Civil Pro Desktop

1 Lot based QA

The basic principle 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?"

1.1 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 use 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 this situation you need an effective method of complying with your obligations.

1.2 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 following:

- 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 is restricted to a single day's production with a paving machine, of a single type of gravel. Something similar to this is found in the TMR specification for pavements MRTS08:

Where no maximum Lot size is specified for construction is specified in Clause 1.2 of Annexure MRTS08.1, the maximum Lot size shall be equal to the area (in m2) of production of one completed stabilized layer achieved during one work period, provided the material is essentially uniform.

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

1.3 When do I define a Lot?

While lots can be defined before a project commences, this is not recommended as it is impossible to know what will happen during the project that may influence how a lot's extents may change. **It is best practice to create lots immediately prior to commencement of a section of work**. If in doubt, check your contract as 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.

1.4 Inspection and test planning

Each type of Lot (i.e. a pavement, excavation, concrete pour 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 on lots containing this type of work.

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

1.5 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.

1.6 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 generally 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.

1.7 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 the 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.

1.8 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.

1.9 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.

2 Choosing a database type

The first step in creating a Civil Pro project is to open Civil Pro and either:

1. Create a new standalone project (as we will in this tutorial) OR
2. Create a new server project

2.1 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.

For this tutorial we will create a standalone (file based) install

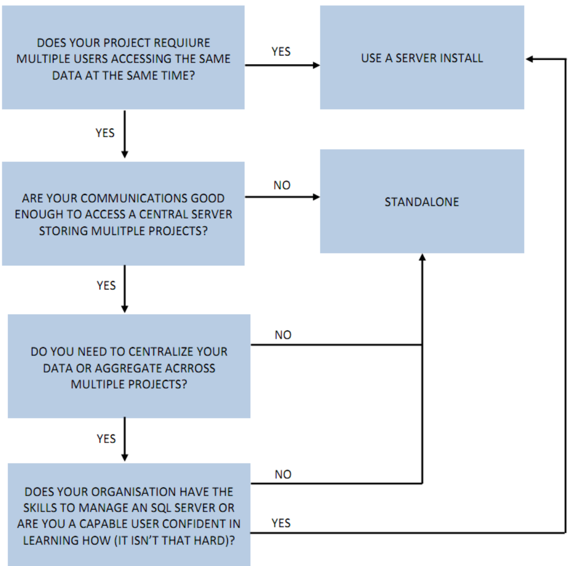
2.2 Standalone (file)

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. In versions pre-v9, standalone files were limited to one project per file. This is no longer the case in version 9 – you can have as many projects in a single file as you like.

2.3 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 either a reliable backup of the environment in which the server is running, or 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.

2.4 The following flowchart can be used as a guide

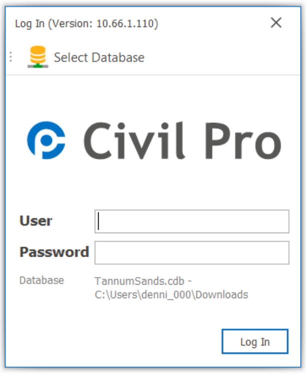


3 Paint by numbers – learning Civil Pro by creating a demo project

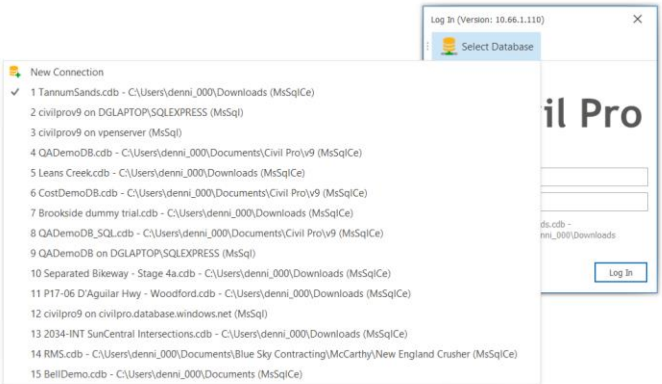
3.1 Connecting to a new database

When you open Civil Pro you will see the login screen. Normally you will just enter your username and password and continue into your project – but you don't have a project yet, so it is time to make one.

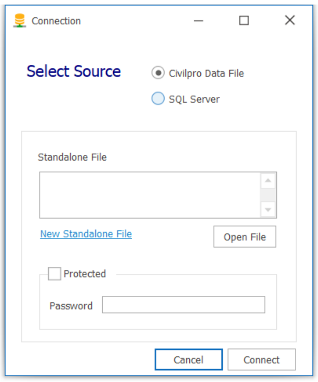
1. Click on the *Select Database* button in the top left.



2. Then click *New Connection* at the top of the list.



3. Make sure *New Civilpro Data File* option is checked then click on the *New Standalone File* link, select the location you want the new file and type a new name for the file.

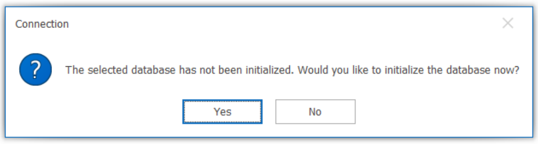


4. Click on *Connect.*

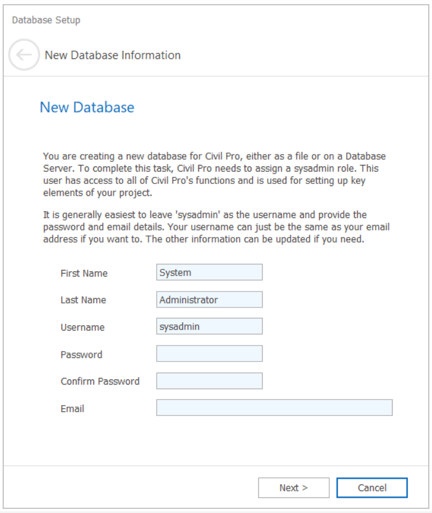
tip It is generally unnecessary to password protect the Civil Pro database itself UNLESS it contains especially sensitive data and is in an unsecure location. We set access security for Civil Pro in the next step.

3.2 Initializing the database

1. You will be prompted to initialize the database. Click *Yes*.



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 - fields with a blue background are compulsory.



2. Type in a password and email address. **YOU WILL NEED TO REMEMBER THIS USERNAME AND PASSWORD** Click *Next.*

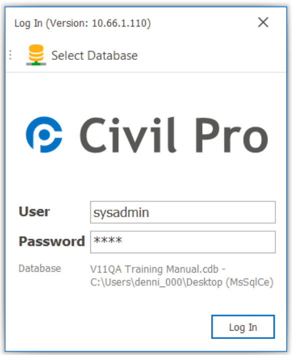
The Database Setup Complete screen will appear which notes that you will need to remember the username and password from the previous screen.

tip If you didn't change the default, the username was sysadmin.

3. Click *Finish*.

3.3 Log in and create your project

After creating your database, you will be returned to the login screen.



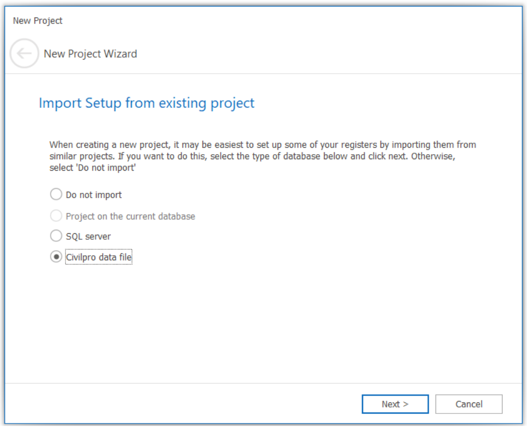
1. Enter your username and password from the previous step. Click *Log In*

Because there is no project in our database yet, the new project wizard will begin. The first page in the wizard is the import page.

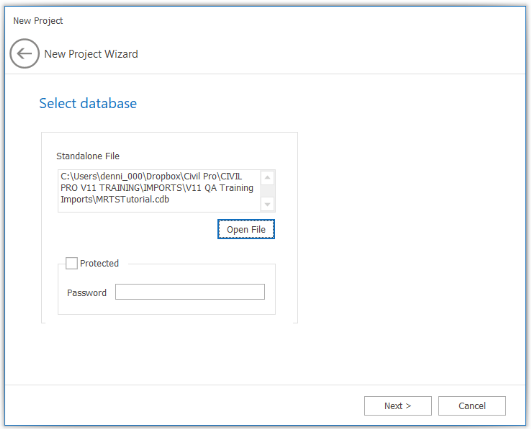
When you start a new project, much of the information may be similar to a project you have previously worked on, or your company may have a set of standards you need to reuse. You can copy the setup from any previous.

Simply select the type of connection (SQL Server or Civil Pro data file), or if you are not importing, or you prefer to import specific information later - select *Do Not Import*.

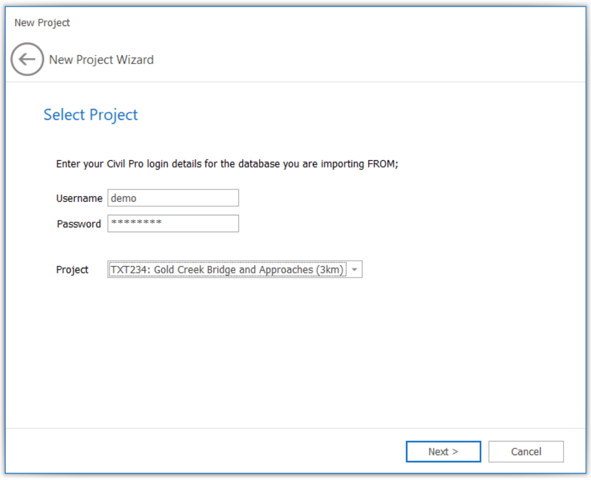
In this case, we are going to copy the Project Settings and Test Methods from an existing standalone project.



2. Select the *Civil Pro data file* option and click *Next*

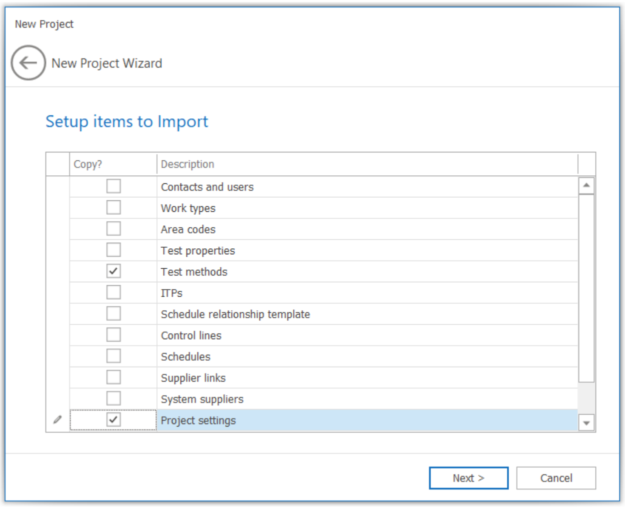


3. Click *Open File* and then navigate to the file to import from (it is in the training material and is called MRTS Tutorial.cdb). Click *Next*



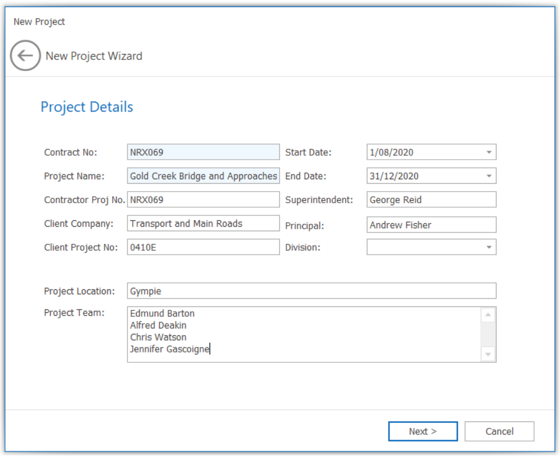
IMPORTANT NOTE: Civil Pro can only import from projects with the same data structure as the current version. If you have problems importing, fix the target database by simply logging in to it, then try again.

4. Type in the username and password and click *Next*. The username and password for the demo file is *username: demo / password: sentient.*



5. Select the checkboxes for Test Methods and Project Settings. Click *Next*

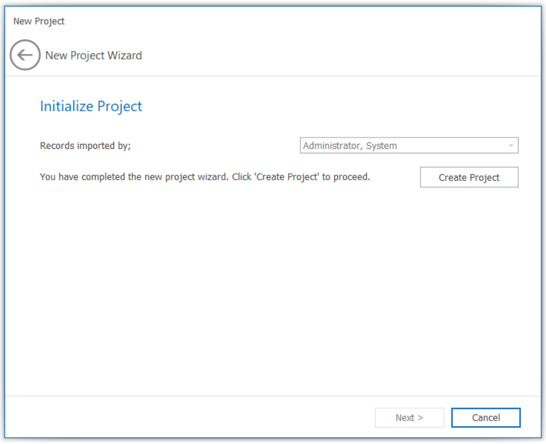
The next step is to collect key information about the project. This includes compulsory information (blue fields) and optional information. When you are finished, click *Next*. If you don't have all the information needed at the moment, it doesn't matter, you can update it later.



tip The date editor is very dynamic. When it is opened, if you click on the month then you can select a month directly. The same works for the year.

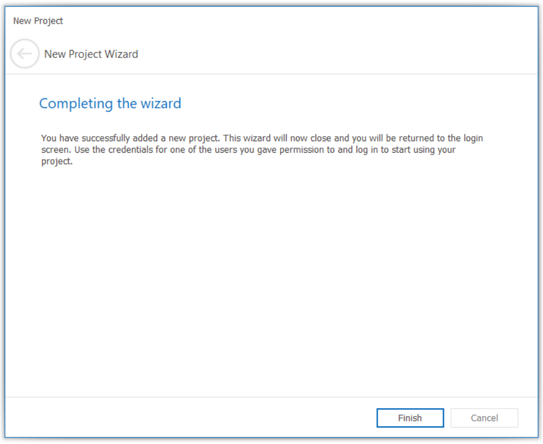
6. Enter information from the Project Information from Tutorial sheet, and click *Next.*

On the last screen, you are required to select a user from your new database who will be assigned the records you have imported or are creating as part of the set-up process. In our case there is only the user we have created when we initialised the database



7. Click on the *Create Project* button.

Assuming all goes well you will see the *Finish* page. Click *Finish* and be returned to the Log In screen.



4 Creating the Registers

There are certain Registers that Civil Pro needs completed so it can correctly categorize your data and find your information later. In this step we will create the new Registers for our project including:

- Schedule Items
- Area Code
- Work Type
- Control Lines

4.1 Schedule Items

The Schedule Items Register is a list of all of the payment items for a project. Here we will import the Schedule of Rates and format it. Open the Schedule Item Register by clicking on the *Schedule Items* from the Main Menu (on the left under the *Financials Setup* heading - the red box in Fig 1).

Each of the Registers (like the Lot Register, Non Conformance, Schedule Register etc.) is set up with the same basic layout as below in Figure 1. Take a minute to familiarise yourself with the terms describing each section. Please take note of the green shaded section which is where your data will appear when it is added. Right clicking in this section will open the *Register Grid Context Menu* which is where we will find the option to import our schedule.

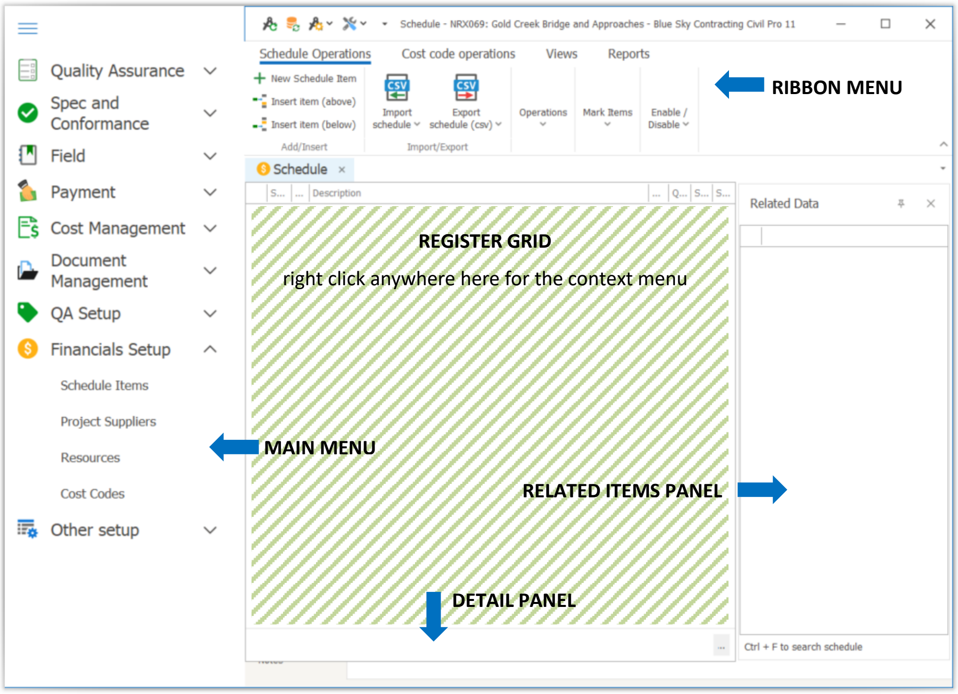


Figure 1 The Schedule Register

1. We are going to import from a CSV schedule so, from the Register Grid right mouse click to access the context menu then select *Import/Export => Import schedule*

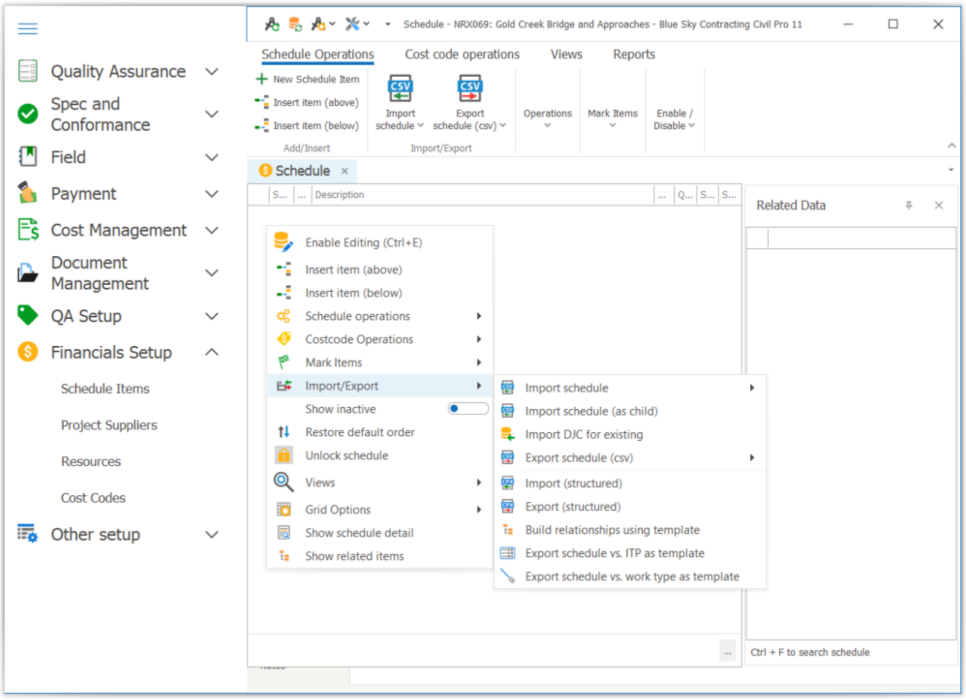


Figure 2 Importing the Schedule

2. The import Wizard will open, choose *import data from a CSV (*Figure 3 Import Wizard - select data source). Click *Next.*

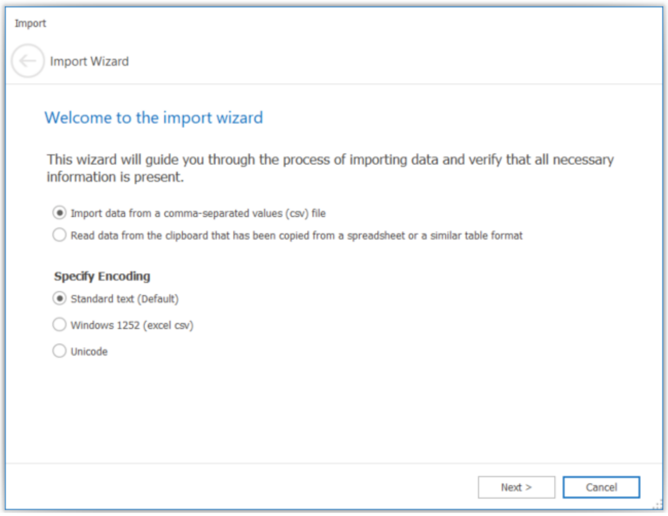


Figure 3 Import Wizard - select data source

tip

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 CSVs. 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. If you find you get non-printing characters, we have had success selecting the UTF8 option when

3. A file selector will open. Select the file containing your schedule (*imports/NRX069 schedule.csv*) and it will open in the import preview.

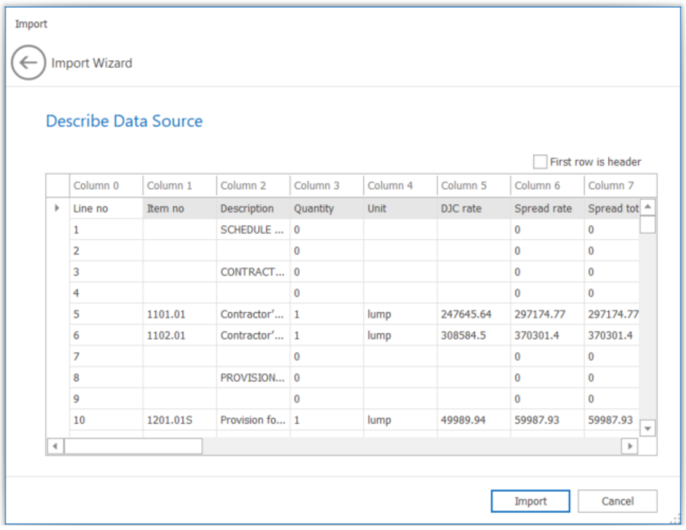


Figure 4 Import Wizard after opening CSV

4. Assign headings by using the right click *Context Menu* on each column header (where it currently says Column 0, column 1 etc.). Right click on the heading containing the Schedule Number (Column 1) and in the menu that pops up, select S*chedule No*. The heading of the column will change to reflect the selected description.

When you have assigned all of the necessary column headings your grid should appear something like it does in Figure 5 Import Wizard after assigning headings.

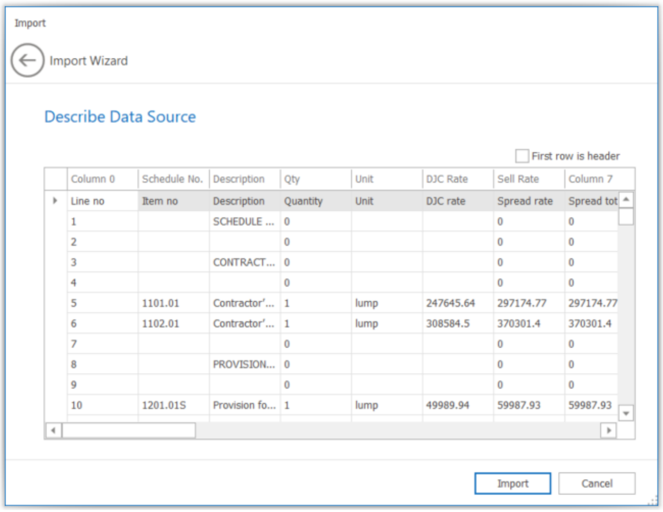


Figure 5 Import Wizard after assigning headings

5. Click the *Import* button. Click on the *Finish* button in the next page.

You will be returned to the Schedule Register where the data has been imported. The Register should look something like Figure 6

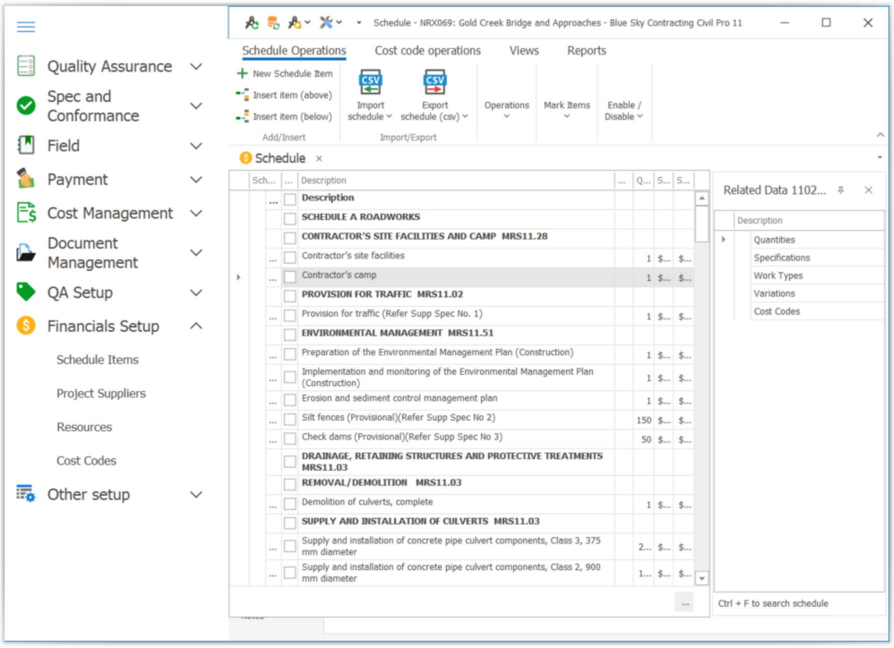


Figure 6 The schedule immediately after import

4.2 Organizing your schedule

4.2.1 General tidying up

Civil Pro treats any item with no rate and no quantity as headings (different from zero quantity/rate). Headings appear as bold to make it easier to traverse your data. On importing it does its best to allocate headings for you but if you look at your Schedule you might find that there are some rows that should be headings but have not been picked up and allocated on import.

To make these rows headings we would need to go through and delete every zero quantity and rate. Obviously, while we could do this manually it would be time consuming, so Civil Pro has a function that does this for you. Within the Context menu, select *Schedule Operations => Define Headings*.

When you import from an estimating application or other source, there are generally some lines which are not useful or which you don't want included in your reports. To delete these rows, select *Enable Editing* from the Schedule Register Context Menu (right click on the grid), select the rows (together or one at a time) and press delete. Confirm the delete when prompted.

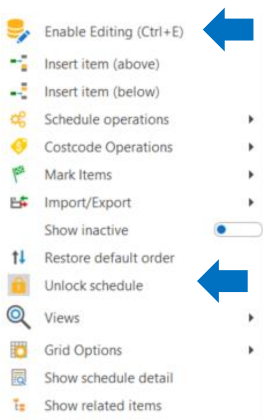
Enabling and disabling editing can be done in four ways.

1. Use the enable editing icon in ribbon menu at the top of the screen
2. Use the context menu (right click) option that does the same thing
3. Use the key shortcut – Ctrl + E

4.2.2 Creating structure

Multiple items in the tree view can be reordered above or below an item, or made into sub items of another by drag and drop.

To protect against accidental reorganization of your schedule, the ability to reorder is disabled by default. To reorder/rearrange - select the *Unlock Schedule* option in the Grid Context Menu. You will also need to have editing enabled.



1. Select one or more Schedule Items. The easiest way to do this is to select, and then grab them using the record selector (the grey rectangle at the left of the text – circled in red below in Figure 7)

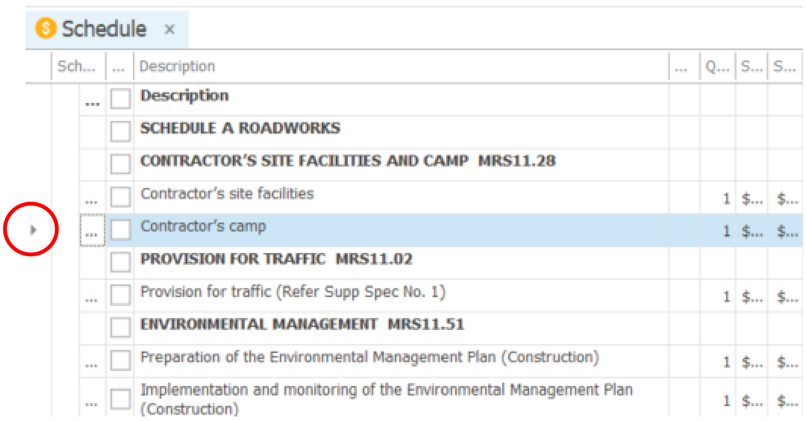


Figure 7 Record selector

2. Drag the Schedule Items over another item. Depending where on the other item you are positioned, you will see either a blue arrow (reorder) or a green arrow (make sub item):
    a. If you drop the selection when you have a green arrow, the items will be added as sub items.

b. If you drop when the arrow is blue the items will be reordered above or below depending on the direction of the arrow.

tip To prevent unnecessary scrolling, it is easiest to begin your structuring from the bottom of the schedule.

3. While drag and drop is useful, it is often quicker to use a keyboard shortcut. You can also indent/outdent a selection with the ctrl+[right arrow] / ctrl + [left arrow]. Try rearranging your items this way

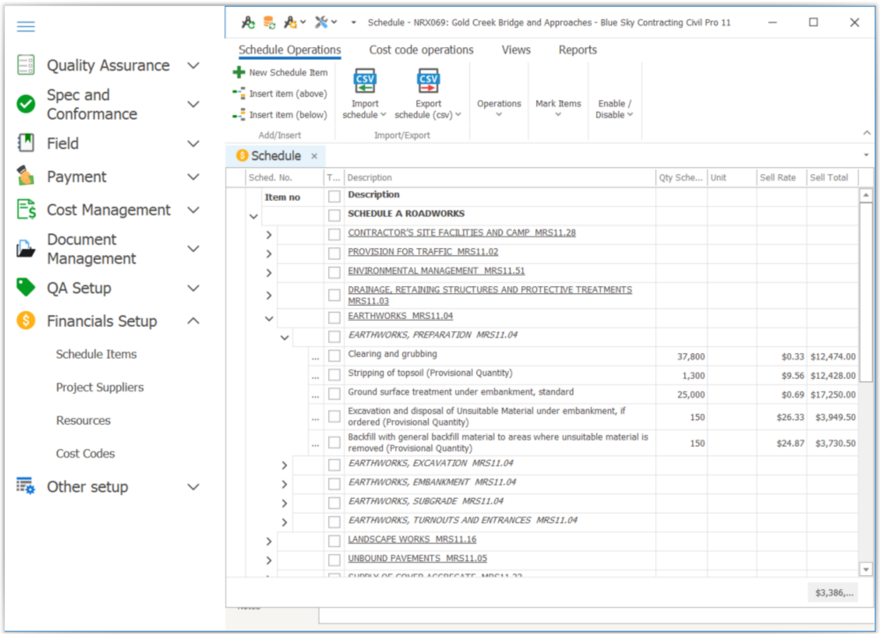


Figure 8 Schedule after structure is created

4.2.3 Prepending a character to identify schedules

In this example, we have 2 schedules for the one project - schedule A and B. It is possible that different payment items with different rates, but with the same Schedule number may exist in the different Schedules. To be able to easily identify which is which, we can prepend the schedule identifier to every Schedule Item in both very easily.

1. Select all of the Schedule A items and select *Schedule Operations => Prepend Characters* from the Context Menu. You will be presented with the form in Fig 4. Enter an A into the box, and make sure the *Include sub Items* check box is checked. Click *OK*.

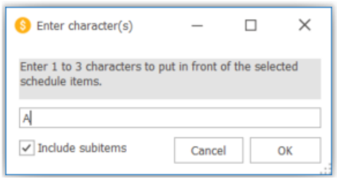


Figure 9 The prepend character dialog

Do the same for schedule B. The schedule will now look like it does in Figure 10

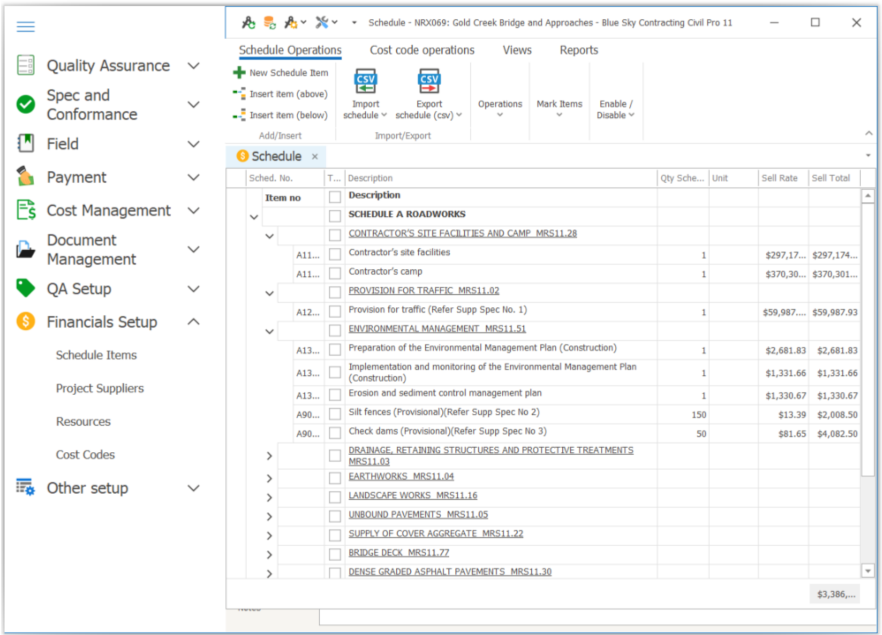


Figure 10 Schedule with prepended schedule reference

4.2.4 Creating subtotals

1. If you want to create subtotals for any branch of the Schedule Tree, simply *Enable Editing* and check the *Total?* column. When reports are printed, this level will be subtotalled. This is the second column by default (although the heading might not be visible on smaller screens). To view the heading, simply widen the column by dragging the bar in the header (similar to Excel columns).

tip

To automate the automatic subtotalling of all sections of a particular level (for example schedules A and B above), select *Schedule Operations => Define Headings* - ignore the criteria for assigning header rows and click the *Create Subtotals for Headings* option and enter the depth (in this case 1) to which you want the sections to automatically subtotal.

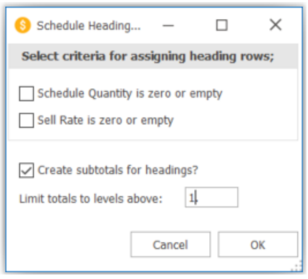


Figure 11 Creating Subtotals

4.3 Area Codes

1. Select the *Area Codes* Register from the Main Menu (on the left) under the *QA Set Up* heading. (Remember to enable editing by right clicking to bring up the context menu and selecting *Enable Editing*).

tip

You can also enable editing by clicking on the *Enable Editing* button at the bottom left of the register. This is applicable across all registers. Also, the shortcut to enable editing is Ctrl+E.

2. Using the information in the training supplement, enter a new Area code by typing the code (4 characters) and description directly in the grid. When complete your register should look like Figure 12.

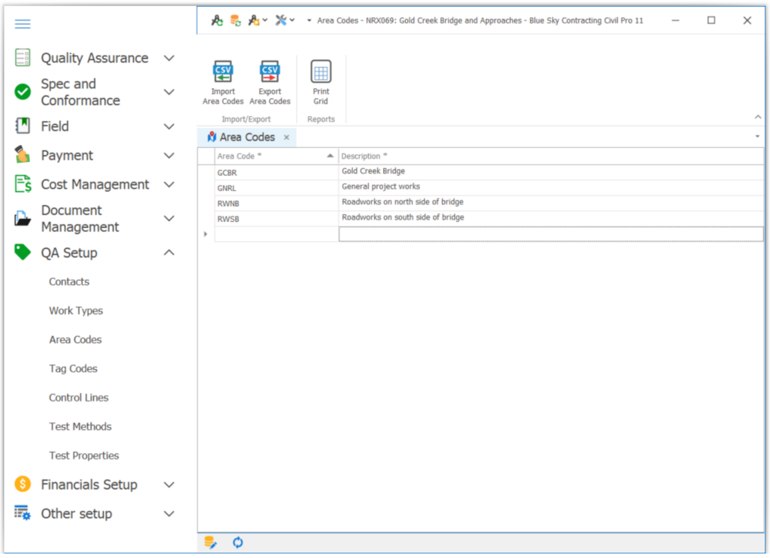


Figure 12 Completed Area Code Register

4.4 Work Types

You can enter Work Types manually like we did with the Area Codes, but we will import them from a file instead:

1. Open the *Work Type* Register from the *Main Menu*.
2. Open the Context Menu (right click on the Grid area) and select *Import/Export =>Import Work Type.*
3. Select import data from a CSV file and click *Next.*

You will note that the import wizard we use here looks similar to the one we used for the schedule. In fact it is the same base wizard and behaves exactly the same way

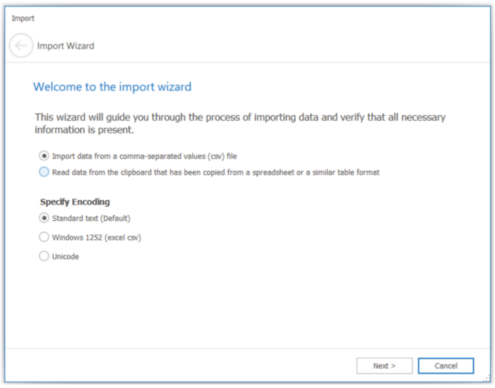


Figure 13 The import Wizard

4. Choose a CSV of Work Types to import (wtype.csv)
5. When the file is imported, right click on the heading of the column containing the Work Type, and select *Work Type* from the menu. The heading will change to *Work Type*. Do the same for the column containing descriptions.

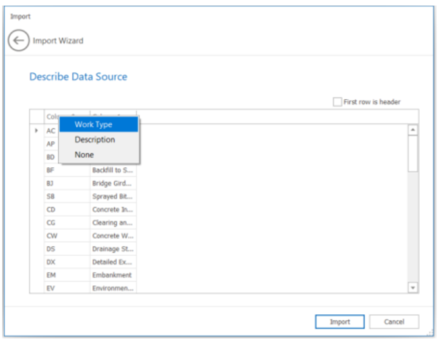


Figure 14 Assigning headings

6. Click *Import* and then *Finish*.

7. The imported *Work Types* will be shown in the grid and should look like Figure 15.

tip

It is also important to have a miscellaneous Work Type so that works not specific to a particular Work Type can be recorded. If there is not one already in the list, you should add a new Work Type *MS* with a description *Miscellaneous*.

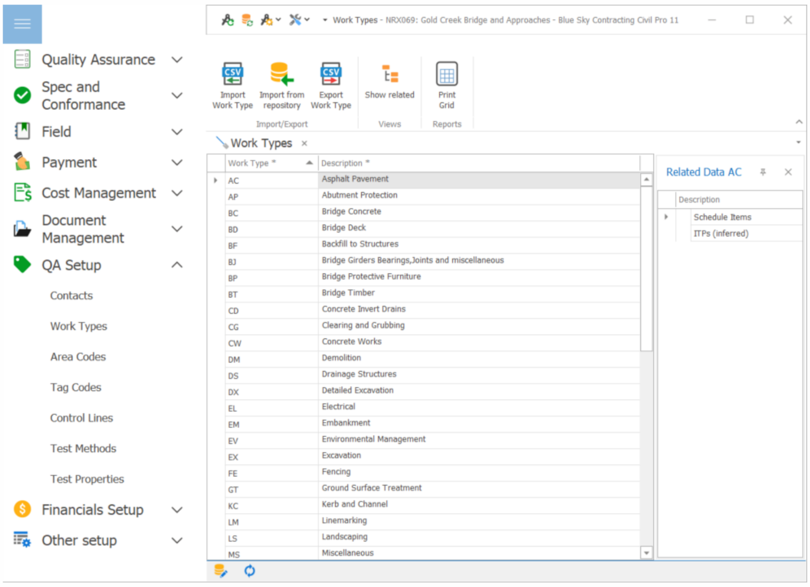


Figure 15 The Work Type Register

The Work Type Register allows for the association with Schedule Items, and also shows inferred relationships with ITPs (through Schedule Item links). We will assign these later after we have created the remaining Registers.

4.5 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 coordinate system for providing easting/northings or longitude/latitude and reduced level (RL)
- 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

1. Select the *Control Lines* Register from the Main Menu (on the left) under the *QA Set Up* heading.

You can enter your Control Lines directly into the Grid, or import them using the Context Menu option *Import Control Lines.*

2. Enter the **first** control line directly into the grid – just like we did with the area codes

For the rest, we are going to use a variation of the import from csv method to populate our Control Lines:

3. Open the excel file with the control lines in it from the training material.
4. Select the entries you haven't entered into the grid and copy using right click *+ Copy* or *Ctrl + C.*
5. Select Import Control Lines from the Context Menu and choose the option to read data from the clipboard.

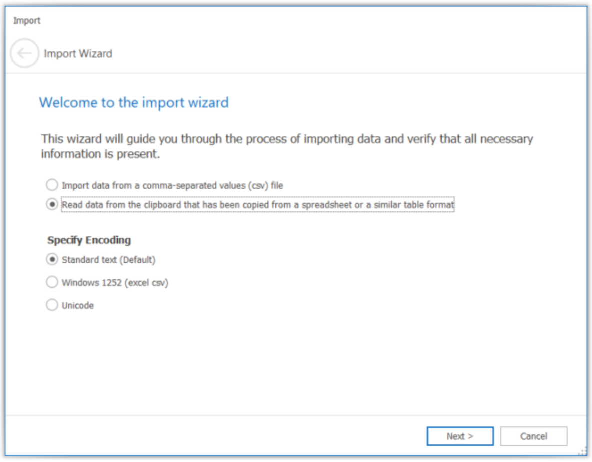


Figure 16 Importing data from clipboard

6. Assign headings, click *Import* and *Finish*. Your register should now look like Figure 17

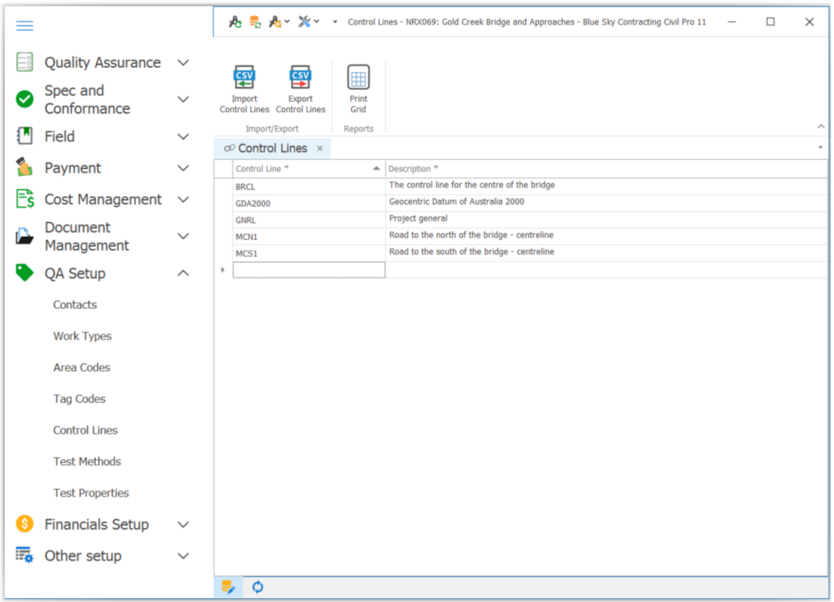


Figure 17 Control Line Register

4.6 Test Methods

Open the Test Method Register by clicking on the *Test Methods* link in the *QA Setup* Main Menu section.

When tests are requested for a project, you need to specify what type of test is to be conducted. If you want to record the results of the test, then the result fields for each test must also be entered so Civil Pro knows what data to expect for the test. You can add test result fields any time, but it is best if you have a full list you can import into any new project.

Test Methods can be entered directly into Civil Pro, or like with the Work Types, we will import them. There are 2 ways to import Test Methods, depending on the depth of information you are recording:

1. If you don't need to record test results, you can simply import a flat CSV file, like you did for work types and schedule items. Just use the *Import Test Methods* option from the Context Menu.
2. If you are also recording the expected result set for each test, this obviously isn't suited to a flat file because it is hierarchical data. You can save and load this kind of data between Civil Pro projects by selecting *Import Test Methods and Result Fields* from the *Import/Export* option within the Context Menu.

In this case though, there is nothing to do because the test methods are already there. If you remember to when we started the project, this was one of the things we imported from the previous project file. Done.

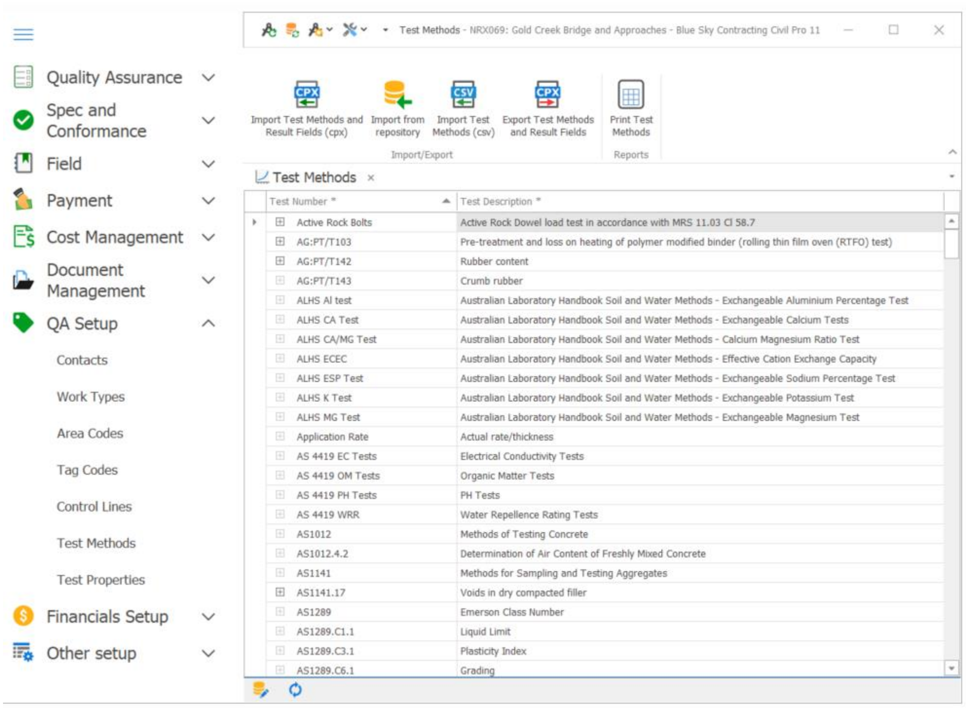


Figure 18 Test Methods Register

4.7 ITP Register

Open the ITP Register by clicking on the *Specifications (ITP)* link in the *Spec and Conformance* Main Menu section.

We are going to create an ITP for Clear and Grub:

1. Click on the New ITP icon at the bottom of the screen. 

2. Type the ITP information from the training supplement in the New ITP dialog (Figure 19 below) and click *OK.* This creates the ITP record.

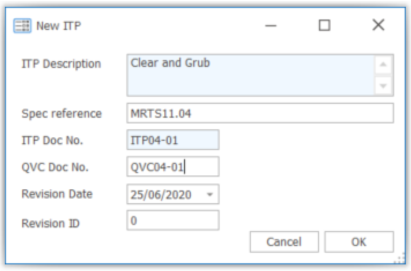


Figure 19 The New ITP Dialog

3. The Item Operations detail entry screen for your ITP immediately opens. Enable editing then enter the information from the training supplement to finish your ITP

The Has Tests column cannot be edited. It is set to True' (checked) when an ITP Detail Item has a test registered against it.

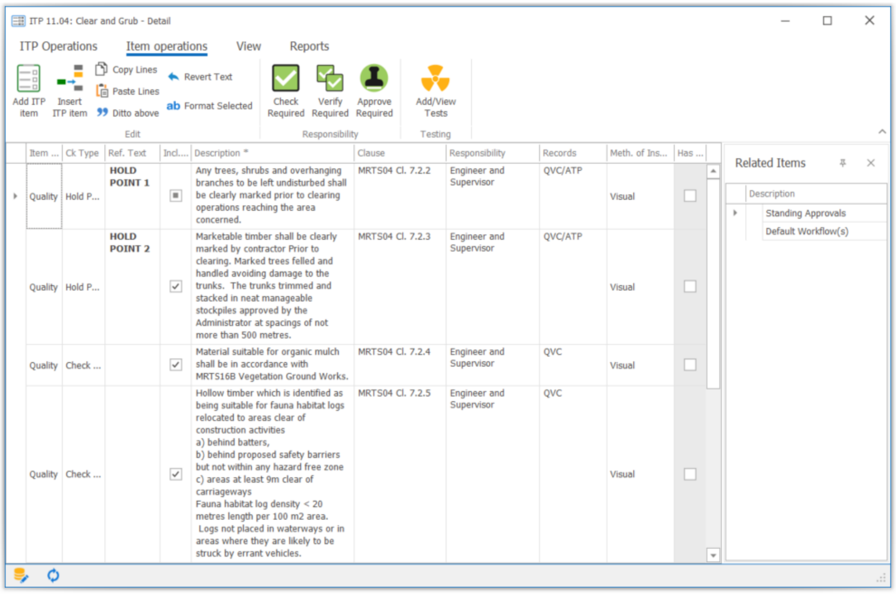


Figure 20 Complete ITP showing the detail line items

For text fields, use the 'Ditto Above' option in the Ribbon Menu at the top of the screen

You can copy and paste entire rows using the *Copy Lines / Paste Lines* options in the Ribbon Menu at the top of the screen

4. Try formatting some text in the description. With editing enabled, select a couple of words, right click and select *Font* to format the font. Only the description field in the ITP Detail and the compliance field in the ITP test can be formatted. You can open a dedicated 'rich text' editor (like a mini word processor) by double clicking any formattable text fields.

You can change the format of these columns for multiple ITP Detail rows at once by selecting the rows you want to change and clicking *Format selected* in the ITP Detail Context Menu or the *Format Selected* option in the Ribbon Menu at the top of the screen.

4.8 ITP - Specifying Testing

As well as the items to inspect, an ITP also describes the testing required to satisfy the requirements of the Specification and contract. We are going to create an ITP for ground surface preparation from the Main Roads Technical Specification MRTS 11.04.

1. Repeat the process for creating an ITP by creating a new entry in the ITP Register as described previously.

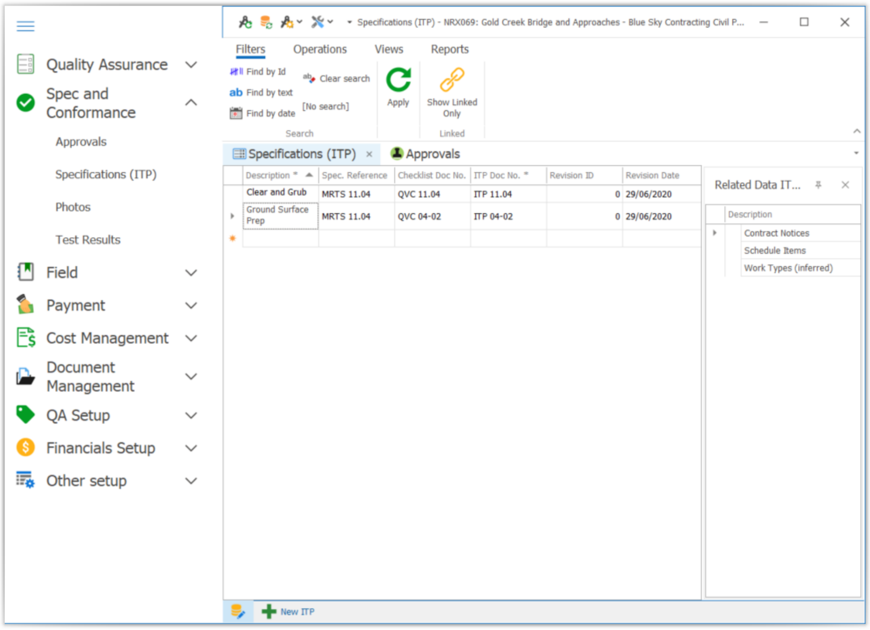


Figure 21 Adding an ITP entry for Ground Surface Prep

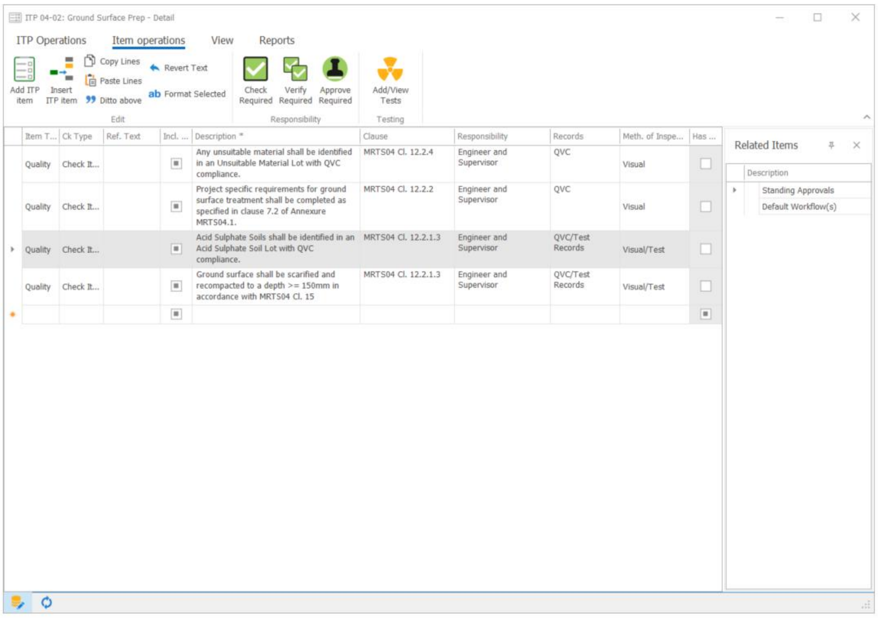


Figure 22 The ground surface preparation ITP showing the detail line items

Order is important to the line items in an ITP. The line items can be reordered by drag and drop - simply *Enable Editing* and drag any row onto the row you want it to be positioned after.

2. Try dragging a couple of rows around to re-order them.

You may want to add some tests that are required of certain ITPs. We are now going to add Ground Surface Preparation testing to the last item we entered - *Ground surface shall be scarified and recompacted to a depth >= 150mm in accordance with MRTS04 Cl. 15.*

Testing is added by double clicking on an ITP detail, and adding the required information including the Test Method, rate of Testing (normal and reduced) and the minimum number of tests per Lot.

3. Double click on the ITP detail item the testing is for or select the item and click on Add/View Tests from the ribbon menu. Enable editing and enter the information from the training supplement directly into the grid. You can also select *Add/View Tests* from the ribbon menu at the top of the screen

When finished it should look similar to Figure 23.

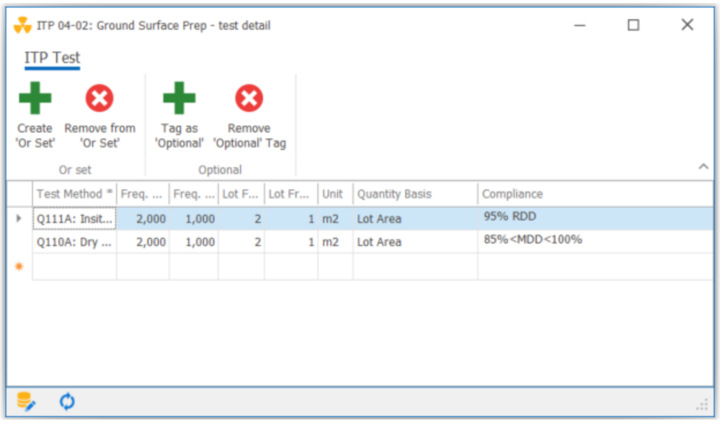


Figure 23 The ground surface preparation ITP showing the required testing for the ground surface preparation item

4.8.1 Optional Advanced topic - Optional and Alternative Tests

For this example, let's consider that there are 3 ways of testing the Conformance of density - sand replacement, nuke or proof roll. Obviously not all of these Tests are required, just one. Civil Pro allows you to specify all 3 methods, but to have one selected by default. When the ITP is added to a Lot as a Checklist, the user can either leave the default option or select a different one. To demonstrate, add 2 additional Tests - one for proof roll and one for nuclear densometer. Enter in the information for these additional tests using the information in the training supplement.   Your ITP should look like that in Figure 24.

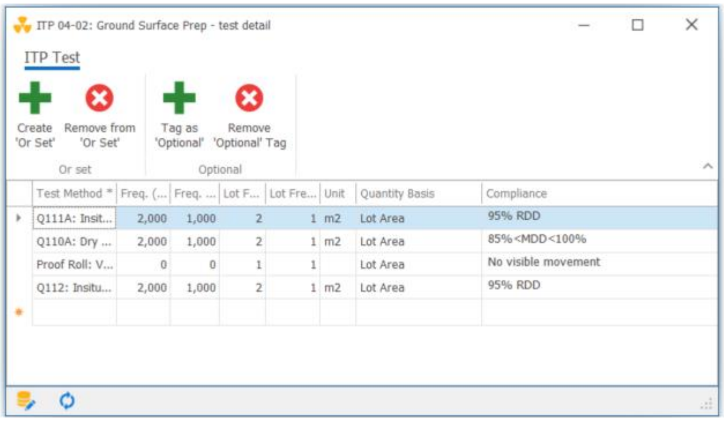


Figure 24 Additional tests

We are now going to make what is called an *Or Set*, meaning one or the other of these tests is required, not all. To do this:

1. Select the 3 Tests (Proof roll, Q111A and Q112) leaving out Q110A.
2. In the ribbon menu at the top of the screen select *Create Or Set.*

3. All of the selected Tests will be coloured green.
4. Set one of the Tests as default by double clicking on it. The other 2 will be hidden, but the default one will remain green to show it is part of an Or Set.

If you want to change the default, double clicking on a member of an Or Set will make all the Tests visible, and a different Test can be double clicked to make it default.

Tests can also be marked optional using a similar method from the Context Menu. Optional Tests are blue as in Figure 25.

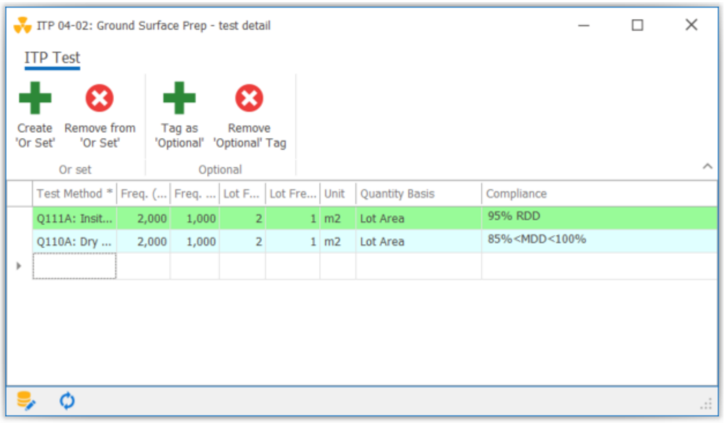


Figure 25 ITP tests after creation of an or set and select of the default test (other members of the set are hidden)

4.9 ITP – Importing ITPs

Now return to the ITP Register and import a complete set of ITPs using the *Import/Export => Import Specification from File* option from the ITP Context Menu.

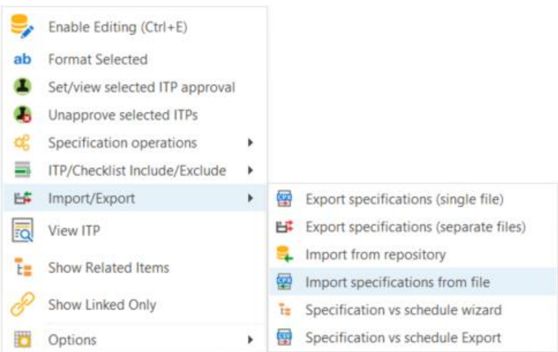


Figure 26 IPT register context menu - import ITPs from file

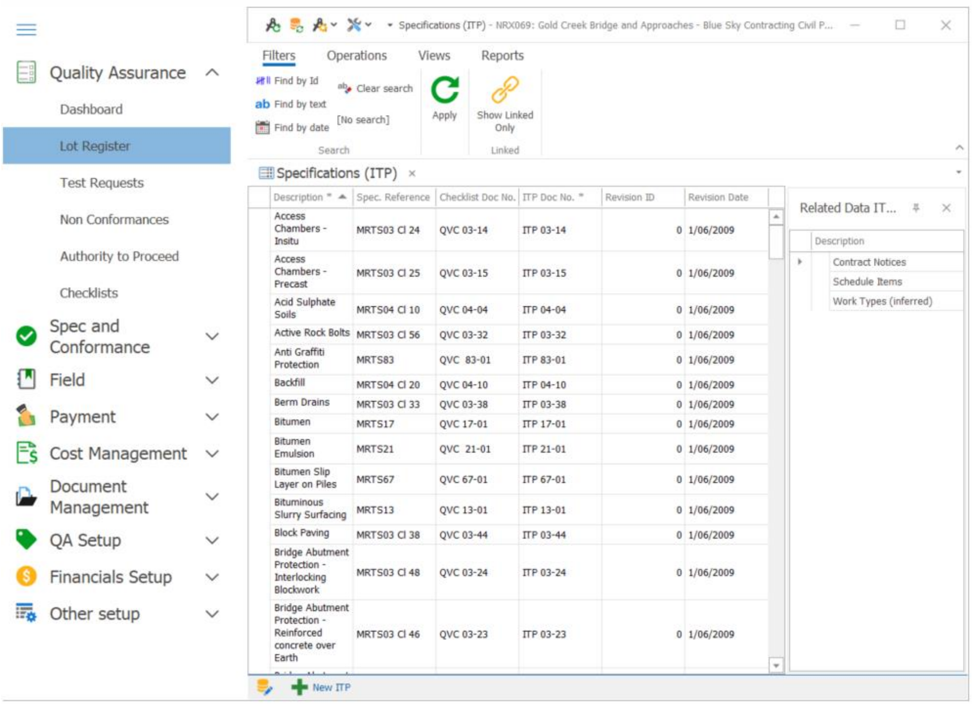
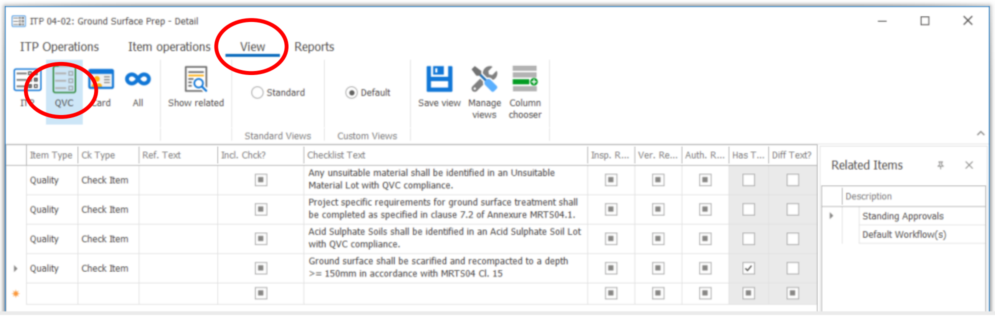


Figure 27 ITP register after importing

4.10 Checklists

Checklists are derived from ITPs and contain essentially the same information. Using the Context Menu for the ITP Detail grid, you can change the view to the QVC Grid. This enables some extra fields to customize your Checklist.

1. Change to QVC view by clicking on *View* in the ribbon menu then selecting *QVC*.



2. By selecting or unselecting the *Incl. Chck?* checkbox, you can determine whether an ITP item is shown on the Checklist. Similarly, the *Incl. ITP* checkbox in the ITP View determined if a line is included on the ITP. Update these columns to create your checklist
3. The Insp Reqd, Ver Reqd and Auth Reqd fields determine the required level of checking on the Checklist.

The *Has Tests?* field indicates if there is a test associated. It is read only and automatically updates when tests are added

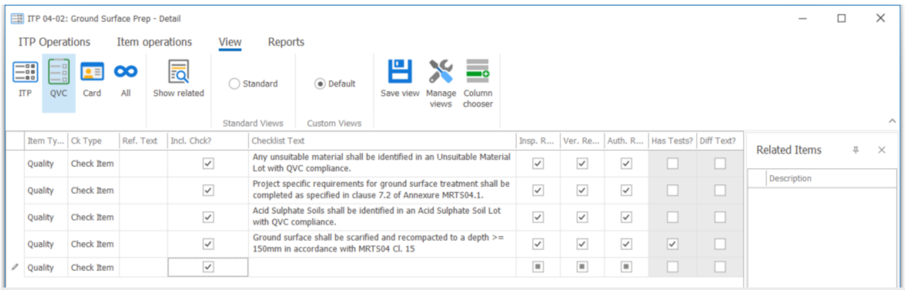


Figure 28 The QVC view for an ITP

The Checklist text as it appears is displayed in the Checklist Text column can be edited without affecting the text in the ITP. If it is edited the Diff Test? checkbox will be marked to indicate that the text in the ITP differs to that in the checklist. To revert to the ITP text, use the *Revert check text to ITP* option from the context menu

4.11 Test Properties

Test Properties are used to record additional information for particular test types. For example, there are additional pieces of information that must be recorded for concrete tests including:

- concrete class
- no. of batches
- target slump
- cement type
- concrete supplier
- name of structure
- age of tests
- f'c
- f't

1. Select the *Test Properties* Register from the Main Menu (on the left) under the *QA Set Up* heading.
2. Enter a group name to describe the properties you are adding - in this case we could just use a group for concrete, but if we are more specific and create one for our 25MPa concrete, which requires 60mm slump, is supplied by Boral and is tested at 7 and 28 days, we can enter defaults for these values to prevent having to type them each time we request them on a test. We can do the same for our other classes of concrete and other test property groups.
3. Click on the + icon next to the name of the property group just entered (N25 Concrete) – this will open the details screen. Enter in the details and default values where appropriate. Use tab to move between cells and to start a new line entry when needed.
4. Next enter the details for the groups N32 and N40 using the information in the training supplement. When completed your register should look like that in Figure 29.

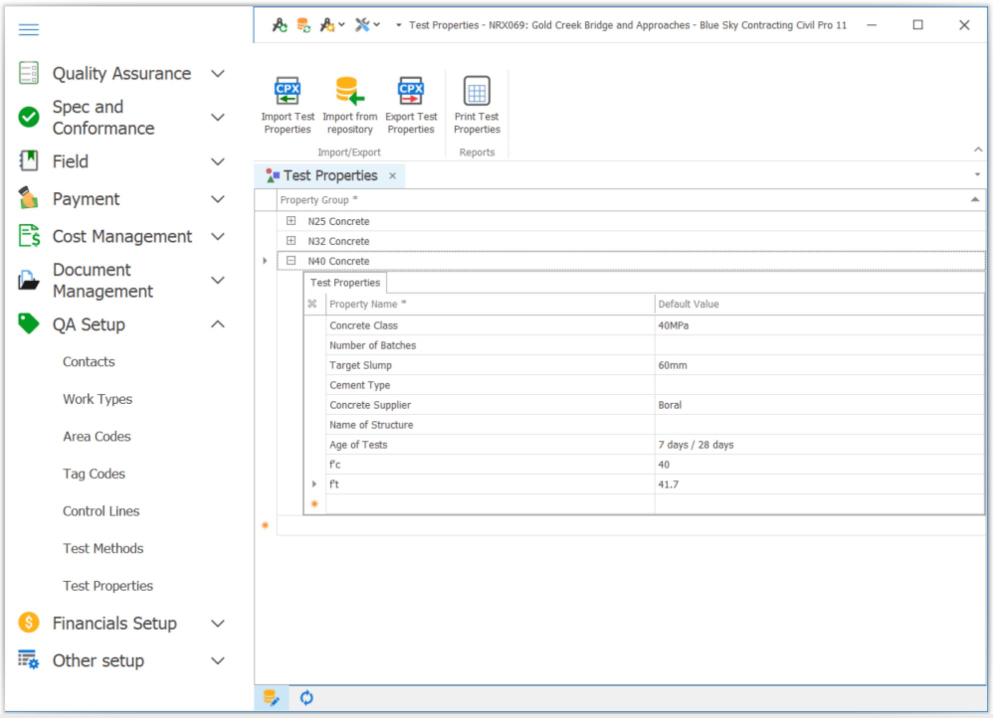


Figure 29 Test Properties Register

4.12 Schedule Relationships

For a small project adding Quantities to Lots, or selecting an appropriate ITP for a Lot is straight forward as the items to choose from are relatively few. On large projects with hundreds (or event thousands) of Schedule Items, hundreds/thousands of Lots and many ITPs this can be time consuming and even confusing.

To make this easier, Civil Pro allows users to associate Schedule Items with Work Types and/or ITPs. This way, if a user is adding a quantity to a Lot, Civil Pro can check if there are any Schedule Items associated with the Lot's Work Type or Checklists associated with the Lot and show a smaller list of specific Schedule Items.

We are now going to set up this list - we will do this from the Schedule Item Register (Financials setup menu).

4.12.1 Manually associating Work Types

1. Select the Schedule Item you want to add a Work Type to (Item A1311.01 – Preparation of Environmental Management Plan)

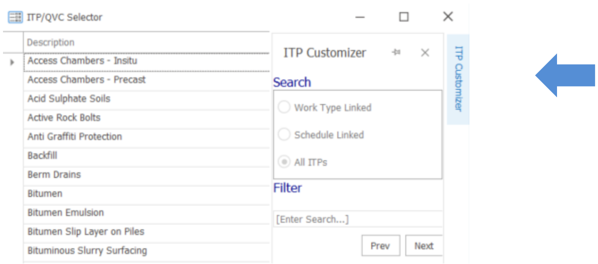
tip You can try the search function. Use *Ctrl + F* and type in the Schedule Item you are searching for. This shortcut works in every register

2. In the Related Item Panel on the right, double click on the *Work Types* heading.
3. A Work Type Selector Panel will pop up. Identify the Work Type(s) you want to add and select it/them (EV Environmental Management).
4. Drag the Work Type(s) back over to the Work Types heading you double clicked and drop it - it will be added to the list. If you only have one record to associate it is much easier to just double click it than drag and drop.

4.12.2 Manually associating ITPs

1. Select the Schedule Item you want to add a Work Type to (Item A1311.01 – Preparation of Environmental Management Plan).
2. In the Related Item Panel on the right, double click on the Specifications heading.
3. A Specification (ITP) Selector Panel will pop up. Identify the Specification(s) you want to add and select it/them (ITP 51-01 Environmental Management).
4. Drag the ITPs back over to the Specifications heading (or double click) - it will be added to the list

tip There is also a dockable menu in the ITP/QVC selector. This is available by hovering over the ITP customizer tag at the right of the ITP selector popup and/or pinning it. The ITP dock menu provides search functions, and toggles between the full list of ITPs, Work type associated ITPs and schedule associated ITPs



While relatively easy, this will take a while, and is not the kind of thing you want to do if you can avoid it. Where you have projects with similar Schedule Item Numbers or Descriptions and you use the same Work Type Lists and ITPs, Civil Pro can automate this task using Schedule Template Relationships.

4.13 Automatically Associating Schedules, Work Types and ITPs

Automatic assignment of relationships requires that you have a list of which Schedule Numbers belong with which Work Types and ITPs. These can be created in Excel or other program which can create a CSV file, or if you have created relationships in Civil Pro previously, you can export these from the schedule using the *Import/Export => Export schedule vs. Specification as template* and *Import/Export => Export schedule vs. Work Type as template* options.

Alternatively, these can be stored in and retrieved to the Civil Pro database using the *Data=> Get template* from database and *Save Template to Database Options* in the Schedule Relationships screen (refer below). If you choose to store your relationships in the database, they can then be copied between databases as part of the project initialization.

1. From the Schedule Item Register Context Menu select *Import/Export => Build relationships Using Template*
2. Click the *Get Template From File* button at the top left of the screen and select your template CSV
3. Assign the headers for the Schedule Number, Work Type and ITP doc no. column and click on *Preview* to see the connections Civil Pro has detected.
4. Click *Apply* if you are happy with the relationships.

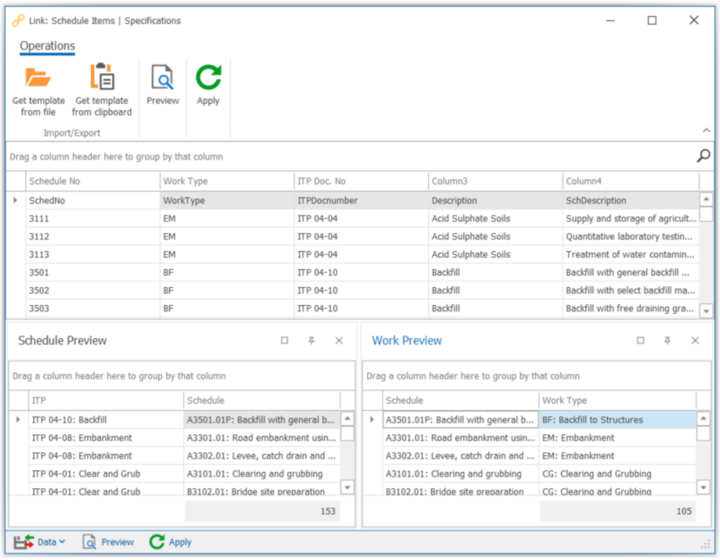


Figure 30 Detecting relationships

5 Day to Day Use

5.1 Lot Register

5.1.1 Creating Lots:

The first set of Lots on any project usually relate to systems and document preparation. You would want to create Lots for example, to record:

Preparation of environmental management plan

- 1311.01 Preparation of the Environmental Management Plan (Construction)
- 1312.01 Implementation and monitoring of the Environmental Management Plan (Construction)
- 1313.01 Erosion and sediment control management plan

Preparation of traffic management plan

- 1201.01 Traffic Management Plan (MRS02 Jun 09)

There are a couple of reasons you may need to create Lots for these administrative tasks;

1. You want to associate checklists, ATPs, Test requests or other records for approval and/or traceability reasons

2. Some contracts (for example Main Roads Qld) tie payment for each item to a Lot. You could create a single Lot called Project Planning and assign both Quantities to that Lot, but that will mean both plans must be accepted prior to payment whereas splitting them allows acceptance of each individually.

We will create a Lot for the Environmental Plan:

1. Open the *Lot Register* (top item in the *Quality Assurance* section of the Main Menu).
2. Click on the *New Lot* button in the bottom left of the screen.
3. Enter the Work Type, Area Code and Description for the new environmental management Lot. Click *Next.*

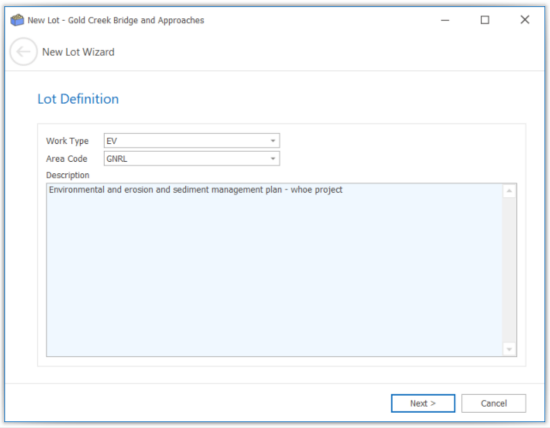


Figure 31 New Lot Wizard page 1

4. Confirm the Lot details. You will notice Civil Pro has created a new Lot number automatically (Figure 32). The format of this automatic Lot numbering can be changed but we will leave it as default (refer to the manual). You can also change the Lot number for any Lot as long as it is not the same as another Lot. The date is automatically added as today's date, and the *Raised By* field is automatically set to the currently assigned user.

Because this Lot is an administrative one, we will choose the *No geometry* option.

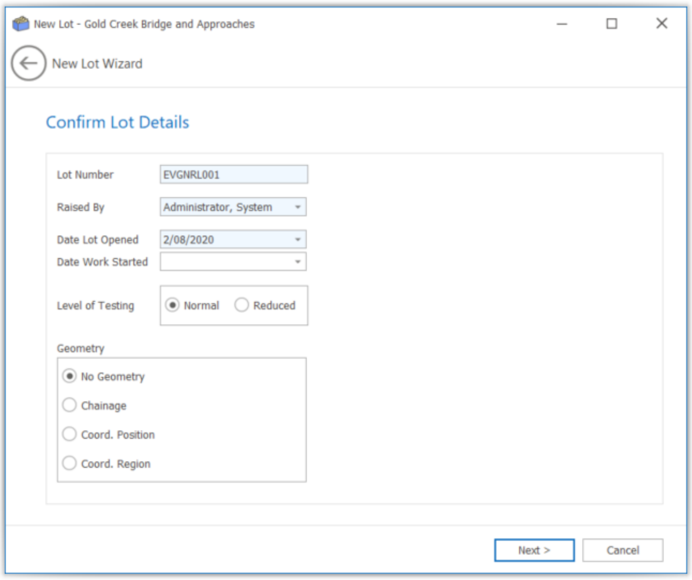


Figure 32 New Lot Wizard page 2

You will probably want to enter your own name as the person raising the Lot. Enter your details and press Tab and you will be prompted to add a new contact details in the New Contact dialog. Complete the details (fields shaded blue are required) and click *OK*. Format is *Last Name, First Name*. (We will finish this Lot, and then log off and back on again as the new contact.)

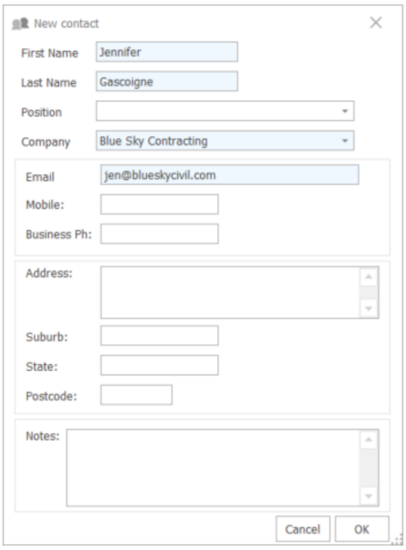


Figure 33 New contact added

5. The *Next* screen gives an opportunity to provide some Lot properties for length, area, volume (AVL)- in this case we will opt to just click *Next* and leave them as zero.

6. Check the Lot summary and click *Finish*. You will be returned to the Lot Register where your new Lot is listed as in Figure 34.

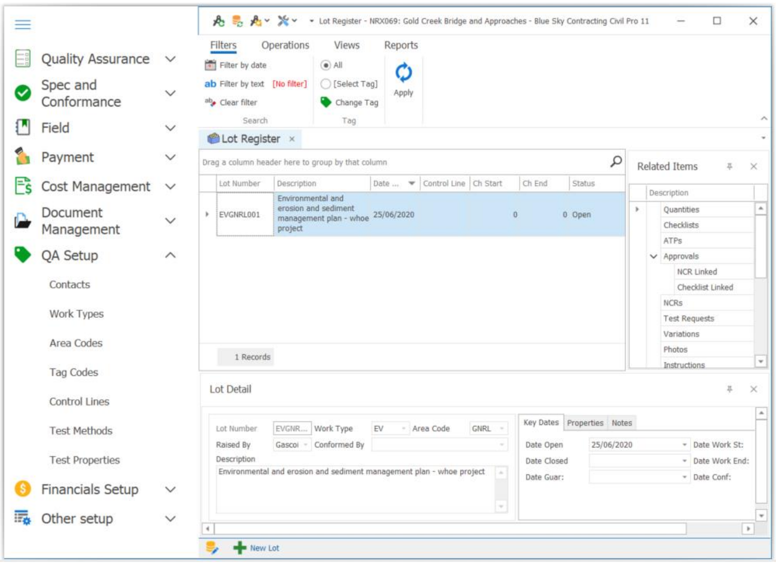


Figure 34 New Lot in Register

5.2 Configuring Contacts

When we raised a Lot, we added a new contact by entering details in the 'Raised By' drop down. We can see this and any others in our project by clicking on the *Contacts Register* in the QA *Set Up* Main Menu section.

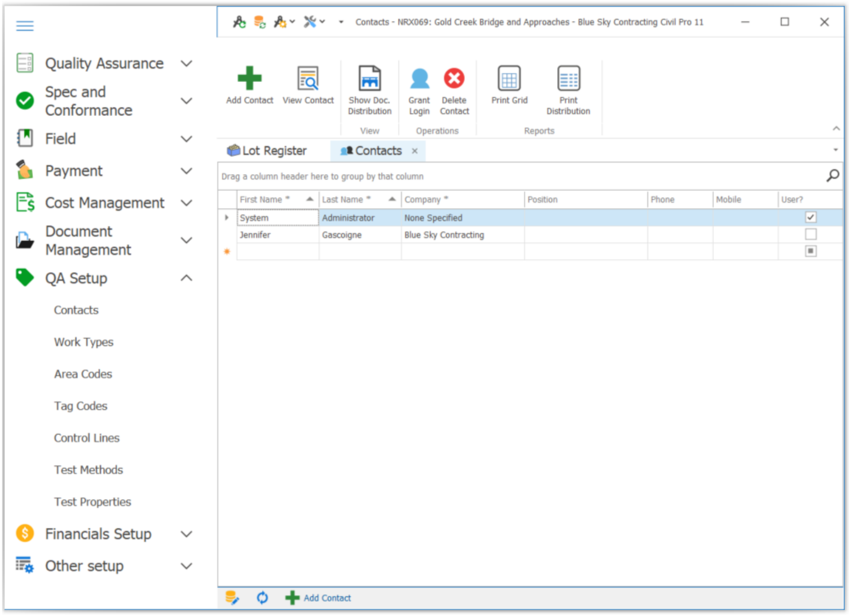


Figure 35 Contacts Register

You will notice there are 2 contacts. The system administrator we created during the initial set up, and the new contact we added when we raised the Lot. We are now going to add the following additional contacts:

- Andrew Fisher - Main Roads
- George Reid - Main Roads
- Joseph Cook - Soils Laboratory

For each contact, either enter their details directly into the grid or click on the *Add Contact* button at the bottom of the screen. If the new contacts don't immediately appear, click on the refresh button at the bottom of the screen (two blue arrows).

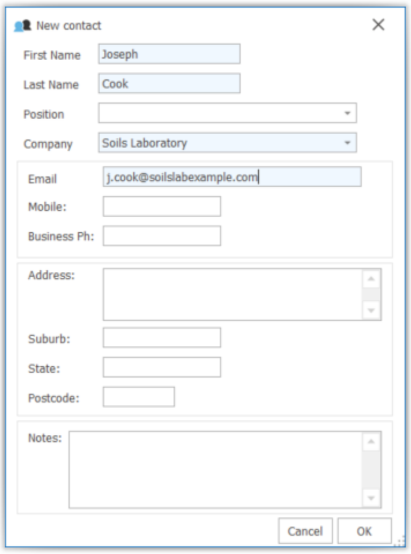


Figure 36 Adding a Contact using the Wizard

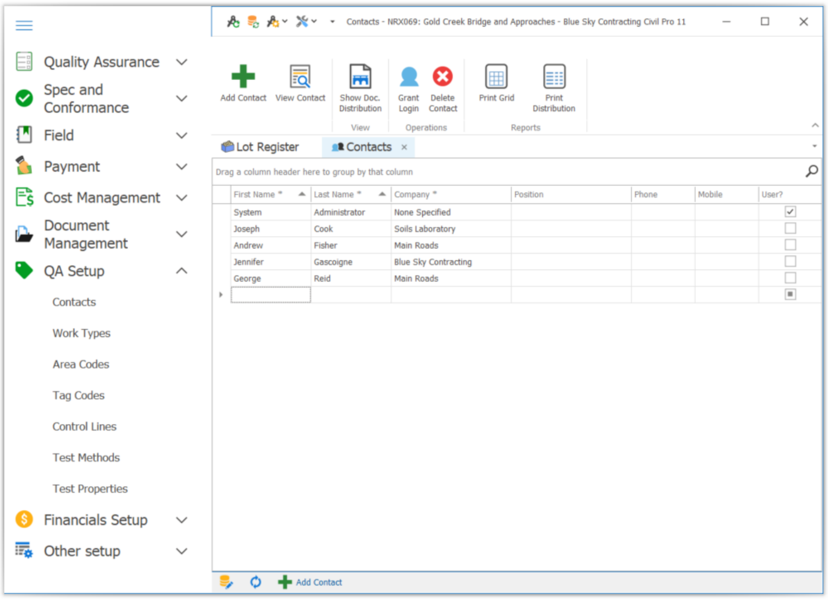


Figure 37 The Contacts Register with new Contacts

5.2.1 The difference between Contacts and Users

If you look at the register after adding these people, you can see that the System Administrator has the 'User' column checked while none of the others do. This is because the System Administrator entry is as special member of the Contacts collection called a *User*. Users have a username & password and can log on to a project. While the basic information about a User can be edited the same as any other Contact in the Contact Register, User passwords and permissions are managed from the Users Register accessed from the *Systems dropdown => Users* in the Program Menu at the top of the Civil Pro main window – see Figure 38

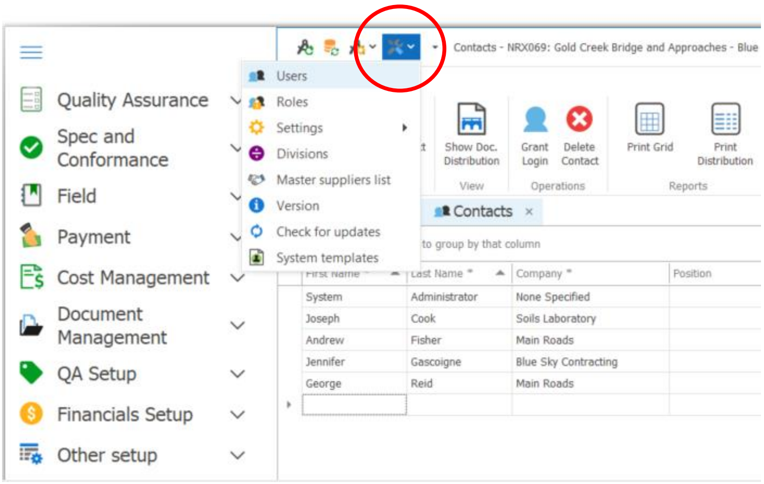


Figure 38 System dropdown

5.2.2 Changing Contacts to Users (and vice versa)

It is relatively straight forward to promote a contact to be able to log in to the system. In this case we want to manage the contact record we auto-created when making the lot, and change it so we are considered a User in the system. We can perform this operation because we are currently logged in as a System Administrator.

To give the person we added (yourself) permission to log in:

1. Select your entry in the Contacts Grid.
2. From the Context Menu (right click) select *Grant Login (you can also click the Grant Login button in the ribbon menu at the top of the register)*
3. The Promote User dialog will appear. Enter the required details (username, password **IMPORTANT -** remember these – you will need these to login later).
4. Assign them the Project Administrator role – more on this later.

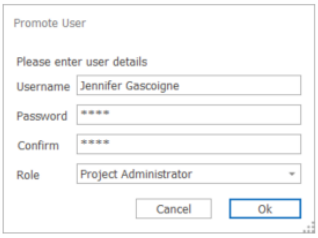


Figure 39 Granting a Contact user permission

You will notice that your login is now listed as a User in the Contact Register (the user column to the right of the screen is checked). It will also now be visible in the users register.

5.2.3 Updating contact data

Key user information is displayed in the grid. This includes first name, last name, company, position and contact numbers. You can directly edit this information directly into the grid if editing is enabled.

But what about all the other information that was available in the new contact form? Addresses, emails etc? In Civil Pro, there are generally two ways this additional data can be edited.

Method 1: Using View Contact

In the ribbon menu at the top of the screen there is the *View Contact* option. Clicking on this brings up the Edit Contact pop up as in Figure 40. All of the additional information can be edited here.

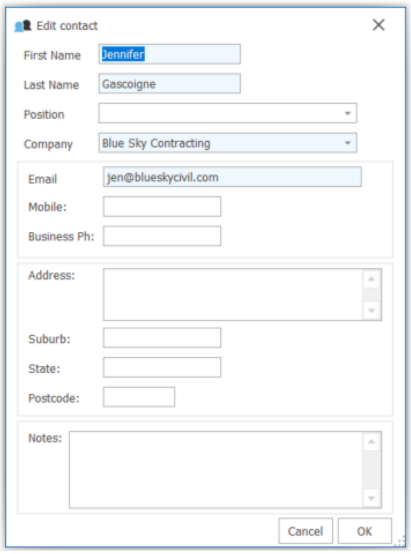


Figure 40 Edit Contact popup

Method 2: Customizing the grid columns

The grid columns that are visible by default are not the only columns available. Other columns can be displayed by;

- Using a pre-baked or custom view. These are supported in the Lot, NCR, Test Request and other main registers and are accessed from the context menu under the Views subheading. **There are no custom views for the contact register.**
- Using the column chooser. Right click on any of the column headings and select *Column Chooser* from the context menu as in Figure 41. This **is** available in the contacts register. Then select what information you wish to see and drag and drop it into the register header.

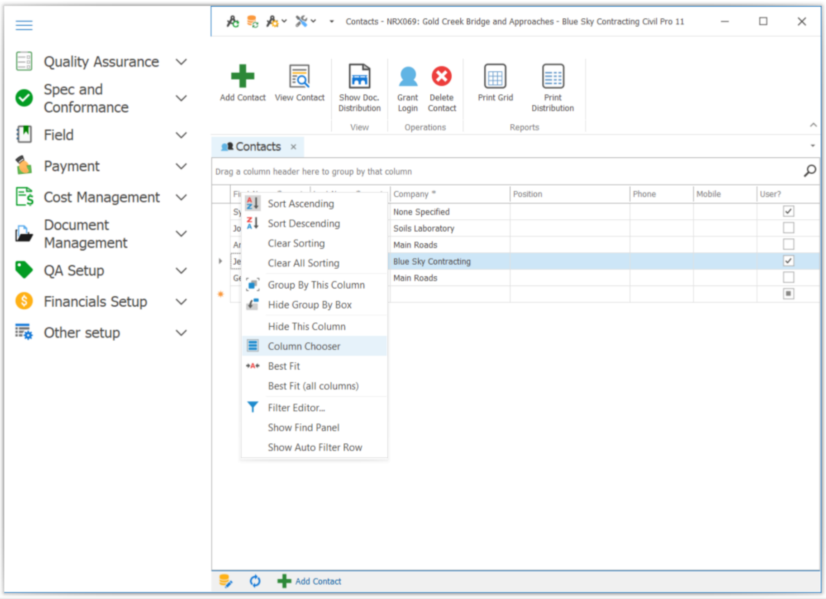


Figure 41 Adjusting register information using the column chooser

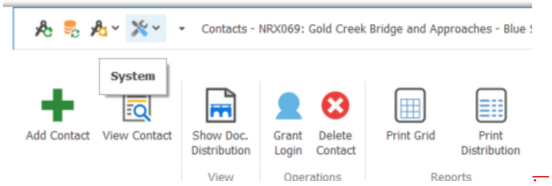
Formatted: Caption

5.3 Users

As explained previously, Users are a special group with permissions to update information in Civil Pro. Users have access to different functions in Civil Pro depending on their role, and the permissions associated with that role.

Each role is specific to a project. To log on to a project, a user must have a role on that project, or be a system administrator.

The Users page is accessed from *System=>Users* in the ~~program~~ project menu at the top of the screen as in



As you click on each user in the grid, their role(s) in each project are listed in the related items panel on the right as in Figure 42.

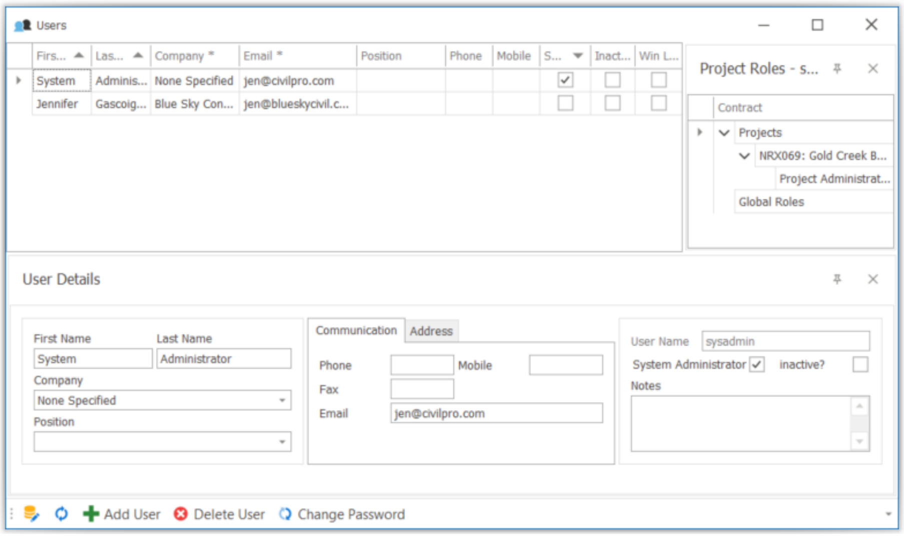


Figure 42 Users dialog showing related roles

5.3.1 Adding a User

We will add new User logins for the rest of your project team – refer to your training supplement.

1. Click on *Add User* from the menu options at the bottom of the screen.
2. The New User Information screen will appear. Fill in the required information (light blue). Click *Next.*

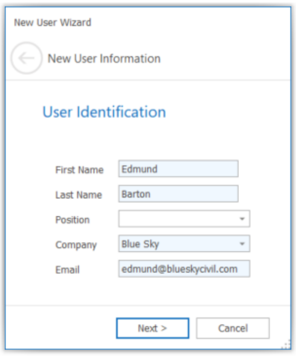


Figure 43 Adding a new user

3. On the Security Information screen leave *Civil Pro Security* checked and enter in a username and password and click *Next* (Figure 44*)*. Note: If you select Windows Security this give you the option of setting the new user's Windows login as the log in for Civil Pro. For now though we will keep it simple and opt for a Civil Pro login.

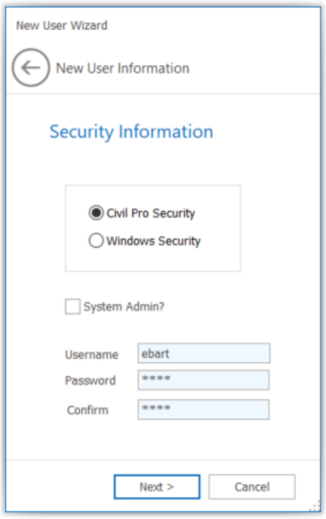


Figure 44 User Register with new users

4. If desired add in any relevant information on the User details screen and click *Next* then *Finish.*

After adding the new user, you will see the project tree in the related items panel. As there is only one project, that is all that is listed. As your database grows, each active project will be displayed here.

In order to login, we need to assign a role to our new user. There are six default roles with default permissions in Civil Pro. These roles can be customized in the Roles page (System=>Roles), but for now (and generally) they are fine as they are.

1. To assign a role, double click on the Project you want to assign to in the related items panel. The roles selector will be shown

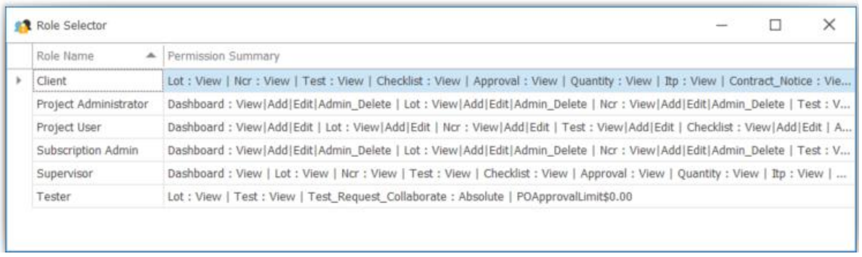


Figure 45 Roles Selector

2. Select the *Project User* role and either drag on to the project, or double click. You will see that this role will now appear under the project heading in the related items panel as in Figure 46.

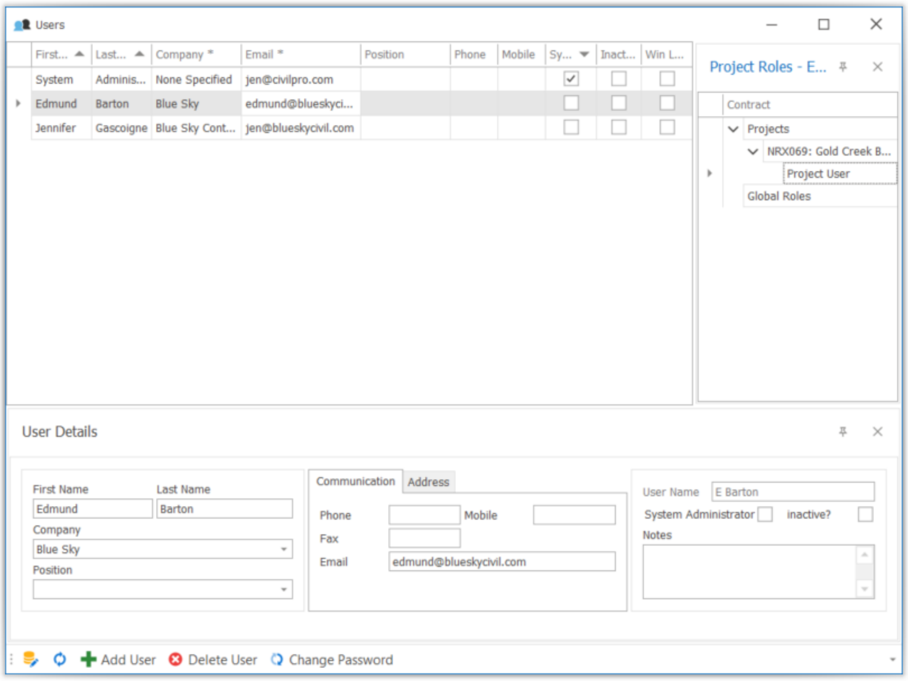


Figure 46 New project user role added

3. Enter in the remaining users as per the training supplement. When complete close the Roles selector and then the User Register

5.3.2 Change users

Now that we have a username for ourselves, we can log off and login with that permission. **It is generally practice not to use the sysadmin account for everyday Civil Pro use.**

1. Log off by using the *Change Database* option from the project menu as in Figure 47.

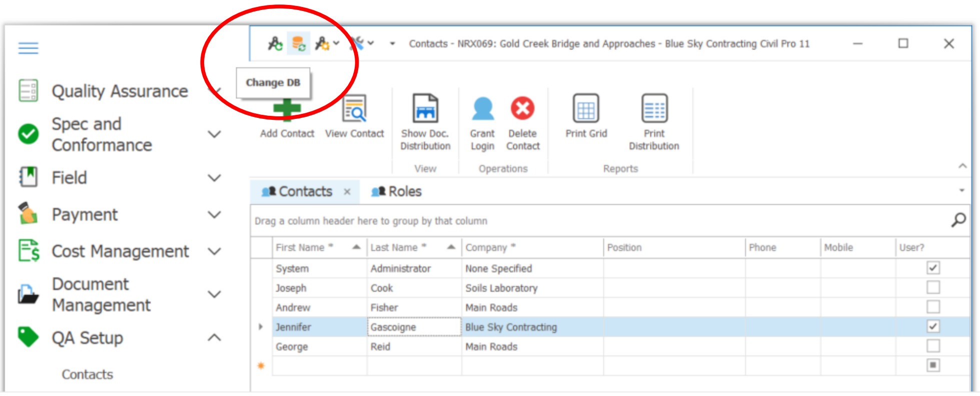


Figure 47 Accessing Change Databases from the project menu

2. Log back on using the username and password you assigned to yourself when you used the *Grant Login* function from the contacts register.

5.4 Back to the Lot Register

Earlier we added a Lot for an administrative task - the environmental plan. Now we will add some Lots for actual works – you can also refer to the training supplement for details:

	Description	Date Open
EVGNRL	Environmental and erosion and sediment management plans - whole project	2/8/2020
CGRWNB	Clear and grub northern approach - Ch 0 to 994 o/s -10 to 10 both ends.	15/8/2020
ELRWNB	Light pole footing at E 467360 N 7103645	7/8/2020
CGRWSB	Clear and grub southern approach - Ch 0 to 983 o/s -10 to 10 both ends.	16/8/2020
TSRWNB	Topsoil strip northern approach 200mm - Ch 0 to 994 o/s -10 to 10 both ends.	17/8/2020
TSRWSB	Topsoil strip southern approach 200mm - Ch 0 to 983 o/s -10 to 10 both ends	18/8/2020
GTRWNB	Ground surface prep fill #1 Ch 510 to 994 northern approach o/s -11 to 10 (st) and -6 to 9 (end) 150mm thick	21/8/2020

	Description	Date Open
EXRWNB	Earthworks excavation cut #1 Ch 0 to 510 northern approach o/s -8 to 5 (st) and -11 to 10 (end) - 1m deep (nom)	22/8/2020
EMRWNB	Earthworks embankment fill #1 Ch 510 to 994 northern approach o/s - 11 to 10 (st) and -6 to 9 (end), 0.75m deep nom	22/8/2020

5.4.1 Lot #2 (Lot #1 already added)

1. Open the lot register from the QA menu
2. As per previous, use the New Lot button in the bottom left of the lot register.
3. Add the Work Type, Area Code and Description. Click *Next*

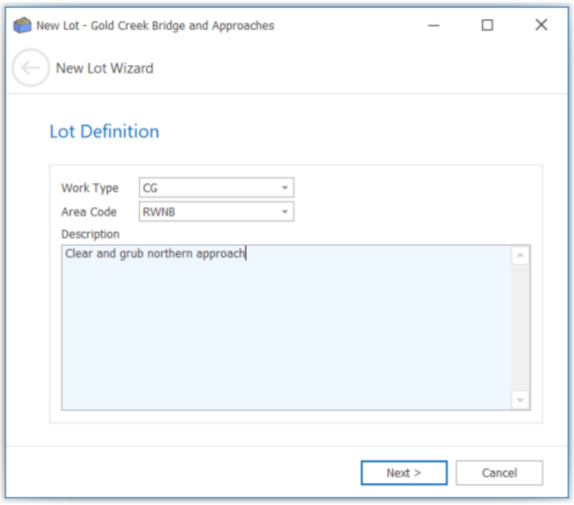


Figure 48 Define Work Type, area code and description

4. As opposed to the first Lot, in this instance we have geometry defined by chainage so, select the chainage geometry type.

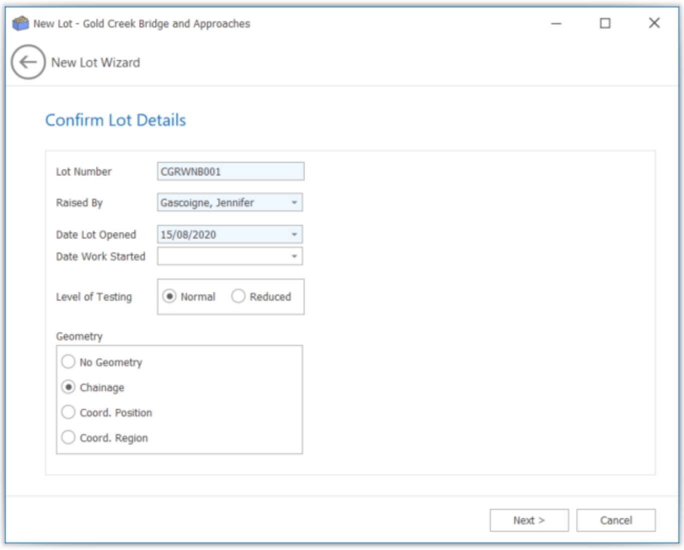


Figure 49 Select geometry

5. Enter the Control Line, Geometry, confirm the AVL details and click through to *Finish*.

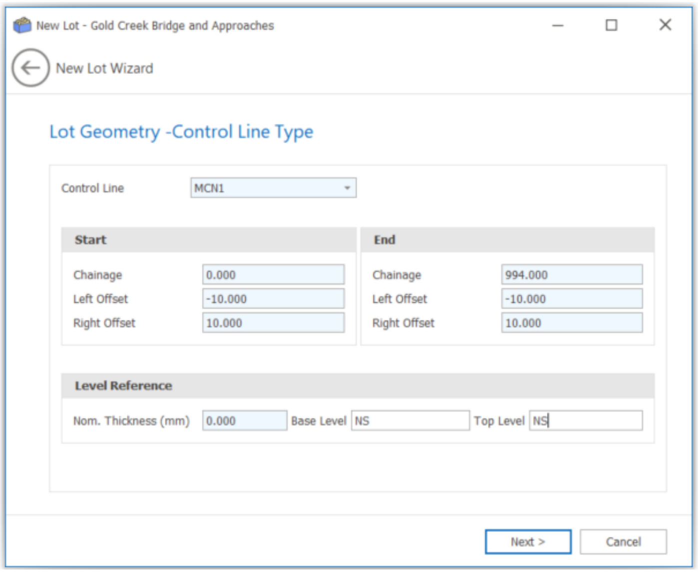


Figure 50 Entering the control line geometry

5.4.2 Lot #3

For the next Lot, we have coordinate type geometry.

1. After starting the New Lot Wizard, enter the Work Type, Area Code and Description. (EL / RWNB / Light pole footing)
2. Select the Coordinate Position Geometry. This is used when you have one or more items in a Lot positioned by coordinates (such as light poles). The *Coordinate Region* option is for a Lot whose extent is defined by a set of points (such as a pavement).

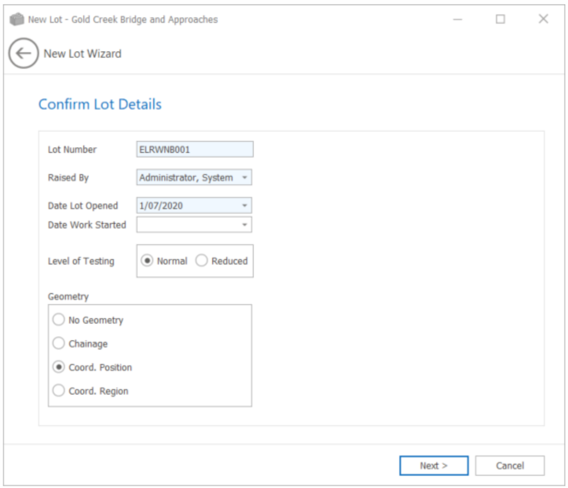


Figure 51 Selecting coordinate position geometry

3. Enter the Coordinate position, confirm the AVL details and click through to *Finish*.

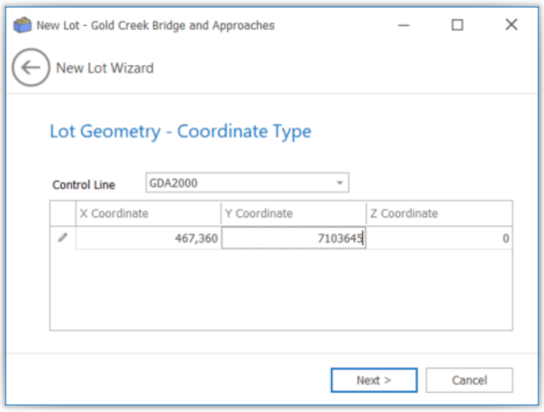


Figure 52 Entering coordinate geometry

5.4.3 Other Lots

The remainder of the lots can be added in much the same way.

If you want to create a new Lot that is similar to a previous Lot, select the existing Lot and hold shift when you click the *New Lot* button or click on the *New Lot* in the ribbon menu and from the dropdown select *New Lot (Like Selected)*

Try this to create the topsoil lots from the clear and grub Lots which are similar, but don't forget to update relevant information like the Work Type.

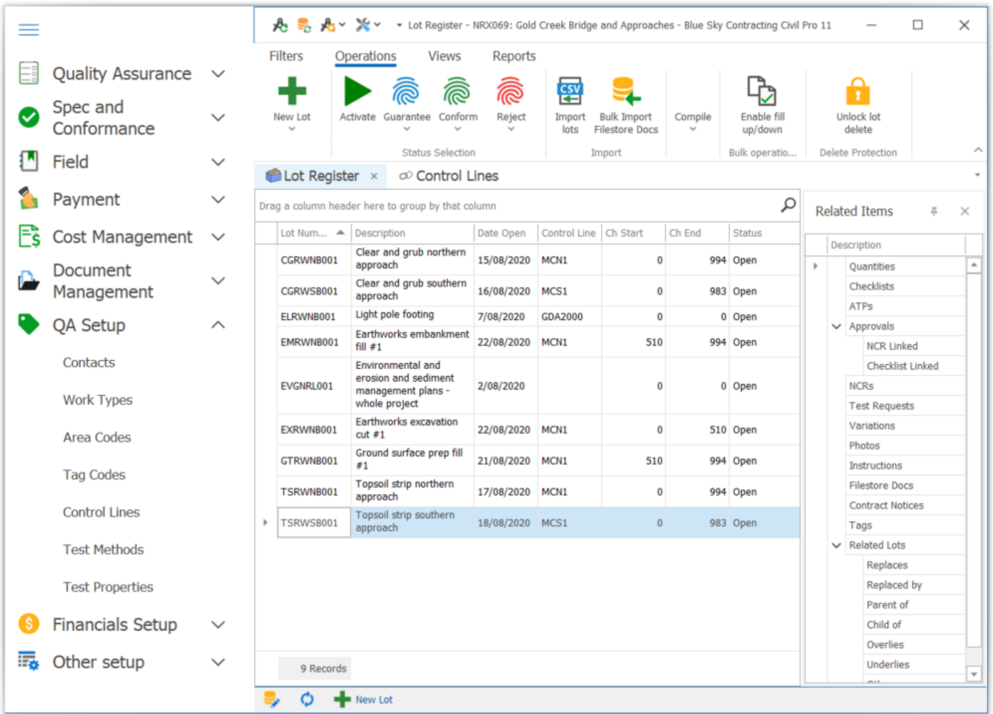


Figure 53 The Lot Register after adding new Lots

5.5 Adding Checklists to Lots

Now we have Lots, Schedules and ITPs we can start recording Conformance information. One of the first things you will require for a new Lot is a Checklist.

1. Open the Lot Register and select CGRWNB001 – Clear and Grub Northern Approach
2. With the Lot Register open and CGRWNB001 selected, double click on the *Checklists* heading in the Related Items panel to the right of the register.

You will notice that only the clear and grub Checklist is shown as per Figure 54. This is because of the linking we did previously connecting the CG Work Type (which is specified for this Lot) to a Schedule Item. One of these Schedule Items is also connected to the Clear and Grub ITP, so Civil Pro knows this is probably the one you are looking for. If it isn't, you can always search the full list by clicking on the *Clear Filter* option at the top left of the popup. Here you can search all IPTs - just select *Filter by Text* at the top left of the selector to bring up the *Search Text* dialog as in Figure 54.

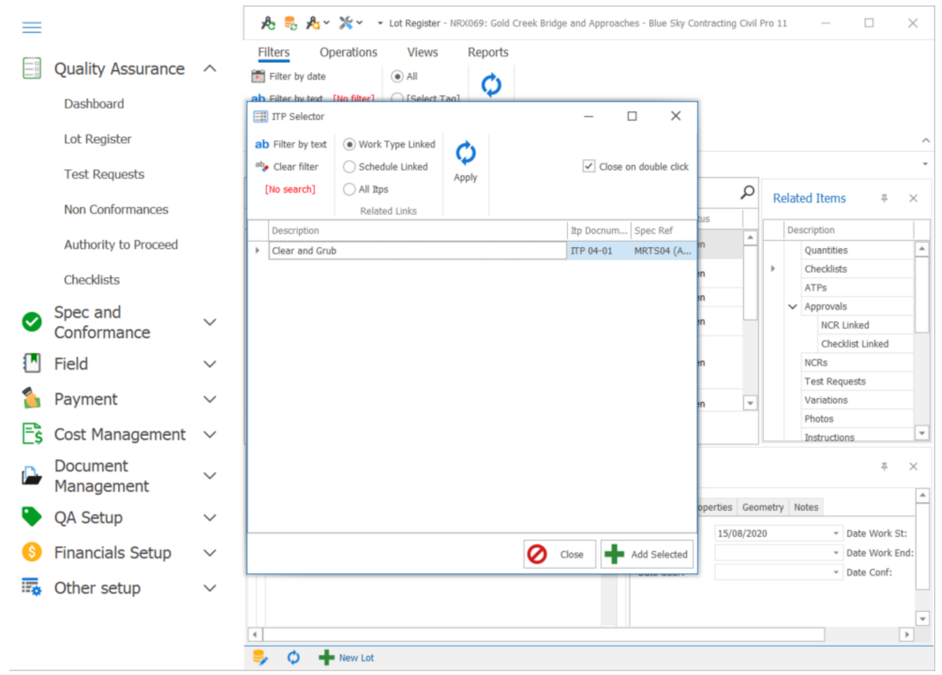


Figure 54 The ITP selector suggests this is the ITP you want to create a Checklist from

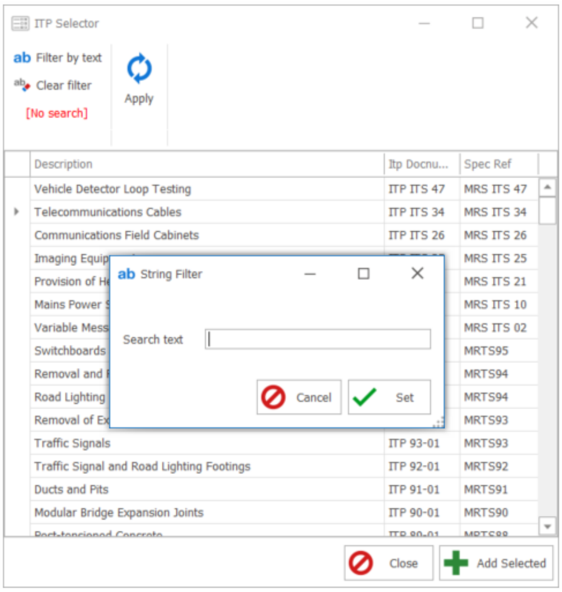


Figure 55 The full list of ITPs showing the Filter by Text search function

3. Select the new Clear and Grub Checklist and double click on the Checklists heading.   A **copy** of the original Checklist is now added to the Lot.
4. To see the new Checklist and complete it electronically, or print it for completion in the field, double click the newly added Checklist in the related items panel. All checklists are also listed in the Checklist register available from the Spec and Conformance menu.

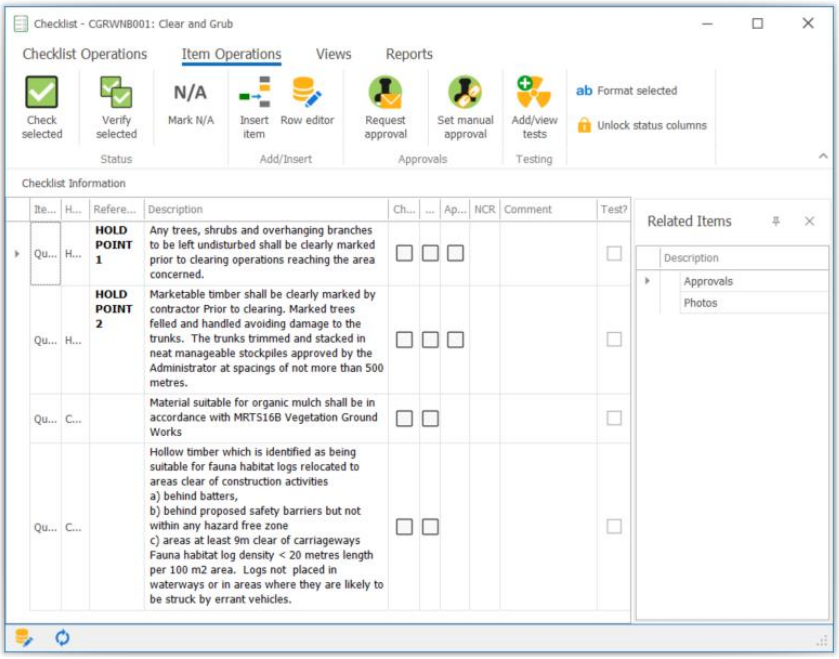


Figure 56 The Checklist for a Lot

To print the Checklist for the field, click on *Reports* in the ribbon menu and select *Field Complete Checklist*.

5. Add the appropriate Checklists to the other Lots as per steps described. Note: the training supplement does not detail out which checklist to add – the aim is to get you to do this independently.

tip

You can customize the way your ITP is printed in the print preview. Above the menu ribbon there is another tab labelled Checklist Options. Try selecting/unselecting different options to change the appearance of your report. Once selected / unselected, refresh the report using the *Update* button to the right of the menu ribbon. To make all your Reports use these options as default, use the *Make Default* button. See Figure 57.

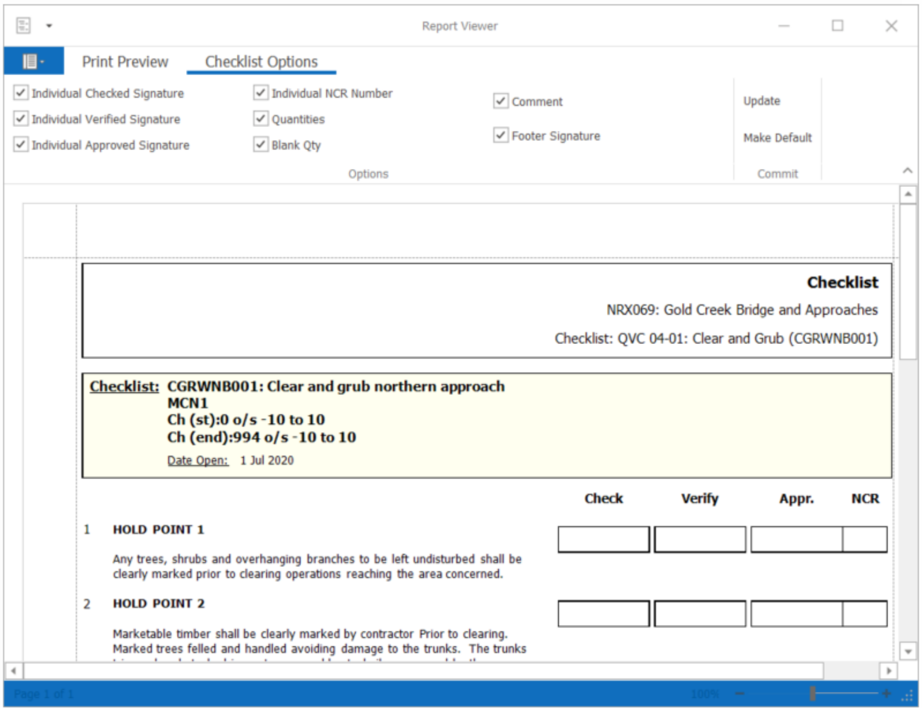


Figure 57 The Checklist report with the Checklist Options tab showing

5.6 Adding Quantities to Lots

To quantify the work associated with each Lot, and to calculate the number of Tests required, we need to know the amount for each schedule item of work associated with it. This is done by adding one or more quantities to the Lot.

1. Open the Lot Register and select CGRWNB001.
2. With the Lot Register open and CGRWNB001 selected, double click on the *Quantities* heading in the related item list. You will see the schedule selector with a selection of the Schedule Items related to the currently selected Lot's Work Type selected - similar to Figure 58. You can show all the Schedule Items by clicking on *All Schedule Items* or search them using the *Filter by Text* both in the ribbon menu as in Figure 59.

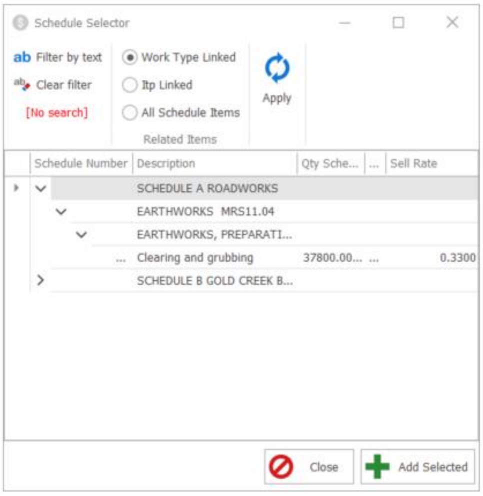


Figure 58 The Schedule Item selector showing Schedule Items related to the CG Work Type

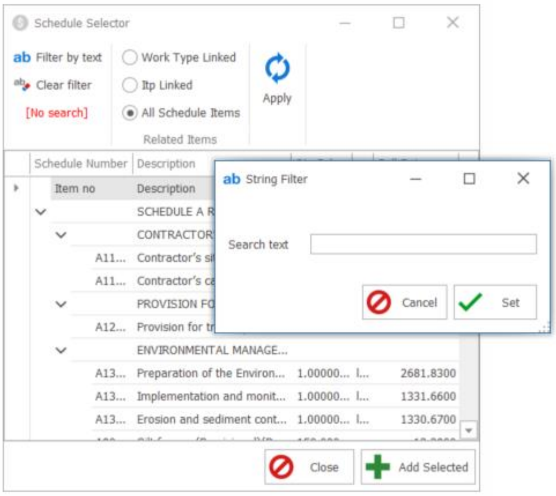


Figure 59 The Schedule Item selector showing all Schedule Items and the search function

3. Select *3101.01 Clearing and Grubbing* from the Schedule and click *Add Selected* at the bottom right of the screen – this will add it to the related items panel and will open the Lot Quantity screen.
4. In the Lot Quantity screen enter in the quantity for this lot using the information in the training supplement (21,112m2). See Figure 60.

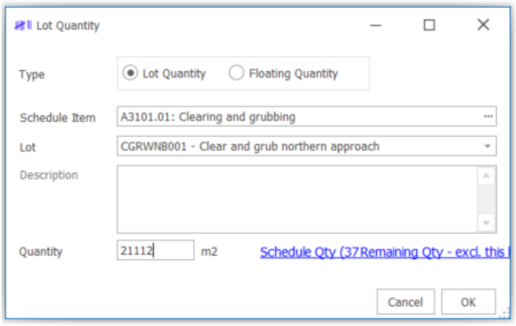
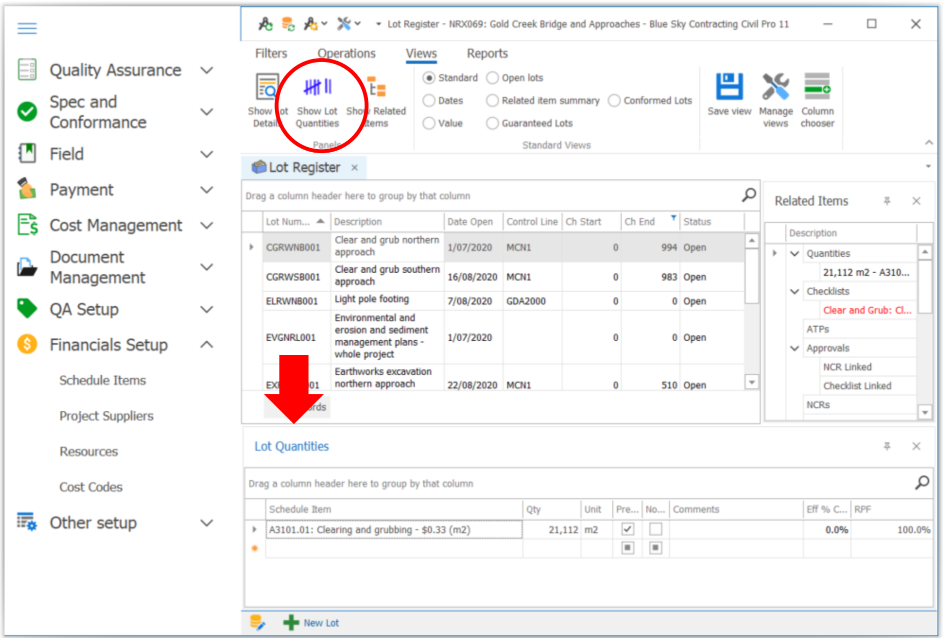


Figure 60 The lot quantity editor

5. If you need to perform more sophisticated changes to the quantity, select *View =>Show Lot Quantities* in the ribbon menu. This will open the Quantity Detail Panel at the bottom of the screen. Here you can change the Preliminary Status, Reduced Payment Factor and whether it is Non-claimable. The Quantity Panel can also be viewed by clicking on the *Show Lot Quantities* button from the Context Menu.



6. Add Quantities for other Lots

CGRWNB001	A3101.01	21,112
CGRWSB001	A3101.01	18,688
ELRWNB001	A3108.01P	89
ELRWNB001	A3301.01	6,591
EVGNRL001	A1311.01	1
EVGNRL001	A1313.01	1
EXRWNB001	A3201.01	6,591
GTRWNB001	A3104.01	8,780
TSRWNB001	A3103.01P	3,545
TSRWSB001	A3103.01P	3,820

5.7 Adding a logo for reports

When we preview Reports such as the Lot Register or Checklists, they are quite plain and not customized towards your company. The easy way to fix this is to add a logo to your project.

1. In the *System Menu* (top of the page), select *Settings=> User Settings=>Project Settings.* The screen shown in Figure 61 will be visible.

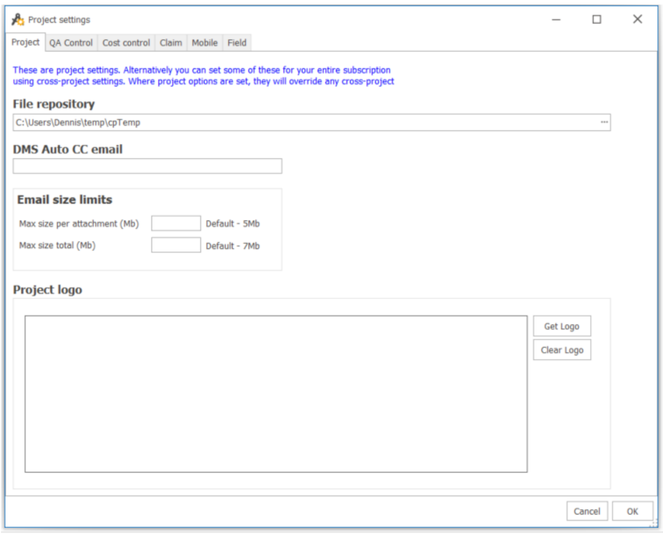


Figure 61 The Projects Settings form allows the user to 'Get Logo' using the Context Menu and customize Reports

2. While we are here, we will select the Project File Repository. This is where files associated with your project are stored such as your filestore docs, photos and company/project logo. If this is a multi-user project, you need to ensure this is a disk location accessible by all users, such as a network drive.
3. Select your logo file by clicking on the *Get Logo* button- it is best to use an already sized version of your logo to reduce its storage size in the database.
4. Find your logo (ideally saved in the Project File Repository just selected) and double click on the file. This will bring it up in the Project Logo screen as in Figure 62
5. Click OK.

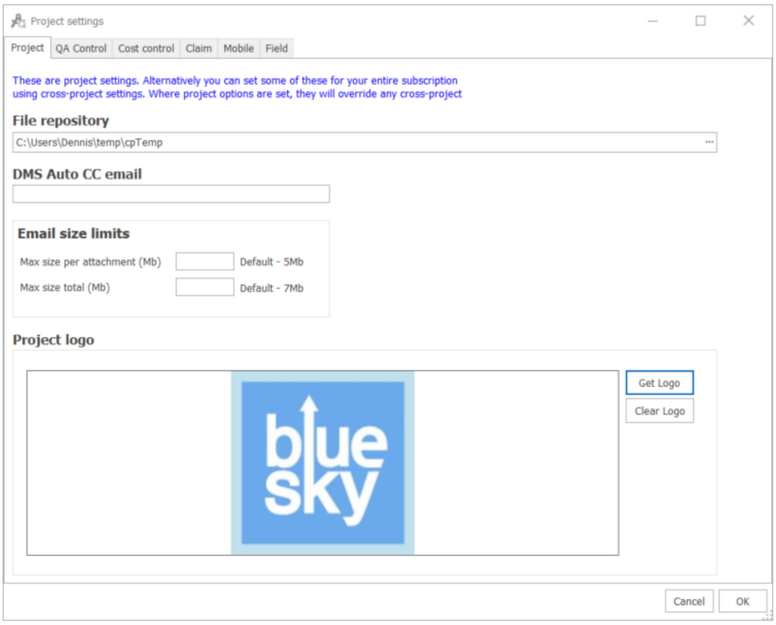


Figure 62 Adding a logo in project settings

5.8 Adding lot documents to the Filestore

Civil Pro allows users to store any electronic document against their lots – this may include things like survey reports, pdfs of test requests or excel/word documents related to the lot. When you attach a lot document, Civil Pro makes a **copy**. This means that no matter what you do with the original, the one in Civil Pro remains as it is.

You must have set the file location for the project (known as the file repository) prior to adding any file store documents/photos etc. Do this in the project settings (*System=>Settings=>Project Settings*). The File Location can be anywhere that you as a user have permission to write files. A public drive is often the best location as the files need to be accessible to all users of the system

1. Select the lot the document will be attached to

2. In the related items list, double click on the *Filestore Docs* heading. The Filestore Selector popup will be shown.
3. Click on *New Filestore Doc* at the bottom left of the screen and select from your system the document you wish to add.
4. If you want, you can update the description of the document that will appear to describe the document – it defaults to the file name.
5. Click *Add Selected*.

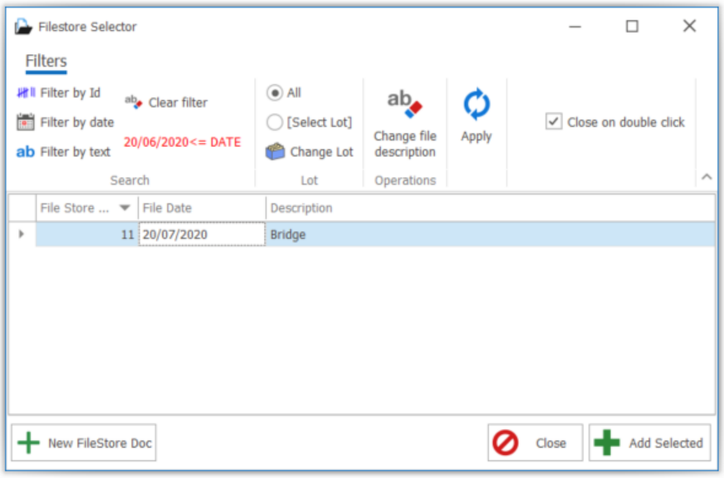


Figure 63 The filestore selector

The document will be added to the lots Filestore Docs related items as per Figure 64.

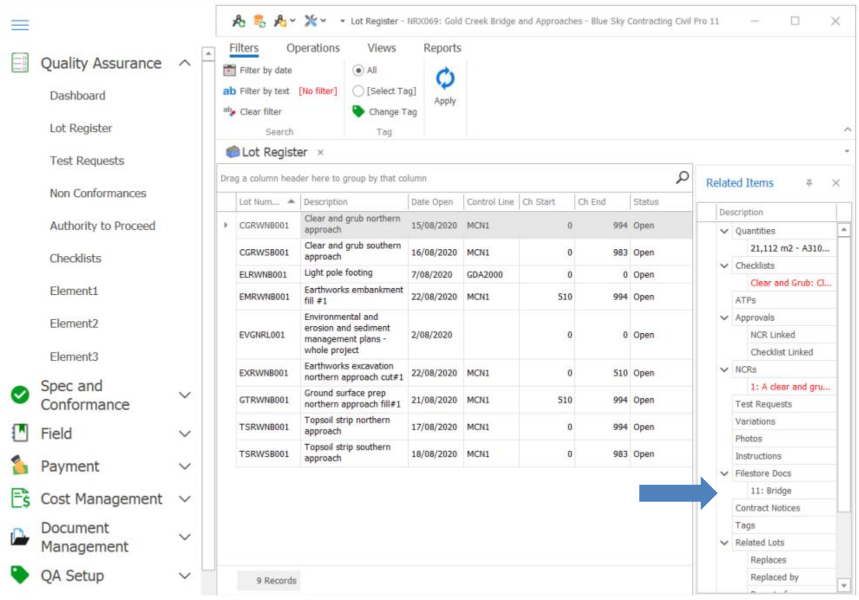


Figure 64 Filestore document added as a related item

5.8.1 Viewing Filestore docs

To view a Filestore document, double click it. Civil Pro will use the system association to figure out what application to view it with. That application will be opened showing the selected document.

As Civil Pro makes a copy of the file when it is imported, any changes you make to a lot doc will not affect the original copy.

5.8.2 Editing document details

You can change the description of the document in the Filestore by right clicking on its entry in the related items list and selecting *Edit Record*. This will display the same dialog as you used to add it.

tip

The document information screen accessed with the right click Edit Document Details button also shows the original location from which the file was copied.

5.8.3 Printing the document

Civil Pro will print your document using its default application. This function is accessed by right clicking on its entry in the related items list and selecting *Print Selected.*

5.8.4 Deleting a document

To delete a Filestore document, select it in the related items panel and press the delete key. This only deletes Civil Pro's copy of the file. The original remains unchanged.

5.9 NCRs

Inevitably, something will go wrong on your project - your concrete will get rained on before it has gone off; a density test will fail or maybe one of your suppliers gives you a dodgy valve. This is unavoidable and fits inside the framework of a good quality system when such occurrences are identified and steps taken to prevent the likelihood of their reoccurrence.

We are going to record a Non Conformance on CGRWNB001 and CGRWSB001 due to a missed hold point where the inspector is required to approve retained vegetation.

- The corrective action is N/A (because there isn't much you can do about it now).
- The method to prevent reoccurrence is to undertake a toolbox meeting with all earthworks foreman and engineers to reinforce the need to acknowledge the hold point.

1. From the Main Menu, click on *Quality Assurance* then *Non Conformances*.
2. In the NCR Register, click on the *New NCR* button at the bottom of the page.
3. In the NCR Wizard, enter the location, description, corrective action and preventative methods - clicking on *Next* at the bottom right of the screen to move to the next page.

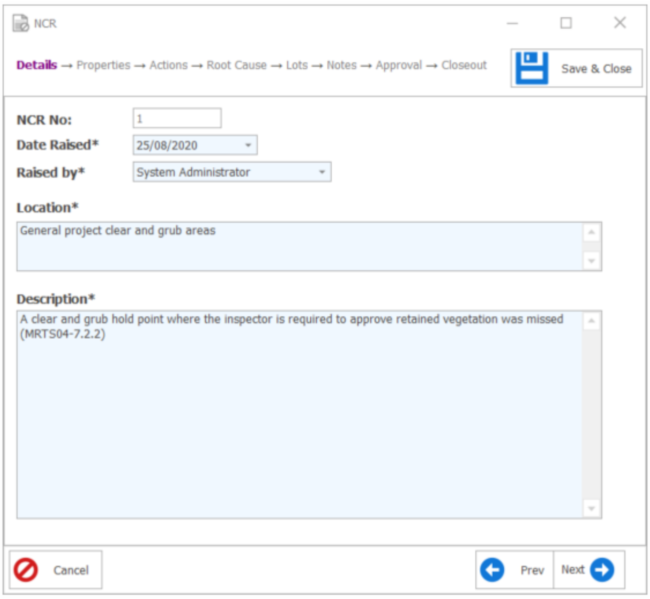


Figure 65 New NCR wizard entering details

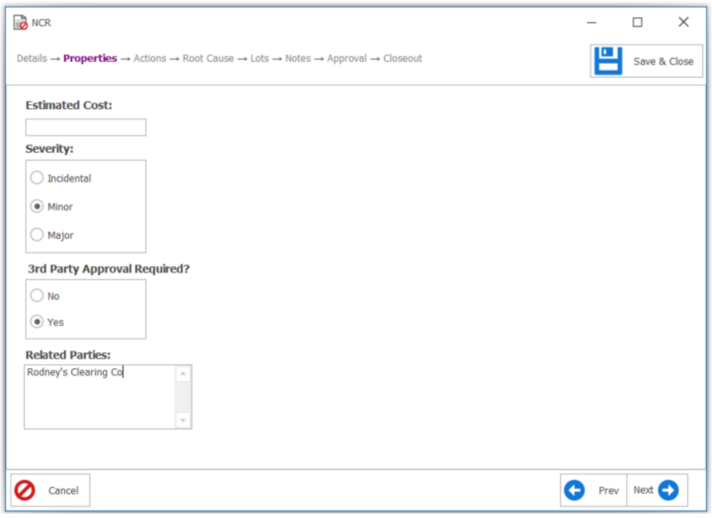


Figure 66 New NCR wizard entering properties

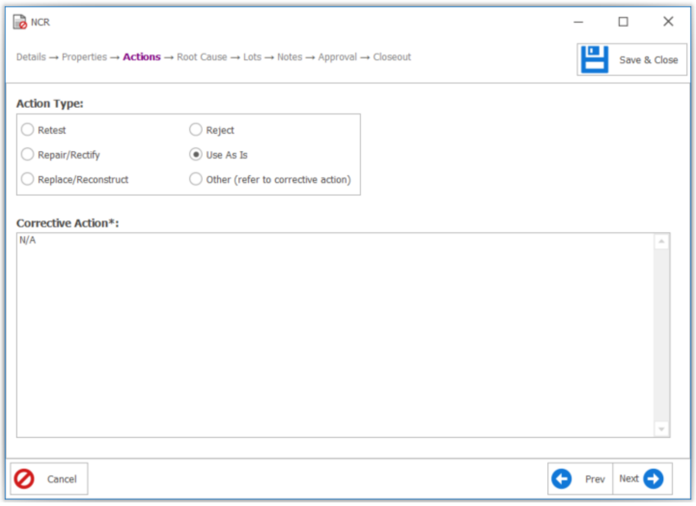


Figure 67 New NCR wizard entering actions

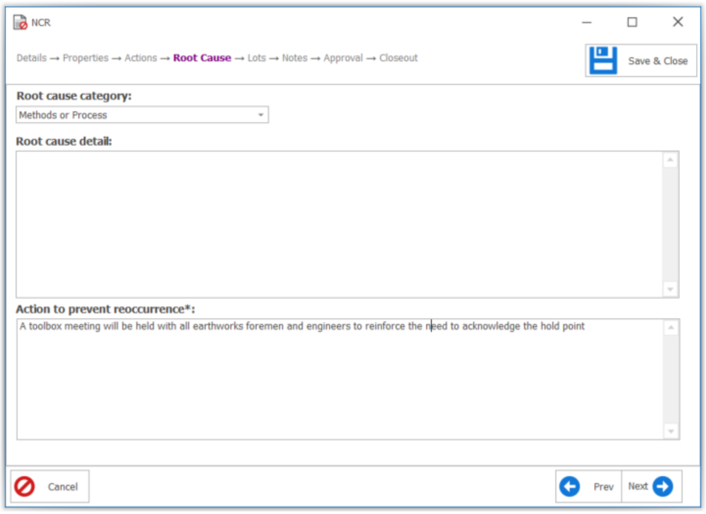


Figure 68 New NCR wizard entering root cause

4. When required, select any Lots associated with the NCR - just add Lot CGRWNB001 for now.

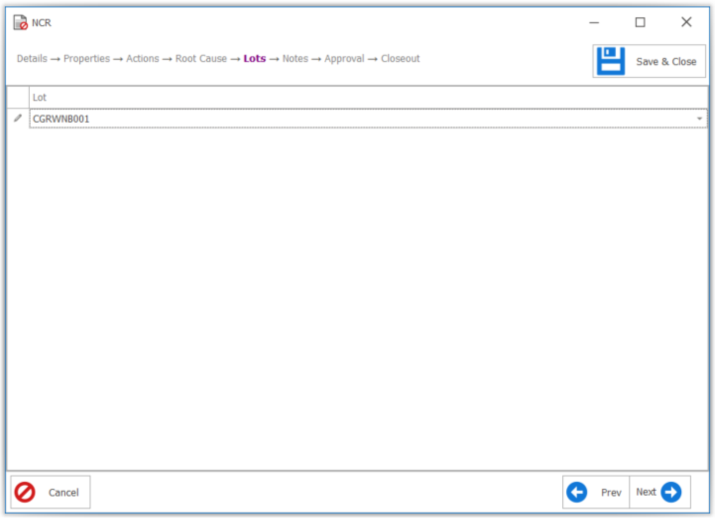


Figure 69 New NCR wizard selecting associated lots

5. Leave the approval and close out information for the moment and just select *Save & Finish*
6. Your NCR will now appear in the NCR Register. You will notice the Lot for the NCR appear in the Related Items Panel. Check out the Lot Register - CGWRNB001 has NCR 1 in its Related Items.

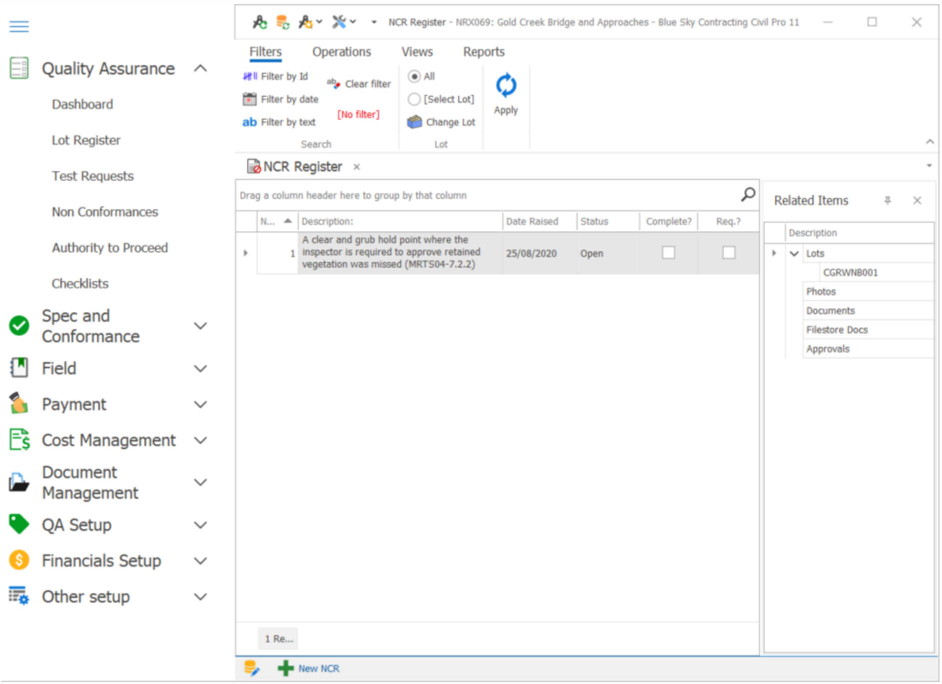


Figure 70 New NCR appearing in the NCR Register

7. Try removing the link between NCR1 and CGWRNB001 in the NCR Register by selecting it in the Related Items list and pressing the delete key (you can also do this from the Lot Register).
8. Re-associate by double clicking on the Lots heading, selecting the CGRWNB001 Lot and dragging it onto the Lots heading. You can do a similar operation from the Lots Register - try it by also linking this NCR to Lot CGRWSB001 from the Lot Register.   Once done you will see both Lots as related items within the NCR register as in Figure 71.
9. Enter in the second NCR as described in the training supplement.

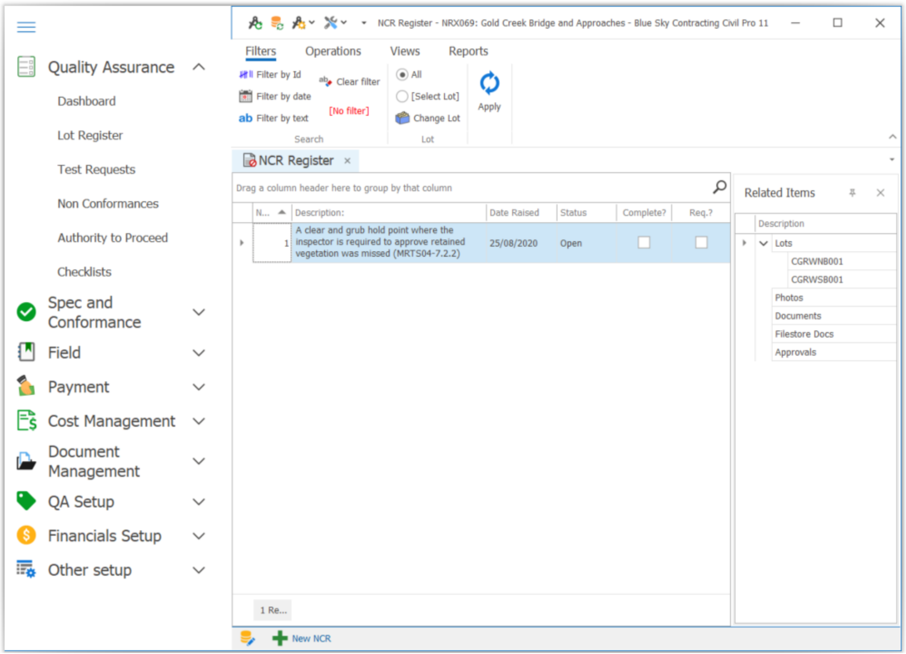


Figure 71 NCR Register showing two associated lots

5.10 ATP Register

What if, in our previous NCR, you did tell the superintendent to inspect the retained vegetation and they just don't remember? What you need is a way to document the notification of Hold Points. You can do this using either a Checklist or the Authority to Proceed.

The advantage of a Checklist is that it is relatively simple. The disadvantage is that it doesn't record when notification is given of a required inspection which is a problem as specifications often specify the notice that must be provided to allow the Principal time to coordinate their presence at site.

In a project where everything is running smoothly, ATPs probably aren't needed much, if at all, but if you need to keep track of when and who you notify about key contract inspections, you will need to record ATPs.

We are going to notify the client about a ground surface preparation inspection for EXRWNB001 tomorrow at 1pm. The client's representative is George Reid

1. From the Main Menu, under the *Quality Assurance* section click on *Authority to Proceed*.

You will notice that the ATP Register has a *New ATP* button at the bottom of the page just like the NCR Register had a *New NCR* button. We could start the Wizard using this button, but we can also start the Wizard from the Lot Register.

2. Switch to the Lot Register and select Lot EXRWNB001.
3. Click on the *New Lot* drop down within the Operations heading of the ribbon menu and select *New ATP* (or shortcut Ctrl + Alt a) as in Figure 72.

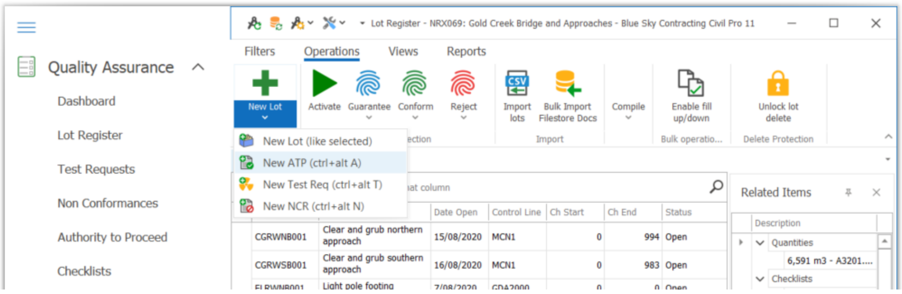


Figure 72 Creating a new ATP from the Lot Register using New Lot dropdown

4. In the ATP Wizard, enter a description of the inspection, the date, person being notified etc. Click *Next.*

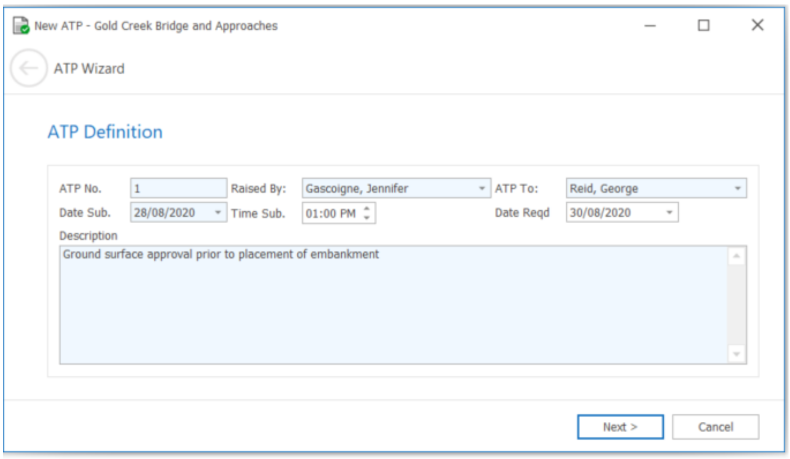


Figure 73 New ATP definition

4. The Lot you had selected when you invoked the Wizard should be pre-filled into the so you just need to describe the inspection item for that Lot (you can describe multiple Lot Inspections - very useful for a day's concrete pours) the date and time.)

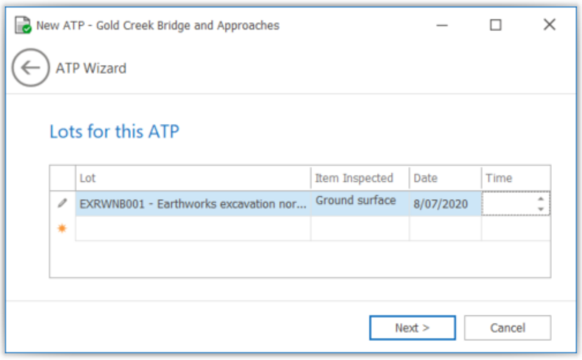


Figure 74 New ATP lot

5. Click *Next*, check the info and click *Finish*.

Your ATP can now be seen linked to your Lot in the Lot Register, and of course in the ATP Register as per Figure 75. In the ATP Register the Lots for inspection shown in the Related Items. Similar to Quantities, ITPs and NCRs, you can add or remove Lots from the ATP using the Related Items Panel.

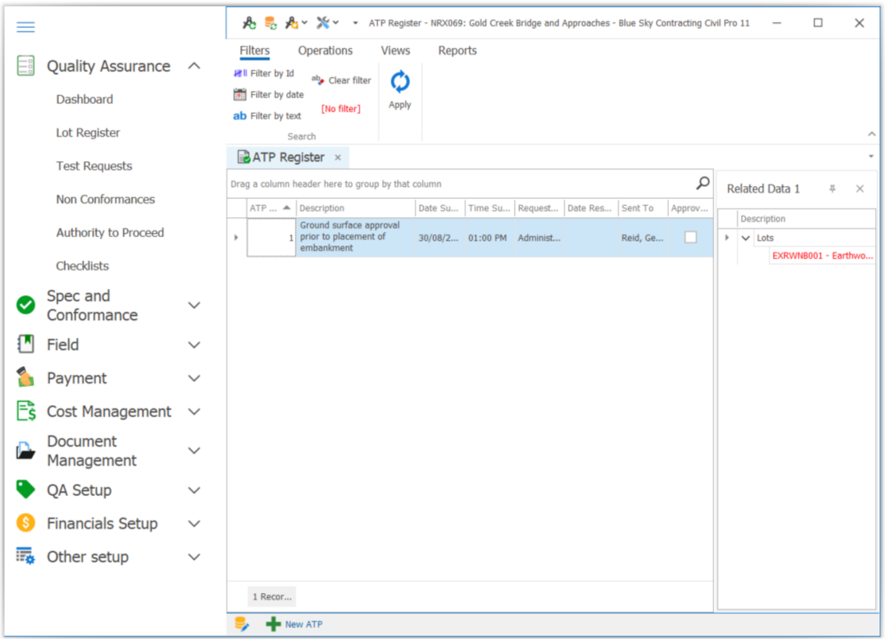


Figure 75 ATP register with newly created ATP

5.11 Test Request Register

When work is completed there is generally a requirement to conduct independent tests to verify the Specifications have been met. More often than not an independent, certified testing authority is engaged to perform this testing. It is important that you are able to communicate with the testing authority what areas require testing and when. For this purpose, Civil Pro provides a Register of Test Requests.

We are going to create a Test Request to cover the 4 x compaction tests identified as required for GTRWNB001 from our checklists. Our tester is Joseph Cook.

1. From the *Main Menu*, click on *Test Request* under the *Quality Assurance* section.
2. In the Test Request Register, click on the *New Test Request* at the bottom of the screen.
3. Enter the details to describe the tests required as per the training supplement. Click on *Next* to move to the next page of the wizard.

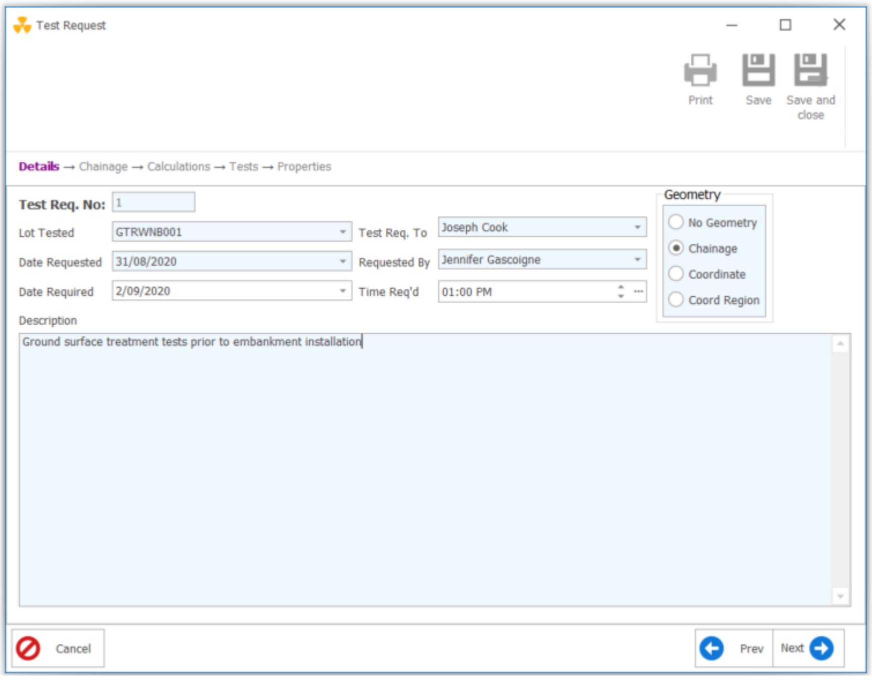


Figure 76 New test request details page

4. Confirm the region to be tested. The wizard will automatically use the complete extent of the Lot. In this case add the level reference (GS for ground surface will do) and click *Next*.

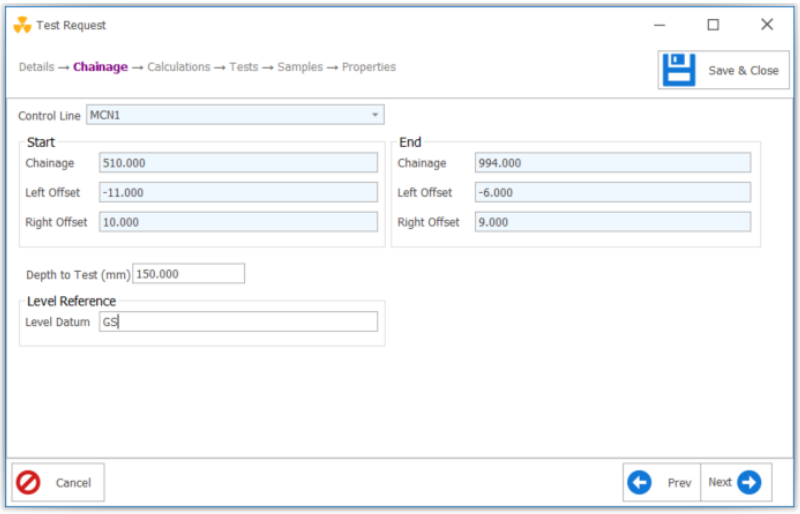


Figure 77 New test request chainage page

5. The next page allows you to specify where the tests are located and how using the *Method of Location* option. If you want the tester to locate the tests, then select *Tester Locates.* In this case we are going to tell the tester where to test using randomly generated test locations, so we select the *Random Stratified Testing* option. We want locations in 2 dimensions so will leave the *Random Locations* as they are (long. and lat. selected). A location to the nearest metre is adequate so we can leave the resolutions for each dimension at 0. If we wanted mm resolution, we would need to set this to 3 (0.001m).

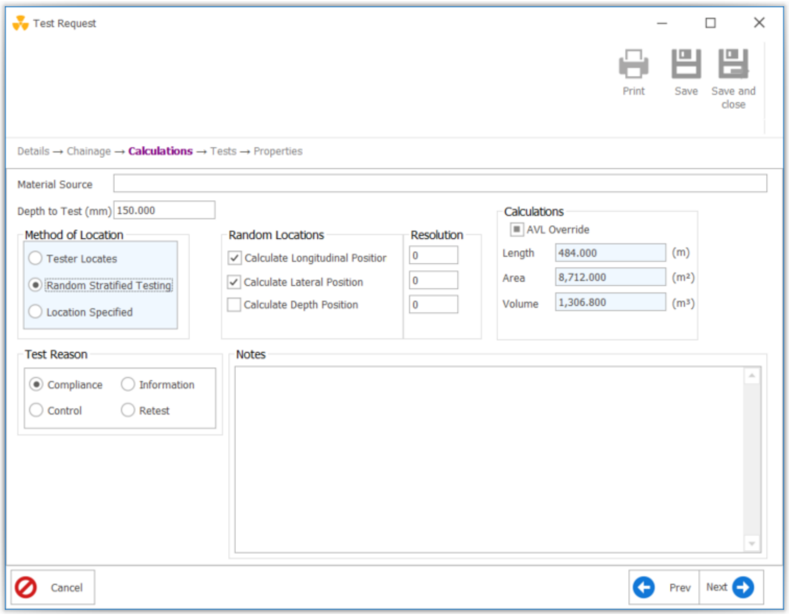


Figure 78 New test request calculations page

6. Specify the Test Method(s) you need and the number of each. In this case we will throw in a couple of CBR (Q113A) too because it will be indicative of the material out of the adjacent cut we plan to use for subgrade replacement. You can also designate what Schedule Item is specifically being tested, but this is optional. Click *Next.*

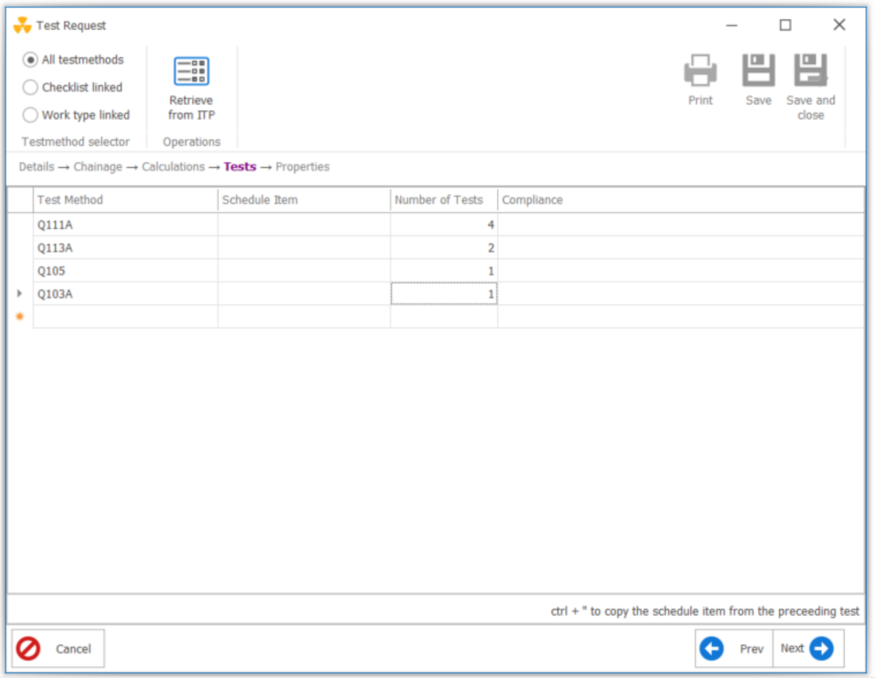


Figure 79 New test request specifying testing

7. The next page allows you to specify additional properties for the test. In this case there are none, but you would use this if you were recording additional information for concrete tests such as the source, slump, no. of batches. Click *Save & Finish*

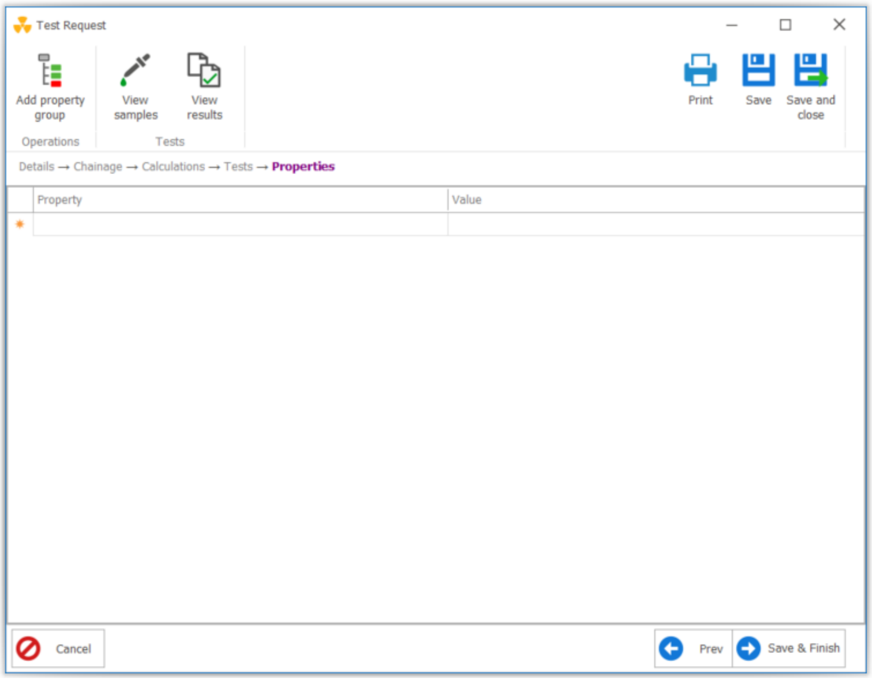


Figure 80 The Test Properties page

5.12 Variations

When we completed the ground surface preparation, we came across an old cattle dip which had to be removed to a controlled disposal site and backfilled. We consider this to be a Variation and need to record it.   It will add about 1 day to our critical path and was discovered as part of the ground surface preparation for Lot GTRWNB001. It also meant we had to relocate a footing - installed under Lot ELRWNB001

1. From the *Main Menu*, click on *Variations* under the *Payment* section
2. In the Variation Register, click on the *New Variation* button at the bottom of the page.
3. Add the basic Variation details from the training supplement and click *Next*.

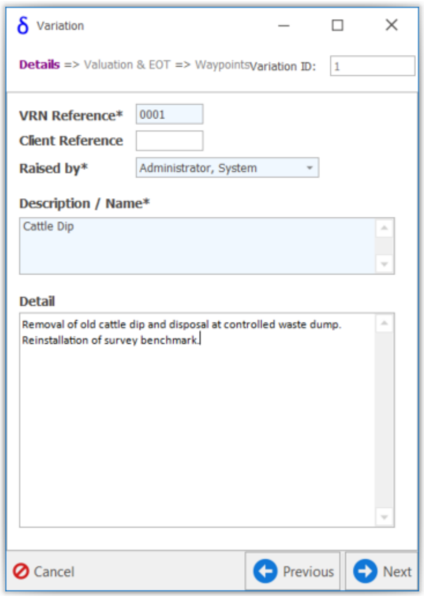


Figure 81 Variation definition

4. Add information regarding EOT or valuation that you may already know about this Variation.   In this case we will assume that we already know this Variation has an EOT (submitted) of 1 day, and an estimated value of $18,500.

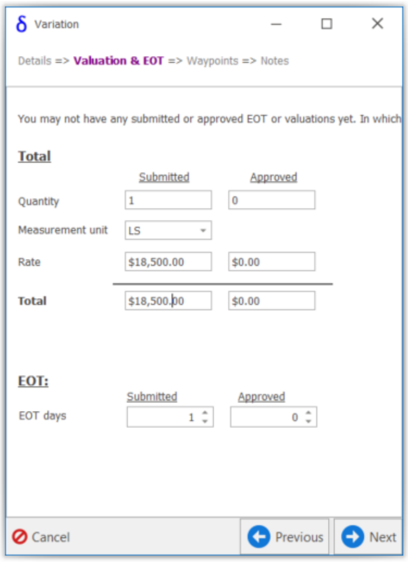


Figure 82 Variation EOT &Valuation

5. Add the Waypoint details and any notes. Click *Next.*

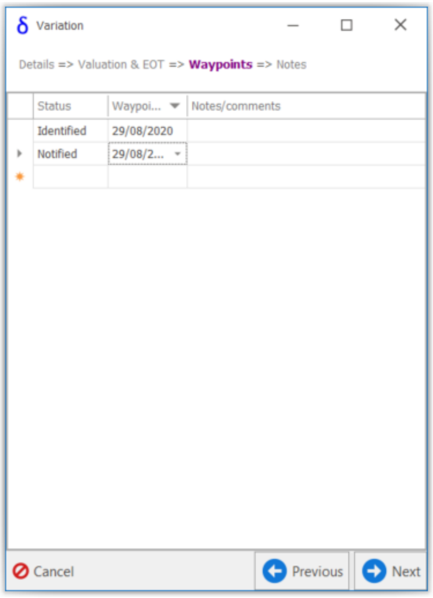


Figure 83 Adding Waypoints and notes

6. Click *Save & Finish* - your Variation is now visible in the Variation Register. Now link the effected lots as you would any other related item i.e. double click on the Lots heading in the related items panel and select the lots from the Lot Selector. You Variations Register should look like that in Figure 84.

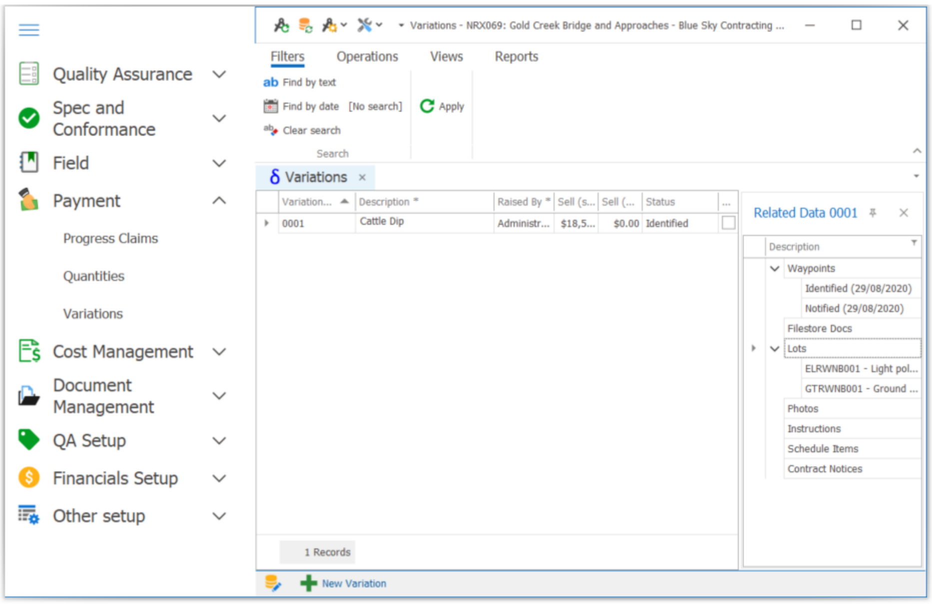


Figure 84 Variation register with linked Lots

5.12.1 Variation approval and payment

A couple of days later (2/9/20) we received word from the principal that the Variation is approved with their reference VX021b to a LS value of $16,800. They agree with the 1 day EOT. As a result, we need to:

- update the status by adding a new Waypoint with a status of *Approved*
- add the client's reference
- update the valuation
- create a new Schedule Item for the Variation
- add a Lot Quantity to claim payment

1. To add the new Waypoint select the *New Waypoint* option from the Context Menu (or double click in the related items and select the approved status from the popup – we will show the former approach).

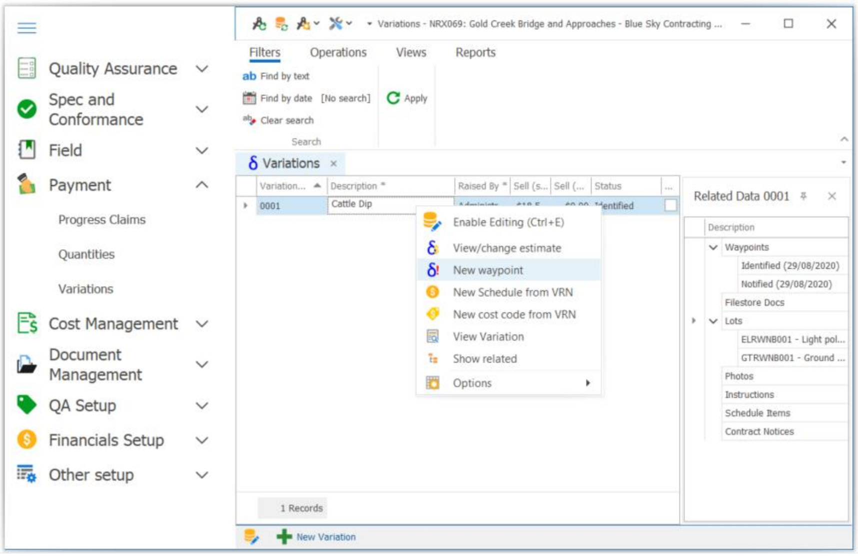


Figure 85 Selecting New Waypoint from the context menu

2. Select *Approved* from the Status dropdown and complete the date. Press *Update.* The Variations Register will now show the status of this Variation as Approved (Figure 87).

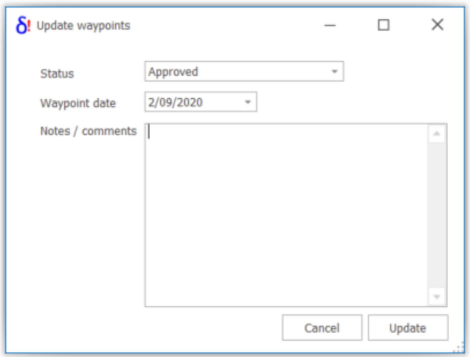


Figure 86 Adding Waypoint - Approved

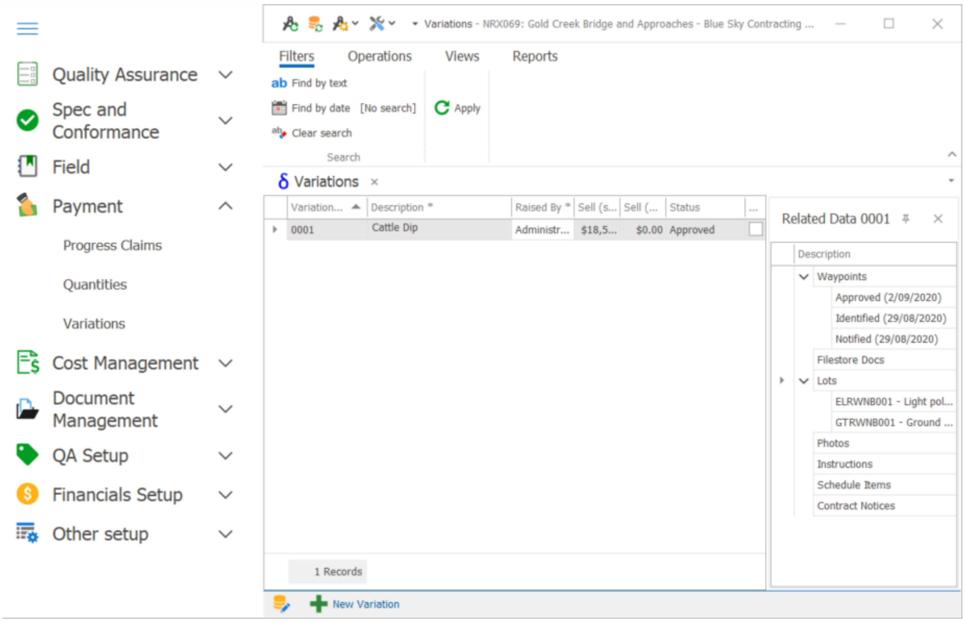


Figure 87 Variation Register showing updated Approved status

Next we will update the remainder of the variation details.

3. Double click on the Variation in the register to bring up the details dialog. Update the client reference then access the relevant sections by clicking on the headings at the top of the dialog or using the *Next* button and updating required information.

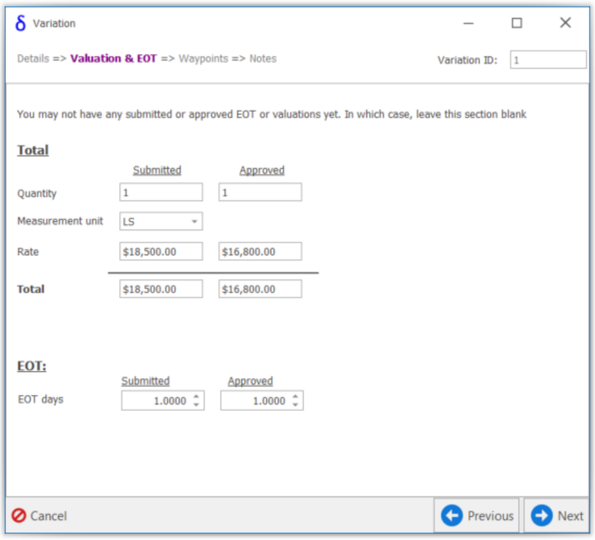


Figure 88 Variation details – updated details

If we are going to make progress claims using this variation, or record quantities related to it, we are going to need a schedule item. You could simply add one manually using the Schedule Item Register, but seeing as you already have the information in the variation, it is probably best to use it.

4. With your Variation selected, click on *New Schedule Item from VRN* in the context menu (accessed by right clicking in the register). Fill out the details using information in the training supplement and click *Save & Close*.

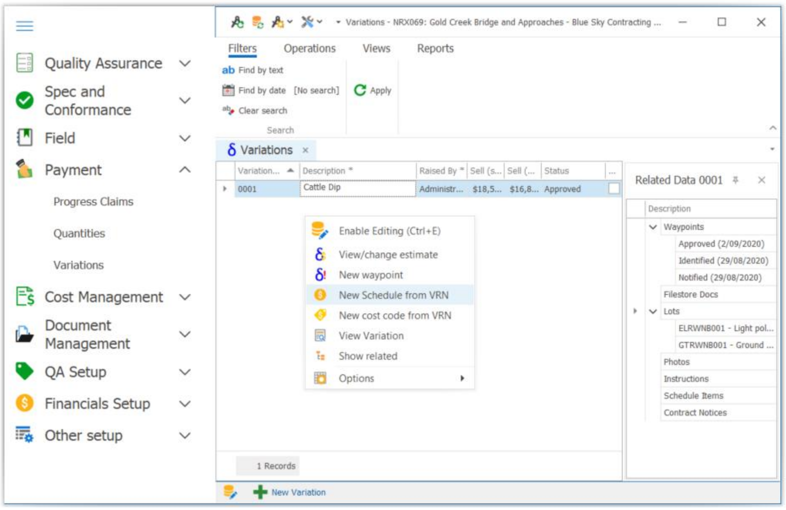


Figure 89 New Schedule Item function accessed from the context menu

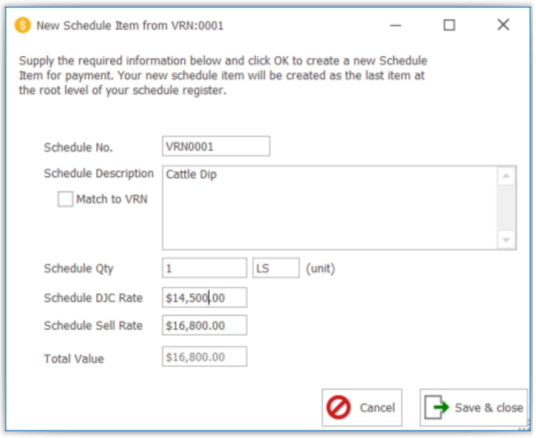


Figure 90 New schedule item details

5. You will be asked if you would like to create a cost code – click *Yes.* In the New Cost Code Dialog that will appear, Civil Pro will create a new cost code for you – click *Create* (Figure 91).

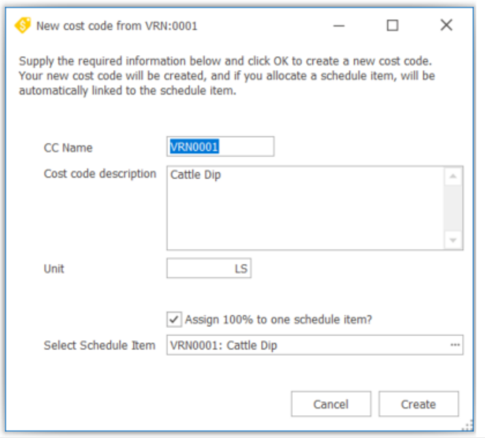


Figure 91 New Schedule Item from Variation

6. Open the Schedule Item Register. You will see a new Schedule Item has been created for your Variation, and a link created between the two. You may want to add any structure if, for example this Variation belongs to a particular Schedule.

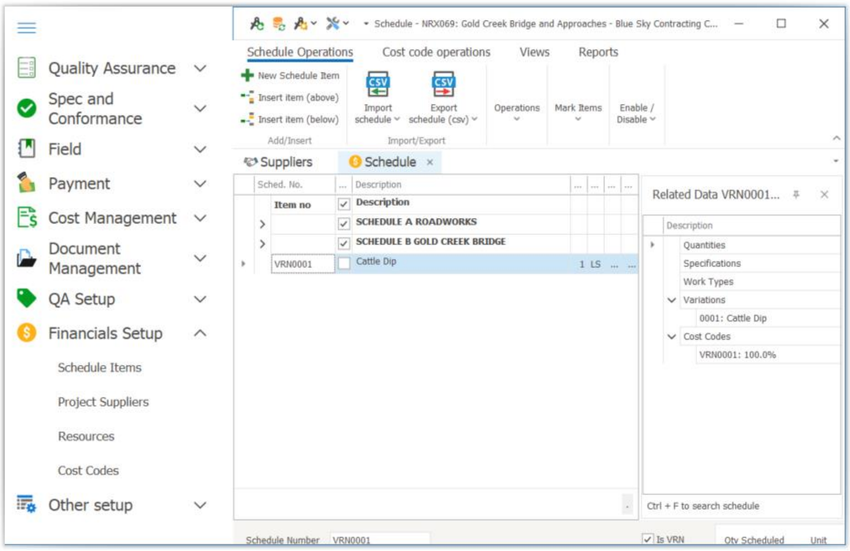


Figure 92 Variation in Schedule Item Register

If we want to claim payment for this item, we need to attach a quantity to a lot.

7. In the Lot Register, add a Quantity to Lot GTRWNB001 so we can claim payment for this variation.

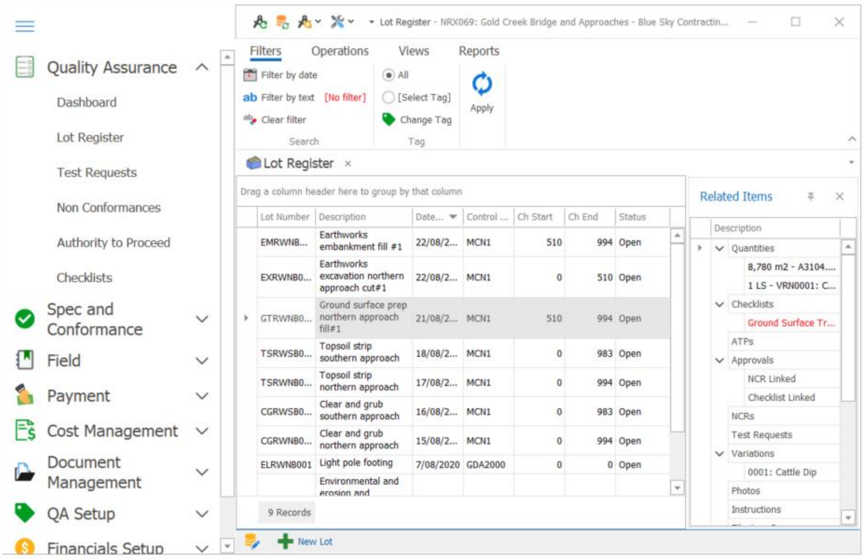


Figure 93 Quantity added to Variation within Lot Register visible in the Quantities section of the Related Items panel

5.13 More testing

As part of the Variation we ended up having to pour a concrete slab to cover the base of the excavation. This was done with 25MPa concrete and a compliance test was required.

1. In the Lot Register select the Lot GTRWNB001.
2. Under the *Operations* heading, select *New Lot => New Test Request* from the ribbon menu at the top of the screen
3. Enter all of the definition details for the new Test Request and click *Next.*

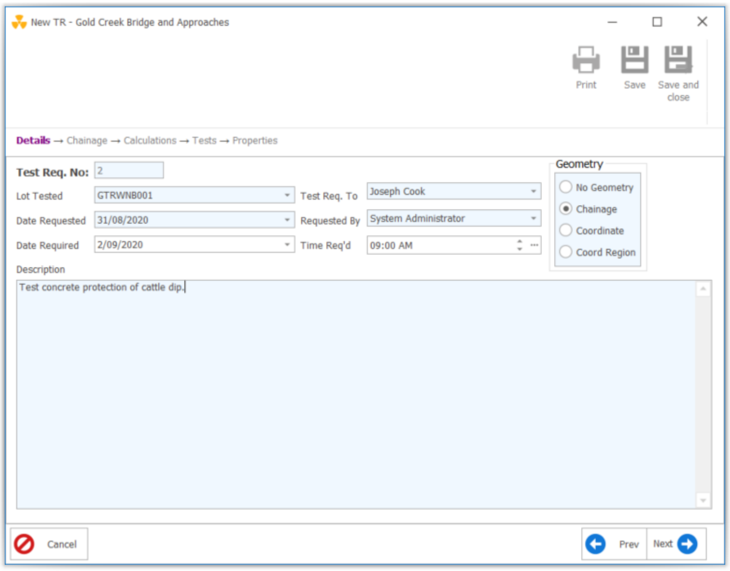


Figure 94 Test Request definition

4. In this case, the position of the testing is different to that of the Lot, so update the test positions. Click *Next.*

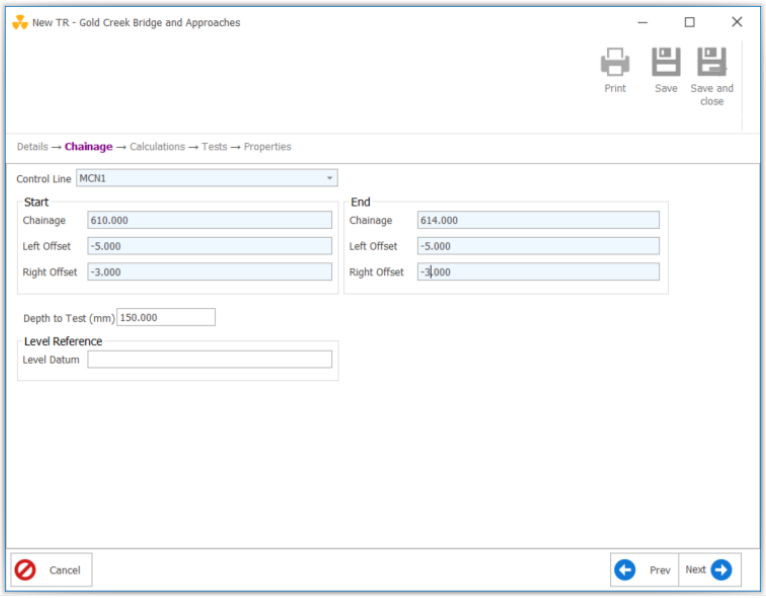


Figure 95 Test Request geometry

5. Because the geometry has changed, you will be prompted to update the AVL properties. Click *Yes*.

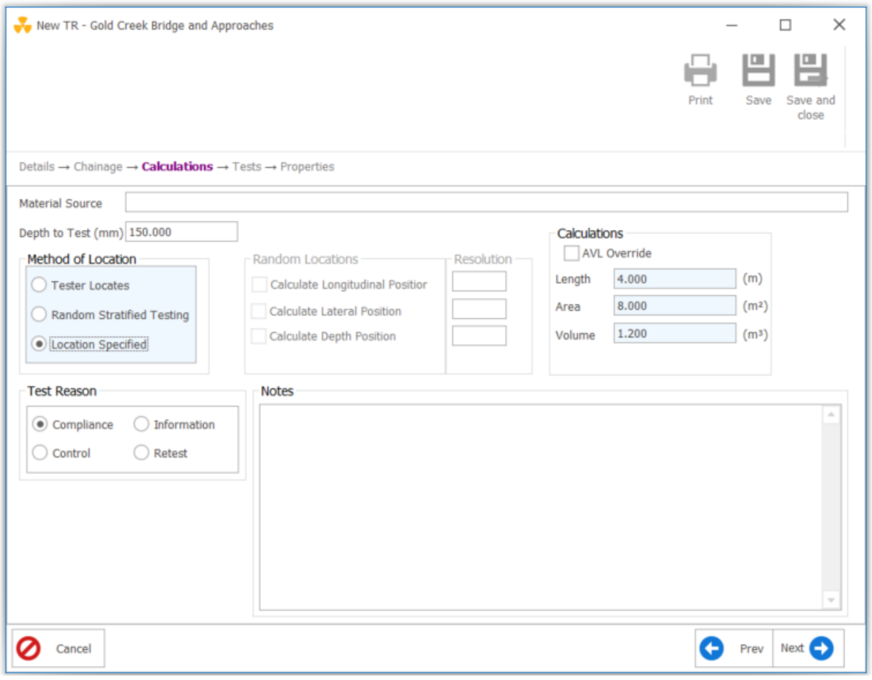


Figure 96 Test calculations

6. Enter the tests to be completed. Click *Next*.

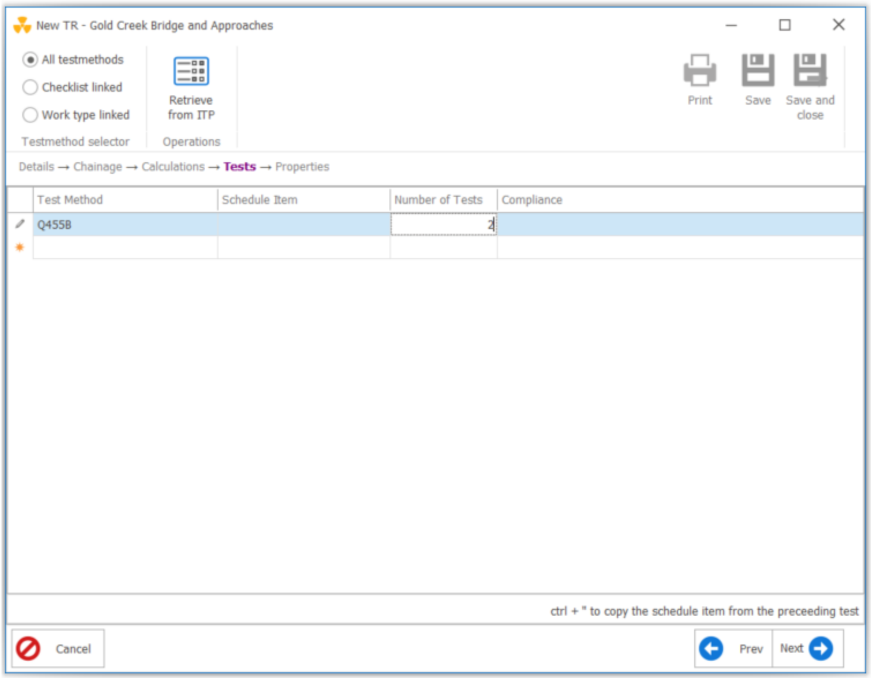


Figure 97 Tests requested

In this instance, we need to add Test Properties for the Test Request.

7. Click on *Add Property Group* from the ribbon menu and select *N25 Concrete*. Click *Add Selected*. Fill any additional details into the grid. Click *Save & Finish.*

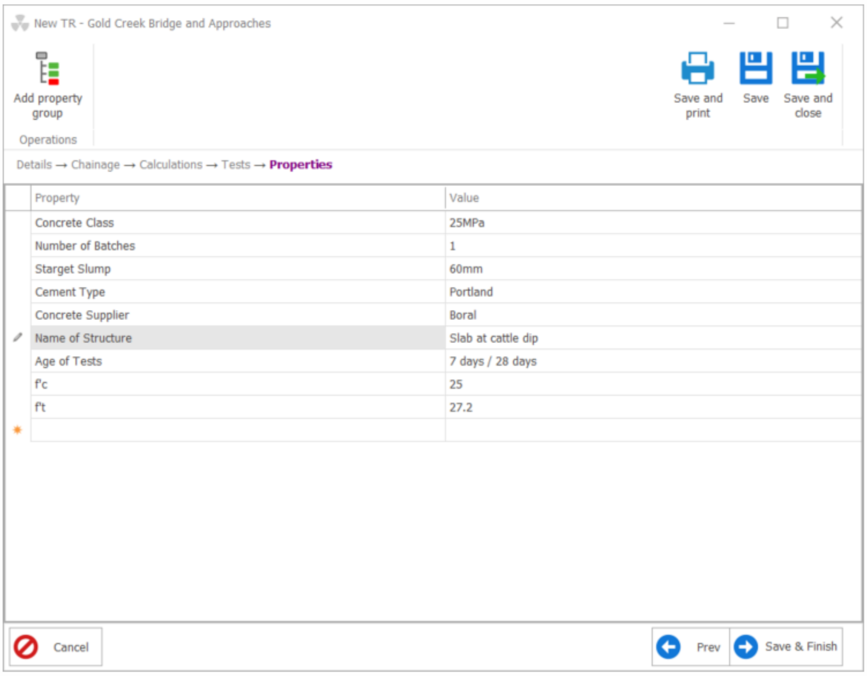


Figure 98 Adding properties for concrete tests

Now we will enter the final test request but in this instance we will be finding and selecting the relevant test using the *Retrieve from IPT* tool.

1. In the Lot Register select the Lot EMRWNB001
2. Under the *Operations* heading, select *New Lot => New Test Request* from the ribbon menu at the top of the screen
3. Enter all of the definition details for the new Test Request and click *Next.*
4. Confirm the region to be tested. The wizard will automatically use the complete extent of the Lot - click *Next*.
5. In the next screen select *Random Stratified Testing* option then *Next.*
6. Here we select the test but this time instead of searching from a list, click on Retrieve from ITP at the top of the dialog (see Figure 99)

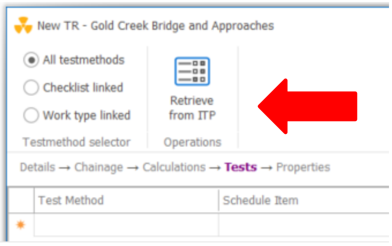


Figure 99 The Retrieve from IPT button

7. The Test Schedule dialog will appear. Select the test from the list (Q142C) and from the *Qty for Calc* dropdown select 6591m2 (Figure 100) and press *OK*.

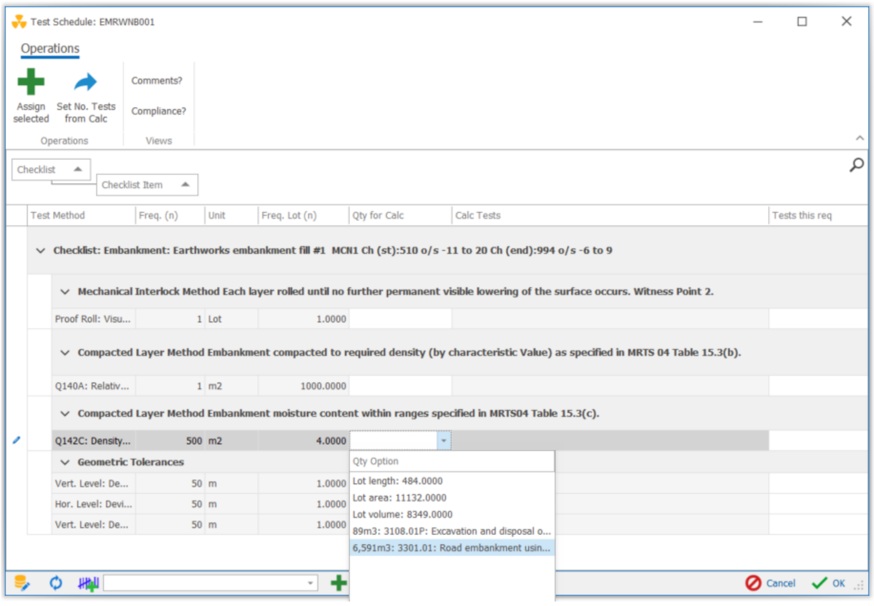


Figure 100 Selecting Test & Qty for Calc

You can apply the same quantity for calculation option for multiple tests at one time – just select the tests you want then select the qty option from the dropdown at the bottom of the dialog and your selection will automatically be applied to the tests you selected saving you from having to do this one at a time.

8. Back on the Tests screen you will see that your test has been added and Civil Pro has automatically calculated the number of tests required based on your option in the previous screen. Click *Next*.
9. Add in the property group manually by tying in directly to the grid, then press *Save & Finish.* When completed your Test Request Register should look like that in Figure 101.

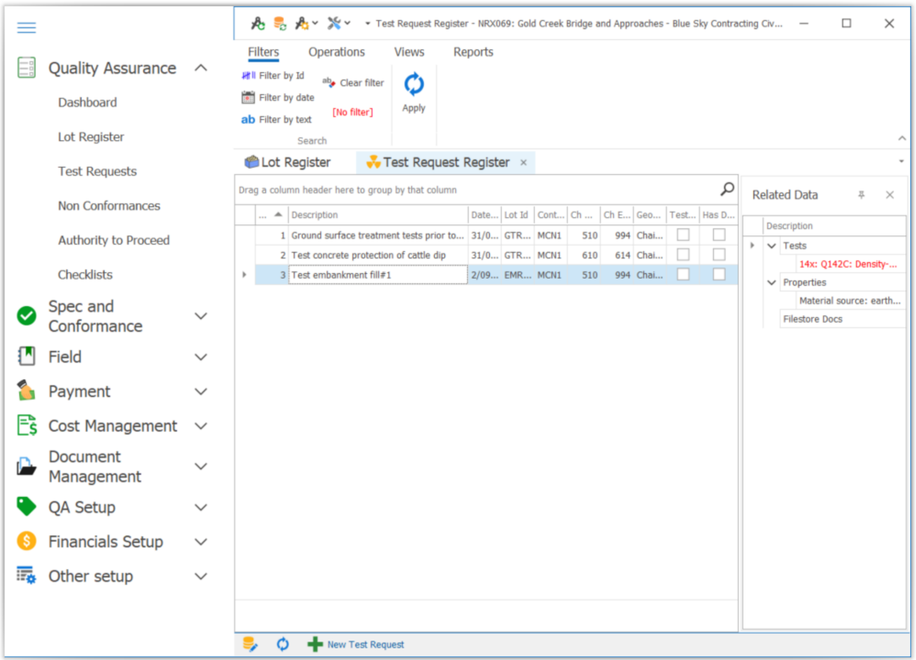


Figure 101 Test request register with additional tests

5.14 Test Results (Optional module)

Once you have requested tests, you may want to record the results in Civil Pro. Generally, management of test results is something your testing agency can do for you, and this functionality of Civil Pro is not necessary. In this example we are going to enter some test results and consider the concrete test result analysis that can be performed in Civil Pro.

1. Open the Test Requests register from within the QA menu.
2. Select the first test request (Test1) from the register, then select *Operations* in the ribbon menu at the top of the screen and click on *Show Results for Selected* as in Figure 102.

tip

You can also access test results from within the details screen of a test request – simply open the test request and select *View Results* from the top left of the screen.

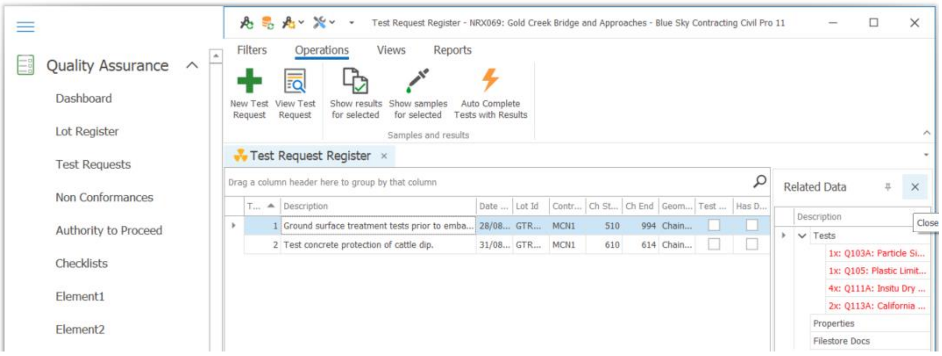


Figure 102 Selecting Show Results for Selected from Ribbon Menu

3. The Test Results dialog will open as in Figure 103. Note that there are 4 different tabs. One for each of the test types for this specific test. Each Test Type has the same first 4 columns - Test Req, Date Sampled, Lot and Sample No. Additional columns are added to each Test Method in the Test Method Register.

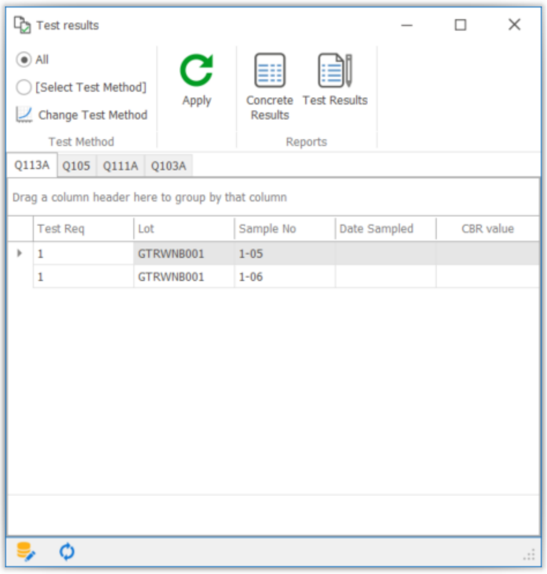


Figure 103 Test Results Dialog

4. With editing enabled, enter values in for each Test Result as per information below and in the training supplement.

Compaction					
Test Req	**Date Sampled**	**Lot**	**Sample No**	**DDR (%)**	**FMC (%)**
1		GTRWNB001	1-01	96	86
1		GTRWNB001	1-02	95	87
1		GTRWNB001	1-03	94	94
1		GTRWNB001	1-04	96	91
CBR					
Test Req	**Date Sampled**	**Lot**	**Sample No**	**CBR**	
1		GTRWNB001	1-5	18	
1		GTRWNB001	1-6	14	
Plasticity Index					
Test Req	**Date Sampled**	**Lot**	**Sample No**	**PI (%)**	
1		GTRWNB001	1-7	8.5	
Grading					
Test Req	**Date**	**Lot**	**Sample No**		
1		GTRWNB001	1-8	0.075mm sieve	10
				0.425mm sieve	20
				2.36mm sieve	35
				4.75mm sieve	50
				9.5mm sieve	60
				19mm sieve	75
				26.5mm sieve	90
				37.5mm sieve	100
				53mm sieve	100
Concrete					
Test Req	**Date**	**Lot**	**Sample No**	**Cylinder A UCS**	**Cylinder B UCS**
2		GTRWNB001	2-01	26	29
2		GTRWNB001	2-02	26	27

5. To print a report for all of the currently displayed tests, click on the *Test Results* button in the ribbon menu at the top of the test results screen. A report showing the results and characteristic values (where possible) will be shown as in Figure 104.

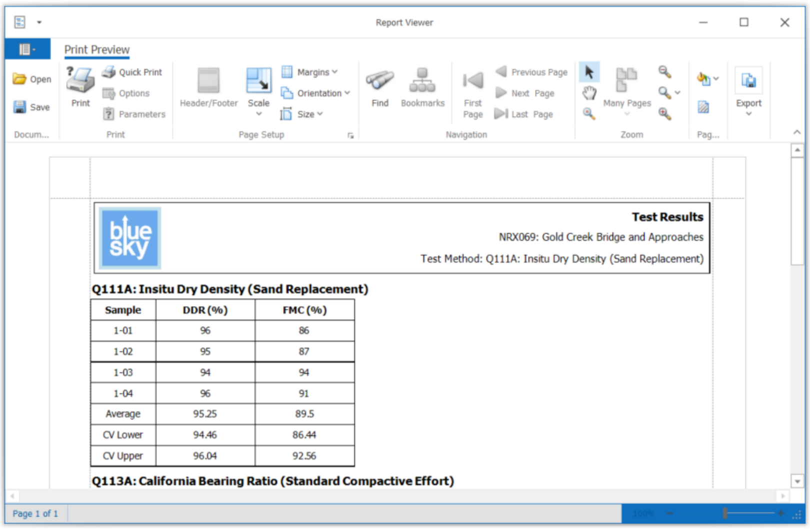


Figure 104 Test Results Report

6. To view concrete test results showing analyses as defined by Queensland Main Roads Specifications, click on *Select Test Method* from the Test Results screen ribbon menu and select the test method from this list provided in the *Test Method Selector* – see Figure 105.
7. Once you have selected the test method click *Add Selected* then *Concrete Results*

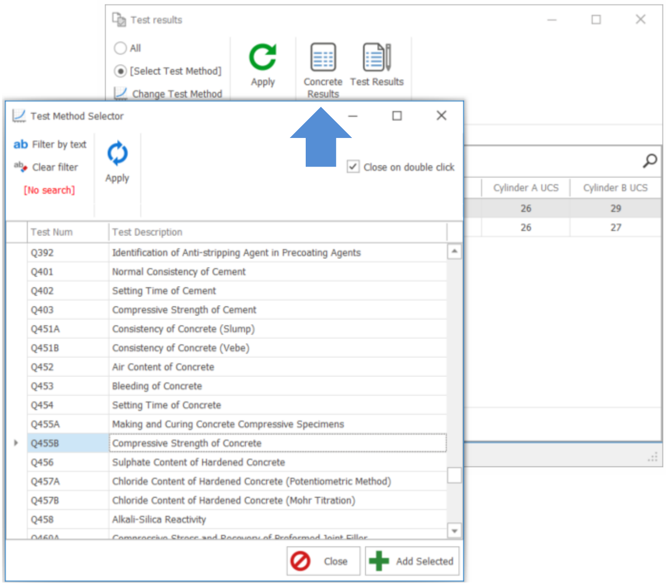


Figure 105 Selecting Test Method for Concrete Results

8. To run the report, you must specify values for f'c and f't for the mix. You can either do this manually, or automagically using your Test Properties for the mix. If you recall, when we set up the Test Properties for N25, we added properties for f'c and f't. As a result, if we select N25 from the Test Properties, these values will be retrieved. Then simply select or unselect the different tests to customize your analysis and click *Report*

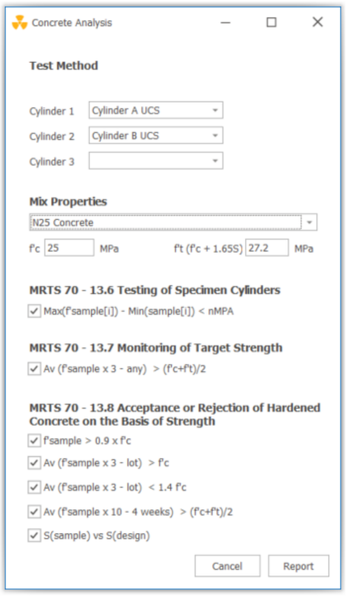


Figure 106 The concrete test report dialog

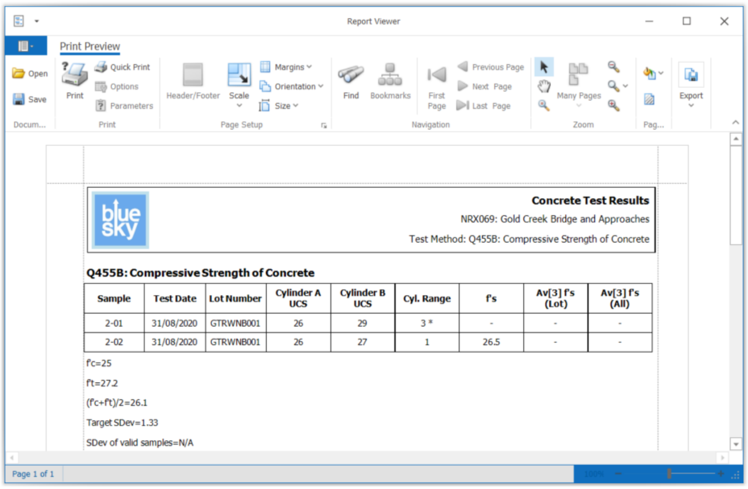


Figure 107 Concrete Test Results Report

5.15 Photos

The best record of the state of work is a photograph. Civil Pro allows you to record photographs and link them to Lots, Variations and NCRs.

You must have set the file location for the project prior to recording photo information. Do this in the project settings (*System=>Settings=>Project Settings*). The File Location can be anywhere that you as a user have permission to write files. A public drive is often the best location as the files need to be accessible to all users of the system

1. From the Main Menu, click on *Photos* under the *Specifications and Conformance* section
2. In the photos Register, click on the *New Photo* button at the bottom of the screen
3. Select your photo in the file browser, it will be opened in the photo preview and resizer

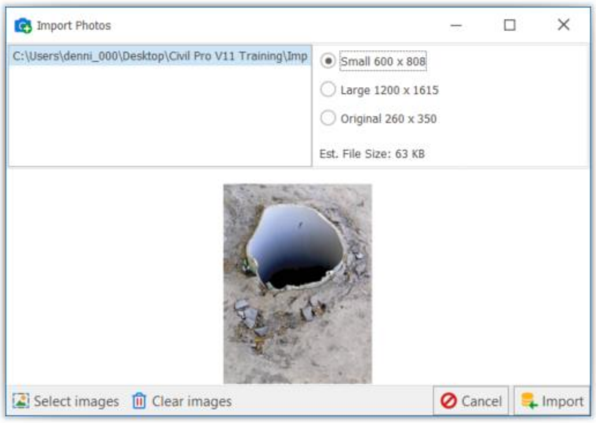


Figure 108 Importing a photo

4. Modern cameras take high resolution images that can have very large file sizes. If storage is at a premium, you can change the quality and dimensions of the image to adjust the file size by selecting the size you would like (small is the default). A preview of the image will be shown demonstrating the result. If you do not need to be careful of storage, you can leave it as it is at full res. Click *Import*
5. Your image will be displayed in the Photo Register with <Enter Description> provided for a description. You should update this to reflect the image. Civil Pro will try to extract the photo date from the image data. If it cannot, you will also need to enter this information.

Now we will add another 2 photos in batch mode

1. In the photos Register, click on New Photo at the bottom left of the screen.
2. In the file selector, select 2 or more photos
3. The photos will be shown in the preview. Any changes to the quality and dimensions will apply to all photos. You can preview different images by select them in the list at the top of the screen

4. Click on *Import* and update any descriptions and dates as required - label one of the photos – "R*emove and replace cattle dip"*
5. Link it to the cattle dip Variation by selecting the photo in the register, then double clicking on the VRN related items heading and double clicking on the Cattle Dip variation.

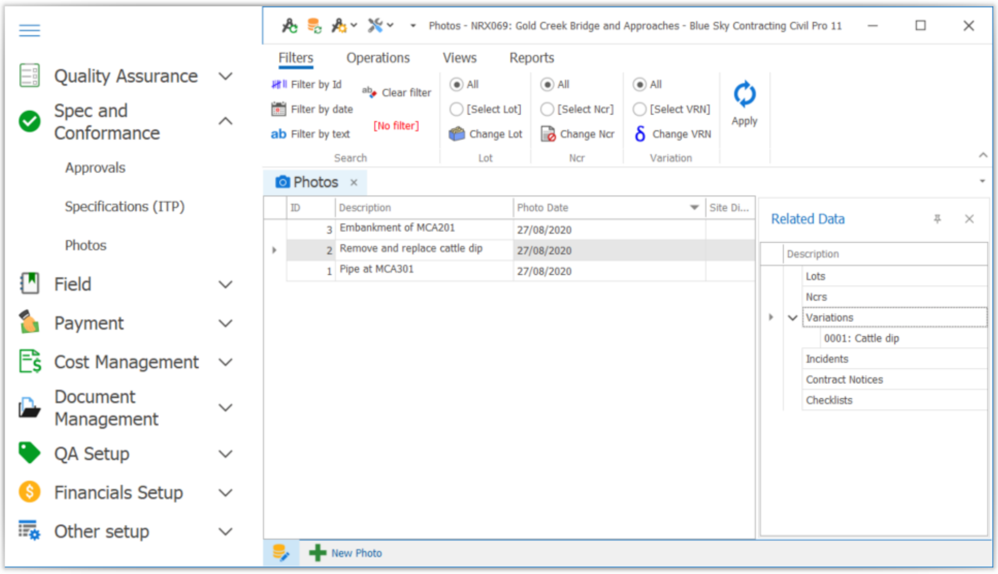


Figure 109 Linked photo

5.16 Preparing for Progress Claims

When used for projects where claims for payment must be supported by quality records, Civil Pro can create the Progress Claim from the quality assurance records. Part of this process is to classify each quantity by the completion status of the Lot. Lots can have 3 statuses:

- Conformed - Lot is complete and all documentation has been compiled
- Guaranteed - Lot is complete and all work compliant with the specification but some test results are outstanding due to long lead times
- Work in Progress - Lot is not completed or cannot be demonstrated as compliant

The status of a Lot is determined using properties of the Lot:

- A Lot with a Conformed date is *Conformed*
- A Lot with no Conformed date but with a Guaranteed date is *Guaranteed*
- A Lot with neither a Conformed date or a Guaranteed date is *Work in Progress*

You may have an agreement with your client that allows you to claim Work in Progress, so Civil Pro allows you to enter a percentage complete for either the Lot as a whole or for individual Quantities.

5.16.1 Using views to best advantage

When editing Conformance/guarantee dates, you may want to change view in the grid by selecting *views=>Dates* in the Context Menu

Similarly, when entering percentages for Work in Progress, use the open Lot view *views=>Open Lots*

5.16.2 Statusing Lots

The following are the lot statuses at the end of August. Statusing your lots is necessary to produce an accurate progress claim.

CGRWNB001	Conformed	31/8/20
CGRWSB001	Conformed	31/8/20
ELRWNB001	100%	31/8/20
EMRWNB001	60%	31/8/20
EVGNRL001	Conformed	31/8/20
EXRWNB001	75%	31/8/20
GTRWNB001	Guaranteed	31/8/20
TSRWNB001	Conformed	31/8/20
TSRWSB001	Conformed	31/8/20

5.16.2.1 Guaranteeing

1. In the lot register, select lot GTRWNB001.
2. From within the Operations menu in the ribbon menu at the top of the screen select *Guarantee* (Figure 110)
3. Select the date (31/8/20).

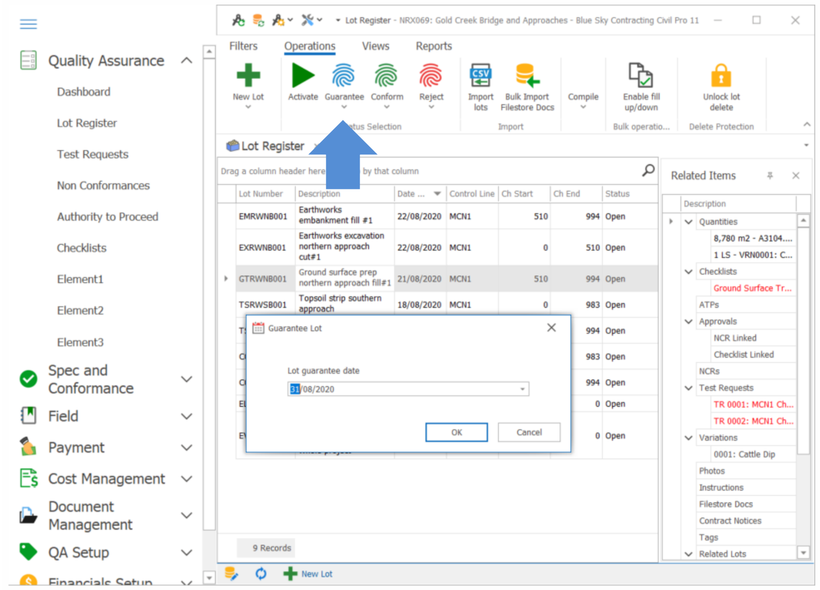


Figure 110 Selecting Guarantee Status from Operations Menu

5.16.2.2 Conforming

1. In the Lot Register, select the Lots to be Conformed
2. From within the Operations menu in the ribbon menu at the top of the screen select *Conform*
3. Select the date (31/8/20).

You will get messages saying that Lots EVGNRL0001, CGRWNB0001 & CGRWSB001 cannot be confirmed as they have associated NCRs that have not been approved. We will deal with that in a moment.

1. Click *OK.* All other Lots will now be conformed

5.16.2.3 Status open lots

You will notice that there are three open lots (not guaranteed or conformed) which have a % complete. There are several ways to update this:

1. (slow for multiple lots) Open the lot detail view (double click the lot) and type in the % complete in the Properties tab (Figure 111). Click through each lot updating the % complete.

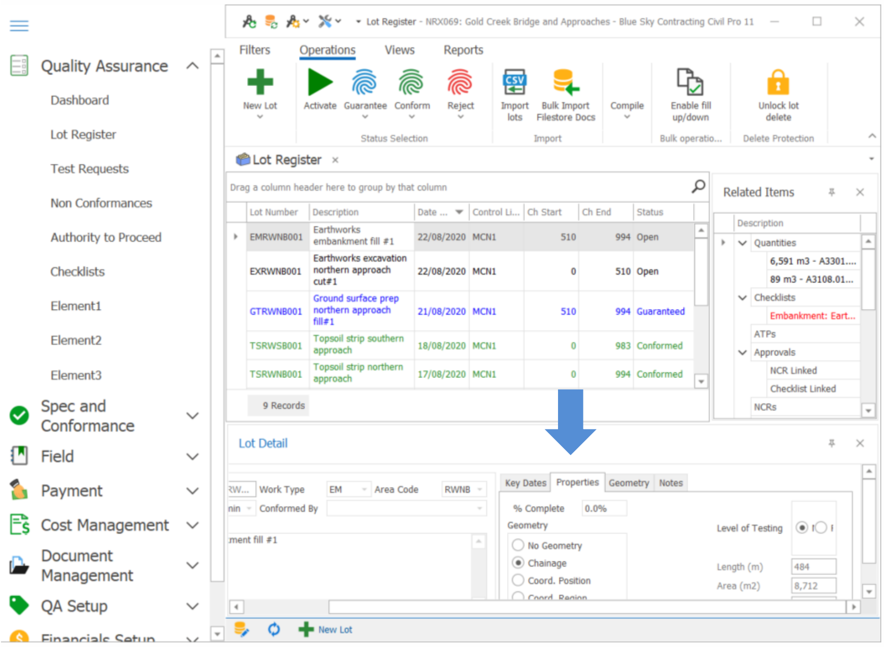


Figure 111 % Complete in the Properties Tab of the Lot Details Screen

2. (fast) Select the % complete from the column chooser and add it to the grid. Enter the % complete directly
3. (fastest) From within *Views* in the ribbon menu select *Open Lots* (Figure 112). This shows only open lots and automatically adds the column per step 2. Enter the % complete directly.

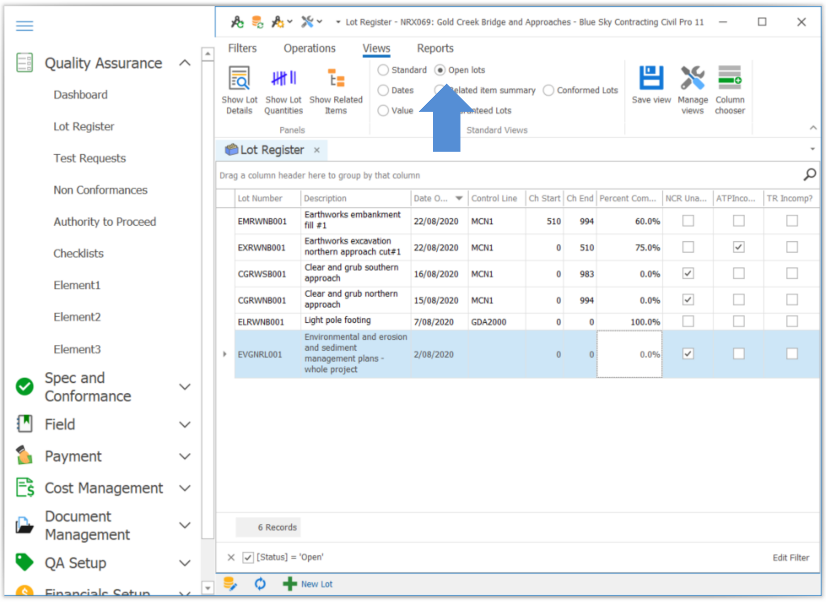


Figure 112 The Open Lots view showing the Lot level % complete

5.16.3 Approving NCRs

This NCR requires approval from the client. In this case we are going to assume this has been done the old school way where the NCR has been sent to the client (printed or pdf) and they have returned an approved copy. The new way is to use the mobile platform. There is a section on electronic approvals included with the Mobile Platform Training Manual Supplement.

5.16.3.1 Approving the NCR manually

The client has sent back a signed copy of the NCR, so time to update it in the system.

1. Within the NCR register select NCR No 1 now select *Approval & Close* Out from the Context Menu and select *Set Manual Approval.*

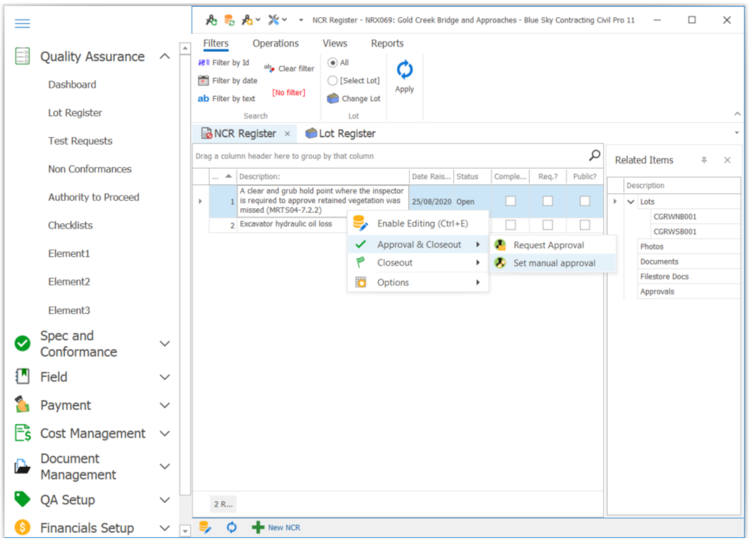


Figure 113 Selecting manual approval from the context menu

2. Complete the Approval section of the NCR Approval dialog and click *OK*. The approval dialog requires a description of at least 10 characters. In this case we just describe what evidence we have of approval

tip

If you don't type anything in the NCR Approval Details section but just click on *Save & Close* the system brings up some prebaked comments you can select from

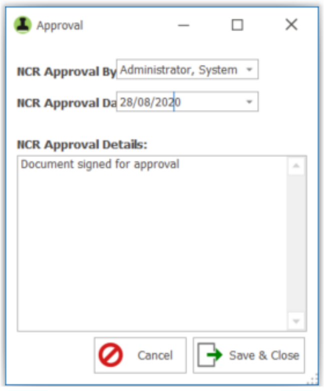


Figure 114 Setting manual NCR approval

3. Approve NCR 2 for Lot EVGNRL0001.
4. Now go back to the Lot register and conform these Lots as per the previous process.

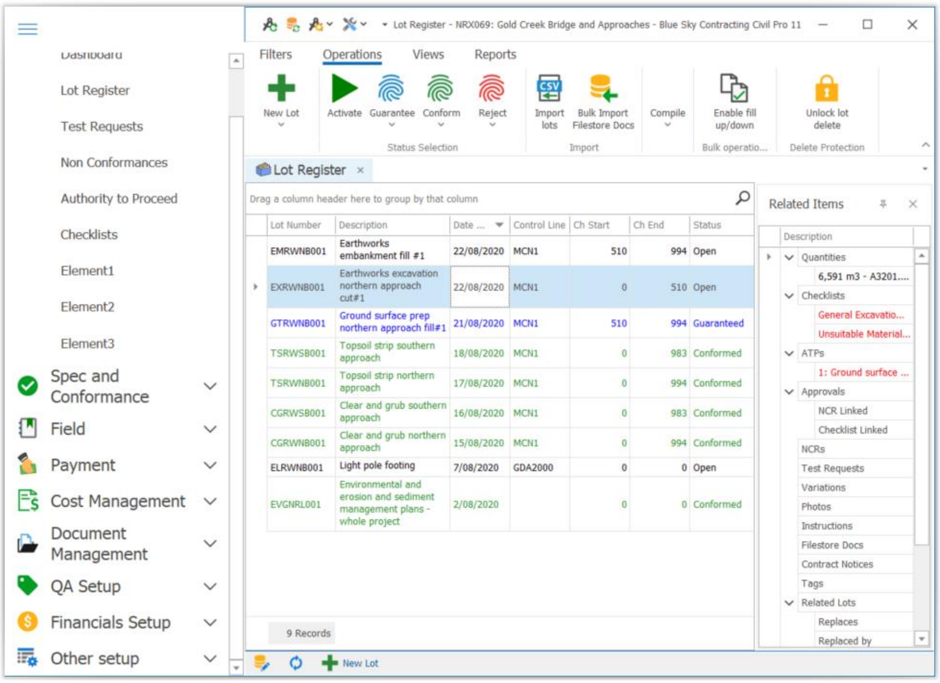


Figure 115 Statused Lots ready for Progress Claim

5.17 Progress Claims

At set periods during the project (usually monthly), you will want to claim payment for the work completed under the contract. You can create a progress claim automatically from your lot records, or simply use civil pro to track your claims from month to month by entering the claim values manually.

5.17.1.1 Why use Civil Pro QA backed claims?

1. Recording quantities helps keep track of them and make sure you are paid for all of the work you do. Survey or quantity survey is excellent for quantification of the majority of your project, but it often misses directed work such as
    a. remove and replace unsuitable – which has no net impact on quantities
    b. daywork
    c. changes to reinforcement
2. It is required under some contracts (e.g. TMR)

5.17.1.2 Why use Civil Pro claims manually – e.g. not backed by QA?

1. Civil Pro's claim provides a disciplined accurate record of progress claims where you will not get mathematical errors
2. Civil pro can (optionally) track the certification of your claim
3. Civil Pro's claims are consistent in appearance
4. Data capture enables this information to be used for other purposes – e.g. Civil Pro's forecasting module

5.17.2 Creating the claim

We are going to create our first Progress Claim for the project using the lot quantities. Before we can do this, we need to create a reporting period for the claim

1. Open the *Progress Claims Register* under the *Payment* Main Menu item
2. Click on the *New Report Period* button, enter the date (last day of the month) – in this case 31/8/20
3. Click *Create*

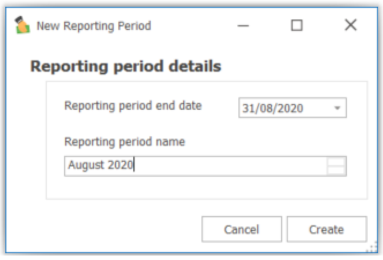


Figure 116 Setting the Report Period

You will now see that this August reporting period is initialised and appears in the Progress Claims register. Double click on this to open the claim. As it is the first time we have accessed the claim, we will be prompted for information about how the claim is to be built (Figure 117).

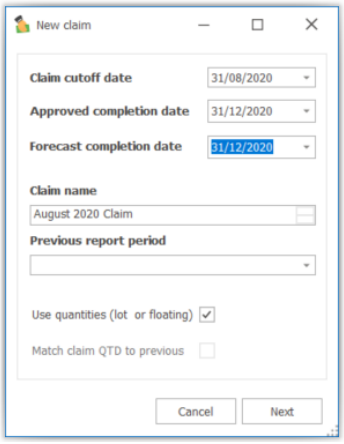


Figure 117 New Claim Dialog

4. This is the first claim, so there is no previous report period, and we want to use lot quantities, so just click *Next.*
5. The next dialog is shown only when you opt to use lot quantities. In this case we only want quantities prior to the cut-off date and we want to include all the different Lot statuses so keep all boxes checked. If you

want all quantities in the system, regardless of when lots were statuses, then unselect the *Show only quantities up to the cutoff date* check box (Figure 118).   Click *Create*.

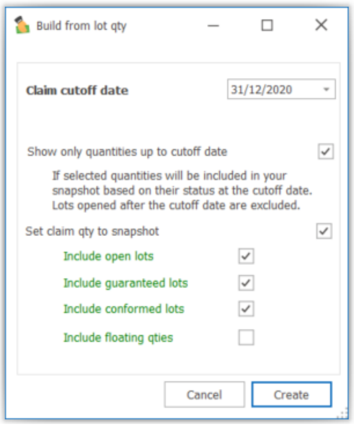


Figure 118 Build Claim from Lot Qty dialog

From this information Civil Pro will automatically create your claim for August.

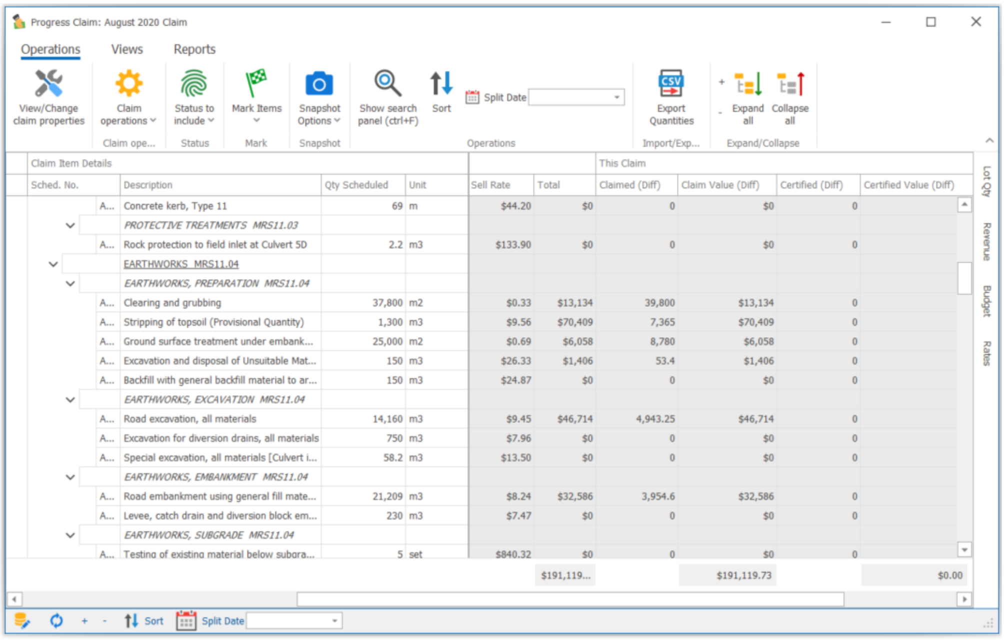


Figure 119 The Automatically Built Progress Claim

tip

When you have more Lots in your claim, you will probably only want to show the details for the Lots that have changed since the previous month. To do this, enter a split date in the date selector at the bottom of the page. This will summarize the Quantities for each Lot that was last changed prior to the split date into a single line for *Previously Conformed* and *Previously Guaranteed* Lots. Work in Progress Lots are always shown in full detail.

5.18 Custom views

In the tutorial, there were a couple of places where we either accessed a view (Selected one of the views from the context menu), or modified the visible columns in the grid. Sometimes the way your workflow works is just a bit different and the pre-baked views just aren't quite right.

The good news is that when you change the layout by moving/adding/removing columns or applying filters, Civil Pro can save this as another view and you can access it again later at any point. You can even update the default view that is shown when you open the register. This applies to most of the more complex registers including the Lot, Test Request, ATP, NCR, Progress Claim, Invoices, Daycosts and Forecast Registers.

5.18.1 Saving the current view

1. Open the lot register
2. Make something to save – invoke the column chooser (right click on the grid heading)
3. To save the current layout select *Save View* from the ribbon menu at the top right of the screen as indicated in Figure 120.

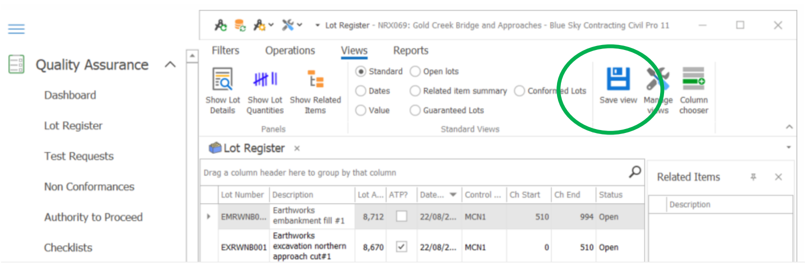


Figure 120 Save View option in ribbon menu

You will be prompted to enter a name for the view. If you leave the name as 'Default' then this view will be the view shown when the Register is opened. Alternately, you can enter a name that describes the view (alphanumeric, no spaces. Underscore is allowed) and the view will be saved as a named view.

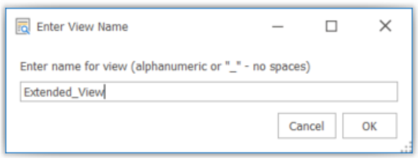


Figure 121 Choosing a name for your view

5.18.2 Loading a View

Loading a view is easy, but to see it in action we will need to move to a different view. Just add a column or select a different view so you can see our custom view when we reload it.

1. In the ribbon menu under Views in the Custom View section to the right of the screen your newly created view will be displayed as an option as in Figure 122 – select it and your saved view will appear in the register

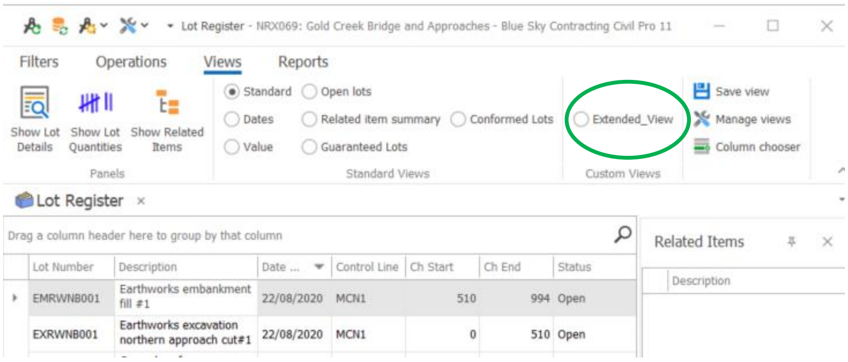


Figure 122 Newly saved custom view now displayed as a view option

tip

If a view with the name Default has been made, whenever the register is opened that view will be displayed. If there is no custom default view, Civil Pro defaults to its normal view layout. To return to the original Civil Pro default layout, just delete your custom Default view

5.18.3 Deleting a View

If you no longer want a view in your list, simply select *Manage Views* from the Views ribbon menu. The View Manager will appear and it is from here that you select the view you wish to remove and press delete.

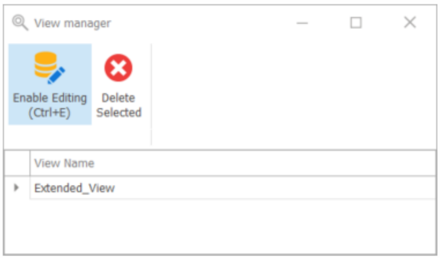


Figure 123 The View Manager

5.19 Reports

Civil Pro Reports are of 3 main types:

1. Form Reports - Single record forms such as Checklists, Conformance Reports, ITPs etc.
2. Grid Reports - these are exports of information displayed in Civil Pro grids and reflect any filters applied, and columns selected/hidden
3. Register Reports – these are standard summary Reports such as Progress Claims and schedule Reports which provide a listed set of records in a specific, unvarying format

In addition, these reports can be modified to create Custom Reports.

5.19.1 Form Reports

Form Reports include the NCR form, Checklists, Test Requests, Lot Conformance summaries etc. and are generally accessed from the Reports menu in the ribbon menu at the top of each screen.

A report will be generated for the record(s) currently selected in the register. If you have selected more than one record then a report will be generated including a single form for each record.

tip

When you need to print out more than one of the same type of report, for example, Conformance Reports for several Lots, rather than having to print individual Reports, you can select the Lots you want to print Reports for, and select the report you want to run. A report will be created where each of the Lots' Conformance Reports are printed in succession in the one report.

When you run any report, it will be opened in a preview window first. This allows you to perform a number of operations including:

- Format for page fitting including margins, orientation etc.
- Searching through the report
- Export to pdf, xls, html, rtf, txt etc.
- Emailing
- Printing

These options are easily found in the ribbon toolbar as seen at the top of Figure 124 which shows an example of the Conformance report:

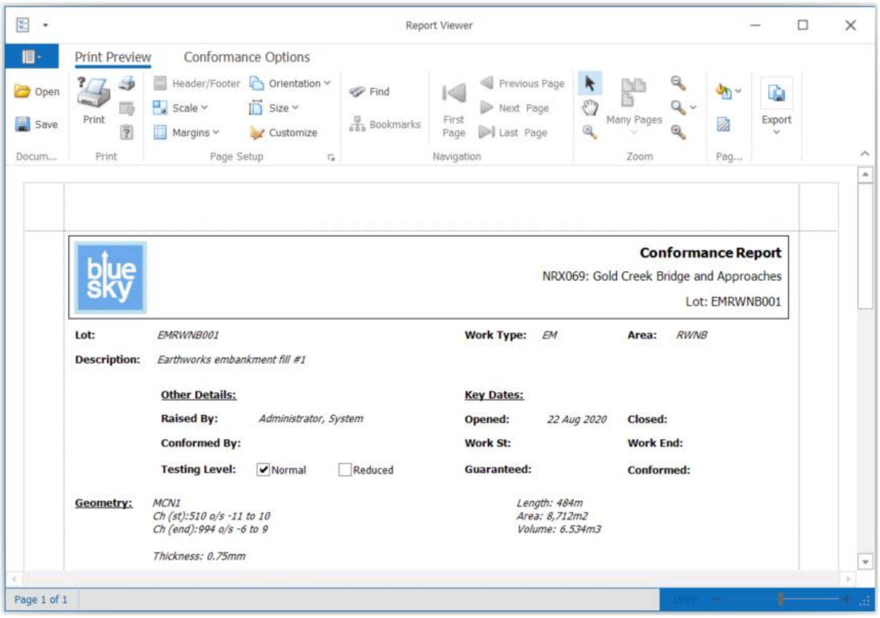


Figure 124 Conformance report showing the ribbon toolbar with options for export and page configuration

Some Reports (such as the Lot Conformance, Checklist and NCR) have additional options allowing changes to how Reports are laid out. These options are accessed through the tabs at the top of the ribbon page. In the Conformance report (below) you can see that users can select what summary information is included on the report. The changes are reflected after clicking on "Update". If you want your selection to become the default layout for the report, click on "Make Default".

Settings for Checklist formats are per project and can only be changed by a project administrator or sysadmin.

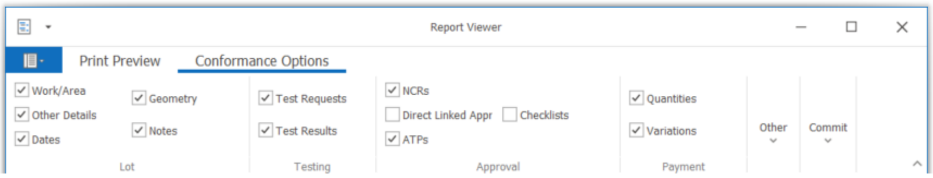


Figure 125 Additional report options accessible in tabs in the ribbon bar

5.19.2 Grid Reports

Grid reports are accessed by clicking the *Print Grid* button in the Reports menu at the top of any of the registers. A grid report just prints the grid as it is currently represented in Civil Pro

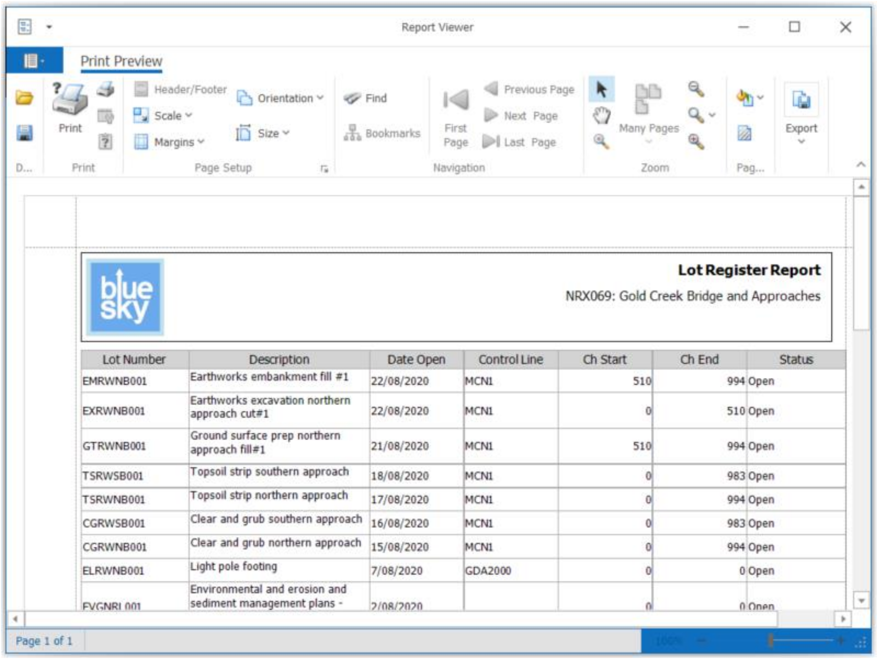


Figure 126 Example grid report

5.19.3 Register Reports

Register reports are used to print a summary of the data in a register – in this way they are similar to printing the grid, except that the data shown is defined resulting in a neater format. Registers can also include additional calculated and related data.

When a register report is printed, all of the visible rows in the grid are included. This compares to a form report where only the selected records are included.

5.19.4 Custom Reports

Civil Pro enables users to completely customize reports, and save them to the database. When you view a report in the report preview, clicking on Custom Reports in the ribbon menu – opens the report in the End User Designer (EUD).

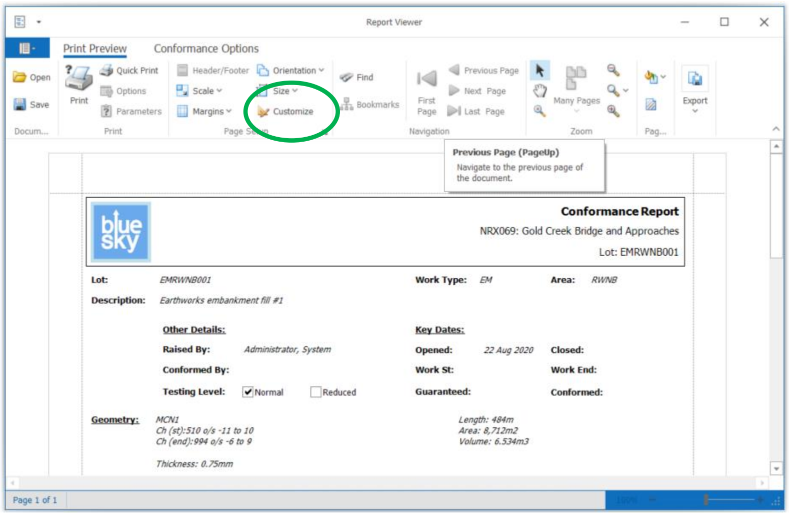


Figure 127 Report customizer option

After clicking *Customize*, the report will be viewed in design mode as per Figure 128 Report customizer user interface

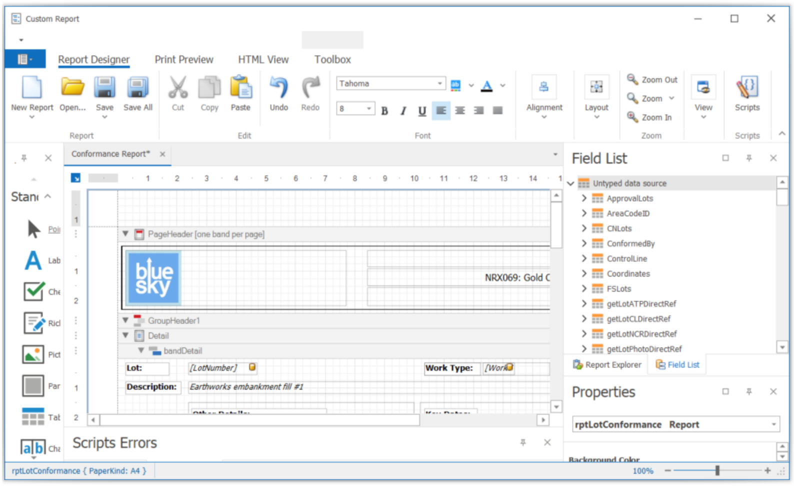


Figure 128 Report customizer user interface

5.19.4.1 Editing

All controls on the report can be moved / edited and have their linked data changed. The toolbox on the left allows users to add new controls, or databound labels can be dragged from the field list on the right.

Properties of each control are listed in the bottom right in the property grid, but key properties are also available from the smart tag on each control (click on a control, and press the > sign).

If you are a programmer, then you can even review the scripts by clicking on the button at the top right of the ribbon control. This however is really unnecessary in the great majority of use cases – so don't stress!

For more information on editing Reports, refer to the additional documentation:

https://devexpress.github.io/dotnet-eud/reporting-for-desktop/articles/report-designer/report-designer-for-winforms.html

5.19.4.2 Saving

Saving the report is really easy. Just click on the save button in the top right, and you will be prompted for a name for the report. If you use the same name as an existing report in Civil Pro (which is the default on first save), Civil Pro will use your new custom report as default. Don't worry, it doesn't overwrite the base report, it just hides it. If you change the name of your custom report – Civil Pro's report appears again.

5.19.4.3 Opening Custom Reports

Any custom report you have made is available from the Register. In the ribbon menu under the Reports heading there is a Custom Reports option.   Any Reports made in the current project will be displayed here in the drop down as in Figure 129 Custom report dropdown showing a saved custom report

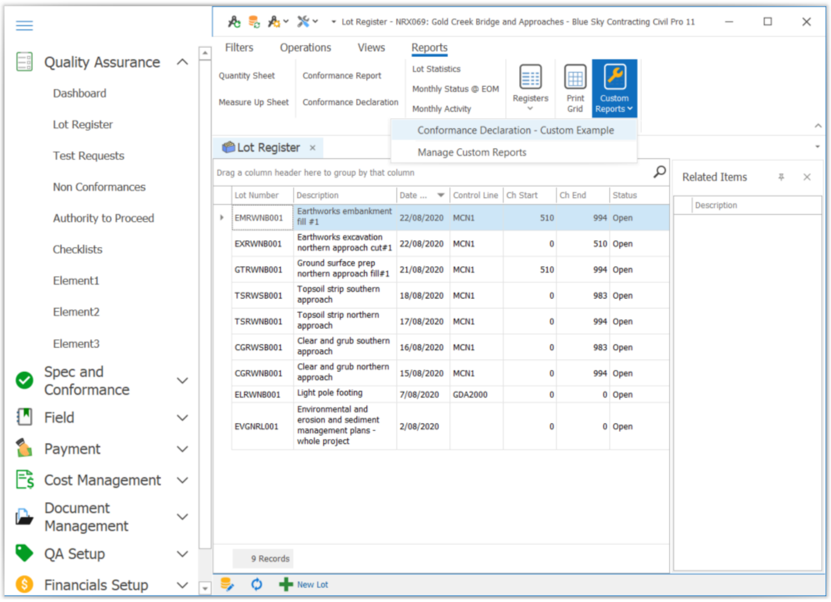


Figure 129 Custom report dropdown showing a saved custom report