. Changing the selected item in the grid will change the list of related items and the record shown in the detail pane (if visible). To see the NCR detail page (hidden by default) double click on an NCR or select the "show NCR detail" option from the [context menu](#) (right click the grid).

New NCRs are created using the NCR wizard - accessed from the "New NCR" button in the bottom left of the page.

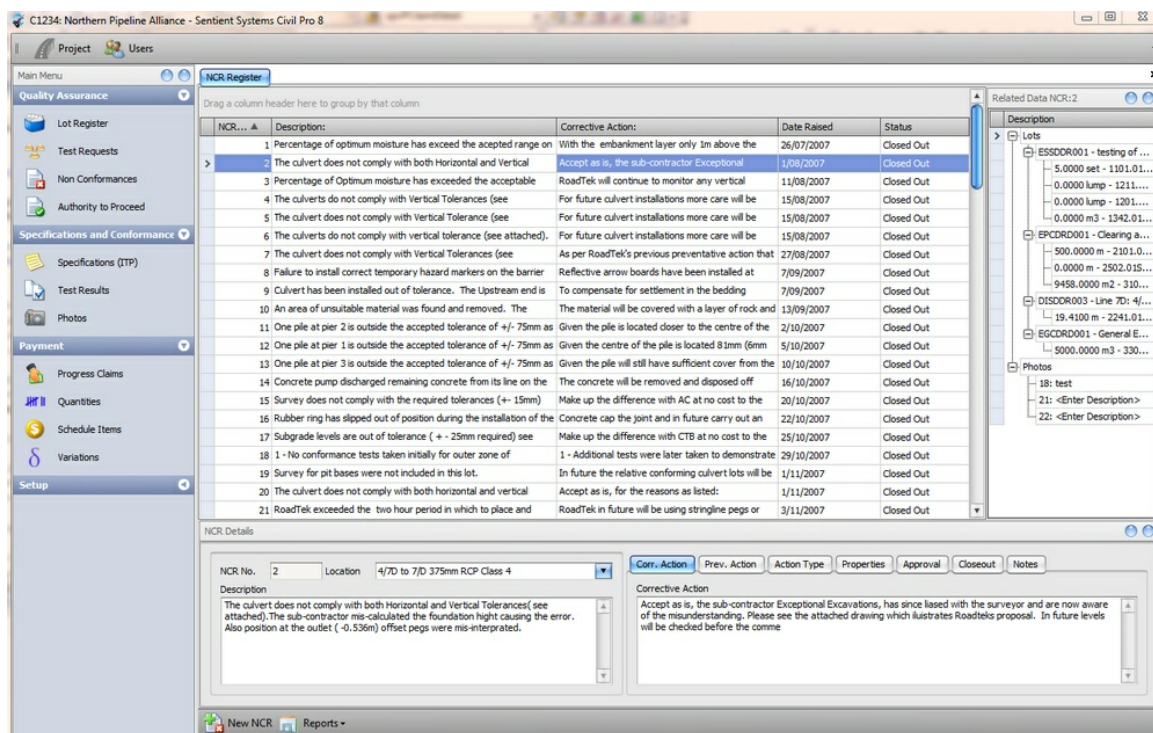


Fig 1. The Non Conformance Report Register

NCR records

A NCR record consists of;

- A description of the issue
- How it will be fixed or otherwise managed
- What lots this affects
- Approvals
- Close out

The full list of information that can be recorded against an NCR is;

| | |
|---------------------|--|
| NCR No. * | A sequential number for each project - generated automatically by civil pro |
| Description * | A description of the non-conformance |
| Location | Where the non-conformance is located |
| Corrective action | How will the non-conformance be resolved? |
| Preventative action | What steps will be taken to prevent reoccurrence? |
| Action type | An item in the preset list of the course of action adopted - includes retest, reject, repair/rectify, use as is, replace/reconstruct or other (refer to disposition) |
| Raised by * | The person who identified the NCR |
| Date raised * | The date the NCR was raised |
| Related parties | Any third parties associate with the NCR - i.e. subcontractors or suppliers |
| 3rd party | Is third party approval - say by the client - required |

| | |
|------------------|---|
| approval req'd | |
| Severity | How severe is the NCR - is it only incidental or is its impact only minor, or is it major. |
| Approved by | Who has approved the disposition and agreed that the proposed actions will resolve the non-conformance |
| Date approved | The date approval was granted |
| Approval remarks | Any comments or conditions relating to the approval |
| Closed out by | Who has checked that the steps outlined in the disposition were completed |
| Date closed out | When was successful completion of actions for this NCR verified |
| Closeout remarks | Any comments on the Close Out process |
| Root Cause | What was the key contributor to the NCR. By default the options are Not Specified, Personnel or Training, Materials, Methods or Process, Machinery or Plant, Environmental or Conditions but can be customized by setting the appropriate constant |
| NCR Cost | The cost of rectifying the NCR. These differ from the fields visible in the grid under the Values view (refer below) which show the value of work attributed to lots linked to the NCR. The cost is not displayed on the NCR. |
| Notes | Any general text relating to this NCR |

Views

There are different columns you may want to see in the register to those presented by default. Civil pro allows you to easily change between a set of pre-defined view using options in the grid context menu. The available views are;

| | |
|----------------|---|
| Standard | Displays the default register - NCR number, description, disposition, date raised and status |
| Values | Shows the standard view with additional columns for lot value and lot reduced payment value |
| Approval | Shows the NCR no, description, approval remarks, approved by, date approved and status columns |
| Close out | Shows the NCR no, description, close out remarks, closed out by, date closed out and status columns |
| Classification | Shows the NCR no, description, severity and action type |

Additional Properties

Civil pro also calculates some additional properties from the NCR's properties and related items. These properties can be shown in the grid (and therefore a printed report) by selecting the [value view](#) from the context menu or by accessing the grid header context menu (right click on the grey column headers) and selecting the "Column chooser". Additional properties are;

| | |
|-----------------------|---|
| Lot value | The value of lots associated with this NCR |
| Reduced payment value | The value of reduced payments applied to a lot. |

Additional Properties

The NCR register can be filtered by lot by selecting a lot from the drop down list present in the NCR

[grid context menu](#).

5.3.1 NCR detail

The NCR detail panel (shown in Fig 1.) is displayed at the bottom of the NCR register. It is hidden by default but can be shown by double clicking any NCR record or selecting the "show NCR details" option from the [grid context menu](#). To create more real estate to view the grid, simply close or hide the detail panel using the blue buttons in the top right. When the mouse is over the buttons, the right one will show a cross - click to close, the left one will show a pin - clicking it toggles between auto-hide and fixed positioning.

Fig 1 NCR Detail panel

The NCR detail page shows all of the available information for a single record and changes as you navigate to different NCRs in the register. The form is editable by default, except for the NCR number. The NCR number can only be edited after selecting 'edit NCR number' from the [detail panel context menu](#).

The right hand side of the detail panel displays groups of information depending on the selected tab (corrective action, preventative action, action type, approval, closeout and notes).

For more information on the information stored for each NCR, refer to the [NCR register](#).

5.3.2 Related items

The related items panel allows users to quickly see information associated with an NCR (lots and photos). When you move between NCRs in the NCR register, the related items list will show the lots and photos linked to the NCR.

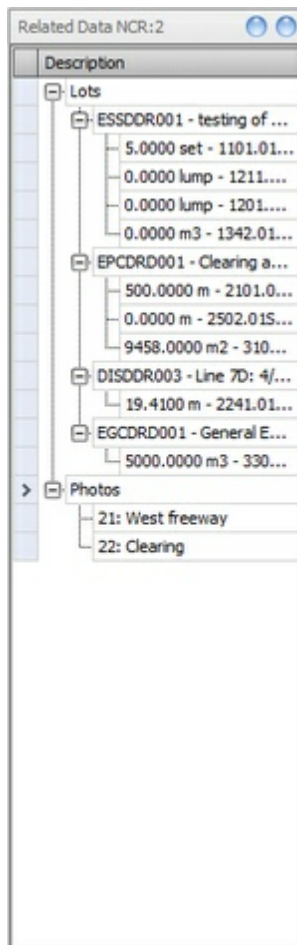


Fig 1. The NCR related items

To add a new link between a lot and an NCR, double click the lots heading in the related items list - A list of lots will pop up. Select the lot(s) you want to add and drag them onto the related items list. To see the detail of a lot, double click it and the lot register will open displaying the clicked lot. To delete a relationship, select it and click delete. This and similar mechanisms in the lot register are the only way to create associations between NCRs and lots after the NCR has been created.

The related photos list shows any photographs stored in civil pro that are related to the NCR. To associate them, follow the same procedure as for adding a lot to the NCR, but double click on the photo heading instead.

5.3.3 New NCR

The new NCR wizard simplifies the creation of a new NCR by undertaking the task step by step. To access the new NCR wizard, click on the "new NCR" button on the bottom of the [NCR register](#). For information on what information is required in each of the fields (description, disposition, date NCR raised etc.) refer to the [NCR register](#) section.

Step 1: Enter basic NCR information including the description and disposition. Change the date raised if required. Civil pro will assign the next available NCR no.

New NCR - Northern Pipeline Alliance

NCR Definition

NCR Definition

| | | | |
|-----------------|---|-----------------|------------|
| NCR No. | 93 | Date NCR Raised | 30/05/2010 |
| Location of NCR | 4/7D to 7/D 375mm RCP Class 4 | | |
| Description | The culvert does not comply with both Horizontal and Vertical Tolerances(see attached).The sub-contractor mis-calculated the foundation hight causing the error. Also position at the outlet (-0.536m) offset pegs were mis-interpreted. | | |
| Disposition | Accept as is, the sub-contractor Exceptional Excavations, has since liased with the surveyor and are now aware of the misunderstanding. Please see the attached drawing which illustrates Roadteks proposal. In future levels will be checked before commencement | | |

Next > Cancel

Fig 1. New NCR wizard page 1 - basic NCR information

Step 2: Adjust the NCR categorization as required - severity, action type and approval requirements, who raised the NCR and any related parties such as subcontractors or suppliers.

New NCR - Northern Pipeline Alliance

NCR Definition

NCR Properties

Raised By: Administrator, System

Related Parties:

Action Type:

- ☐ Retest
- ☐ Repair/Rectify
- ☐ Replace/Reconstruct
- ☒ Reject
- ☐ Use As Is
- ☐ Other (refer to disposition)

Severity:

- ☐ Incidental
- ☒ Minor
- ☐ Major

3rd Party Approval?

- ☒ No
- ☐ Yes

Next > Cancel

Fig 2. New NCR wizard page 2 - NCR categorization

Step 3: Select lots related to your NCR. Press the tab key to assign the lot and add more if you require.

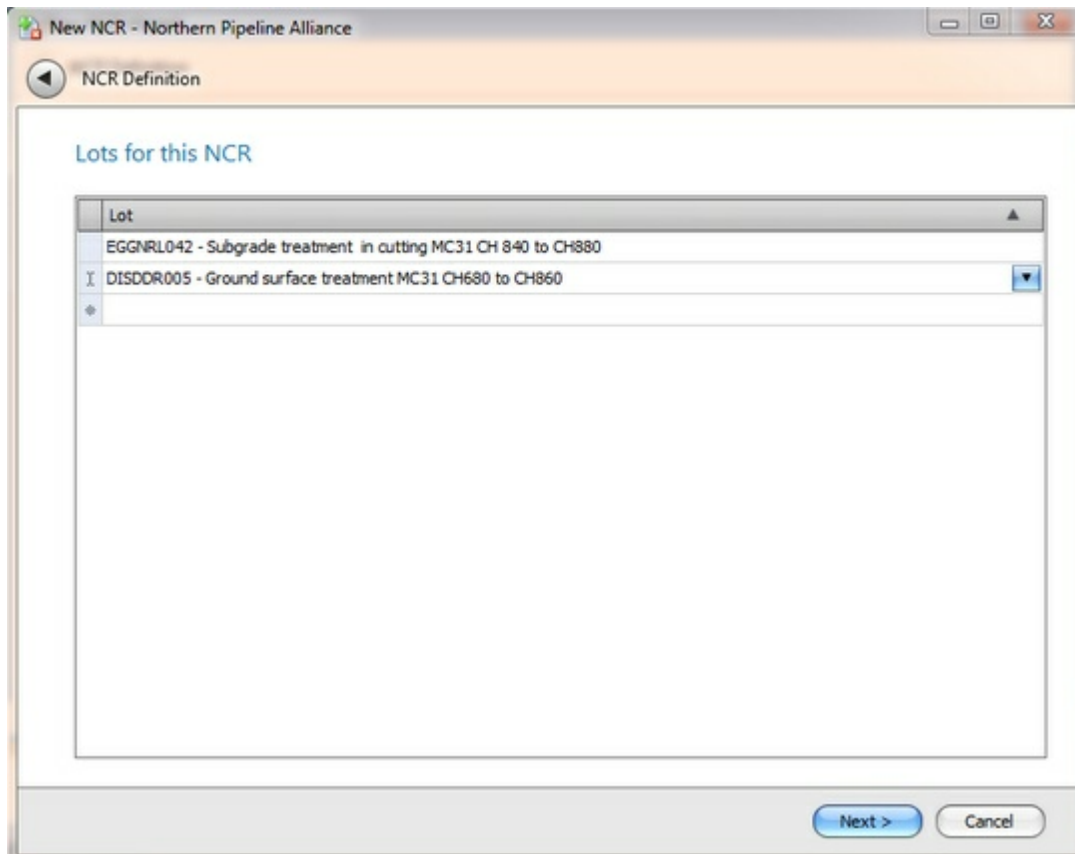


Fig 3. New NCR wizard page 3 - lots associated with this NCR

Step 4: Review the summary of the information civil pro has collected for your NCR and click "finish" if it is OK. To correct information go back through the wizard by clicking the back arrow in the top left of the wizard.

New NCR - Northern Pipeline Alliance

NCR Definition

Completing the wizard

You have completed the New NCR Wizard. Please review the information below and correct any problems before clicking finish to add the NCR to the NCR register.

NCR Number: 93
Date Raised: Sunday, 30 May 2010
Location: 4/7D to 7/7D 375mm RCP Class 4
Description: The culvert does not comply with both Horizontal and Vertical Tolerances(see attached).The sub-contractor mis-calculated the foundation hight causing the error. Also position at the outlet (-0.536m) offset pegs were mis-interpreted.
Disposition: Accept as is, the sub-contractor Exceptional Excavations, has since liased with the surveyor and are now aware of the misunderstanding. Please see the attached drawing which iluistrates Roadteks proposal. In future levels will be checked before commencement
Raised By: Administrator, System
Project: Northern Pipeline Alliance
Related Parties:
3rd Party Appr. Req'd: No
Severity: Minor
Action Type: Reject

Lots:
DISDDR005 - Ground surface treatment MC31 CH680 to CH860
EGGNRL042 - Subgrade treatment in cutting MC31 CH 840 to CH880

Finish Cancel

Fig 4. New NCR wizard page 4 - summary

5.3.4 NCR Reports

NCR reports are hard copies of an NCR, generally generated in the approval process. To print reports for one or more NCRs, select the required NCRs in the [NCR register](#) and click the NCR Report button in the Reports menu at the bottom of the register.

The report will appear similar to that shown below in figure 1. Note the menu at the top of the page for indicating whether any attached photos are included, and whether the closeout sign off is shown. This is the second tab in the ribbon at the top of the report and not the tab shown by default (normally you will see the standard report preview toolbar). Change options and select "Update" to refresh the report. Press Make Default to make these options the standard view (sets for project wide - must be sysadmin or project admin)

The screenshot shows a 'Report Viewer' window with a tab for 'NCR Options'. The form contains the following sections:

- Print Preview** and **NCR Options** tabs at the top.
- Checkboxes for **Show related photos** (checked) and **Show closeout** (unchecked).
- Buttons for **Update**, **Make Default**, **Commit**, and **rpgOptions**.
- Location:** ACARAV004 DG14 Wearing Coarse Armrick Ave
- Severity:** Radio buttons for **Incidental**, **Minor** (selected), and **Major**.
- Action:** Radio buttons for **Retest**, **Repair/Rectify** (selected), **Replace/Reconstruct**, **Reject**, **Use As Is**, and **Other (refer to disposition)**.
- Description of Non Conformance:** Text field containing 'End of final pipe in drain line 2A was damaged by and excavator when installing headwall'.
- Corrective Action:** Text field containing 'Replace final pipe'.
- Preventative Action:** Text field containing 'Expose end of pipe by hand prior to machine work'.
- Approval Section:** Includes fields for **Raised By - Signature**, **Internally Approved (sign.)**, **Print Name and Date**, and **Approval Comments**.
- Approval Status:** Checkboxes for **NCR Approved** and **NCR Not Approved**.
- Photos:** Two photos are displayed: 'Excavator working near pipe' (labeled 2) and 'Damaged RCP' (labeled 5).
- Page Footer:** 'Page 1 of 1' and a zoom level of '85%'.

Figure 1 - NCR Report with print options shown

5.4 Authority to proceed

The authority to proceed register (ATP register) is used to record requests to third parties for inspections and approvals - generally in accordance with contract requirements. As well as providing a platform for formalizing the approval process, it also provides a way of proving the timing of requests which can be important when notification periods are required (and enforced) by the client. If your project is proceeding in a cooperative manner then this functionality of civil pro may not be required.

The ATP register is accessed from the [main menu](#) and consists of the main grid, related items panel and detail panel. New ATPs are created using the ATP wizard - accessed from the "new ATP"

button in the bottom left of the page. Changing the selected item in the ATP register will change the list of related items and the information in the detail panel. To see the ATP detail page (hidden by default) double click on an ATP or select the "show ATP detail" option from the [context menu](#) (right click the grid).

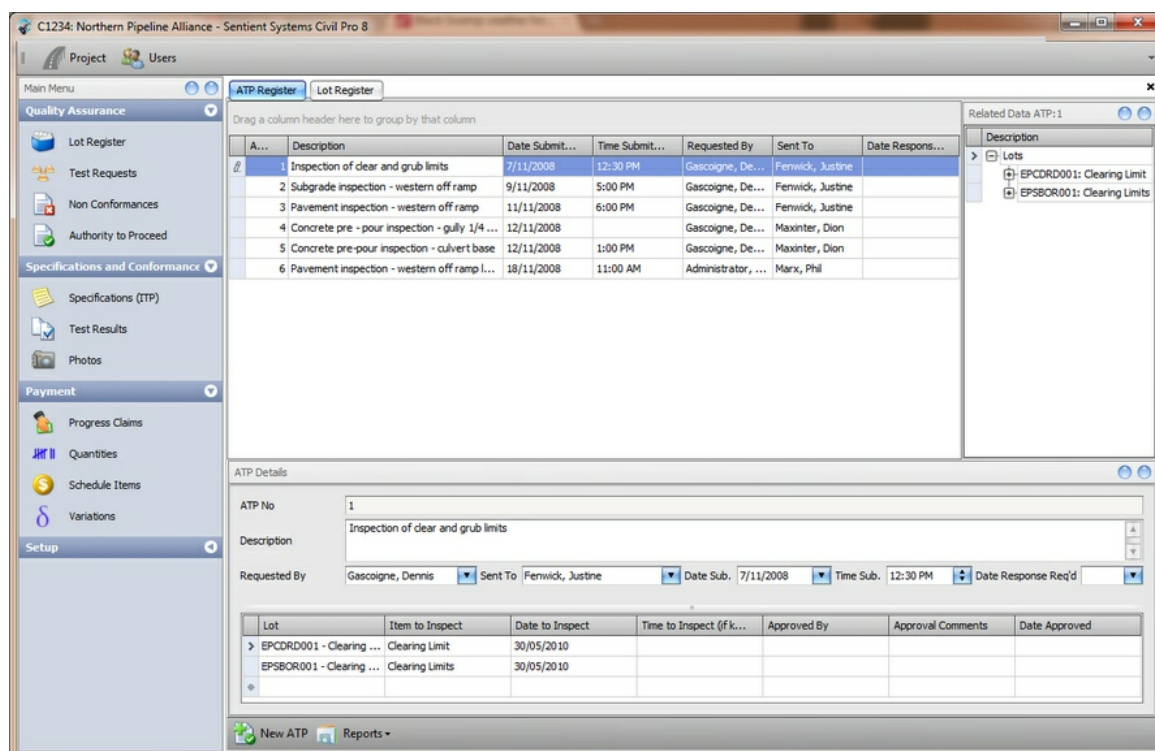


Fig 1. The authority to proceed register

ATP records

The full list of information that can be recorded against an ATP is;

| | |
|---------------------------|---|
| ATP no. * | A sequential number for each project - generated automatically by civil pro |
| Description * | A description of the individual items to inspect |
| Date submitted * | The date the ATP was submitted |
| Time submitted | The time the ATP was submitted |
| Requested by * | The person creating the ATP |
| Sent to * | The person to whom the ATP is addressed |
| Date response required | The date a response to the ATP with approval or otherwise is expected. |
| Inspection Details | |
| Lot | The lots to be inspected |
| Item to inspect | The detail of what is to be inspected for the lot (a brief description) |
| Date to inspect | The date the item will be ready for inspection |

| | |
|-------------------|---|
| Time to inspect | The time the item will be ready for inspection |
| Approved by | The person approving the item |
| Approval comments | Any comments or conditions relating to the approval |
| Date approved | The date the inspection item was approved |

Views

There is only one view for the ATPs - the standard view which is the default view when the form is opened. You can use this context menu option to return the grid to its default state after you make changes.

5.4.1 ATP detail

The ATP detail panel (shown in Fig 1.) is displayed at the bottom of the ATP register. It is hidden by default but can be shown by double clicking any ATP record or selecting the "show ATP details" option from the [grid context menu](#). To create more real estate to view the grid, simply close or hide the detail panel using the blue buttons in the top right. When the mouse is over the buttons, the right one will show a cross - click to close, the left one will show a pin - clicking it toggles between auto-hide and fixed positioning.

Fig 1 ATP Detail panel

The ATP detail page shows all of the available information for a single record and changes as you navigate to a different ATP in the register. The form is editable by default, except for the ATP number. The ATP number can only be edited after selecting 'edit ATP number' from the [detail panel context menu](#).

As well as the main part of the form (ATP no, description etc.) there is a list of lot inspection items. Each line represents a lot and an item to inspect on that lot. To add a new entry, enter information into the blank line at the bottom of the ATP.

For more information on the information stored for each ATP, refer to the [ATP register](#).

5.4.2 Related items

The related items panel allows users to quickly see the inspection items recorded against each ATP. Each item under the "lots" heading reflects one of the lots for which an inspection was requested when the ATP was created (or added after). To the right of the lot number is the description of the Item to inspect. Under each lot is a list of the quantities for the lot.

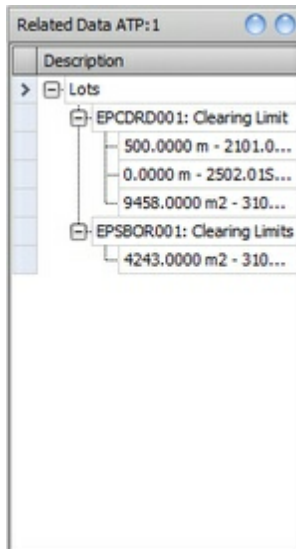


Fig 1. The ATP related items

To add a new inspection item to an existing ATP, double click the Lots heading in the related items list - A list of lots will pop up. Select the lot(s) you want to add and drag them onto the related items list. To see the detail of a lot, double click it and the lot register will open displaying the clicked lot. To delete a relationship, select it and click delete.

After adding an inspection item by drag and drop, a new line will be added to the Inspection Items on the ATP with the Item to Inspect field set as "TBA" - this should be edited and the date to inspect / time to inspect field checked. You can also add new lot inspection lines through the [ATP detail](#) page.

5.4.3 New ATP

The new ATP wizard simplifies the creation of a new ATP by undertaking the task step by step. To access the new ATP wizard, click on the "new ATP" button on the bottom of the [ATP register](#). For information on what each of the fields is for (description, raised by, date submitted etc. refer to the [ATP register](#) section.

Step 1: Enter basic ATP information including the description of the ATP, who raised it and who it is addressed to. Civil pro will assign the next available ATP No. The description may be anything from an outline of the inspection items to a specification reference or even a date reference like "Week ending May 28th".

ATP Definition

ATP No. * 7 Date Sub. * 7/11/2008 Time Sub. 12:30 PM

Raised By: * Gascoigne, Dennis ATP To *: Fenwick, Justine

Description *

Inspection of clear and grub limits

Next > Cancel

Fig 1. New ATP wizard page 1 - basic ATP information

Step 2: Select the lots you want to have inspected, a description of what is to be inspected, the date for inspection and optionally the time to inspect.

Lots for this ATP

| Lot | Item Inspected | Date | Time |
|----------------------------------|----------------|------------|------|
| EPCDRD004 - Ground surface... | Clearing Limit | 31/05/2010 | |
| > EPSBOR001 - Clearing and gr... | Clearing Limit | 31/05/2010 | |

Next > Cancel

Fig 2. New ATP wizard page 2 - lots for the ATP

Step 3: Review the summary of the information civil pro has collected for your ATP and click Finish if it is OK. To correct information go back through the wizard by clicking the back arrow in the top left of the wizard.

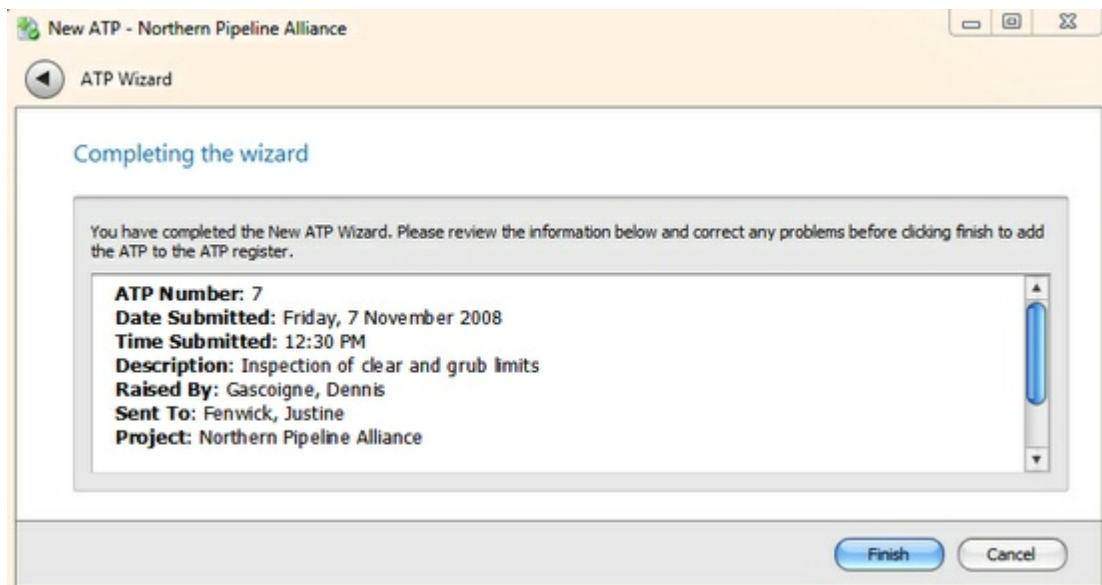


Fig 3. New ATP wizard page 3 - The ATP summary

5.5 Test requests

The test request register (TR register) is used to track any testing associated with each lot, and to communicate this testing to testing authorities and the client.

The test request register is accessed from the [main menu](#) and consists of the main grid, related items panel and detail panel. New TRs are created using the test request wizard - accessed from the new test request button in the bottom left of the page. Changing the selected item in the TR register will change the list of related items. To see the TR detail page (hidden by default) double click on a TR or select the show TR detail option from the [context menu](#) (right click the grid).

Fig 1. Test request register

Test Request Records

The full list of information that can be recorded against an TR is;

| | |
|-------------------------------|---|
| TR no. * | A sequential number for each project - generated automatically by civil pro |
| Description * | A description of the tests being requested |
| Date requested * | The date the test request was requested |
| Date required | The date that testing is required |
| Lot no * | The lot being tested |
| Requested by * | The person requesting the Test Request |
| Test req. to | The person to whom the Test Request is addressed |
| Test reason | Either control or compliance. Control tests are generally considered to be internal quality management tests, while compliance tests are performed on work that has been through standard processes and is thought to be compliant. |
| Geometry | |
| Control line * | The control line to which the chainage and offsets refer |
| Chainage start / Chainage end | The longitudinal reference of distance along the control line where the work to be tested begins / ends |
| Start left OS / start | The lateral distance from the control line to each edge of the test area |

| | |
|----------------------------|---|
| right OS | at the start chainage. When facing direct of increasing chainage, a distance left of the control line is negative, while right is positive. |
| End left OS / right end OS | The lateral distance from the control line to each edge of the test area at the end chainage. When facing direct of increasing chainage, a distance left of the control line is negative, while right is positive |
| Depth to test | If the test is of a layer of material or similar work where the depth is relevant, this field the depth in mm of the material being tested |
| Level datum | A vertical reference for the test - can be a landmark or an actual survey level |
| Options | |
| Source | The source of the material being tested |
| Test complete? | A tag to indicate if the testing under this test request has been completed |
| Test locations | Specifies how the location of tests is to be determined. Either "tester locates" (no locations specified) / "location specified" (the test locations are explicitly assigned as part of the test request) or "random stratified testing" (random locations are assigned to each requested test in accordance with standard random stratified sampling techniques) |
| Test length | The length of the region being tested |
| Test area | The area of the region being tested |
| Test volume | The volume of the region being tested |
| Notes | Any notes about the tests being requested |

Test Completion Wizard

In the context menu of the test request, there is a function to run the Test Completion Wizard. This function checks every test requested for all of the currently selected test requests (Ctrl + A to select all TRs) and marks each test as complete if it has test results recorded against it. It subsequently marks the test request itself complete if all of its tests are marked as complete.

If you have manually changed the status of a test request or test to "Complete", it will not be changed by running this function.

Views

There is only one view for the test requests - the standard view which is the default view when the form is opened. You can use this context menu option to return the grid to its default state after you make changes.

Tests

When a test request is raised, a series of tests are specified. These tests are listed against each test request with the [test method](#) and optionally additional information including the [schedule item](#) of the work being tested, the [control line](#), and a location in 3 dimensions. Refer to the section on [test request tests](#).

Test Properties

Test requests can have additional [test properties](#) assigned to them. For example, when you create a test request for a concrete pour, you may want to add the same additional information for each request - in Fig 1, adding the group 25MPa concrete would add properties of concrete class, number

of batches, target slump, cement type etc. to the test request. These can be added individually or from a predefined list of [test property groups](#).

5.5.1 Test request detail

The test request detail panel (shown in Fig 1.) is displayed at the bottom of the test request register. It is hidden by default but can be shown by double clicking any test request record or selecting the "show test request details" option from the [grid context menu](#). To create more real estate to view the grid, simply close or hide the detail panel using the blue buttons in the top right. When the mouse is over the buttons, the right one will show a cross - click to close, the left one will show a pin - clicking it toggles between auto-hide and fixed positioning.

Fig 1 Test request detail panel

The TR detail page shows all of the available information for a single record and changes as you navigate to different test requests in the register. The form is editable by default, except for the TR number. The TR number can only be edited after selecting 'edit TR number' from the [detail panel context menu](#).

Test request length, area and volume

In the "options" tab, (Fig 1) the values for lot length, area and volume are displayed. These are calculated automatically and will be updated whenever you change the geometry. If the calculated values do not reflect the actual values for the test request due to an irregular shape not captured by the lot definition, you can overwrite them. This will prevent the values being calculated automatically unless you reverse the manual assignment. To manually override the AVL (area, volume, length) select AVL override from the [detail panel context menu](#).

For more information on the information stored for each TR, refer to the [TR register](#).

5.5.2 Test request tests

Each [test request](#) has a list of tests associated with it. This list of tests is initialized when the [test request](#) is created (using the [new test request wizard](#)) and can be viewed in the related items panel or in the test request tests panel. The test request tests panel is accessed from the test request grid context menu - accessed by right clicking on the test request grid.

Test Request Register

Drag a column header here to group by that column

| Test... | Description | Lot | Date Requ... | Control Line | Ch Start | Ch End | Test Compl... |
|---------|---|--------------|--------------|--------------|----------|--------|-------------------------------------|
| 24 | Temporary Works Insitu Stabilised Pavement San... | PIGHWS00... | 30/11/2011 | MCAO | 5,162 | 9,010 | <input checked="" type="checkbox"/> |
| 25 | Temporary Works Insitu Stabilised Pavement San... | PIGHWS00... | 30/11/2011 | MCAO | 9,260 | 11,420 | <input checked="" type="checkbox"/> |
| 26 | Temporary Works Insitu Stabilised Pavement San... | PIGHWS00... | 30/11/2011 | MCAO | 16,148 | 18,900 | <input checked="" type="checkbox"/> |
| 27 | Temporary Works Stage 1 unbound pavement ty... | PUST01001... | 2/12/2011 | MCAO | 4,400 | 4,540 | <input checked="" type="checkbox"/> |
| 28 | Temporary Works Stage 1 Insitu Stabilised Pave... | PIST01001... | 3/12/2011 | MCAO | 4,350 | 4,570 | <input checked="" type="checkbox"/> |
| 29 | Stage 1 CBR and Sand Replacement for Tyned M... | ESST01001... | 13/12/2011 | MCAO | 4,350 | 5,100 | <input checked="" type="checkbox"/> |
| 30 | Stage 4 LHS Subgrade Sand Replacement | ESST04001... | 10/01/2012 | MCAO | 14,350 | 14,820 | <input checked="" type="checkbox"/> |
| 31 | Stage 4 LHS Subgrade Sand Replacement | ESST04001... | 11/01/2012 | MCAO | 14,820 | 15,200 | <input checked="" type="checkbox"/> |
| 32 | Stage 4 LHS Subgrade Material Properties | ESST04001... | 12/01/2012 | MCAO | 14,450 | 15,200 | <input checked="" type="checkbox"/> |
| 33 | Stage 4 LHS Subgrade Material Properties | ESST04002... | 12/01/2012 | MCAO | 15,200 | 15,705 | <input checked="" type="checkbox"/> |
| 34 | Stage 4 RHS Subgrade Sand Replacement and M... | ESST04004... | 12/01/2012 | MCAO | 14,350 | 15,200 | <input type="checkbox"/> |
| 35 | Stage 4 RHS Subgrade Sand Replacement and M... | ESST04005... | 12/01/2012 | MCAO | 15,200 | 15,500 | <input checked="" type="checkbox"/> |
| 36 | Stage 1 LHS Subgrade Embankment Sand Replac... | EGST01002... | 12/01/2012 | MCAO | 4,950 | 5,550 | <input checked="" type="checkbox"/> |
| 37 | Stage 1 LHS Subgrade Embankment Sand Replac... | EGST01001... | 13/01/2012 | MCAO | 4,350 | 4,950 | <input checked="" type="checkbox"/> |
| 38 | Stage 1 RHS Subgrade Embankment Sand Replac... | EGST01003... | 13/01/2012 | MCAO | 4,350 | 4,950 | <input checked="" type="checkbox"/> |
| 39 | Stage 1 RHS Subgrade Embankment Sand Replac... | EGST01004... | 13/01/2012 | MCAO | 4,950 | 5,550 | <input checked="" type="checkbox"/> |
| 40 | Stage 4 LHS CTB Density Testing | ESST04002... | 13/01/2012 | MCAO | 15,500 | 15,705 | <input type="checkbox"/> |
| 41 | Stage 4 LHS CTB Density Testing | ESST04003... | 13/01/2012 | MCAO | 15,705 | 16,210 | <input checked="" type="checkbox"/> |
| 42 | Stage 4 RHS Subgrade Sand Replacement | ESST04005... | 13/01/2012 | MCAO | 15,500 | 15,705 | <input type="checkbox"/> |

276 Re...

Related Data TR:29

Description

- Tests
 - 1 x Q110A: Dry Density...
 - 1 x Q113A: California Be...
- Properties
 - Q110A: >= 97% RDD
 - Q113A: >= 7 CBR
- Documents
 - CBR Test Results

Tests

Drag a column header here to group by that column

| Test Method | Schedule Item | Control Line | Xref (Ch) | Yref (OS) | Zref (RL) | Test Complete? | Sample ID |
|----------------------------|---------------|--------------|-----------|-----------|-----------|-------------------------------------|-----------|
| Q110A: Dry Density-Mo... | | MCAO | 0.0000 | 0.0000 | 0.0000 | <input checked="" type="checkbox"/> | 29-1 |
| Q113A: California Beari... | | MCAO | 0.0000 | 0.0000 | 0.0000 | <input type="checkbox"/> | 29-2 |

New Test Request Reports

Fig 1 Test Request Register showing the Test Request Test panel (bottom)

Each test request test records as a minimum the test method for the test. Optionally the [schedule item](#), [control line](#), 3 dimensional location and individual test completion status are recorded. The sample no. is generated by civil pro and can be changed.

The test method is essential for each test for two reasons. The most obvious one is because it dictates to the tester what test to perform, but it also tells civil pro what [result fields](#) will be needed if you record the [test results](#) in the system.

5.5.3 Test properties

Each test request can have a list of properties associated with it. This list can be viewed in the related items panel or in the [test properties](#) panel. The [test properties](#) panel is accessed from the test request grid context menu - accessed by right clicking on the [test request](#) grid.

Test Request Register

Drag a column header here to group by that column

| Test... | Description | Lot | Date Re... | Control ... | Ch Start | Ch End | Test Com... |
|---------|---|--------------|------------|-------------|----------|-----------|-------------|
| 1 | Testing of existing material below subgrade as r... | ESSDR00... | 12/07/2007 | MC31 | 0.0000 | 1180.0000 | |
| 2 | ground surface treatment CBR testing c | EPDRDR00... | 12/07/2007 | MC31 | 387.0000 | 560.0000 | |
| 3 | GST MC31 | EPDRDR00... | 17/07/2007 | MC31 | 387.0000 | 560.0000 | |
| 4 | GST tests | EPDRDR00... | 17/07/2007 | MCD1 | 200.0000 | 360.0000 | |
| 5 | GST tests | EPDRDR00... | 17/07/2007 | MC51 | 40.0000 | 200.0000 | |
| 6 | test excavation for culvert No. 15 | DISDRDR00... | 25/07/2007 | MC41 | 210.0000 | 210.0000 | |
| 7 | excavation level 7/D to OUT/D | EPDRDR00... | 25/07/2007 | LINE D | 204.5800 | 212.9100 | |
| 8 | 4/7D to 7/D excavation | DISDRDR00... | 25/07/2007 | LINE D | 109.8400 | 129.2600 | |
| 9 | embankment | EPDRDR00... | 25/07/2007 | MC31 | 387.0000 | 560.0000 | |
| 10 | embankment test | EPDRDR00... | 25/07/2007 | MC31 | 387.0000 | 560.0000 | |
| 12 | GST | DISDRDR00... | 26/07/2007 | MCB1 | 260.0000 | 540.0000 | |
| 13 | GST | IMGNRL01... | 26/07/2007 | MCC1 | 0.0000 | 160.0000 | |
| 14 | 3/7D to 4/7D excavation (foundation) | DIGNRL00... | 30/07/2007 | LINE D | 75.0000 | 110.0000 | |
| 15 | 2/7D TO 3/7D EXCAVATION (FOUNDATION) | EAGNRL00... | 30/07/2007 | LINE D | 37.0000 | 75.0000 | |
| 16 | 1/7D TO 2/7D EXCAVATION (FOUNDATION) | EPDRDR00... | 30/07/2007 | LINE D | 0.0000 | 37.0000 | |
| 17 | CULVERT 15 EXCAVATION RETEST | DISDRDR00... | 30/07/2007 | MC41 | 210.0000 | 210.0000 | |
| 18 | GST | DISDRDR00... | 30/07/2007 | MC31 | 680.0000 | 860.0000 | |
| 19 | overlay test | DISDRDR00... | 30/07/2007 | MC41 | 210.0000 | 210.0000 | |
| 20 | CBR | DISDRDR00... | 30/07/2007 | MC31 | 680.0000 | 860.0000 | |

Test Properties

[Edit Value is null]

Add Properties

Select a test property group and click on the 'add' button to add to the list, or create your own custom information for the test request.

| Property | Value |
|-------------------|----------------------|
| Number of batches | 4 |
| Target Slump | 90mm |
| Cement Type | GP |
| Concrete Supplier | Cemex |
| Name of Structure | West Off ramp bridge |
| Age of Tests | 28 days |

New Test Request Reports

Fig 1 Test request register showing the test properties panel (bottom)

Test properties can be added individually or from pre-built lists created in the [test properties register](#). To add items from a test register group, select the test property group from the drop down list and click on the "add properties" button. To delete a test property, select it and press the delete button in either the related items panel or the test properties panel.

5.5.4 Related items

The related items panel allows users to quickly see the tests, test properties and documents recorded against each Test Request.

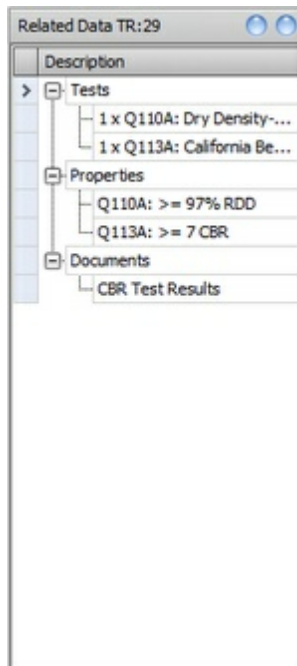


Fig 1. The test request related items

Tests and Test Properties

Test request tests and properties cannot be added or edited using the related items panel. The only functionality available from the related items for these records, is deletion of test properties. To delete test properties, select them and click delete.

Test request tests and properties can be added, edited and deleted using the test request tests panel and test properties panel. These are accessed by selecting them from the [grid context menu](#) (accessed by right clicking the grid.)

Documents

You can attach documents of any kind to a lot - including spreadsheets, word documents, pdfs or images. Related documents are shown in the related items panel under the heading "Documents". Before adding an documents (or photos) you must have the project file path set up. Refer to the topic [Project administration](#). Any documents added to a test request are also shown as related documents for the lot referenced by the test request.

Test request documents are managed exactly the same way as Lot Documents. For more information refer to the topic [Lot Documents](#).

5.5.5 New test request

The new test request wizard simplifies the creation of a new [test request](#) by undertaking the task step by step. To access the new TR wizard, click on the "new TR" button on the bottom of the [test request register](#). For information on what each of the fields is for (description, requested by, date requested etc. refer to the [test request register](#) section.

Step 1: Enter basic information about your test request. The fields are quite self explanatory including a description of the tests to be taken (or area to be tested) the lot to be tested, who requested the test and when, who is responsible for organizing the actual testing and when the testing is required.

The screenshot shows a software window titled "New Test Request - Northern Pipeline Alliance". Inside, there's a "Test Request Wizard" section with a "Test Request Definition" form. The form has several input fields: "Test Req. No" with the value "345", "Lot Tested" with a dropdown menu showing "EGEBOR001 - Subgrade treatment type C for ...", a "Description" text area containing "Testing of existing material below subgrade as requested from GHD.", "Test Req. To" with a dropdown menu showing "Mercede, Allie", "Requested By" with a dropdown menu showing "Administrator, System", "Date Requested" with a date picker showing "31/05/2010", and "Date Required" with an empty date picker. At the bottom right of the form are two buttons: "Next >" and "Cancel".

Fig 1. Test request wizard step 1 - general test req. definitions

Step 2: This step is where the area to be tested is defined. The elements of the geometry are explained in both the [lot register](#) and the [test request register](#)

New Test Request - Northern Pipeline Alliance

Test Request Wizard

Test Request Geometry

Control Line: MC31

| Start | | End | |
|--------------|--------|--------------|--------|
| Chainage | 280.00 | Chainage | 387.00 |
| Left Offset | -10.00 | Left Offset | -10.00 |
| Right Offset | 10.00 | Right Offset | 10.00 |

Level Reference

Depth to Test (mm): 0.00 Level Datum:

Next > Cancel

Fig 2. Test request wizard step 2 - test req. geometry

Step 3: Calculations

In this step the user specifies the Material Source, who specifies the testing location and how. The method of location field has the following impact;

1. **Tester locates** - No locations are specified, the tester decides where to take the tests based on specification requirements.
2. **Random stratified testing** - civil pro creates random locations using [random stratified sampling](#)
3. **Location specified** - the person raising the test request specifies the locations

The random locations section (middle) determines which positions are calculated when [random stratified sampling](#) is used. In Fig 3. Civil pro will calculate random positions in the longitudinal and lateral directions, but not depth. If you were testing something like a kerb platform, you would want civil pro to only calculate a test position longitudinally.

The resolution is the number of decimal places civil pro will calculate the location to. The default is zero (i.e. closest metre).

The calculations values for length, area and volume are calculated automatically by civil pro unless the AVL override checkbox is selected, in this case you can specify these values to account for irregular shapes or other departures from the calculated values.

Fig 3. Test request wizard step 3 - test req. calculations

Step 4: Tests

For each test you want taken, enter the test type, (optionally) the [schedule item](#) and the number of that type of test. If civil pro is calculating the test positions it will locate tests together to minimize the number of samples required. For example in the Fig 4, the single CBR will be located in the same place as the first density - as is seen in Fig 5. Remember, if you need to delete a value (such as if you accidentally selected a schedule item), close the selector and click ctrl+delete. This will clear the editor.

| Test Method | Schedule Item | Number of Tests |
|--|---------------|-----------------|
| Q113C: California Bearing Ratio at Nominate... | | 1 |
| Q111C: Dry Density Ratio | | 5 |
| | | 0 |

Fig 4. Test request wizard step 4 - test req. tests

New Test Request - Northern Pipeline Alliance

Test Request Wizard

Test Properties

32MPa Concrete Add Properties Select a test property group and click on the 'add' button to add to the list, or create your own custom information for the test request.

| Property | Value |
|-------------------|---------------------|
| Concrete Class | 32Mpa |
| Number of batches | 6 |
| Target Slump | 70mm |
| Cement Type | GP |
| Concrete Supplier | Cemex |
| Name of Structure | West Freeway bridge |
| Age of Tests | 28 day |

Next > Cancel

Fig 6. Test request wizard step 6 - test req. properties

Step 7: Review the summary of the information civil pro has collected for your test request and click "finish" if it is OK. To correct information go back through the wizard by clicking the back arrow in the top left of the wizard.

New Test Request - Northern Pipeline Alliance

Test Request Wizard

Test Request Information Complete.

You have completed the New Test Req Wizard. Please review the information below and correct any problems before clicking finish to add the Test Req to the Test Req register.

Test Req. No.: 344
 Lot Tested: EGEBOR001 - Subgrade treatment type C for MC31 CH280 to CH387
 Description: Testing of existing material below subgrade as requested from GHD.
 Test Request To: Mercede, Allie
 Date Testing Required:
 Raised By: Administrator, System
 Date Raised: Monday, 31 May 2010
 Geometry: Simple
 Control Line: MC31
 Start Geometry (m): Ch: 280.0000 O/S: -10.0000 to 10.0000
 End Geometry (m): Ch: 387.0000 O/S: -10.0000 to 10.0000
 Depth Tested (mm): 0.0000

Finish Cancel

Fig 7. Test request wizard step 7 - test req. summary

5.5.6 Test results

The test results register is used to record testing outcomes from any of the test requests you complete. To record test results, you must have set up your [test methods](#) with [test result fields](#) so civil pro knows what results to expect.

When you first open the test results register, no test results are shown. This is as displayed in Fig 1.

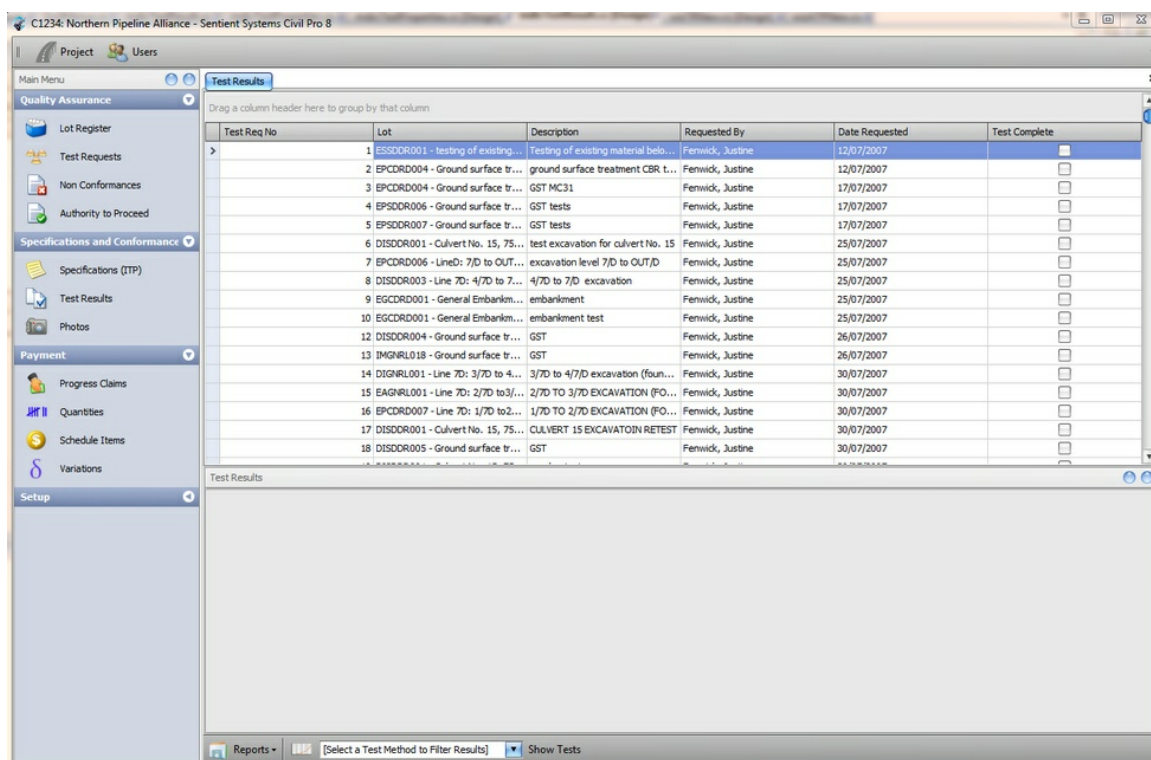


Fig 1. The test result register when opened - no results shown

To show test results, select the test request(s) you want to display results for and optionally select a test method from the drop down at the bottom of the page. Click the show tests button next to the test method filter (be default contains the text *select test method to filter results*).

If you do not opt to filter the test results to a specific method using the test method filter, then a page will be created for each [test method](#) and any of your selected test requests with tests of that type will be displayed in the appropriate page. In Fig 2. A separate page has been created for all test methods present in the selected test requests (TR 1,2 and 3). To switch between test results for each test method, click on the relevant page.

Test Results

| Test Req No | Lot | Description | Requested By | Date Requested | Test Complete |
|-------------|------------|------------------------|------------------|----------------|--------------------------|
| 1 | ESSDOR001 | testing of existing... | Ferwick, Justine | 12/07/2007 | <input type="checkbox"/> |
| 2 | EPCDRD004 | Ground surface tr... | Ferwick, Justine | 12/07/2007 | <input type="checkbox"/> |
| 3 | EPCDRD004 | Ground surface tr... | Ferwick, Justine | 17/07/2007 | <input type="checkbox"/> |
| 4 | EPSCDR006 | Ground surface tr... | Ferwick, Justine | 17/07/2007 | <input type="checkbox"/> |
| 5 | EPSCDR007 | Ground surface tr... | Ferwick, Justine | 17/07/2007 | <input type="checkbox"/> |
| 6 | DISDOR001 | Culvert No. 15, 75... | Ferwick, Justine | 25/07/2007 | <input type="checkbox"/> |
| 7 | EPCDRD006 | LineD: 7/D to OUT... | Ferwick, Justine | 25/07/2007 | <input type="checkbox"/> |
| 8 | DISDOR003 | Line 7D: 4/7D to 7... | Ferwick, Justine | 25/07/2007 | <input type="checkbox"/> |
| 9 | EGCDRD001 | General Embankm... | Ferwick, Justine | 25/07/2007 | <input type="checkbox"/> |
| 10 | EGCDRD001 | General Embankm... | Ferwick, Justine | 25/07/2007 | <input type="checkbox"/> |
| 12 | DISDOR004 | Ground surface tr... | Ferwick, Justine | 26/07/2007 | <input type="checkbox"/> |
| 13 | IMGNRL018 | Ground surface tr... | Ferwick, Justine | 26/07/2007 | <input type="checkbox"/> |
| 14 | DISGNRL001 | Line 7D: 3/7D to 4... | Ferwick, Justine | 30/07/2007 | <input type="checkbox"/> |
| 15 | EAGNRL001 | Line 7D: 2/7D to 3/... | Ferwick, Justine | 30/07/2007 | <input type="checkbox"/> |
| 16 | EPCDRD007 | Line 7D: 1/7D to 2... | Ferwick, Justine | 30/07/2007 | <input type="checkbox"/> |
| 17 | DISDOR001 | Culvert No. 15, 75... | Ferwick, Justine | 30/07/2007 | <input type="checkbox"/> |
| 18 | DISDOR005 | Ground surface tr... | Ferwick, Justine | 30/07/2007 | <input type="checkbox"/> |

Test Results - Q103A

| Test Req | Date Sam... | Lot | Sample No | 0.075mm ... | 0.425mm ... | 2.36mm s... | 4.75mm s... | 9.5mm se... | 19mm sieve | 26.5mm s... | 37.5mm s... | 53mm sieve |
|----------|-------------|-----------|-----------|-------------|-------------|-------------|-------------|-------------|------------|-------------|-------------|------------|
| 1 | | ESSDOR001 | 2 | 25 | 20 | 13 | | | | | | |
| 1 | | ESSDOR001 | 7 | 4 | 13 | | 7 | | | | | |
| 1 | | ESSDOR001 | 17 | | | | | | | | | |
| 1 | | ESSDOR001 | 22 | | | | | | | | | |
| 2 | | EPCDRD004 | 27 | | | | | | | | | |
| 2 | | EPCDRD004 | 32 | | | | | | | | | |
| 2 | | EPCDRD004 | 37 | | | | | | | | | |

Fig 2 The test result register showing results for test requests 1-3 (Test Methods Q103A, Q113A, Q104D, Q105, Q106, Q110A, Q111A)

Entering Results

When the test result page is opened, the test result editing is disabled. To enable editing, access the grid context menu (right click on the grid) and unselect *results: read only*. If you need to also edit sample numbers, also unselect *sample no:read only*.

To add or edit a result, simply enter it into the grid in the appropriate column.

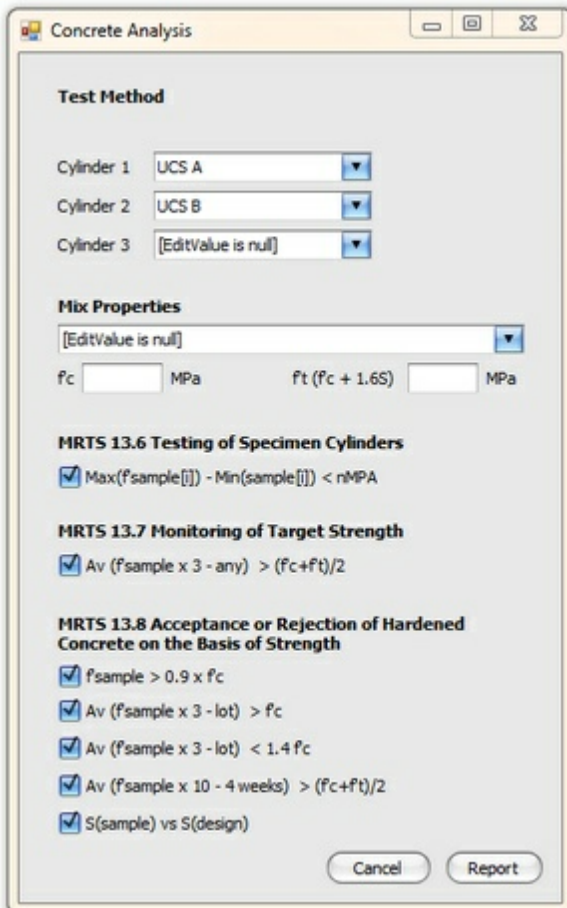
Reports

Reports are available from the reports drop down at the bottom left of the page. You can choose from standard results reports which present the information currently shown in the grid and the concrete results reports which show results specific to concrete testing.

When you select a concrete test report, you will see the form below in Fig 3. Civil Pro requires a small amount of information to be able to create your concrete test result summary including;

- The [test result field](#) containing the unconfined compressive strength for each of the cylinders
- The f_c and f_t for the mix you are reporting (If you have a test [property group](#) for your mix with the properties f_c and f_t set, you can select it in the mix properties)

Civil Pro will complete the concrete test analysis in accordance with the selected tests on the form. For details of the tests, refer to MRTS 13.6 to 13.8.



The image shows a software window titled "Concrete Analysis". It contains several sections for configuring test results:

- Test Method:** Three dropdown menus for "Cylinder 1" (set to "UCS A"), "Cylinder 2" (set to "UCS B"), and "Cylinder 3" (set to "[EditValue is null]").
- Mix Properties:** A dropdown menu set to "[EditValue is null]". Below it are two input fields: "f_c [] MPa" and "f_t (f_c + 1.6S) [] MPa".
- MRTS 13.6 Testing of Specimen Cylinders:** A checked checkbox with the text "Max(f_{sample}[i]) - Min(sample[i]) < nMPa".
- MRTS 13.7 Monitoring of Target Strength:** A checked checkbox with the text "Av (f_{sample} x 3 - any) > (f_c+f_t)/2".
- MRTS 13.8 Acceptance or Rejection of Hardened Concrete on the Basis of Strength:** Five checked checkboxes:
 - f_{sample} > 0.9 x f_c
 - Av (f_{sample} x 3 - lot) > f_c
 - Av (f_{sample} x 3 - lot) < 1.4 f_c
 - Av (f_{sample} x 10 - 4 weeks) > (f_c+f_t)/2
 - S(sample) vs S(design)

At the bottom right are "Cancel" and "Report" buttons.

Fig 3 The concrete test result configuration

5.6 Quantities

The quantities register is used to view and record quantities for individual schedule items. Generally adding, editing and deleting quantities is done through the [lot register](#) but this interface connects to the same data source. Any changes here are reflected in the lot register and vice versa.

The quantities register is accessed from the [main menu](#) and consists of only the main grid. To view quantities for a schedule item, select it from the *select schedule item* drop down and click on the OK button. The *schedule item selector* drop down is searchable in the same way described in the lot quantities [related items](#) pop up.

New quantities are created by entering them directly into the grid (after enabling editing - available through the grid context menu). To edit, enable editing and change the item as you want. Additional columns are available by using the column chooser in the grid heading context menu. To delete rows, select them and press the delete button.

| Lot | Qty | Unit | % Complete | Prelimi... | Non C... | Comments | RPF |
|---|---------|-------|------------|--------------------------|--------------------------|----------|----------|
| DIGNRL019 - AMC4 10mm seal MC31 INTE... | 2,188 | litre | 100.0 % | <input type="checkbox"/> | <input type="checkbox"/> | | 100.0 % |
| DIGNRL099 - AMC4 10mm sea - MCA1 and... | 9,796.8 | litre | 100.0 % | <input type="checkbox"/> | <input type="checkbox"/> | | 100.0 % |
| ESGNRL031 - AMC4 10mm seal MC31 Nort... | 3,240.9 | litre | 100.0 % | <input type="checkbox"/> | <input type="checkbox"/> | | 100.0 % |
| DIGNRL028 - AMC4 10mm seal MC31 INTE... | 9,824 | litre | 100.0 % | <input type="checkbox"/> | <input type="checkbox"/> | | 100.0 % |
| DIGNRL009 - AMC4 10mm seal MC71 to M... | 2,794 | litre | 100.0 % | <input type="checkbox"/> | <input type="checkbox"/> | | 100.0 % |
| PCGNRL013 - AMC4 10mm seal MC31 INT... | 2,895 | litre | 100.0 % | <input type="checkbox"/> | <input type="checkbox"/> | | 100.0 % |
| BSGNRL013 - AMC4 10mm seal - MCC1 Ch... | 4,243.2 | litre | 100.0 % | <input type="checkbox"/> | <input type="checkbox"/> | | 100.0 % |
| DIGNRL102 - AMC00 Prime + C170 14mm ... | 233 | litre | 100.0 % | <input type="checkbox"/> | <input type="checkbox"/> | | 100.0 % |
| FSGNRL075 - C170 14mm Seal North Bridg... | 1,330 | litre | 100.0 % | <input type="checkbox"/> | <input type="checkbox"/> | | 100.0 % |
| EPGNRL006 - AMC4 10mm Seal to MCE1 c... | 2,170 | litre | 100.0 % | <input type="checkbox"/> | <input type="checkbox"/> | | 100.0 % |
| DIGNRL052 - AMC4 10MM Seal to working ... | 5,048 | litre | 100.0 % | <input type="checkbox"/> | <input type="checkbox"/> | | 100.0 % |
| FFGNRL030 - AMC0 Prime Southern Widen... | 99 | litre | 100.0 % | <input type="checkbox"/> | <input type="checkbox"/> | | 100.0 % |
| | | | | | | | 43,861.9 |

Fig 1. Quantities register showing quantities for 5101.01S

5.7 Specification/Inspection Test Plan

Each project will have a set of specifications that detail the requirements for acceptance of products delivered under the contract. To communicate this to the project team, this is translated into a set of documents called Inspection Test Plans. Each Inspection Test Plan is a list of items to check, and test to verify conformance with the specifications.

The Specification/Inspection Test Plan Register (ITP Register) is used to create both ITPs and checklists. An ITP lists in detail the required inspection and testing performed on a specific element of the work (say Subgrade Preparation) while a checklist or QVC is generally a subset of the ITP that is used in the field as a record that the personnel responsible have verified conformance with the specification. As both documents contain a significant overlap, it makes sense to prepare them from the same data and avoid double entry.

The ITP register is accessed from the Main Menu and consists of the main grid, related items panel and detail panel. New ITPs are created by typing directly into the main register, and then the required inspection points are entered into the ITP Detail page, which is accessed by double clicking the ITP or using the "Show ITP Detail" item from the context menu.

| Specification Register | | | | | | Related Data ITP 67-01 | |
|---|-----------------------|-------------|--------------|-------------|---------------|-----------------------------|--|
| Description | Spec. Reference | QVC Doc No. | ITP Doc. No. | Revision ID | Revision Date | Description | |
| Access Chambers - In situ | MRTS03 CI 24 | QVC 03-14 | ITP 03-14 | 0 | 1/06/2009 | Schedule Items | |
| Access Chambers - Precast | MRTS03 CI 25 | QVC 03-15 | ITP 03-15 | 0 | 1/06/2009 | 5101.01: Prime, grade [...] | |
| Add Sulphate Soils | MRTS04 CI 10 | QVC 04-04 | ITP 04-04 | 0 | 1/06/2009 | 5103.01: Seal, class [17... | |
| Active Rock Bolts | MRTS03 CI 56 | QVC 03-32 | ITP 03-32 | 0 | 1/06/2009 | Work Types (inferred) | |
| Anti Graffiti Protection | MRTS83 | QVC 83-01 | ITP 83-01 | 0 | 1/06/2009 | SS: Sprayed Bituminous ... | |
| Backfill | MRTS04 CI 20 | QVC 04-10 | ITP 04-10 | 0 | 1/06/2009 | SS: Sprayed Bituminous ... | |
| Berm Drains | MRTS03 CI 33 | QVC 03-38 | ITP 03-38 | 0 | 1/06/2009 | | |
| Bitumen | MRTS17 | QVC 17-01 | ITP 17-01 | 0 | 1/06/2009 | | |
| Bitumen Emulsion | MRTS21 | QVC 21-01 | ITP 21-01 | 0 | 1/06/2009 | | |
| Bitumen Slip Layer on Piles | MRTS67 | QVC 67-01 | ITP 67-01 | 0 | 1/06/2009 | | |
| Bituminous Slurry Surfacing | MRTS13 | QVC 13-01 | ITP 13-01 | 0 | 1/06/2009 | | |
| Block Paving | MRTS03 CI 38 | QVC 03-44 | ITP 03-44 | 0 | 1/06/2009 | | |
| Bridge Abutment Protection - Interlocking Blockwork | MRTS03 CI 48 | QVC 03-24 | ITP 03-24 | 0 | 1/06/2009 | | |
| Bridge Abutment Protection - Reinforced concrete over Earth | MRTS03 CI 46 | QVC 03-23 | ITP 03-23 | 0 | 1/06/2009 | | |
| Bridge Abutment Protection - Rock Spillthrough/Rock and Earth spillthroughs | MRTS03 CI 45/47 | QVC 03-22 | ITP 03-22 | 0 | 1/06/2009 | | |
| Bridge Bearings | MRTS81 | QVC 81-01 | ITP 81-01 | 0 | 1/06/2009 | | |
| Bridge Deck - Deck/Kerb/Parapets, Relieving Slabs and wearing course | MRTS77 CI 11/19/20/21 | QVC 77-03 | ITP 77-03 | 0 | 1/06/2009 | | |
| Bridge Deck - Embedded Items and Electrical Components | MRTS77 CI 13 - 14 | QVC 77-04 | ITP 77-04 | 0 | 1/06/2009 | | |
| Bridge Deck - Footways | MRTS77 CI 17-18 | QVC 77-07 | ITP 77-07 | 0 | 1/06/2009 | | |
| Bridge Deck - Girder/Cross Girder Installation | MRTS77 CI 8 to 10/12 | QVC 77-02 | ITP 77-02 | 0 | 1/06/2009 | | |
| Bridge Deck - Navioation | | | | | | | |

Fig 1. The ITP Register

ITP Records

An ITP record consists of the following

1. ITP Definition - The definition of the ITP (i.e. Embankment)
2. ITP Detail - Details of what is to be inspected (Ground Surface suitable, compaction testing complete) for each ITP
3. ITP Testing - Information regarding any testing required for each ITP Detail

ITP Definition consists of;

| | |
|-------------|---|
| Description | The name of the ITP e.g. Embankment, Subgrade |
| QVC Doc No | A document number to appear on the Checklist |
| ITP Doc No | A document number to appear on the ITP |
| Revision ID | An identifier for the revision shown |
| Spec | A reference to a clause in the specification |
| Reference | |

5.7.1 ITP Details

The ITP Detail is the list of items to check for the ITP, who is responsible and how their inspection will be documented. This data is also used to create checklists. The inclusion of items on either or both of the QVC and the ITP is dependent on the QVC Incl. or ITP Incl. flags. Each ITP detail line can have one or more tests recorded against it - refer to the [Adding/modifying ITP tests](#) topic.

IMPORTANT: Most of the time you want to see the data for a specification item in its ITP or QVC format. You can switch between these different views by using the different Views available in the ITP Detail context menu. Fig 1 shows the ITP format, while Fig 2 shows the QVC format.

The data which can be recorded for ITP details is;

| | |
|------------------------|---|
| Item Type | Quality, Health and Safety, Environment, Community or Other - used as a sort filter |
| HP/WP/C | Is this item a hold point, witness point, Milestone or just a check item |
| Description | What is to be inspected (in detail) |
| Clause | The specification clause related to this check item |
| Responsibility | Who is responsible for ensuring the check is complete |
| Records | How is completion of this check recorded and verified |
| Method of Inspection | What method is used to check this item - visual inspection, concrete test, measure with survey etc. |
| Incl QVC? | Is this detail item included on the Checklist? |
| Alt QVC Text | Use this text instead of the description on Checklists only. |
| QVC Text | A readonly field. Cannot be edited. This displays the Alt QVC Text if it is not blank, otherwise the description. |
| Inspection Required | If unselected, the "Inspection Required" column of the checklist is greyed out |
| Verification Required | If unselected, the "Verification Required" column of the checklist is greyed out |
| Authorization Required | If unselected, the "Authorization Required" column of the checklist is greyed out |

ITP 11.04-16: Embankment

| ItemT... | HP/WP... | Ind. ... | Description | Clause | Responsibility | Records | Meth. of... | H... |
|-------------------------|-------------------------------------|-------------------------------------|--|------------------|---------------------|----------------|--------------|-------------------------------------|
| Quality Check I... | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> | Underlying lot conforms. Lot | | Engineer | Checklist | Visual | <input type="checkbox"/> |
| Quality Check I... | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> | General fill material used for the construction of road embankments sourced from | MRS 11.04 Cl ... | Engineer and S... | Checklist/... | Visual/Test | <input checked="" type="checkbox"/> |
| Test Method | Freq. (No... | Freq. (R... | Lot Freq... | Lot Freq. (R) | Unit | Quantity Basis | Compliance | |
| Q103A: Particle Siz... | 0 | 0 | 2 | 2 | Schedule Quantities | Ref ITP | | |
| Q113A: California ... | 0 | 0 | 2 | 2 | Schedule Quantities | Ref ITP | | |
| Q105: Plastic Limit ... | 0 | 0 | 2 | 2 | Schedule Quantities | Ref ITP | | |
| | | | | | [EditValue is null] | | | |
| Quality Check I... | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> | Where fill material is required from borrow, borrow areas shall be developed, | MRS 11.04 Cl ... | Engineer and S... | Checklist | Visual | <input type="checkbox"/> |
| Quality Check I... | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> | Clay fill material used for the construction of levee banks, catch drain embankments | MRS 11.04 Cl1... | Engineer | Checklist | Visual | <input checked="" type="checkbox"/> |
| Test Method | Freq. (No... | Freq. (R... | Lot Freq... | Lot Freq. (R) | Unit | Quantity Basis | Compliance | |
| Q103A: Particle Siz... | 500 | 500 | 1 | 1 | Schedule Quantities | Ref ITP | | |
| Q105: Plastic Limit ... | 500 | 500 | 1 | 1 | Schedule Quantities | Ref ITP | | |
| | | | | | [EditValue is null] | | | |
| Quality Check I... | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> | Filter fabric shall be a geotextile material of the appropriate strength class and | MRS 11.04 Cl ... | Engineer | Checklist | Visual | <input type="checkbox"/> |
| Quality Check I... | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> | Any special embankment materials comply with additional requirements of Clause | MRS 11.04 Cl ... | Engineer | Checklist | Visual | <input type="checkbox"/> |
| Quality Check I... | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> | Where the ground surface has a transverse slope steeper than 1 in 8, a horizontal | MRS 11.04 Cl ... | Engineer and S... | Checklist | Visual | <input type="checkbox"/> |
| Quality Check I... | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> | Compaction methods suitable for material type: | MRS 11.04 Ta... | Engineer and S... | Checklist | Visual | <input type="checkbox"/> |
| Quality Check I... | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> | Compacted Layer Method or Mechanical Interlock Method used for embankment | MRS 11.04 Ta... | Engineer and S... | Checklist | Visual | <input type="checkbox"/> |
| Quality Check I... | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> | General fill material placed in zones where required by Clause 12.5 of Annexure | MRS 11.04 Cl ... | Engineer and S... | Checklist | Visual | <input type="checkbox"/> |
| Quality Check I... | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> | Top 600 mm below subgrade level is compacted layer method material. | MRS 11.04 Cl ... | Engineer and S... | Checklist | Visual | <input type="checkbox"/> |
| Quality Check I... | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> | Geotextile is installed at interfaces between mechanical interlock and compacted | MRS 11.04 Cl1... | Engineer | Checklist | Engineer ... | <input type="checkbox"/> |
| Quality Check I... | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> | No water is ponding on or adjacent to an embankment during construction and the | MRS 11.04 Cl1... | Supervisor | Checklist | Visual | <input type="checkbox"/> |
| Quality Check I... | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> | Compacted Layer Method | MRS 11.04 Ta... | Engineer and S... | Checklist/... | Visual/Test | <input checked="" type="checkbox"/> |
| Test Method | Freq. (No... | Freq. (R... | Lot Freq... | Lot Freq. (R) | Unit | Quantity Basis | Compliance | |
| Q111A: Insitu Dry ... | 500 | 500 | 4 | 4 | Schedule Quantities | Ref. ITP | | |
| | | | | | [EditValue is null] | | | |
| Quality Check I... | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> | Compacted Layer Method | MRS 11.04 Cl ... | Supervisor | Checklist | Visual | <input type="checkbox"/> |
| Quality Check I... | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> | Compacted Layer Method | MRS 11.04 Ta... | Engineer | Checklist | Check La... | <input type="checkbox"/> |
| Quality Check I... | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> | Compacted Layer Method | MRS 11.04 Cl ... | Engineer and S... | Checklist/... | Visual/Test | <input checked="" type="checkbox"/> |
| Quality Check I... | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> | Mechanical Interlock Method | MRS 11.04 Ta... | Engineer and S... | Checklist | Check La... | <input type="checkbox"/> |

Reports

Fig 1. ITP Details in ITP view

ITP 11.04-16: Embankment

| ItemType | HP/WP/C: | Ind. QVC? | QVC Text | Alt QVC Text | I... | V... | A... |
|----------|---------------|-------------------------------------|--|--------------|-------------------------------------|-------------------------------------|-------------------------------------|
| Quality | Check Item | <input checked="" type="checkbox"/> | Underlying lot conforms. Lot | | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> | <input type="checkbox"/> |
| Quality | Check Item | <input checked="" type="checkbox"/> | General fill material used for the construction of road | | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> | <input type="checkbox"/> |
| Quality | Check Item | <input checked="" type="checkbox"/> | Where fill material is required from borrow, borrow | | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> | <input type="checkbox"/> |
| Quality | Check Item | <input checked="" type="checkbox"/> | Clay fill material used for the construction of levee | | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> | <input type="checkbox"/> |
| Quality | Check Item | <input checked="" type="checkbox"/> | Filter fabric shall be a geotextile material of the | | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> | <input type="checkbox"/> |
| Quality | Check Item | <input checked="" type="checkbox"/> | Any special embankment materials comply with | | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> | <input type="checkbox"/> |
| Quality | Check Item | <input checked="" type="checkbox"/> | Where the ground surface has a transverse slope | | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> | <input type="checkbox"/> |
| Quality | Check Item | <input checked="" type="checkbox"/> | Compaction methods suitable for material type: | | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> | <input type="checkbox"/> |
| Quality | Check Item | <input checked="" type="checkbox"/> | Compacted Layer Method or Mechanical Interlock | | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> | <input type="checkbox"/> |
| Quality | Check Item | <input checked="" type="checkbox"/> | General fill material placed in zones where required by | | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> | <input type="checkbox"/> |
| Quality | Check Item | <input checked="" type="checkbox"/> | Top 600 mm below subgrade level is compacted layer | | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> | <input type="checkbox"/> |
| Quality | Check Item | <input checked="" type="checkbox"/> | Geotextile is installed at interfaces between mechanical | | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> | <input type="checkbox"/> |
| Quality | Check Item | <input checked="" type="checkbox"/> | No water is ponding on or adjacent to an embankment | | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> | <input type="checkbox"/> |
| Quality | Check Item | <input checked="" type="checkbox"/> | Compacted Layer Method | | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> | <input type="checkbox"/> |
| Quality | Check Item | <input checked="" type="checkbox"/> | Compacted Layer Method | | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> | <input type="checkbox"/> |
| Quality | Check Item | <input checked="" type="checkbox"/> | Compacted Layer Method | | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> | <input type="checkbox"/> |
| Quality | Check Item | <input checked="" type="checkbox"/> | Compacted Layer Method | | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> | <input type="checkbox"/> |
| Quality | Check Item | <input checked="" type="checkbox"/> | Mechanical Interlock Method | | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> | <input type="checkbox"/> |
| Quality | Check Item | <input checked="" type="checkbox"/> | Mechanical Interlock Method | | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> | <input type="checkbox"/> |
| Quality | Witness Point | <input checked="" type="checkbox"/> | Each layer rolled until no further permanent visible | | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> |
| Quality | Check Item | <input checked="" type="checkbox"/> | Diversion block embankments constructed to the details | | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> | <input type="checkbox"/> |
| Quality | Check Item | <input checked="" type="checkbox"/> | Catch drain embankments constructed as close as | | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> | <input type="checkbox"/> |
| Quality | Check Item | <input checked="" type="checkbox"/> | Where a risk of Acid Sulphate is identified, testing and | | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> | <input type="checkbox"/> |
| Quality | Check Item | <input checked="" type="checkbox"/> | Geometric Tolerances | | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> | <input type="checkbox"/> |
| Quality | Check Item | <input checked="" type="checkbox"/> | Where top of embankment is Subgrade, subgrade lot is | | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> | <input type="checkbox"/> |

Reports

Fig 2. ITP Details in QVC view

Alt. QVC Text - showing different descriptions on the ITP compared to the QVC

Although an ITP detail line may relate to the same underlying information for both the QVC and the ITP, sometimes the specific text will differ between the two. You can change the text displayed on the QVC simply by adding text to the "Alt QVC Text" field in the QVC view. When this field is empty, the displayed text on the QVC will revert to the ITP description - assuming the QVC Incl. checkbox is ticked.

Formatting Information

The long text fields in the ITP such as descriptions and the test compliance are all rich text capable. This means that you can change the font, create bold and italic words etc. You can access this for each individual field by right clicking on the field WHEN EDITING. You can also change the format for the RTF fields for one or more records by using the "Format Selected" option in the context menu- available on the main ITP menu and also on the ITP detail menu.

If you format selected at the ITP level, every ITP detail and ITP Test item is affected. At the Detail level, only the selected detail items, and the tests for them are affected.

5.7.2 Importing and exporting ITPs

As well as importing and exporting single and multiple ITPs, you can import a file that gives an association between ITPs and Schedule Items. These functions are available from the context menu of the main ITP grid (right click on the ITP grid, and expand the File submenu).

Exporting

To export one or more ITPs select them in the grid and choose File=>Export ITP from the context menu. You will notice that there are two export options - Single File or Separate Files. If you have more than one selected, the former creates a single file containing all of the ITPs you have selected. If you select separate files, a new file is created for each ITP.

Importing

To import an ITP, use the File=>Import ITP option from the context menu. Select a .cpx file and it will be imported.

Exporting Schedule vs. ITP

To export an ITP/Schedule, use the File=>ITP vs Schedule Export. This creates a file containing the links you have created between your schedule items and ITPs. You will be prompted to remove the trailing letters from schedule items. This allows you to make the relationship specific to the schedule number, independent of any trailing characters such as P which may only indicate that the item is provisional. Select yes or no as appropriate.

5.7.3 Editing ITPs/QVCs

Editing Existing Entries

To edit an existing ITP, select the required ITP in the main register, the detail will be displayed in the ITP Detail panel (if any exists). To edit the detail entries, Enable Editing using the detail grid's context menu and make changes as you require.

It may be easiest to work on ITPs after dragging the entire ITP Detail panel into its own window to achieve a maximum size. This is especially useful if you have multiple monitors.

New ITPs

If you need a new ITP, use the context menu to Enable Editing and add a new entry into the ITP register. The new ITP will be placed in its correct (alphabetical) position in the list. Select it to enter the detail.

TIP: If you are entering numerous ITPs and don't want the new item to be re-ordered, you can sort by a different column by clicking the column header. Using the column chooser (right click grid column menu) you can select the "Date Created" column and sort by that to keep the most recent entries at the bottom.

Adding New ITP Details

Enable Editing using the ITP Detail grid's context menu. Either add new entries to the bottom of the grid, or use the context menu item Insert New Row to insert a new row after the row you right-clicked on. A description of the fields is found at [Specification/Inspection Test Plan](#).

Re-ordering Rows

The order of the rows in the ITP Detail can be changed by drag and drop, simply left click on the row you want to move, and while holding the mouse button, drag it to where you want.

Editing QVC fields

Some fields relating specifically to QVCs are not shown in the default view. Do view these columns, change the ITP Detail View to Grid (all) or Grid (QVC). A description of the additional fields is found at [Specification/Inspection Test Plan](#).

Adding ITP Tests

To add tests to an ITP Detail, refer to [Adding/Modifying ITP Tests](#).

5.7.4 Adding/modifying ITP tests

To add or modify tests, click on the "+" on the detail you want to add a test to. In Fig 1. the ITP Tests are shown for the "General Fill material for the ..." ITP Detail in the Embankment ITP. In the ITP Testing grid, enter the required information. The ITP Test Fields are;

| | |
|-----------------|--|
| Test Method | What test type (from the Test Methods Register) is to be used for this test |
| Freq.(norm) | Under normal testing frequency, how regularly is a test required - e.g. enter 500 for 1/500m3 (Normal or Reduced is set for each lot in the lot properties) |
| Freq.(red) | Under reduced testing frequency, how regularly is a test required - e.g. enter 1000 for 1/1000m3 (Normal or Reduced is set for each lot in the lot properties) |
| Lot Freq.(norm) | Under normal testing frequency, what is the minimum number of test per lot, regardless of quantity |
| Lot Freq.(red) | Under reduced testing frequency, what is the minimum number of test per lot, regardless of quantity |
| Unit | What is the unit of measurement for testing frequency |

Quantity Basis How is the quantity measured? Schedule Item, Lot Length, Lot Area, Lot Volume?
Compliance What are the requirements for the test result to be considered compliant

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| ItemT... | HP/WP... | Ind. ... | Description | Clause | Responsibility | Records | Meth. of... | H... | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
|---|--------------|-------------------------------------|--|------------------|-------------------|---------------------|--------------|-------------------------------------|--------------|-------------|-------------|---------------|------|----------------|------------|------------------------|-----|-----|---|---|--|---------------------|----------|-------------------------|-----|-----|---|---|--|---------------------|----------|-------------------------|---|---|---|---|--|---------------------|---------|---------------------|--|--|--|--|--|--|--|
| Quality | Check I... | <input checked="" type="checkbox"/> | Underlying lot conforms. Lot | | Engineer | Checklist | Visual | <input type="checkbox"/> | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Quality | Check I... | <input checked="" type="checkbox"/> | General fill material used for the construction of road embankments sourced from | MRS 11.04 Cl ... | Engineer and S... | Checklist/... | Visual/Test | <input checked="" type="checkbox"/> | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| <table> <tr> <th>Test Method</th><th>Freq. (No...</th><th>Freq. (R...</th><th>Lot Freq...</th><th>Lot Freq. (R)</th><th>Unit</th><th>Quantity Basis</th><th>Compliance</th></tr> <tr> <td>Q103A: Particle Siz...</td><td>0</td><td>0</td><td>2</td><td>2</td><td></td><td>Schedule Quantities</td><td>Ref ITP</td></tr> <tr> <td>Q113A: California ...</td><td>0</td><td>0</td><td>2</td><td>2</td><td></td><td>Schedule Quantities</td><td>Ref ITP</td></tr> <tr> <td>Q105: Plastic Limit ...</td><td>0</td><td>0</td><td>2</td><td>2</td><td></td><td>Schedule Quantities</td><td>Ref ITP</td></tr> <tr> <td colspan="8">[EditValue is null]</td></tr> </table> | | | | | | | | Test Method | Freq. (No... | Freq. (R... | Lot Freq... | Lot Freq. (R) | Unit | Quantity Basis | Compliance | Q103A: Particle Siz... | 0 | 0 | 2 | 2 | | Schedule Quantities | Ref ITP | Q113A: California ... | 0 | 0 | 2 | 2 | | Schedule Quantities | Ref ITP | Q105: Plastic Limit ... | 0 | 0 | 2 | 2 | | Schedule Quantities | Ref ITP | [EditValue is null] | | | | | | | |
| Test Method | Freq. (No... | Freq. (R... | Lot Freq... | Lot Freq. (R) | Unit | Quantity Basis | Compliance | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Q103A: Particle Siz... | 0 | 0 | 2 | 2 | | Schedule Quantities | Ref ITP | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Q113A: California ... | 0 | 0 | 2 | 2 | | Schedule Quantities | Ref ITP | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Q105: Plastic Limit ... | 0 | 0 | 2 | 2 | | Schedule Quantities | Ref ITP | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| [EditValue is null] | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Quality | Check I... | <input checked="" type="checkbox"/> | Where fill material is required from borrow, borrow areas shall be developed, | MRS 11.04 Cl ... | Engineer and S... | Checklist | Visual | <input type="checkbox"/> | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Quality | Check I... | <input checked="" type="checkbox"/> | Clay fill material used for the construction of levee banks, catch drain embankments | MRS 11.04 Cl1... | Engineer | Checklist ... | Visual | <input checked="" type="checkbox"/> | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| <table> <tr> <th>Test Method</th><th>Freq. (No...</th><th>Freq. (R...</th><th>Lot Freq...</th><th>Lot Freq. (R)</th><th>Unit</th><th>Quantity Basis</th><th>Compliance</th></tr> <tr> <td>Q103A: Particle Siz...</td><td>500</td><td>500</td><td>1</td><td>1</td><td></td><td>Schedule Quantities</td><td>Ref ITP</td></tr> <tr> <td>Q105: Plastic Limit ...</td><td>500</td><td>500</td><td>1</td><td>1</td><td></td><td>Schedule Quantities</td><td>Ref ITP</td></tr> <tr> <td colspan="8">[EditValue is null]</td></tr> </table> | | | | | | | | Test Method | Freq. (No... | Freq. (R... | Lot Freq... | Lot Freq. (R) | Unit | Quantity Basis | Compliance | Q103A: Particle Siz... | 500 | 500 | 1 | 1 | | Schedule Quantities | Ref ITP | Q105: Plastic Limit ... | 500 | 500 | 1 | 1 | | Schedule Quantities | Ref ITP | [EditValue is null] | | | | | | | | | | | | | | | |
| Test Method | Freq. (No... | Freq. (R... | Lot Freq... | Lot Freq. (R) | Unit | Quantity Basis | Compliance | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Q103A: Particle Siz... | 500 | 500 | 1 | 1 | | Schedule Quantities | Ref ITP | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Q105: Plastic Limit ... | 500 | 500 | 1 | 1 | | Schedule Quantities | Ref ITP | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| [EditValue is null] | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Quality | Check I... | <input checked="" type="checkbox"/> | Filter fabric shall be a geotextile material of the appropriate strength class and | MRS 11.04 Cl ... | Engineer | Checklist | Visual | <input type="checkbox"/> | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Quality | Check I... | <input checked="" type="checkbox"/> | Any special embankment materials comply with additional requirements of Clause | MRS 11.04 Cl ... | Engineer | Checklist | Visual | <input type="checkbox"/> | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Quality | Check I... | <input checked="" type="checkbox"/> | Where the ground surface has a transverse slope steeper than 1 in 8, a horizontal | MRS 11.04 Cl ... | Engineer and S... | Checklist | Visual | <input type="checkbox"/> | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Quality | Check I... | <input checked="" type="checkbox"/> | Compaction methods suitable for material type: | MRS 11.04 Ta... | Engineer and S... | Checklist | Visual | <input type="checkbox"/> | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Quality | Check I... | <input checked="" type="checkbox"/> | Compacted Layer Method or Mechanical Interlock Method used for embankment | MRS 11.04 Ta... | Engineer and S... | Checklist | Visual | <input type="checkbox"/> | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Quality | Check I... | <input checked="" type="checkbox"/> | General fill material placed in zones where required by Clause 12.5 of Annexure | MRS 11.04 Cl ... | Engineer and S... | Checklist | Visual | <input type="checkbox"/> | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Quality | Check I... | <input checked="" type="checkbox"/> | Top 600 mm below subgrade level is compacted layer method material. | MRS 11.04 Cl ... | Engineer and S... | Checklist | Visual | <input type="checkbox"/> | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Quality | Check I... | <input checked="" type="checkbox"/> | Geotextile is installed at interfaces between mechanical interlock and compacted | MRS 11.04 Cl1... | Engineer | Checklist | Engineer ... | <input type="checkbox"/> | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Quality | Check I... | <input checked="" type="checkbox"/> | No water is ponding on or adjacent to an embankment during construction and the | MRS 11.04 Cl1... | Supervisor | Checklist | Visual | <input type="checkbox"/> | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Quality | Check I... | <input checked="" type="checkbox"/> | Compacted Layer Method | MRS 11.04 Ta... | Engineer and S... | Checklist/... | Visual/Test | <input checked="" type="checkbox"/> | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| <table> <tr> <th>Test Method</th><th>Freq. (No...</th><th>Freq. (R...</th><th>Lot Freq...</th><th>Lot Freq. (R)</th><th>Unit</th><th>Quantity Basis</th><th>Compliance</th></tr> <tr> <td>Q111A: Insitu Dry ...</td><td>500</td><td>500</td><td>4</td><td>4</td><td></td><td>Schedule Quantities</td><td>Ref. ITP</td></tr> <tr> <td>Q110A: Dry Densit...</td><td>0</td><td>0</td><td>1</td><td>1</td><td></td><td>Schedule Quantities</td><td>Ref. ITP</td></tr> <tr> <td colspan="8">[EditValue is null]</td></tr> </table> | | | | | | | | Test Method | Freq. (No... | Freq. (R... | Lot Freq... | Lot Freq. (R) | Unit | Quantity Basis | Compliance | Q111A: Insitu Dry ... | 500 | 500 | 4 | 4 | | Schedule Quantities | Ref. ITP | Q110A: Dry Densit... | 0 | 0 | 1 | 1 | | Schedule Quantities | Ref. ITP | [EditValue is null] | | | | | | | | | | | | | | | |
| Test Method | Freq. (No... | Freq. (R... | Lot Freq... | Lot Freq. (R) | Unit | Quantity Basis | Compliance | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Q111A: Insitu Dry ... | 500 | 500 | 4 | 4 | | Schedule Quantities | Ref. ITP | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Q110A: Dry Densit... | 0 | 0 | 1 | 1 | | Schedule Quantities | Ref. ITP | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| [EditValue is null] | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Quality | Check I... | <input checked="" type="checkbox"/> | Compacted Layer Method | MRS 11.04 Cl ... | Supervisor | Checklist | Visual | <input type="checkbox"/> | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Quality | Check I... | <input checked="" type="checkbox"/> | Compacted Layer Method | MRS 11.04 Ta... | Engineer | Checklist | Check La... | <input type="checkbox"/> | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Quality | Check I... | <input checked="" type="checkbox"/> | Compacted Layer Method | MRS 11.04 Cl ... | Engineer and S... | Checklist/... | Visual/Test | <input checked="" type="checkbox"/> | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |

Reports

Fig 1: ITP Register showing ITP Tests

Optional Tests

When you have tests that are not always required, or are optional, you can mark these using the ITP Test context menu item "Tag as Optional". This is accessed by right clicking on the ITP Test grid.

Optional tests are shown in light blue. Q103A in Fig 1 is an optional test.

To remove an optional test tag, select the ITP Test and use Remove Optional Tag in the context menu.

An example of this would be with Pavement testing. It is common for early pavement tests to require nuclear densometers to be verified with sand replacements with nuclear densometer allowed once the reliability of the method is established. Then sand replacements are occasionally required in future testing, but rarely. In this instance you could add the nuclear densometer as the required test and the sand replacement as optional.

Or Sets

Sometimes there is more than one test type that can be used to complete a test. In this case you can create an "Or Set". To create an Or Set, select the tests that belong to the set and select the "Create Or Set" option from the ITP Testing context menu. The tests you have added to the set will

be coloured green. Civil pro expects one of the tests to be selected as the default test. This is done by double clicking the test you want as default. The other test will disappear but you will know it is there due to the line's green colour (In Fig 1. the tests for the compacted layer method are part of an Or Set - both are shown as the default has not yet been selected)

If you want to change which is default, double click the visible test and they will both be shown, then double click the test you want to set to the default. When you create a Test Schedule for a lot, or a checklist, you can search for any green coloured tests and change them to the other test if appropriate.

In the above example you could alternatively have an or set containing two test types;

1. Nuclear Densometer backed by Sand Replacement
2. Nuclear Densometer only

5.7.5 ITP selector

The schedule item selector appears whenever a user;

- Adds/Edits a checklist
- Adds links to work types and schedule items

Generally, you will select your ITPs and drag them to their destination (for example the Checklist heading in the lot related items register).

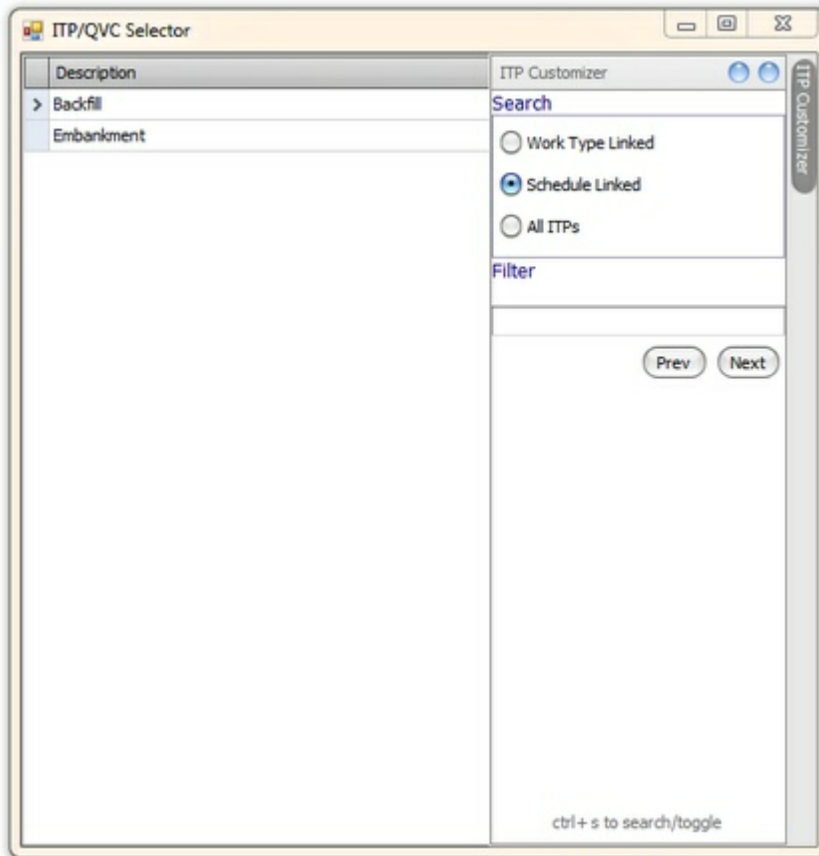


Fig 1. The ITP selector

When the ITP selector is invoked from a lot the items shown in the ITP selector are either;

- The full list (All ITPs)
- The ITPs linked to schedule items connected to the lot as quantities (Schedule Linked)
- The ITPs linked to the lot's work type (Work Type Linked)

In Fig 1, only those ITPs linked by schedule are shown.

The search pane can be iterated through using the ctrl + s key shortcut. Entering a search term will allow you to scan through the schedule for all entries with a particular search term.

5.8 Progress claims

Most contracts allow for progressive claims for payment to be made at regular intervals during the project. Civil pro provides a way to enter record the quantities at time of claim and prepare a progress claim automatically using these quantities. You can also create a snapshot of the quantities against each lot, and use those as the basis of your progress claim.

To view the progress claims, click the Progress Claim button on the Main Menu opening the Progress Claim form in Fig 1.

Progress Claims

| Claim Date | Description | Lock | Claim Value |
|------------|------------------------------------|-------------------------------------|-------------|
| 28/02/2011 | Progress Claim # 4 - February 2011 | <input checked="" type="checkbox"/> | |
| 31/01/2011 | Progress Claim # 3 - January 2011 | <input checked="" type="checkbox"/> | |
| 23/12/2010 | Progress Claim # 2 - December 2010 | <input checked="" type="checkbox"/> | |
| 26/11/2010 | Progress Claim # 1 - November 2010 | <input checked="" type="checkbox"/> | |

Progress Claims

| Description - Progress Claim # 4 - February 2011 | Qty Sched... | Qty Claimed | Unit | Rate | Claim Value |
|--|--------------|-------------|------|------|-------------|
| Part A - Roadworks | | | | | |
| Part B - Services | | | | | |
| Part C - Property Works | | | | | |
| Part D - Drainage | | | | | |
| REMOVAL/DEMOLITION (MRS03 Jun 09) | | | | | |
| SUPPLY AND INSTALLATION OF CULVERTS (MRS03 Jun 09) | | | | | |
| CONCRETE IN CULVERTS AND END STRUCTURES (MRS03 Jun 09) | | | | | |
| PAVEMENT DRAINAGE (MRS03 Jun 09) | | | | | |
| SUBSURFACE DRAINAGE (MRS03 Jun 09) | | | | | |
| PROTECTIVE TREATMENTS (MRS03 Jun 09) | | | | | |
| EARTHWORKS, PREPARATION (MRS04 Jun 09) | | | | | |
| EARTHWORKS, BACKFILL (MRS04 Jun 09) | | | | | |
| ROADSIDE STRUCTURES (MRS14 Jun 09) | | | | | |
| Part E - Traffic Signals | | | | | |
| Part F - Lighting | | | | | |
| Part G - Landscaping | | | | | |
| Variations | | | | | |

Related Data

| Description |
|-------------|
| Open |
| Guaranteed |
| Conformed |

New Claim Split Date Reports

Fig 1. The Progress Claim

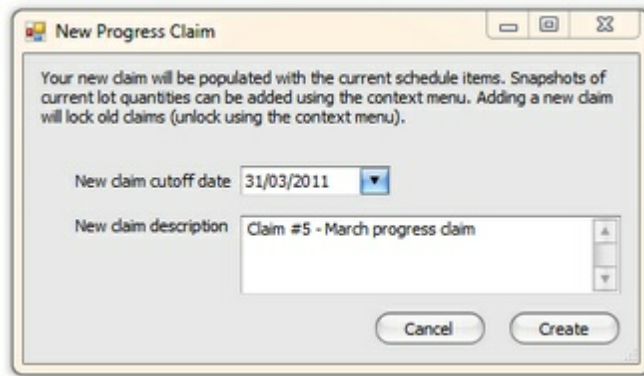
5.8.1 Adding a progress claim

To add a new claim, click on the 'New Claim' button at the bottom left of the Progress Claim form (ref. [Progress claims Fig 1.](#)). Enter the required information into the form (fig 1 below);

- New claim cutoff date - The date the progress claim is valid at
- Description - Text describing the claim

Upon clicking the create button, there will be a delay as Civil Pro creates a copy of the schedule for your new progress claim. You can now update the quantities manually for your progress claim, or generate the quantities to date automatically based on your quality assurance records by taking a snapshot (refer below)

Upon creating a new progress claim, all old progress claims will be locked, unlock using options from the progress claim context menu (right click on the top grid in Fig 1). To update information for a progress claim, Enable editing by selecting Enable Editing from the context menu and update the required data.



The 'New Progress Claim' dialog box contains the following elements:

- Title Bar:** 'New Progress Claim' with standard window controls.
- Instructions:** 'Your new claim will be populated with the current schedule items. Snapshots of current lot quantities can be added using the context menu. Adding a new claim will lock old claims (unlock using the context menu).'.
- Fields:**
 - 'New claim cutoff date': A date picker showing '31/03/2011'.
 - 'New claim description': A text box containing 'Claim #5 - March progress claim'.
- Buttons:** 'Cancel' and 'Create' buttons at the bottom right.

Fig 1. The New Progress Claim form

5.8.2 Snapshots and progress claim quantities

Now that you have a progress claim, you can complete the quantities in two ways;

1. Enter quantities manually
2. Pulling the quantities from the lot register

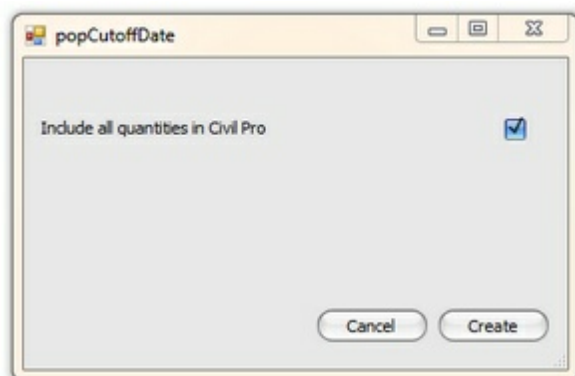
Preparing your claim manually

To prepare a new claim by manually entering quantities simply select the claim and enter the quantities into the schedule.

Preparing your claim using Lot Quantities

To use you lot quantities to build a claim

1. Select the claim to work with
2. Use the context menu to select the Take Snapshot option. The dialog in Fig 1a will appear. To include all quantities currently in Civil Pro, click on Create. To limit the quantities to a cutoff date, unselect the Include all quantities in Civil Pro option and the form will appear as shown in Fig 1b.
3. Expanding the schedule items will reveal an additional two levels of data (refer fig 2. below) - the first for status (conformed guaranteed or open) the second is a list of the lot quantities for each schedule item
4. At this point, the quantities for your progress claim will remain unchanged. To actually update your progress claim to reflect the detail in your snapshot, use the Claim=Snapshot option from the context menu for the progress claim. This will set the schedule item quantities to equal the sum of the lot quantities. To include/exclude particular statuses, and to summarize quantities prior to a specific date, refer to [customizing and printing progress claims](#).



The 'popCutoffDate' dialog box contains the following elements:

- Title Bar:** 'popCutoffDate' with standard window controls.
- Text:** 'Include all quantities in Civil Pro' with a checked checkbox to its right.
- Buttons:** 'Cancel' and 'Create' buttons at the bottom.

Fig 1a - Taking a snapshot including all quantities

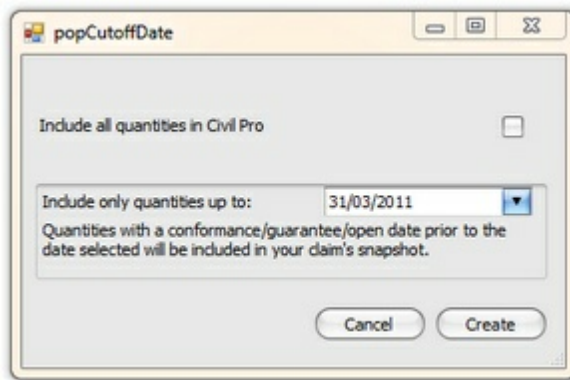


Fig 1a - Taking a snapshot including quantities up to a specific date

| Progress Claims | | | |
|-----------------|------------------------------------|-------------------------------------|----------------|
| Claim Date | Description | Lock | Claim Value |
| > 31/03/2011 | Claim #5 - March progress claim | <input type="checkbox"/> | \$0.00 |
| 28/02/2011 | Progress Claim # 4 - February 2011 | <input checked="" type="checkbox"/> | \$2,535,287.85 |
| 31/01/2011 | Progress Claim # 3 - January 2011 | <input checked="" type="checkbox"/> | \$2,011,480.49 |
| 23/12/2010 | Progress Claim # 2 - December 2010 | <input checked="" type="checkbox"/> | \$1,527,429.88 |
| 26/11/2010 | Progress Claim # 1 - November 2010 | <input checked="" type="checkbox"/> | \$872,697.33 |

| Progress Claims | | | | | | | Related Data | |
|---|---|------------|-------------|---------|---------|-------------|--------------|--|
| Description - Claim #5 - March progress claim | | | | | | | | |
| | Description | Qty Sch... | Qty Claimed | Unit | Rate | Claim Value | Description | |
| > | Part A - Roadworks | | | | | | > Open | |
| | CONTRACTOR'S SITE FACILITIES AND CAMP (MRS28 Jun 09) | | | | | | Guaranteed | |
| | 1101.015: Contractor's site facilities (MRS28 Jun 09) (Refer to Supple... | 1.0000 | 0 | lump... | \$93... | \$0.00 | Conformed | |
| | Conformed | | | | | | | |
| | CFGNRL004 | | 0.0500 | lump... | | | | |
| | CFGNRL003 | | 0.0620 | lump... | | | | |
| | CFGNRL001 | | 0.2580 | lump... | | | | |
| | CFGNRL005 | | 0.0500 | lump... | | | | |
| | PROVISION FOR TRAFFIC (MRS02 Jun 09) | | | | | | | |
| | 1201.01: Provision for traffic (MRS02 Jun 09) | 1.0000 | 0 | lump... | \$1... | \$0.00 | | |
| | Conformed | | | | | | | |
| | 1202.01: Traffic Management Plan (MRS02 Jun 09) | 1.0000 | 0 | lump... | \$33... | \$0.00 | | |
| | Conformed | | | | | | | |
| | TMGNRL001 | | 1.0000 | lump... | | | | |
| | 1203.01: Roadwork signing records (MRS02 Jun 09) | 1.0000 | 0 | lump... | \$0.00 | \$0.00 | | |
| | 1204.01: Travel Time Surveys (MRS02 Jun 09) | 1.0000 | 0 | lump... | \$24... | \$0.00 | | |
| | ENVIRONMENTAL MANAGEMENT (MRS51 Jun 09) | | | | | | | |
| | PROTECTIVE TREATMENTS (MRS03 Jun 09) | | | | | | | |
| | RETAINING WALLS (MRS03 Jun 09) | | | | | | | |
| | EARTHWORKS, PREPARATION (MRS04 Jun 09) | | | | | | | |
| | EARTHWORKS, EXCAVATION (MRS04 Jun 09) | | | | | | | |
| | EARTHWORKS, EMBANKMENT (MRS04 Jun 09) | | | | | | | |
| | EARTHWORKS, SUBGRADE (MRS04 Jun 09) | | | | | | | |
| | EARTHWORKS, BACKFILL (MRS04 Jun 09) | | | | | | | |
| | UNBOUND PAVEMENTS TYPE 2 (MRS05 Jun 09) | | | | | | | |
| | PI ANT-MIXED STABILISED PAVEMENTS (MRS06 Jun 09) | | | | | | | |

New Claim
 Split Date
 Reports

Fig 2 Progress claim showing snapshot of lot quantities

5.8.3 Customizing and printing progress claims

Changing the detail of Lot Quantity Reporting - Split Date

Generally you won't want to see every lot quantity for the entirety of your project. Civil pro allows you to summarize lot quantities prior to a certain date into a single line. To set the split date, update the "Split Date" text box at the bottom of the Progress Claim Detail panel. These changes will be reflected in progress claim reports.

Changing what status of Lot Quantities are included in the Claim

By default all Lot Quantities are shown and included when the "Claim=Snapshot" function. To change the visible Lot Quantities, use the Progress Claim Detail context menu items under "Status to Show". Those items selected will be displayed and also included when the "Claim=Snapshot" function is used.

Reflecting changes to schedule items

If your schedule changes (maybe you added some schedule items for variations), you can update the progress claim detail by selecting the progress claim and using the "Rebuild Claim" function from the context menu.

Printing your progress claims

To print your progress claim, or compare it to a previous progress claim, select the appropriate report from the Reports option at the bottom of the Progress Claim form.

If you need to create a report showing the quantities supporting your progress claim, select the "Print Snapshot Quantities" report.

5.9 Variations

The Variation Register is used to create a register of changes to the contract, usually impacting on payment. Each variation can be connected lots, schedule items and photos.

The Variation register is accessed from the Main Menu and consists of the main grid, related items panel and detail panel. New Variations are created using the New Variation wizard - accessed from the [New Variation](#) button in the bottom left of the page. Changing the selected item in the Variation Register will change the list of related items. To see the image preview page (hidden by default) double click on a Variation or select the Show Preview Panel option from the [context menu](#) (right click the grid).

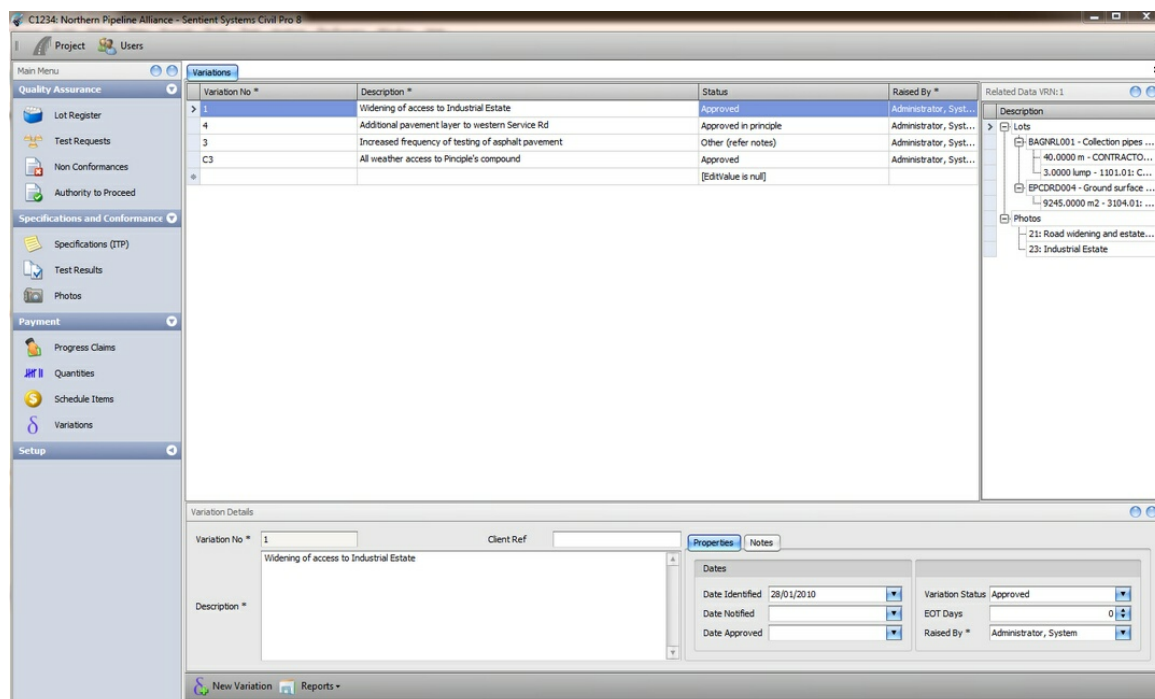


Fig 1. The Photo Register showing the preview panel

Variation Records

A Variation record consists of;

| | |
|------------------|---|
| Variation No | A unique identifier for each variation |
| Description * | A description of the variation |
| Client Ref | An optional field to store an alternative reference such as one used by the client |
| Date Identified | The date the variation was identified |
| Date Notified | The date the variation was notified to the client |
| Date Approved | The date the variation was approved by the client |
| Variation Status | The current status of the variation - available values are in the Variation Status Register |
| EOT Days | The number of days EOT related to this VRN |
| Raised By | Who raised or is responsible for this VRN |
| Notes | Comments regarding the variation |

Adding New Variations

New variations are added using the [New Variation Wizard](#)

Relationships with other civil pro data are viewed and managed using the [Related Items](#) panel

Creating payment items for variations

Once a variation is approved (or perhaps before) you will want to create a payment item for the variation. To do this, select the variation and from the [context menu](#) (right click on the grid) select the **New Schedule from VRN** option. Complete the information (Fig 2) regarding rates, units and quantities and click create. A new schedule item is added to your schedule items register and a link to the schedule item is created in the variation.

You will probably want to review your schedule items if you have structures you wish to maintain as the new schedule item will just be placed at the root level after the last schedule item.

New Schedule Item from VRN:019

Supply the required information below and click OK to create a new Schedule Item for payment. Your new schedule item will be created at the as the last item at the root level of your schedule register.

Schedule No.

Schedule Description

Schedule Qty LS (unit)

Schedule Rate

Total Value

☒ Is Variation

☒ Associate with VRN:019

Fig 2. Creating a schedule item from a variation

5.9.1 Variation detail

The Variation detail panel (shown in Fig 1.) is displayed at the bottom of the Variation register. It is hidden by default but can be shown by double clicking any Variation record or selecting the "Show Variation Details" option from the [grid context menu](#). To create more real estate to view the grid, simply close or hide the detail panel using the blue buttons in the top right. When the mouse is over the buttons, the right one will show a cross - click to close, the left one will show a pin - clicking it toggles between auto-hide and fixed positioning.

Variation Details

Variation No. Client Ref

Description

Properties **Notes**

Dates

Date Identified

Date Notified

Date Approved

Variation Status

EOT Days

Raised By

Fig 1 VRN Detail panel

The Variation detail page shows all of the available information for a single record and changes as you navigate to a different VRN in the register. The form is editable by default, except for the VRN Number. The VRN number can only be edited after selecting 'Edit VRN Number' from the [detail panel context menu](#).

For more information on the information stored for each VRN, refer to the [VRN Register](#).

5.9.2 Related items

The related items panel allows users to quickly see information associated with a Variation (Lots, photos and schedule items). This and similar mechanisms in the Lot register are the only way to create associations between Variations and Lots, Variations and Schedule Items and Variations and photos. When you move between Variation in the Variation register, the related items list will show the lots and photos linked to the Variation.

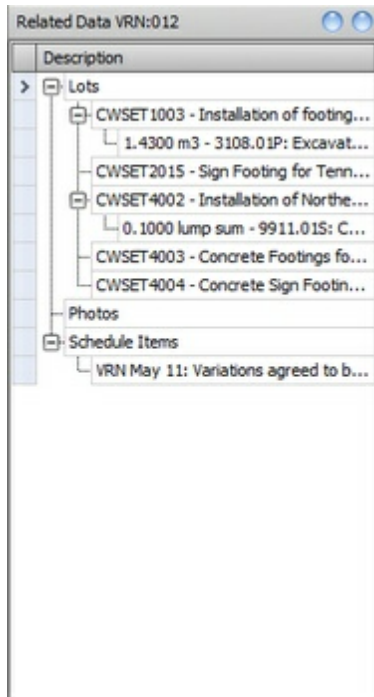


Fig 1. The Variation Related Items

To add a new link between a lot and a Variation, double click the Lots heading in the related items list - A list of lots will pop up. Select the lot(s) you want to add and drag them onto the Related Items list. To see the detail of a lot, double click it and the lot register will open displaying the clicked lot. To delete a relationship, select it and click delete.

The related photos list shows any photographs stored in civil pro that are related to the Variation. To associate them, follow the same procedure as for adding a lot to the Variation, but double click on the Photo heading instead.

The related schedule items list records the schedule items used to collect payment for a variation. To associate a schedule item, double click the Schedule Items heading, select the schedule item(s) from the list and drag and drop it over the heading. This link can also be made from the schedule items list.

5.9.3 New variation

The new Variation wizard simplifies the creation of a new lot by undertaking the task step by step. To access the new Variation wizard, click on the New Variation button on the bottom of the [Variation Register](#). For information on what each of the fields is for (Description, Raised By, Date Variation Identified etc.) refer to the [Variation Register](#) section.

New Variation - Northern Pipeline Alliance

← Variation Definition

Variation Definition

Variation No.

Description *

Dates

Date Variation Identified *

Date Variation Notified

Date Variation Approved

Raised By *

Variation Status *

Client Reference

EOT Days

Fig 1. New Variation Wizard Page 1 - Basic NCR information

Enter basic Variation information including the description and date identified. Civil pro will try and calculate an automatic Variation No.

New Variation - Northern Pipeline Alliance

← Variation Definition

Lots for this Variation

| Lot |
|--|
| FMGNRL001 - culvert 1/3A TO 3/A 375mm RCPs |

Notes

Fig 2. New Variation Wizard Page 2 - Lots associated with this Variation

Select lots related to your Variation. Press the tab key to assign the lot and add more if you require.

New Variation - Northern Pipeline Alliance

Variation Definition

Completing the wizard

You have completed the New Variation Wizard. Please review the information below and correct any problems before clicking finish to add the Variation to the Variation register.

Variation Number: 4
Description: Deepen gully pit 3/4A by 1.2m
Date Identified: Thursday, 10 December 2009
Date Notified: Thursday, 10 December 2009
Date Approved:
Raised By: Administrator, System
Client Reference:
EOT Days: DevExpress.XtraEditors.SpinEdit
Project: Northern Pipeline Alliance
Variation Status: Identified
Notes:
Lots:
FMGNRL001 - culvert 1/3A TO 3/A 375mm RCPs

Finish Cancel

Fig 3. New Variation Wizard Page 3 - Summary

Review the summary of the information civil pro has collected for your Variation and click Finish if it is OK. To correct information go back through the wizard by clicking the back arrow in the top left of the wizard.

5.10 Photographs

The Photo Register is used to create a library of images and connect them to the records in civil pro to which they relate.

The Photo register is accessed from the Main Menu and consists of the main grid, related items panel and detail panel. New photos are created using the New Photo wizard - accessed from the New Photo button in the bottom left of the page. Changing the selected item in the Photo Register will change the list of related items. To see the image preview page (hidden by default) double click on a Photo or select the Show Preview Panel option from the [context menu](#) (right click the grid).

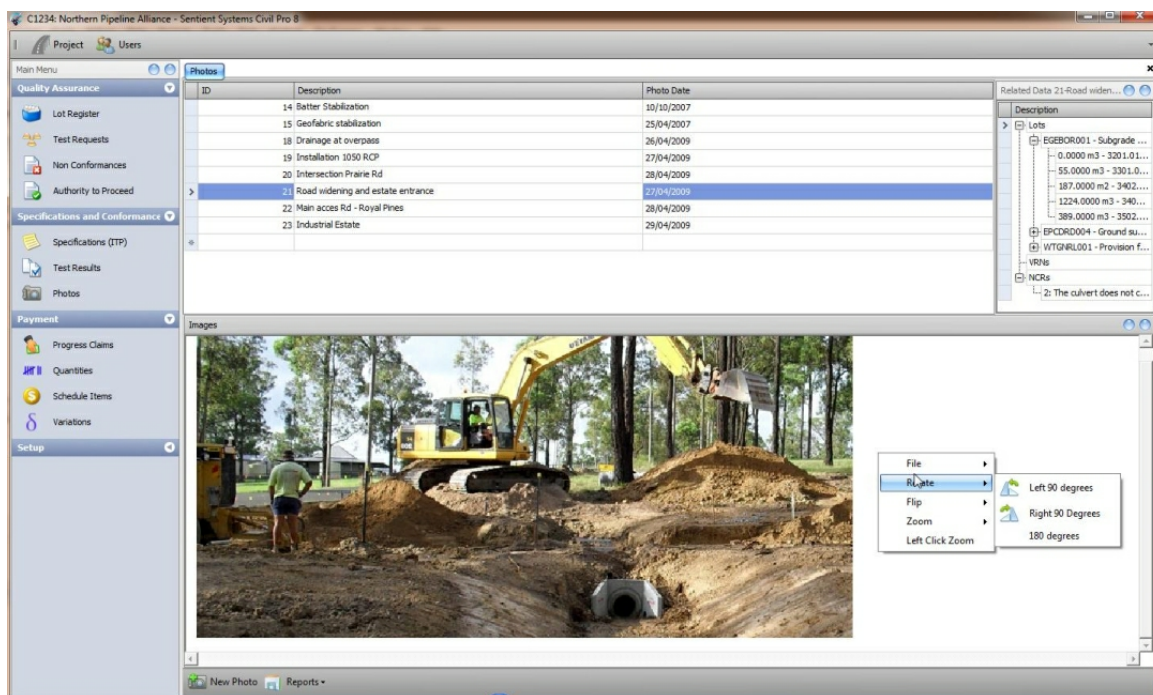


Fig 1. The Photo Register showing the preview panel

Photo Records

A Photo record consists of;

| | |
|---------------|---|
| Photo ID | A sequential number for each photo - generated automatically by civil pro |
| Description * | A description of the non-conformance |
| Photo Date * | Where the non-conformance is located |

Adding New Photos

New photos can be added in three ways;

- Enter a new photo record in the grid. Add a new image using the Get Image function on the Preview Panel context menu
- Use the New Photo wizard and update the grid entry after importing. The [New Photo wizard](#) and [Batch Import](#) functions use the same interface.
- Use the [Batch Import](#) function from the context menu and import numerous photos at once. Then update the imported entries in the grid.

Image Swapping and Downloading

- To change a photo record's image, select the Get Image option from the Preview Panel Context Menu (accessed by right clicking on the preview panel). Select the replacement photo, and click OK in the import wizard.
- Saving a picture (for example to an external device or to send in an email) use the Save Image As function from the Preview Panel context menu.

Photo Manipulation

Each image in civil pro can be manipulated using civil pro's image manipulation tools. The image manipulation tools are accessed from the Preview Panel's context menu (accessed by right clicking on the preview panel). Zooming functions are also performed with the mouse scroll wheel.

The available functions are;

| | |
|------------------------|---|
| Rotate | |
| - Left | Rotates the image left 90 degrees |
| - Right | Rotates the image right 90 degrees |
| - 180 degrees | Turns the image upside down |
| Flip | |
| - Horizontal | Flips the image horizontally |
| - Vertical | Flips the image vertically |
| Zoom | |
| - Zoom In | Increases the zoom |
| - Zoom Out | Decreases the zoom |
| - Fit | Resizes the image to fit the panel while maintaining the aspect ratio |
| - Actual Size | Changes the zoom to 100% |
| - Stretch to Fit | Stretches the photo to fill the available panel area regardless of aspect ratio |
| Left Click Zoom | When enabled, left clicking and dragging a window on the image zooms to that window |

5.10.1 Related items

The related items panel allows users to quickly see information associated with a Photo (Lots, Variations and NCRs). This and similar mechanisms in the NCR, VRN and Lot register are the only way to create associations between these objects and photos. When you move between photos in the Photo register, the related items list will show the lots, NCRs and VRNs linked to the photo.

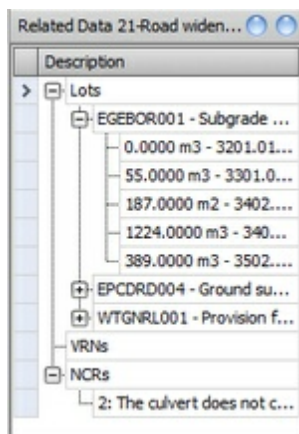


Fig 1. The Photo Related Items

To add a new link between a photo and a lot, double click the Lot heading in the related items list - A list of lots will pop up. Select the lot(s) you want to add and drag them onto the Related Items list. To see the detail of a lot, double click it and the lot register will open displaying the clicked lot. To delete a relationship, select it and click delete.

The related VRNs and NCRs list shows any photographs stored in civil pro that are related to the photo. To associate them, follow the same procedure as for adding a lot to the photo, but double

click on the VRN or NCR heading instead.

5.10.2 Photo import / new photo wizard

The Photo Import form is used in all methods of importing one or more images into civil pro. This includes;

- the New Photo function at the bottom of the Photo Register
- the Batch Import function
- the Get Image function accessed from the Preview Panel context menu

When these functions are invoked, a dialog appears. Select a file (or multiple files for the Batch import) and the Import form appears.

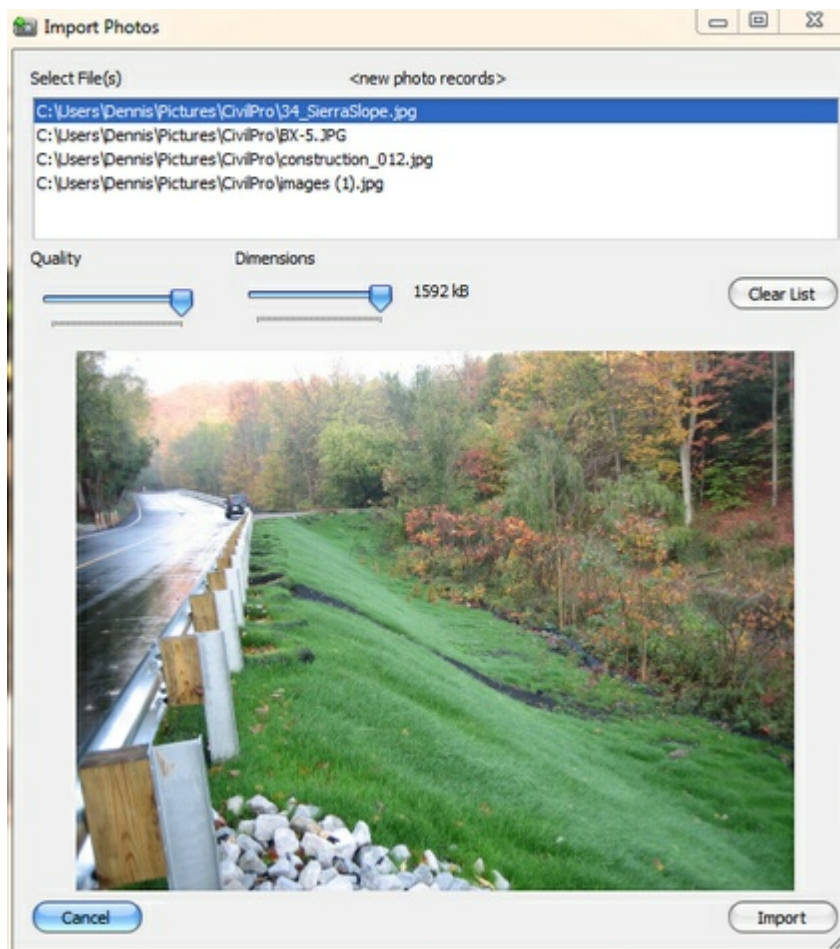


Fig 1. The Photo Import page - showing images imported using the Batch Import

This page allows you to adjust the storage size of the files you are importing. To adjust the image quality and dimensions, move the Quality and Dimensions sliders. The image preview will be updated and the size on disk recalculated. The quality and size settings you have selected will be applied to all images in the batch.

When you have completed the import, a record will exist in the Photo Register for each image, and your images will be attached to them. The descriptions in the register will need to be updated. Civil pro will try to determine the photo date from the photo's properties. If it cannot, you will also need to

update the Date field.

Create links to other records in civil pro using the Related Items panel.

5.11 Document control

The civil pro document management module records the drawings, specifications, contracts or management documents for a project. The list of documents is called the [document register](#). The document register also records when a document is reissued with revisions.

When documents are revised, other members of the project generally need to be advised. For this reason each document is associated with a list of people that need to be advised of changes. The link between people and documents is referred to as the [document distribution](#) list.

When one or more documents change, the people on the distribution list need to be advised. This is formally managed through the creation of a Document Transmittal in the [transmittal register](#).

5.11.1 Document register

The document register is a list of drawings, specifications, contracts or management documents for a project. There is no restriction on what documents can be listed in the register.

To create a new document, simply enter the data in a new row (you will need to ensure that the Enable Editing option has been selected from the context menu). The information collected for each document is;

| | |
|-------------------|---|
| Document number * | Any unique identifier. By default is created from the work type, area code and an auto generated index. |
| Description * | A description of the document |
| Doc group | Any text - used to differentiate between document groups |
| Doc type | Any text - used to differentiate between document types |
| Controlled by | Any text - the person or entity responsible for advising of revisions to the document |
| Document date * | The date recorded on the document as its date of issue |
| Date received * | The date the document was received |

There are two additional, readonly fields; Last Rev and Last Rev Date. These fields are populated when a document has one or more revisions to provide a summary of the last revision to the document.

Drop Down Lists

Three of the columns (Doc Group, Doc Type and Controlled By) have drop down lists. These lists are simply a summary of previous entries for the respective field, so the first time you add a record the list will be empty. After you have added a record in which you provide, for example, a doc type (by typing straight into the grid), that doc type will appear in the list the next time you drop it down.

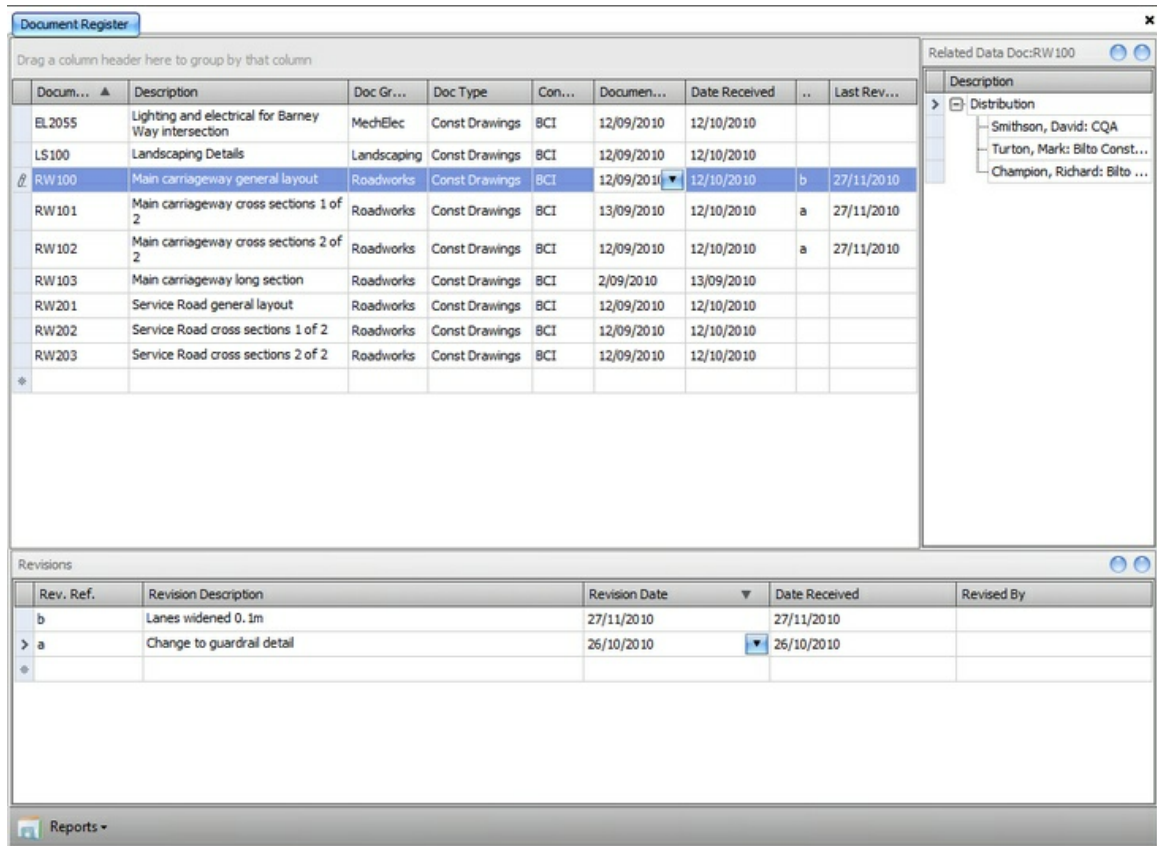


Fig 1 The document register showing the distribution list for RW100 and two revisions a, and b.

Distribution List

The distribution list for each document can be viewed in the related items panel accessed using the right click context menu. Add a person to the list by double clicking on "Distribution" in the Related Items panel, a popup will appear with a list of users. Drag the user(s) to add on to the distribution list.

Import and Export

The document register can be created or appended to by importing from the clipboard or a CSV file. Simply select the "Import Doc Register" option from the right click context menu. For more on importing, refer to [importing data](#). Data is exported in a similar way, simply select the rows you want to export (or control+A for all records) and select "Export Doc Register" from the right click context menu.

Revising documents

To create a record for a document revision, select the document and enter the details for the revision in the "Revisions" pane at the bottom of the register. If the revision pane is not visible, double click the record, or select Show Revisions from the context menu.

The information recorded for a document revision is;

| | |
|---------------|---|
| Rev. ref * | A text identifier for the revision - usually taken from the document itself i.e. Rev A. |
| Description * | A description of the changes to the document |
| Revision date | The date the document was revised |

| | |
|---------------|---|
| Date received | The date the revision was actually received. This is usually different from the revision date and is a key piece of information in the case of a dispute |
| Revised by | Any text - the person or entity responsible for managing revisions to the document. The drop down list for this field behaves similarly to that for the doc groups and doc types in the main document register. |

Reports

The document register can be printed by selecting the option from the reports menu.

5.11.2 Document distribution

Each document recorded in civil pro can be associated with one or more users via its distribution list. The distribution list is how civil pro can automatically determine who needs to be advised (via a Transmittal) when a document is revised.

The distribution list for each document can be viewed in the related items panel of the Document Register. Add a person to the list by double clicking on "Distribution" in the Related Items panel, a popup will appear with a list of users. Drag the user(s) to add on to the distribution list.

To see the list of documents circulated to a user, open the people register and select "Show Doc. Distribution" from the right-click context menu. A panel will appear showing the documents on the distribution list for the currently selected user. Add a document to the list by double clicking on "Document" in the Related Items panel, a popup will appear with a list of documents. Drag the document(s) to add on to the distribution list.

If you need a report of the documents distributed to each user, this report is available from the Reports menu of the People register.

5.11.3 Transmittal register

A transmittal is used to officially notify people that a document has been revised. To create a transmittal, simply enter the data in a new row (you will need to ensure that the Enable Editing option has been selected from the context menu). The information collected for each transmittal is;

| | |
|------------------|--|
| Transmittal ID | A unique identifier automatically generated by civil pro |
| Description * | A description of the transmittal - Revision Advice by default when automatically creating transmittals |
| Transmittal To | The person the user is addressed to |
| Transmittal Date | The date the transmittal is generated |
| Date Confirmed | If you are tracking when transmittals are acknowledged as having been received, the date can be recorded here. |

Each transmittal has a list of documents, a specific revision for, and a quantity of each accompanying the transmittal. These can be added manually in the Transmittal Items panel - this is accessed by double clicking the transmittal or selecting the Show Transmittal Items option from the

context menu. They can also be added by double clicking the "Docs Transmitted" heading in the Related Items panel, and dragging the appropriate document onto the heading.

Automatically adding revisions

If you know a person needs to be advised of changes to documents on their distribution list, create a transmittal and select "Add Outstanding Docs" from the context menu. Any document whose latest revision hasn't been transmitted will be added to the transmittal.

Automatically creating outstanding transmittals

For a list of all users with outstanding transmittals, use the "List Un-transmitted Users" option from the context menu. In the popup of users with outstanding transmittals, selecting one or more and clicking the OK button will automatically create new transmittals for the selected users and add the outstanding documents.

Seeing more documents and revisions

When you are presented with lists of documents to add to the transmittal, it will show either;

- i) Documents with un-transmitted revisions
- ii) The documents distributed to the person to whom the transmittal is addressed
- iii) All document

By default, only documents with un-transmitted revisions are shown in the drop down lists. This can be changed by altering the selection in the context menu.

Reports

One or more transmittals can be printed by selecting them and clicking on the "Print Transmittal" option in the Reports menu at the bottom of the form.

The transmittal register can be printed by selecting the option from the reports menu.

| Transmittal Register | | | | |
|---|-----------------|-------------------|------------------|----------------|
| Document Register | | | | |
| Drag a column header here to group by that column | | | | |
| Tran... | Description | Transmittal To | Transmittal Date | Date Confirmed |
| 6 | Revision Advice | Turton, Mark | 29/09/2010 | |
| 7 | Revision Advice | Champion, Richard | 29/09/2010 | |
| 4 | Revision Advice | Smithson, David | 26/09/2010 | |
| 5 | Revision Advice | Turton, Mark | 26/09/2010 | |
| 8 | Revision Advice | Smithson, David | 29/09/2010 | |

| Transmittal Items | | |
|---|------------------------------------|-----|
| Document | Revision | Qty |
| RW101: Main carriageway cross sections 1 of 2 | a (27/11/2010): Lanes widened 0.1m | 1 |
| RW102: Main carriageway cross sections 2 of 2 | a (27/11/2010): d | 1 |
| RW103: Main carriageway long section | | 1 |
| RW201: Service Road general layout | | 1 |
| RW202: Service Road cross sections 1 of 2 | | 1 |
| RW203: Service Road cross sections 2 of 2 | | 1 |
| EL2055: Lighting and electrical for Barney Way intersection | | 1 |
| LS100: Landscaping Details | | 1 |

Fig 1: Transmittal Register

5.12 Production Management

This module is a simple tool for tracking daily costs and production and doing simple analyses to identify performance across one or more cost codes. It is an alpha feature of Civil Pro and is not supported yet, but you are welcome to try it out and tell us what you think.

5.12.1 Cost Codes

Before starting to use the production module, you must define your cost codes. Other data such as your suppliers can be added on the fly as you use them, but the cost codes must be defined prior to actually entering data that references the costs code. You can add more later, you simply must do so through the cost code register rather than being able to actually enter it straight in to the cost/production register.

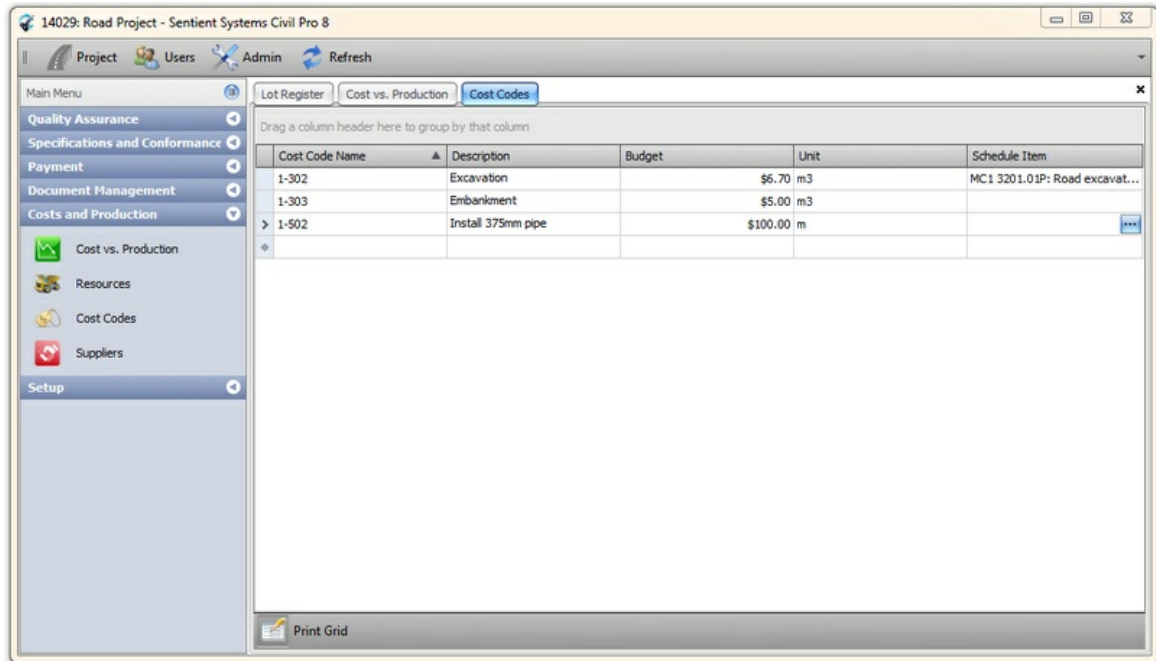


Fig 1: The cost code data entry screen

The required data is relatively straightforward.

- Cost Code Name - the code you use to track a set of costs - this will be seen in the cost/production tracking screen
- Description - information detailing what is covered in this code
- Budget - the unit rate budgeted for this activity
- Unit - the unit of measurement
- Schedule Item - if this maps to a schedule item, here is where you can link it.

5.12.2 Cost vs. Production

Once you have entered cost codes, you don't actually have to enter any more information into the registers, these can be populated as you enter data into the Cost vs. Production register. The Resources and Suppliers registers are simply a record of the different suppliers and the resources they provide, along with the rate at which they supply these resources. Information about these two registers are in separate help topics.

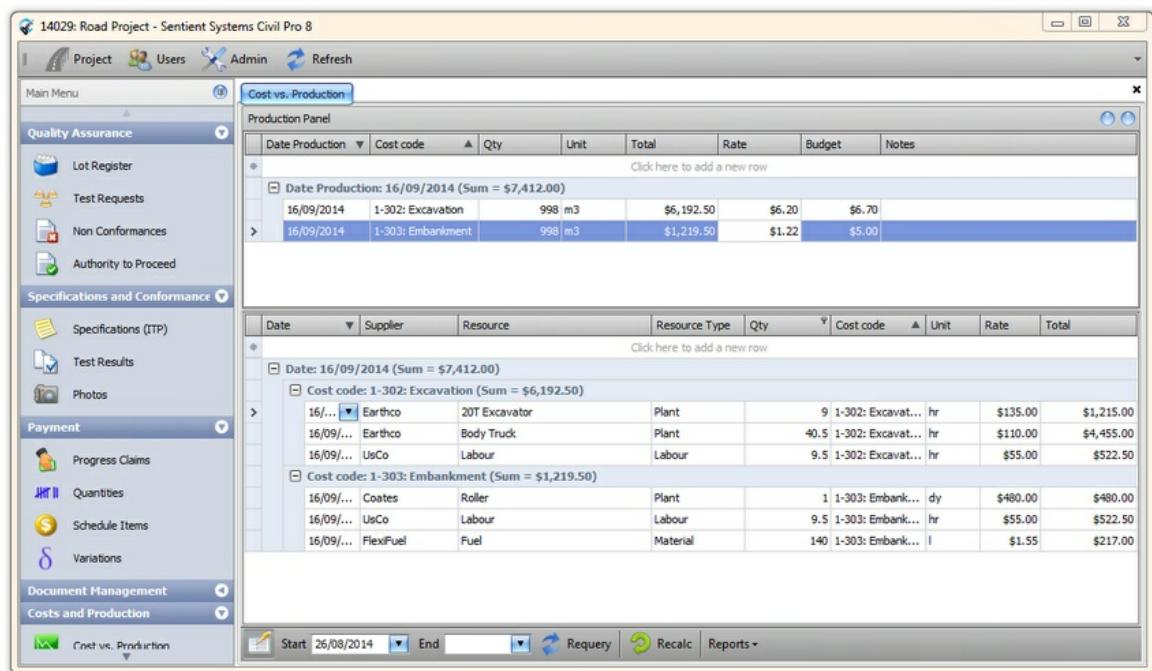


Fig 1: Cost vs. Production Data Entry

Simply add data for each resource on each day into the bottom half of the screen. In the top half, add what quantity of production was achieved for each cost code by the resources you have entered. Civil Pro will calculate the unit rate of production on a day by day basis.

5.12.3 Suppliers

The suppliers register is simply a list of the companies from which you purchase supplies, services or hire equipment. Adding or deleting from this register will not affect your data that is already entered into the resources or cost vs. production registers. Adding additional suppliers will make them available from the drop down selectors in the resources and cost vs. production registers.

When you add a new record in cost vs. production that has a new supplier, they are automatically added to the supplier register.

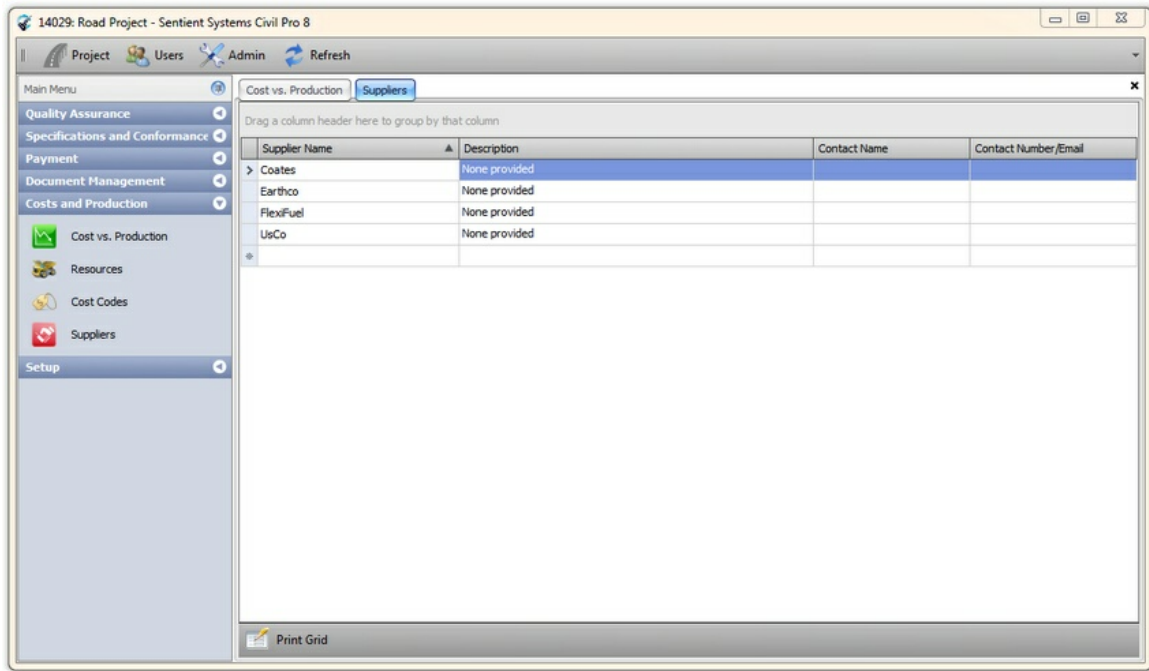


Fig 1: Suppliers Register

5.12.4 Resources

The resources register is a list of the resources supplied by the suppliers with which you do business and includes materials purchased, equipment or plant hired and labour - either external or internal. Adding or deleting from this register will not affect your data that is already entered into the cost vs. production register. Adding additional resources will make them available from the drop down selectors in the cost vs. production register.

When you add a new record in cost vs. production that has a new resource, they are automatically added to the resources register.

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Project Users Admin Refresh

Main Menu

Cost vs. Production Suppliers Resources

Drag a column header here to group by that column

| Supplier | Resource Name | Resource Type | Rate | Unit |
|-----------|----------------|---------------|----------|--------|
| Earthco | 20 T Excavator | Plant | | \$0.00 |
| > Earthco | 20T Excavator | Plant | \$135.00 | hr |
| Earthco | Body Truck | Plant | \$110.00 | hr |
| UsCo | Labour | Labour | \$55.00 | hr |
| Coates | Roller | Plant | \$480.00 | dy |
| FlexiFuel | Fuel | Material | \$1.55 | l |

Print Grid

Fig 1: Resources Register

Part



VI

6 System administration

Managing your civil pro install is relatively easy. The most important task - [backup and restore](#) is as simple as making sure you have a copy of your standalone civil pro file, or backing up your SQL server. Both of which are simple tasks to automate.

If you want to create a template for your new projects, you can copy the template straight into a read-to-go project file using the [transfer project data](#) function.

Have you got civil pro v7 data? No problem, just import and the check for accuracy using the civil pro v7 importer.

6.1 Backup and restore

Methods for backup and restore of civil pro systems depend on whether you are using a standalone or server install. If you are using a standalone (i.e single project) install, simply copy the file containing your project to the backup location as if it was any other file you are backing up. If you have an automated backup, you need only ensure that the backup is copying files from the civil pro directory.

If you are using a server install, you need to backup the database on the SQL server. This is a sysadmin responsibility and it is assumed if you have this kind of civil pro system that you have suitably qualified personnel to undertake this task. Performing an SQL server backup is not a particularly complicated task but is beyond the scope of this manual. Backing up an SQL server is described in detail at;

<http://msdn.microsoft.com/en-us/library/ms187510.aspx>

6.2 Transfer project data

Copying a civil pro project is relatively easy and is achieved using the Project => Import/Export => Transfer Project Data function from the system menu. One of the most common uses for a copy is where you have a template project that you want to use for all new projects. Simply select the project and copy it to either your server, or a standalone database. You can also use these templates during the [project initialization](#).

The copy is not recommended as an alternative to the [backup and restore](#) mechanisms you should be employing to protect your data.

Using this function you can;

Server Install

1. Copy a project from a server install to a standalone file
2. Copy a project from a server install to a new project on the same, or another server

Standalone

1. Copy a standalone project to a server install
2. Copy a standalone project to a new standalone project

In civil pro there is a difference between a copy and a clone. A clone is an identical, standalone replicate of a server-based project that can be used offline, and then re-integrated with the database. You cannot clone a standalone database.

Step 1 Select the source project. You can opt to use the current project (Fig 1A) or choose a different project (Fig 1B). If you choose a different project, this can be selected as either a standalone or server install using the "Select Source" options.

The screenshot shows a dialog box titled "Transfer Data" with a sub-tab "Project Data Transfer". The main heading is "Select the Source Project". Under "Select Source", there are three radio button options: "Current Project" (which is selected), "SQL Server", and "Civilpro Data File". Below these options is a large, empty rectangular area. At the bottom of the dialog, there is a prompt "Please enter a valid login for this project:" followed by two input fields labeled "Username" and "Password". At the very bottom, there are two buttons: "Next >" and "Cancel".

Transfer Data

Project Data Transfer

Select the Source Project

Select Source

☐ Current Project

☒ SQL Server

☐ Civilpro Data File

Server: DENNIS-PC\SQLEXPRESS

☒ Integrated Security

☐ SQL Security

Username:

Password:

Database: CP8

Project: C1234

Please enter a valid login for this project:

Username: sysadmin

Password: *****

Next > Cancel

Fig 1A (left) and 1B (right): Selecting a project to copy as either the current project you are logged in to (Fig 1A) or a different project (an existing SQL server install is shown in Fig 1B)

Step 2: Chose the target database - either a server or standalone project. If a standalone project is selected, the destination project must be a new file. You cannot copy over an existing civil pro standalone project or have multiple projects in the one file.

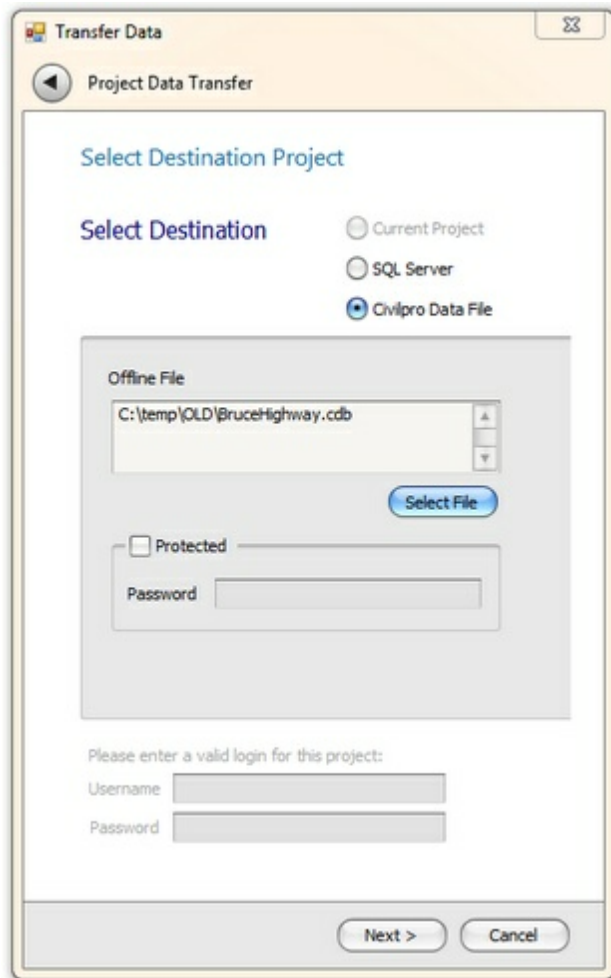
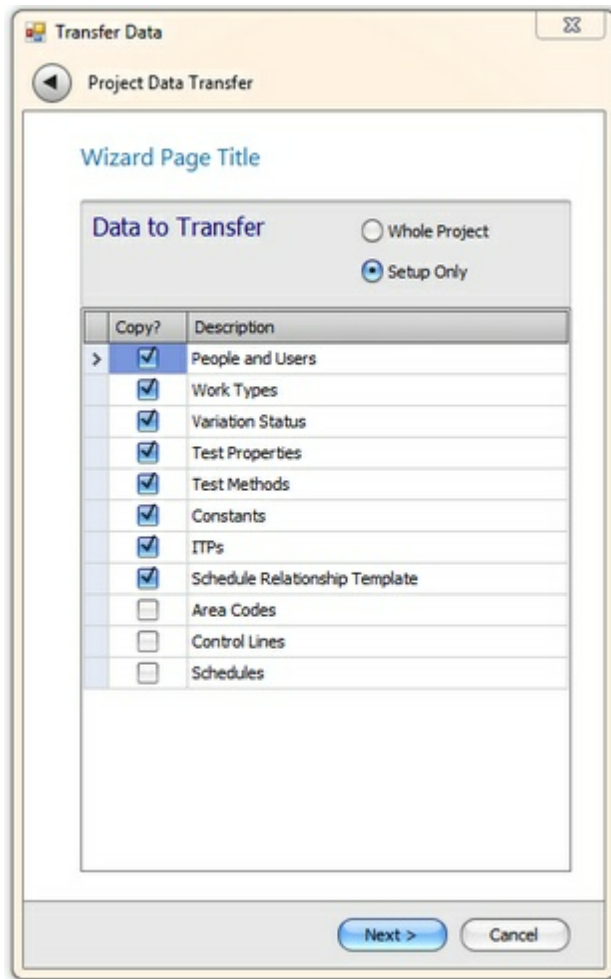


Fig 2: Selecting a destination project. A standalone file type is shown

Step 3: Select the data you wish to copy - this can either be the whole project, or a selection from within the setup data.



Step 4; If you want, you can give your project new details (unless you are copying setup information to an existing project).

The screenshot shows a software window titled "Transfer Data" with a sub-tab "Project Data Transfer". The main section is titled "Rename Project". It contains several input fields for project information:

- Contract No: 2010_QLD_030
- Project Name: Western ringroad overpass
- Cont. Proj No.: MC003
- Client Company: Transport and Main Roads
- Client Project No: (empty)
- Start Date: (empty) with a dropdown arrow
- End Date: (empty) with a dropdown arrow
- Superintendent: (empty)
- Principal: (empty)
- Project Location: (empty)
- Project Team: (empty) with a dropdown arrow

Below these fields is a text instruction: "If you have photographs, you must provide a path below where copies of your photos will be made for use with your copied or cloned database." followed by an empty text input field and a browse button (three dots).

At the bottom of the dialog are two buttons: "Next >" and "Cancel".

Fig 4: Rename the project

Step 5: Confirm the project details and click the "Start Transfer" button to begin the copy.

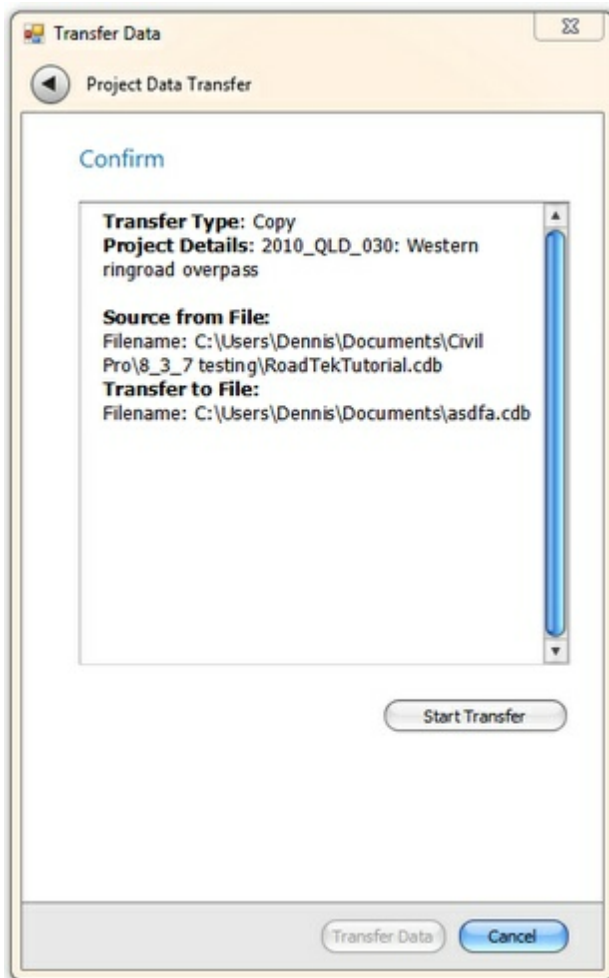


Fig 5: Confirm the copy details

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