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Open Plan Scheduler Certification Series: Meet Deltek Open Plan

Activity Guide

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Table of Contents

Course Introduction 5
Prerequisites 5
Course Objectives 6
1.1 In this Lesson 7
1.2 Product Overview 8
Deltek Open Plan Capabilities 8
1.2.1 Open Plan Architecture 9
1.2.2 Open Plan Integration 10
1.2.3 Training Data 10
1.3 Using Open Plan Professional 11
1.4 Open Plan Login 12
1.4.1 Activity: Logging in to Open Plan 12
1.4.2 Activity: Overview 15
1.4.3 File Menu 15
1.4.4 Quick Access Toolbar 15
1.4.5 Ribbons 16
1.4.6 Command Buttons 16
1.4.7 Tool Groups 16
1.4.8 View Tabs 17
1.4.9 Opening a View Drop Down 17
1.4.10 The Open Plan Explorer 17
1.4.11 Contents Pane 17
1.4.12 Status Pane 18
1.5 My Folder 19
1.6 Projects 20
1.6.1 Project Structure 20
1.7 Open Plan Library 22
1.8 Calendar Files 23
1.9 Code Files 24

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1.10 Project Templates 25
1.11 Resources 26
1.12 Views 27
1.13 Briefcase 28
1.14 Users 29
1.15 Startup 30
1.16 Contents Pane 31
1.17 Customizing the Contents Pane 32
1.17.1 Customizing Columns 34
1.17.2 Customizing Columns 34
1.17.3 Removing Columns 35
1.17.4 Activity: Customizing Contents Pane 35
1.18 Opening Projects 39
1.18.1 Activity: Opening Projects 40
1.19 Project Modes 45
1.20 Lock Project 46
1.20.1 Activity: Performing a Temporary Project Lock 46
1.21 Change Mode 48
1.21.1 Activity: Change Mode 48
1.22 Understanding Views 50
1.22.1 Activity: Opening Project Views 50
1.23 Startup Views 55
1.23.1 Activity: Startup Views 55
1.24 Object Properties 61
1.24.1 Activity: Opening and Exploring Properties 61
1.25 Summary and Takeaways 65

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Course Introduction

Welcome to Open Plan Scheduler Certification training. This training consists of video instruction and hands-on exercises designed to support learning the core functionality of Open Plan.

You will learn all the key skills needed to be an effective operator within the Open Plan software, and to gain enough knowledge to help you pass the Deltek Open Plan Certified Scheduler exam.

This course comes with a full training manual. This provides detailed explanations of the features and functions of Open Plan, and is also your activity guide for the hands-on exercises. You should pause this video now and download the guide from the Resources area on this video page.

The ‘Activate Cloudshare’ button on this page will initialize your time-limited sandbox environment that contains a fully functional version of the Open Plan software. If you do not have your own copy of Open Plan, you should activate this now, and then bookmark it in your browser so you can access it for all the course lessons. It is time limited, so be sure you’re able to commit to completing the training over the next few days. There is a metered cost to Deltek for providing this environment, so we do request that you suspend the environment whenever you’re not using it. This will ensure that we are able to continue providing this service for all our Open Plan learning community.

If you have your own copy of Open Plan, download the training data files offered in the resources area of this page. You will need these for many of the course activities.

If your intention is to take the Open Plan Certification exam, then be sure to view all the videos, and perform all the hands-on exercises set out in the manual. This course teaches to the exam, so if you skip lessons, you will likely encounter exam questions that you cannot answer.

This certification will demonstrate to your employer your competence in both the Open Plan software and understanding of industry standard scheduling best practices that are featured throughout this activity guide and in the course videos.

Prerequisites

Before taking this class, you should have the following skills and/or training:

- Project Management awareness and basic scheduling experience.

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- A recent copy of Deltek Open Plan in which to practice the hands-on exercises presented in this course.

Course Objectives

Upon completion of this course, you will be functionally literate in all the following areas of Open Plan Professional.

- Launch Open Plan and navigate the application.
- Create a project in Open Plan.
- Build code files such as Work Breakdown Structure (WBS) and Organizational Breakdown Structure (OBS) in Open Plan for your project.
- Create auxiliary files such as calendars and resource files in Open Plan for your project.
- Perform Open Plan functions such as progressing activities and resources, managing those resources and creating custom reports.

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1.1 In this Lesson

This chapter provides a product overview of Open Plan Professional, its capabilities, components, and interaction with other Deltek and non-Deltek products.

- An overview of Deltek Open Plan's features, purpose, and capabilities.
- Getting logged in to Open Plan
- A guided tour of the Open Plan interface
- Getting to know the Open Plan Explorer
- Customizing the contents pane
- Opening Projects
- Project Access Modes
- Understanding Project Views

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1.2 Product Overview

Deltek Open Plan Professional is an enterprise-wide project management software system that substantially improves a company's ability to manage and complete multiple projects, on time and within budget.

Open Plan is a highly integrated, and configurable system that can be customized to fit your specific data management and reporting requirements. For more than three decades, Open Plan's highly configurable nature has allowed it to fully support the most demanding project system implementations in the industry. And it continues to grow in capability and power with each new release.

In fact, the name Open Plan is derived from its founder's original vision of a scheduling system that could be easily tailored to work within the most complex and demanding environments imaginable. Time and again, Open Plan has proved itself to be the obvious choice when its nearest competitors cannot scale to the strategic demands of the capital project portfolio.

For the purposes of this getting started course, we'll being with Open Plan in its default configuration on a local database.

While Open Plan can certainly be used in a stand-alone environment, most corporate users need to share project information across multiple departments and locations. For this reason, Open Plan stores its data within a database that can be accessed by many users.

Deltek Open Plan Capabilities

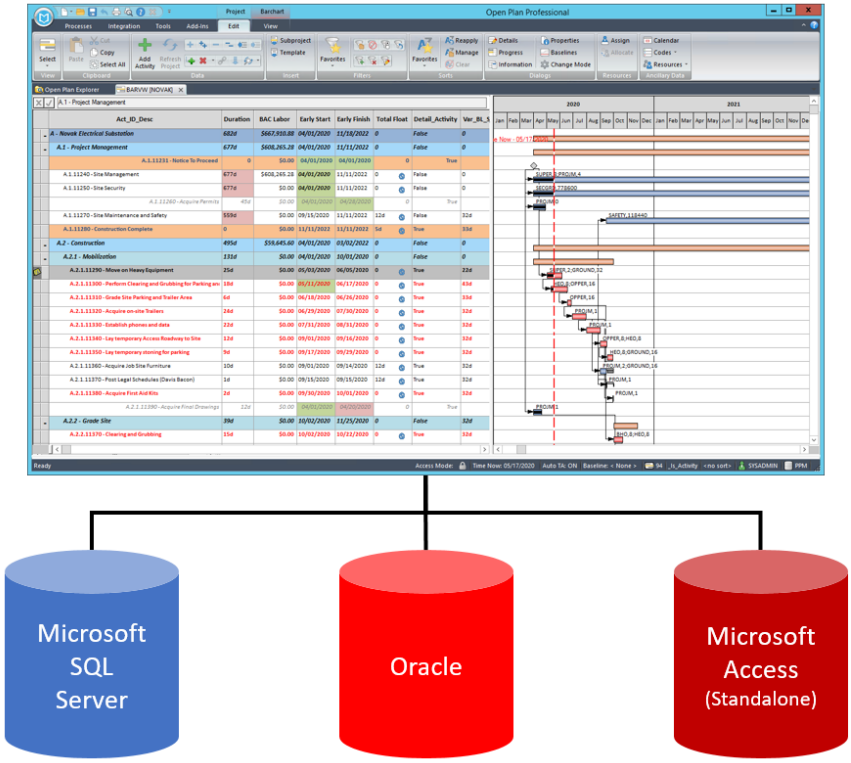
Deltek Open Plan allows you to:

- Support enterprise-level program management - balance limited resources across multiple projects by allowing business managers the ability to review work across the corporate portfolio. It also shows the impact of an individual project's performance on the rest of the program so project priorities can be established.
- Manage Resources - ensuring that resource allocation always reflects an organization's overall business objectives. For maximum efficiency, resource managers can create and share resource breakdown structures across the enterprise.
- Improve Project Planning - facilitates fast and realistic planning through rapid data entry and analysis, and powerful reporting on project status and progress.

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1.2.1 Open Plan Architecture



The Open Plan Architecture is quite straightforward with the client software connecting to the database via a standard OLEDB compliant provider.

In a typical installation for multiple users, the Microsoft SQL Server or Oracle database is used. You can also opt for a standalone installation that utilizes the Microsoft Access database. This allows for a more portable version of Open Plan to be used when planning out in the field.

Note: Also, any one of these databases can be installed as a standalone database on a client machine and used as a “Briefcase” data source. A Briefcase data source is used for checking out a project from the production system. A ‘checked out’ project cannot be edited by other users on the production system until it’s checked back in. While checked out, the project can be edited in the local database.

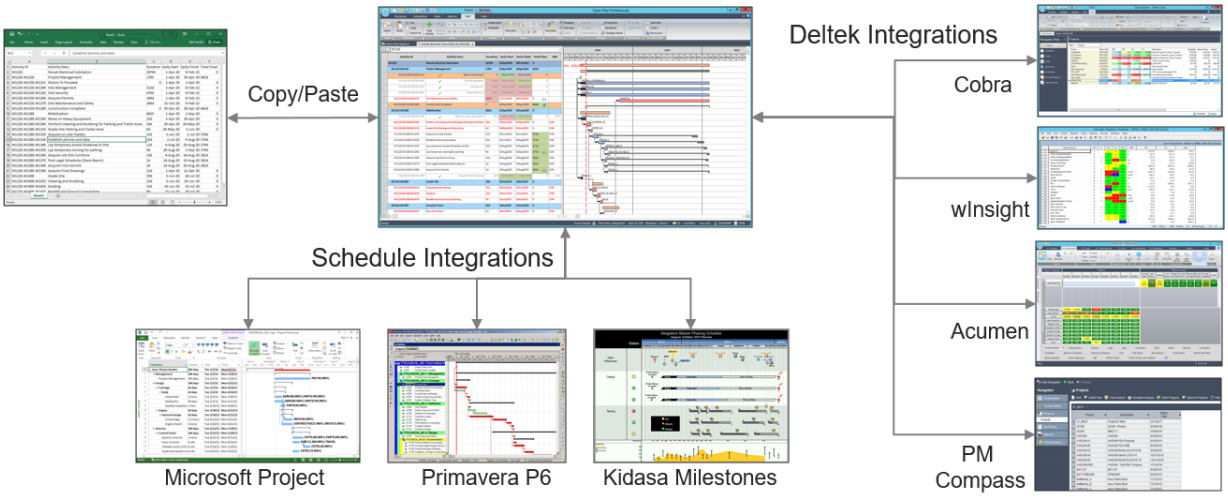
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1.2.2 Open Plan Integration

Open Plan Professional plays well with others, and not just Deltek tools. Indeed, it will integrate with other popular scheduling systems including Microsoft Project Professional and Server, Primavera P6 Professional XER and EPPM XML formats. It will also integrate with Milestones Professional from Kidasa, - and this is huge – supports cut and paste of multiple records in an Excel spreadsheet directly into the Open Plan table views. This ability opens the door to almost unlimited data upload from any tool capable of outputting a table of data. This includes loading data into ancillary files such as the spreadsheet views of codes and resources.

You will also find excellent integration with Deltek Cobra, wInsight, Acumen, and PM Compass.



1.2.3 Training Data

Open Plan Professional backup files can contain both single and multiple data components, and will always consist of a full project. When a project is backed-up, all supporting data components are automatically included. There is no need to select them manually.

All training data is available in the folder C:\Training\Files for Open Plan Scheduler. Your instructor will direct you to the specific files you may need during the training.

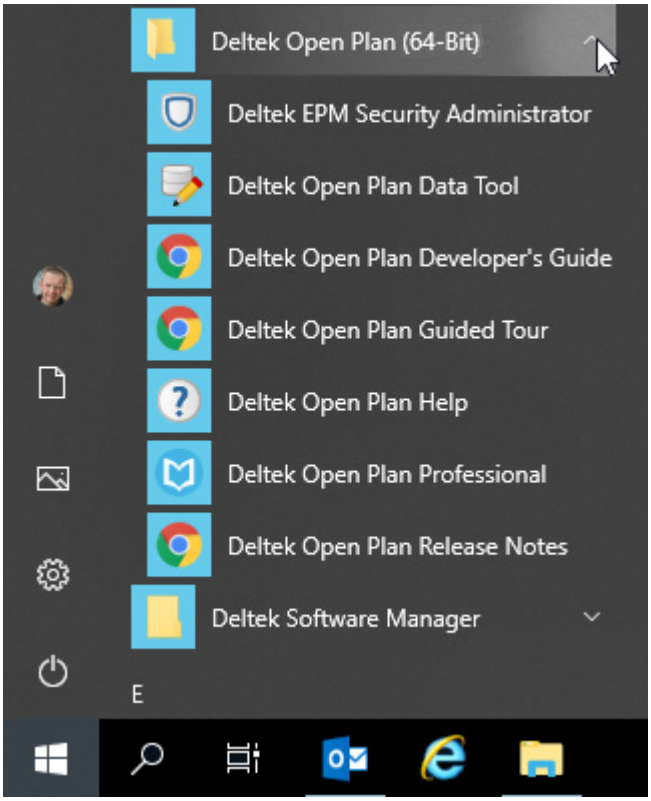
Much of the project data will be created by you as you learn how to use the tool. Where possible, data has been prepared in advance in a spreadsheet, so you do not have the burden of data entry, but rather can focus on the methods and techniques of schedule development in the Open Plan system.

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1.3 Using Open Plan Professional

Open Plan installs a number of applications that can be viewed from the Windows Start menu by selecting Deltek, and then Open Plan Professional.



In a standard client installation of Open Plan professional, you will find a number of helpful documents and utilities, as well as the Deltek Open Plan Professional icon.

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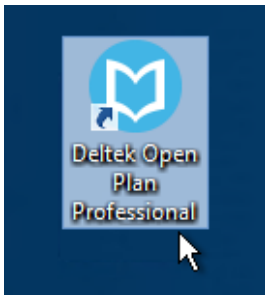
1.4 Open Plan Login

Let's start by getting logged in to the software. This is a multi-user system, so a login is required to access the projects and data that have been made available to you by the administrator.

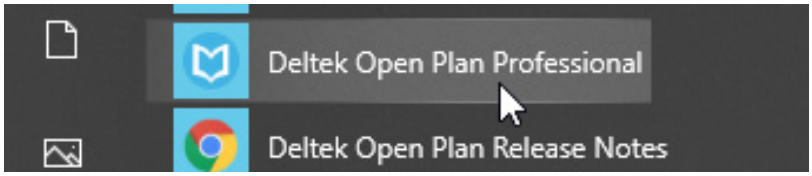
1.4.1 Activity: Logging in to Open Plan

Follow the steps in the table below to log in to Open Plan.

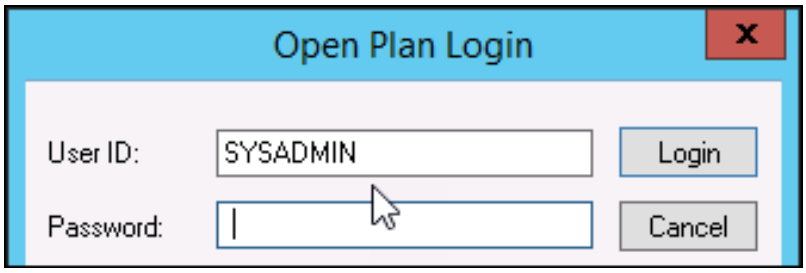
1. If you are using a Deltek University Learning Lab, locate the Open Plan Icon on the desktop and double-click to start the application.



2. Otherwise, locate the Open Plan Professional icon in your windows start menu and click to start the application.



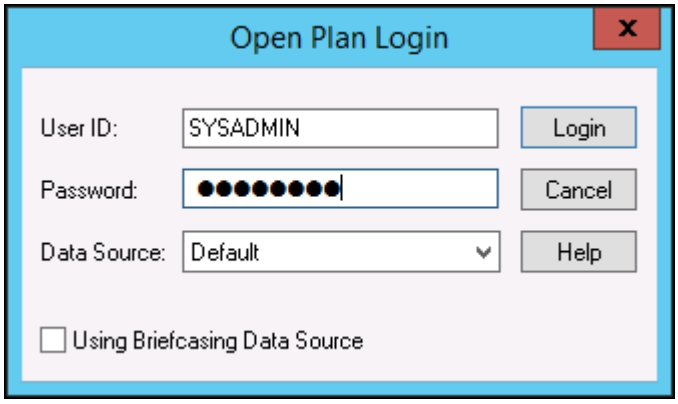
3. In the **User ID** field enter/verify: **SYSADMIN**



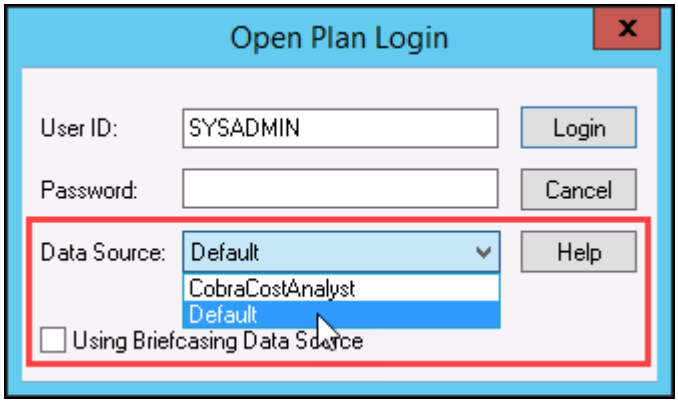
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4. In the **Password** field enter: **password**



5. **SUPER-IMPORTANT – Be sure to s**elect the **Default** data source!



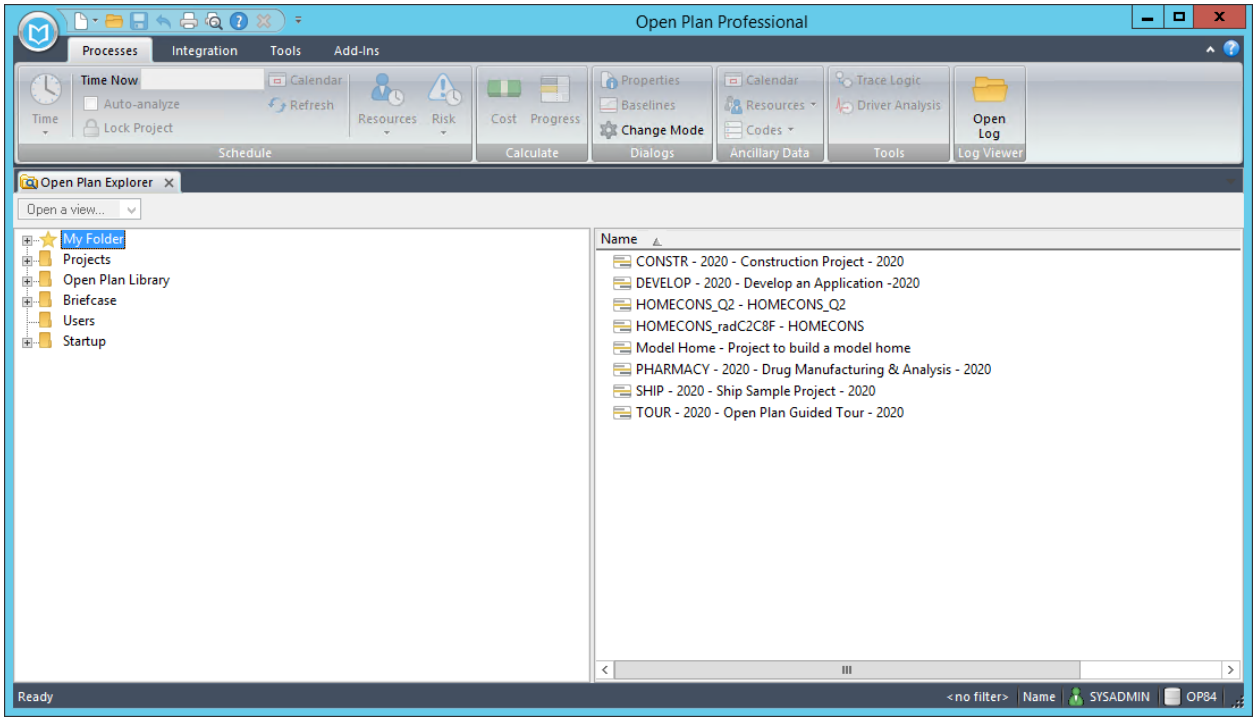
Note: The Default data source must be used for this training. It points to the PPM database which is setup to support the exercises in this course.

6. Click **Login**.

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The graphic and table below shows the parts and functions of the main Open Plan Explorer window.



Your instructor will now take you on an overview of the Open Plan application.

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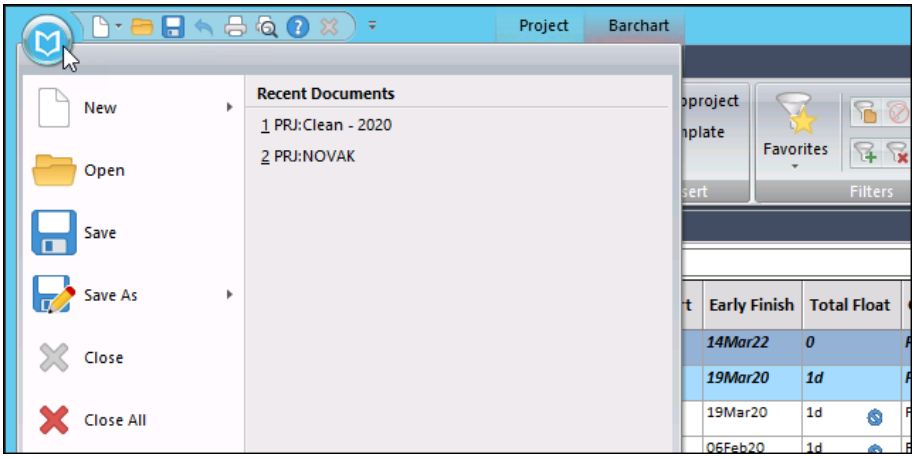
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1.4.2 Activity: Overview

Follow along with your instructor and familiarize yourself with the Open Plan interface.

1.4.3 File Menu

The file menu contains commands related to the management of files, such as open, save, print, help and preferences.



1.4.4 Quick Access Toolbar

The Quick Access Toolbar contains commonly used commands that are independent of the tab on the ribbon that is currently displayed.

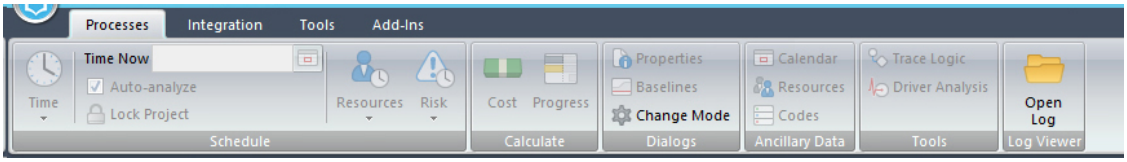


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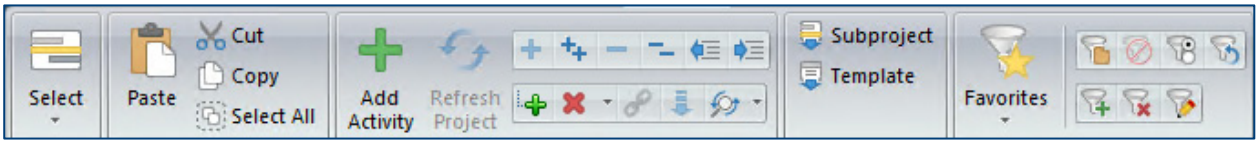
1.4.5 Ribbons

The tabs below the quick access toolbar contain ribbons with command groups containing buttons. These allow you to access functions related to the topic of the ribbon.



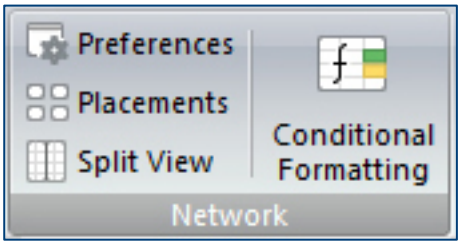
1.4.6 Command Buttons

A command button allows you to trigger a function or event, such as performing time analysis, resource scheduling, risk analysis, launch dialog boxes, and so on. Command buttons may be arranged together into a Group.



1.4.7 Tool Groups

The Group contains commands for related features and functionality and are placed together in the ribbon.

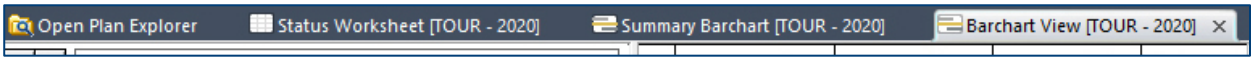


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1.4.8 View Tabs

The view tabs allow you to switch between views that are currently open. Remember, tabs are views. Closing the view doesn't close the project. Use the Close, or Close All features to close a project.



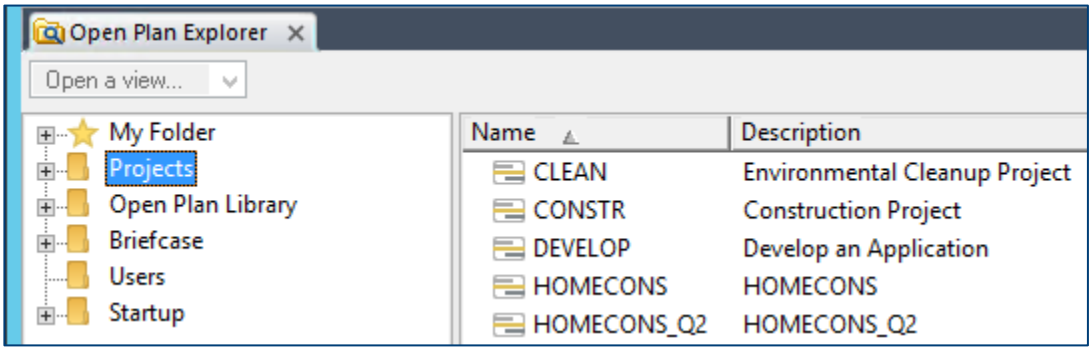
1.4.9 Opening a View Drop Down

The drop down contains available views for a selected object in the Open Plan Explorer. This item is also an alternative way to open the selected object. For example, if you select an unopened project, and use this dropdown to open a view, Open Plan will automatically open the project, and the view.



1.4.10 The Open Plan Explorer

The Open Plan Explorer displays a hierarchy of folders available to you. Each folder contains other folders or Open Plan objects such as projects and views.



1.4.11 Contents Pane

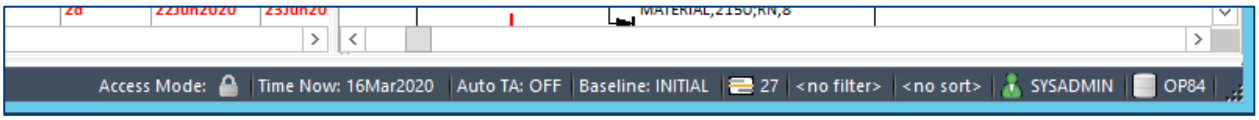
The contents pane displays the contents of the currently selected folder in the hierarchical pane.

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1.4.12 Status Pane

Located at the bottom of the Open Plan application window, the status bar shows information about the Open Plan Explorer, or a view being displayed. The information shown includes filters or sorts that were applied, the user that is currently logged in, baseline in use, any active filters or sorts, data source, current project time now date, and so on.



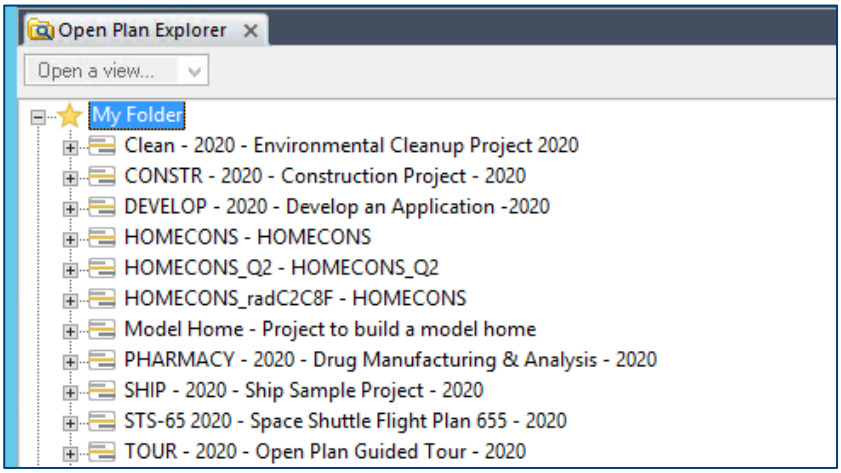
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1.5 My Folder

This is your personal folder. It provides a convenient way of organizing all the links to your projects. Projects appear in this folder when you…

- Create a new project.
- Restore a project.
- Drag and drop a project from another folder to My Folder.



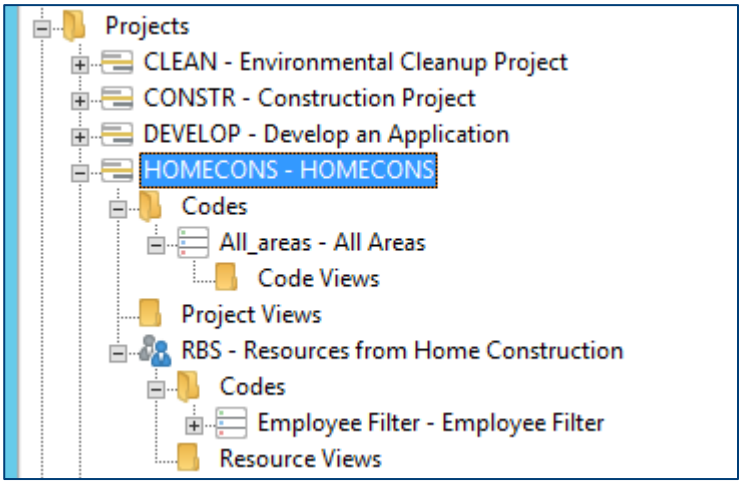
Note: Objects in My Folder are only links to their native objects in the database. For example, deleting a project from My Folder deletes the link to that project, and not the actual project.

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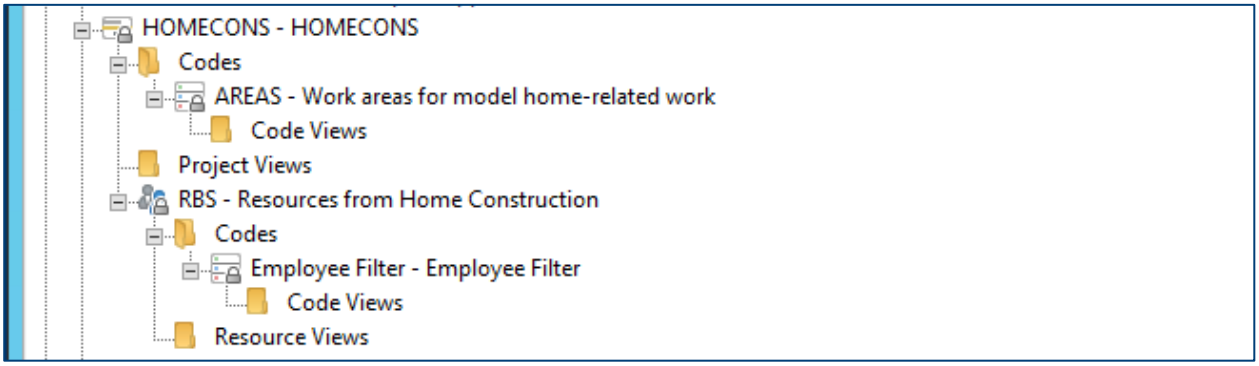
1.6 Projects

All projects in the data source—either created by you or created by someone else and to which you have been given rights to view or manipulate—are listed in the Projects folder, together with their views and auxiliary files.



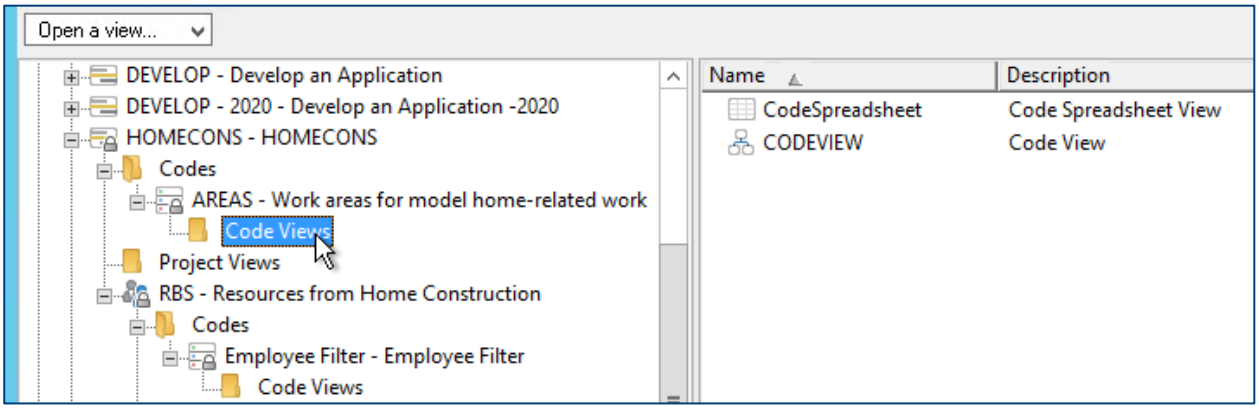
1.6.1 Project Structure

All projects in Open Plan have the same basic structure as shown in this fully expanded version of HOMECONS.



Projects are made up of ancillary files such as code and resource files. These can be seen below the project. For each ancillary file there is one or more views assigned. For example, if you click on the Code View folder of the AREAS code, you will see the CodeSpreadsheet, and CODEVIEW options displayed in the details area to the right.

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This indicates that these views have been assigned to the AREAS code file below the project. You can assign additional view to code files by dragging and dropping them from other projects, or the Open Plan Library that will be discussed shortly.

Note: Deleting a project from the Projects folder deletes both the actual project data from the database and the link to it in My Folder. No auxiliary files are deleted with the project in the Project folder.

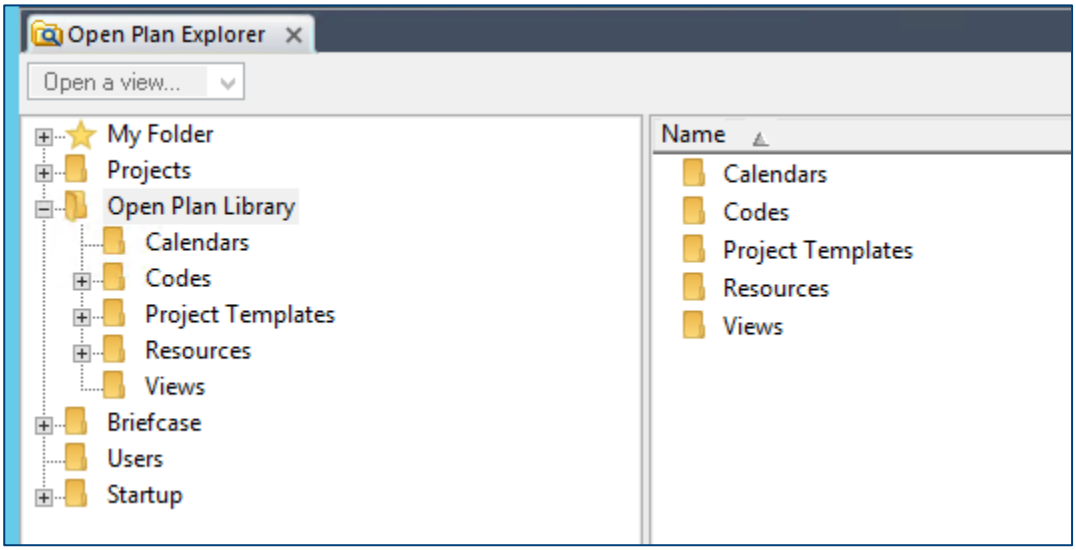
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1.7 Open Plan Library

This folder contains auxiliary files (calendars, codes, project templates, resources, and views) that can be linked to projects. Each type of auxiliary file has its own subfolder. To create a link to an auxiliary file, simply drag the file from the Open Plan Library to the target project folder.

Note: All objects in the Open Plan Library are potentially global in that they can be used by one or many projects or ancillary files.



As auxiliary files are created in Open Plan, they are automatically added to the appropriate folders of the Open Plan Library. You cannot drag a file directly into the Open Plan Library.

Note: Provided that you have sufficient rights, and the file is not referenced by another file, you can delete it from the Open Plan Library. Deleting a file from the Open Plan Library deletes both the actual data from the database and any existing links to that file.

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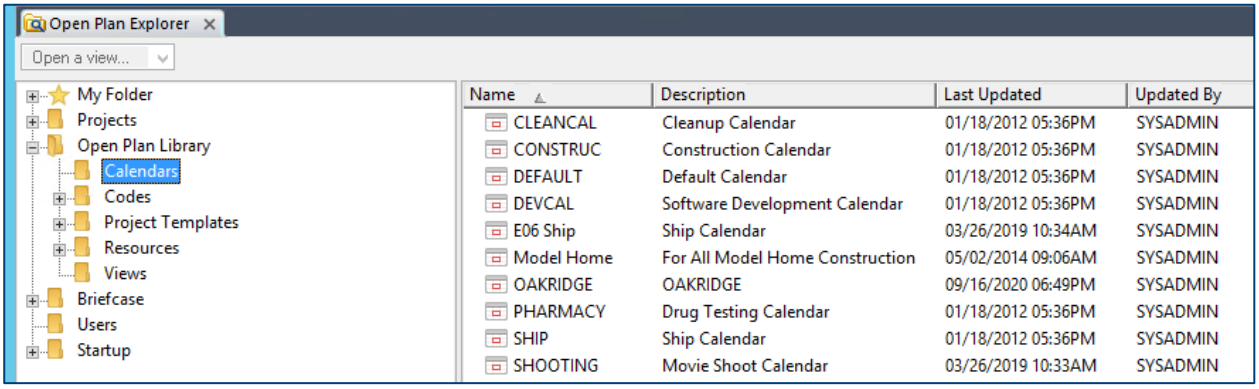
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1.8 Calendar Files

Every project in Open Plan needs a calendar. You can either choose an existing calendar, or create a new one based upon the Default calendar.

The calendar is used by the project schedule to determine the working and non-working days, hours per day, holidays, and shift periods.

Calendar files can contain one or more calendars. This allows you to define additional or alternative working patterns for a project. For example, if you have a project that is executed in two different countries, each of which has its own unique working and non-working days, you can model both patterns within one calendar file. This will be explained later in the course.

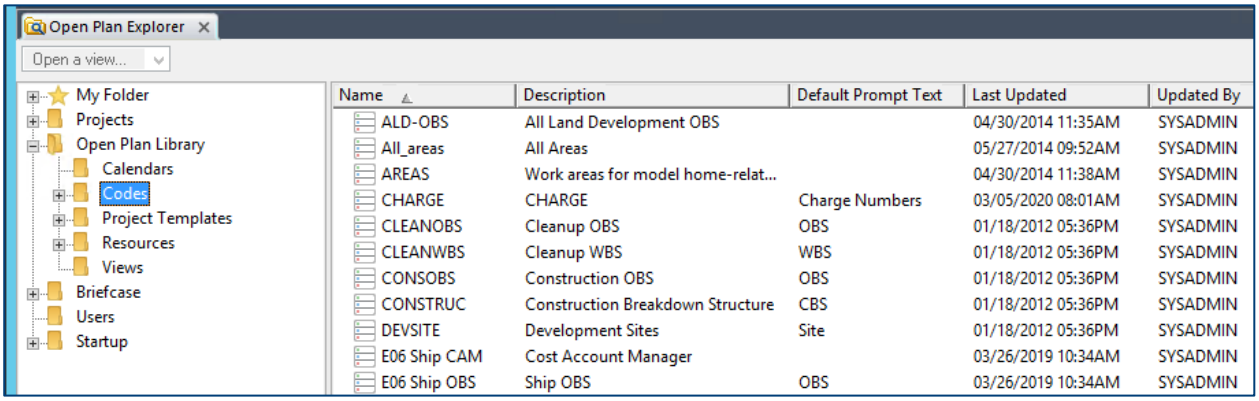


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1.9 Code Files

Virtually all projects require code files for grouping, filtering, sorting, and reporting of data. With the ability to assign up to 90 code files to any one project, you have almost unlimited capacity for organizing output.

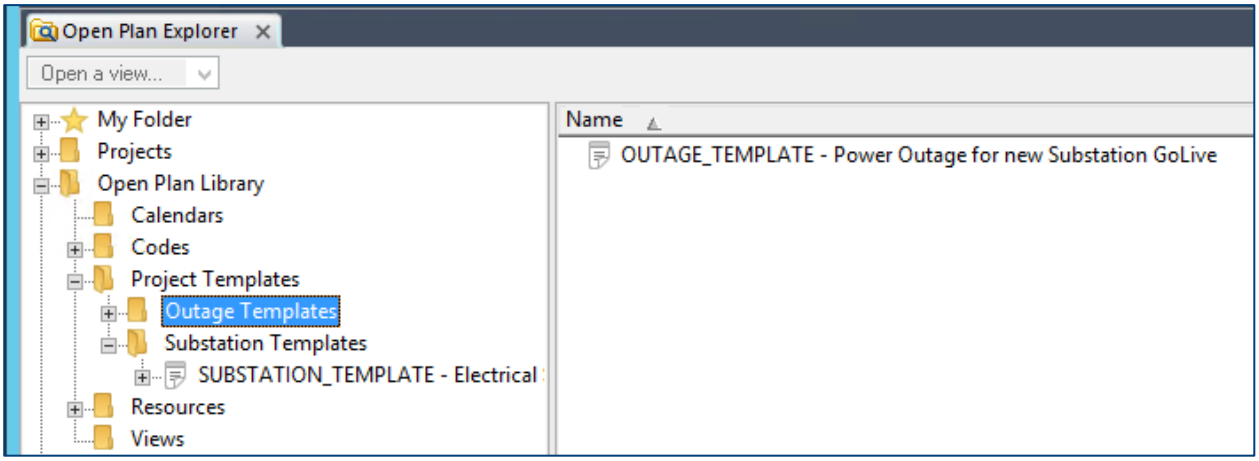


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1.10 Project Templates

Any project can be copied or converted to a template, and any template can be used to create a project. This can be a huge productivity booster when dealing with those categories of projects that follow similar patterns of delivery and scope.



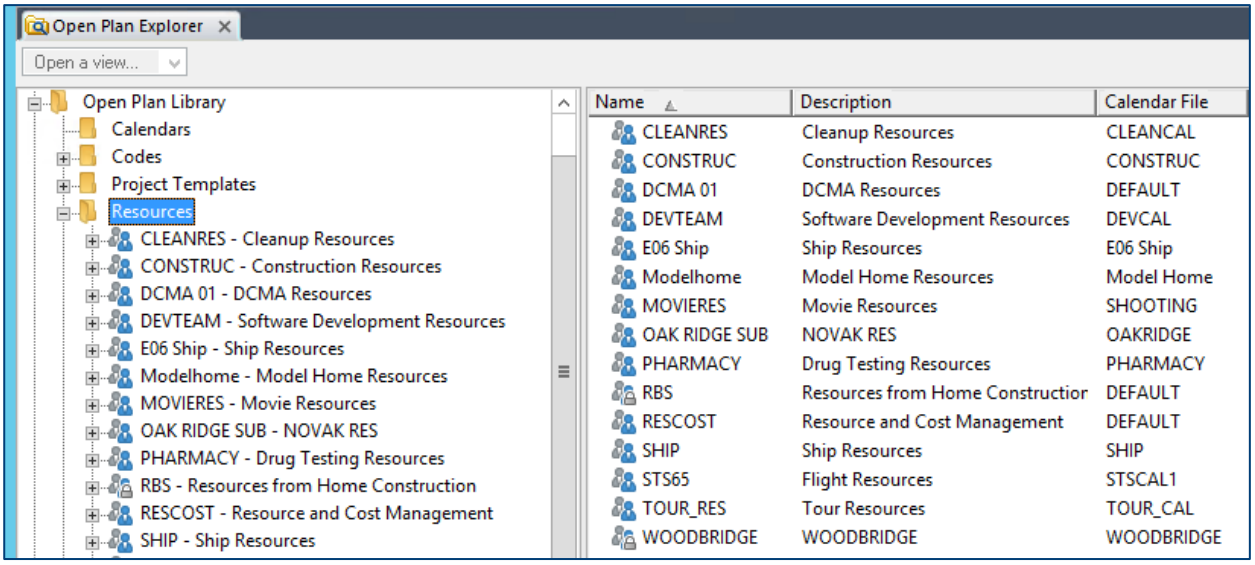
Note: You can add custom folders to better organize your project templates.

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1.11 Resources

Resource files are located in the Resources folder. These are global, meaning they can be shared across many projects. Resource files contain detailed lists of labor, material, ODC, and Subcontract resources, their category, type, unit, skills, and cost.



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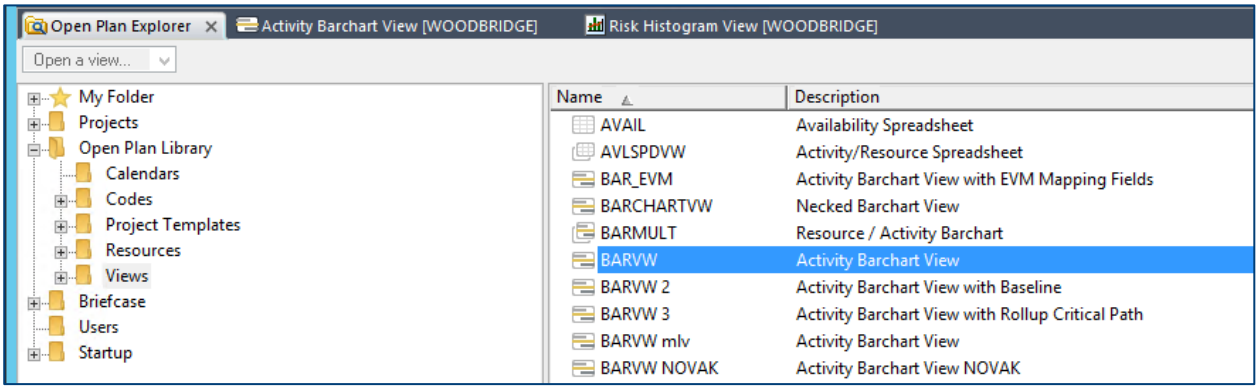
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1.12 Views

A hugely important component of the Open Plan system are the Views. The product ships with over 100 built-in views, all of which can be edited, copied, modified, and saved depending on the requirement.

Primarily, Views offer you a multitude of ways to look at your schedule data. This includes spreadsheet view, Gantt charts, histograms, s-curves, flow charts, crosstabs, resource usage, cost, risk barcharts, and so on.

Equally as important are their ability to be customized through the use of calculated fields, user fields, filters, and sorts. View will be featured in detail in a later chapter of this training.

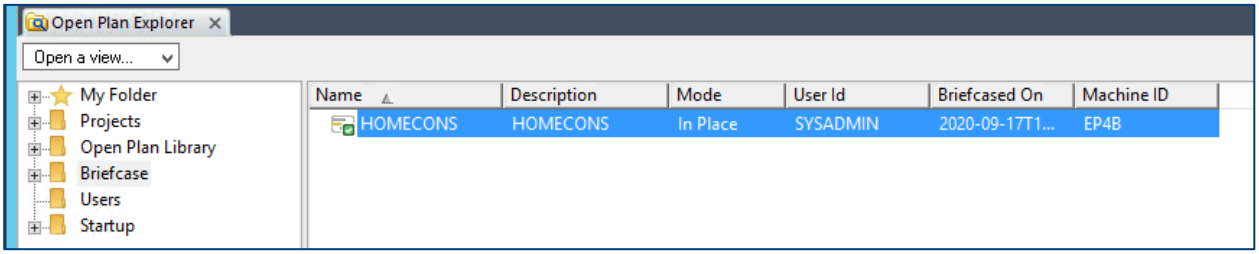


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1.13 Briefcase

Briefcase refers to the ability to copy and remotely work on a project stored in the central database. The database restricts access to the master copy to prevent changes from being made. These changes would be lost when the remote copy is returned. While a project is in the briefcase, other users can open the project in Read Only mode.



The Briefcase folder displays the following information for projects that have been checked out:

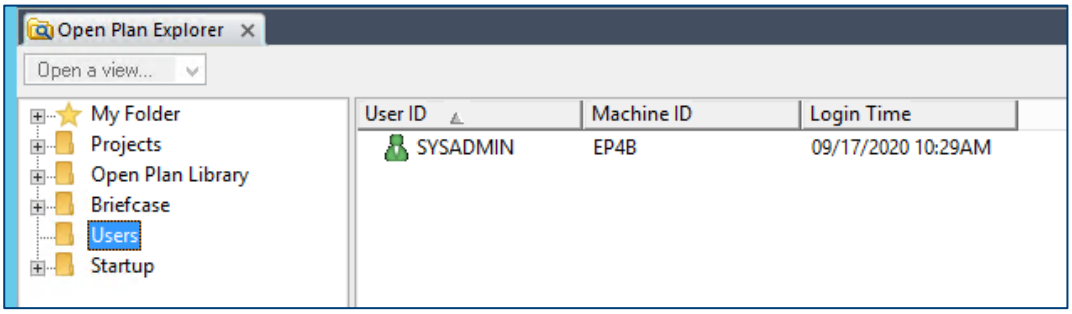
- Who has a project checked out?
- The date and time the project was checked out.

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1.14 Users

This table contains a list of users currently accessing the Open Plan system.



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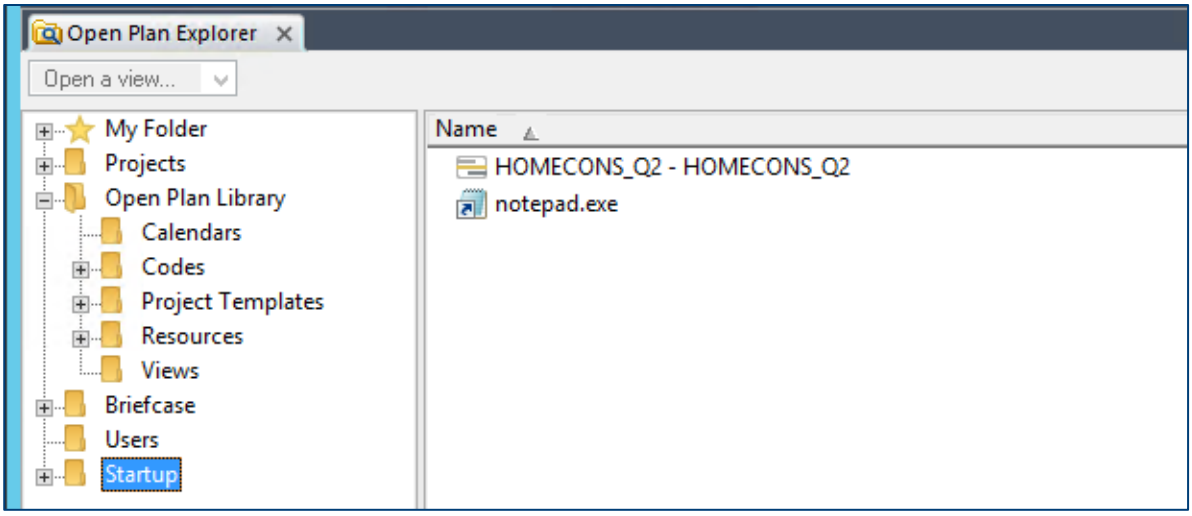
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1.15 Startup

All Open Plan users have their own Startup folder. The Startup folder provides the ability to host OPP project schedules files and Windows program shortcuts in order that they open automatically upon logging into Open Plan.

For example, if you want a particular project to open or Windows Notepad to start automatically when Open Plan starts, place a shortcut to it in this folder.

Dragging an object into this folder establishes the Startup link, and deleting the icon in the Startup folder removes the link.

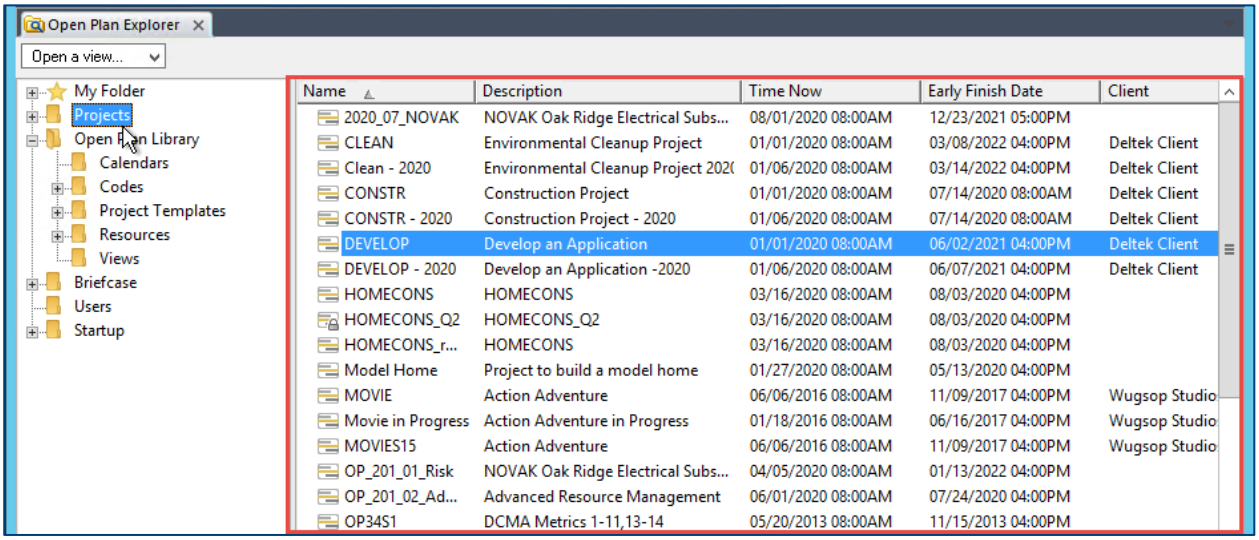


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1.16 Contents Pane

The right pane of the **Open Plan Explorer** displays the contents of the folder currently selected in the left (hierarchical) pane.



Double-clicking an object can perform the following operations:

- If the object is a folder, double-clicking expands it.
- If the object is a view or calendar, double-clicking opens the object.
- If the object is an application shortcut, double-clicking launches the application.

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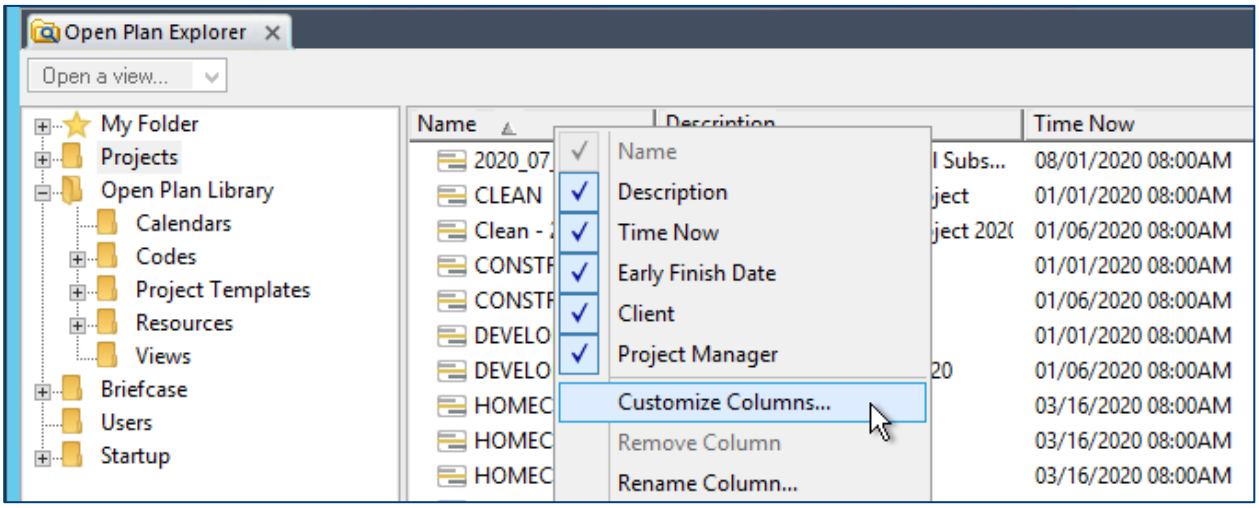
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1.17 Customizing the Contents Pane

You can customize the way information is display in the Contents Pane using the Details format.

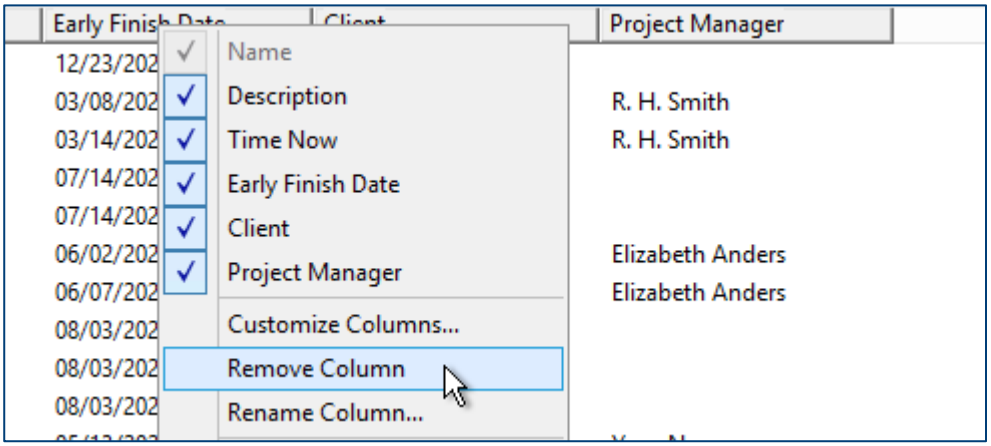
Right-clicking on the header bar displays a shortcut menu where you can perform the following actions:

Customize Columns—opens a dialog box used to define which columns are displayed, and how they appear in the Contents pane.



You can also display the Customize Columns dialog box by double-clicking anywhere along the header bar.

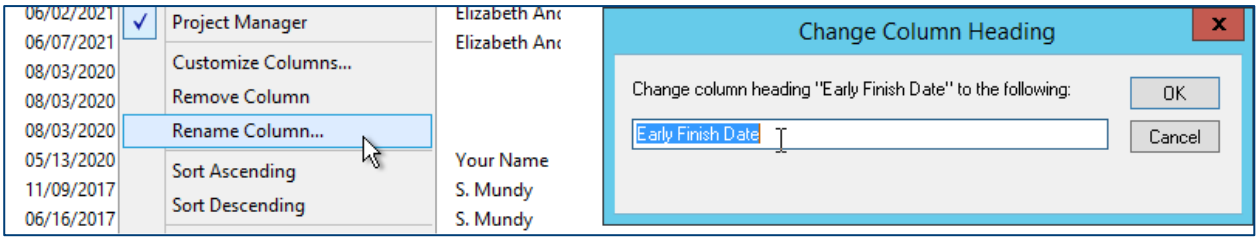
Remove Column—removes the target column from the display.



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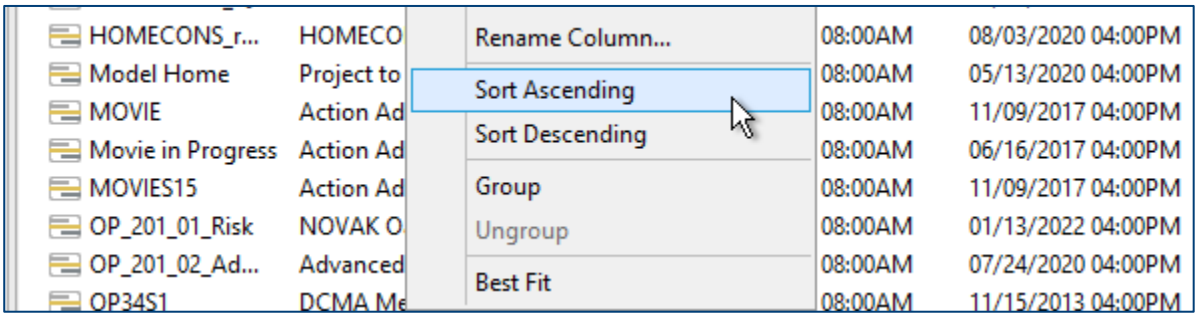
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Rename Column—renames the target column in the display.



Sort Ascending—performs an ascending sort on the target column. An up arrow in the column heading indicates the column is sorted ascending.

Sort Descending—performs a descending sort on the target column. A down arrow in the column heading indicates the column is sorted descending.



Group—Places the contents into expandable groups organized by the selected column. For example, select the Projects folder; group the projects by any of the columns in the Details pane (Name, Description, Project Manager, etc.).

Ungroup—Removes the applied grouping. Access this item by either right-clicking a column heading or a group heading.

Best Fit—Resize column widths manually by placing the cursor at either edge of column's header. When the cursor changes to ✢, drag the column edge to the desired width. If any unseemly column widths result, the Best Fit option lets you resize the width of a target column to properly display the entries.

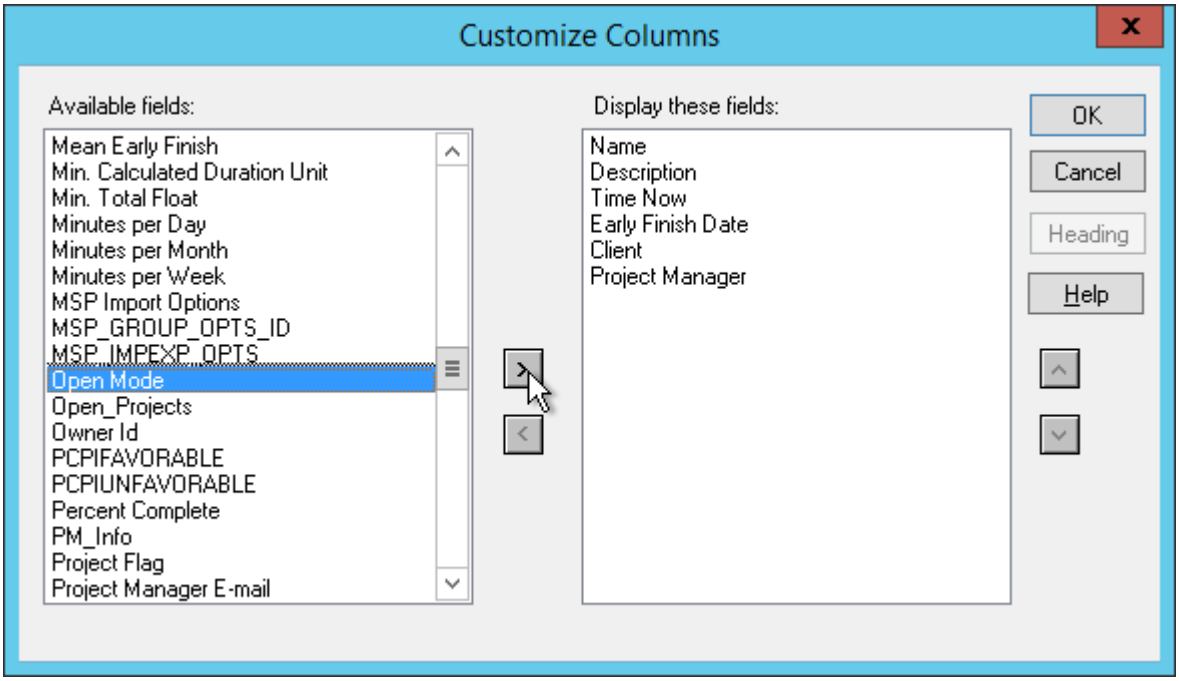
Note: In order to customize the columns in the contents pane, the folder that is displayed must contain only like objects. For example, the objects must be all views, all projects, etc.

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1.17.1 Customizing Columns

You can customize the columns displayed in the **Details** format using the **Customize Columns** dialog box.



1.17.2 Customizing Columns

From this dialog box, you can perform the following actions:

- Add fields to the display—Select a field on the left and click .
- Remove fields from display—Select a field on the right and click .
- An alternative way to add or remove a column heading is simply double-click the field name on the **Customize Columns** dialog box.
- Rearrange the display order—Select a field on the right and click or .
- Rename columns—Select a field, then click the Heading button and enter a new name for the field in the dialog box.

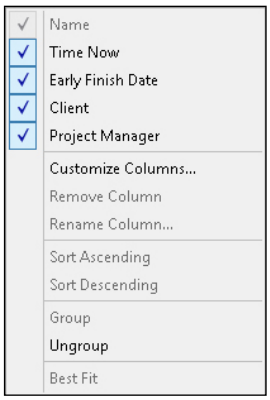
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1.17.3 Removing Columns

Removing columns is accomplished via a right-click on the header bar to display the shortcut menu. Notice that each column heading displayed in the Details format is listed on the menu with a check mark next to it.

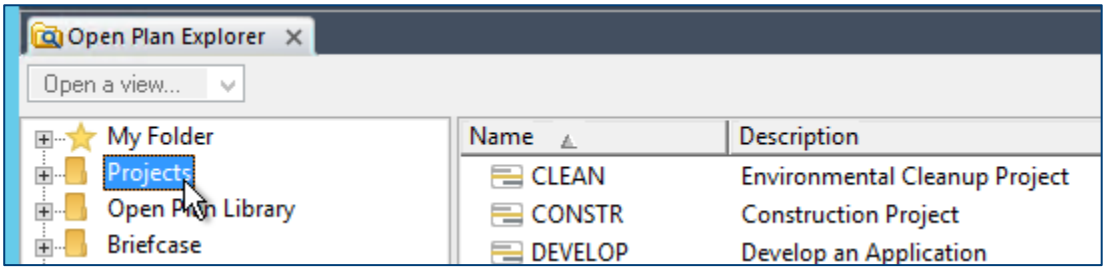
A quick way to remove a column is to clear the check mark from the heading on the shortcut menu.



1.17.4 Activity: Customizing Contents Pane

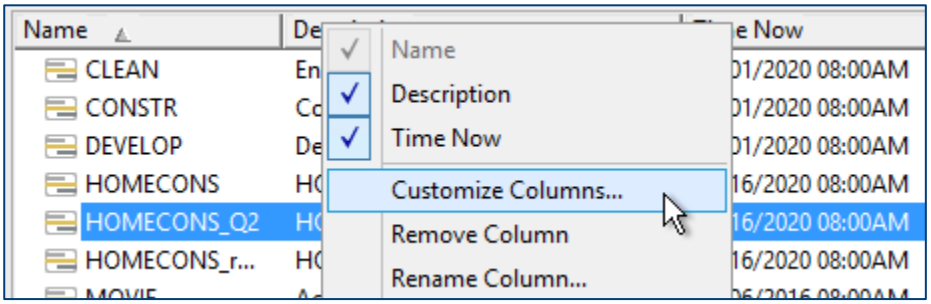
Follow the steps in the table below to customize the contents pane.

1. From the **Hierarchical** pane on the left of the screen, select the Projects folder.

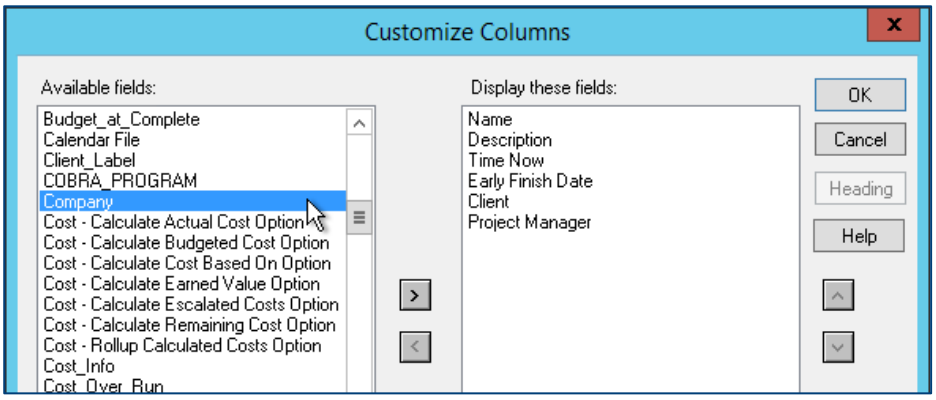


2. Right-click the **Description** column and select **Customize Columns**.

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3. In the **Available Fields** column, select: **Client** or **Company**.



4. Click the > button to move this field to the **Display** pane. Click: **OK**

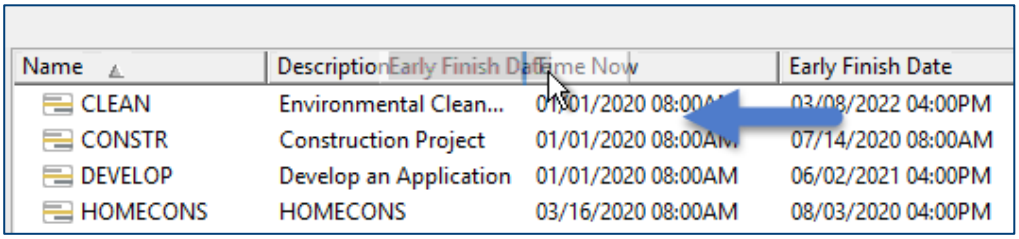
5. When the following screen appears, adjust the columns as shown here, if necessary.

Name	Description	Time Now	Early Finish Date	Client	Project Manager	Company
CLEAN	Environmental Clean...	01/01/2020 08:00AM	03/08/2022 04:00PM	Deltek Client	R. H. Smith	Deltek
CONSTR	Construction Project	01/01/2020 08:00AM	07/14/2020 08:00AM	Deltek Client		
DEVELOP	Develop an Application	01/01/2020 08:00AM	06/02/2021 04:00PM	Deltek Client	Elizabeth Anders	Blueframe
HOMECONS	HOMECONS	03/16/2020 08:00AM	08/03/2020 04:00PM			

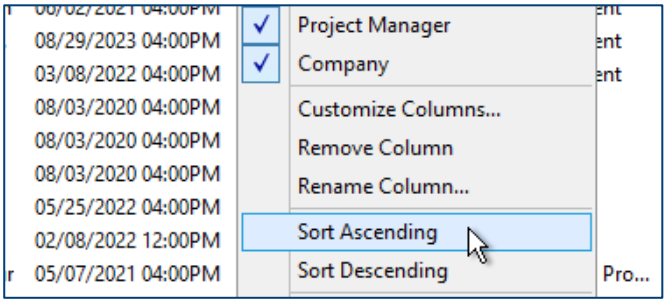
6. Drag the **Early Finish Date** column to the left of the **Time Now** column.

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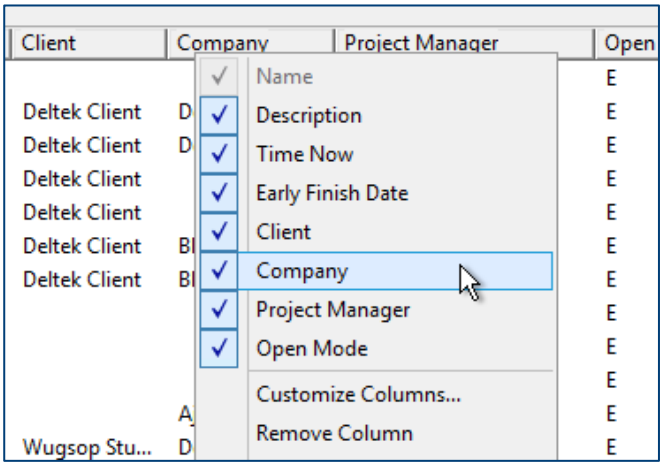
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7. Right-click the column heading for **Early Finish Date** and select: **Sort Ascending.**

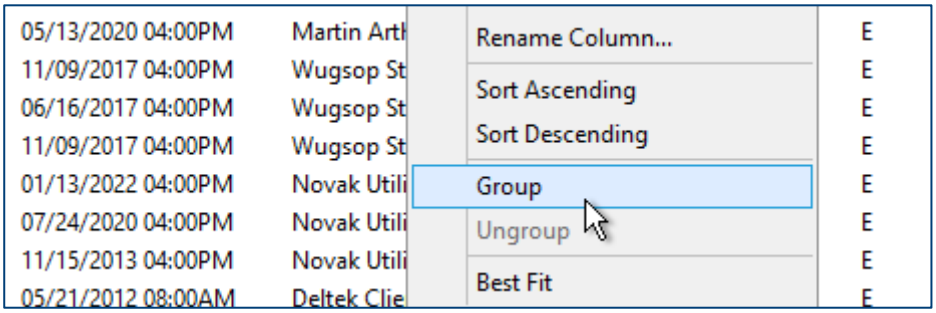


8. Remove the **Company** column.



9. Right-click the **Client** column and select **Group**.

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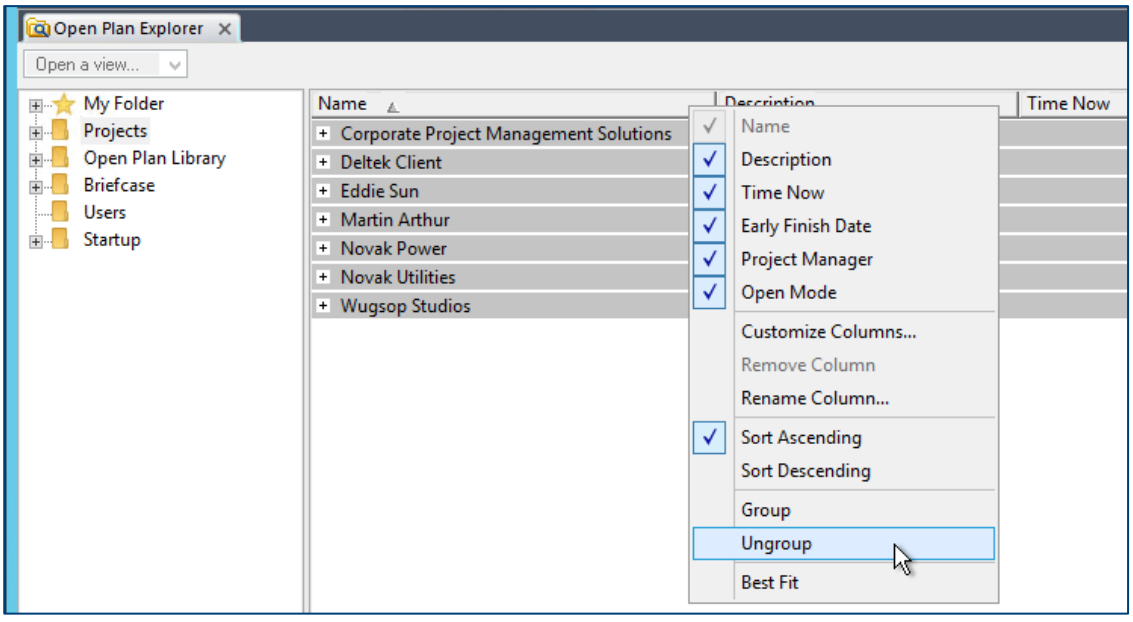


10. Click the plus sign (⊞) to the left of **Deltek Client**.

11. Right-click any column and select **Ungroup**.

12. Highlight the **Tour – Open Plan Guided Tour** project in the Hierarchical pane and expand. In the **Name** column, right-click and select **Group by Type**.

13. Right-click the **Name** column and select **Ungroup**.



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1.18 Opening Projects

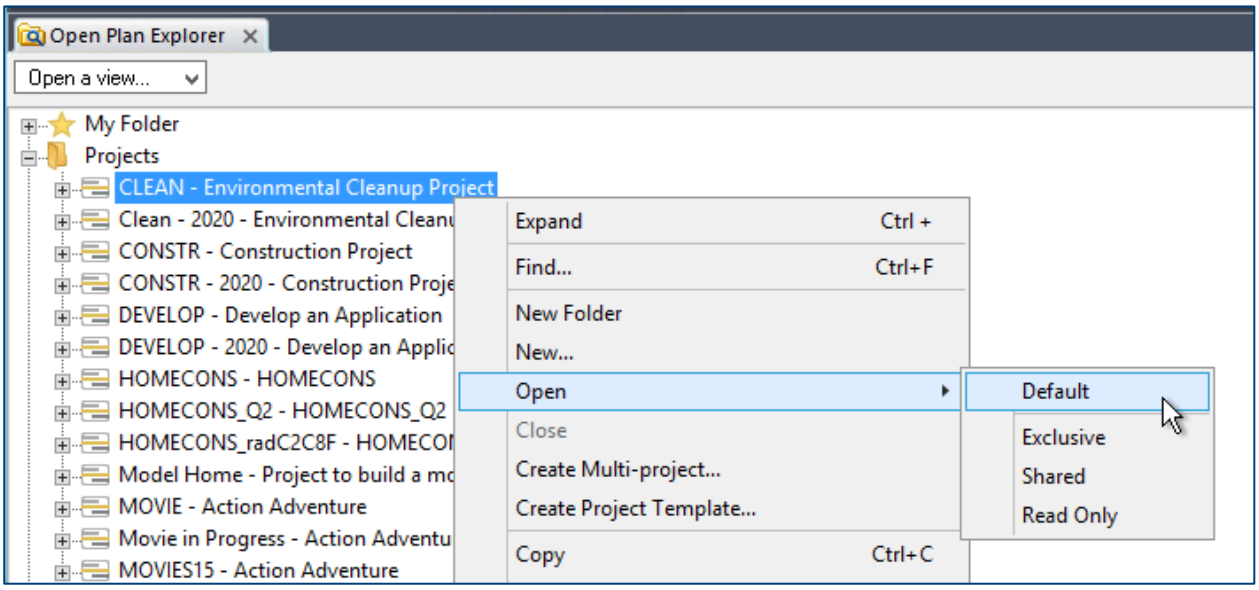
When we talk about opening projects in Open Plan, we are talking about loading the contents of the schedule into memory.

We can open project schedules in one of three different modes.

These are:

- **Exclusive** – no other user can edit the project while you have it open.
- **Shared** – multiple users can edit data, but functions such as Baselining will be restricted.
- **Read Only**

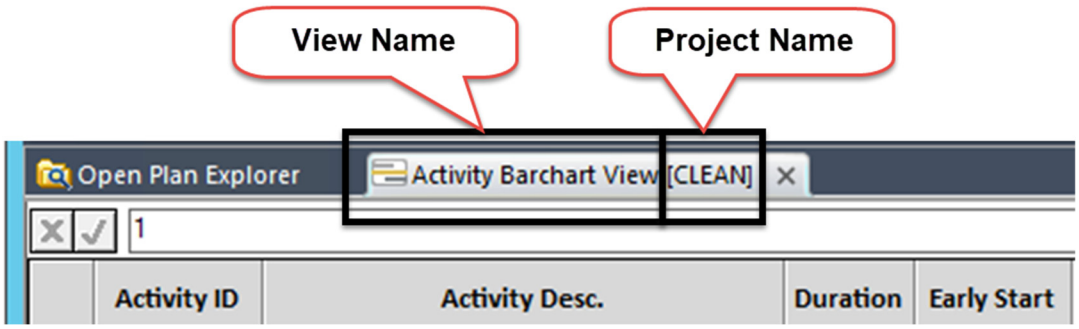
There is also a **Default** option that will cause the project to open in its default mode setting. Its default mode is set in the Project Properties dialog and will be discussed shortly.



When a project is open, it must be assigned a view for the data to appear. Note how the tab for the CLEAN project shows the name of the view, then the name of the project in square brackets. More about the importance of views later.

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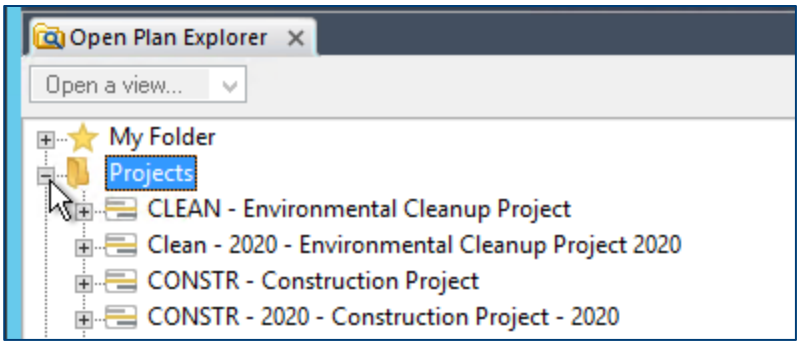
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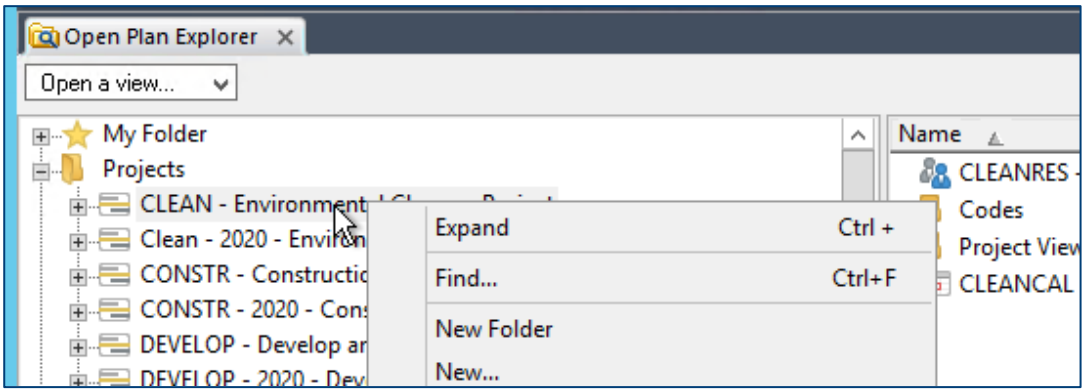
1.18.1 Activity: Opening Projects

Follow these next steps to learn how to open project schedules.

1. In the **Open Plan Explorer**, click and open the **Projects** folder.



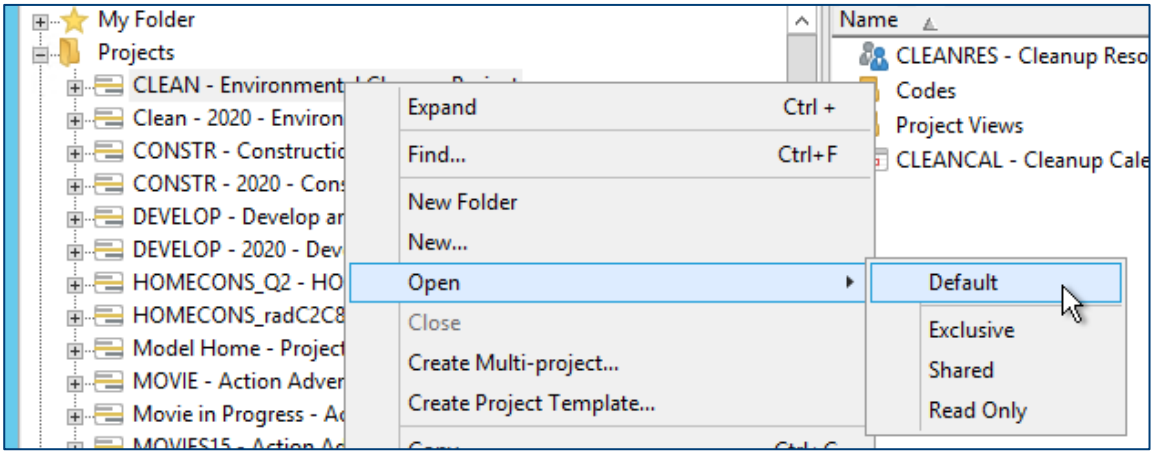
2. Locate the **CLEAN** project and right-click on it.



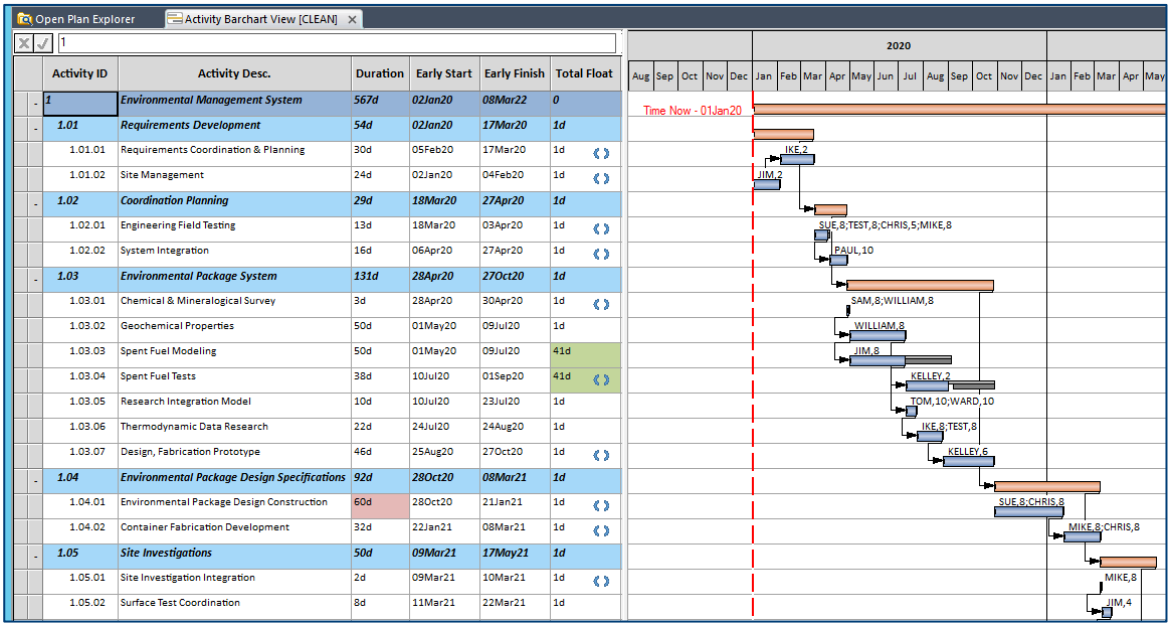
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3. In the menu choose the **Open** option and click on **Default** in the submenu.



4. The project will open in the predefined **Activity Barchart View**.

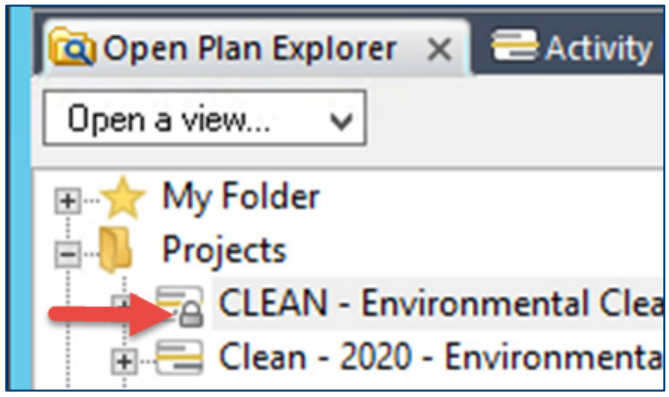


5. Click on the **Open Plan Explorer** tab once more.

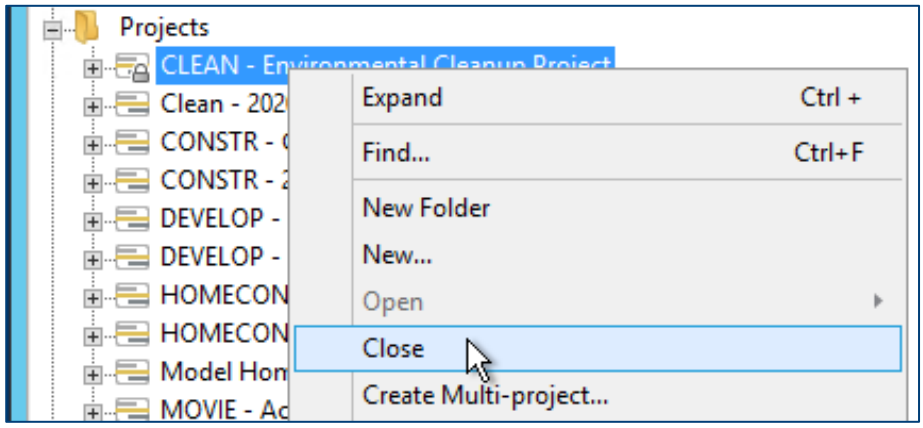
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6. Note the **Padlock** that is displayed in the project icon. This indicates that the project is open in Exclusive mode.



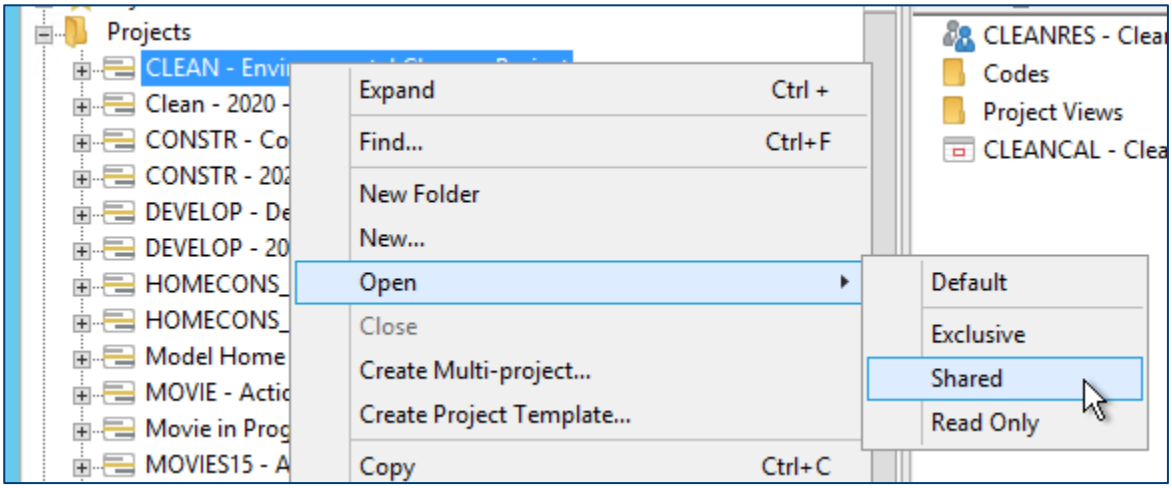
7. Right-click on **CLEAN** and select **Close**.



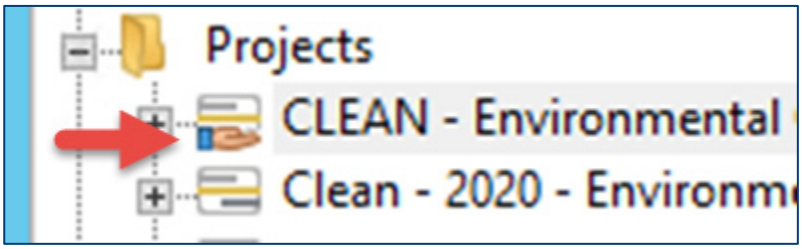
This step removes the project from system memory and closes any views of the data.

8. Right-click on **CLEAN** once more and choose **Open** – **Shared**.

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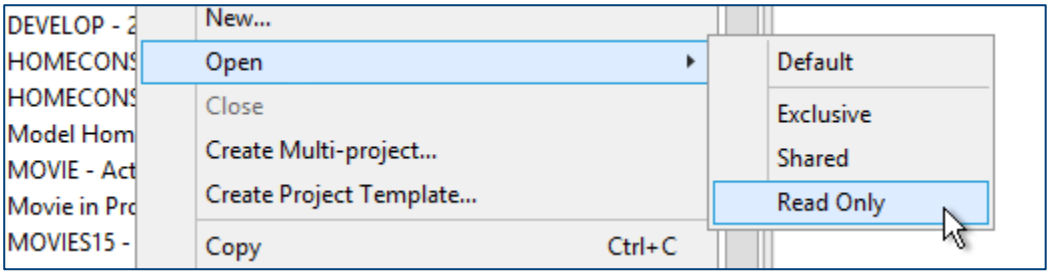


9. Note the hand image that has been added to the project icon, indicating a shared mode of access. More than one user may access and edit this project in shared mode. Some functional restrictions apply.



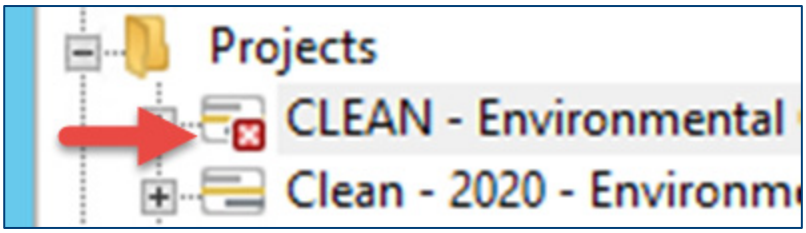
10. Right-click and **Close** the **CLEAN** project.

11. Right-click the **CLEAN** project and open it in **Read Only** mode.



12. Note the red 'X' image that has been added to the project icon indicating that it's open in read only mode and you cannot edit the project's data.

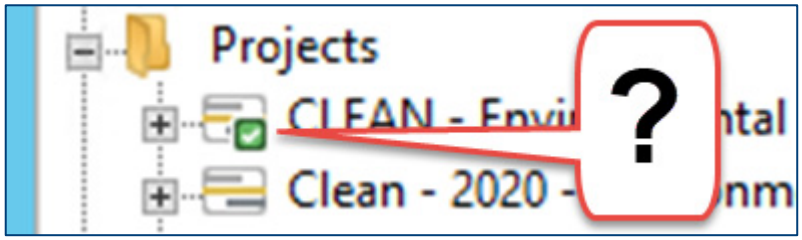
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13. Finally **Close** the **CLEAN** project once more and open it in **Default or Exclusive** mode.

Brain Teaser

What do you think a green check mark on a project icon might represent?



Clues coming later in the chapter.

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1.19 Project Modes

As mentioned previously, projects can be opened in one of three modes: i.e. Exclusive, Shared, and Read Only. This is to allow for good control of data when there are multiple users in the same system. For your reference here is a summary of Mode capabilities.

Exclusive Mode – provides full access to project (based upon user's privileges). No functional restrictions apply when you open the project, and its ancillary files in this mode. If other users open the project, they will only be able to access an exclusive project in Read Only mode.

Shared Mode – most Edit, View, and Tool items will work. However, the following processes are disabled in Shared Mode.

- Change Time Now – you can still time analyze
- Calculate Cost
- Calculate Risk
- Create, edit, or update baselines
- Trace Logic

Read Only Mode – you can see data but none of the edit functions will be enabled.

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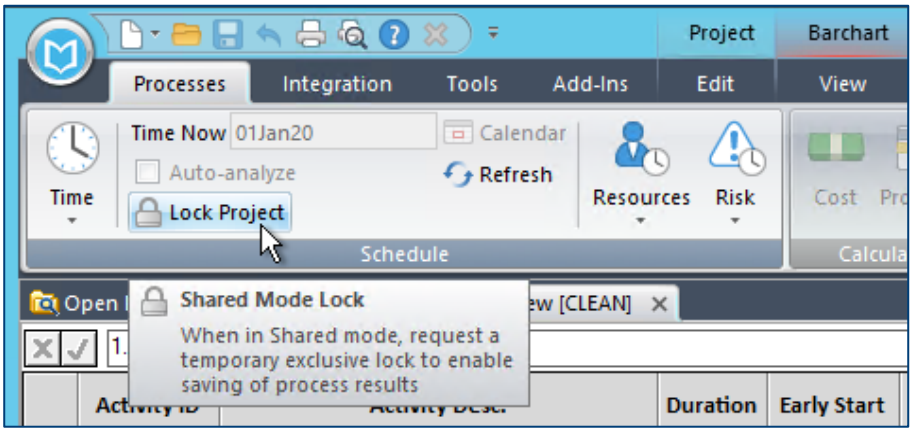
1.20 Lock Project

As of version Open Plan 8.3 and later, if you are in shared mode and need to perform one of the above functions, you can put a temporary lock on the project and operate in Exclusive mode while the lock is in force.

Other shared users will be migrated to read Only mode while you maintain the project lock.

Once you are done, you can release the lock. If you forget to release the lock, Open Plan will remind you after 30 minutes. At that point you can either maintain the lock, or release it, returning everyone to shared mode.

You cannot lock a project when in Read Only mode.



1.20.1 Activity: Performing a Temporary Project Lock

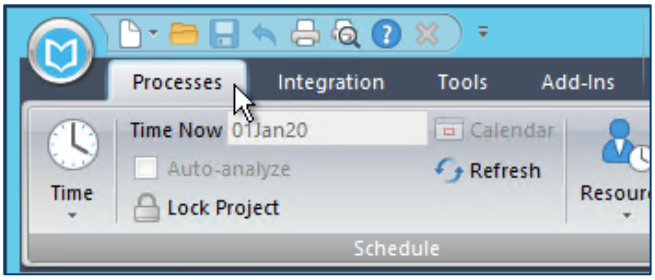
Follow these next steps to perform a temporary project lock.

1. Click on the **Open Plan Explorer** tab.

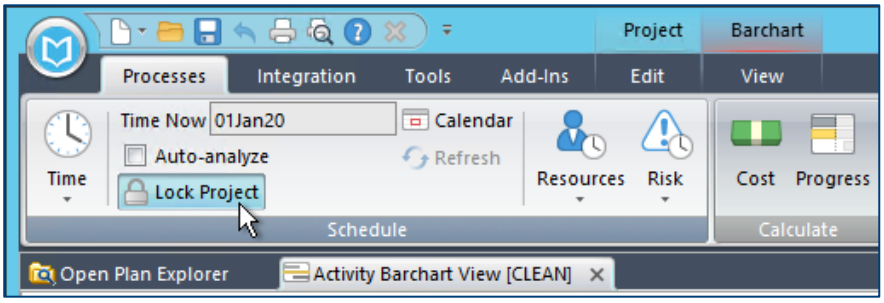
2. Open the **CLEAN** project in **Shared Mode**.

3. Click on the **Processes** tab.

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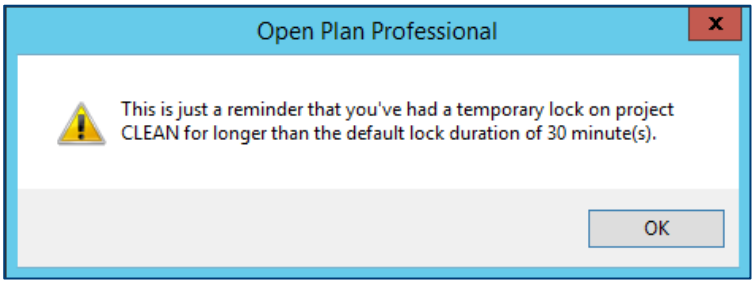
4. Click on the **Lock Project** button located below the **Time Now** functions.



5. Note how the Auto-analyze, Time Now, Cost, and Progress functions go active when you click **Lock Project**. You now have temporary Exclusive access to the project.

6. Now release the lock by clicking on the **Lock Project** button once more. You'll see the features that require Exclusive access become inactive once more.

   Note also that after 30 minutes you will be reminded to release the Lock so that others may once again access the project in shared mode.



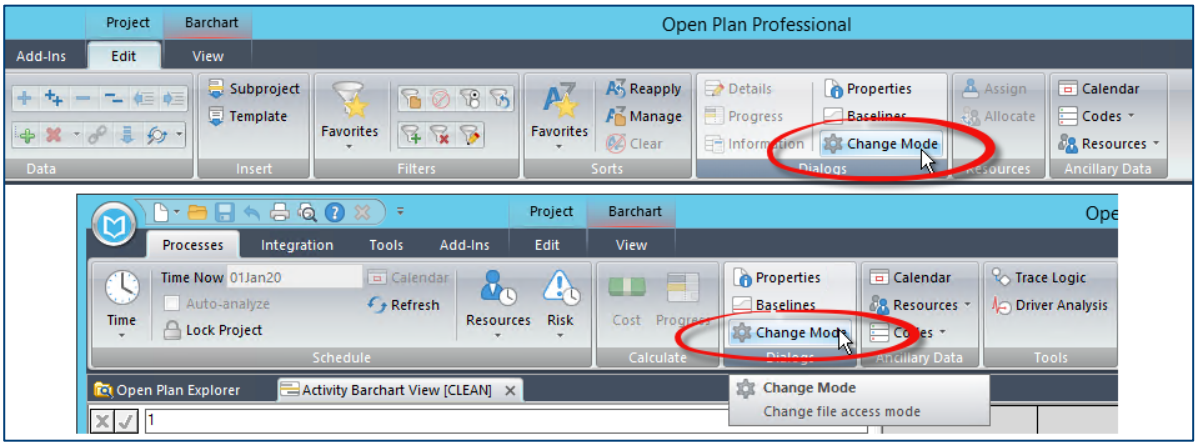
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1.21 Change Mode

The Change Mode feature allows you to change your current access level down to a lower level. You can never go up, only down. For example, if you opened the project in Shared Mode, you would be able to change down to Read Only, but not go up to Exclusive. To do that you would need to use the Lock Project feature previously described.

This feature can be accessed from both the Edit ribbon, and the Processes ribbon.



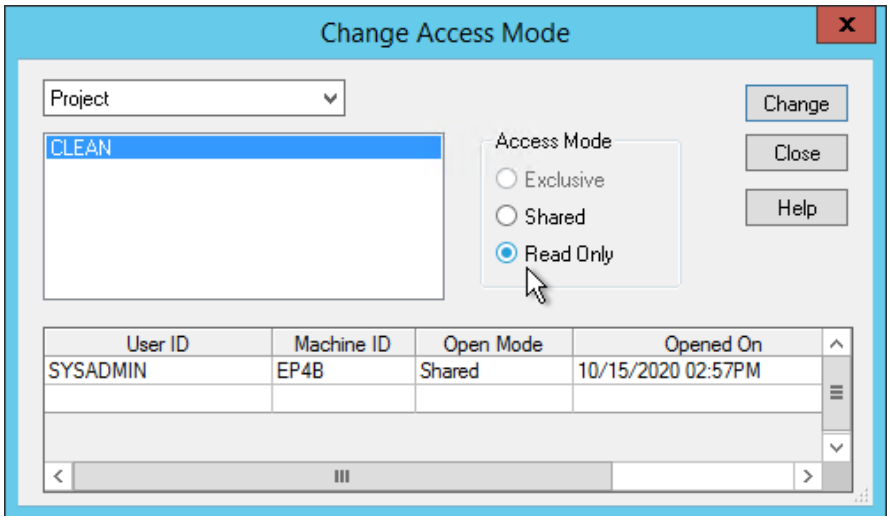
1.21.1 Activity: Change Mode

1. In the **CLEAN** project, click on the **Edit** tab.

2. Click on the **Change Mode** button located in the **Dialogs** tool group.

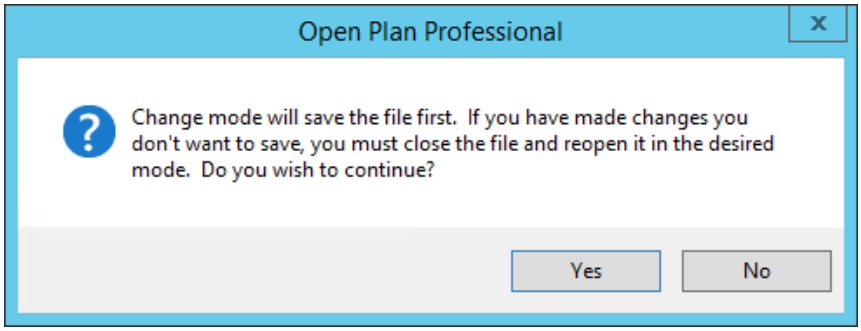
3. In the **Change Access Mode** dialog, switch from **Shared** to **Read Only**.

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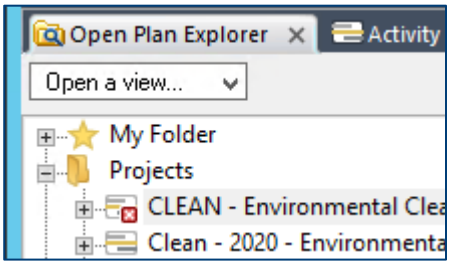
4. Click the **Change** button.

5. You will be prompted that a save will be made. Click **Yes**.



6. Close the **Change Access Mode** dialog.

7. Click on the **Open Plan Explorer** tab and look at the **CLEAN** project icon. You will see a red 'X' indicating that the project is now open in **Read Only** mode.



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1.22 Understanding Views

So far you have seen the **Activity Barchart View** that is the preselected view used by the **CLEAN** project.

It's important to understand that a view is separate from a project. When open, a view displays the project data as either selected by you, or by a default setting.

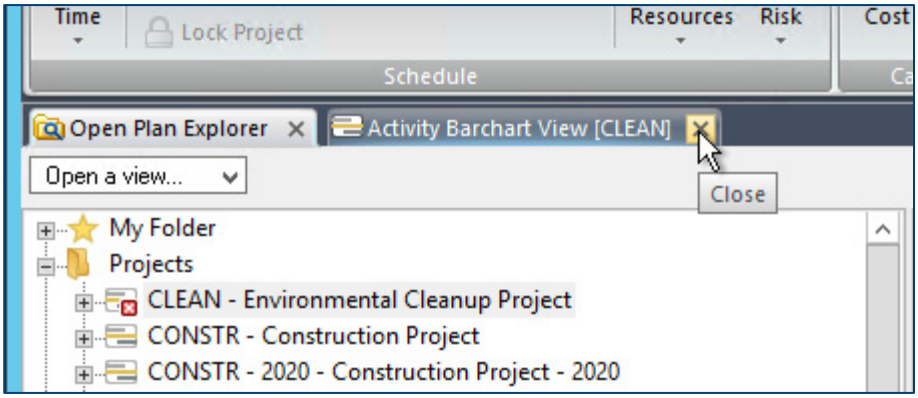
When you close a view, however, you are not closing the project. The project remains open in memory, waiting for another view to be opened.

Also keep in mind that there are project views, code file views, and resource file views. For now, we will focus just on project views.

1.22.1 Activity: Opening Project Views

Follow these next steps to better understand how views work in Open Plan.

1. Move your mouse cursor over to the right of the **Activity Barchart View** tab until the 'X' appears.

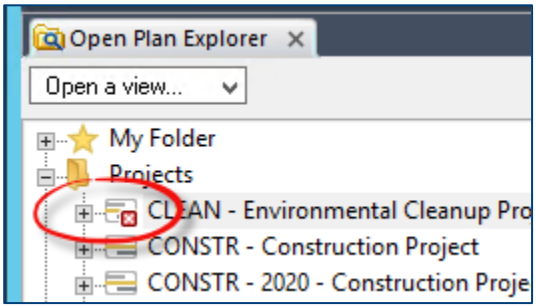


2. Click the '**X**' to close the view.

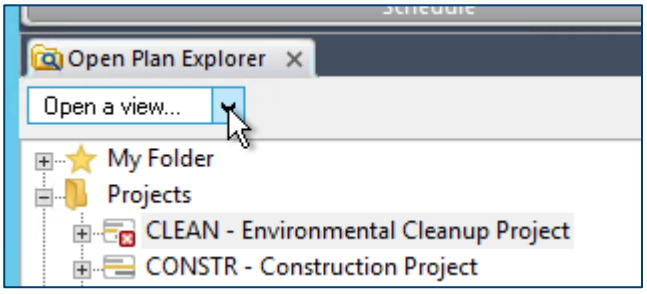
3. Now look at the **CLEAN** project in the **Explorer**. The project is still open, as evidenced by the Read Only 'X' against the project icon.

   We only closed the **View**, not the project.

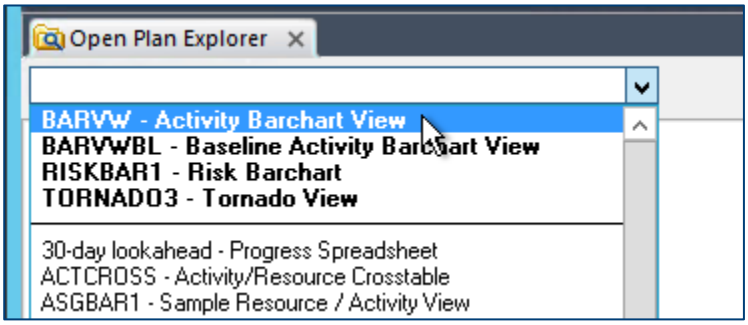
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4. Now click on the '**Open a view…**' dropdown field.



5. From the menu choose the **'BARVW – Activity Barchart View'**.

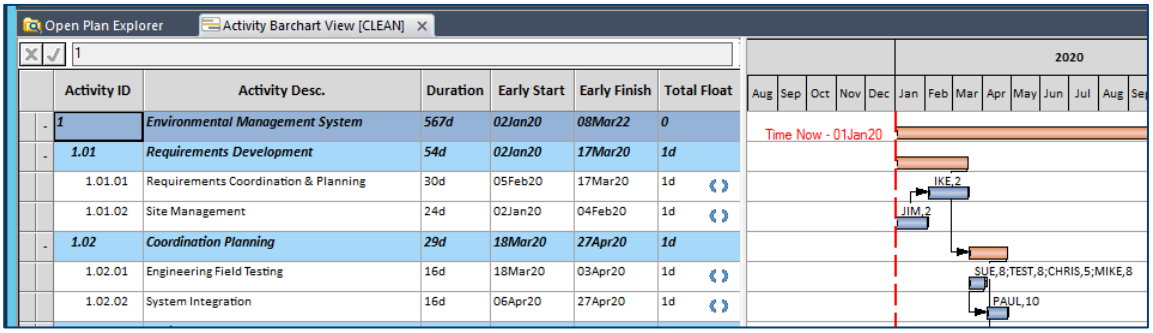


Also note the extensive list of other views to choose from in that dropdown.

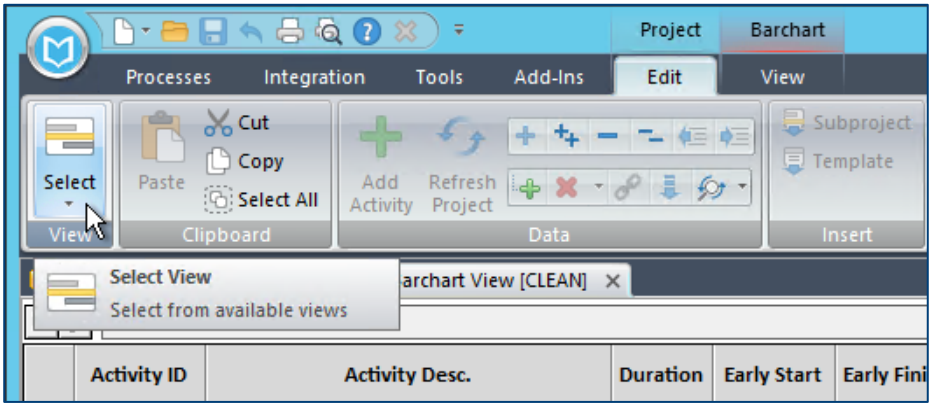
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6. This will reopen the **BARVW** view to display the **CLEAN** project's data on screen.



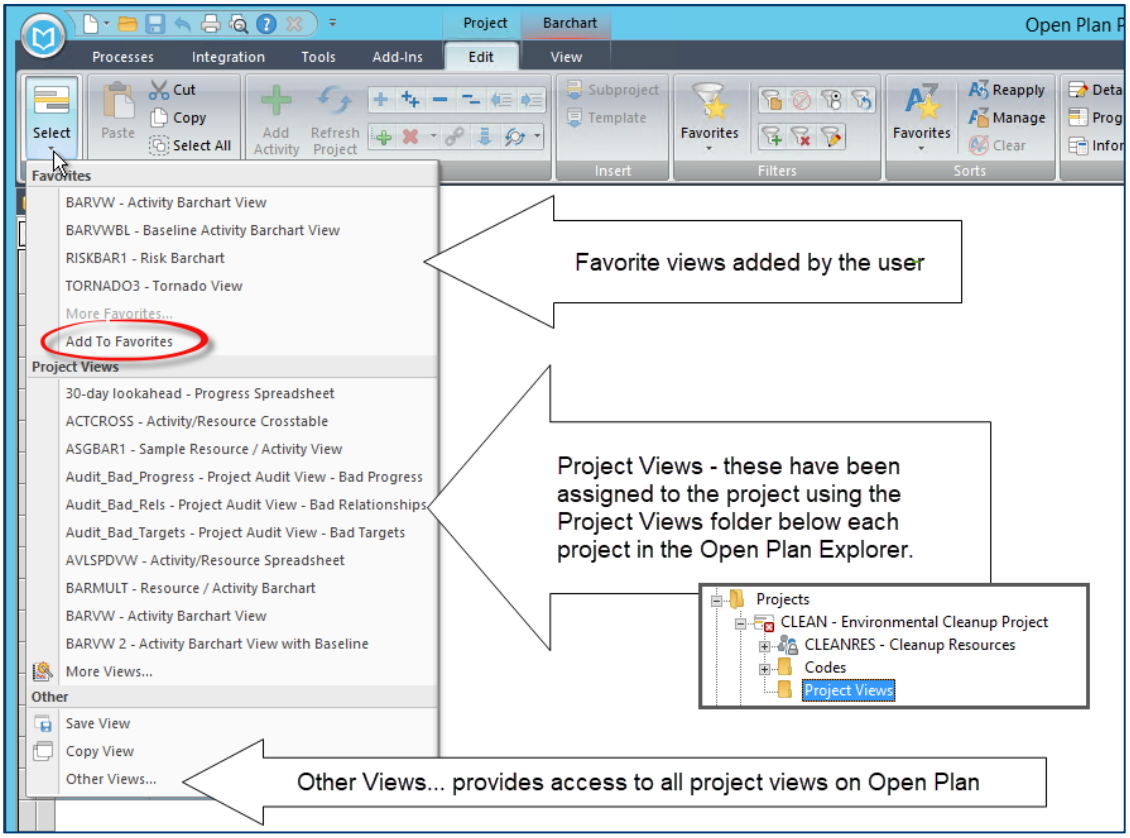
7. In the **Edit** ribbon, go to the left and click the **Select** button located in the **View** tool group.



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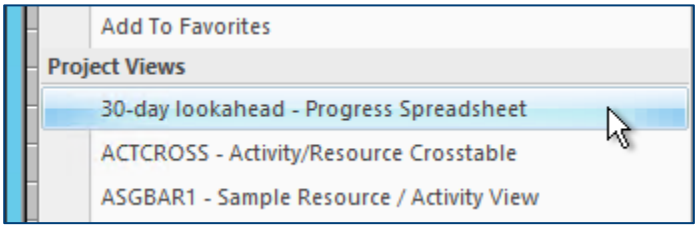
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8. Note the contents of the **Select View** list.



The **Select View** list allows you to add an open view to favorites, access project views, or access all the views defined for projects in the Open Plan system.

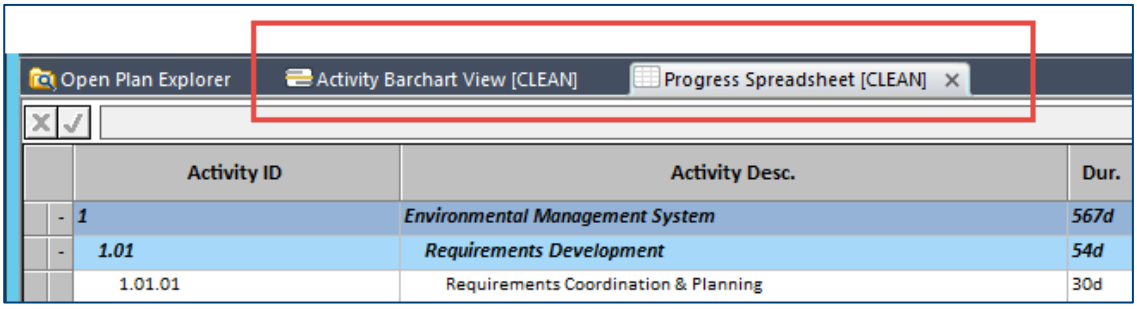
9. Select the **'30-day look ahead – Progress Spreadsheet'** view from the **Project Views** list.



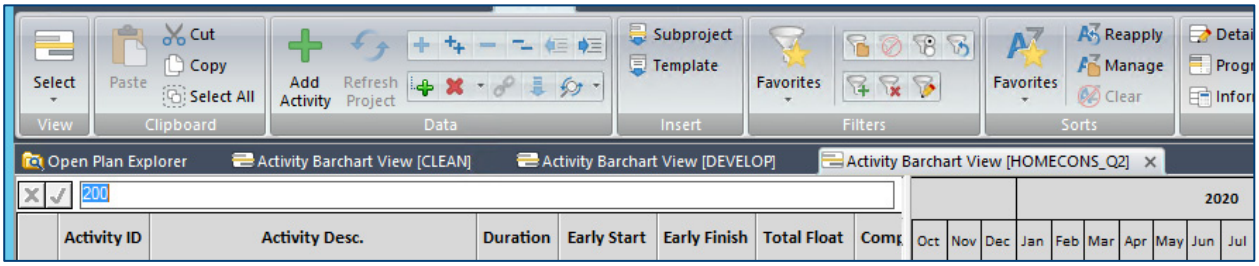
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10. Note how you now have the same project displayed in two different views.



You can open multiple views for one project, or open multiple projects that use the same view. For this situation, Open Plan will create a tab for every view opened. For example, you could have three projects open, each using the Activity Barchart View, resulting in three tabs.



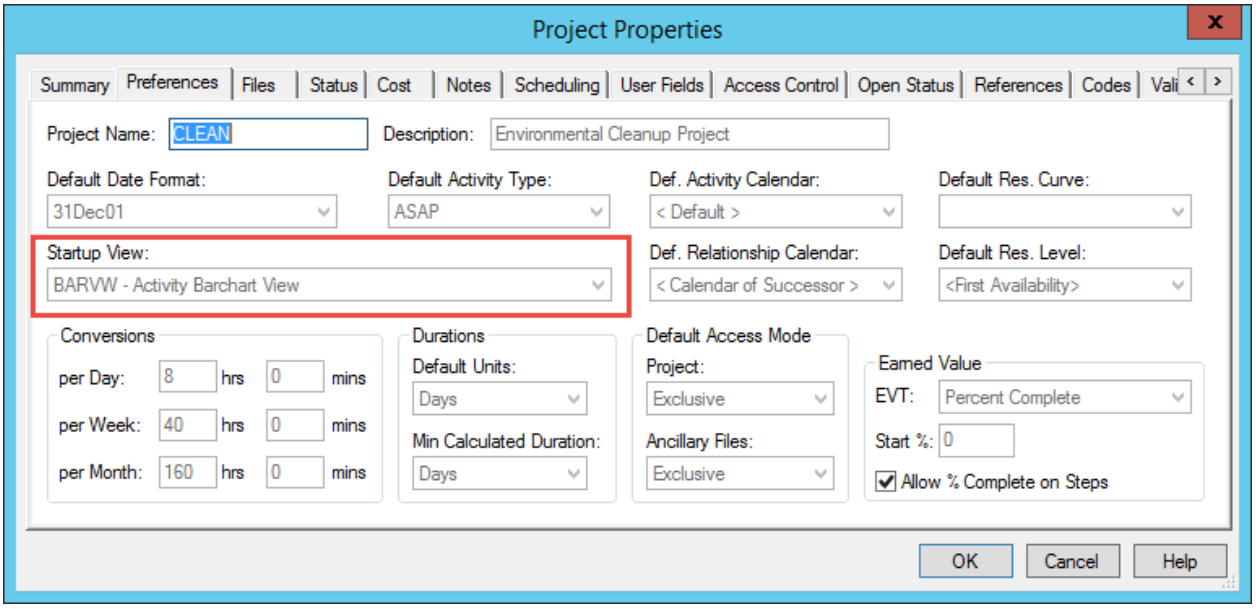
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1.23 Startup Views

Most projects in Open Plan are assigned a default view. This ensures that data will appear when a project is opened.

Default views are specified in the Preferences tab of the Project Properties dialog.



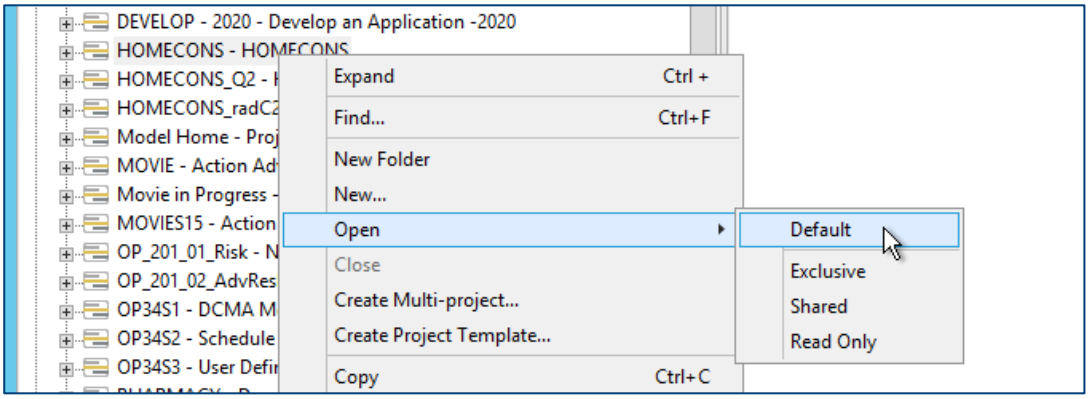
Follow this next exercise to learn what happens when a project doesn't have a default view defined, and what you can do to correct that situation.

1.23.1 Activity: Startup Views

1. Locate the **HOMECON**S project in the **Open Plan Explorer**.

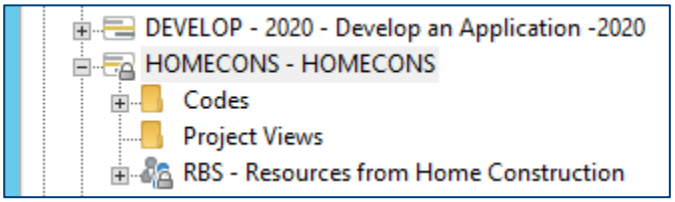
2. Right-click and open the project using the **Default** mode option.

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3. Note that the project doesn't appear to open.

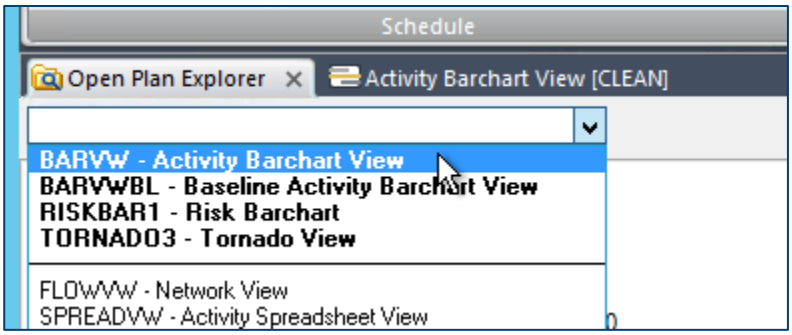
4. If we check the project in the **Open Plan Explorer**, there is a padlock on the icon, so we know it's open.



5. Select the **HOMECONS** project.

6. Click on the '**Open a view…**' field.

7. Select the **BARVW – Activity Barchart View**.



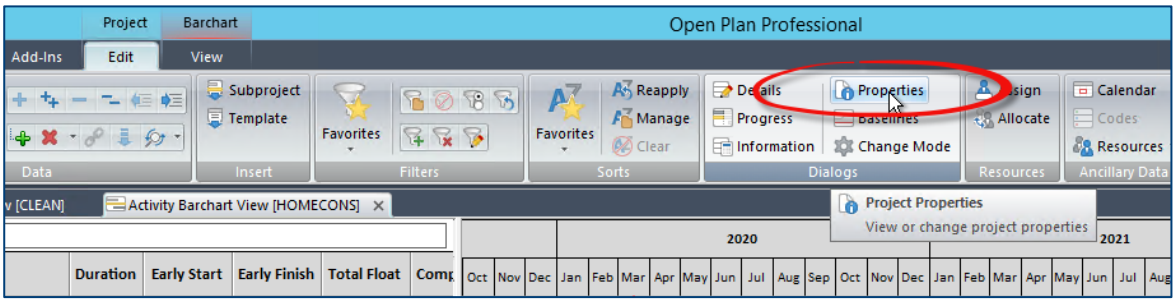
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8. You will now see the project data in the selected view.

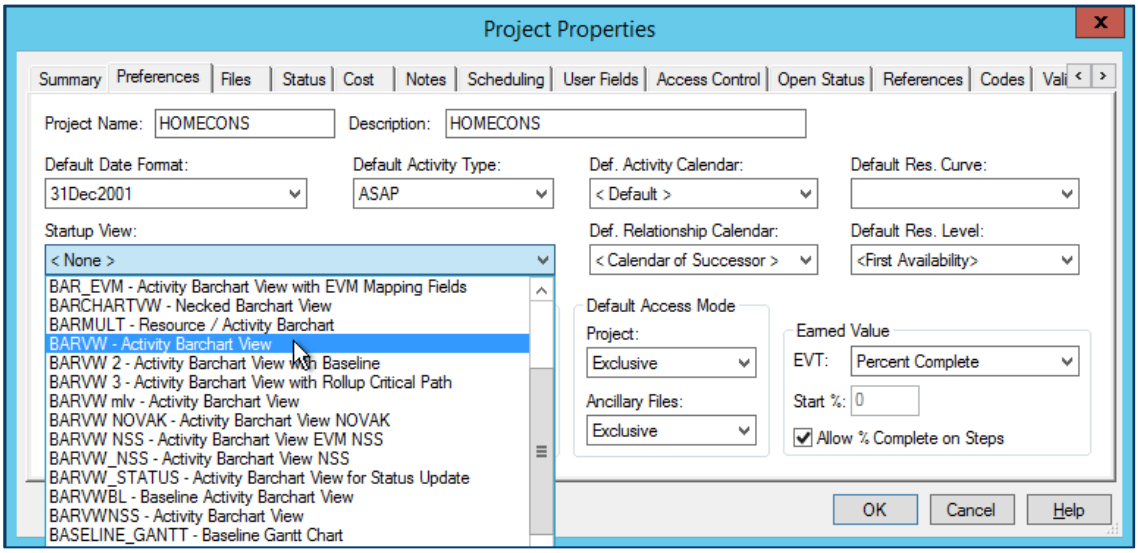
   Now you will prevent this non-appearance of the project data by assigning a **Startup View**.

9. In the **Edit** ribbon of the **HOMECONS** project view, click on the **Properties** button in the **Dialogs** tool group.



10. In the **Project Properties** dialog, click on the **Preferences** tab.

11. In the **Startup View** field, click on the dropdown and choose the **BARVW – Activity Barchart View** option.



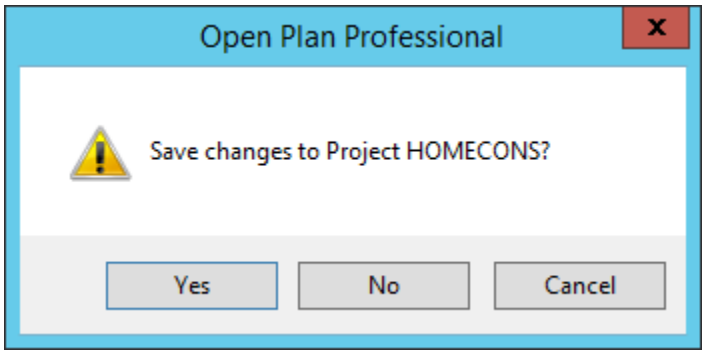
12. Click **OK** to save your change.

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13. Now **Close** the **HOMECONS** project.

14. When prompted to **Save Changes** click **Yes**.

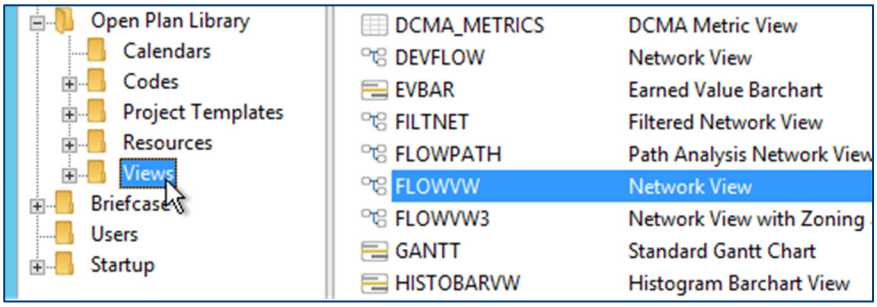


15. Open the **HOMECONS** project and note that now the project will appear inside the **BARVW** view.

    It's also possible to open views from the **Views** folder of the **Open Plan Explorer**.

16. Click on the **Open Plan Explorer** tab.

17. Navigate to the **Open Plan Library** and click on the **Views** folder.

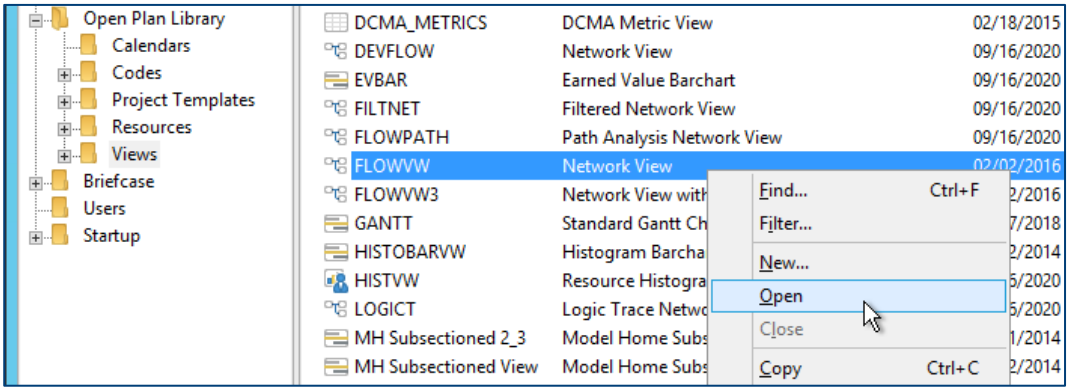


18. Locate **FLOWVW – Network View**.

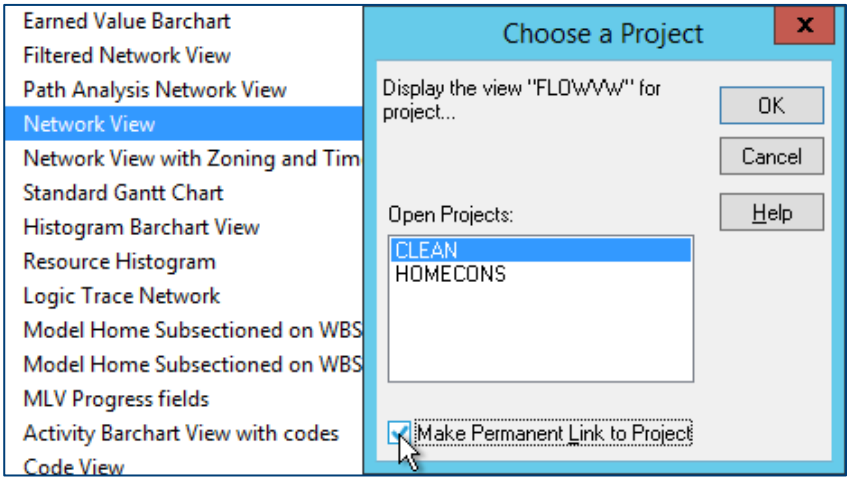
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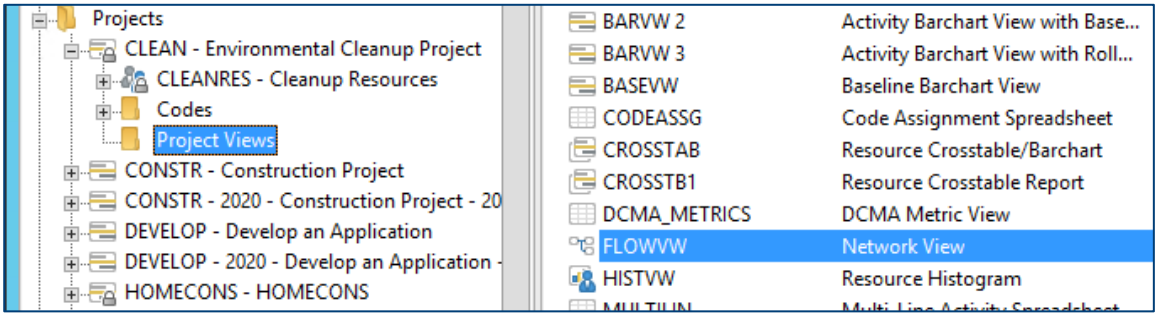
19. Right-click and select **Open** from the menu.



20. When you have more than one project open, you will see the following dialog.



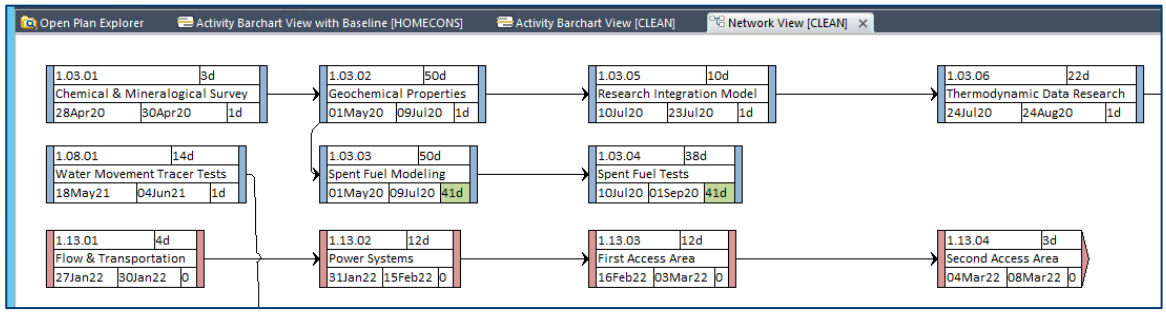
21. Select the **CLEAN** project, and also check the "**Make Permanent Link to Project**". This will add the **Network View** to the project's **Project Views** folder.



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The views that are copied into the Project Views folder can be easily access via the Edit – Views feature and the ‘Open a view…’ field.

22. The view will be opened, and you will see the activities for the selected project shown as nodes in a network view.



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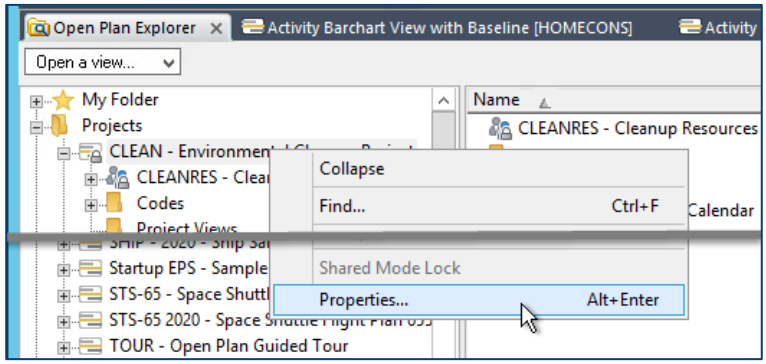
1.24 Object Properties

Most data objects in Open Plan are assigned with a 'Properties' dialog. A Properties dialog allows you to change various attributes and settings that pertain to the type of object you are viewing. Here are some examples.

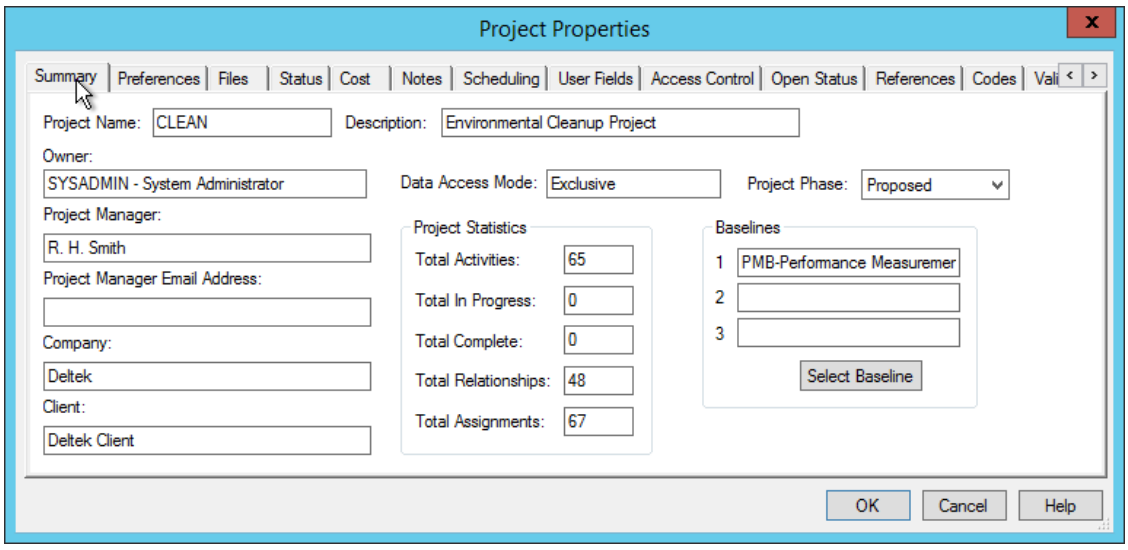
1.24.1 Activity: Opening and Exploring Properties

1. Right-click on any project.

2. From the menu choose the **Properties** option (typically at the very bottom of the menu).



3. In the resulting **Properties** dialog, click through the different tabs to become familiar with the contents.



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4. Click **OK** when you're done.

5. Now click on the **Open Plan Library** folder to expand it.

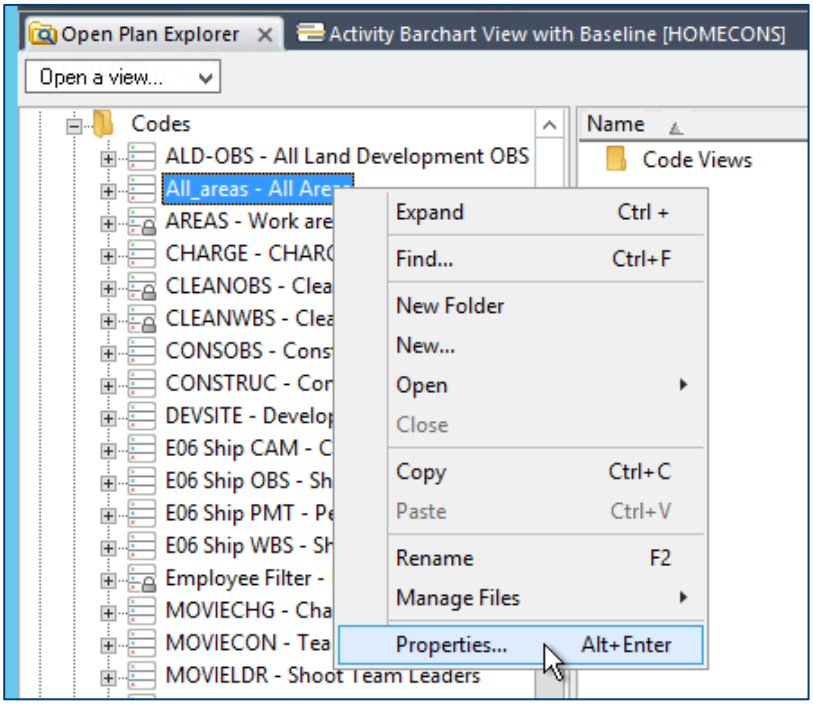


6. Open the **Codes** folder and right-click on one of the codes.

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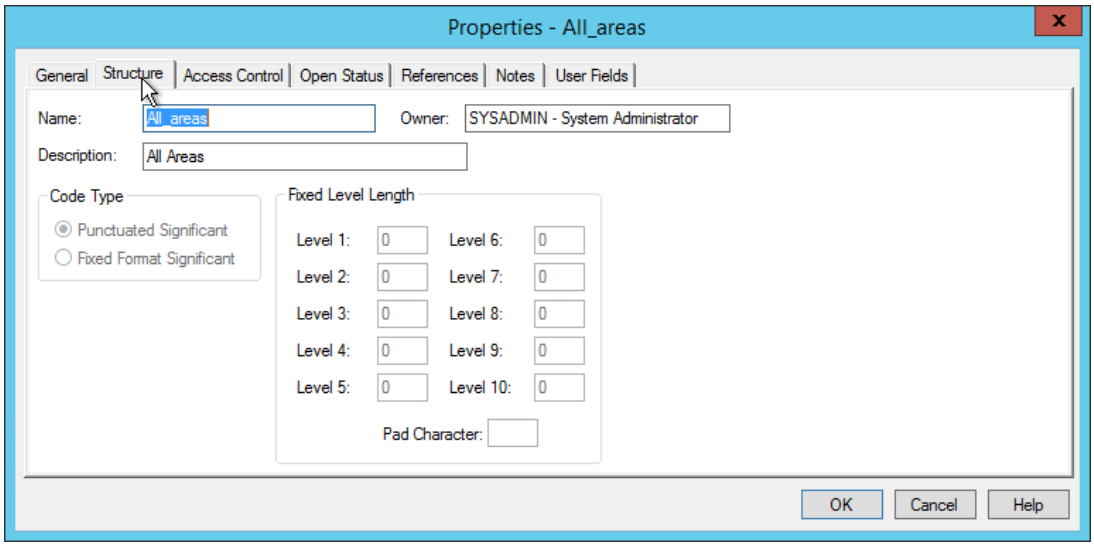
7. Choose the **Properties** option at the bottom of the menu.



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8. Explore the tabs of the resulting **Properties** dialog.



9. Click **OK** to close when done.

10. Locate other types of objects in the Open Plan Library and view its Properties dialog.

As you have seen the Properties dialogs allow you to make changes to certain elements and attributes of the object to which they belong: the most complex of these being the Project Properties dialog.

When you are creating new objects in Open Plan you will see many of these same settings offered by the wizards used to create the object.

These Properties can be updated at any time. Therefore, if you miss something or make an error during creation, you can always go into the Properties dialog later to make the necessary changes.

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1.25 Summary and Takeaways

I've just shown you a sizable amount of navigation and functionality. So, let's do a short recap of the key takeaways from this lesson.

- Open Plan is a multiuser system, so it requires a username and password for access.
- The Open Plan Explorer is your go-to tab for most data editing and navigation requirements.
- The My Folder element of the Open Plan Explorer is your personal list of project links.
- The Open Plan Library is where you go to create or edit Ancillary files, Project Templates, and Views.
- Projects can be opened in Exclusive, Shared, or Read-only access mode.
- You can change the current access mode after you have opened the project using the Change Mode button.
- When in Shared access mode, the Lock Project tool is available and it allows you to temporarily change project access to Exclusive, thus making additional functionality available.
- Users already in a project that is being locked are migrated to read-only mode until the lock is released.
- Closing a view doesn't close the object you are viewing; that remains in memory until another suitable view is opened, or it is closed by the scheduler.
- Invest some time familiarizing yourself with the myriad views you have available in Open Plan. Views are central to almost everything you do in the application and familiarity will be an asset to you.
- Always have a default Startup View assigned in your Project Properties dialog.
- Projects, views, and ancillary files all have a Properties dialog that allows settings and defaults to be changed at any time.

This concludes lesson 1. The next video lesson in this series is Lesson 2 - Charts and Views. In that lesson you will discover more details about these very important and powerful areas of Deltek Open Plan.

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Open Plan Scheduler Certification Series: Charts and Views

Activity Guide

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Table of Contents

2.1 Course Introduction 4
2.1.1 In this Course 4
2.2 Selecting, Opening, and Customizing Barcharts 5
2.2.1 Activity: Basic View Configuration 5
2.2.2 Activity: Conditional Formatting 12
2.2.3 Activity: Timescale Adjustment 15
2.3 Filters 19
2.3.1 Activity: Creating a Filter 20
2.4 Other Filter Expression Rules 25
2.4.1 Activity: Clearing your Filters 26
2.4.2 Activity: Toggle Filter Button 27
2.4.3 Reapply Filter and Sort Button 27
2.4.4 Activity: Add To Filter Button 28
2.5 Data Filters 33
2.5.1 Activity: Using Data Filters 34
2.6 Sorts 39
2.6.1 Activity: Managing Sorts 39
2.6.2 Activity: Creating a New Sort 42

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2.1 Course Introduction

The purpose of this lesson is to teach you how to interpret and customize Open Plan Barcharts and Spreadsheets Views.

Mastering the use of charts and views is a core skill for every Open Plan scheduler. The better you understand the capabilities of these items, the more value you will get out of your Open Plan system.

Watch the demonstrations and then follow the activities in this guide. This will give you hands-on practice with the features described and will greatly increase your retention of the subject matter.

2.1.1 In this Course

- Select, open, and customize barcharts
- Customize spreadsheet views
- Conditional Formatting for tables
- Creating basic filters
- Creating sorts

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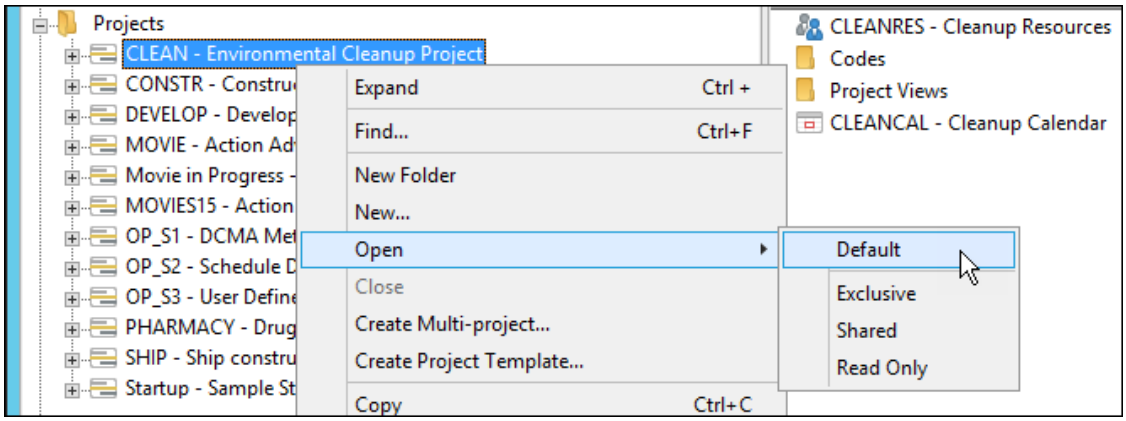
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2.2 Selecting, Opening, and Customizing Barcharts

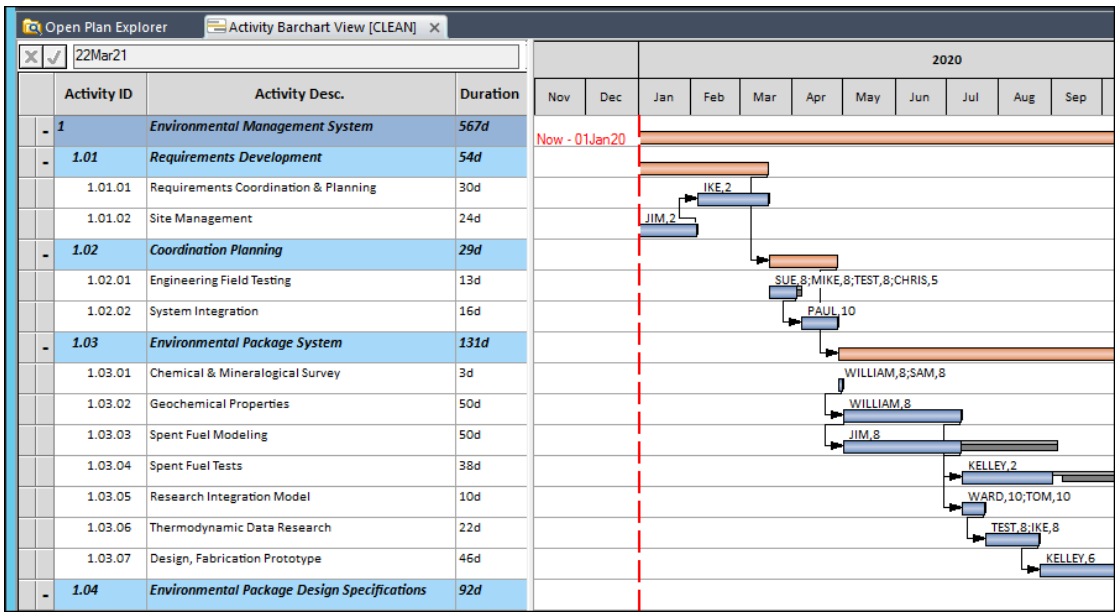
One of the principle views you will use in Open Plan is the barchart view. This contains a spreadsheet-style table to the left, and a Gantt chart to the right. Both the spreadsheet and the Barchart are highly configurable. You will learn the basics of this configurability in these next sections.

2.2.1 Activity: Basic View Configuration

1. In the **Open Plan Explorer**, right-click and **Open** the **CLEAN** project in **Default** access mode.

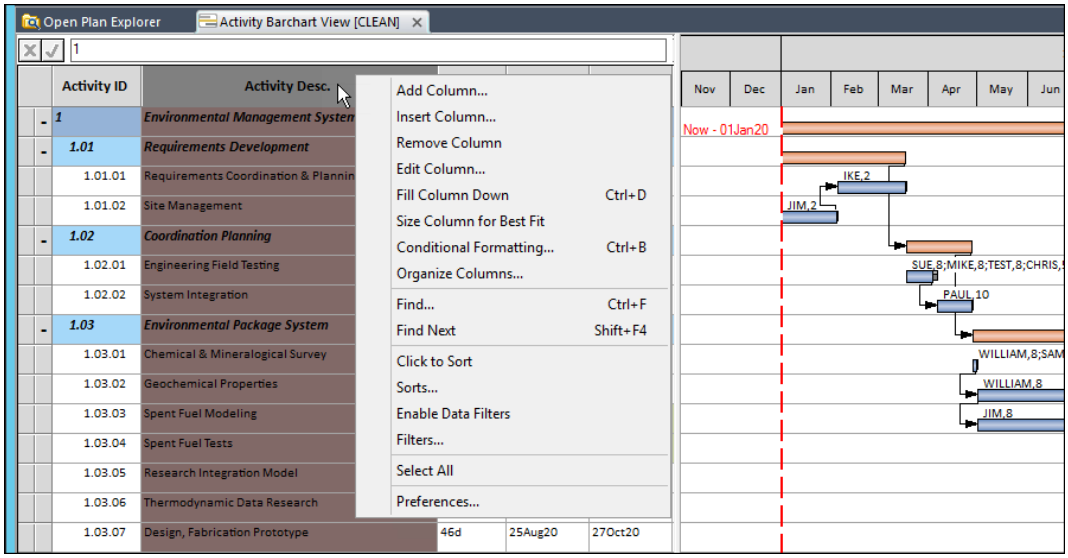


This action opens the **Activity Bartchart View**.



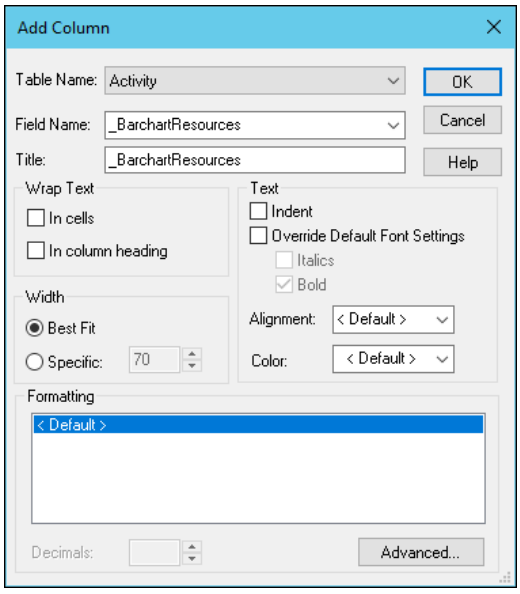
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2. Starting with spreadsheet configuration, right-click on the **Activity Desc. Column** header.



Make note of the functions available to you in the spreadsheet right-click menu.

3. Click on the **Add Column…** option.

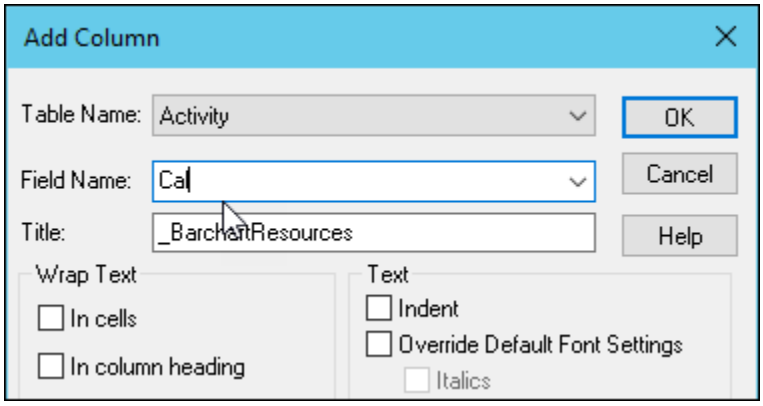


The **Add Column…** and the **Insert Column…** dialogs are identical, as is their purpose. Use these dialogs to select a field, user field, calculated field or filter and add/insert it as a new column in the spreadsheet table area.

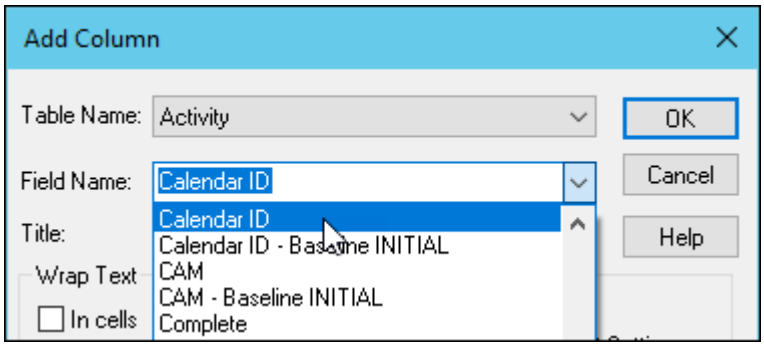
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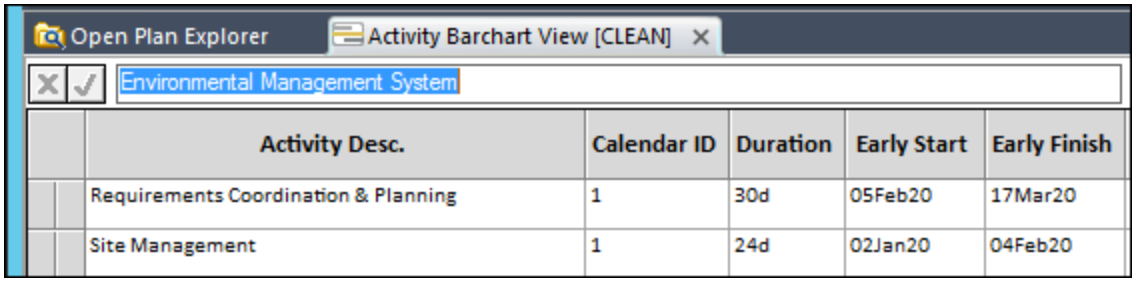
4. Click on the **Field Name:** field and type “cal”.



5. Now click the **Drop-down** and choose **Calendar ID**.



6. Click **OK**.

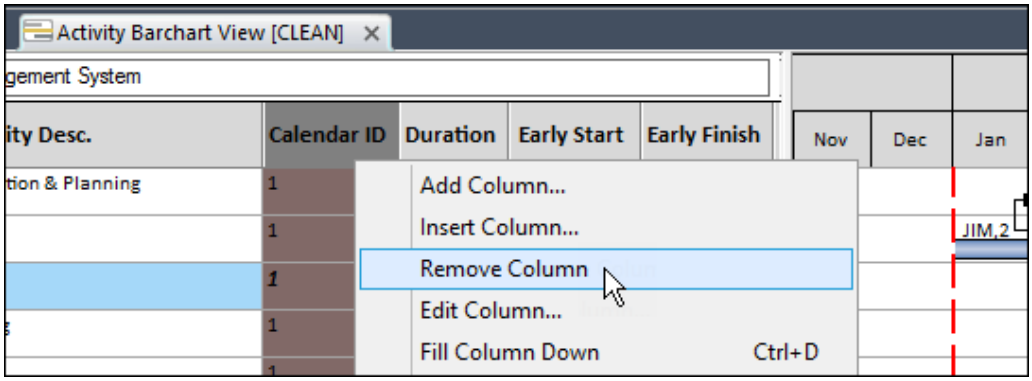


The **Calendar ID** field is now placed to the right of the selected **Activity Desc.** field. This field shows what calendars are assigned to specific activities. It is possible in Open Plan to have different calendars on different activities within a project.

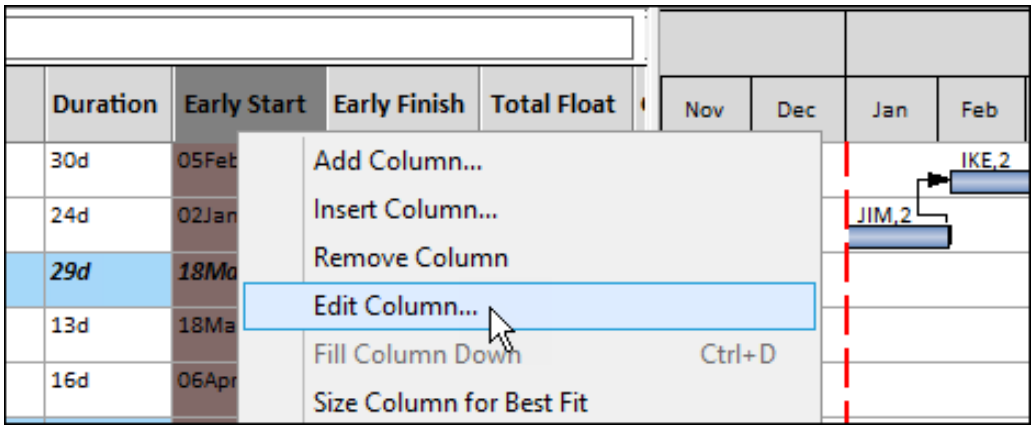
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7. Right-click on the **Calendar ID** column header and choose the **Remove Column.**



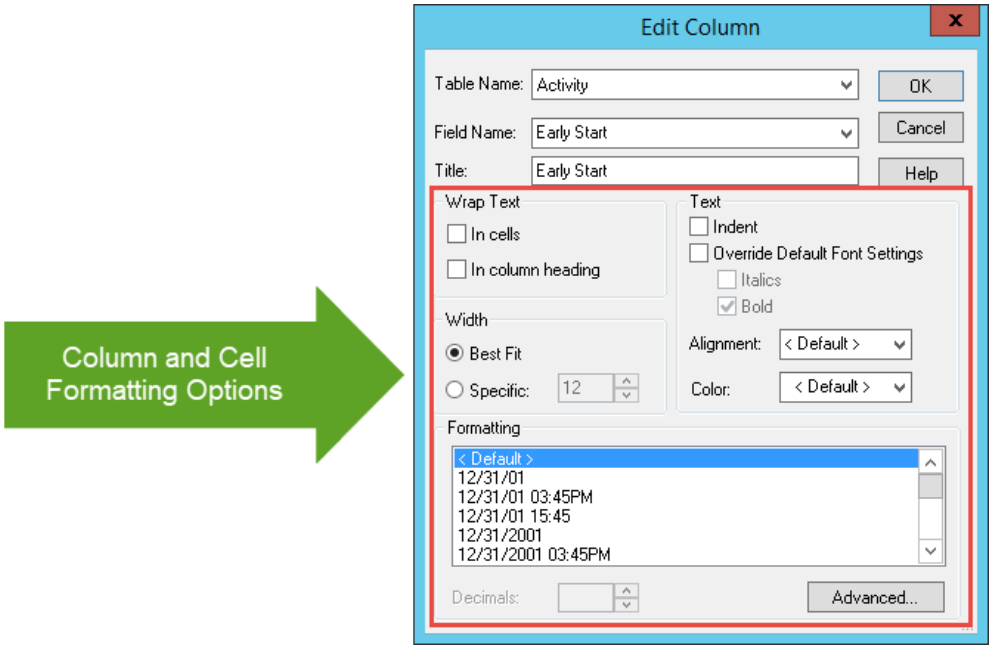
8. Right-click on the **Early Start** column and select the **Edit Column…**



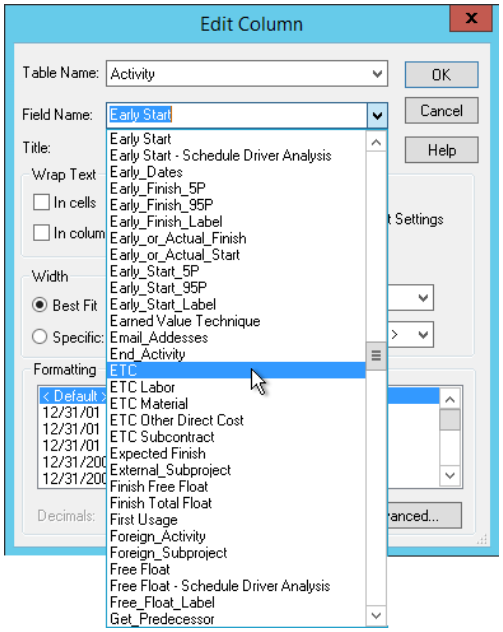
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9. In the **Edit Column** familiarize yourself with the formatting capabilities.



10. Click on the **Field Name:** dropdown and select a different field, e.g.: **ETC**. **Note:** the Early Start column will be restored at the end of this activity.



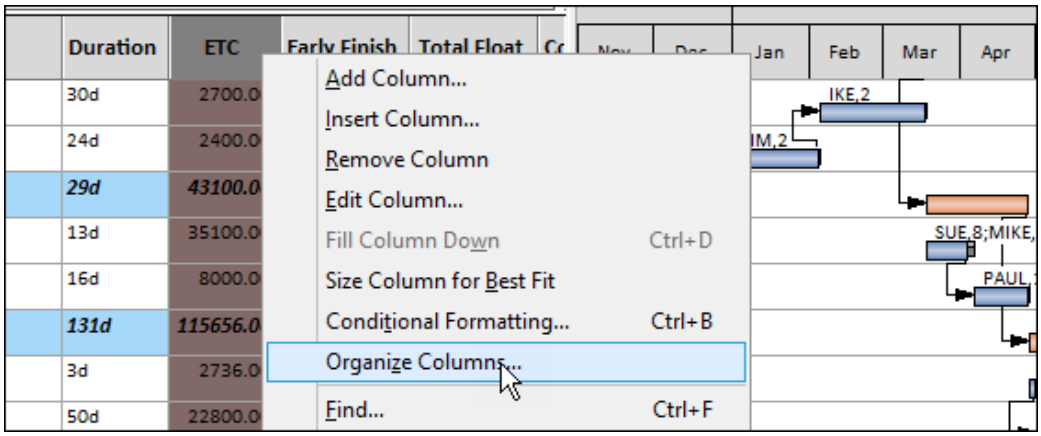
You can use the **Edit Column** dialog to change the column to a different field.

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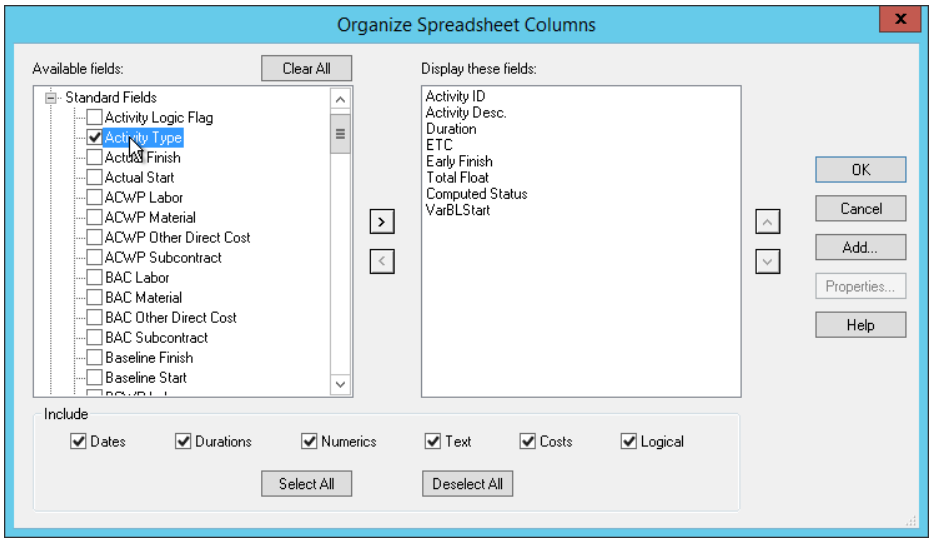
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11. Click **OK**.

12. Right-click on any of the column headers and select the **Organize Columns…**



13. In the **Organize Spreadsheet Columns** drill down into the **Standard Fields** group and select the **Activity Type** field in the **Available Fields** list.

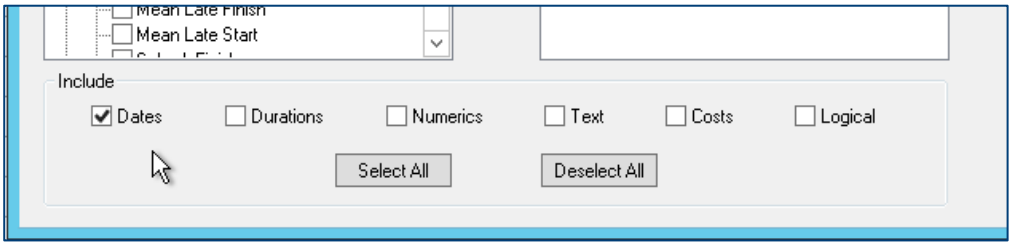


14. Move the field to the '**Display these fields:**' list by either double-clicking or using the arrow button.

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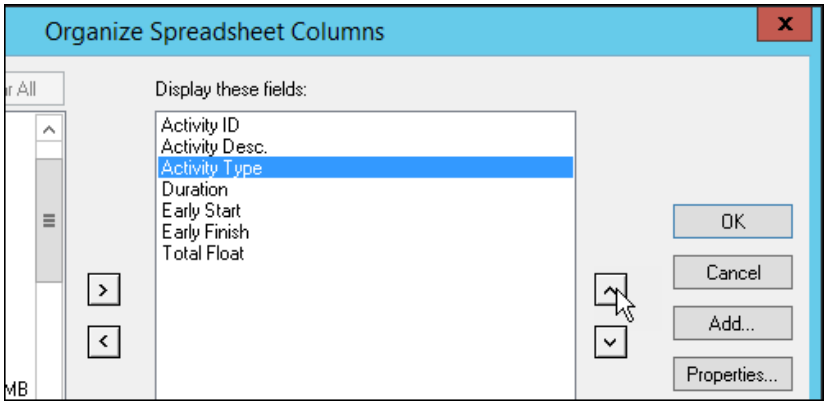
15. Also replace the **ETC** field with the **Early Start** field.

    Tip: Use the check boxes at the bottom of the **Organize Spreadsheet Columns** dialog to reduce the lists to just the data type you are looking for: e.g. Dates.



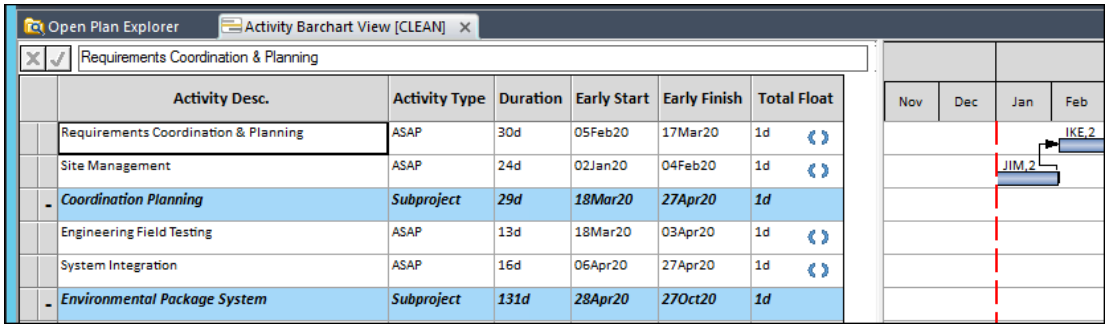
16. Remove the **Computed Status** field with a double-click or the arrow button.

17. Now use the **Up** and **Down** arrows to organize the fields as follows:



18. Click **OK**.

19. Review the results back in the barchart table area.



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2.2.2 Activity: Conditional Formatting

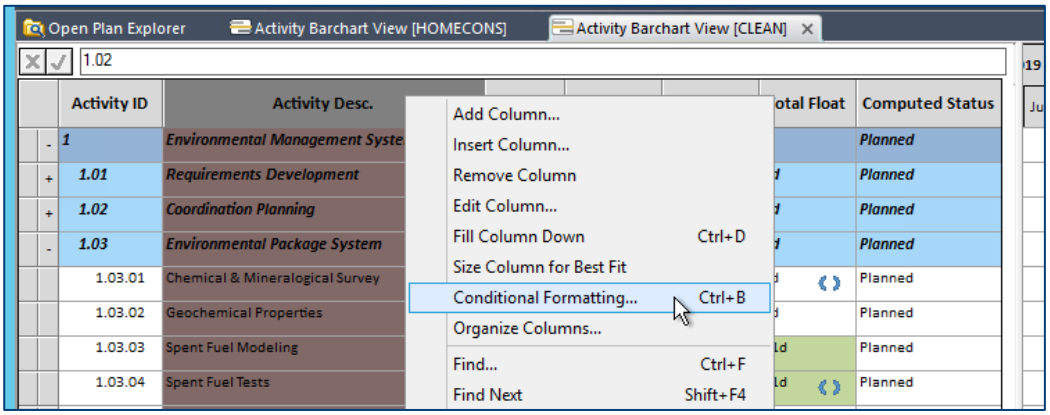
The appearance of the table area in the spreadsheet is determined by the Conditional Formatting function.

The following exercises will help you better understand how conditional formatting controls the appearance of spreadsheet table. The color of the rows, the color of the text, the color of cells, the symbols and alignment are all controlled by conditional formatting settings.

	Activity ID	Activity Desc.	Duration	Early Start	Early Finish	Total Float	Computed Status
-	*1*	*Environmental Management System*	*567d*	*02Jan20*	*08Mar22*	*0*	*Planned*
+	*1.01*	*Requirements Development*	*54d*	*02Jan20*	*17Mar20*	*1d*	*Planned*
+	*1.02*	*Coordination Planning*	*29d*	*18Mar20*	*27Apr20*	*1d*	*Planned*
-	*1.03*	*Environmental Package System*	*131d*	*28Apr20*	*27Oct20*	*1d*	*Planned*
	1.03.01	Chemical & Mineralogical Survey	3d	28Apr20	30Apr20	1d	Planned
	1.03.02	Geochemical Properties	50d	01May20	09Jul20	1d	Planned
	1.03.03	Spent Fuel Modeling	50d	01May20	09Jul20	41d	Planned
	1.03.04	Spent Fuel Tests	38d	10Jul20	01Sep20	41d	Planned
	1.03.05	Research Integration Model	10d	10Jul20	23Jul20	1d	Planned
	1.03.06	Thermodynamic Data Research	22d	24Jul20	24Aug20	1d	Planned
	1.03.07	Design, Fabrication Prototype	46d	25Aug20	27Oct20	1d	Planned
-	*1.04*	*Environmental Package Design Specifications*	*92d*	*28Oct20*	*08Mar21*	*1d*	*Planned*
	1.04.01	Environmental Package Design Construction	60d	28Oct20	21Jan21	1d	Planned
	1.04.02	Container Fabrication Development	32d	22Jan21	08Mar21	1d	Planned
-	*1.05*	*Site Investigations*	*50d*	*09Mar21*	*17May21*	*1d*	*Planned*
	1.05.01	Site Investigation Integration	2d	09Mar21	10Mar21	1d	Planned

1. Go to the **Open Plan Explorer** and open the **CLEAN** project.

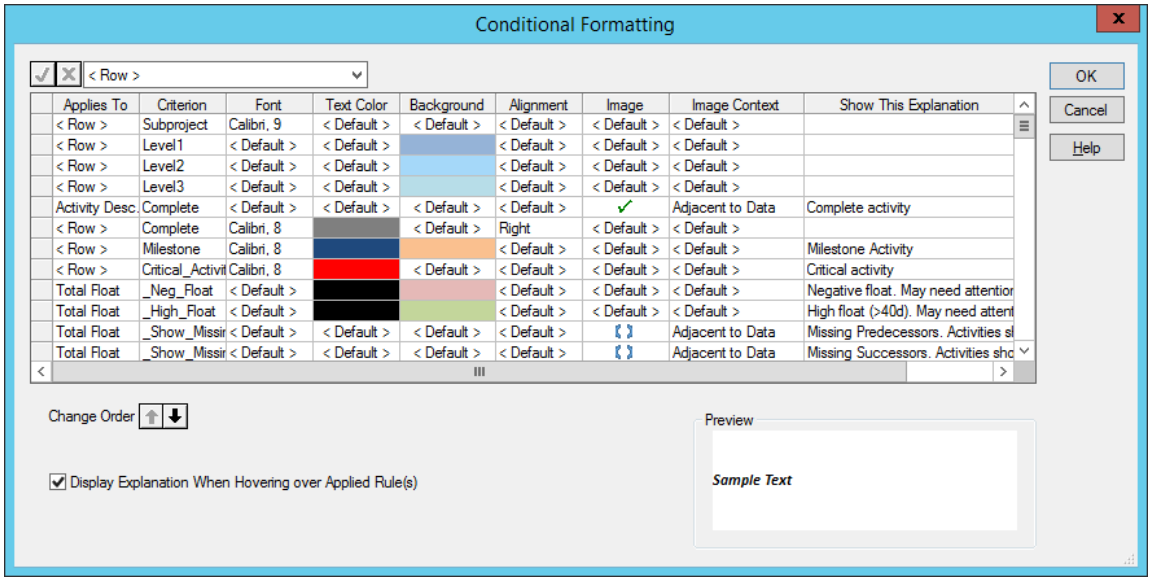
2. Now right-click on any column header and choose the **Conditional Formatting…** option or click **Ctrl + B**.



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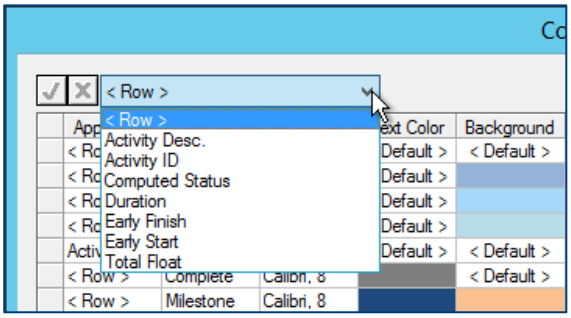
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3. Take a look at the columns and their settings to understand how the rows and columns control the appearance for the spreadsheet.



Let's take a look at the columns and their settings.

4. Click on one of the **Applies To** cells and then click the dropdown field.



Applies To – this column has a standard setting of <Row>, so that settings can be applied to the entire row, and also includes a list of any of the currently open columns in the spreadsheet. This allows you to determine what item you are going to format.

5. Click on one of the **Criterion** cells and then click the dropdown or the ellipse to see a list of filters. These filters set the conditions that the conditional formatting criteria are looking for, and when met, place the settings on the row on those activities in the table.

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6. Click **Cancel** to close the **Filter** list.

7. Now look at the remaining columns, the settings that will apply to the item in the **Applies To** when the **Criterion** are met:

Applies To	Criterion	Font	Text Color	Background	Alignment	Image	Image Context	Show This Explanation
< Row >	Subproject	Calibri, 9	< Default >	< Default >	< Default >	< Default >	< Default >	
< Row >	Level1	< Default >	< Default >		< Default >	< Default >	< Default >	
< Row >	Level2	< Default >	< Default >		< Default >	< Default >	< Default >	
< Row >	Level3	< Default >	< Default >		< Default >	< Default >	< Default >	
Activity Desc	Complete	< Default >	< Default >	< Default >	< Default >	✓	Adjacent to Data	Complete activity
< Row >	Complete	Calibri, 8		< Default >	Right	< Default >	< Default >	
< Row >	Milestone	Calibri, 8			< Default >	< Default >	< Default >	Milestone Activity

Font – applies the font settings for the item listed.
Text Color – applies the selected item.
Background – background color for the cell or row.
Alignment – allows a wmf or emf image file to be placed in the cell.
Image Context – allows you to place the image left, right, or center cell.
Show this Explanation – allows you to put an explanation of the formatting in a popup message in the spreadsheet table.

8. **Close** the **Conditional Formatting** dialog.

In later chapters we will be making specific changes to the conditional formatting of spreadsheet tables. Now let's turn our attention to the barchart side of the view.

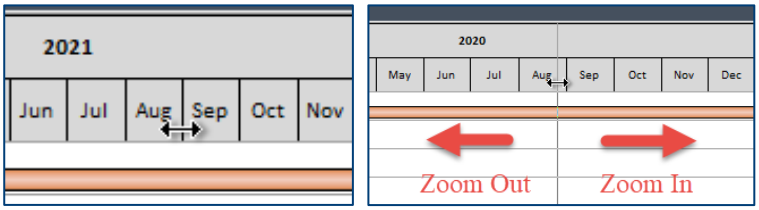
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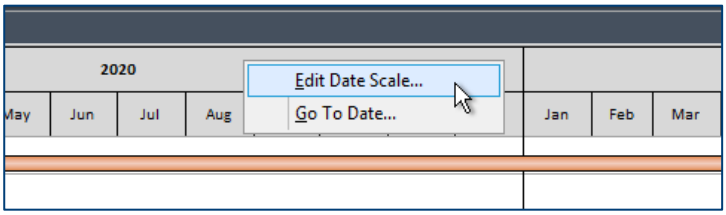
2.2.3 Activity: Timescale Adjustment

The **Barchart** timescale can be manipulated interactively with the mouse cursor, or through the use of **Edit Date Scale…** dialog.

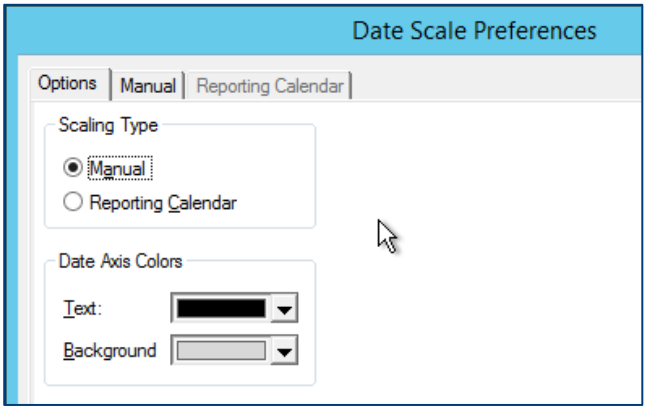
1. Place your cursor on any position in the timescale at the top of the barchart. When the horizontal arrow appears you can click and drag to the right to zoom in to the barchart.



2. Right-click on the timescale and select the **Edit Date Scale…** option in the menu.

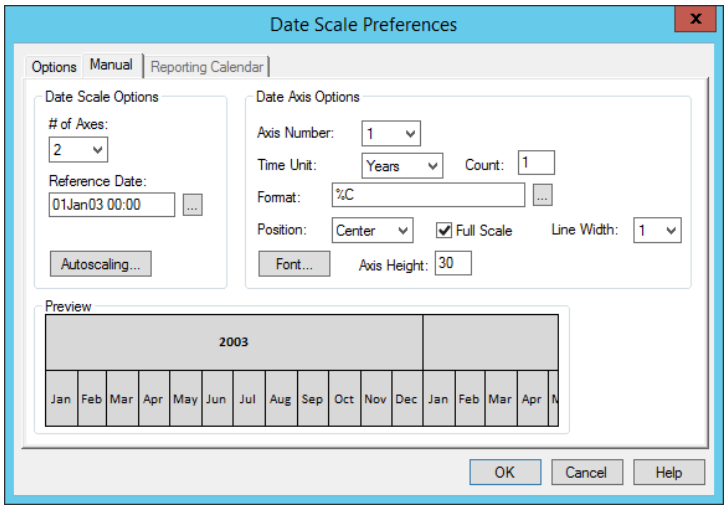


3. In the **Options** tab you can select the **Scaling Type** of **Manual** or **Reporting Calendar**.

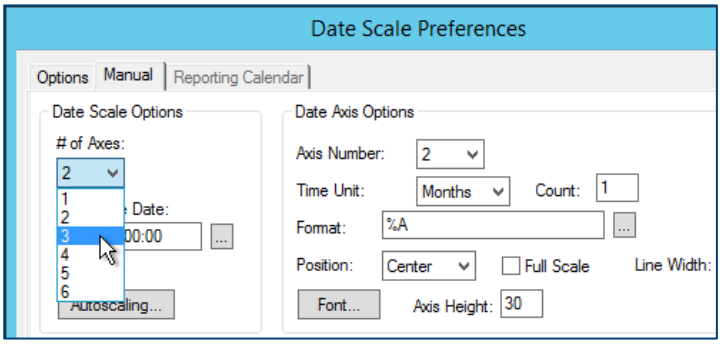


4. Click on the **Manual** tab.

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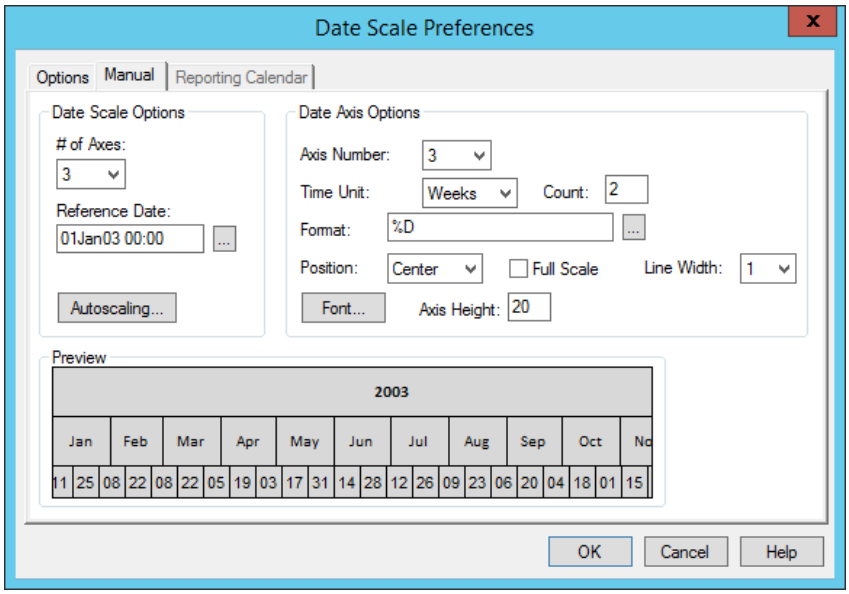


5. Click on the **# of Axes** field and select **3** from the list.

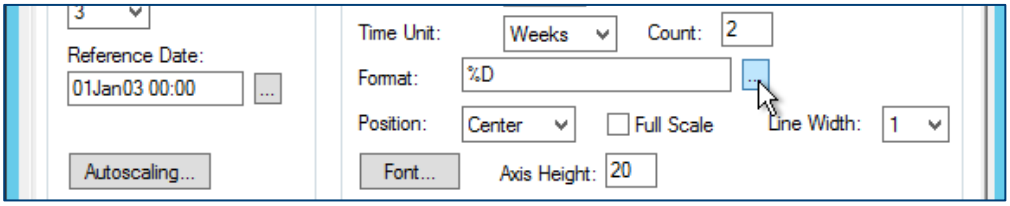


6. Note the change on the right in the **Date Axis** options. The **Axis Number** field is now displaying three. And if you look at the preview window, you can see that a third axis tier for ‘weeks’ has been added.

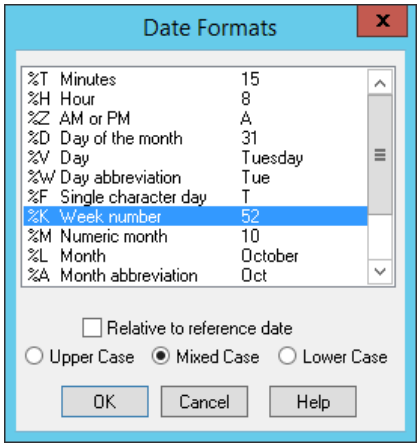
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7. Click on the **Ellipse** to the right of the **Format** field.



8. Look at the date formatting options and select the **Week Number (%K)**.

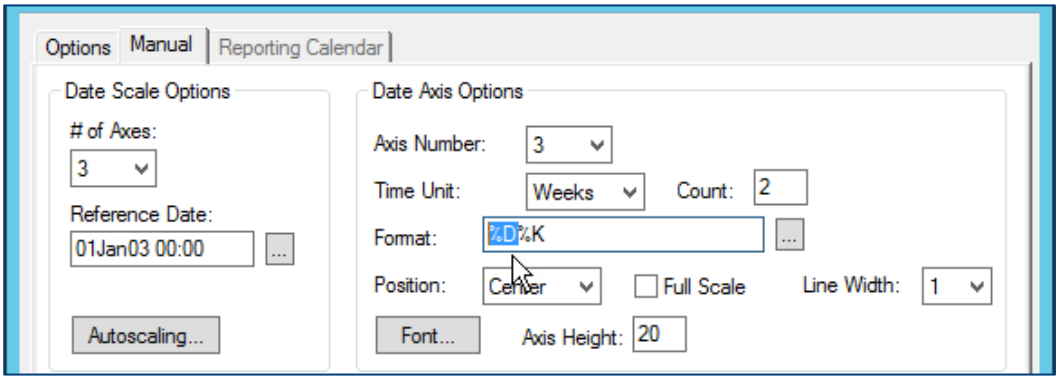


9. Click **OK**.

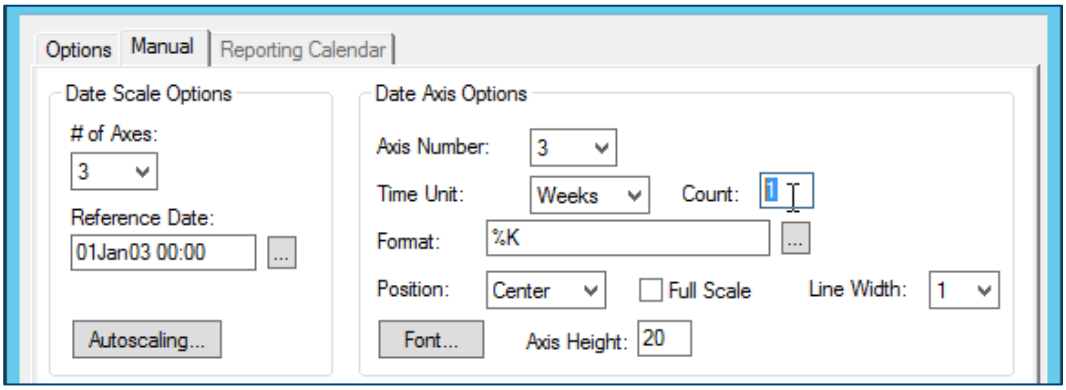
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10. Remove the **%D** from the field by selecting it with the cursor and using backspace or delete (date format selections are cumulative).

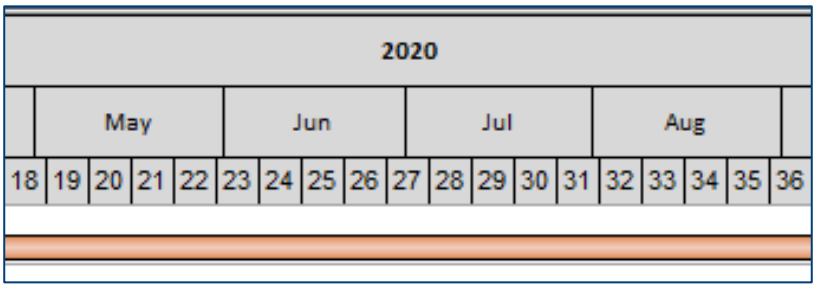


11. Now set the **Count** field to **1**.



12. Click **OK** to close the **Date Scale Preferences** dialog.

13. Review the changes to the barchart date scale.



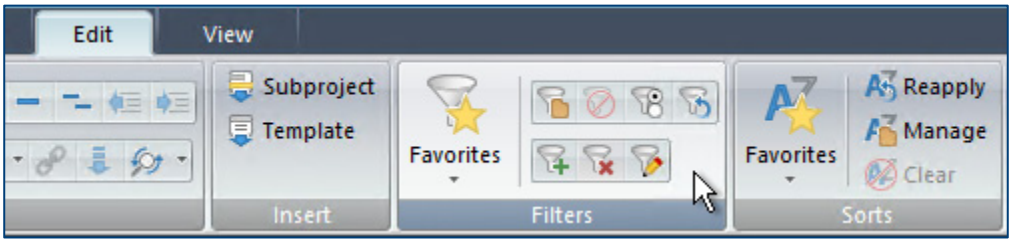
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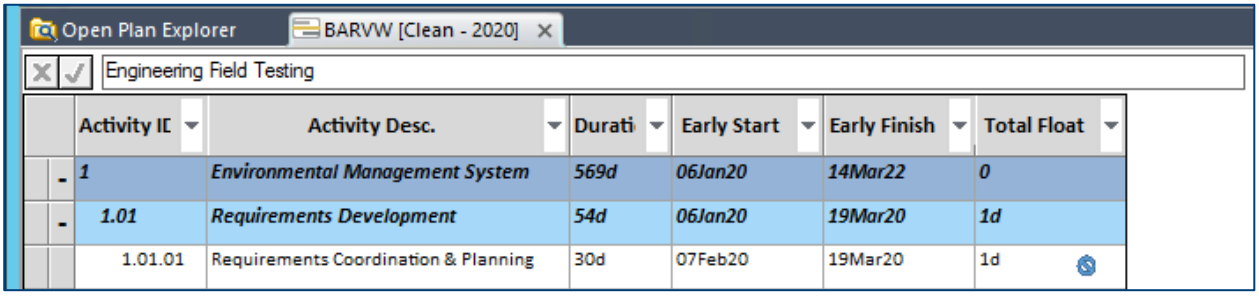
2.3 Filters

Whenever we are dealing with project schedules that are more than a couple of dozen activities, the use of filters becomes imperative. Open Plan has the ability to create filters, and then employ them as required to reduce the data displayed in any of the views.

When you have a view open, the Edit ribbon will display and you will see the Filters tool group as shown below.



You also have the option to engage the 'Data Filters' feature, available in Open Plan 8.6 or later. This provides spreadsheet-like filtering options when a column header 'down arrow' is clicked.



The Data Filters functionality is covered at the end of this section.

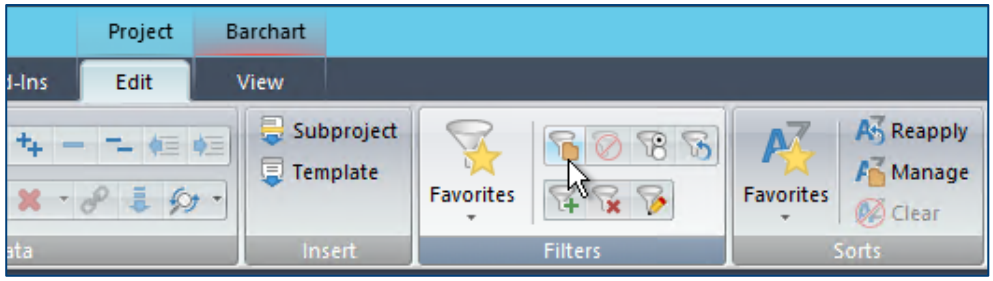
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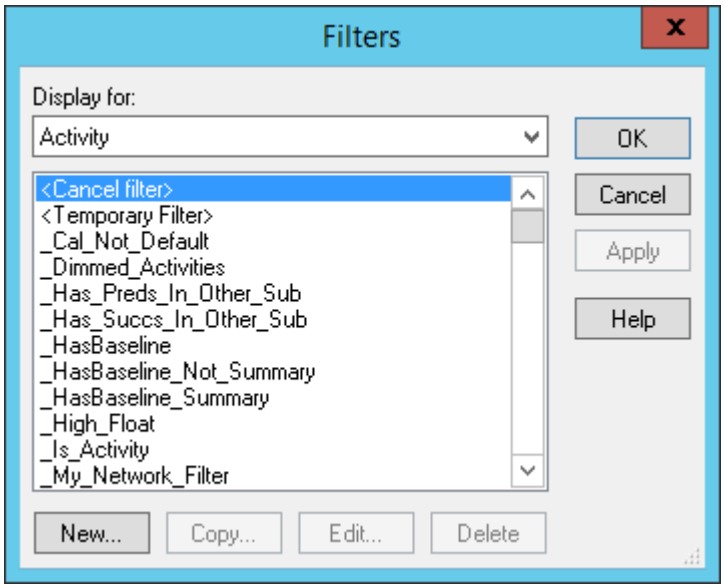
2.3.1 Activity: Creating a Filter

Using the **CLEAN** project, let's look at creating a simple filter.

1. Click on the **Create, Edit, Delete,** or **Apply** filter button.

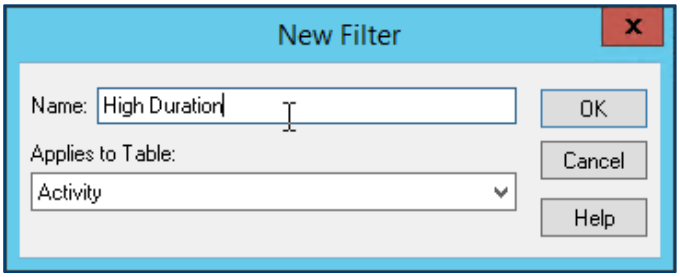


2. In **Filters**, click the **New…** button. Note that you can select from a list of existing filters also in this dialog. And any filters you create will be added to that list for future selection.



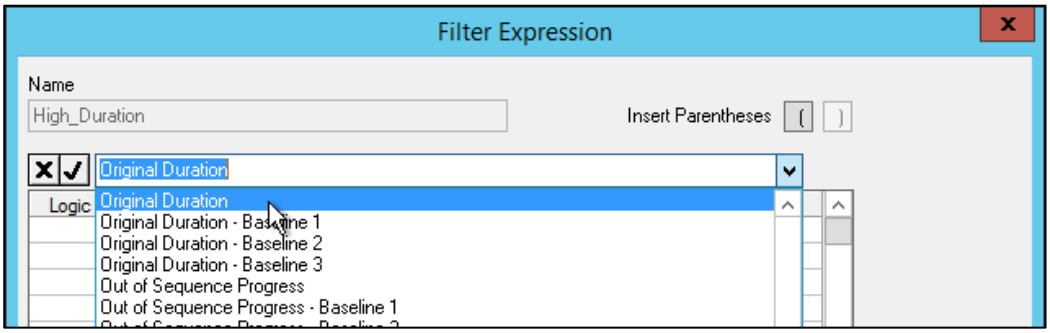
3. In the **New Filter** dialog, enter **High Duration** in the **Name** field.

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4. Click **OK**.

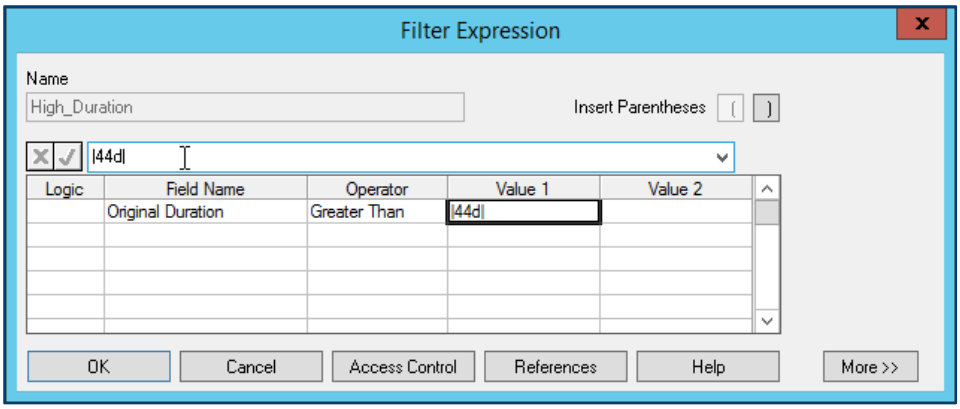
5. In the **Filter Expression** dialog, use the field above the table to enter values for the selected cells below.



6. Enter the following:

   Field Name: Original Duration
   Operator: Greater Than
   Value 1: |44d|

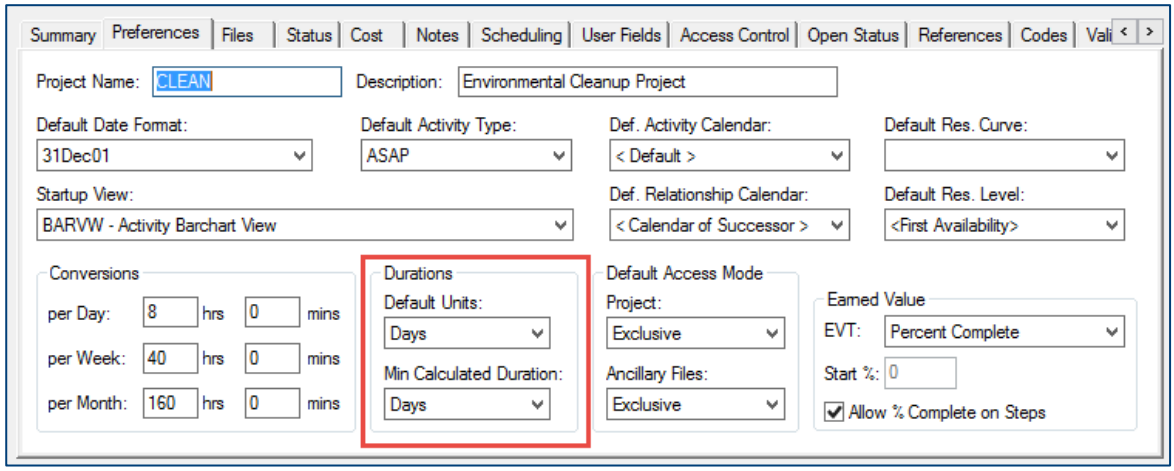
   Expression: **ORIG_DUR > |44d|** Tip: paste this into the More >> Expression field.



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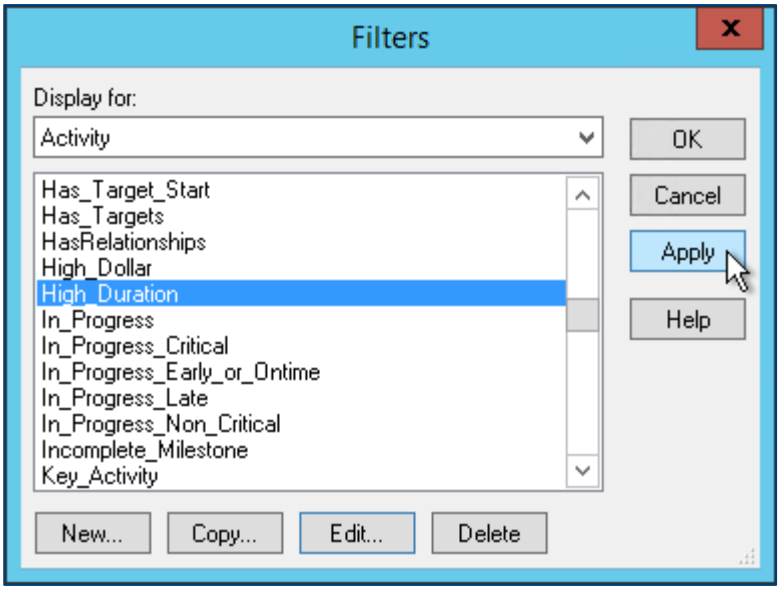
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Note how the duration in Value 1 is set between two pipe symbols. It also includes a ‘d’ suffix. You can use a suffix to ensure clarity and to override any potential default duration setting in the Preferences settings of the Project Properties dialog. Valid suffixes are m, w. d, h, and t.



7. Click **OK**.

8. In the **Filters** dialog, verify your new filter is selected in the list.



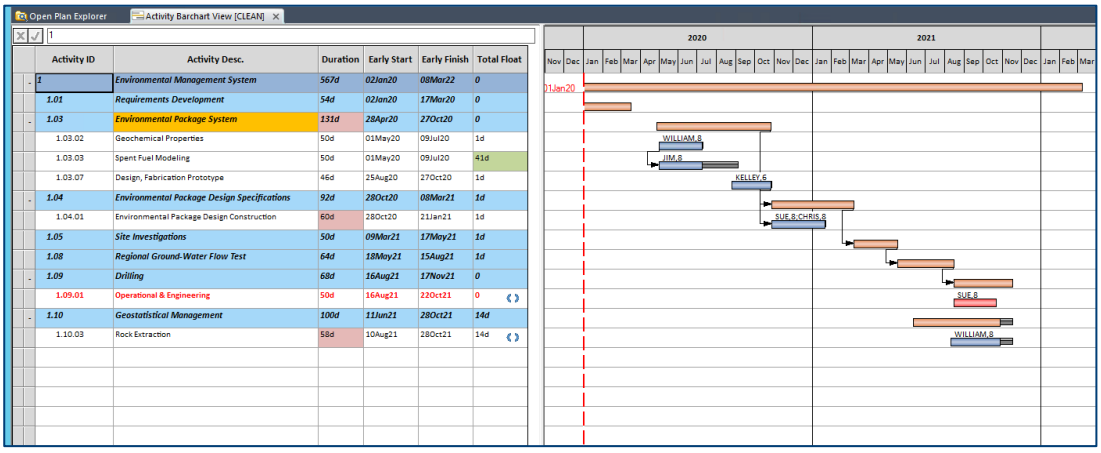
9. Click the **Apply** button.

10. Click **OK**.

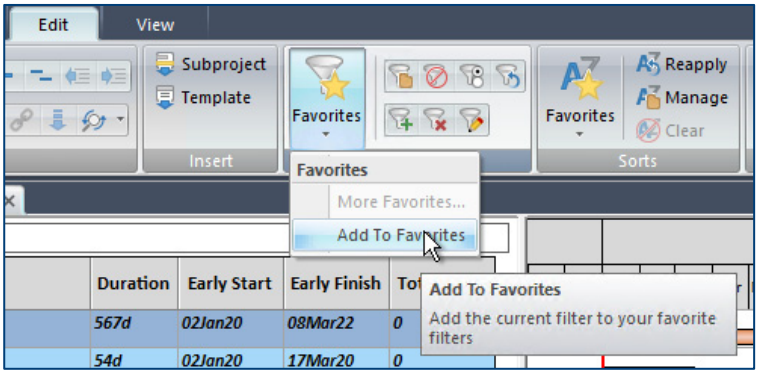
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11. Note the changes to your **Activity Barchart View**.



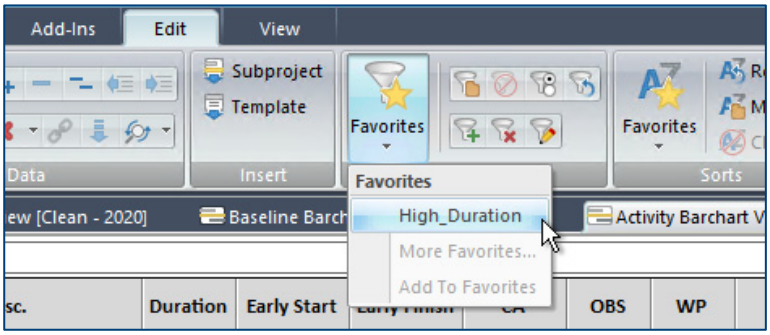
12. Now click on the **Filter | Favorites** button and select **Add to Favorites** in the list.



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13. This makes the filter available in the **Favorites** list for easier future access. This favorites is saved against your user login, so will be available to you personally.



Note: Open Plan allows users to identify their favorite views, sorts, and filters to make it easy to access and use them. Favorites are stored for each user. While views, sorts, and filters can be backed up by Open Plan, your list of favorites cannot be backed up, as it is a convenient way of accessing the objects.

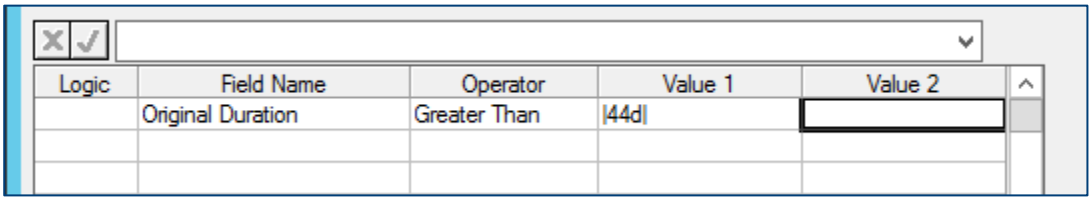
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2.4 Other Filter Expression Rules

The following screen shots are examples of how to properly enter filter expressions for such things as dates, lists, and Boolean (yes, no, or 0, 1) data fields or values.

Duration values should be entered between pipe symbols | | (as seen in previous exercise)



Logic	Field Name	Operator	Value 1	Value 2
	Original Duration	Greater Than	|44d|	

Above we can see the duration in pipes with the ‘d’ suffix for days. Other valid suffix are:

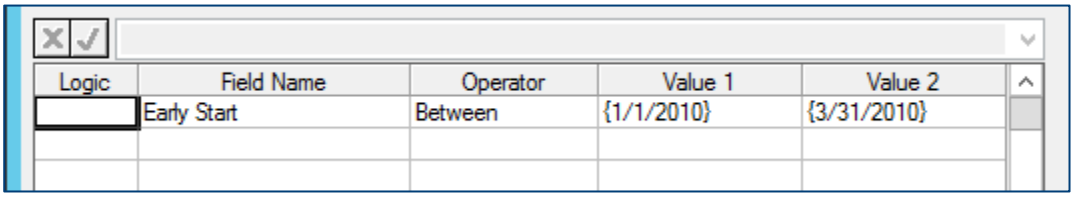
m = Month

h = Hour

w = Week

t = Minute

When entering literal dates, enclose the value in curly brackets {}. In this example a date range has been specified for a 3 month look ahead filter.

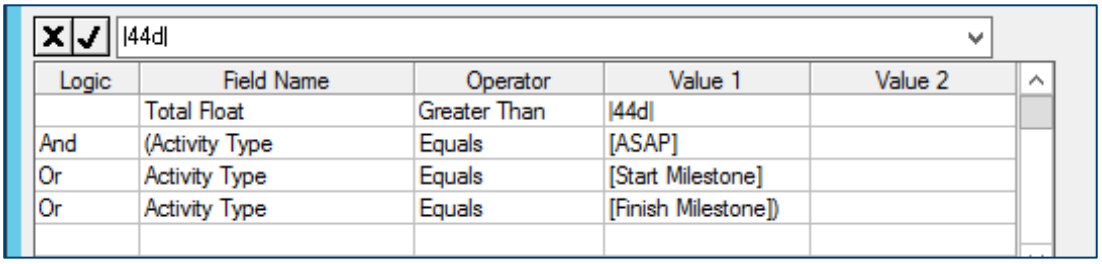


Logic	Field Name	Operator	Value 1	Value 2
	Early Start	Between	{1/1/2010}	{3/31/2010}

Enumerated (listed) or Boolean values should be enclosed in square brackets []. In this example, the Activity Type field contains a list of values and square brackets are being used to call these out.

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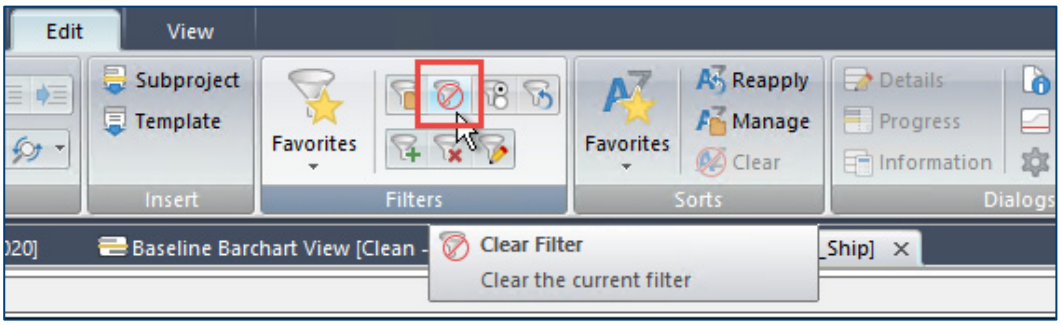
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2.4.1 Activity: Clearing your Filters

To remove a currently selected filter:

1. Click on the **Clear Filter** button on the **Edit** Ribbon.



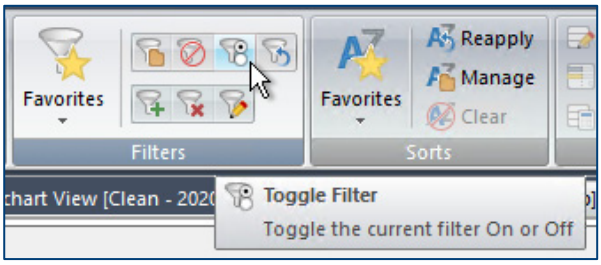
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2.4.2 Activity: Toggle Filter Button

You can toggle a filter on or off without having to reselect it each time. To do this:

1. Click on the **Toggle Filter** button.



   If no Filter is currently selected, this toggle will re-engage the previously selected filter (during a particular session). If a filter has not been selected during this session, then nothing happens.

2. Click the Toggle Filter button to alternately select and de-select the current filter. This can be helpful for comparisons or to see related activities without having to actually clear the filter.

2.4.3 Reapply Filter and Sort Button

The Reapply Filter and Sort button is a convenient way to engage a previously used filter and sort criteria. If you've recently used the Clear Filter button, this will re-engage the filter last used, along with any sort criteria that was selected.

Again, this option will only work for filters and sorts opened in the current session. If you have just logged in to Open Plan, the button will not engage a filter or sort.

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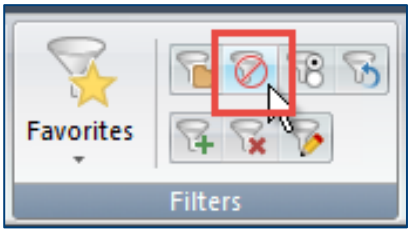
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2.4.4 Activity: Add To Filter Button

As its name suggests, this button allows you to create an on-the-fly filter based upon a selected cell in the table. It will also augment a selected filter with a new value selection.

Follow these next steps to understand how this works.

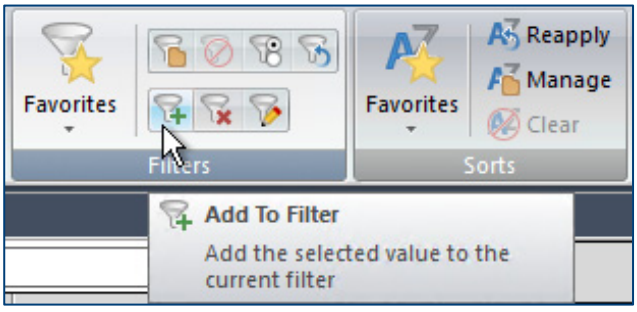
1. Clear any currently selected filters.



2. Using the **CLEAN** project, select one of the **Duration** cells that equals **50d**.

	Activity ID	Activity Desc.	Duration	Early Start
	1.03.01	Chemical & Mineralogical Survey	3d	28Apr20
	1.03.02	Geochemical Properties	50d	01May20
	1.03.03	Spent Fuel Modeling	50d	01May20

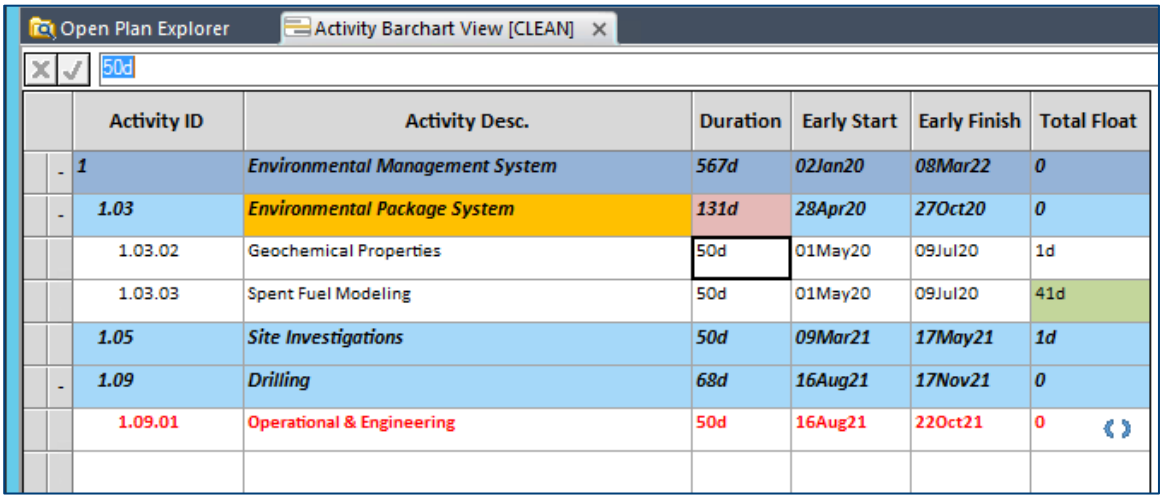
3. Now click the **Add To Filter** button.



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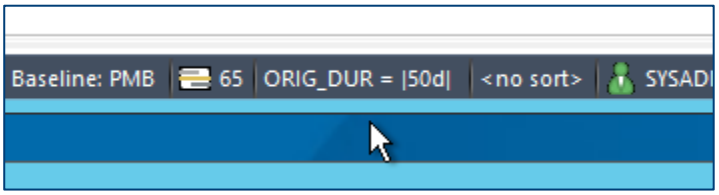
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4. Note how only activities with a 50d duration remain in the table.



Activity ID	Activity Desc.	Duration	Early Start	Early Finish	Total Float
1	Environmental Management System	567d	02Jan20	08Mar22	0
1.03	Environmental Package System	131d	28Apr20	27Oct20	0
1.03.02	Geochemical Properties	50d	01May20	09Jul20	1d
1.03.03	Spent Fuel Modeling	50d	01May20	09Jul20	41d
1.05	Site Investigations	50d	09Mar21	17May21	1d
1.09	Drilling	68d	16Aug21	17Nov21	0
1.09.01	Operational & Engineering	50d	16Aug21	22Oct21	0

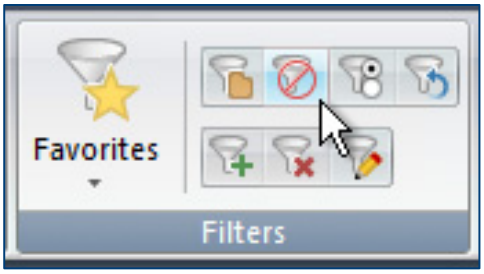
5. To better understand what just happened, go to the bottom of the Open Plan window and look on the status bar for details about the current filter.



The Filter section shows the currently applied filter. In this example it shows the filter criteria **ORIG_DUR = |50d|**. Open Plan has created an on-the-fly filter that is looking for just the activities that have a duration of exactly 50 days.

You can also run this feature when you have other filters engaged. This will have a cumulative effect on the data in the view.

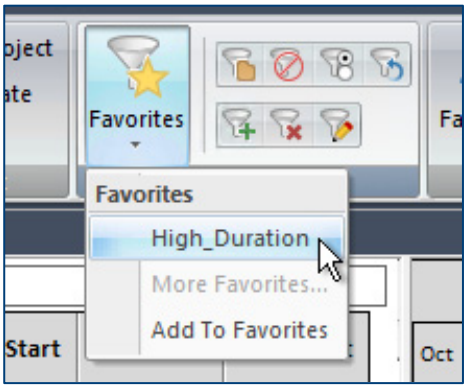
6. Click the **Clear Filters** button.



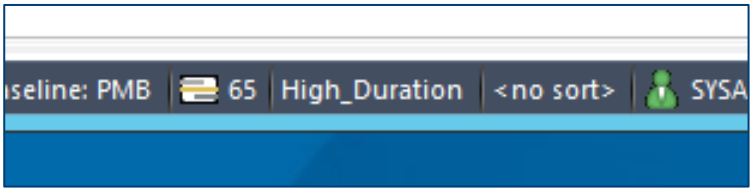
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7. Go to **Filter | Favorites** and choose the **High_Duration** filter once more.



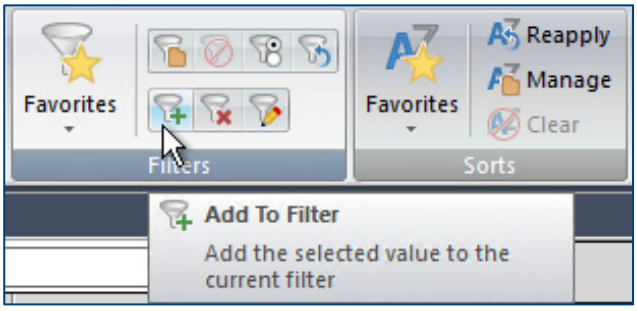
8. Look at the status bar at the bottom of the OPP window to see the filter listed.



9. Now select one of the **50d Duration** fields.

Activity Desc.	Duration	Early Start
Environmental Package System	*131d*	*28Apr20*
Geochemical Properties	50d	01May20
Spent Fuel Modeling	50d	ay20

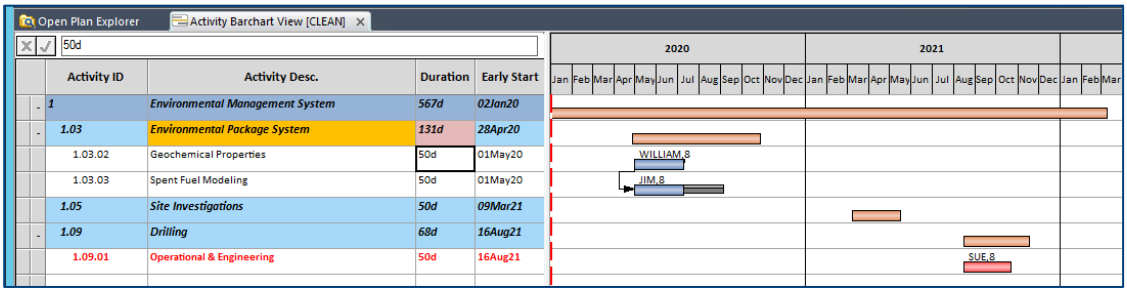
10. Now click on the **Add To Filter** button.



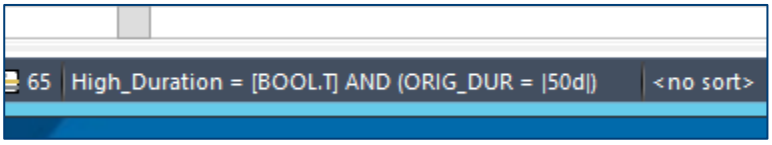
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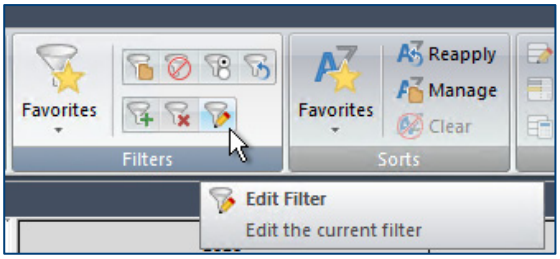
11. See how the 50d duration activities and their parent summaries are all that is left on the screen.



12. Now look at the status bar filter to see what occurred.



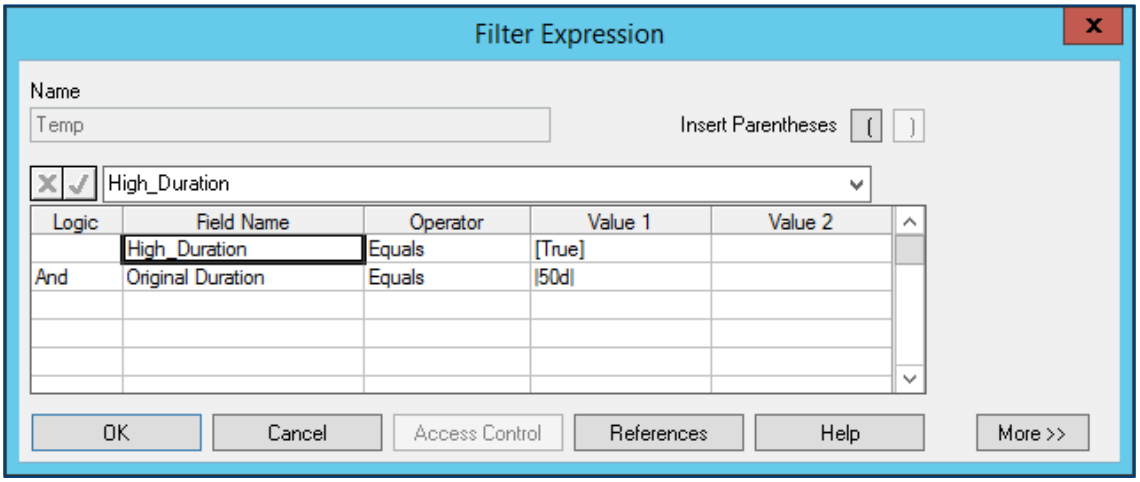
13. Now click on the **Edit Filter** button to see the temporary filter that is operating on your project data.



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14. Note how the selected **High_Duration** filter is marked as '**True**', hence '**High_Duration = BOOL.T**' in the status bar, and the additional expression **Original Duration = 50d**.



15. Click **OK**.

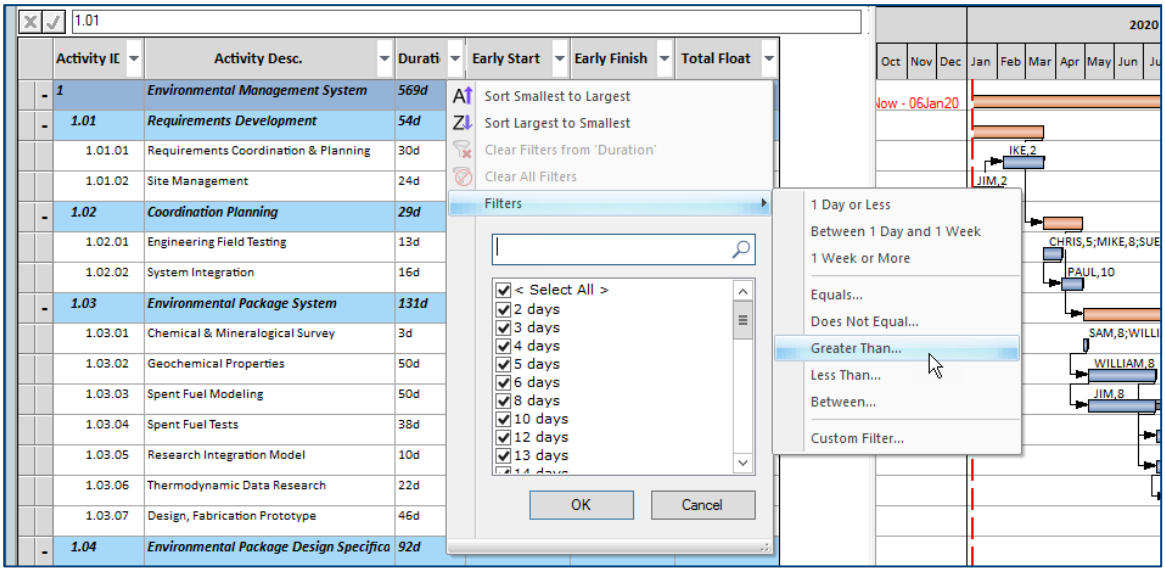
16. Click **Clear Filter**.

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2.5 Data Filters

For the more ad-hoc filtering needs, you can utilize the Data Filters tool. If you are already familiar with filters of this type in spreadsheets, then you will find this functionality very intuitive.



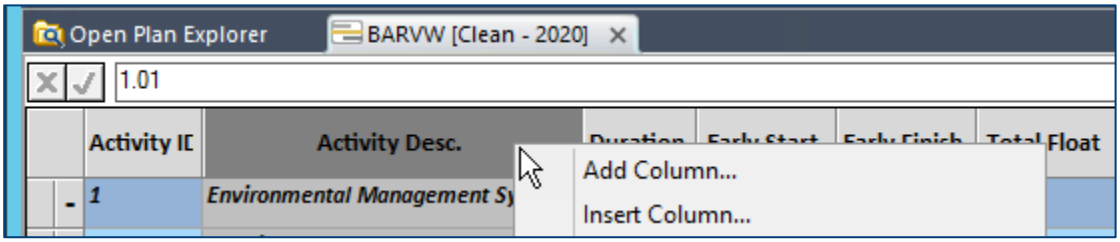
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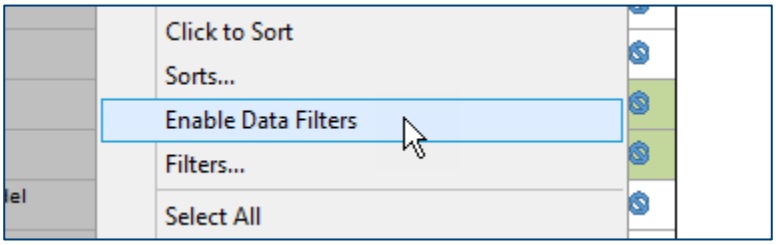
2.5.1 Activity: Using Data Filters

Follow these next steps to get familiar with using Data Filters.

1. Using the **CLEAN** project in the **BARVW** barchart view, right-click on any of the column headers in the table area.



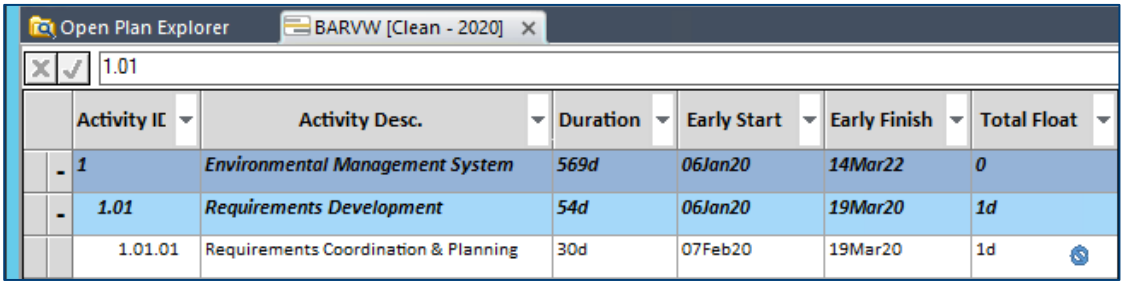
2. Select '**Enable Data Filters**' in the resulting menu.



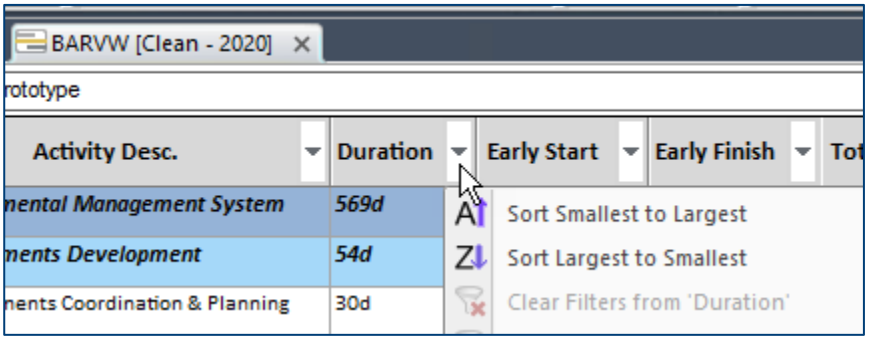
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3. Note the appearance of the arrow icons in the column headers.

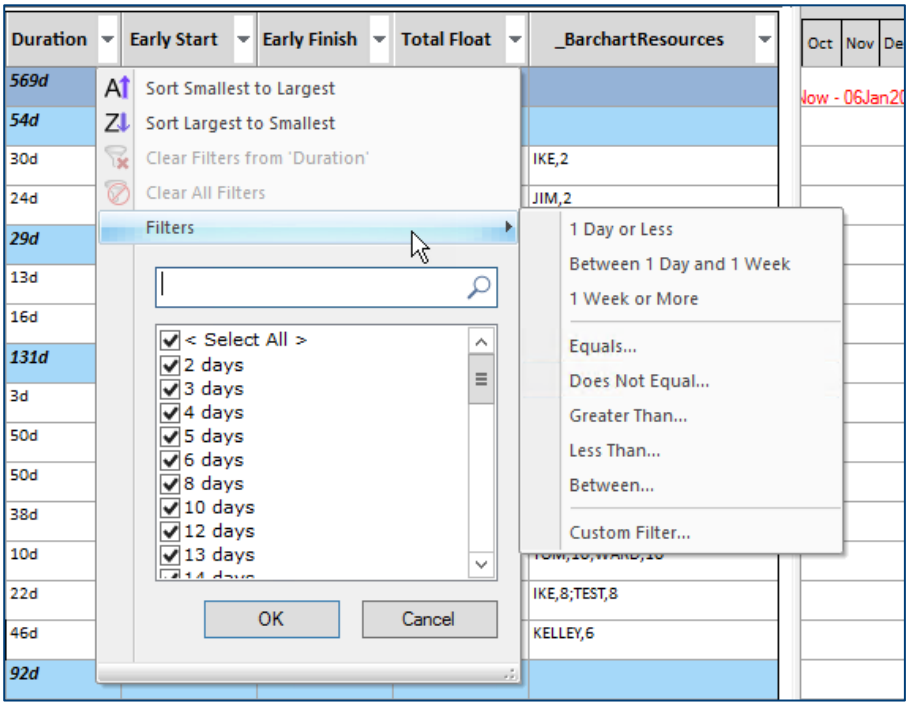


4. Click the **Duration** header arrow button.

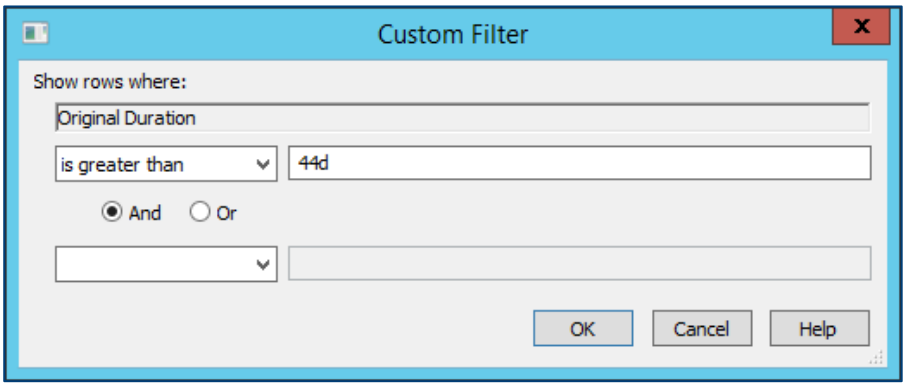


You now have the option to use the **Search** field, the field list, or both, to locate a value. Alternatively you can use the **Filters** submenu to quickly locate operators such as **Equals** or **Greater** Than.

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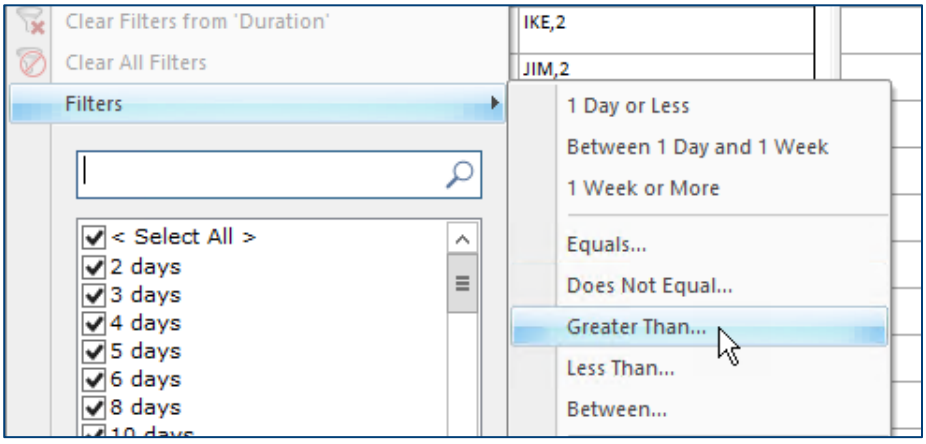


These options open the **Custom Filter** dialog. In here you can create temporary filters with up to two criteria to dynamically reduce the data list.

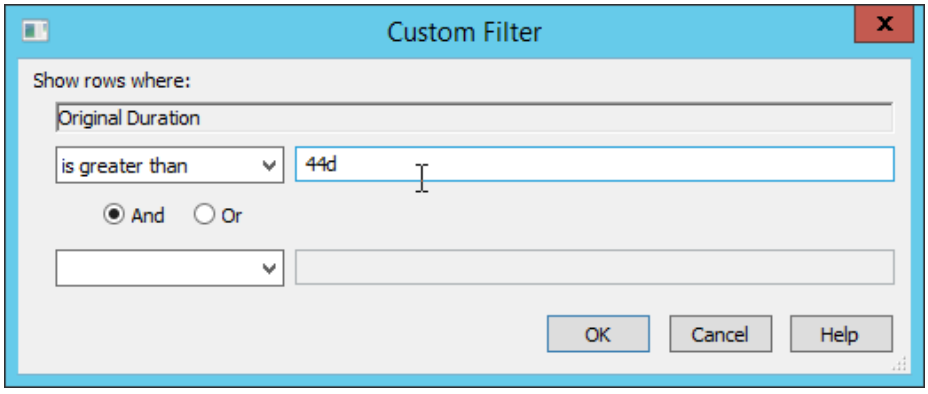


5. Click on the **Filters** option and choose **Greater Than**… from the submenu.

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6. In the value field, enter **44d**.

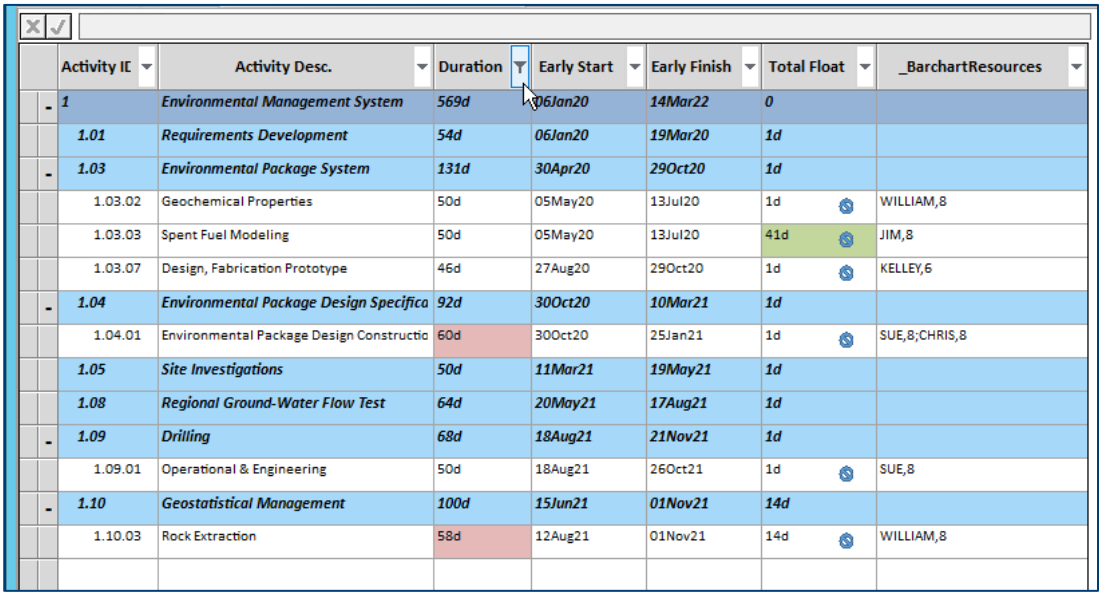


7. Click **OK**.

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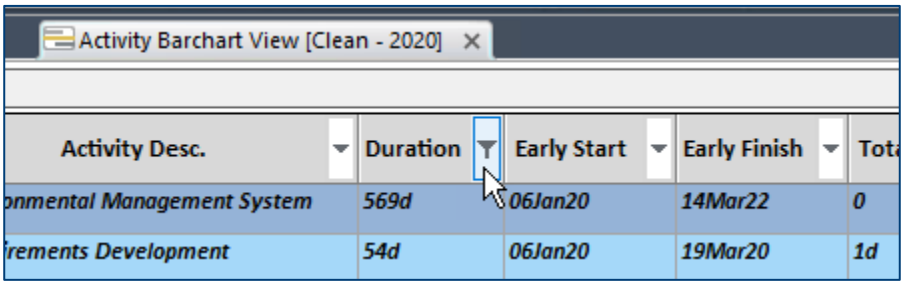
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8. Note the reduced list of activities and the filter icon now in place in the column header.

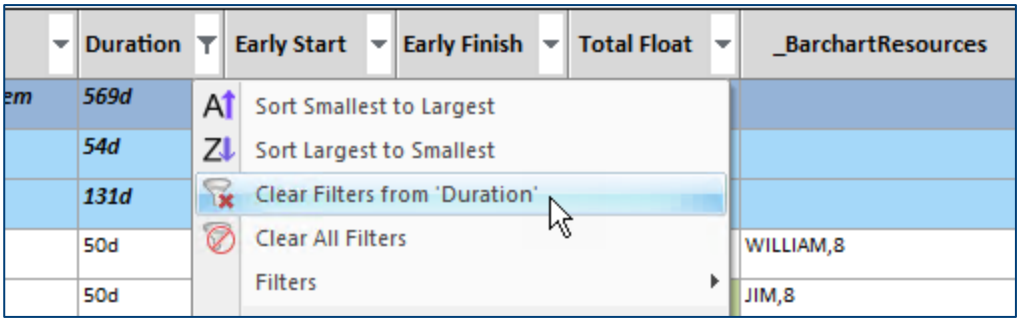


Activity ID	Activity Desc.	Duration	Early Start	Early Finish	Total Float	_BarchartResources
1	Environmental Management System	569d	06Jan20	14Mar22	0	
1.01	Requirements Development	54d	06Jan20	19Mar20	1d	
1.03	Environmental Package System	131d	30Apr20	29Oct20	1d	
1.03.02	Geochemical Properties	50d	05May20	13Jul20	1d	WILLIAM,8
1.03.03	Spent Fuel Modeling	50d	05May20	13Jul20	41d	JIM,8
1.03.07	Design, Fabrication Prototype	46d	27Aug20	29Oct20	1d	KELLEY,6
1.04	Environmental Package Design Specifica	92d	30Oct20	10Mar21	1d	
1.04.01	Environmental Package Design Constructio	60d	30Oct20	25Jan21	1d	SUE,8;CHRIS,8
1.05	Site Investigations	50d	11Mar21	19May21	1d	
1.08	Regional Ground-Water Flow Test	64d	20May21	17Aug21	1d	
1.09	Drilling	68d	18Aug21	21Nov21	1d	
1.09.01	Operational & Engineering	50d	18Aug21	26Oct21	1d	SUE,8
1.10	Geostatistical Management	100d	15Jun21	01Nov21	14d	
1.10.03	Rock Extraction	58d	12Aug21	01Nov21	14d	WILLIAM,8

9. To remove a filter from a column, click on the **Filter** button in the column header.



10. Choose the **Clear Filters from 'Duration'** option.



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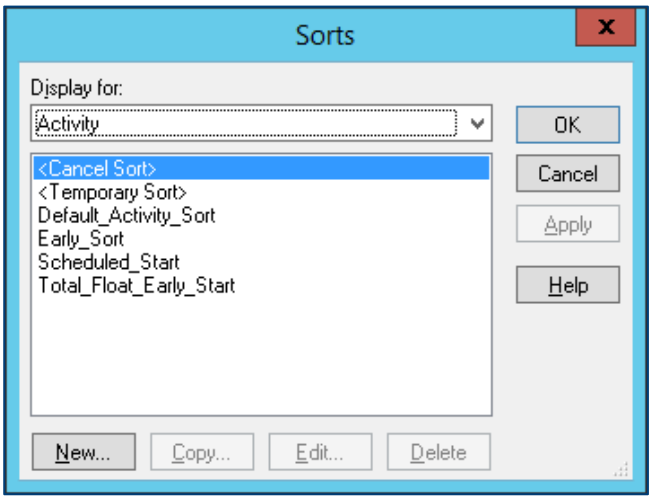
2.6 Sorts

You can create, edit, select, or delete a named sort using the Manage button in the Sorts tool group. Sorts allow you to arrange data in the table area by one or more columns. You can also select favorite sorts to apply to your views using the Favorites button.

2.6.1 Activity: Managing Sorts

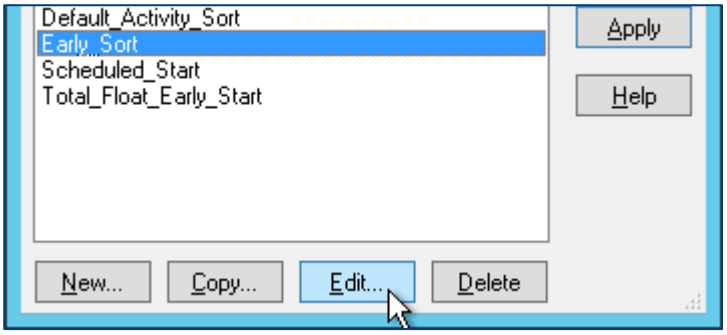
Let's take a look at how to create and manage sort criteria.

1. Click on the **Manage** button in the **Sorts** tool group.



2. Select the '**Early Sort**' option in the list.

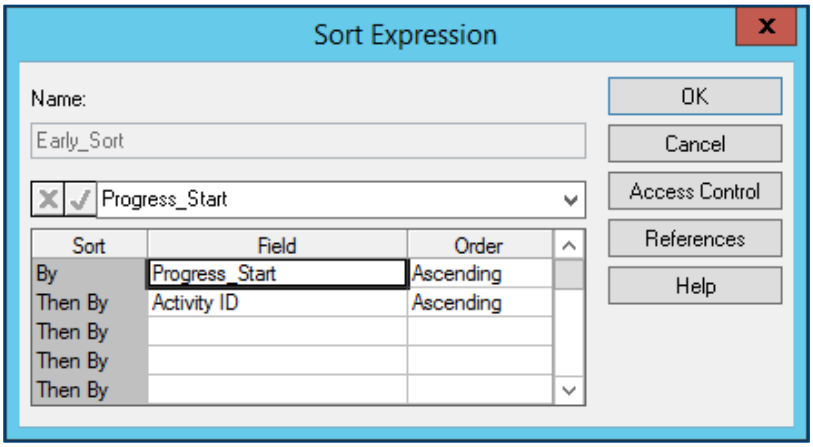
3. Click the **Edit…** button.



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4. In the **Sort Expression** dialog, note the way this sort has been setup.

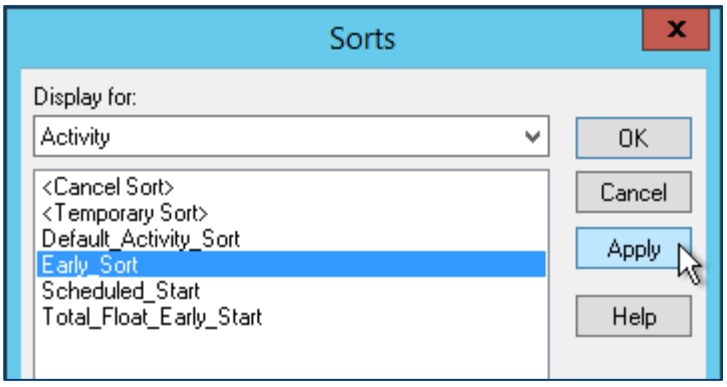


In this example the sort is first by a calculated field called Progress_Start (displays the actual date if the activity has started or the early start date if not started), in Ascending order (earliest to latest date).

It then sorts by **Activity ID**, also in **Ascending** order.

5. Click **OK**.

6. Click **Apply** to engage the **Sort**.

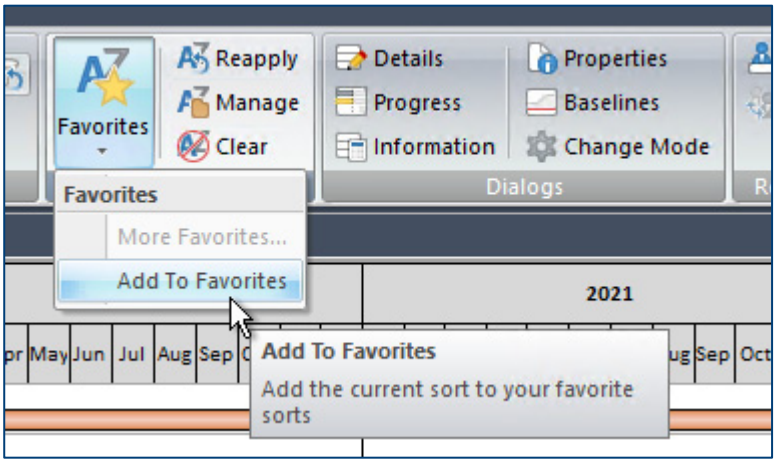


7. Note the change to the data in the **CLEAN** project table area.

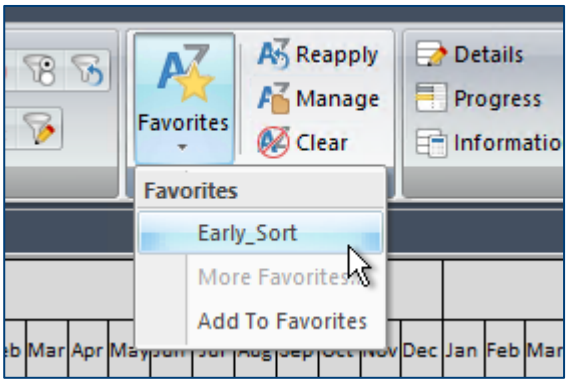
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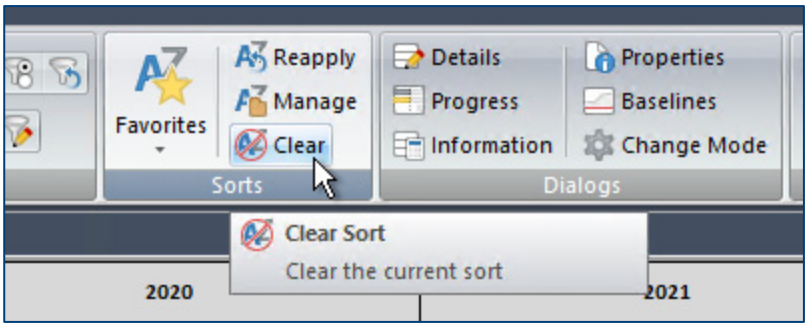
8. Click on the **Sorts | Favorites** button and select **Add to Favorites**.



9. This places the **Early_Sort** selection into your favorites list for easy future selection.



10. Click on the **Clear** button to remove the current sort.



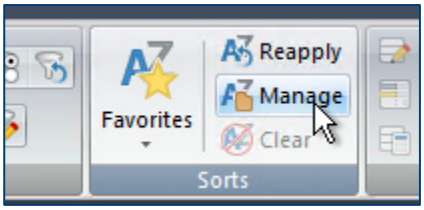
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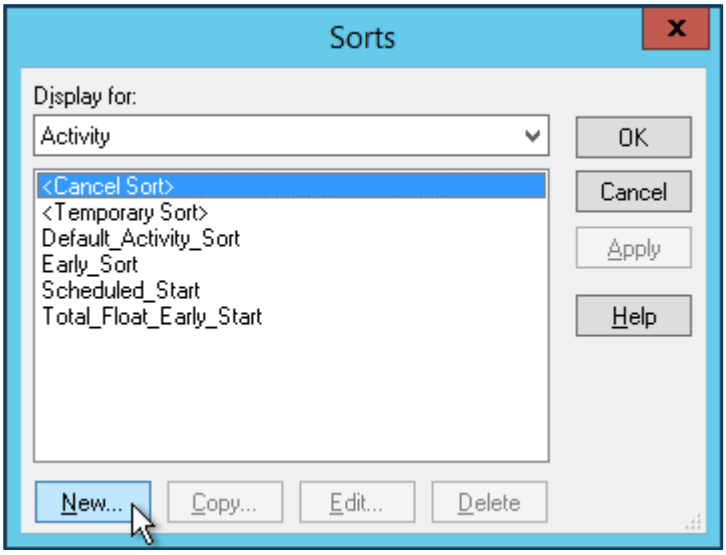
2.6.2 Activity: Creating a New Sort

In this example we'll create a sort for Original Duration.

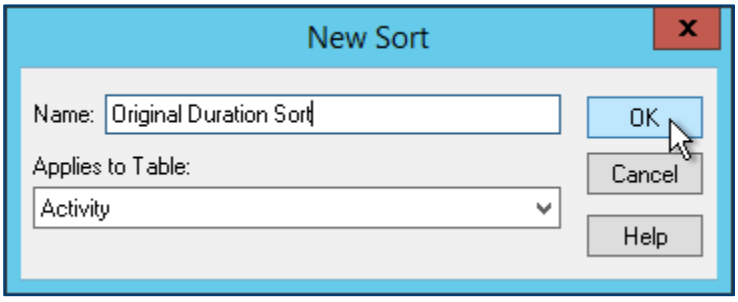
1. Click the **Manage** button in the **Sorts** tool group.



2. In the **Sorts** dialog, click **New…**.



3. In **New Sort** enter **Original Duration Sort**.

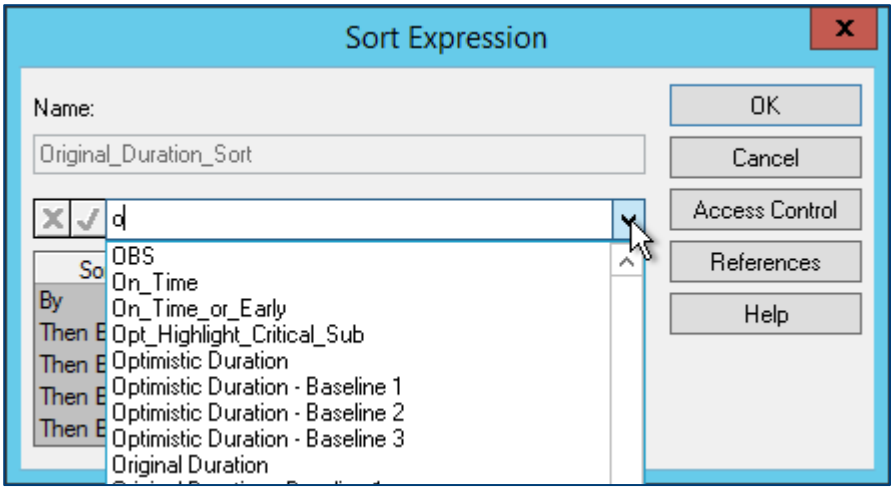


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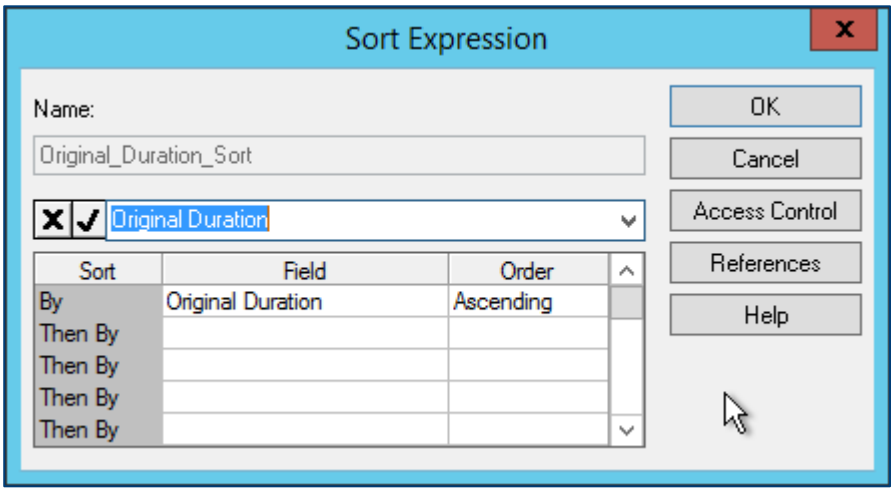
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4. In **Sort Expression**, click on the down button and type an '**O**' in the field.

   Note how the sort name has underscore symbols added between the words.



5. Select **Original Duration** from the list.

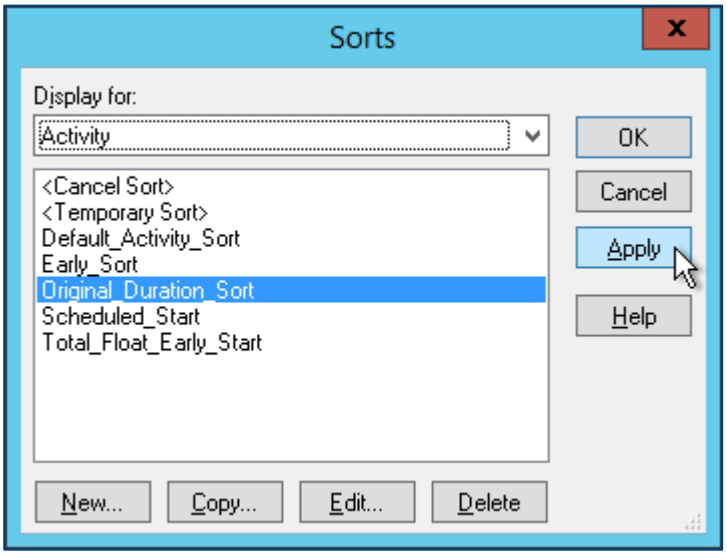


6. Click **OK**.

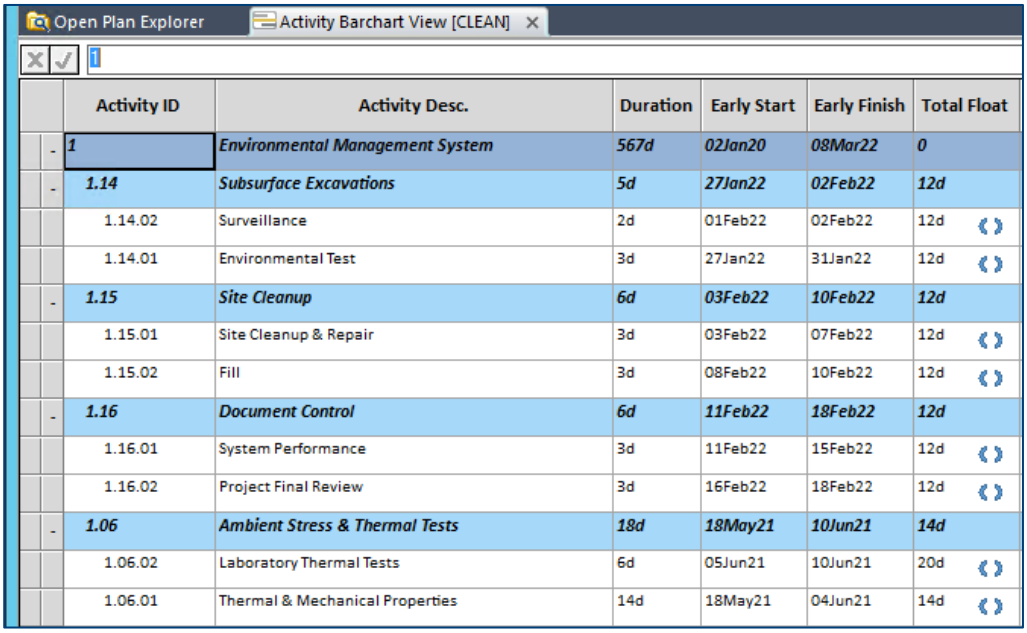
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7. With the **Original_Duration_Sort** selected, click **Apply**.



8. Note the impact the sort has on the schedule.



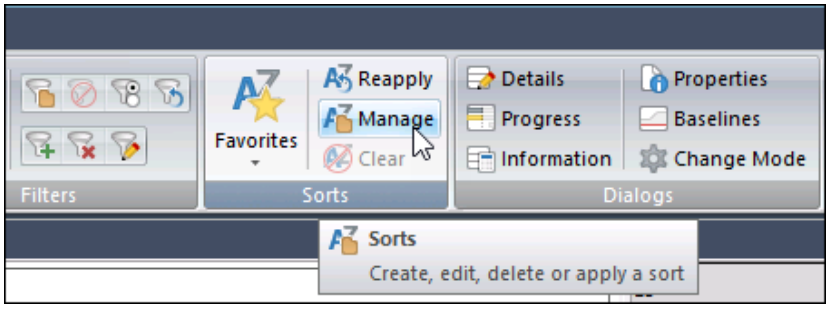
Activity ID	Activity Desc.	Duration	Early Start	Early Finish	Total Float
1	Environmental Management System	567d	02Jan20	08Mar22	0
1.14	Subsurface Excavations	5d	27Jan22	02Feb22	12d
1.14.02	Surveillance	2d	01Feb22	02Feb22	12d
1.14.01	Environmental Test	3d	27Jan22	31Jan22	12d
1.15	Site Cleanup	6d	03Feb22	10Feb22	12d
1.15.01	Site Cleanup & Repair	3d	03Feb22	07Feb22	12d
1.15.02	Fill	3d	08Feb22	10Feb22	12d
1.16	Document Control	6d	11Feb22	18Feb22	12d
1.16.01	System Performance	3d	11Feb22	15Feb22	12d
1.16.02	Project Final Review	3d	16Feb22	18Feb22	12d
1.06	Ambient Stress & Thermal Tests	18d	18May21	10Jun21	14d
1.06.02	Laboratory Thermal Tests	6d	05Jun21	10Jun21	20d
1.06.01	Thermal & Mechanical Properties	14d	18May21	04Jun21	14d

Above: note how the entire schedule has been sorted by original duration. The subproject with the shortest activities has sorted to the top. Subsequent subprojects also show that sorting has occurred within that group. This happened because we didn't use any other criteria such as Early Start Dates or Activity ID to keep the waterfall of activities in tact. Let's adjust that now.

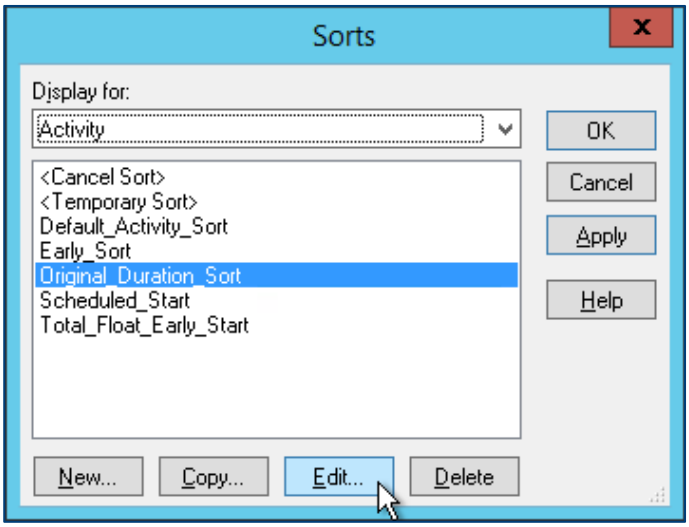
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9. Click on the **Sorts | Manage** button.



10. In **Sorts**, select **Original_Duration_Sort** and click **Edit…**.

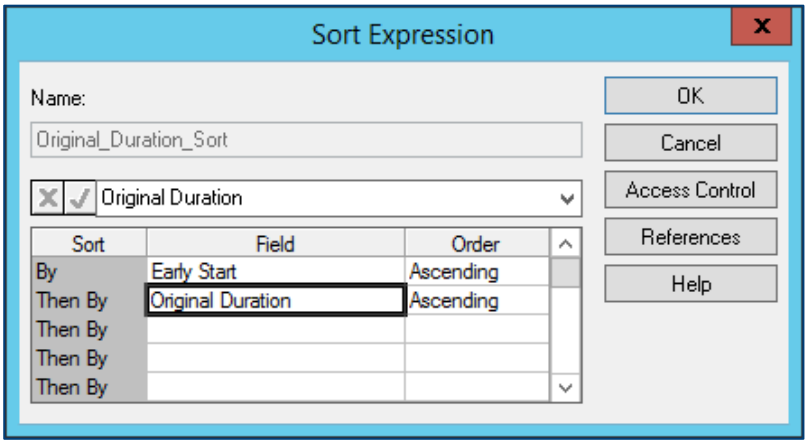


11. In the **Sort Expression** dialog, replace the first row with **Early Start**.

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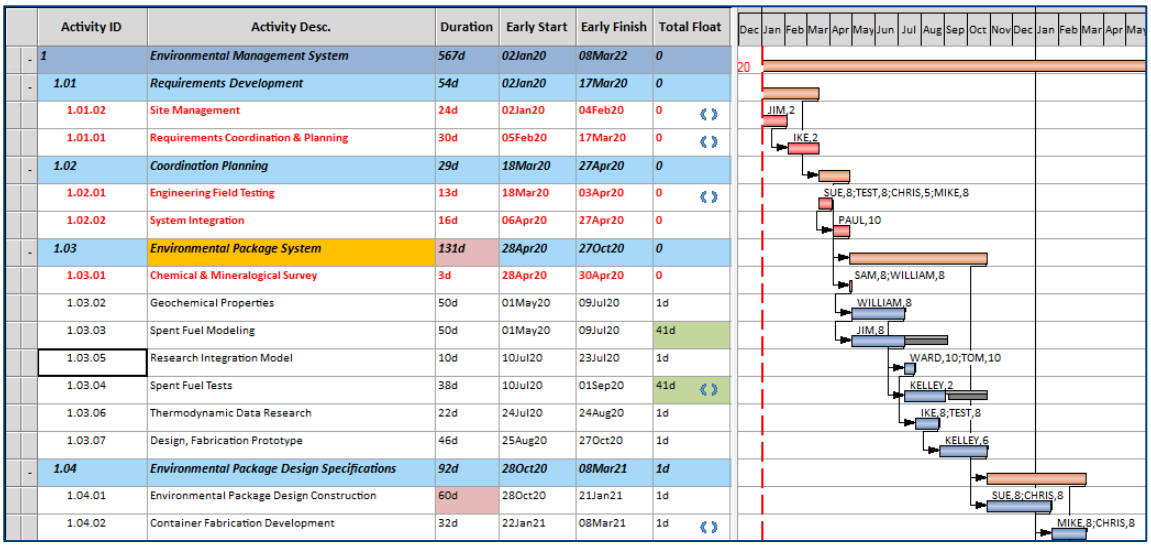
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12. Now select **Original Duration** in the second row. The order of these in important.



13. Click **OK**.

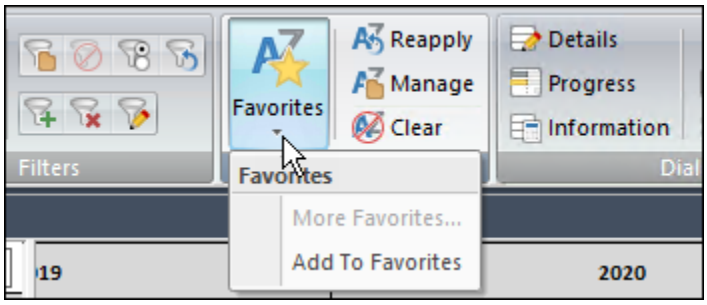
14. Click **Apply**.



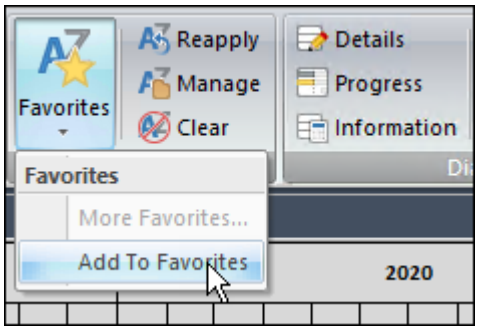
Note how the schedule is sorted first by the Early Start dates for the activities, and then by the Original Duration.

15. Click on the **Favorites** button in the **Sorts** tool group.

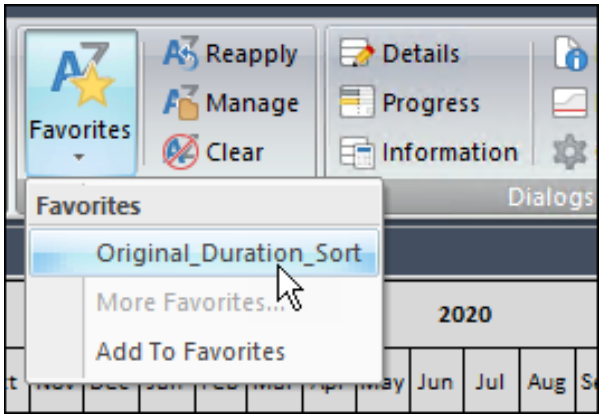
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16. Click Add to **Favorites** in the resulting menu.



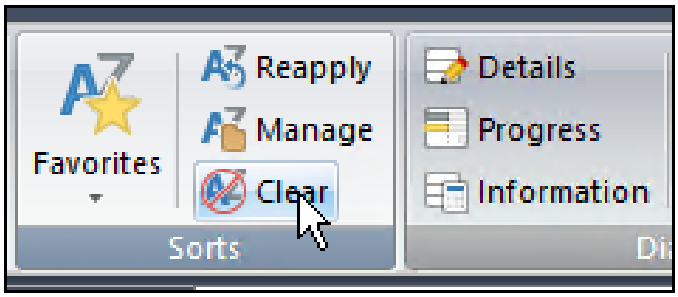
17. Click on **Favorites** button once more to see your new sort added to the top of the list. You can 'favorite' an unlimited number of sorts using this method.



18. Click **Clear** to restore the original order for the schedule activities.

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Note that clicking **Clear** doesn't remove the Sort from the favorites list; it only clears the sort from being active in the view, returning it to the standard order of activities.

19. Note the '**Reapply**' button in the Sorts tool group. This would be used if you are changing data in the schedule that would cause the activities to have changed their position in the table. For example, if you are currently running your new Original_Duration_Sort, and had adjusted the original duration of some of the activities; then reapplying the sort would alter the order to reflect the new duration values.

This concludes the lesson.

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Open Plan Scheduler Certification Series: Calendars and Codes

Activity Guide

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Table of Contents

3.1 Course Introduction 5
3.1.1 In this Course 5
3.2 Calendars 6
3.2.1 Calendar Structure Explained 6
3.2.2 Activity: Reviewing the calendars in Open Plan 9
3.2.3 Activity: Creating a New Calendar 12
3.3 Calendar Exceptions 27
3.3.1 Activity: Entering Exception Dates 28
3.4 Code Files 32
3.5 Simple Coding 33
3.6 Breakdown Structures 34
3.7 Breakdown Structure Formats 35
3.8 Fixed Form Significant 36
3.9 Punctuated Significant 37
3.10 Designing a Breakdown Structure 38
3.11 Symmetry 39
3.12 Creating a WBS Code File 41
3.12.1 Activity: Creating a New Code File 41
3.12.2 Activity: Changing the View 44
3.12.3 Activity: Changing the Startup View 47
3.12.4 Activity: Adding View to Favorites 48
3.12.5 Activity: Other Ways to Access Views 49
3.13 Entering Code Values 52
3.13.1 Activity: Entering Codes manually in the spreadsheet 52
3.13.2 Activity: Other Methods for Adding Codes 54
3.14 Loading Codes from a Spreadsheet 56
3.14.1 Activity: Loading the NOVAK WBS Data 56
3.15 Creating an OBS Code File 60
3.15.1 Activity: Creating an OBS Code File 61

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3.15.2 Activity: Creating a Cobra PMT Code 70
3.16 Course Catchup 74
3.16.1 Activity: Course 3 – Catchup 74

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3.1 Course Introduction

Calendar and Code files are referred to as “Ancillary Files” in Open Plan Professional. Calendars are needed for all projects. Code files are used to support a vast array of reporting, tracking, grouping, filtering, and sorting of schedule data.

This lesson looks at how to create project calendars that will determine the working shifts for the entire schedule. Project schedules can use just one, or many different calendars depending on the requirement. For example, an international project might need a US schedule, and a Dubai schedule to correctly plan the dates and logic for work being carried out in the two locations.

With Code files, there is an unlimited number of uses. Commonly they are used to model a WBS, OBS, a list of responsible managers, CAMs, Control Accounts, Work Package, earned value techniques, and so on. Code files can be a simple list, a significant structure with hierarchy, a fixed list of items that becomes a pick list within other code files or in a view table.

3.1.1 In this Course

- Calendars Overview
- Creating a Calendar File
- Creating a Child Calendar
- Introducing Code Files
- Creating a Code Files

Note: Please download the Open Plan Lesson 03 Training Data.zip file from the Resources tab of this course page. You will need these supporting data files to follow the exercises in this activity guide.

In the first section of this course, I'll be introducing you Open Plan calendars, what they do and how they work. Then I’ll show you how to create a new calendar file and then build child calendars within that calendar.

In the second section, I'll be introducing you to open plan code files, and from there you'll learn how to create them, and how they can be used to group, filter, and sort your project data.

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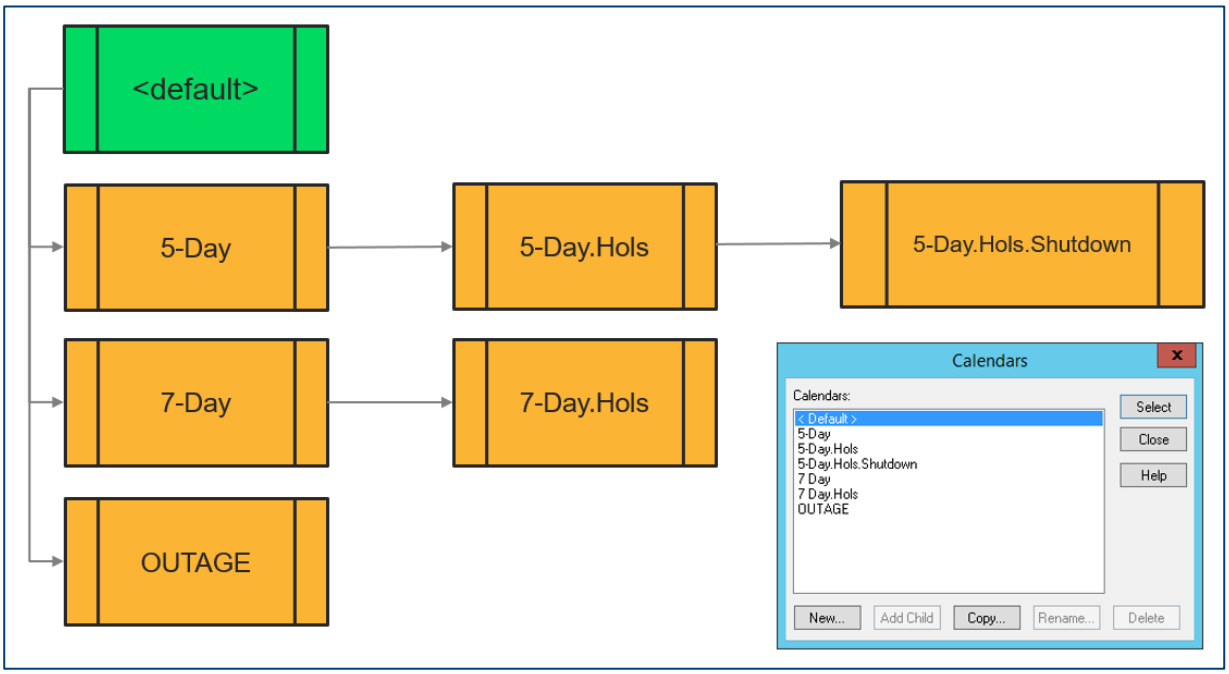
3.2 Calendars

In this section you will learn the structure of Open Plan calendars. We'll then show you how to review, modify, and create a calendar file for the Novak electrical substation project.

Calendars are a fundamental element required for every Open Plan project. Calendars provide the project with a definitive set of working periods against which all time analysis calculations are primarily based. While other factors such as Target Dates, or Resource availability may influence the overall activity start and complete dates, the assigned calendar is foundational to all calculations.

3.2.1 Calendar Structure Explained

In order that different work patterns can be applied to activities in the project; Open Plan supports multiple hierarchical calendars within a single calendar file. This means that a calendar file contains a Default calendar, one or more parent calendars, and any number of child calendars below each. This means that you can have a variety of work patterns, all accessible from within a single calendar file.



For example, if some portions of the work require a 5-Day calendar, and others a 7-Day calendar, you can create each of these working patterns within one calendar file.

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These default, parent, and child calendars can then be assigned to activities in the schedule when a different working pattern is required.

Activity Desc.	Calendar ID	Duration	Early Start
Produce Architectual Drawings	5-Day.Hols	30d	16Mar2020
Secure Construction Financing	5-Day.Hols		27Apr2020
Excavate Site and Form up Foundation			04May2020
Rough-In Plumbing for Sub-Slab			15May2020
Treat for Termites and Finish Foudation P			19May2020
Pour Foundation			26May2020

< Default >
5-Day
5-Day.Hols
5-Day.Hols.Shutdown
7 Day
7 Day.Hols
OUTAGE

This has been done to provide the most flexibility in modelling working patterns without the need to assign multiple calendar files to a project.

It also allows one calendar file to be shared across a wide range of project schedules when there are commonly used working patterns.

Default Calendar

The default calendar is defined and editable in the Open Plan Library. When you create a new calendar file, you will always have a copy of this default calendar as the starting point. The Default calendar is the basis for all subsequent parent calendars you create. Changes made to the default calendar after you have created a parent calendar are not dynamically passed down to the parents.

<Default>

May 2023

S	M	T	W	T	F	S
	1	2	3	4	5	6
7	8	9	10	11	12	13
14	15	16	17	18	19	20
21	22	23	24	25	26	27
28	29	30	31			

Default Calendar Details

- Defined and editable in the Open Plan Library.
- Are always present as the first calendar in a new calendar file.
- Are the basis of all parent calendars.
- Do not dynamically pass work pattern changes to existing parent calendars.

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Parent Calendars

Parent Calendars are a copy of the Default calendar when first created. They can then be edited independently of the default calendar to whatever work pattern you need.

Each parent calendar can have multiple child calendars. If changes are made to a parent calendar, the Child calendars inherit those changes.

Parent calendars are not impacted by changes made to their child calendars.

Parent 5x8

May 2023						
S	M	T	W	T	F	S
	1	2	3	4	5	6
7	8	9	10	11	12	13
14	15	16	17	18	19	20
21	22	23	24	25	26	27
28	29	30	31			

Parent Calendar Details

- Are a copy of the default calendar when first created.
- Can be edited independently of the default calendar.
- Can have multiple child calendars.
- Pass down work pattern changes dynamically to all their child calendars.
- Are not impacted by changes made in their child calendars.

Child Calendars

Child calendars are a copy of their parent calendar's work pattern when first created. Child calendars can also be parents, allowing for multiple levels of hierarchy within a particular calendar file.

They can be edited independently of their parent calendar, and do not pass their changes up-stream to the parent, only downstream to their children.

The calendars within a calendar file use a punctuated significant name to help you track the lineage of each calendar.

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Child 5x8

May 2023						
S	M	T	W	T	F	S
	1	2	3	4	5	6
7	8	9	10	11	12	13
14	15	16	17	18	19	20
21	22	23	24	25	26	27
28	29	30	31			

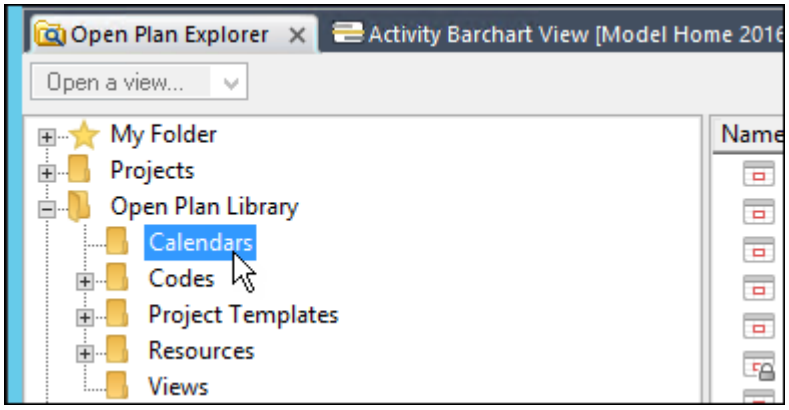
Child Calendar Details

- Are a copy of the parent calendar when first created.
- Can be parents to additional child calendars.
- Can be edited independently of the parent calendar.
- Do not pass work pattern changes up to their parent calendars.
- Are impacted by work pattern changes made in their parent calendars.

3.2.2 Activity: Reviewing the calendars in Open Plan

Follow these next steps in Open Plan.

1. In the **Open Plan Explorer**, click on the **Open Plan Library** folder and select **Calendars**.

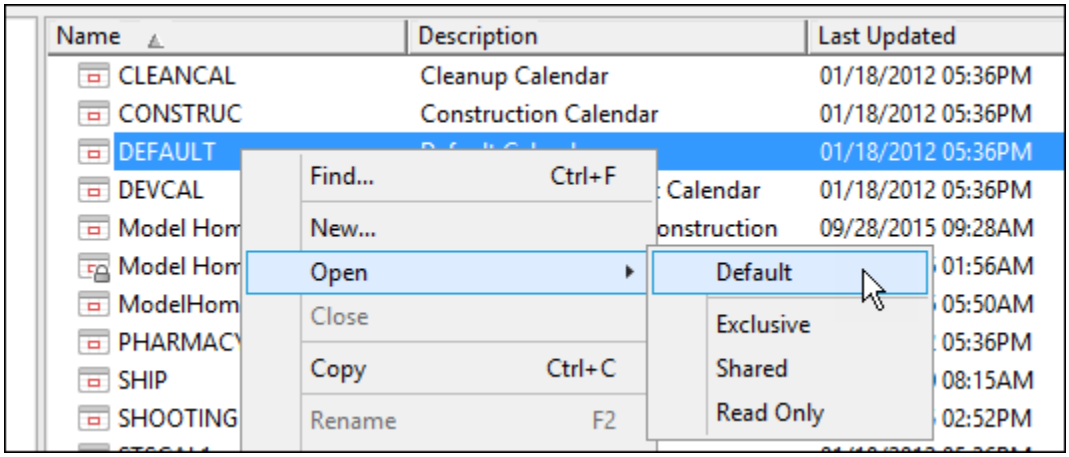


2. **Right-click** on the **DEFAULT** calendar displayed in the right pane.

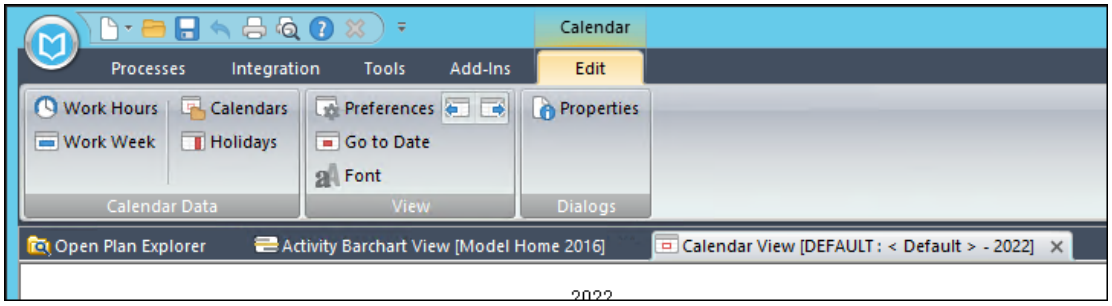
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3. Select the **Open | Default** option in the submenu.



4. Note the tool groups of the **Edit** ribbon in the resulting **Calendar** view.

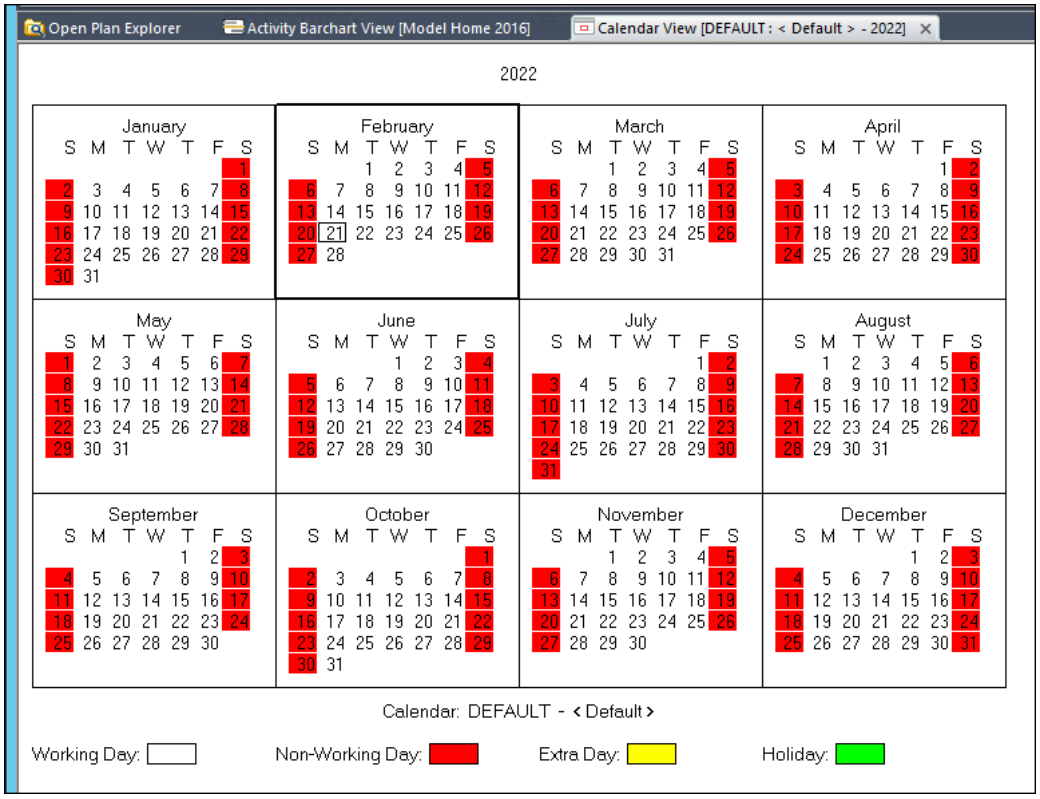


Above: these tools are used to modify the calendar's working hours, work week, additional calendars (you can create 'sub-calendars' blow the main calendar with adjusted shifts separately from the main calendar), none-working periods such as holidays, some view preferences, and a 'Go to Date' option.

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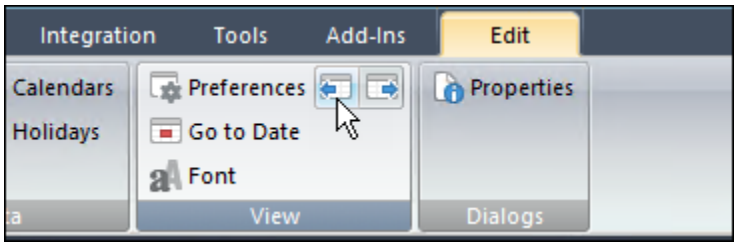
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5. In the **View** tab you can see the one view provided for calendar setup and maintenance.



Note the key at the bottom of the screen defining the color coding for the dates above.

6. Click on the **Previous** and **Next** year buttons in the View tool group to see how the DEFAULT calendar is structured.

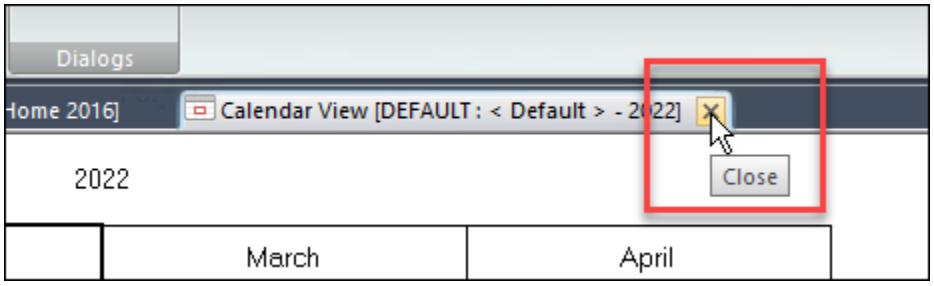


Note you can also access these navigation features using a right-click anywhere on the Calendar page.

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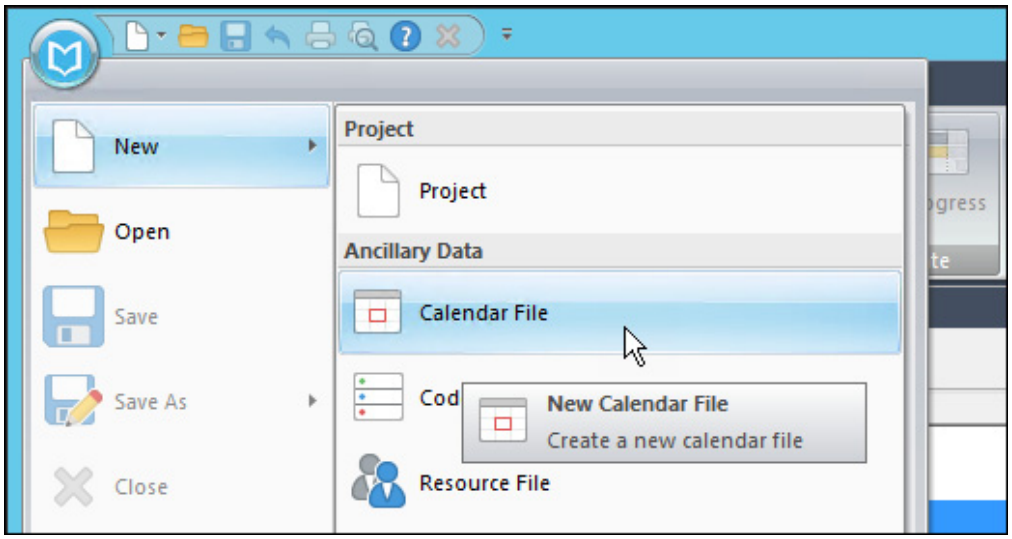
7. Click the '**X**' in the **Calendar View** tab to close it.



Next you will learn how to use the other tools in the ribbon by creating a new calendar for the Novak training project.

3.2.3 Activity: Creating a New Calendar

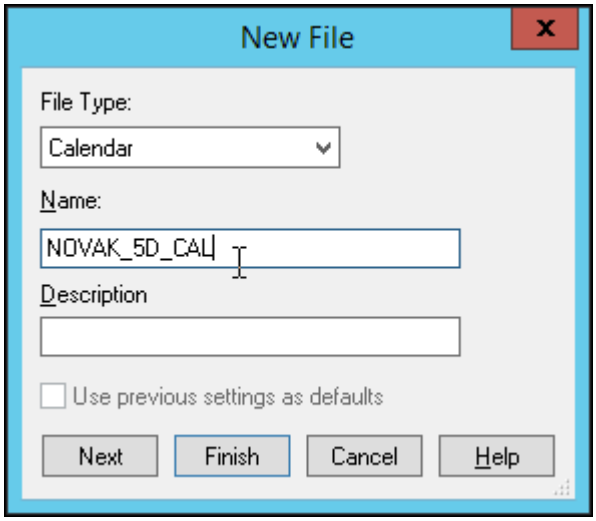
1. Click the **Open Plan File** menu and choose **New > Calendar File**.



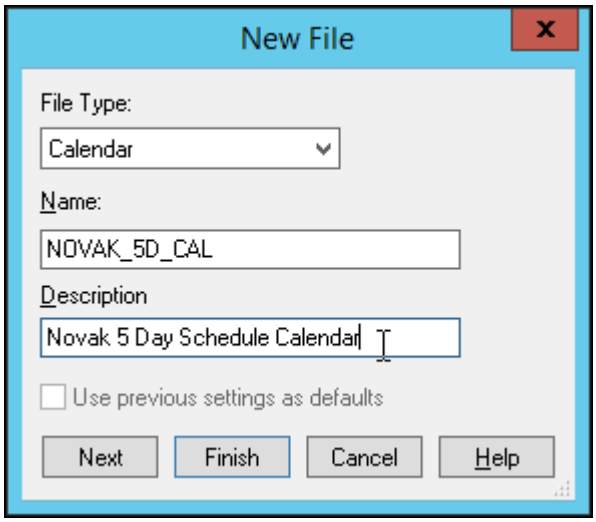
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2. In the **New File** dialog, enter **NOVAK_5D_CAL** in the name field.



3. In the **Description** field enter "**Novak 5 Day Schedule Calendar**".

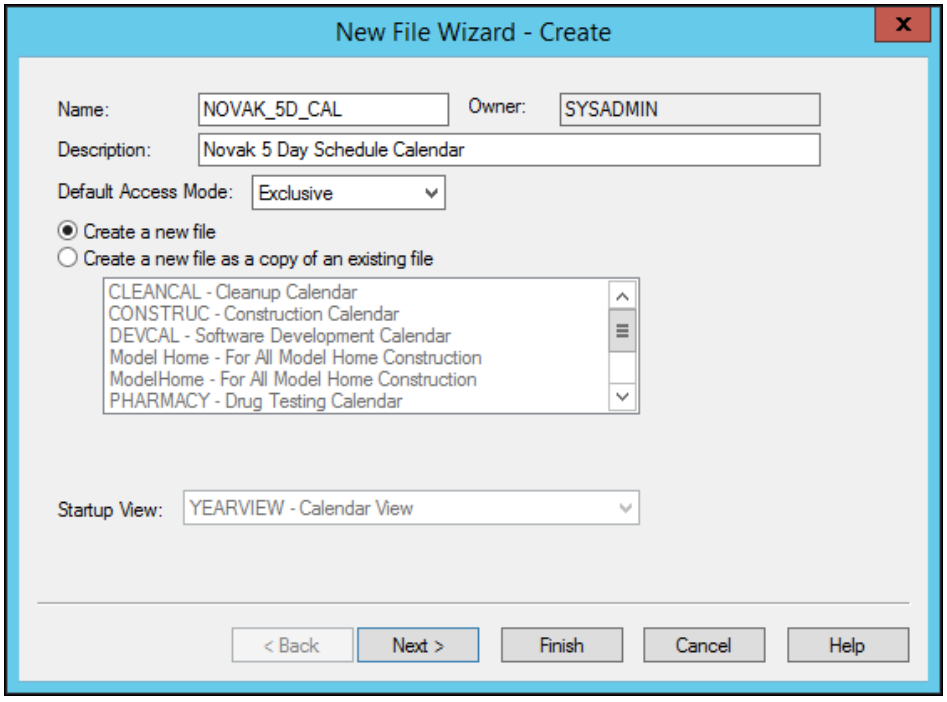


4. Click **Next**.

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5. Verify the '**Create a new file**" is selected (default) and review the other options in the **New File Wizard** dialog.



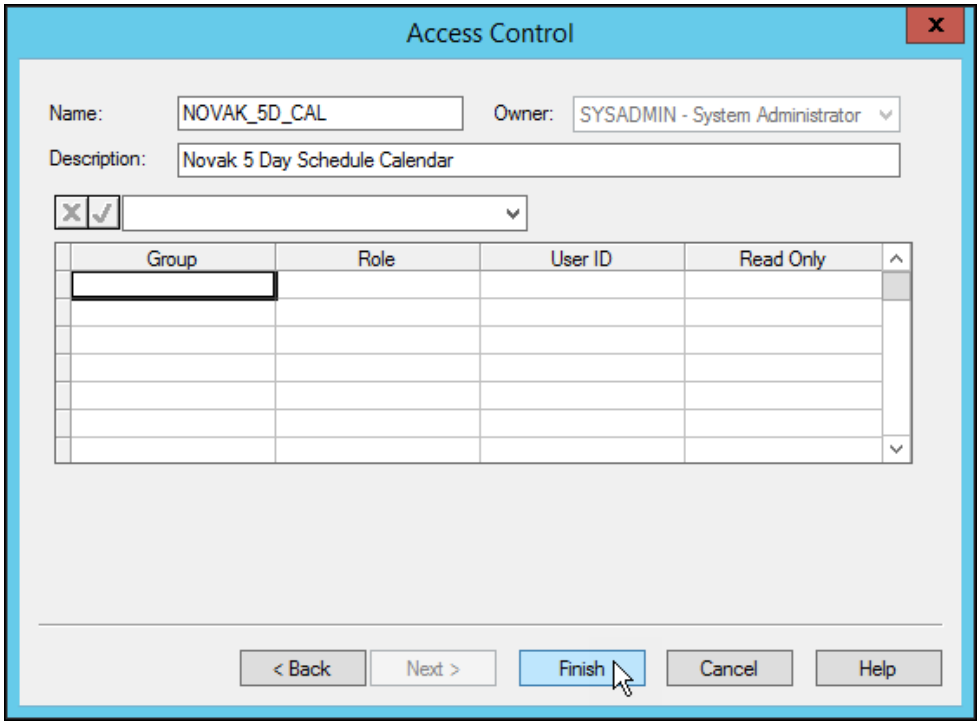
Note how you can also create a new file from a copy of an existing file and define a default startup view also.

6. Click **Next >**.

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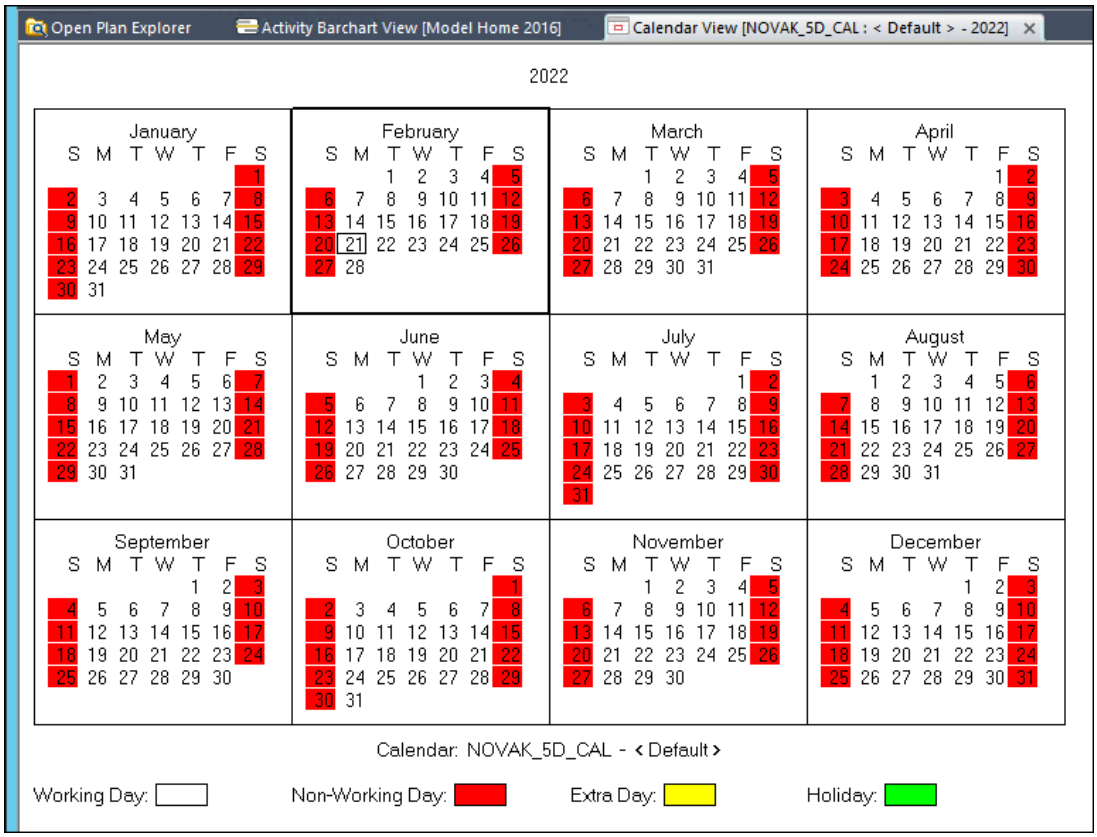
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7. In the **Access Control** dialog, click the **Finish** button.



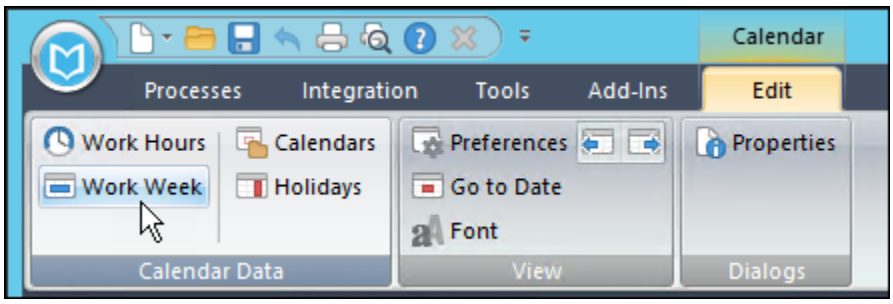
The **Access Control** dialog allows you to share items you have created with other users in the system. This is true for Calendar, Code, Project, and Resource files.

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The first step is to consider the overall cadence of the calendar: i.e. days per week and default hours per day.

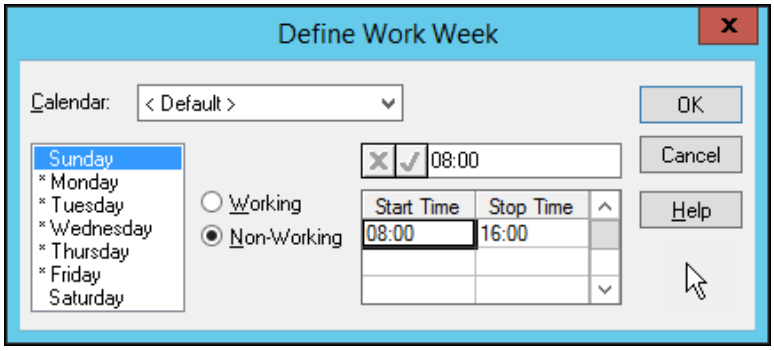
8. Click on the **Work Week** button.



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9. Review the details of the working days and shift hours in the resulting dialog.

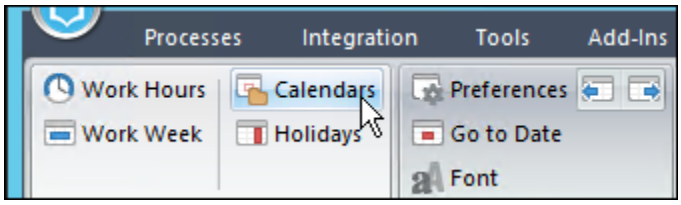


Usage: allows you to select a calendar and then adjust the working days, and shift hours for the selected calendar. This is global, meaning it will affect every month and year in the calendar. Also, any children of this calendar will inherit this pattern, that can then be changed within that child calendar.

10. Click **OK** to close the dialog.

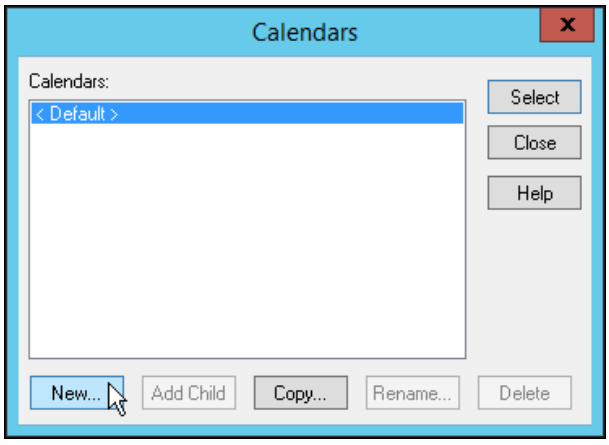


11. Click the **Calendars** button.

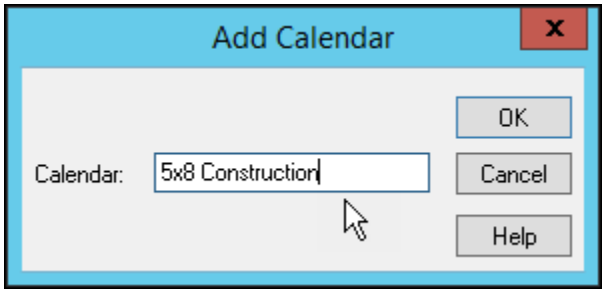


12. In the **Calendars** dialog, click the **New…** button.

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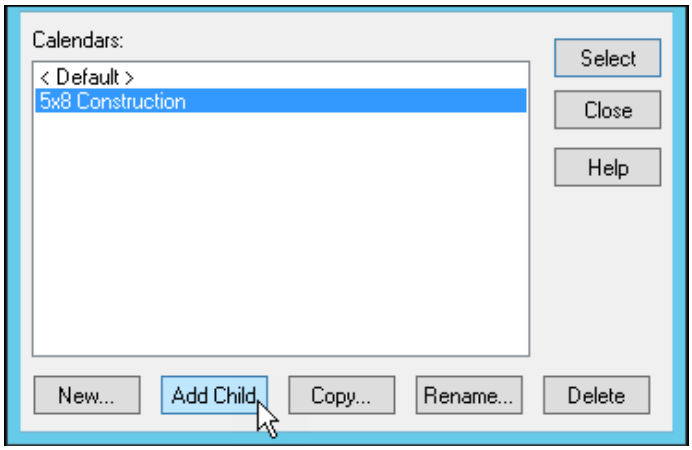


13. In the **Calendar** field, enter '**5x8 Construction**'.



14. Click **OK**.

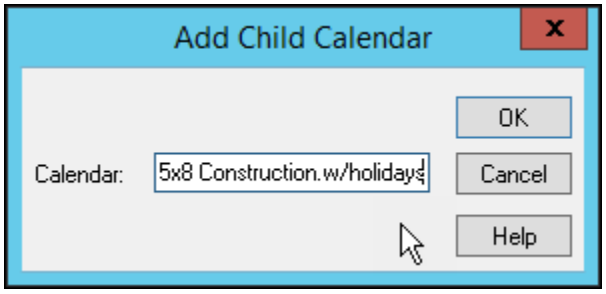
15. With the **5x8 Construction** calendar selected, click **Add Child**.



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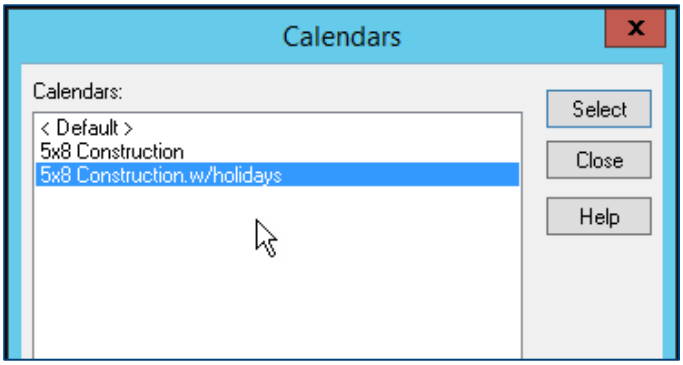
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16. In the **Add Child** dialog, add '**w/holidays**' after the dot.

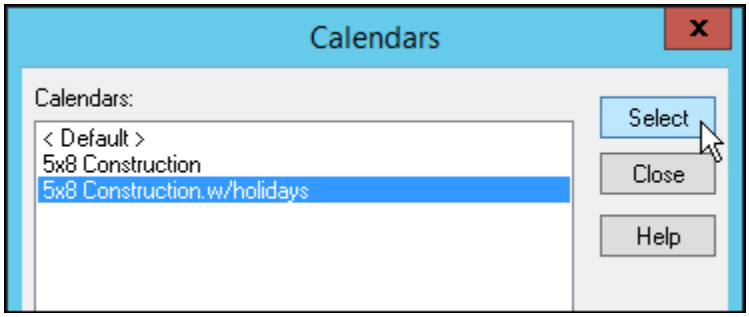


17. Click **OK**.

18. Note the new child calendar in the list.

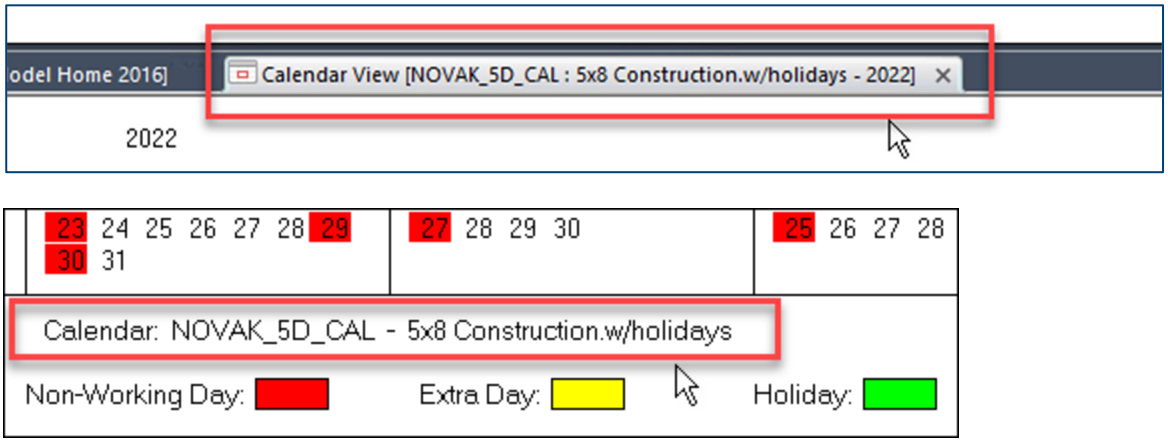


19. With the **w/holidays** calendar highlighted, click on the **Select** button.



20. The view switched to display the child calendar. You are now free to modify the working days, shifts, and exceptions in the child calendar.

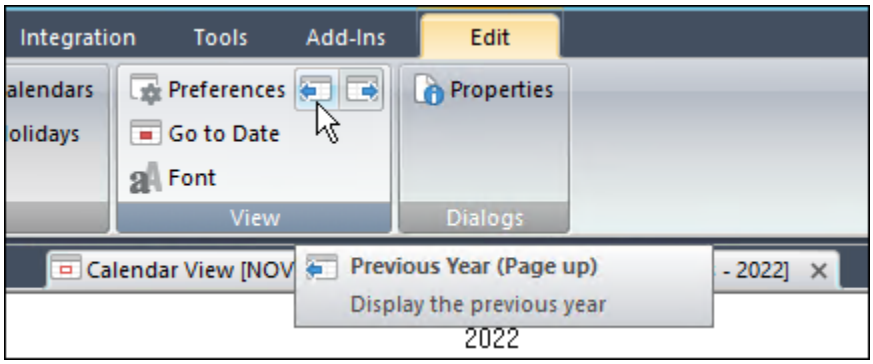
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If you're ever unsure what calendar you're viewing, look at either the tab at the top of the view, or the string below the calendar dates area.

Let's add some holidays.

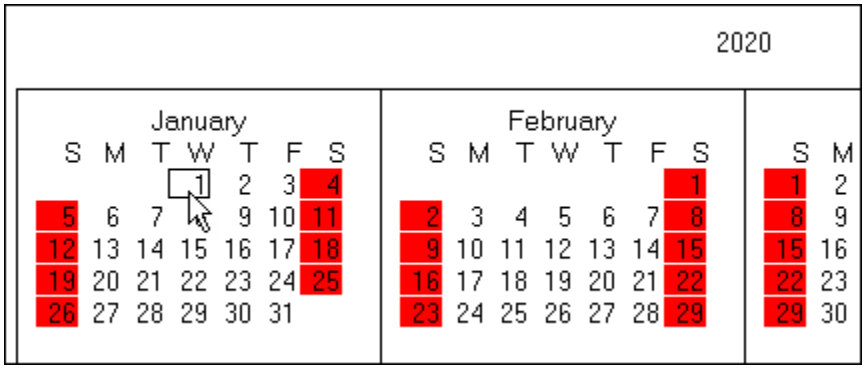
21. Click on the **Previous Year** button until you arrive at **2020**.



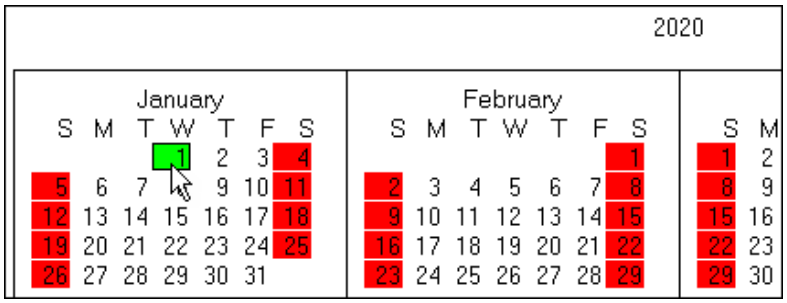
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22. Select the **January 1st, 2020** date.



23. Click the **Space Bar** on your keyboard.



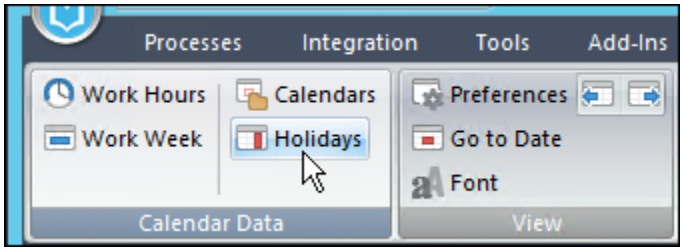
Note the holiday exception that appears in green.

That's the quick way to add exceptions. Now let's look at a few more options for entering non-working dates.

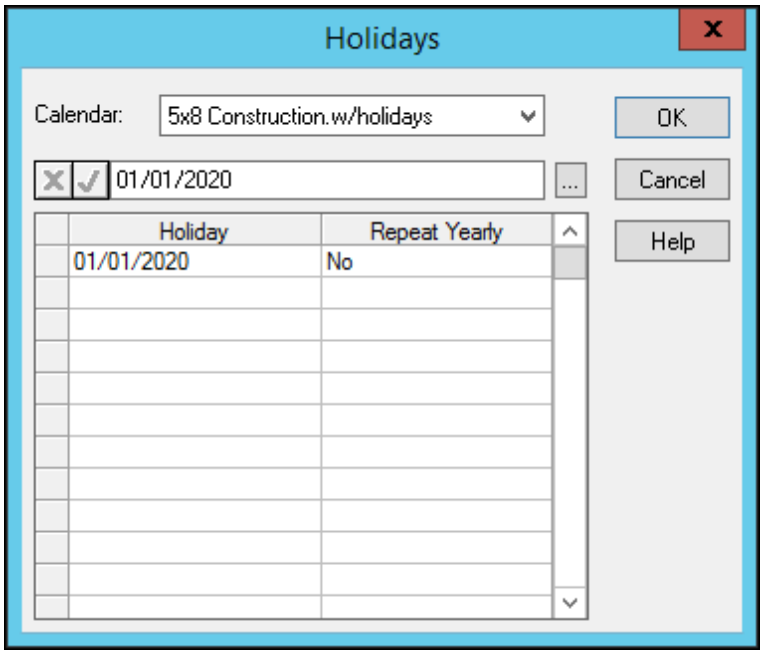
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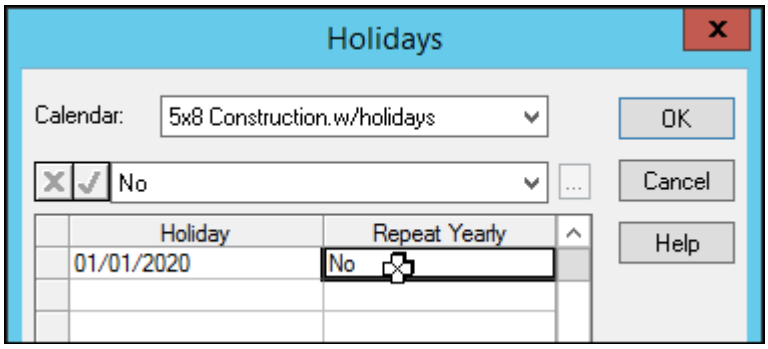
24. Click on the **Holidays** button.



25. In the **Holiday** dialog, note that the holiday you entered in the previous steps has appeared in the list.



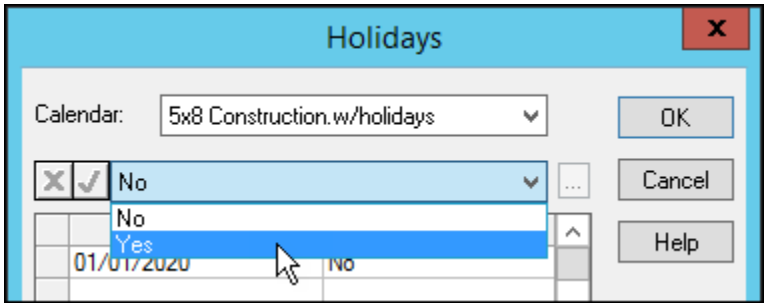
26. Click in the **Repeat Yearly** field.



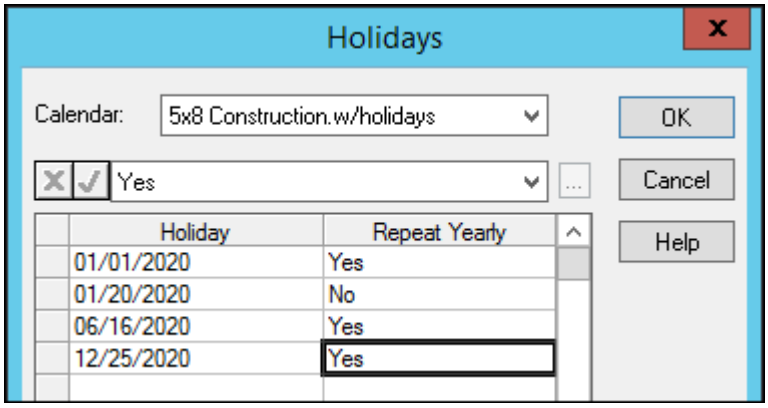
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27. Set to **Yes** in the entry field using the down arrow to the right of the entry field.



28. In the **Holidays** dialog enter the following additional dates in the **Holiday** list.

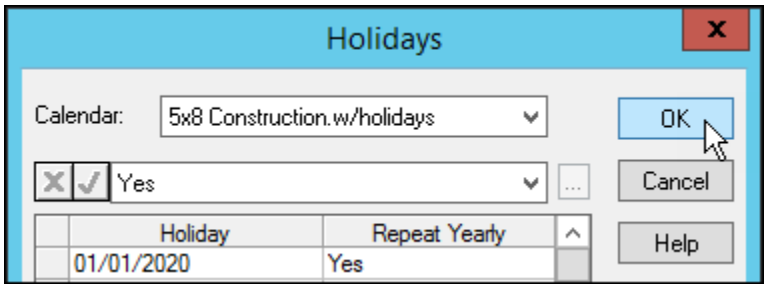


01/01/2020 – New Year's day
01/20/2020 – Martin Luther King day*
06/19/2020 - Juneteenth
12/25/2020 - Christmas

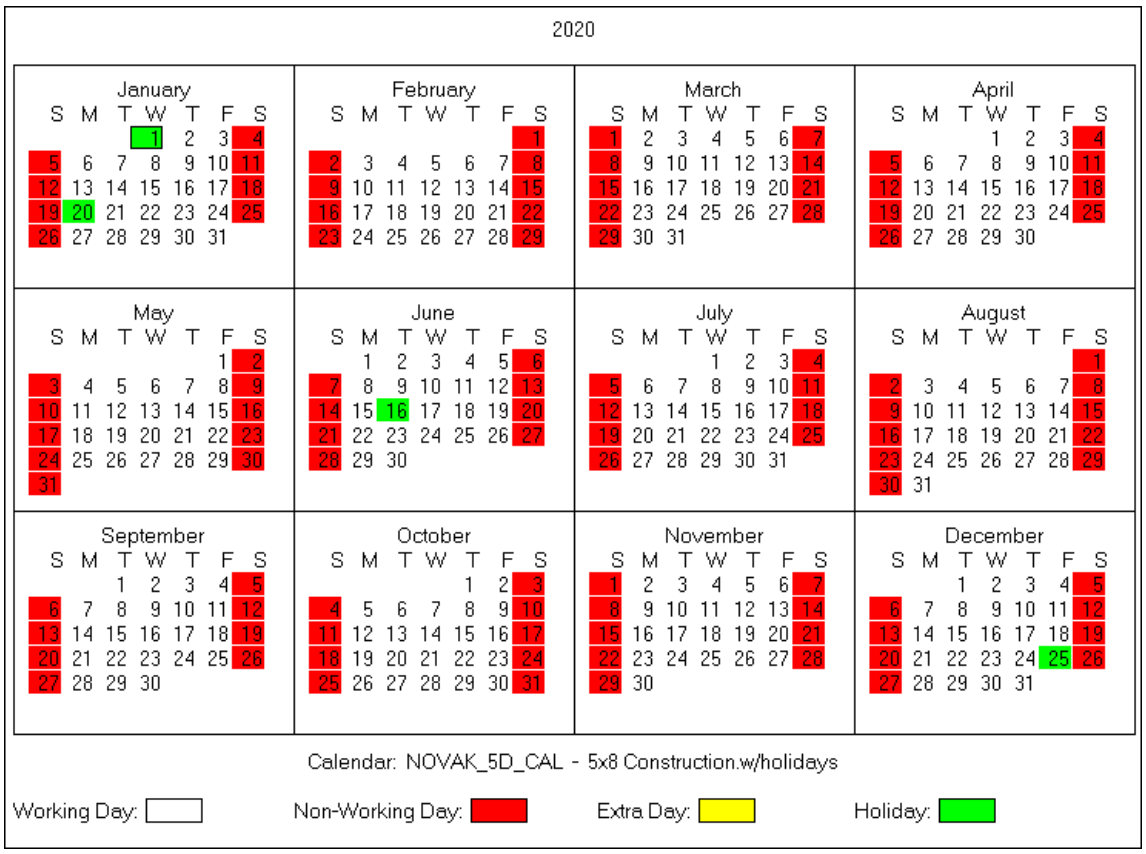
*As Martin Luther King day is always the third Monday in January, and not a set date, we do not use the repeat yearly option. Instead, these dates would need to be entered manually every year for the project life cycle.

29. Click **OK** to close the Holidays dialog.

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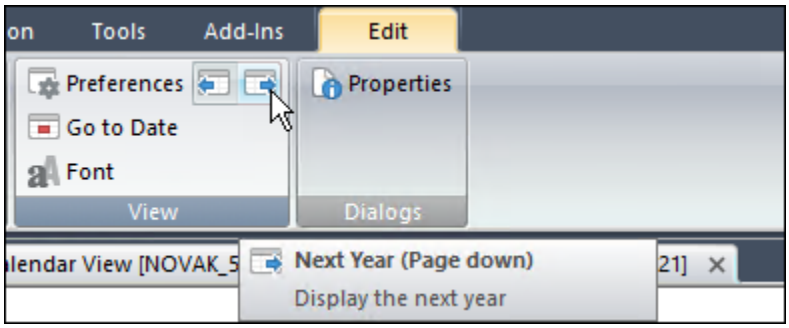


30. Note the green holiday highlights for the calendar.

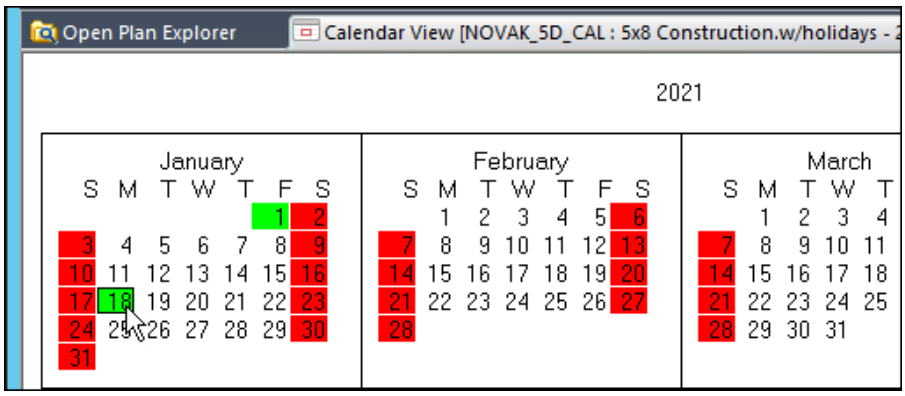


31. Click on the **Next Year** button in the **View** tool group.

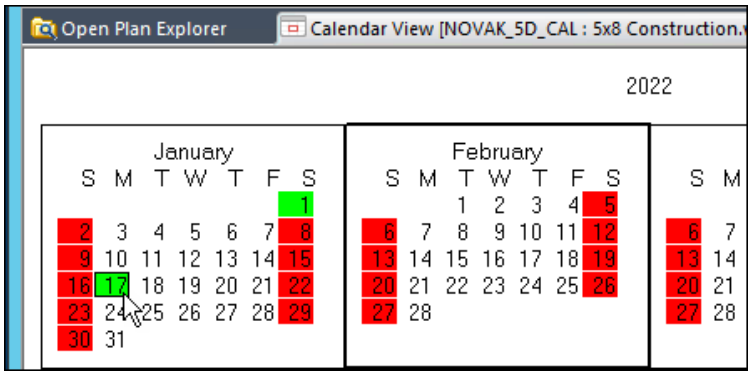
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32. In the **2021** calendar, click on **January 18th** to select it, and click the **spacebar** to make it a holiday.



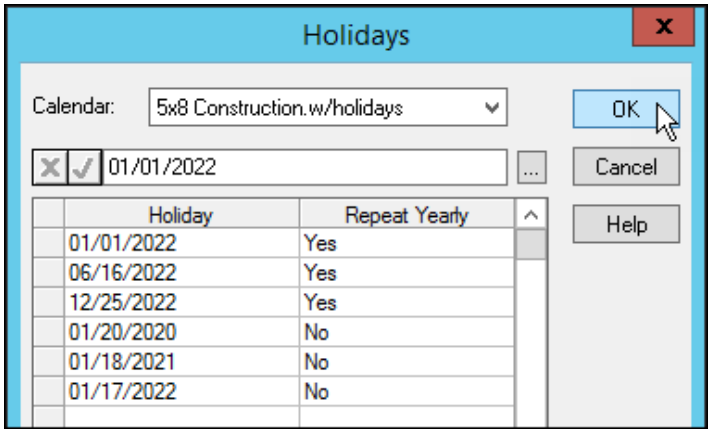
33. Repeat this step for **2022**, selecting **January 17th** for the holiday.



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34. Click on the **Holidays** button once more to see the results in the **Holiday's** dialog.



35. Click **OK**.

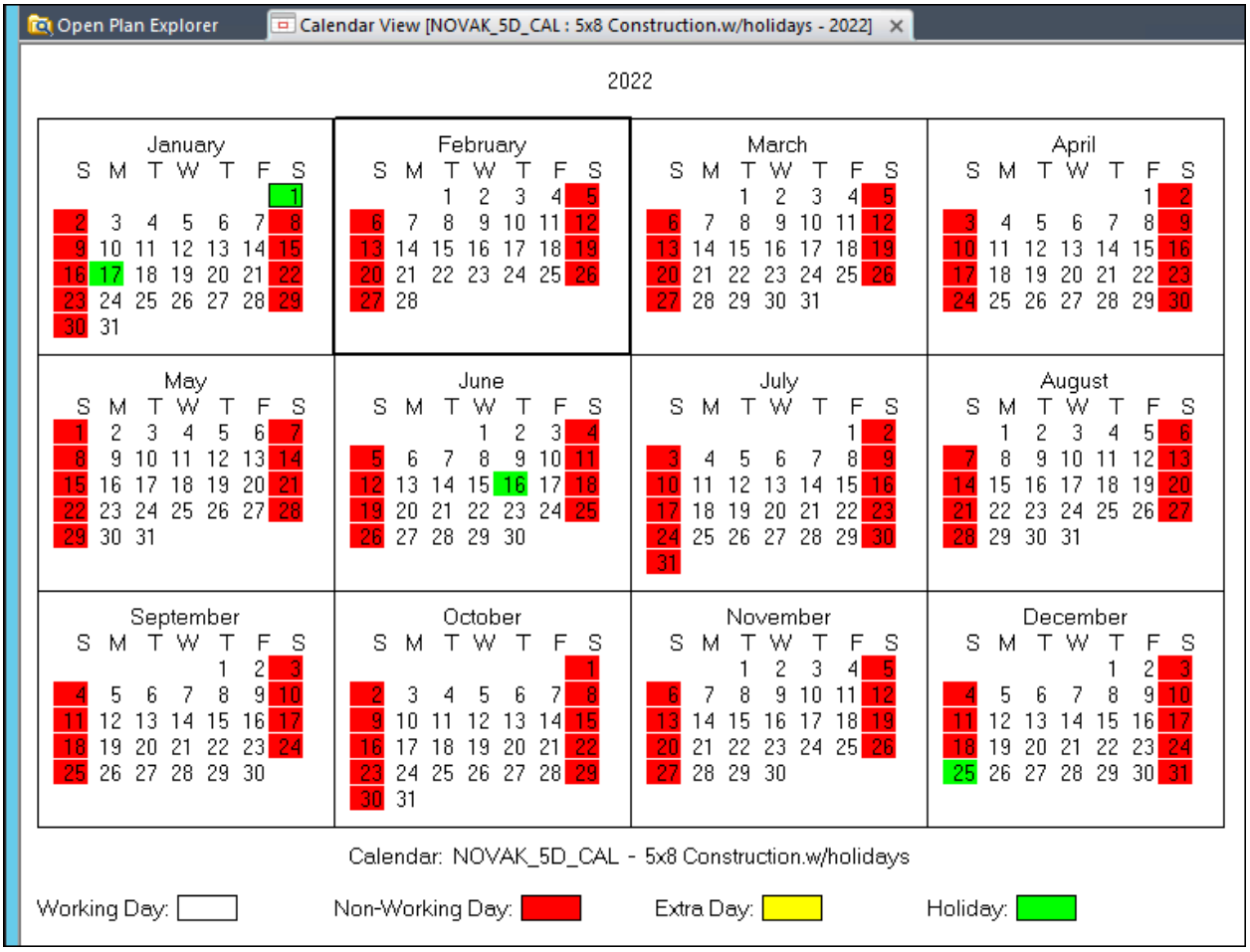
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3.3 Calendar Exceptions

You may have noticed that some of the Repeat Yearly dates fall on non-working dates. For example, in 2022, New year's day and Christmas fall on Saturday and Sunday respectively.

In this next activity you will learn how to deal with this by exception.

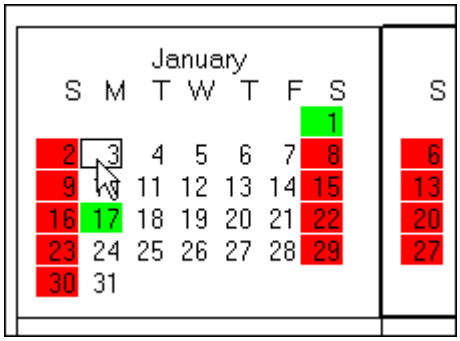


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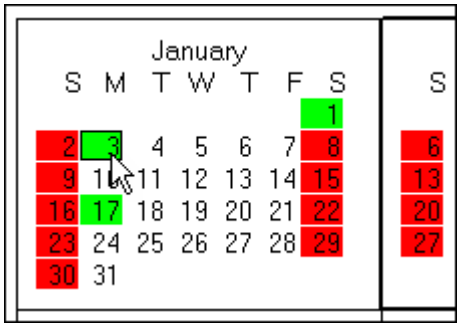
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3.3.1 Activity: Entering Exception Dates

1. In the **2022** calendar, click on **Monday January 3rd**.

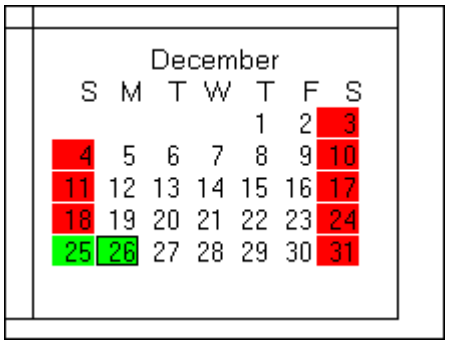


2. Click the **spacebar**.



Note how we don't need to change January 1st because it's non-working regardless of holiday or non-working (repeat yearly) color coding. The schedule will treat these dates correctly.

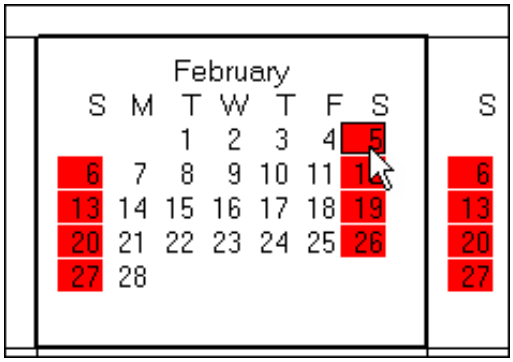
3. Repeat this process for **December**, adding a holiday to **Monday, December 26th**.



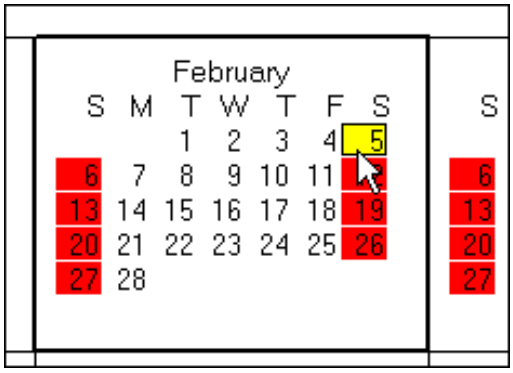
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4. If you wanted to create an exception working day on one of the weekends, click on any of the **Saturday** or **Sunday** red highlight dates.

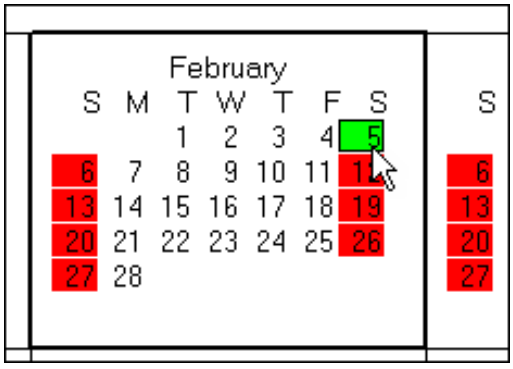


5. Click the **Spacebar**.



Note how the box has turned yellow, meaning it's now an extra day.

6. Click the **Spacebar** again.



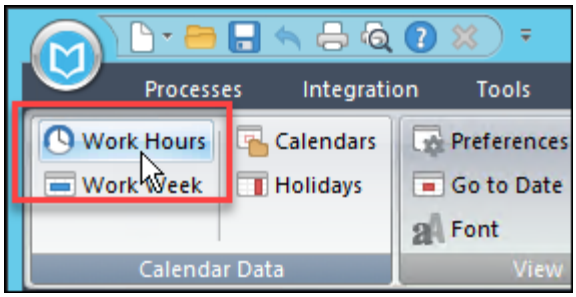
Instead of going back to a red non-working day, it has turned green – putting it on the holiday list.

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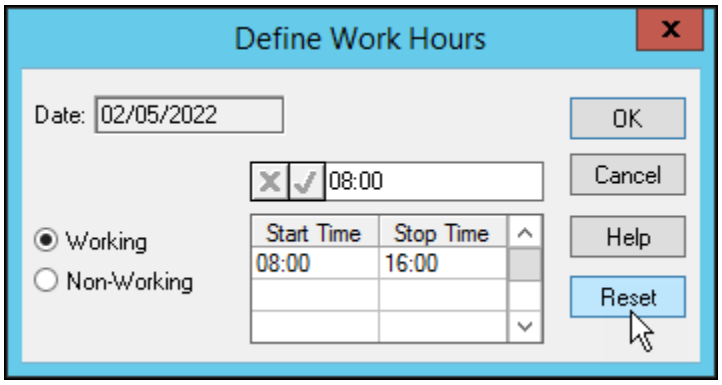
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So how can we return it to a red, non-working date again?

7. With the date still selected, click on the **Work Hours** button.



8. In the **Define Work Hours** dialog, click the **Reset** radio button.



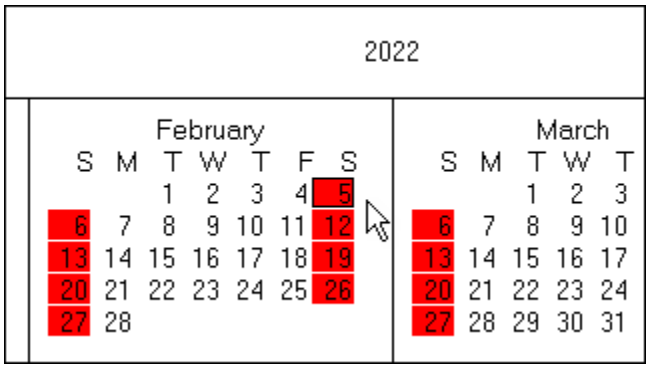
Note: that whatever date was selected in the Calendar becomes the subject of this dialog when opened.

Usage: changes a single selected day's working, non-working, or shift start and finish times. Think of this as an exceptions tool. For example, we want to make February 21st a none-working day to observe President's Day, but just for February 21st.

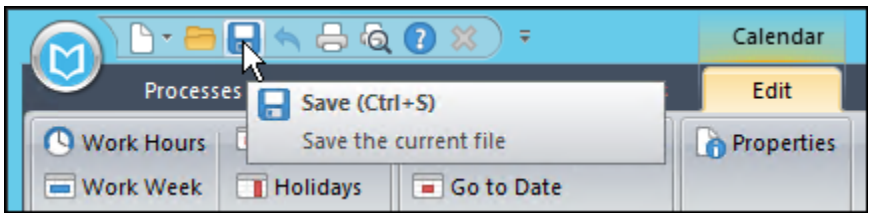
9. Click **OK**.

10. Note how the date has gone back to **Red non-working**.

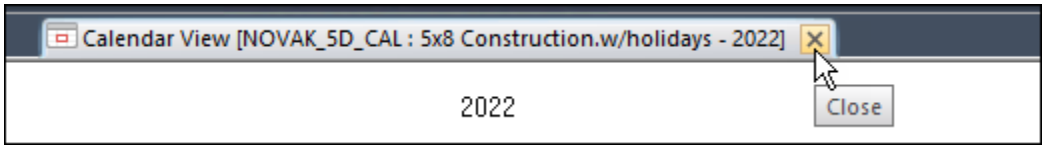
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11. Click the **Save** button.



12. Click the '**X**' to close the calendar view tab.



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3.4 Code Files

The activities in a project help you manage the deliverables. For instance, the project that you will be building in this class has some activities that describe the grading and ground work, steel structure assembly, and such. Codes in Open Plan can be used to make reporting on the characteristics of these activities easier. The following pages discuss:

- Simple Coding
- Breakdown Structures
- Designing a Breakdown Structure
- Using the New File Wizard to Build Code Files

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3.5 Simple Coding

Simple coding can be used to indicate that each activity falls into one of a number of categories — i.e., Responsible Subcontractor, geographical or site location, project phase, whatever. By associating each activity with one of these codes, we can view our activities grouped according to these codes.

When we look at data for activities, we may want it broken down and subtotaled in various ways. Perhaps we want a work breakdown structure, as an alternative to the indented outlining.

Open Plan provides coding fields to cope with these and other requirements. You can create a code file (which may be shared between any number of projects or may be used in just one) and add the file to the Code Files list in the Files tab of your Project Information dialog.

You can have up to 90 code files per Project or Resource File.

Two to three are more typical (for work breakdowns, organizational breakdowns, and other — e.g., cost center codes, Integrated Master Plan). If you are building an integrated master schedule for an earned value management system, you will use additional codes to identify the control accounts and work packages that an activity belongs to. This will likely also include earned value techniques, charge number codes, control account managers, to name a few.

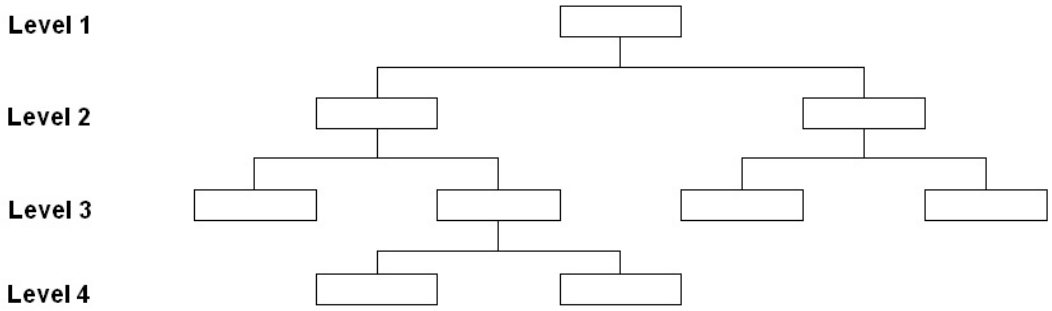
Codes can be added at any time, but it usual to plan them from the outset, and many organizations have very strict internal rules about the use of coding.

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3.6 Breakdown Structures

A breakdown structure is a Code File that defines a hierarchy and is popular in planning work since it can be used to define levels within the project. The graphic below might represent a Work Breakdown Structure (WBS) of the deliverables of a project. It could also portray an Organization Breakdown Structure (OBS) showing organization work areas for reporting purposes. Any other information that can be represented hierarchically can be shown in this format.



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3.7 Breakdown Structure Formats

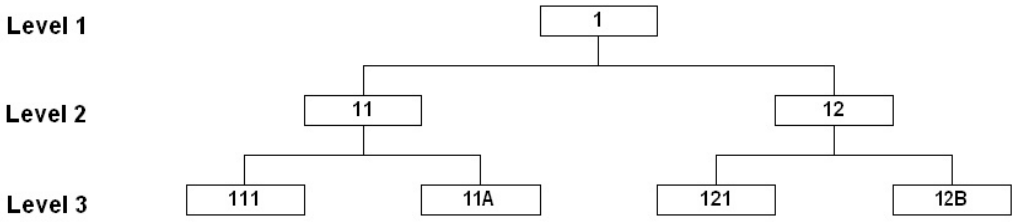
Open Plan offers two formats: Fixed Form Significant and Punctuated Significant. Significant codes allow you to determine the level of the code by inspecting them.

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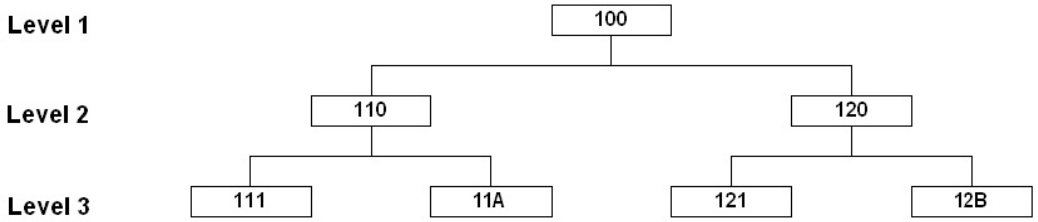
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3.8 Fixed Form Significant

Fixed Form Significant codes rely on their length to describe the structure level, so the number of levels in the structure needs to be determined at the planning stage of the project. Apart from the top-level code, each code in the breakdown structure is based on the code of its parent plus an individual identifier. The following diagram shows a Fixed Form breakdown structure:



The first character represents the top level of the structure, the second character the second level, the third the third, and so on. Sometimes a pad character is used — if “0” were used as the pad character, the codes in the above example would be:

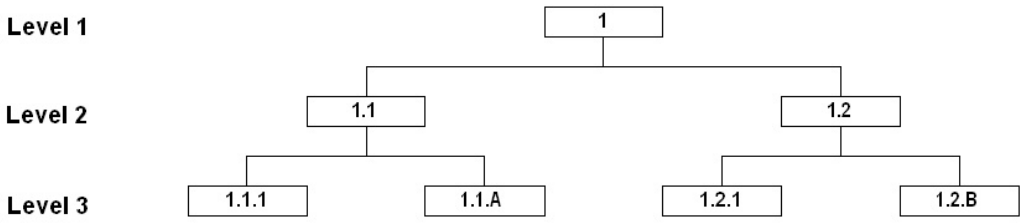


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3.9 Punctuated Significant

In punctuated codes, a dot (.) is used to separate the portions of the code for each level of the structure. Thus, our example becomes:



This format is commonly used, as it provides a clear identity of level for each code. This is the default type chosen for Open Plan.

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3.10 Designing a Breakdown Structure

This should be done as early in the project as possible, and the coding included as the activities are added and the network is built up. You can add codes later, but it is often the case that at this point the user wishes he or she would have thought about it earlier and entered the network differently.

The principles discussed in the following pages and examples should give you the necessary tools to design the breakdown structure.

Note: It pays to sit down and work out the details of your coding system before entering any data into Open Plan.

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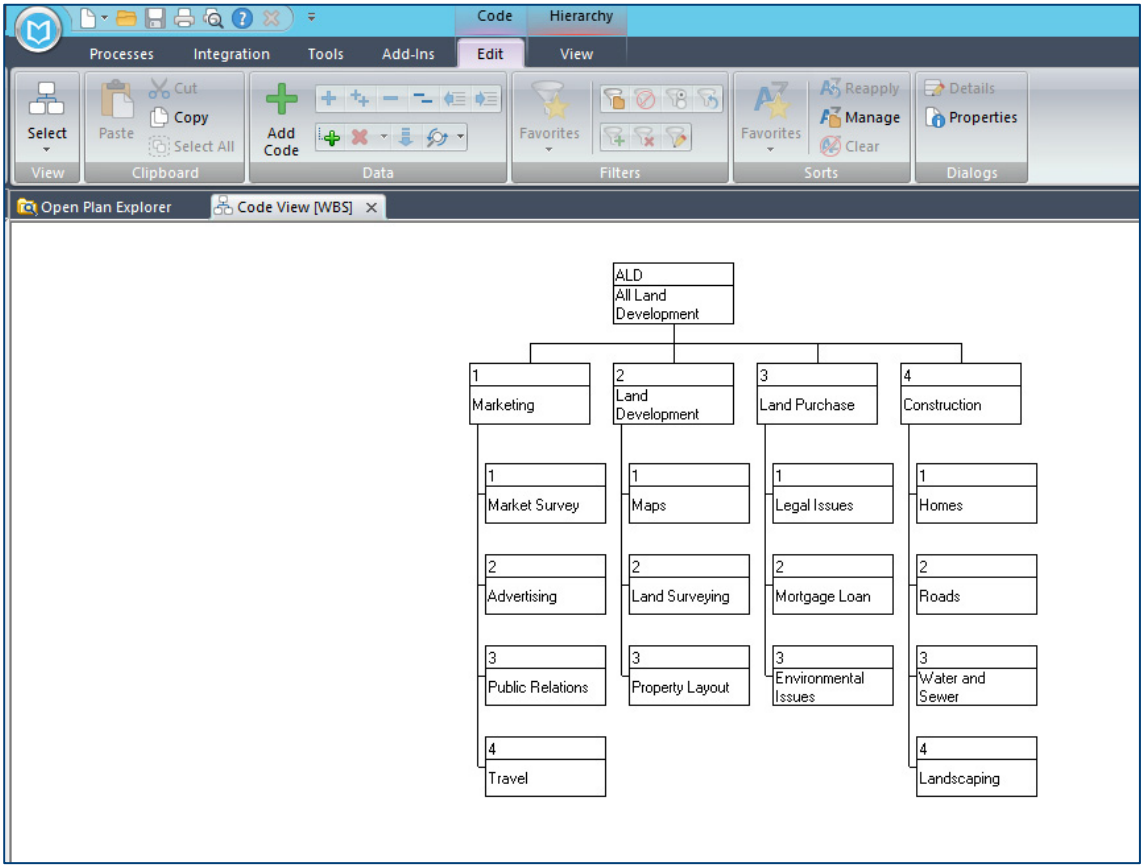
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3.11 Symmetry

Note that the tree doesn't have to be symmetrical, and rarely will be. Some schedulers might prefer that all branches of the tree finish at the lowest level. Again, there are no "rules" except that you must fully understand the implications of a structure at the outset if views are to behave as you expect.

Due to the systematic method of analysis of levels used by Open Plan, if the "tree" is not completed in this way there may be odd effects. This is reasonable; otherwise, Level 1 would have to be programmed as a special case.

The following diagram shows an example of a Punctuated Significant breakdown structure (as it happens, without the dots it would serve as a Fixed-Form Significant breakdown structure):



Level 1 represents all land development.

Level 2 (including the first dot) represents all the work necessary to do land development.

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Level 3 represents a more manageable breakdown of the work in Level 2.

The above represents a typical Work Breakdown Structure (WBS). Level 3 (the bottom level) represents the lowest level at which reporting is required. Below this level are the actual day-to-day activities of the project.

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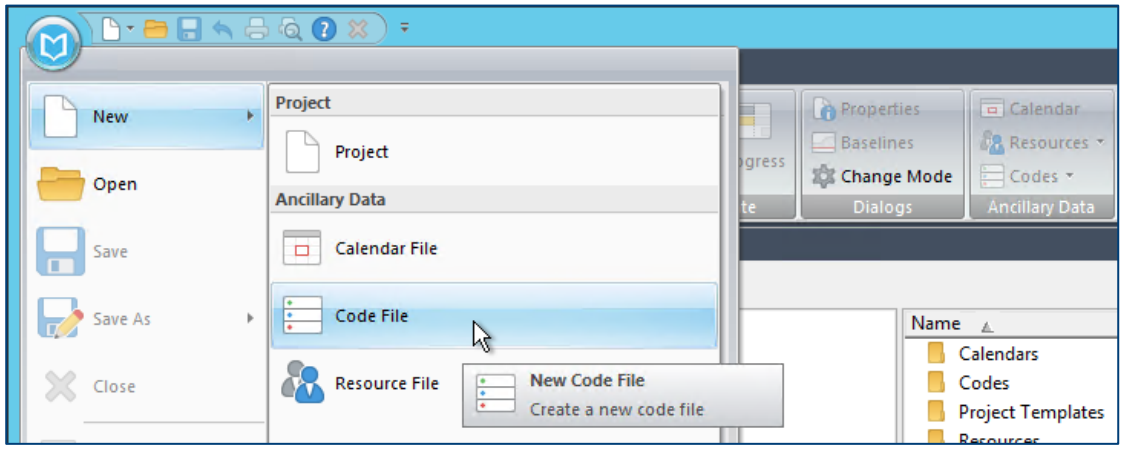
3.12 Creating a WBS Code File

Our Novak Electrical Substation project will be using a basic WBS code file. These next steps will show you how to create a new code file in Open Plan.

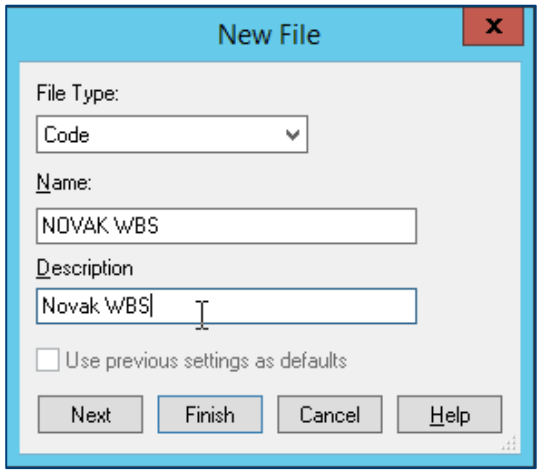
3.12.1 Activity: Creating a New Code File

1. Click on the **Open Plan** file menu and choose **New**.

2. Select the **Code File** submenu.



3. In the **Name:** field, enter **NOVAK WBS**, along with an optional description of **Novak WBS**.

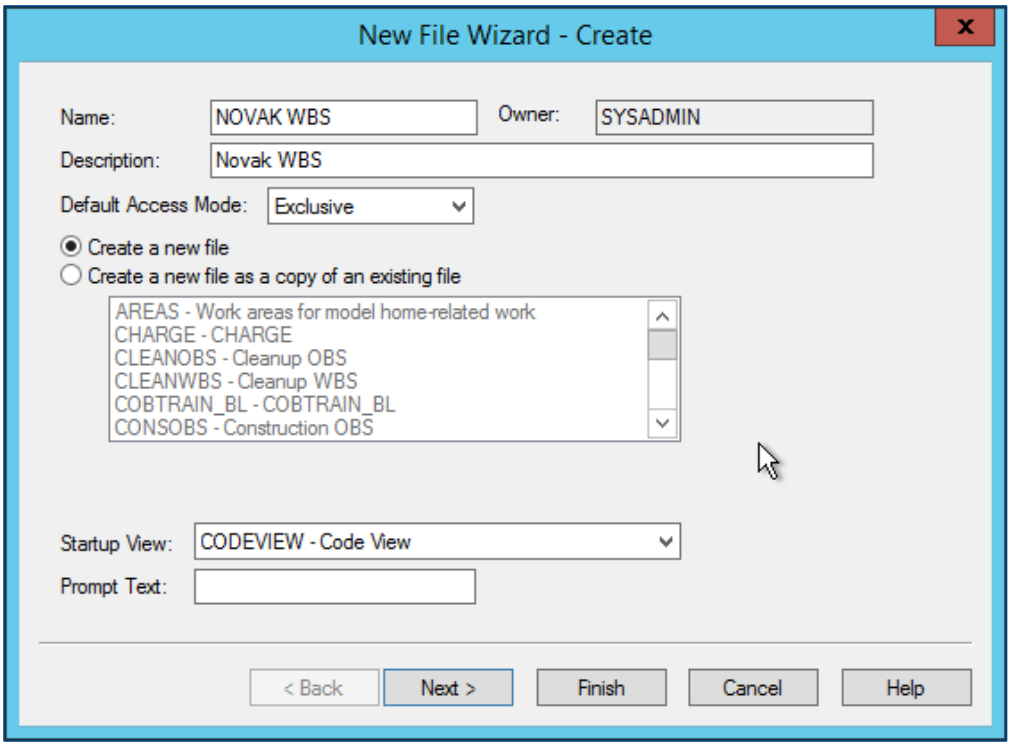


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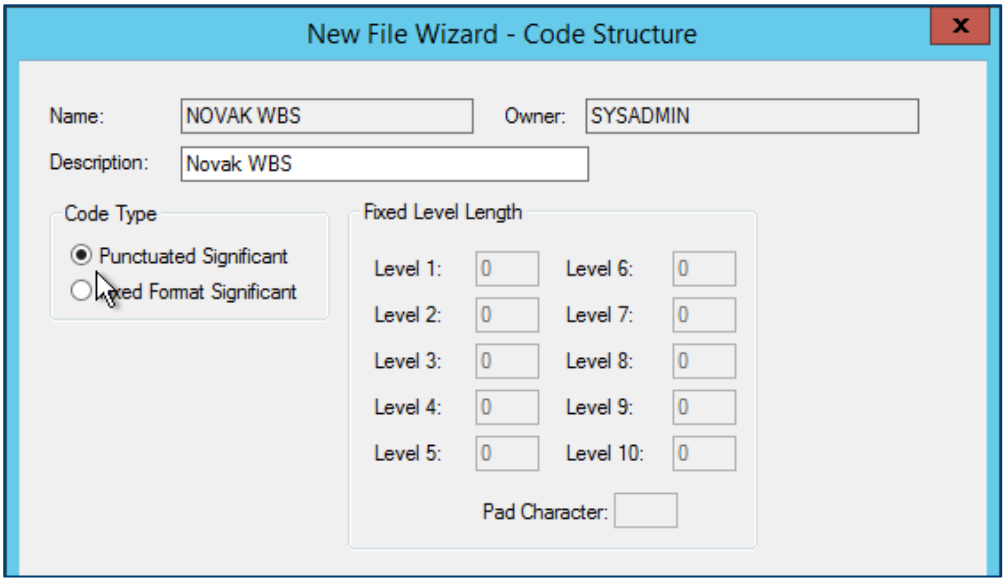
4. Click **Next**.

5. In the **New File Wizard – Create** dialog, go with the default options by clicking **Next**.

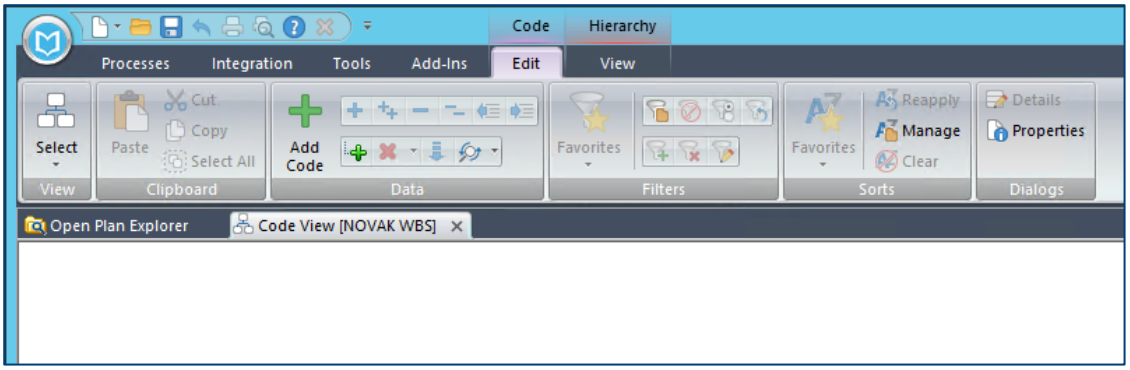


6. In the **Code Structure** dialog, verify the **Code Type** is **Punctuated Significant**.

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7. Click **Finish**.

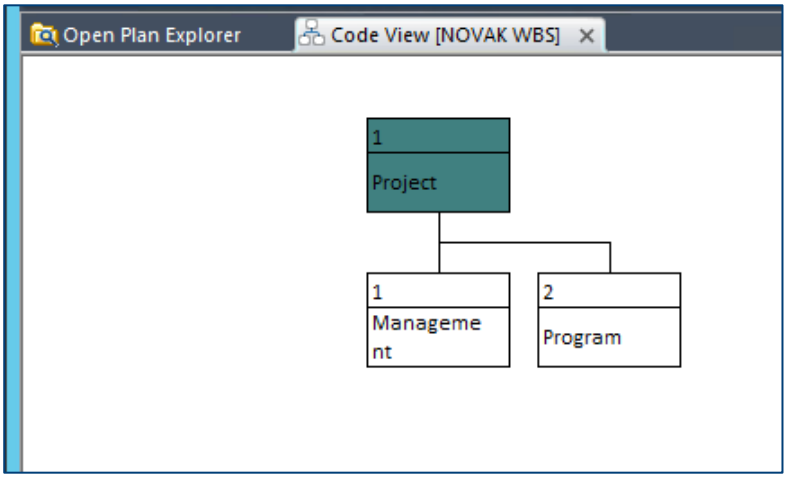


By default the code file is created and opened in the **Startup View** that was selected in the Create dialog: in this case CODEVIEW.

CODEVIEW is a graphical view that allows you to add code values using a series of boxes which can be organized into a hierarchy.

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If you prefer to work in a more spreadsheet-like view, you will need to change the Startup View for your new code file.

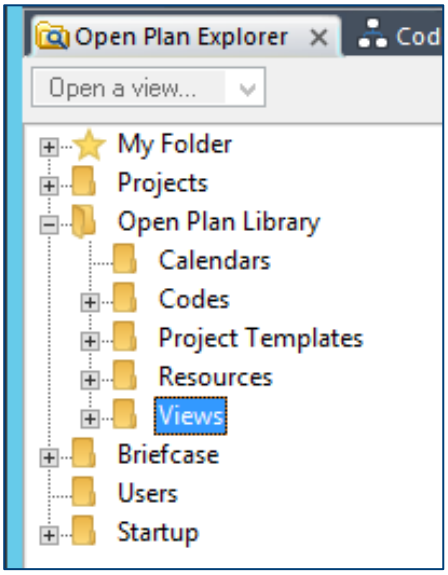
3.12.2 Activity: Changing the View

Before we can load data into a Code File from an external source such as a spreadsheet, we need to switch to the CodeSpreadsheet view.

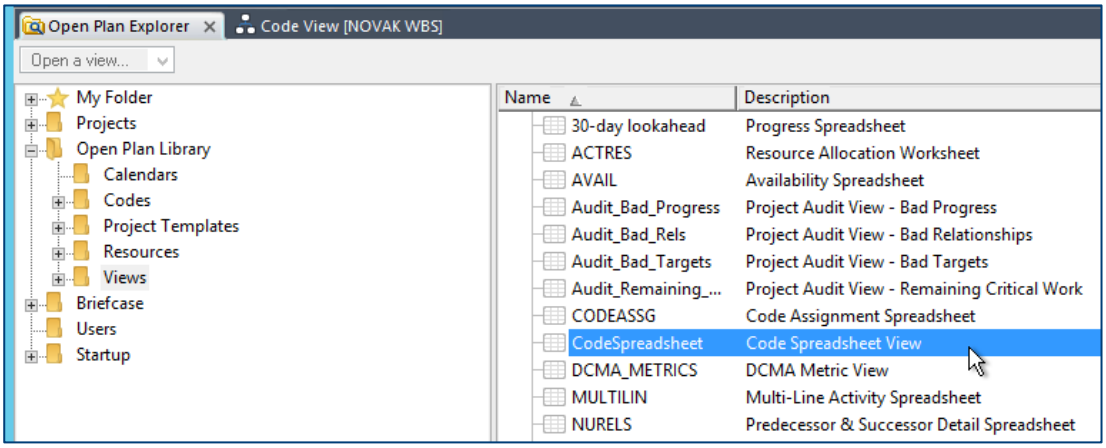
1. Click on the **Open Plan Explorer** tab.

2. Navigate to the **Open Plan Library** and select **Views**.

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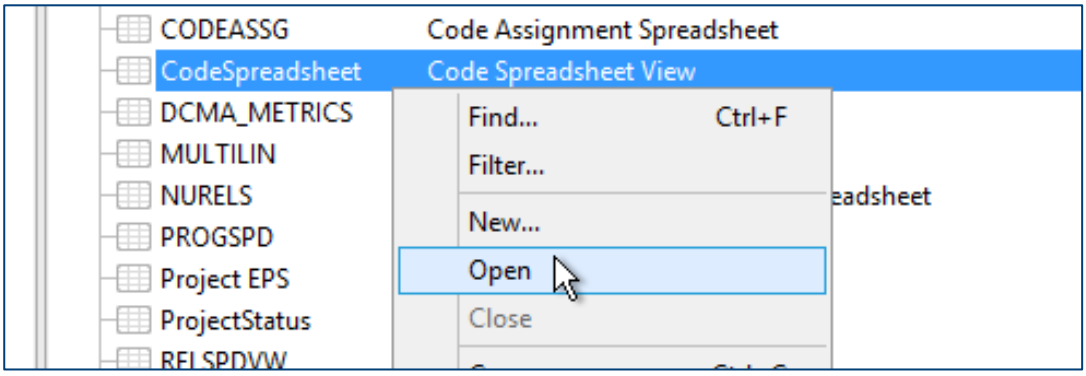


3. Locate the **CodeSpreadsheet** view.



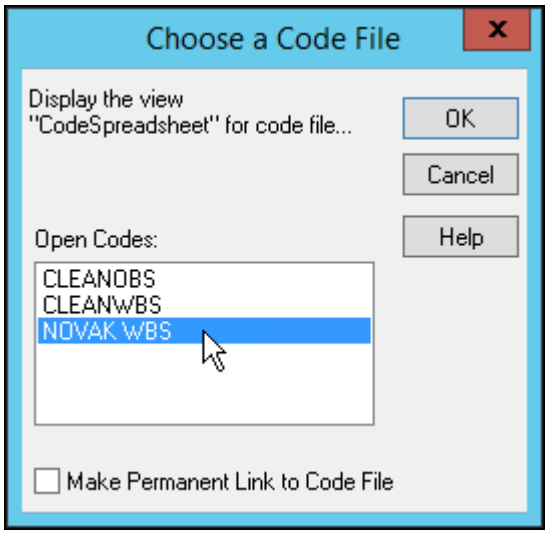
4. Right-click and choose **Open** from the menu.

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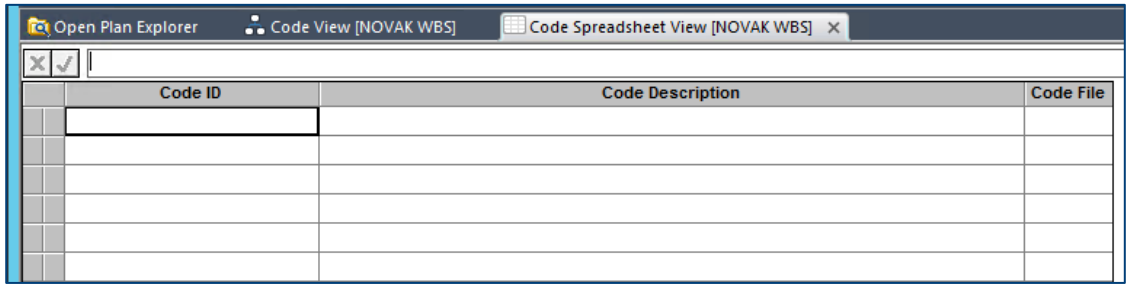


Note: If there are other code files currently open, you will be prompted to select the Code file that is to be displayed.

5. Choose the **NOVAK WBS** and click **OK**.



6. The view will open to display the spreadsheet view for **Codes**.



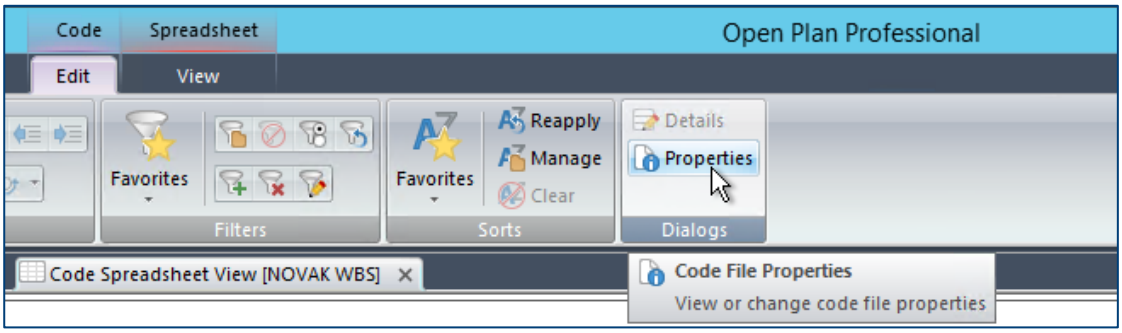
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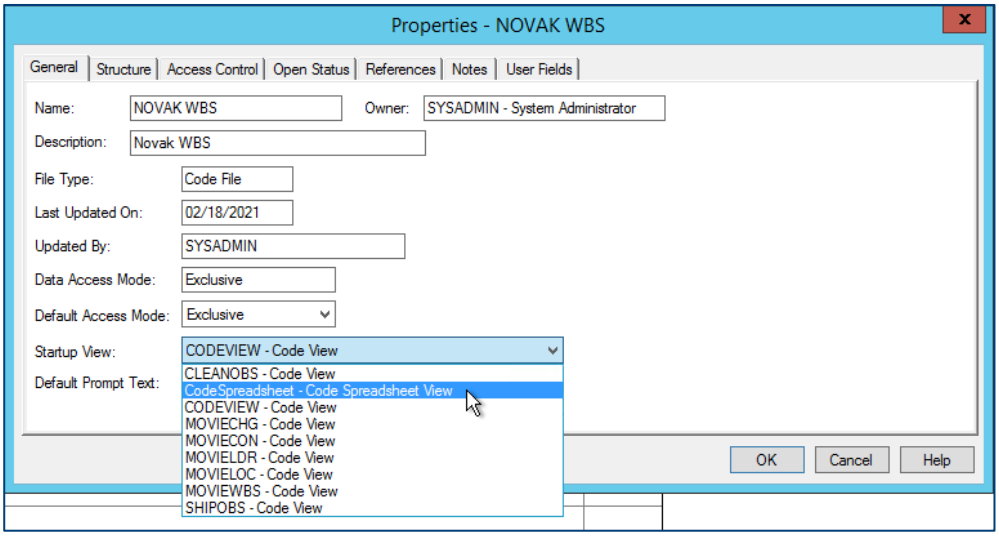
3.12.3 Activity: Changing the Startup View

Now that we have the code spreadsheet view open, we can make it easier to use this view in the future.

1. With the **Code Spreadsheet** view open, click on **Properties** in the **Edit** ribbon.



2. In the **General** tab, set the **Startup View** field to **CodeSpreadsheet**.



3. Click **OK**.

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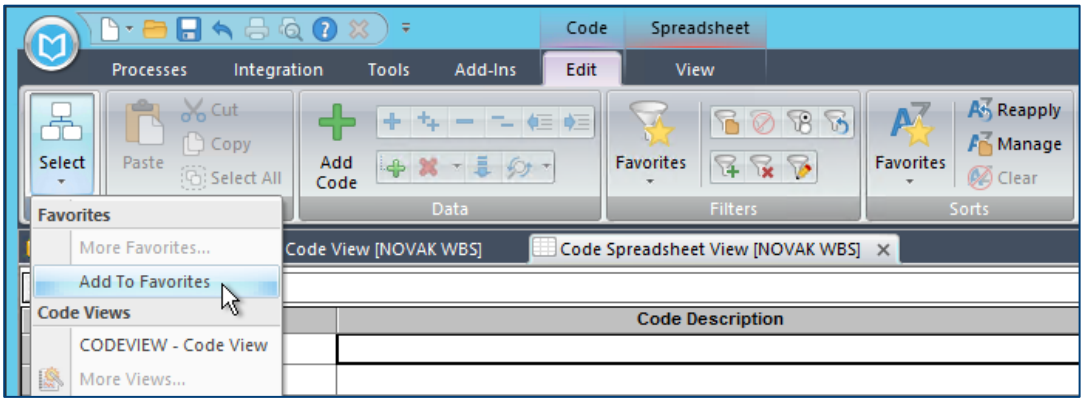
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3.12.4 Activity: Adding View to Favorites

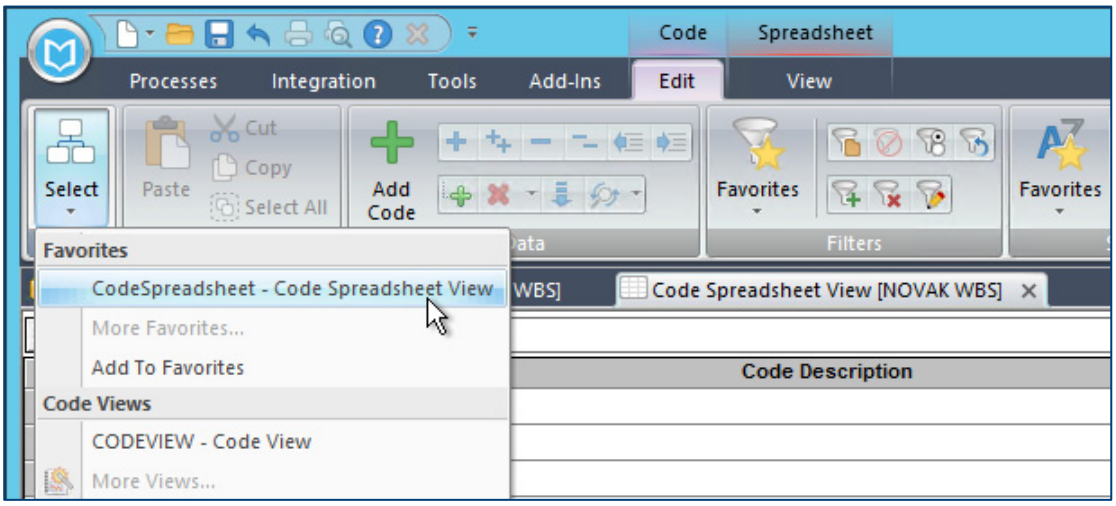
You can add any open views to your favorites for easier future access. Favorites are associated with your user profile and will be available to you from that point on. This is to say that if you add the CodeSpreadsheet to your favorites, you can more easily open it even when you are in an entirely different view.

1. With the **Code Spreadsheet View** selected, click on the **Select** button located in the **Views** tool group.

2. Choose the **Add To Favorites** option.



3. This action has added the selected view (CodeSpreadsheet) to the **Favorites** menu.



4. This will be saved against your user profile and be available whenever you open a Code file.

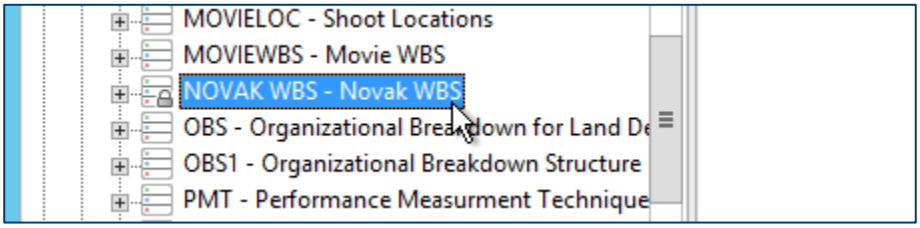
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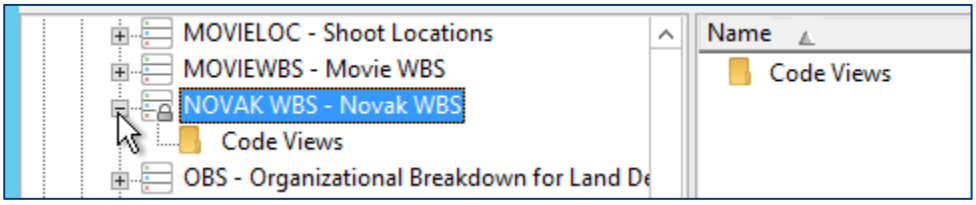
3.12.5 Activity: Other Ways to Access Views

While Favorites are stored against your user profile, you can also select views for improved access at the file level.

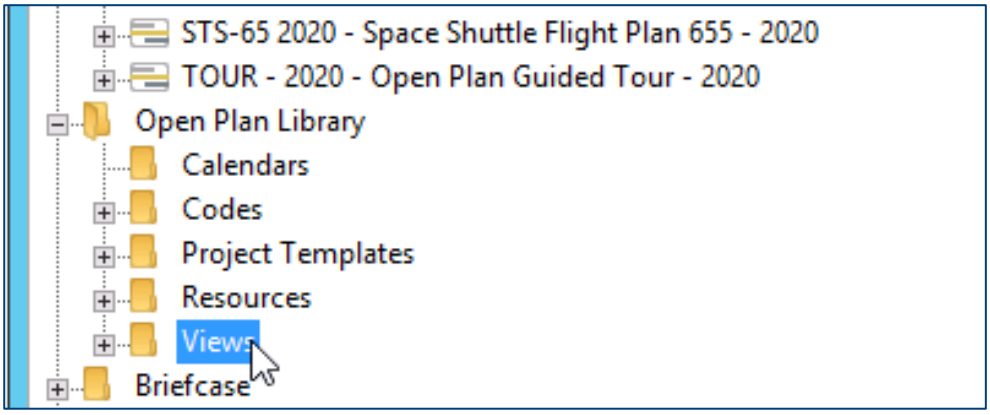
1. Locate your new **Novak WBS** code file in the **Codes** folder of the **Open Plan Explorer**.



2. Click the **+** button to expand the folder.



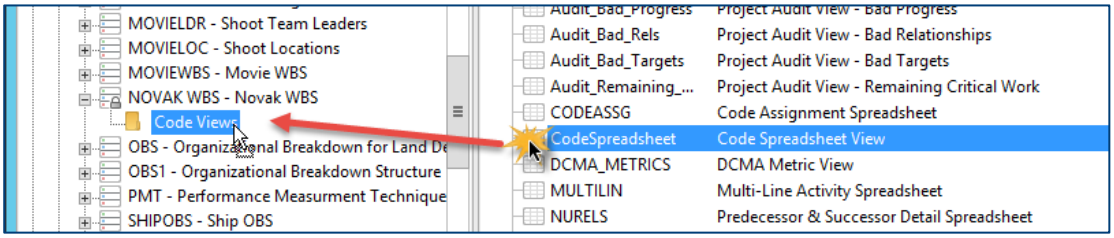
3. Leaving the **Codes** group expanded, scroll down to the **Views** folder.



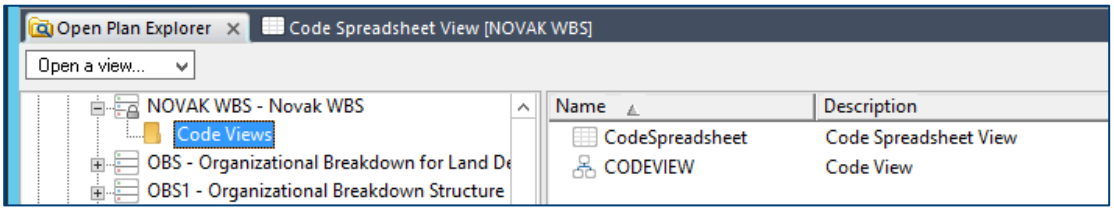
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5. Locate the **CodeSpreadsheet** and click and drag it up to the **Code Views** folder below the **NOVAK WBS** code.



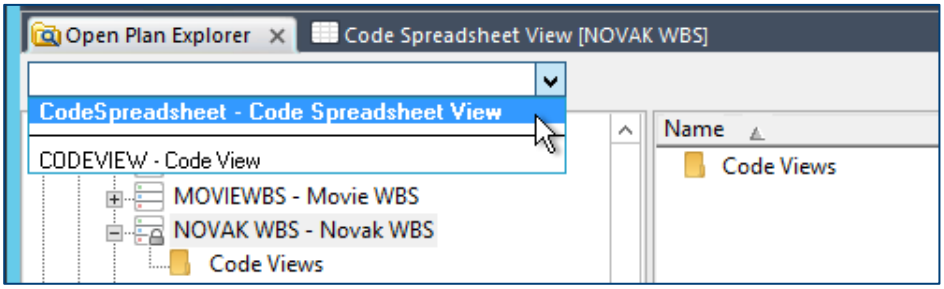
This process creates a permanent association between the code file and the code view.



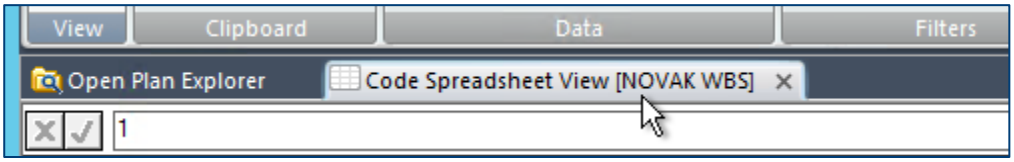
6. Click **Save**.



7. With your new code file still selected, click on the **Open a View** dropdown.



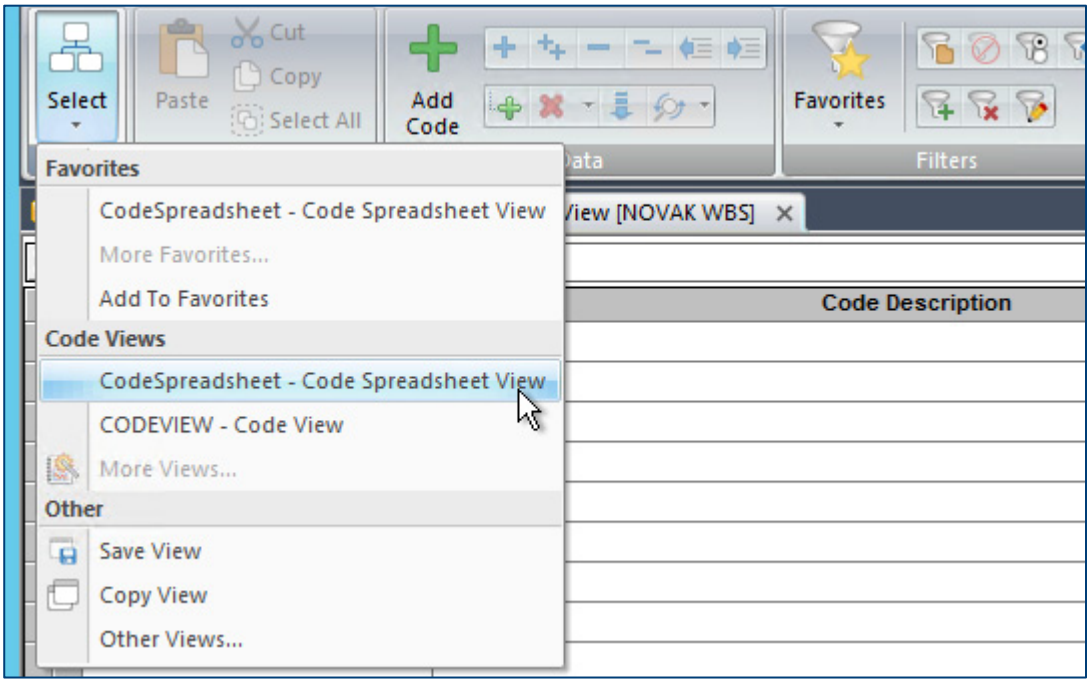
8. Click on the **Code Spreadsheet View [NOVAK WBS]**.



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9. Click on the **Select** button and note the appearance of the **CodeSpreadsheet** in the menu.



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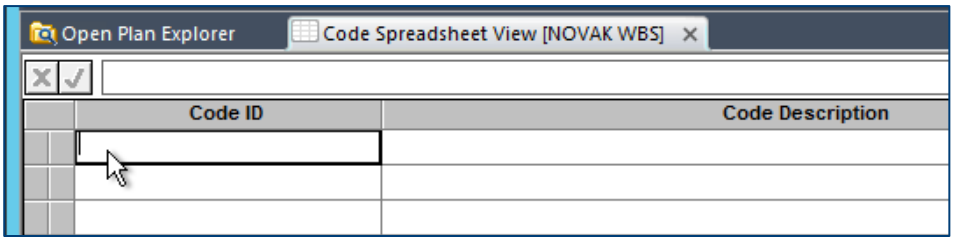
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3.13 Entering Code Values

Now we have a spreadsheet view open for our Code file, we can easily enter values into the spreadsheet, either row-by-row, or with a cut and paste from a spreadsheet. This method is very simple.

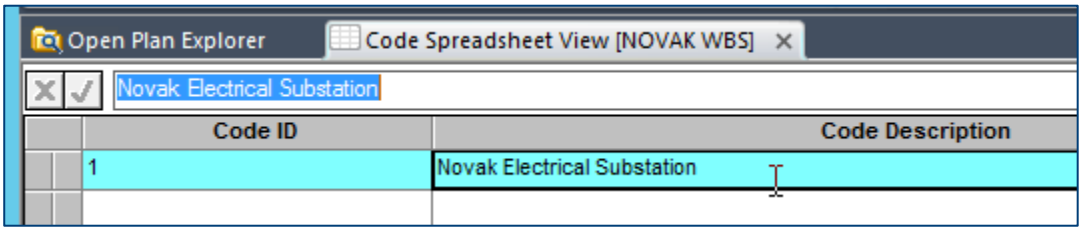
3.13.1 Activity: Entering Codes manually in the spreadsheet

1. Select the first blank cell at the top of the spreadsheet.



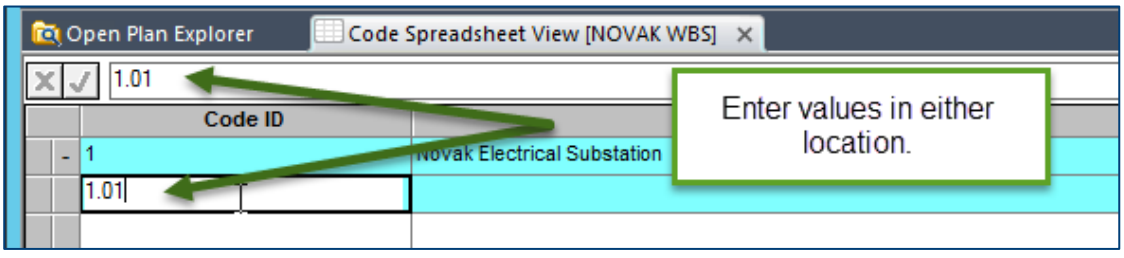
2. Enter '**1**'.

3. Click in the adjacent **Code Description** field and enter "**Novak Electrical Substation**".



4. Now click on the **Code ID** cell for the next row down.

5. Enter '**1.01**'.

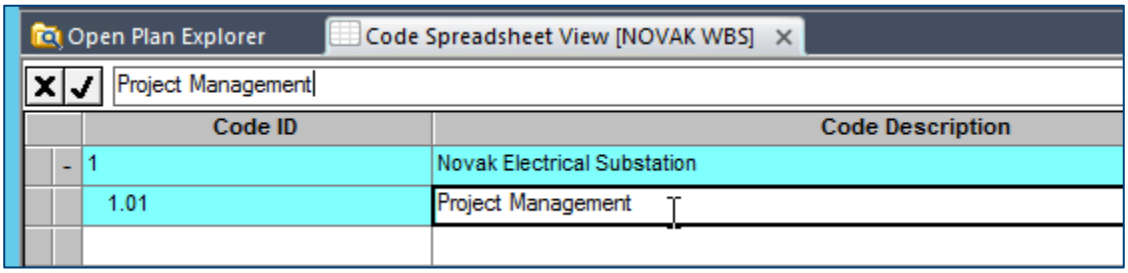


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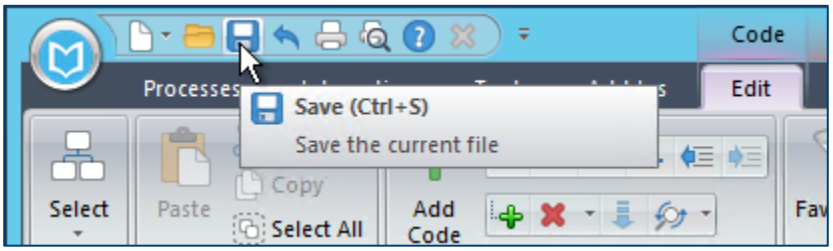
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Best Practice Tip – when creating punctuated significant hierarchical code files, it is often advantageous to use leading zeros for level 2 and below. This will ensure proper sorting in certain views and reports.

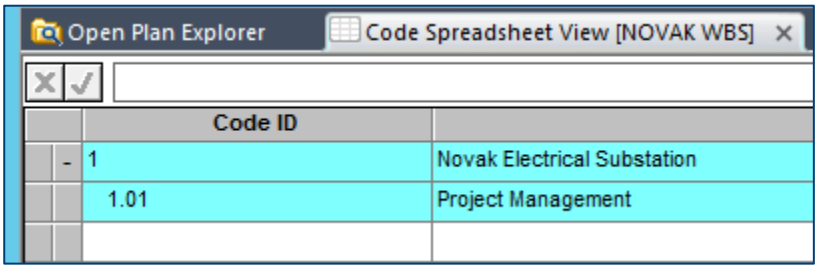
6. Enter "**Project Management**" in the **Code Description** field.



7. Click **Save**.



8. Note how Open Plan recognized the punctuation and automatically indented the second row below the first.



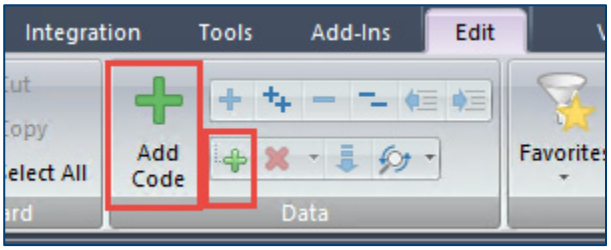
Clicking the '**-**' or '**+**' symbol in the row header will collapse and expand the child records as needed.

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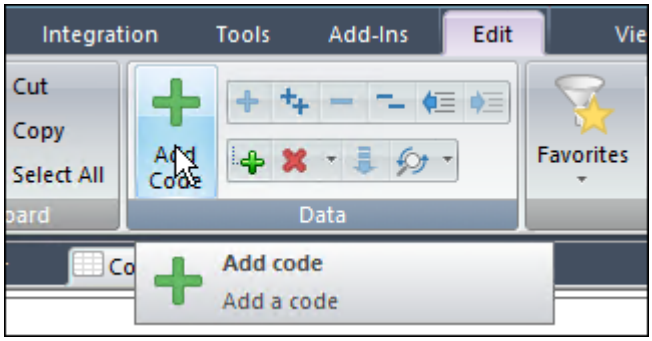
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3.13.2 Activity: Other Methods for Adding Codes

Another manual method for adding values is to use the **Add Code** and **Add Child Code** buttons located in the **Data** tool group of the **Edit** ribbon.



1. With the **1.01 – Project Management** record selected, click the **Add Code** button.

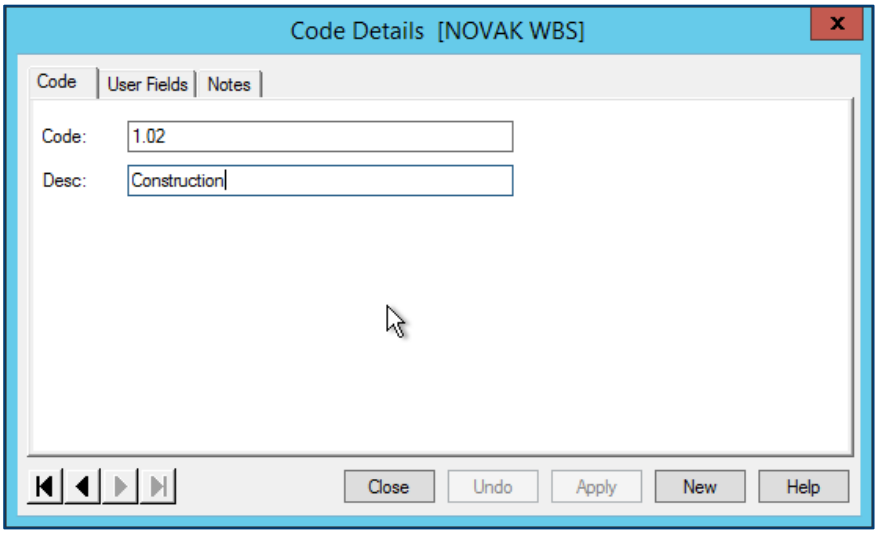


This creates a sibling code of the **1.01 – Project Management** record.

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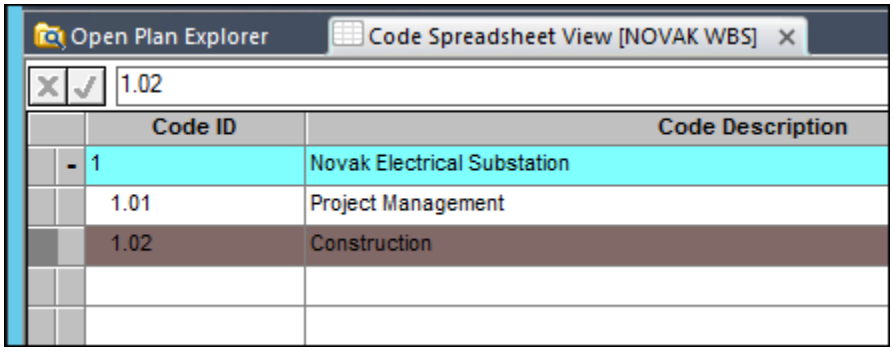
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2. In the **Code Details** dialog, enter the following values.

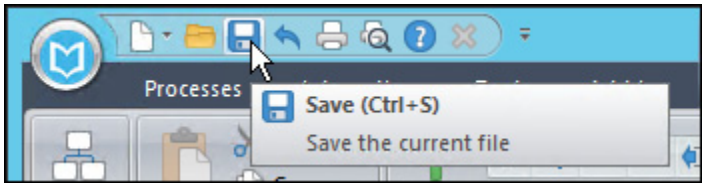


Code: 1.02
Desc: Construction

3. Click **Close**.



4. Click **Save**.



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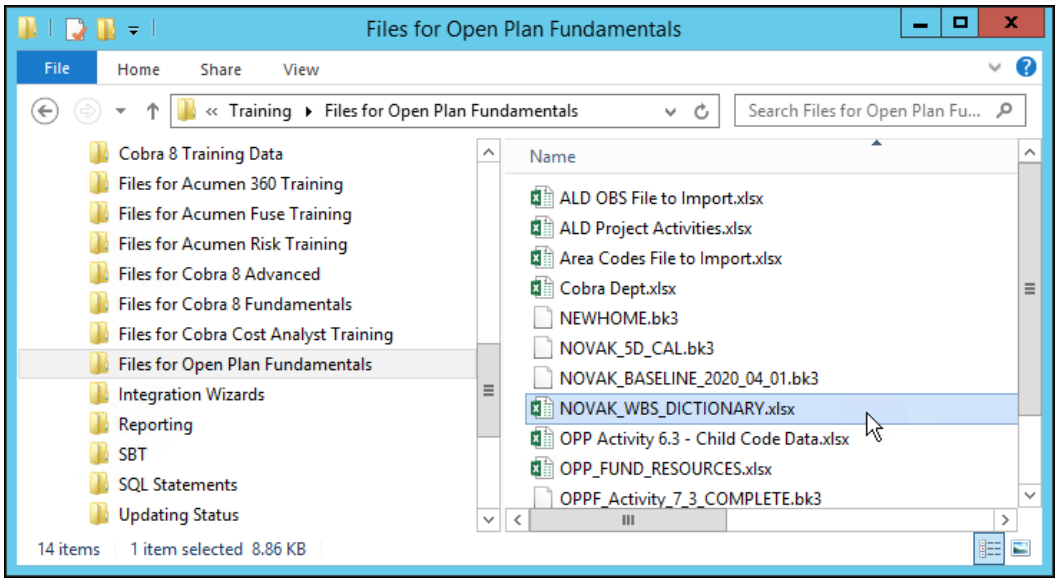
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3.14 Loading Codes from a Spreadsheet

By far the most popular way to load code data is by pasting it from a spreadsheet directly into the code file. As project data often exists in other systems – most commonly spreadsheets – the ability to copy/paste records directly into code files is a massive timesaving feature.

3.14.1 Activity: Loading the NOVAK WBS Data

1. Locate the **NOVAK_WBS.XLSX** file in the **C:\Training\Files for Open Plan Fundamentals** folder of your Deltek Learning Lab environment or in the provided **Files for Open Plan Scheduler Training.zip** file.



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2. Double-click to open the file in **Excel**.

	A	B	C	D	E	F
1	Code ID	Description	Responsible Org	SOW	CAM	LEVEL
2	1	Novak Electrical Substation				1
3	1.01	Project Management	MGMT	5.1.1	ERIKA	CA
4	1.02	Construction	CON	5.1	DANNY	2
5	1.02.01	Mobilization	CON	5.1.2	DANNY	CA
6	1.02.02	Grade Site	CON	5.1.2	DANNY	CA
7	1.02.03	Security Fence	CON	5.1.2	DANNY	CA
8	1.02.04	Foundations and Footings	CON	5.1.2	DANNY	CA
9	1.02.05	Steel Structures	CON	5.1.2	DANNY	CA
10	1.02.06	Control Building	CON	5.1.2	DANNY	CA
11	1.02.07	Install Equipment	CON	5.1.2	DANNY	CA
12	1.02.08	Testing	ENG	20	EVELYN	CA
13	1.03	Demobilization	CON	5.1.4	DANNY	CA
14	1.03.01	Substantial Completion	CON	5.1.4	DANNY	CA
15	1.03.02	Energization and Handover	CON	5.1.4	ERIKA	CA
16	1.03.03	Warranty and Monitoring	CON	7.1	ERIKA	CA
17						

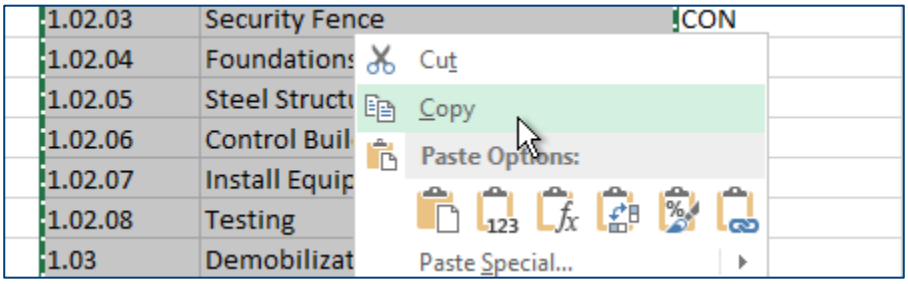
3. Select from cell **A5** down to **B16**.

	A	B	C	D	E
1	Code ID	Description	Responsible Org	SOW	CAM
2	1	Novak Electrical Substation			
3	1.01	Project Management	MGMT	5.1.1	ERIKA
4	1.02	Construction	CON	5.1	DANNY
5	1.02.01	Mobilization	CON	5.1.2	DANNY
6	1.02.02	Grade Site	CON	5.1.2	DANNY
7	1.02.03	Security Fence	CON	5.1.2	DANNY
8	1.02.04	Foundations and Footings	CON	5.1.2	DANNY
9	1.02.05	Steel Structures	CON	5.1.2	DANNY
10	1.02.06	Control Building	CON	5.1.2	DANNY
11	1.02.07	Install Equipment	CON	5.1.2	DANNY
12	1.02.08	Testing	ENG	20	EVELYN
13	1.03	Demobilization	CON	5.1.4	DANNY
14	1.03.01	Substantial Completion	CON	5.1.4	DANNY
15	1.03.02	Energization and Handover	CON	5.1.4	ERIKA
16	1.03.03	Warranty and Monitoring	CON	7.1	ERIKA
17					
18					

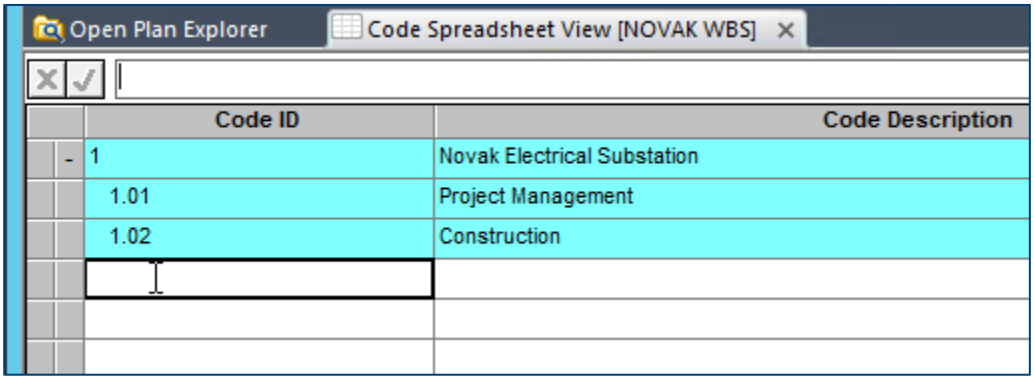
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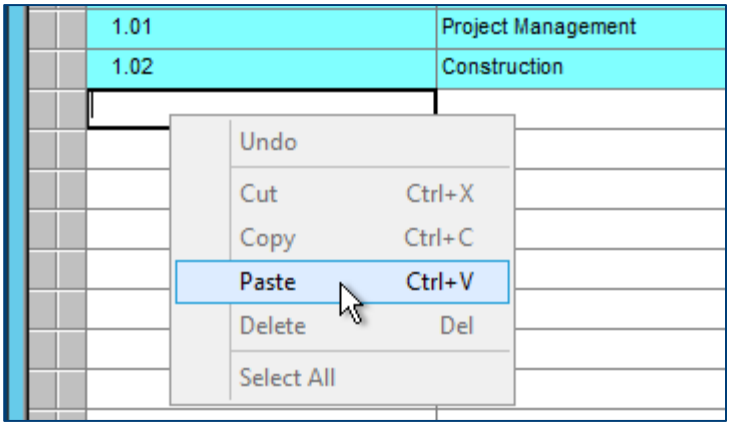
4. Right-click and select **Copy** (or **Ctrl + C** on your keyboard).



5. Select the **Code ID** cell in the first blank row.



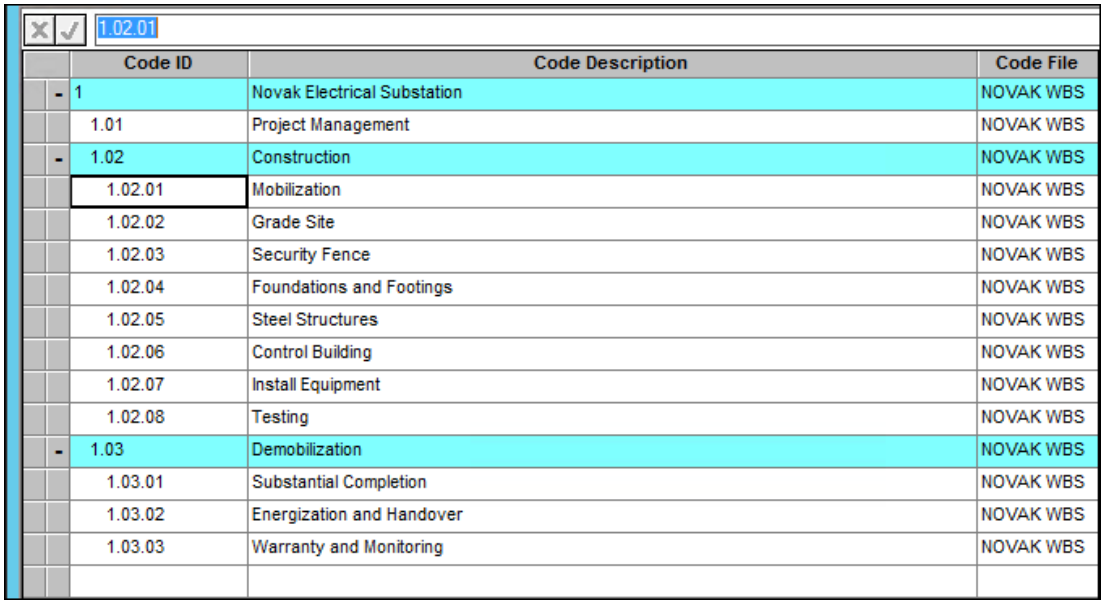
6. Right-click – **Paste** (or **Ctrl + V** on your keyboard).



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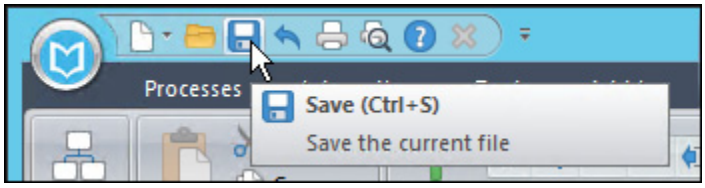
7. You will see the values load into the code file.



1.02.01

Code ID	Code Description	Code File
- 1	Novak Electrical Substation	NOVAK WBS
1.01	Project Management	NOVAK WBS
- 1.02	Construction	NOVAK WBS
1.02.01	Mobilization	NOVAK WBS
1.02.02	Grade Site	NOVAK WBS
1.02.03	Security Fence	NOVAK WBS
1.02.04	Foundations and Footings	NOVAK WBS
1.02.05	Steel Structures	NOVAK WBS
1.02.06	Control Building	NOVAK WBS
1.02.07	Install Equipment	NOVAK WBS
1.02.08	Testing	NOVAK WBS
- 1.03	Demobilization	NOVAK WBS
1.03.01	Substantial Completion	NOVAK WBS
1.03.02	Energization and Handover	NOVAK WBS
1.03.03	Warranty and Monitoring	NOVAK WBS

8. Click **Save**.



We will assign this code file to the Novak project in lesson 5 – Building the Project Schedule.

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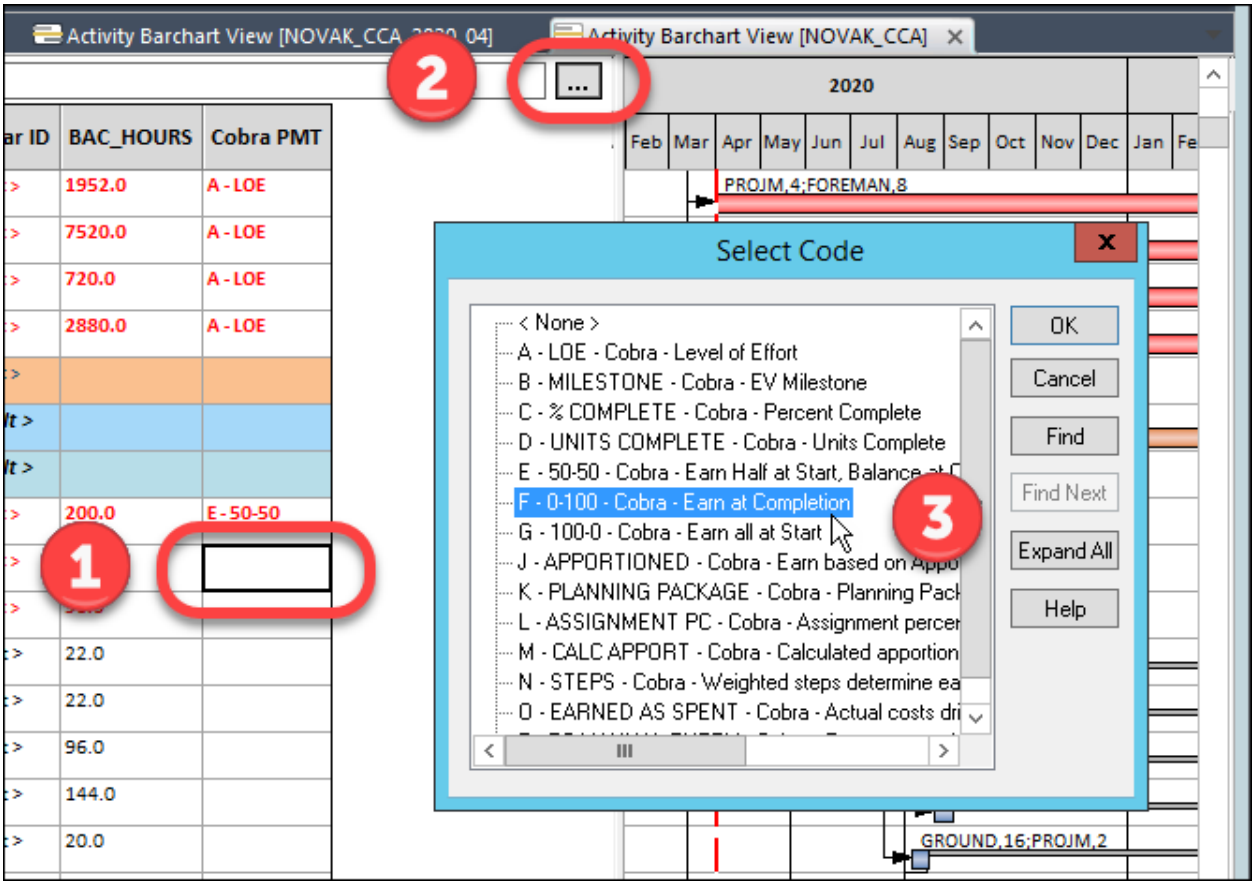
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3.15 Creating an OBS Code File

In this section you will create two new code files for Open Plan. These are: (1) – an Organization Breakdown Structure – **Cobra OBS**, and (2) – a **Cobra PMT** code file [used when integrating an OPP master schedule with Deltek Cobra].

Using the **Cobra PMT** example: Code files can be assigned as columns in the table views of Open Plan. This is achieved by creating the code file, assigning it to the project, and then simply selecting it from a list of columns using 'Add Column' or, 'Insert Column'.

See below - select the cell in which to enter a code value (1), click the ellipsis above the table (2), and finally, select from a list of the codes previously entered in the code file (3).



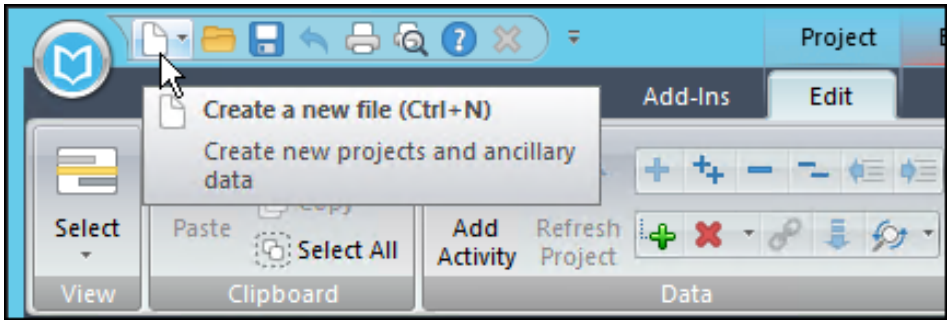
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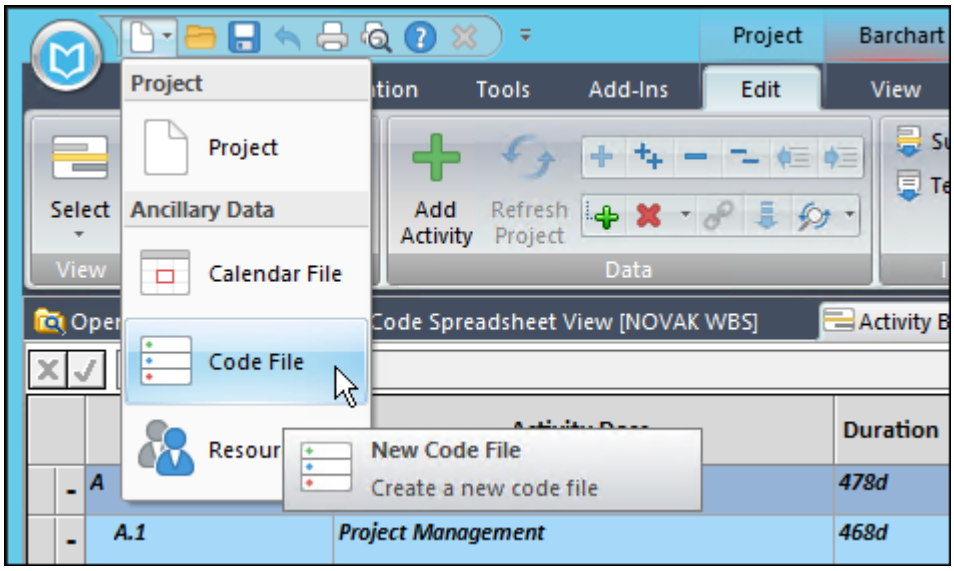
3.15.1 Activity: Creating an OBS Code File

Using the skills gained in the previous activity, you will get a little more practice now at creating two additional code files, as previously described. You'll also learn some new ways to start the 'Create" process. These exercises will help get your speed and confidence up, as you practice the steps. So with that: let's get started!

1. Click **New** on the **Quick Access Toolbar**.



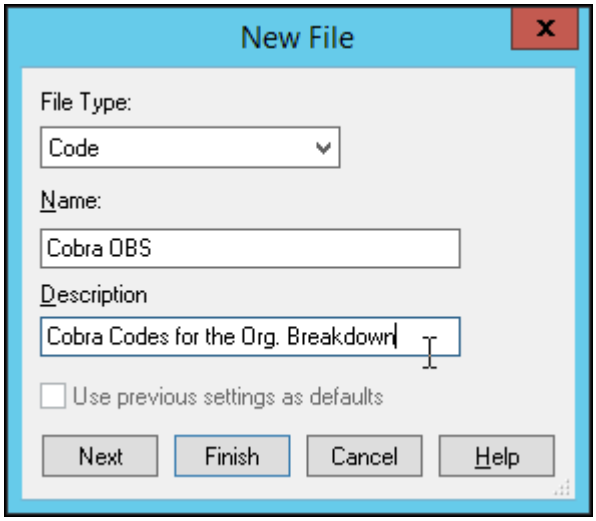
2. Select **Code File** from the menu.



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3. In the **New File** dialog, enter the following:



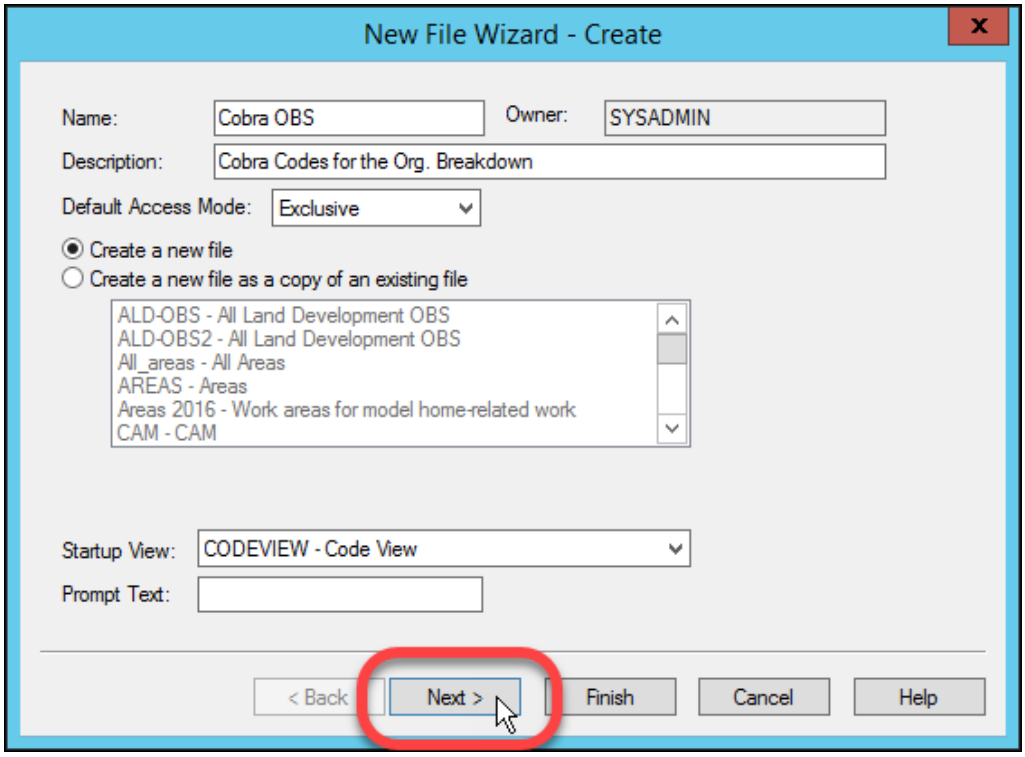
Name: Cobra OBS
Desc: Cobra Codes for the Org. Breakdown

4. Click **Next**.

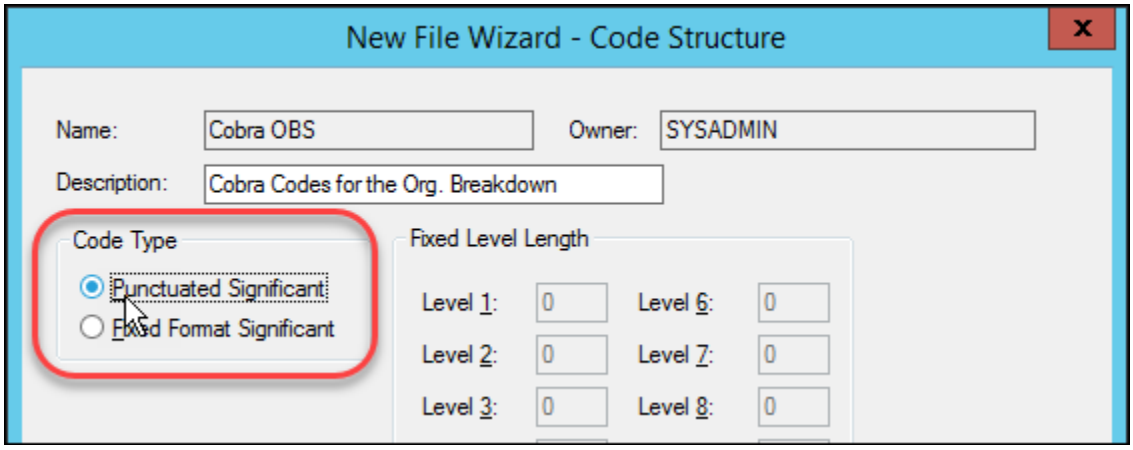
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5. In the **New File Wizard – Create** dialog, go with defaults and click **Next >**.



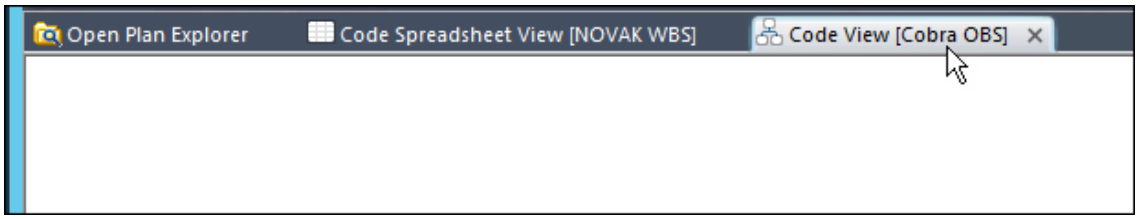
6. In the **New File Wizard – Code Structure** dialog, verify **Punctuated Significant**, and click **Next >**.



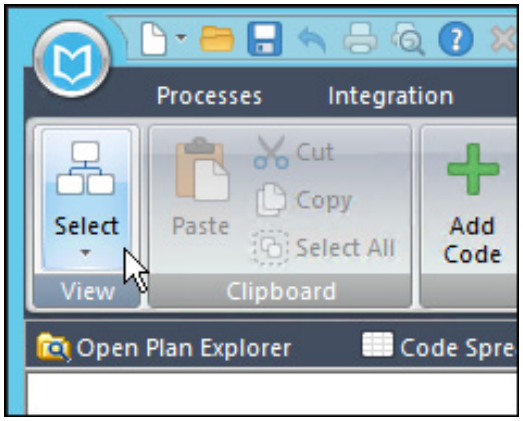
7. At this point click **Finish**. (Bypass the remaining default selections in later dialogs.)

   You will now see the newly created **Cobra OBS** Code File appear as a tab in the OPP window.

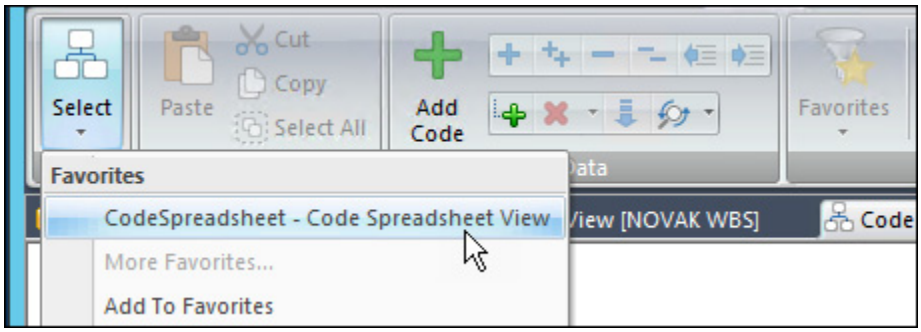
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8. Click the **View | Select** button.



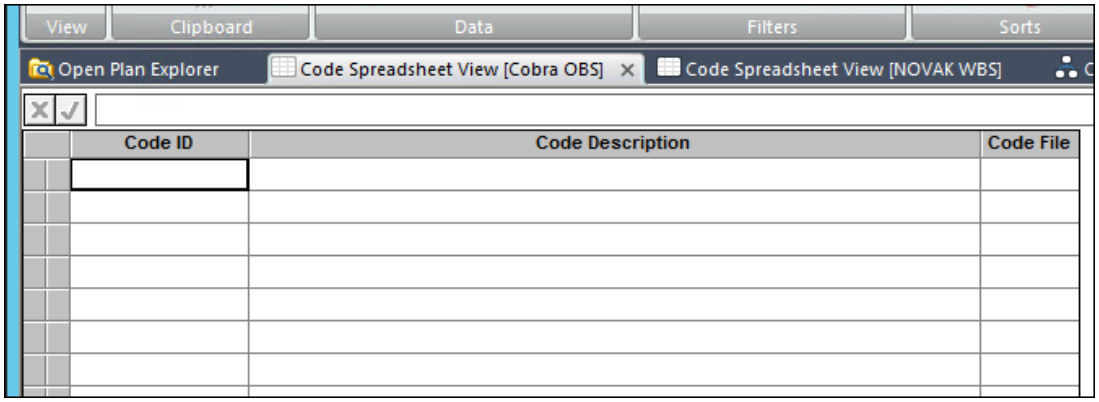
9. Choose the **CodeSpreadsheet** view from the top of the list.



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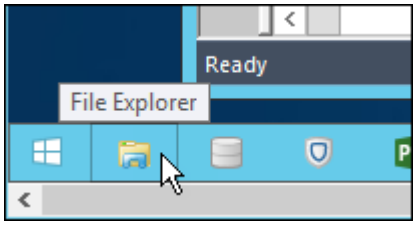
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10. The **Cobra OBS** file now opens in another tab.



You now have the correct view for copy / paste record transfer from a spreadsheet.

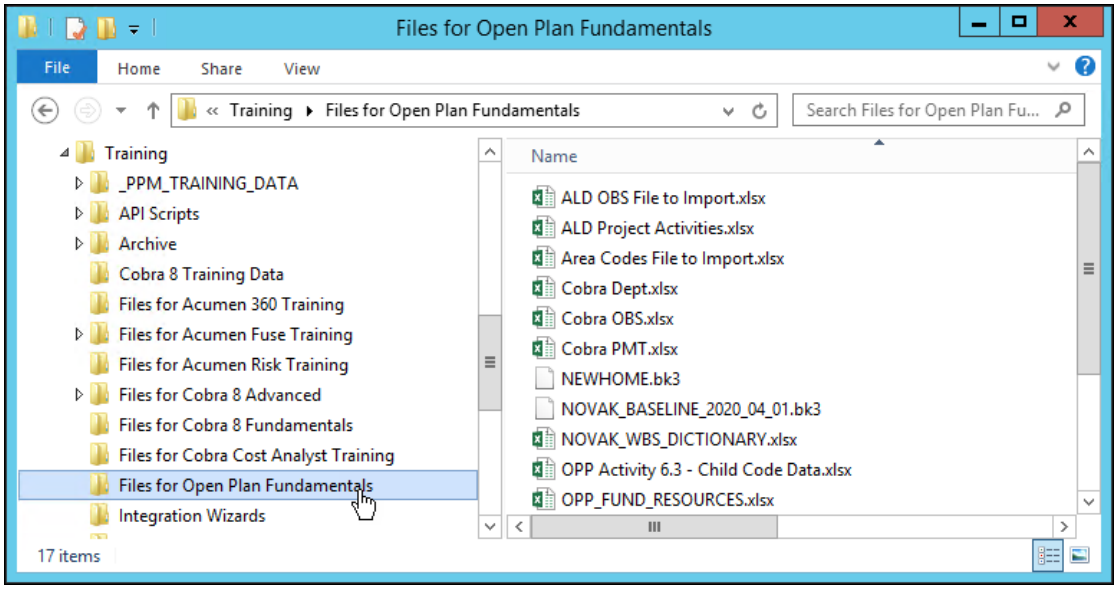
11. Go to your **Windows Taskbar** and click on the **File Explorer**.



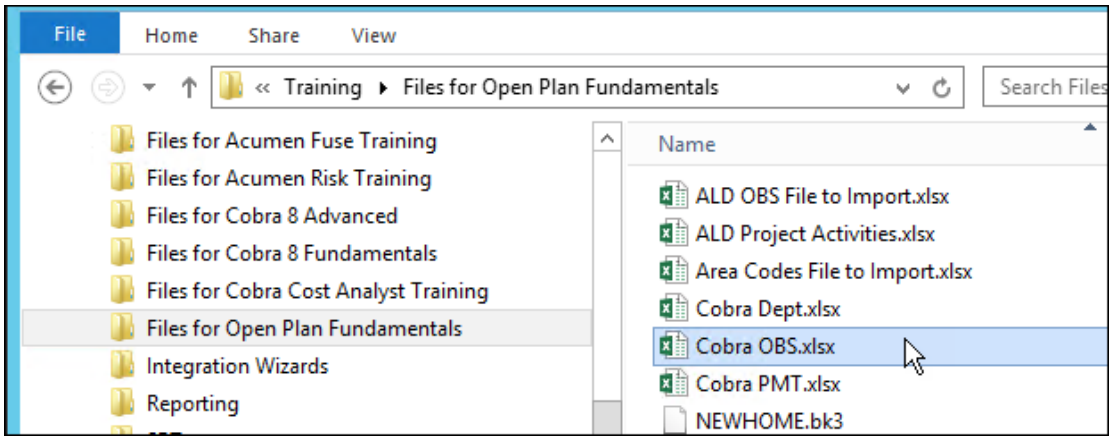
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12. Click on **System (C:)** | **Training** | **Files for Open Plan Fundamentals** folders.



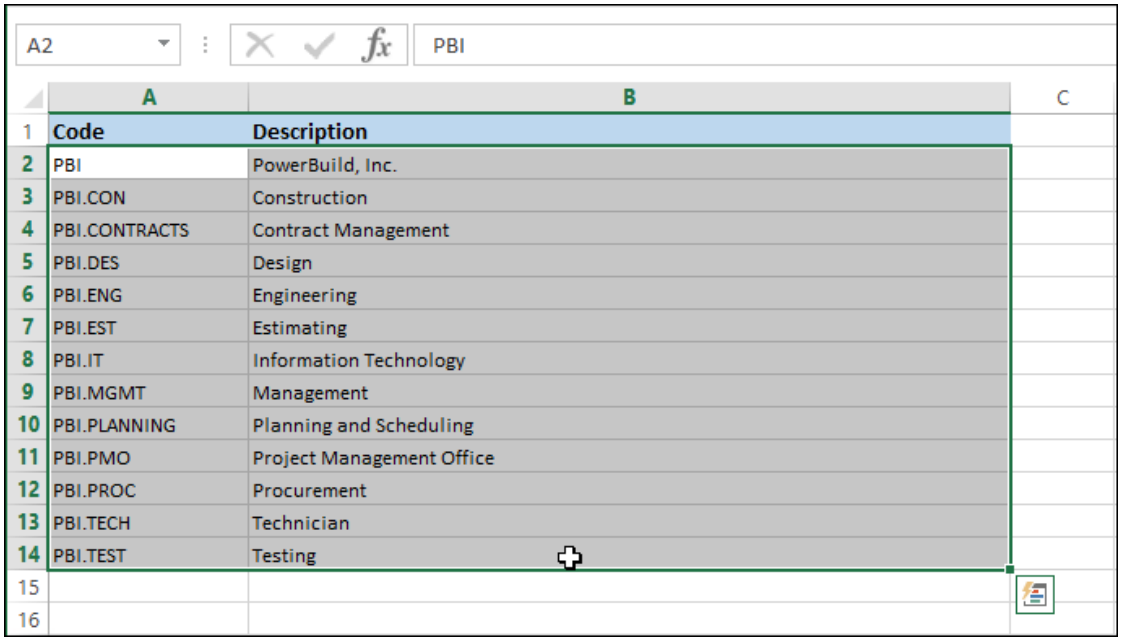
13. Double-click to open the **Cobra OBS.xlsx** file.



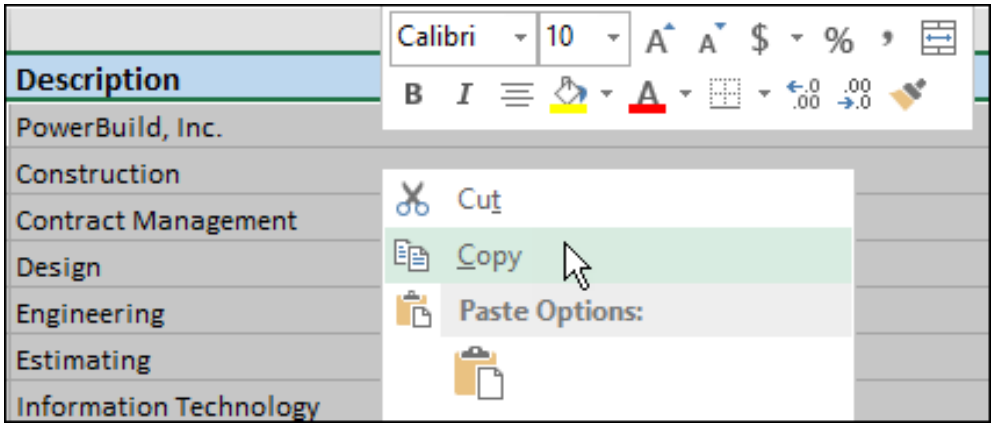
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14. In the resulting spreadsheet, select cells **A2 – B14**.

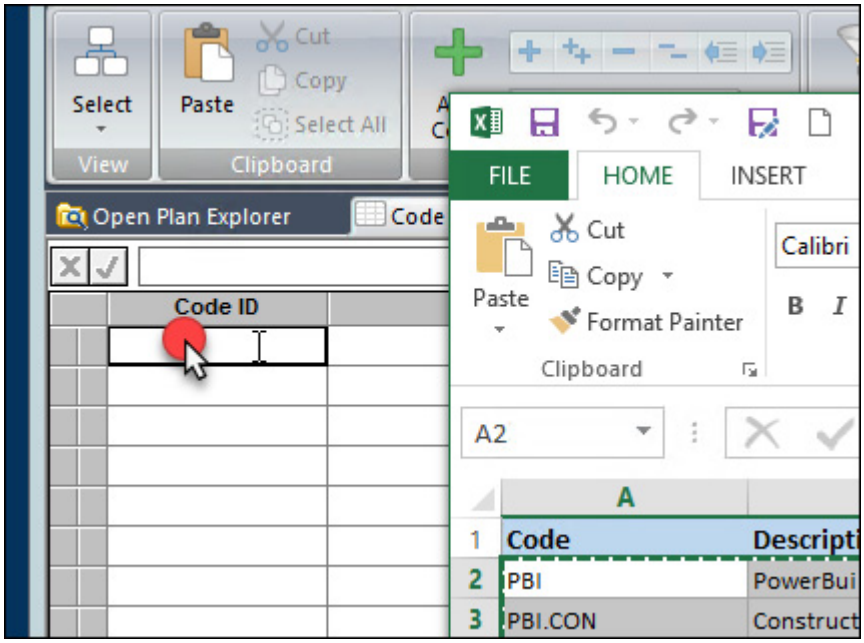


15. Right-click and choose **Copy**.

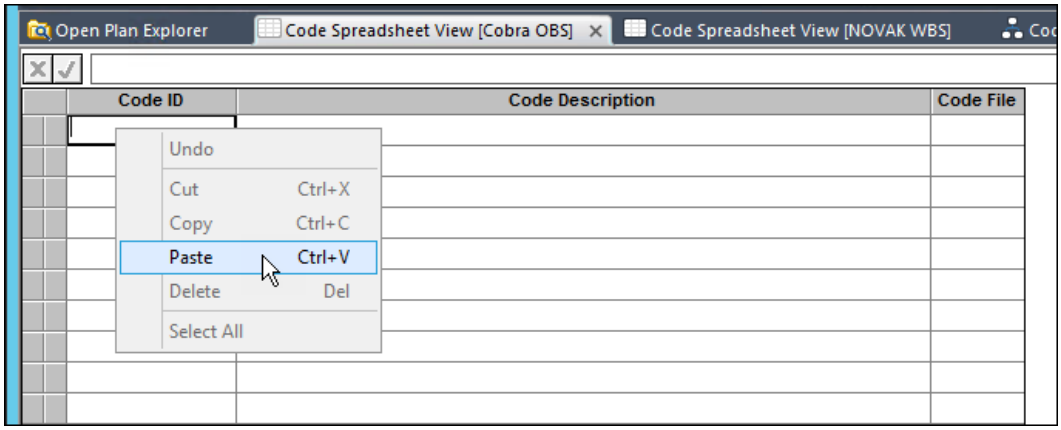


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16. Click on any part of the **Open Plan** window behind the spreadsheet to bring **Open Plan** to the front.



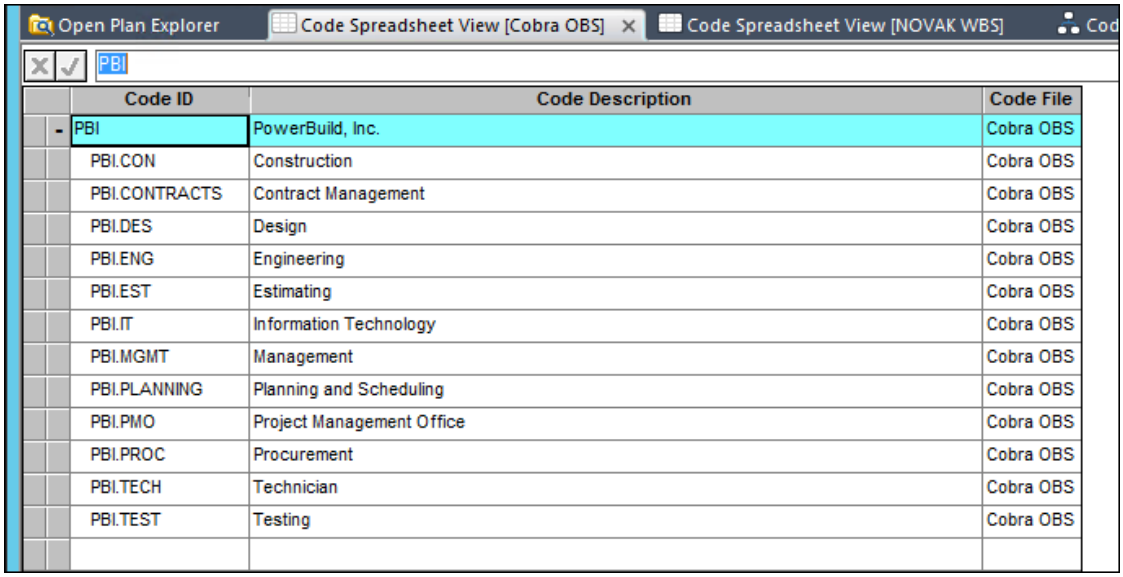
17. In the first cell of the **Cobra OBS** file, right-click, and choose **Paste**.



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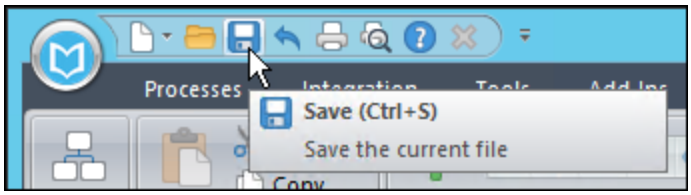
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18. You will quickly see the values from the spreadsheet appear in the table view.

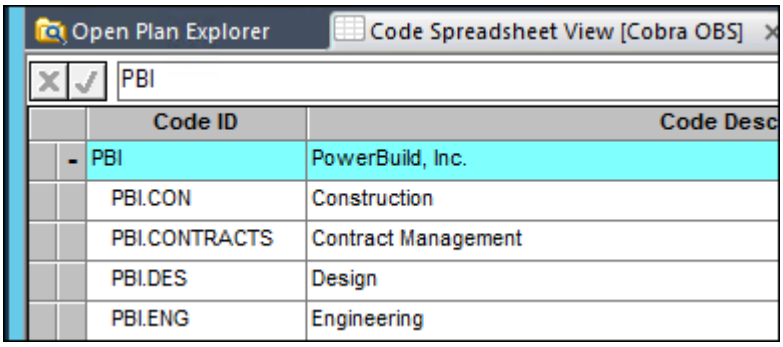


Code ID	Code Description	Code File
PBI	PowerBuild, Inc.	Cobra OBS
PBI.CON	Construction	Cobra OBS
PBI.CONTRACTS	Contract Management	Cobra OBS
PBI.DES	Design	Cobra OBS
PBI.ENG	Engineering	Cobra OBS
PBI.EST	Estimating	Cobra OBS
PBI.IT	Information Technology	Cobra OBS
PBI.MGMT	Management	Cobra OBS
PBI.PLANNING	Planning and Scheduling	Cobra OBS
PBI.PMO	Project Management Office	Cobra OBS
PBI.PROC	Procurement	Cobra OBS
PBI.TECH	Technician	Cobra OBS
PBI.TEST	Testing	Cobra OBS

19. Click **Save**.



With this exercise complete, you have successfully created and populated your Cobra OBS file. Notice how the punctuated 'PBI.' prefix, on all but one, of the records has caused Open Plan to organize the structure automatically.



Code ID	Code Desc
PBI	PowerBuild, Inc.
PBI.CON	Construction
PBI.CONTRACTS	Contract Management
PBI.DES	Design
PBI.ENG	Engineering

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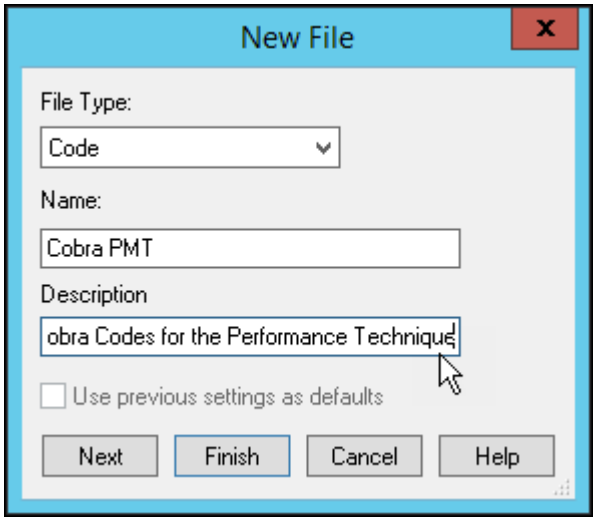
3.15.2 Activity: Creating a Cobra PMT Code

Using the same steps taken previously, now create a new code file for the **Cobra PMT** codes. Here are some key data points:

1. Click **New** on the **Quick Access Toolbar**.

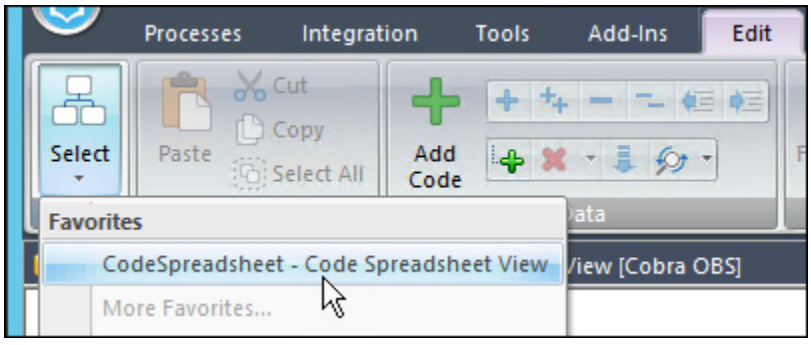
2. In the **New File** dialog's fields, enter the following:

   Name: **Cobra PMT**
   Description: **Cobra Codes for the Performance Technique**



3. Run through the rest of the **New File Wizard** using all defaults to create the **Cobra PMT** file.

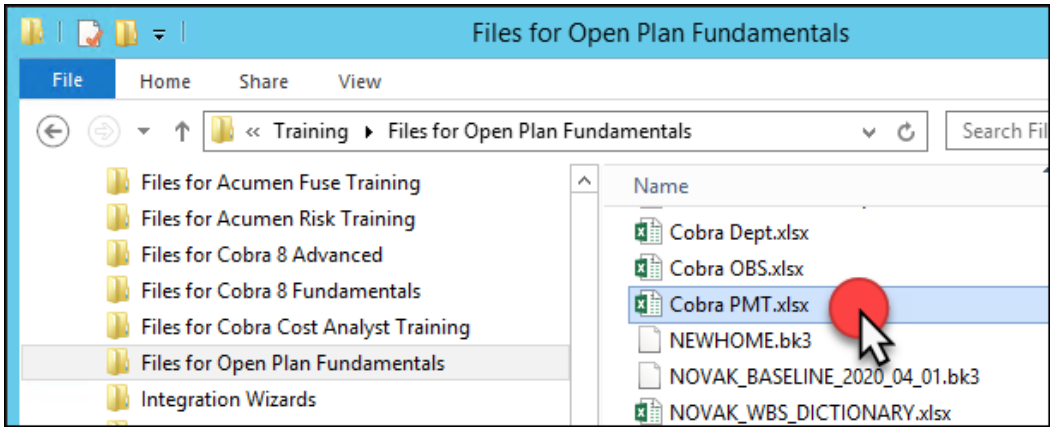
4. Once created, use the **View** | **Select** button to open the **CodeSpreadsheet** view in readiness for the spreadsheet 'paste' operation.



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5. In the **Windows File Explorer**, double-click to open the **Cobra PMT.xlsx** file.



6. Select cells **A2 – B15**.

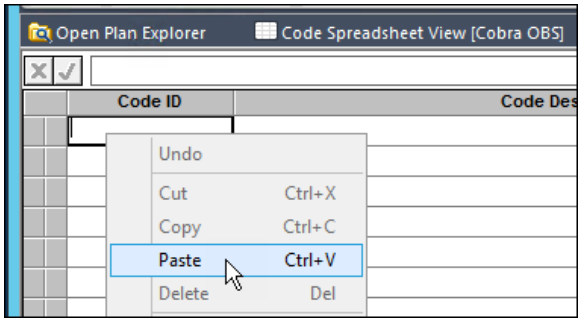
	A	B
1	Code	Description
2	A - LOE	Cobra - Level of Effort
3	B - Milestone	Cobra - EV Milestone
4	C - % Complete	Cobra - Percent Complete
5	D - Units Complete	Cobra - Units Complete
6	E - 50-50	Cobra - Earn Half at Start, Balance at Completion
7	F - 0-100	Cobra - Earn at Completion
8	G - 100-0	Cobra - Earn all at Start
9	J - APPORTIONED	Cobra - Earn based on Apportioned resource
10	K - Planning Package	Cobra - Planning Package - placeholder for unscoped work
11	L - ASSIGNMENT PC	Cobra - Assignment percent complete - resource driven
12	N - Steps	Cobra - Weighted steps determine earning
13	M - CALC APPORT	Cobra - Calculated apportionment - derived from other work packaged
14	O - Earned As Spent	Cobra - Actual costs drive the earned value
15	P - PC Manual Entry	Cobra - Forces manual entry of % Complete
16		

7. Right-click then **Copy** to clipboard.

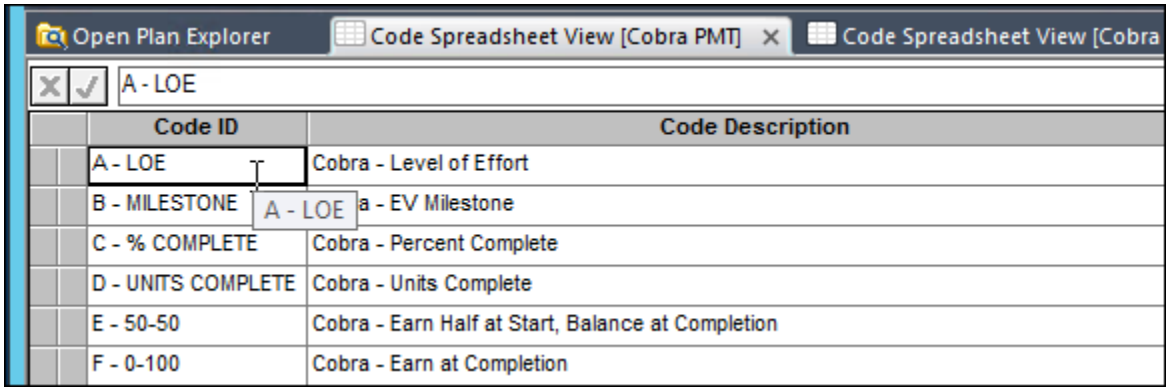
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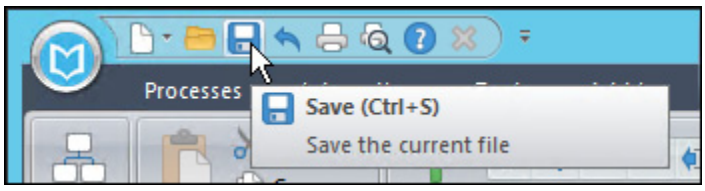
8. Right-click on the first cell in **Open Plan** and choose **Paste**.



9. The spreadsheet records will appear in the **Cobra PMT** Code File.



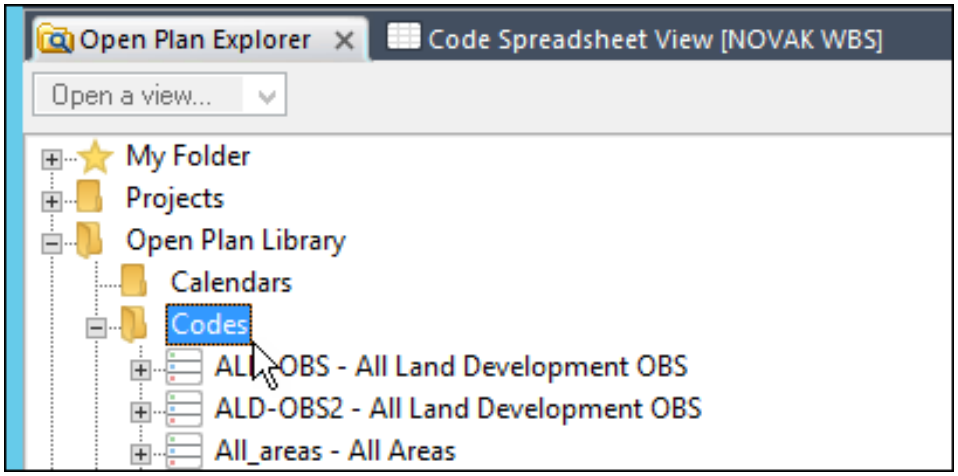
10. Click **Save**.



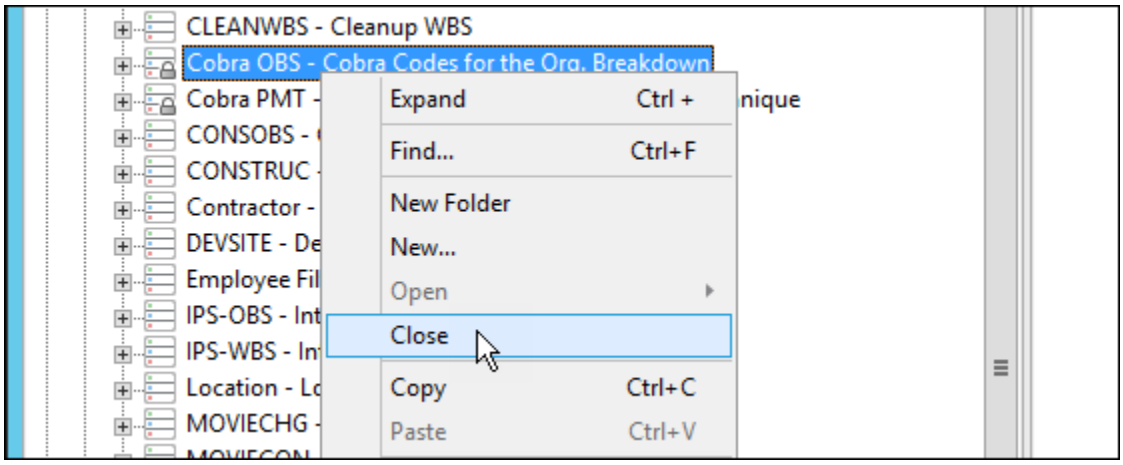
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11. Go to the **Open Plan Explorer** and **expand** your **Codes** list, located below the **Open Plan Library** folder.



12. **Right-click** to **Close** the **Cobra OBS**, and **Cobra PMT** code files.



And so endeth the lesson. Congratulations on completing these activities.

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3.16 Course Catchup

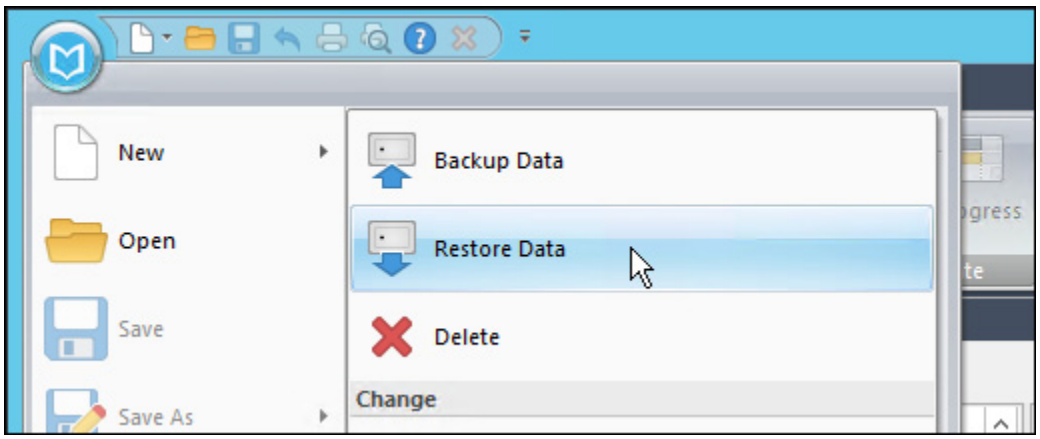
If you were unable to complete all the activities in this lesson, you can restore the final ancillary files using the following steps:

3.16.1 Activity: Course 3 – Catchup

1. Click the **File** menu and choose **Close All**.



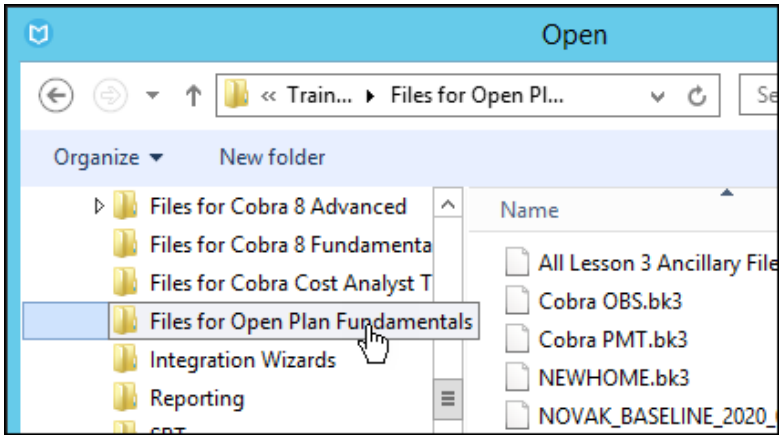
2. Click on the **File** | **Manage Files** > **Restore Data** option.



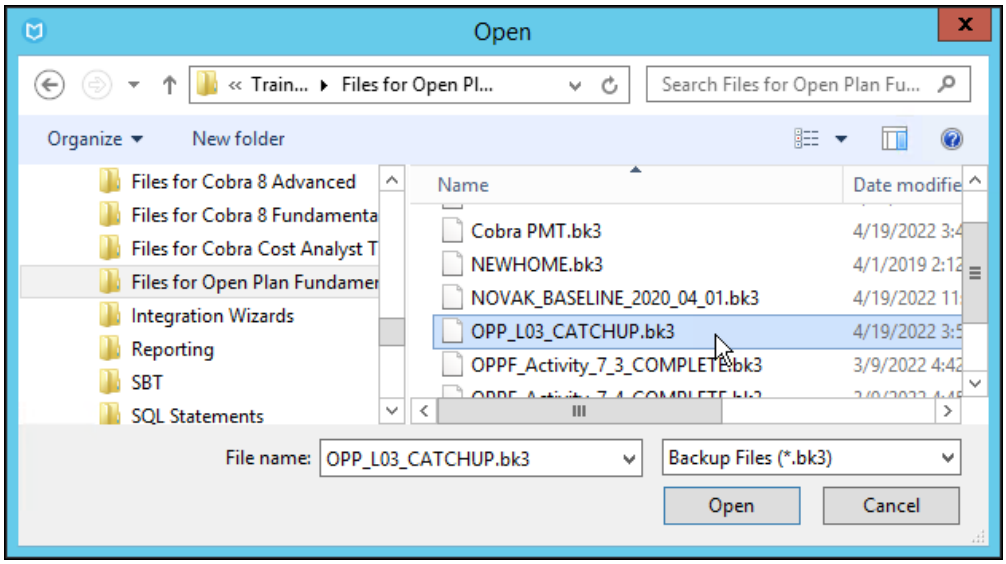
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3. In the **Open** dialog, go to **System (C:)** | **Training** | **Files for Open Plan Fundamentals**.



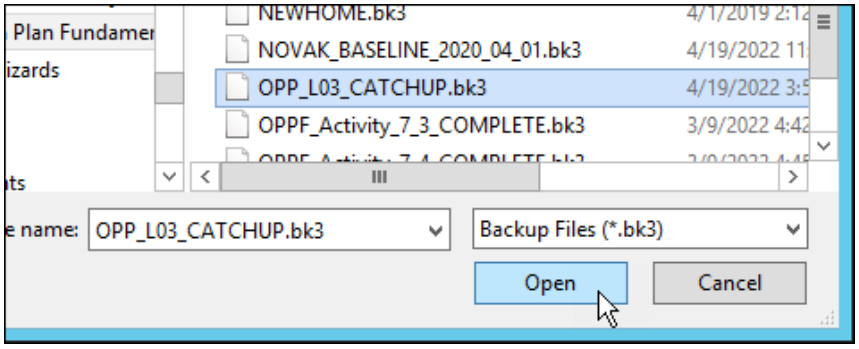
4. Click on the **OPP_L03_CATCHUP.bk3** file. This will restore any and all ancillary files created in this lesson.



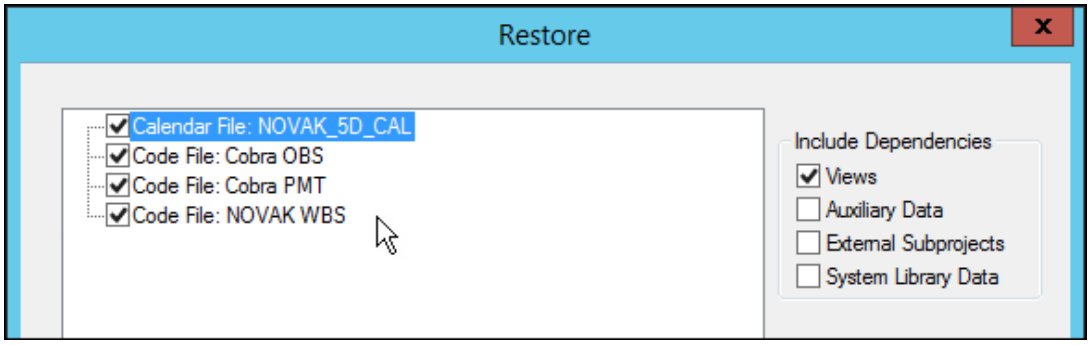
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5. Click **Open**.



6. In the **Restore** dialog, check any or all of the ancillary files created during this lesson.

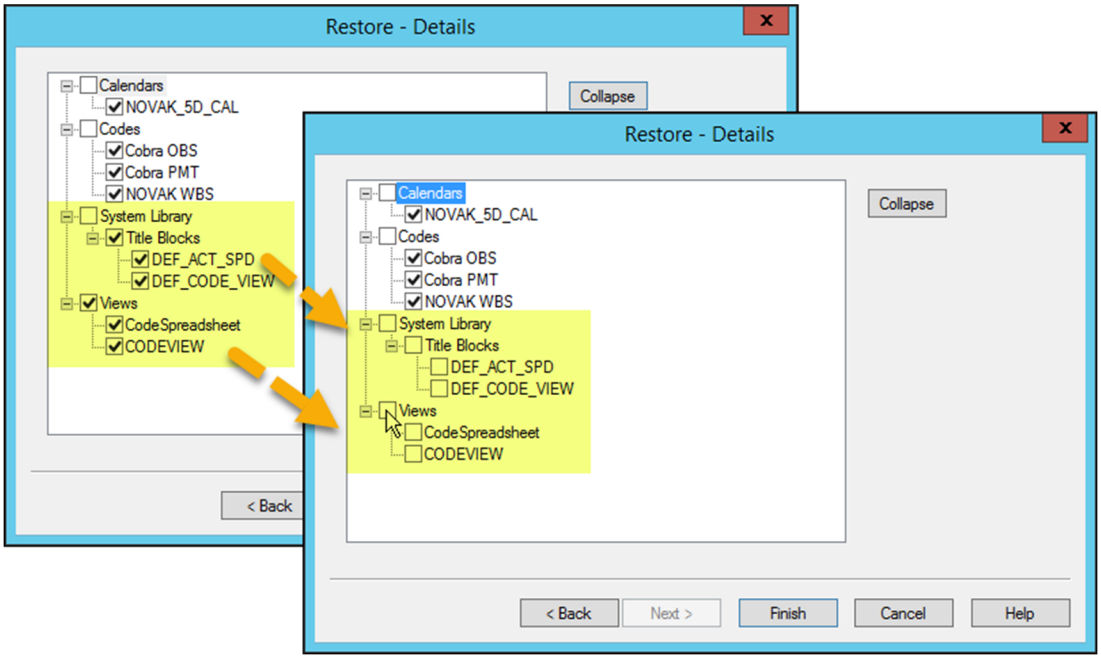


7. Click **Next >**.

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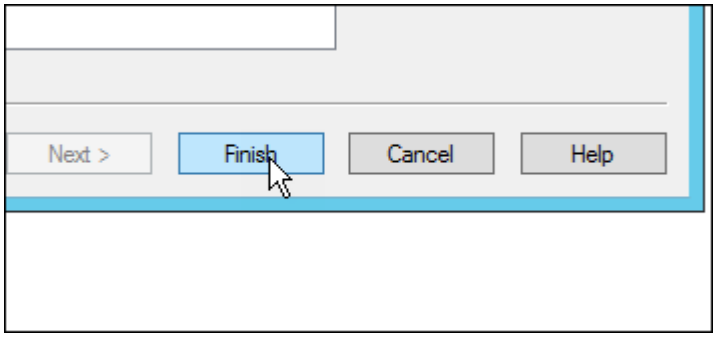
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8. In the **Restore Details** dialog, expand the structure and **uncheck** any **Views** or **Title Blocks** you see selected.



This will save additional prompts appearing during the process.

9. Click **Finish**.



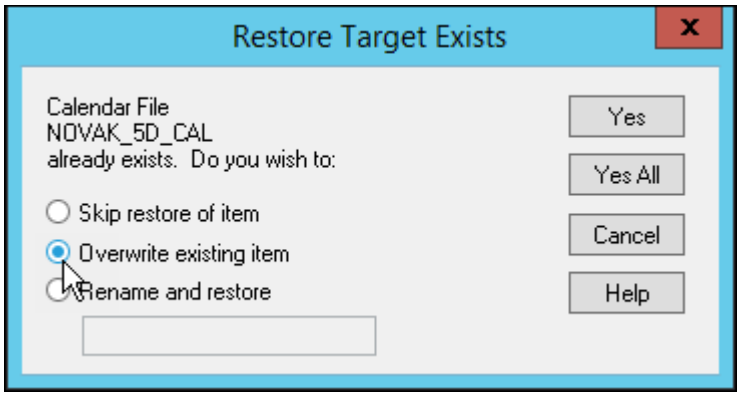
If you are prompted before the restore completes, you may have left a **View** item or a **Title Block** checked, or you may have already created a file you're restoring.

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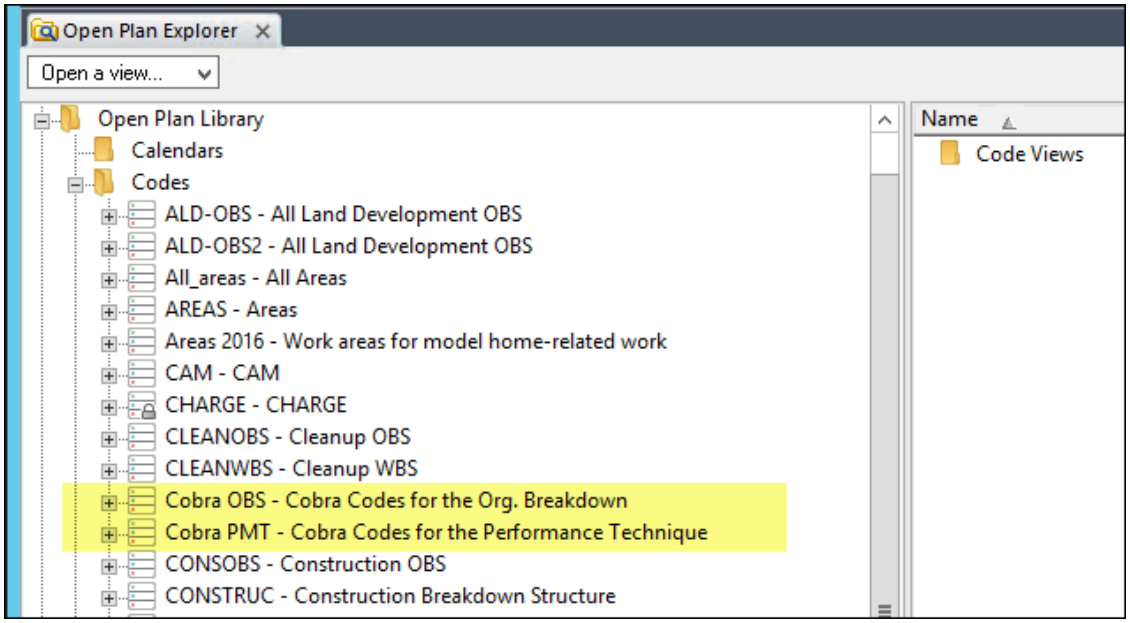
10. If you see a prompt like this, you can check the '**Overwrite existing item**' option.

    In this example the process has detected an existing **NOVAK_5D_CAL** file.



11. Click the **Yes All** button.

12. You will now find your restored files in the **Calendars** folder, and the **Codes** folder, in the **Open Plan** explorer.



You are now ready to continue to the next lesson.

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Open Plan Scheduler Certification Series: Resources

Activity Guide

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Table of Contents

4.1 Course Overview 4
4.1.1 In this Course 4
4.2 Resource Types 5
4.3 Creating the Resource File 9
4.3.1 Activity: Creating a Resource File 9
4.3.2 Activity: Preparing the Resources Table for Input 20
4.4 Resource Skills 29
4.4.1 Activity: Creating and Assigning Skills 29
4.5 Resource File Properties 36
4.5.1 Activity: Adjusting Resource File Properties 36
4.6 Resource Availability 40
4.6.1 Activity: Assigning Availability 41
4.7 Resource Cost Escalation 46
4.7.1 Activity: Adding Resource Cost Escalation 46
4.8 Course Catchup 49
4.8.1 Activity: Course 4 – Catchup 49

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4.1 Course Overview

Project resources are typically labor, materials, equipment, money, services; in fact, anything that is used to support the completion of the activities within a project.

In this lesson you will create a resource file, and populate it with various labor, subcontractor, material, and equipment resources. You will learn how to correctly setup different types of resources and about the many controlling attributes they can have.

4.1.1 In this Course

- An overview of the Resource types in Open Plan
- Creating a Resources file.
- Entering resources into the Resources file.
- Resource Skills
- Resource File Properties
- Resource Availability
- Resource Cost Escalation

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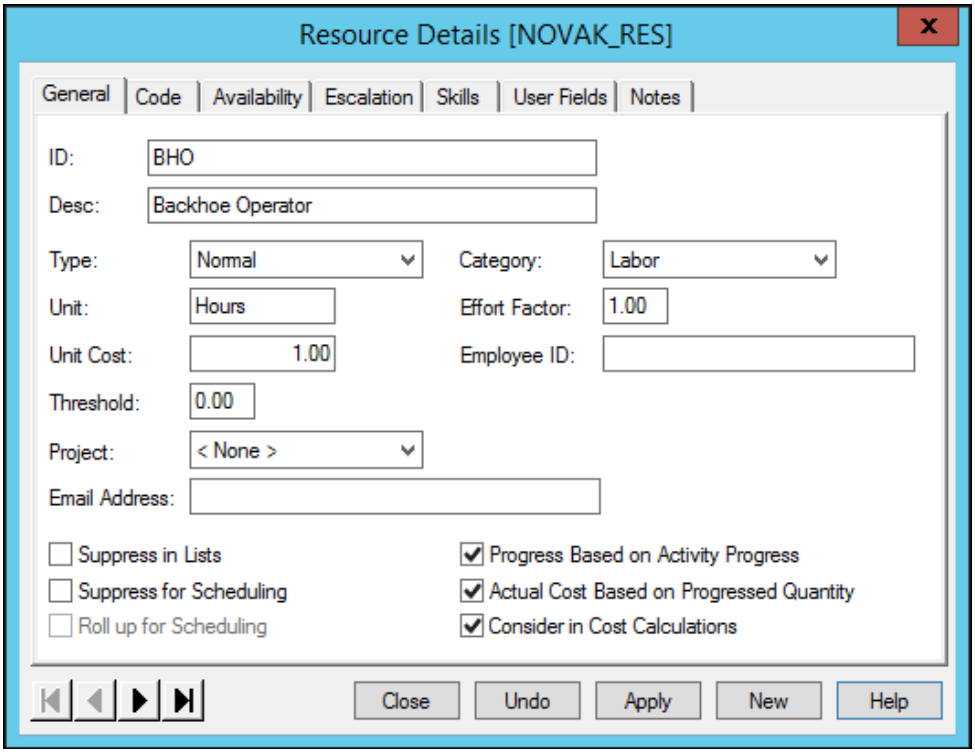
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4.2 Resource Types

A resource can be defined, as “anything required to accomplish the work of an activity.”

Resources are entered into a Resources ‘ancillary’ file. This file is accessible to any projects in the Open Plan system that have the requisite permission to do so. Thus, a common pool of resources can be accessed across the entire project portfolio, opening the door to resource management and capacity planning.

Each resource has a variety of options, attributes, and settings; giving you control over how the system will interact with each resource.



The type of resource, the category of the resource, and the type of activity it is being assigned to will all influence how Open Plan interprets the intended outcome of the assignment.

Take some time to get familiar with Open Plan’s terminology with regards to resource assignments outline in these following topics.

We will look at some common examples of resource assignments and their outcome based upon these topics as we progress through the course.

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Supported Categories of Resource in Open Plan are:

- Labor
- Material
- Other Direct Costs (ODC)
- Subcontract

Open Plan also considers the types of resources to be the following:

- **Normal** – ongoing availability based upon the resource calendar
- **Consumable** – usually materials or perhaps money that will deplete as used.
- **Perishable** – the resource has a shelf-life or limited window of usability; after which it will be discarded: a.k.a the 'Use it or lose it' resource type.
- **Resource Pool** – a group of resources that fall under a specific parent resource. It is important to be aware of which resources serve as pools because of the following ramifications:
  - Information defined at the pool level is ignored by the child resources belonging to the pool.
  - If you delete a pool, you delete all child resources as well.

Unit
For each resource, you can enter a description of how you measure the resource (for example, hours, quantity, cubic yards, and so on).

Effort Factor
The effort factor setting is used for the calculation of durations for effort-driven activities. The effort factor indicates to what extent the resource is available for any one activity. For example, assume that a resource, while available for 8 hours per day, cannot devote more than 4 hours of his or her time to any one activity. Enter an effort factor of 4 to reflect this situation.

This setting does not indicate efficiency and has no effect on resource scheduling calculations.

For a description of effort-driven activities, see Effort-Driven Activities.

Unit Cost
A cost for each unit of the resource.

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Employee ID
You can enter the Employee ID used by the Human Resources Department in this field.

Threshold

Thresholds specify an additional number of units of availability for a resource that can be used to avoid project delays if necessary. The value of a resource threshold represents an incremental amount on top of all existing availabilities for that resource. Open Plan ignores thresholds for consumable resources.

Open Plan interprets a threshold value based on the default duration unit and the conversion settings for a project. For example, assume that you enter a threshold of 2 for a labor resource used in a project in which the default duration unit is defined as days and in which one day converts to 8 hours. Open Plan interprets the threshold for that resource as 16 labor-hours. Note that one implication of this approach is that the interpretation of a threshold value may vary since it depends on the settings stored on the Preferences tab of the Project Properties dialog box for the project.

Project

This field contains a list of projects to which the resource file containing the selected resource is assigned. If you select a project from the list, Open Plan reserves 100 percent of the resource's availability to the project.

Lower-level reservations can override higher level ones. This allows you to reserve an entire resource pool for one project and then override this for resources at a lower level in the resource hierarchy.

If the selected resource is an individual resource (as contrasted with a pool) you can use the Availability tab to apportion the availability to multiple projects.

For information about reserving resources, see Reserve Resources for Use by a Specified Project.

Suppress in Lists

If selected, this option suppresses the inclusion of this resource in all lists. While the resource is not deleted from the file (and, thus, does not affect cost calculations), the resource cannot be used in resource assignments, nor is it included in any list of resources.

Suppress for Scheduling

You can have Open Plan ignore a resource during resource scheduling. This is useful in cases where you want to track requirements for a particular resource but ignore any potential impact it may have on the project

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schedule. During resource scheduling, Open Plan treats suppressed resources as though they have unconstrained availabilities.

Roll Up for Scheduling

Roll-up resource scheduling allows you to look at resources and schedule the activities from a summary perspective by specifying the hierarchical level for resource availabilities and assignments. When you indicate that the resource is to be rolled up for scheduling purposes, you specify that all references to that resource should be treated as a reference to the first parent of the resource in the hierarchy that is not rolled up to a higher level. (Thus, every rolled-up resource must have at least one hierarchical parent that is not rolled up.) The only restriction to this technique is that you cannot roll up both consumable and non-consumable resources to the same pool.

Using this feature, you can produce a more general resource schedule without a detailed consideration of individual resources. This effectively reduces the number of calculations required to produce a resource-based schedule, thereby improving processing times for larger projects.

Progress Based on Activity Progress

Use this option to automatically progress the resource based on the schedule status of the activity. For example, if you have statused the activity as 50% complete, Open Plan assumes that the resource assignment corresponding to the first half of the activity duration has occurred as planned.

This option is selected or is turned ON, by default.

For information about entering resource progress, see Resource and Cost Progress.

Actual Cost Based on Progressed Quantity

Use this option if you want Open Plan to automatically calculate actual costs from the number of resource units used. For example, if you define the unit cost for a resource as $10.00, and you indicate that 5 units of the resource have been used, then Open Plan calculates the actual cost for the resource as $50.00.

For information about calculating actual costs automatically, see Calculating Earned Value Progress Automatically.

Consider in Cost Calculations

If this option is selected, Open Plan includes the resource in cost calculations.

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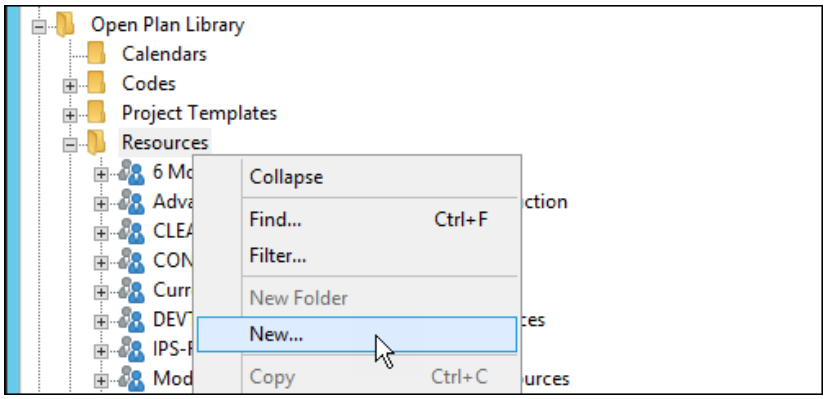
4.3 Creating the Resource File

The next step in building a project schedule is to create a resource file containing all the labor, material, subcontract, and other direct cost categories anticipated for use on the project.

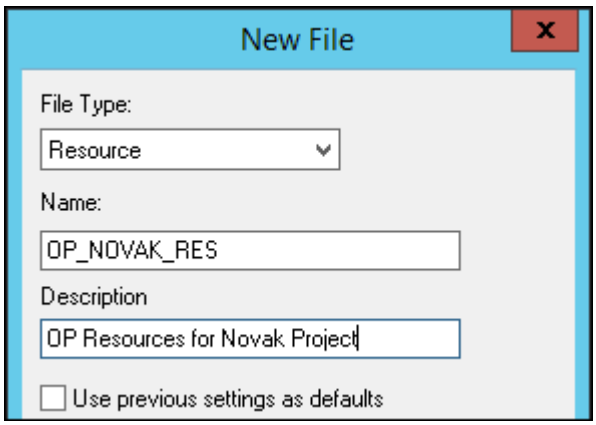
4.3.1 Activity: Creating a Resource File

Creating a resource file is similar to creating a calendar or code file in that you can use the New option in the File menu.

1. In the **Open Plan Library**, right-click on the **Resources** folder and select **New…**



2. In the **New File** dialog, enter the following details in the fields.



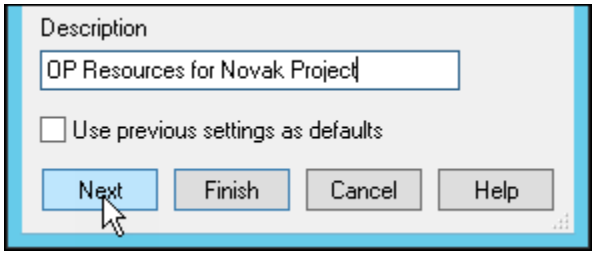
Name: **OP_NOVAK_RES**
Description: **OP Resources for the Novak Project**

Tip: *copy and paste these values from this activity guide into the New File fields in Open Plan.*

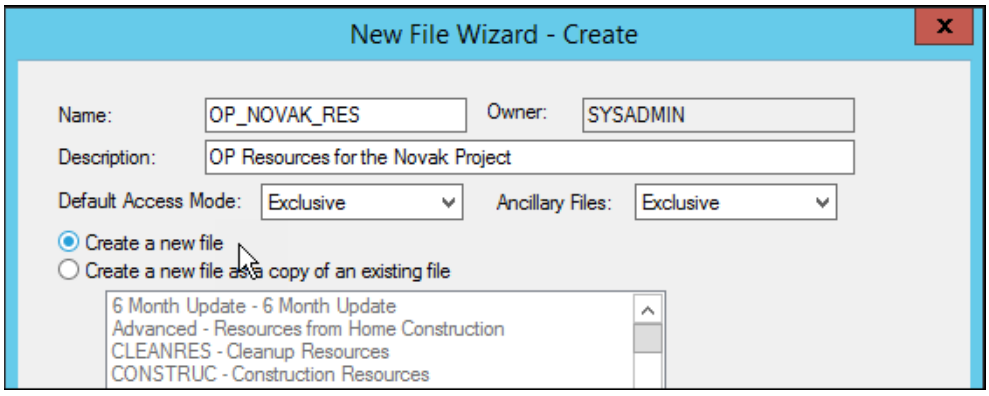
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3. Click **Next**.

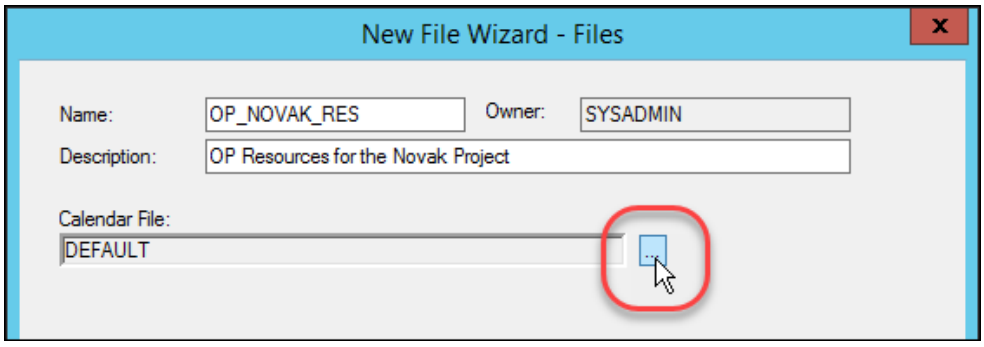


4. In the **New File Wizard**, click the **Next** button to go with the default '**Create a new file**' option.



5. Click **Next >**.

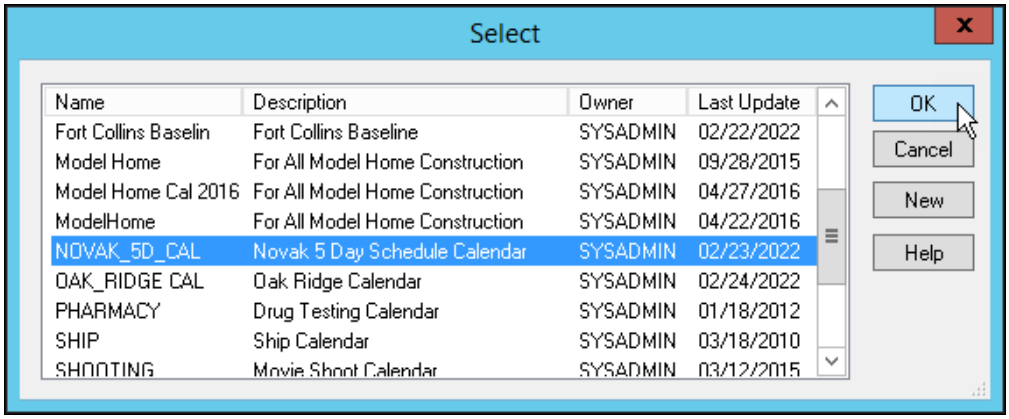
6. In the **New File Wizard – Files** dialog, click on the **Calendar File** ellipse button.



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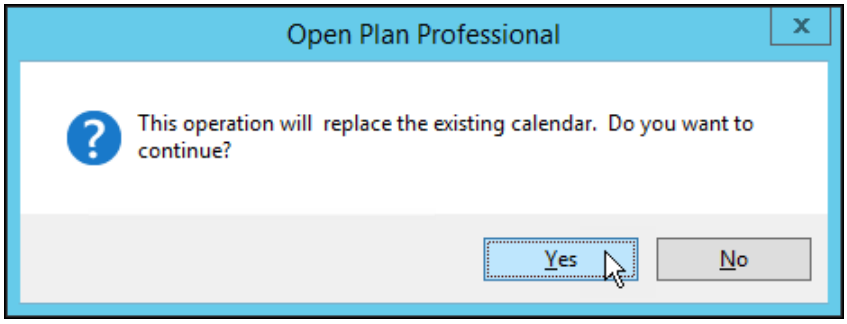
7. Select the **NOVAK_5D_CAL** from the **Select** dialog.



Note: the hours per day defined in the selected calendar will play a key role in how Open Plan interprets what constitutes a day. If you have a 10 hour day defined in your calendar, then Open Plan will assign resources at 10 hours per day.

8. Click **OK**.

9. Click **Yes** to the prompt.



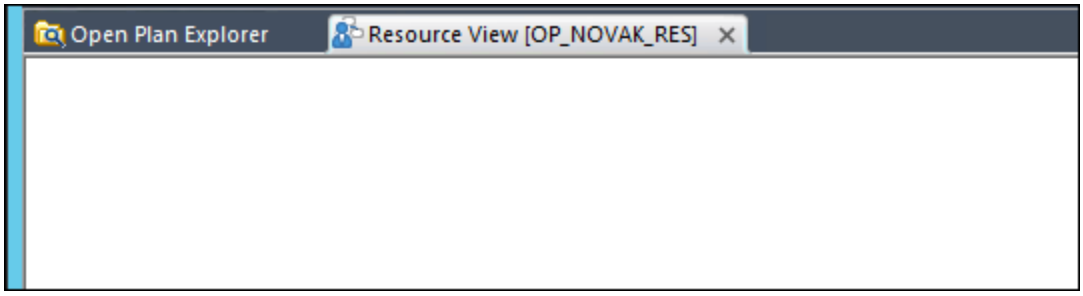
10. Click **Next**.

11. In the **Notes** dialog, click **Next**.

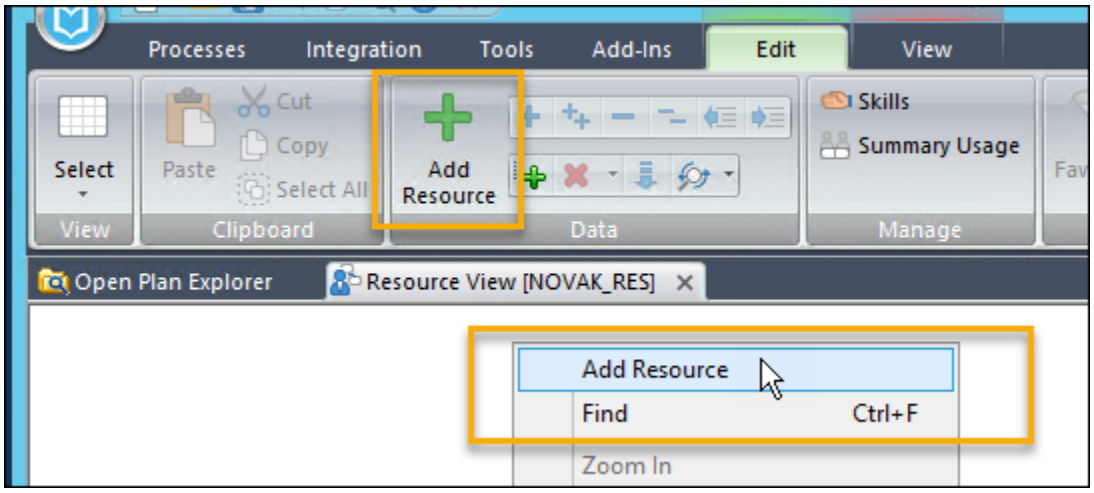
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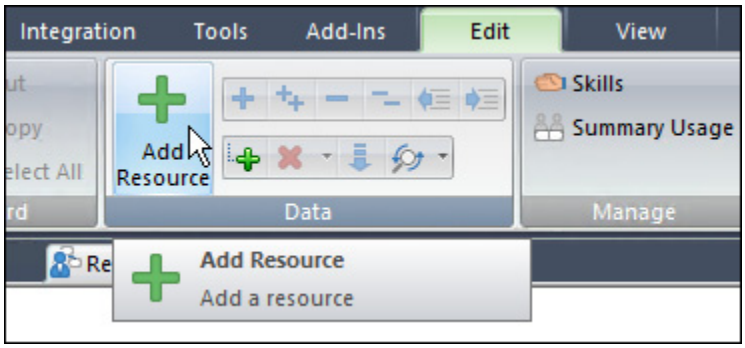
12. In **Access Control** click **Finish**.



You have created a new resource file that has opened in the default Resource View. This is a graphical view and allows you to enter resources using the **Add Resource** button with a right click or use of the Add Resource button in the ribbon above.



13. Click the **Add Resource** button.

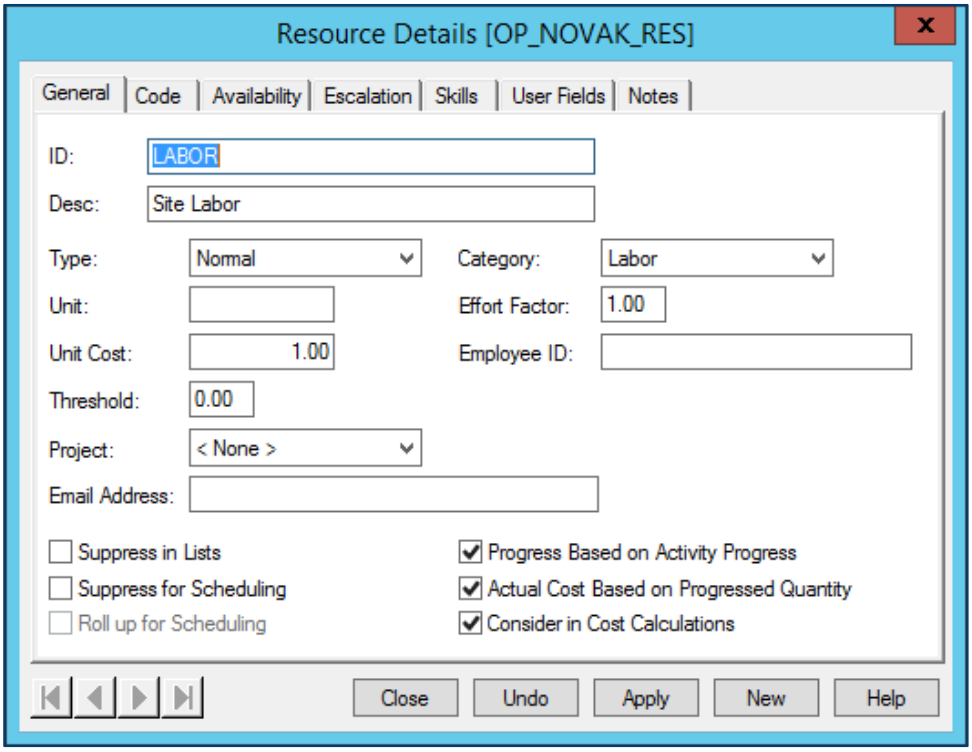


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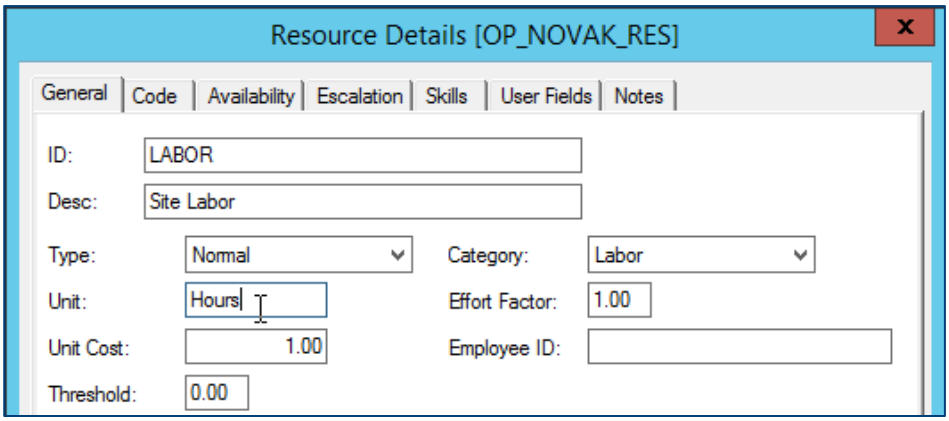
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14. In the **Resource Details** dialog, enter the following:

ID: LABOR
Desc: Site Labor



15. Click in the **Unit:** field, and enter '**Hours**'.



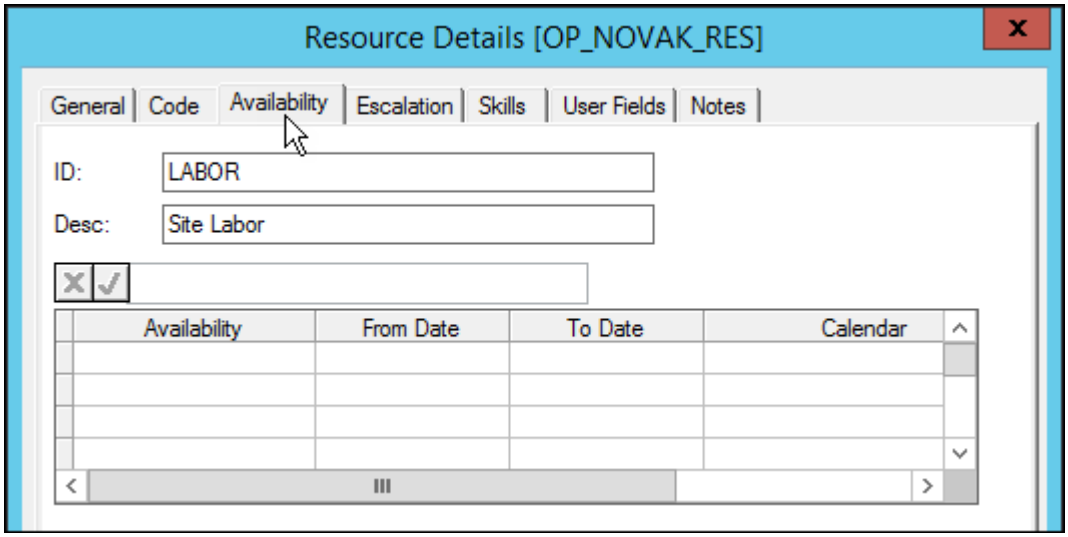
Note that you can come back to this dialog whenever you wish in order to make changes.

Let's spend a few moments now getting better acquainted with some of the other tabs in this dialog.

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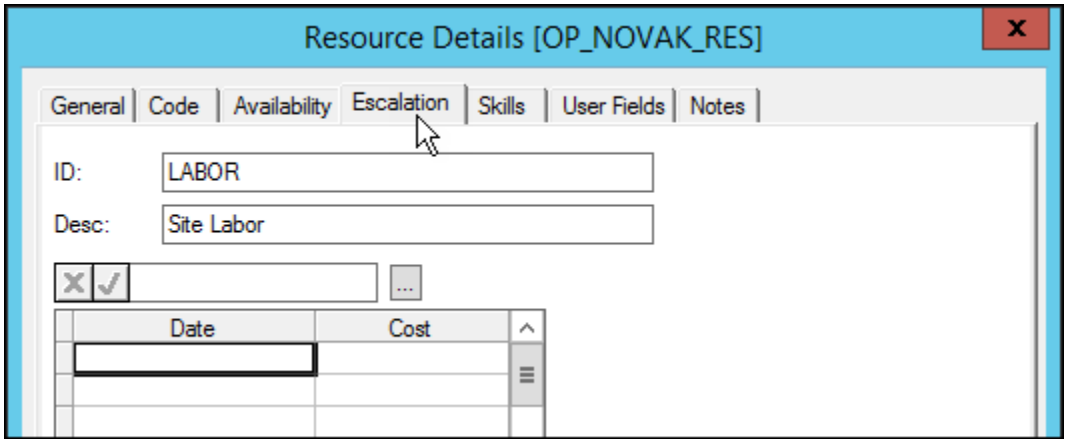
16. Click on the **Availability** tab.



As the name indicates, the Availability dialog provides you the ability to put parameters around when the resource is available to be assigned.

Usage: models increases or decreases in a resource's availability, and also offers the use of an alternative calendar if the resource is on a different shift pattern to the project.

17. Click on the **Escalation** tab.

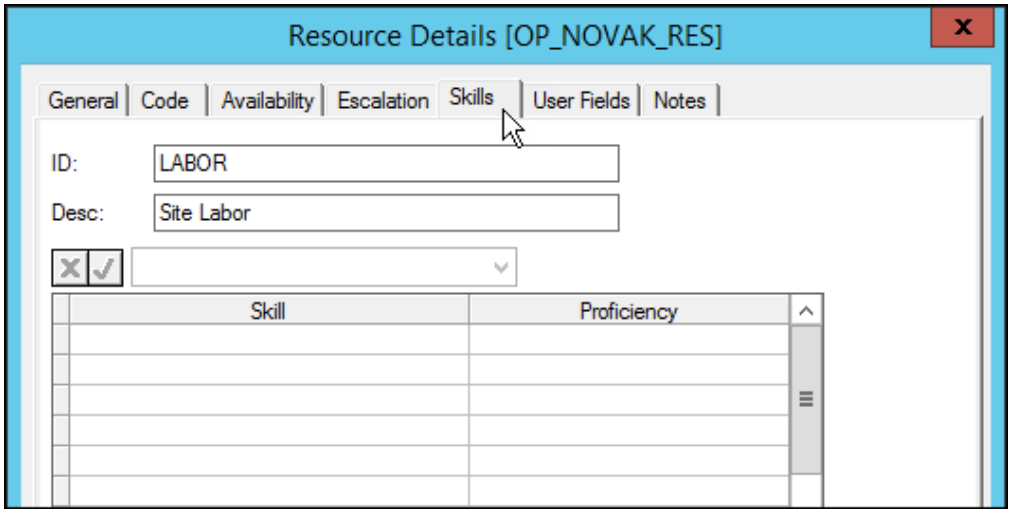


Usage: When you are cost loading a schedule, use this to model forward pricing using the Date and Cost fields. For example, if your resource has an annual cost increase, this can be modelled in the Escalation dialog in order that you not underestimate future periods.

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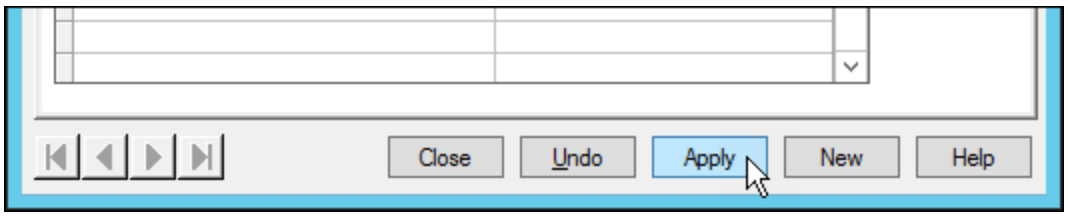
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18. Click on the **Skills** tab.

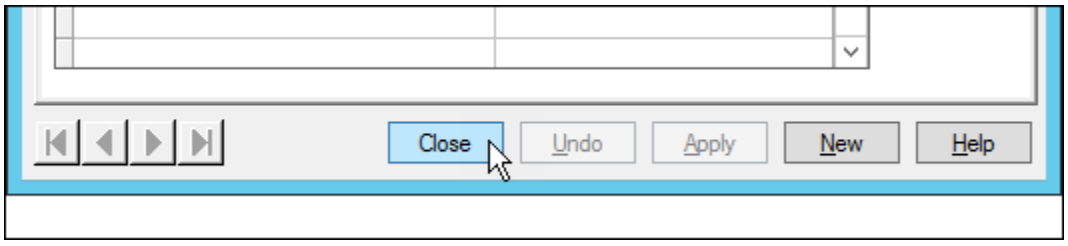


Usage: associate a resource with a skill. In order to enter skills, you first need to define those skills in the Skills dialog; more typically used when named individuals are used in the resource file. For example, Bob Ohms is an electrician and would have that skill assigned to him in the Skills dialog. This can be used to locate people in the system that possess a particular skill, and as a placeholder for a resource until the individual has been identified for assignment.

19. For now, let's click the **Apply** button. We will be returning to this dialog when there is more entry needed.



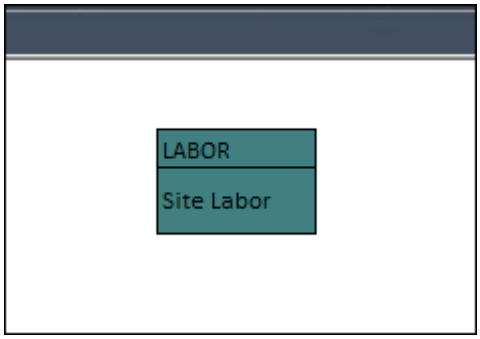
20. Click **Close**.



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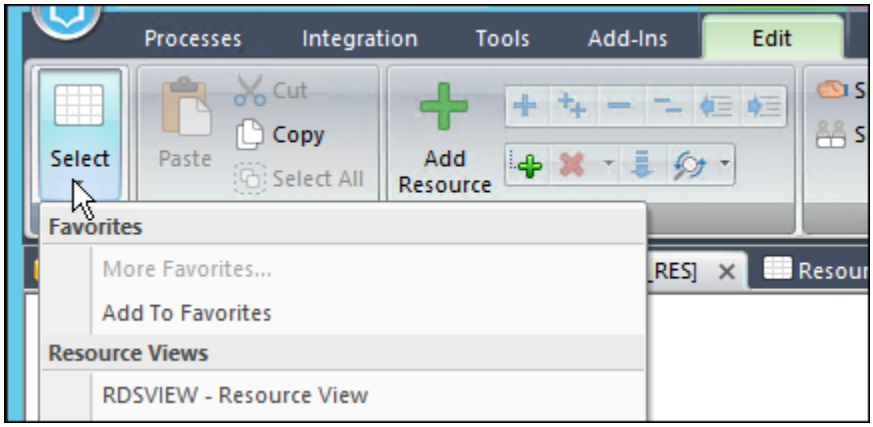
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21. Note the first resource has appeared in the **Resource View**.

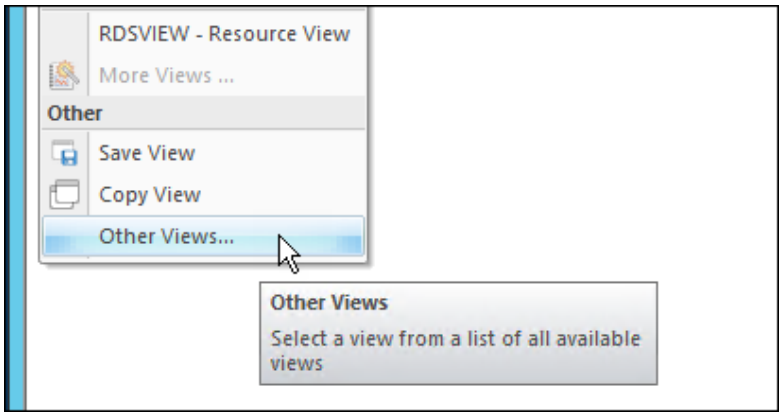


You may prefer to build out your resource file using a more spreadsheet-like view. You will need to open the **ResourceSpreadsheet** view for the next part of this activity.

22. In the **Edit** ribbon, click on the **Select** button in the **View** tool group.



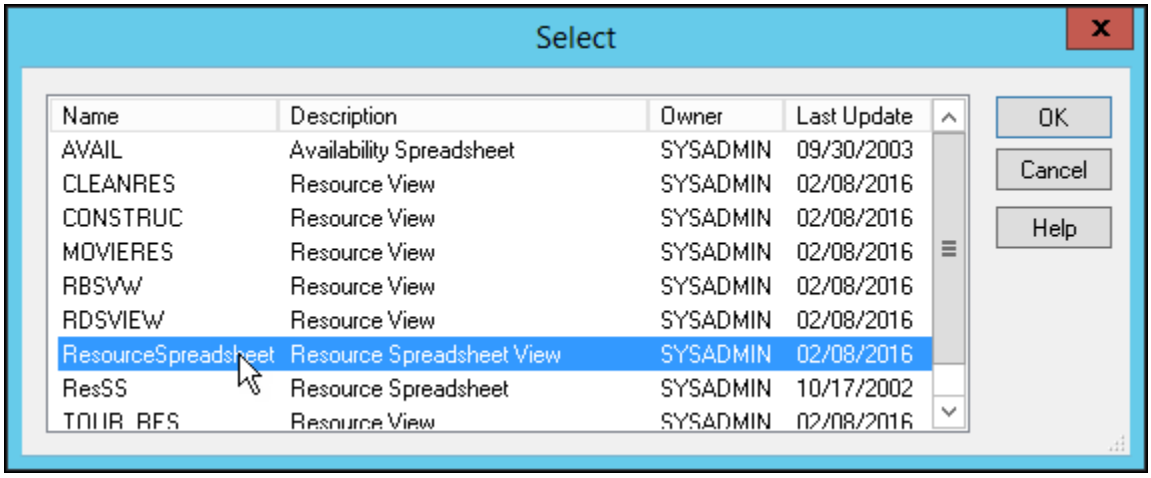
23. In the menu choose **Other Views…**



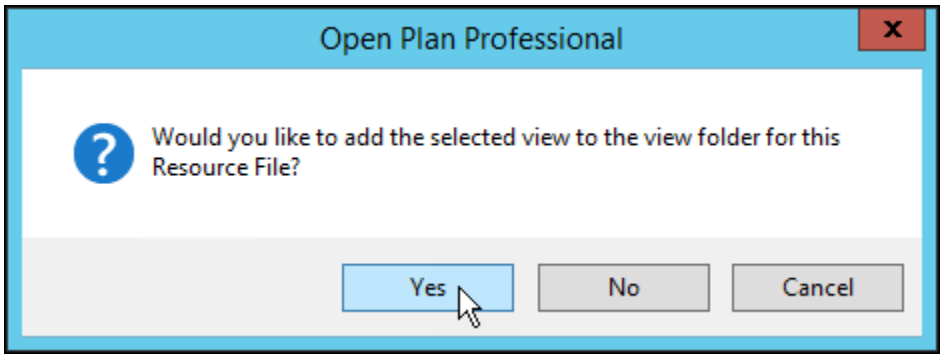
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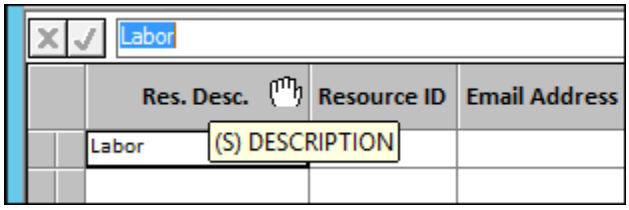
24. Select the **Resource Spreadsheet View** from the **Select** dialog and click **OK**.



25. Click **Yes** when prompted to add the selected view to the view folder for this resource file.



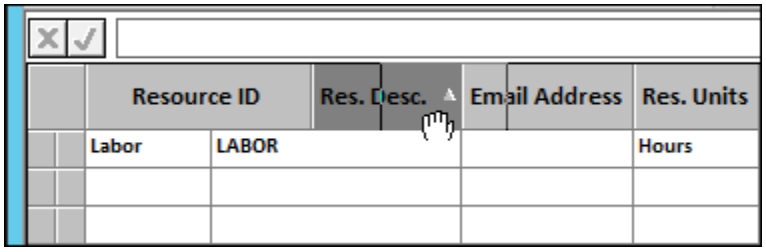
26. If your **Res. Desc.** column is not the first columns in the table, do the next step.



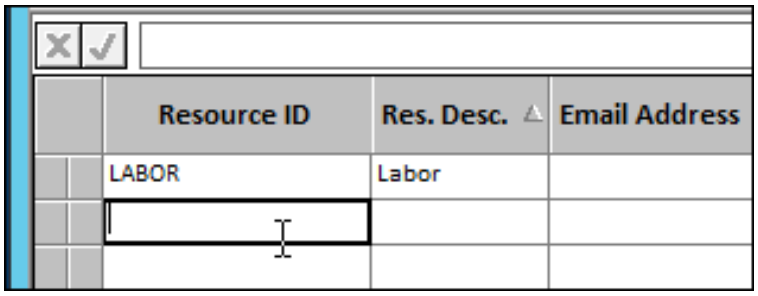
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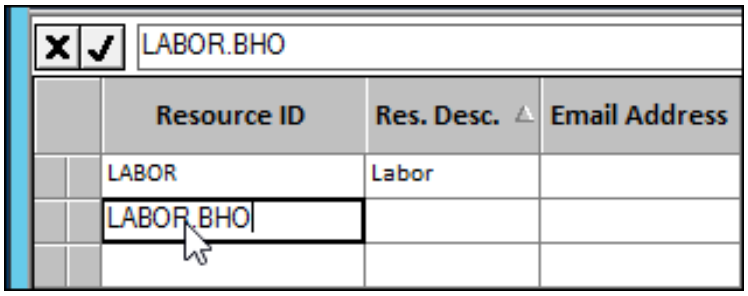
27. Click on **Res. Desc.** header, and drag it to the right of the **Resource ID** column.



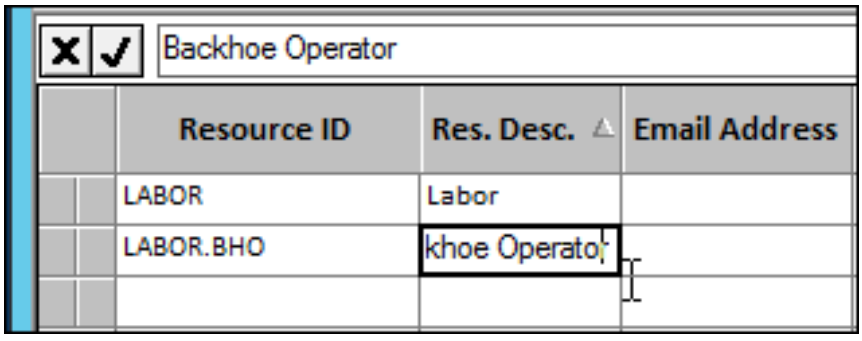
28. Now click in the first cell of the row below the **Labor** resource to select it.



29. Enter **LABOR.BHO** in the cell.



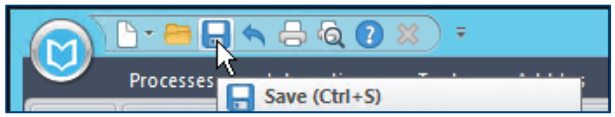
30. Click on the **Res. Desc.** cell and enter **Backhoe Operator**.



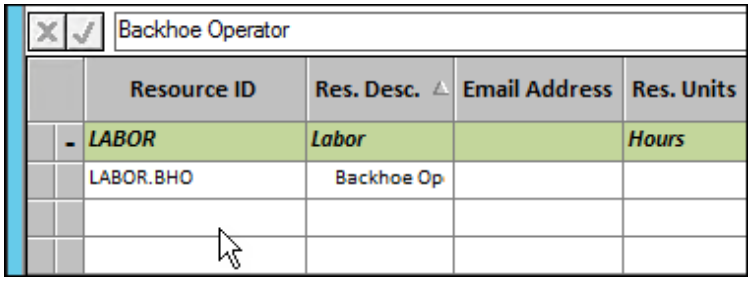
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31. Click **Save**.



32. Note the results in the **Resource Spreadsheet** view.



Note how the dot has caused the resource to become indented below the Labor resource.

33. Enter **Hours** in the **Res. Units** field.

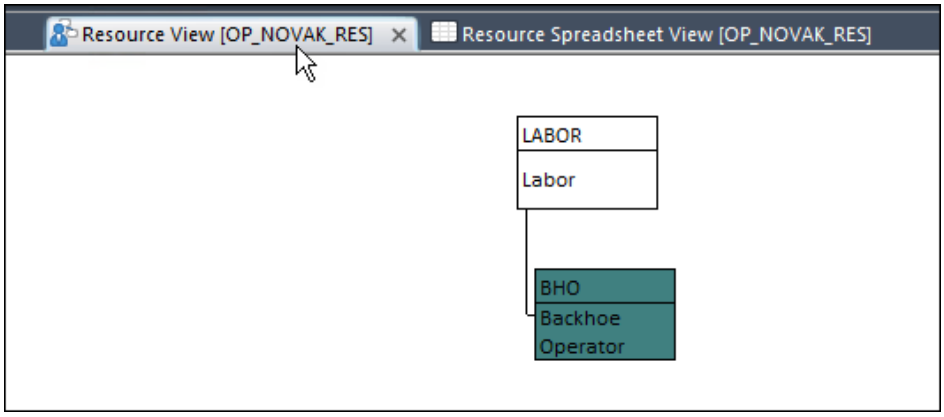
Resource	Res. Desc.	Email Addre	Res. Units	Res. Type	Res. Category	Progress based on Act Progress
LABOR	*Site Labor*		*Hours*	*Resource P*	*Labor*	*True*
LABOR.BHO	Backhoe Operator		Hours	Normal	Labor	True

34. Click **Save**.

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35. Click on the **Resource View [OP_NOVAK_RES]** tab.

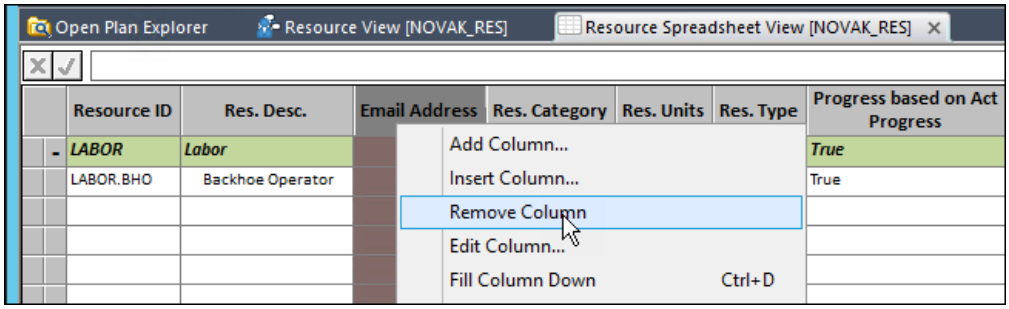


This view illustrates the hierarchy for the resources. We will now add additional resources by copying and pasting records from an Excel spreadsheet.

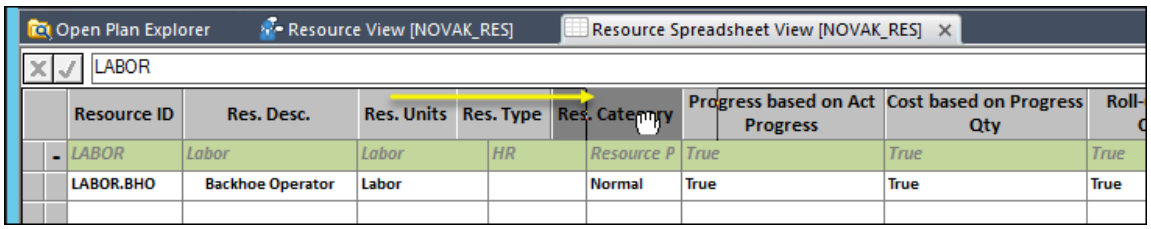
4.3.2 Activity: Preparing the Resources Table for Input

You will need to organize the resource table columns exactly as shown below.

1. Right-click on the **E-mail Address** column header, and select **Remove Column**.



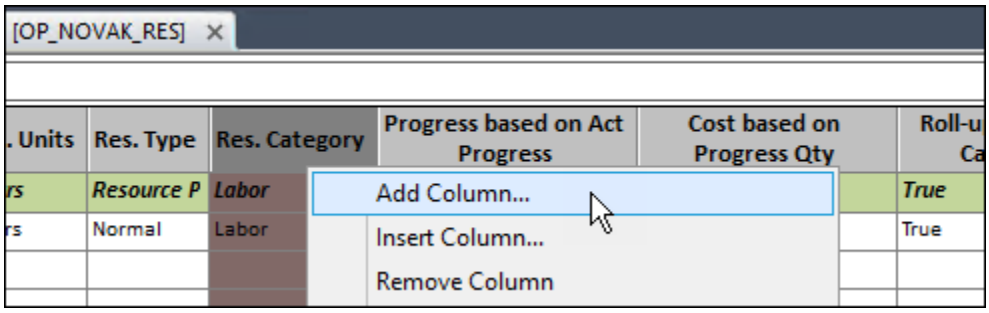
2. Now drag the **Res. Category** header just past the **Res. Type** column.



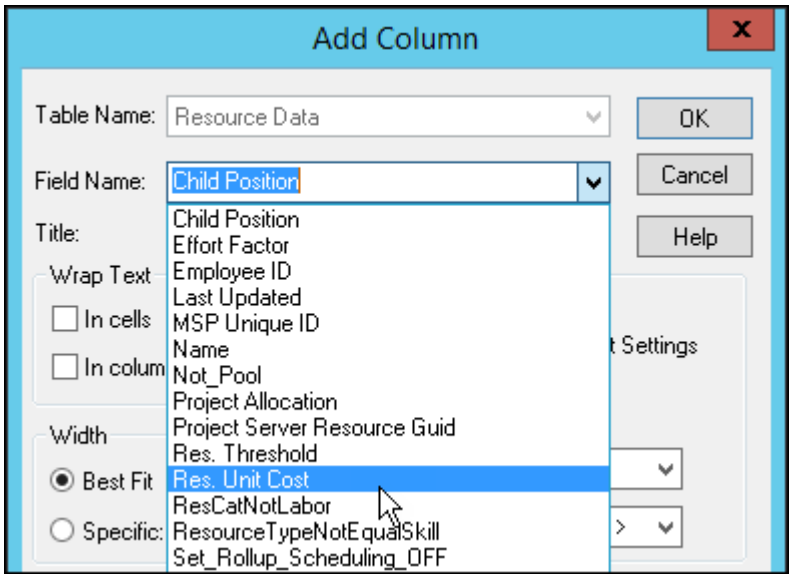
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3. Right-click on the **Res. Category** column header and select **Add Column…**.



4. Select **Res. Unit Cost** in the **Field Name:** dropdown.



5. Click **OK** to add the column to the spreadsheet view.

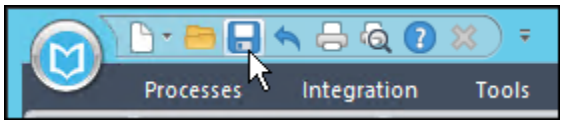
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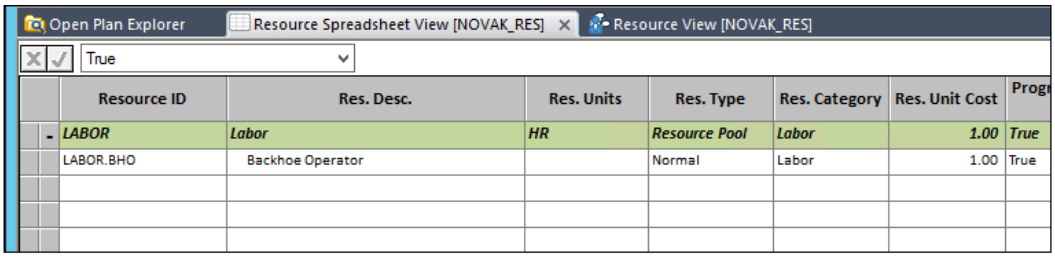
6. Enter **$82.98** in the **Res. Unit Cost** field for the **LABOR.BHO** resource.

Res. Category	Res. Unit Cost	Progress based on Act Progress
Labor	*1.00*	*True*
Labor	82.98	True

7. Click **Save**.



8. Now verify that the columns are in the following order. Make any necessary adjustments.



Resource ID	Res. Desc.	Res. Units	Res. Type	Res. Category	Res. Unit Cost	Progr
LABOR	*Labor*	*HR*	*Resource Pool*	*Labor*	*1.00*	*True*
LABOR.BHO	Backhoe Operator		Normal	Labor	1.00	True

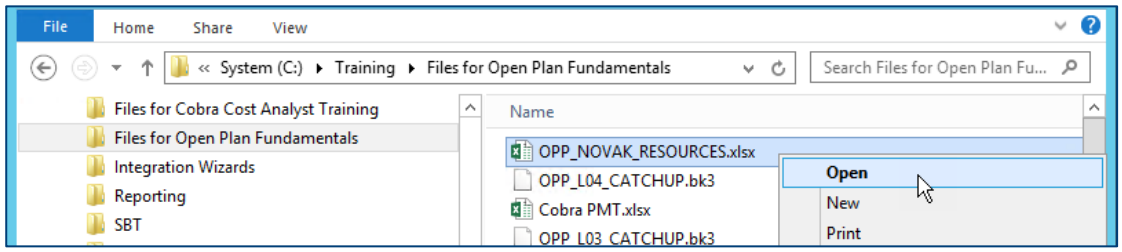
	A	B	C	D	E	F
1	Resource ID	Res. Desc.	Res. Units	Res. Type	Res. Category	Res. Unit Cost
2	LABOR	Site Labor		Resource Pool		
3	LABOR.BHO	Backhoe Opperator	Hours	Normal	Labor	82.97952
4	LABOR.CABLE	Cable Splicer	Hours	Normal	Labor	92.739816
5	LABOR.CARPEN	Carpenters	Hours	Normal	Labor	48.790144
6	LABOR.ELECRIC	Electrical Engineer	Hours	Normal	Labor	115.17376
7	LABOR.ELECTRI	Electrical Technician	Hours	Normal	Labor	87.34388

Order of Headers: **Resource ID**, **Res. Desc.**, **Res. Units**, **Res. Type**, **Res. Category**, and **Res. Unit Cost**.

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9. Using the Windows file explorer, locate the **OPP_NOVAK_RESOURCES.xlsx** file in the **C:\Training\Files for Open Plan Fundamentals** folder of the Deltek Learning Lab environment, or from the Open Plan Fundamentals media package provided by your instructor.



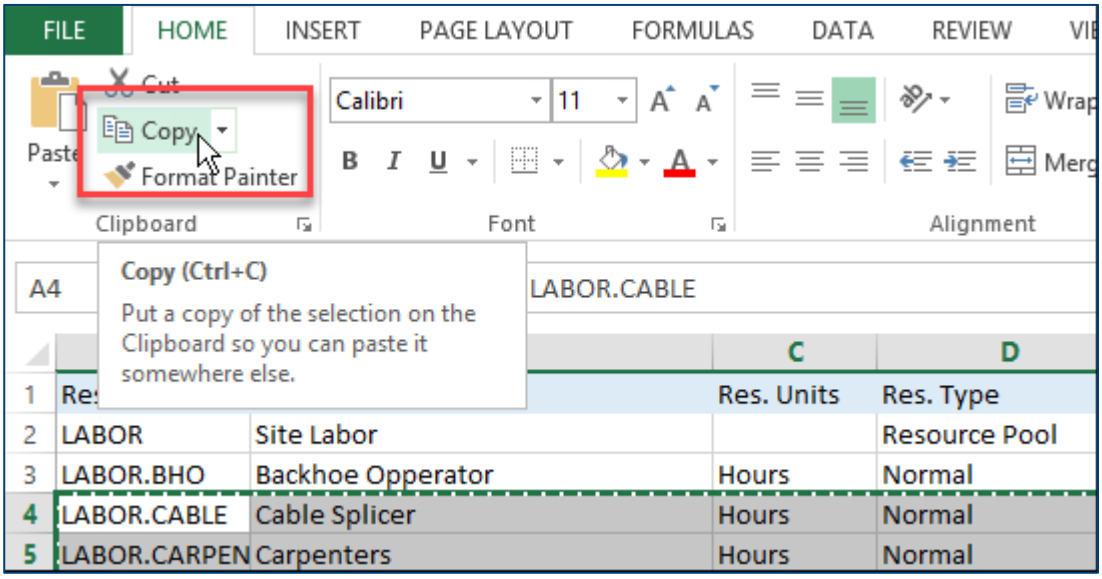
10. In the **RESOURCES** workbook, select **A4** through **F26**.

	A	B	C	D	E	F	G
1	Resource ID	Res. Desc.	Res. Units	Res. Type	Res. Category	Res. Unit Cost	
2	LABOR	Site Labor		Resource Pool			
3	LABOR.BHO	Backhoe Opperator	Hours	Normal	Labor	82.97952	
4	LABOR.CABLE	Cable Splicer	Hours	Normal	Labor	92.739816	
5	LABOR.CARPEN	Carpenters	Hours	Normal	Labor	48.790144	
6	LABOR.ELECRIC	Electrical Engineer	Hours	Normal	Labor	115.17376	
7	LABOR.ELECTRI	Electrical Technician	Hours	Normal	Labor	87.34388	
8	LABOR.GROUNI	Ground Worker	Hours	Normal	Labor	42.51	
9	LABOR.HEO	Heavy Equipment Operator	Hours	Normal	Labor	89.565736	
10	LABOR.LINEWR	Line Worker	Hours	Normal	Labor	62.348	
11	LABOR.MASON	Mason	Hours	Normal	Labor	56.68	
12	LABOR.OPPER	Equipment Opperator	Hours	Normal	Labor	72.5504	
13	LABOR.PROGM	Program Manager	Hours	Normal	Labor	139.4328	
14	LABOR.PROJM	Project Manager	Hours	Normal	Labor	114.4936	
15	LABOR.ROOFER	Roofing Specialist	Hours	Normal	Labor	111.0928	
16	LABOR.STEELWI	Steel Worker	Hours	Normal	Labor	60.13748	
17	LABOR.SUPER	Site Superintendent	Hours	Normal	Labor	107.23856	
18	LABOR.TEAMLE	Team Lead	Hours	Normal	Labor	100.3236	
19	LABOR.TESTEN	Test Engineer	Hours	Normal	Labor	80.4856	
20	MATERIAL	Material		Resource Pool	Material	1	
21	MATERIAL.CON	Conduit	LS	Normal	Material	1	
22	MATERIAL.EQU	Substation High Voltage Equipment	LS	Normal	Material	1	
23	MATERIAL.GRN	Ground Wire	LS	Normal	Material	1	
24	ODC			Resource Pool	Other Direct C	1	
25	ODC.EQUIPMEN	Equipment Rental	LS	Normal	Other Direct C	1	
26	ODC.TRAVEL	Travel	LS	Normal	Other Direct C	1	
27	SUBCON	Subcontractor		Resource Pool	Subcontract	1	
28	SUBCON.SAFET	Safety Officer	LS	Normal	Subcontract	1	
29	SUBCON.SECGR	Security Guard	LS	Normal	Subcontract	1	
30							

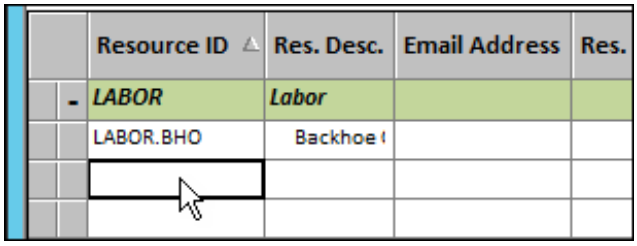
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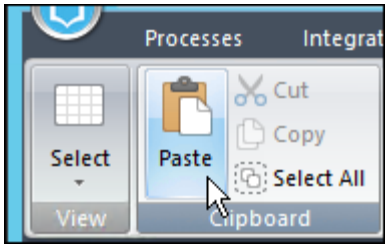
11. Right-click and select **Copy** from the menu.



12. Click over to **Open Plan** and in the **OP_NOVAK_RES Resource Spreadsheet view**, and click on the first cell of the next free row.



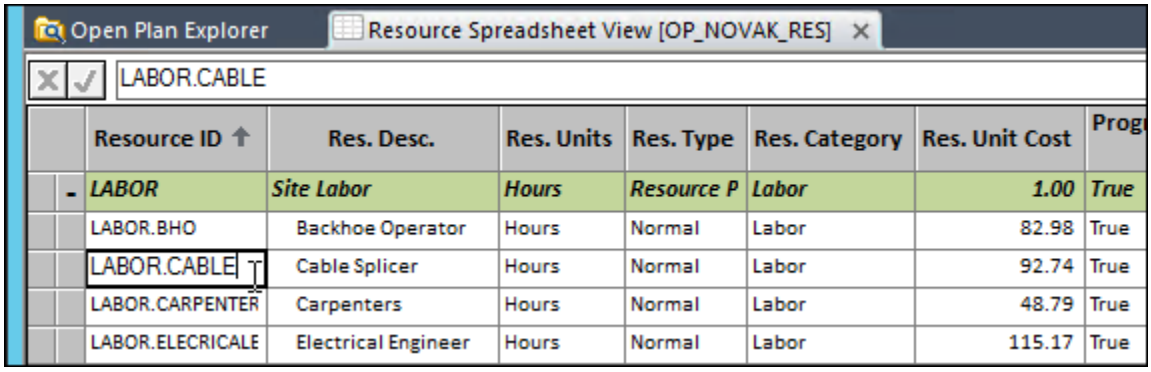
13. Click the **Paste** button in the **Edit** ribbon.



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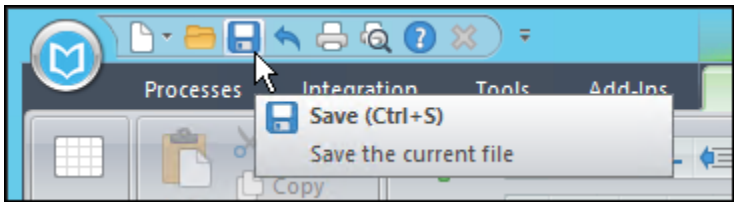
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14. Note the results. Open Plan has added the spreadsheet records directly into the resources file – including the structure.

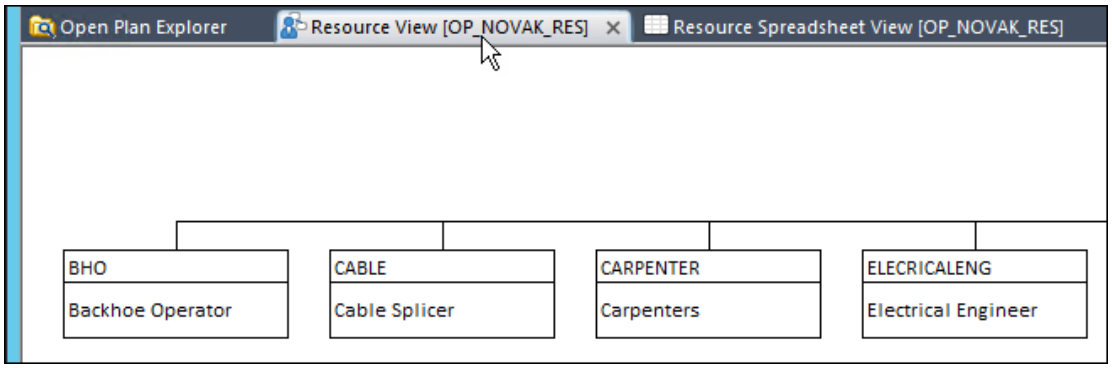


Resource ID	Res. Desc.	Res. Units	Res. Type	Res. Category	Res. Unit Cost	Prog
LABOR	*Site Labor*	*Hours*	*Resource P*	*Labor*	*1.00*	*True*
LABOR.BHO	Backhoe Operator	Hours	Normal	Labor	82.98	True
LABOR.CABLE	Cable Splicer	Hours	Normal	Labor	92.74	True
LABOR.CARPENTER	Carpenters	Hours	Normal	Labor	48.79	True
LABOR.ELECRICALE	Electrical Engineer	Hours	Normal	Labor	115.17	True

15. Click **Save**.



16. Click on the **Resource View** tab to see the resource hierarchy.

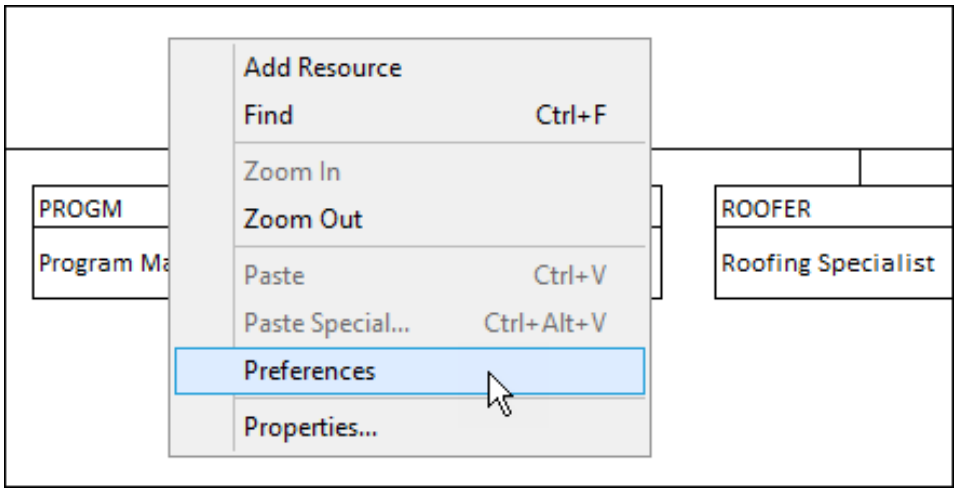


As there are only two levels to this hierarchy the Resource view has, by default, spread the resource nodes along the horizontal, hiding many elements of the structure and making it necessary to scroll left and right to see all the elements. Let's learn how to improve the view for this particular structure.

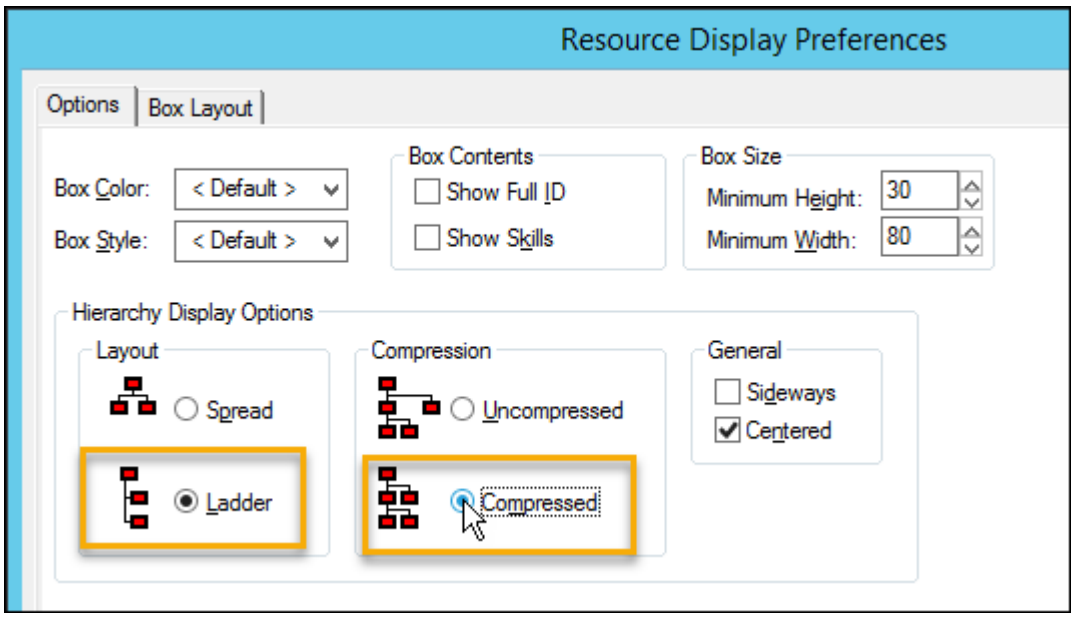
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17. Right-click on the background of the **Resources View** and select **Preferences** from the menu.



18. In the **Resource Display Preferences** dialog, change the **Layout** and **Compression** options from **Spread**, and **Uncompressed** to **Ladder** and **Compressed** respectively.

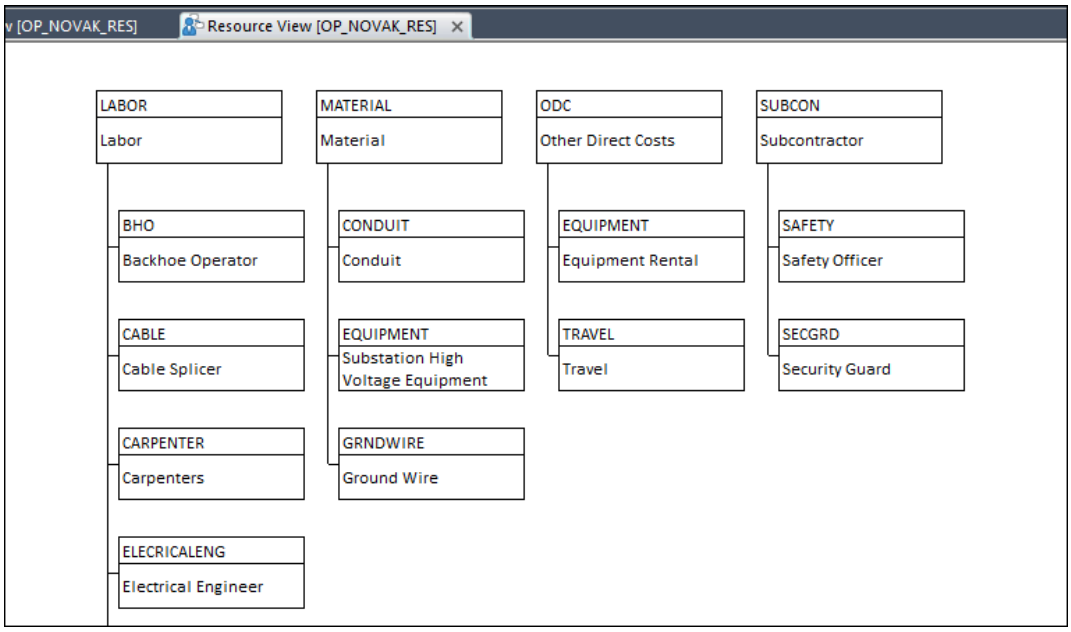


19. Click **OK**.

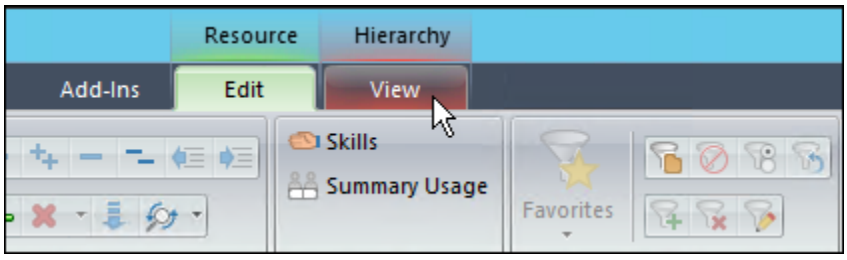
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20. Note the results of the change.



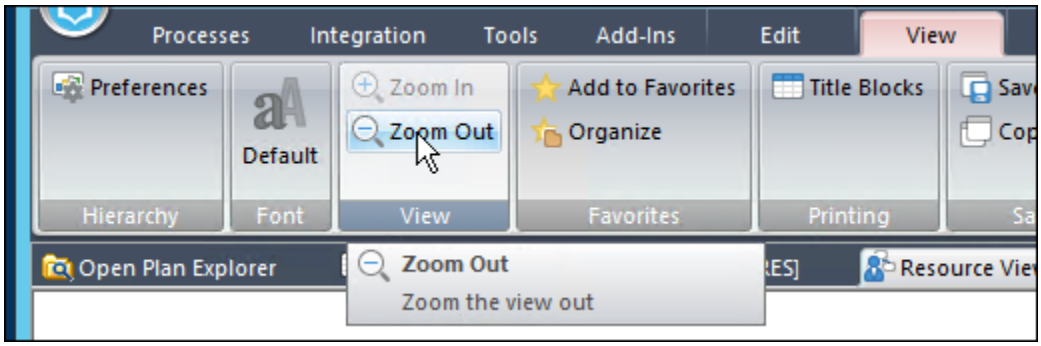
21. Click on the **View** tab.



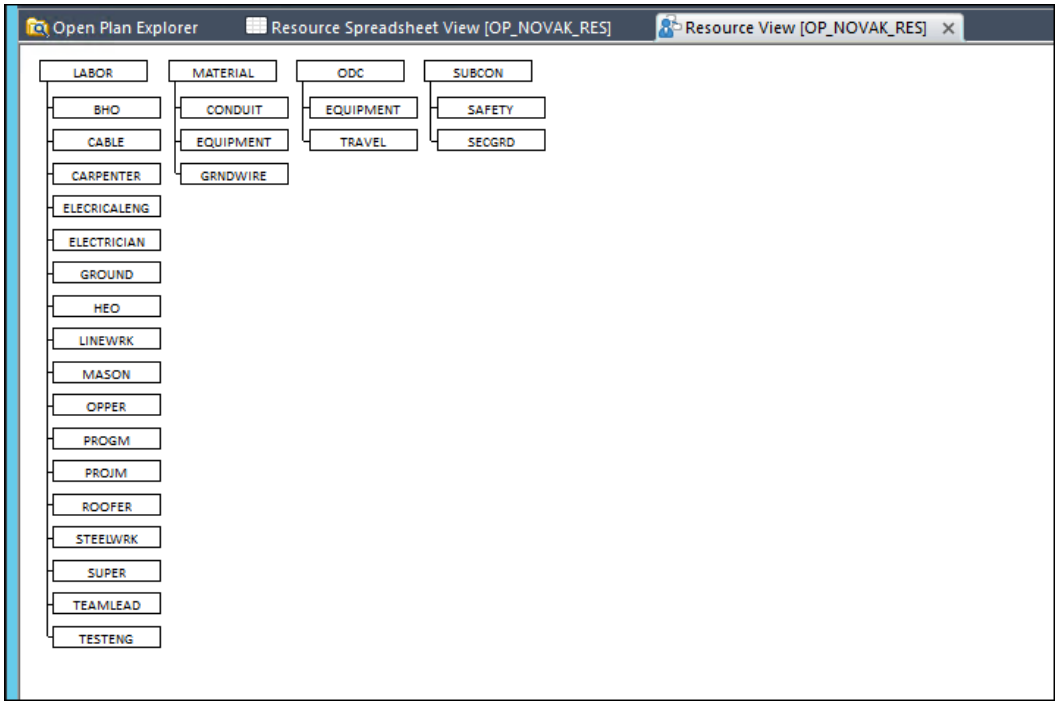
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22. Click on the **Zoom Out** button in the ribbon.



23. Review the results.



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4.4 Resource Skills

As mentioned earlier, you can assign skills to a resource file. These can be used to make placeholder assignments when the individual to be assigned has not yet been determined.

This is typically used when the Resources file contains named individuals for labor, rather than resource categories (generic skills).

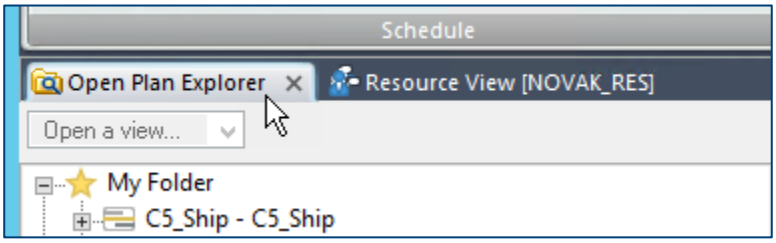
Like resources, skills can have a cost associated with them so that an estimate can be calculated. When there are variances in the individual rates for a particular skill, a blended rate can be placed on the Skill until such time as the individual is assigned to the activity, at which point the individual's rate is used in cost calculations.

For this reason, we will not be entering skills in our Novak resources file. Therefore, let's look at the Tour Resources sample data to see how skills are setup.

We will be using the **TOUR_RES** resource file for this exercise.

4.4.1 Activity: Creating and Assigning Skills

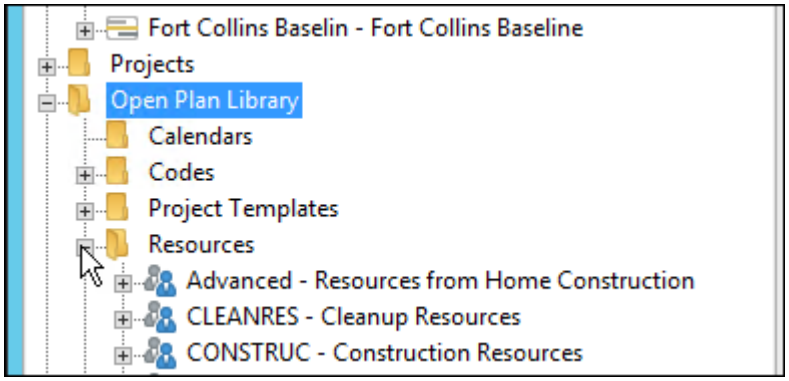
1. Click on the **Open Plan Explorer** tab.



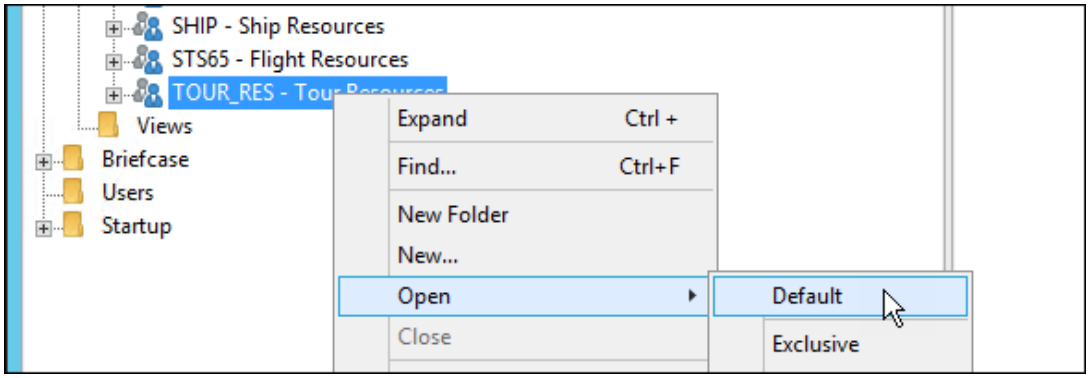
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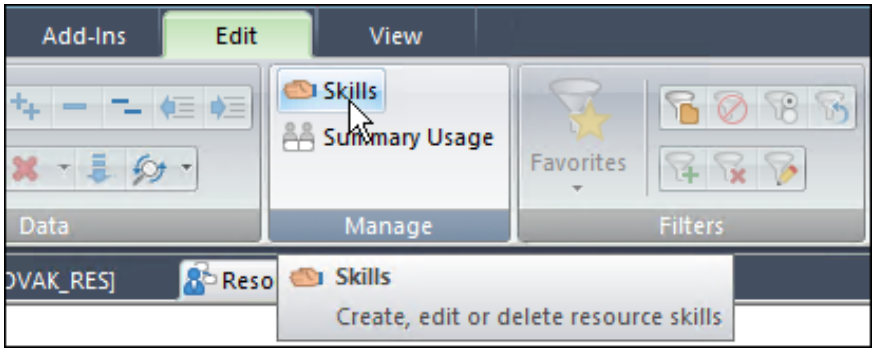
2. Expand the **Open Plan Library** folder and then expand the **Resource** folder.



3. Right-click on **TOUR_RES** and select **Open > Default** in the menu.



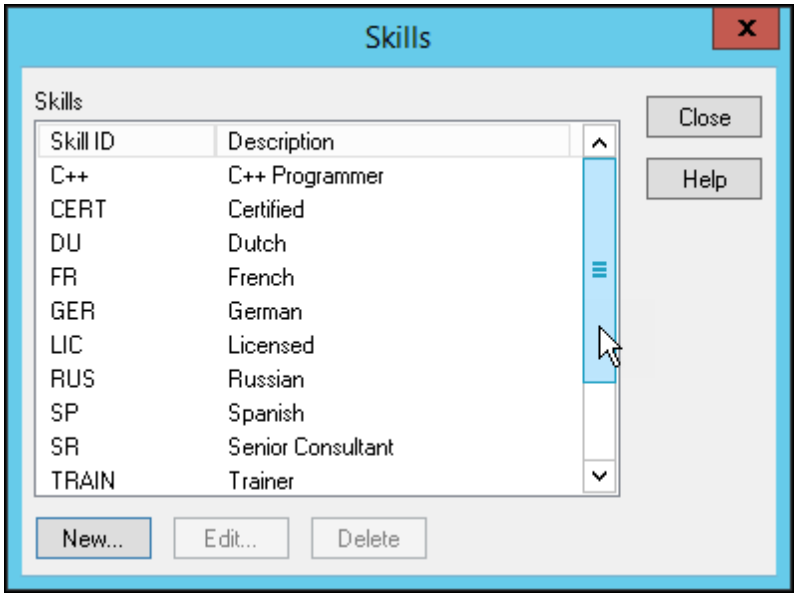
4. Click on the **Skills** button in the **Manage** tool group of the ribbon.



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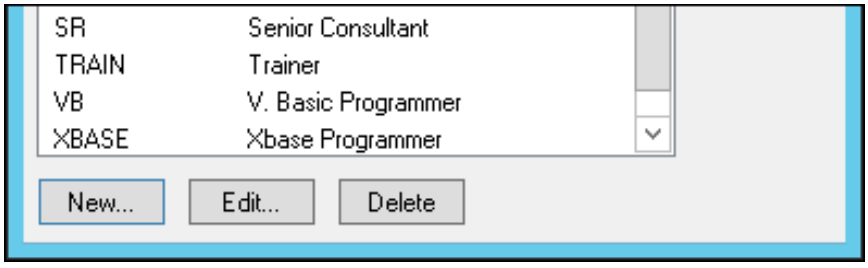
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5. In the **Skills** dialog, review the list of skills that have been created for this resource file.



In this dialog you can create new Skill entries, Edit existing ones, and delete unneeded records.

6. Click the **New** button.

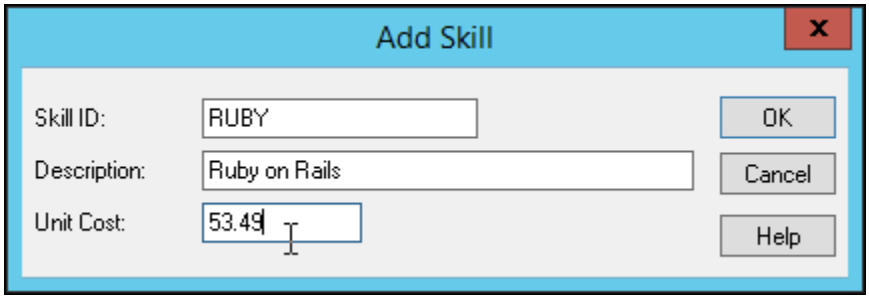


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7. In the **Add Skill** dialog, enter the following:

   Skill ID: **RUBY**
   Description: **Ruby on Rails**
   Unit Cost: **53.49**

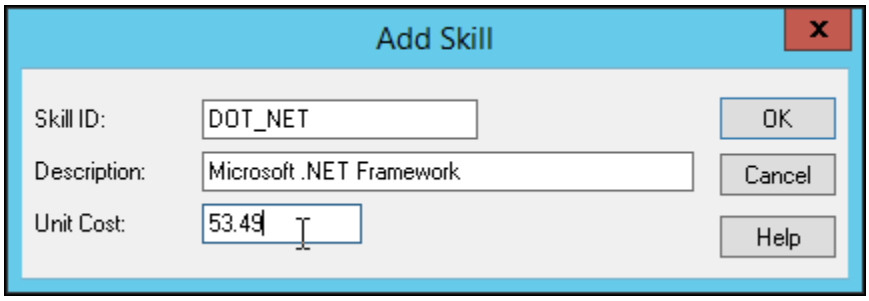


8. Click **OK**.

9. In **Skills**, click **New…**

10. In **Add Skill** enter the following:

    Skill ID: **DOT_NET**
    Description: **Microsoft .NET Framework**
    Unit Cost: **53.49**

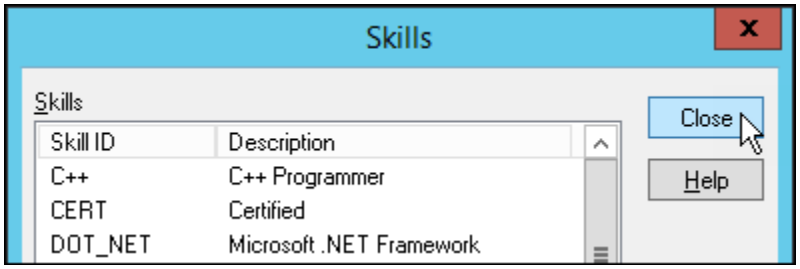


11. Click **OK**.

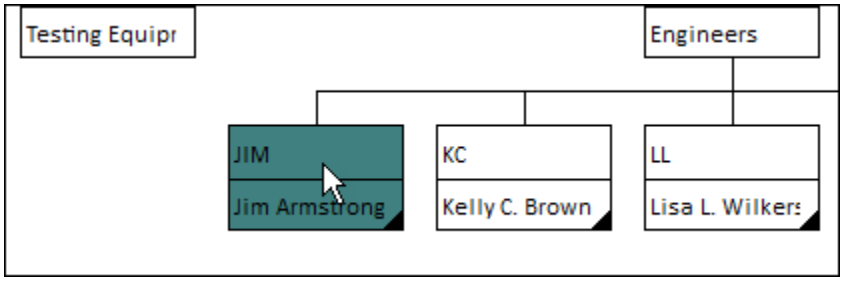
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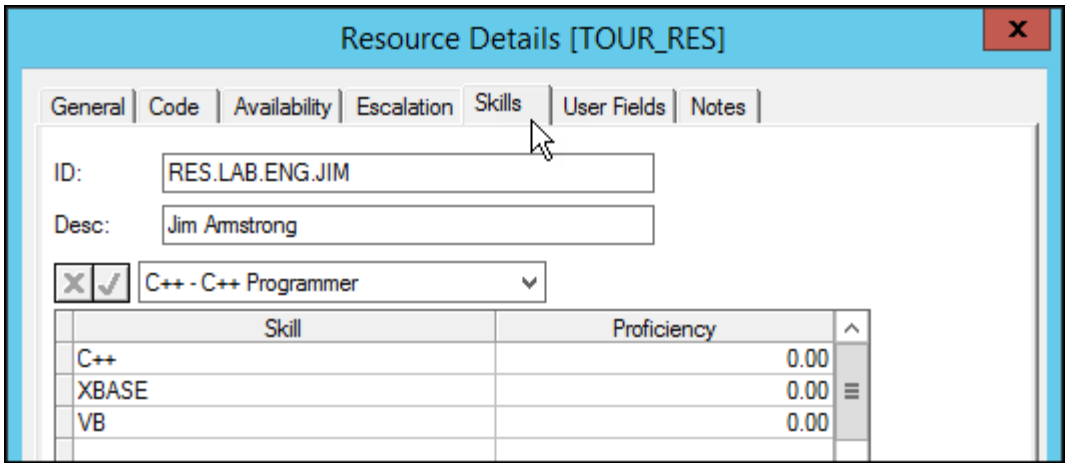
12. Close the **Skills** dialog.



13. Back in the **Resource** view, double-click on **Jim Armstrong** in the **Resource View**.



14. In the **Resource Details** dialog, click on the **Skills** tab.

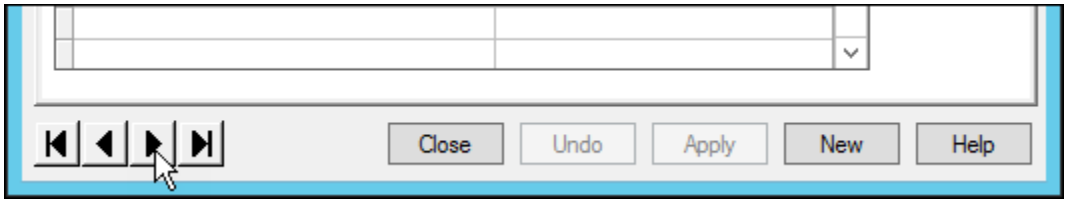


In this dialog we can see that Jim has 3 different programming skills assign. Also note the Proficiency column. This is for reference only and values entered here have no bearing on any calculations or prioritizations.

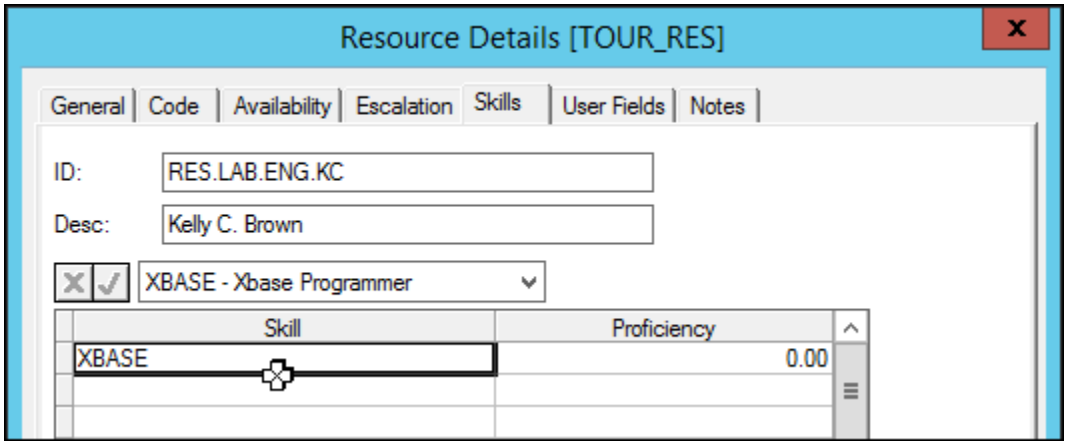
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15. Click on the **Next** button to move to **Kelly C. Brown**'s Skills assignments.

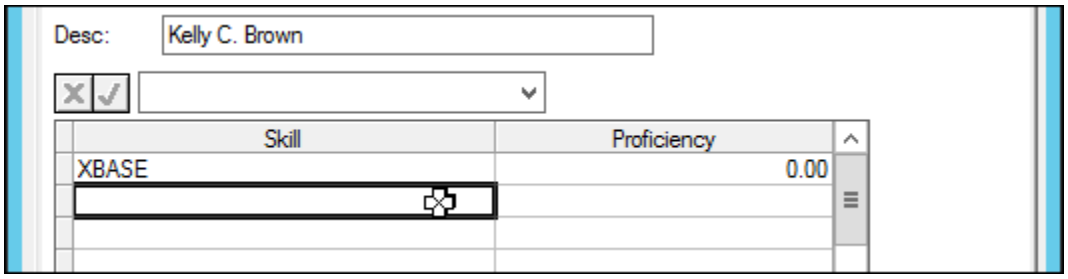


16. We can see that Kelly is an XBASE programmer.



However, this record is out of date. Kelly has upskilled in additional programming languages and her skill profile needs to be modified.

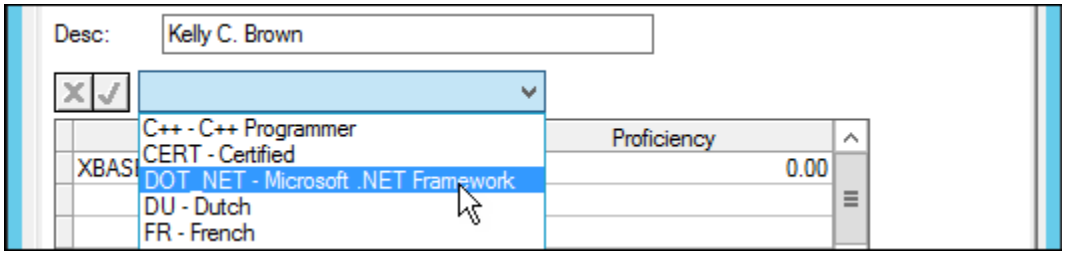
17. Click in the next free **Skill** cell to highlight it.



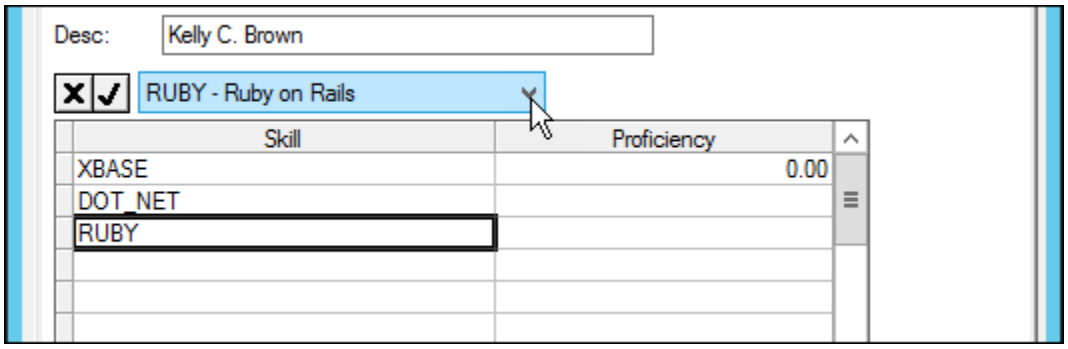
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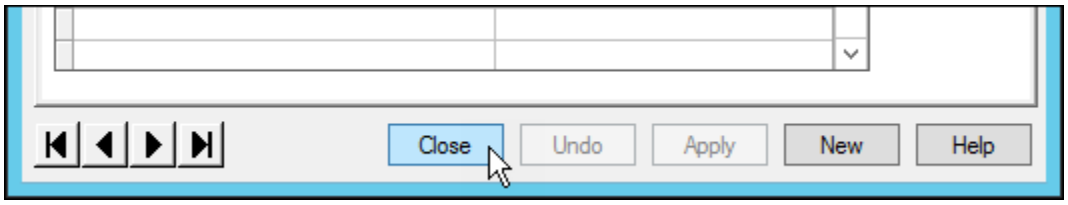
18. Now click the **Dropdown** field above the **Skill** column and select **DOT_NET** from the list.



19. Repeat these steps and add **Ruby** to the third row of the **Skill** list.



20. Click **Close** to conclude the exercise.

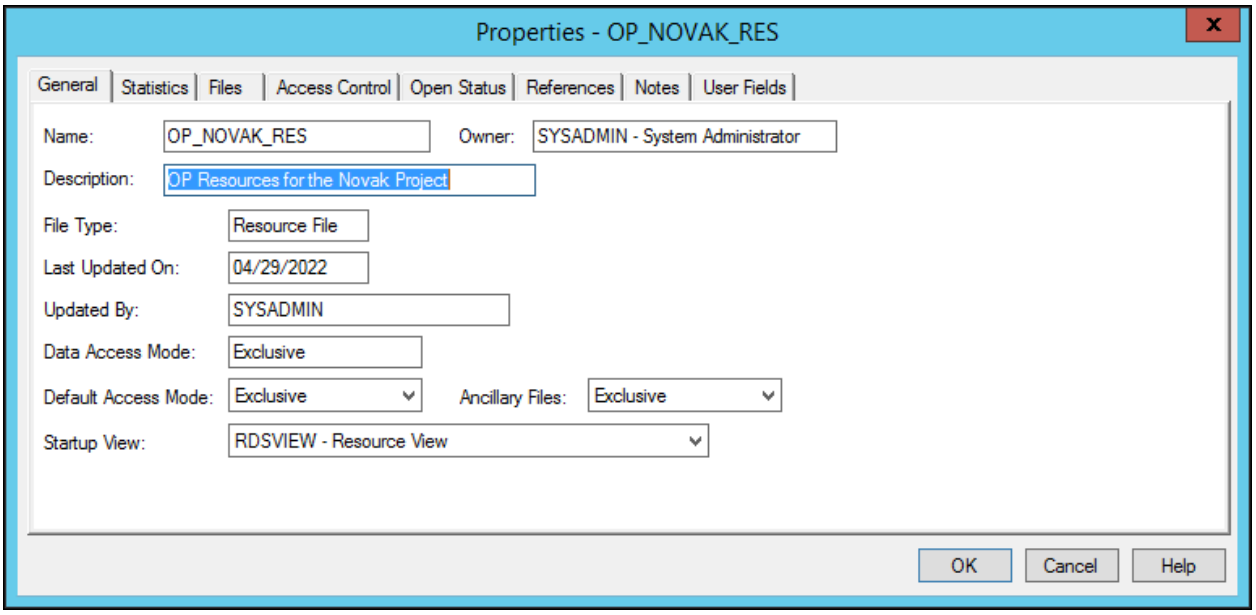


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4.5 Resource File Properties

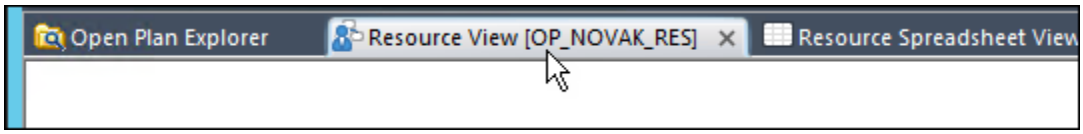
Ancillary files and projects each have a set of editable properties assigned to them. These ‘Properties’ dialogs allow you to change the setup, defaults, and configuration for many aspects of the files, depending on which one you have opened.



4.5.1 Activity: Adjusting Resource File Properties

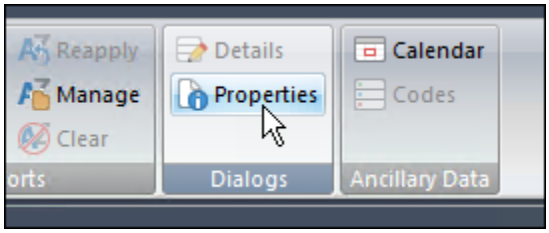
In this next activity you’ll learn about some of the most commonly used settings for the Resource file properties.

1. Make sure you’ve selected a Resource View or Resource Spreadsheet View.

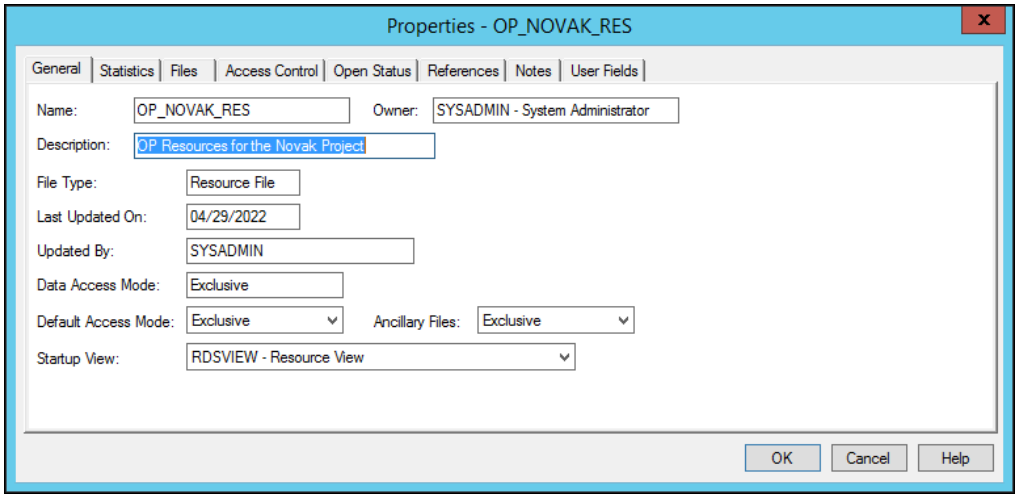


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2. In the **Edit** ribbon, select the **Properties** button in the **Dialog** tool group.



3. In the **General** tab, review the options for making changes to the default setup of your selected Resources file.

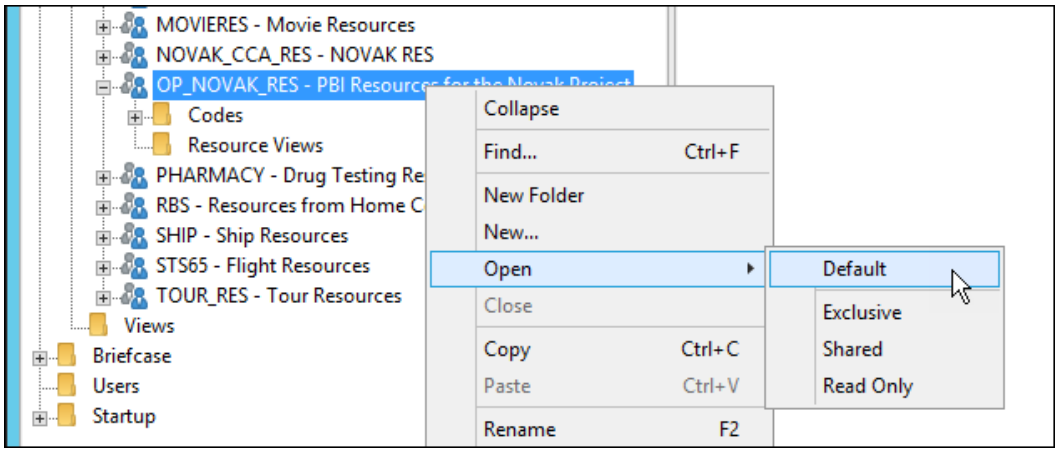


Editable fields include:

Description: you can change the description using this field at any time.

Default Access Mode: Options include Exclusive (default), Shared, or Read Only. When the files is opened with the Default option, this is the mode it will open in.

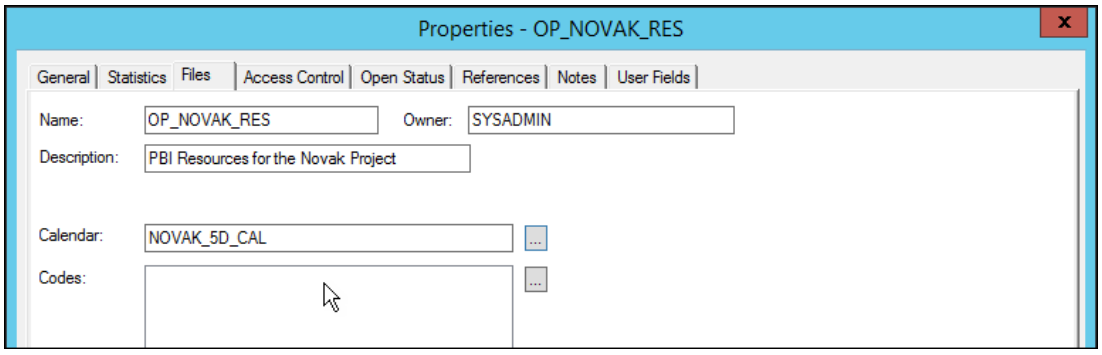
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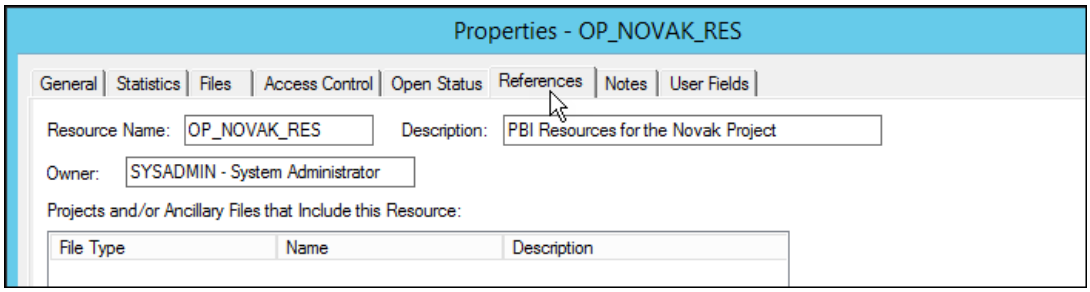
Ancillary Files: tell Open Plan what mode to use when any included ancillary files are opened along with the resource file.

Startup View: select your preferred startup view when you are opening the resources file.

4. Your **Novak** resource file is now using the same calendar that the project will be using.



5. Click the **References** tab.



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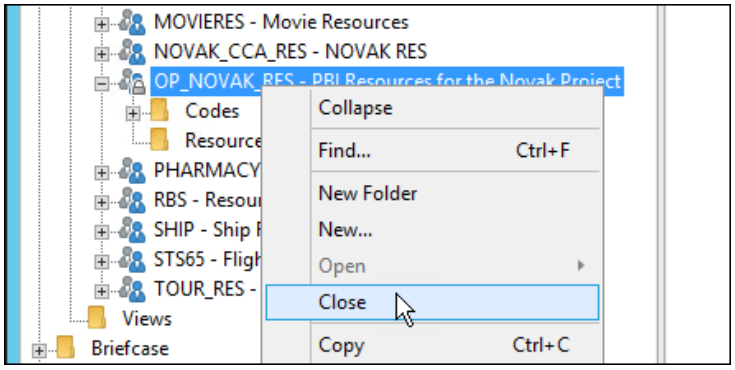
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If you ever need to know what projects or other ancillary files are using the file you are in, the References tab will show you. This tab is available in all the Properties dialogs.

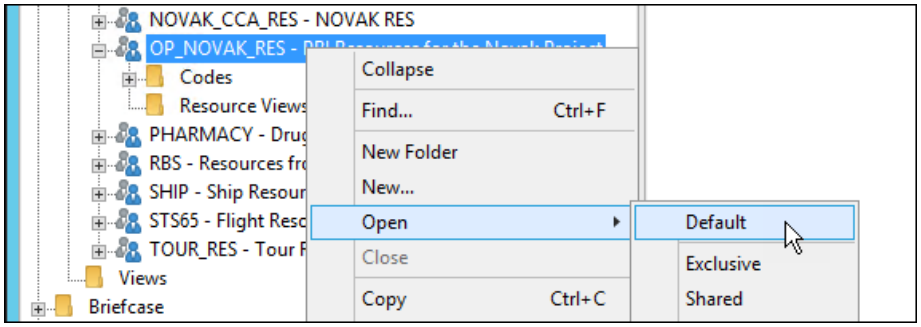
Having made a change to the Startup View setting in your Novak resources file, it's time to test it.

6. In the **Open Plan Explorer** tab, right-click on the **OP_NOVAK_RES** file.

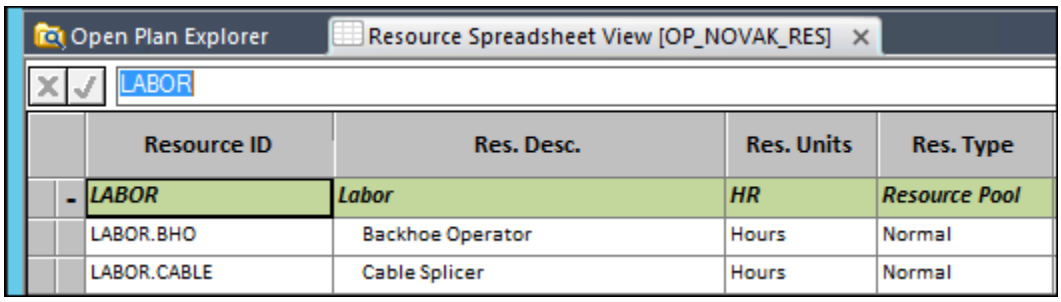
7. From the menu click **Close**.



8. Now right-click again and choose **Open > Default** from the menu.



9. Note that the **Novak Resource** file now opens in the **Resource Spreadsheet View**.



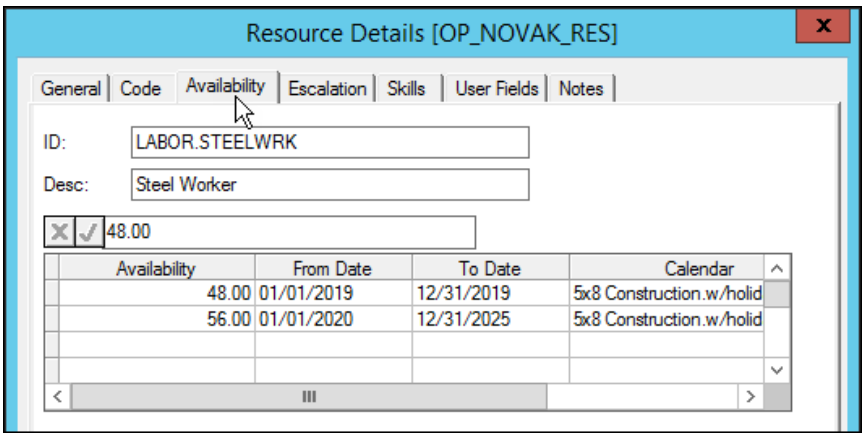
Resource ID	Res. Desc.	Res. Units	Res. Type
LABOR	*Labor*	*HR*	*Resource Pool*
LABOR.BHO	Backhoe Operator	Hours	Normal
LABOR.CABLE	Cable Splicer	Hours	Normal

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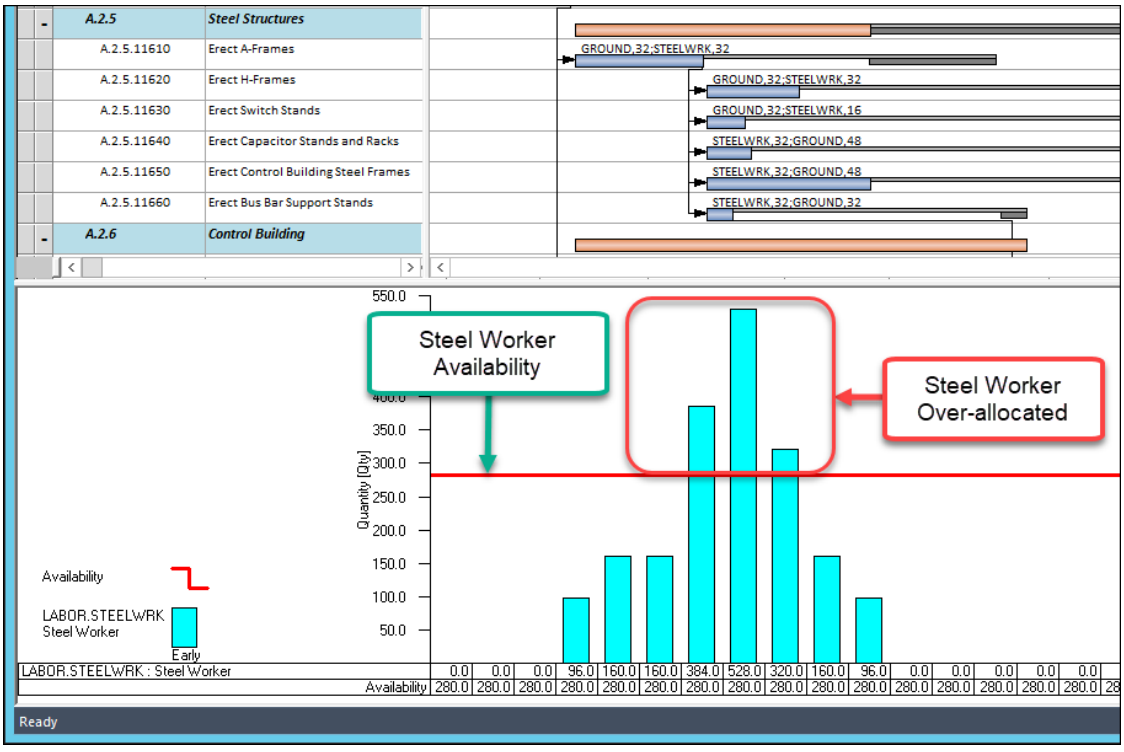
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4.6 Resource Availability

For resource management purposes you use the **Availability** feature to build a profile of available resources over time.



By setting availability values for resources, Open Plan can display an availability line in histograms that shows when assignments exceed availability.



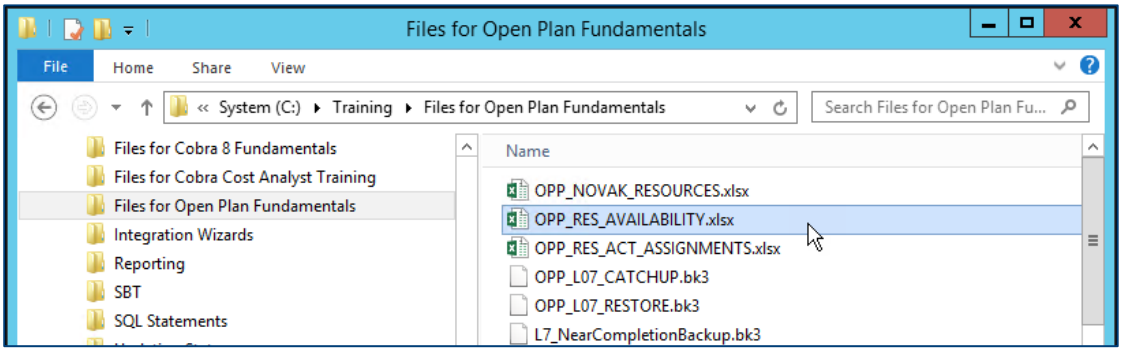
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4.6.1 Activity: Assigning Availability

For this activity you will be using the **OPP_RES_AVAILABILITY.xlsx** file to load various resource availability profiles.

1. In the Windows explorer, go to the **Files for Open Plan Fundamentals** and double-click to open the **OPP_RES_AVAILABILITY.xlsx**.



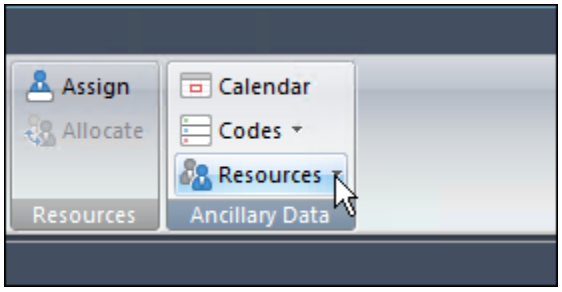
2. Review the spreadsheet and keep this open. You will be copying records from here shortly.

	A	B	C	D	E
1	**Resource ID / Qty**	**From Date**	**To Date**	**Calendar**	
2	LABOR.GROUND				
3	48	1/1/2019	12/31/2019	5x8 Construction.w/holidays	
4	64	1/1/2020	12/31/2020	5x8 Construction.w/holidays	
5	80	1/1/2021	12/31/2025	5x8 Construction.w/holidays	
6					
7	LABOR.CABLE				
8	8	1/1/2019	12/31/2023	5x8 Construction.w/holidays	
9					
10	LABOR.SUPER				
11	8	1/1/2019	12/31/2023	5x8 Construction.w/holidays	
12					

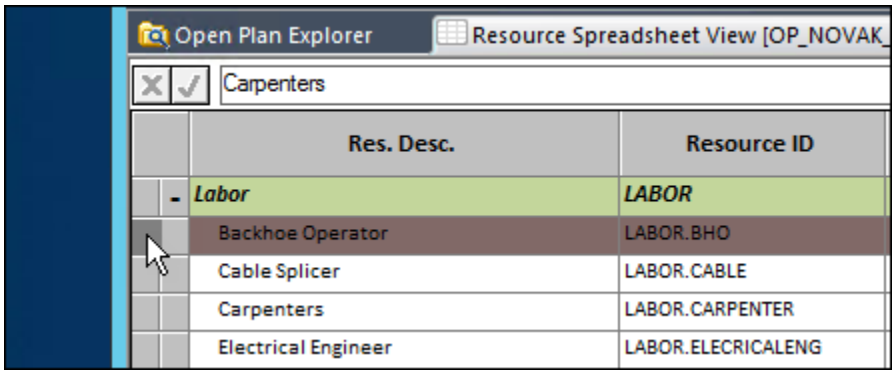
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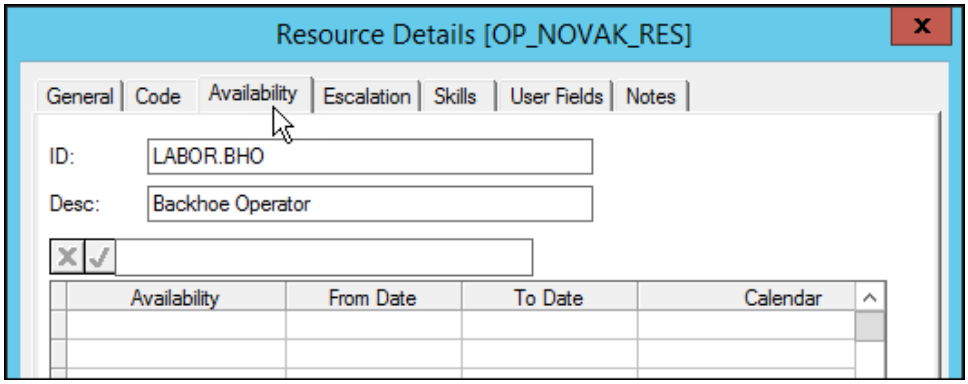
3. If necessary, click on the **Resources** button in the **Edit** ribbon to open the **OP_NOVAK_RES** file in the **Resource Spreadsheet View**.



4. Double-click on the outer row header for the **Backhoe Operator** to open the **Resource Details** dialog.



5. Click on **Availability**.

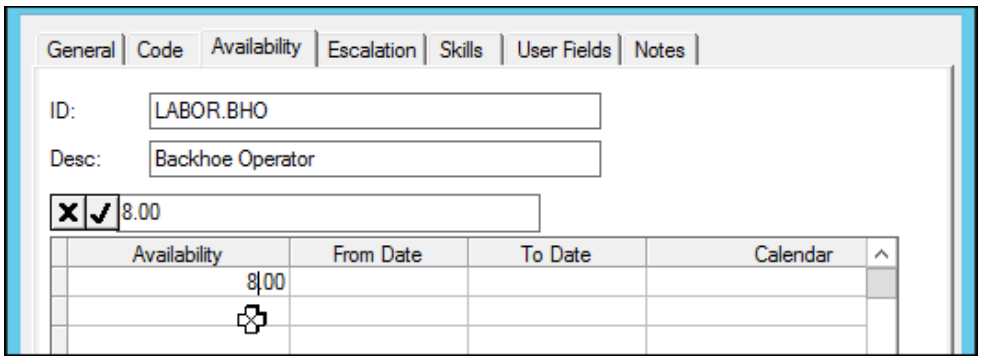


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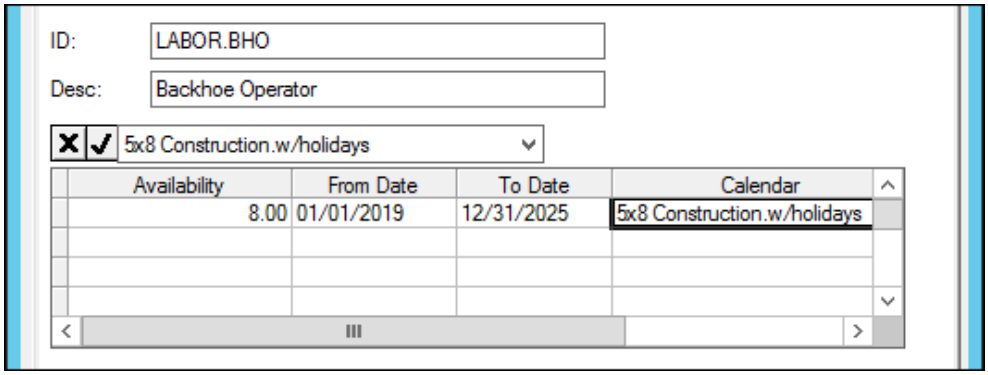
6. In the **Availability** field, enter '**8**'.

   As this is an hourly resource, we need to tell Open Plan the level of effort per period for in this case, 1 operator.



7. Enter the following dates in the **From** and **To Date** fields, and also select the **5x8 Construction.w/holidays** in the **Calendar** field.

   From Date: **1/1/2019**
   To Date: **12/31/2025**
   Calendar: **5x8 Construction.w/holidays**

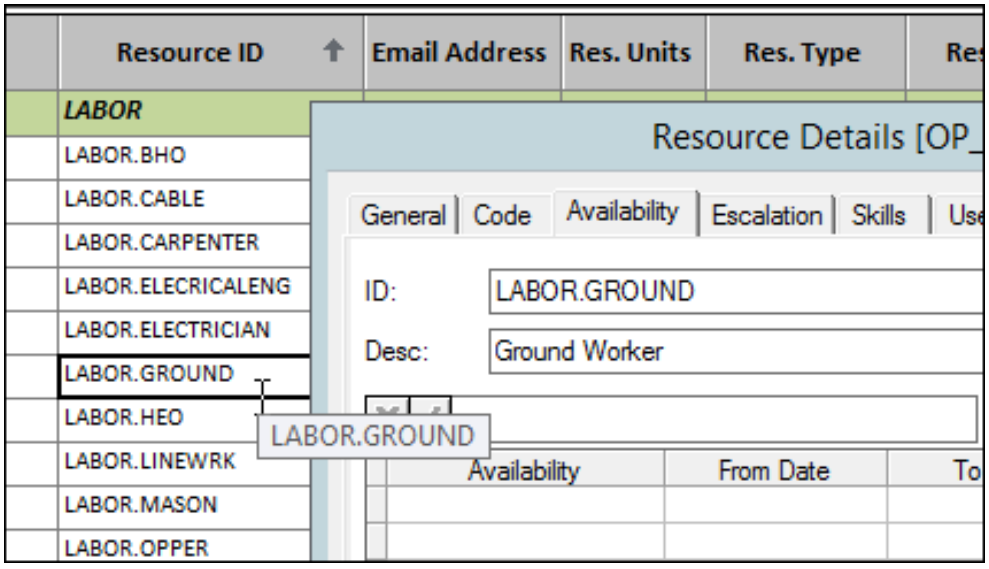


8. Click **Apply**. Leave the dialog open.

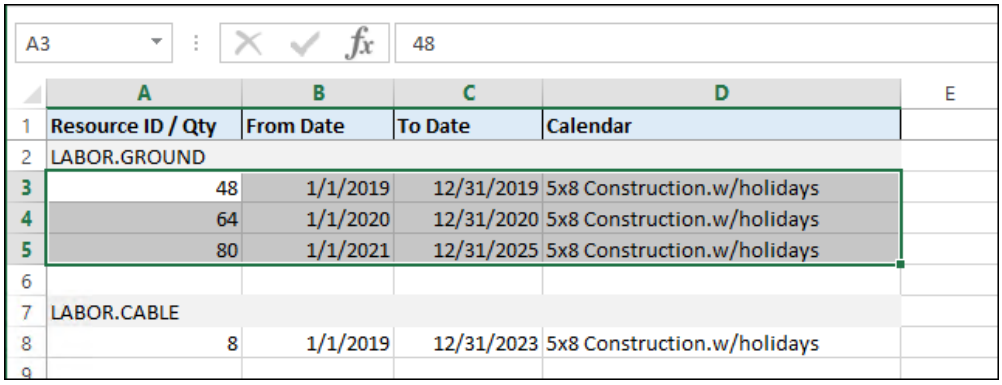
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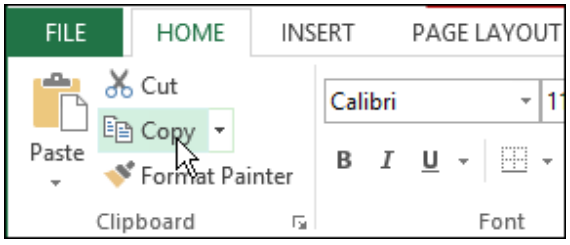
9. In the **Resource Spreadsheet** behind the dialog, click on the **Ground Worker** resource record.



10. In the **OPP_RES_AVAILABILITY.xlsx** file, select the three records for **LABOR.GROUND**.



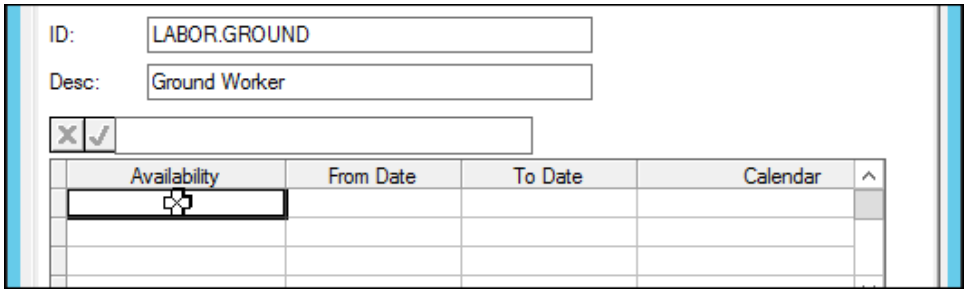
11. In the **HOME** tab, click **Copy**.



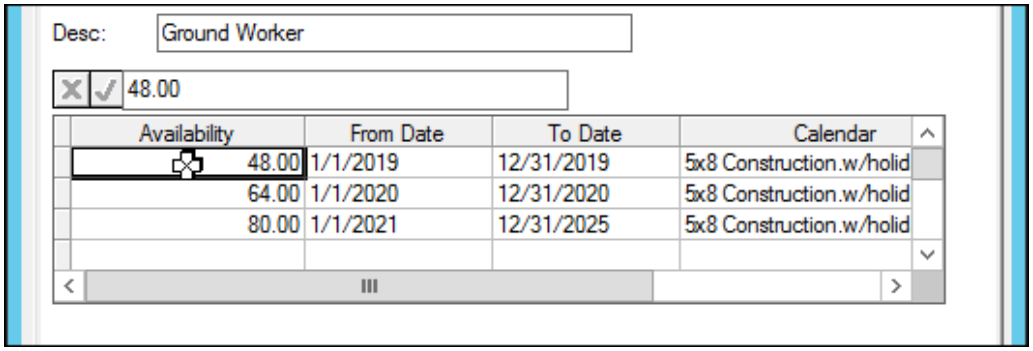
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12. Back in **Open Plan**, click on the **Availability** cell.



13. Click **Crtl + V** on your keyboard to paste in the records.



14. Click **Apply**.

15. Repeat steps **9 – 14** for the following resources in the **Excel** spreadsheet.

LABOR.LINEWRK
LABOR.HEO
LABOR.STEELWRK

16. Click **Save**.



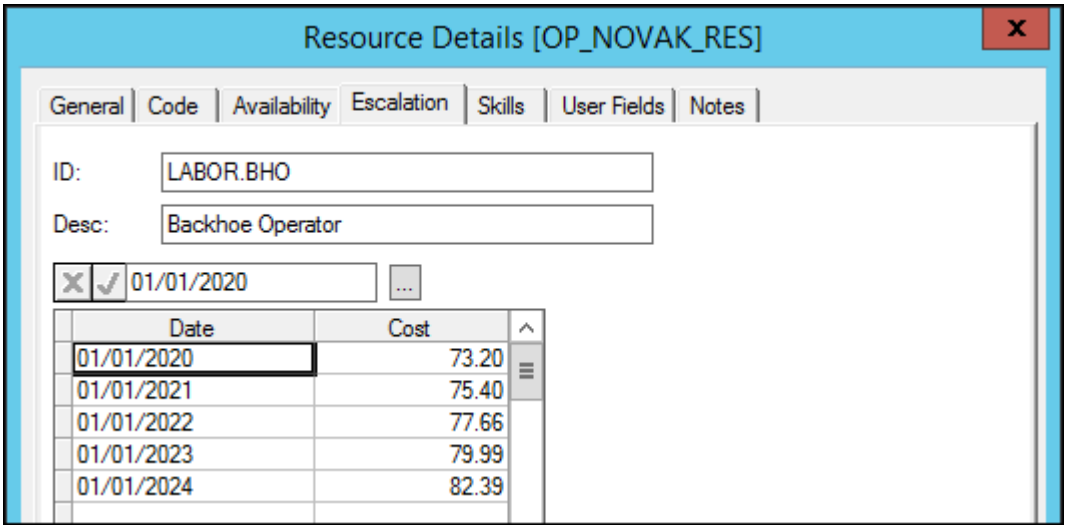
Click **Close**.

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4.7 Resource Cost Escalation

If you are using Open Plan for Earned Value reporting, you may want to consider building forward pricing into the resource's Escalation table.



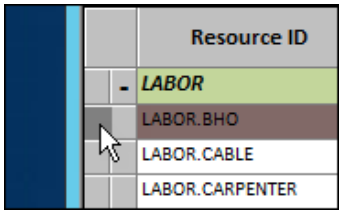
This step increases the accuracy of the Budget, Actual, and Earned Value metrics over the lifecycle of the project.

If project activities slip into later periods, a revised cost can be calculated to understand the variance from baseline more accurately.

4.7.1 Activity: Adding Resource Cost Escalation

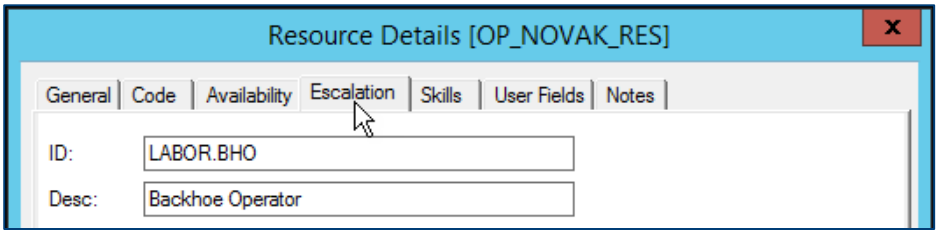
For this activity we will be entering just one set of escalated values for the **OP_NOVAK_RES** ancillary file.

1. Double-click on the **LABOR.BHO** resource outer row header to reopen the **Resource Details** dialog.



2. Click on the **Escalation** tab.

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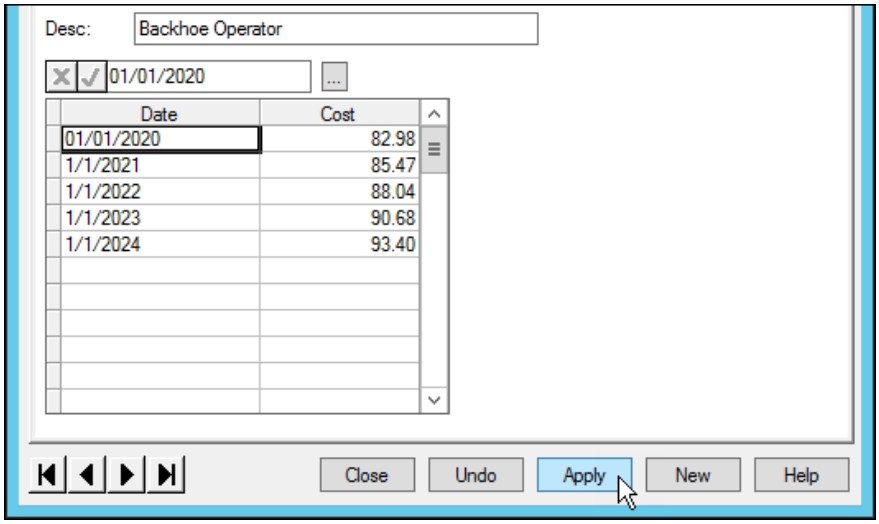
3. Enter the following details into the **Date** and **Cost** field for the **BHO** resource.

Resource ID	Date	Cost
BHO		
	1/1/2020	82.98
	1/1/2021	85.47
	1/1/2022	88.04
	1/1/2023	90.68
	1/1/2024	93.40

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4. Click the **Apply** button to register the changes to **Open Plan**.



5. Click **Close**.

6. Click **Save**.

This concludes the lesson. We will be returning to this file in lesson 7 - Resource Assignments.

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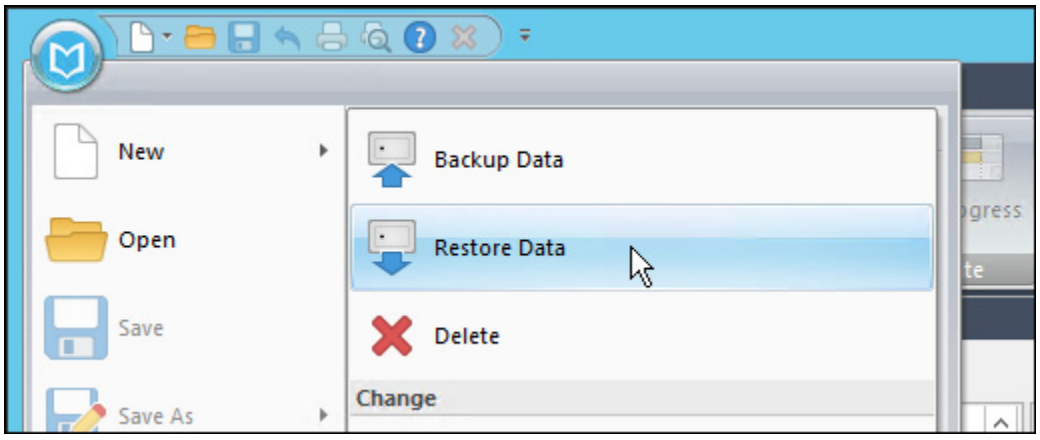
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4.8 Course Catchup

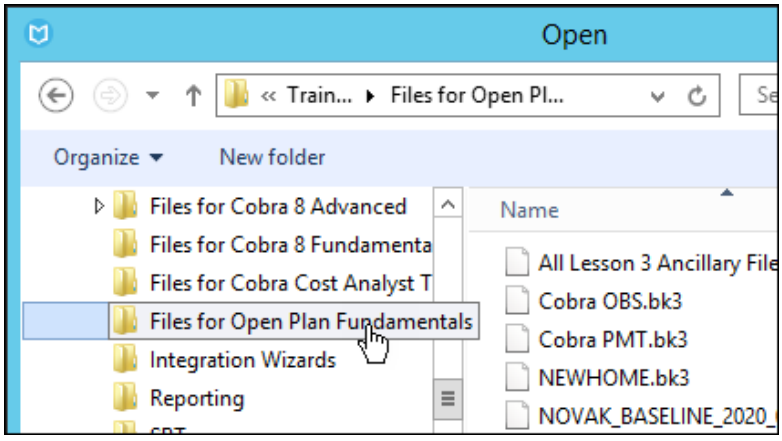
4.8.1 Activity: Course 4 – Catchup

If you were unable to complete all the activities in this lesson, you can restore the final ancillary files using the following steps:

1. Click on the **File** | **Manage Files** > **Restore Data** option.



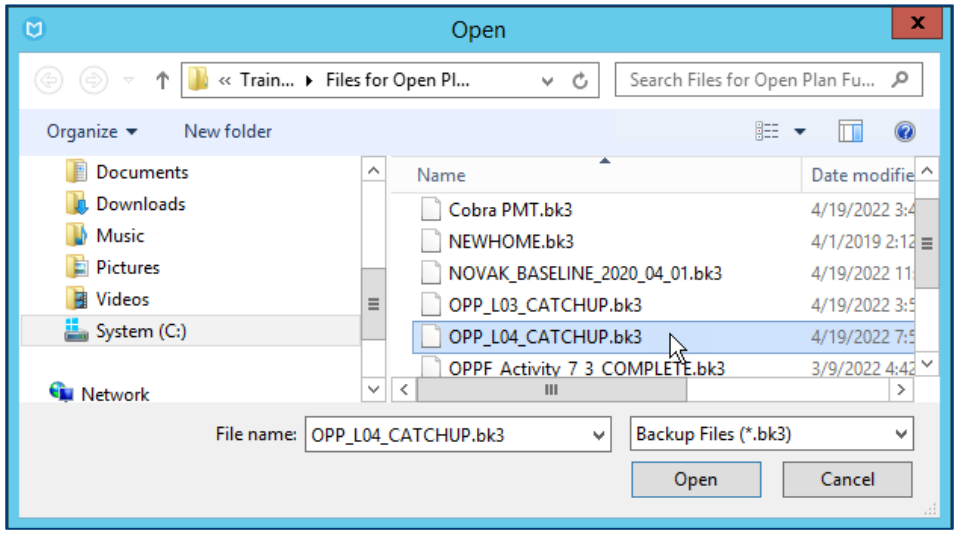
2. In the **Open** dialog, go to **System (C:)** | **Training** | **Files for Open Plan Fundamentals**.



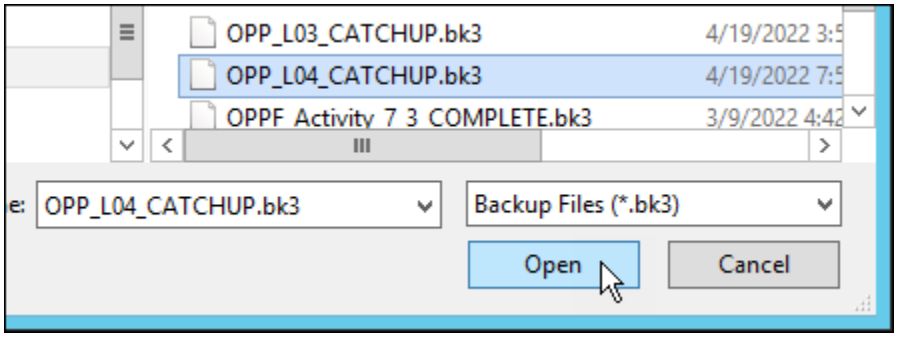
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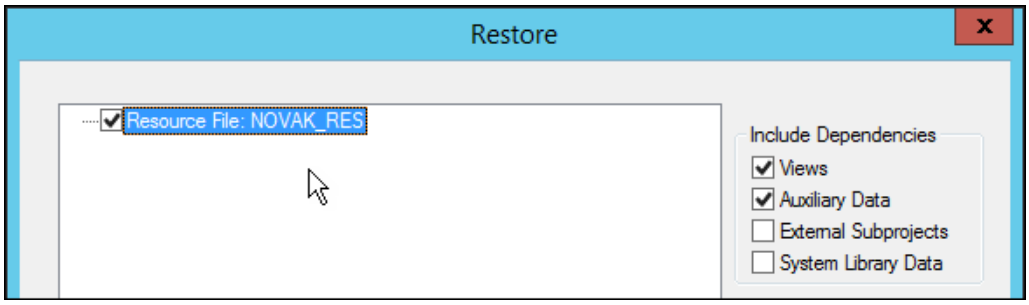
3. Click on the **OPP_L04_CATCHUP.bk3** file. This will restore any and all ancillary files created in this lesson.



4. Click **Open**.



5. In the **Restore** dialog, verify the selected **Resource File: NOVAK_RES** in the list box.

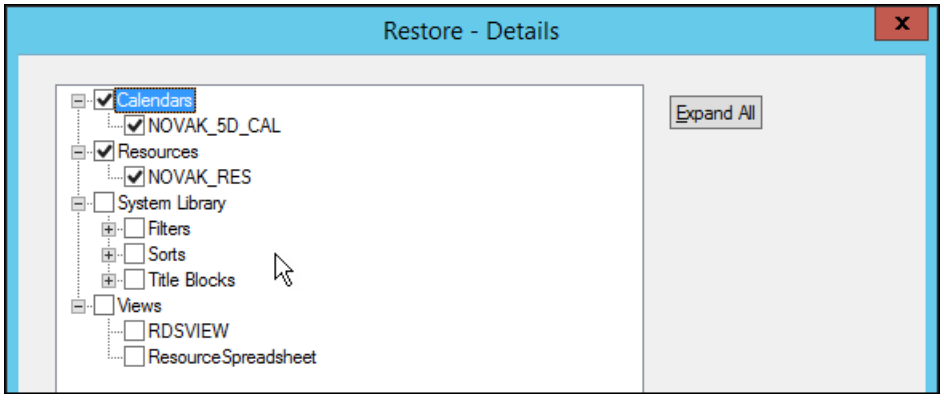


6. Click **Next >**.

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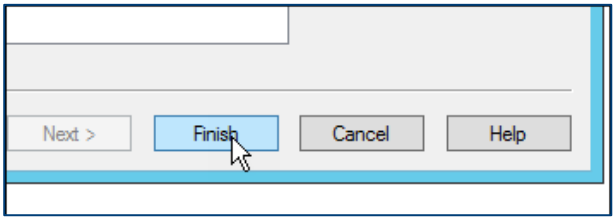
7. In the **Restore Details** dialog, expand the structure and **uncheck** any **Views** or **Title Blocks** you see selected.



This will save additional prompts appearing during the process.

You can see that because the **Resource File** is using the **NOVAK_CAL** calendar, this has been included in the backup.

8. Click **Finish**.



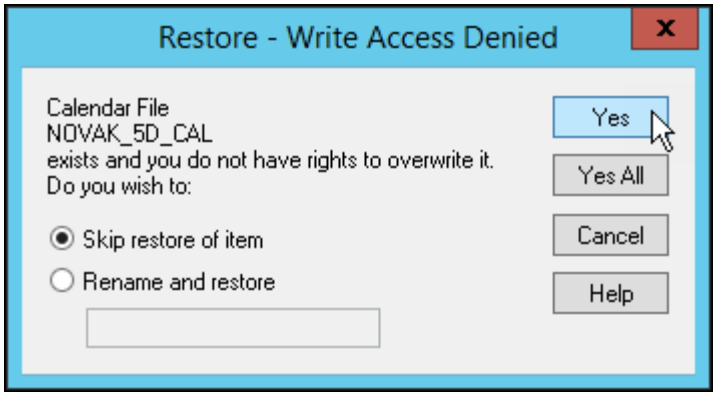
If you are prompted before the restore completes, you may have left a **View** item or a **Title Block** checked, or you may have already created a file you're restoring.

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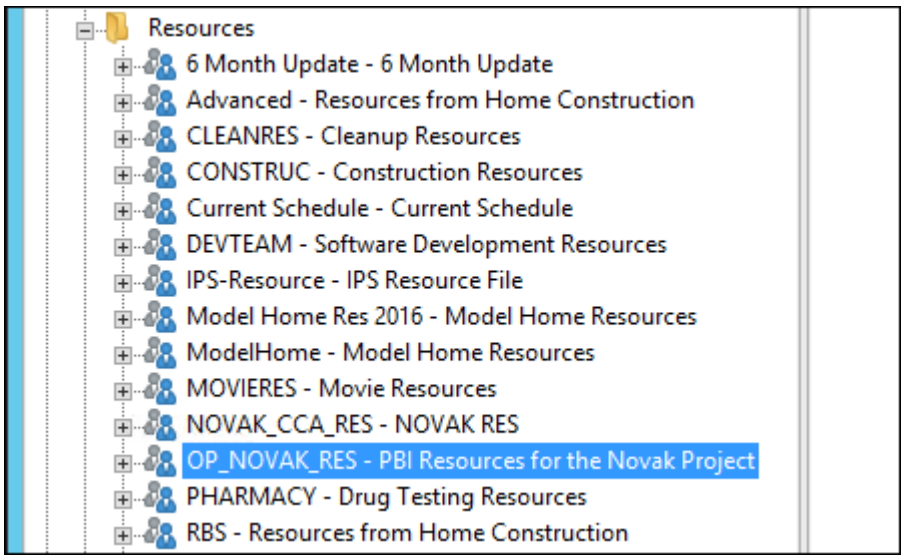
9. If you see a prompt like this, you can check the '**Overwrite existing item**' option.

   In this example the process has detected an existing **NOVAK_5D_CAL** file.



10. Click the **Yes All** button.

11. You will now find your restored files in the **Calendars** folder, and the **Codes** folder, in the **Open Plan** explorer.



You are now ready to continue to the next lesson.

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Open Plan Scheduler Certification Series: Building the Project

Activity Guide

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Table of Contents

5.1 Course Introduction 4
5.1.1 In this Course 4
5.2 Building the Project 5
5.2.1 Activity: Creating a Shell Project 5
5.2.2 Activity: Backing Up the Shell Project 16
5.3 Adding Activities to the Project 19
5.3.1 Activity: Entering Activities 19
5.3.2 Activity: Modifying the Activity Barchart View 26
5.3.3 Activity: Loading Activities from a Spreadsheet 33
5.4 Activity Types 37
5.4.1 Activity: Editing Activity Types 39
5.4.2 Activity: Performing Time Analysis 43
5.5 Activity Steps 45
5.5.1 Activity: Adding Steps 45
5.6 User Fields 49
5.6.1 Activity: Creating a User Field for Change Control 49
5.6.2 Activity: Assigning the new UDFs as Table Columns 54
5.6.3 Activity: Testing The New UDF Columns 60
5.7 Adding Note Categories 63
5.7.1 Activity: Adding a New Note Category 64
5.7.2 Activity: Using Notes 67
5.7.3 Activity: Backing Up Your Project 75
5.8 Course Catchup 78
5.8.1 Activity: Course 5 – Catchup 78

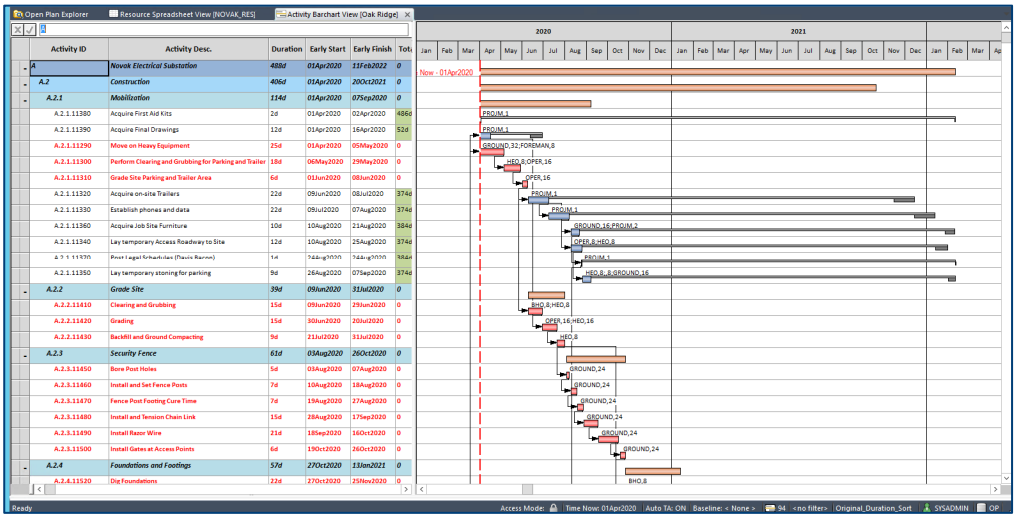
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5.1 Course Introduction

Having created code, calendar, and resource ancillary files, you will now learn how to assign them during the creation of a new project file.

As before, this is a wizard driven process and is simple to perform. Once you have created the shell Novak project file, you will learn how to add activities, and start to organize the data.



5.1.1 In this Course

- Creating a shell project ready for data entry
- Adding activities manually and from external sources (spreadsheets)
- Working with Activity Types
- Using Activity Steps
- Working with User Fields
- Adding Note Categories

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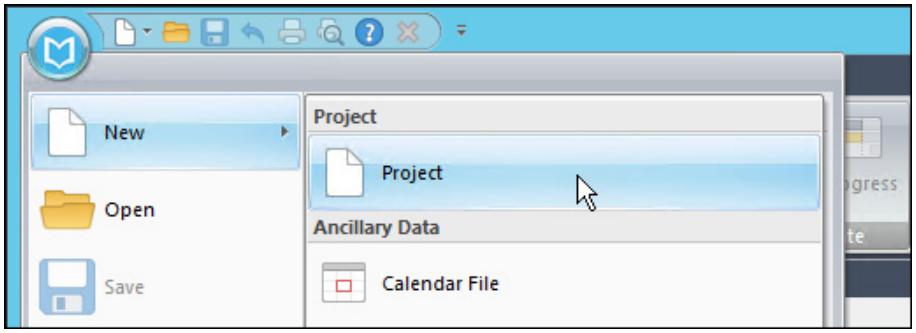
5.2 Building the Project

In this first section you will learn how to build a project using the calendar, code, and resource files created previously.

Do keep in mind that while we are building much of this from scratch, it is likely that many of the ancillary files you need may already exist in your companies Open Plan system. Any file you create can be assigned to and used by any number of projects. For example, it's common that the same resource file be used across multiple projects because it contains the specialized skills used by your company.

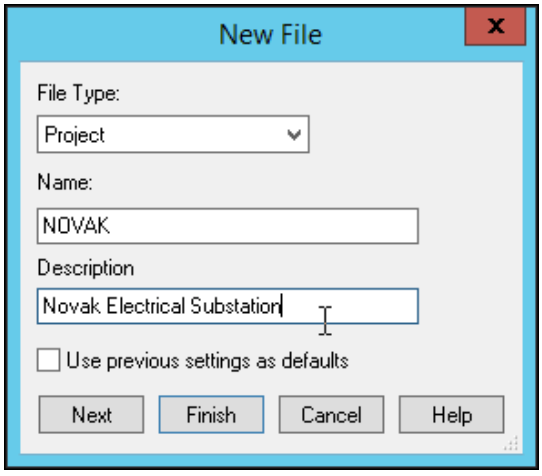
5.2.1 Activity: Creating a Shell Project

1. Click the **File** menu and select **New > Project**.



2. In the **New File** dialog, enter the following name and description.

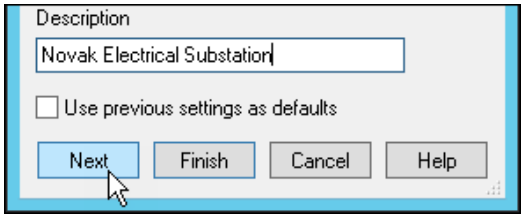
   Name: **NOVAK**
   Description: **Novak Electrical Substation**



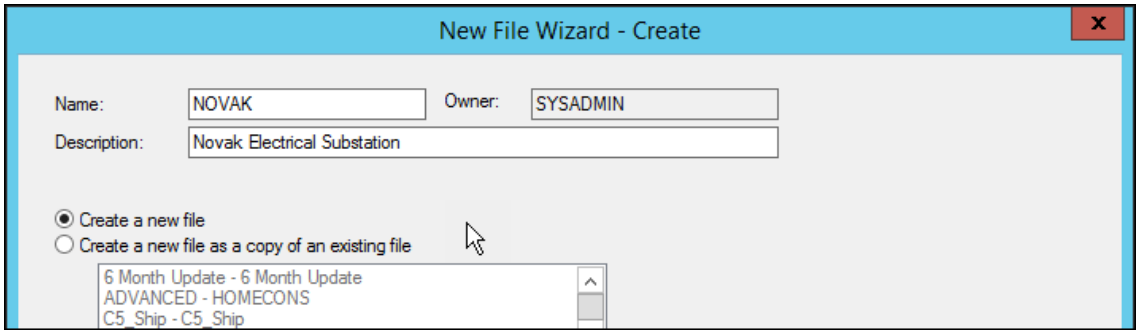
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3. Click **Next**.

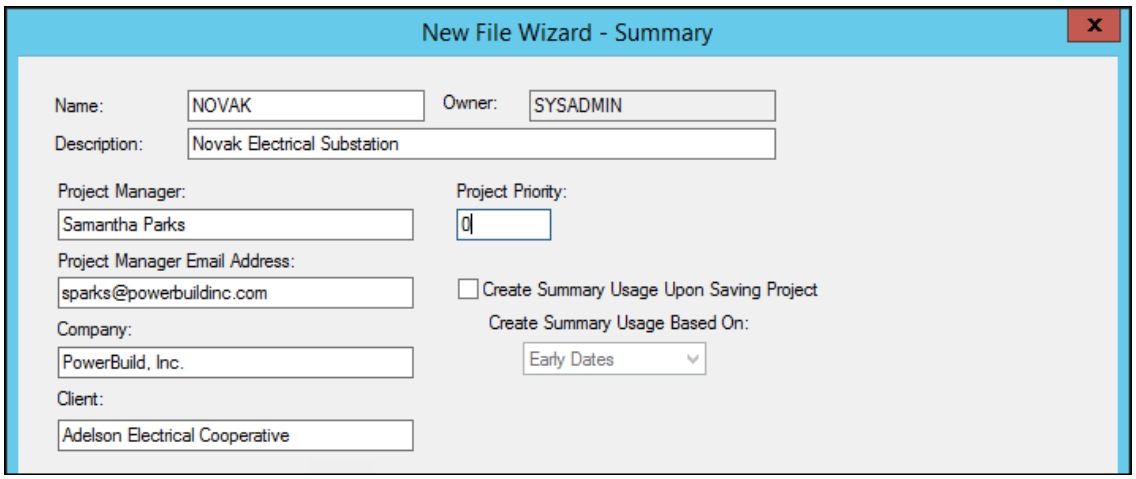


4. In the **New File Wizard – Create** dialog, click **Next >** to go with the default to '**Create a new file**'.



5. In the **New File Wizard Summary**, enter the following values:

   Project Manager: **Samantha Parks**
   Project Manager Email Address: **sparks@powerbuildinc.com**
   Company: **PowerBuild, Inc.**
   Client: **Adelson Electrical Cooperative**

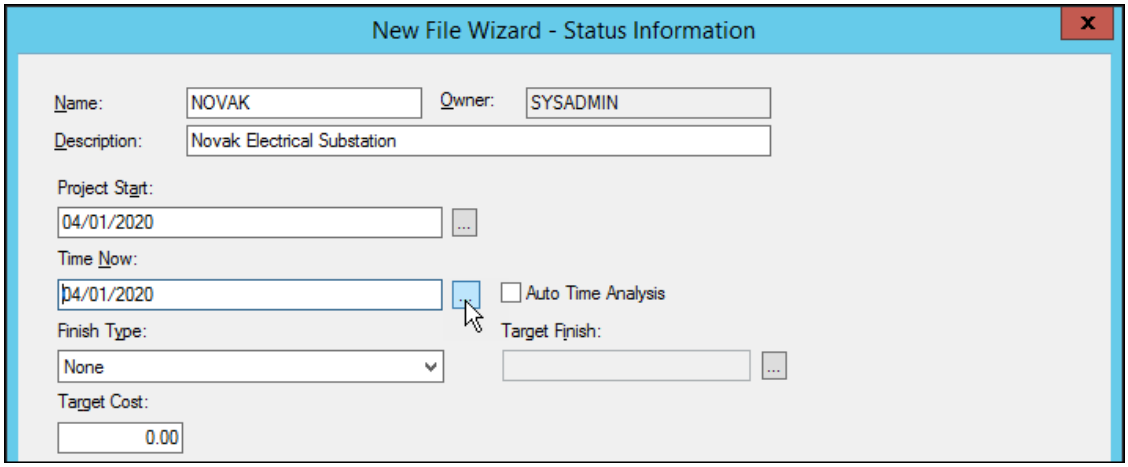


6. Click **Next >**.

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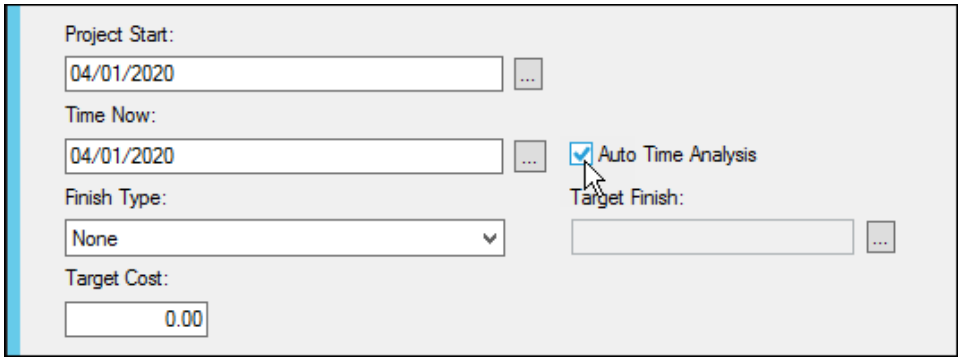
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7. In the **Status Information** dialog, enter **04/01/2020** in both the **Project Start** and **Time Now** fields.



We will not be changing any other settings at this time.

8. Click to select the **Auto Time Analysis** option.

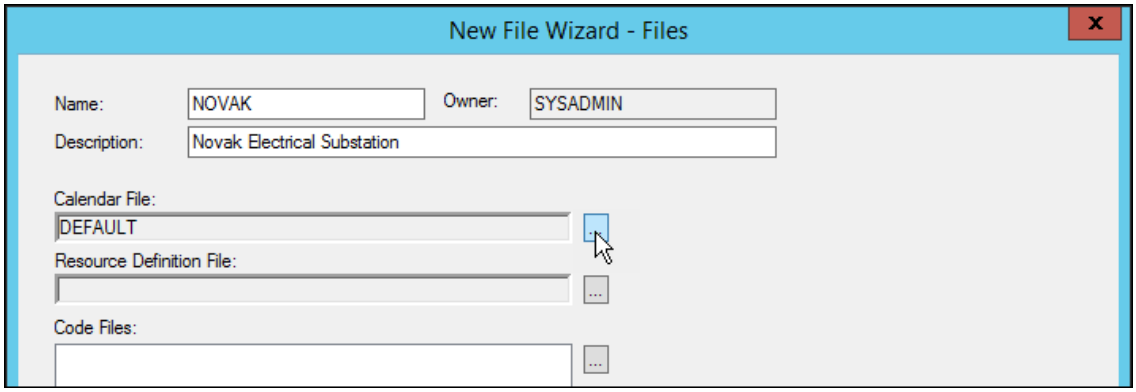


9. Click **Next >**.

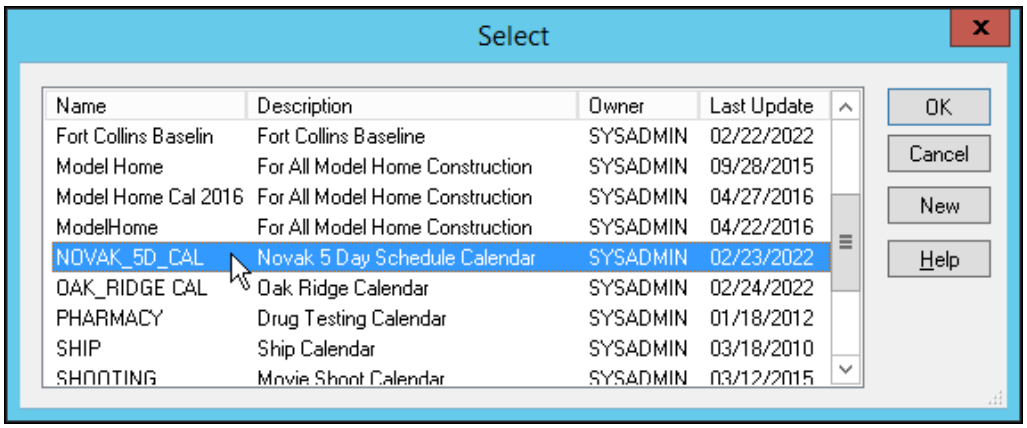
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10. In the **Files** dialog, click on the **Calendar File:** ellipse.



11. In the **Select** dialog, locate the **NOVAK_5D_CAL** calendar in the list.

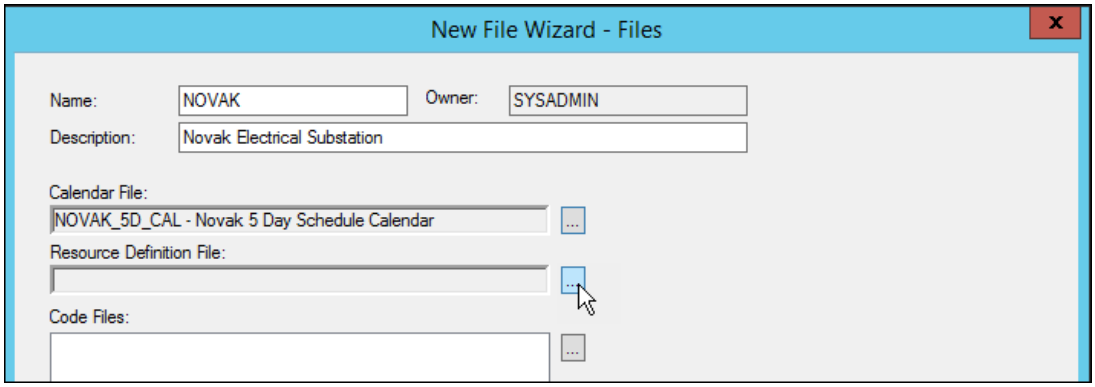


12. Click **OK**.

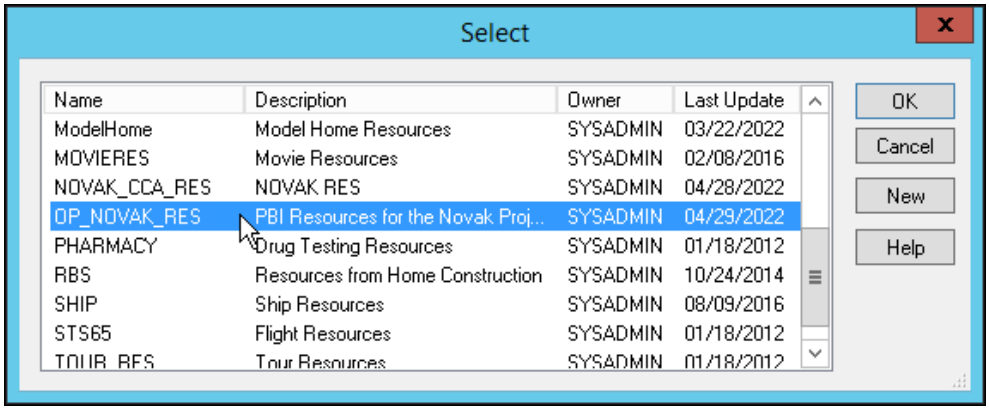
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13. Click on the **Resource Definition File:** ellipse button.



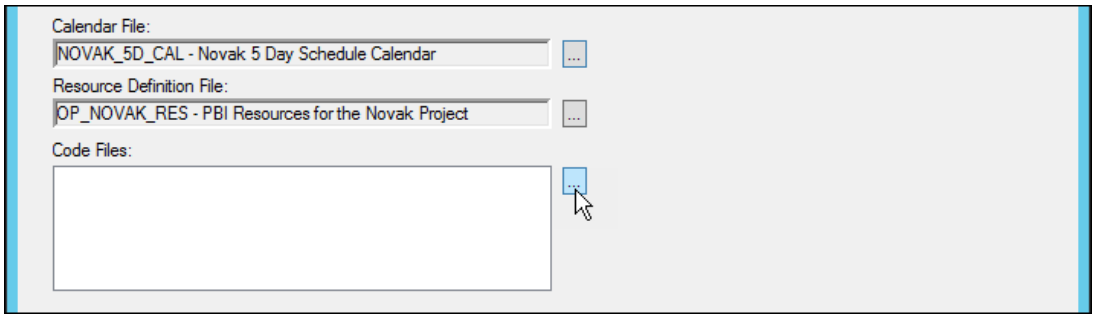
14. Select the **OP_NOVAK_RES** file.



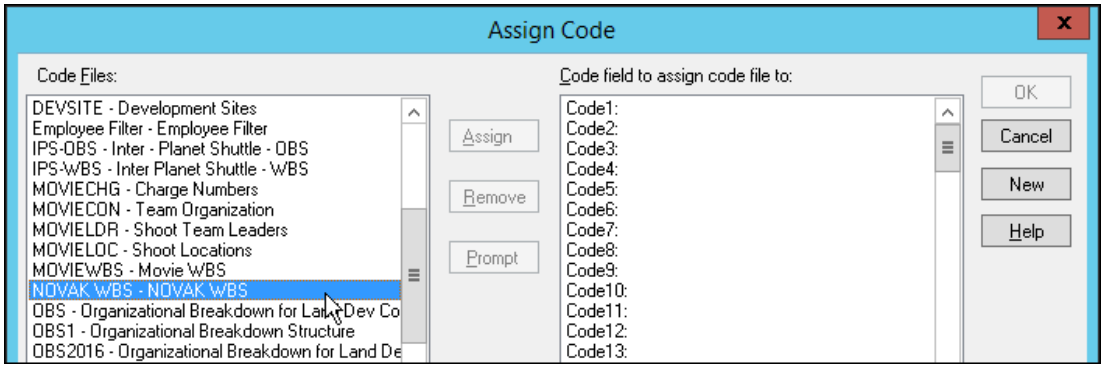
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15. Click **OK**.

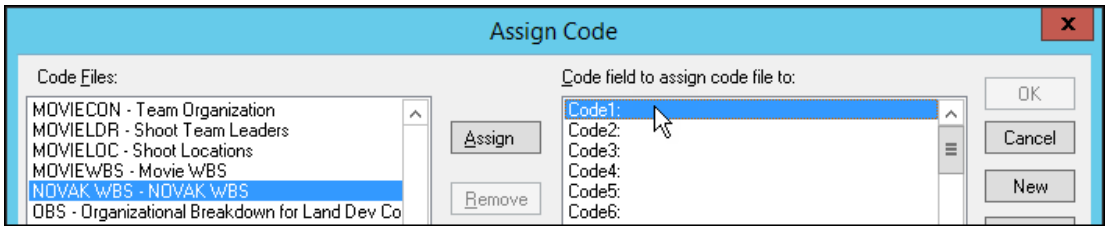
16. Click the **Code Files:** ellipsis.



17. Select **NOVAK WBS** from the **Code Files** list.



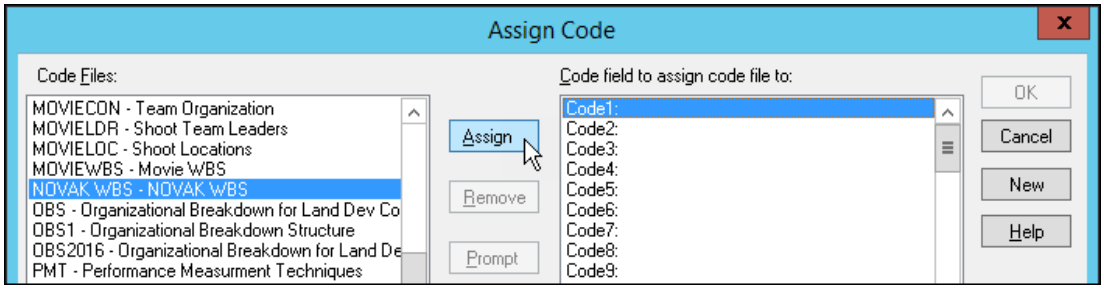
18. Now click on **Code 1** in the '**Code field to assign code file to:**' list.



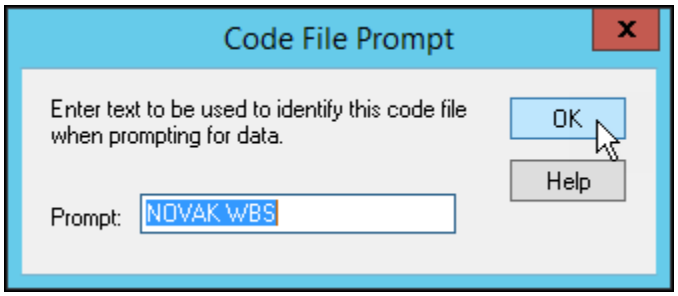
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19. Click **Assign**.

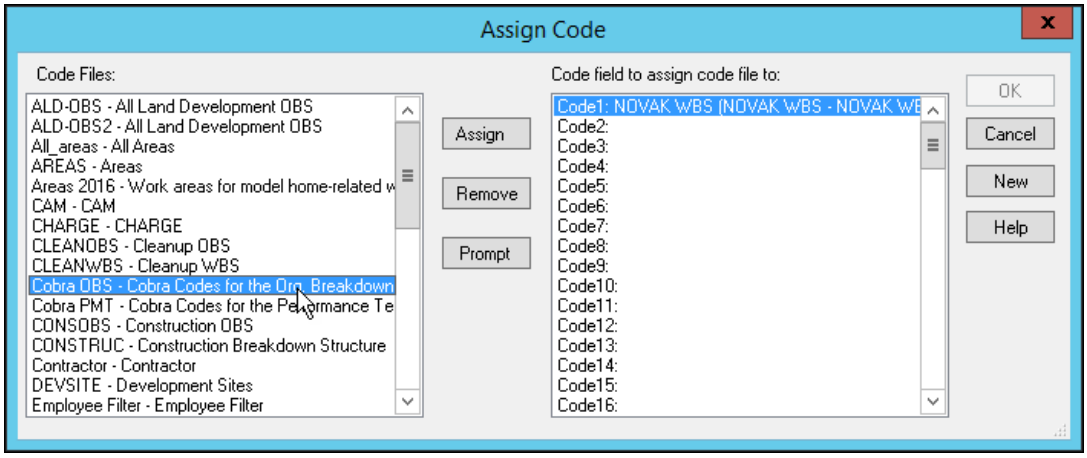


20. In the **Code File Prompt** dialog, go with the default prompt option and click **OK**.



This becomes the column name when added to a table in the activity view.

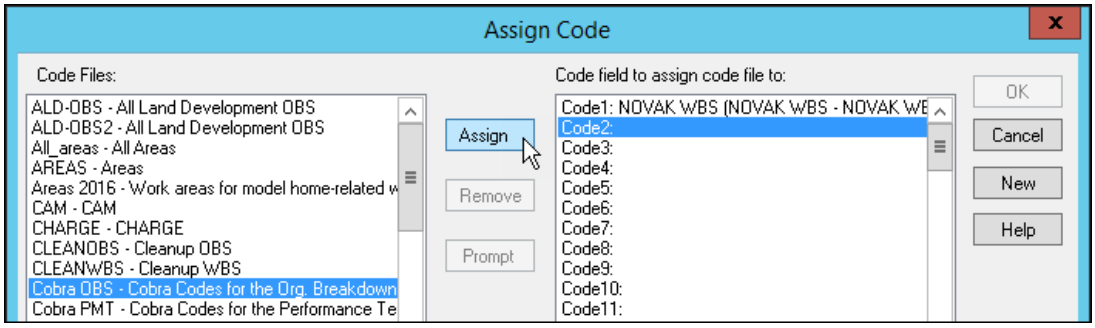
21. Now click on the **Cobra OBS – Cobra Codes for the Org. Breakdown** code file.



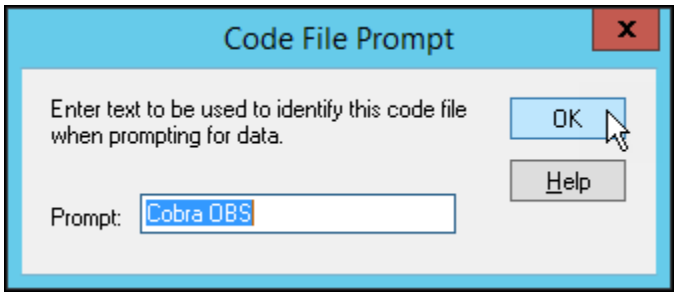
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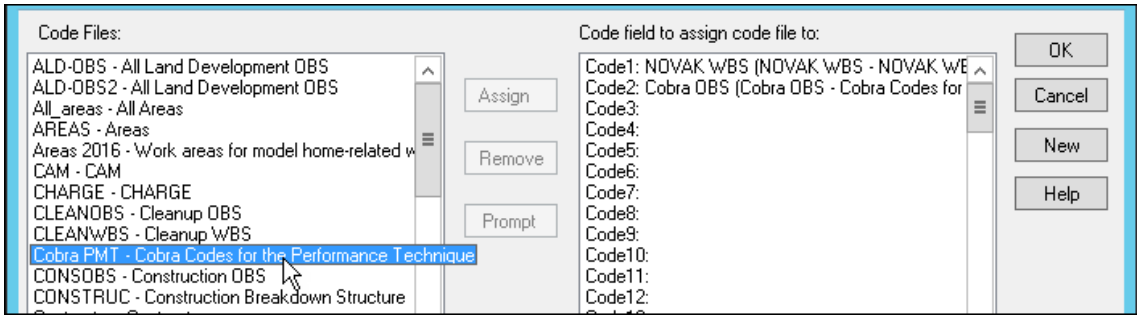
22. Select **Code2:** in the right-hand list and then click **Assign**.



23. In the **Code File Prompt** dialog, click **OK** to go with the default **Prompt:** value.



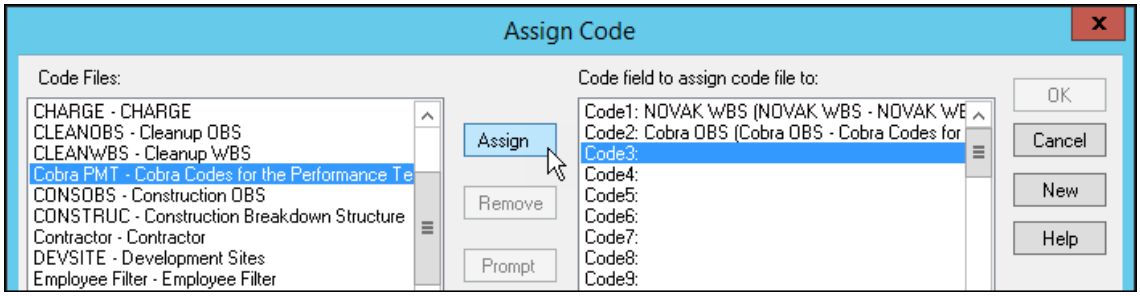
24. Now locate the **Cobra PMT – Cobra Code for Performance Technique** code file in the list and select it.



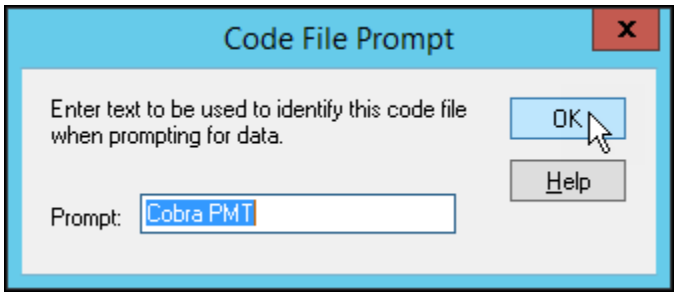
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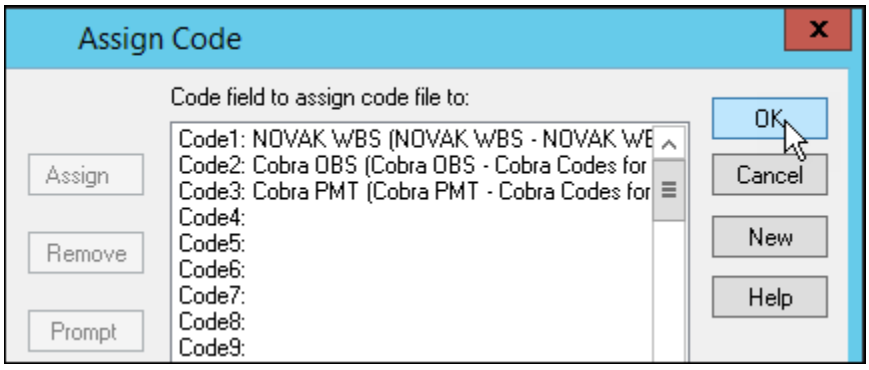
25. Assign **Cobra PMT** to **Code3**: in the '**Code field to assign code file to:**' field.



26. In the **Code File Prompt**, click **OK**.



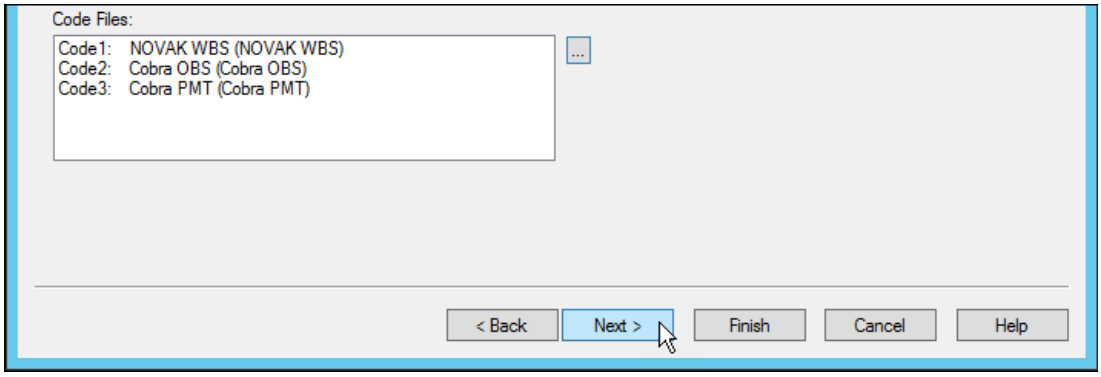
27. In **Assign Code**, click **OK**.



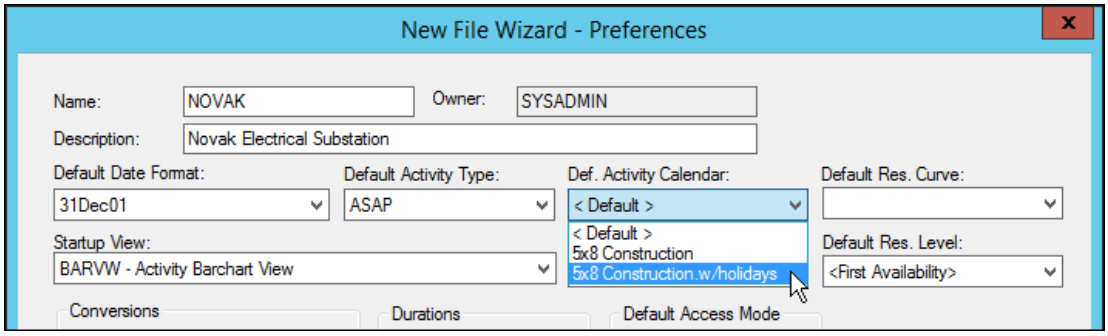
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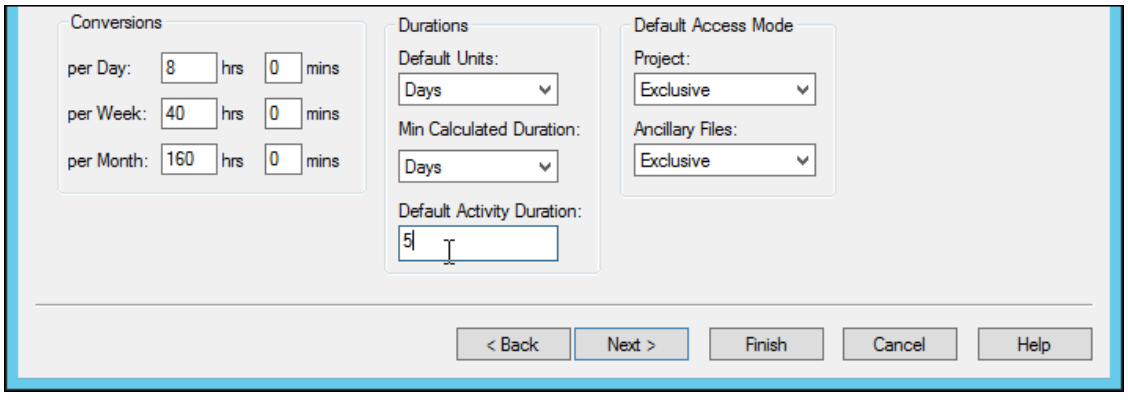
28. In the **New File Wizard - Files** dialog, click **Next >**.



29. In the **Preferences** dialog, set the **Def. Activity Calendar:** field to **5x8 Construction w/holidays**.



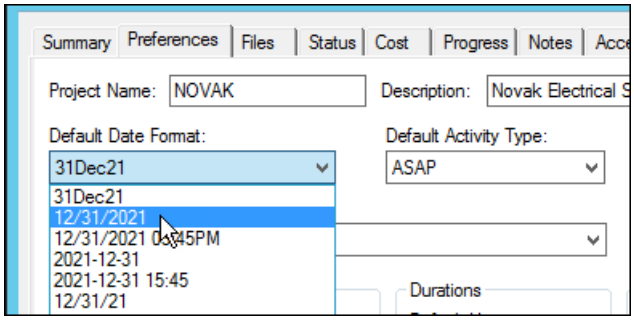
30. Also in the **Preferences** dialog, increase the **Default Activity Duration** from 0 to **5**.



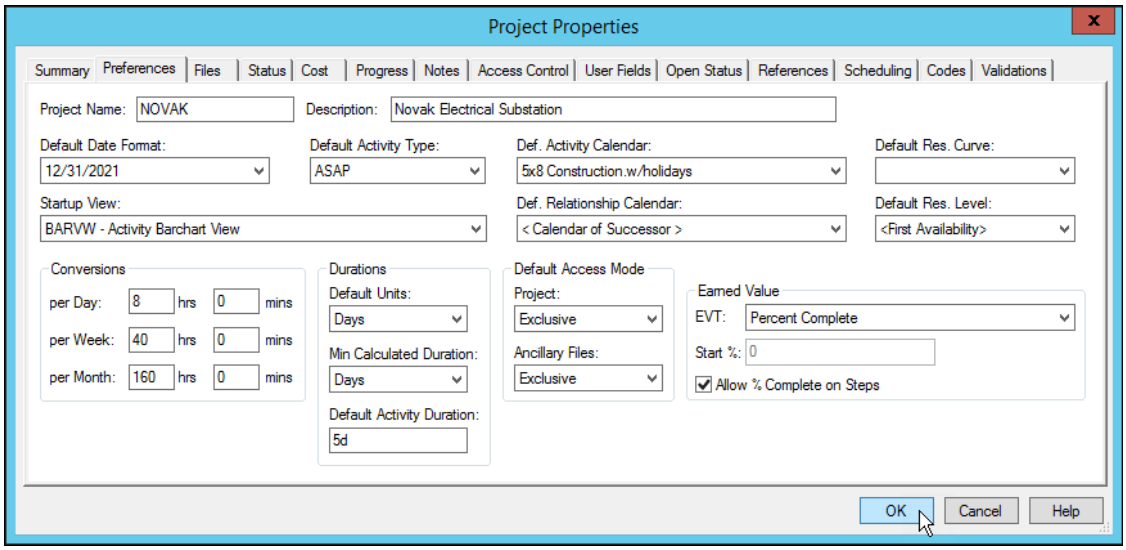
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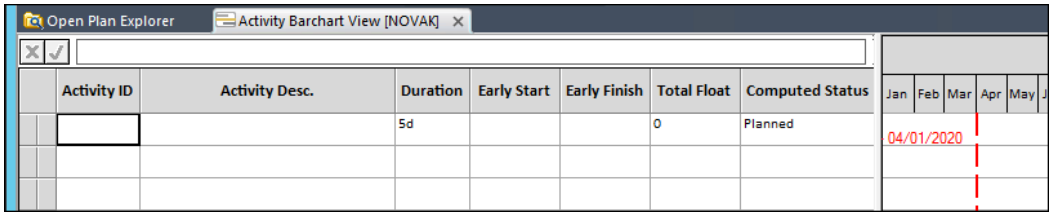
31. Set the **Default Date Format:** for your project to MM/DD/YYYY.



32. If your **Project Preferences** now appear as follows, click **OK**.



33. Your shell project is now ready for input.



34. Click the **Save** button to complete the setup.



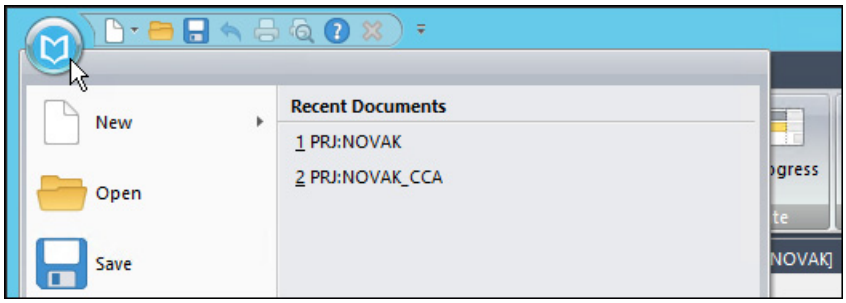
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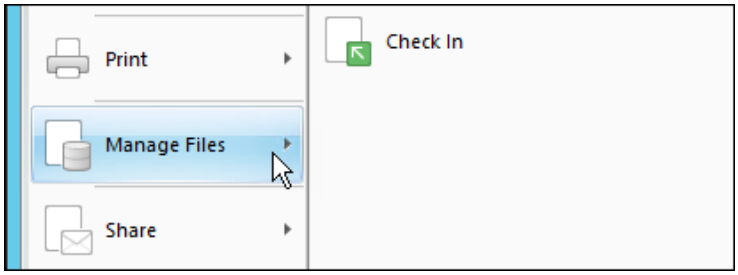
5.2.2 Activity: Backing Up the Shell Project

To protect your investment of time in setting up your project, follow these next steps to create a backup. This is always best practice when you are planning to make changes to the project.

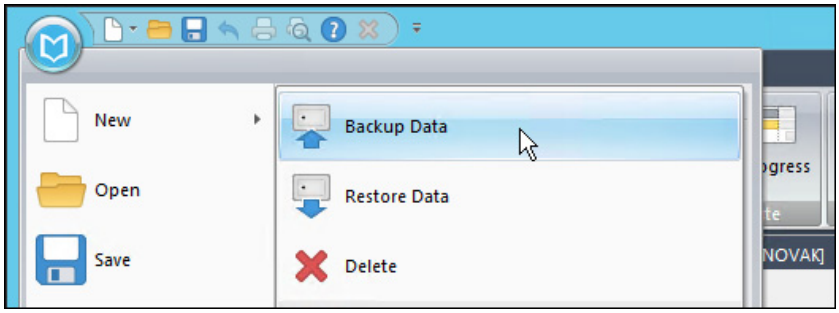
1. Click on the **File** menu.



2. Choose **Manage Files**.



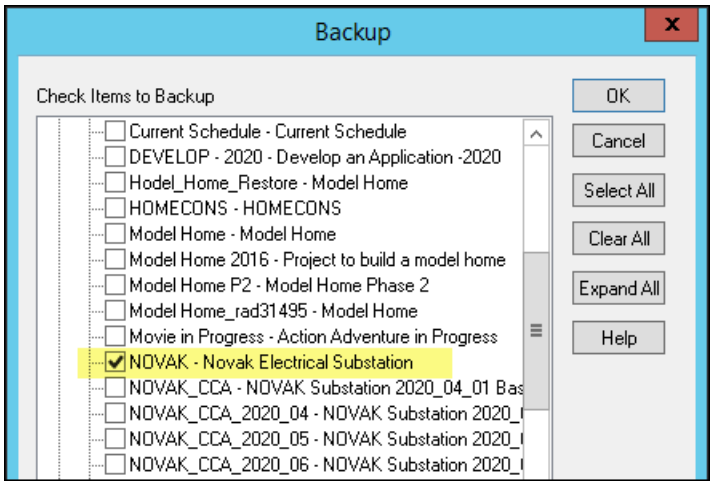
3. Select the **Backup** option at the top of the submenu.



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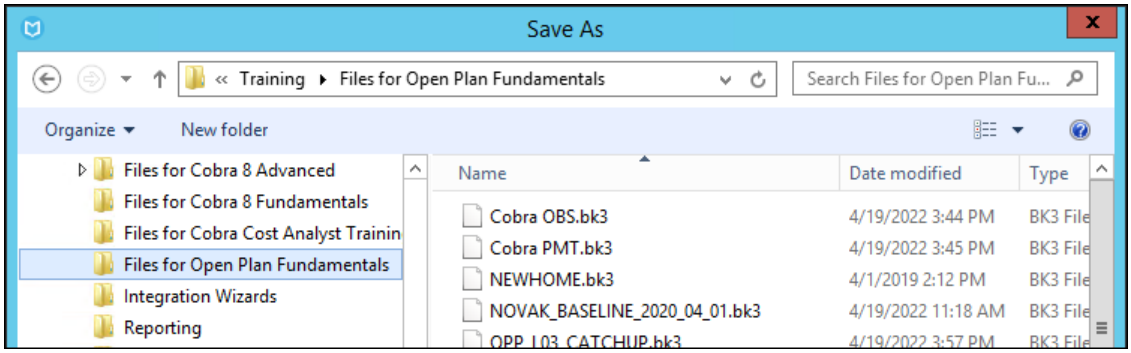
4. You will see any opened projects checked in the backups list.



5. Verify **Novak** is the only project checked.

6. Click **OK**.

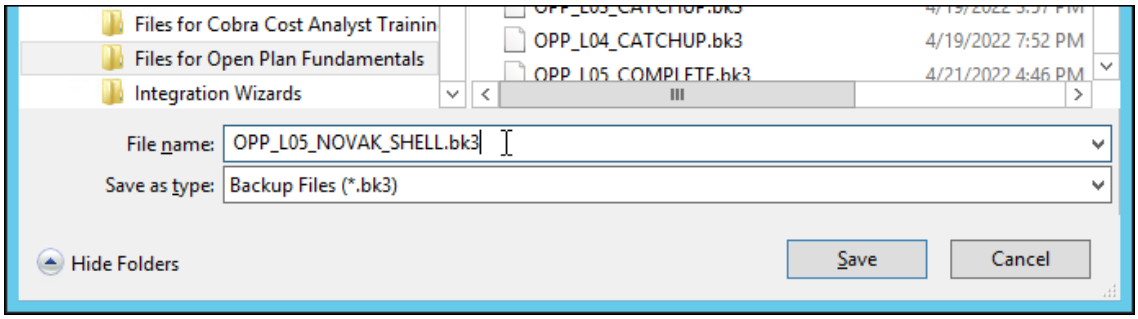
7. In the **Save As** dialog, navigate to the **Files for Open Plan Fundamentals** folder.



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8. Name the backup file **OPP_L05_NOVAK_SHELL.bk3**.



9. Click **Save**.

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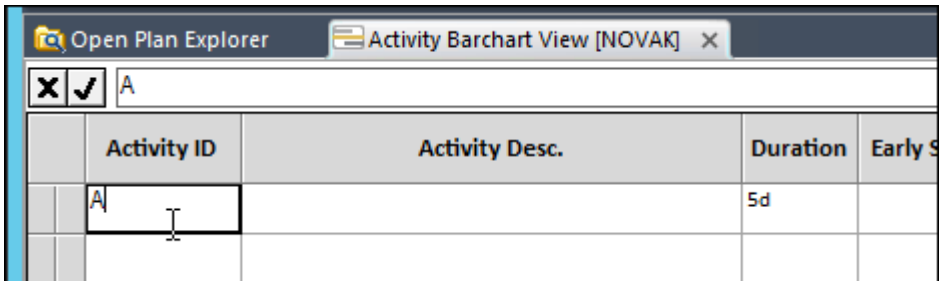
5.3 Adding Activities to the Project

Adding activities in Open Plan is a simple case of typing the activity ID, description, and duration into the respective fields of the Activity Barchart View.

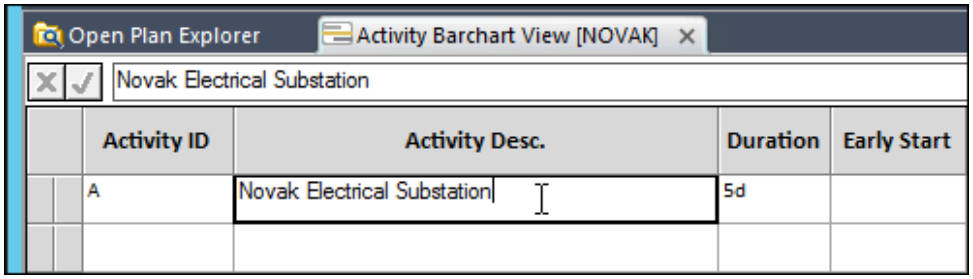
The more challenging part is to plan for the structure that you are creating prior to activity entry. If you're already familiar with Microsoft Project, the approach is similar. You enter activities and use indentation to create summary activities (known as subproject activities) that roll up the details and dates from the child activities below.

5.3.1 Activity: Entering Activities

1. In the **Activity ID** column, enter '**A**' in the first row.



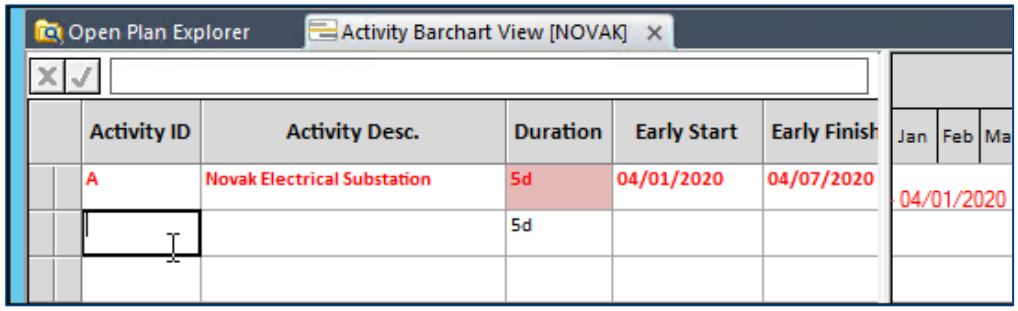
2. In the **Activity Desc.** column, enter '**Novak Electrical Substation**'.



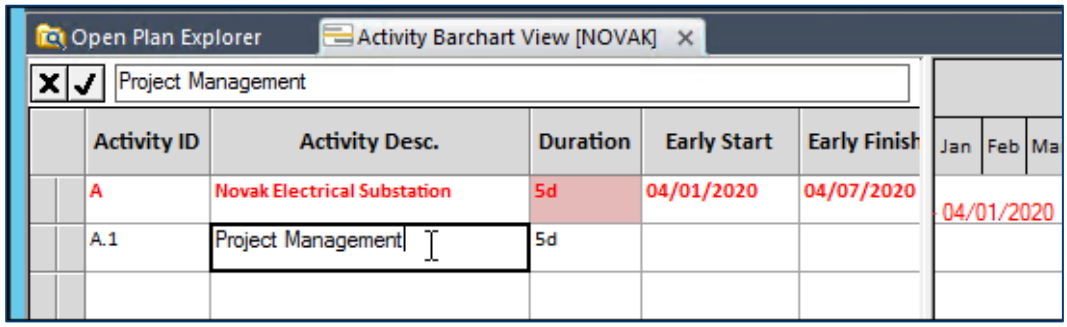
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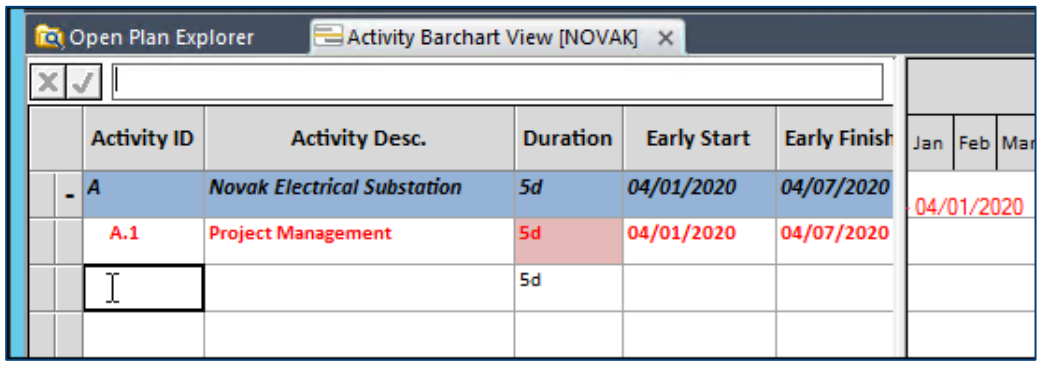
3. Click in the **Activity ID** cell below to take focus off the description and cause **Open Plan** to register the record, and create a bar in the Gantt chart.



4. Now enter '**A.1**' in the **ID** field, and '**Project Management**' in **Activity Desc**.



5. Click on the next available **Activity ID** cell below.



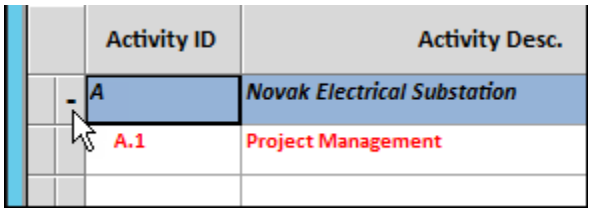
Note two things at this point:

(1) That **Open Plan** is running a time analysis each time you click to another row, causing the activity bars to appear in the Gantt chart. The activities are calculating as critical.

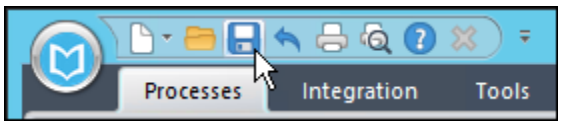
(2) The punctuation used in the **Activity ID** has made the '**A**' activity a parent to '**A.1**'.

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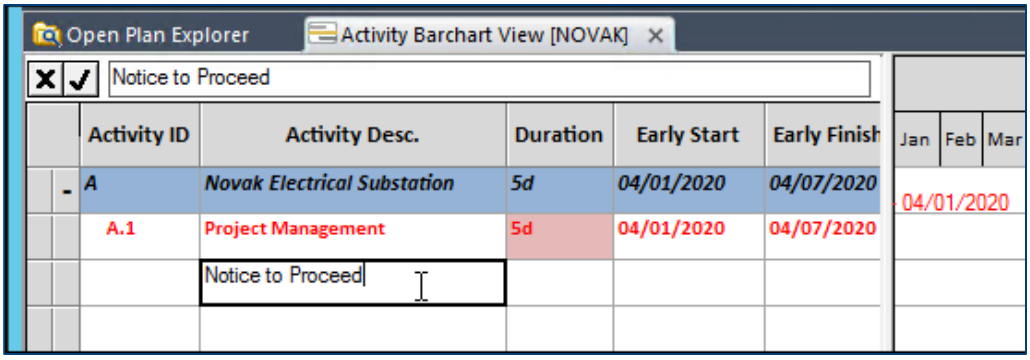


6. Click the **Save** button.

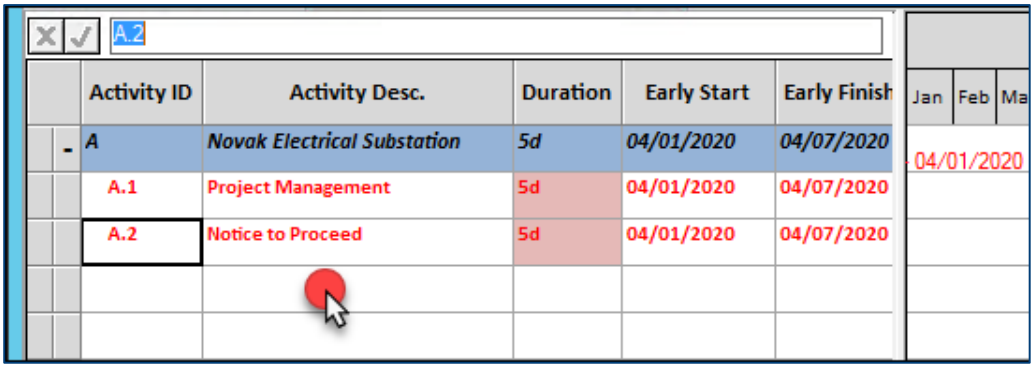


Let's now look at some other methods for entering and indenting activities.

7. Click in the **Activity Desc.** field's next blank row, and enter '**Notice to Proceed**'.



8. Click in the **Activity Desc.** cell below the new record to register the new activity.

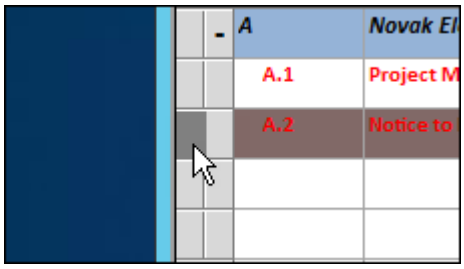


When you click in the **Activity Desc.** row below, the activity is given an automatic ID of **A.2** and is a sibling of the **A.1** – **Project Management** activity.

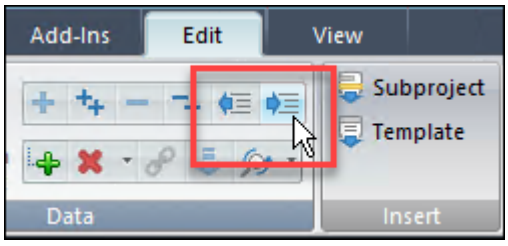
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9. Now click the outer row header of **A.2** to select it.



10. In the **Edit** ribbon, click on the **Indent** button.



11. Note how selected row has indented, changing the **Activity ID** to **A.1.2**

Activity ID	Activity Desc.	Duration	Early Start
A	Novak Electrical Substation	5d	04/01/2020
A.1	Project Management	5d	04/01/2020
A.1.2	Notice to Proceed	5d	04/01/2020

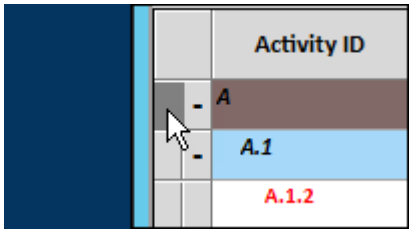
This 'Indent' method is similar to that used in Microsoft Project to build structure.

We now need to look at the details for the activities.

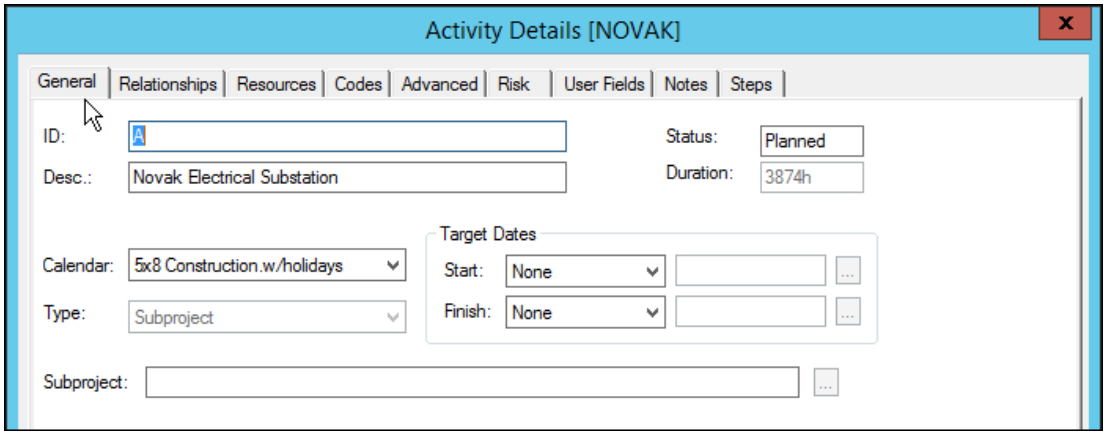
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12. Double-click in the outer row header for activity '**A**' in the table.

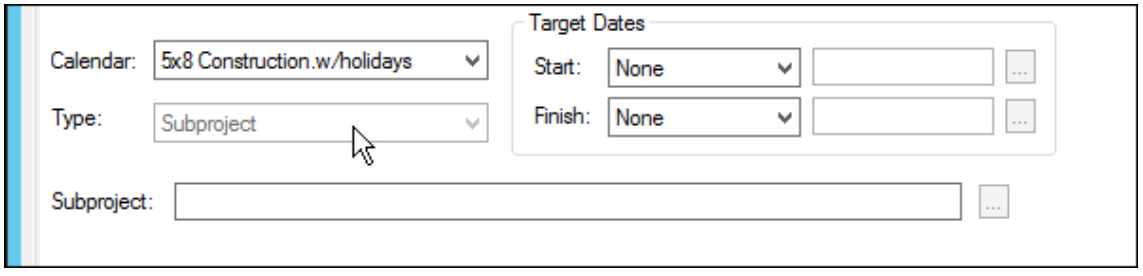


13. In the **Activity Details** dialog, view the **General** tab.



This dialog enables you to edit a wide range of attributes for the selected activity. You can see here that the general tab provides access to details that include the activity ID, description, its calendar, and Type. You can also use this tab to enter Target Dates (constraints) on the activity.

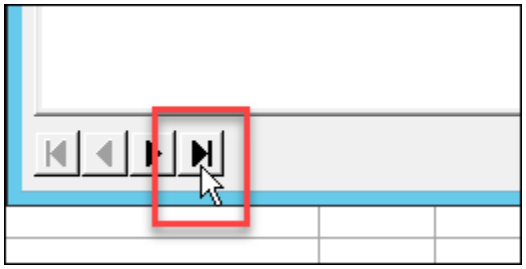
14. Note that the **Type:** field (Activity Type) is inactive and set to **Subproject**.



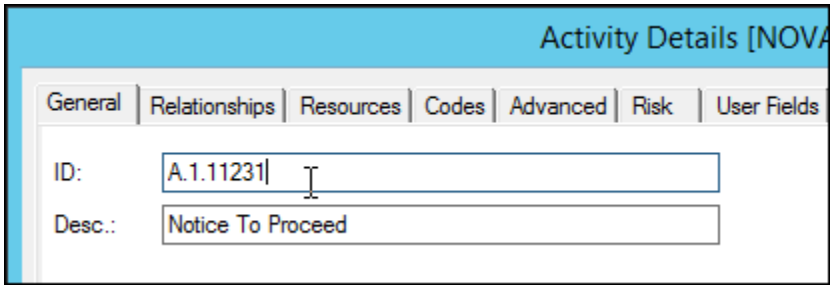
In Open Plan, a summary activity: i.e., one that has activities indented below it - is considered to be a Subproject.

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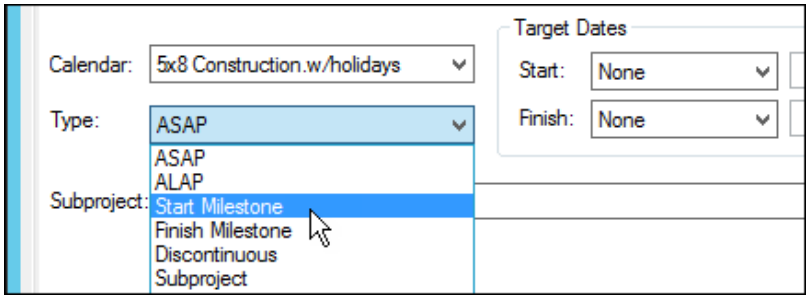
15. At the bottom-left of the dialog, click on the '**Go To Last**' button.



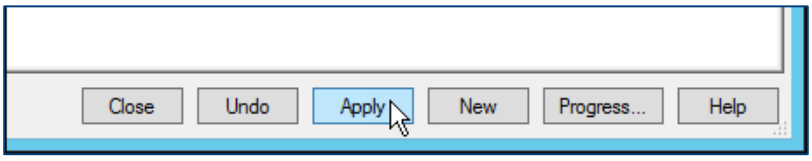
16. In the **Notice To Proceed** activity details, change the **Activity ID** from **A.1.2** to **A.1.11231**.



17. Click the **Type:** field dropdown and select **Start Milestone**.



18. Click **Apply**.

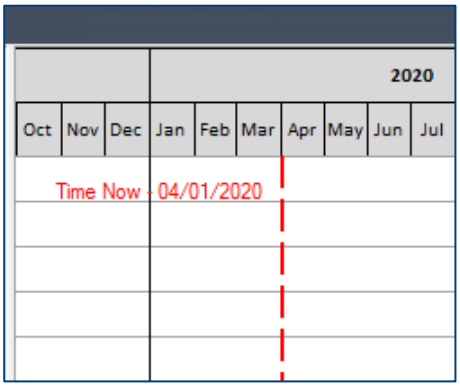


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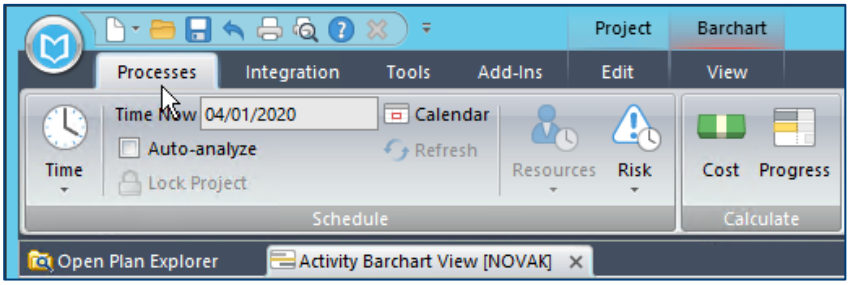
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19. Click **Close**.

    If your setup is the same as that shown in the previous steps, you may have noticed that the barchart isn't showing any activity bars yet. This is normal with a default setup. Open Plan has not time analyzed the schedule yet. Let's explore this briefly.

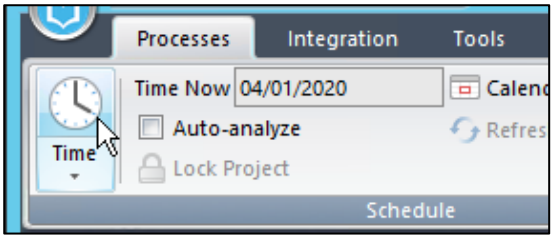


20. Click on the **Processes** tab.



21. Look at the **Auto-analyze** option directly below the **Processes** tab. If this is not checked, then you will not see the activity bars appear as you create new activities.

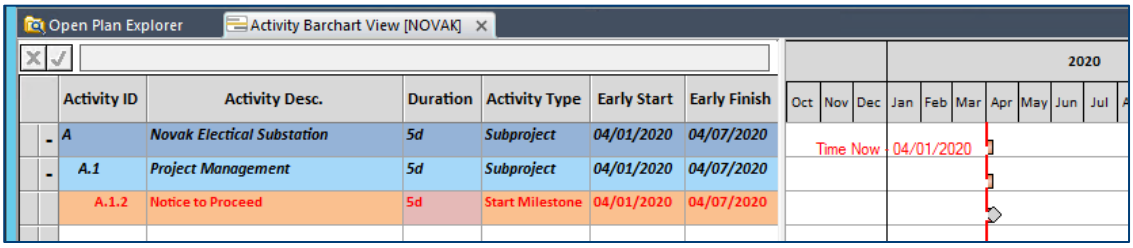
22. Click on the **Time** button to manually trigger time analysis.



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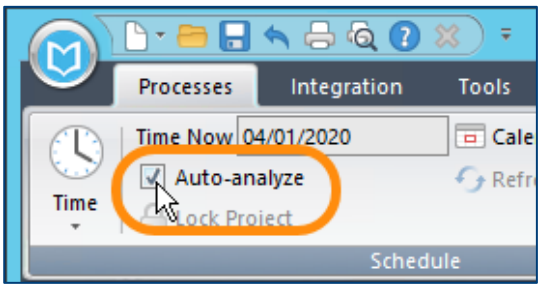
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23. Now look at the barchart.



Note how we now see activity bars sitting on the status date. Also note we have Early Start, and Early Finish dates for the activities. In the absence of relationships between the activities, they are sitting on their earliest start dates: i.e., the status date.

24. Check the **Auto-analyze** option in readiness for the next exercise.



5.3.2 Activity: Modifying the Activity Barchart View

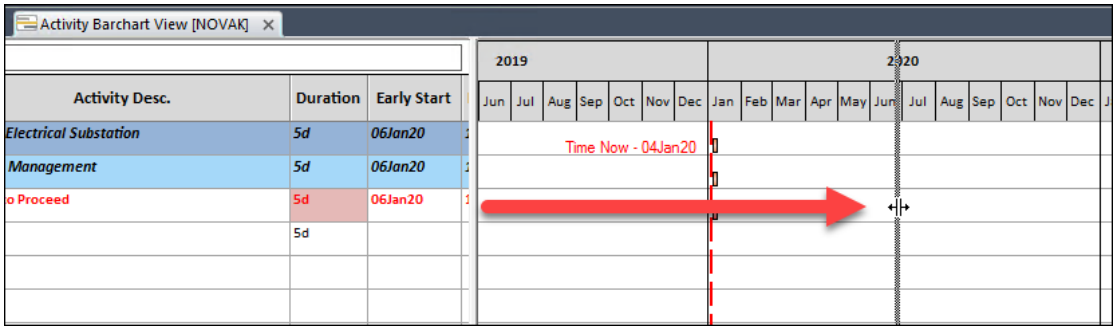
Ultimately you will be loading project data from a spreadsheet. To do that, you need to have the correct columns open in the table area. These columns must be in the exact right order for spreadsheet loading to work.

1	Activity ID	Activity Desc.	Duration	Activity Type	NOVAK WBS
2	A	Novak Electrical Substation	0	Subproject	1
3	A.1	Project Management	0	Subproject	1.01
4	A.1.11231	Notice To Proceed	0d	Start Milestone	1.01
5	A.1.11240	Site Management	552d	Hammock	1.01
6	A.1.11250	Site Security	552d	Hammock	1.01
7	A.1.11260	Acquire Permits	45d	Hammock	1.01
8	A.1.11270	Site Maintenance and Safety	552d	Hammock	1.01
9	A.1.11280	Construction Complete	0d	Finish Milestone	1.01
10	A.2	Construction	370d	Subproject	1.02
11	A.2.1	Mobilization	73d	Subproject	
12	A.2.1.11290	Move on Heavy Equipment	25d	ASAP	1.02.01

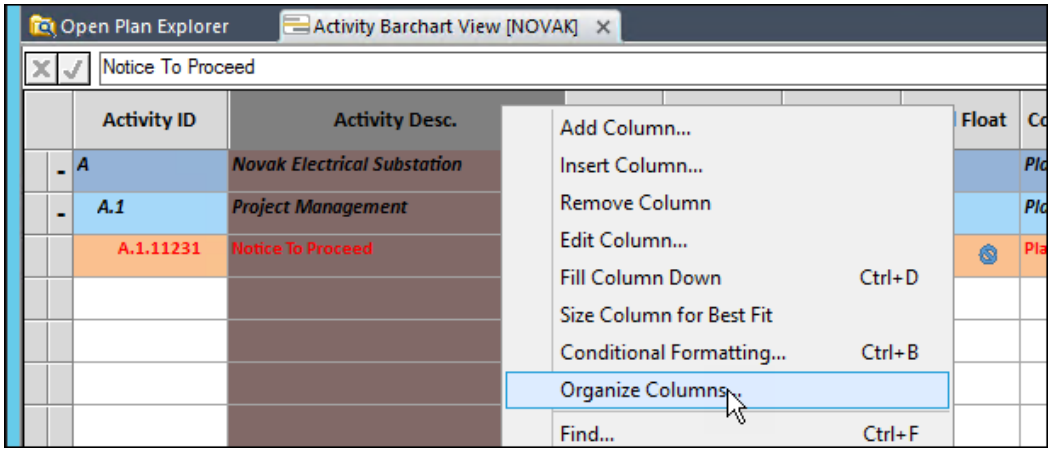
The Next steps will show you the quickest and easiest way to modify the view for spreadsheet entry.

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1. Click on the vertical divider and drag to the right to expand the table area width.



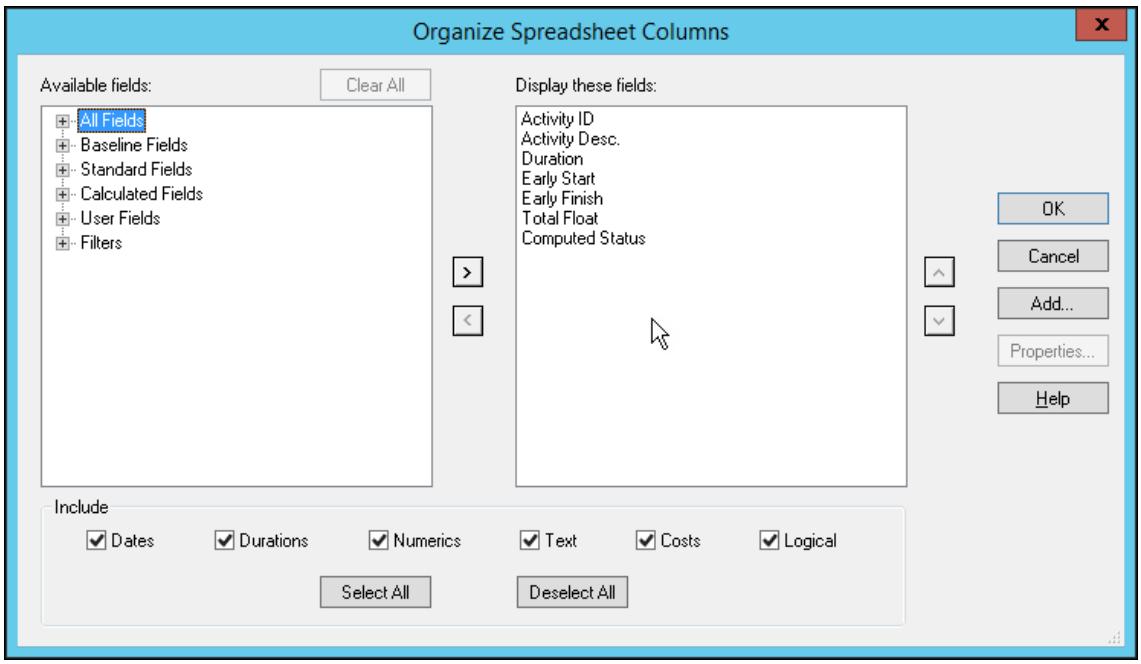
2. Right-click on any column header in the table area and select **Organize Columns…** from the menu.



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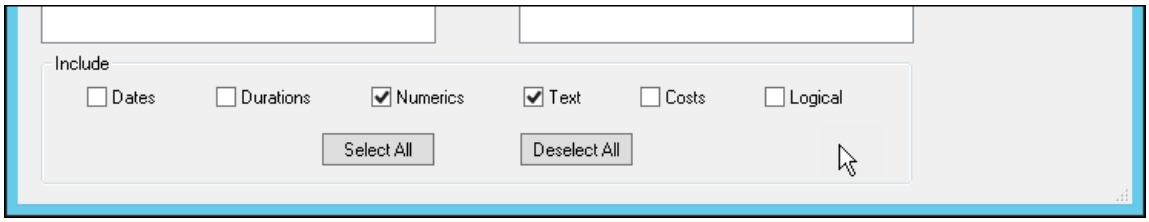
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3. Review the two lists, and the **Include** options below those.



*If you are a P6 user, this is similar in function to the **Columns** dialog used to modify the activity table.*

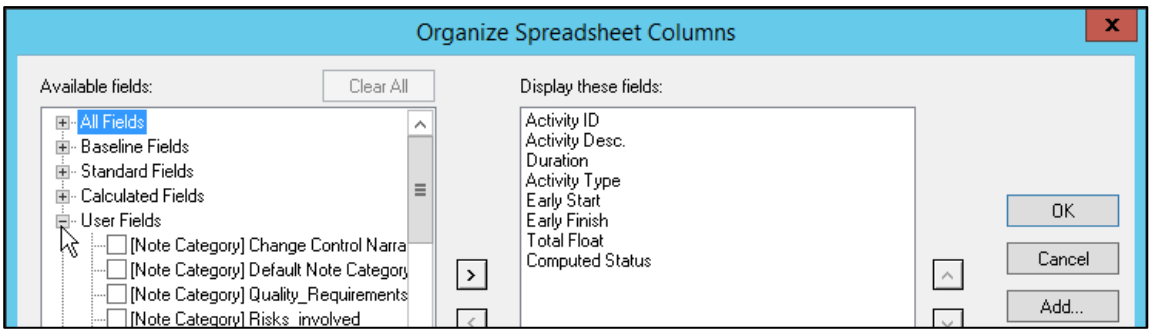
4. In the **Include** group at the bottom of the dialog, uncheck the **Dates**, **Durations**, **Costs**, and **Logical** options.



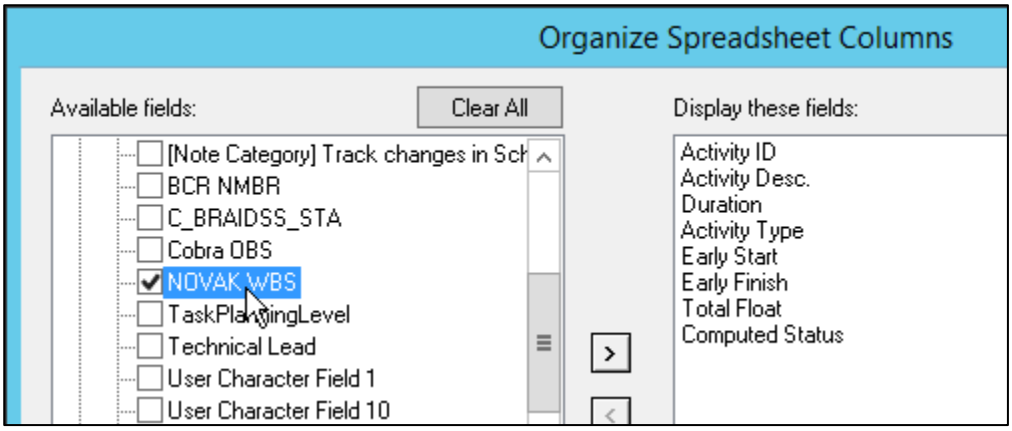
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5. Click on the + icon for **User Fields** to expand it.

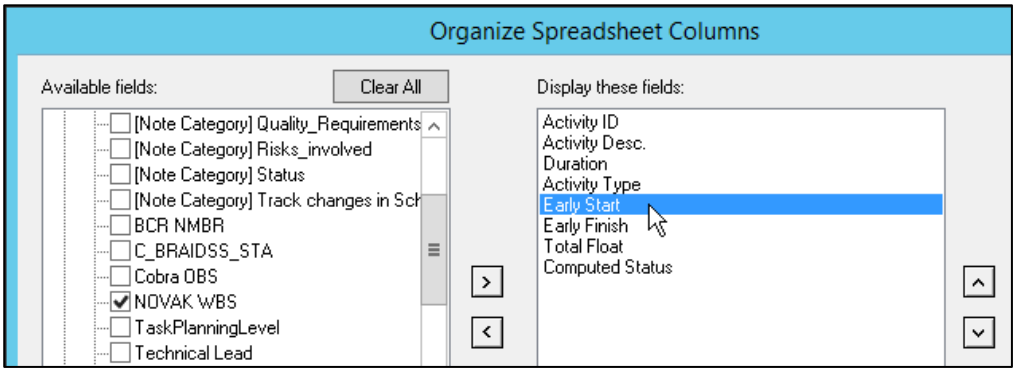


6. Select the NOVAK WBS field (this is the code file you added during setup).



7. Now click on the **Early Start** field in the '**Display these fields:**' list on the right.

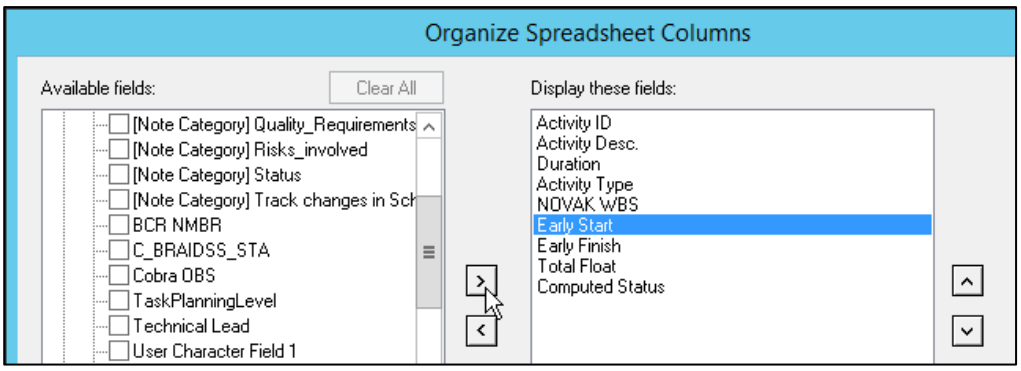
   This will cause the field to appear above the **Early Start** field in the target list.



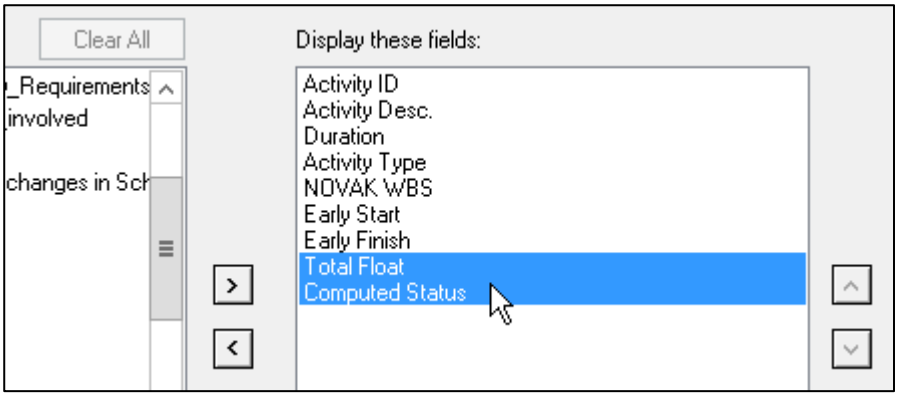
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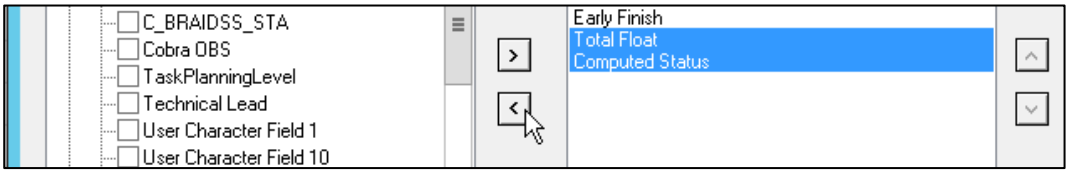
8. Click the '**>**' button to move the **NOVAK WBS** field into the target list.



9. Now use the Shift key to select the **Total Float**, and **Computed Status** fields in the target list.



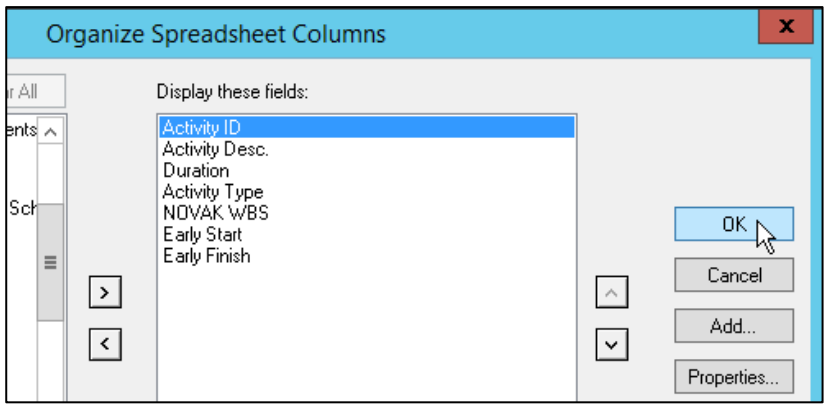
10. Click the '**<**' button to move the selected fields to the **Available** list.



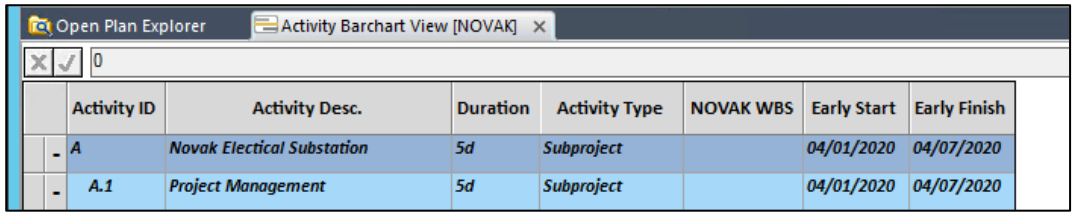
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11. Click **OK** to apply your changes to the spreadsheet table and close the dialog.

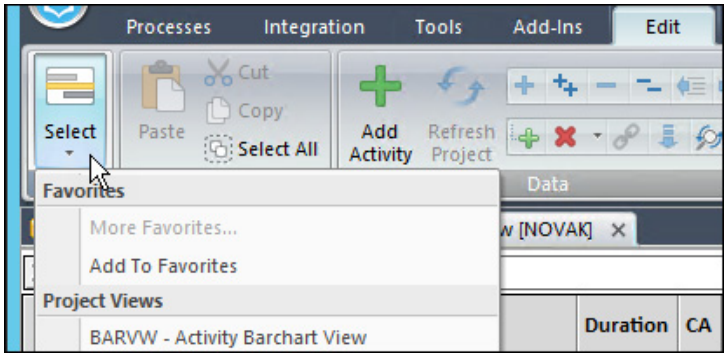


12. The spreadsheet table should now appear as follows:



Next, save this change to a new view.

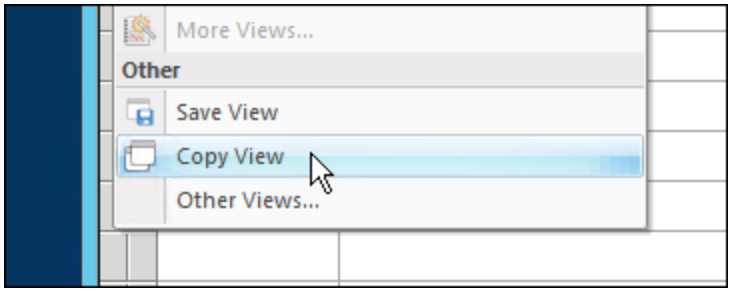
13. Click the **Select** button in the **View** tool group.



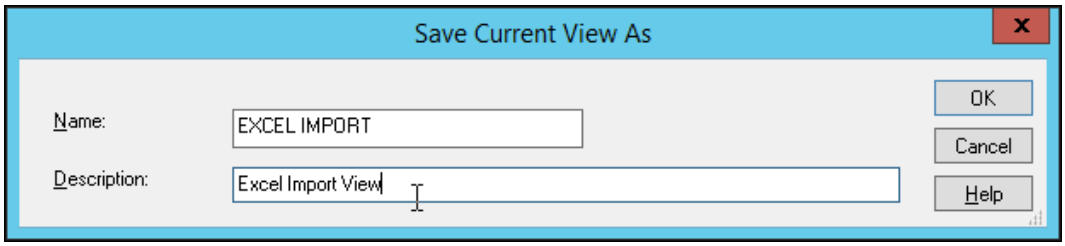
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14. Click the **Copy View** option.



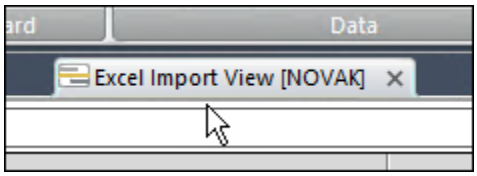
15. Enter the following in the **Save Current View As** dialog.



Name: EXCEL IMPORT
Description: Excel Import View

16. Click the **OK** button to save the new view.

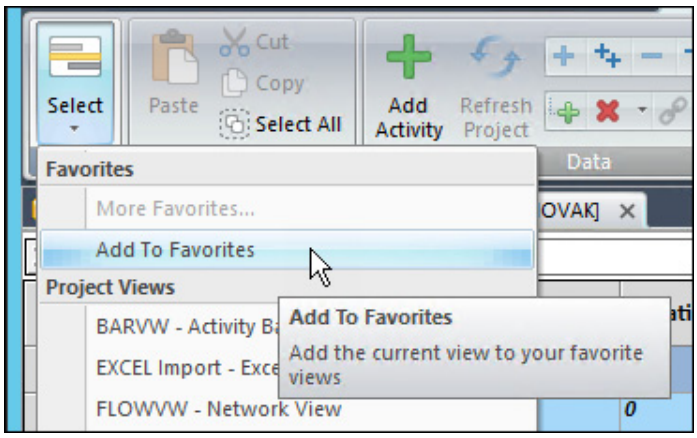
17. Note the description you entered is being used as the name of the tab.



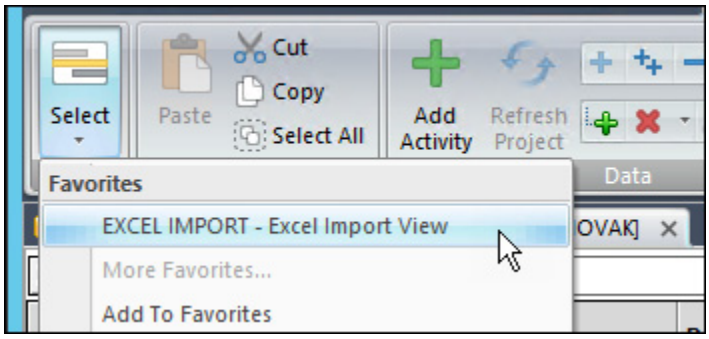
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18. Click the **Select** button and choose **Add to Favorites**.



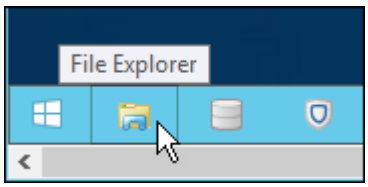
19. You will now see the **Excel** view added to the favorites list.



5.3.3 Activity: Loading Activities from a Spreadsheet

One quick way to load data into Open Plan is to use the clipboard to paste the data in from another system. For the purposes of reducing the data entry requirement for this training, we will be loading the bulk of the activities, relationships, and resource assignments carefully formatted Excel spreadsheets.

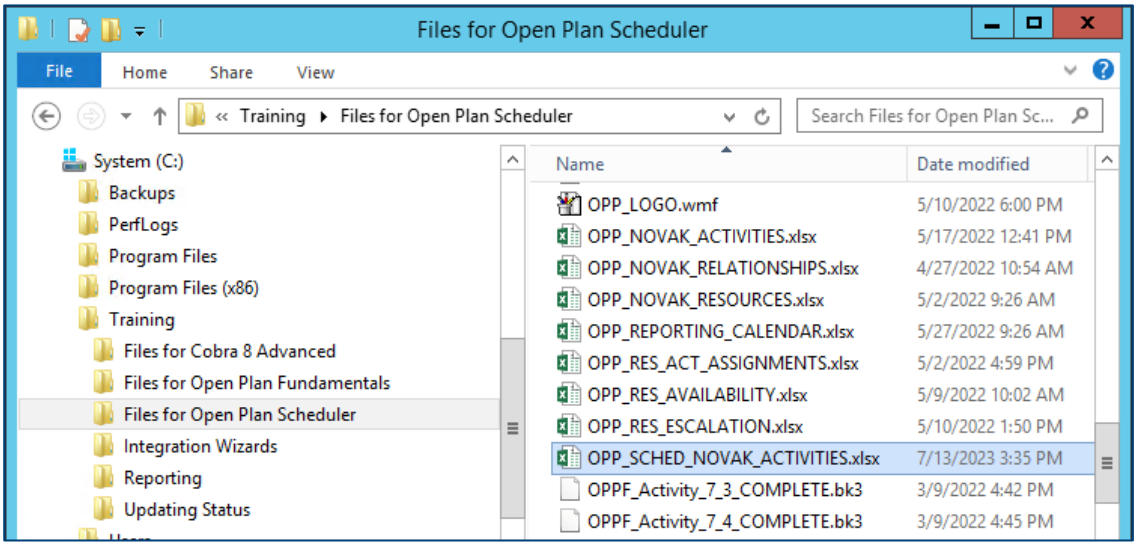
1. Click on the **File Explorer** icon – bottom left on the **Taskbar**.



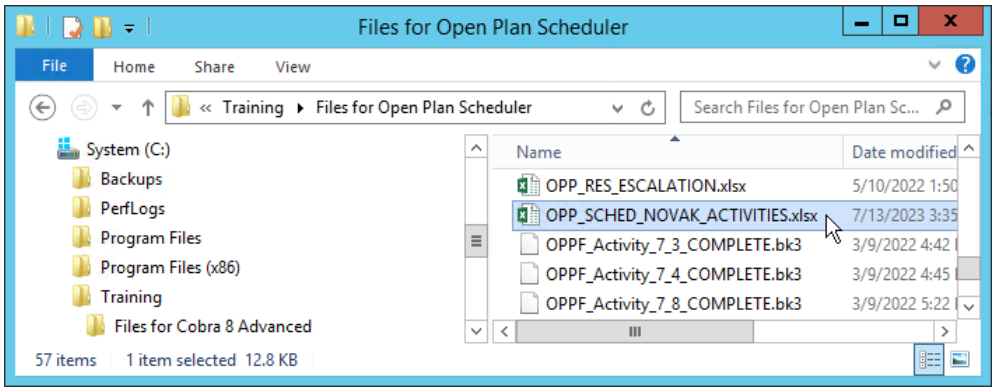
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2. Navigate to the **System (C:) | Training | Files for Open Plan Scheduler** folder (or wherever you unpacked the training files download zip file if not using a Deltek training environment).



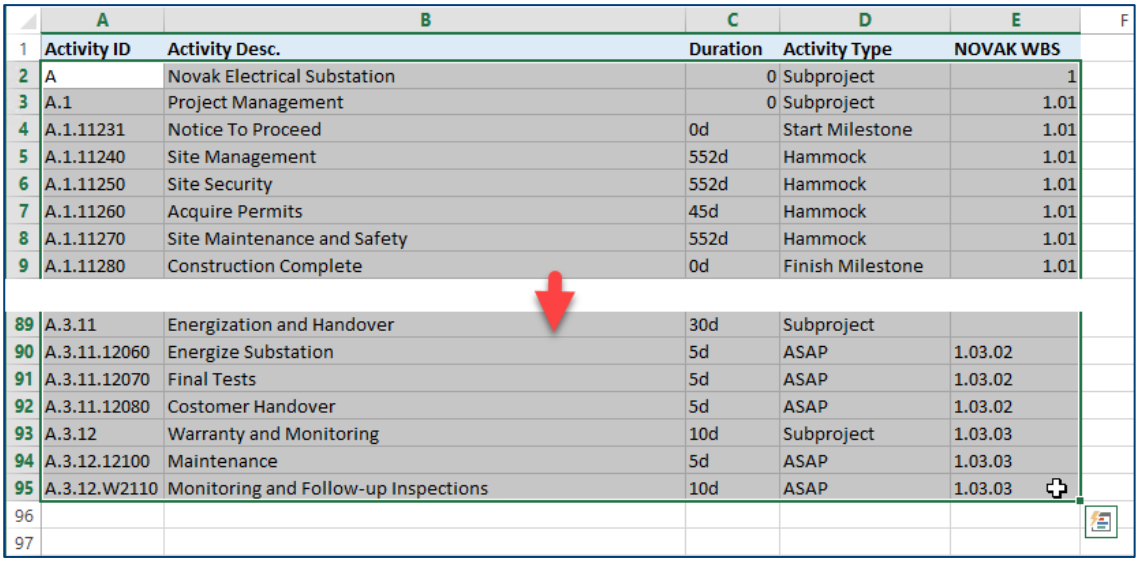
3. Double-click to open the **OPP_SCHED_NOVAK_ACTIVITIES.xlsx** file.



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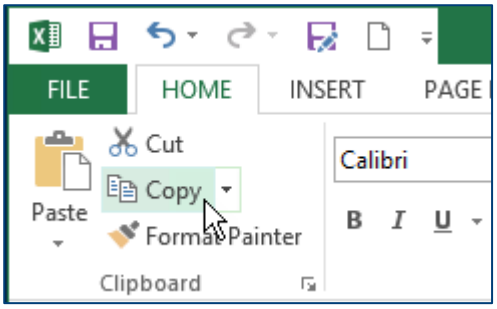
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4. In the spreadsheet select cells **A2** – **E95**.

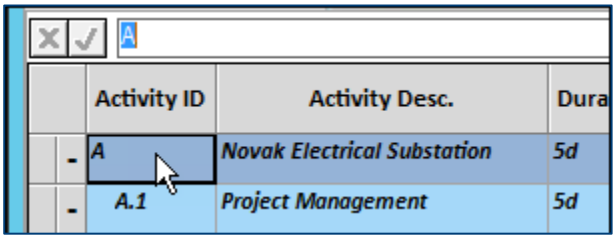


	A	B	C	D	E	F
1	Activity ID	Activity Desc.	Duration	Activity Type	NOVAK WBS	
2	A	Novak Electrical Substation	0	Subproject	1	
3	A.1	Project Management	0	Subproject	1.01	
4	A.1.11231	Notice To Proceed	0d	Start Milestone	1.01	
5	A.1.11240	Site Management	552d	Hammock	1.01	
6	A.1.11250	Site Security	552d	Hammock	1.01	
7	A.1.11260	Acquire Permits	45d	Hammock	1.01	
8	A.1.11270	Site Maintenance and Safety	552d	Hammock	1.01	
9	A.1.11280	Construction Complete	0d	Finish Milestone	1.01	
89	A.3.11	Energization and Handover	30d	Subproject		
90	A.3.11.12060	Energize Substation	5d	ASAP	1.03.02	
91	A.3.11.12070	Final Tests	5d	ASAP	1.03.02	
92	A.3.11.12080	Costomer Handover	5d	ASAP	1.03.02	
93	A.3.12	Warranty and Monitoring	10d	Subproject	1.03.03	
94	A.3.12.12100	Maintenance	5d	ASAP	1.03.03	
95	A.3.12.W2110	Monitoring and Follow-up Inspections	10d	ASAP	1.03.03	
96						
97						

5. Click **Copy** on the **Home** ribbon.



6. In **Open Plan**, click on the top-left cell of the **NOVAK** activity table.

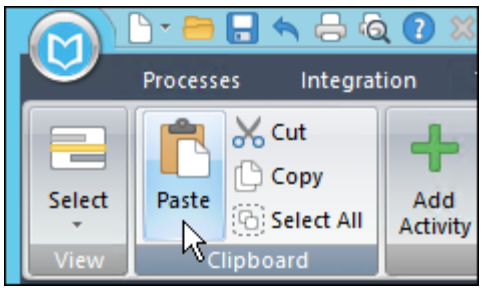


	Activity ID	Activity Desc.	Dura
-	A	Novak Electrical Substation	5d
-	A.1	Project Management	5d

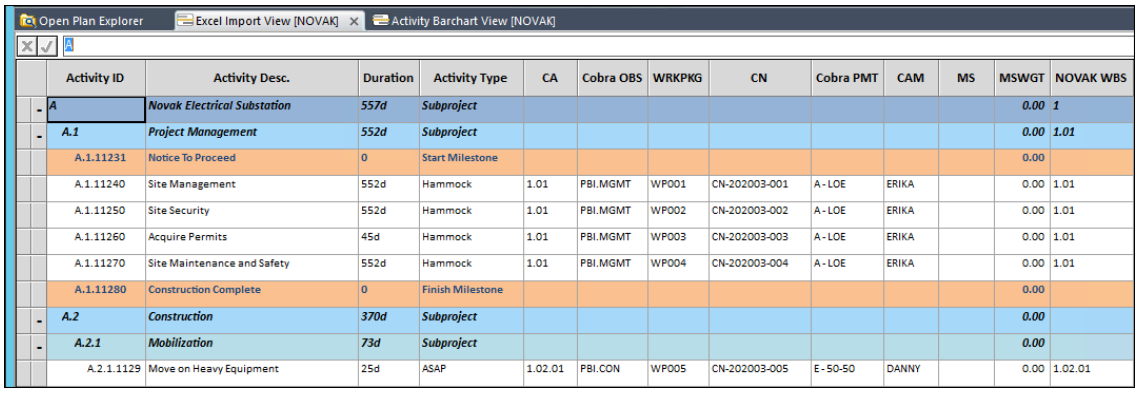
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7. In the **Edit** ribbon, click **Paste**.

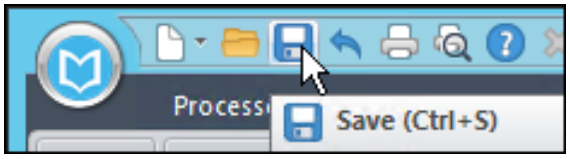


8. The activity records should load into the table area.



Activity ID	Activity Desc.	Duration	Activity Type	CA	Cobra OBS	WRKPKG	CN	Cobra PMT	CAM	MS	MSWGT	NOVAK WBS
A	Novak Electrical Substation	557d	Subproject								0.00	1
A.1	Project Management	552d	Subproject								0.00	1.01
A.1.11231	Notice To Proceed	0	Start Milestone								0.00	
A.1.11240	Site Management	552d	Hammock	1.01	PBI.MGMT	WP001	CN-202003-001	A-LOE	ERIKA		0.00	1.01
A.1.11250	Site Security	552d	Hammock	1.01	PBI.MGMT	WP002	CN-202003-002	A-LOE	ERIKA		0.00	1.01
A.1.11260	Acquire Permits	45d	Hammock	1.01	PBI.MGMT	WP003	CN-202003-003	A-LOE	ERIKA		0.00	1.01
A.1.11270	Site Maintenance and Safety	552d	Hammock	1.01	PBI.MGMT	WP004	CN-202003-004	A-LOE	ERIKA		0.00	1.01
A.1.11280	Construction Complete	0	Finish Milestone								0.00	
A.2	Construction	370d	Subproject								0.00	
A.2.1	Mobilization	73d	Subproject								0.00	
A.2.1.1129	Move on Heavy Equipment	25d	ASAP	1.02.01	PBI.CON	WP005	CN-202003-005	E-50-50	DANNY		0.00	1.02.01

9. Click **Save**.



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5.4 Activity Types

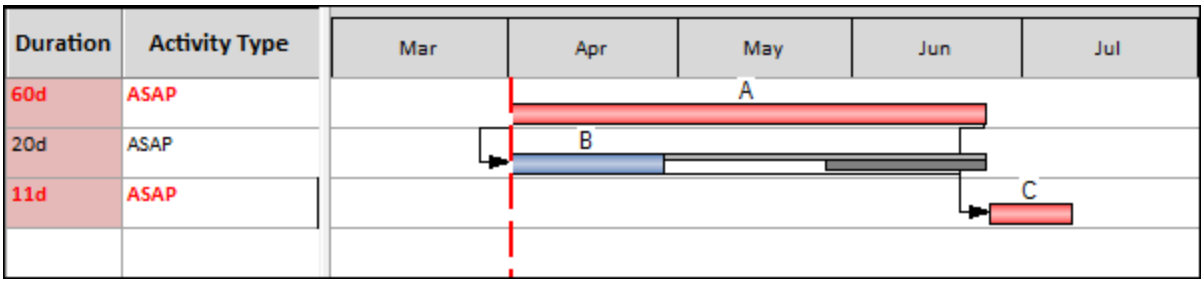
So far, we have used just four activity types that have been loaded in from the spreadsheet. These are:

Subproject – summary activities that create structure for the project.

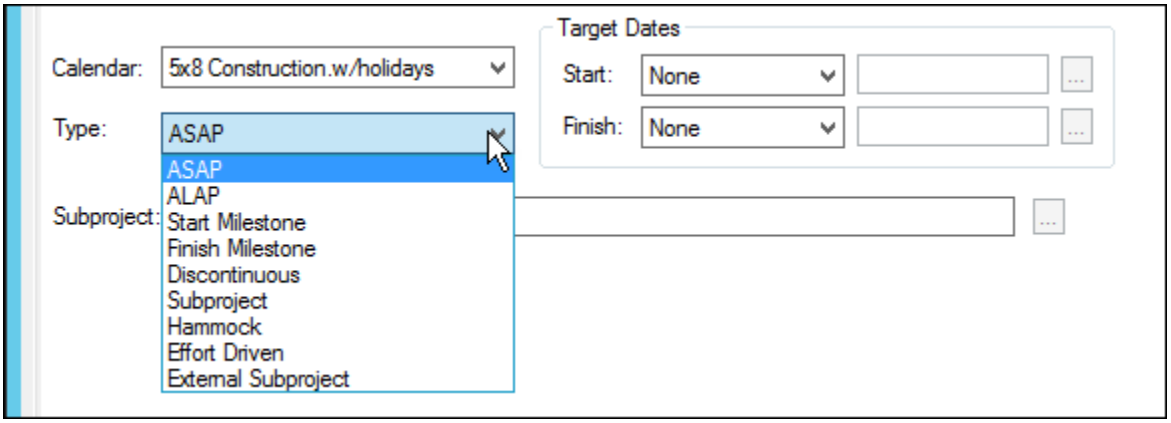
Start Milestone – a zero duration activity that is used to mark starting points in the project.

Finish Milestone – used to mark end points such as deliverables, payment dates, for a group of activities, or for project completion.

ASAP (As Soon As Possible) – activity will reside on the early dates. See activity B below.



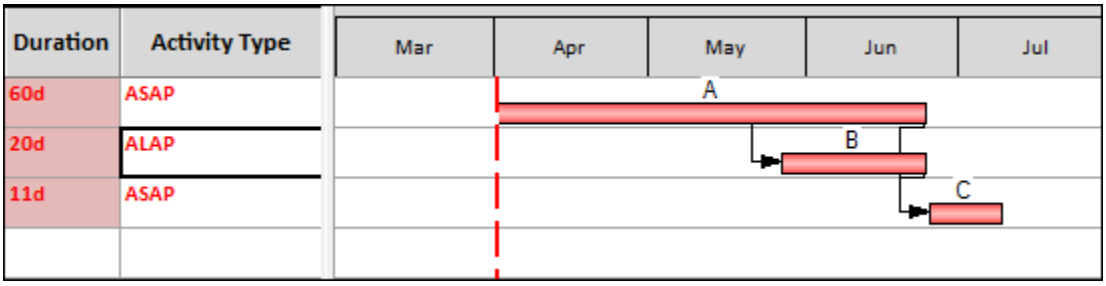
Other activity types in Open Plan are:



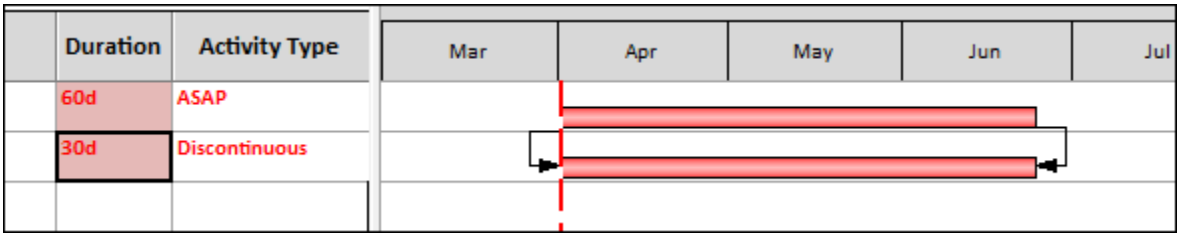
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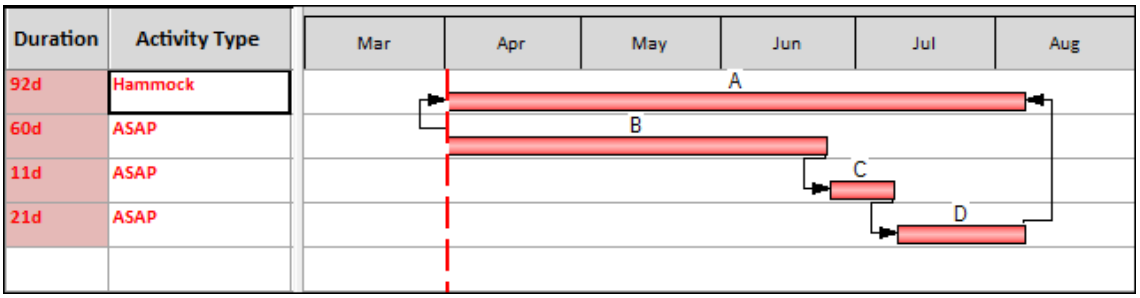
ALAP (As Late As Possible) – activity will reside on its late dates. See activity **B** below.



Discontinuous - An activity in which the interval between the start and finish dates is allowed to exceed its duration in order to satisfy start-to-start and finish-to-finish relationships with other activities. See how the discontinuous activity has a duration of 30d, but is showing 60d on the Gantt chart due to the SS and FF relationships with the ASAP activity.



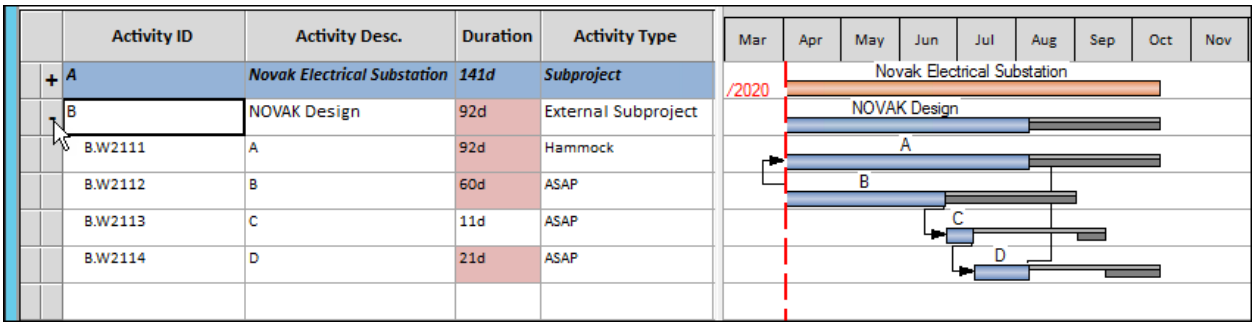
Hammock - an activity that does not influence the time analysis of a project but provides a means for reporting on the start and finish of a group of related activities. Below, activity A's duration is being determined by activities B – D. The logic says activity A cannot start until activity B starts, and activity A cannot finish until D is finished. Any delays with the B – D path will stretch the duration of A – hence 'Hammock': similar to the LOE activity type in P6.



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Effort Driven - Open Plan calculates the duration of this activity based on the resource assignment and the effort factor defined for the resource.

External Subproject - A complete project represented as a single activity in a higher-level project. Open Plan uses external subprojects for multi-project processing.



5.4.1 Activity: Editing Activity Types

Site Management, Site Security, Acquire Permits, and Site Maintenance are oversight activities that need to be changed to hammocks.

Hammock activities derive their duration, and their status, based upon the predecessor activities they are linked to.

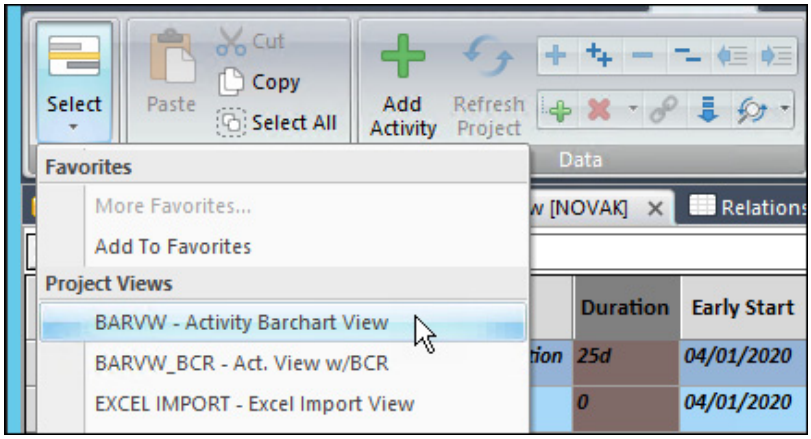
You will notice that, as you change their type from ASAP to hammocks, they will temporarily obtain a status of Complete. Do not be concerned. This is because there are no relationships to predecessor activities with a status of planned, so their status defaults to Completed.

Follow these next steps to change the activities to hammocks.

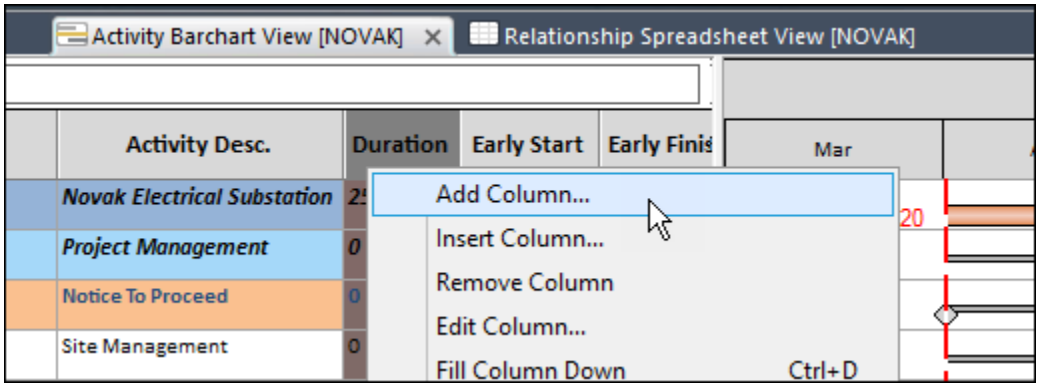
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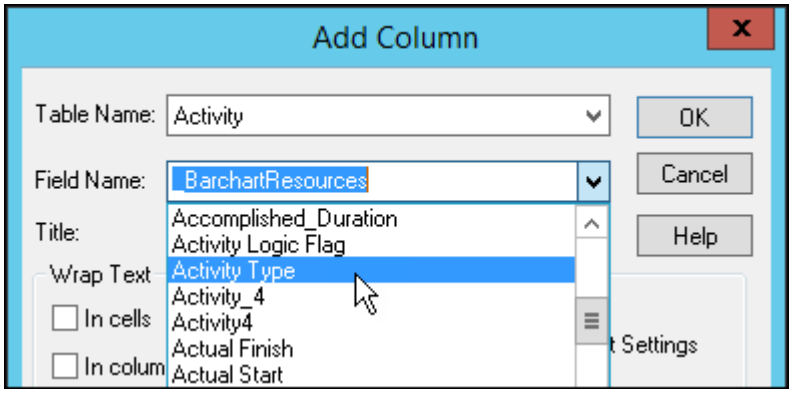
1. If not already open, click on the **View | Select** button and choose the **BARVW – Activity Barchart View**.



2. Right click on the **Duration** column header and select **Add Column** from the menu.



3. In the **Field Name:** dropdown, select the **Activity Type** field.

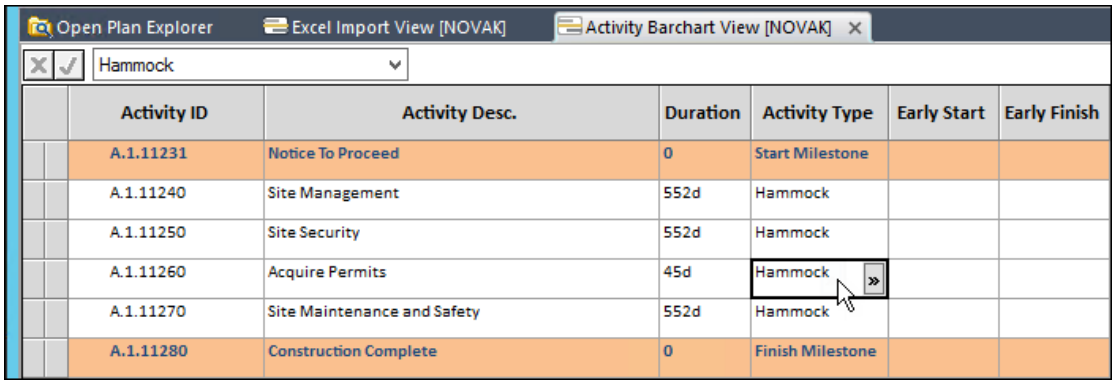


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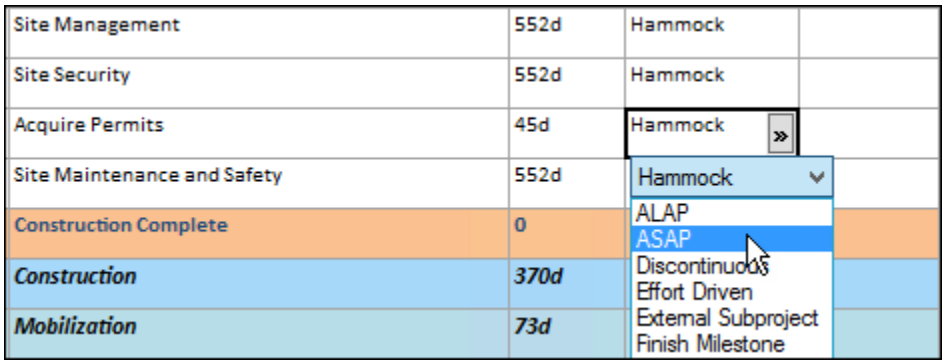
4. Click **OK**.

5. Click in the **Activity Type** cell for the **Acquire Permits** activity.



Activity ID	Activity Desc.	Duration	Activity Type	Early Start	Early Finish
A.1.11231	Notice To Proceed	0	Start Milestone		
A.1.11240	Site Management	552d	Hammock		
A.1.11250	Site Security	552d	Hammock		
A.1.11260	Acquire Permits	45d	Hammock		
A.1.11270	Site Maintenance and Safety	552d	Hammock		
A.1.11280	Construction Complete	0	Finish Milestone		

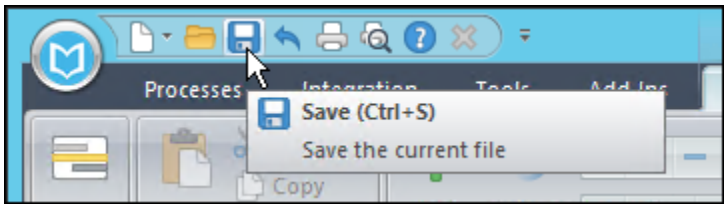
6. In the **Entry** field above the table, or in the cell itself (OPP 8.6 or later), click on the dropdown and choose **ASAP** from the list.



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7. Click **Save**.



Note how the other Hammock activity are now marked as **Complete**, indicated by a green check on the description.

Activity ID	Activity Desc.	Duration	Activity Type	Early Start	Early Finish	Total Float
A.1.11231	Notice To Proceed	0	Start Milestone	04/01/2020	04/01/2020	45d
A.1.11240	✓ Site Management	552d	Hammock	04/01/2020	06/02/2020	0
A.1.11250	✓ Site Security	552d	Hammock	04/01/2020	06/02/2020	0
A.1.11260	Acquire Permits	45d	ASAP	04/01/2020	06/02/2020	0
A.1.11270	✓ Site Maintenance and Safety	552d	Hammock	04/01/2020	06/02/2020	0
A.1.11280	Construction Complete	0	Finish Milestone	04/01/2020	04/01/2020	45d

Ignore this for now. It will change in the following lesson, once we have assigned planned predecessors to the hammocks.

Acquire Permits is actually already completed and was incorrectly created as a planned Hammock. We will deal with correcting it's pre-go-live status in a later chapter.

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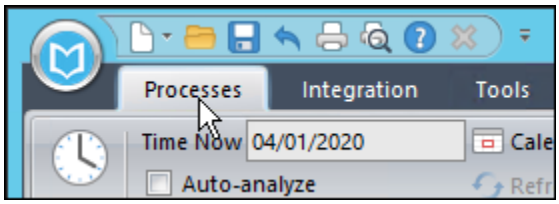
5.4.2 Activity: Performing Time Analysis

Because we loaded the activities from a spreadsheet, we bypassed the Auto-analyze process that is normally triggered when we add activities directly in the table.

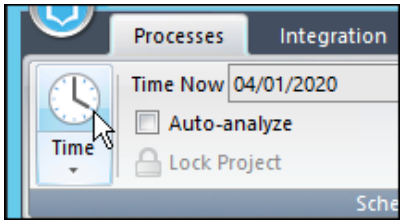
Important Note: If changing the activity type didn't trigger the analysis, or if your Auto-analyze is not checked, then do the following steps:

Therefore, we will need to run Time Analysis to create activities that will display in the Gantt chart area.

1. Click on the **Processes** tab.



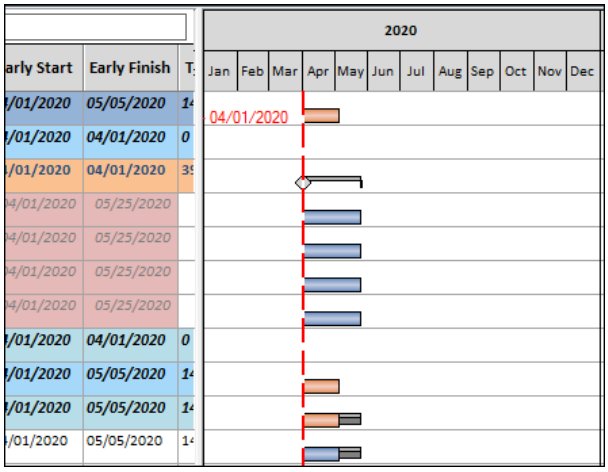
2. Click the **Time** button.



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3. You will now see activities listed to the right of the **Time Now** line, their durations based upon the data provided from the spreadsheet.



In **lesson 6 - Critical Path** we will show you how to start building relationships between activities to determine their early and late dates.

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5.5 Activity Steps

Activity steps are a valuable tool for objectively driving the Physical % Complete value of an activity based upon the completion of each step.

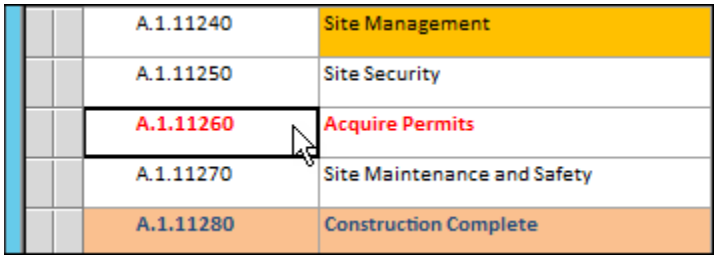
More than a year before the project start date, a number of permit applications were submitted. In this next exercise, you will be adding 5 Steps to the Acquire Permits activity. These will later be used to drive the Physical % Complete of the activity.

Name	Weight	Weight %	% Complete
WDEQ Permit Received	6		
WYDOT Permit Received	2		
USDA Permit Received	5		
RUS Permits Received	3		
EIS Statement Approved	2		

Note that the weight values can be any number you wish. Open Plan will calculate the percentage value internally. Weights are used to apportion a measure of the % complete, relative to the other steps.

5.5.1 Activity: Adding Steps

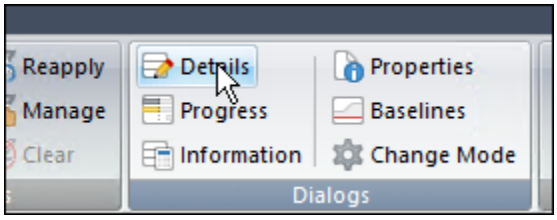
1. In the **Activity Barchart View**, select the **A.1.11260 - Acquire Permits** activity record.



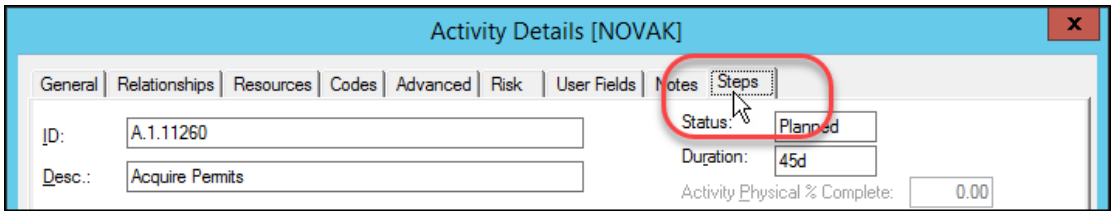
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2. In the **Edit** ribbon, click on the **Details** button in the **Dialogs** tool group.



3. In the **Activity Details** dialog, click on the **Steps** tab.

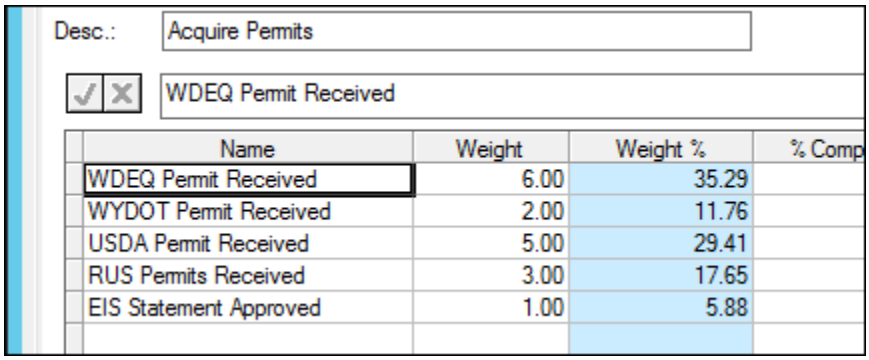


4. Enter the following step details into the table area.

Name	Weight
WDEQ Permit Received	6
WYDOT Permit Received	2
USDA Permit Received	5
RUS Permits Received	3
EIS Statement Approved	1

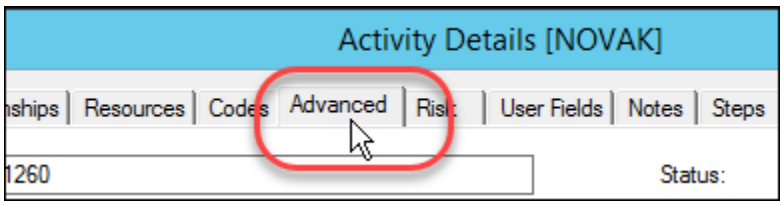
Tip: *Copy (**Ctrl + C**) the records in the above table and paste them into the Steps table by selecting the first cell in the Name list and clicking **Ctrl + V**.*

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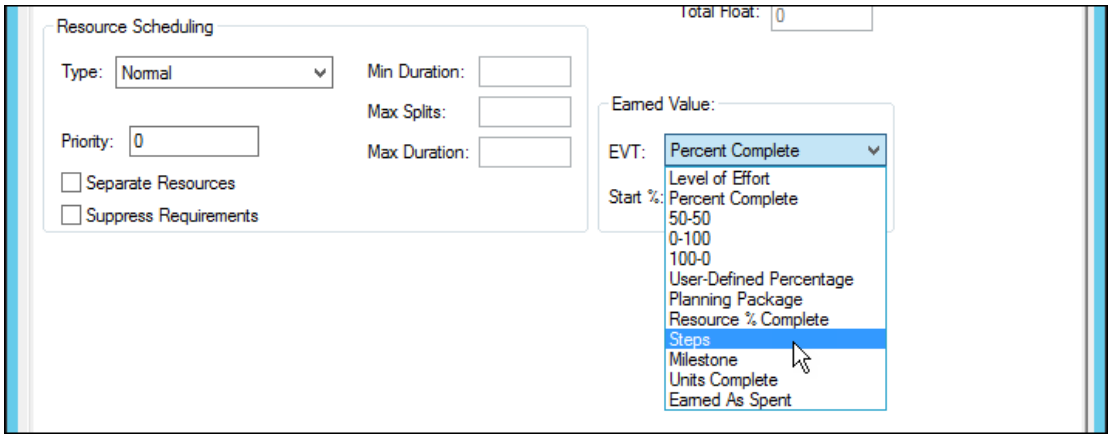


5. Click **Apply**.

6. Click on the **Advanced** tab.



7. In the **Earned Value** group, set the **EVT** field to **Steps** using the dropdown.

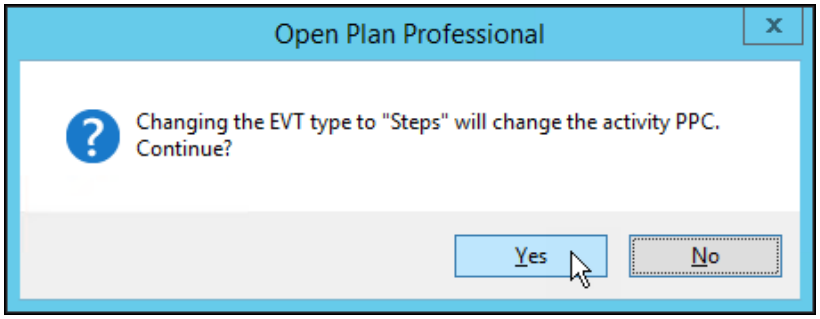


Note: This change tells **Open Plan** that the **Physical % Complete** will be driven by the completion of steps, during progress updates.

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8. When prompted that this will change the value of the Physical % Complete, click **Yes**.



9. Click **Close**.

10. Click **Save**.

We will see these steps being used to drive status in the **Entering Progress** lesson.

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5.6 User Fields

As it stands, we have a couple of fields missing in Open Plan that we need to create. These are concerned with tracking any baseline changes in the system.

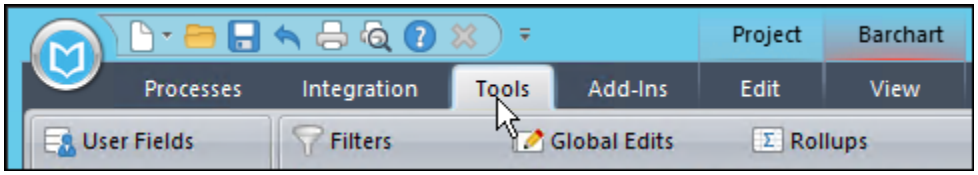
All the other user fields so far discussed are actually part of the necessary mapping for Deltek Cobra, the earned value management system that integrates with Open Plan. This is covered in more detail in the Deltek Cobra fundamentals training course that is a part of the suite of Project Portfolio Management (PPM) curricula.

From a scheduling perspective, we may need to add any number of User Fields, Calculated Fields, and Code Files to provide a way to organize project data for reports.

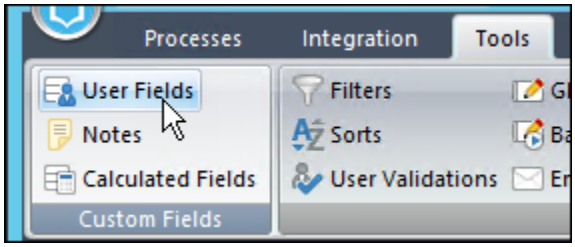
Our project will be subject to change control processes. We need a field that allows us to enter the document number when a Baseline Change Request (BCR) is actioned. This helps with filtering activities that have been updated based upon a particular request.

5.6.1 Activity: Creating a User Field for Change Control

1. Click on the **Tools** ribbon tab.



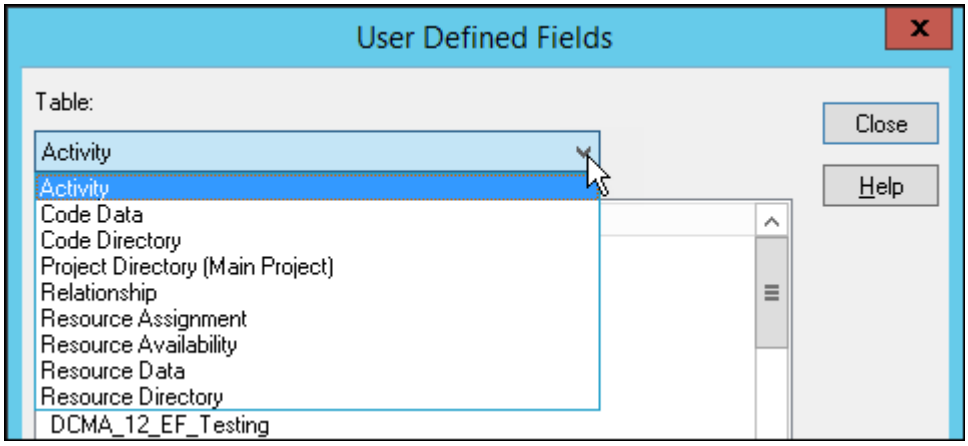
2. Click on **User Fields**.



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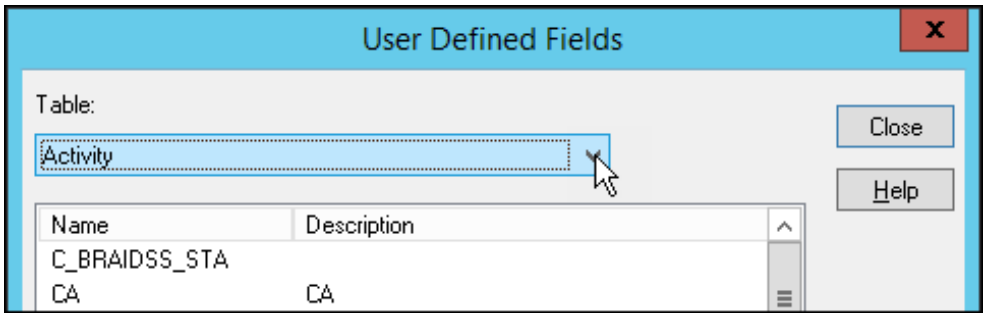
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3. In the **User Defined Fields** dialog, click on the **Table:** dropdown menu.

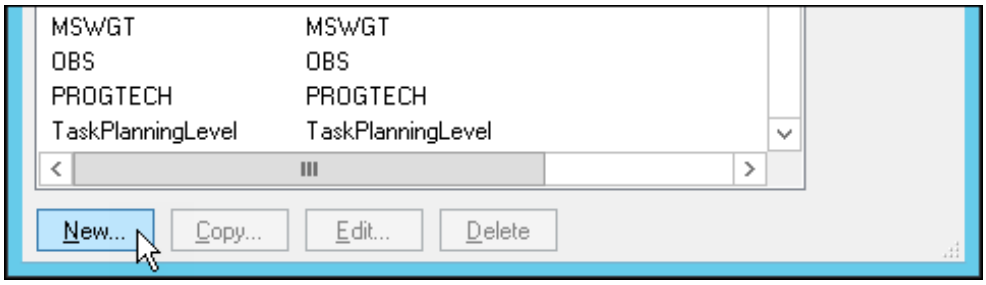


Note: The various tables into which you can create User Defined Fields (UDFs). As you can see, we can create UDFs for a variety of areas including: Activity (Default), Code Data, Relationship, Resource Assignment, and Resource Data.

4. Set the **Table**: field to **Activity**.



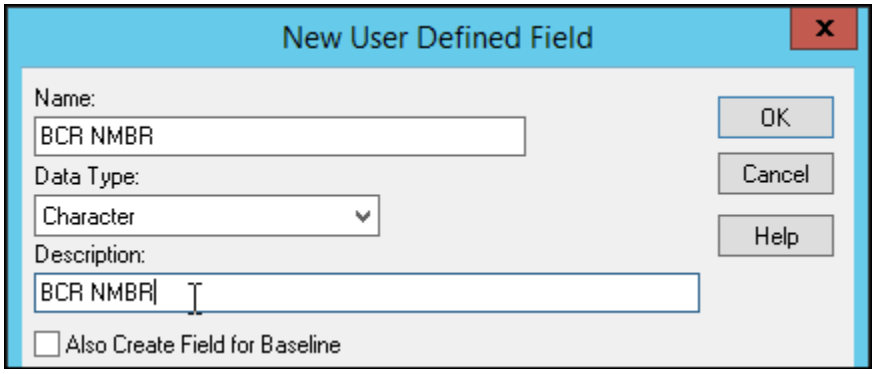
5. Click **New…** at the bottom of the dialog.



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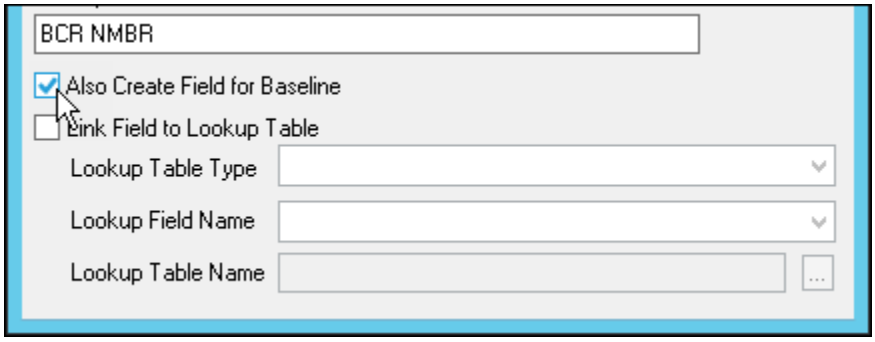
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6. Enter the following **Name** and **Description** in the **New User Defined Field** dialog.

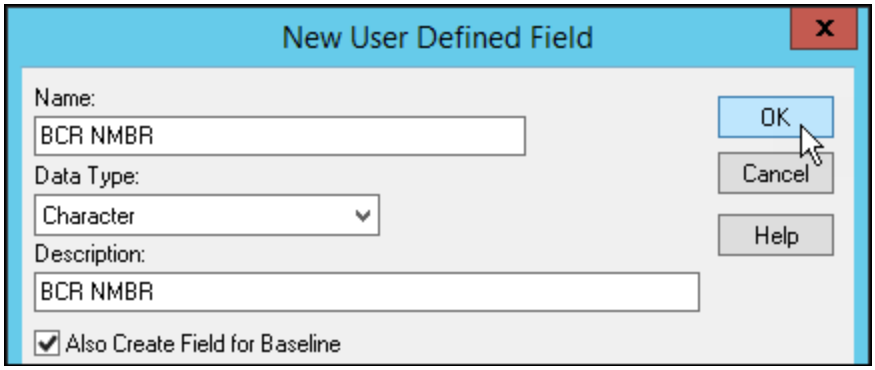


Name: BCR NMBR
Data Type: Character (typically the default)
Description: BCR NMBR

7. Check the '**Also Create Field for Baseline'** option.



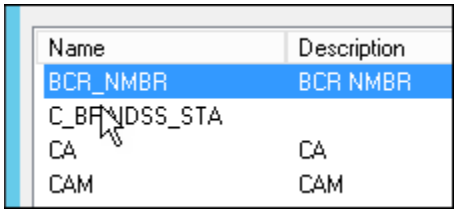
8. Click **OK**.



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9. Look at the top of the list and note how Open Plan has placed an underscore between BCR and NMBR.

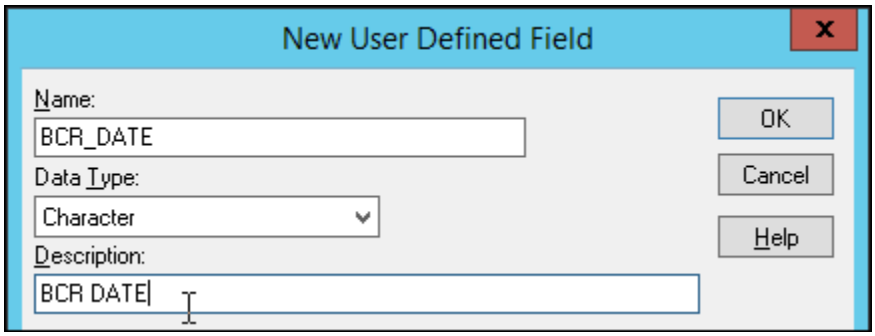


Currently, Open Plan doesn't allow spaces between UDF name characters.

Now we want to add a BCR DATE column to our project so that we can keep track of when a baseline change request is actioned.

10. Click **New…**

11. Enter the following **Name** and **Description**.

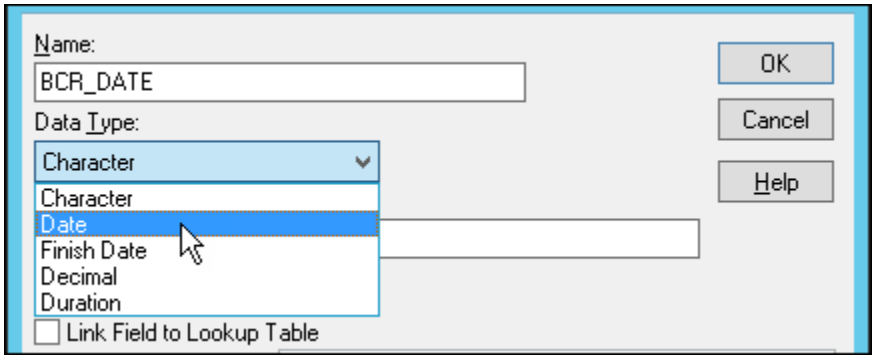


Name: BCR_DATE
Description: BCR DATE

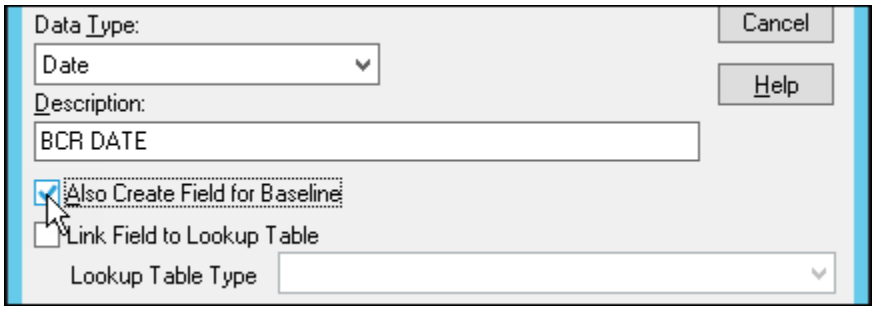
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12. Click the **Data Type** field and choose **Date**.

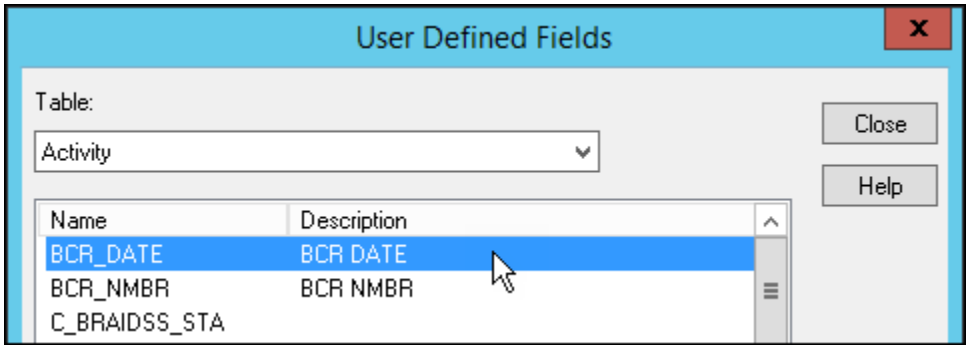


13. Check the '**Also Create Field for Baseline'** option.



14. Click **OK**.

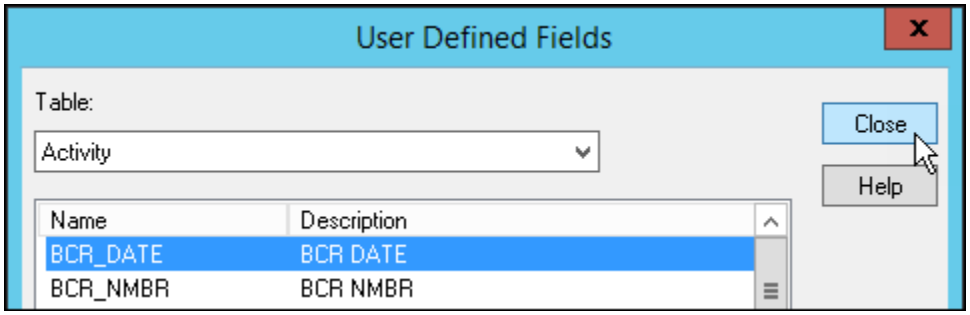
15. The newly created **BCR DATE** field appears at the top of the list.



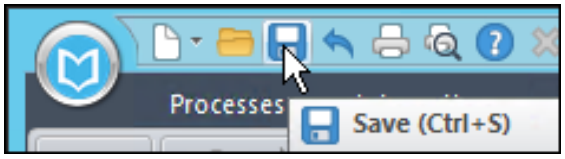
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16. Click **Close**.



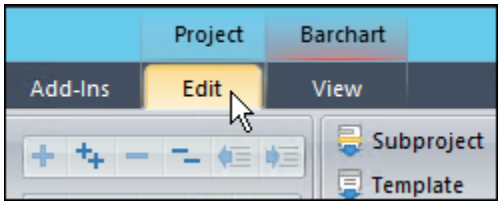
17. Click **Save**.



5.6.2 Activity: Assigning the new UDFs as Table Columns

To allow you to interact with new fields, they must be assigned to the view.

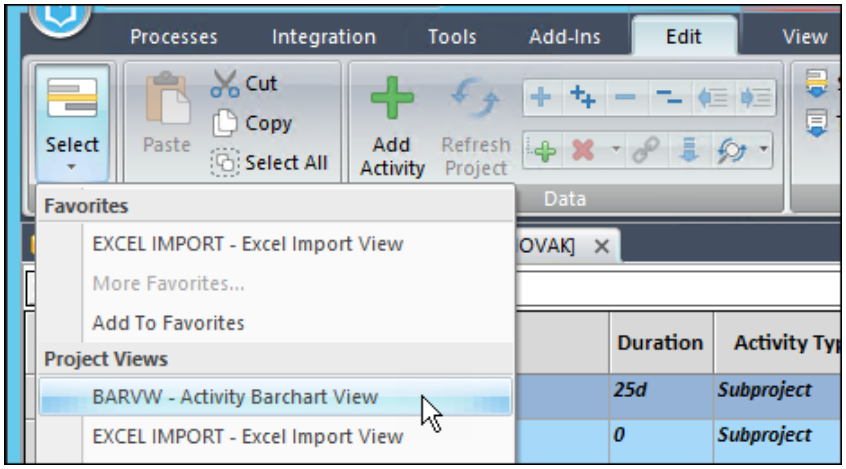
1. Click on the **Edit** ribbon tab.



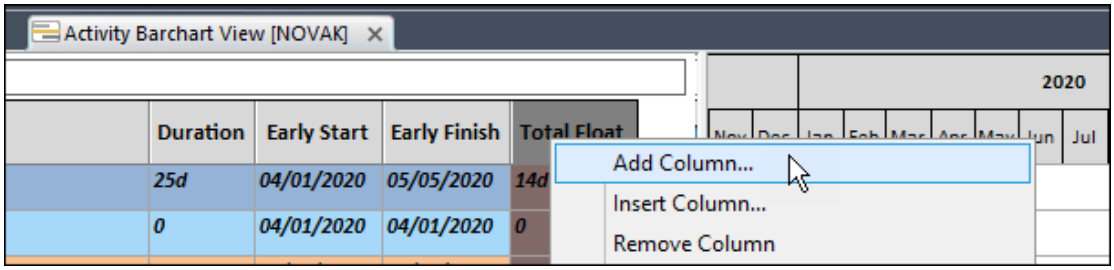
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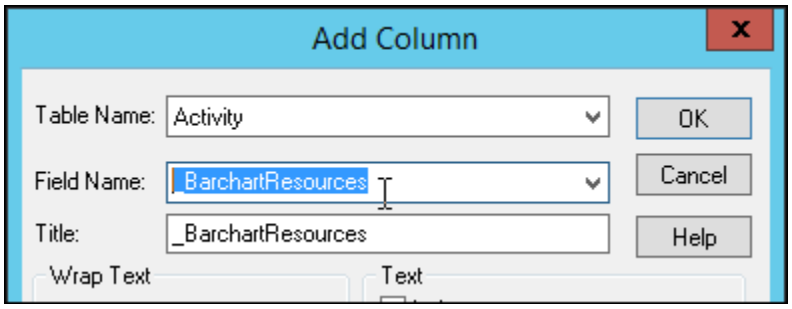
2. Click the **Select** button and choose the **BARVW - Activity Barchart View**.



3. In the **Activity Barchart View**, right-click on the **Total Float** column and select **Add Column…**.



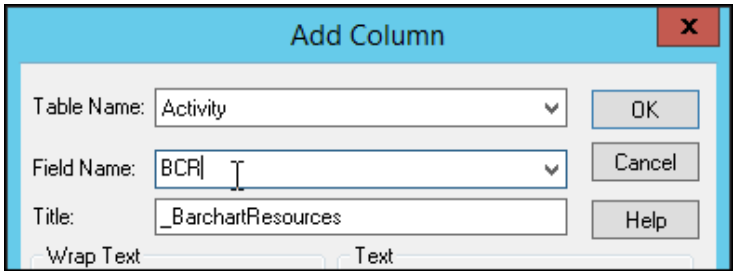
4. In the **Add Column** dialog, click in the **Field Name:** field.



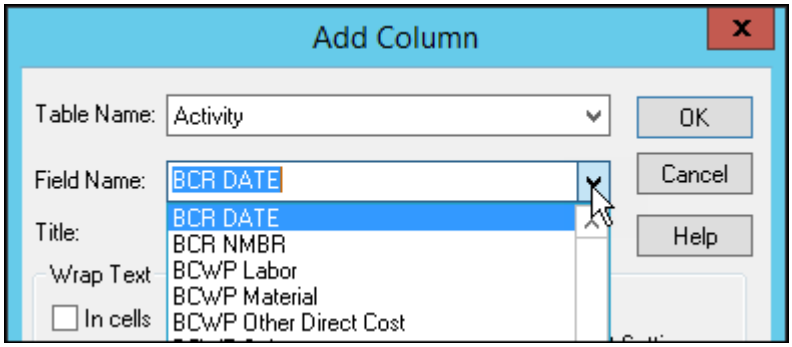
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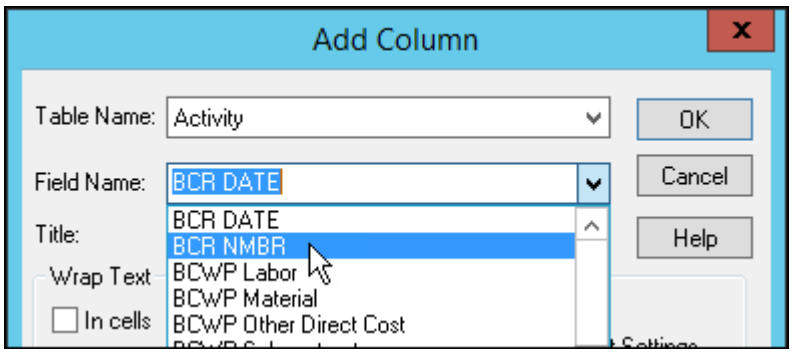
5. Type **BCR** in the field.



6. Click the dropdown arrow.

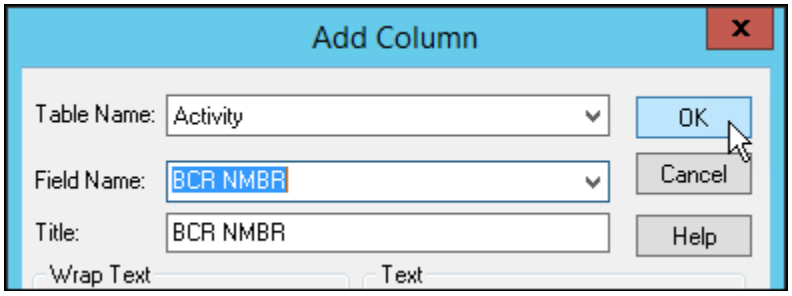


7. Select the **BCR NMBR** option near the top of the list.

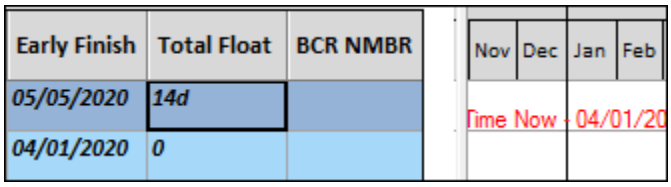


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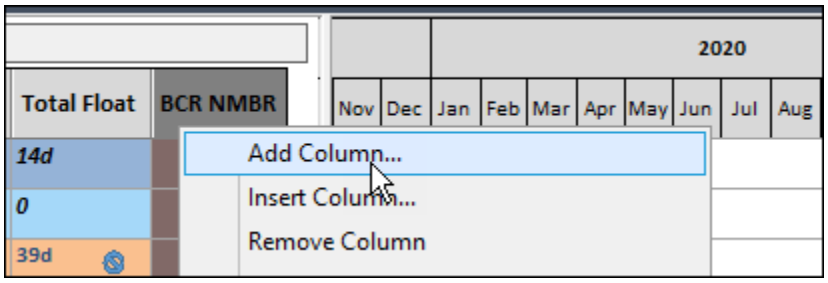
8. Click **OK**.



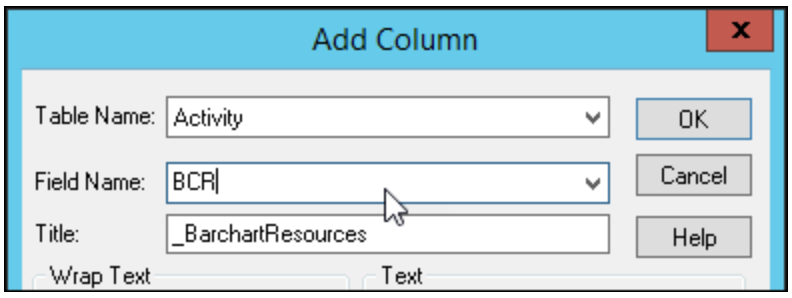
9. Your new **UDF** will appear to the right of the **Total Float** column.



10. Right-click on the **BCR NMBR** column and choose **Add Column…**.



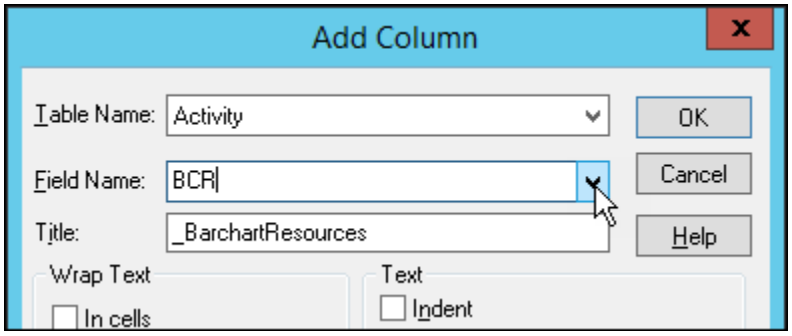
11. Type **BCR** in the **Field Name:** field.



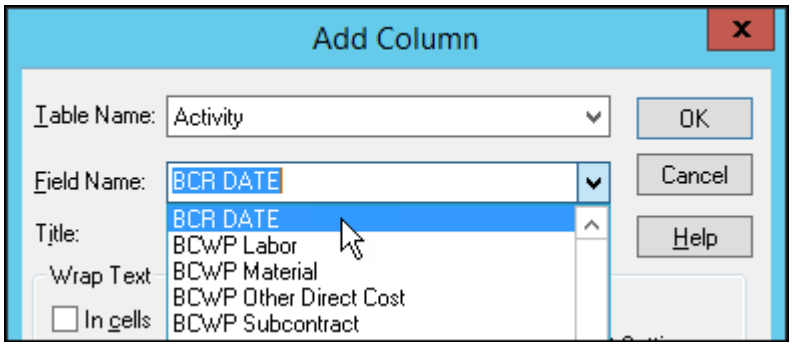
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12. Click the **Field Name:** dropdown.

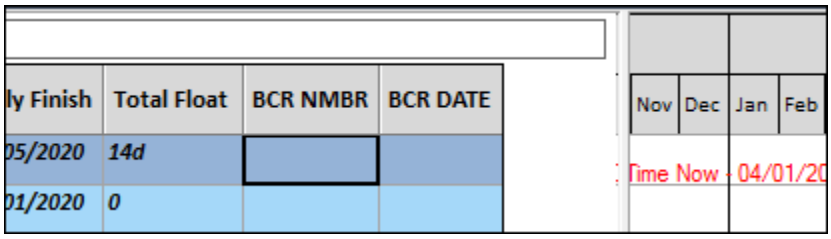


13. Select the **BCR DATE** field.



14. Click **OK**.

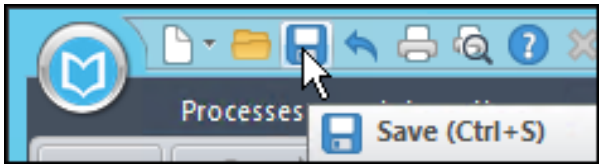
15. The **BCR DATE** column will appear to the right of the **BCR NMBR** column.



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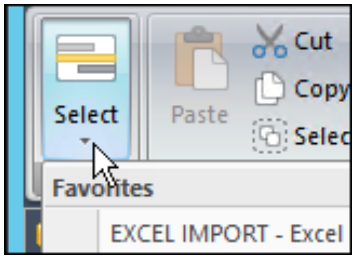
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16. Click **Save**.

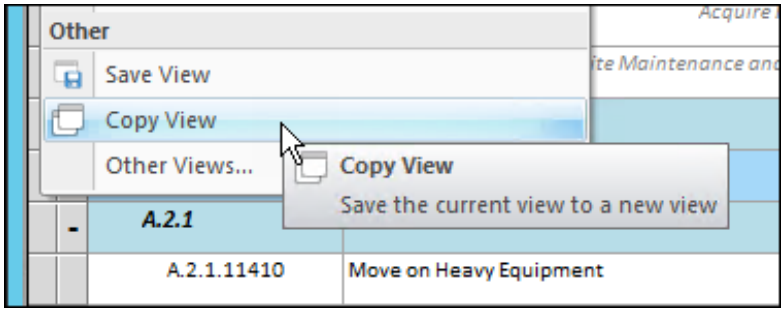


Now let's save the view.

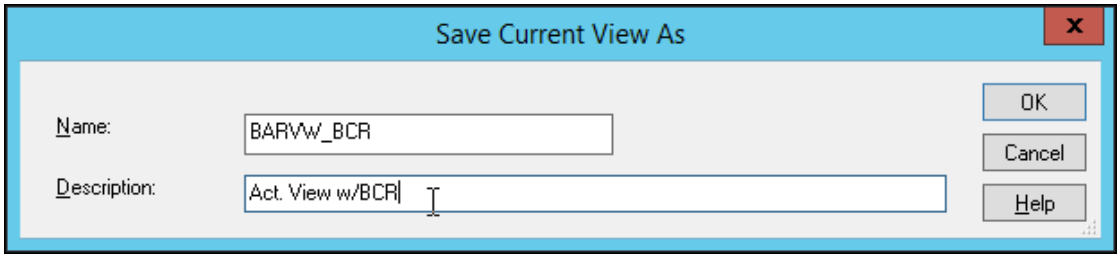
17. Click the **Select** button and



18. Choose **Copy View**.



19. Save the **View** with the name **BARVW_BCR – Act. View w/BCR**.



This view can now be opened whenever you need to make changes to the baseline and record the BCR number against affected activities. This helps to keep an audit trail.

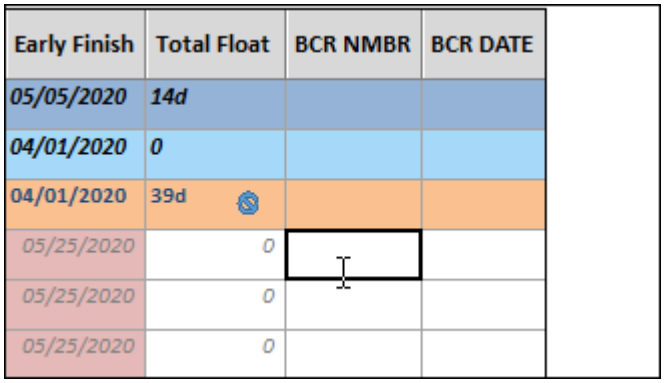
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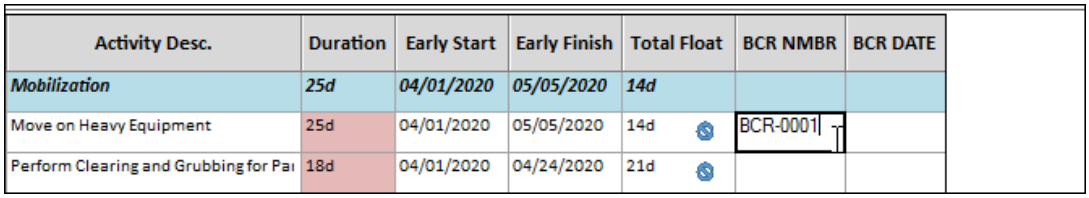
5.6.3 Activity: Testing The New UDF Columns

Finally, let's make sure everything is working correctly and that we have the right data types of the BCR columns.

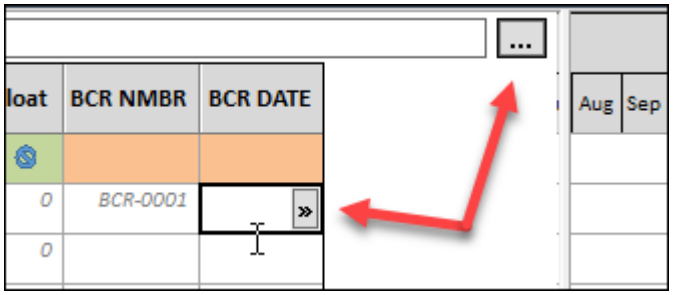
1. Click on the **BCR NMBR** column for **Move on Heavy** Equipment.



2. Enter **BCR-0001** in the cell.



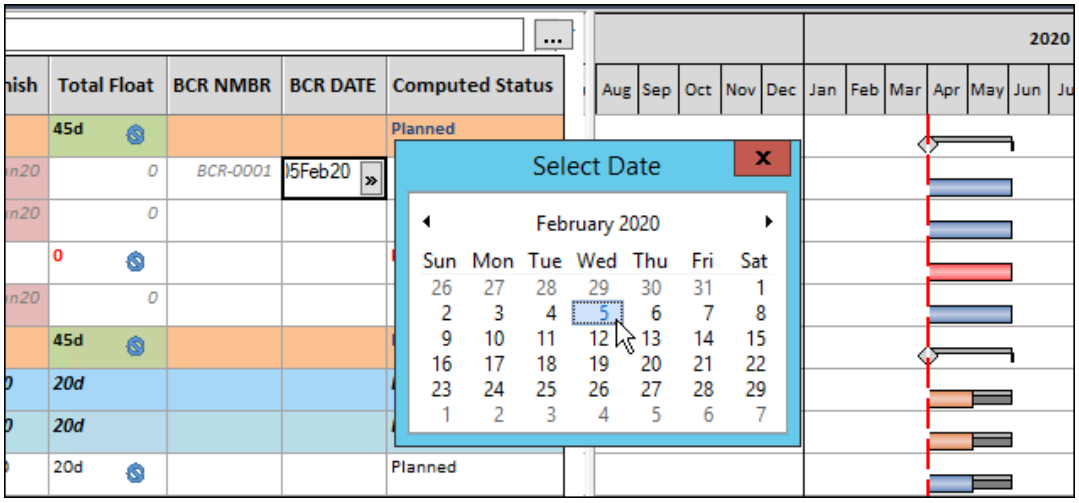
3. Now click in the adjacent **BCR DATE** field and note the appearance of the ellipsis button to the right of the entry field above the table, and the arrow button in the selected cell.



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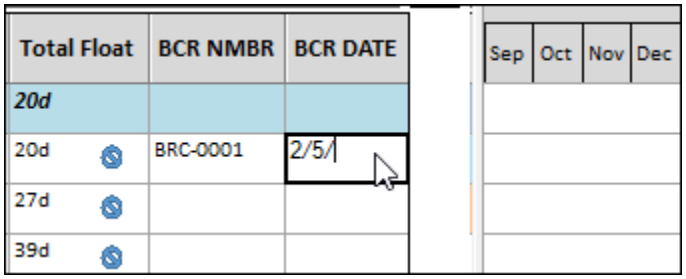
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4. On the **Site Management** activity row, click the **BCR DATE** cell to select a date for your **BCR** entry.

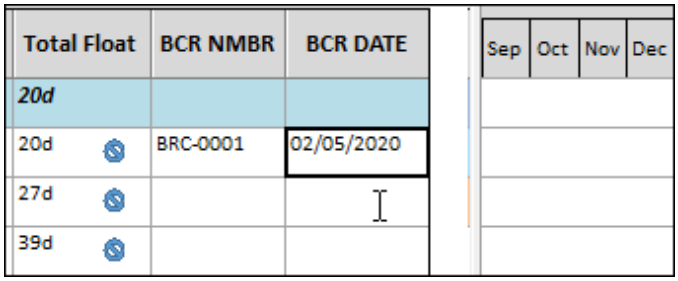


5. Navigate to **February 2020**, and select **2/5/2020** in the calendar popup.

   Note: You can also simply type the date into the field if you prefer.



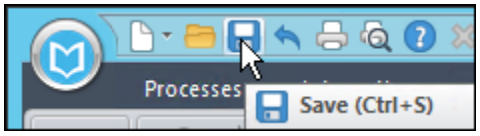
6. The selected date has appeared in the field.



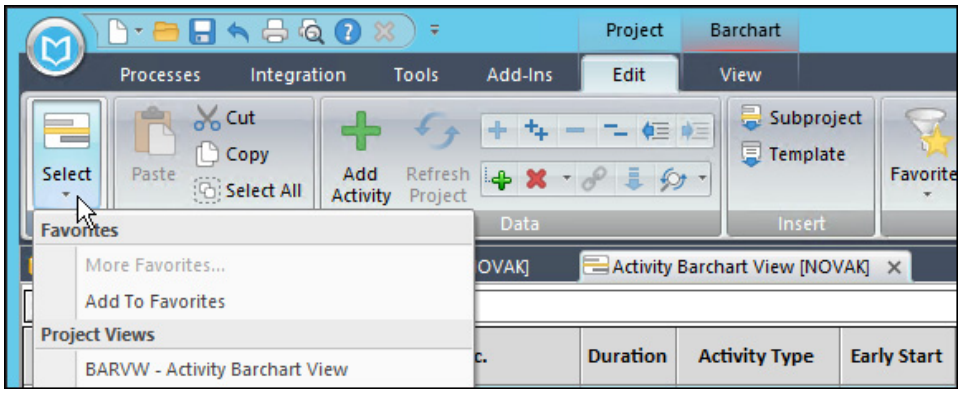
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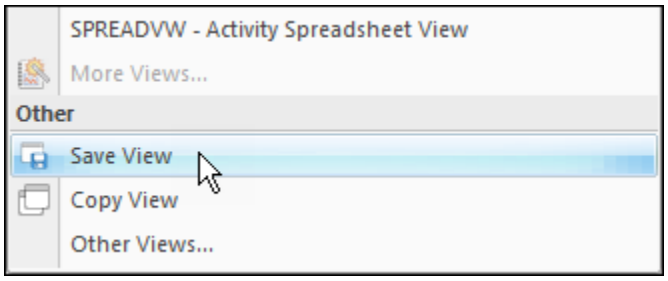
7. Click **Save**.



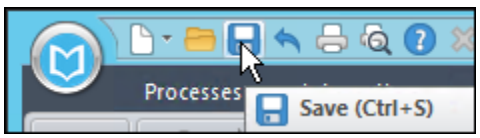
8. With the **BARVW – Activity Barchart View** selected, go to the **Edit** ribbon, and click on **View | Select**.



9. Click on the **Save View** option at the bottom of the menu.



10. Click **Save**.

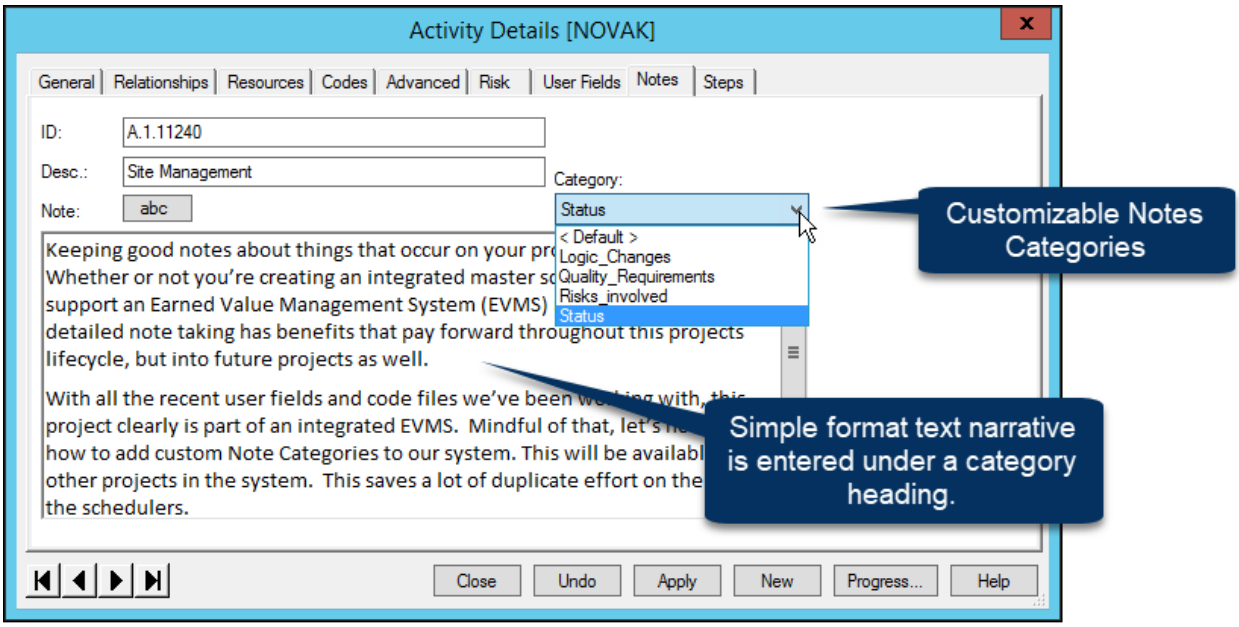


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5.7 Adding Note Categories

Keeping good notes about things that occur on your project is best practice. Whether or not you're creating an integrated master schedule (IMS) to support an Earned Value Management System (EVMS) reporting requirement; detailed note taking has benefits that pay forward throughout this project's lifecycle, and into future projects as well.



In the Activity Details dialog above, you are seeing the Notes tab, where large amounts of simple formatted text can be entered directly or pasted in from relevant documents; a valuable way to capture the story behind the data.

With all the recent user fields and code files we've been working with, this project clearly is part of an integrated EVMS. Mindful of that, let's now learn how to add custom Note Categories to our system. This will be available to all other projects in the system. This saves a lot of duplicate effort on the part of the schedulers.

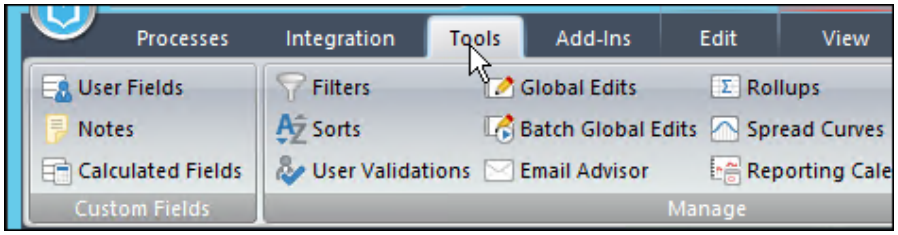
We recently added two fields for BCR numbers and dates. It would be beneficial to create a separate notes category for BCRs.

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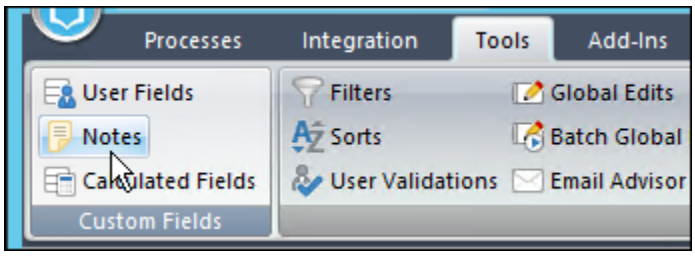
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5.7.1 Activity: Adding a New Note Category

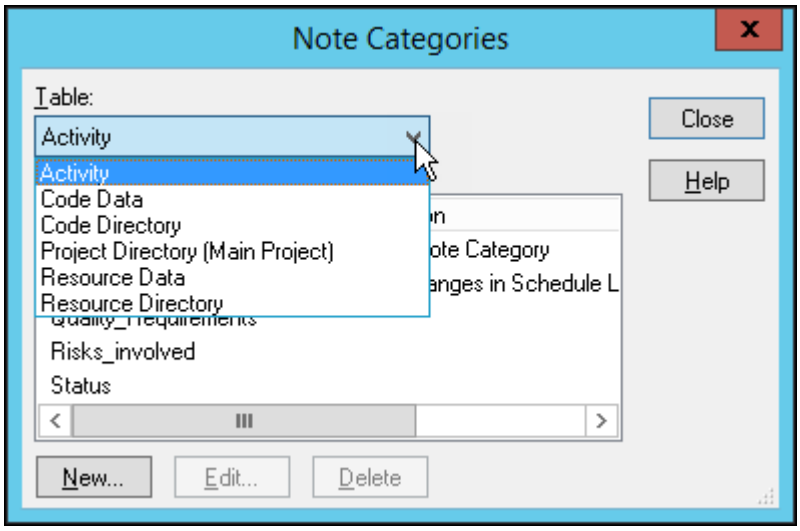
1. Click on the **Tools** ribbon tab.



2. Go to the **Custom Fields** tool group (far left), and click on **Notes**.



3. In the **Notes Categories** dialog, click on the **Table:** dropdown.

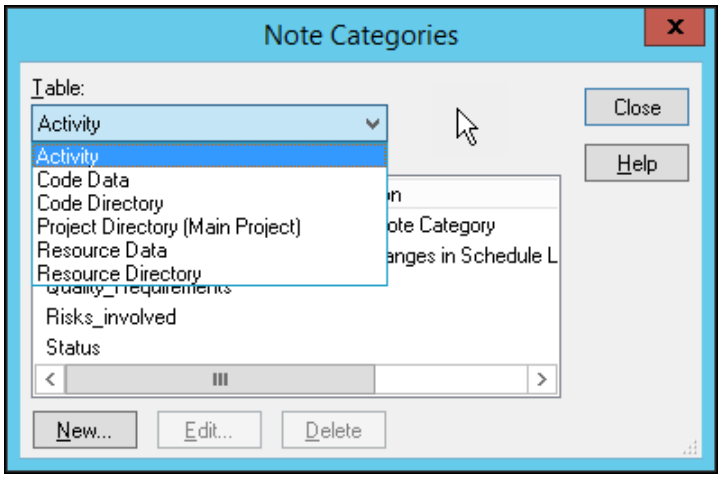


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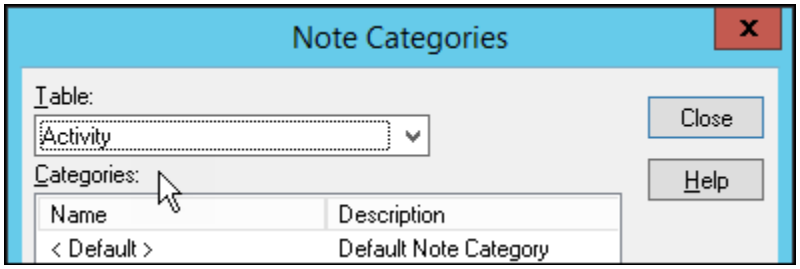
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4. Familiarize yourself with the schedule objects against which you can create categories.

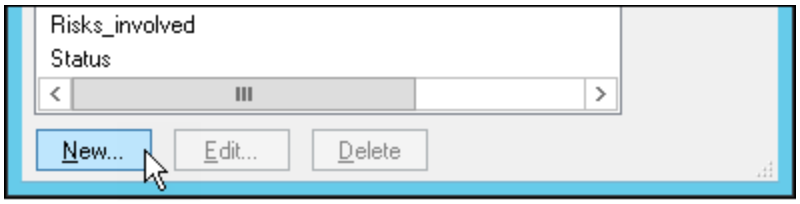
5. Click on any gray area of the dialog to close the list.



6. Verify that the **Table:** field is still set to **Activity**.



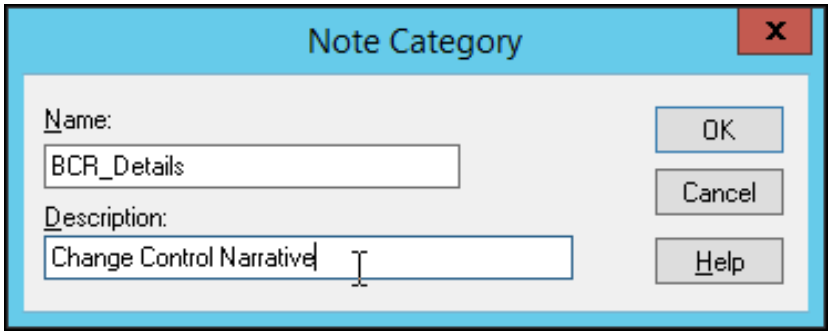
7. Click **New…**.



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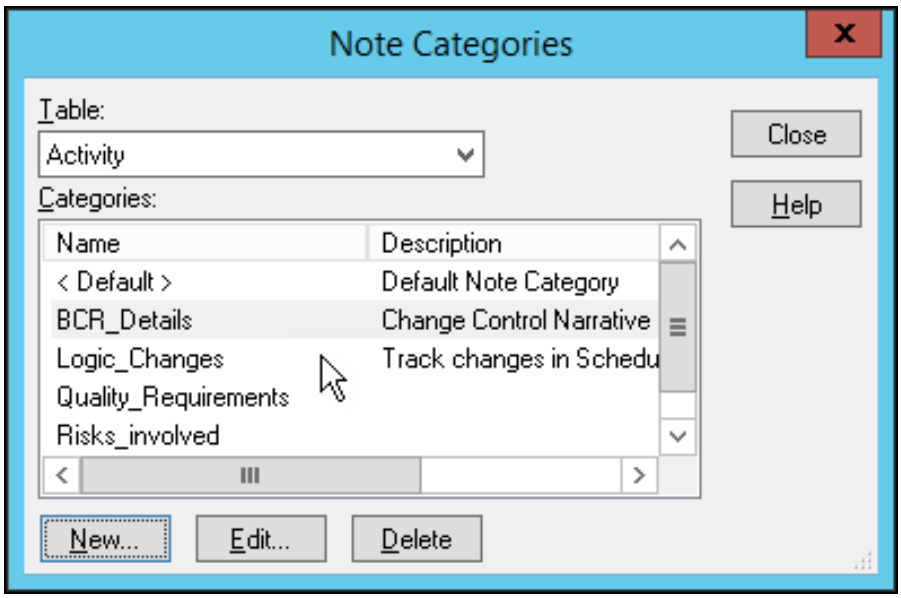
8. Enter the following details into the **Note Category** dialog:



Name: BCR_Details
Description: Change Control Narrative

9. Click **OK**.

10. You will see your new **Note Category** as an option in the dialog.



11. Click **Close**.

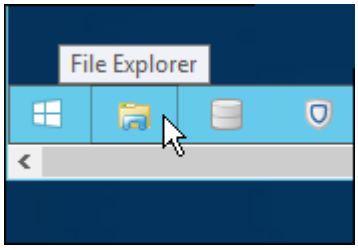
Now we will see how to use our new notes category.

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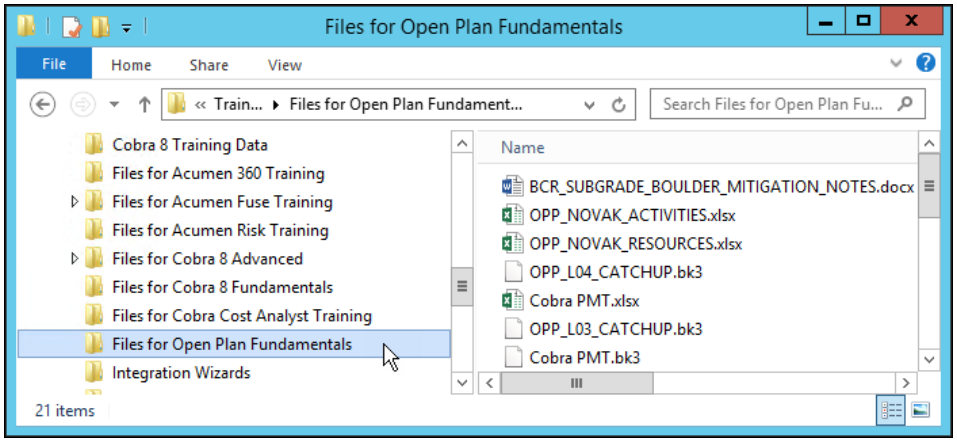
5.7.2 Activity: Using Notes

1. Open the **Windows File Explorer**.

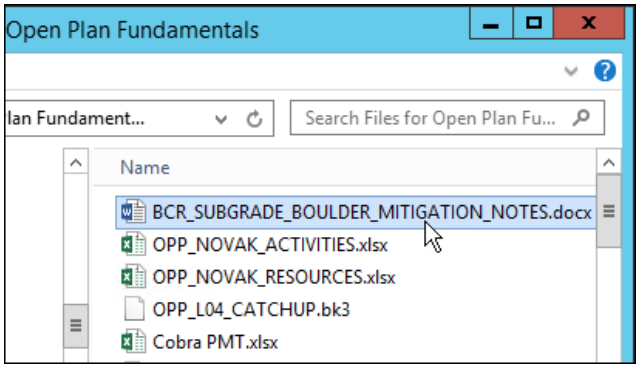


2. Navigate to the following folder:

   C:\Training\Files for Open Plan Fundamentals



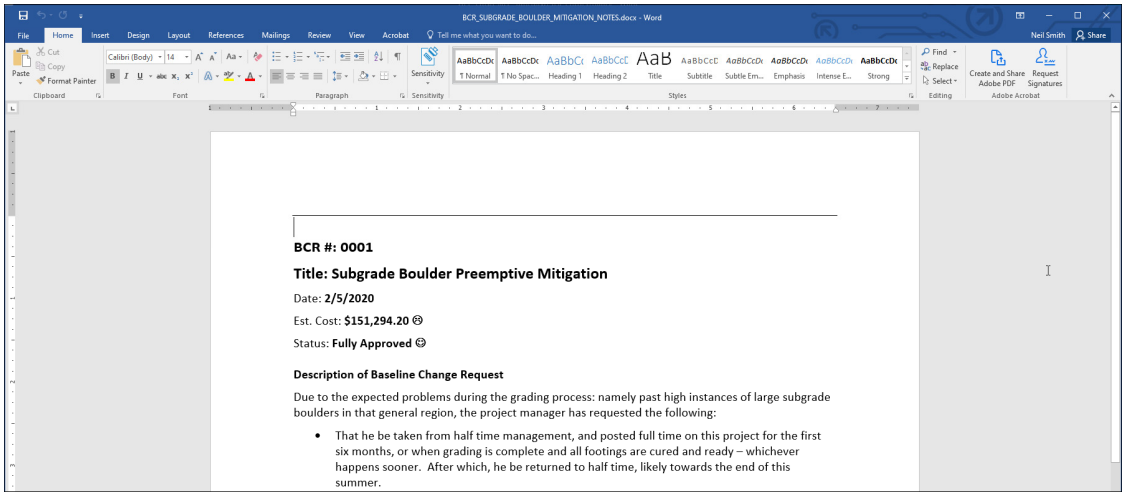
3. Double-click on the **BCR_SUBGRADE_BOULDER_MITIGATION_NOTES.docx** file to open.



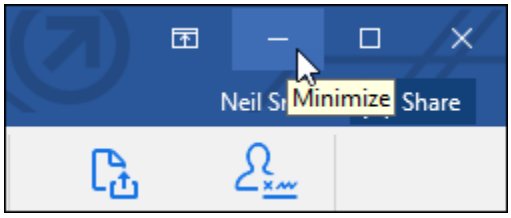
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4. The document will open in **Microsoft Word**.



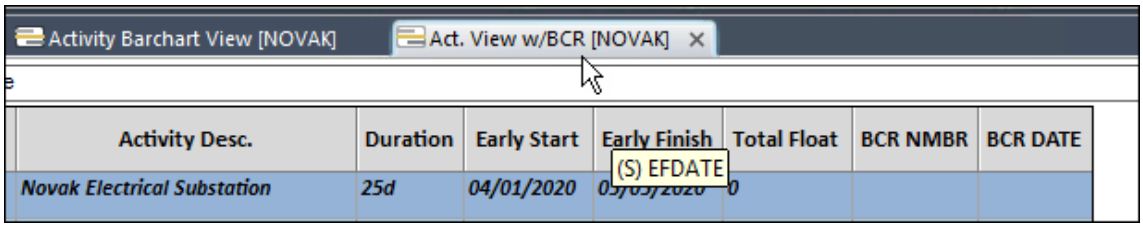
5. Minimize the **Microsoft Word** document, **but don't close it**. You will need this shortly.



6. Click on **Open Plan** now to return mouse focus.

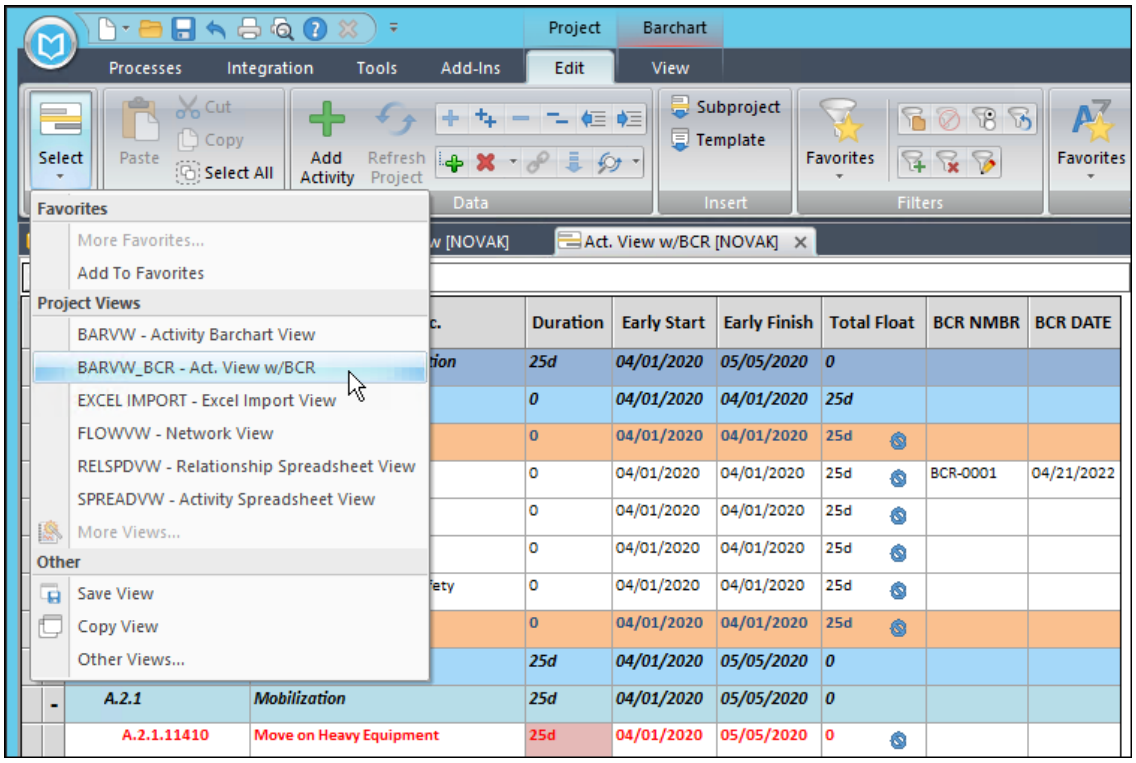
7. Now, click on (or Open) the **BARVW_BCR – Act. View w/BCR** view.

   Click to use Act. View w/BCR tab.

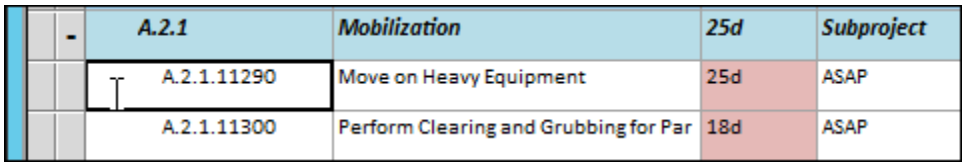


   To Open - use Edit | View | Select.

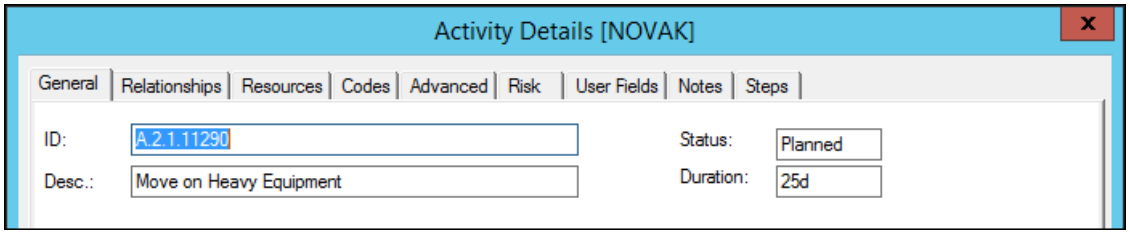
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8. Locate the **A.2.1.11290 - Move on Heavy Equipment** activity (Located below the ***Mobilization*** Subproject) and double-click on it.



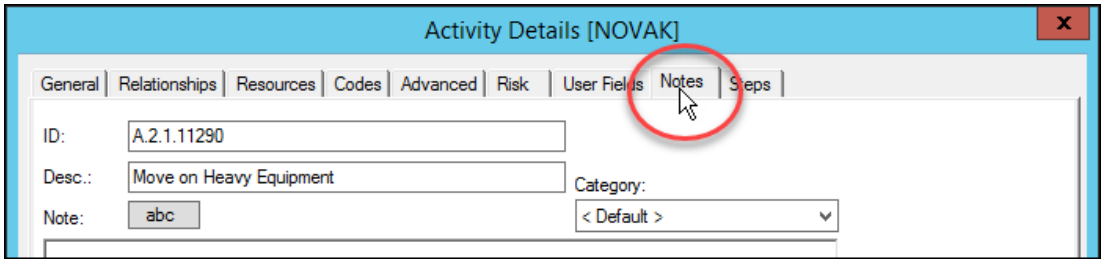
9. This will open the **Activity Details** dialog.



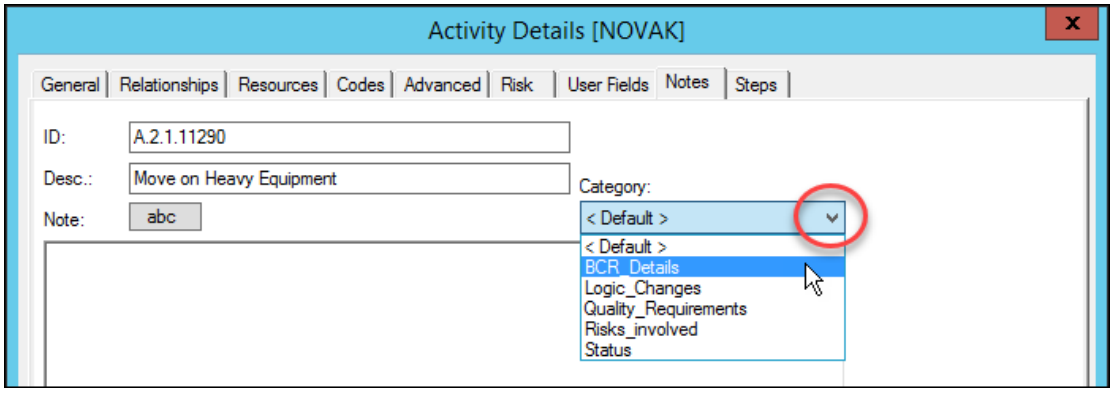
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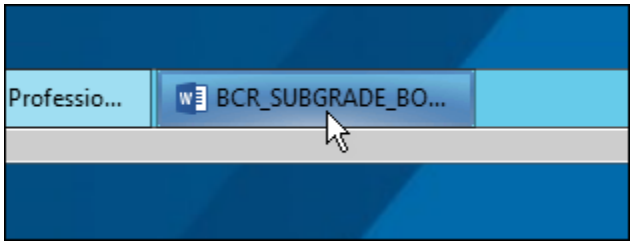
10. In the **Activity Details** dialog, click on the **Notes** tab.



11. Click on the **Category:** dropdown, and choose **BCR_Details**.



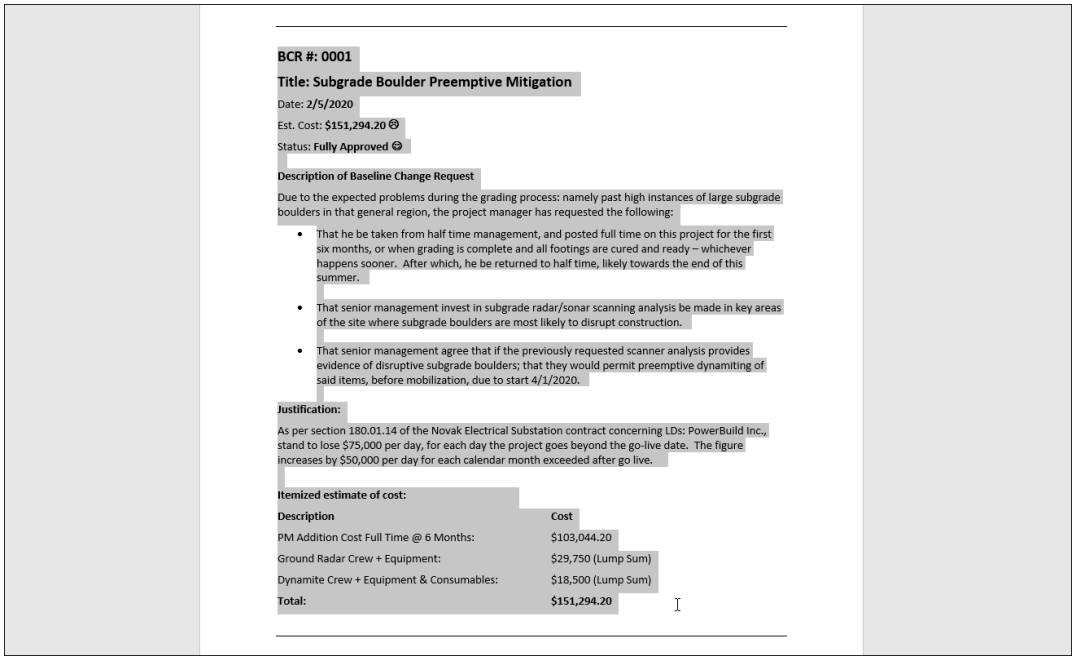
12. Now, return to the Windows task bar and maximize the **BCR_SUBGRADE…** document we opened previously.



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13. Select all the text in the document.



BCR #: 0001

Title: Subgrade Boulder Preemptive Mitigation

Date: **2/5/2020**

Est. Cost: **$151,294.20**

Status: **Fully Approved**

Description of Baseline Change Request

Due to the expected problems during the grading process: namely past high instances of large subgrade boulders in that general region, the project manager has requested the following:

- That he be taken from half time management, and posted full time on this project for the first six months, or when grading is complete and all footings are cured and ready – whichever happens sooner. After which, he be returned to half time, likely towards the end of this summer.
- That senior management invest in subgrade radar/sonar scanning analysis be made in key areas of the site where subgrade boulders are most likely to disrupt construction.
- That senior management agree that if the previously requested scanner analysis provides evidence of disruptive subgrade boulders; that they would permit preemptive dynamiting of said items, before mobilization, due to start 4/1/2020.

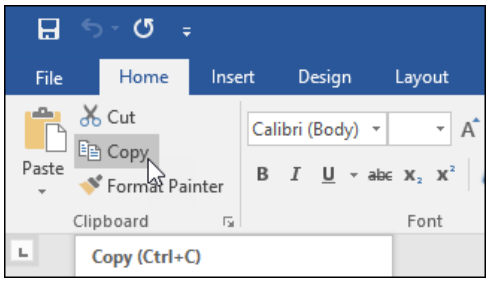
Justification:

As per section 180.01.14 of the Novak Electrical Substation contract concerning LDs: PowerBuild Inc., stand to lose $75,000 per day, for each day the project goes beyond the go-live date. The figure increases by $50,000 per day for each calendar month exceeded after go live.

Itemized estimate of cost:

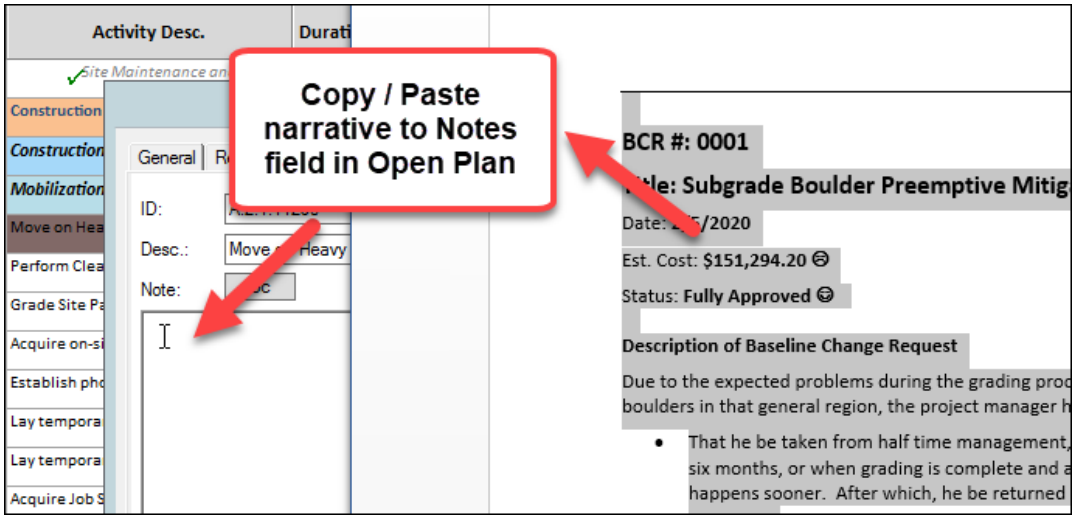
Description	**Cost**
PM Addition Cost Full Time @ 6 Months:	$103,044.20
Ground Radar Crew + Equipment:	$29,750 (Lump Sum)
Dynamite Crew + Equipment & Consumables:	$18,500 (Lump Sum)
Total:	**$151,294.20**

14. Click on the **Copy** button on the **Home** ribbon.

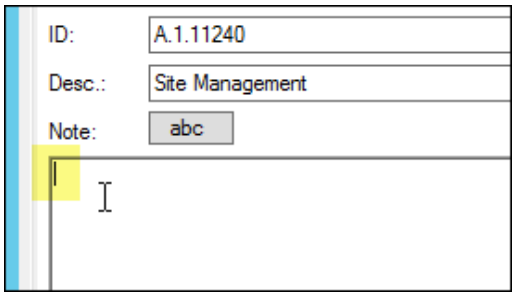


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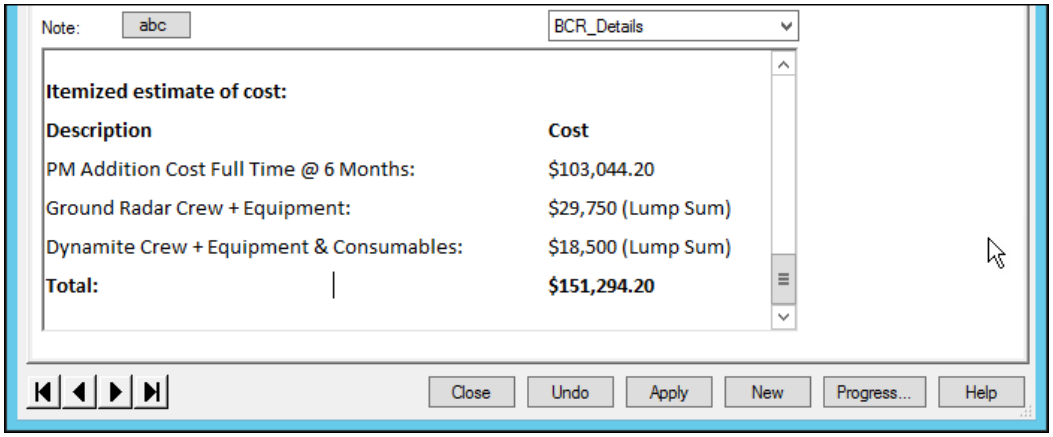
15. Now click back on **Open Plan**, and click anywhere in the **Note:** text area.



16. Verify that you have focus in the **Note:** text window.



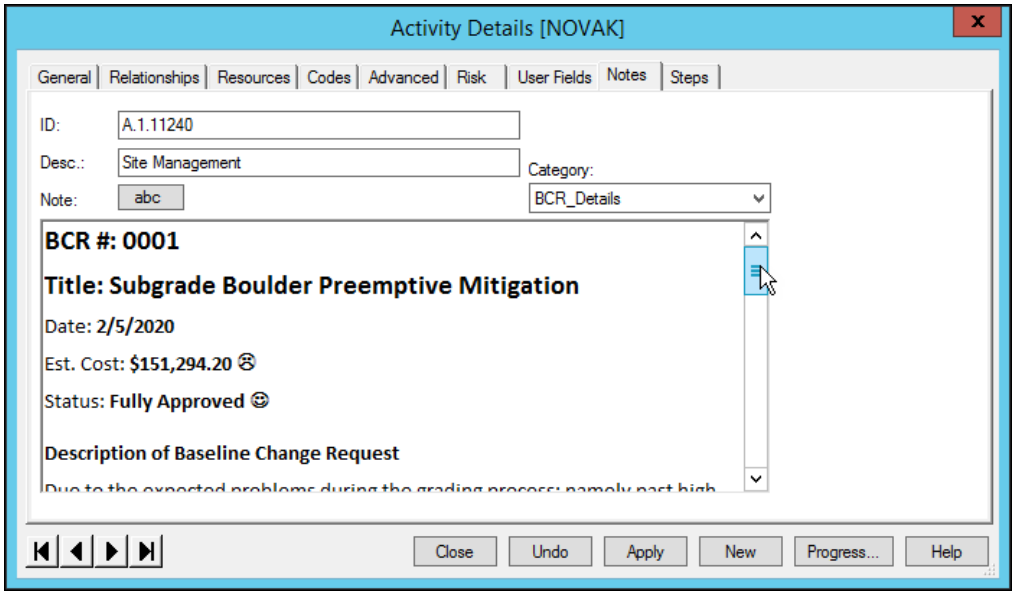
17. Click the **Ctrl** + **V** keys on your keyboard.



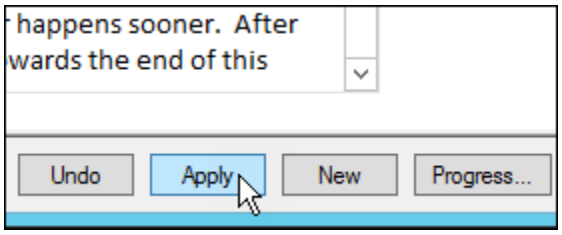
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The text will appear in the **Notes:** text window.



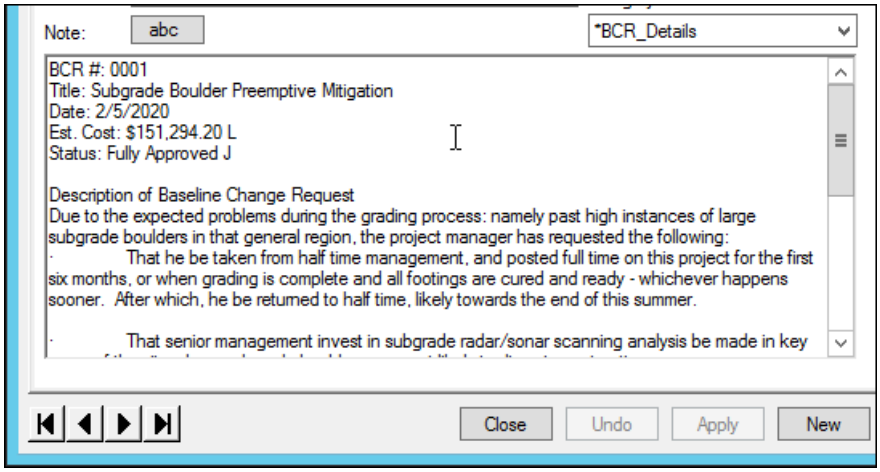
18. Click **Apply** to save your **BCR_Details** to the system.



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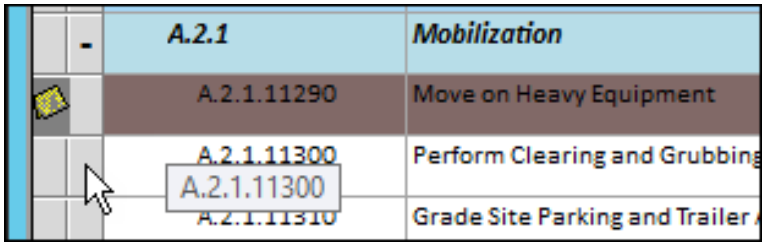
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19. Note that any formatting that came over with the document is removed as you apply it to the activity record. This feature only stores simple formatting owing to binary large object (BLOB) database parameters.

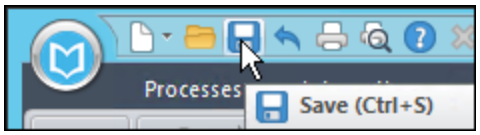


20. Click **Close**.

21. Note the yellow note icon that is now displayed against the activity.



22. Click **Save**.



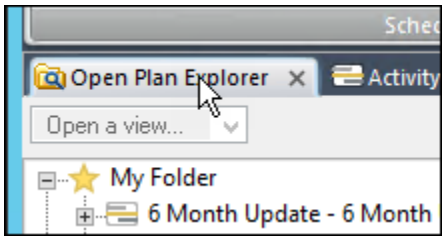
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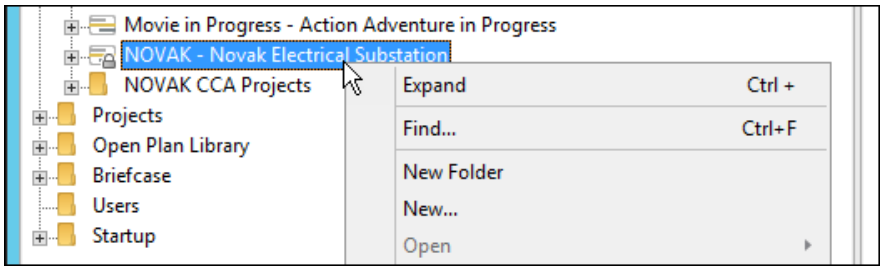
5.7.3 Activity: Backing Up Your Project

Before we conclude the lesson, it would be wise to do a back. You will be making major changes to this project going forward, so a backup is a quick, safe way to go back and start again.

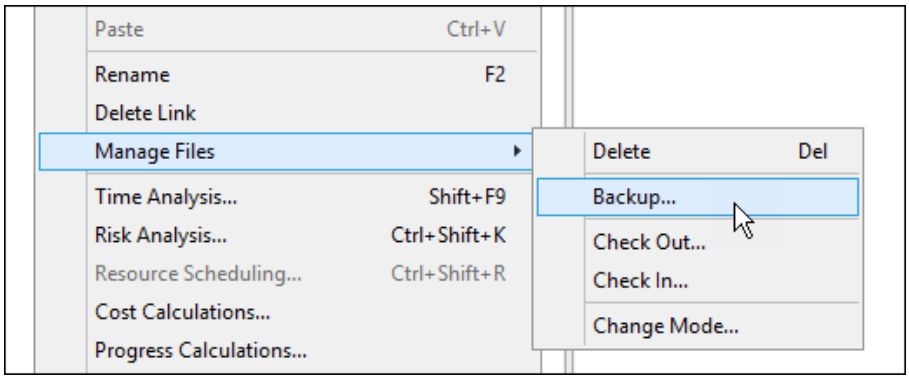
1. Click on the **Open Plan Explorer** tab.



2. Right-click on the **NOVAK** project in **My Folder**.



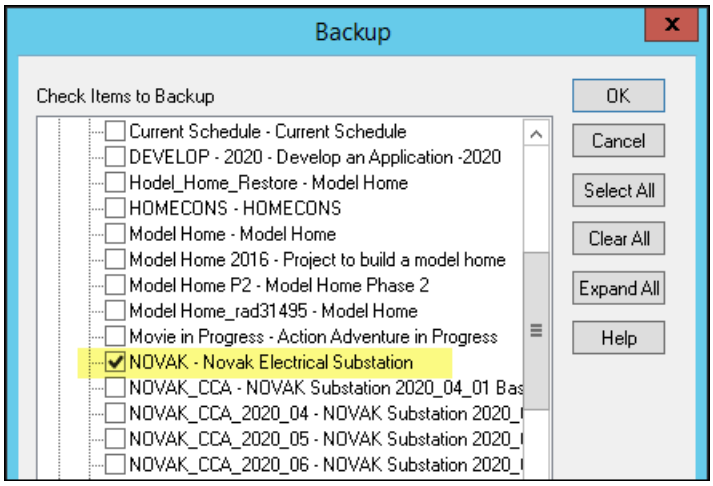
3. Now select **Manage Files > Backup…** submenus.



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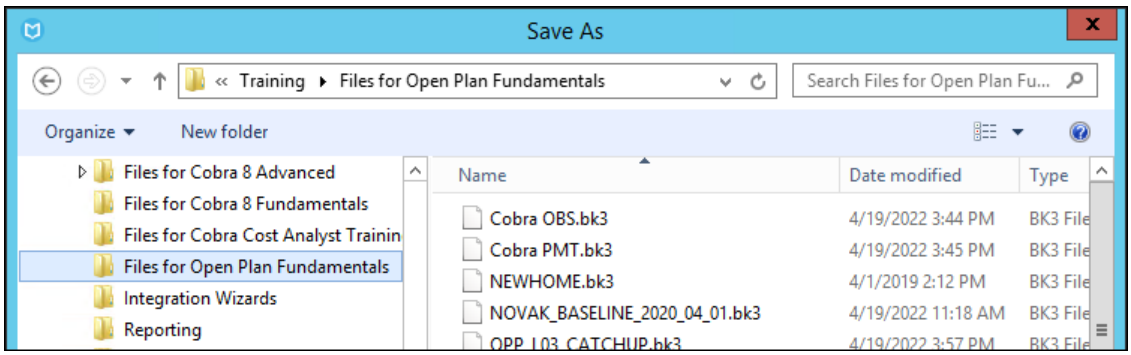
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4. You will see any opened projects checked in the backups list.

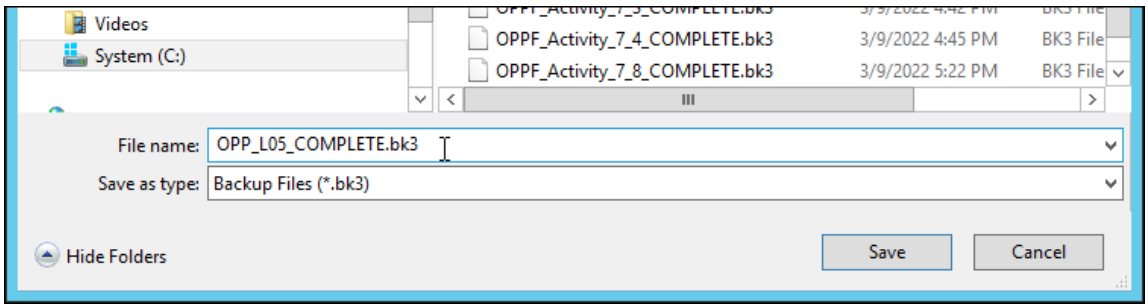


5. Click **OK**.

6. In the **Save As** dialog, navigate to the **Files for Open Plan Fundamentals** folder.



7. Rename the file to **OPP_L05_COMPLETE.bk3**.



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8. Click **Save**.

Your backup is complete.

This concludes the lesson. You will do further building of this project in these next lessons.

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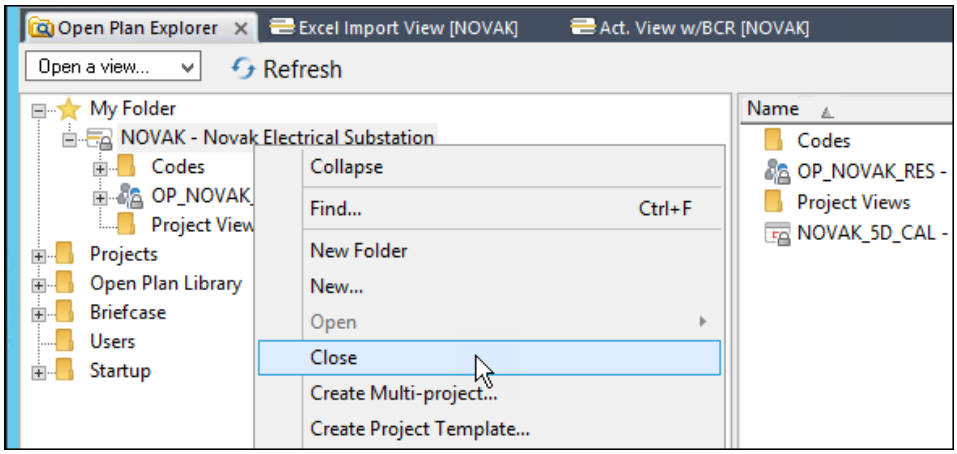
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5.8 Course Catchup

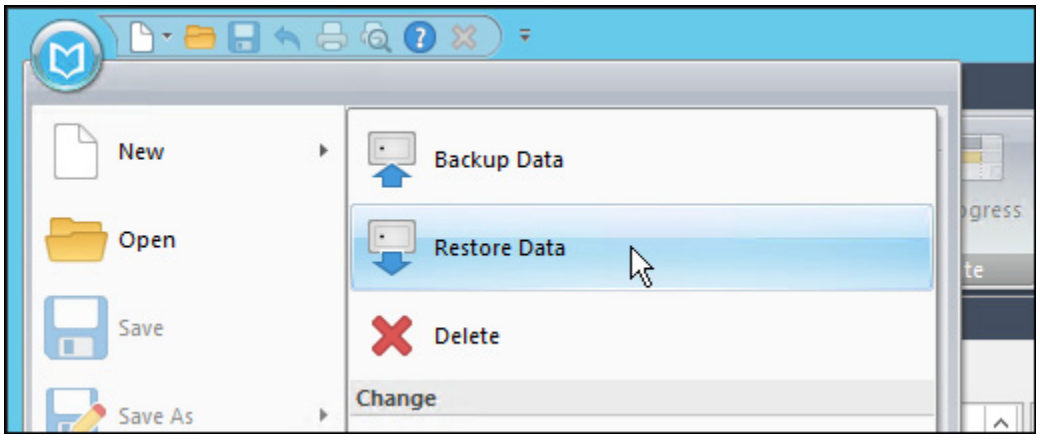
5.8.1 Activity: Course 5 – Catchup

If you were unable to complete all the activities in this lesson, you can restore the final ancillary files using the following steps:

1. If you have created the **NOVAK** project, go to the **Open Plan Explorer** and close it.



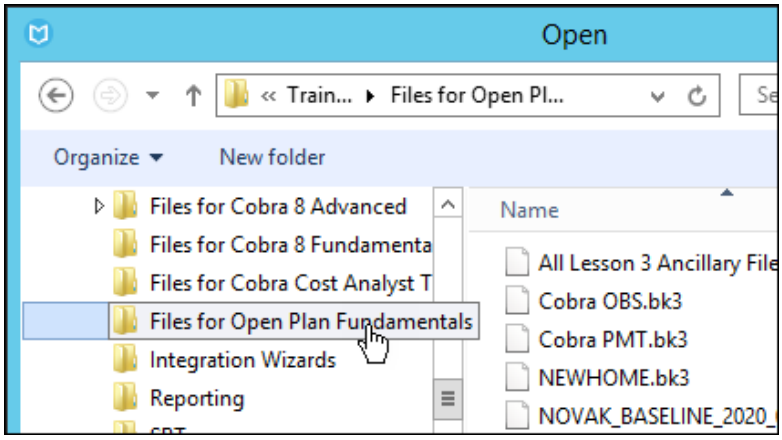
2. Click on the **File** | **Manage Files** > **Restore Data** option.



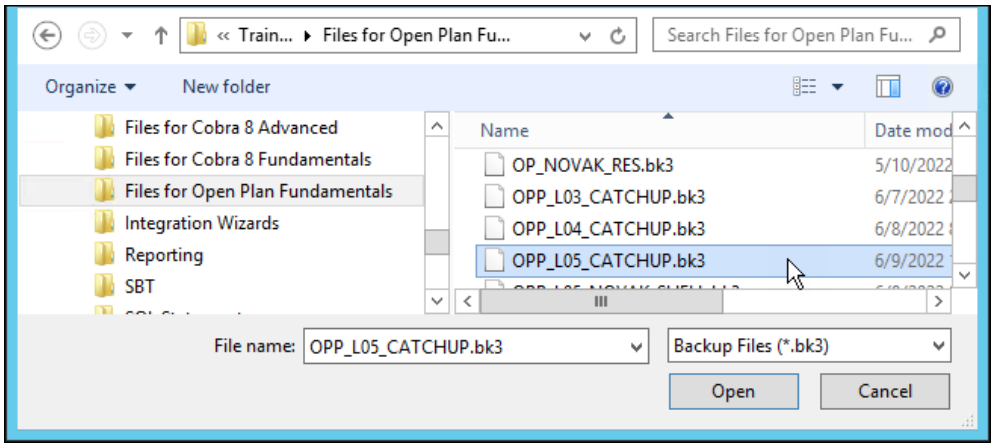
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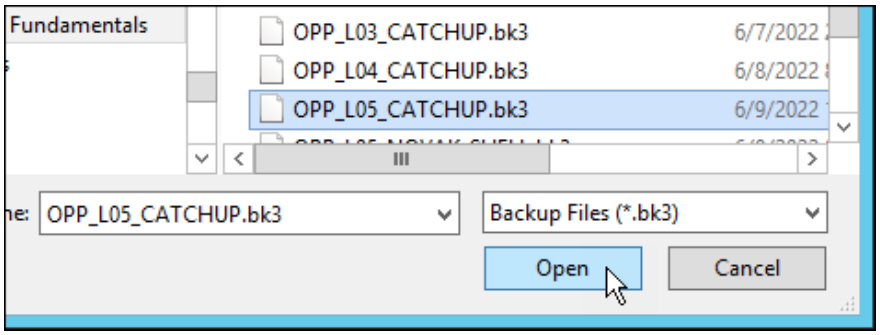
3. In the **Open** dialog, go to **System (C:)** | **Training** | **Files for Open Plan Fundamentals**.



4. Click on the **OPP_L05_CATCHUP.bk3** file. This will restore any and all ancillary files created in this lesson.



5. Click **Open**.



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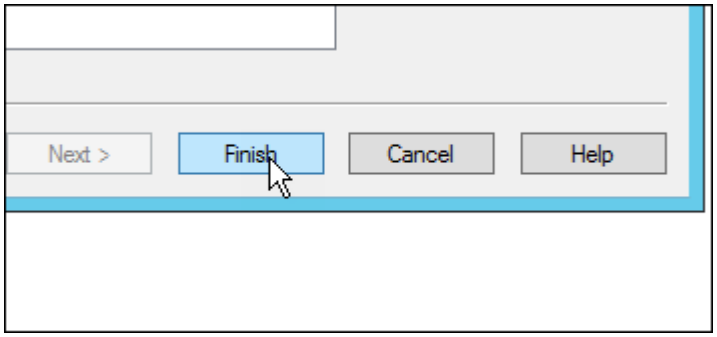
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6. In the **Restore** dialog, verify the selected **Project: NOVAK** in the list box.



7. Click **Next >**.

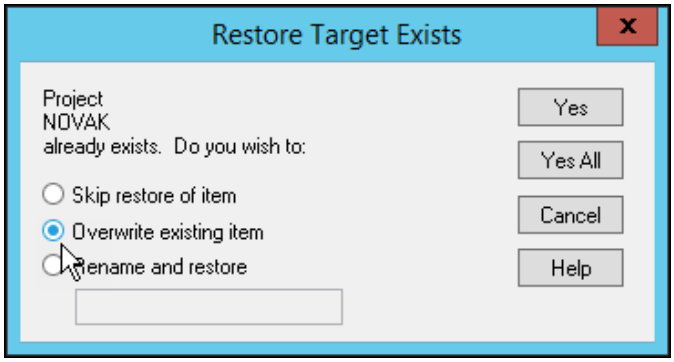
8. Click **Finish**.



If you are prompted before the restore completes, you may have left a **View** item or a **Title Block** checked, or you may have already created a file you're restoring.

9. If you see a prompt like this, you can check the '**Overwrite existing item**' option.

In this example the process has detected an existing **NOVAK** file.

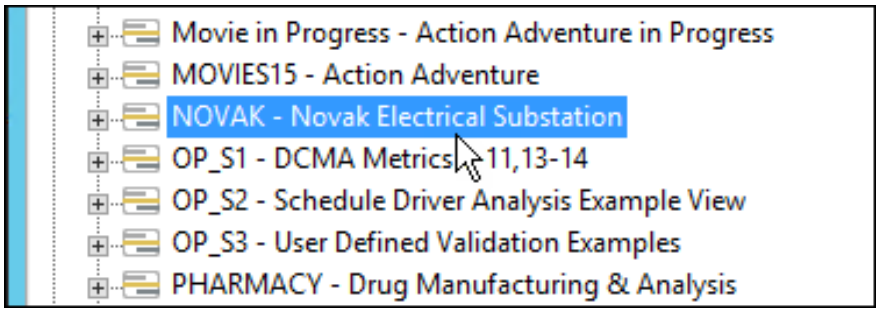


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10. Click the **Yes All** button.

11. You will now find your restored files in the **Open Plan Explorer**.



You are now ready to continue to the next lesson.

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Open Plan Scheduler Certification Series: Critical Path

Activity Guide

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Table of Contents

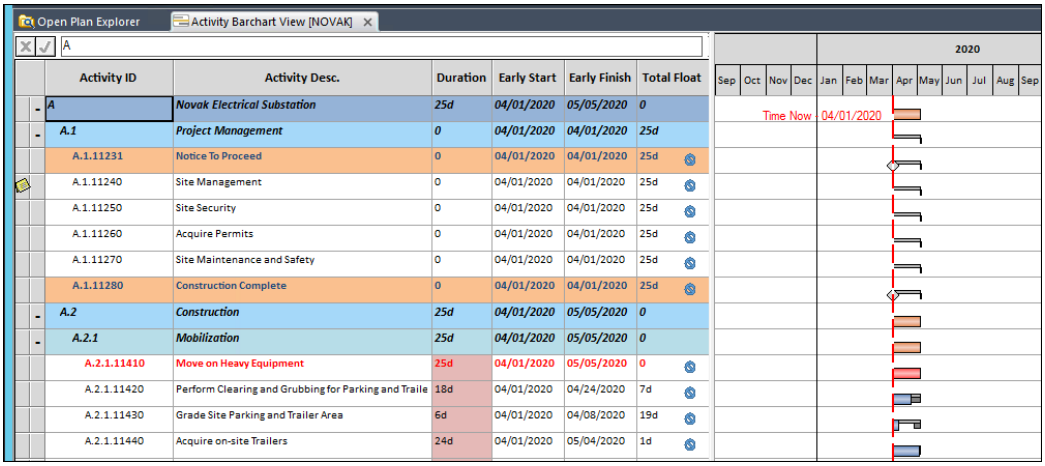
6.1 Course Introduction 4
6.1.1 In this Course 4
6.2 What is Critical Path? 5
6.3 Relationships Overview 7
6.4 Entering Relationships in Open Plan 9
6.4.1 Activity: Relationship Entry using the Activity Details Dialog 11
6.4.2 Activity: Using the Relationship Spreadsheet View 16
6.4.3 Activity: Entering Relationships from an Excel Spreadsheet 21
6.5 Time Analysis 27
6.5.1 What is Time Analysis? 27
6.5.2 Activity: Performing a Time Analysis (Forward and Backward Pass) 28
6.6 Reviewing the Schedule 31
6.6.1 Activity: Verifying a full and complete critical path 31
6.6.2 Activity: Reviewing the DCMA Metric View 39
6.6.3 Activity: Checking the High Float Score 50
6.6.4 Activity: Conflicting Logic Correction 50
6.7 Target Dates 53
6.7.1 Best practices for using Target Dates 53
6.7.2 Target Dates Mapper 54
6.7.3 Activity: Setting a Target Date 55
6.8 Course Catchup 60
6.8.1 Activity: Course 6 – Catchup 60

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6.1 Course Introduction

So far we have populated our project with a list of activities that have estimated durations. The next step is to explore ways to introduce relationships in order to calculate the early and late dates for the entire schedule.



Activity ID	Activity Desc.	Duration	Early Start	Early Finish	Total Float
A	Novak Electrical Substation	25d	04/01/2020	05/05/2020	0
A.1	Project Management	0	04/01/2020	04/01/2020	25d
A.1.11231	Notice To Proceed	0	04/01/2020	04/01/2020	25d
A.1.11240	Site Management	0	04/01/2020	04/01/2020	25d
A.1.11250	Site Security	0	04/01/2020	04/01/2020	25d
A.1.11260	Acquire Permits	0	04/01/2020	04/01/2020	25d
A.1.11270	Site Maintenance and Safety	0	04/01/2020	04/01/2020	25d
A.1.11280	Construction Complete	0	04/01/2020	04/01/2020	25d
A.2	Construction	25d	04/01/2020	05/05/2020	0
A.2.1	Mobilization	25d	04/01/2020	05/05/2020	0
A.2.1.11410	Move on Heavy Equipment	25d	04/01/2020	05/05/2020	0
A.2.1.11420	Perform Clearing and Grubbing for Parking and Traile	18d	04/01/2020	04/24/2020	7d
A.2.1.11430	Grade Site Parking and Trailer Area	6d	04/01/2020	04/08/2020	19d
A.2.1.11440	Acquire on-site Trailers	24d	04/01/2020	05/04/2020	1d

6.1.1 In this Course

- What is Critical Path
- Activity relationships explained
- Adding relationships to activities
- Performing Time Analysis
- Target Dates (a.k.a. Constraints) explained
- Best practices for using Target Dates
- Setting a Target Date

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6.2 What is Critical Path?

Having a critical path through your project schedule should be the goal of all schedulers. The critical path is the most direct path between the first and last activity in the network. They are the activities that have no Total Float – meaning they cannot slip without immediately impacting the scheduled finish date.

Having a full and complete critical path is essential, not to mention it's an industry best practice. Here are just some of the reasons for this:

- A full critical path is an important tool for analyzing the most likely finish date for the project.
- Management will be making recommendations and decisions based on the most sensitive elements of the schedule: i.e., those activities that can least afford to slip.
- The absence of a complete critical path can be indicative of missing relationships, or misuse of target constraint dates.
- Risk analysis and resource management may not yield useful results when the critical path is fragmented.
- Your customers will judge the realism of your schedule based on the quality of the critical path. They want to know that your delivery dates are realistic and based upon Schedule logic, not on arbitrary target dates. Target dates allow you to place activities on dates that cannot otherwise be achieve through true activity dependencies.
- Without a full critical path, management will not have accurate data upon which to base change requests or time/cost mitigation strategies.

Terminology:

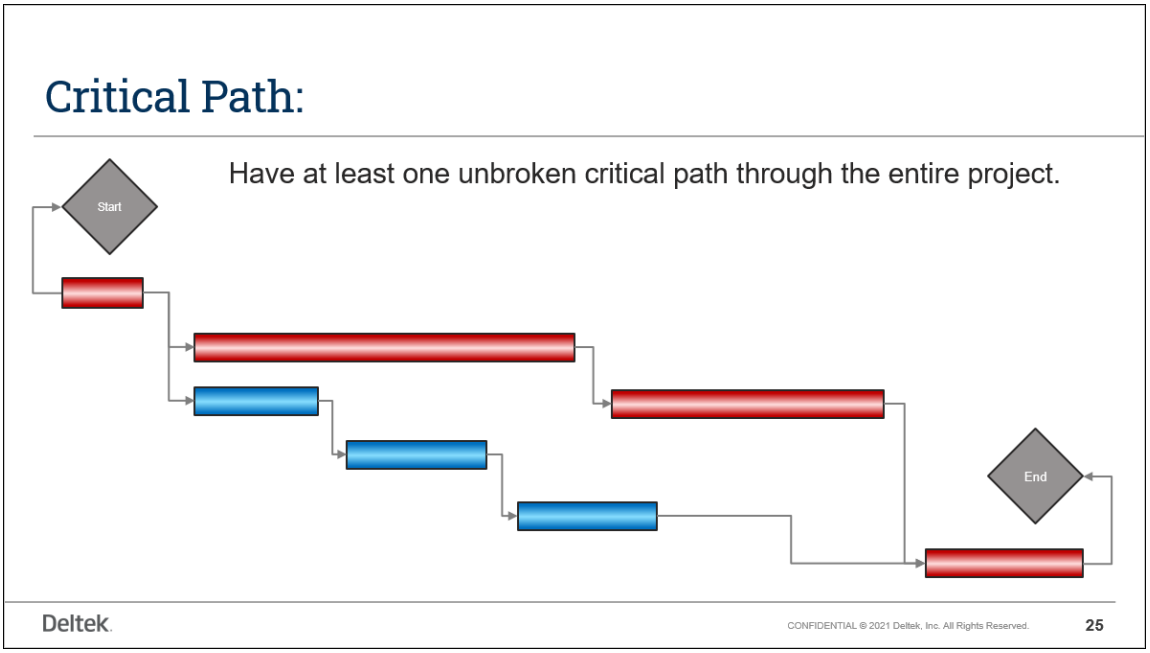
Sometimes, you may hear 'critical path' being referred to as 'the longest path'. Technically this is incorrect. A critical path is a path calculated on activities with zero – or less – total float.

The Longest Path is defined as the most direct path from start to finish that has the longest overall duration. This can differ from a true 'critical path' depending on what method is being used by the particular scheduling tool. While some tools have the option to calculate either critical or longest path, Open Plan always calculates for Critical Path.

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The following graphic gives a simple example of what a full and complete critical path is.



The **red** activities are critical, that is to say they have zero Total Float; their early and late dates are the same. Total Float is the number days' difference between the early and late dates calculated for the activity.

The **blue** activities are non-critical, meaning they have greater than zero days Total Float and can slip by that measure before affecting the end date of the project.

Free Float is also calculated during time analysis. This is the number of days be which an activity can slip before it impacts a successor. That successor may, or may not, be on the critical path.

Negative Float is potentially an early warning of not-so-good things to come. It means that an activity has run past a hard constraint, somewhere down the chain. Negative Float is calculated when the late dates are now earlier than the early dates. If that hard constraint is a contractual delivery date, or perhaps a payment milestone, then negative float has likely tipped you off early enough to mitigate the impact. It tends to ripple back through the network, so to find the culprit, trace the path forward to the last activity that has negative float. You'll likely find this activity is hosting the hard constraint.

More about constraints later in this lesson.

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6.3 Relationships Overview

Open Plan supports all four of the standard relationship types.

Finish to Start (FS) – (Most commonly used) successor cannot start until the predecessor is finished.

Start to Start (SS) – Successor cannot start until the predecessor starts.

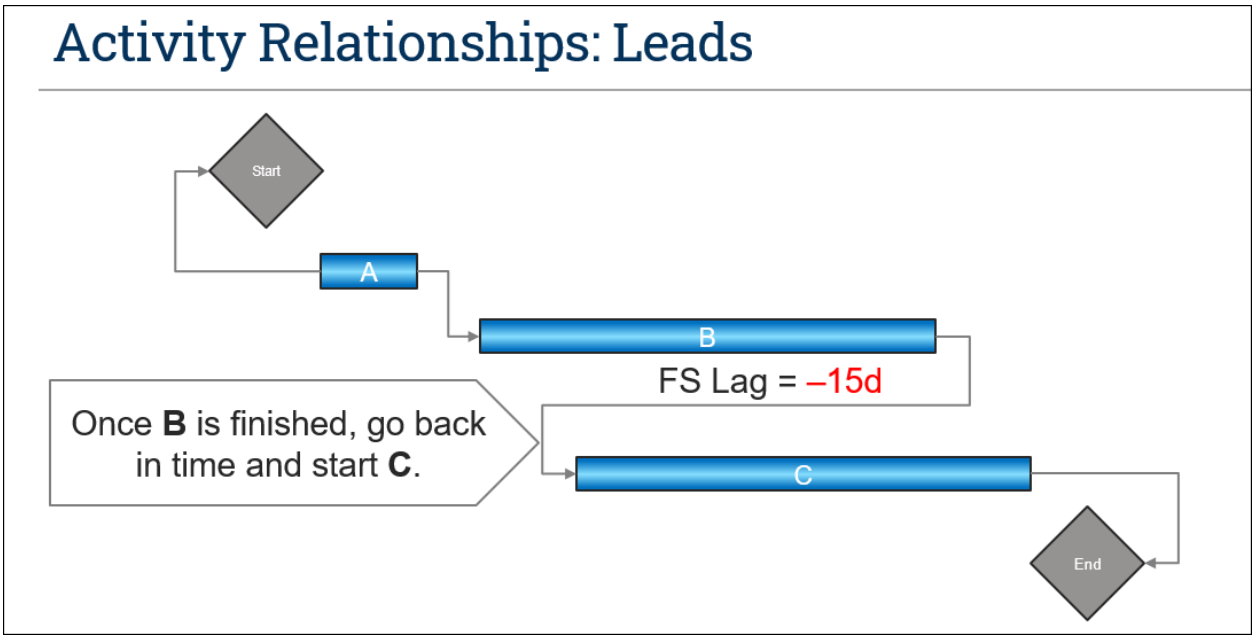
Start to Finish (SF) – (Not recommended) Successor cannot finish until its predecessor starts.

Finish to Finish (FF) – Successor cannot finish until the predecessor has finished.

Other elements concerning relationships:

Lag – introduces a duration onto the relationship, effectively delaying the start of the successor until after the lag time has expired. Best Practice: use sparingly or preferably use buffer activities to create the necessary lag. This is more visible to the schedule analyst, and therefore has become increasingly requested in contracts.

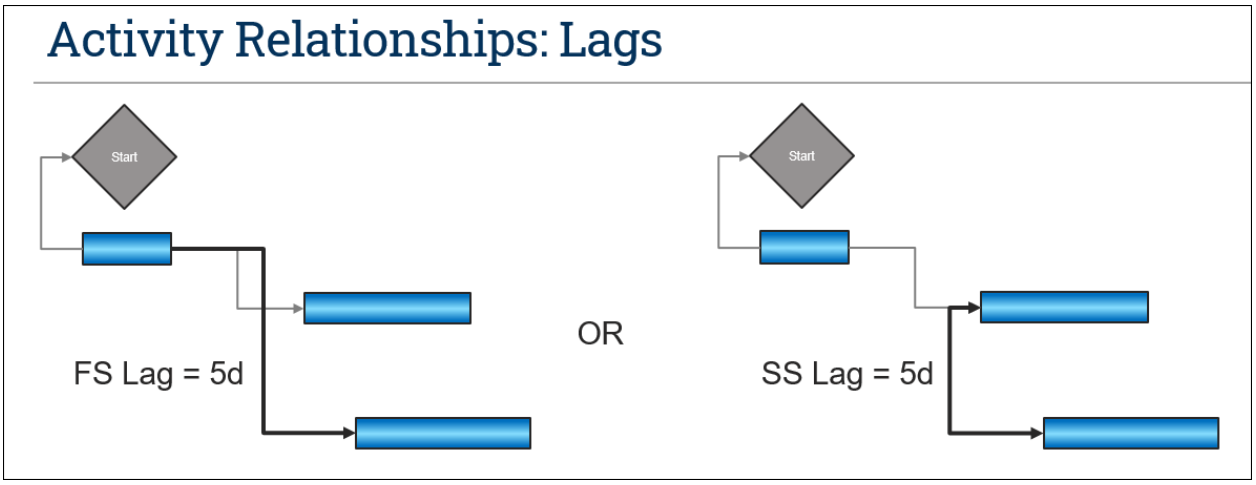
Negative Lag (a.k.a Lead) – caused by the entry of a negative number in the lag field. Typically used to perform overlapping activities to model simultaneously occurring work. This is not recommended.



Best Practice – avoid use of negative lags to offset start date. Rather, use Start to Start relationships with a positive lag to create the offset.

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The above options are preferred by most customers over the use of negative lags. This scenario is often reflected in contract language.

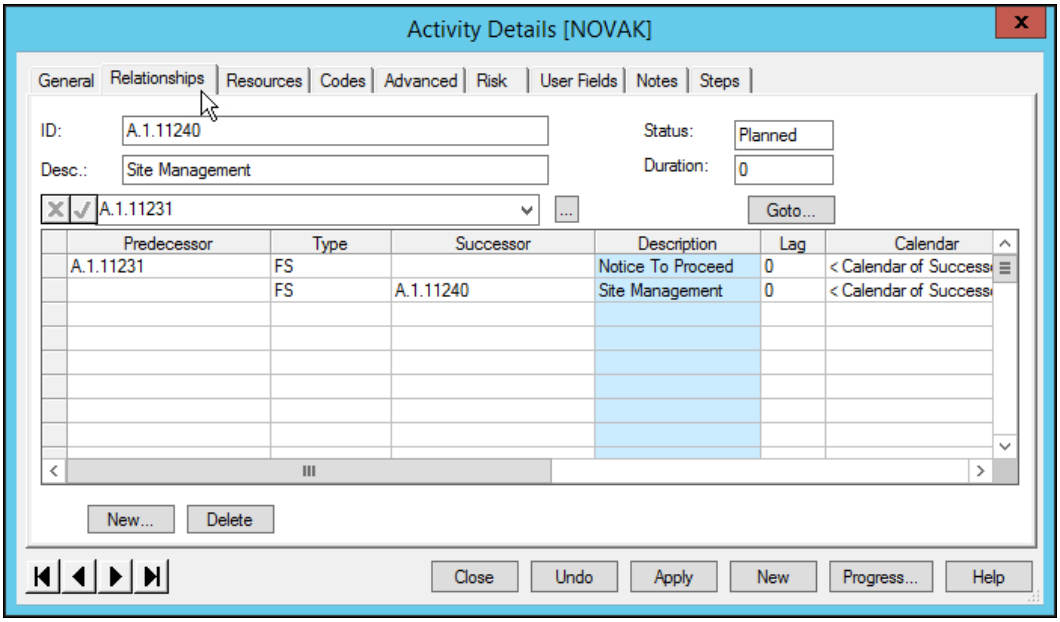
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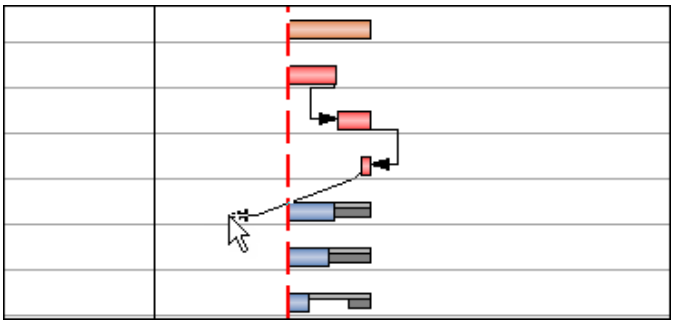
6.4 Entering Relationships in Open Plan

There are three methods for entering relationships between activities in Open Plan.

The first, and most commonly used, is the Relationships tab of the Activity Details dialog.

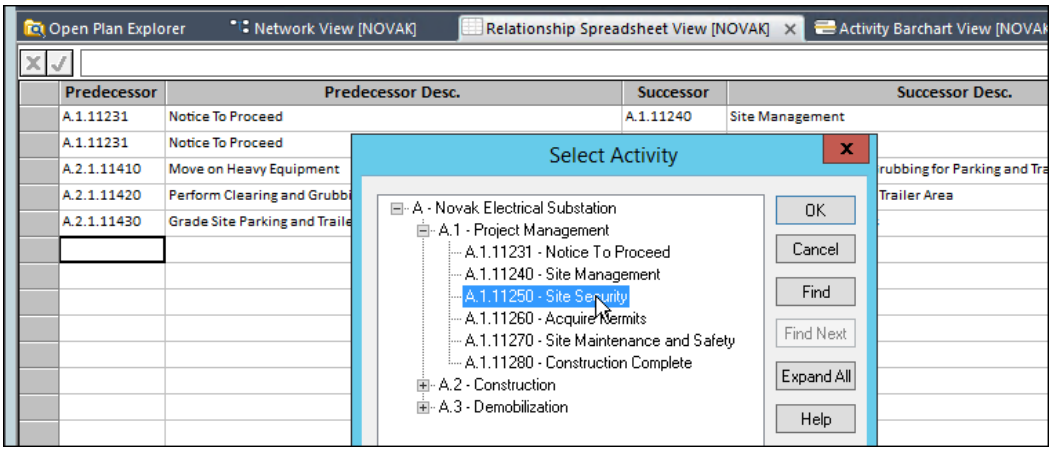


The next method is to use drag-n-drop techniques in the Gantt chart area.

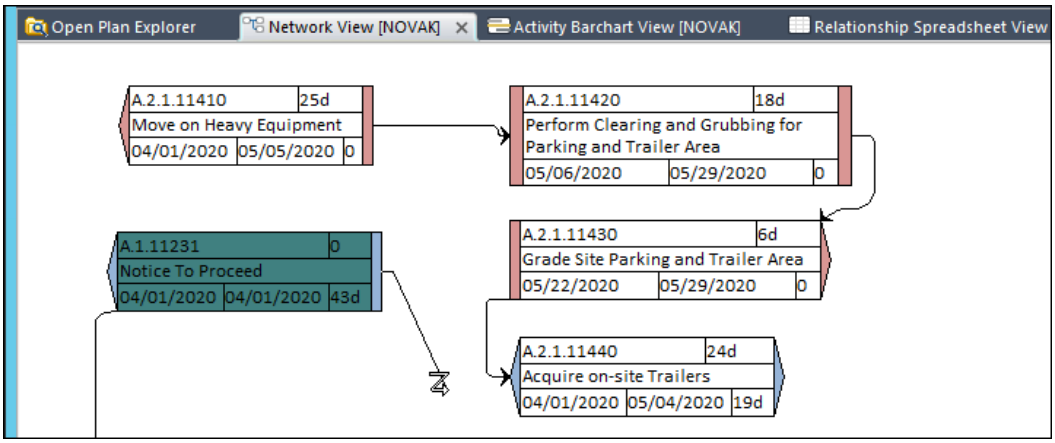


Another is to use the Relationship Spreadsheet View. This can also be helpful if you have relationship data you can paste from a spreadsheet.

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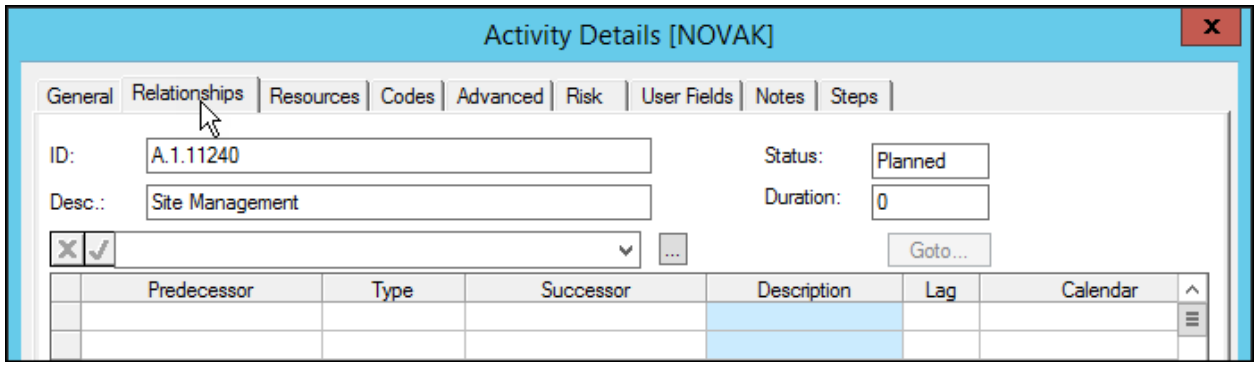
And if you prefer a more graphical approach, you may like to use one of the Network Views which also support drag-n-drop methods for creating relationships.



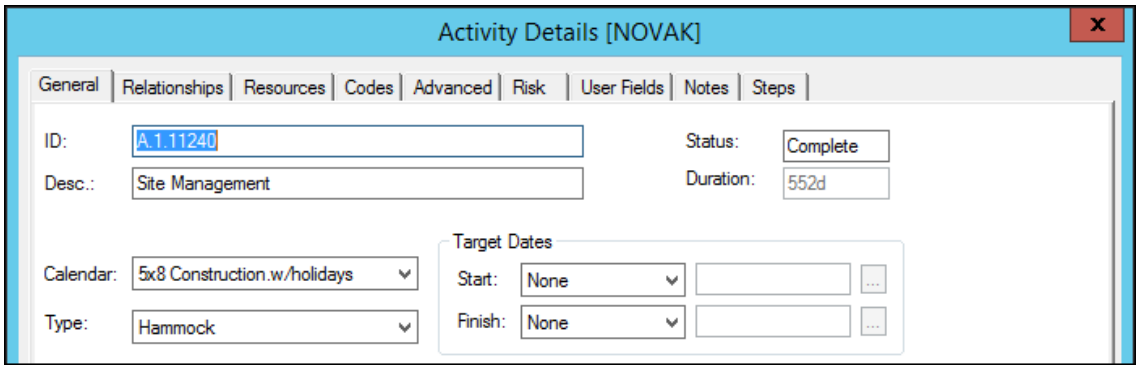
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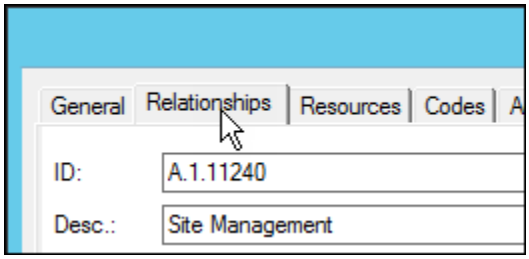
6.4.1 Activity: Relationship Entry using the Activity Details Dialog



1. Double-click anywhere on the **A.1.11240 – Site Management** activity to open the **Activity Details** dialog.



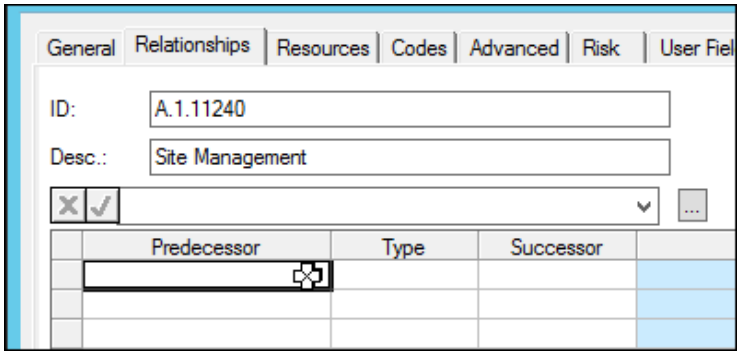
2. Click on the **Relationships** tab.



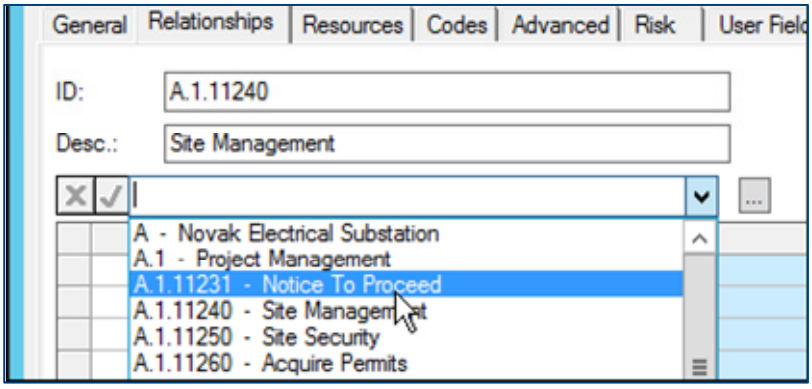
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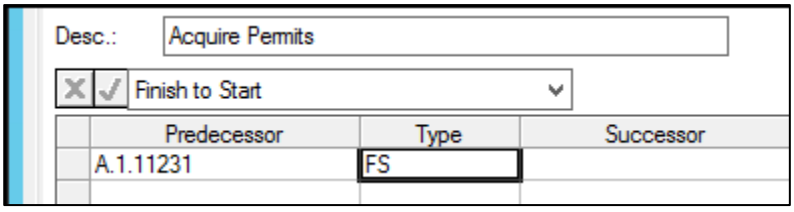
3. Select the **Predecessor** cell on the first row.



4. In the **Entry** field above, click the dropdown and choose **A.1.11231 – Notice To Proceed**.



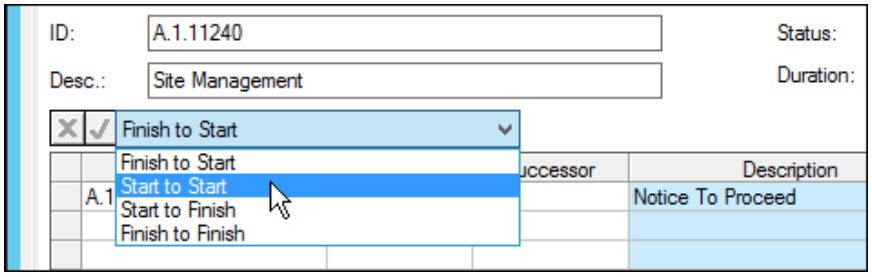
5. Click in the **Type** field.



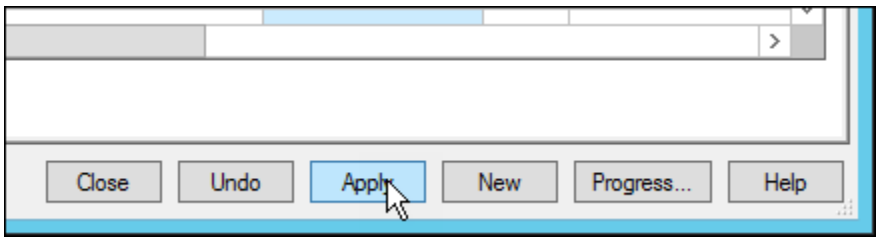
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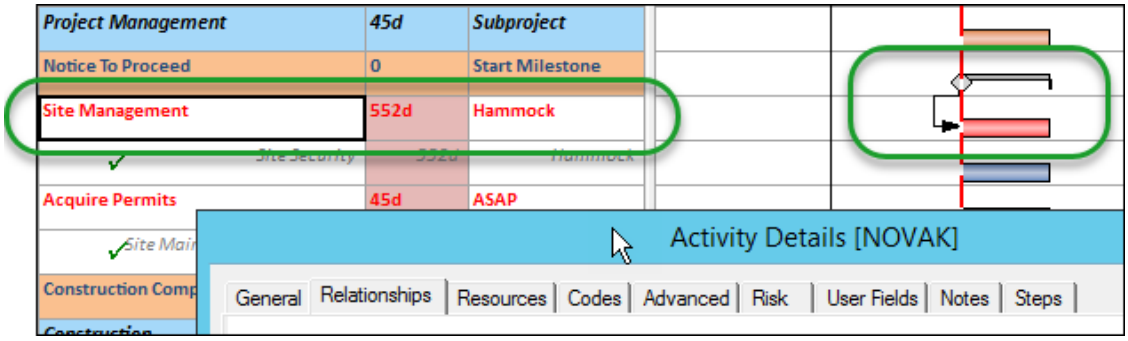
6. Use the dropdown to select **Start to Start**.



7. Click **Apply**.

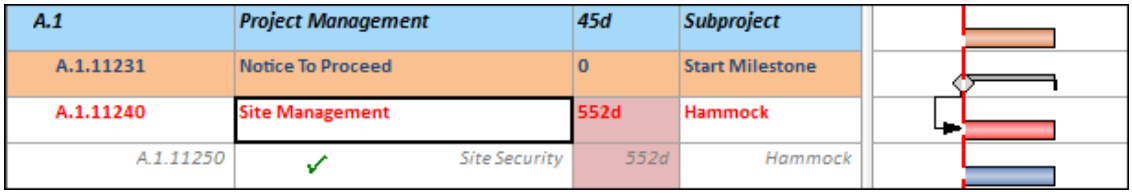


8. Move the dialog to see the results in the **Gantt** chart.



Note how the relationship can be seen on the Gantt chart.

And also note in the Computed Status column, that now the Hammock activity has a predecessor with a status of planned, it has assumed that same status.

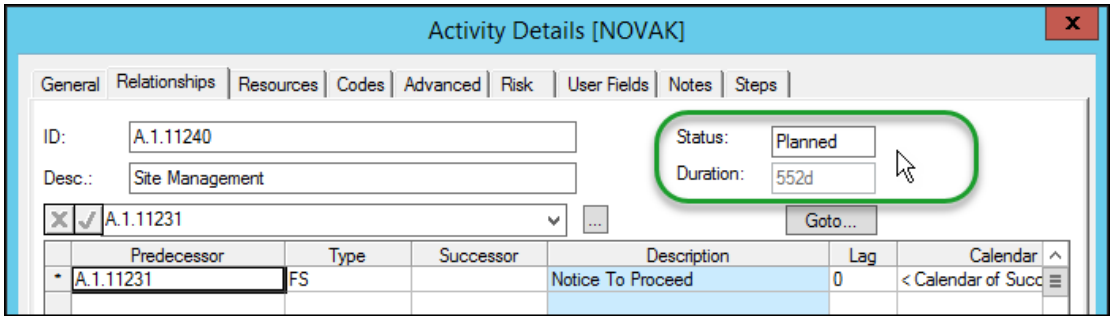


The green checkmark that was generated by the **Conditional Formatting** has been removed.

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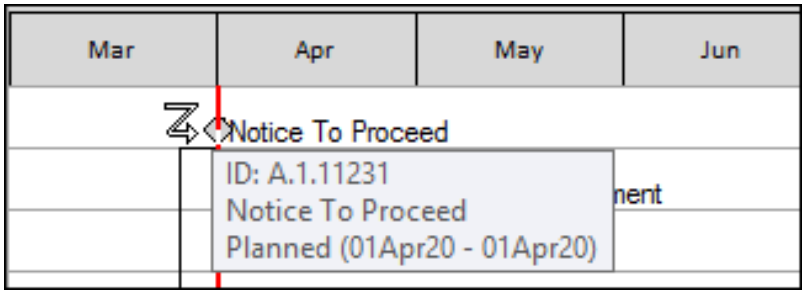
In the **Activity Details** dialog, you can see the planned **Status**.



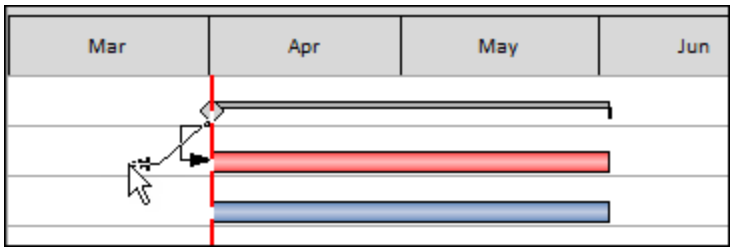
Let's look at using the **Gantt** chart to create relationships with other activities.

9. Close the **Activity Details** dialog.

10. On the **Gantt** chart, bring your cursor to just at the start of the **Notice To Proceed** milestone.



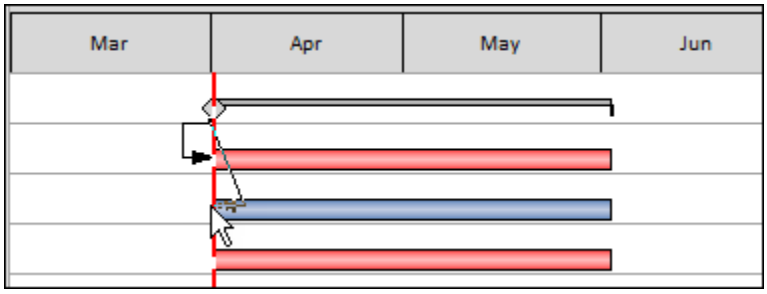
11. When you see a '**Z**' arrow appear, click and drag the cursor towards the **Site Security** hammock activity.



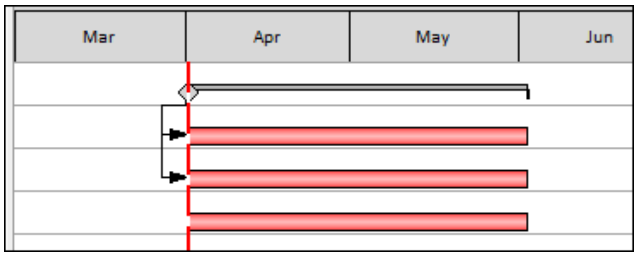
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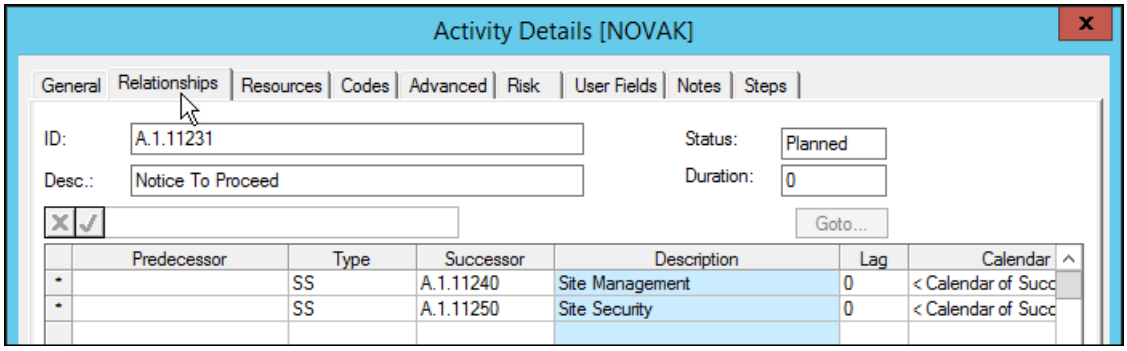
12. Move over to the start of the **Site Management** activity, and let go the mouse.



13. You now have a **Start To Start** relationship with **Site Management**.



14. To verify this, double-click on the **Notice To Proceed** activity row and go to the **Relationships** tab, in the **Activity Details** dialog.

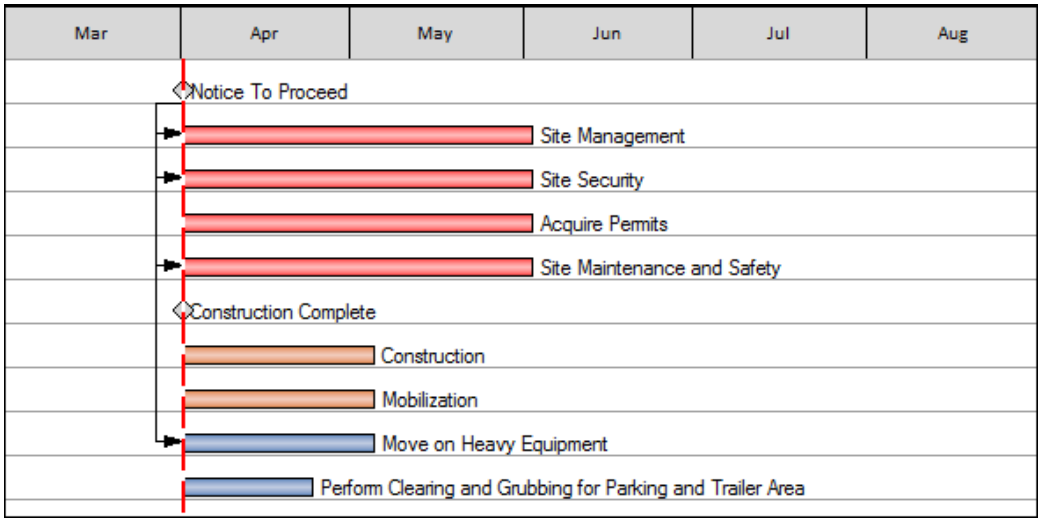


Note the **SS** relationship between **Notice to Proceed**, and **Site Management**.

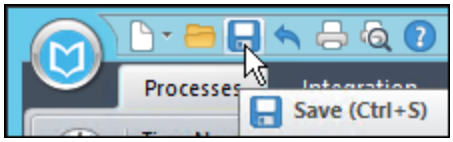
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15. Using the same method, create a **Start To Start** relationship between:

Predecessor	Successor	Type
Notice To Proceed	Site Maintenance and Safety	Start To Start
Notice To Proceed	Move on Heavy Equipment	Start To Start

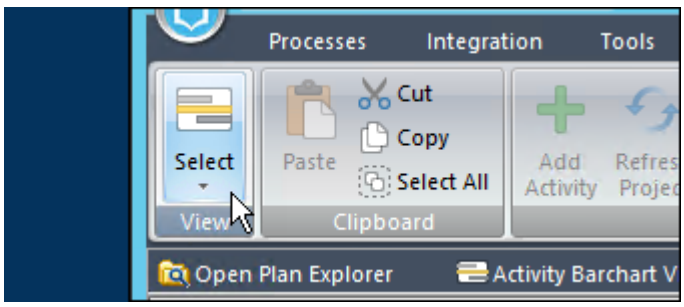


16. Click **Save**.



6.4.2 Activity: Using the Relationship Spreadsheet View

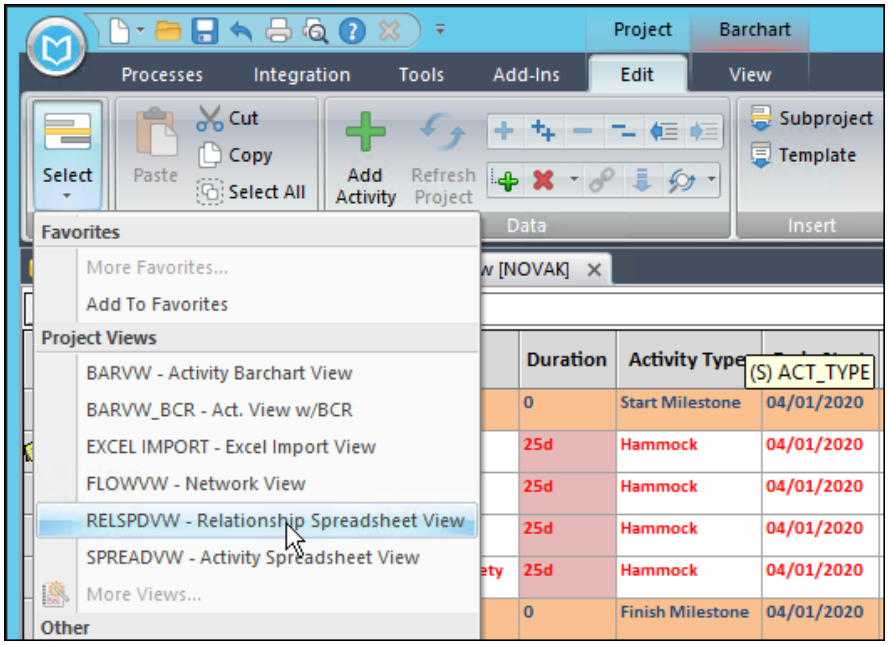
1. Click on the **View | Select** button in the **Edit** ribbon.



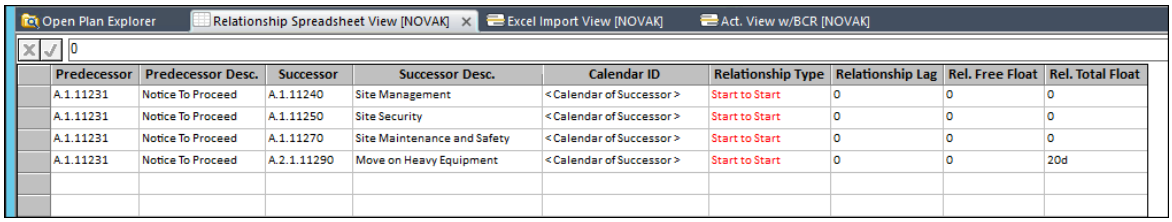
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2. Select the **RELSPDVW – Relationship Spreadsheet View** from the list. If it's not in the list, click on **Other Views…** and select it from there.



3. In the **Relationships Spreadsheet View** you can see how the database stores the underlying data elements.



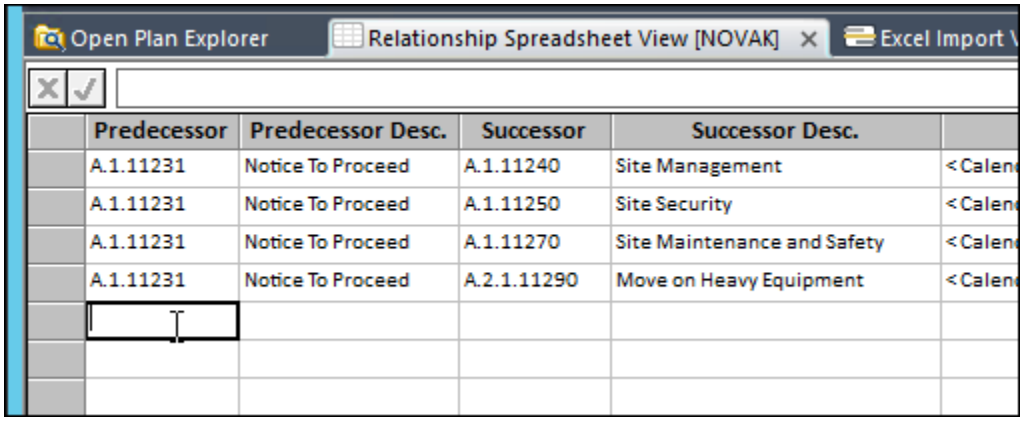
Predecessor	Predecessor Desc.	Successor	Successor Desc.	Calendar ID	Relationship Type	Relationship Lag	Rel. Free Float	Rel. Total Float
A.1.11231	Notice To Proceed	A.1.11240	Site Management	<Calendar of Successor>	Start to Start	0	0	0
A.1.11231	Notice To Proceed	A.1.11250	Site Security	<Calendar of Successor>	Start to Start	0	0	0
A.1.11231	Notice To Proceed	A.1.11270	Site Maintenance and Safety	<Calendar of Successor>	Start to Start	0	0	0
A.1.11231	Notice To Proceed	A.2.1.11290	Move on Heavy Equipment	<Calendar of Successor>	Start to Start	0	0	20d

The Relationship Spreadsheet is an interactive spreadsheet. You can enter relationships in here, or copy and paste from a spreadsheet, Microsoft Project, or another Open Plan project.

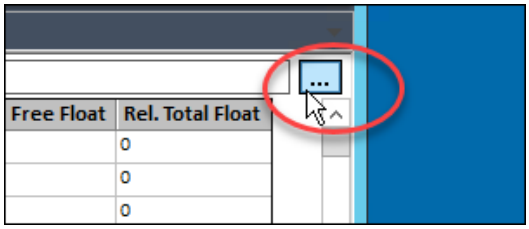
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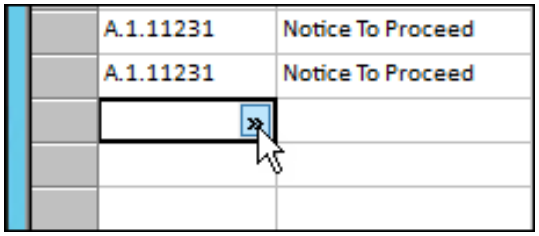
4. In the first free row, select the **Predecessor** cell.



5. In the top-right of the table, click the **Ellipsis** button.



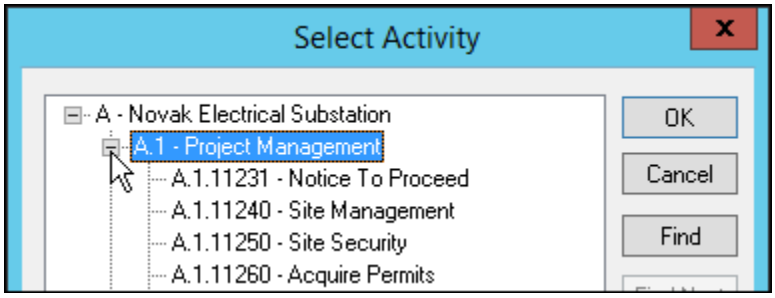
6. For Open Plan 8.6 or later, click in the **Predecessor** cell and use the '**>>**' button.



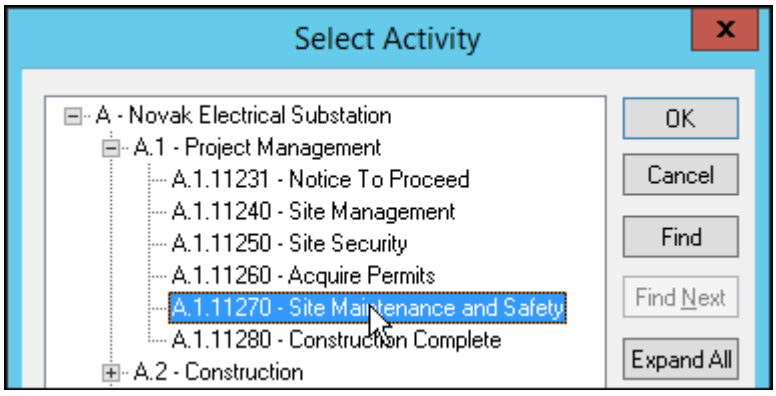
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7. In the **Select Activity** dialog, expand **A**, then **A1 - Project Management**.

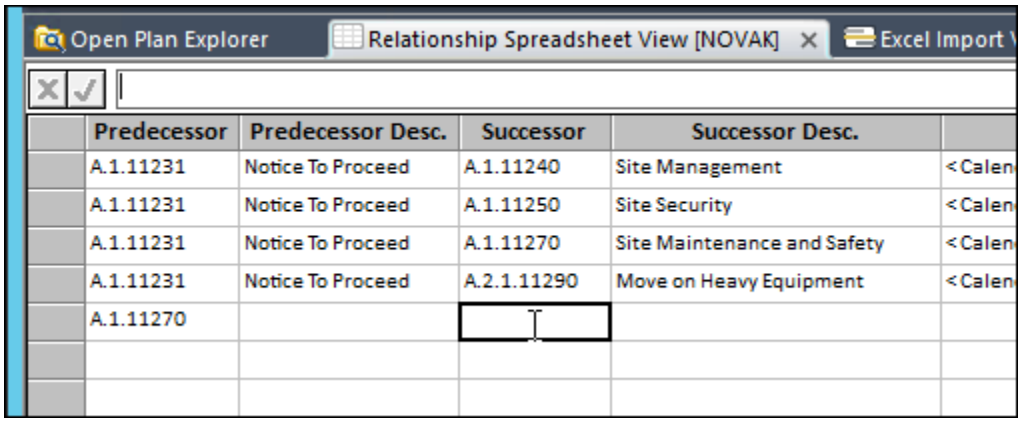


8. Now select the **A.1.11270 – Site Maintenance and Safety** activity.



9. Click **OK**.

10. Click the **Adjacent Successor** cell (Column 3).

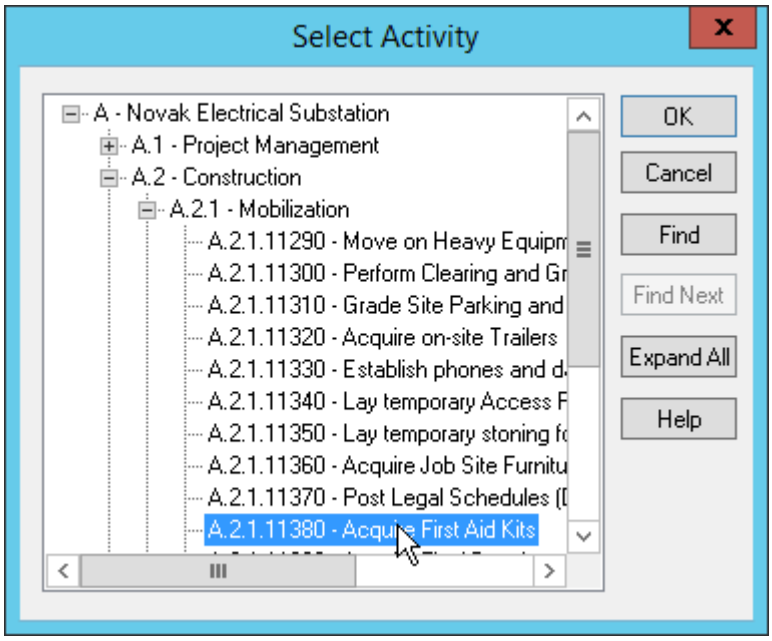


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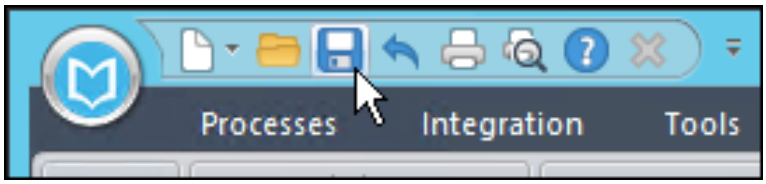
11. Click the **Ellipse**.

12. Now select the **A.1.11270 – Acquire First Aid Kits**, below the **Construction/Mobilization** headings.



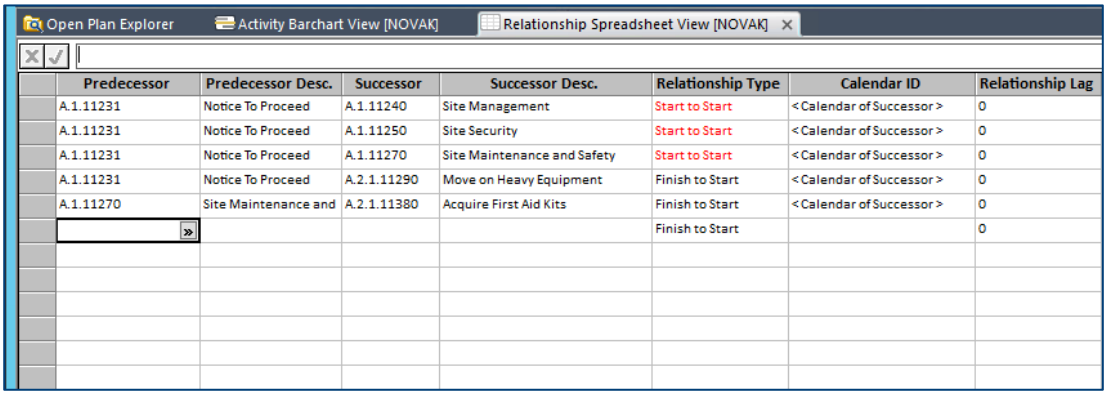
13. Click **OK**.

14. Click **Save**.



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15. Upon clicking the **Save** button you will see the activity descriptions and other field defaults appear in the spreadsheet view.

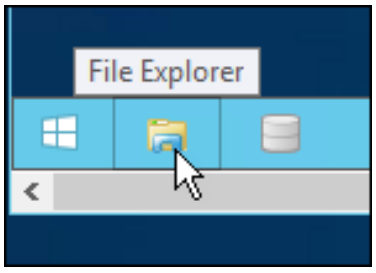


Predecessor	Predecessor Desc.	Successor	Successor Desc.	Relationship Type	Calendar ID	Relationship Lag
A.1.11231	Notice To Proceed	A.1.11240	Site Management	Start to Start	<Calendar of Successor>	0
A.1.11231	Notice To Proceed	A.1.11250	Site Security	Start to Start	<Calendar of Successor>	0
A.1.11231	Notice To Proceed	A.1.11270	Site Maintenance and Safety	Start to Start	<Calendar of Successor>	0
A.1.11231	Notice To Proceed	A.2.1.11290	Move on Heavy Equipment	Finish to Start	<Calendar of Successor>	0
A.1.11270	Site Maintenance and	A.2.1.11380	Acquire First Aid Kits	Finish to Start	<Calendar of Successor>	0
				Finish to Start		0

6.4.3 Activity: Entering Relationships from an Excel Spreadsheet

The first step is to open the OPP_NOVAK_RELATIONSHIPS.xlsx file. Once that's in place, you will need to make a couple of minor adjustments to the field order in the Relationship Spreadsheet View. Finally, you will be ready to copy/paste the relationships from the spreadsheet.

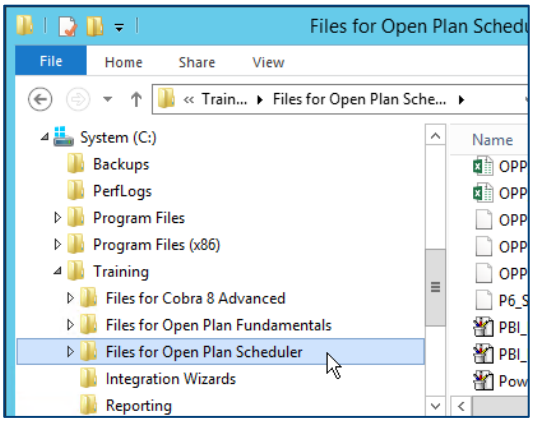
1. If it's not currently open, click on the **File Explorer** (bottom-left or your Cloudshare environment).



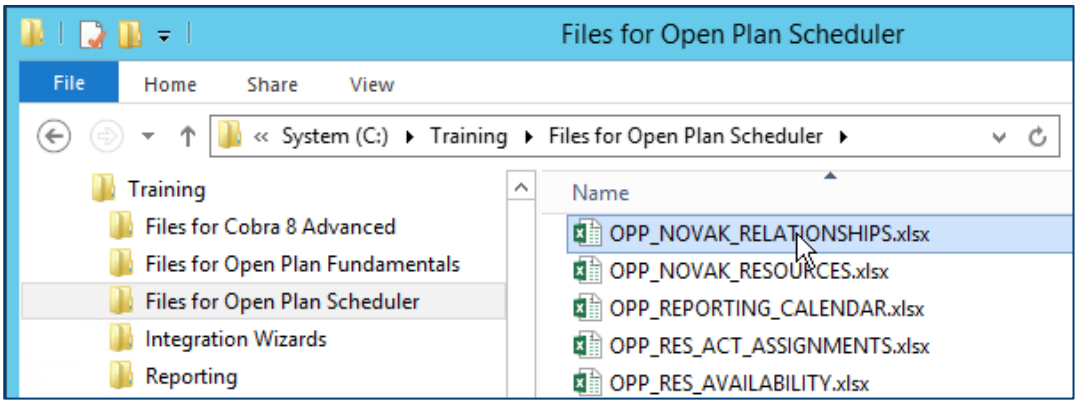
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2. Navigate to the **System (C:) \ Training \ Files for Open Plan Scheduler** folder.



3. Double-click to open the **OPP_NOVAK_RELATIONSHIPS.xlsx** spreadsheet file.



4. In the **Excel** spreadsheet, note the order of the **Headers**.

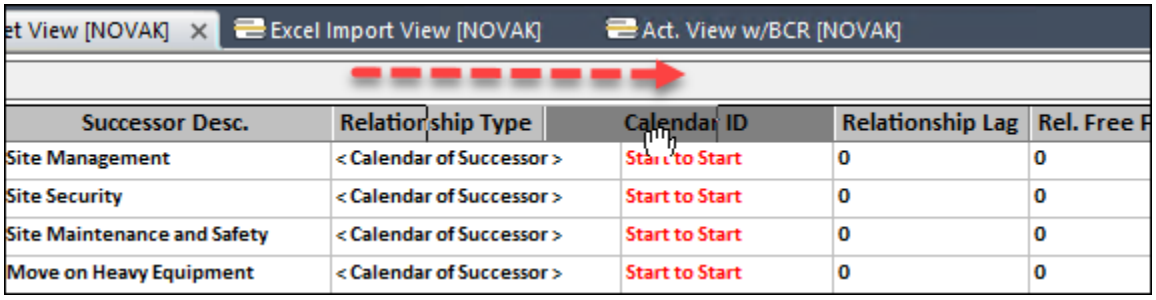
	A	B	C	D	E
1	**Predecessor**	**Predecessor Desc.**	**Successor**	**Successor Desc.**	**Rel. Type**
2	A.1.11231	Notice To Proceed	A.1.11240	Site Management	Finish to Start
3	A.1.11231	Notice To Proceed	A.1.11240	Site Management	Start to Start
4	A.1.11231	Notice To Proceed	A.1.11250	Site Security	Start to Start
5	A.1.11231	Notice To Proceed	A.1.11270	Site Maintenance and Safety	Start to Start
6	A.1.11270	Site Maintenance and Safety	A.2.1.11380	Acquire First Aid Kits	Start to Start
7	A.1.11280	Construction Complete	A.1.11240	Site Management	Finish to Finish
8	A.1.11280	Construction Complete	A.1.11250	Site Security	Finish to Finish
9	A.1.11280	Construction Complete	A.1.11270	Site Maintenance and Safety	Finish to Finish
10	A.2.1.11290	Move on Heavy Equipment	A.2.1.11300	Perform Clearing and Grubbing for	Finish to Start

5. Now click back to **Open Plan**.

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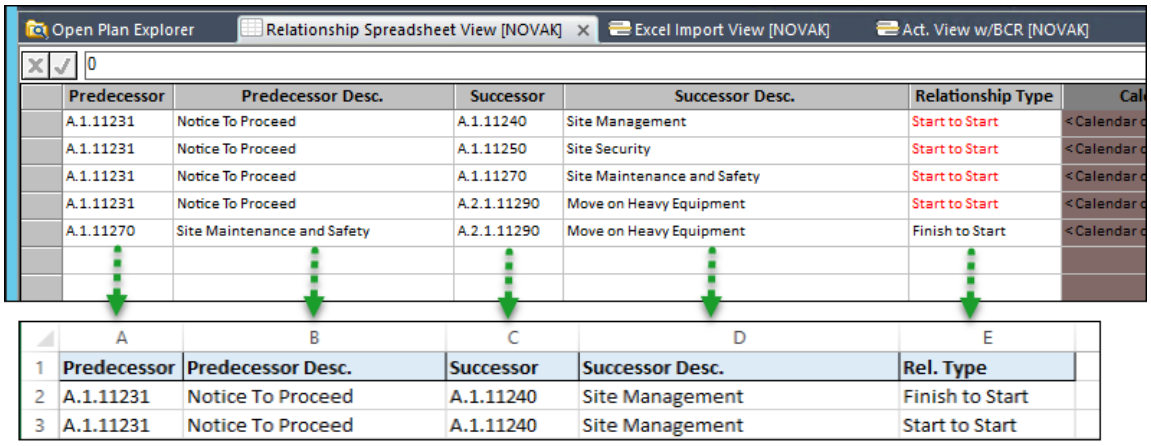
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6. In the **Relationships Spreadsheet View**, click the **Calendar ID** column header, and drag this to the right by one column.



Successor Desc.	Relationship Type	Calendar ID	Relationship Lag	Rel. Free F
Site Management	< Calendar of Successor >	Start to Start	0	0
Site Security	< Calendar of Successor >	Start to Start	0	0
Site Maintenance and Safety	< Calendar of Successor >	Start to Start	0	0
Move on Heavy Equipment	< Calendar of Successor >	Start to Start	0	0

7. Verify that the new order of headers exactly matches those in the **Excel** spreadsheet.



Predecessor	Predecessor Desc.	Successor	Successor Desc.	Relationship Type	Cal
A.1.11231	Notice To Proceed	A.1.11240	Site Management	Start to Start	<Calendar o
A.1.11231	Notice To Proceed	A.1.11250	Site Security	Start to Start	<Calendar o
A.1.11231	Notice To Proceed	A.1.11270	Site Maintenance and Safety	Start to Start	<Calendar o
A.1.11231	Notice To Proceed	A.2.1.11290	Move on Heavy Equipment	Start to Start	<Calendar o
A.1.11270	Site Maintenance and Safety	A.2.1.11290	Move on Heavy Equipment	Finish to Start	<Calendar o

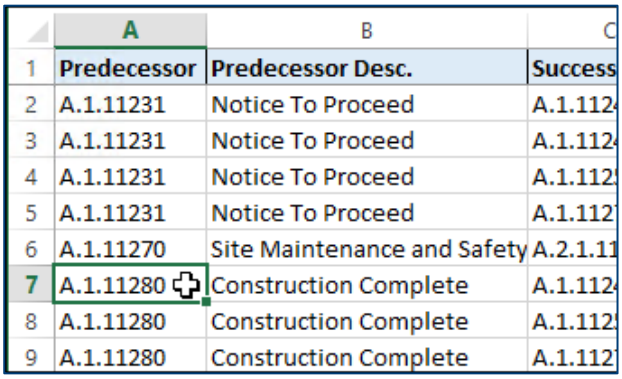
	A	B	C	D	E
1	Predecessor	Predecessor Desc.	Successor	Successor Desc.	Rel. Type
2	A.1.11231	Notice To Proceed	A.1.11240	Site Management	Finish to Start
3	A.1.11231	Notice To Proceed	A.1.11240	Site Management	Start to Start

Note: additional headers beyond those matching the spreadsheet will be fine. Just make sure the columns you have in the spreadsheet view match the order of those in Excel.

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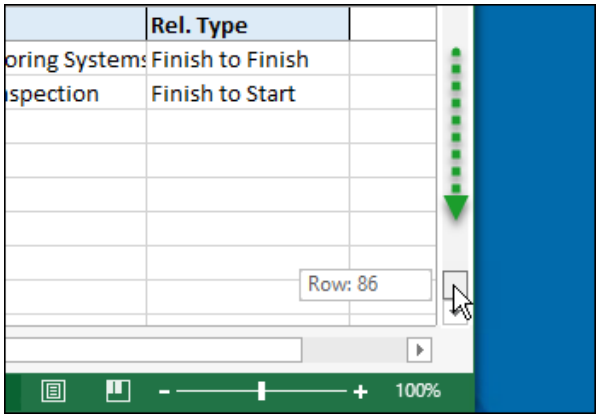
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8. In the **Excel** spreadsheet, click on the **A7** to select the cell.

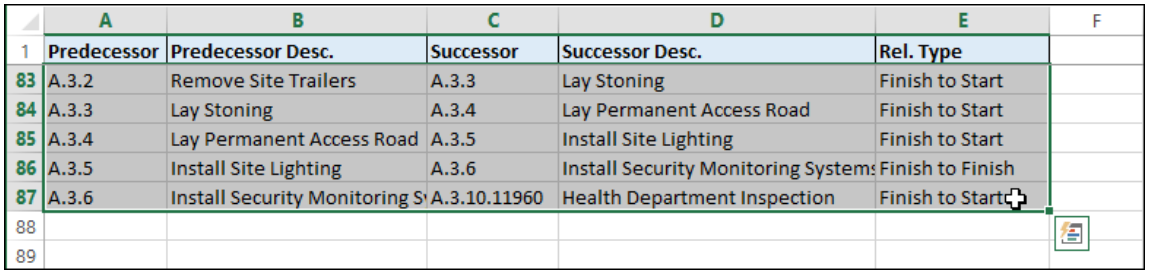


	A	B	C
1	Predecessor	Predecessor Desc.	Success
2	A.1.11231	Notice To Proceed	A.1.112
3	A.1.11231	Notice To Proceed	A.1.112
4	A.1.11231	Notice To Proceed	A.1.112
5	A.1.11231	Notice To Proceed	A.1.112
6	A.1.11270	Site Maintenance and Safety	A.2.1.11
7	A.1.11280	Construction Complete	A.1.112
8	A.1.11280	Construction Complete	A.1.112
9	A.1.11280	Construction Complete	A.1.112

9. Scroll to the bottom of the spreadsheet.



10. Hold down the **Shift Key**, and click on cell **E87**.

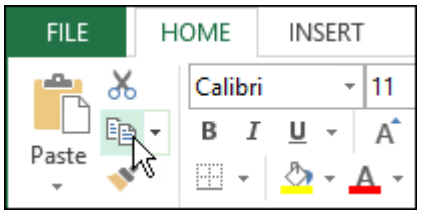


	A	B	C	D	E	F
1	Predecessor	Predecessor Desc.	Successor	Successor Desc.	Rel. Type	
83	A.3.2	Remove Site Trailers	A.3.3	Lay Stoning	Finish to Start	
84	A.3.3	Lay Stoning	A.3.4	Lay Permanent Access Road	Finish to Start	
85	A.3.4	Lay Permanent Access Road	A.3.5	Install Site Lighting	Finish to Start	
86	A.3.5	Install Site Lighting	A.3.6	Install Security Monitoring System	Finish to Finish	
87	A.3.6	Install Security Monitoring S	A.3.10.11960	Health Department Inspection	Finish to Start	
88						
89						

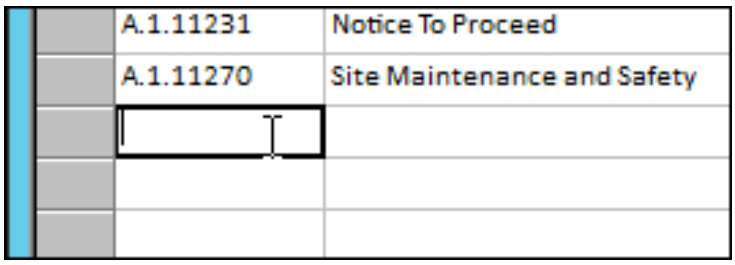
11. Click the **Copy** button in the **Home** ribbon.

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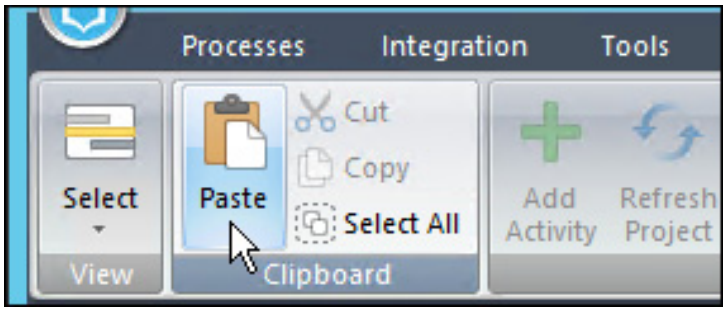
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12. Click the next free **Predecessor** cell in **Open Plan**.



13. Click **Paste**.



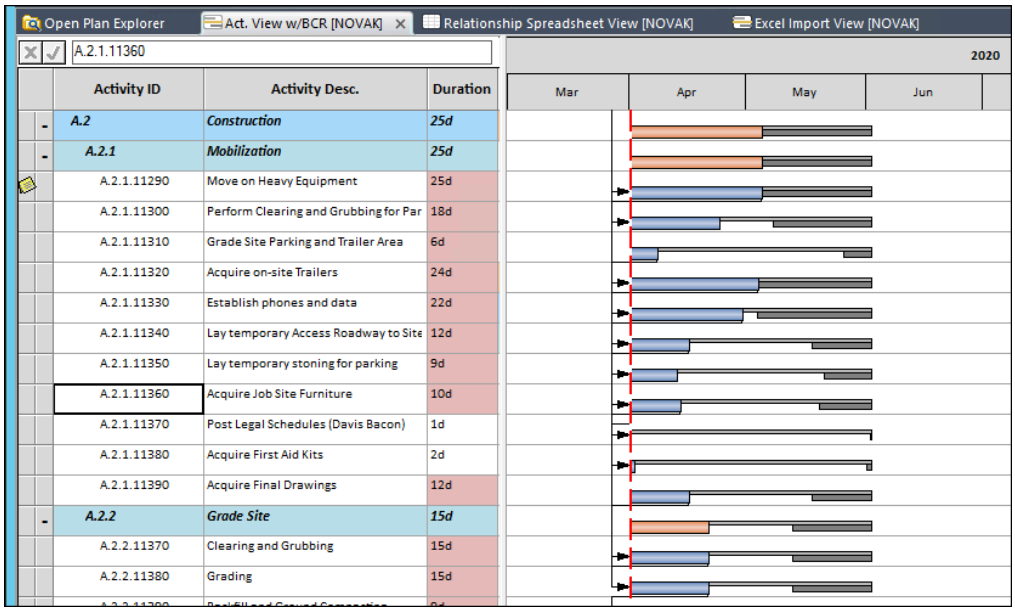
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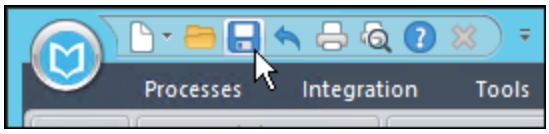
14. The copied records will load into the spreadsheet, completing all the relationship assignments.

Predecessor	Predecessor Desc.	Successor	Successor Desc.	Relationship Type	
A.1.11231	Notice To Proceed	A.1.11240	Site Management	Start to Start	<Calen
A.1.11231	Notice To Proceed	A.1.11250	Site Security	Start to Start	<Calen
A.1.11231	Notice To Proceed	A.1.11270	Site Maintenance and Safety	Start to Start	<Calen
A.1.11231	Notice To Proceed	A.2.1.11290	Move on Heavy Equipment	Start to Start	<Calen
A.1.11270	Site Maintenance and Safety	A.2.1.11290	Move on Heavy Equipment	Finish to Start	<Calen
A.1.11280	Construction Complete	A.1.11240	Site Management	Finish to Finish	<Calen
A.1.11270	Site Maintenance and Safety	A.2.1.11380	Acquire First Aid Kits	Start to Start	<Calen
A.1.11231	Notice To Proceed	A.1.11240	Site Management	Finish to Start	<Calen
A.1.11280	Construction Complete	A.1.11250	Site Security	Finish to Finish	<Calen
A.1.11280	Construction Complete	A.1.11270	Site Maintenance and Safety	Finish to Finish	<Calen
A.2.1.11290	Move on Heavy Equipment	A.2.1.11300	Perform Clearing and Grubbing for Parking and Tra	Finish to Start	<Calen
A.2.1.11310	Grade Site Parking and Trailer Area	A.2.1.11320	Acquire on-site Trailers	Finish to Start	<Calen
A.2.1.11310	Grade Site Parking and Trailer Area	A.2.2.11370	Clearing and Grubbing	Finish to Start	<Calen
A.2.1.11320	Acquire on-site Trailers	A.2.1.11330	Establish phones and data	Finish to Start	<Calen
A.2.1.11320	Acquire on-site Trailers	A.2.1.11360	Acquire Job Site Furniture	Finish to Start	<Calen
A.2.1.11330	Establish phones and data	A.2.1.11340	Lay temporary Access Roadway to Site	Finish to Start	<Calen

15. Click on the **Act. View w/BCR** view, and note the relationship arrows now present in the **Gantt** chart.



16. Click **Save**.



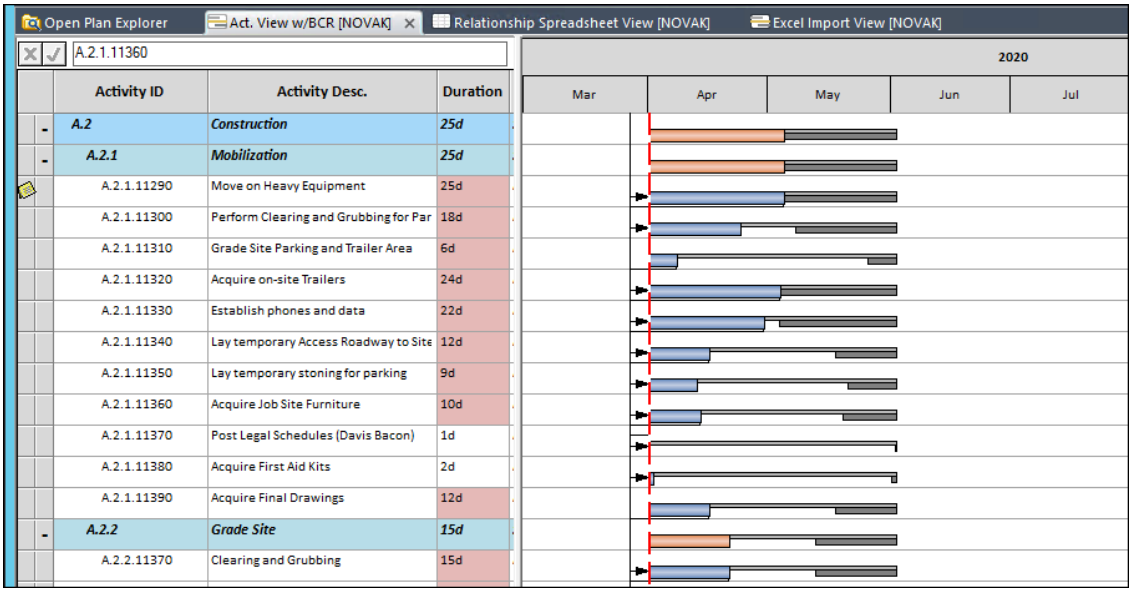
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6.5 Time Analysis

So far we have entered all the relationships for the activities. However, there is one more step. We must run a time analysis in order to calculate the early start, early finish, late start, late finish, and total float values.

As you can see we still have a list of activities, with various durations, and relationships. We don't yet know the dates for these activities based upon these dependencies. It is time to perform our first Time Analysis.



6.5.1 What is Time Analysis?

Based upon the relationships, Open Plan can calculate the earliest dates on which a successor activity can start, based upon its dependency on the completion of a predecessor activity. It does this by performing a forward pass, starting at the first activity in the schedule. Once it gets to the last activity, it then does a backward pass; following the relationships from the last activity, back to the first. These calculations are defined as follows:

Forward Pass: calculates the earliest date an activity can start based upon its relationship to predecessor activities. For example: B cannot start until A is finished.

Backward Pass: calculates the latest dates an activity can finish without affecting its successor's dates.

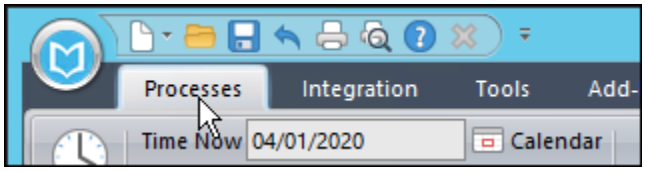
Total Float: Any delta between the early dates and the late dates calculates a Total Float value for the activity. This is typically a positive number unless there are constraints assigned up-stream. If a negative number float is displayed, its likely you are pushing up against some form of constraint (target date) upstream from the activity.

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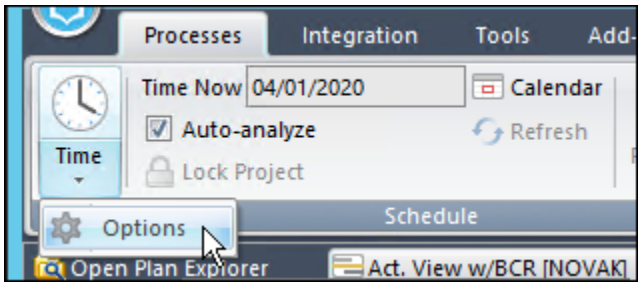
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6.5.2 Activity: Performing a Time Analysis (Forward and Backward Pass)

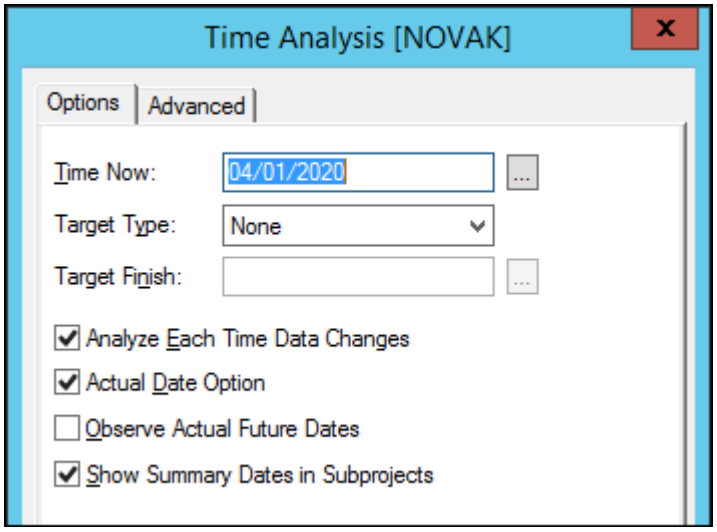
1. Click on the **Processes** tab.



2. Click the bottom half of the **Time** button, and select **Options**.



3. In the **Time Analysis** dialog, verify the following options.

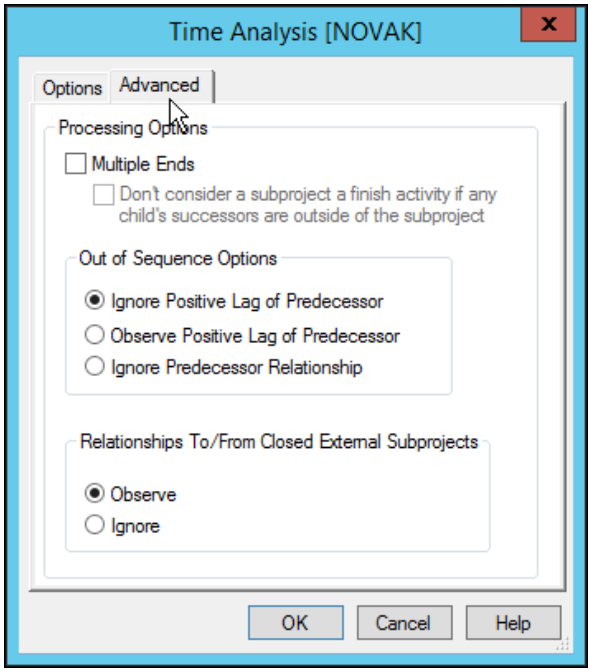


4. Click the **Advanced** tab.

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5. Verify the following options.

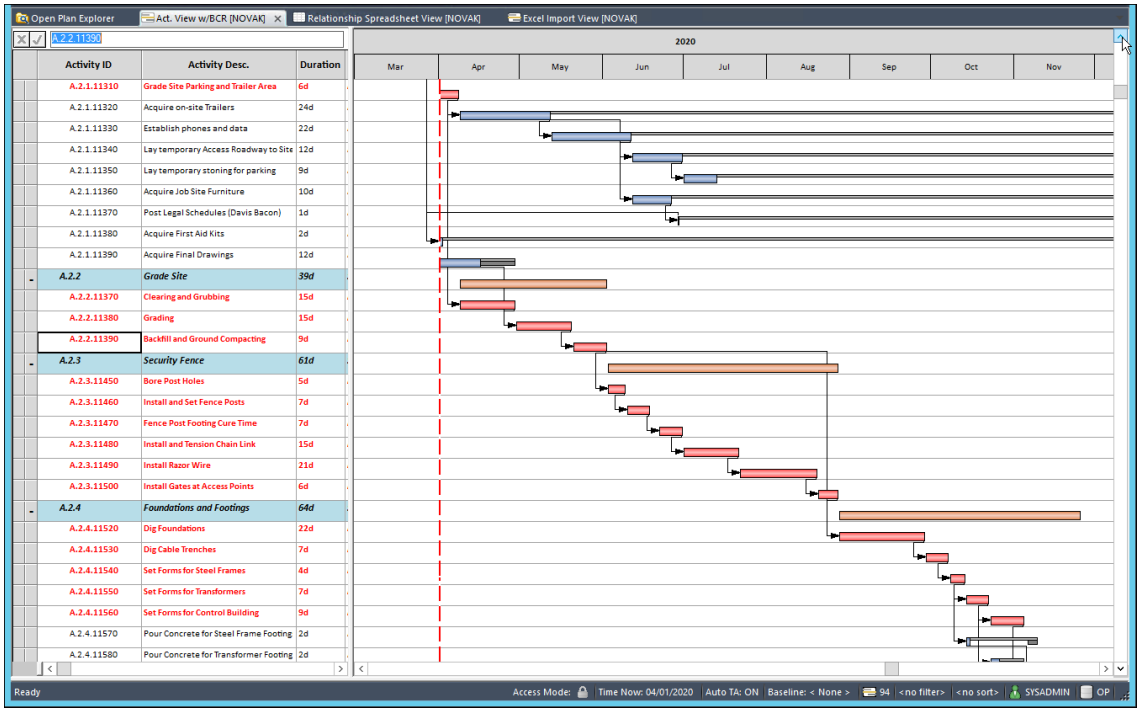


6. Click **OK**.

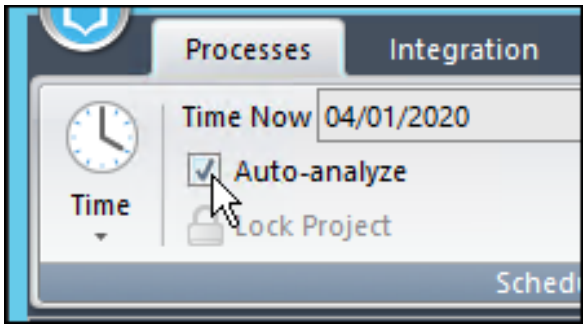
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7. **Time Analysis** will calculate the early and late dates for all the activities in the schedule.



8. If not already checked on the **Processes** tab, click on **Auto-Analyze** to select it.



This will save time over the next few activities as you make changes to the relationships.

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6.6 Reviewing the Schedule

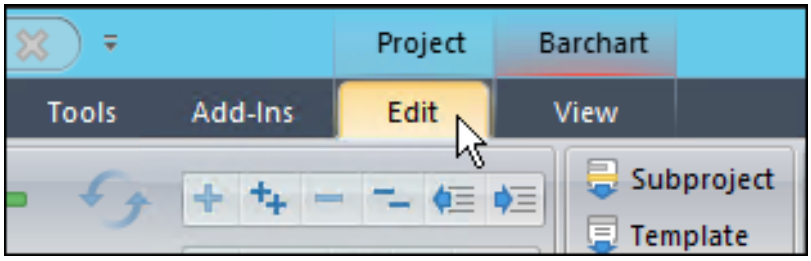
Having performed our first time analysis, we should check the schedule for common issues that go to the overall quality and realism of the schedule.

Each of these next activities are quick and easy ways to determine if there are any issues with the current schedule logic (relationships).

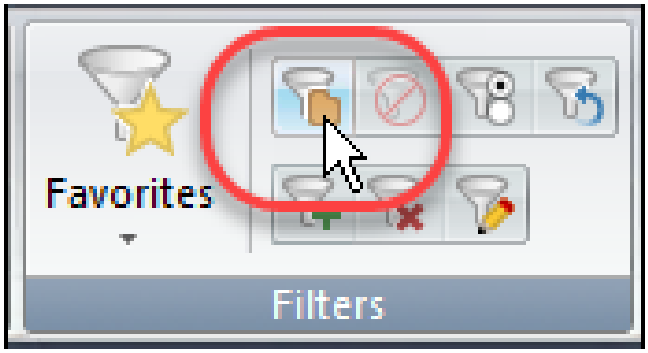
6.6.1 Activity: Verifying a full and complete critical path

A quick way to check for a full and complete critical path is to use a filter.

1. Click on the **Edit** tab.

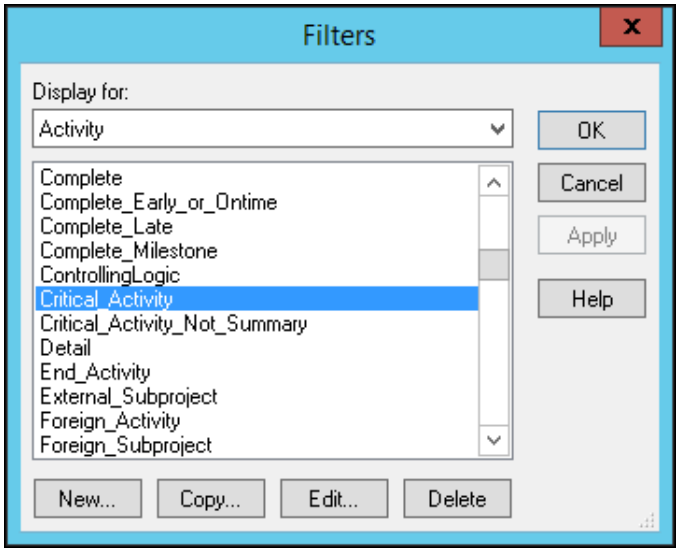


2. In the **Filters** tool group, click the **Filters** button.



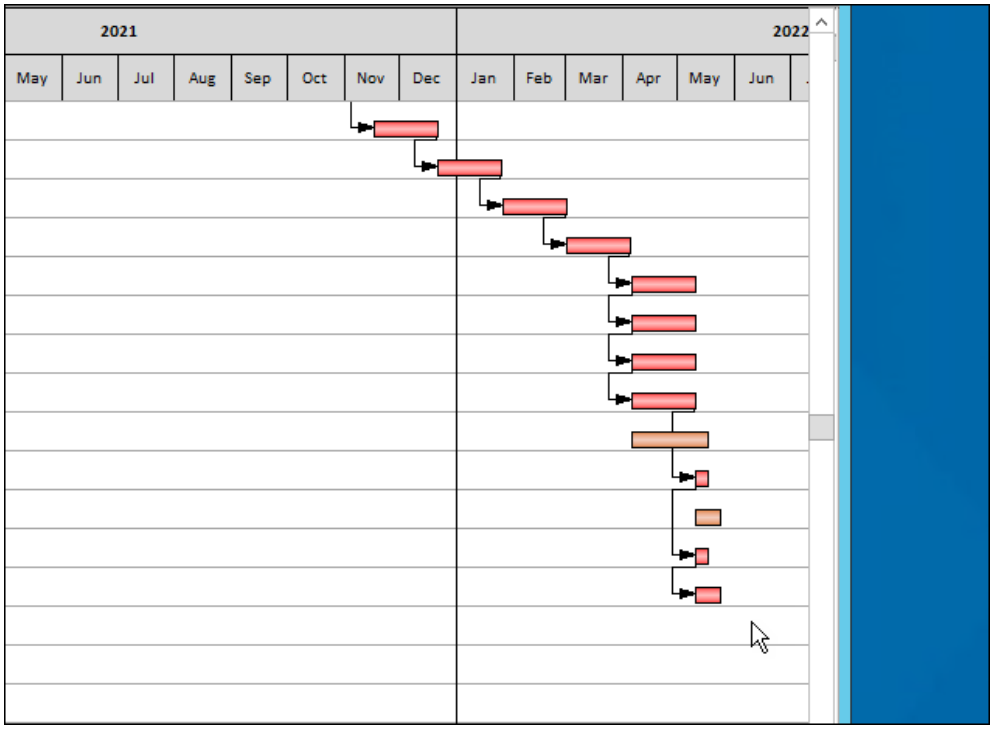
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3. Scroll down and select the **Critical_Activity** filter in the **Filters** list.



4. Click the **OK** button.

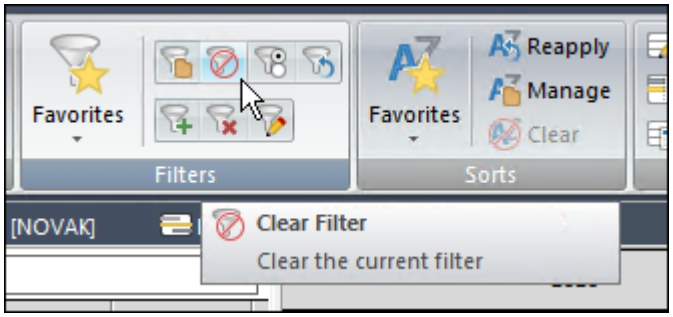
5. Scroll down the schedule and verify that the critical path is unbroken through the entire network.



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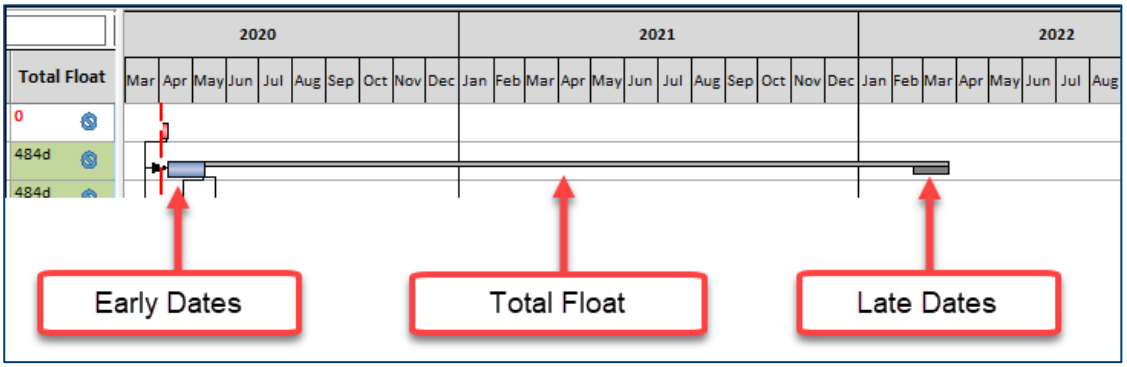
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6. If all looks well, and the critical path runs through all periods of the project, click the **Clear Filters** button.



While we do have a critical path through the entire schedule, there are some other issues we need to look into.

Many of the activities exhibiting a '**High Float**' condition. These are easy to spot on the Gantt chart when using the **BARVW - Activity Barchart View**. When activities have a large delta between the early and late dates, we see an extended Total Float line between the early and late activity bars.



Causes: Missing relationships to successors, or sometimes Target Dates can cause this issue.

Impact: Indicative of incomplete relationship development.

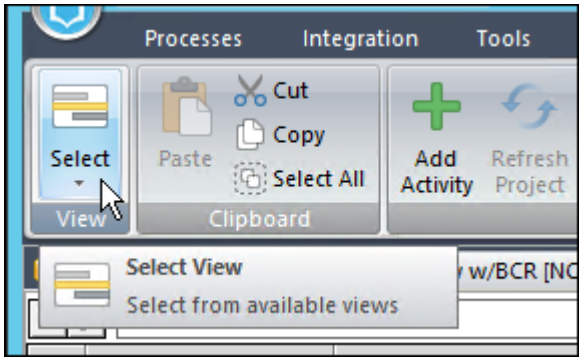
Many best practice guidelines place limits on the number of days Total Float that is acceptable. The actual parameters depend on the scheduling guidelines your company follows. For example, the DCMA (Defense Contract Management Agency) have an upper limit of 44 days total float, and no more than 5% of activities can exhibit this condition.

You can run a quick test in Open Plan to see if the schedule is within the DCMA guideline using the DCMA_METRICS view.

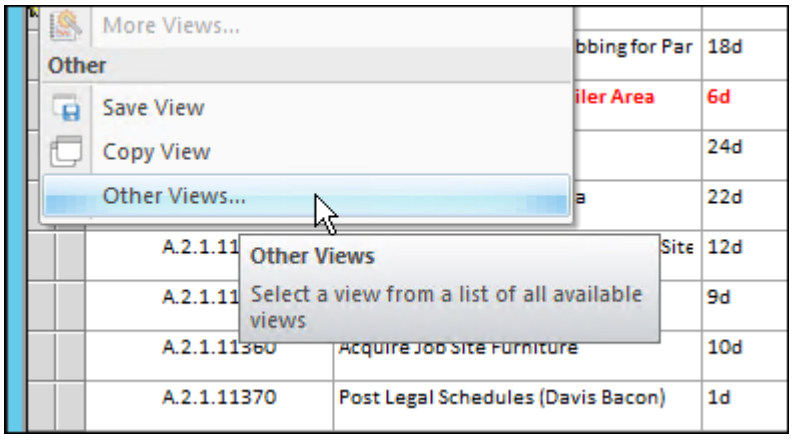
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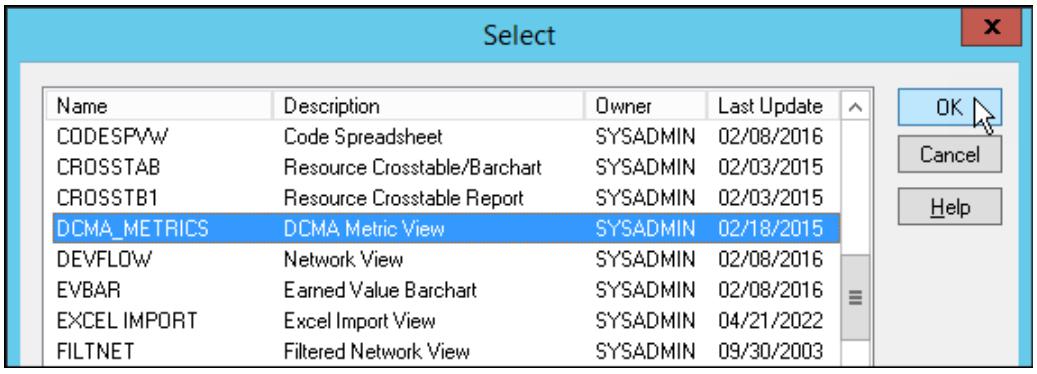
7. Click the **View | Select** button.



8. Click on **Other Views…**



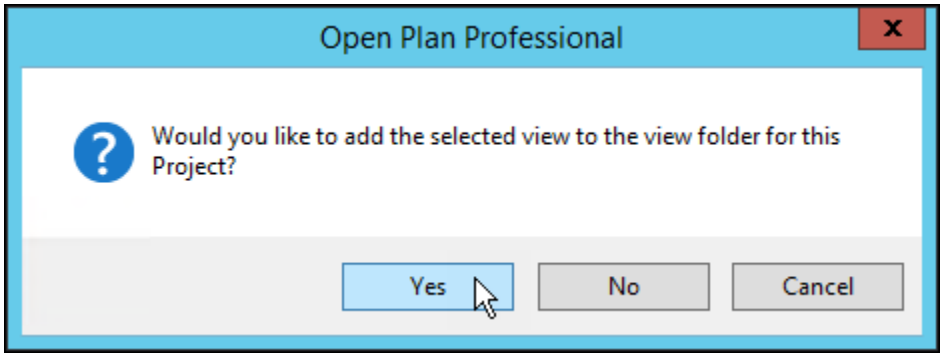
9. In the **Select** dialog, click on the **DCMA_METRICS** view and click **OK**.



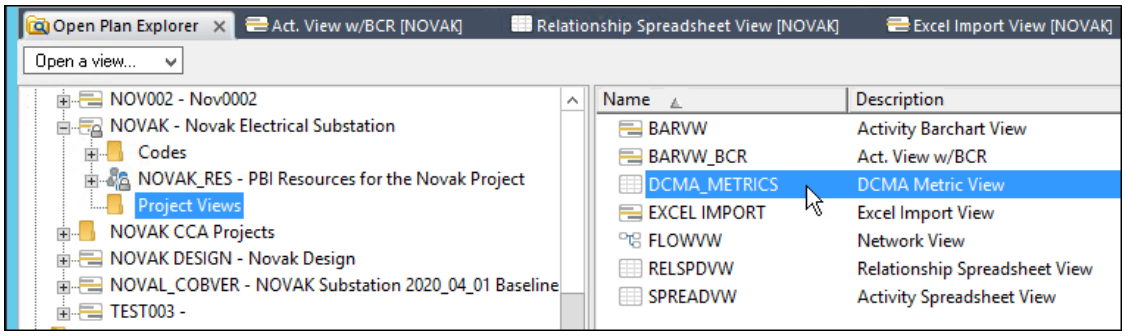
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10. In the **Prompt** click **Yes** to add the view to the **Project**.



This adds the **DCMA_METRICS** view to the project for easier future access. You can see this in the Open Plan explorer below the project in Project Views.



11. Now take a look at the **DCMA_METRICS** view. The 9th column is titled **DCMA_06 (High Float)**, and is reporting a **21.62%** of activities with this condition. This should not be greater than 5%, so we have work to do.

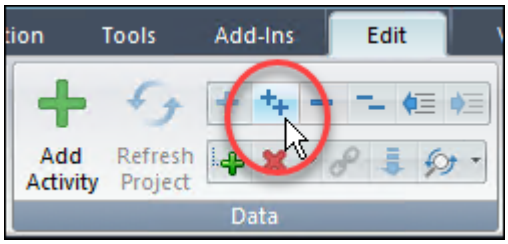
DCMA_04 (FS Rels) (FS >= 90%)	DCMA_05 (Hard Target) (Not >5%)	DCMA_06 (Float>44d) (Not >5%)	DCMA_07 (-ve Float) (None)	DCMA_08 (High Duration (Not >5%)
87.34%	0.00%	21.62%	0 Activities	1.35%
		Float>44d		No Baseline
1 non FS		Float>44d		No Baseline
		Float>44d		No Baseline
				No Baseline

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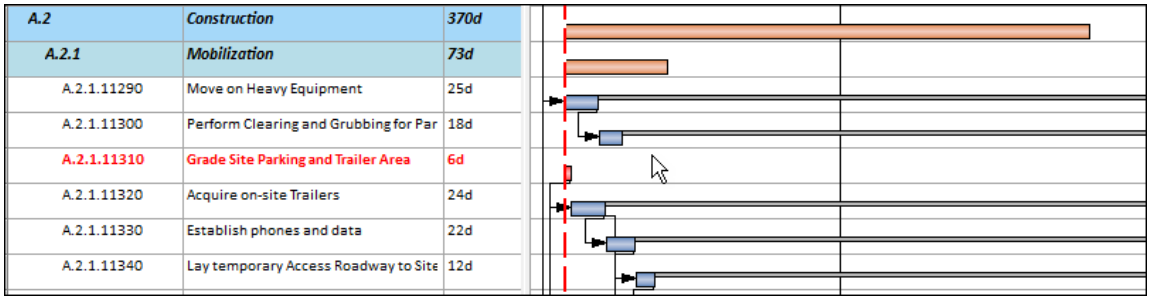
12. Click back to the **Act. View w/BCR**.

13. Click on the **Expand All** button to make sure you are seeing the full schedule.



We do this because **Open Plan** views hide the logic links to and from collapsed subprojects.

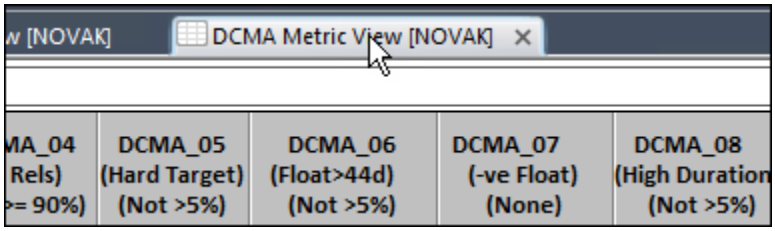
14. The first area to look at is the **Mobilization** subproject. Here we can see that there appear to be some breaks in the logic causing the High Float issue.



A.2	*Construction*	*370d*
A.2.1	*Mobilization*	*73d*
A.2.1.11290	Move on Heavy Equipment	25d
A.2.1.11300	Perform Clearing and Grubbing for Par	18d
A.2.1.11310	Grade Site Parking and Trailer Area	6d
A.2.1.11320	Acquire on-site Trailers	24d
A.2.1.11330	Establish phones and data	22d
A.2.1.11340	Lay temporary Access Roadway to Site	12d

You can start to fix the problems here in the BARVW view, or go back to the DCMA view and make fixes there.

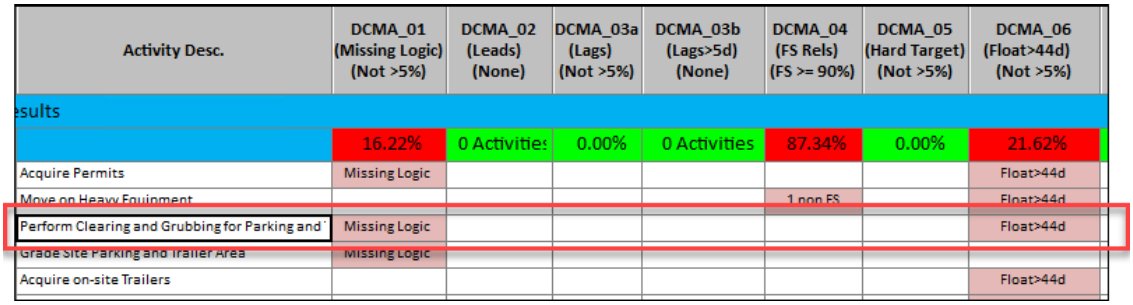
15. Now click back to the **DCMA_METRICS** view.



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16. Look in the **DCMA_01** (**Missing Logic)** column on the '**Perform Clearing and Grubbing…**' activity record.

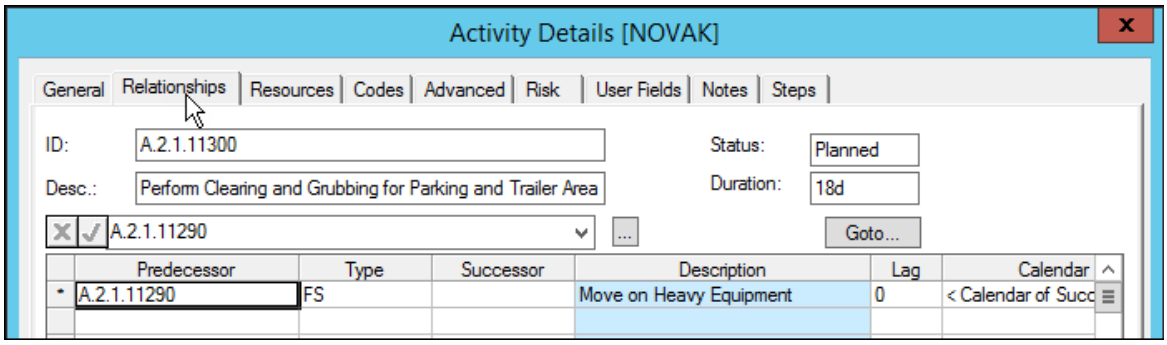


Activity Desc.	DCMA_01 (Missing Logic) (Not >5%)	DCMA_02 (Leads) (None)	DCMA_03a (Lags) (Not >5%)	DCMA_03b (Lags>5d) (None)	DCMA_04 (FS Rels) (FS >= 90%)	DCMA_05 (Hard Target) (Not >5%)	DCMA_06 (Float>44d) (Not >5%)
esults							
	16.22%	0 Activities	0.00%	0 Activities	87.34%	0.00%	21.62%
Acquire Permits	Missing Logic						Float>44d
Move on Heavy Equipment					1 non FS		Float>44d
Perform Clearing and Grubbing for Parking and T	Missing Logic						Float>44d
Grade Site Parking and Trailer Area	Missing Logic						
Acquire on-site Trailers							Float>44d

The activity has both missing logic and high float. We'll start here and fix this by working in this view.

17. Double-click on the '**Perform Clearing and Grubbing…**' activity.

18. In **Activity Details**, click the **Relationships** tab.



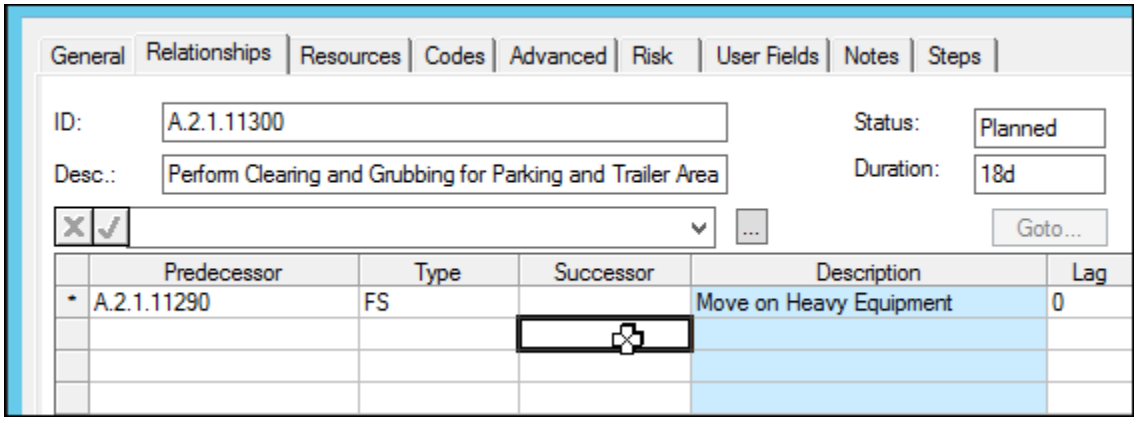
Note this activity has no successor defined.

The '**Grade Site Parking and Trailer Area**' activity is dependent on the completion of the '**Perform Clearing and Grubbing…**' activity, so let's add the successor.

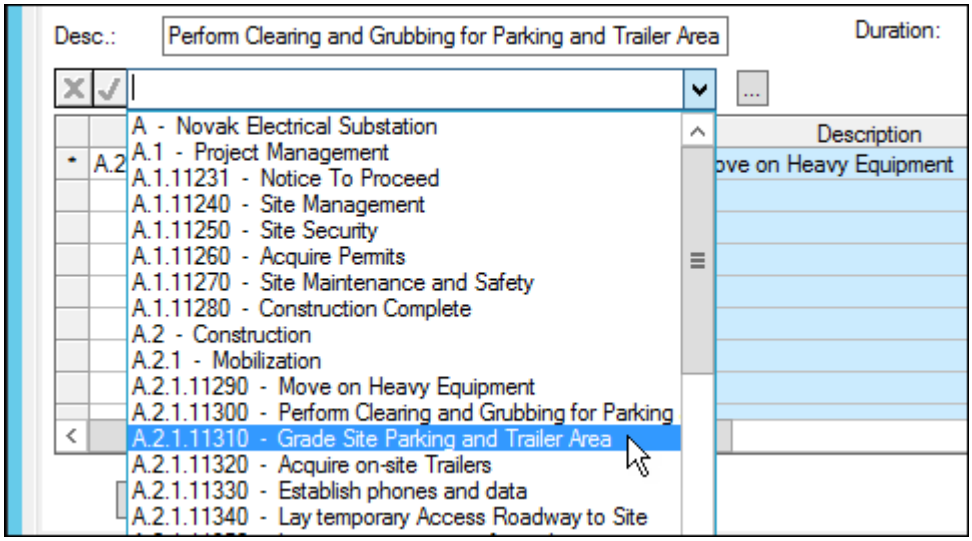
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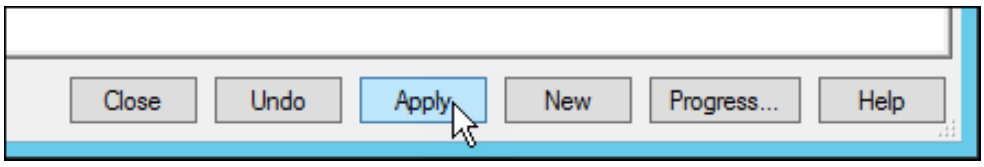
19. Click in the **Successor** cell on the next blank row.



20. Click the dropdown field and select '**A.2.1.11310 – Grade Site Parking and Trailer Area**' activity from the list.



21. Click **Apply**.



22. Click **Close**.

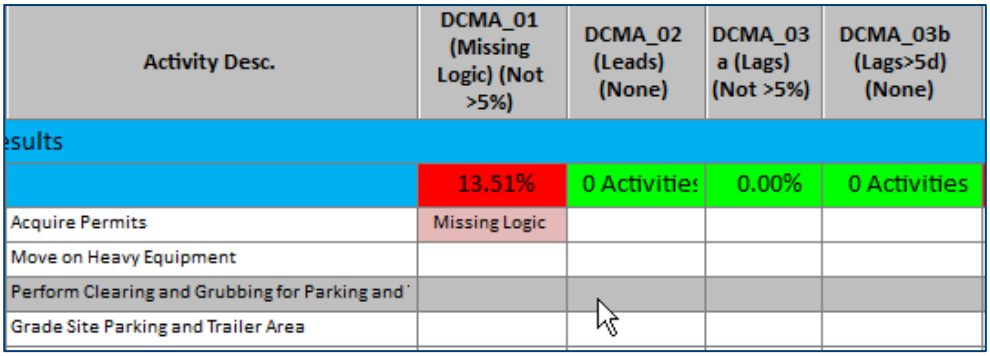
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6.6.2 Activity: Reviewing the DCMA Metric View

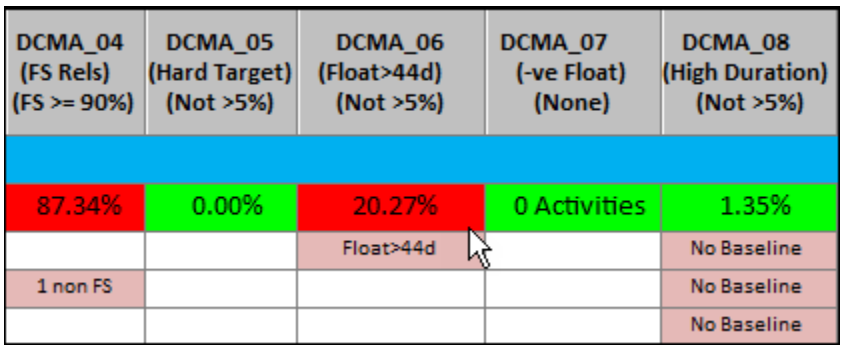
Let's see if that change had any impact on our **Missing Logic** and **High Float** scores.

1. The **DCMA_01 Missing Logic** score has improved at **13:51%** compared to **16.22%** previously.



Activity Desc.	DCMA_01 (Missing Logic) (Not >5%)	DCMA_02 (Leads) (None)	DCMA_03 a (Lags) (Not >5%)	DCMA_03b (Lags>5d) (None)
esults				
	13.51%	0 Activities	0.00%	0 Activities
Acquire Permits	Missing Logic			
Move on Heavy Equipment				
Perform Clearing and Grubbing for Parking and				
Grade Site Parking and Trailer Area				

2. Now go to column **DCMA_06** and check the **High Float** score.



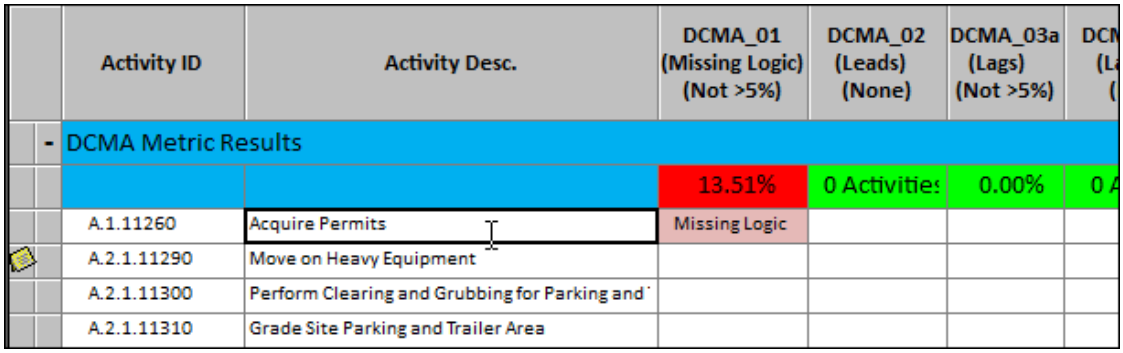
DCMA_04 (FS Rels) (FS >= 90%)	DCMA_05 (Hard Target) (Not >5%)	DCMA_06 (Float>44d) (Not >5%)	DCMA_07 (-ve Float) (None)	DCMA_08 (High Duration) (Not >5%)
87.34%	0.00%	20.27%	0 Activities	1.35%
		Float>44d		No Baseline
1 non FS				No Baseline
				No Baseline

Down a little from **21.62%** to **20.27%**. Clearly there is more to do. As we did earlier, we should look at the Missing Logic activities and see what we can do to improve our score.

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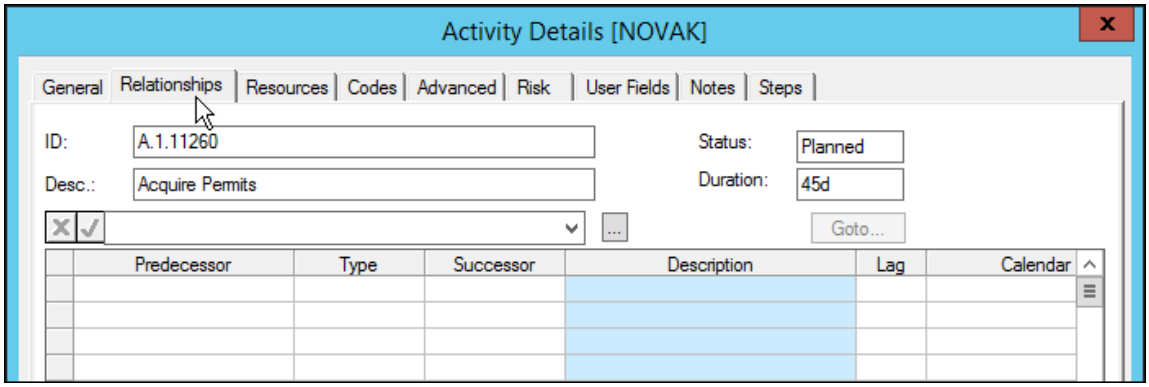
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3. Double-click on the **Acquire Permits** activity to open the **Activity Details** dialog.



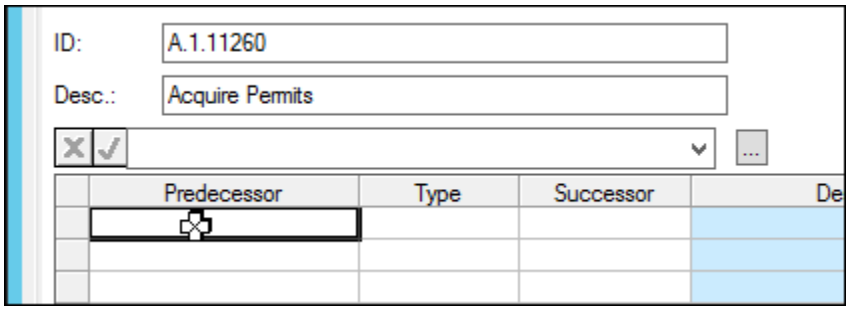
	Activity ID	Activity Desc.	DCMA_01 (Missing Logic) (Not >5%)	DCMA_02 (Leads) (None)	DCMA_03a (Lags) (Not >5%)	DCN (La (
-	DCMA Metric Results					
			13.51%	0 Activities	0.00%	0 A
	A.1.11260	Acquire Permits	Missing Logic			
	A.2.1.11290	Move on Heavy Equipment				
	A.2.1.11300	Perform Clearing and Grubbing for Parking and				
	A.2.1.11310	Grade Site Parking and Trailer Area				

4. Click on the **Relationships** tab (it may already be selected from your earlier interactions)



Clearly this activity is bereft of both a predecessor and a successor activity. Let's correct this now.

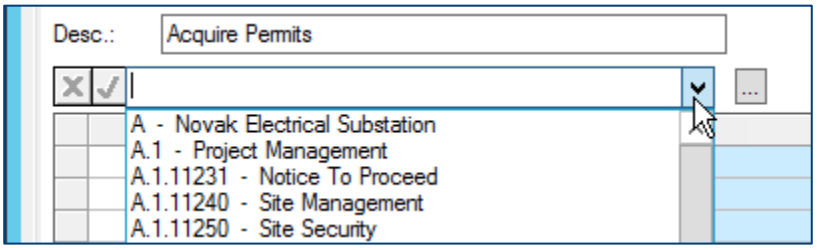
5. Click on the **Predecessor** field.



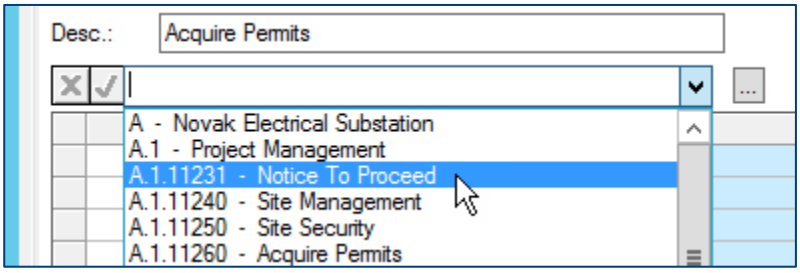
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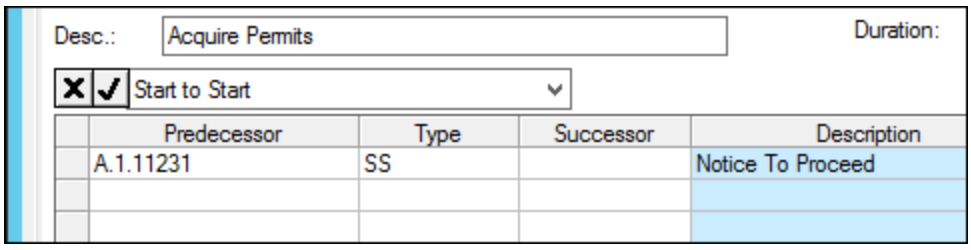
6. Click on the dropdown field above.



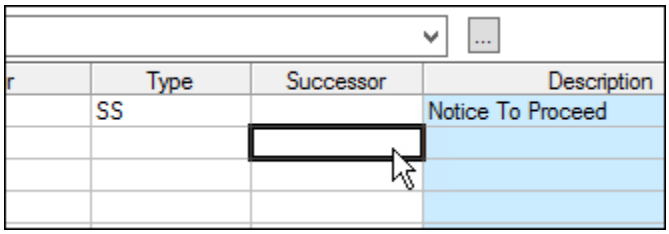
7. Select the **Notice To Proceed** milestone activity.



8. Set the **Type** as **Start To Start**.



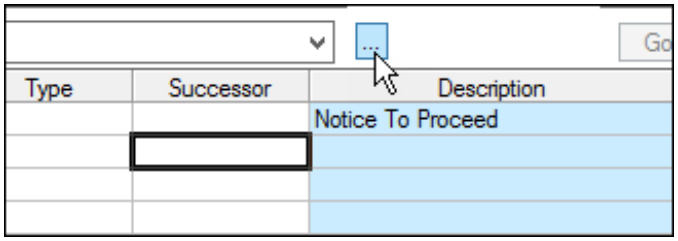
9. On the next blank row, click on the **Successor** cell.



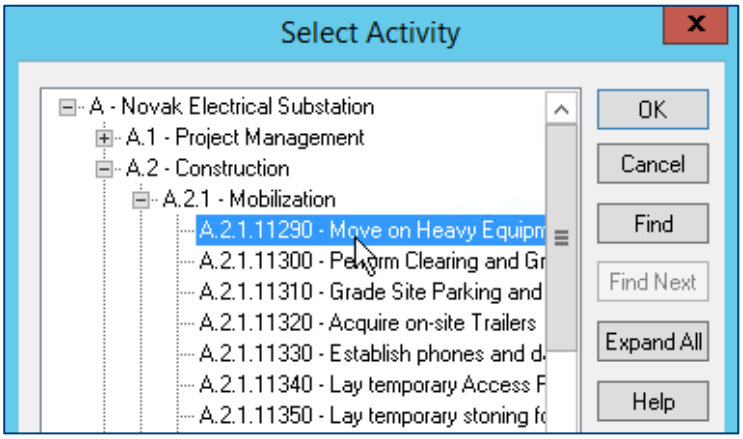
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10. This time, click the **Ellipsis** button to the right of the dropdown.



11. In the **Select Activity** dialog, drill down to **A.2.1 – Mobilization**, and select the **A.2.1.11290 - Move on Heavy Equipment** activity.

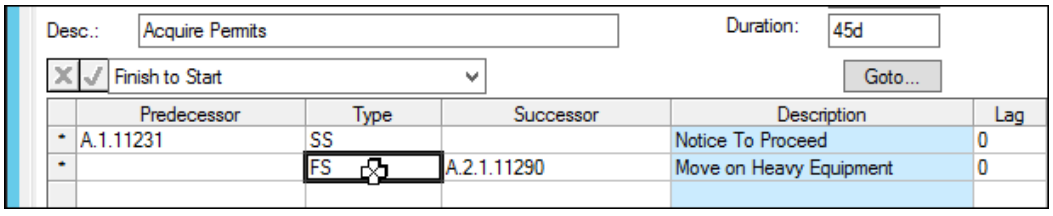


Note: The Ellipsis is a better option for larger projects because it helps us drill down the structure more efficiently than just a flat list; as you get with the dropdown option.

12. Click **OK**.

13. Click **Apply**.

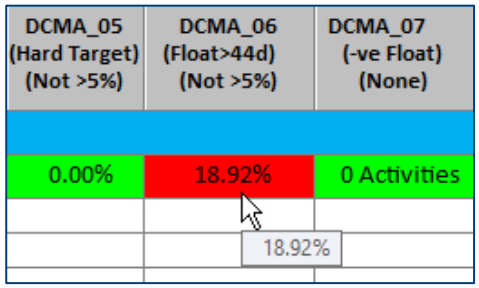
14. Verify a **Finish to Start** relationship between **Acquire Permits** and **Move on Heavy Equipment**.



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15. Go back to the **DCMA_06** column and note the improved score.



Because of the many Finish To Start relationships in the schedule, the next moves will likely have a greater impact on the score.

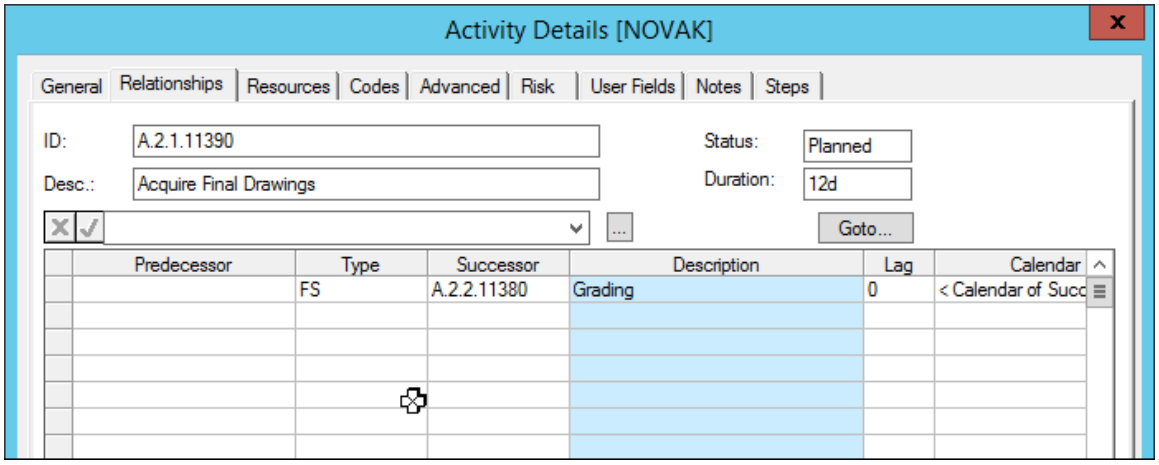
16. Take a look at the **Acquire Final Drawings** activity in the DCMA table.

	Activity ID	Activity Desc.	DCMA_01 (Missing Logic) (Not >5%)	DCMA_02 (Leads) (None)	DCMA_03a (Lags) (Not >5%)	DCMA_03b (Lags>5d) (None)	DCMA_04 (FS Rels) (FS >= 90%)	DCMA_05 (Hard Target) (Not >5%)	DCMA_06 (Float>44d) (Not >5%)	DCM (-ve (N
-	DCMA Metric Results									
			12.16%	0 Activities	0.00%	0 Activities	86.42%	0.00%	18.92%	0 A
	A.1.11260	Acquire Permits					1 non FS			
	A.2.1.11290	Move on Heavy Equipment					1 non FS			
	A.2.1.11300	Perform Clearing and Grubbing for Parking and								
	A.2.1.11310	Grade Site Parking and Trailer Area								
	A.2.1.11320	Acquire on-site Trailers							Float>44d	
	A.2.1.11330	Establish phones and data							Float>44d	
	A.2.1.11340	Lay temporary Access Roadway to Site							Float>44d	
	A.2.1.11350	Lay temporary stoning for parking	Missing Logic						Float>44d	
	A.2.1.11360	Acquire Job Site Furniture							Float>44d	
	A.2.1.11370	Post Legal Schedules (Davis Bacon)							Float>44d	
	A.2.1.11380	Acquire First Aid Kits	Missing Logic				1 non FS		Float>44d	
	A.2.1.11390	Acquire Final Drawings	Missing Logic						Float>44d	
	A.2.2.11370	Clearing and Grubbing								

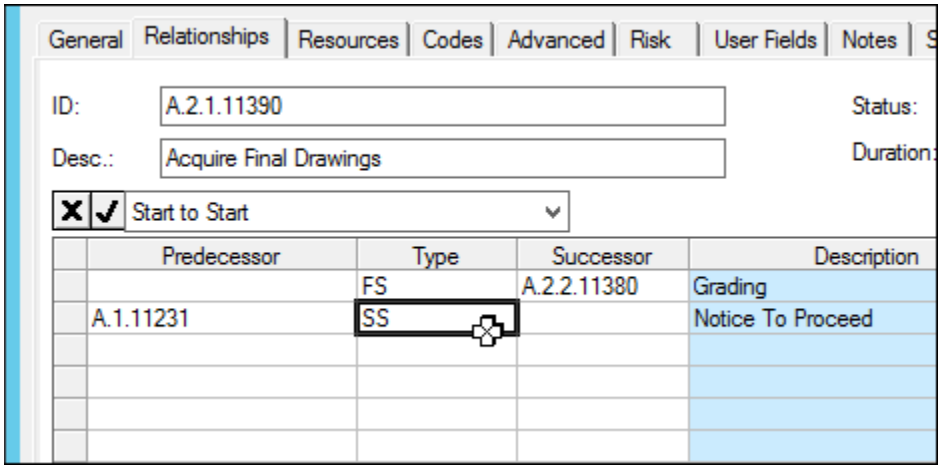
Clearly this is the last in a chain of high float activities. Addressing this may

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17. Return to the **Activity Details** dialog for **Acquire Final Drawings** and note the lack of a predecessor.



18. Assign the **Notice To Proceed** activity as it's **SS** predecessor.



19. Click **Apply**.

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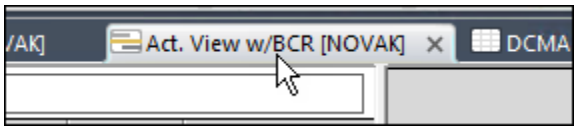
20. Note the results in the **DCMA Metrics** view.

Activity Desc.	DCMA_01 (Missing Logic) (Not >5%)	DCMA_02 (Leads) (None)	DCMA_03a (Lags) (Not >5%)	DCMA_03b (Lags>5d) (None)	DCMA_04 (FS Rels) (FS >= 90%)	DCMA_05 (Hard Target) (Not >5%)	DCMA_06 (Float>44d) (Not >5%)	DCI (-
sults								
	10.81%	0 Activities	0.00%	0 Activities	85.37%	0.00%	18.92%	0
Acquire Permits					1 non FS			
Move on Heavy Equipment					1 non FS			
Perform Clearing and Grubbing for Parking and								
Grade Site Parking and Trailer Area								
Acquire on-site Trailers							Float>44d	
Establish phones and data							Float>44d	
Lay temporary Access Roadway to Site							Float>44d	
Lay temporary stoning for parking	Missing Logic						Float>44d	
Acquire Job Site Furniture							Float>44d	
Post Legal Schedules (Davis Bacon)							Float>44d	
Acquire First Aid Kits	Missing Logic				1 non FS		Float>44d	
Acquire Final Drawings					1 non FS		Float>44d	
Clearing and Grubbing								

As you likely anticipated, fixing the missing predecessor did nothing for the **High Float** score, but did improve the **Missing Logic** score from **12.16%** down to **10.81%.**

Let's compare with the schedule to see how these high float areas appear in the schedule.

21. Click on **Act. View w/BCR**.



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22. Collapse all the elements except **Mobilization**, and **Steel Structures**.

-	A.2.1	Mobilization	161d	04/01/2020	11/12/2020
	A.2.1.11290	Move on Heavy Equipment	25d	06/03/2020	07/08/2020
	A.2.1.11300	Perform Clearing and Grubbing for Parking and Trailer	18d	07/09/2020	08/03/2020
	A.2.1.11310	Grade Site Parking and Trailer Area	6d	08/04/2020	08/11/2020
	A.2.1.11320	Acquire on-site Trailers	24d	08/12/2020	09/14/2020
	A.2.1.11330	Establish phones and data	22d	09/15/2020	10/14/2020
	A.2.1.11340	Lay temporary Access Roadway to Site	12d	10/15/2020	10/30/2020
	A.2.1.11350	Lay temporary stoning for parking	9d	11/02/2020	11/12/2020
	A.2.1.11360	Acquire Job Site Furniture	10d	10/15/2020	10/28/2020
	A.2.1.11370	Post Legal Schedules (Davis Bacon)	1d	10/29/2020	10/29/2020
	A.2.1.11380	Acquire First Aid Kits	2d	04/01/2020	04/02/2020
	A.2.1.11390	Acquire Final Drawings	12d	04/01/2020	04/16/2020
+	A.2.2	Grade Site	39d	08/12/2020	10/05/2020
+	A.2.3	Security Fence	61d	10/06/2020	12/30/2020
+	A.2.4	Foundations and Footings	64d	12/31/2020	04/01/2021
-	A.2.5	Steel Structures	36d	04/02/2021	05/21/2021
	A.2.5.11610	Erect A-Frames	16d	04/02/2021	04/23/2021
	A.2.5.11620	Erect H-Frames	12d	04/26/2021	05/11/2021
	A.2.5.11630	Erect Switch Stands	5d	04/26/2021	04/30/2021

23. Note the activities with extreme high-float in the **Gantt** chart area.

	Activity ID	Activity Desc.	Duration	Activity Type
-	A	Novak Electrical Substation	645d	Subproject
+	A.1	Project Management	640d	Subproject
-	A.2	Construction	458d	Subproject
-	A.2.1	Mobilization	161d	Subproject
	A.2.1.11290	Move on Heavy Equipment	25d	ASAP
	A.2.1.11300	Perform Clearing and Grubbing for Par	18d	ASAP
	A.2.1.11310	Grade Site Parking and Trailer Area	6d	ASAP
	A.2.1.11320	Acquire on-site Trailers	24d	ASAP
	A.2.1.11330	Establish phones and data	22d	ASAP
	A.2.1.11340	Lay temporary Access Roadway to Site	12d	ASAP
	A.2.1.11350	Lay temporary stoning for parking	9d	ASAP
	A.2.1.11360	Acquire Job Site Furniture	10d	ASAP
	A.2.1.11370	Post Legal Schedules (Davis Bacon)	1d	ASAP
	A.2.1.11380	Acquire First Aid Kits	2d	ASAP
	A.2.1.11390	Acquire Final Drawings	12d	ASAP
+	A.2.2	Grade Site	39d	Subproject
+	A.2.3	Security Fence	61d	Subproject
+	A.2.4	Foundations and Footings	64d	Subproject
-	A.2.5	Steel Structures	36d	Subproject
	A.2.5.11610	Erect A-Frames	16d	ASAP
	A.2.5.11620	Erect H-Frames	12d	ASAP
	A.2.5.11630	Erect Switch Stands	5d	ASAP
	A.2.5.11640	Erect Capacitor Stands and Racks	6d	ASAP
	A.2.5.11650	Erect Control Building Steel Frames	20d	ASAP
	A.2.5.11660	Erect Bus Bar Support Stands	3d	ASAP
+	A.2.6	Control Building	54d	Subproject
+	A.2.7	Install Equipment	73d	Subproject

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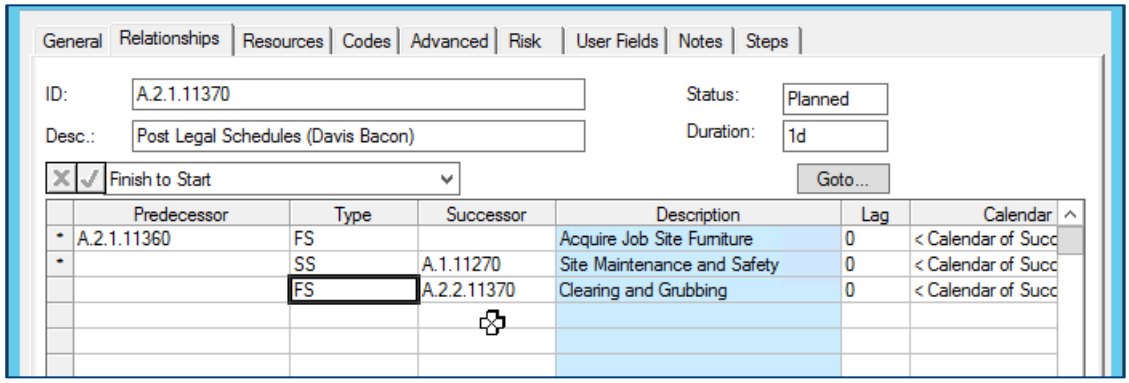
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From this we can clearly see that two activities that are missing logic appear to be at the root of this issue.

Post Legal Schedules (Davis Bacon)
Erect Bus Bar Support Stands

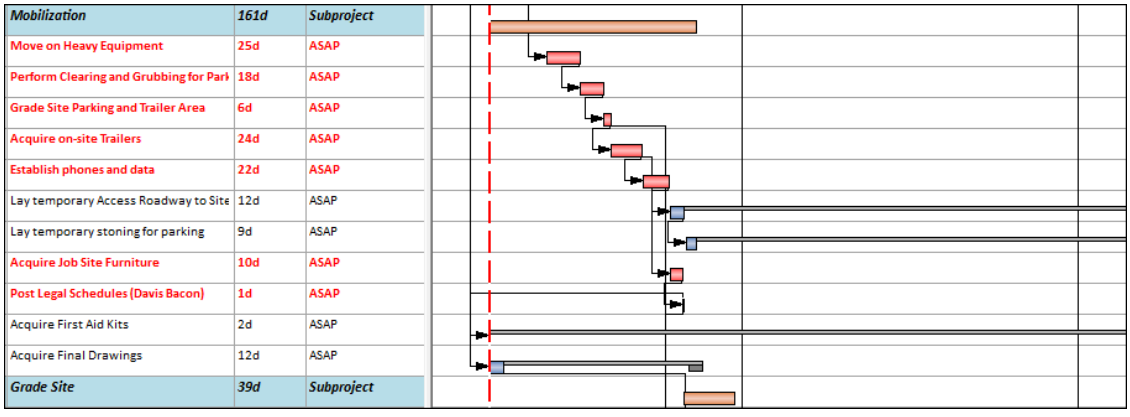
Clearing and Grubbing cannot start until Post Legal Schedules (Davis Bacon) is complete.

24. In the barchart view, click on **Post Legal Schedules** activity, and assign **A.2.2.11370 - Clearing and Grubbing** as a **FS Successor**.



25. Click **Apply**.

26. Note the results in the barchart view.

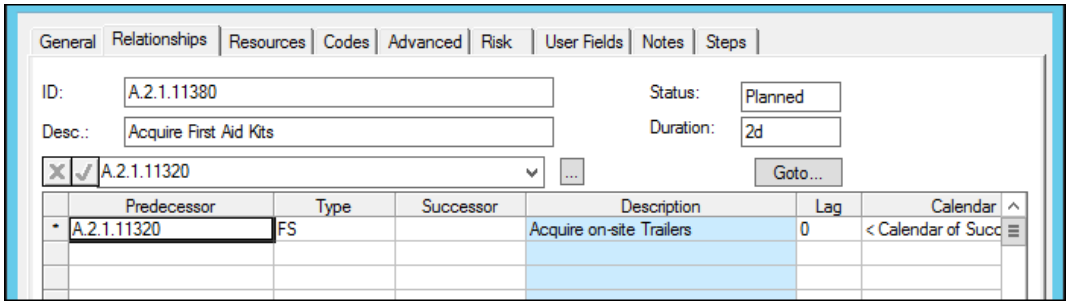


All but four of the **Mobilization** activities have zero float. Acquire First Aid Kits, appears to have zero relationships. We need to add some relationships to help this high float situation.

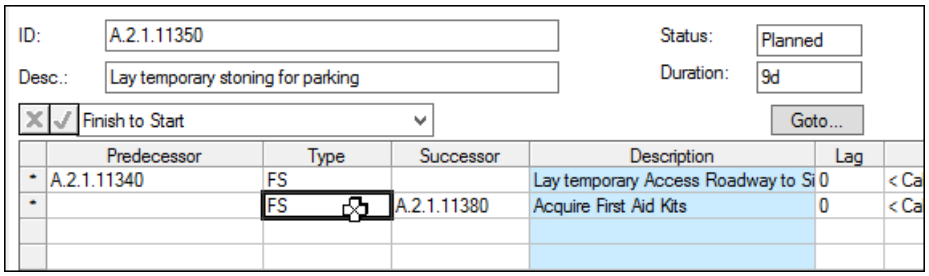
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27. Double-click on **Acquire First Aid Kits**, and add a **FS** predecessor to **Acquire On-site Trailers** predecessor.

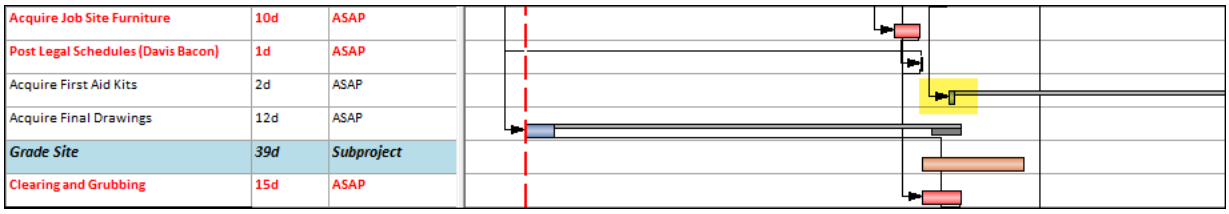


28. Now click on **Lay temporary stoning for parking**, and assign **Acquire First Aid Kits** as a **FS** successor in the **Relationships** tab.



29. Click **Apply**.

30. In the barchart you can see that there is still high float due to the **Acquire First Aid Kits** activity.



Options for this might be:

1. Link the activity to a logical successor: *considered best practice.*

2. Use a Target Date (Constraint) to reduce or eliminate the float: *considered bad practice.*

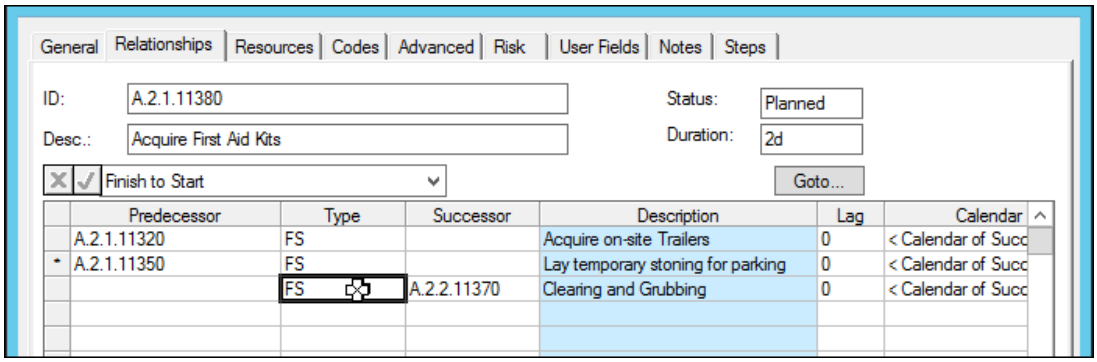
As is quite common today, this substation contract prohibits the use of Target Dates for anything other than contractual, or other external date restrictions that are not under the control of project management. This can include legal schedules such as fish spawning, bald eagle nesting, Cariboo migration calendars or other schedules or restrictions.

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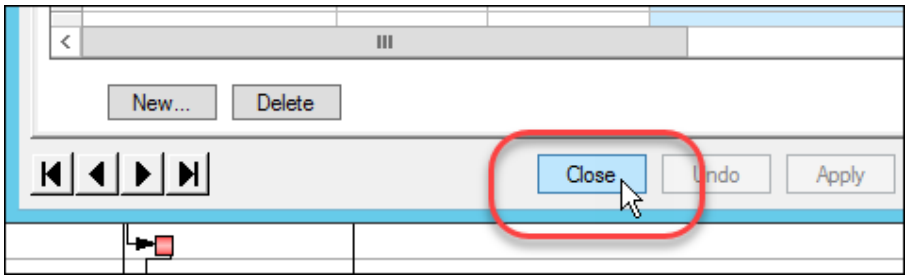
Because hiding float with non-contractual target dates is bad practice, we'll go with option 1.

31. Click on the **Acquire First Aid Kits** activity and assign **Clearing and Grubbing** as a **FS Successor**.

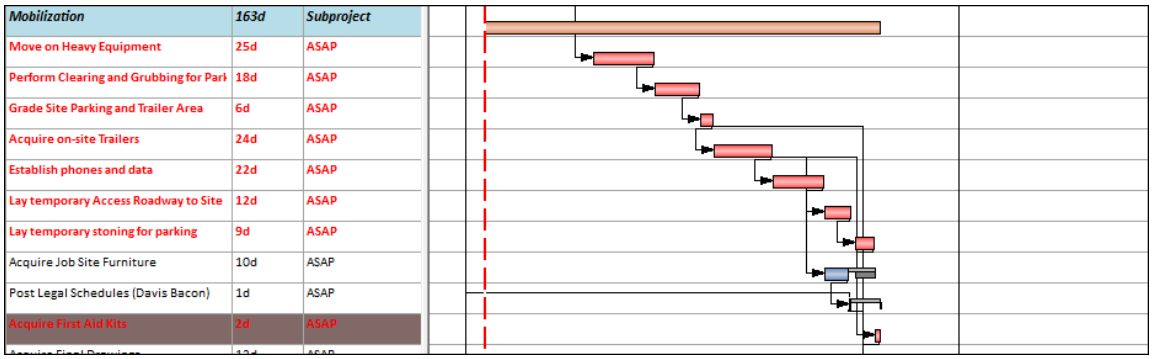


32. Click **Apply**.

33. Click **Close**.



34. Note the impact to the schedule.



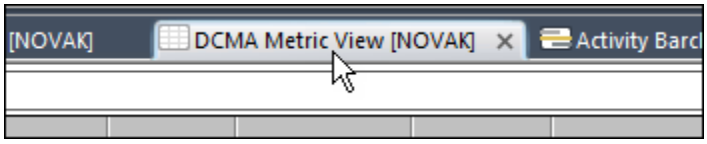
The **Acquire First Aid Kits** is on the critical path now, and the high float has been resolved for the **Mobilization** subproject.

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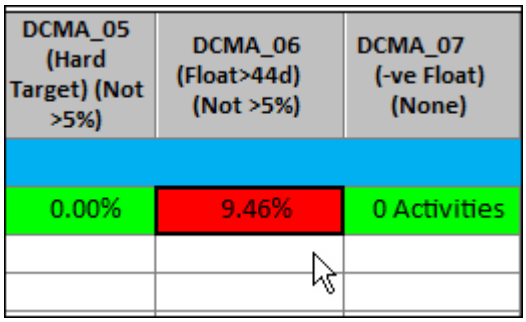
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6.6.3 Activity: Checking the High Float Score

1. Click on the **DCMA Metrics View** tab.



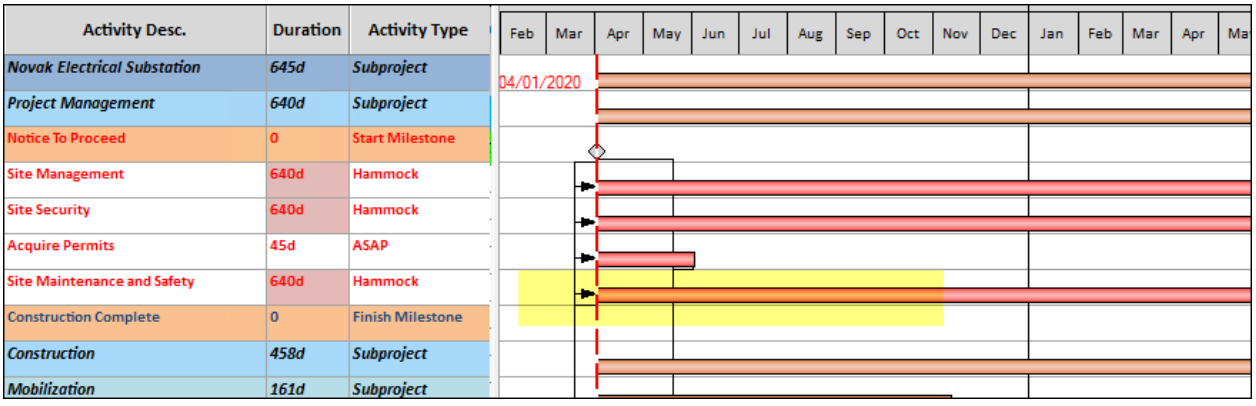
2. Check the **DCMA_06** column. At **9.46%**.



While in reality pursuing further improvements and correcting as many of these missing logic items as possible is always best practice; let's say "close enough for this training", and move on.

6.6.4 Activity: Conflicting Logic Correction

It's been pointed out that the Site Maintenance and Safety Hammock activity is sitting on the project start date. However, this work doesn't start until the on-site crew headcount reaches 30, estimated to occur around the end of mobilization, once all the facilities are operational.

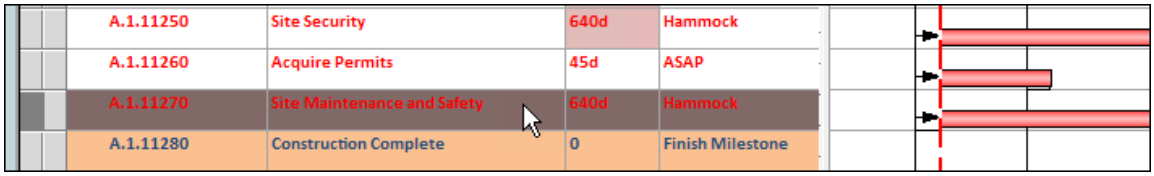


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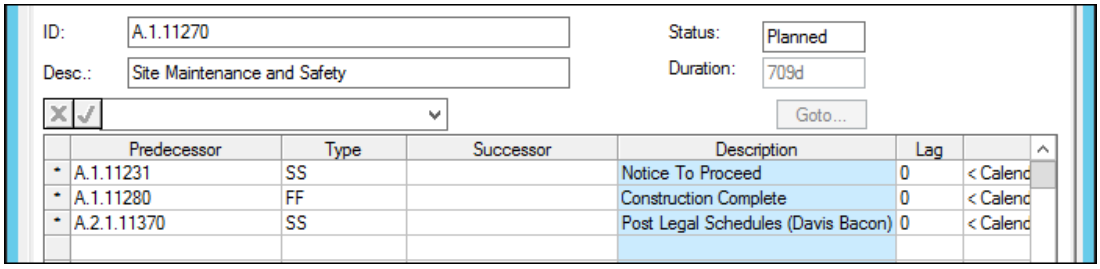
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Let's find out what's wrong with the logic for this hammock.

1. Double-click on the **Site Maintenance and Safety** hammock task to open **Activity Details**.

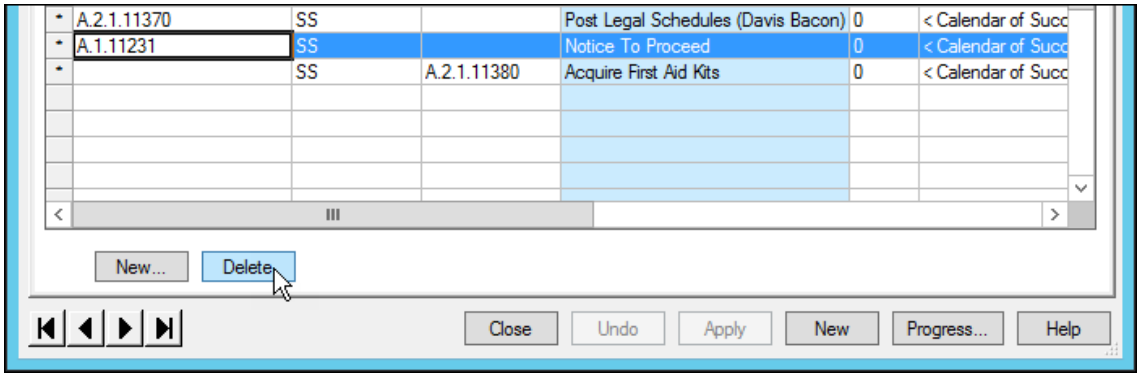


2. In the **Relationships** tab, we see that there are two predecessors driving the start date for the hammock.



The **Notice To Proceed** predecessor is the issue. That is driving the early start dates for the hammock and causing it to be sitting on the same start date as this predecessor.

3. Delete the **A.1.11231 – Notice To Proceed** relationship.



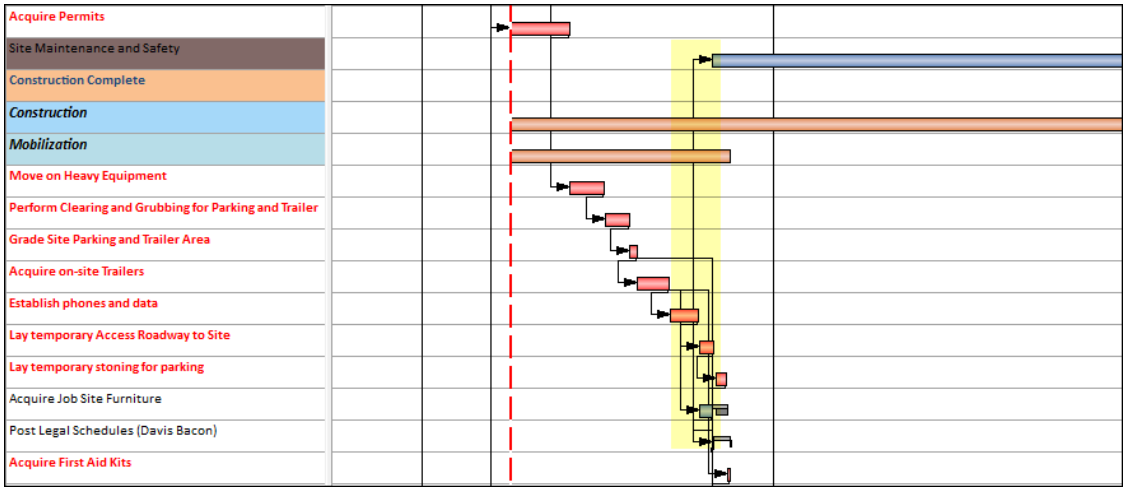
4. Click **Apply**.

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5. Note the outcome for the **Hammock** in the **Gantt** chart.

   In the following figure, note the highlighted relationship from ‘Post Legal Schedules’ clearly showing that it is now driving the early start dates for the hammock.



This concludes the activity.

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6.7 Target Dates

Target dates are specific dates that can be applied to an activity to impose some type of restriction on how and when it can start. Also known as constraints, these imposed dates will often supersede the normal logic dependencies assigned through relationships to predecessor activities. In some cases, hard constraints can actually violate the logic, while softer constraints will eventually be overrun by the network logic.

Open Plan offers the following Target Date constraints in order of soft to hard:

Not Earlier Than — The earliest date on which the activity can start or finish. This constraint affects the early dates calculated by time analysis.

Not Later Than — The latest date on which the activity can start or finish. This constraint affects the late dates calculated by time analysis.

On Target — Combines the effects of both Not Earlier Than and Not Later Than target dates and affects both the early and late dates calculated by time analysis.

Fixed Target – This is the hardest constraint. It affects both the early and late dates calculated by time analysis and resource scheduling. However, unlike On target dates (which simulate Not Earlier Than target dates on the forward pass of time analysis and Not Later Than target dates on the backward pass), Fixed Target dates require that the activity take place on the given date even if the logic of the project says that it cannot happen. In other words, it allows the activity to violate logic. Also, both the early and late dates are set equal to the target. As a result, activities with Fixed Target dates have zero total float and should only be used, for example, to indicate a contractual delivery date, or perhaps a date imposed by a legal schedule.

6.7.1 Best practices for using Target Dates

Because Target dates can disrupt the critical path, best practice is to only use them for specific purposes. Some things to consider when applying a Target Date:

- Use Target Dates sparingly and only to depict an external event beyond the control of the project.
- Never use Target Date to force activities to a particular start or finish date that isn't supported by network logic. Wherever possible, all dates in the schedule should be logic-driven.
- When you do need to use Target Dates, document your rationale using the Notes feature.

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6.7.2 Target Dates Mapper

You may already have expertise in Microsoft Project or Primavera P6, in which case the following maps the various target date types to these other products.

Open Plan Target Dates	Primavera P6 Constraint	Microsoft Project Constraint
Activity type = As late as possible (ALAP)	As late as possible (ALAP)	As late as possible
Target finish = not earlier than	Finish on or after	Finish No Earlier Than
Target start = not earlier than	Start on or after	Start No Earlier Than
Target start = on target	Start on	Must Start On
Target start = fixed target	Mandatory start	< No equal constraint >
Target finish = on target	Finish on	Must Finish On
Target finish = Fixed target	Mandatory finish	< No equal constraint >
Target start = not later than	Start on or before	Start No Later Than
Target finish = not later than	Finish on or before	Finish No Later Than

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6.7.3 Activity: Setting a Target Date

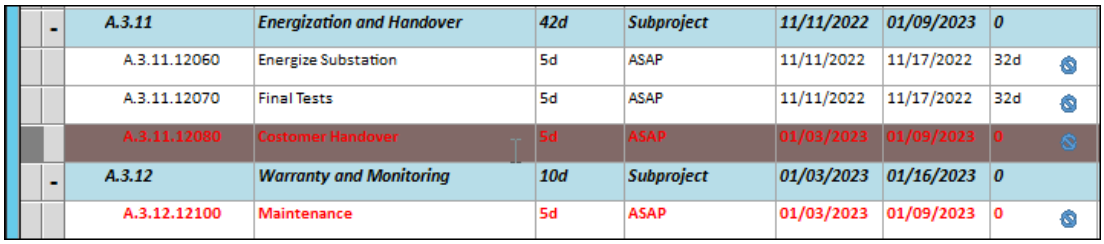
Our substation contract has a customer handover date of Tuesday, January 9th, 2023. Delays in handover trigger liquidated damages for each week of delay. The contract also states that the project's Total Float is a shared resource between the customer and the contractor.

To provide an early warning the PM has requested this contractual date be applied as a Target constraint for that activity.

But what type of target date is best?

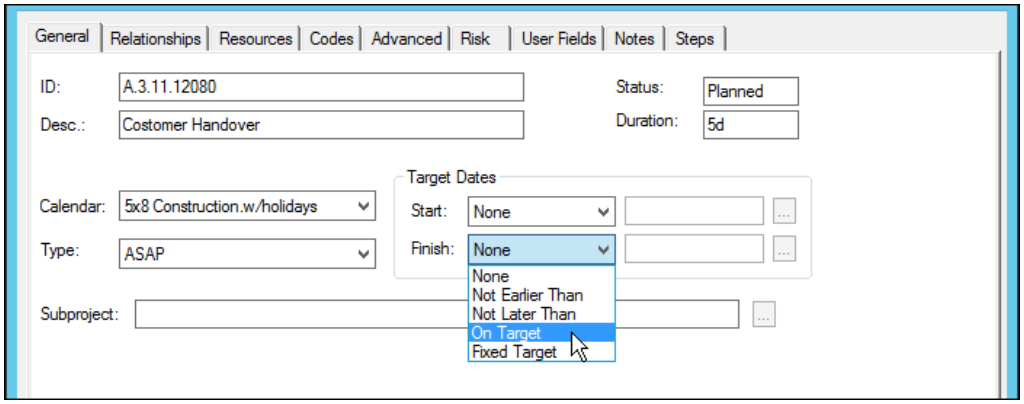
We'll begin with an '**On Target**' hard constraint.

1. Double-click on the **A.3.11.12080 - Customer Handover** activity.



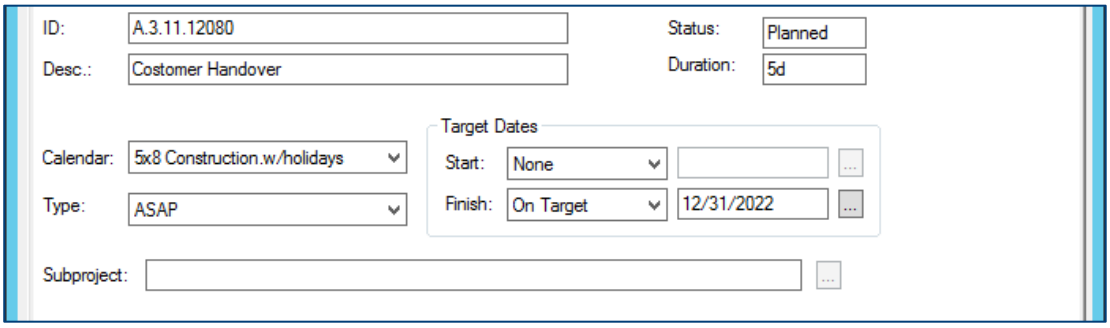
-	*A.3.11*	*Energization and Handover*	*42d*	*Subproject*	*11/11/2022*	*01/09/2023*	*0*
	A.3.11.12060	Energize Substation	5d	ASAP	11/11/2022	11/17/2022	32d
	A.3.11.12070	Final Tests	5d	ASAP	11/11/2022	11/17/2022	32d
	A.3.11.12080	Costomer Handover	5d	ASAP	01/03/2023	01/09/2023	0
-	*A.3.12*	*Warranty and Monitoring*	*10d*	*Subproject*	*01/03/2023*	*01/16/2023*	*0*
	A.3.12.12100	Maintenance	5d	ASAP	01/03/2023	01/09/2023	0

2. In the **General** tab of the **Activity Details** dialog, select the **Finish**: field and select **On Target** from the dropdown.



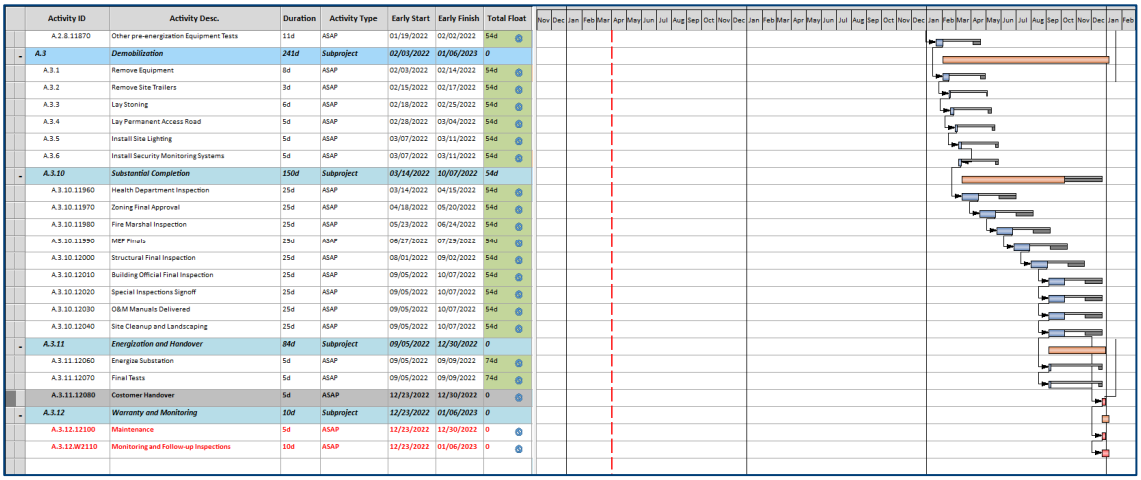
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3. Set the **Target** date to **12/31/2022**.

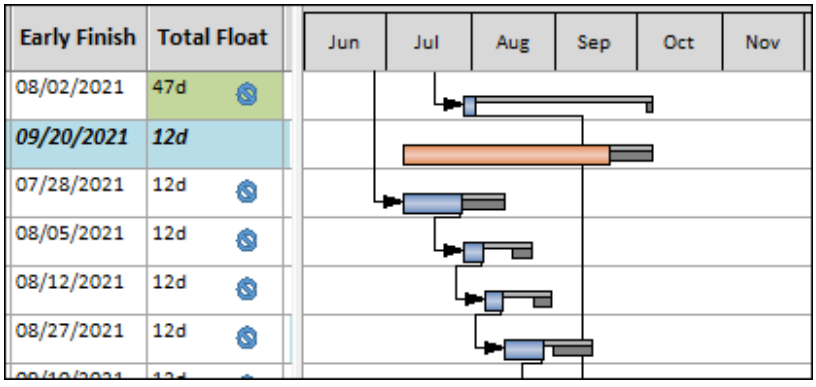


4. Click **Apply**.

5. Review the impact to your schedule.



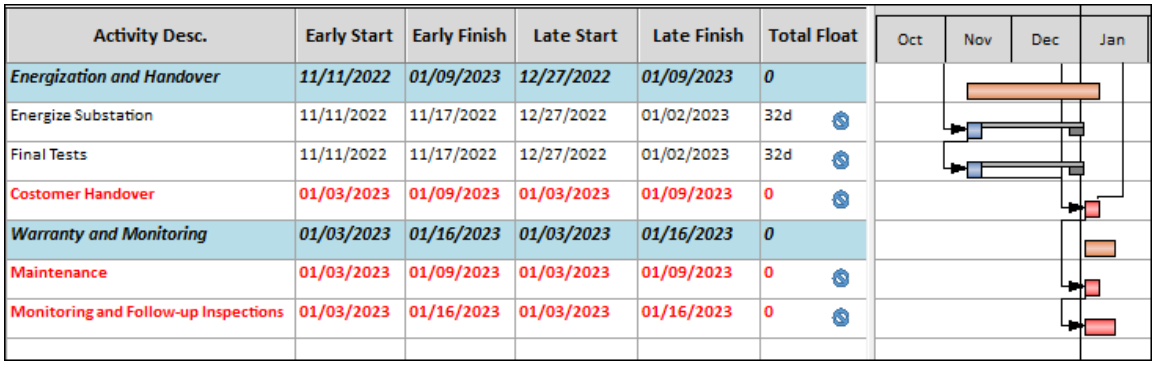
The critical path has all but disappeared. Each of the activities now has various amounts of Total Float.



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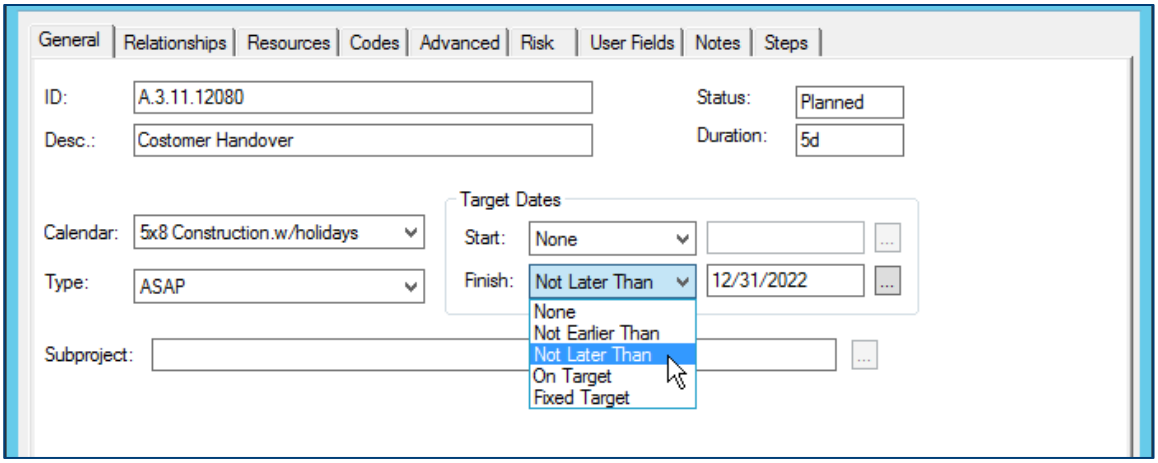
6. The **Finish On Target** date of **Dec 31st, 2022** has moved out the activity to the late date set by the Target finish. The subsequent Total Float has now rippled back through the critical path to the extent we no longer see it.



Activity Desc.	Early Start	Early Finish	Late Start	Late Finish	Total Float
Energization and Handover	*11/11/2022*	*01/09/2023*	*12/27/2022*	*01/09/2023*	*0*
Energize Substation	11/11/2022	11/17/2022	12/27/2022	01/02/2023	32d
Final Tests	11/11/2022	11/17/2022	12/27/2022	01/02/2023	32d
Costomer Handover	01/03/2023	01/09/2023	01/03/2023	01/09/2023	0
Warranty and Monitoring	*01/03/2023*	*01/16/2023*	*01/03/2023*	*01/16/2023*	*0*
Maintenance	01/03/2023	01/09/2023	01/03/2023	01/09/2023	0
Monitoring and Follow-up Inspections	01/03/2023	01/16/2023	01/03/2023	01/16/2023	0

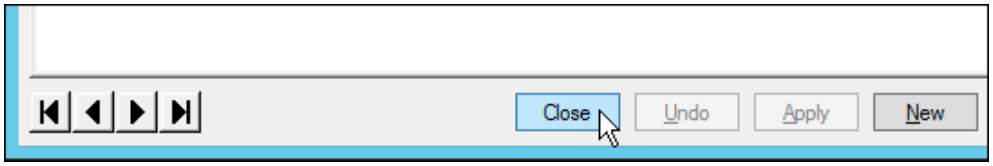
Let's try a softer Target type.

7. In the **General** tab for **Customer Handover**, change the Finish type to **Not Later Than**.



8. Click **Apply**.

9. Click **Close**.

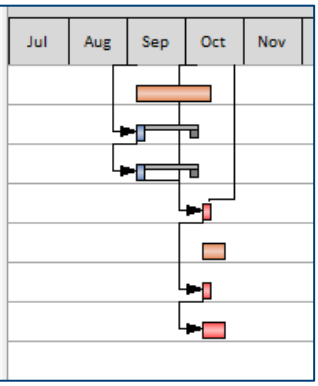


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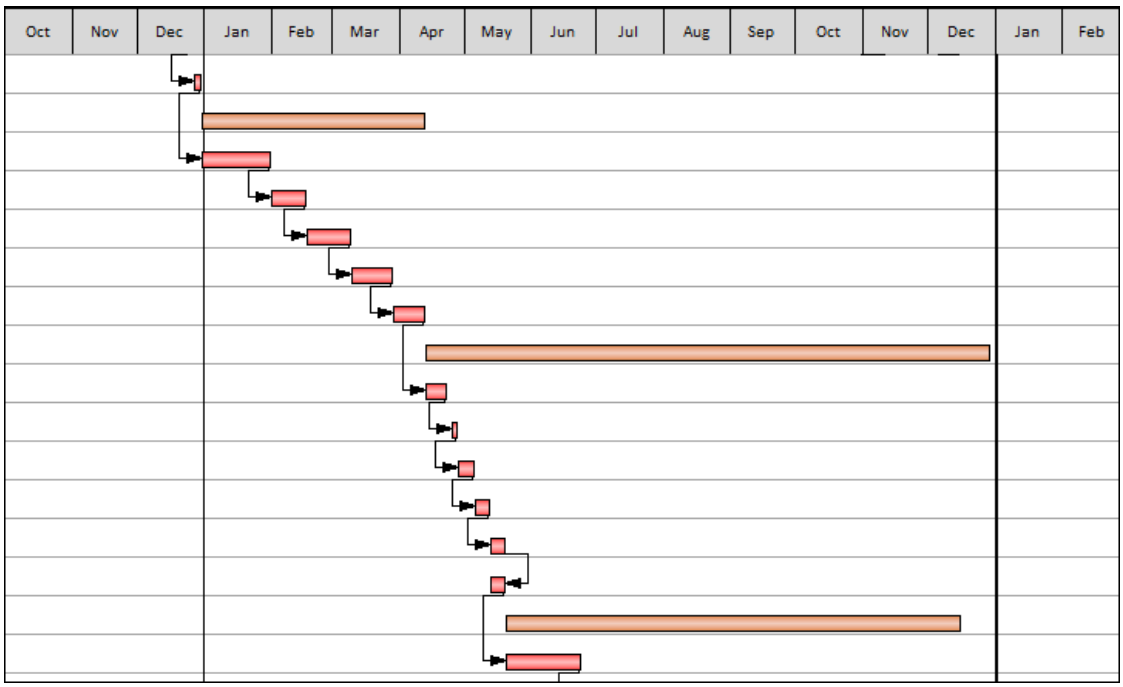
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10. Review the results to the **Gantt chart**.

Activity Desc.	Duration	Early Start	Early Finish	Total Float
Energization and Handover	*30d*	*09/05/2022*	*10/14/2022*	*0*
Energize Substation	5d	09/05/2022	09/09/2022	20d
Final Tests	5d	09/05/2022	09/09/2022	20d
Costomer Handover	5d	10/10/2022	10/14/2022	0
Warranty and Monitoring	*10d*	*10/10/2022*	*10/21/2022*	*0*
Maintenance	5d	10/10/2022	10/14/2022	0
Monitoring and Follow-up Inspections	10d	10/10/2022	10/21/2022	0



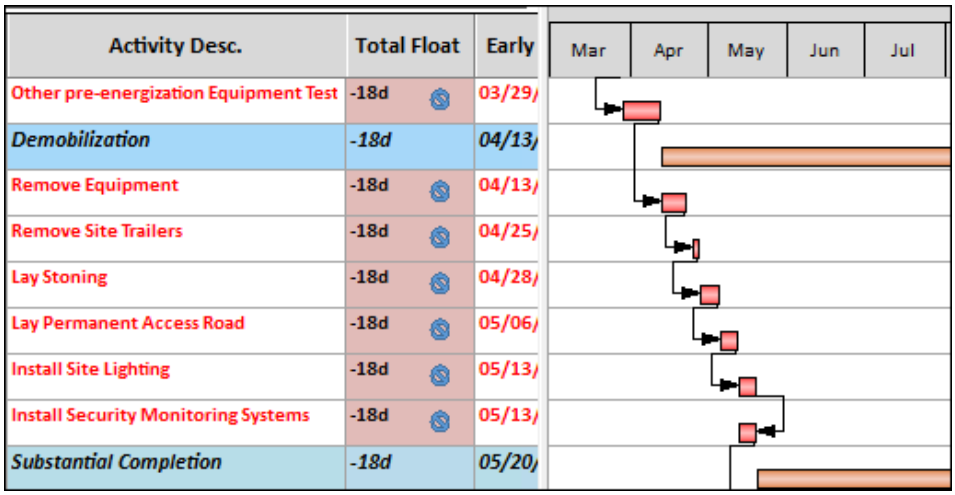
The critical path has returned to the schedule, while keeping a contractual constraint on the **Customer Handover** activity.



If the project slips to the right at any point that pushes the Customer Handover activity past its target date, negative Total Float will appear against the critical activities.

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Activity Desc.	Total Float	Early
Other pre-energization Equipment Test	-18d	03/29/
Demobilization	*-18d*	*04/13/*
Remove Equipment	-18d	04/13/
Remove Site Trailers	-18d	04/25/
Lay Stoning	-18d	04/28/
Lay Permanent Access Road	-18d	05/06/
Install Site Lighting	-18d	05/13/
Install Security Monitoring Systems	-18d	05/13/
Substantial Completion	*-18d*	*05/20/*

This illustrates the different results depending on the type of Target Dates you can best use. Always go with the softest constraint that will get the job done.

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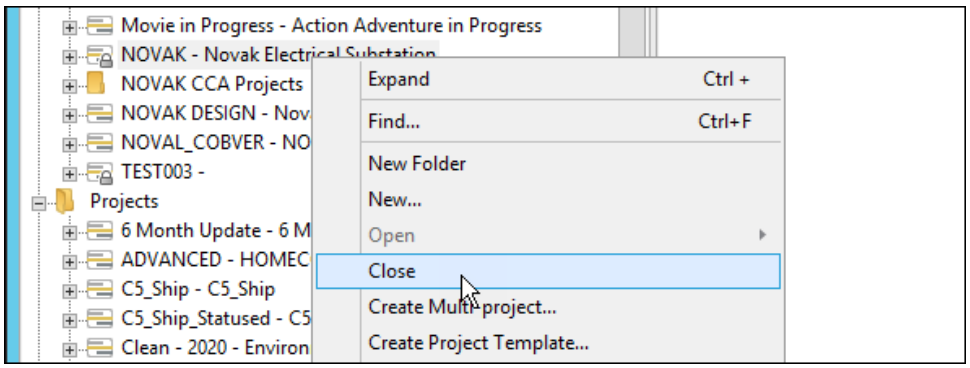
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6.8 Course Catchup

If you were unable to complete all the activities in this lesson, you can restore the final ancillary files using the following steps:

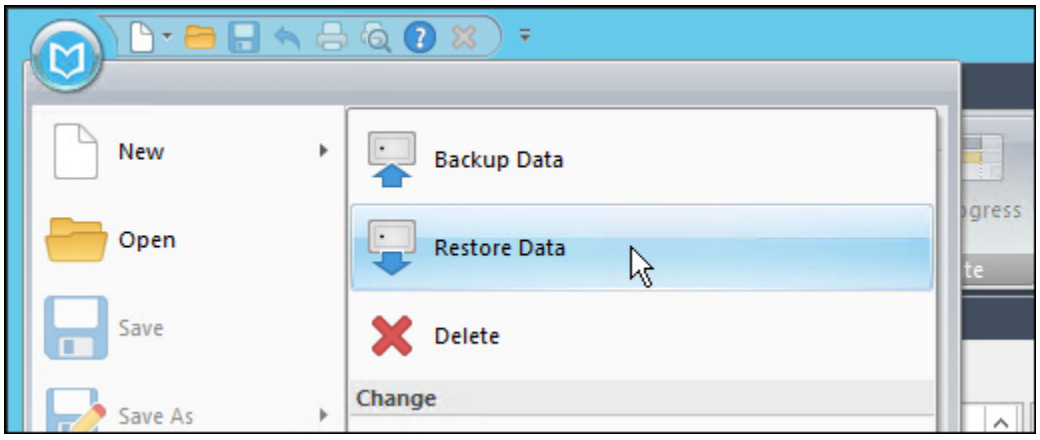
6.8.1 Activity: Course 6 – Catchup

1. Close the **NOVAK** project in the **Open Plan Explorer**.



   You cannot restore an open project.

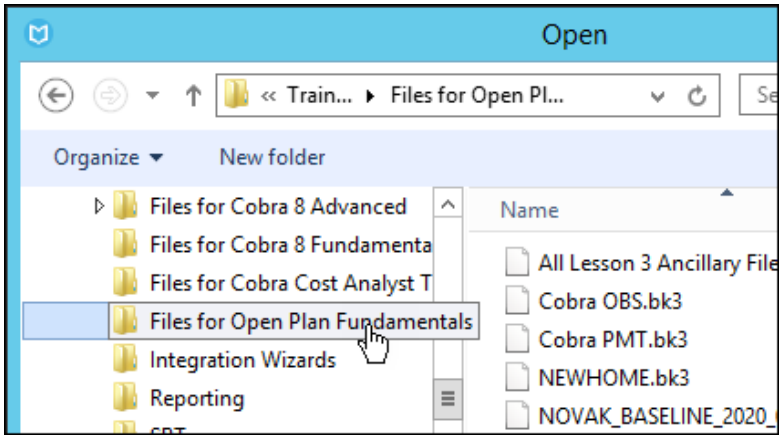
2. Click on the **File** | **Manage Files** > **Restore Data** option.



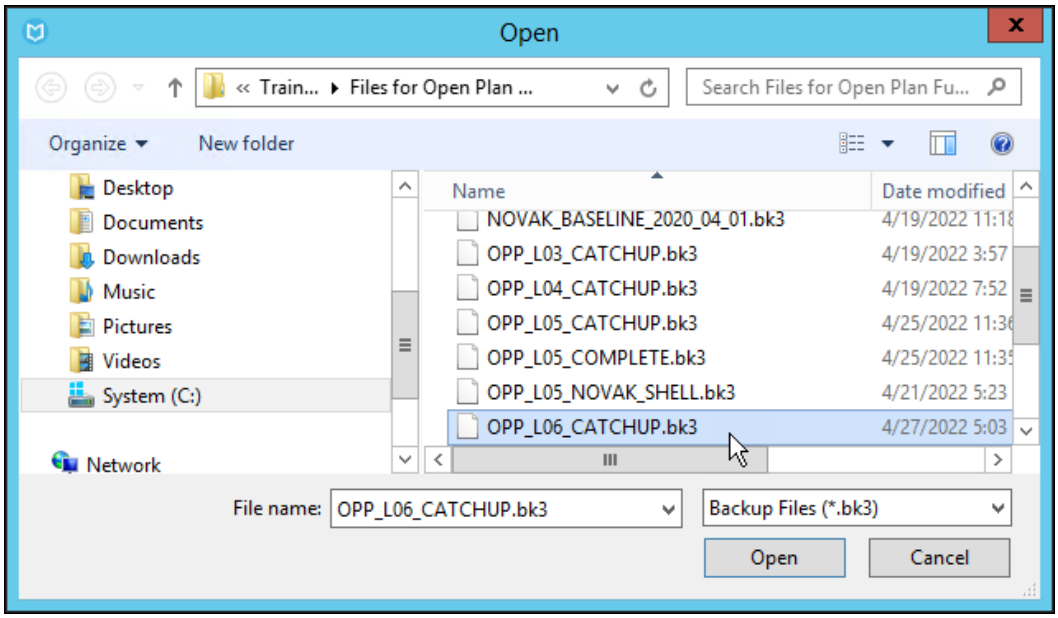
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3. In the **Open** dialog, go to **System (C:)** | **Training** | **Files for Open Plan Fundamentals**.



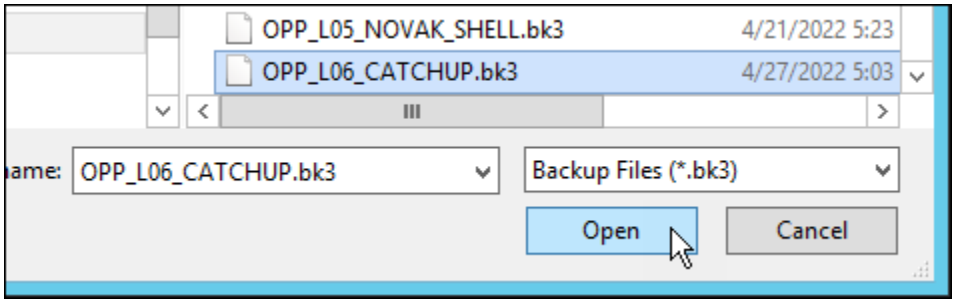
4. Click on the **OPP_L06_CATCHUP.bk3** file. This will restore any and all ancillary files created in this lesson.



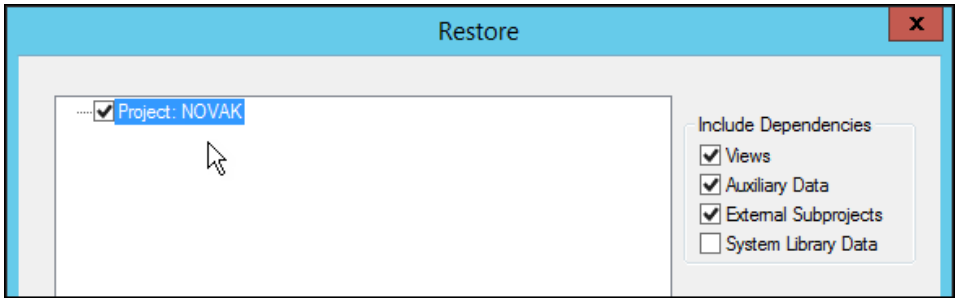
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5. Click **Open**.

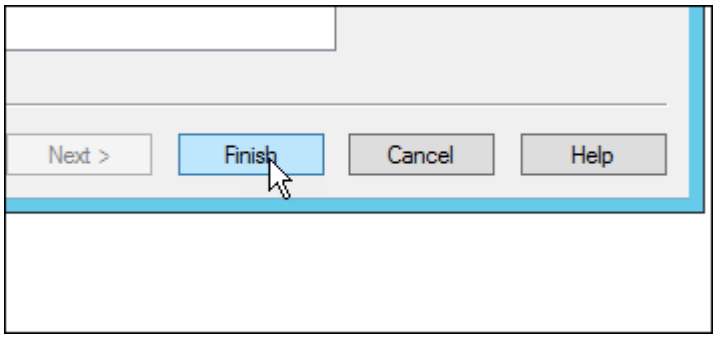


6. In the **Restore** dialog, verify the following, and then click **Next >**.



This will save additional prompts appearing during the process.

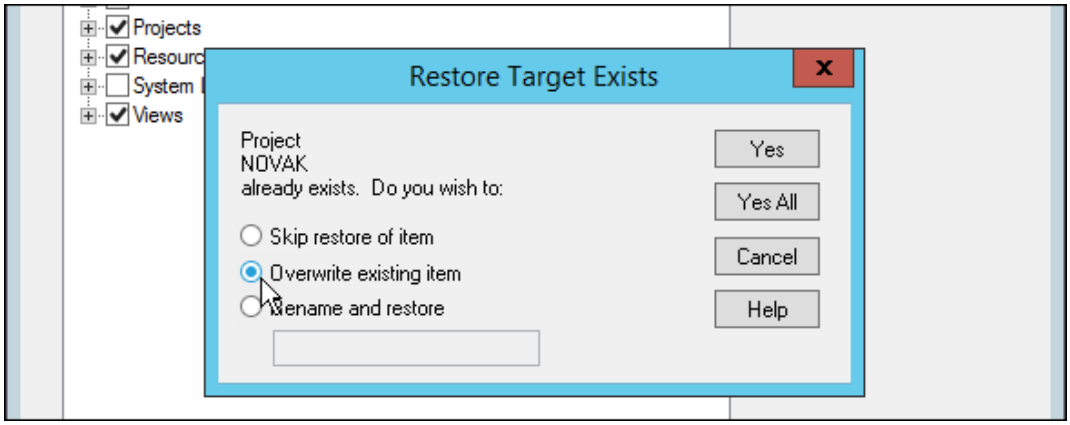
7. Click **Finish**.



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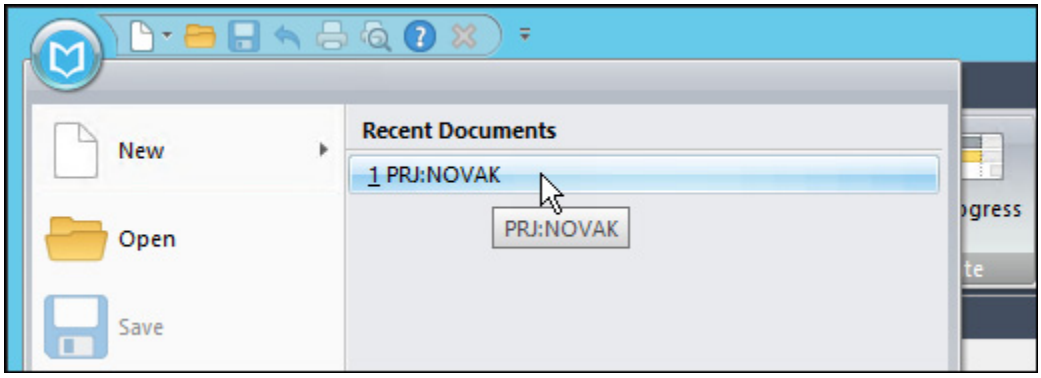
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8. If you see this prompt, set the '**Overwrite existing item**' option and click on the **Yes All** button, to replace all the existing project elements.



9. Click on the **File** menu.

10. Open your restored project from the '**Recent Documents**' list in the menu.



You are now ready to continue to the next lesson.

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Open Plan Scheduler Certification Series: Assigning Resources

Activity Guide

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Table of Contents

7.1 Course Introduction 4
7.1.1 In this Course 4
7.2 Assigning Resources 5
7.2.1 Activity: Adding Items to the Resources File 6
7.2.2 Activity: Assigning Labor Resources to Activities 12
7.2.3 Activity: Assigning Subcontractor Resources 20
7.3 Assigning Materials to Activities 29
7.3.1 Activity: Assigning Materials to Activities 29
7.4 Assigning Multiple Resources 36
7.4.1 Activity: Assigning Multiple Resources 36
7.5 Working with Views 45
7.5.1 Activity: Exploring the Views 46
7.5.2 Activity: Using the Assignment Spreadsheet 53
7.6 Resource Analysis 62
7.6.1 Activity: Reviewing the Resource Usage Histogram 62
7.7 Reviewing Costs 74
7.7.1 Activity: Calculating Project Costs 75
7.7.2 Activity: Exploring the Activity Information Dialog 77
7.7.3 Activity: Adding BAC Values to a View 83
7.8 Course Catchup 88
7.8.1 Activity: Course 7 – Catchup 88

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7.1 Course Introduction

In lesson 4 you learned how to build a list of resources that will be deployed on this, and potentially other, projects. In this lesson, you will learn how to assign those resources to activities in the schedule.

Resources play a key part in developing accurate schedules. As well as relationships, and target dates, resources also put constraints on when activities can be performed based upon their availability.

Sometimes, Finish-To-Start relationships exist between activities simply because there are a limited number of resource available to do the work, so concurrent assignment is not an option.

More directly, resources can be given windows of availability that can drive start dates of activities that are dependent upon their availability.

7.1.1 In this Course

- Assigning resources to activities
- Assigning materials to activities
- Assigning multiple resources
- Working with Views
- Performing Resource Analysis
- Calculating project costs

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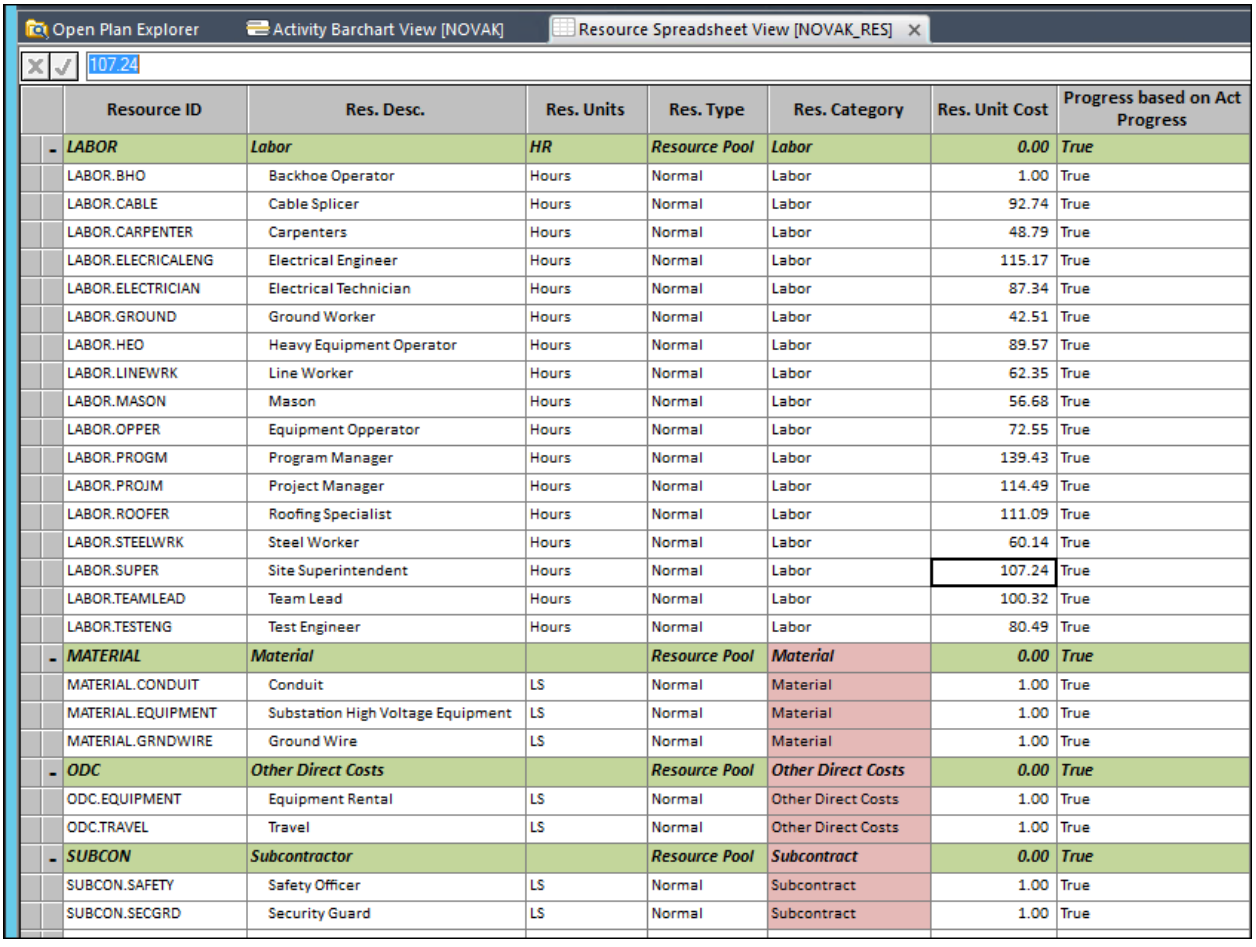
7.2 Assigning Resources

The resource created in lesson 4 will now be assigned to activities in the schedule.

Resources are assigned as either a level of effort, or as a total number of units for the activity. This will be clarified as you work through the exercises.

We will be starting with a standard Labor resource assignment. Labor is typically assigned as a 'level' of effort: i.e., 8 hours per day for one person, 16 hours per day for two people, etcetera.

For our project we previously created Labor, Material, Other Direct Costs, and Subcontractor resource types. Depending on what resource type you are assigning, will determine how these should be assigned in Open Plan.



Resource ID	Res. Desc.	Res. Units	Res. Type	Res. Category	Res. Unit Cost	Progress based on Act Progress
LABOR	*Labor*	*HR*	*Resource Pool*	*Labor*	*0.00*	*True*
LABOR.BHO	Backhoe Operator	Hours	Normal	Labor	1.00	True
LABOR.CABLE	Cable Splicer	Hours	Normal	Labor	92.74	True
LABOR.CARPENTER	Carpenters	Hours	Normal	Labor	48.79	True
LABOR.ELECRICALENG	Electrical Engineer	Hours	Normal	Labor	115.17	True
LABOR.ELECTRICIAN	Electrical Technician	Hours	Normal	Labor	87.34	True
LABOR.GROUND	Ground Worker	Hours	Normal	Labor	42.51	True
LABOR.HEO	Heavy Equipment Operator	Hours	Normal	Labor	89.57	True
LABOR.LINEWRK	Line Worker	Hours	Normal	Labor	62.35	True
LABOR.MASON	Mason	Hours	Normal	Labor	56.68	True
LABOR.OPPER	Equipment Opperator	Hours	Normal	Labor	72.55	True
LABOR.PROGM	Program Manager	Hours	Normal	Labor	139.43	True
LABOR.PROJM	Project Manager	Hours	Normal	Labor	114.49	True
LABOR.ROOFER	Roofing Specialist	Hours	Normal	Labor	111.09	True
LABOR.STEELWRK	Steel Worker	Hours	Normal	Labor	60.14	True
LABOR.SUPER	Site Superintendent	Hours	Normal	Labor	107.24	True
LABOR.TEAMLEAD	Team Lead	Hours	Normal	Labor	100.32	True
LABOR.TESTENG	Test Engineer	Hours	Normal	Labor	80.49	True
MATERIAL	*Material*		*Resource Pool*	*Material*	*0.00*	*True*
MATERIAL.CONDUIT	Conduit	LS	Normal	Material	1.00	True
MATERIAL.EQUIPMENT	Substation High Voltage Equipment	LS	Normal	Material	1.00	True
MATERIAL.GRNDWIRE	Ground Wire	LS	Normal	Material	1.00	True
ODC	*Other Direct Costs*		*Resource Pool*	*Other Direct Costs*	*0.00*	*True*
ODC.EQUIPMENT	Equipment Rental	LS	Normal	Other Direct Costs	1.00	True
ODC.TRAVEL	Travel	LS	Normal	Other Direct Costs	1.00	True
SUBCON	*Subcontractor*		*Resource Pool*	*Subcontract*	*0.00*	*True*
SUBCON.SAFETY	Safety Officer	LS	Normal	Subcontract	1.00	True
SUBCON.SECGRD	Security Guard	LS	Normal	Subcontract	1.00	True

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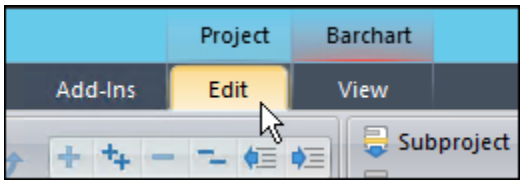
7.2.1 Activity: Adding Items to the Resources File

In this first activity, and also as a refresher on the earlier lesson, we need to add some materials to the **OP_NOVAK_RES** ancillary file.

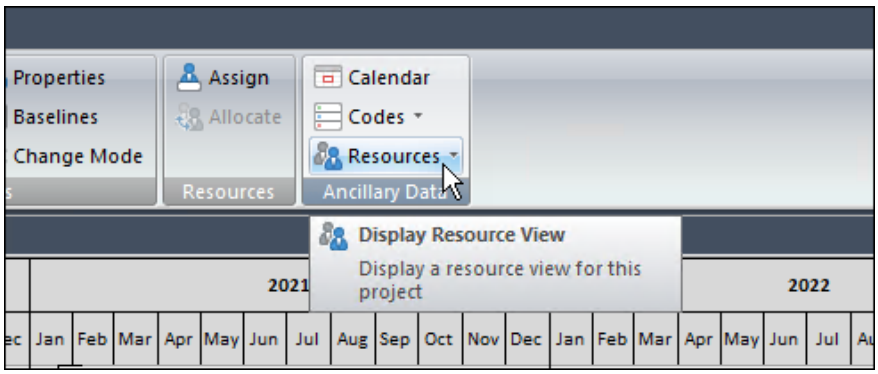
You will need to add these materials to the MATERIAL resource Pool for later exercises.

Resource ID	Res. Desc.	Res. Units	Res. Type	Res. Category	Res. Unit Cost
MATERIAL.CTRL_CABLE	Control Cable (Linear Ft.)	LF	Normal	Material	133.82
MATERIAL.CONCRETE	Concrete (Cubic Yard)	CY	Normal	Material	157.7
MATERIAL.MISC	Misc. Materials (Lump Sum)	LS	Normal	Material	1

1. Click on the **Edit** ribbon tab.



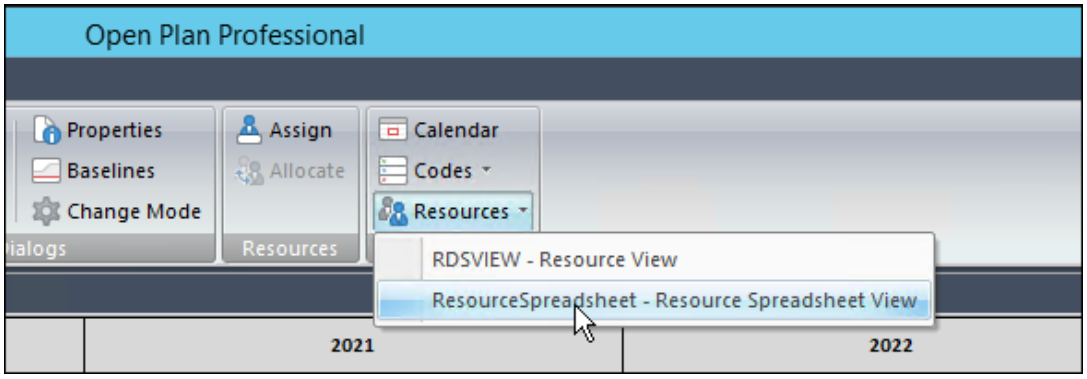
2. Go to the right and click on the **Resources** button in the **Ancillary Data** tool group.



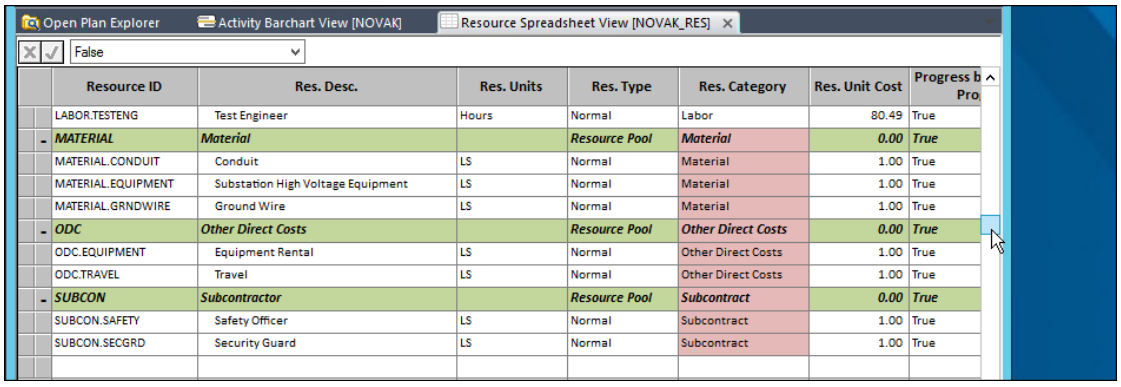
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3. Click on the **ResourceSpreadsheet** option in the resulting menu.

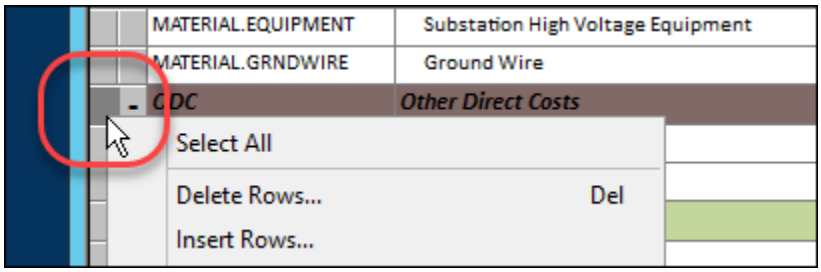


4. In the **Resource Spreadsheet View**, scroll down to the **Material** *resource pool*.



Resource ID	Res. Desc.	Res. Units	Res. Type	Res. Category	Res. Unit Cost	Progress b Pro
LABOR.TESTENG	Test Engineer	Hours	Normal	Labor	80.49	True
MATERIAL	*Material*		*Resource Pool*	*Material*	*0.00*	*True*
MATERIAL.CONDUIT	Conduit	LS	Normal	Material	1.00	True
MATERIAL.EQUIPMENT	Substation High Voltage Equipment	LS	Normal	Material	1.00	True
MATERIAL.GRNDWIRE	Ground Wire	LS	Normal	Material	1.00	True
ODC	*Other Direct Costs*		*Resource Pool*	*Other Direct Costs*	*0.00*	*True*
ODC.EQUIPMENT	Equipment Rental	LS	Normal	Other Direct Costs	1.00	True
ODC.TRAVEL	Travel	LS	Normal	Other Direct Costs	1.00	True
SUBCON	*Subcontractor*		*Resource Pool*	*Subcontract*	*0.00*	*True*
SUBCON.SAFETY	Safety Officer	LS	Normal	Subcontract	1.00	True
SUBCON.SECGRD	Security Guard	LS	Normal	Subcontract	1.00	True

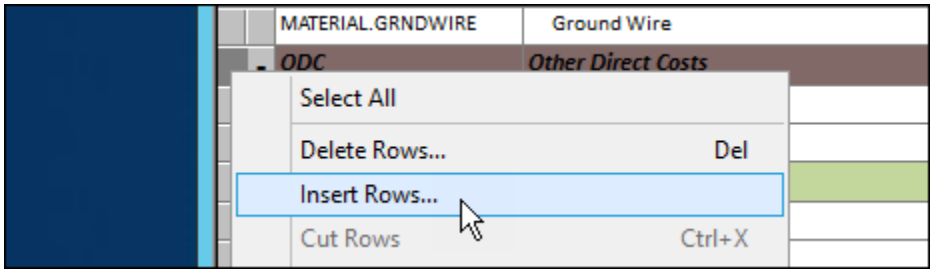
5. Right-click in the outer-most row header box to the left of the **ODC** *resource pool*.



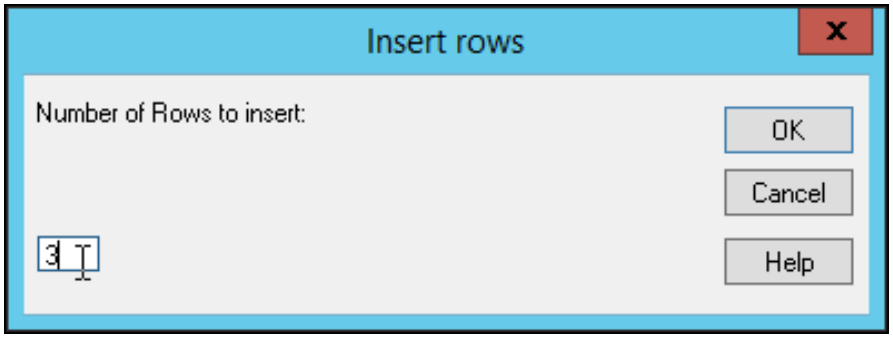
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6. Select the **Insert Rows…** option.



7. In the **Insert Rows** dialog, enter a '**3**' in the '**Number of Rows to insert**' field.



8. Click **OK**.

Tip: *like Microsoft Excel; Open Plan inserts rows above the selected row.*

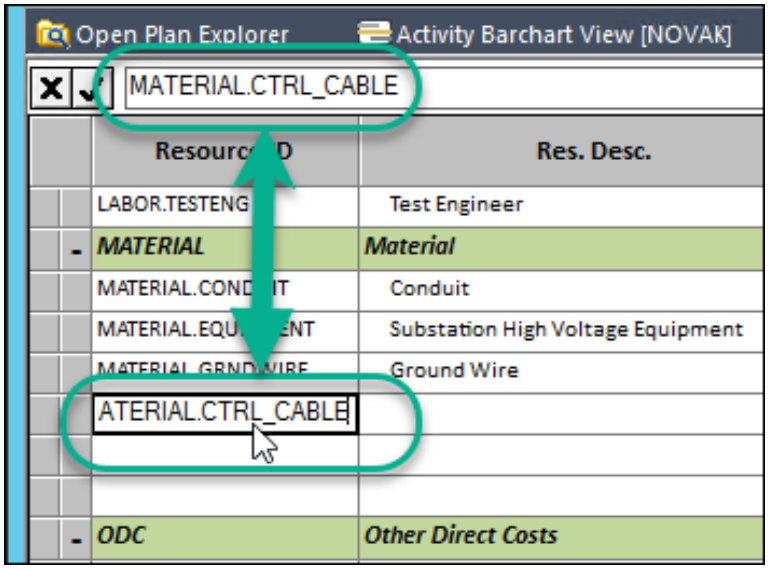
MATERIAL	***Material***		***Resource Pool***
MATERIAL.CONDUIT	Conduit	LS	Normal
MATERIAL.EQUIPMENT	Substation High Voltage Equipment	LS	Normal
MATERIAL.GRNDWIRE	Ground Wire	LS	Normal
			Normal
ODC	***Other Direct Costs***		***Resource Pool***
ODC.EQUIPMENT	Equipment Rental	LS	Normal
ODC.TRAVEL	Travel	LS	Normal

You are now ready to enter the three additional material resources.

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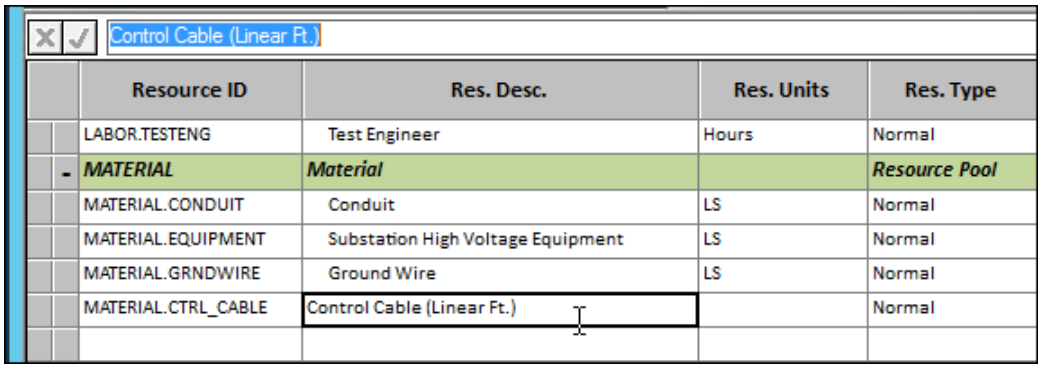
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9. In the **Resource ID** field, enter **MATERIAL.CTRL_CABLE**.



Note: You can enter the value in the Entry field above, or directly in the cell.

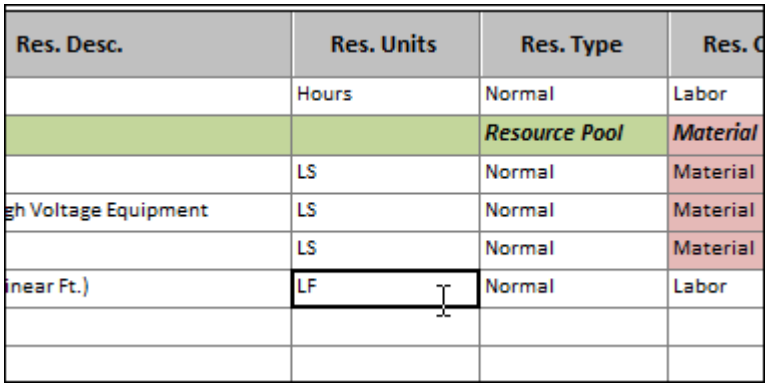
10. Now enter a **Res. Dec.** of **Control Cable (Linear Ft.)**.



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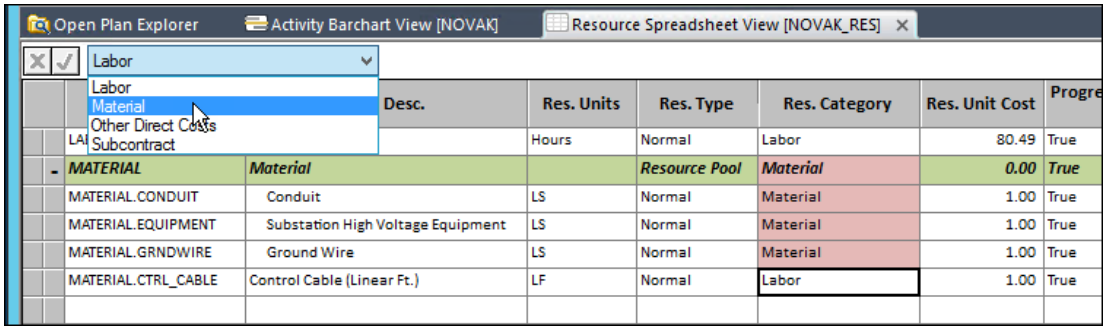
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11. In **Res. Units** enter '**LF**' for 'Linear Feet'.



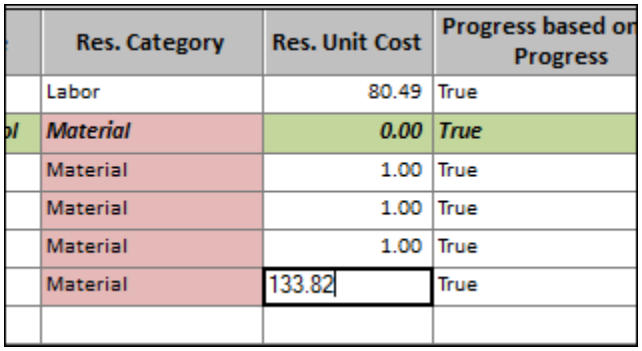
Res. Desc.	Res. Units	Res. Type	Res. C
	Hours	Normal	Labor
		Resource Pool	*Material*
	LS	Normal	Material
gh Voltage Equipment	LS	Normal	Material
	LS	Normal	Material
inear Ft.)	LF	Normal	Labor

12. In **Res. Category**, it's critical that you set this correctly to **Material**. Click the Res Category cell, and use the **Entry Field** dropdown to select **Material**.



	Desc.	Res. Units	Res. Type	Res. Category	Res. Unit Cost	Progre
LA		Hours	Normal	Labor	80.49	True
MATERIAL	*Material*		*Resource Pool*	*Material*	*0.00*	*True*
MATERIAL.CONDUIT	Conduit	LS	Normal	Material	1.00	True
MATERIAL.EQUIPMENT	Substation High Voltage Equipment	LS	Normal	Material	1.00	True
MATERIAL.GRNDWIRE	Ground Wire	LS	Normal	Material	1.00	True
MATERIAL.CTRL_CABLE	Control Cable (Linear Ft.)	LF	Normal	Labor	1.00	True

13. The **Unit Cost** for this cable is **$133.82** per linear foot. Enter this value directly into the **Unit Cost** cell, or via the **Entry Field** – whichever you prefer.

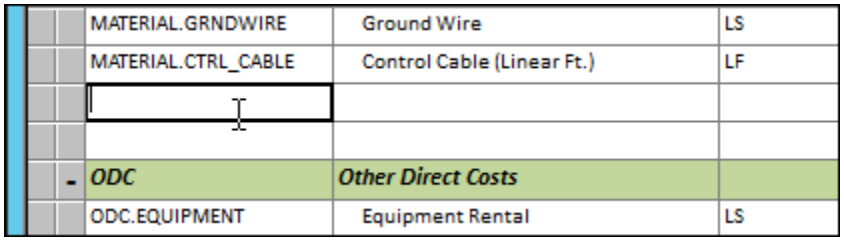


	Res. Category	Res. Unit Cost	Progress based on Progress
	Labor	80.49	True
ol	*Material*	*0.00*	*True*
	Material	1.00	True
	Material	1.00	True
	Material	1.00	True
	Material	133.82	True

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14. Click in the **Resource ID** field on the next row down.

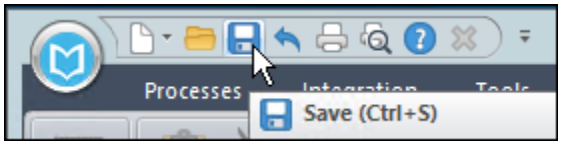


	MATERIAL.GRNDWIRE	Ground Wire	LS
	MATERIAL.CTRL_CABLE	Control Cable (Linear Ft.)	LF
-	*ODC*	*Other Direct Costs*	
	ODC.EQUIPMENT	Equipment Rental	LS

15. Repeat these steps for the remaining two records in the table below.

Resource ID	Res. Desc.	Res. Units	Res. Type	Res. Category	Res. Unit Cost
MATERIAL.CTRL_CABLE	Control Cable (Linear Ft.)	LF	Normal	Material	133.82
MATERIAL.CONCRETE	Concrete (Cubic Yard)	CY	Normal	Material	157.7
MATERIAL.MISC	Misc. Materials (Lump Sum)	LS	Normal	Material	1

16. Click **Save,** once you're done.



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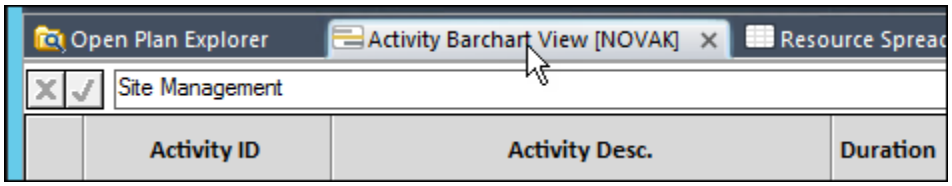
The final Material resource pool should appear as follows:

MATERIAL.MISC

Resource ID	Res. Desc.	Res. Units	Res. Type	Res. Category	Res. Unit Cost	Progr
LABOR.TESTENG	Test Engineer	Hours	Normal	Labor	80.49	True
MATERIAL	*Material*		*Resource Pool*	*Material*	*0.00*	*True*
MATERIAL.CONDUIT	Conduit	LS	Normal	Material	1.00	True
MATERIAL.EQUIPMENT	Substation High Voltage Equipment	LS	Normal	Material	1.00	True
MATERIAL.GRNDWIRE	Ground Wire	LS	Normal	Material	1.00	True
MATERIAL.CTRL_CABLE	Control Cable (Linear Ft.)	LF	Normal	Material	133.82	True
MATERIAL.CONCRETE	Concrete (Cubic Yard)	CY	Normal	Material	157.70	True
MATERIAL.MISC	Misc. Materials (Lump Sum)	LS	Normal	Material	1.00	True
ODC	*Other Direct Costs*		*Resource Pool*	*Other Direct Costs*	*0.00*	*True*
ODC.EQUIPMENT	Equipment Rental	LS	Normal	Other Direct Costs	1.00	True

7.2.2 Activity: Assigning Labor Resources to Activities

1. Open the **BARVW - Activity Barchart View** for NOVAK.

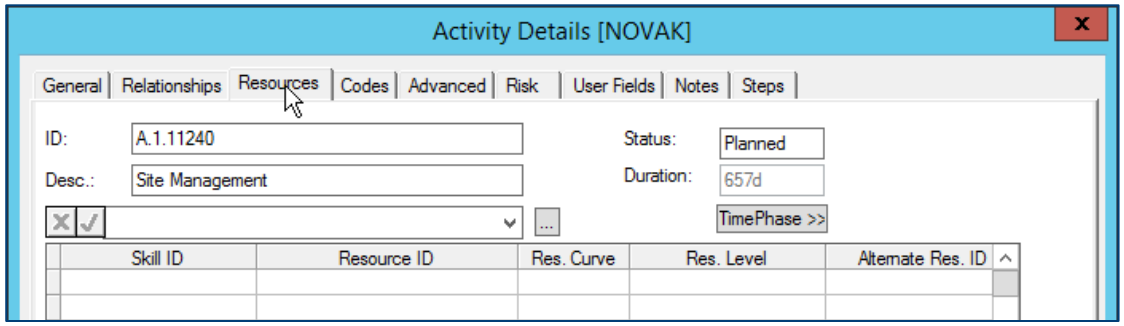


2. Double-click on the **Site Management** activity.

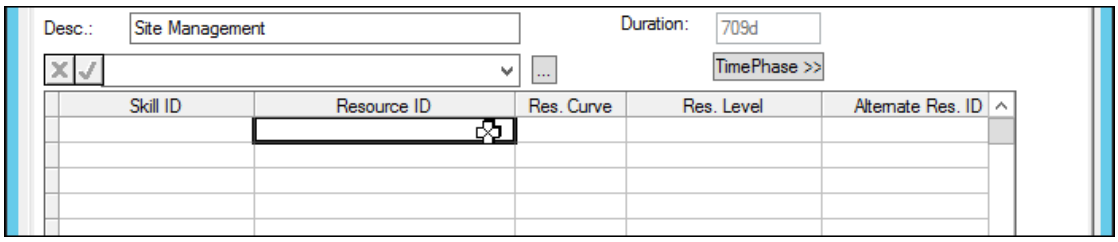
Activity ID	Activity Desc.	Duration	Activity Type	Early Start
A	*Novak Electrical Substation*	*662d*	*Subproject*	*04/01/2020*
A.1	*Project Management*	*657d*	*Subproject*	*04/01/2020*
A.1.11231	Notice To Proceed	0	Start Milestone	04/01/2020
A.1.11240	Site Management	657d	Hammock	04/01/2020
A.1.11250	Site Security	657d	Hammock	04/01/2020

3. In **Activity Details**, click on the **Resources** tab.

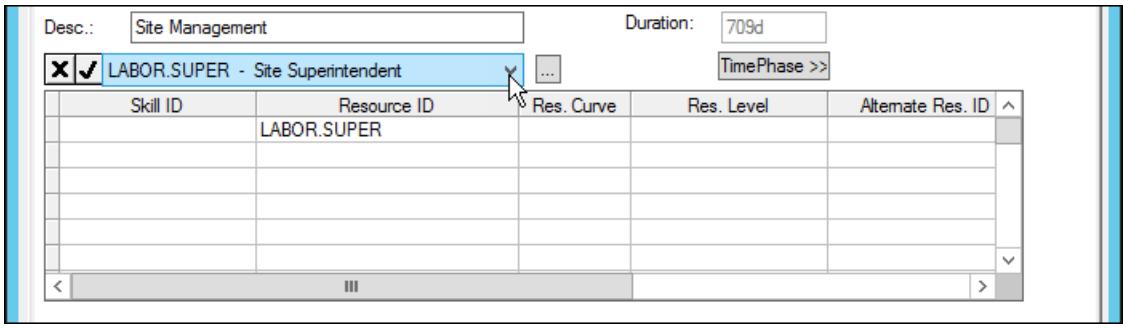
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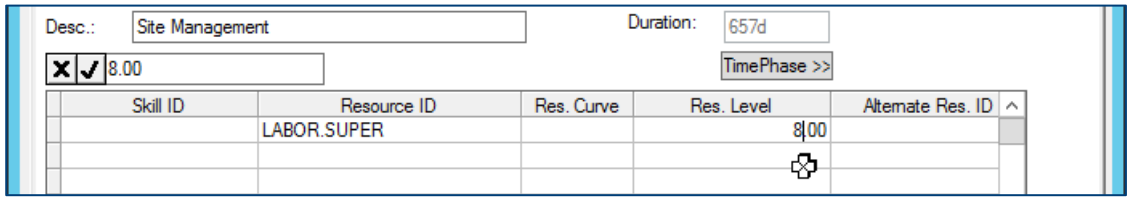
4. Click on the **Resource ID** cell.



5. Click the dropdown field above the table and select the **Site Superintendent** resource.



6. In the **Res. Level** field, enter '**8**'. This is 8 units (in this case hours) per day, for the duration of the activity.

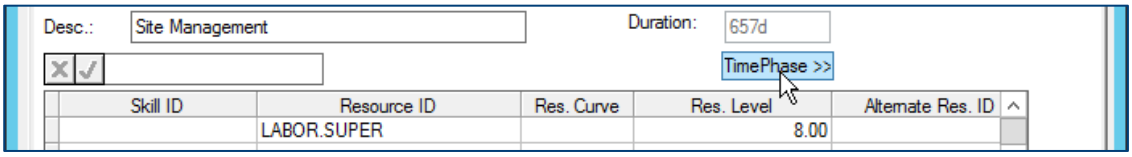


7. Click **Apply** to register the new record.

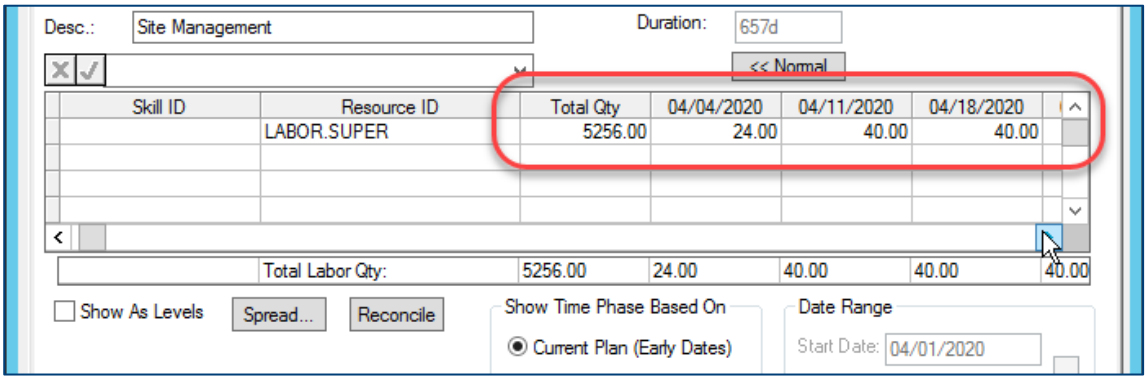
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8. Now, to see how this has been handled by the tool, click on the **TimePhase >>** button.



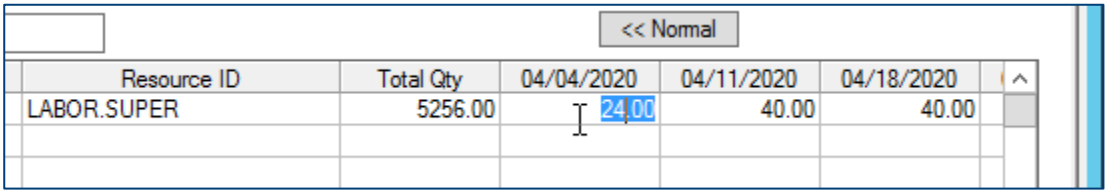
9. Note how the level of effort of 8 hours per day has been totaled in the time-phased table, along with weekly hours for each period spanned by the activity.



The **Total_Qty** column shows **5256** - the total hours that this 8 hour per day 'level' assignment has created.

Based upon a level of 8 hours per day, Open Plan has spread the resource evenly over all periods of the activity lifecycle. Where the dates are for a short week, you see a low value: e.g., 04/04/2020 has only three working days because the activity starts on Wednesday, January 1st, just three working days.

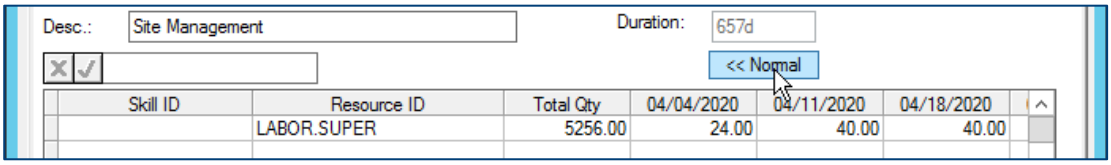
Also note that these period cells are editable, should you want to make changes to the profile.



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10. Click the **<< Normal** button to return to the original dialog view.



11. Close the **Activity Details** dialog.

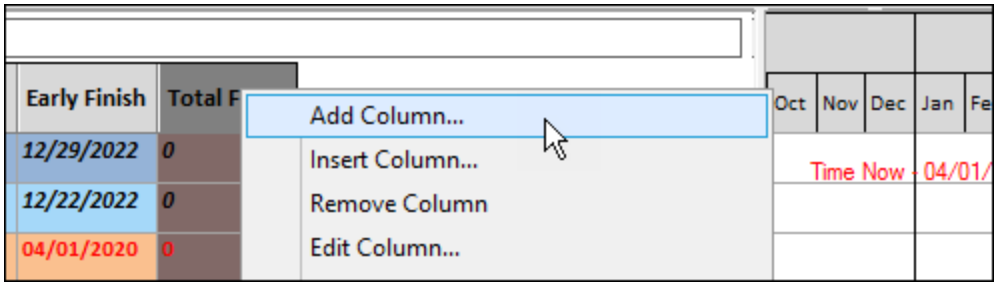
    Now, we'll add two columns to the table to help you see the results of this assignment.

    Important Note: Your results may vary.

    If your numbers are not exactly the same as those shown in this Activity Guide, this will likely be due to slight differences in schedule items developed in prior lessons.

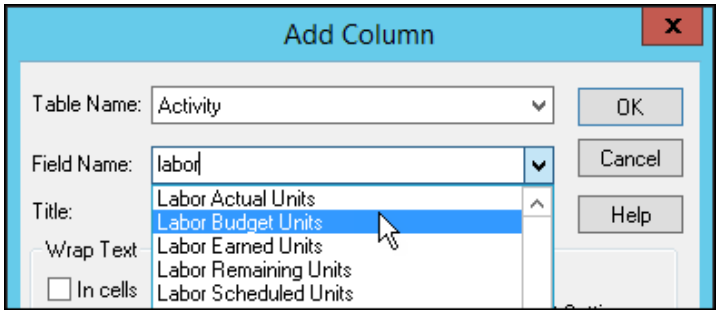
    Do not be concerned. The important thing is to understand how to perform these operations in Open Plan. Keep in mind these are hammocks, so their durations (and therefore their labor values) are dependent on many potential activity, duration, and relationship variables. Follow the steps in lesson 7 catchup to realign your data to the activity guide examples.

12. Right-click on the **Total Float** column header in the table area and choose **Add Column…**.



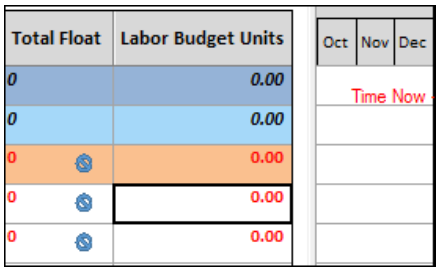
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13. In the **Add Column** dialog, click the **Field Name**: field and locate the **Labor Budget Units** field from the list.



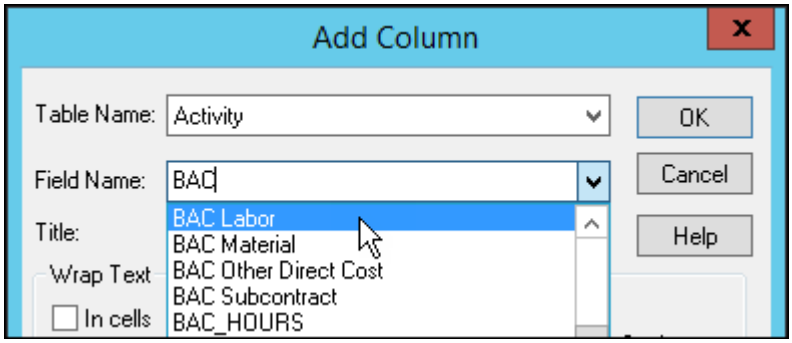
14. Click **OK**.

15. The **Labor Budget Units** column appears in the table.



16. Right-click on the **Labor Budget Units** column header and select **Add Column** again.

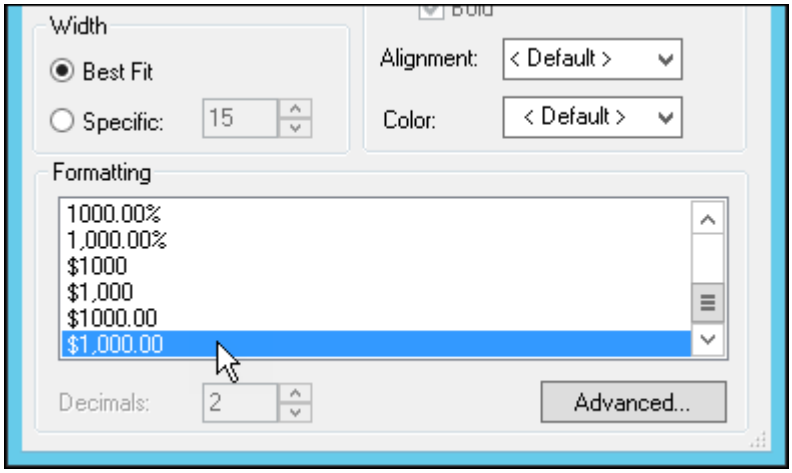
17. Select **BAC Labor** in the **Field Name:** dropdown.



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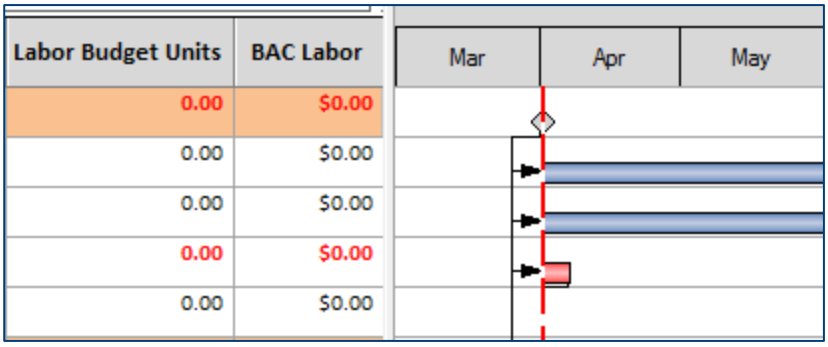
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18. With **BAC Labor** selected, go to the bottom of the dialog and in the **Formatting** list, select the **$1,000.00** option.



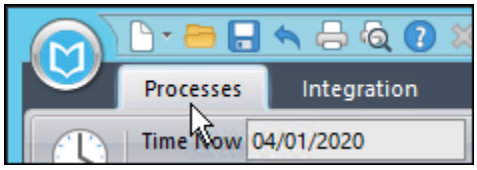
19. Click **OK**.

20. Review the **Labor Budget Units** and **BAC** Labor columns in the table area.



Note that these columns contain zeros, even with a resource now assigned to the **Site Management** activity. To see values we will now perform a cost calculation.

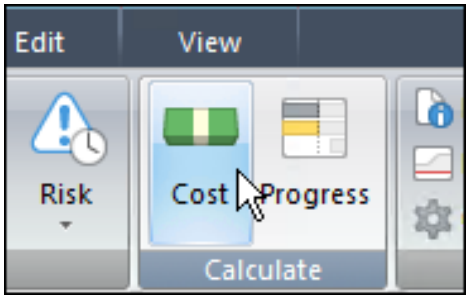
21. Click on the **Processes** tab.



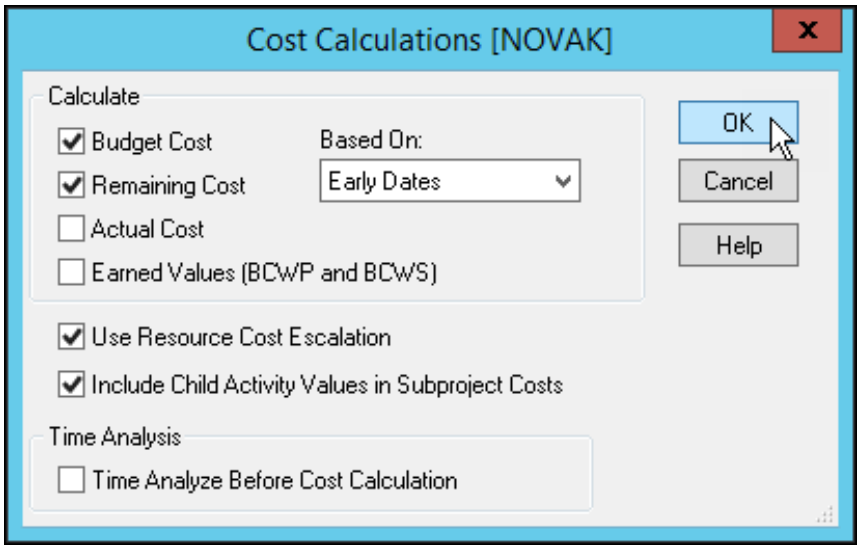
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22. Click on the **Cost** button in the **Calculate** tool group.



23. Adjust the settings in the **Cost Calculations** dialog to be the same as the following:

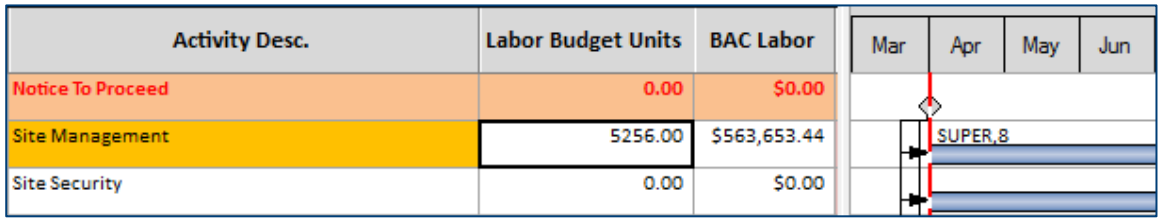


24. Click **OK**.

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25. After a brief calculation, you will see the **Units** and **Hours** columns displaying the values for the **Site Superintendent** assignment.

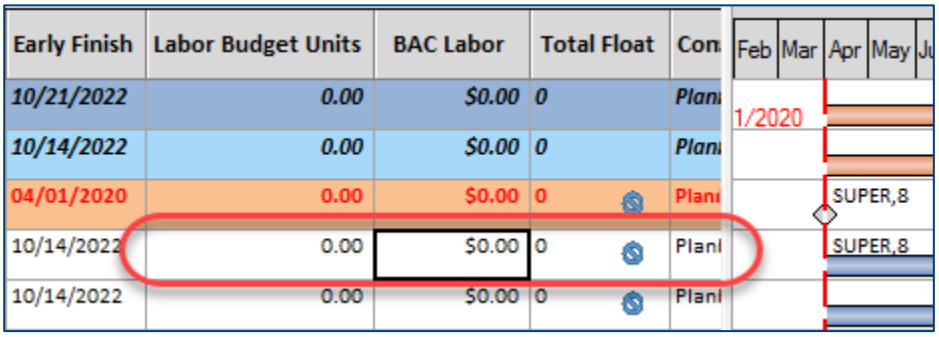


Activity Desc.	Labor Budget Units	BAC Labor
Notice To Proceed	0.00	$0.00
Site Management	5256.00	$563,653.44
Site Security	0.00	$0.00

Open Plan has taken the Labor Budget Units and multiplied by the hourly rate for the resource to calculate a cost. Specifically:

Site Superintendent | Res. Unit Cost ($107.24) x 5672 = $608,265.28

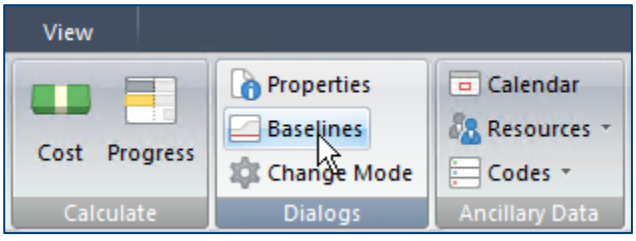
Note: If you **DO NOT** see calculated values appear in the **Labor Budget Units** and **BAC Labor** columns, verify you do not have any baseline created for your project.



Early Finish	Labor Budget Units	BAC Labor	Total Float	Con
10/21/2022	*0.00*	*$0.00*	*0*	*Plani*
10/14/2022	*0.00*	*$0.00*	*0*	*Plani*
04/01/2020	0.00	$0.00	0	Plani
10/14/2022	0.00	$0.00	0	Plani
10/14/2022	0.00	$0.00	0	Plani

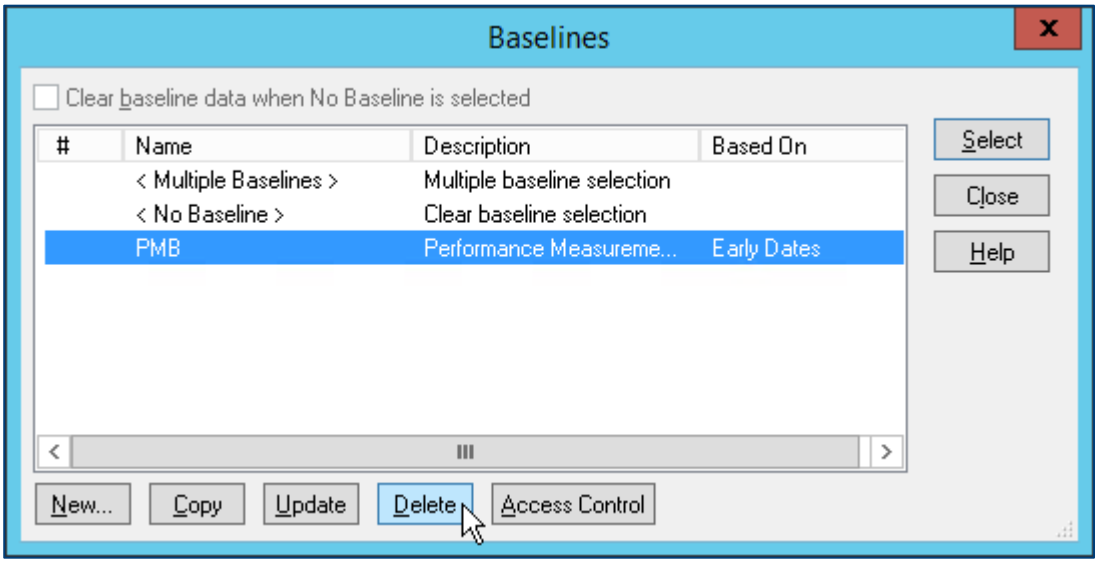
These budget values are derived from the baseline: when one exists! Baselines are covered in the next lesson, but if you've been running these lessons out of sequence, and taken a baseline before these resources were assigned, you may run into this situation.

To check, click the **Baselines** button in either the **Processes**, or the **Edit** ribbon.

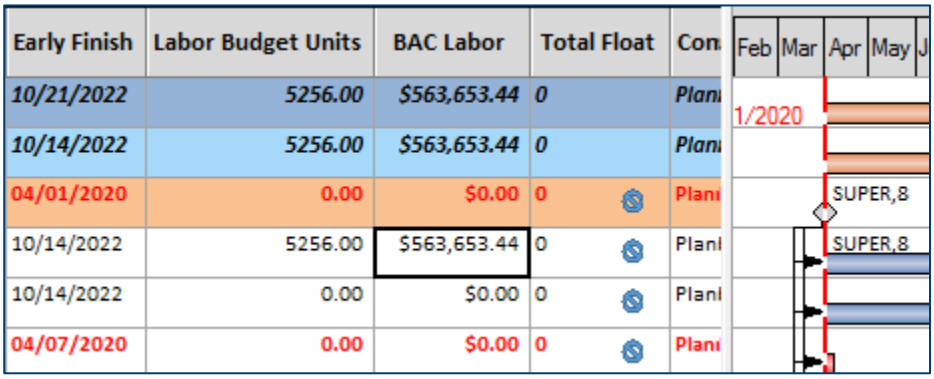


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In the **Baselines** dialog, delete all baselines that exist by selecting them, and using the **Delete** button. You will build the official baseline in the following lesson.



You can now rerun the **Cost** calculation to see the **Labor Budget Units** and the **BAC Labor** values appear.



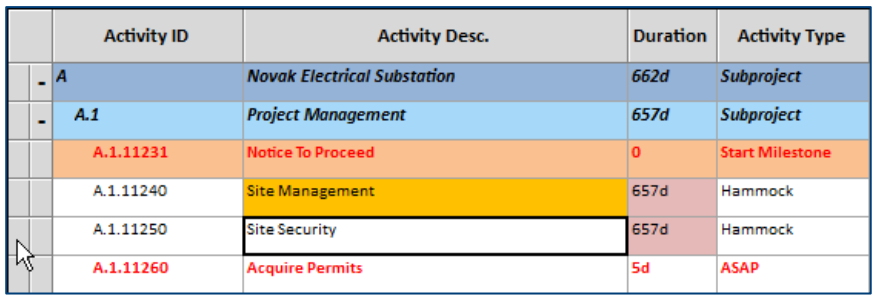
7.2.3 Activity: Assigning Subcontractor Resources

Subcontractors can be assigned as a lump sum or hourly, depending on how the contract is structured. For the purposes of this example, our subcontractors will be assigned as a Lump Sum (LS) cost to the site security activity. This way you will learn how to assign a resource as a total for the activity, not a level of effort as we did with Labor resource.

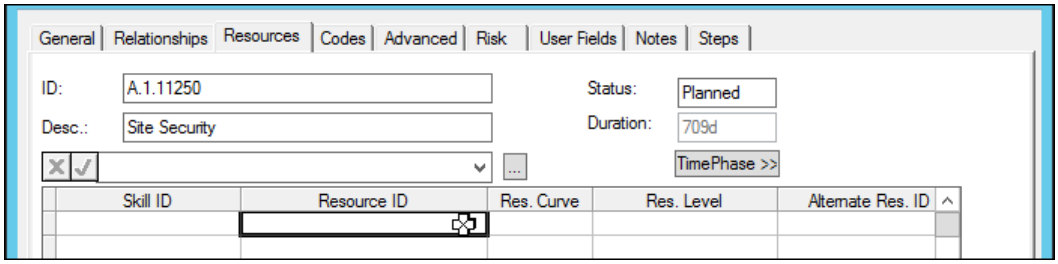
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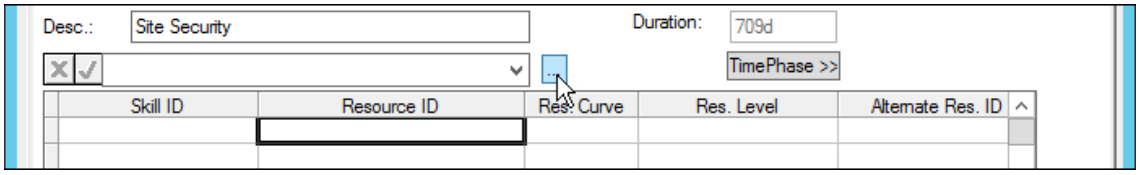
1. Double-click on **Site Security** to open the **Activity Details** dialog.



2. In the **Resources** tab, select the **Resource ID** field as before.

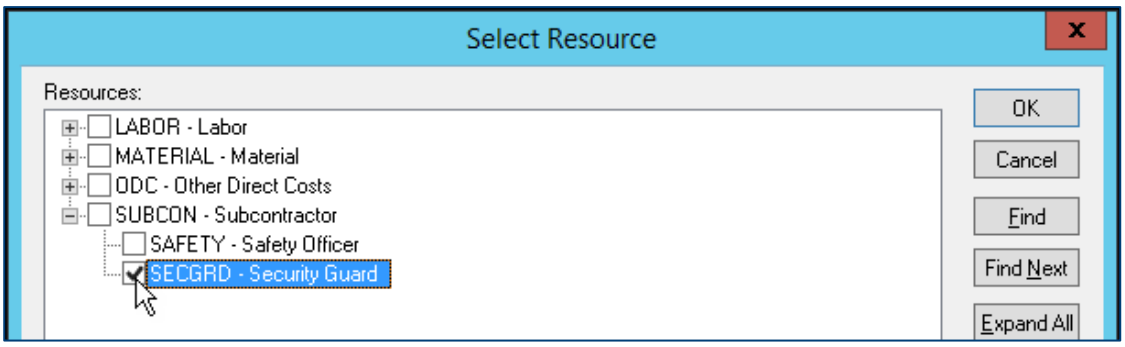


3. This time, click on the **Ellipsis** button to open the **Select Resource** dialog.



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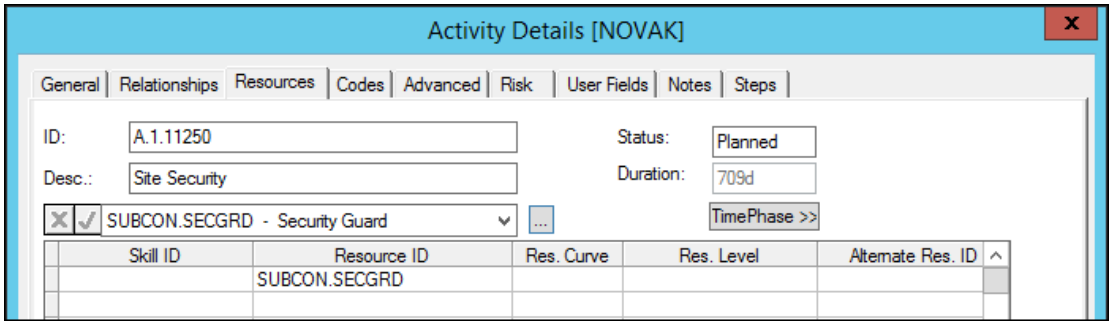
4. In the **Select Resource** dialog, expand the **SUBCON** item and select **SECGRD** from the list.



If you have a large Resources ancillary file, using the Ellipsis button allows you to go more directly to the categories of resource you need.

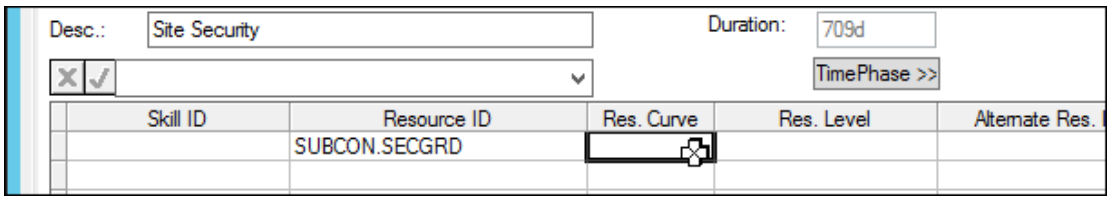
5. Click **OK**.

6. You will see the **SUBCON.SECGRD** selected in the **Resource ID** field.



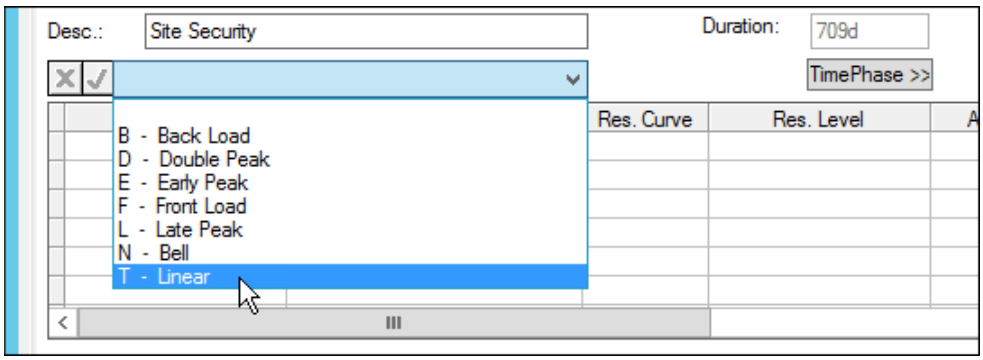
Because this is a **Lump Sum** assignment, we need to take an extra step by setting a value in the **Res. Curve** column.

7. Click in the **Res. Curve** cell.



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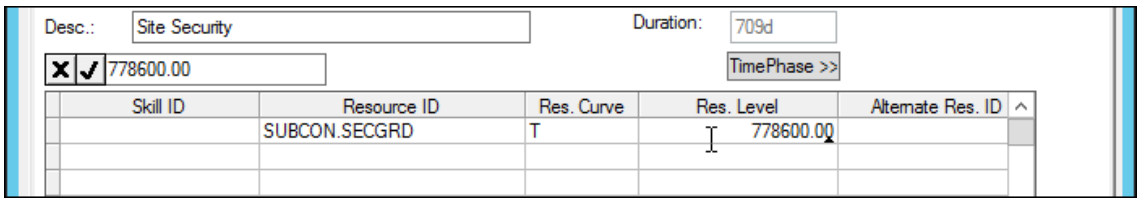
8. Click the dropdown field and choose the **T – Linear** option.



Important: For Open Plan to treat an assignment as a total, not a level, you must assign a **Res. Curve** value to the assignment.

One way to remember this is to think of the **T** as '**Total**'; although any of the curve settings will cause this to be a total units assignment. We are selecting Linear here because we want Open Plan to spread the cost evenly over the duration of the activity.

9. In the Res. Level field, enter **778600**.



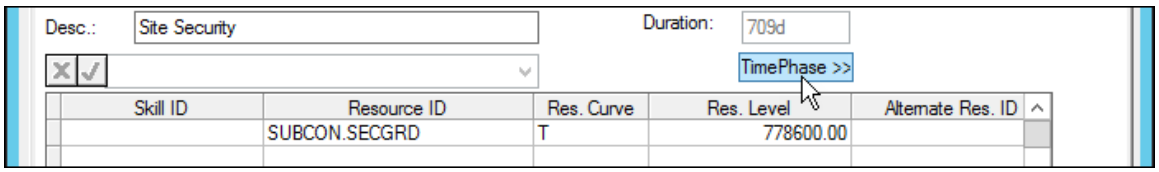
The number 778600 is in fact the agreed total cost for 24 hour security coverage at the site. The **Res. Unit Cost** for the **SECGRD** is set to **$1** in the Resources file.

10. Click **Apply**.

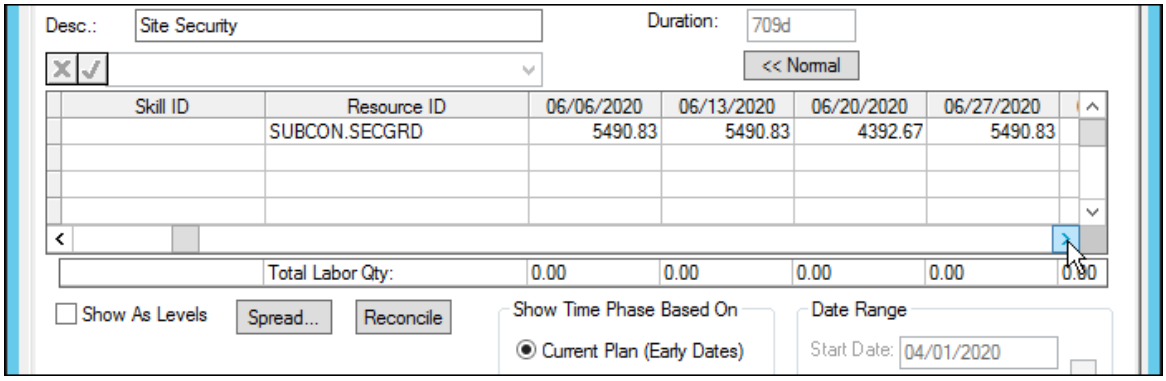
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11. To better understand the outcome, click on the **TimePhase >>** button.



12. Scroll the table to see the cost per period values calculated by **Open Plan**.

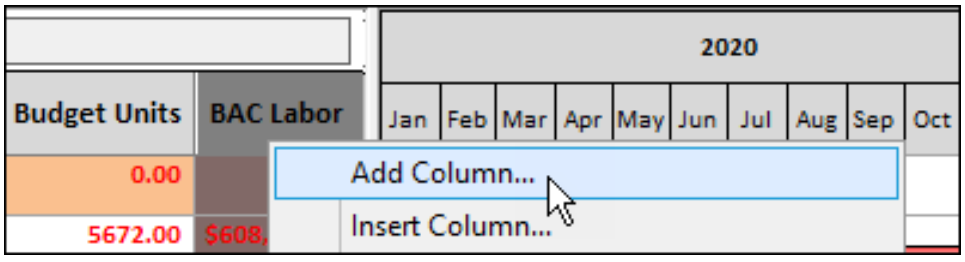


13. Click the **<< Normal** button.

14. Click **Close**.

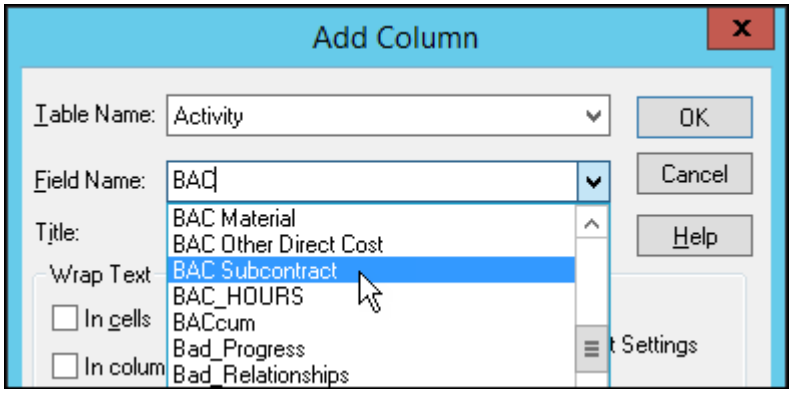
    Now let's add the **BAC Subcontract** column to the table.

15. Right-click on the **BAC Labor** column header in the table area and choose **Add Column…**.



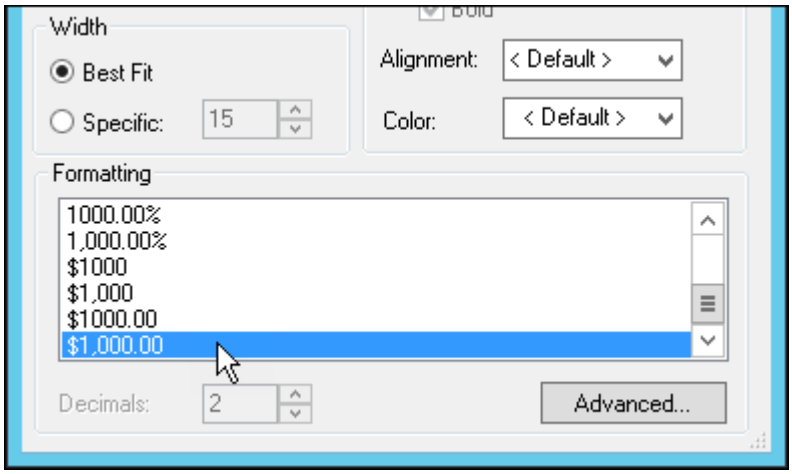
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16. In the **Add Column** dialog, click the **Field Name**: field and locate the **BAC Subcontract** field from the list.



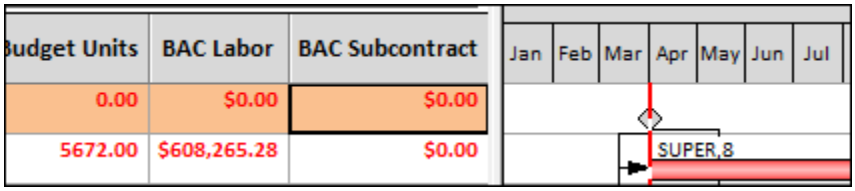
Tip: Type **BAC** in the **Field Name** and then click on the dropdown to speed up your search.

17. With **BAC Subcontract** selected, go to the bottom of the dialog and in the **Formatting** list, select the **$1,000.00** option.



18. Click **OK**.

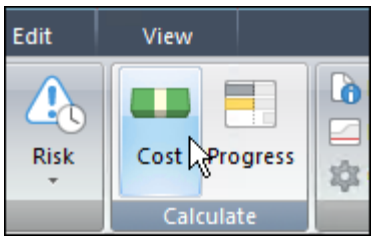
19. The **BAC Subcontract** column appears in the table.



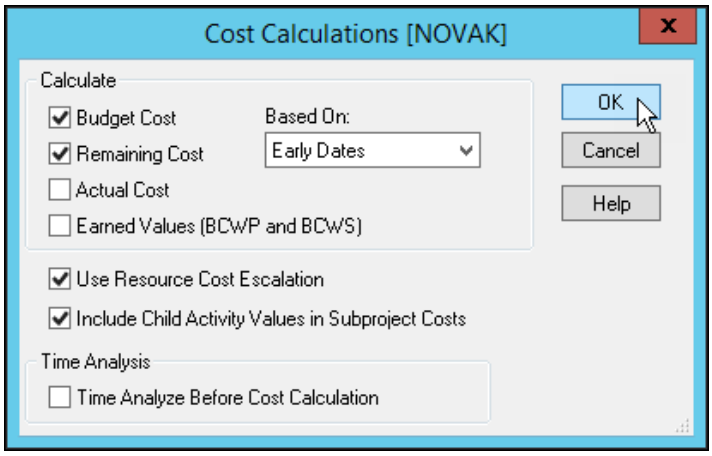
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20. In the **Processes** ribbon, click on the **Cost** button.



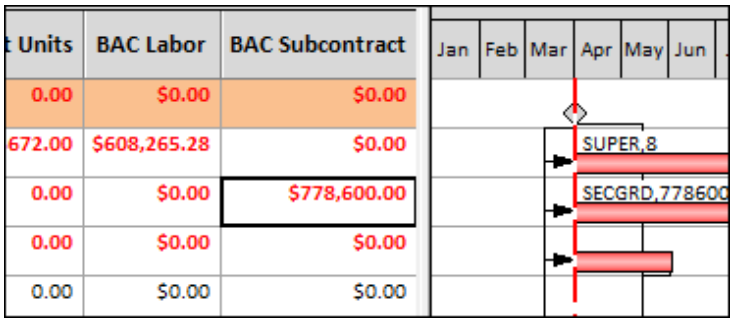
21. If necessary, adjust the settings in the **Cost Calculations** dialog to be the same as the following:



Note: Open Plan typically retains the last settings used in this dialog.

22. Click **OK**.

23. Review the amount in the **BAC Subcontract** column.

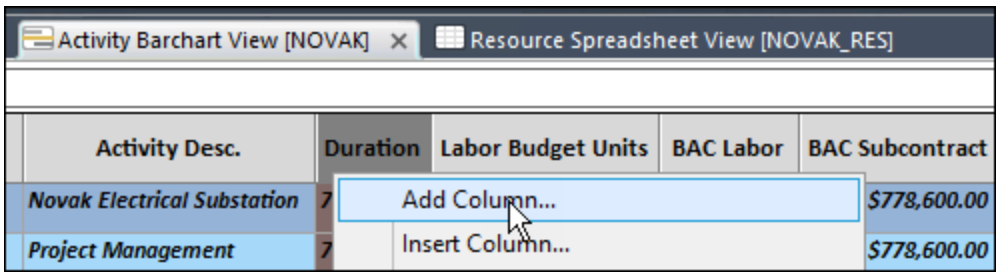


If you need to see just one column with cumulative costs for any resource types, you should use the **BACcum** field. Let's add that to the table now.

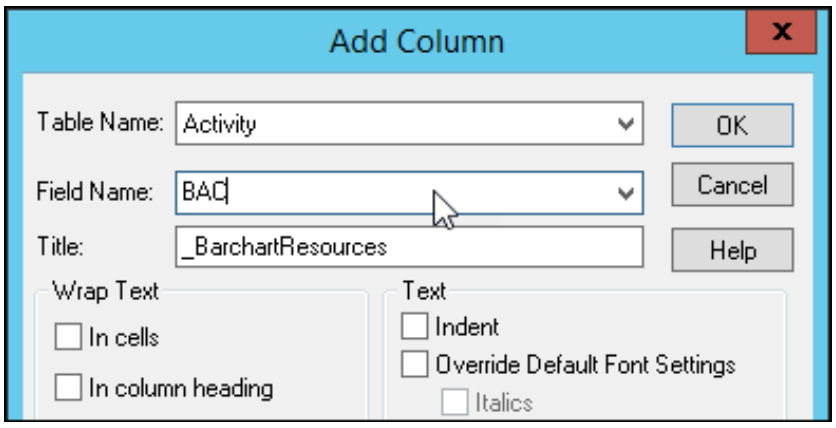
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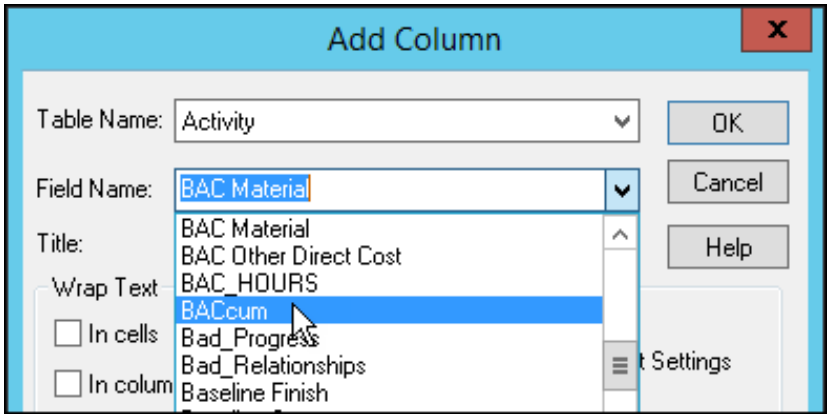
24. Right-click on the **Duration** column header.



25. Type **BAC** in the **Field Name**: dropdown.



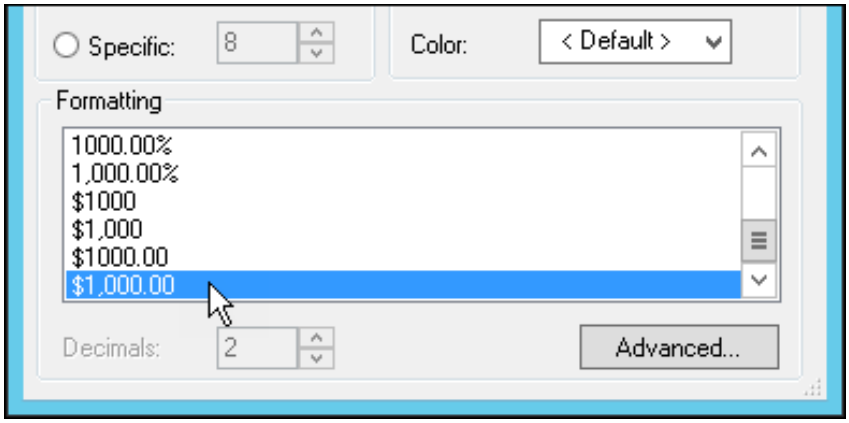
26. Click the **dropdown** arrow and select **BACcum**.



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27. With **BACcum** selected, go to the Formatting area at the bottom of the dialog and select the $1,000.00 option, right at the bottom of that list.



28. Click **OK** to close the dialog.

29. Look at the **BACcum** column.

Activity Desc.	Duration	BACcum	Labor Budget Units	BAC Labor	BAC Subcontrac
Novak Electrical Substation	*714d*	*$1,386,865.28*	*5672.00*	*$608,265.28*	*$778,600.0*
Project Management	*709d*	*$1,386,865.28*	*5672.00*	*$608,265.28*	*$778,600.0*
Notice To Proceed	0	$0.00	0.00	$0.00	$0.0
Site Management	709d	$608,265.28	5672.00	$608,265.28	$0.0
Site Security	709d	$778,600.00	0.00	$0.00	$778,600.0
Acquire Permits	45d	$0.00	0.00	$0.00	$0.0

You can now see the total cost for each activity, and in the subproject headings above, you see a summary of the values.

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7.3 Assigning Materials to Activities

The process of assigning materials to an activity is similar to that of the subcontractor. That is, the resource will be assigned as a lump sum to the activity, using the Res. Curve field.

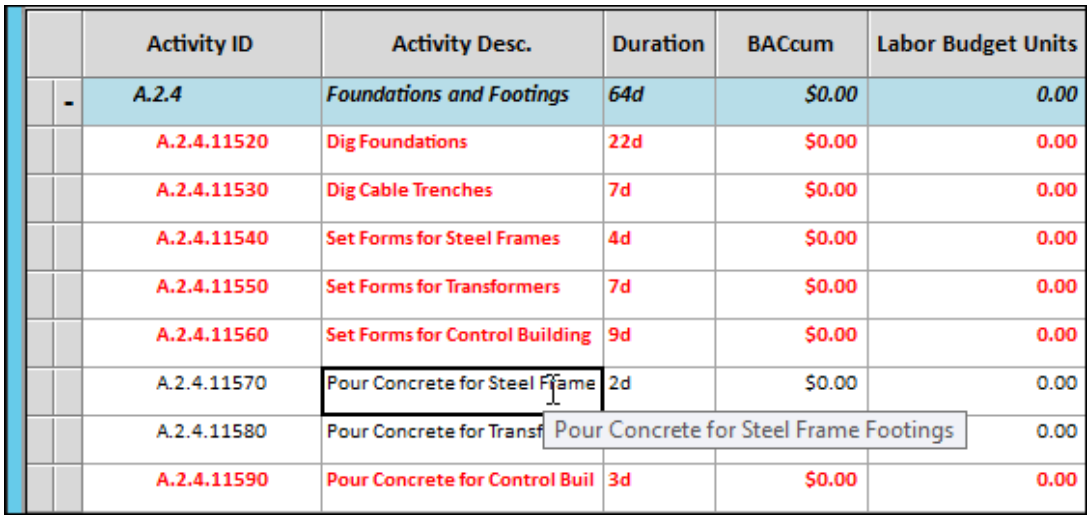
There are multiple options for how you might want to spread the costs where materials are concerned. You might, for example, want to front load material costs at the start of the activity, particularly if these are lump sum high-cost items. For example, if you have to install an expensive H-Frame, you may want to front load the activity. This is more important if you are calculating Earned Value in Open Plan, as it will determine when you earn the value of the H-Frame.

For other materials that are calculated in say Linear Feet, you may be calling these off period by period. So a linear spread more closely models how they'll be consumed on the job.

Let's now look at a couple of material assignment examples.

7.3.1 Activity: Assigning Materials to Activities

1. Locate the **A.2.4.11570 - Pour Concrete for Steel Frame Footings** activity in the **Foundations and Footings** subproject.



Activity ID	Activity Desc.	Duration	BACcum	Labor Budget Units
A.2.4	*Foundations and Footings*	*64d*	*$0.00*	*0.00*
A.2.4.11520	Dig Foundations	22d	$0.00	0.00
A.2.4.11530	Dig Cable Trenches	7d	$0.00	0.00
A.2.4.11540	Set Forms for Steel Frames	4d	$0.00	0.00
A.2.4.11550	Set Forms for Transformers	7d	$0.00	0.00
A.2.4.11560	Set Forms for Control Building	9d	$0.00	0.00
A.2.4.11570	Pour Concrete for Steel Frame	2d	$0.00	0.00
A.2.4.11580	Pour Concrete for Transf			0.00
A.2.4.11590	Pour Concrete for Control Buil	3d	$0.00	0.00

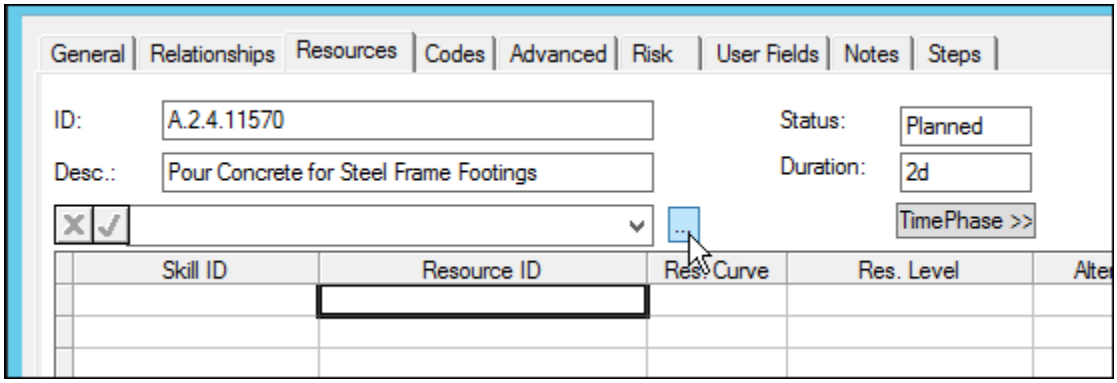
Pour Concrete for Steel Frame Footings

2. Double-click to open **Activity Details**.

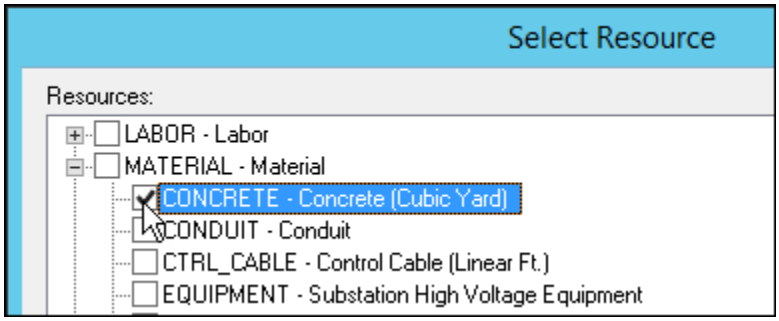
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3. In the **Resources** tab, click **Resource ID** and then click the **Ellipsis**.

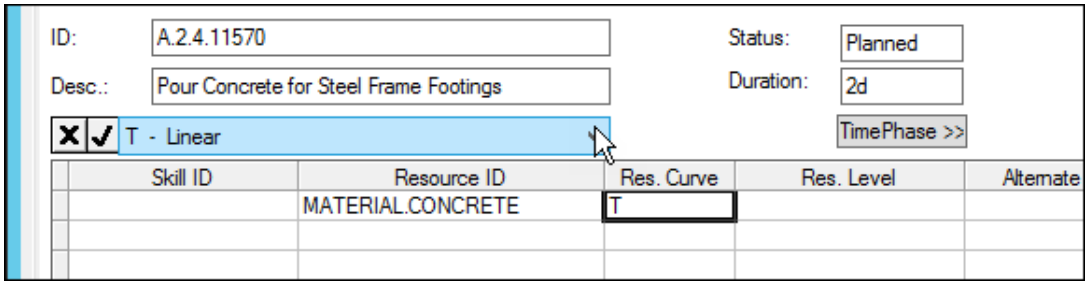


4. In the Select Resource dialog, expand the **MATERIAL** resource pool and select **CONCRETE**.



5. Click **OK**.

6. Set the **Res. Curve** field to **T – Linear**.



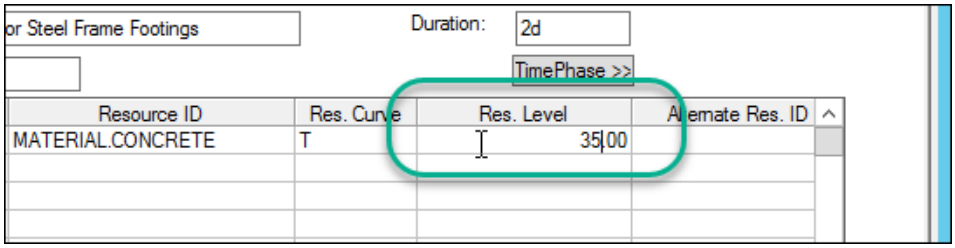
While this is only a 2-day pour, it's still important that we set the resource curve to a value – in this case T.

Remember, this is how we tell Open Plan that it's dealing with a total for the activity, not a level of effort.

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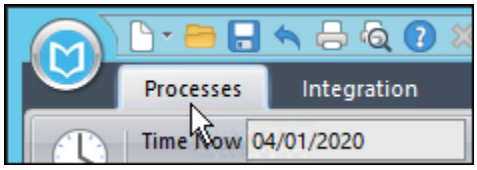
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7. In the **Res. Level** cell, enter a cubic yard total of **35**.

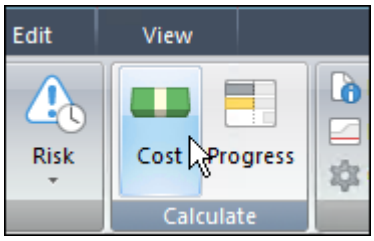


8. Click **Apply**.

9. Leaving the **Activity Details** dialog open, click on the **Processes** tab.



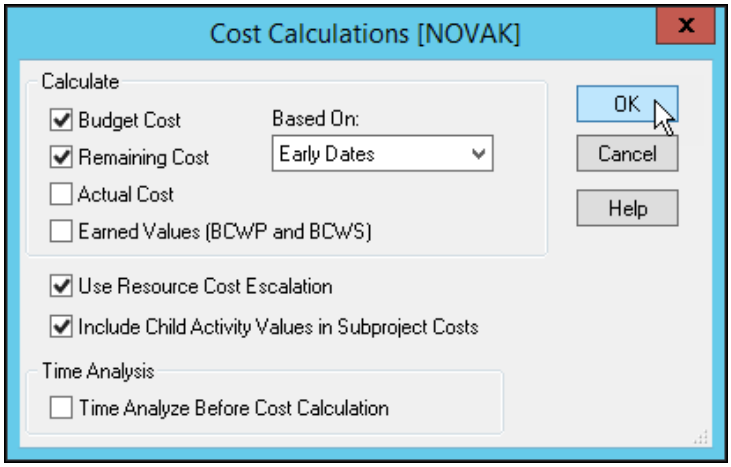
10. Click on the **Cost** button in the **Calculate** tool group.



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11. Adjust the settings in the **Cost Calculations** dialog to be the same as the following:



12. Click **OK**.

13. Now check the **BACcum** column to see the total cost for **35 CY** of ready-mixed concrete.

Activity ID	Activity Desc.	Duration	BACcum	Labor Budget Units	BAC Labor
A.2.4.11540	Set Forms for Steel Frames	4d	$0.00	0.00	$0.00
A.2.4.11550	Set Forms for Transformers	7d	$0.00	0.00	$0.00
A.2.4.11560	Set Forms for Control Building	9d	$0.00	0.00	$0.00
A.2.4.11570	Pour Concrete for Steel Frame Footings	2d	$5,519.50	0.00	$0.00
A.2.4.11580	Pour Concrete for Transformer Footings	2d	$0.00	0.00	$0.00
A.2.4.11590	Pour Concrete for Control Building Founda	3d		0.00	$0.00
A.2.4.11600	LAG_ACT - Cure Time for Concrete	12d	$0.00	0.00	$0.00

$5,519.50

Let's do another, slightly different material assignment.

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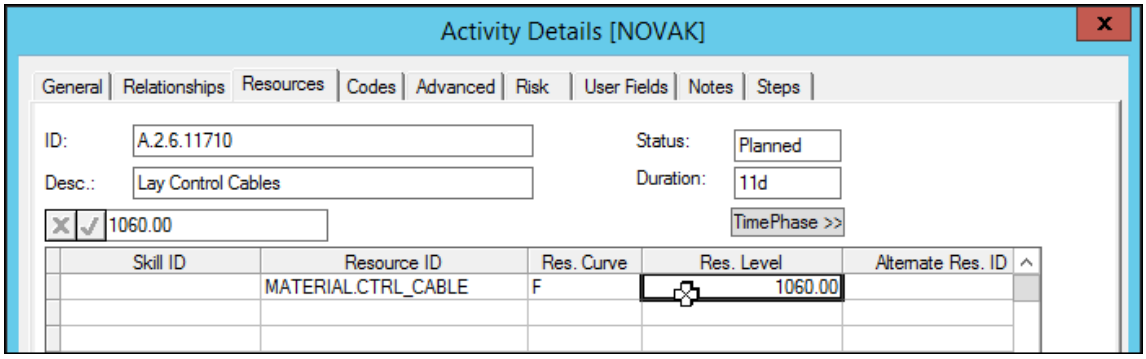
14. Locate the **A.2.6.11710 - Lay Control Cables** activity, below the **Control Building** *subproject*.

A.2.5.11660	Erect Bus Bar Support Stands	3d	$0.00	
- A.2.6	*Control Building*	*54d*	*$0.00*	
A.2.6.11680	Install Block Walls	16d	$0.00	
A.2.6.11690	Install Roofing	6d	$0.00	
A.2.6.11700	Install Doors and Windows	5d	$0.00	
A.2.6.11710	Lay Control Cables	11d	$0.00	
A.2.6.11720	Install Control Racks and Cabinets	10d	$0.00	
A.2.6.11730	Install Conduits	6d	$0.00	

This 11-day activity will consume control cable mostly at the front end due to setting out and closing the cable trench in the first couple of days.

Therefore, we need to get a total cost, frontloaded on the activity. The way, in an earned value scenario, we earn the build of the activities value up-front, when we incur the cost.

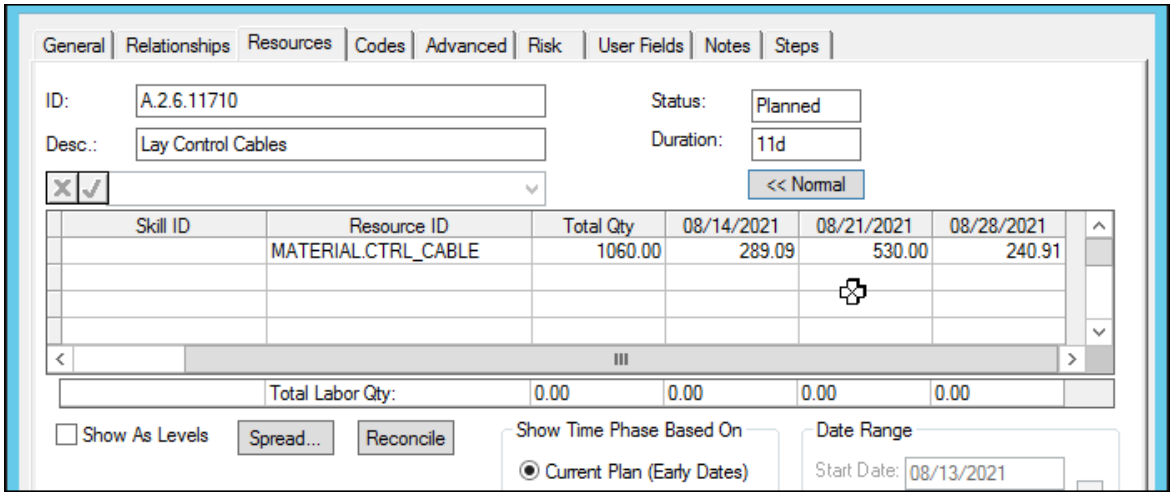
15. Go to the **Activity Details** dialog, and assign the **MATERIAL.CTRL_CABLE** to the **Lay Control Cable** activity.



Resource ID: MATERIAL.CTRL_CABLE
Res. Curve: F – Front Load
Res. Level: 1060.00

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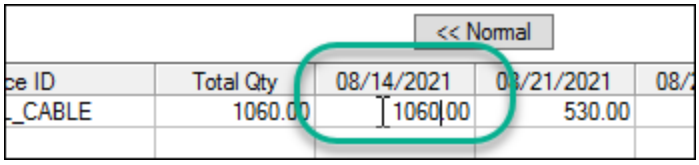
16. Click on the **TimePhase >>** button and review just how “Front Loaded” an 11-day activity can be.



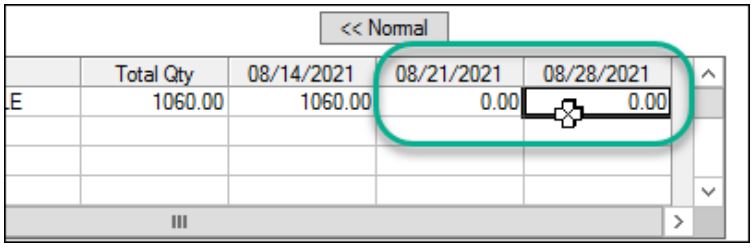
Well, the answer is: somewhat. Unfortunately for this example, the early dates for this activity push it over three periods. Open Plan has had little choice but to load the bulk of the value into the middle week, because there is only one working day in week ending 8/14/2021.

Let’s manually adjust the material so that all 1,060 cubic feet be consumed on the first day of the activity.

17. In the week ending **8/14/2021** column, enter the total of **1060**, replacing the existing 289.09 value.



18. Now set the remaining periods to zero.

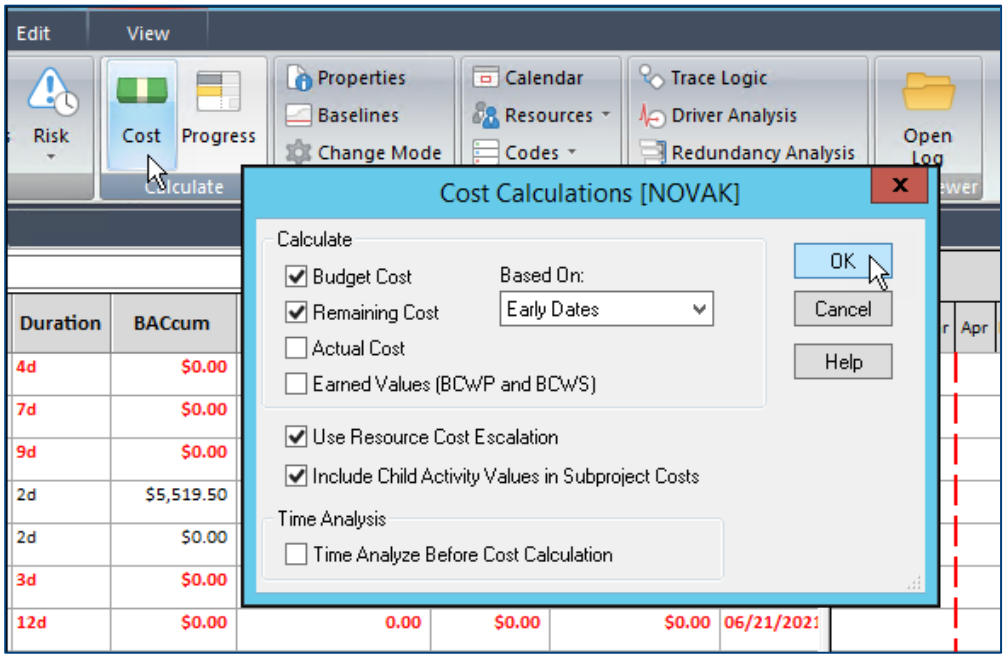


19. Click **Apply**.

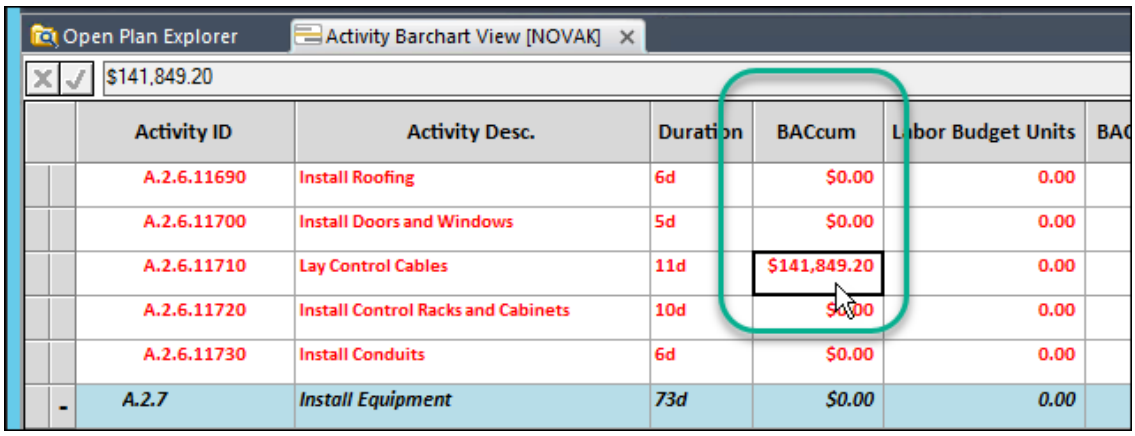
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20. In **Processes**, click the **Cost** button, going with the usual defaults.



21. Note the cost for the **Lay Control Cable** activity in the **BACcum** column.



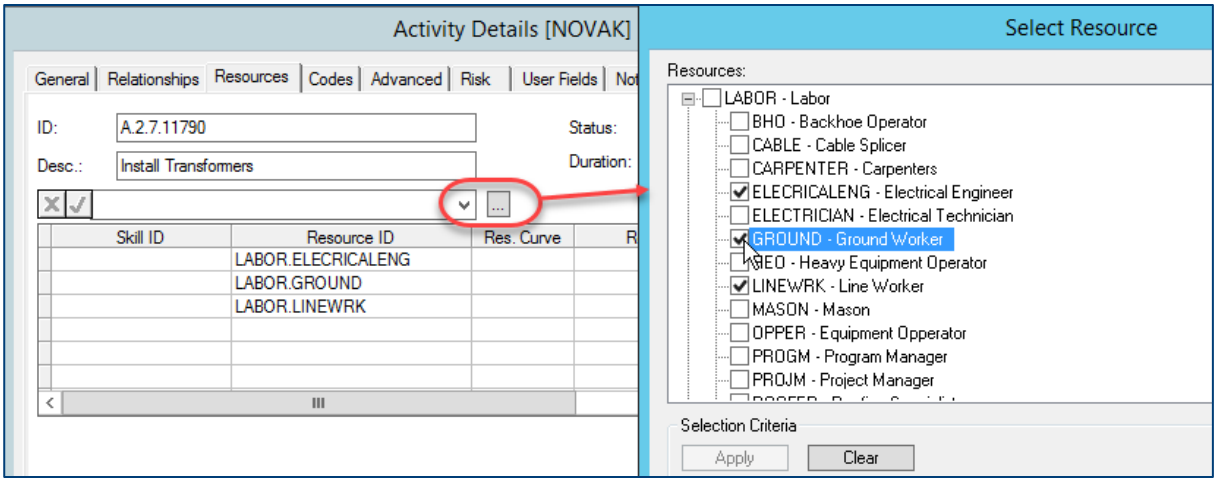
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7.4 Assigning Multiple Resources

Developing efficiencies in assigning resources to activities can help you work more quickly when making resource assignments. This becomes more important on larger schedules that require hundreds of resource by assigned to the schedule.

In the previous exercises, we have assigned only single resources to each activity. However, we already saw how the Select Resources dialog, accessed via the ellipsis button in the Resources tab of the Activity Details dialog. This Select Resource dialog can be used to make multiple resource assignments to a single activity without having to repeatedly return to the **Resources** tab.



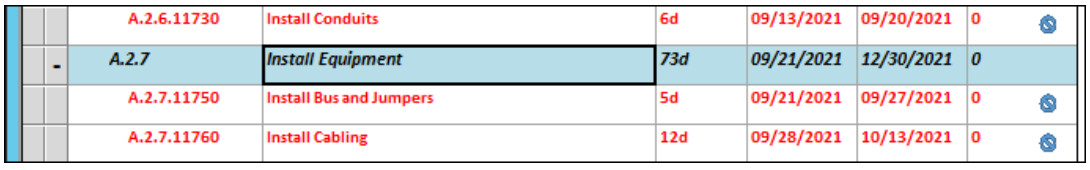
Another way to make bulk resource assignments is to utilize Open Plan's ability to paste assignment records from an external source (such as a spreadsheet), via the windows clipboard.

In this next activity, you will learn how to enter multiple resources onto a selected activity. These can be labor, material, subcontractor, other direct costs (ODC), or any combination thereof.

7.4.1 Activity: Assigning Multiple Resources

In this exercise, you will be assigning both labor, material, and ODC resources to one activity.

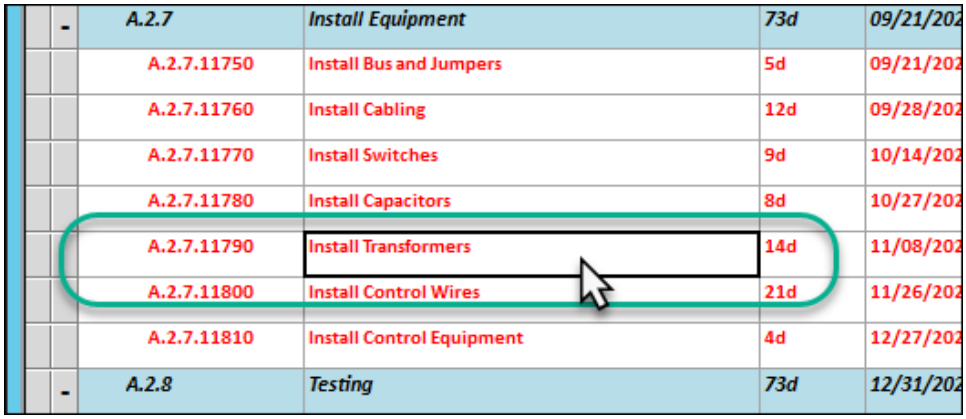
1. In the **BARWV – Activity Barchart View**, locate the ***Install Equipment*** subproject.



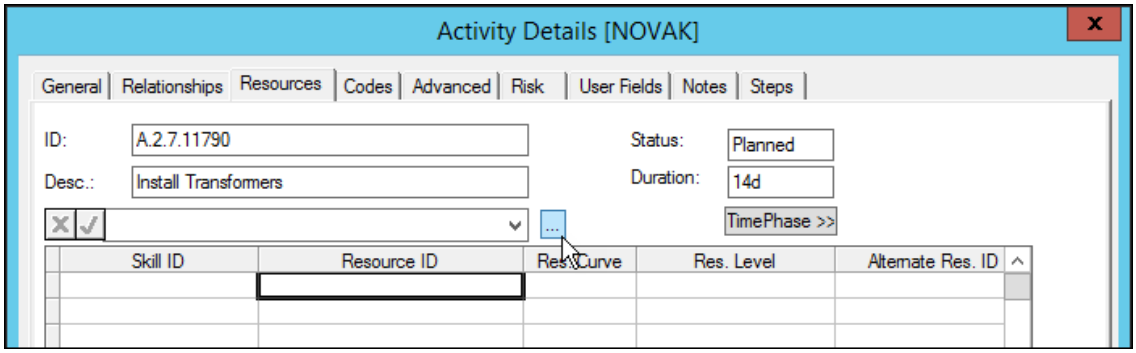
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2. Double-click on the **A.2.7.11790 - Install Transformers** activity.



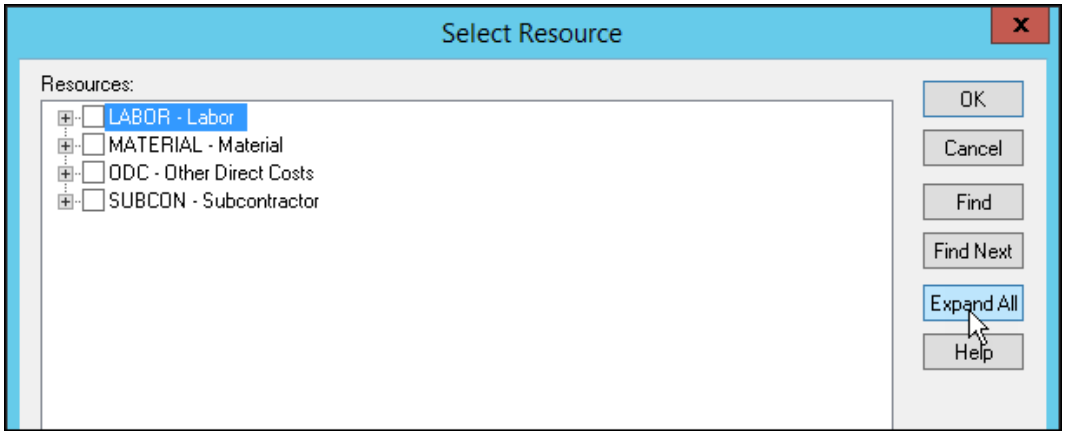
3. In the **Resources** tab, click on the **Resource ID** cell in the first row.



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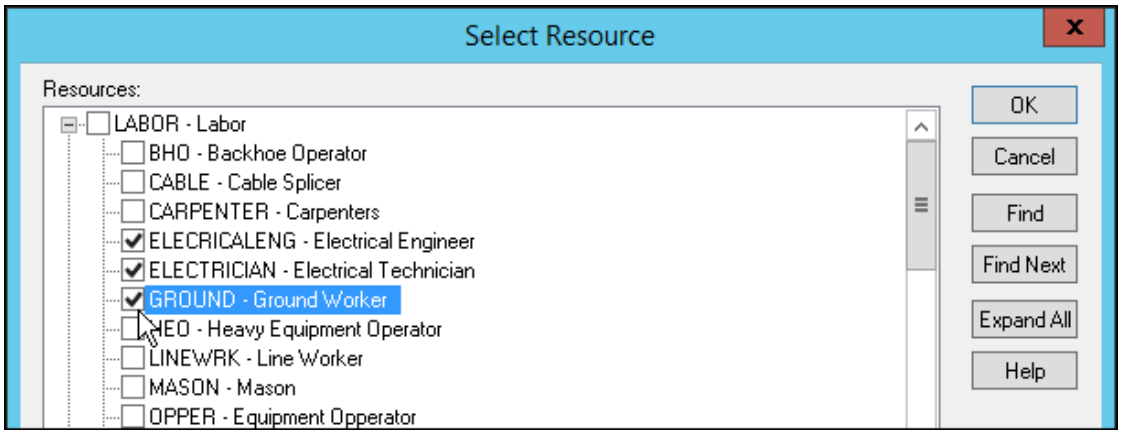
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4. In the **Select Resource** dialog, click the **Expand All** button.



We use the **Expand All** button because we will be selecting from 3 of the four categories and it will save a little time drilling down.

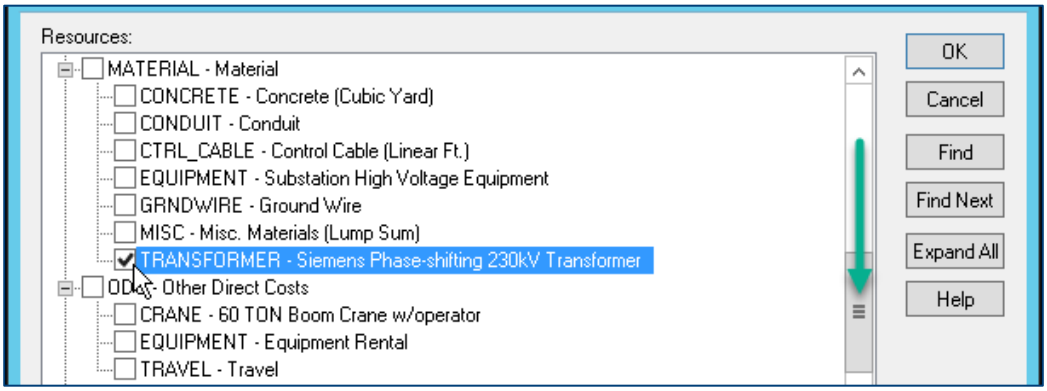
5. In the **LABOR** category, select the **Electrical Engineer**, **Electrician**, and **Ground Worker** resources.



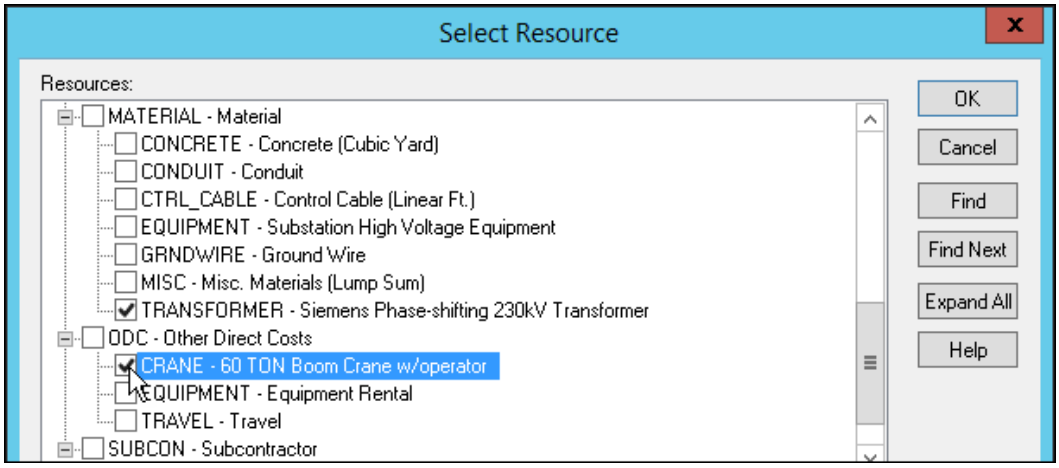
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6. Scroll down to the **MATERIAL** category and select the **TRANSFORMER** material resource.



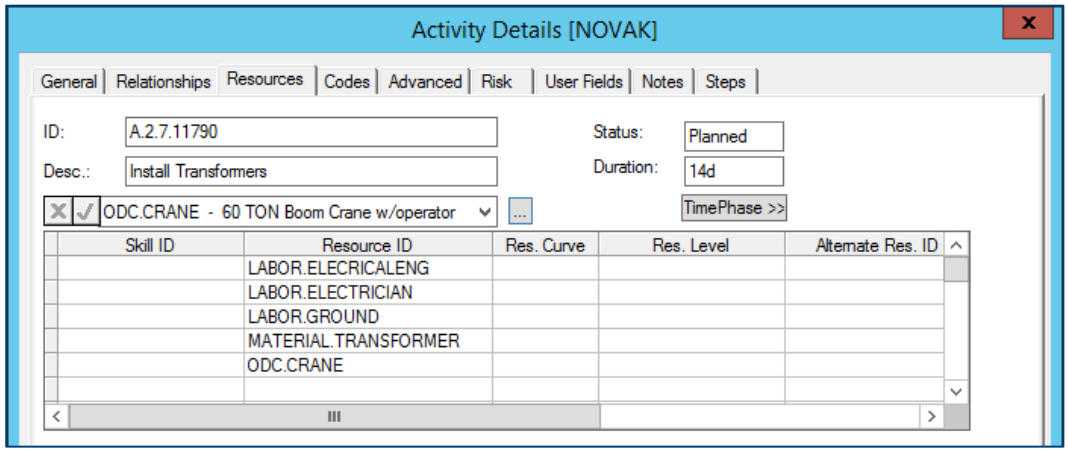
7. In the **ODC** category, select **CRANE**.



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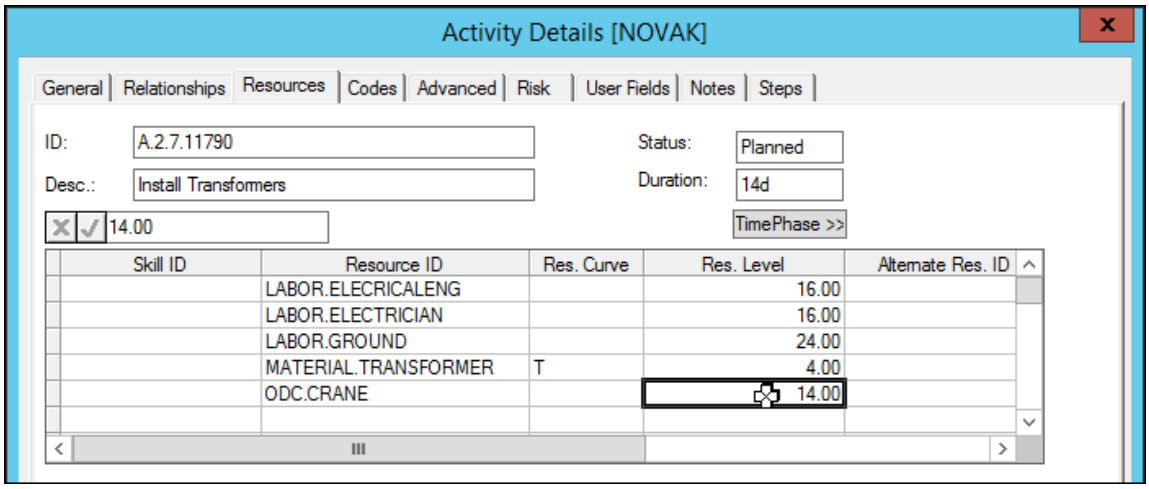
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8. Click **OK**.



Note the selected resource are now loaded into the **Resource ID** field.

9. Set the following values for the **Res. Curve** and **Res. Level**.



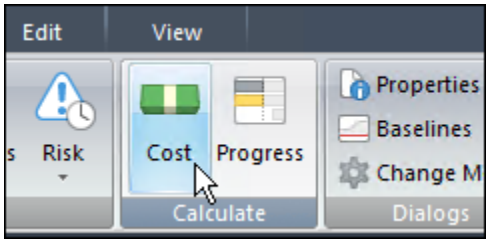
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Activity	Resource ID	Res. Curve	Res. Level
A.2.7.11790 – Install Transformers	LABOR.ELECRICALENG		16
	LABOR.ELECTRICIAN		16
	LABOR.GROUND		24
	MATERIAL.TRANSFORMER	T	4
\Docs\L7_ASS_RES.xlsx	ODC.CRANE		14

10. Click **Close**.

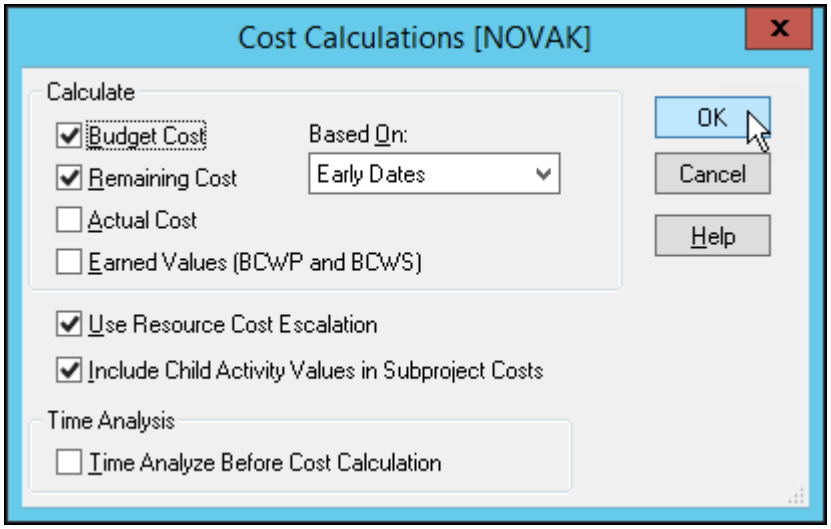
11. In the **Processes** ribbon, click on the **Cost** button to calculate the cost of these resources for the **Install Transformers** activity.



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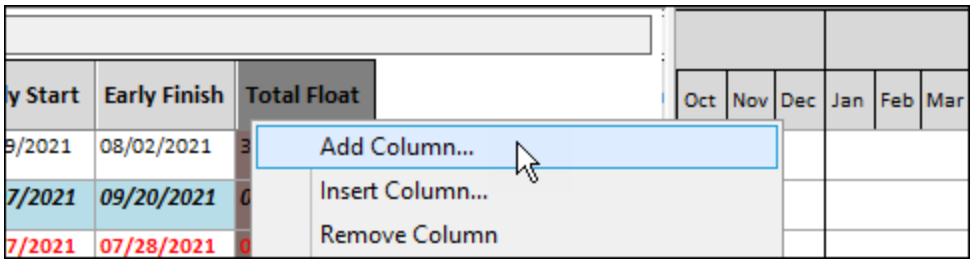
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12. If necessary, adjust the **Cost Calculation** dialog to the following settings:



13. Click **OK**.

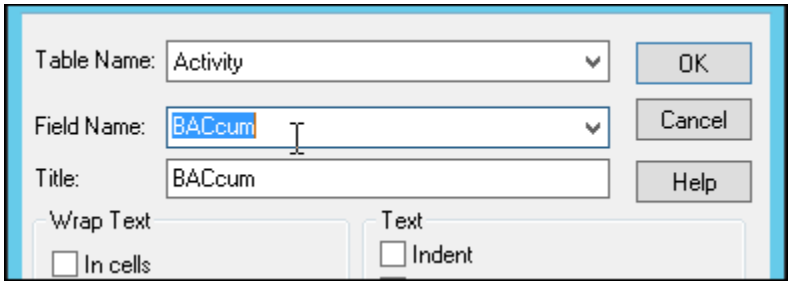
14. **If necessary**, Right-click on the **Total Float** column and select **Add Column.** to add the **BACcum** field into the table of the **BARVW – Activity Barchart View**.



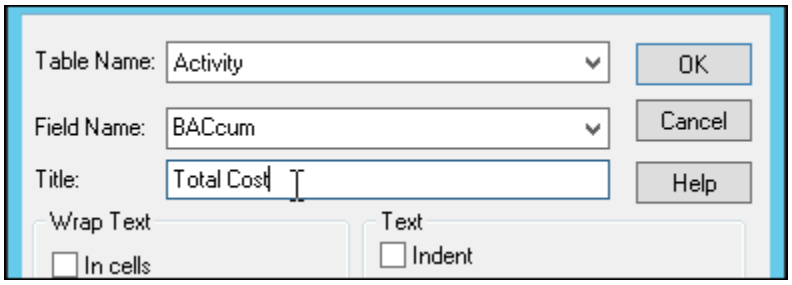
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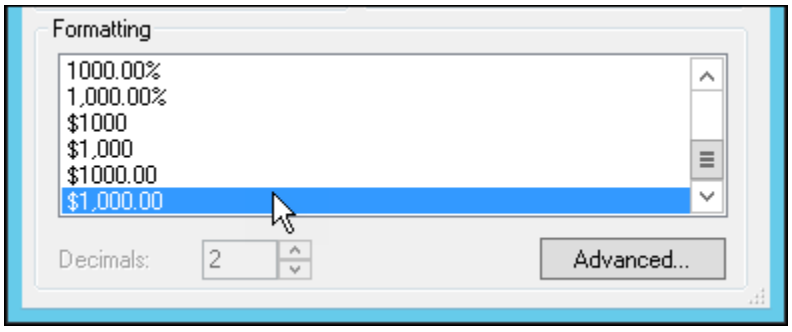
15. Select the **BACcum** field from the dropdown.



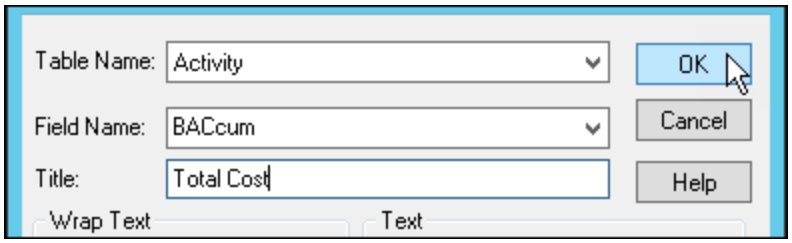
16. In the **Title:** field, enter **Total Cost**.



17. In the **Formatting** area, select the last item: **$1,000.00**.



18. Click **OK** to apply the selection.



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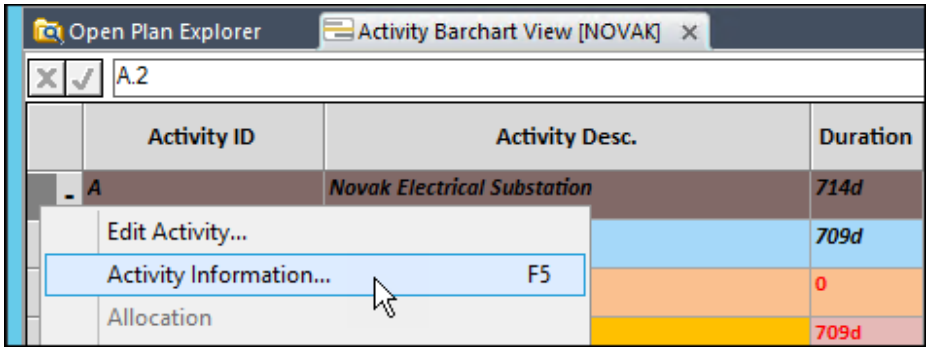
19. Review the results in the activity table.

10/27/2021	11/05/2021	0		$38,320.64		
11/08/2021	11/25/2021	0		$5,941,305.60		
11/26/2021	12/24/2021	0		$14,673.12		

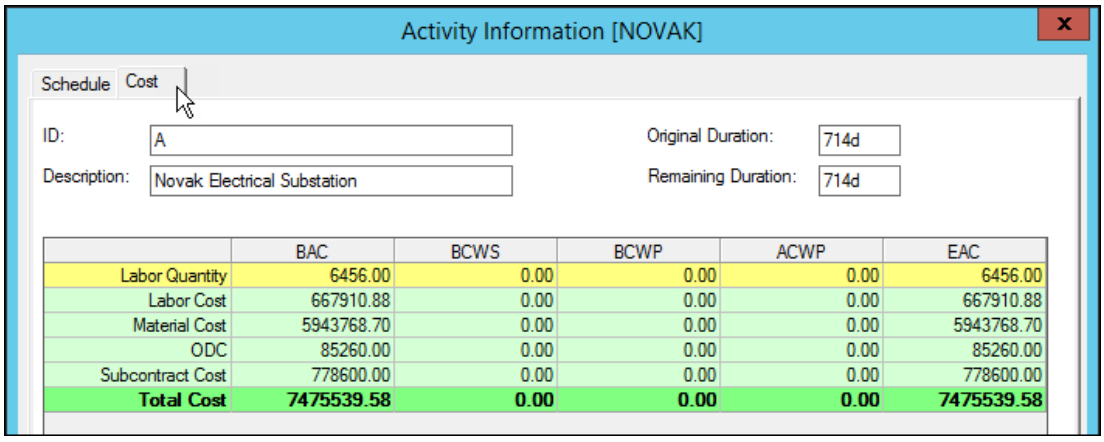
Another way to view costs on activities is to use the **Activity Information** dialog.

20. Right-click on the outer row header for the top-level *Subproject* **A - Novak Electrical Substation**.

21. Click on **Activity Information…**.



22. Click on the **Cost** tab and review the **BAC** cost values for the resource **Categories**, and **Labor Quantity**.



23. Click **Close**.

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7.5 Working with Views

Because Open Plan ships with over 100 views, you have examples of all view types at your disposal. View types are a category of view, be it graphical, tabular, Multitable, or whatever you are looking for. These 12 View Types are:

Type	Description	Count
Barchart View	Activity table left, Gantt chart graphic right.	32
Code View	Ancillary Code file graphical layout of code and hierarchy.	8
Histogram View	Resource histograms based upon summary usage.	2
Multitable Barchart View	Resource data left, Activity Barchart right.	9
Multitable View	Various spreadsheets that use multiple data table sources.	9
Network View	Interactive network view with activities and relationships.	9
Project Analysis Barchart	Interactive multi-project views that group the table data by All Projects, Company and Project Phase.	1
Resource View	Hierarchical interactive graphical view for resource and res. Pools.	6
Risk View	Risk exposure histogram for Monty Carlo risk analysis results.	1
Spreadsheet View	Single-source spreadsheet tables for all suitable object types.	31
Time-Phased Reporting	Views that provide time-phased graphical and tabular data for earned value, baseline completion, activity completion, and S-curves.	3
Tornado View	A vertical histogram showing greatest to smallest high-risk drivers.	1

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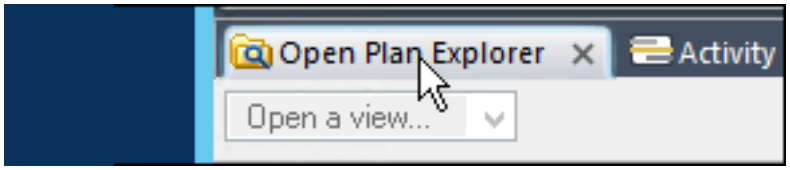
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In the following hands-on activity, you will learn more detail about the various views and view types in a standard deployment of Open Plan.

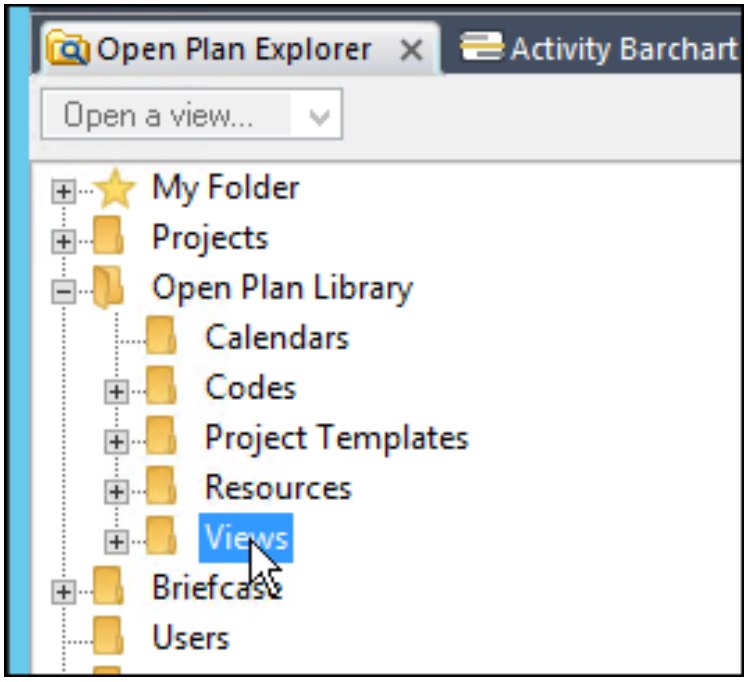
7.5.1 Activity: Exploring the Views

As covered briefly in the first lesson, Open Plan views are located below the Open Plan Libraries' Views folder. There are some benefits to accessing this folder directly via the Open Plan Explorer, including the ability to drag and drop views into projects or resource files, and use grouping to organize the Views into View Types. This technique makes it quick and easy to find the views you are interested in.

1. Click on the **Open Plan Explorer** tab.



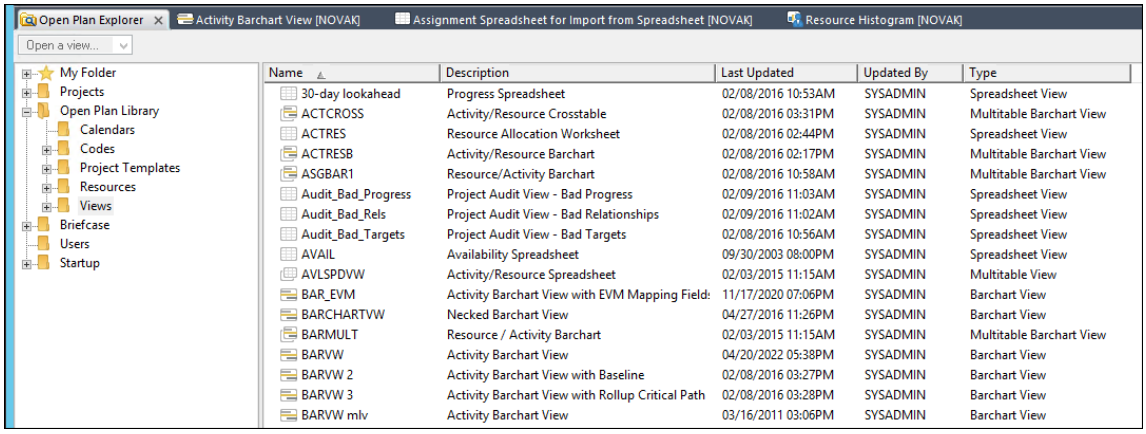
2. Navigate to the **Open Plan Library | Views** folder.



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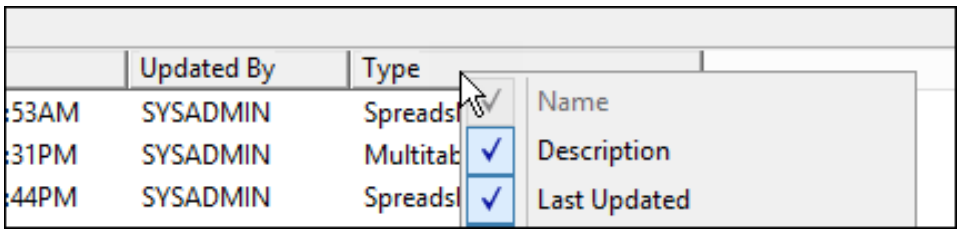
3. Review the results in the table area to the right.



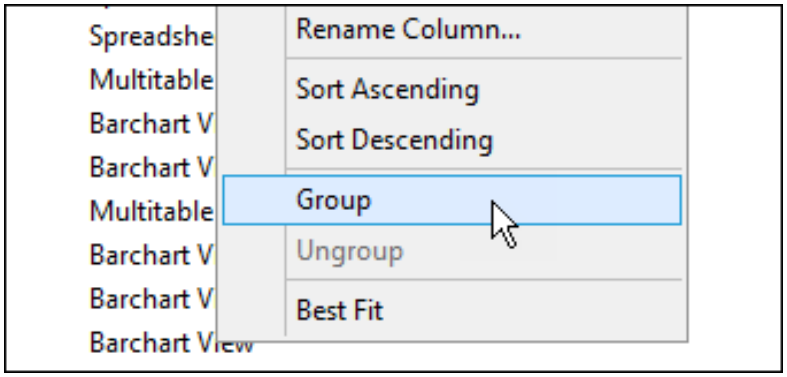
A full list of all available views appears in the scrollable table.

View are also very customizable, so it's feasible that this list may be much more extensive in your production system. Therefore, do the following to make searching easier.

4. Right-click on the last column '**Type**'.



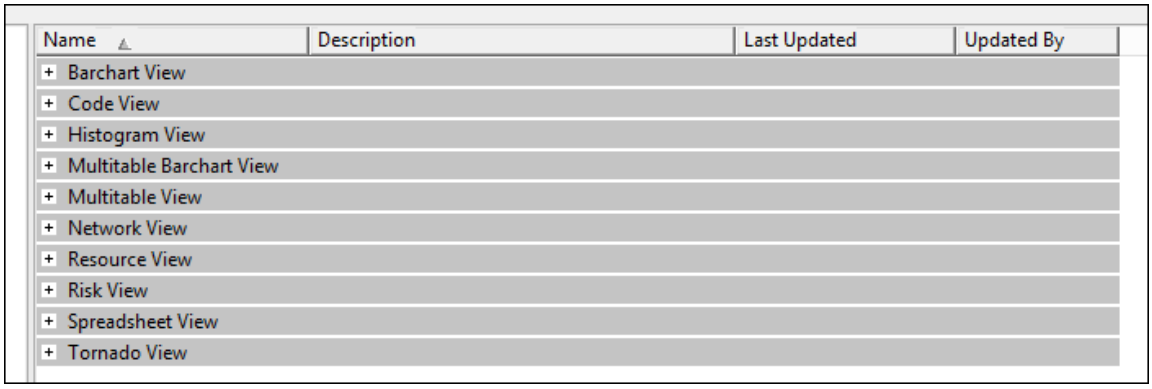
5. From the dropdown list, click on the **Group** option.



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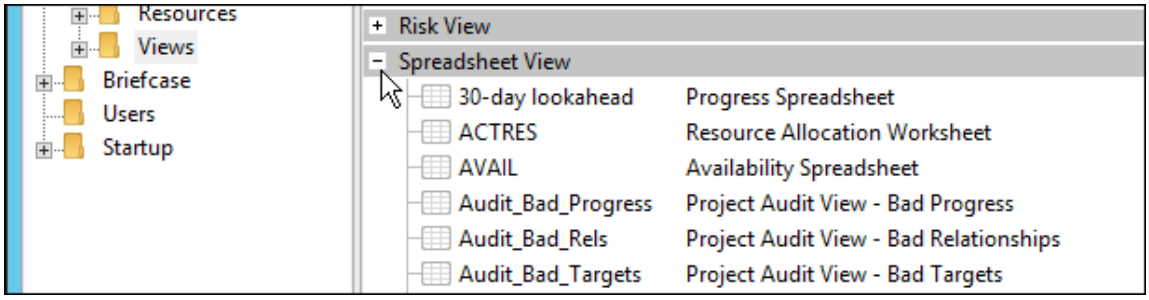
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6. Note that the list is now grouped by the **View Type** values.

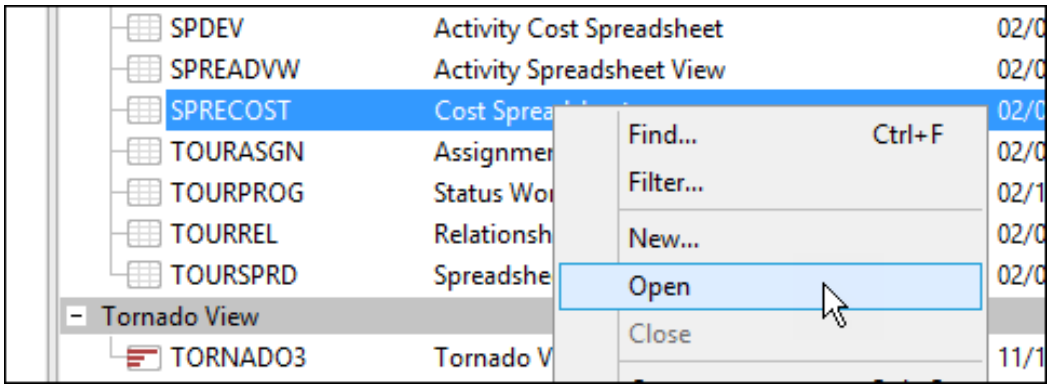


Having resource loaded the Install Transformers activity, it would be interesting to see the costs broken out by resource type, or other options. For this, we will now open the **Cost Spreadsheet** view.

7. Click the '**+**' button to expand the **Spreadsheet View** group.

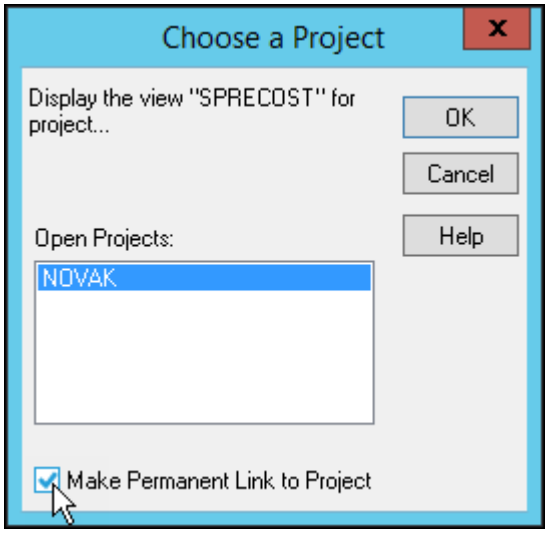


8. Near the bottom of the list, locate **SPRECOST – Cost Spreadsheet**, and right-click on it.



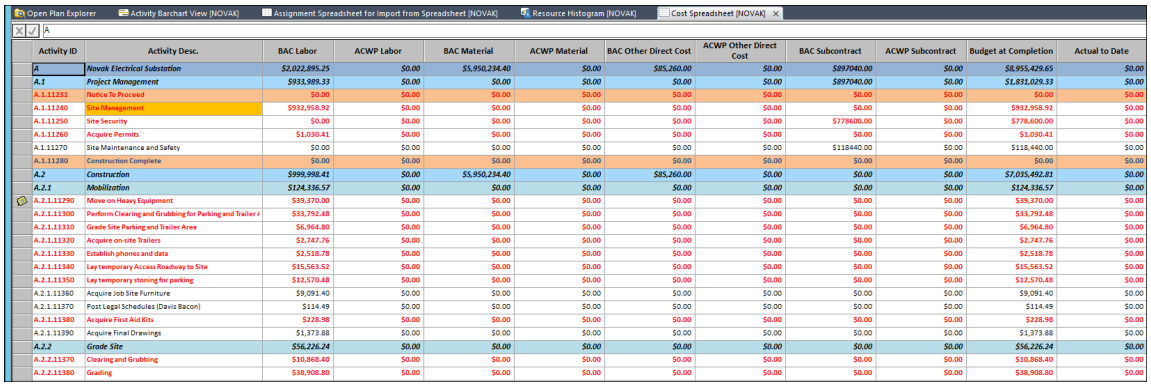
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9. In **Choose a Project**, check the '**Make Permanent Link to Project**' option.



10. Click **OK**.

11. The following view will open.



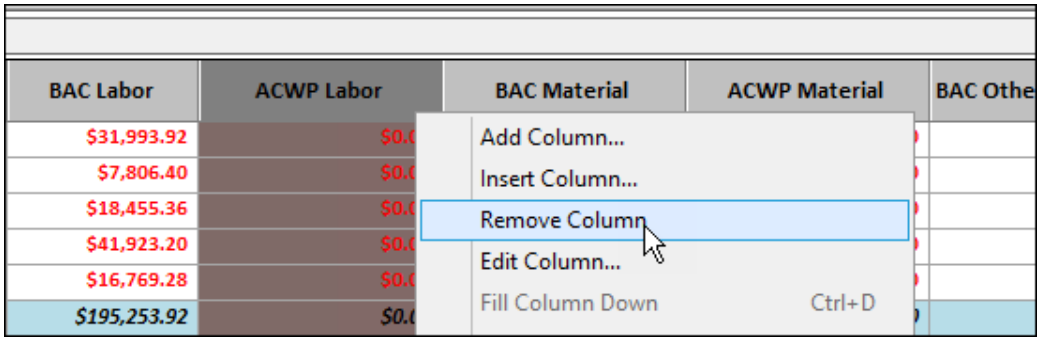
Activity ID	Activity Desc.	BAC Labor	ACWP Labor	BAC Material	ACWP Material	BAC Other Direct Cost	ACWP Other Direct Cost	BAC Subcontract	ACWP Subcontract	Budget at Completion	Actual to Date
A	Novak Electrical Substation	$2,022,895.25	$0.00	$5,950,234.40	$0.00	$85,260.00	$0.00	$897040.00	$0.00	$8,955,429.65	$0.00
A.1	Project Management	$933,989.33	$0.00	$0.00	$0.00	$0.00	$0.00	$897040.00	$0.00	$1,831,029.33	$0.00
A.1.11231	Notice To Proceed	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00
A.1.11240	Site Management	$932,958.92	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00	$932,958.92	$0.00
A.1.11250	Site Security	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00	$778600.00	$0.00	$778,600.00	$0.00
A.1.11260	Acquire Permits	$1,030.41	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00	$1,030.41	$0.00
A.1.11270	Site Maintenance and Safety	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00	$118440.00	$0.00	$118,440.00	$0.00
A.1.11280	Construction Complete	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00
A.2	Construction	$999,998.41	$0.00	$5,950,234.40	$0.00	$85,260.00	$0.00	$0.00	$0.00	$7,035,492.81	$0.00
A.2.1	Mobilization	$124,336.57	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00	$124,336.57	$0.00
A.2.1.11290	Move on Heavy Equipment	$39,370.00	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00	$39,370.00	$0.00
A.2.1.11300	Perform Clearing and Grubbing for Parking and Trailer /	$33,792.48	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00	$33,792.48	$0.00
A.2.1.11310	Grade Site Parking and Trailer Area	$6,964.80	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00	$6,964.80	$0.00
A.2.1.11320	Acquire on-site Trailers	$2,747.76	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00	$2,747.76	$0.00
A.2.1.11330	Establish phones and data	$2,518.78	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00	$2,518.78	$0.00
A.2.1.11340	Lay temporary Access Roadway to Site	$15,563.52	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00	$15,563.52	$0.00
A.2.1.11350	Lay temporary stoning for parking	$12,570.48	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00	$12,570.48	$0.00
A.2.1.11360	Acquire Job Site Furniture	$9,091.40	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00	$9,091.40	$0.00
A.2.1.11370	Post Legal Schedules (Davis Bacon)	$114.49	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00	$114.49	$0.00
A.2.1.11380	Acquire First Aid Kits	$228.98	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00	$228.98	$0.00
A.2.1.11390	Acquire Final Drawings	$1,373.88	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00	$1,373.88	$0.00
A.2.2	Grade Site	$56,226.24	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00	$56,226.24	$0.00
A.2.2.11370	Clearing and Grubbing	$10,868.40	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00	$10,868.40	$0.00
A.2.2.11380	Grading	$38,908.80	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00	$38,908.80	$0.00

This view lists all the different costs calculated, by resource type.

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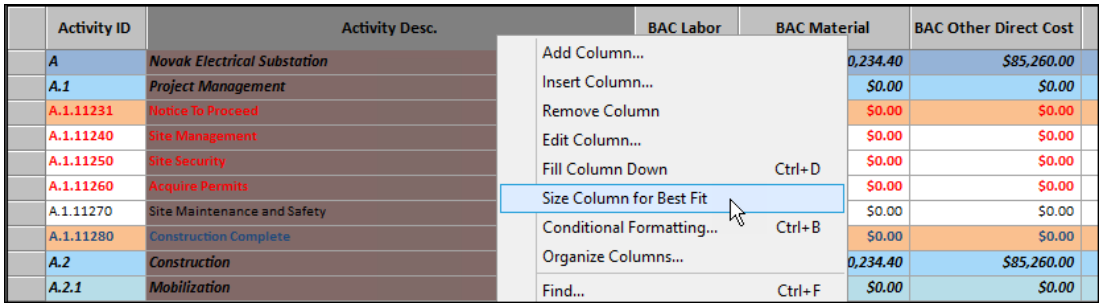
12. Right-click on the **ACWP Labor** column header and remove the column.



13. Now repeat this and remove headers for all the columns listed below. We don't yet have any actual costs; only budget values, so we will remove these columns from the table.

    ACWP Material - (Standard Field)
    ACWP Other Direct Cost - (Standard Field)
    ACWP Subcontract - (Standard Field)
    Actual to Date (Calculated Field)

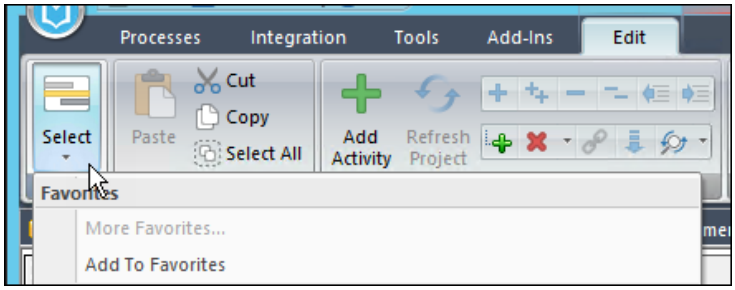
14. Having removed all the Actual Cost columns from the table, right-click on the **Activity Desc.** column header and select **Size Column for Best Fit** in the menu.



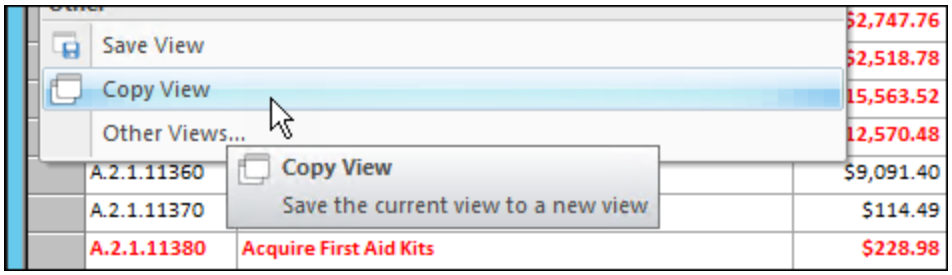
Now Save the modified view to a copy.

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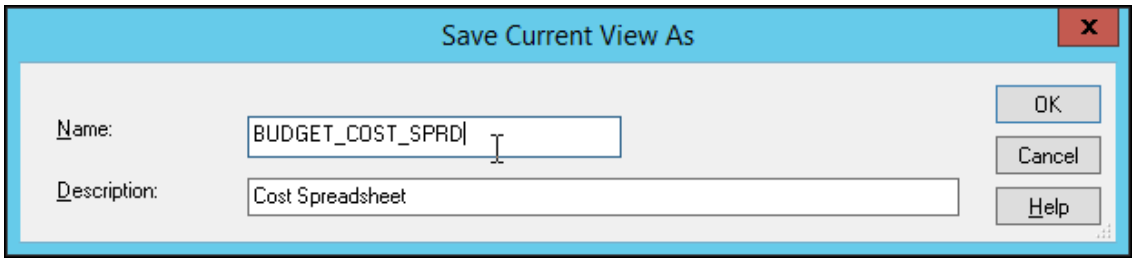
15. In the **Edit** ribbon, click on the **Select** button.



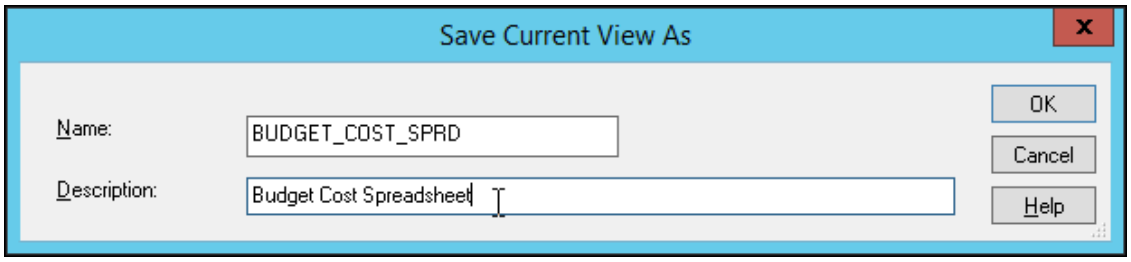
16. At the bottom of the menu, select the **Copy View** option.



17. In the **Save Current View As** dialog, enter a new name of **BUDGET_COST_SPRD**.



18. Change the description to '**Budget Cost Spreadsheet**'.

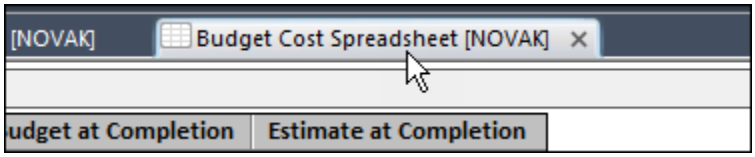


19. Click **OK**.

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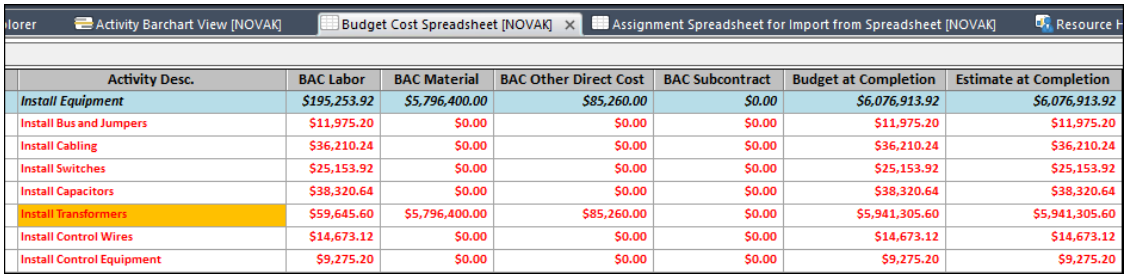
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20. Note that the value entered into the description field is the name displayed in the **View** tab.



For this reason we recommend you always keep Descriptions brief to avoid clutter amongst your tabs.

21. Locate the **Install Transformers** activity and see cost breakouts for that activity.



Activity Desc.	BAC Labor	BAC Material	BAC Other Direct Cost	BAC Subcontract	Budget at Completion	Estimate at Completion
Install Equipment	*$195,253.92*	*$5,796,400.00*	*$85,260.00*	*$0.00*	*$6,076,913.92*	*$6,076,913.92*
Install Bus and Jumpers	$11,975.20	$0.00	$0.00	$0.00	$11,975.20	$11,975.20
Install Cabling	$36,210.24	$0.00	$0.00	$0.00	$36,210.24	$36,210.24
Install Switches	$25,153.92	$0.00	$0.00	$0.00	$25,153.92	$25,153.92
Install Capacitors	$38,320.64	$0.00	$0.00	$0.00	$38,320.64	$38,320.64
Install Transformers	$59,645.60	$5,796,400.00	$85,260.00	$0.00	$5,941,305.60	$5,941,305.60
Install Control Wires	$14,673.12	$0.00	$0.00	$0.00	$14,673.12	$14,673.12
Install Control Equipment	$9,275.20	$0.00	$0.00	$0.00	$9,275.20	$9,275.20

BAC Labor – $59,645.60
BAC Material – $5,796,400.00
BAC Other Direct Cost - $85,260.00
Budget at Completion = $5,941,305.60

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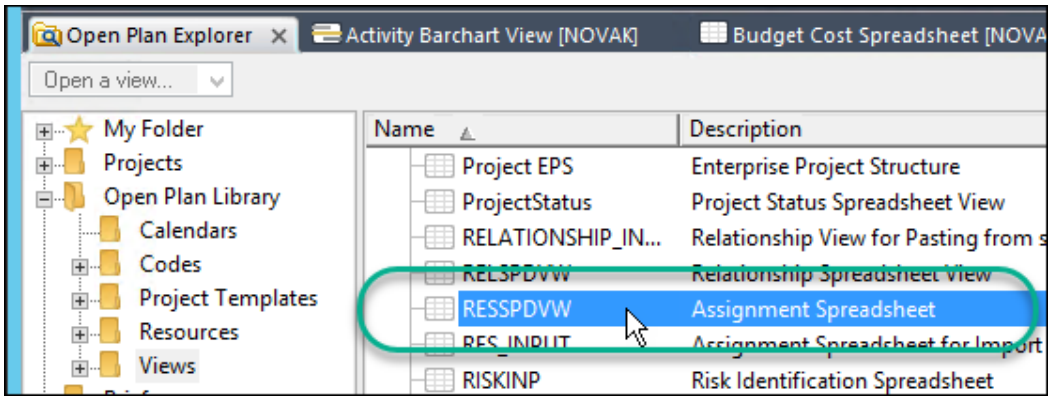
7.5.2 Activity: Using the Assignment Spreadsheet

You can use the Assignment Spreadsheet for two important purposes:

1. Reviewing existing resource assignments on the project.
2. Importing resource assignments from an external source, such as a spreadsheet.

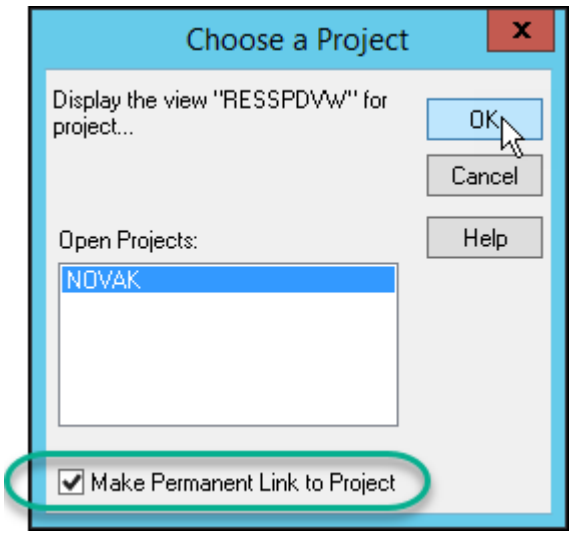
In this hands-on activity, you will work with the Assignment Spreadsheet view.

1. Click on the **Open Plan Explorer** and locate the **RESSPDVW – Assignment Spreadsheet**.



2. Right-click and **Open** the view.

3. In **Choose a Project**, verify the '**Make Permanent Link…**' option is checked.

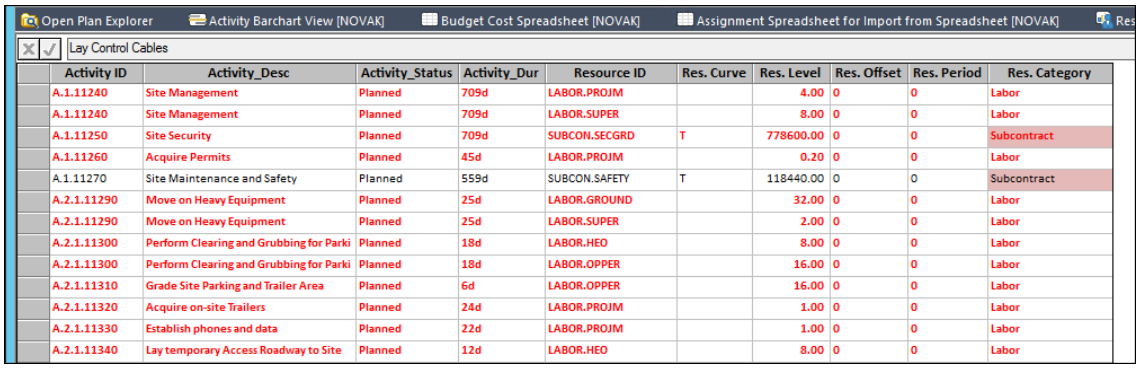


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4. Click **OK**.

5. Review the makeup of the activity assignment records.



Activity ID	Activity_Desc	Activity_Status	Activity_Dur	Resource ID	Res. Curve	Res. Level	Res. Offset	Res. Period	Res. Category
A.1.11240	Site Management	Planned	709d	LABOR.PROJM		4.00	0	0	Labor
A.1.11240	Site Management	Planned	709d	LABOR.SUPER		8.00	0	0	Labor
A.1.11250	Site Security	Planned	709d	SUBCON.SECGRD	T	778600.00	0	0	Subcontract
A.1.11260	Acquire Permits	Planned	45d	LABOR.PROJM		0.20	0	0	Labor
A.1.11270	Site Maintenance and Safety	Planned	559d	SUBCON.SAFETY	T	118440.00	0	0	Subcontract
A.2.1.11290	Move on Heavy Equipment	Planned	25d	LABOR.GROUND		32.00	0	0	Labor
A.2.1.11290	Move on Heavy Equipment	Planned	25d	LABOR.SUPER		2.00	0	0	Labor
A.2.1.11300	Perform Clearing and Grubbing for Parki	Planned	18d	LABOR.HEO		8.00	0	0	Labor
A.2.1.11300	Perform Clearing and Grubbing for Parki	Planned	18d	LABOR.OPPER		16.00	0	0	Labor
A.2.1.11310	Grade Site Parking and Trailer Area	Planned	6d	LABOR.OPPER		16.00	0	0	Labor
A.2.1.11320	Acquire on-site Trailers	Planned	24d	LABOR.PROJM		1.00	0	0	Labor
A.2.1.11330	Establish phones and data	Planned	22d	LABOR.PROJM		1.00	0	0	Labor
A.2.1.11340	Lay temporary Access Roadway to Site	Planned	12d	LABOR.HEO		8.00	0	0	Labor

All the key elements of a resource assignment can be seen in this Assignment Spreadsheet view.

6. Scroll down and locate the **Install Transformers** activity records.

Activity ID	Activity_Desc	Activity_Status	Activity
A.2.7.11780	Install Capacitors	Planned	8d
A.2.7.11790	Install Transformers	Planned	14d
A.2.7.11790	Install Transformers	Planned	14d
A.2.7.11790	Install Transformers	Planned	14d
A.2.7.11790	Install Transformers	Planned	14d
A.2.7.11790	Install Transformers	Planned	14d
A.2.7.11800	Install Control Wires	Planned	21d

Above, you can see we have 5 references to the **Install Transformers** activity, one row for each resource assigned.

Activity_Desc	Activity_Status	Activity_Dur	Resource ID	Res. Curve	Res. Level
Install Capacitors	Planned	8d	LABOR.LINEWRK		32.00
Install Transformers	Planned	14d	LABOR.ELECRICALENG		16.00
Install Transformers	Planned	14d	LABOR.ELECTRICIAN		16.00
Install Transformers	Planned	14d	LABOR.GROUND		24.00
Install Transformers	Planned	14d	MATERIAL.TRANSFORME	T	4.00
Install Transformers	Planned	14d	ODC.CRANE		14.00
Install Control Wires	Planned	21d	LABOR.ELECTRICIAN		8.00
Install Control Equipment	Planned	4d	LABOR.ELECRICALENG		8.00
Install Control Equipment	Planned	4d	LABOR.ELECTRICIAN		16.00

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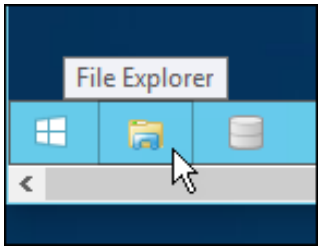
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7. Look to the right and review the columns for the **Resource ID**, **Resource Level**, and the last column, **Res. Category**.

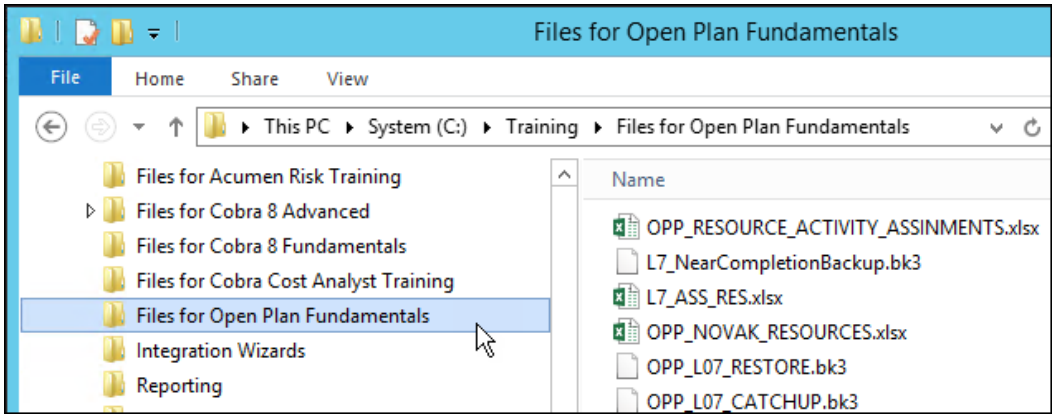
Resource ID	Res. Curve	Res. Level	Res. Offset	Res. Period	Res. Category
LABOR.PROJM		4.00	0	0	Labor
LABOR.SUPER		8.00	0	0	Labor
SUBCON.SECGRD	T	778600.00	0	0	Subcontract
LABOR.PROJM		0.20	0	0	Labor
SUBCON.SAFETY	T	118440.00	0	0	Subcontract
LABOR.GROUND		32.00	0	0	Labor
LABOR.SUPER		2.00	0	0	Labor
LABOR.HEO		8.00	0	0	Labor
LABOR.OPPER		16.00	0	0	Labor
LABOR.OPPER		16.00	0	0	Labor
LABOR.PROJM		1.00	0	0	Labor

You have everything you need in this spreadsheet to import assignments from an external source.

8. Open the Windows **File Explorer**.



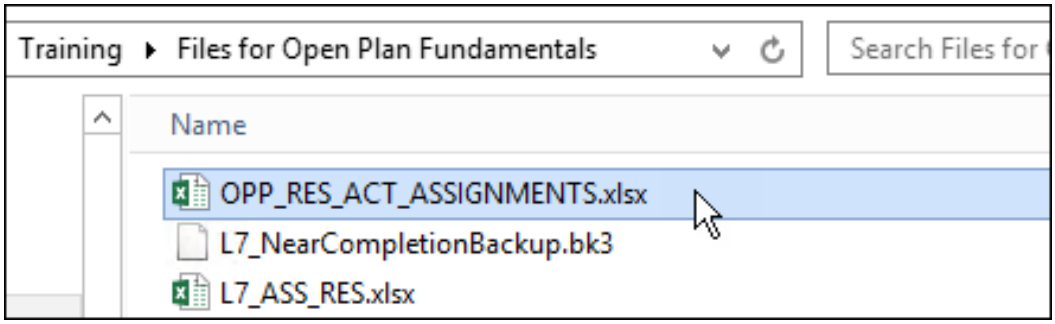
9. Go to the **C:\Training\Files for Open Plan Fundamentals** folder.



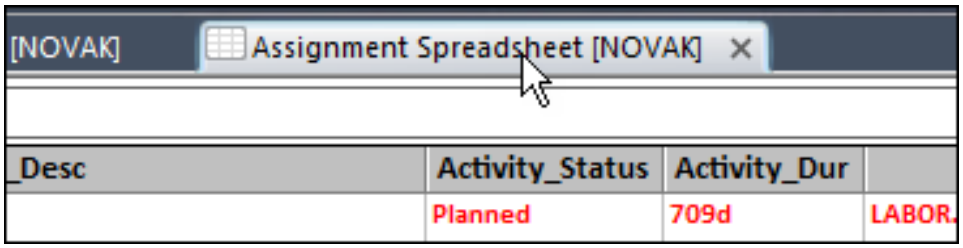
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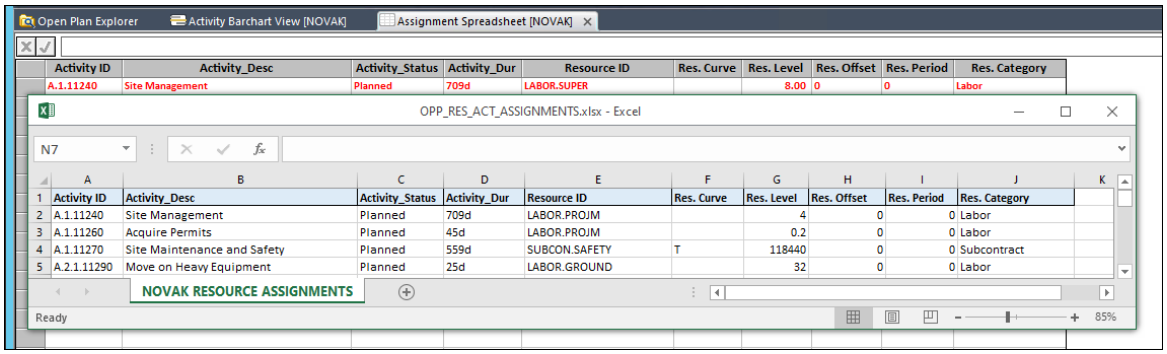
10. Double-click on the **OPP_RES_ACT_ASSIGNMENTS.xlsx** file to open it.



11. Once it's open, click back on **Open Plan's Assignment Spreadsheet**.



12. Overlay the **Assignment Spreadsheet** with the **OPP_RES_ACT_ASSIGNMENTS.xlsx** spreadsheet and verify that the column headers in both Excel and Open Plan are in identical order.

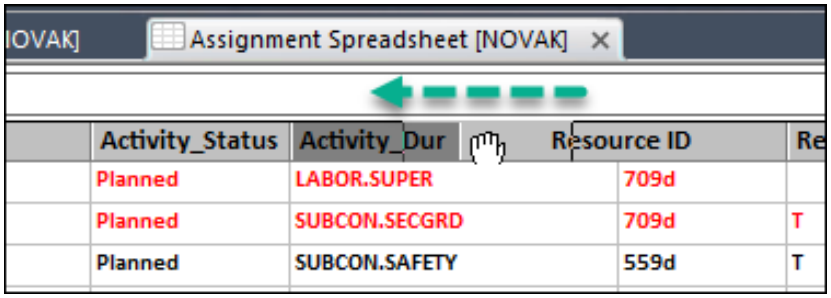


Tip: *Reduce the height 'squish up' Microsoft Excel until it hides it's ribbons. This will help you verify the order of the headers.*

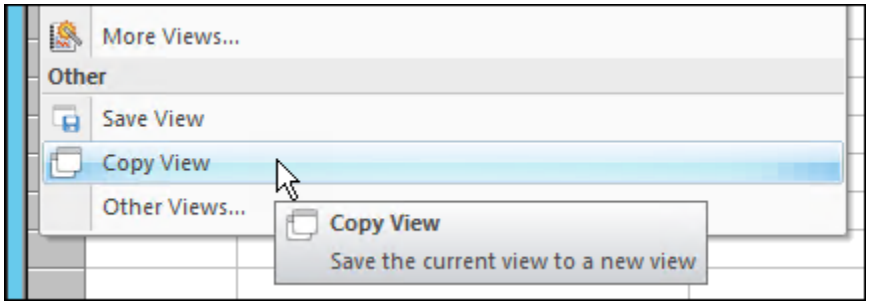
Activity ID | Activity Desc. | Activity_Status | Activity_Dur | Resource ID | Res. Curve | Res. Level | Res. Offset | Res. Period | Res. Category

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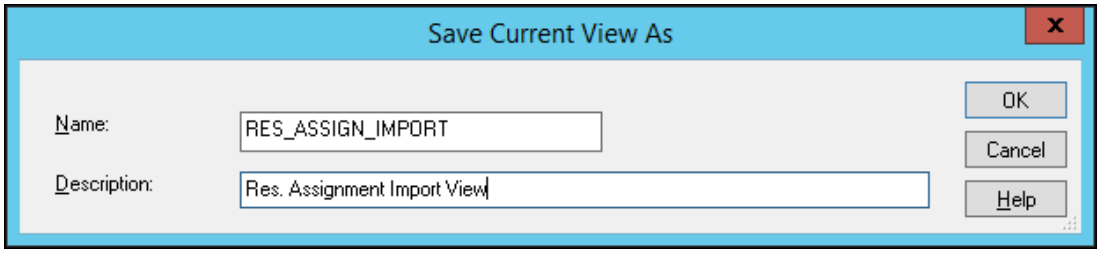
13. If any headers are in a different position to those in the spreadsheet, grab the headers in the Assignment Spreadsheet view and drag them to their required location.



14. If you did have to move headers into a different order, save the view using **Copy View**.



15. Enter the following name and description for the new view.



Name: RES_ASSIGN_IMPORT
Description: Res. Assignment Import View

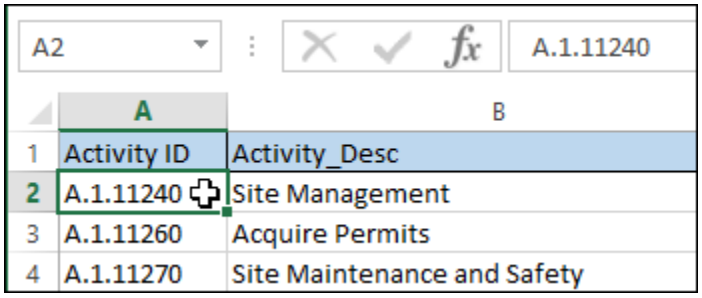
With the headers in the correct order…

16. Click on the previously opened **Excel Spreadsheet** file.

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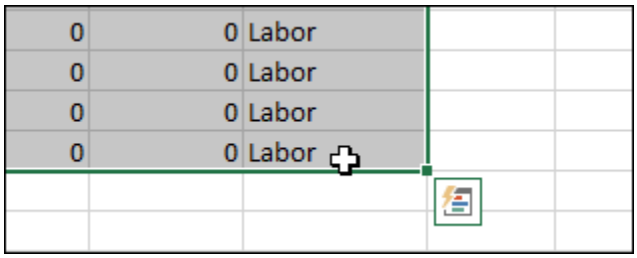
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17. Click in cell **A2**.



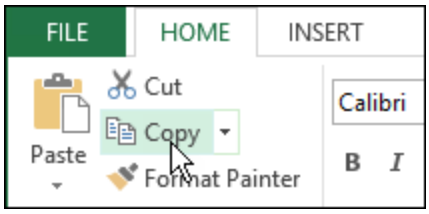
18. Scroll to the bottom of the spreadsheet.

19. Hold down the **Shift** key and click in the **J96** cell.



This selects all the records.

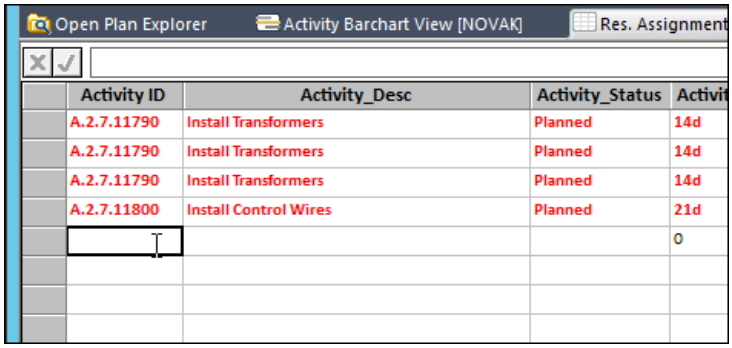
20. In the **Home** ribbon, click **Copy**.



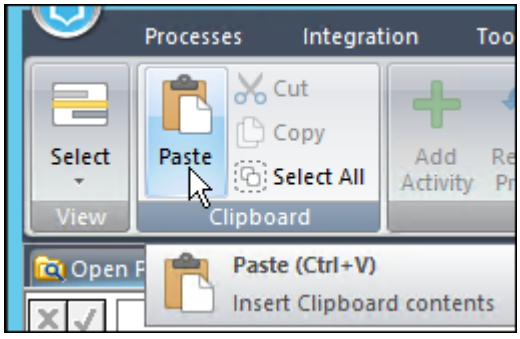
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21. Click on the first blank cell of the **Res. Assignment Import View** to select it.

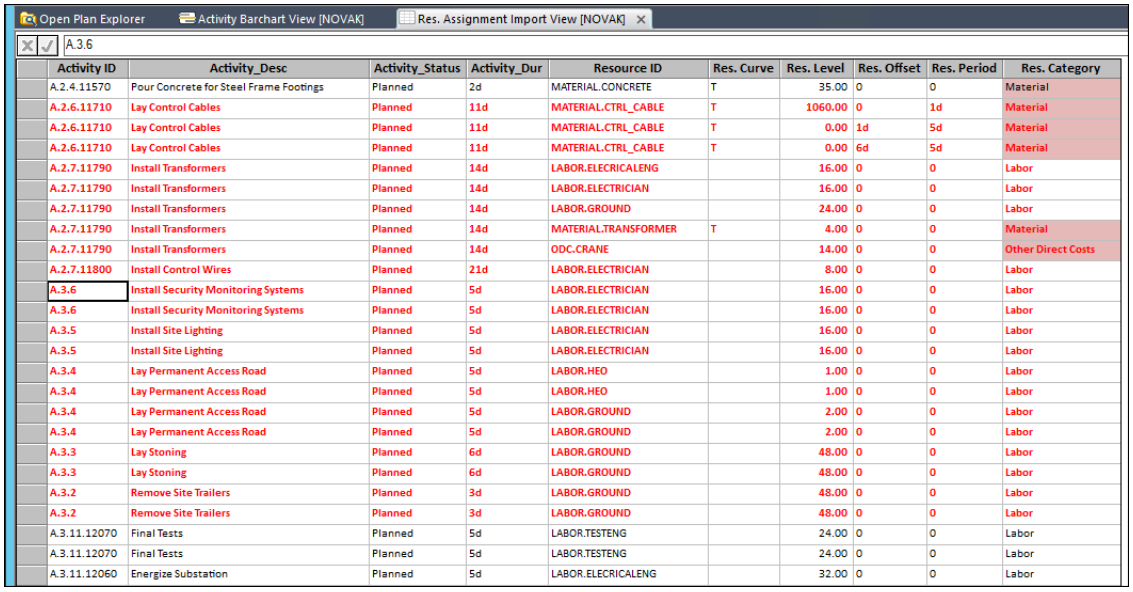


22. In the **Edit** ribbon click **Paste**.



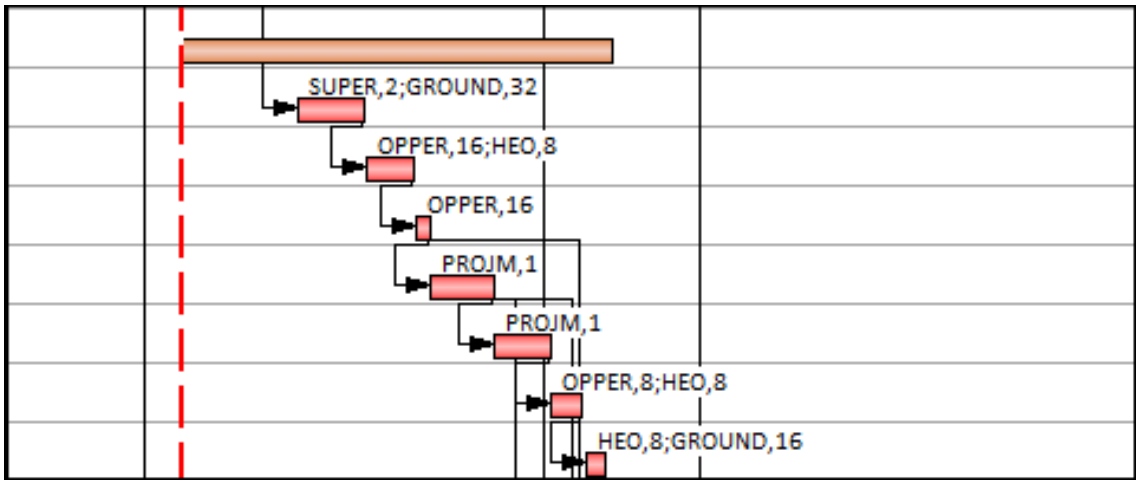
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23. After a few moments, the table will be populated with all the remaining resource assignments loaded from the **Excel** spreadsheet.



Activity ID	Activity_Desc	Activity_Status	Activity_Dur	Resource ID	Res. Curve	Res. Level	Res. Offset	Res. Period	Res. Category
A.2.4.11570	Pour Concrete for Steel Frame Footings	Planned	2d	MATERIAL.CONCRETE	T	35.00	0	0	Material
A.2.6.11710	Lay Control Cables	Planned	11d	MATERIAL.CTRL_CABLE	T	1060.00	0	1d	Material
A.2.6.11710	Lay Control Cables	Planned	11d	MATERIAL.CTRL_CABLE	T	0.00	1d	5d	Material
A.2.6.11710	Lay Control Cables	Planned	11d	MATERIAL.CTRL_CABLE	T	0.00	6d	5d	Material
A.2.7.11790	Install Transformers	Planned	14d	LABOR.ELECRICALENG		16.00	0	0	Labor
A.2.7.11790	Install Transformers	Planned	14d	LABOR.ELECTRICIAN		16.00	0	0	Labor
A.2.7.11790	Install Transformers	Planned	14d	LABOR.GROUND		24.00	0	0	Labor
A.2.7.11790	Install Transformers	Planned	14d	MATERIAL.TRANSFORMER	T	4.00	0	0	Material
A.2.7.11790	Install Transformers	Planned	14d	ODC.CRANE		14.00	0	0	Other Direct Costs
A.2.7.11800	Install Control Wires	Planned	21d	LABOR.ELECTRICIAN		8.00	0	0	Labor
A.3.6	Install Security Monitoring Systems	Planned	5d	LABOR.ELECTRICIAN		16.00	0	0	Labor
A.3.6	Install Security Monitoring Systems	Planned	5d	LABOR.ELECTRICIAN		16.00	0	0	Labor
A.3.5	Install Site Lighting	Planned	5d	LABOR.ELECTRICIAN		16.00	0	0	Labor
A.3.5	Install Site Lighting	Planned	5d	LABOR.ELECTRICIAN		16.00	0	0	Labor
A.3.4	Lay Permanent Access Road	Planned	5d	LABOR.HEO		1.00	0	0	Labor
A.3.4	Lay Permanent Access Road	Planned	5d	LABOR.HEO		1.00	0	0	Labor
A.3.4	Lay Permanent Access Road	Planned	5d	LABOR.GROUND		2.00	0	0	Labor
A.3.4	Lay Permanent Access Road	Planned	5d	LABOR.GROUND		2.00	0	0	Labor
A.3.3	Lay Stoning	Planned	6d	LABOR.GROUND		48.00	0	0	Labor
A.3.3	Lay Stoning	Planned	6d	LABOR.GROUND		48.00	0	0	Labor
A.3.2	Remove Site Trailers	Planned	3d	LABOR.GROUND		48.00	0	0	Labor
A.3.2	Remove Site Trailers	Planned	3d	LABOR.GROUND		48.00	0	0	Labor
A.3.11.12070	Final Tests	Planned	5d	LABOR.TESTENG		24.00	0	0	Labor
A.3.11.12070	Final Tests	Planned	5d	LABOR.TESTENG		24.00	0	0	Labor
A.3.11.12060	Energize Substation	Planned	5d	LABOR.ELECRICALENG		32.00	0	0	Labor

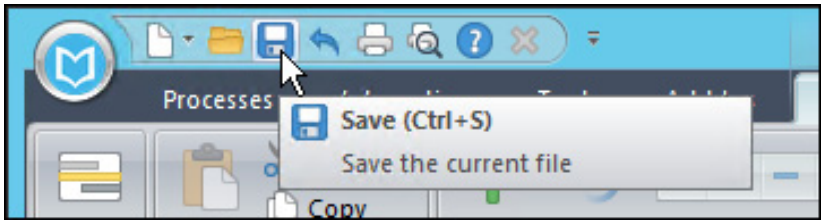
24. Click on the **Activity Barchart View** to see the resource names assigned to activities in the **Gantt** chart.



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25. **Save** your updated schedule.



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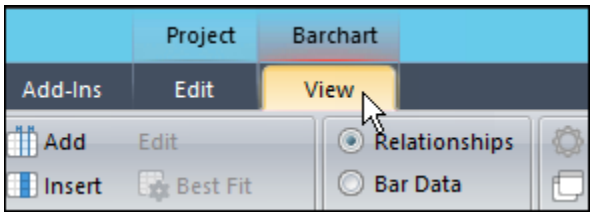
7.6 Resource Analysis

Having made your resource assignments, it's time to look at their usage to verify there are no overloads.

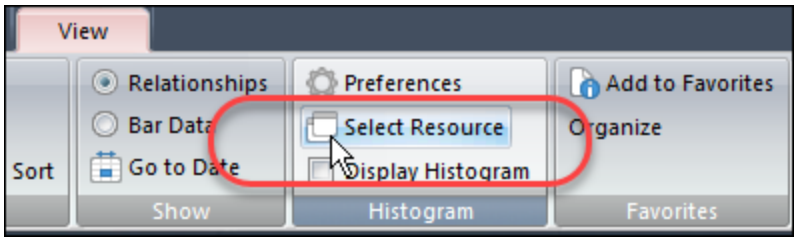
A quick and easy way to review your resource usage profile is to open the Histogram view in your current Activity Barchart View.

7.6.1 Activity: Reviewing the Resource Usage Histogram

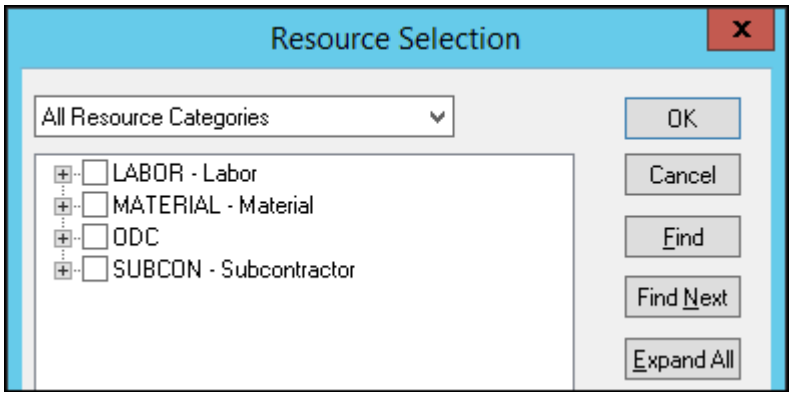
1. In the Activity Barchart View, click on the View menu.



2. In the **Histogram** tool group, click on **Select Resource**.



3. Note the list of **Resource Pools** in the **Resource Selection** dialog.



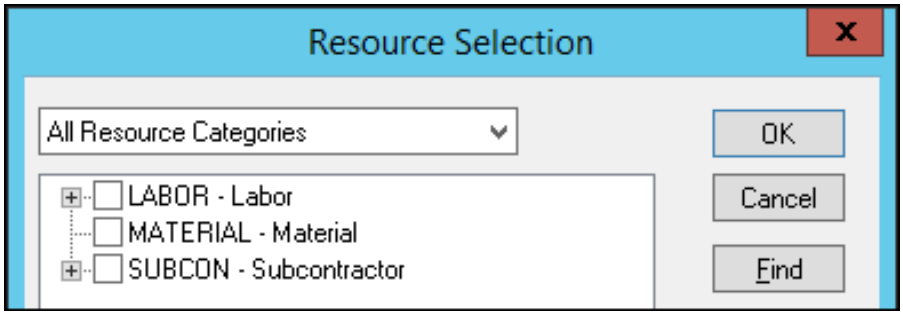
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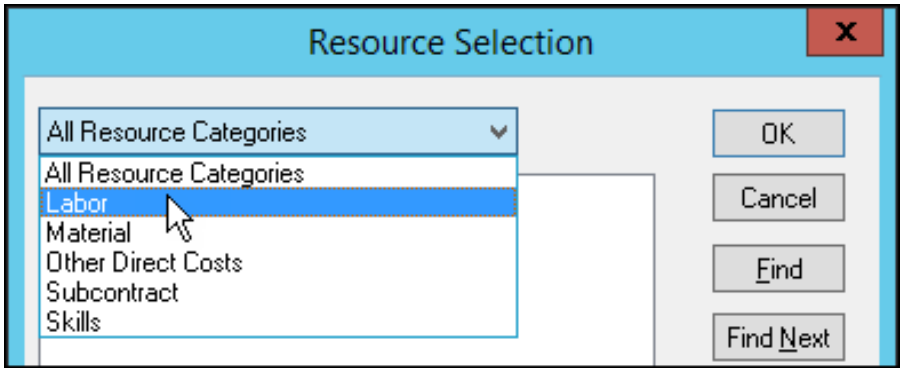
4. At the bottom of the dialog, click the '**Hide Unreferenced Resources**' check box.



This reduces the list to include only those resource pools and resources that are assigned to the current project. As you will note, the ODC resource pools is no longer visible in the list.



5. Click on the dropdown field above the list and select **Labor**.

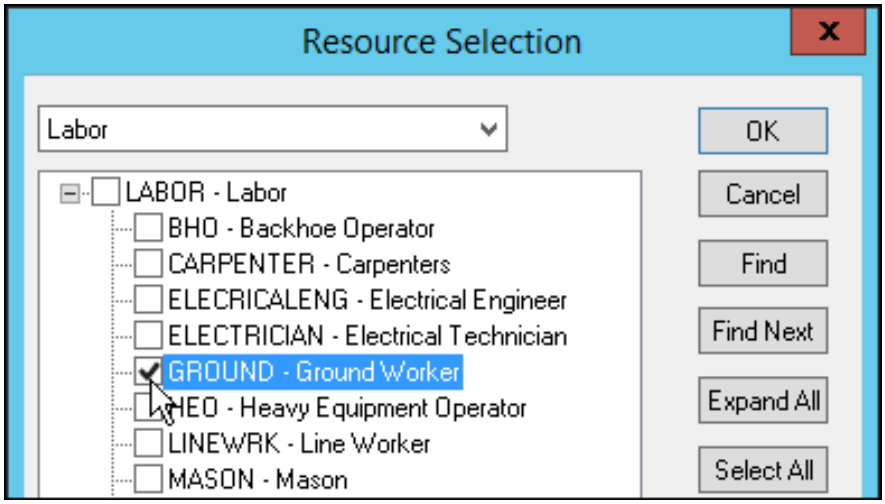


By hiding the unreferenced resources, and filtering on just Labor, we have reduced the list to just items we are interested in when it comes to checking for usage.

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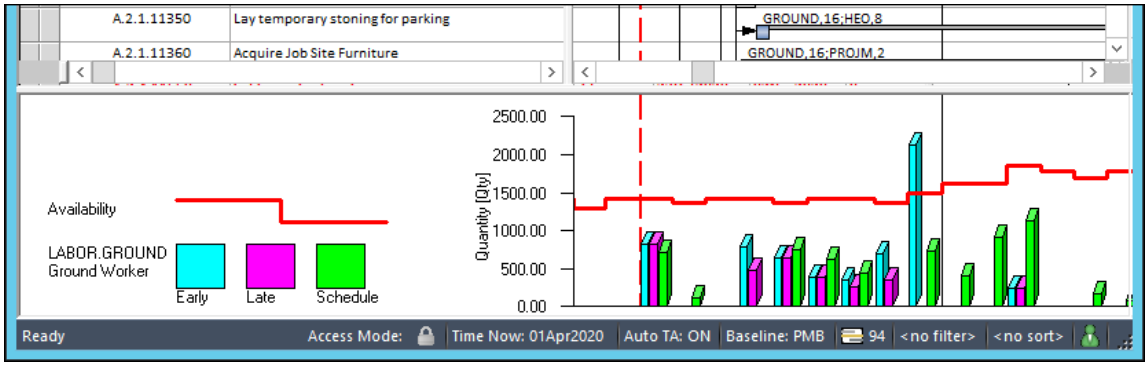
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6. Now, expand the **LABOR** resource pool and select the **GROUND** resource.



7. Click the **OK** button.

The Histogram shows bars that are aligned with the date scale above in the Gantt chart. Let's look at some details about the Histogram and its controls.

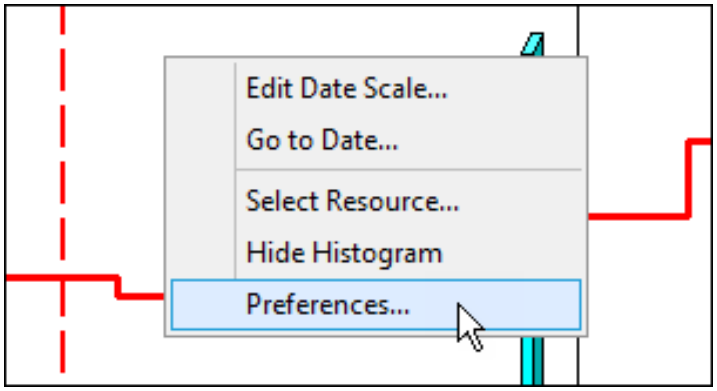


We will be looking at some settings for helping us determine the usage of resources in the schedule.

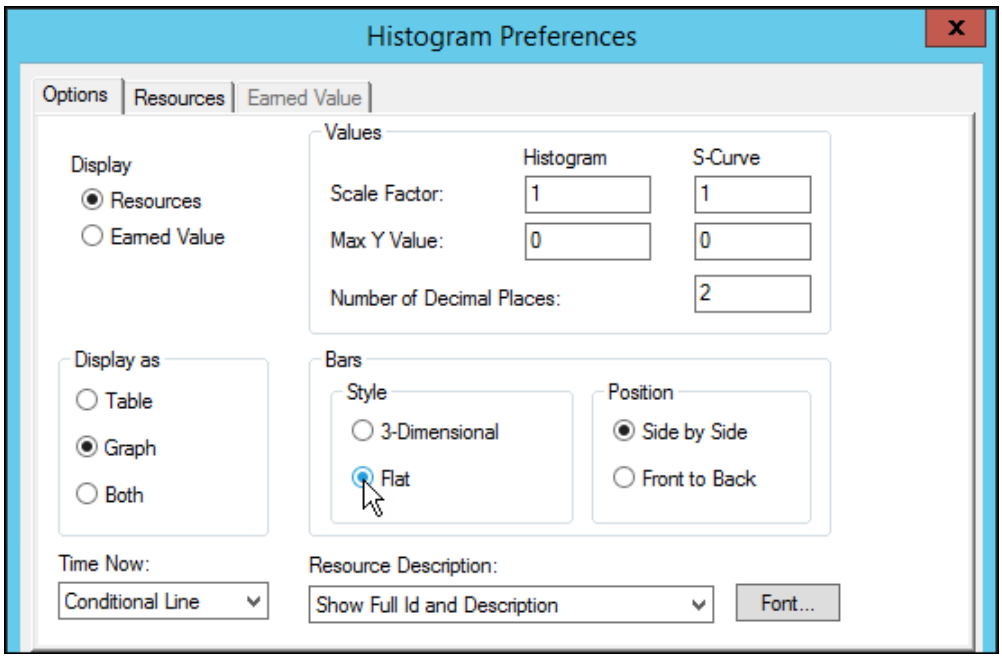
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8. Right-click on the **Histogram** and select **Preferences** from the menu.



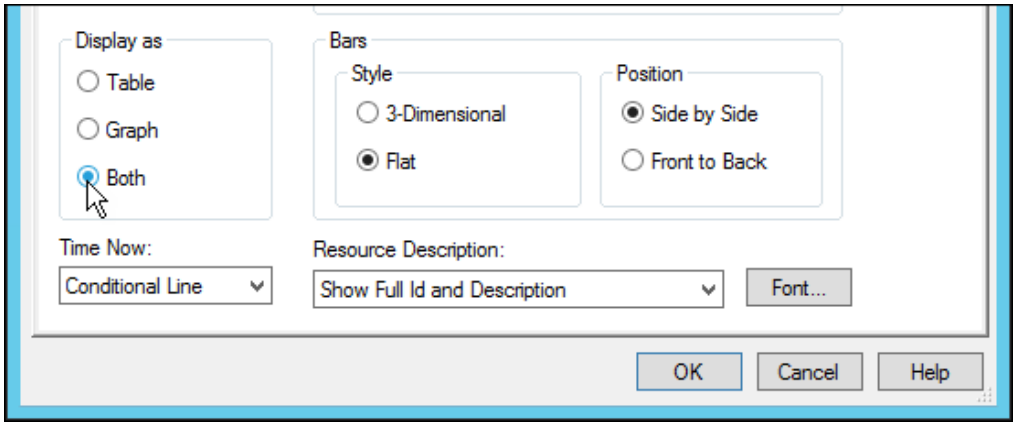
9. In the **Options** tab of the dialog, go to the **Bars** radio group and click the **Flat** radio button.



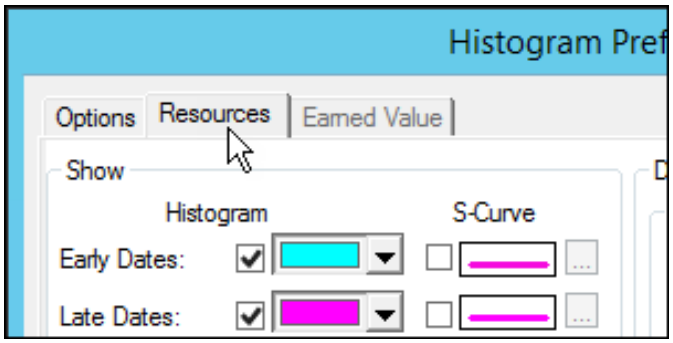
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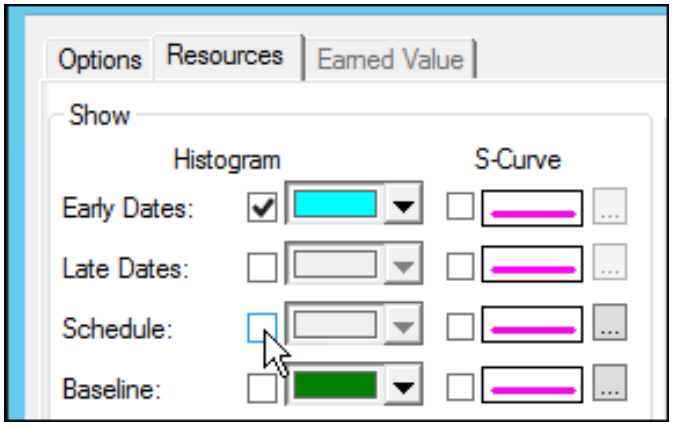
10. In the **Display** as radio group, add the table below the graph by clicking on the **Both** option.



11. Click on the **Resources** tab.

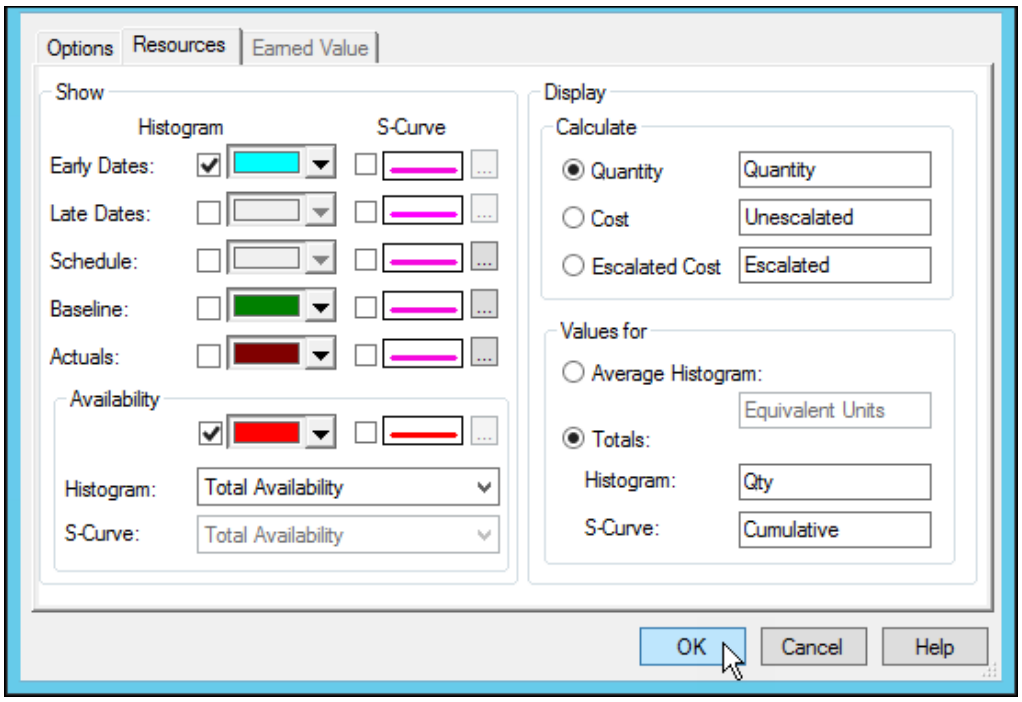


12. Uncheck the **Late Dates** and **Schedule** options in the **Histogram** list.

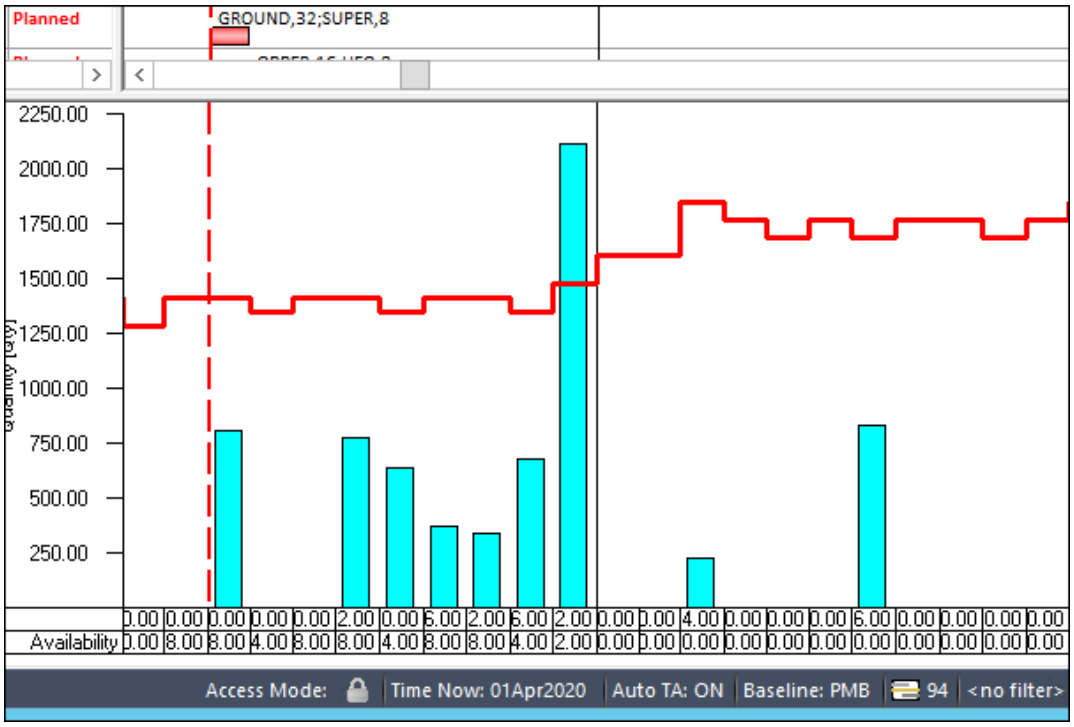


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13. Verify the remaining options are as shown and click the **OK** button.



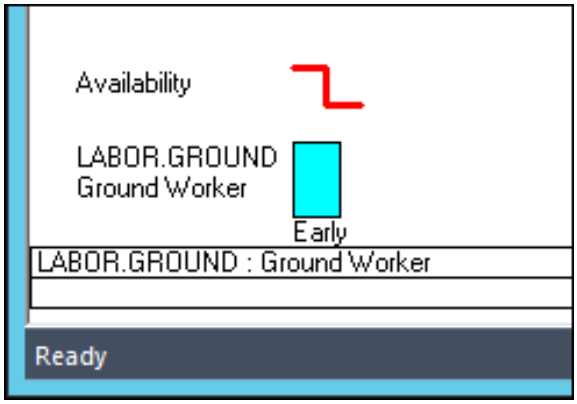
14. In the **Histogram**, note the effect of the changes.



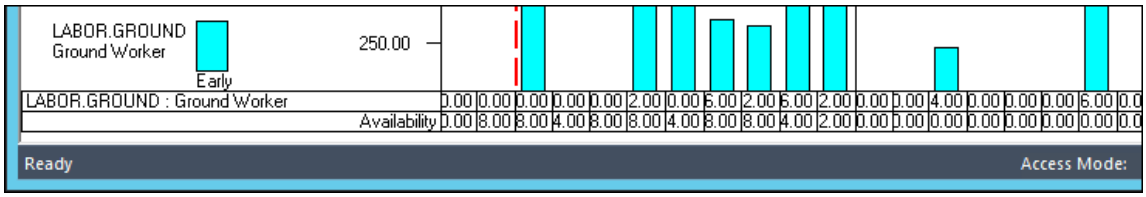
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Only the Early dates profile remains on the screen as light blue bars.
Because the Timescale is set to Months in the lowest tier, the Red 'Availability' line is showing the total monthly availability for the Ground Worker's, and the histogram shows the cumulative usage by month also.

15. The **Legend** has also been updated to reflect only the selected items in **Preferences:** i.e., the Availability line and the Early date bar.

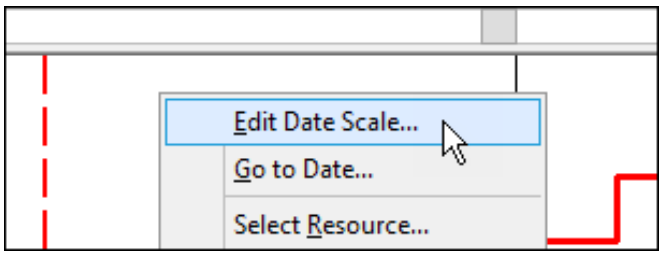


16. Note the **Table** below the bars giving a monthly total of **Ground Worker** usage on the top row, and **Availability** totals in the second row.



We need to adjust the date scale. Monthly buckets are not ideal for resource usage and over allocation analysis.

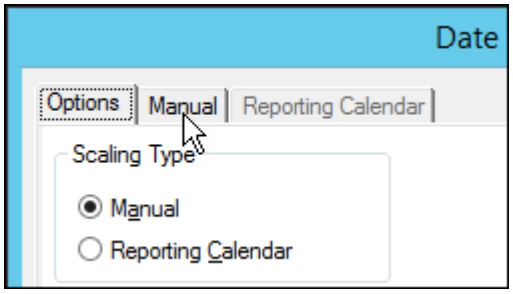
17. Right-click on the histogram and select the **Edit Date Scale…** option.



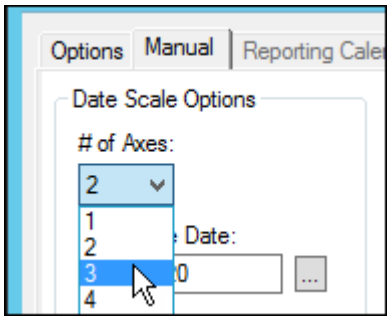
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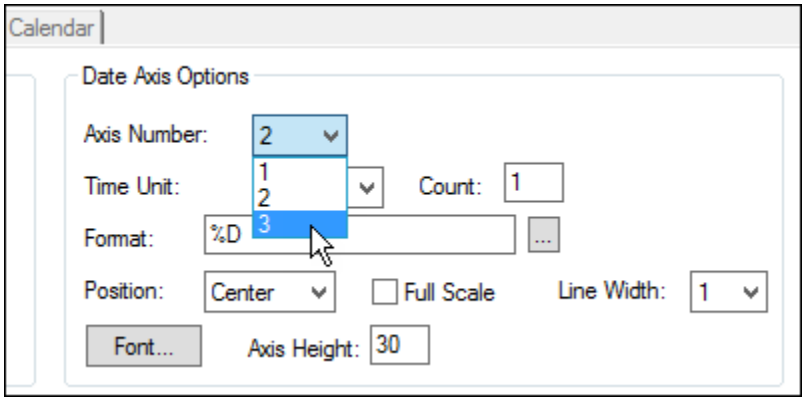
18. Click on the **Manual** tab.



19. In the **Date Scale Options** group, set the **# of Axes** to **3**.



20. In the **Date Axis Options** group, select **Axis Number 3**.

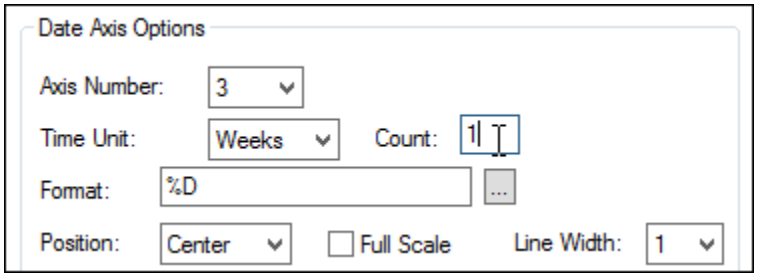


By default, the **Time Unit** for Axis 3 should be **Weeks**.

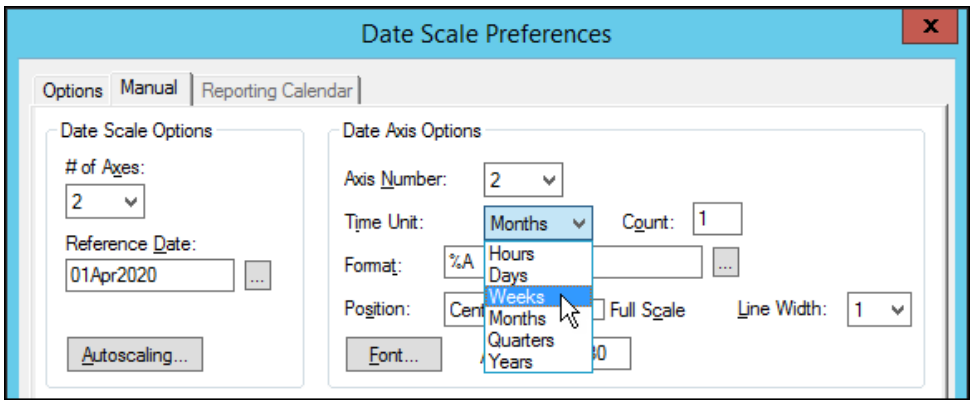
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21. Change the **Count** field from **2** down to **1**.



22. In **Date Axis Options**, verify the **Axis Number** is **3**.

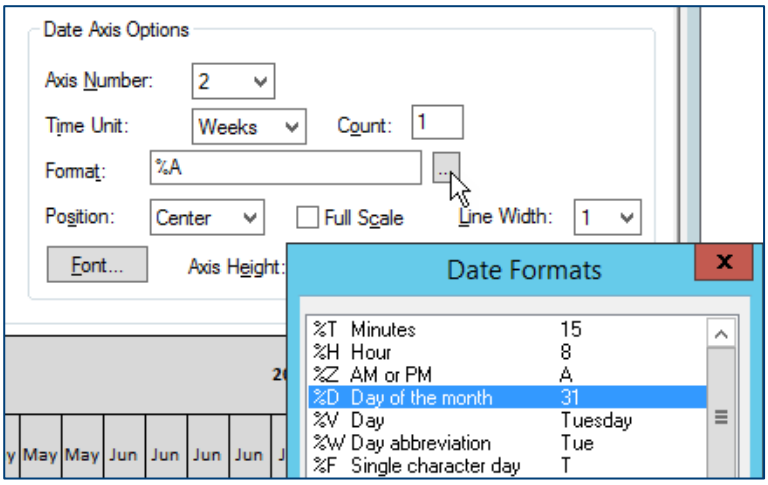


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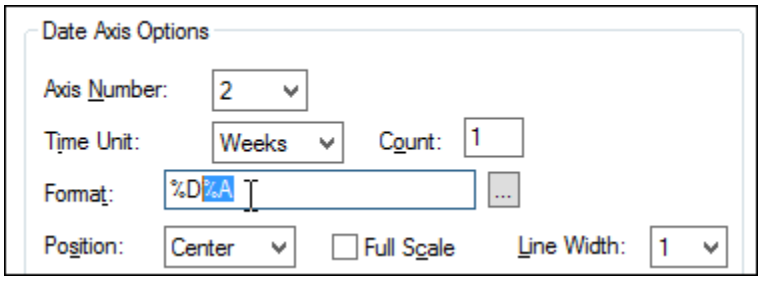
23. **If necessary**, follow these next steps to get the ideal settings for your date scale.

24. Click on the **Format** ellipsis and select **%D** for **Day of the month** in the **Date Formats** dialog.



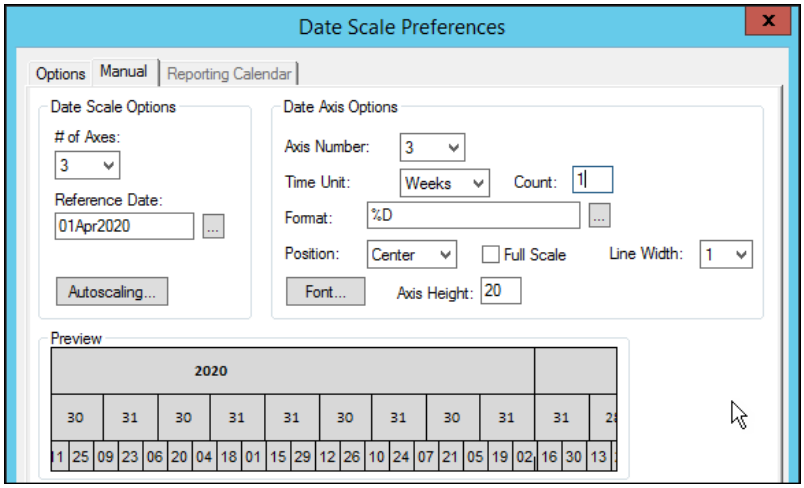
25. Click **OK**.

26. Remove the **%A** option from Format, leaving just the **%D**.

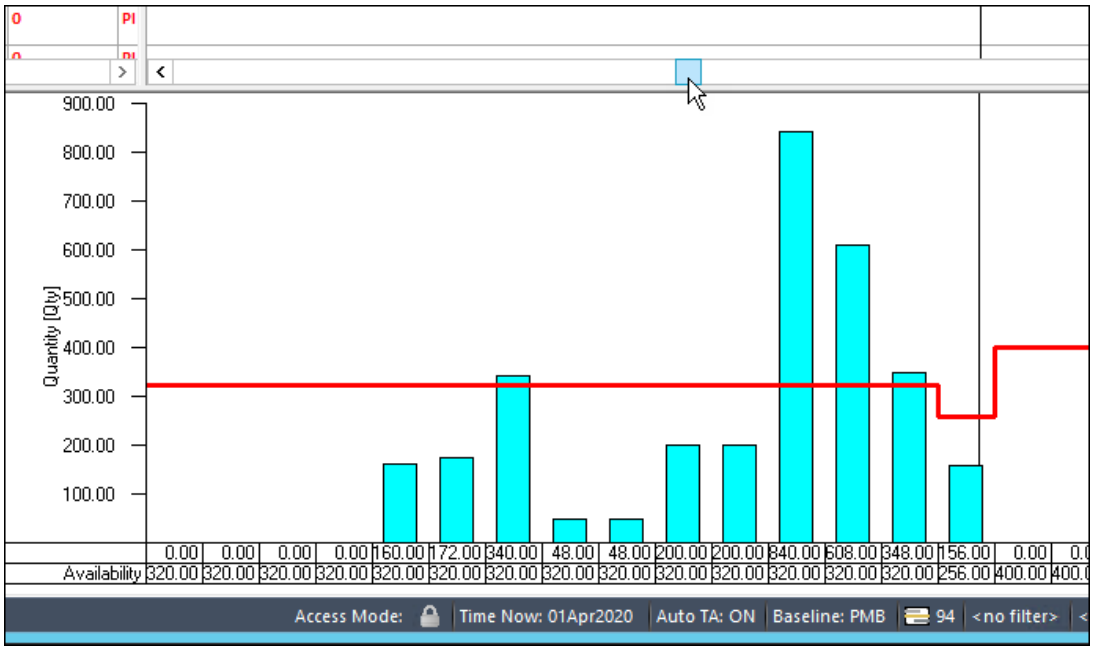


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27. Click **OK**.

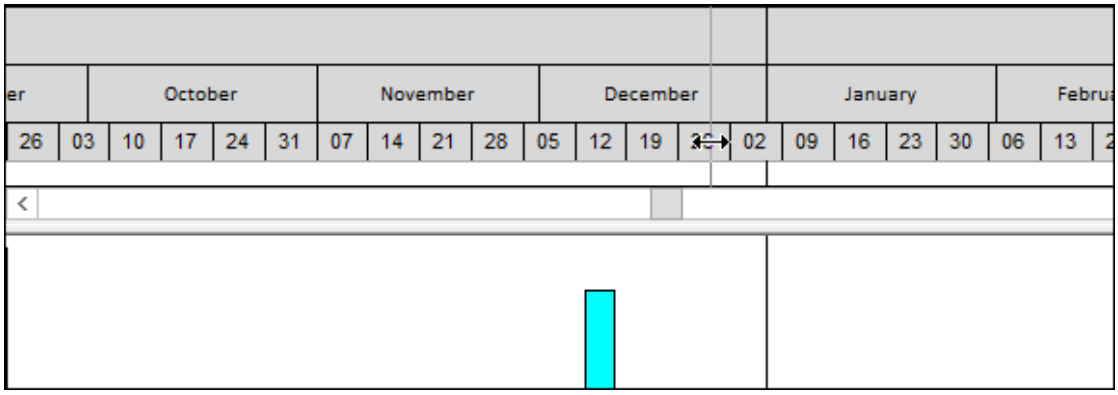


28. Slide the histogram to the right to check for any periods where the bars are above the **Availability** line.

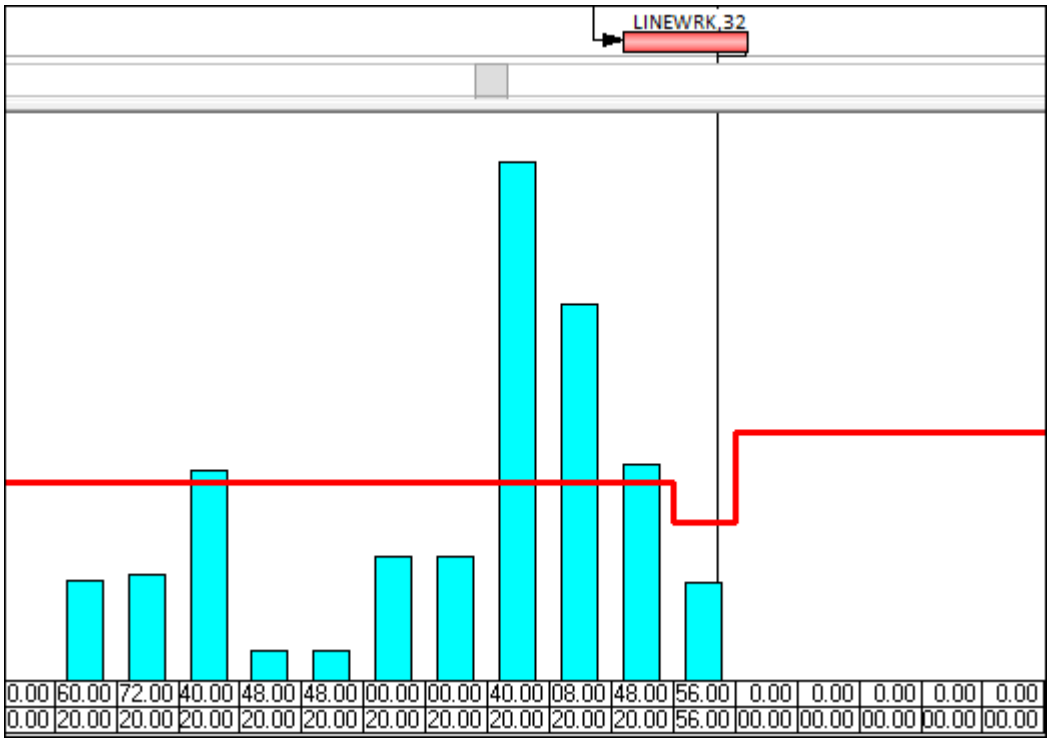


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29. Click and drag the **Date Scale** to expand the width of the weekly periods to see more detail in the Histogram.



30. We can see that there is a major over-allocation of **Ground Workers** in the second and third weeks in December.



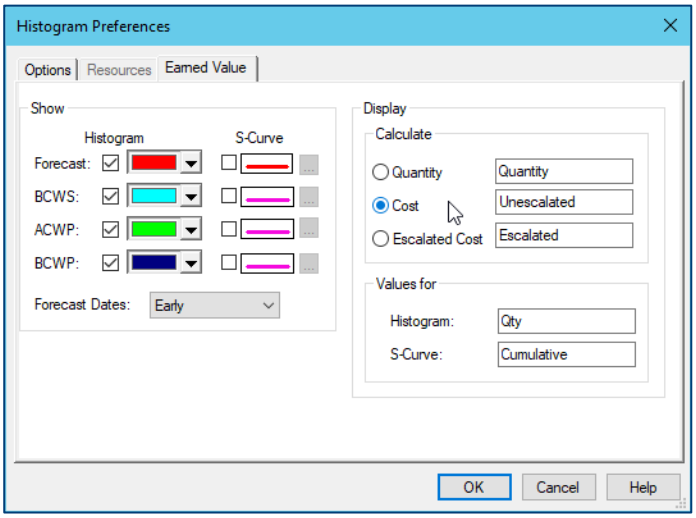
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7.7 Reviewing Costs

Each of the assigned resources has an associated cost per unit. Once you have assigned all the resources to the project, both a usage and cost profile has been created. This has built what is often referred to as a “cost-loaded schedule”.

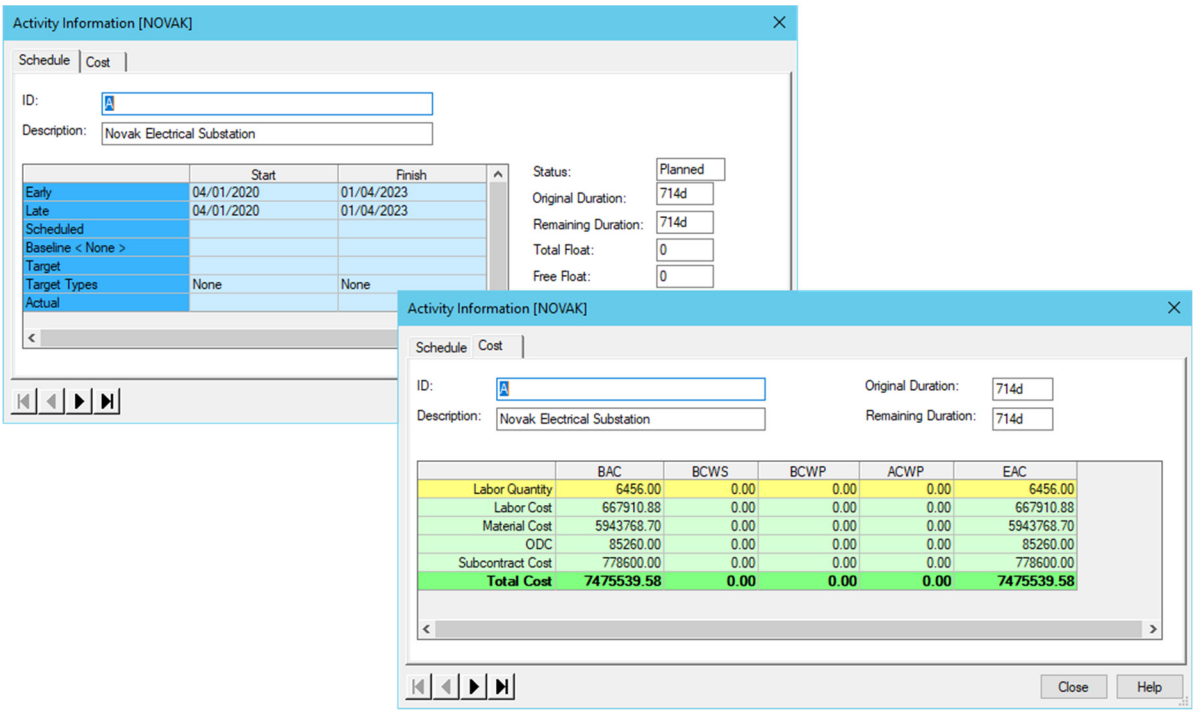
While the Histogram functionality does provide options for cost analysis, this lends itself best for detailed analysis of individuals or small groups of resources.



The quickest way to see a macro view of schedule and cost data is to use the **Activity Information** dialog. This provides a **Schedule** and **Cost** tab for the selected activity. If you select the top-level activity in the project, you will see a summary for the entire project.

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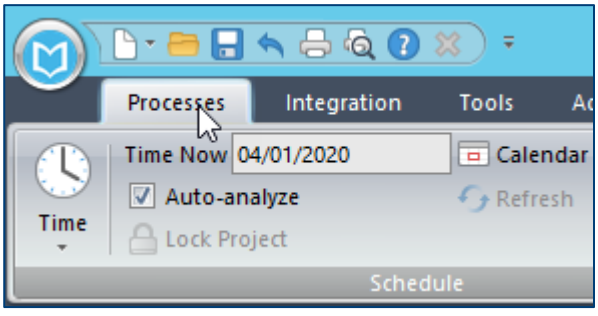


7.7.1 Activity: Calculating Project Costs

Just before we step into the **Activity Information** dialog, we need to run the **Calculate Cost** process. This will ensure that the cost data we see is based upon the current resource assignments.

Follow these next steps to perform a cost calculation for the NOVAK project.

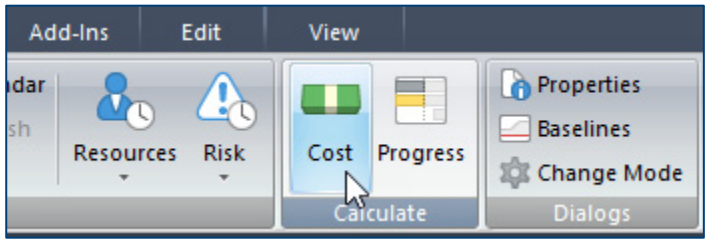
1. Click on the **Processes** tab.



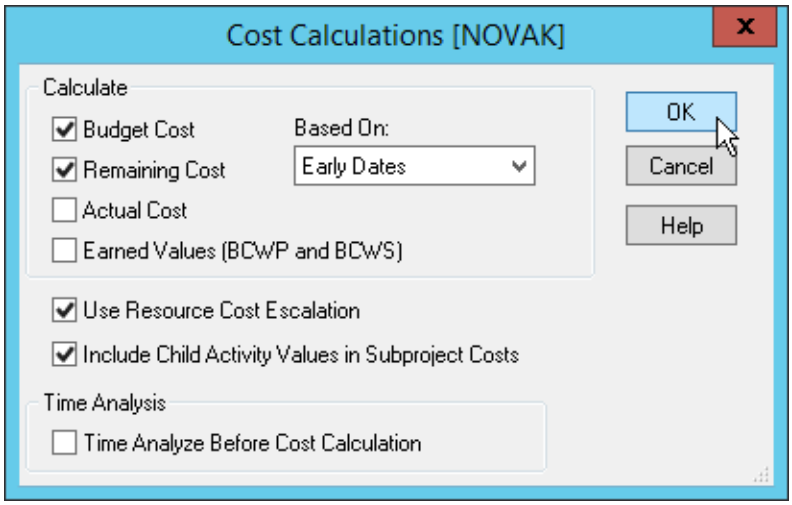
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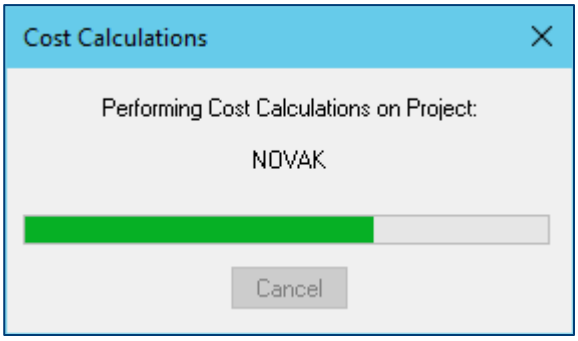
2. Click on the **Cost** button in the **Calculate** tool group.



3. In the **Cost Calculations** dialog, go with the default settings (shown here) by clicking the **OK** button.



4. You will briefly see the following dialog:



5. The costs for Labor, Material, ODC, and Subcontractor have now been calculated, along with Labor Quantities (in this case hours) for all the project activities.

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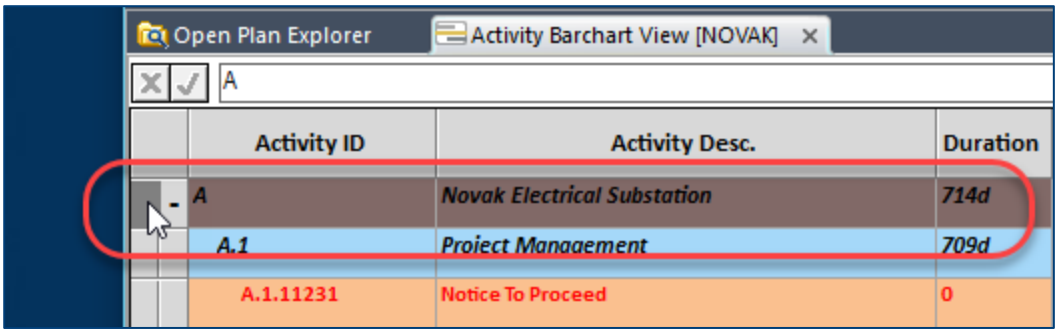
To ensure that your baseline has a complete record of activities, resource assignments, and costs, you should perform this cost calculation before creating a baseline for your project. This will be discussed in lesson 8 – Baselines.

For now, we will go to the next activity steps and introduce you to the Activity Information dialog. There we will see the results of this Cost Calculation.

7.7.2 Activity: Exploring the Activity Information Dialog

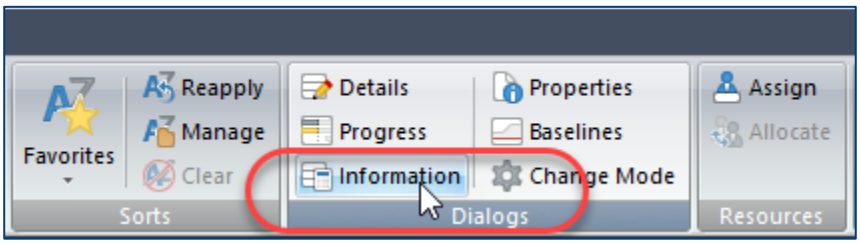
You can access the **Activity Information** dialog in three ways, as shown in these next steps.

1. In the **NOVAK** project, select the top-level activity **A – Novak Electrical Substation** by clicking on the outer row header.



From here you have three options – shown in these next steps:

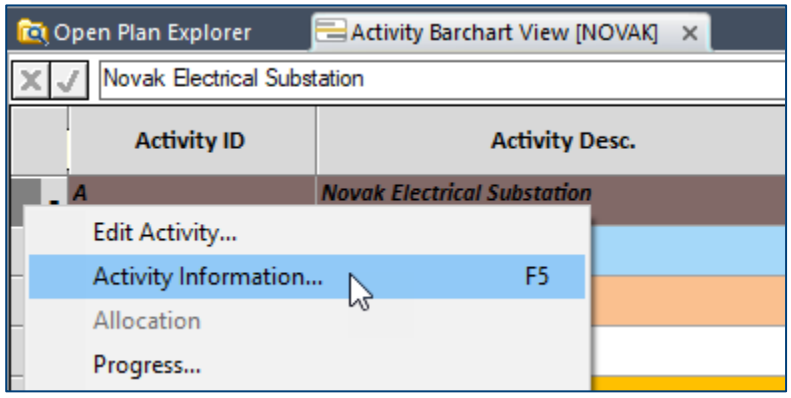
2. **First Option:** In the **Edit** ribbon, click on the **Information** button in the **Dialogs** group.



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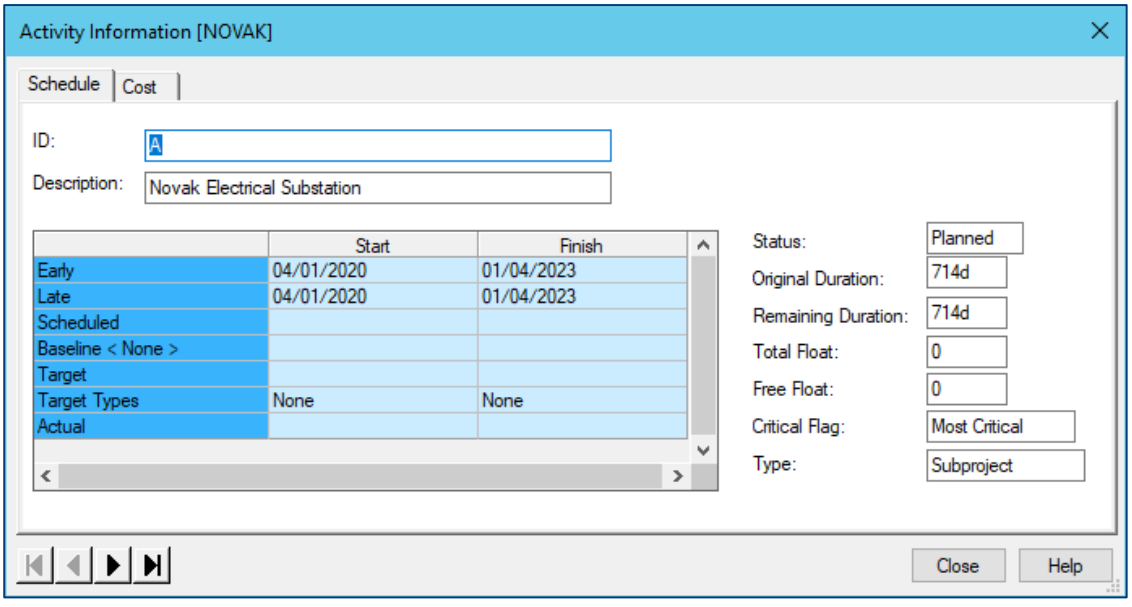
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3. **Second Option:** Right-click on the outer row header and choose **Activity Information…** from the menu.



4. **Third Option:** Click the **F5** key on your keyboard.

5. By default, the **Activity Information** dialog opens with the **Schedule** tab selected.



This dialog provides details concerning the selected activity's start and complete dates, status, original and remaining duration, free and total float, criticality, and activity type.

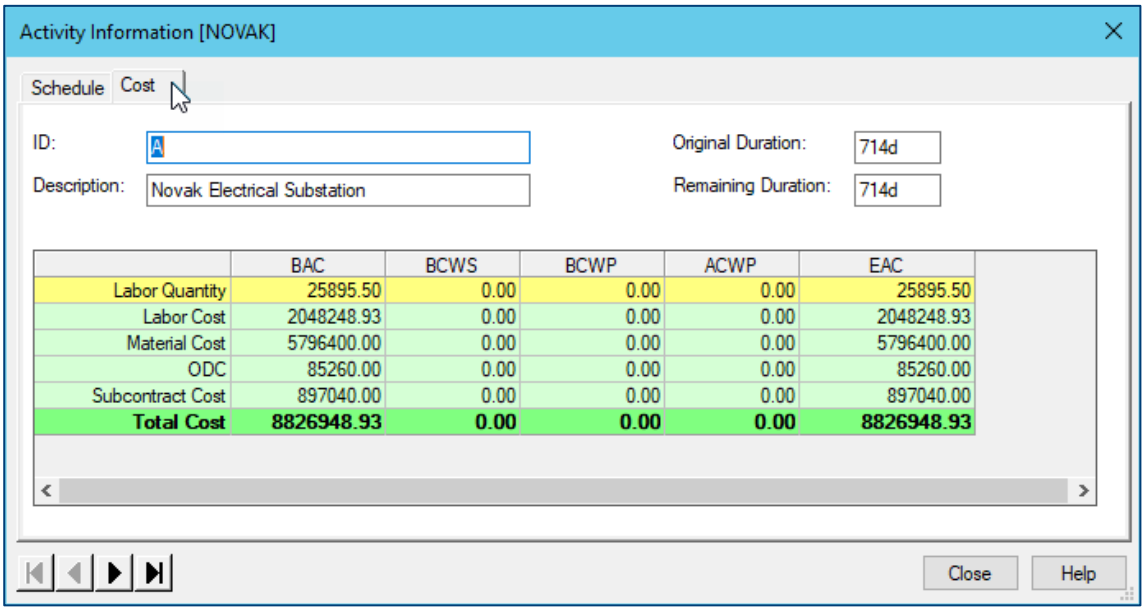
Because we selected the activity at the top level of the project's hierarchy, the date and duration fields represent the entire project. We can see, for example, that this project will start on April 1st, 2020, and is calculated to finish January 4th, 2023. And because its status is 'Planned' we can be reasonably certain that this project has not yet started.

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Also note some of the other date fields in the table. The absence of values in the Scheduled dates row tells us that Resource Scheduling has not yet been performed. Also, the absence of dates in the Baseline Start and Finish date cells indicates no baseline has been selected.

And there are no Target Dates on this activity, although there may be targets on other activities in the project.

6. Now click on the **Cost** tab.

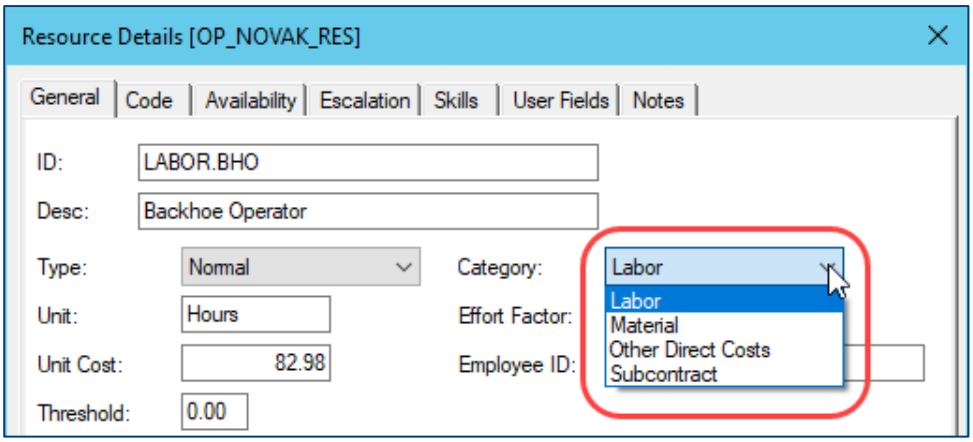


At this top level, the Subproject activity is summarizing costs for the entire project. We can also see the total Labor Quantity on the top row of this table. This is typically 'hours' for labor resources but could be something else depending on how you have configured your Resource Details.

The remaining rows are aggregated based upon the category value assigned to each resource record during setup. You can see the **Category** list below corresponds to the rows in the above table.

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	BAC	BCWS	BCWP	ACWP	EAC
Labor Quantity	25895.50	0.00	0.00	0.00	25895.50
Labor Cost	2048248.93	0.00	0.00	0.00	2048248.93
Material Cost	5796400.00	0.00	0.00	0.00	5796400.00
ODC	85260.00	0.00	0.00	0.00	85260.00
Subcontract Cost	897040.00	0.00	0.00	0.00	897040.00
Total Cost	**8826948.93**	**0.00**	**0.00**	**0.00**	**8826948.93**

BAC is Budget At Complete; the sum total for each category. The **Calculate Cost** process has multiplied the assigned units for the resource by its Unit Cost, thus generating these cost values. As previously mentioned, a baseline for the project is taken to lock in these BAC values. This baseline is known as the Performance Measurement Baseline or PMB. More about this in lesson 8 - Baselines.

BCWS is Budgeted Cost of Work Scheduled; the planned cost of work from the start of the project up to the current Status Date. This is basically the amount the project is expected to spend to date.

BCWP is Budgeted Cost of Work Performed; also referred to as 'Earned Value' - is a dollarized percent complete. For example, if an activity is 50% complete it will have earned half of its BAC value. When the activity is completed, it has earned 100% of its BAC.

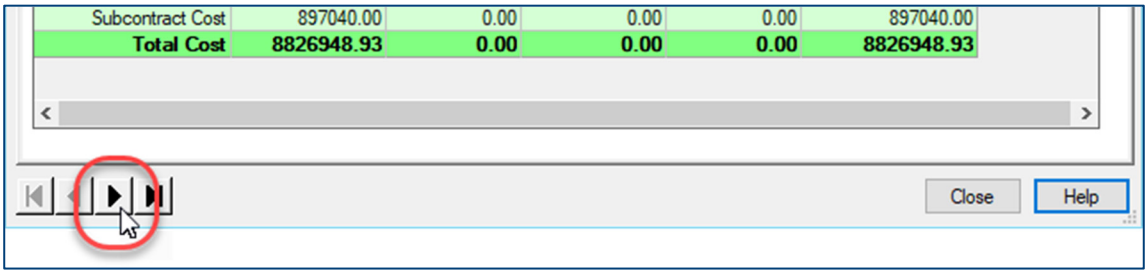
ACWP is Actual Cost of Work Performed; a value that ideally should come from the finance system based upon hours and costs invoiced to the project.

EAC is Estimate At Complete; these values are based upon the remaining activity costs (Estimate To Complete or ETC), plus the actual costs: i.e., ETC + ACWP = EAC. Because the project has not yet started, the BAC and EAC numbers are identical. Once the project is under way, remaining units will begin to reduce, being replaced by the actual costs.

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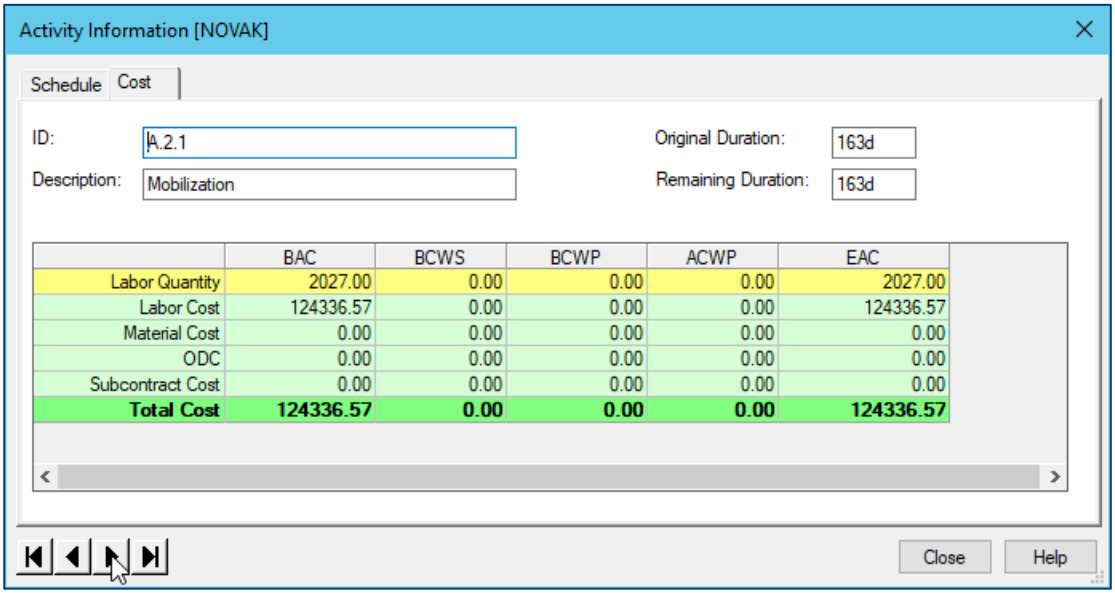
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7. Now click on the **Next Record** button located bottom-left of the **Activity Information** dialog.



This action moves the focus of the dialog to the next activity in the schedule. You will see the values change to reflect the costs stored against that activity.

8. Repeat this action to step down through a number of activities, reviewing the values stored on each one.

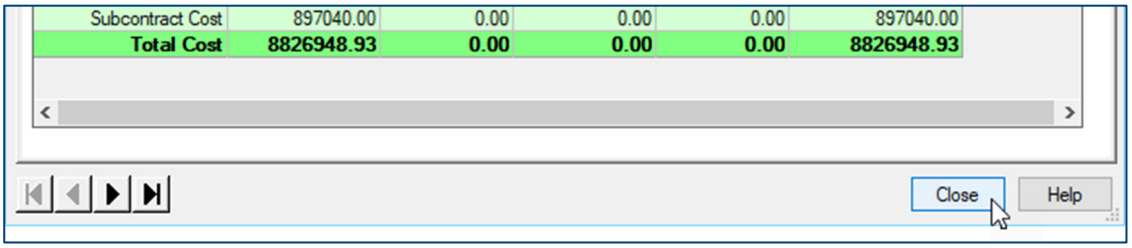


For example, we can see above the Mobilization costs for the project on the A.2.1 Subproject record.

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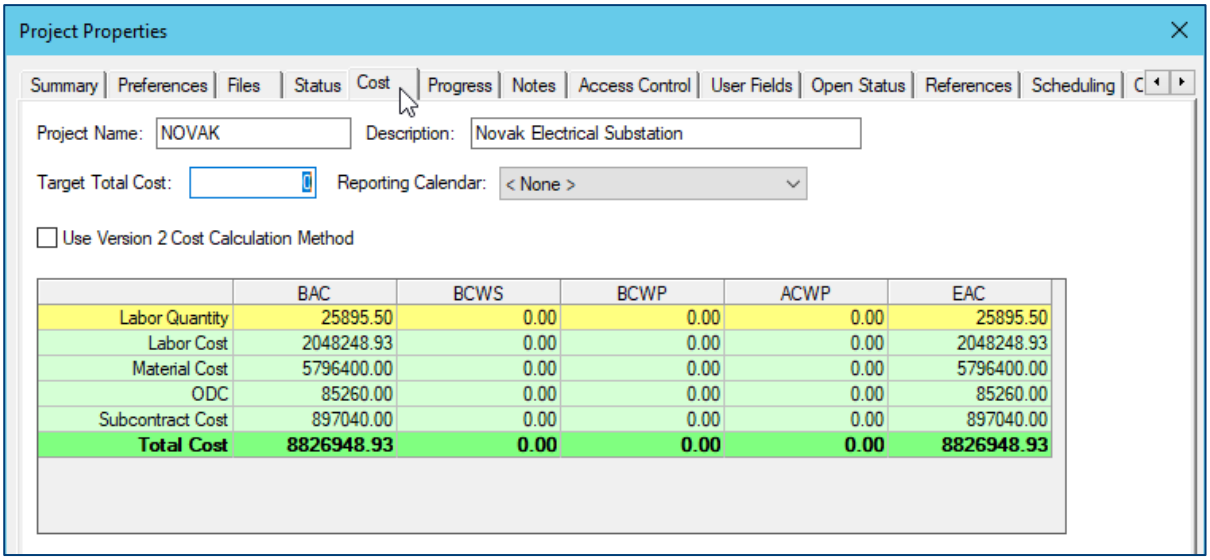
9. Once you have familiarized yourself with this dialog and its functions, click **Close**.



These cost values are based upon earned value techniques, the particulars of which are out of scope for this training. If you are not tracking earned value for your project, you can simply use the BAC values to see the planned costs for your project.

In the final exercise for this lesson, we will add a BAC column to a spreadsheet view so that we can see the budgeted costs rolling up through the project hierarchy.

Note: You can also view project level costs in the **Cost** tab of the **Project Properties** dialog.



While this dialog doesn't provide for analysis of costs at the activity level, it is another quick and easy way to view the total BAC, ETC, and other earned value cost metrics at the project level.

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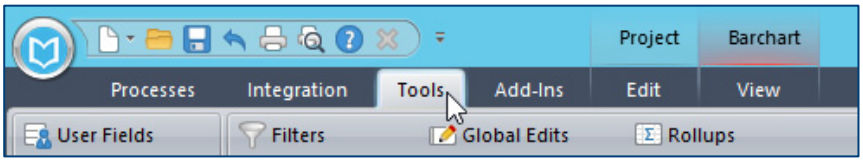
7.7.3 Activity: Adding BAC Values to a View

For this activity you will be adding a calculated field to your BARVW view that displays a total cost of Labor, Material, ODC, and Subcontractor for each activity.

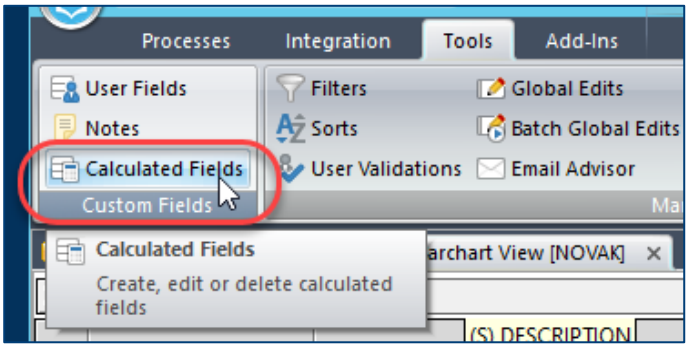
If you are using a **Deltek Learning Lab** environment, or an instance of Open Plan that includes the sample data shipped with the product, this field is named **BACcum**. You can jump to step 11 if you have this calculated field in your system.

If you do not have BACcum, create a new **Calculated Field** using the following steps.

1. Click on the **Tools** tab.



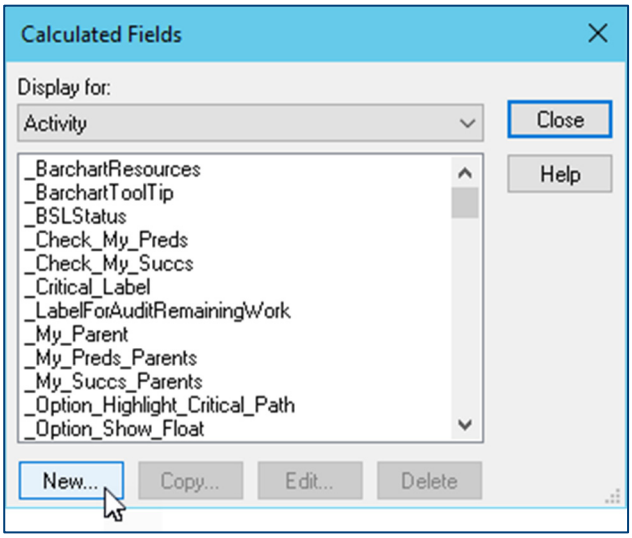
2. Click on **Calculated Fields** in the **Custom Fields** tool group.



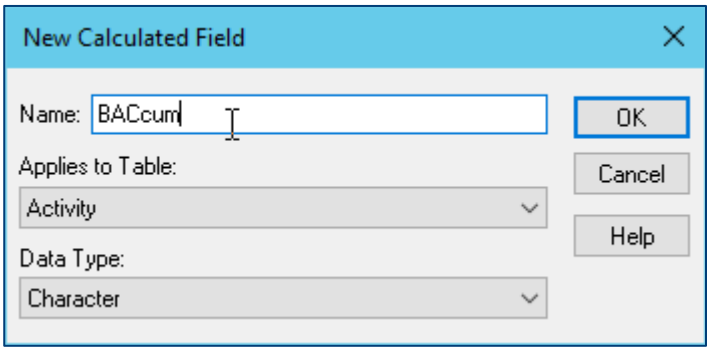
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3. In the **Calculated Fields** dialog, click on the **New…** button.



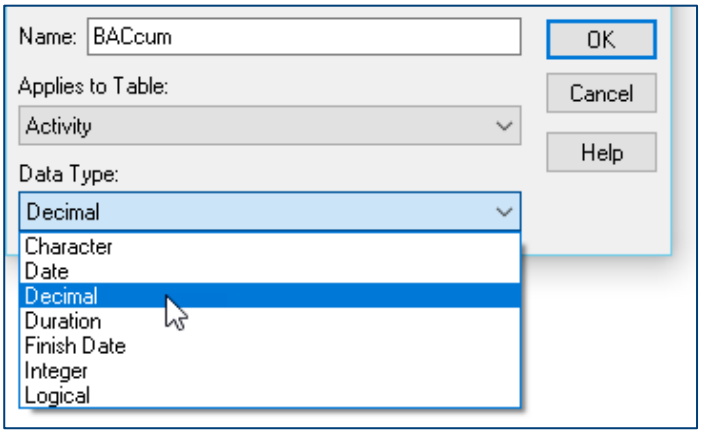
4. In **New Calculated Field**, enter **BACcum** in the **Name:** field.



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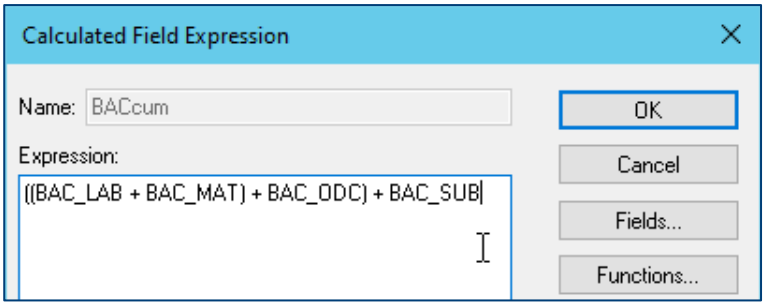
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5. Set the **Data Type:** to **Decimal**.



6. Click **OK**.

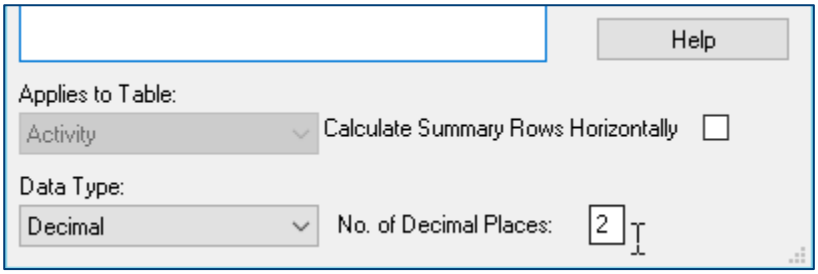
7. Enter the following string into the **Expression** box in the **Calculated Field Expression** dialog.



((BAC_LAB + BAC_MAT) + BAC_ODC) + BAC_SUB

Tip: Copy and Paste the above expression from this document into the Expression dialog.

8. Set the **No. of Decimal Places:** field at the bottom of the dialog to **2**.



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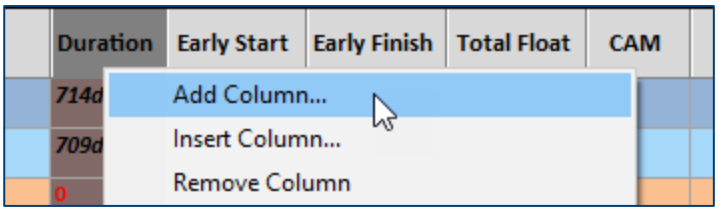
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9. Click **OK**.

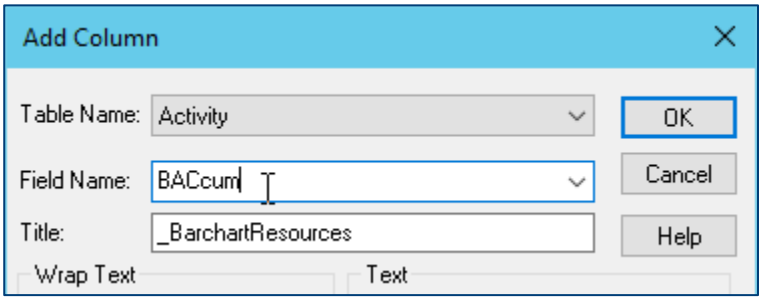
10. Click **Close**.

    More examples of creating **Calculated Fields** are covered in **Lesson 10 – Reporting**.

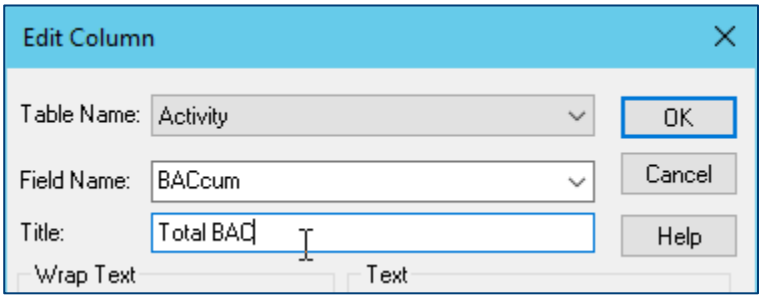
11. Right-click on the **Duration** column header in your **BARVW** view and choose **Add Column**.



12. Type **BACcum** in the **Field Name:** field.



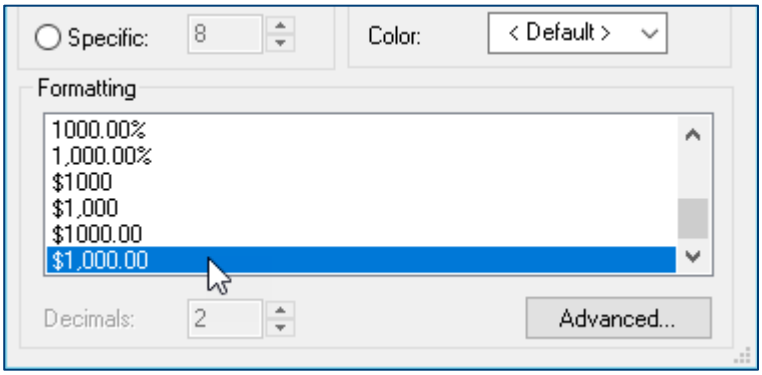
13. Enter '**Total BAC**' in the **Title:** field.



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14. In the **Formatting** area at the bottom of the dialog, select the **$1,000.00** option.



15. Click **OK**.

16. Note the **Total BAC** values column now displayed in the spreadsheet table.

Activity ID	Activity Desc.	Duration	Total BAC	Early Start	Early Finish
A	*Novak Electrical Substation*	*714d*	*$8,826,948.93*	*04/01/2020*	*01/04/2023*
A.1	*Project Management*	*709d*	*$1,831,029.33*	*04/01/2020*	*12/28/2022*
A.1.11231	Notice To Proceed	0	$0.00	04/01/2020	04/01/2020
A.1.11240	Site Management	709d	$932,958.92	04/01/2020	12/28/2022
A.1.11250	Site Security	709d	$778,600.00	04/01/2020	12/28/2022
A.1.11260	Acquire Permits	45d	$1,030.41	04/01/2020	06/02/2020
A.1.11270	Site Maintenance and Safety	559d	$118,440.00	10/29/2020	12/28/2022
A.1.11280	Construction Complete	0	$0.00	12/28/2022	12/28/2022
A.2	*Construction*	*527d*	*$6,907,012.09*	*04/01/2020*	*04/15/2022*
A.2.1	*Mobilization*	*163d*	*$124,336.57*	*04/01/2020*	*11/16/2020*
A.2.1.11290	Move on Heavy Equipment	25d	$39,370.00	06/03/2020	07/08/2020
A.2.1.11300	Perform Clearing and Grubbing for Parkin	18d	$33,792.48	07/09/2020	08/03/2020
A.2.1.11310	Grade Site Parking and Trailer Area	6d	$6,964.80	08/04/2020	08/11/2020

Note how the cost values are being summarized through the different levels of the hierarchy giving a total budgeted cost for the project at the top level.

Lesson complete.

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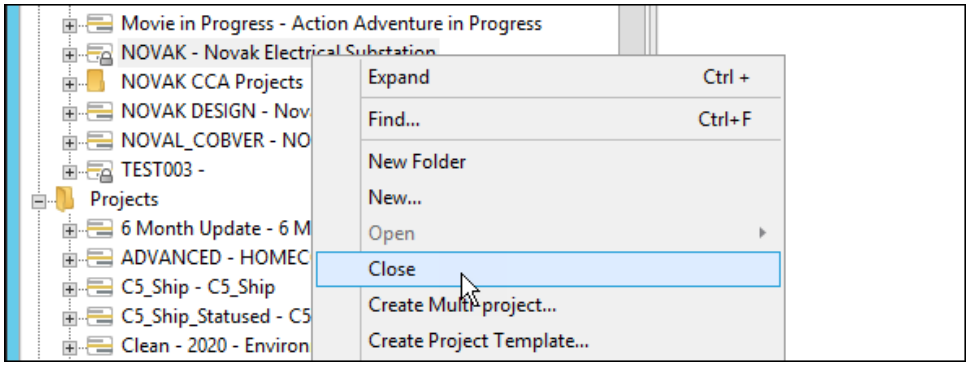
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7.8 Course Catchup

If you were unable to complete all the activities in this lesson, you can restore the final ancillary files using the following steps:

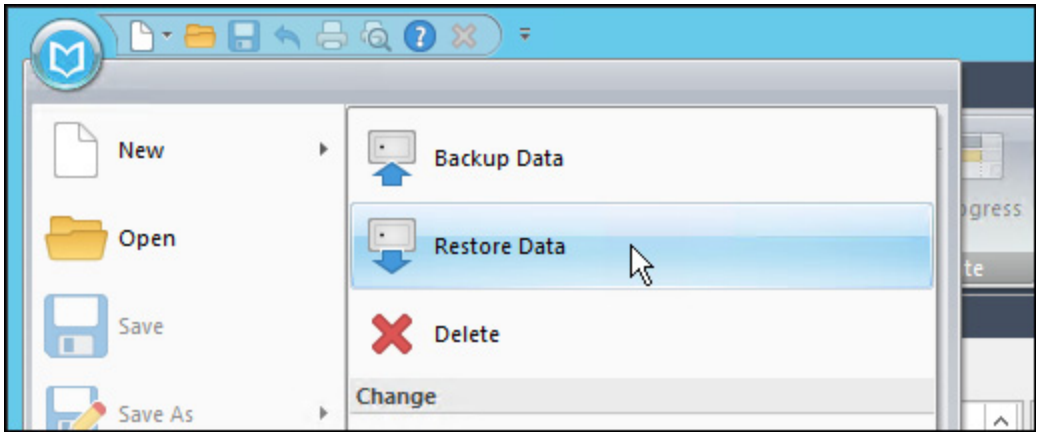
7.8.1 Activity: Course 7 – Catchup

1. Close the **NOVAK** project in the **Open Plan Explorer**.



You cannot restore an open project.

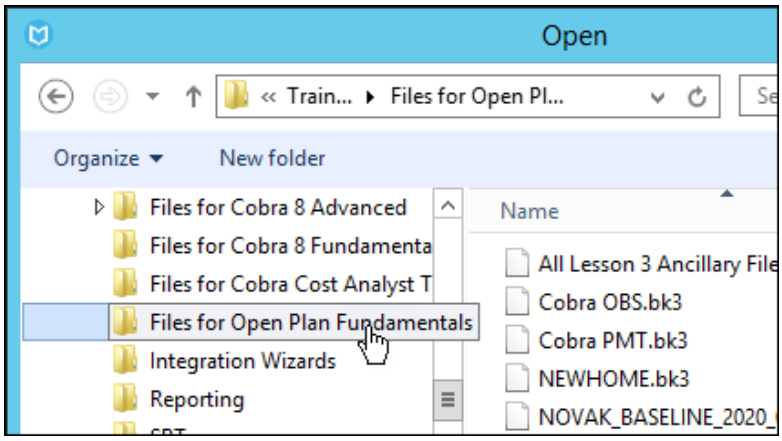
2. Click on the **File** | **Manage Files** > **Restore Data** option.



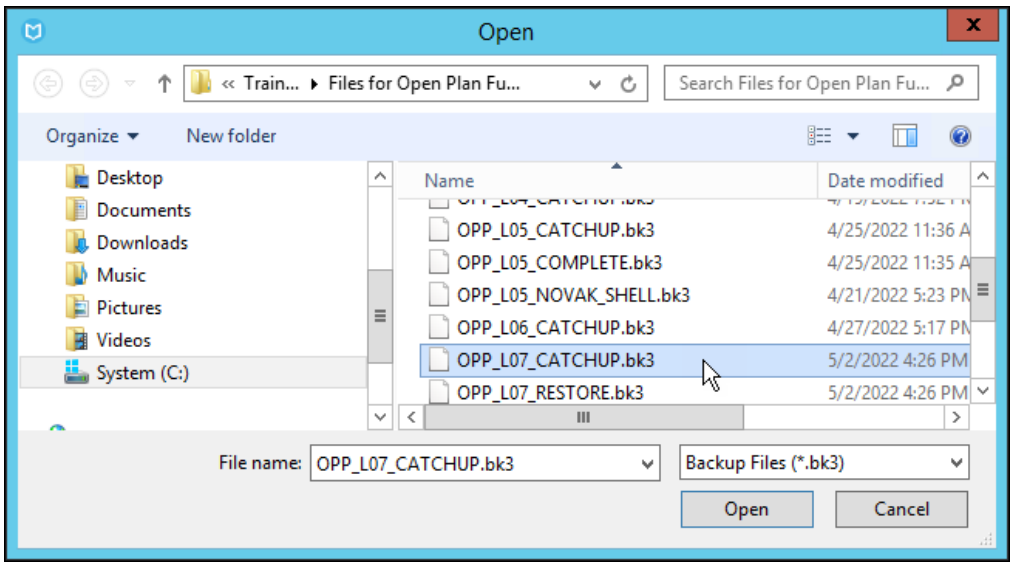
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3. In the **Open** dialog, go to **System (C:)** | **Training** | **Files for Open Plan Fundamentals**.



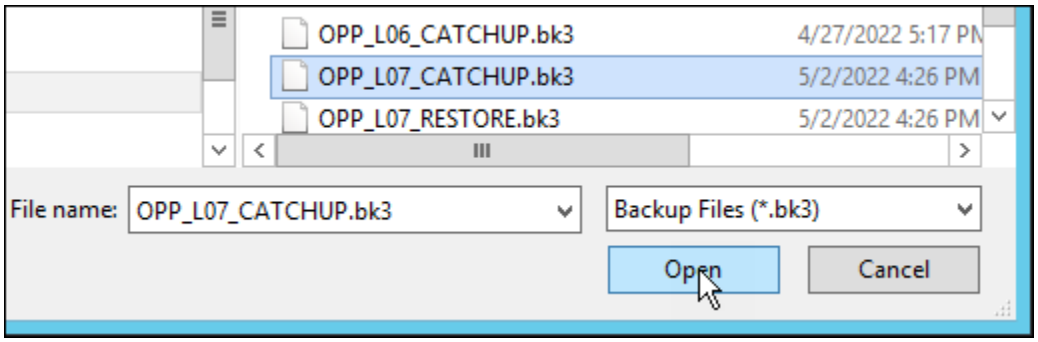
4. Click on the **OPP_L07_CATCHUP.bk3** file. This will restore any and all ancillary files created in this lesson.



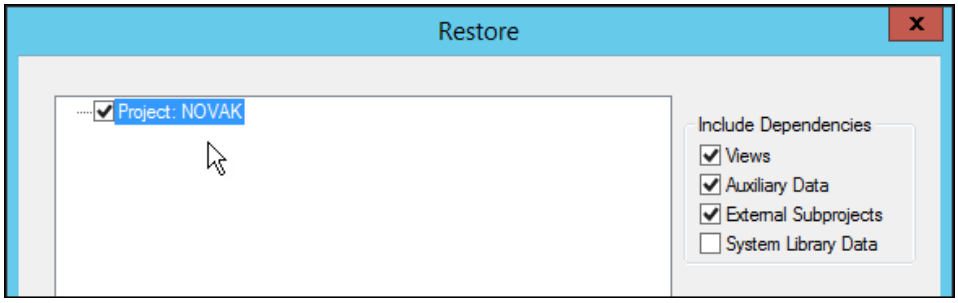
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5. Click **Open**.

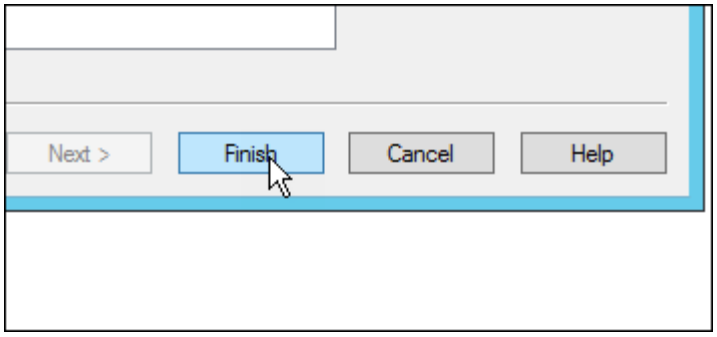


6. In the **Restore** dialog, verify the following, and then click **Next >**.



This will save additional prompts appearing during the process.

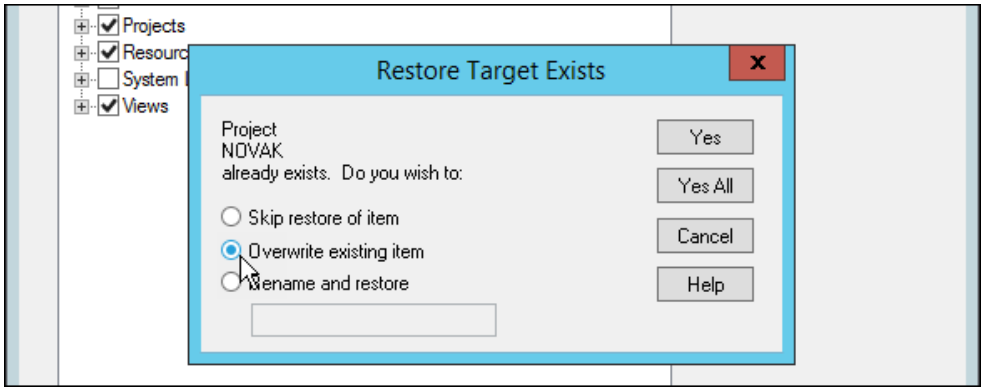
7. Click **Finish**.



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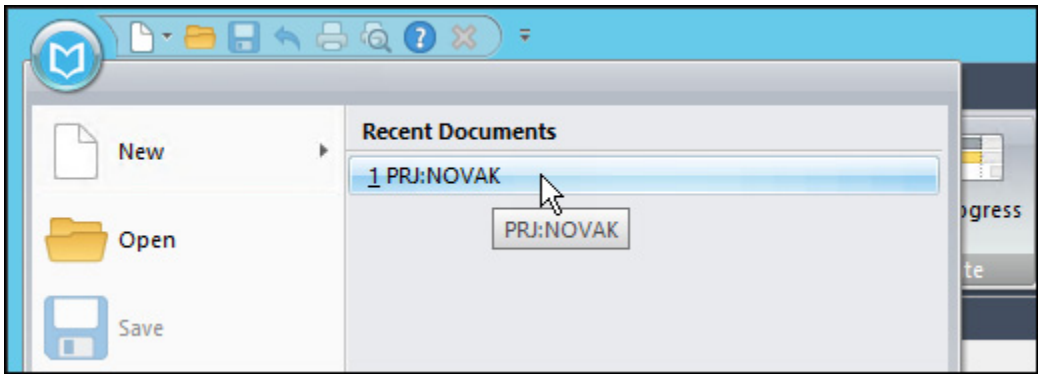
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8. If you see this prompt, set the '**Overwrite existing item**' option and click on the **Yes All** button, to replace all the existing project elements.



9. Click on the **File** menu.

10. Open your restored project from the '**Recent Documents**' list in the menu.



You are now ready to continue to the next lesson.

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Open Plan Scheduler Certification Series: Baselines

Activity Guide

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Table of Contents

8.1 Course Introduction 4
8.1.1 In this Course 4
8.2 Why are Baselines So Important? 5
8.3 Change Control Process Overview 6
8.4 Why is Change Management Important? 7
8.4.1 Activity: Creating a Baseline 10
8.5 Performance Measurement Baseline (PMB) 16
8.5.1 Activity: Creating a Performance Measurement Baseline 16
8.6 Updating Baselines 20
8.6.1 Activity: Baseline Updates 21
8.6.2 Activity: Opening Multiple Baselines 29
8.7 Estimate to Complete (ETC) Baselines 32
8.7.1 Activity: Creating an ETC Baseline 32
8.8 Course Catchup 35
8.8.1 Activity: Course 8 – Catchup 35

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8.1 Course Introduction

Once you have a fully cost loaded schedule, it's time to perform a baseline process. A baseline simply takes a copy of the project and stores it in the baseline tables in the database. The baseline will not change unless you (or another authorized person) update or replace it.

There are a lot of best practice guidelines surrounding the topic of baselines. In short these are:

- Make sure you have a baseline.
- Formalize a process for making changes to a project's reporting baseline (known as Change Control).
- Once you have a baseline, consider your project data as being a 'Current Schedule'.
- Take additional interim or progress baselines so that you can compare period by period changes in the schedule.

8.1.1 In this Course

- Why are Baselines So Important?
- Change Control Process Overview
- Creating a Baseline
- Updating a Baseline
- The Performance Measurement Baseline (PMB)

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8.2 Why are Baselines So Important?

Without a baseline of your schedule, you cannot track variances between the original plan, and the current schedule. Without the ability to track variance, you cannot tell when the current plan is drifting away from its original dates, or by how much it is drifting.

If you intend to generate some earned value metrics in Open Plan, again you will not be able to do so without having a PMB in place.

If your schedule is part of an integrated earned value management system, failure to take a baseline will have unsavory consequences throughout the project's lifecycle.

So, apart from being simply best practice, baselining schedules becomes mandatory for any earned value reporting contract. The good news is, creating a baseline is very straightforward in Open Plan.

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8.3 Change Control Process Overview

Simply put, change control is a process that maintains the integrity of the cost performance data by formalizing all changes to the baseline. You may already have a process in place in your organization. Because every industry has its own unique challenges and approaches to change control, there are no boilerplate one-size-fits-all processes set out that would work for everyone. Rather there are guidelines to what the process must achieve to provide excellent change control.

Let's start with some examples of common items that can instigate the need to run a change control process.

Common triggers for change requests include, but are not limited to:

1. Rate changes including, direct and indirect rates (G&A, Overhead, etc.)
2. Additional skill or resource requirements
3. Execution of risk mitigation for a realized risk
4. Customer requests for changes in project scope
5. Improved process efficiencies that could save time, money, or increase the quality of the deliverable(s)
6. Changes in material suppliers and/or vendors
7. Changes to legal or environmental schedules
8. Contractual changes
9. Extreme weather conditions or other natural disasters

You will encounter many names for a change control process. Here are just some of the common ones used in various industries. What's your called?

- Baseline (or Budget) Change Request (BCR)
- Change Management Process (CMP)
- Change Control Process Request (CCPR)
- Project Change Request (PCR)

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8.4 Why is Change Management Important?

A good way to answer this question is to talk about some of the things that happen when change is not managed properly.

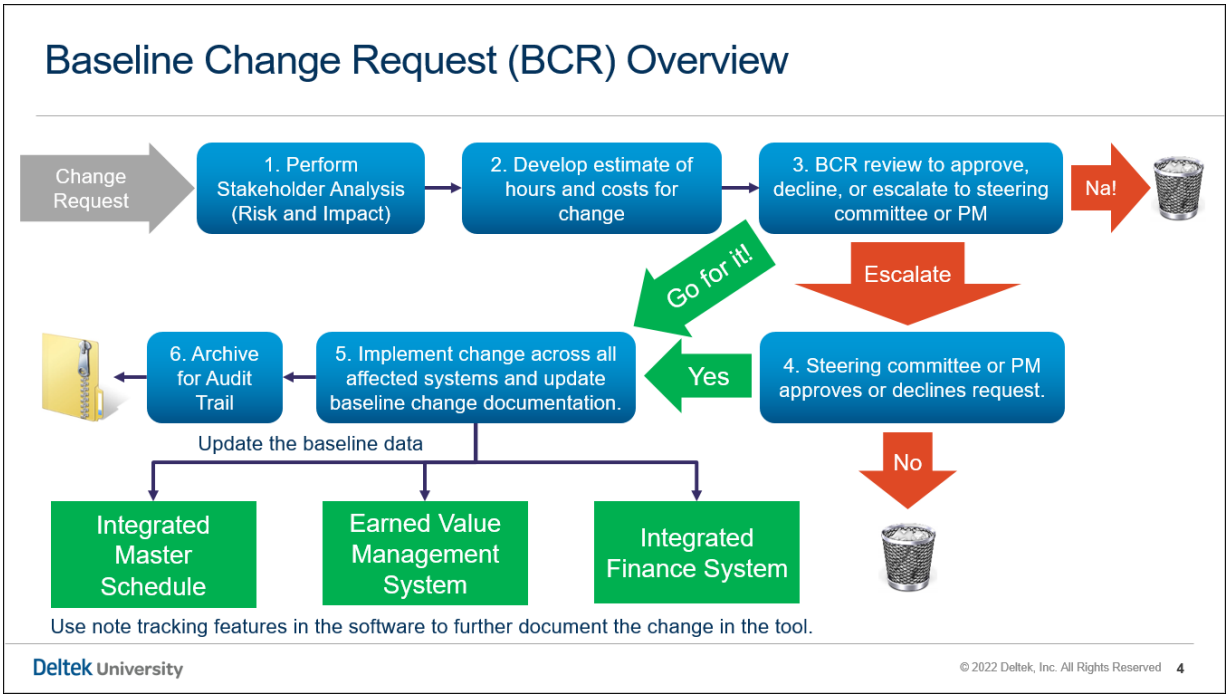
1. Changes cannot be properly audited and trust in the performance data is compromised.
2. Changes to the baseline will not be recorded and may hide problems in the project's performance.
3. Unmanaged change will cause a disconnect between integrated systems such as the schedule, the EVMS, the financial system, or other systems: i.e., broken data.
4. Risk of uncontrolled scope creep.
5. Under or over reporting of earned value metrics.
6. Under or over reporting of schedule performance metrics.
7. Loss of visibility to overall project performance.
8. Poor ability to accurately forecast project Estimate At Completion (EAC) values.
9. Increased workload for the schedulers, and finance teams responsible for tracking down reasons why performance data isn't reflecting reality.
10. Worst case scenario, loss of current, and likely future contracts due to poor quality project or EVM reporting performance.

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The benefit of good change control is that it will mitigate all of the above listed impacts. The trick is to make sure you document every change, however small, that alters the baseline in some way, even if it doesn't necessarily cause changes to the overall contract budget base (CCB).

Here is a diagram that shows, in broad strokes, what a change management process should include. Again, there are many ways to approach this, but to give you an outline of what to expect in an effective change control process.



Let's discuss these typical items you will find in most change control processes.

1. **Perform stakeholder analysis**: This involves a sort of mini bid review, where the scope of the change is evaluated for risk, both within the new scope of work, and risk to other work already planned or in-progress. The impact of this change is also examined to understand the true ramifications to the overall baseline.

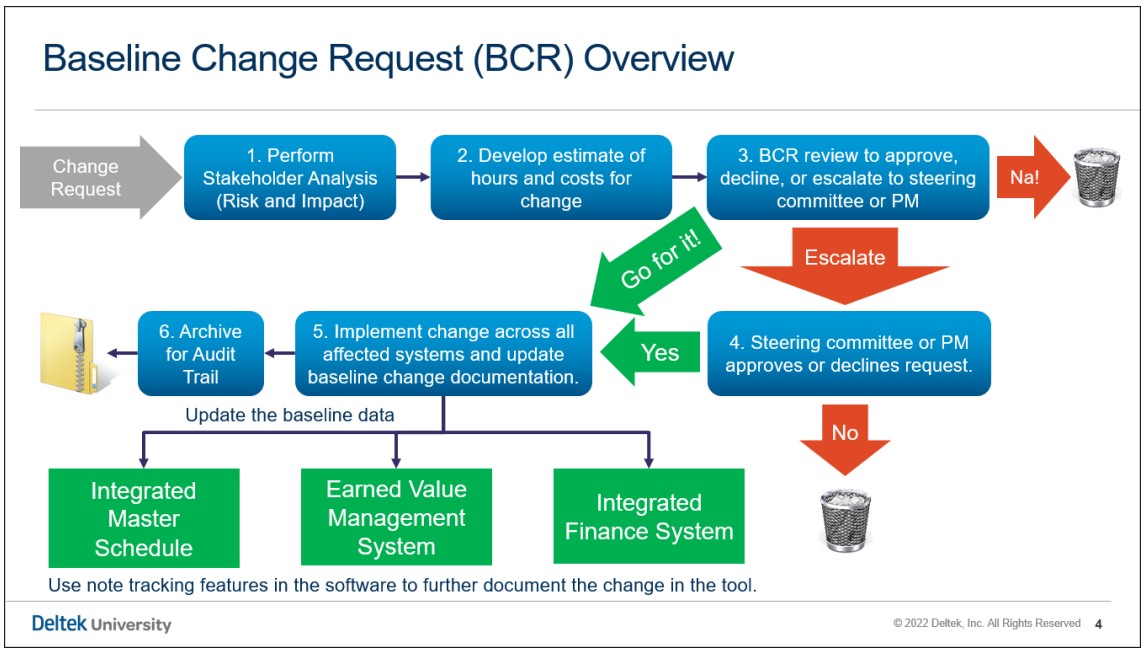
2. Develop estimates of hours and cost for the change: using estimating tools, or a what-if copy of the IMS, create a schedule of cost/resource loaded activities, with relationships, to create a realistic plan of cost and work estimates.

3. **BCR review**: having created a cost/hours estimate, forward this to the relevant stakeholders (Customer, Project Manager, Program Manager, Control Account Managers, etc.) to approve, decline, or escalated to a steering committee.

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4. **Steering Committee to approve or decline request:** This steering committee will likely include customer stakeholders, senior directors, the program manager, or those with responsibility for funding the budget increase. Not all organizations have a steering committee, in which case the program manager may have jurisdiction in this regard.



5. **Implement change across all the affected systems, and update baseline change documentation:** this is where the schedulers, cost analysts, and finance personnel receive the change request and execute the instructions as they pertain to that system.

   For example, new scope would see the schedulers adding WBS elements, activities, relationships, resources, and cost assignments to the IMS, and updating the schedule baseline.

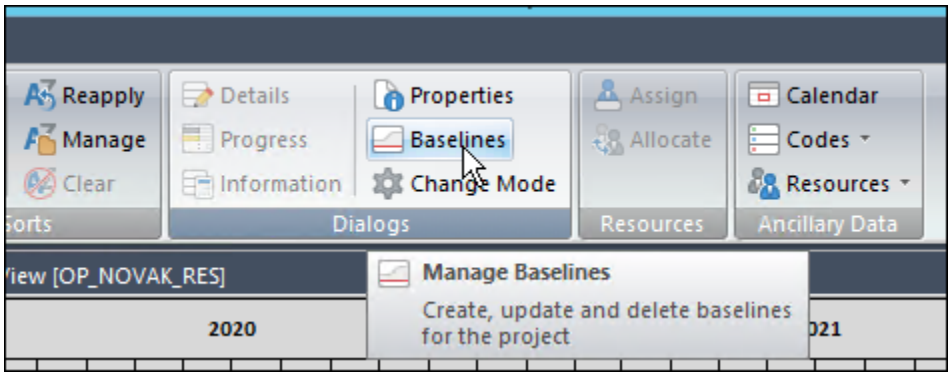
   Similarly, the cost analysts would be updating the WBS, adding resource loaded control accounts and work packages (often through integration with the Integrated Master Schedule or 'IMS'), updating the EVM accounts (UB, DB, MR, AUW) and performing an update to the system's audit log. If the scope included new charge numbers, WBS elements, and budget increases, the finance team will update their system to reflect the changes authorized in the change request documentation.

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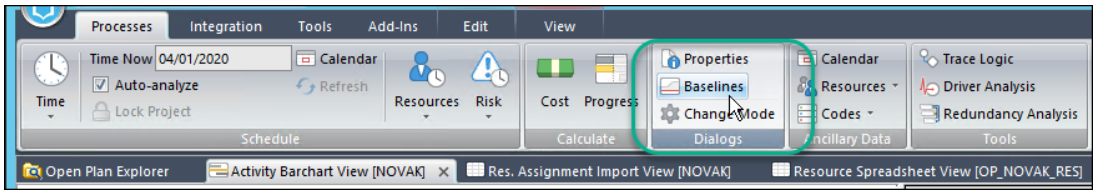
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8.4.1 Activity: Creating a Baseline

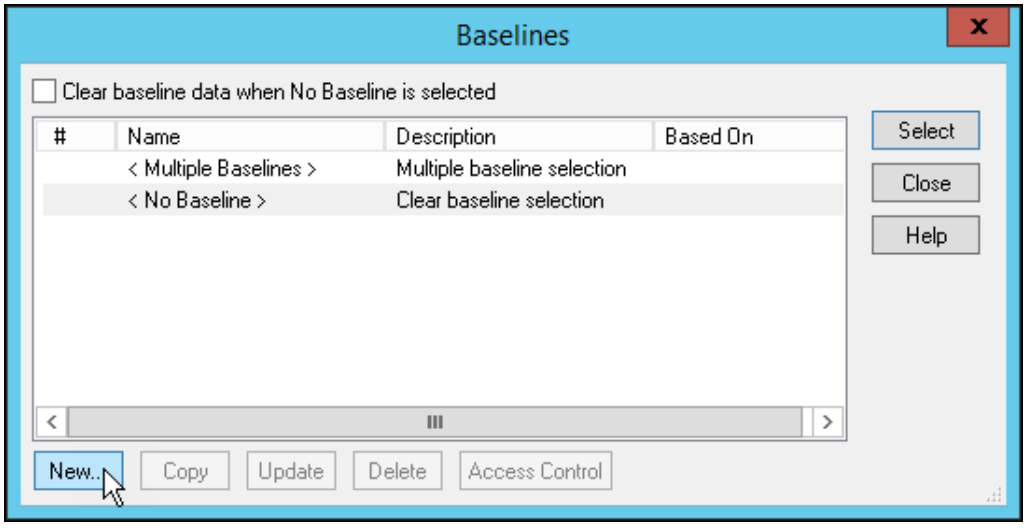
1. In the **Edit** ribbon, click on the **Manage Baselines** button in the **Dialogs** tool group.



Note: this button is also available to you in the **Processes** ribbon.



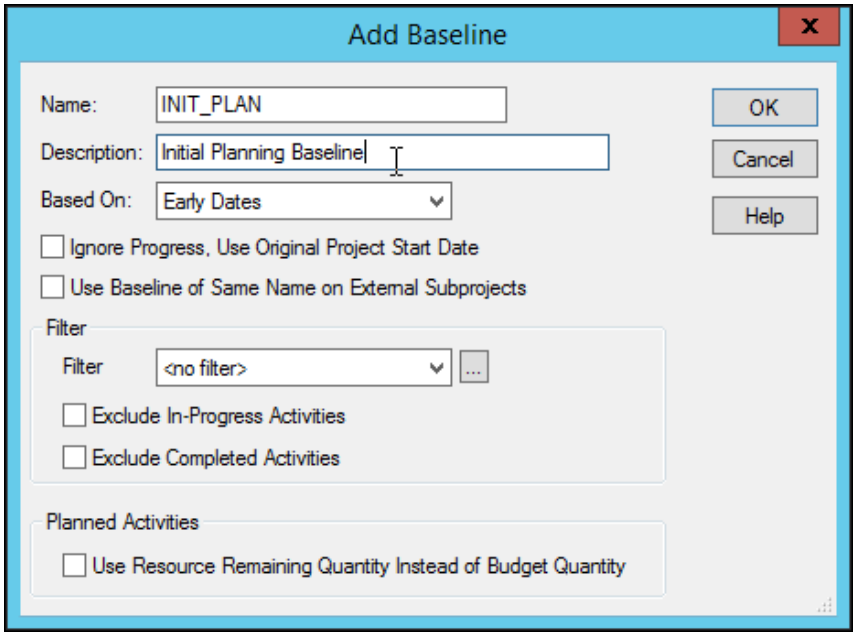
2. In the **Baselines** dialog, click **New…** (bottom left).



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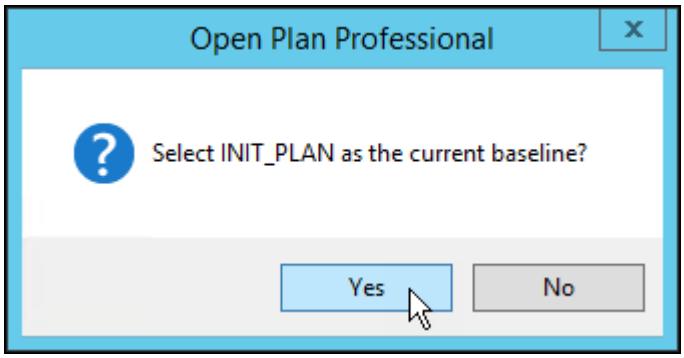
3. In the **Add Baseline** dialog, enter the following name and description.



Name: INIT_PLAN
Description: Initial Planning Baseline

4. Click **OK** to go with all other defaults and close the dialog.

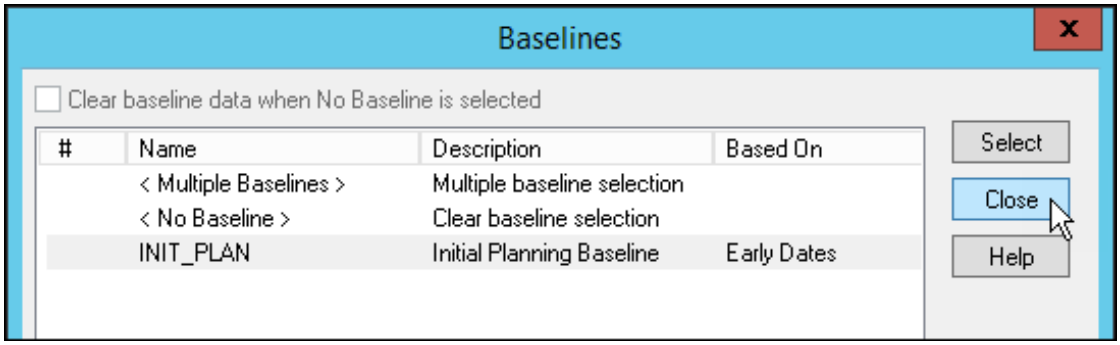
5. Click **Yes** to select **INIT_PLAN** as the current baseline.



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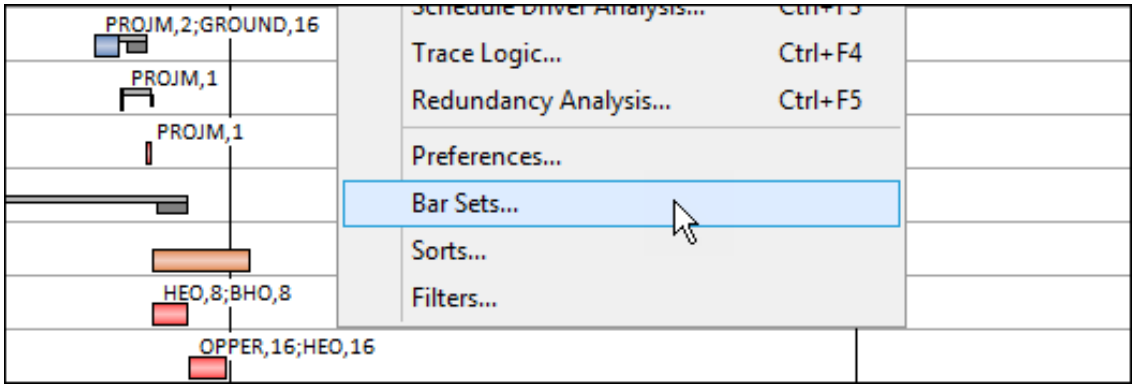
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6. Click the **Close** button to complete the process.

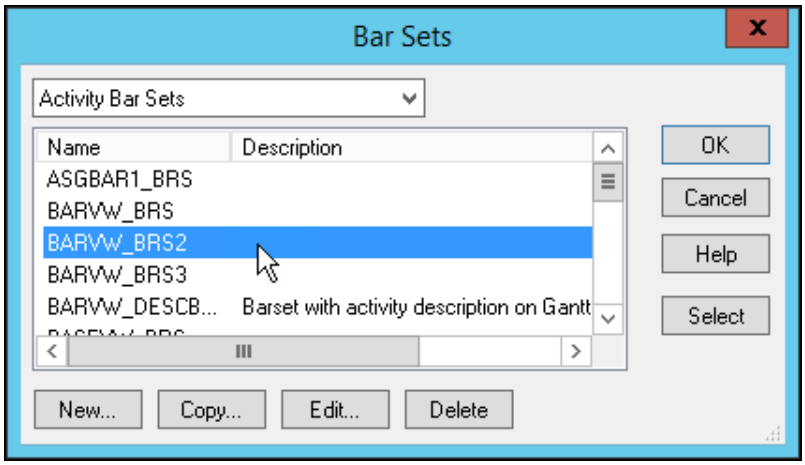


7. To view the baseline, right-click on the **Gantt** chart.

8. Select **Bar Sets** from the menu.



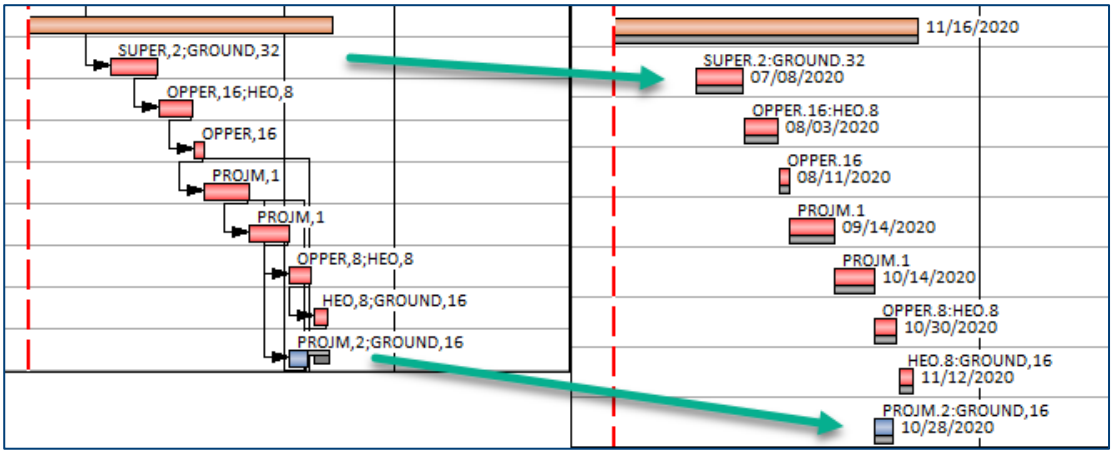
9. Select the **BARVW_BRS2** Bar Set.



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10. Click **OK**.

11. Note the change to the appearance of the activity bars.

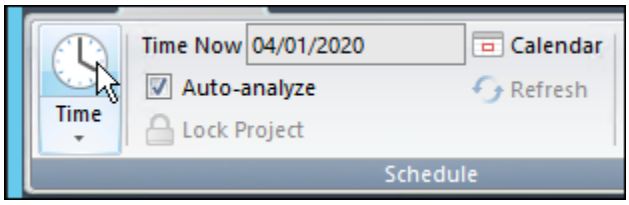


The line height has increased, and a grey bar has appeared below each activity. That is showing the early dates for the activity at the time the baseline was taken.

12. To see the effect of changes in the current schedule, temporarily increase the duration of the **A.2.1.11310 - Grade Site Parking and Trailer Area** from **6** days to **20** days.

Activity Desc.	Duration	Early Start	Early Finish	Total Float
Move on Heavy Equipment	25d	06/03/2020	07/08/2020	0
Perform Clearing and Grubbing for Parking and Trailer	18d	07/09/2020	08/03/2020	0
Grade Site Parking and Trailer Area	20	08/04/2020	08/11/2020	0
Acquire on-site Trailers	24d	08/12/2020	09/14/2020	0
Establish phones and data	22d	09/15/2020	10/14/2020	0

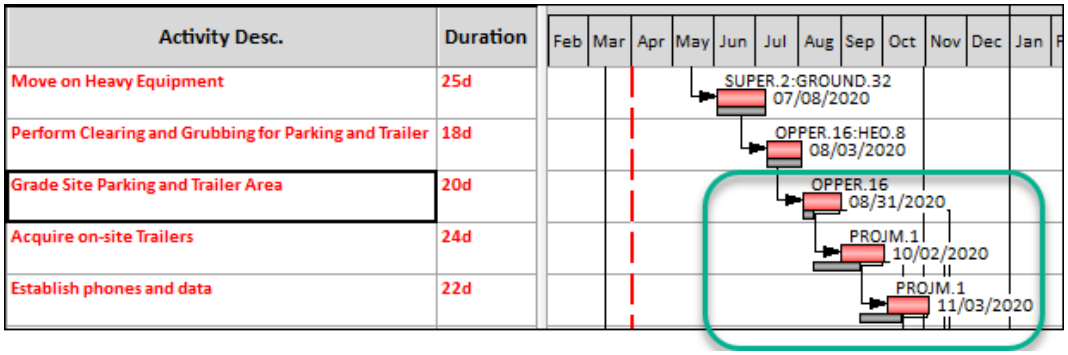
13. In the **Processes** ribbon, click on the **Time** button.



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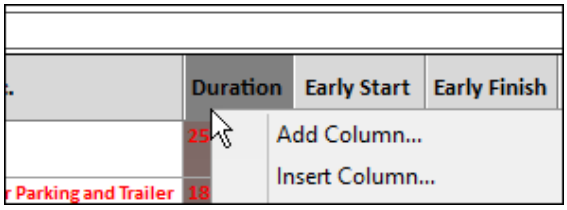
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14. Review the **Gantt** chart.

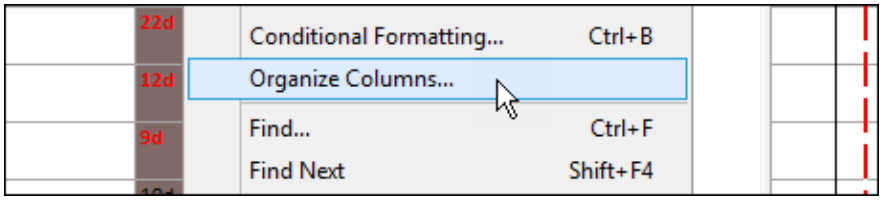


Note: the successor activities have slipped off their baseline early dates, and the variance appears as the difference between the baseline dates (grey lower bars), and the current schedule dates.

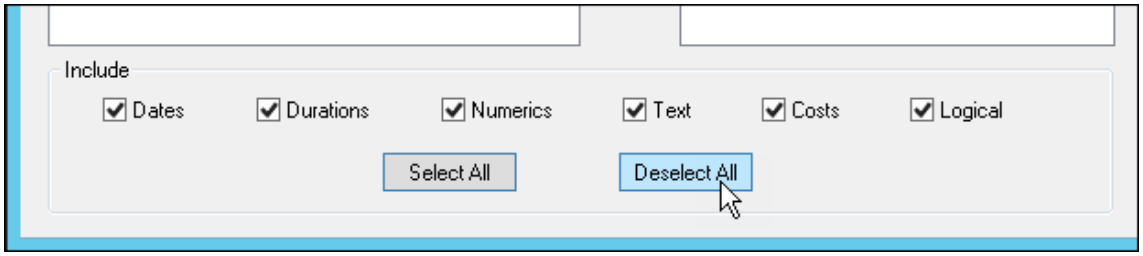
15. In the table area, right-click on the **Duration** column.



16. Select the **Organize Columns** option.



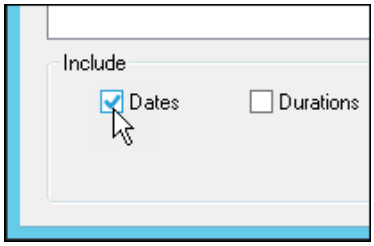
17. At the bottom of the **Organize Spreadsheet Columns** dialog, click **Deselect All**.



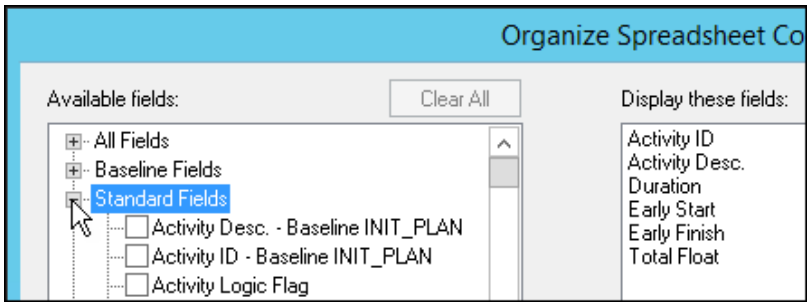
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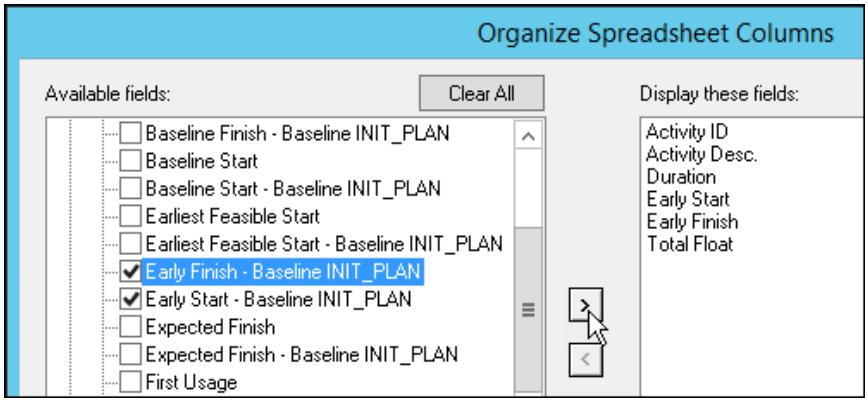
18. Now select just the **Dates** filter.



19. Expand the **Standard Fields** group in the left-hand list.



20. Select the **Early Start** and **Finish** dates.



21. Return the **Grade Site Parking and Trailer Area** activity back to a **6-day** duration.

22. Click **Save**.

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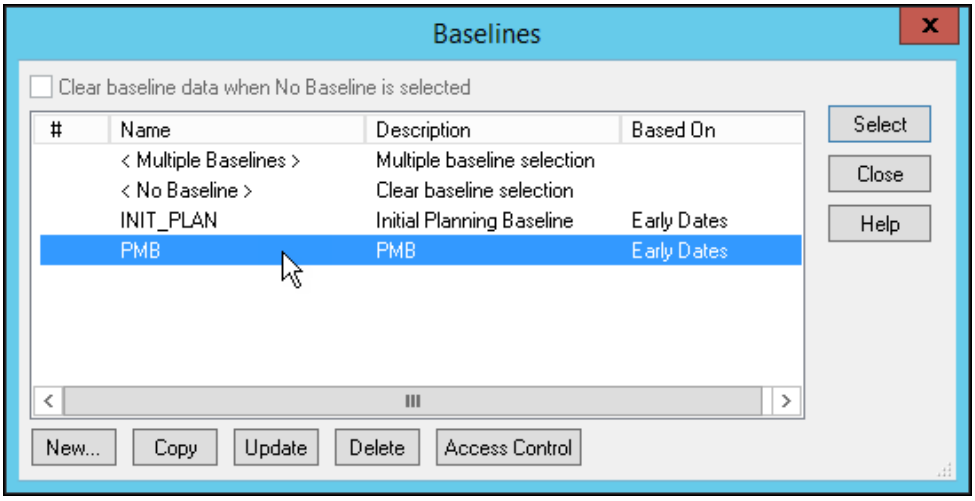
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8.5 Performance Measurement Baseline (PMB)

A Performance Measurement Baseline or PMB, is a standard earned value term used to describe the project baseline for an integrated master schedule {IMS).

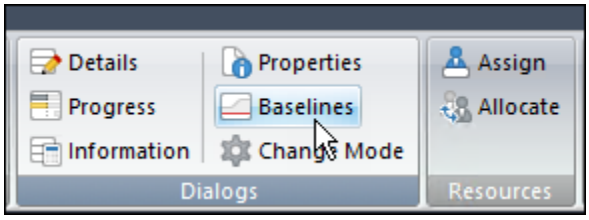
This baseline is under change control as previously described.

In Open Plan there is special significance to a baseline when it is named ‘PMB’. If you create a baseline named PMB, Open Plan will calculate all earned value metrics using the PMB: even if it’s not the currently selected baseline.



8.5.1 Activity: Creating a Performance Measurement Baseline

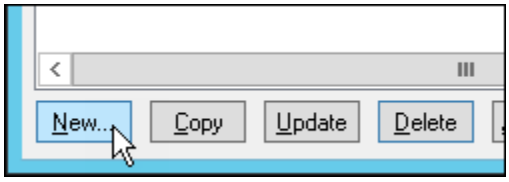
1. Click on the **Baselines** button.



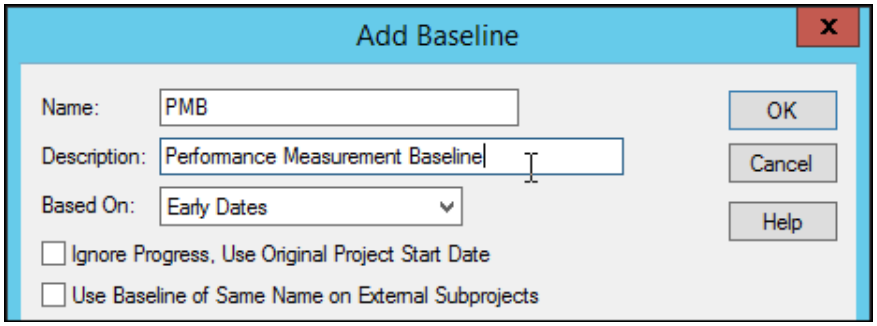
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2. Click on the **New...** button.



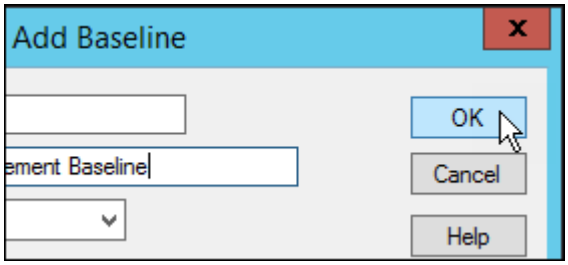
3. In the **Add Baseline** dialog, enter the following name and description:



Name: **PMB**
Description: **Performance Measurement Baseline**

Note: While the baseline name 'PMB' tells Open Plan that this is a special cost baseline, the Description can be anything you choose.

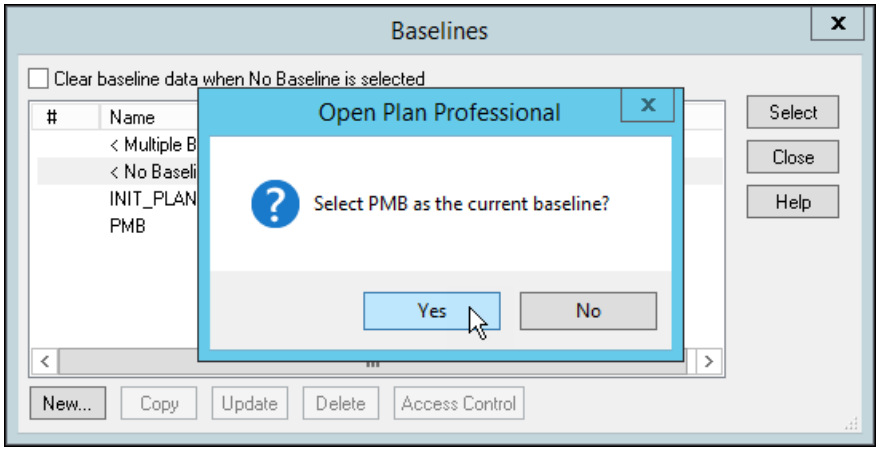
4. Click **OK**.



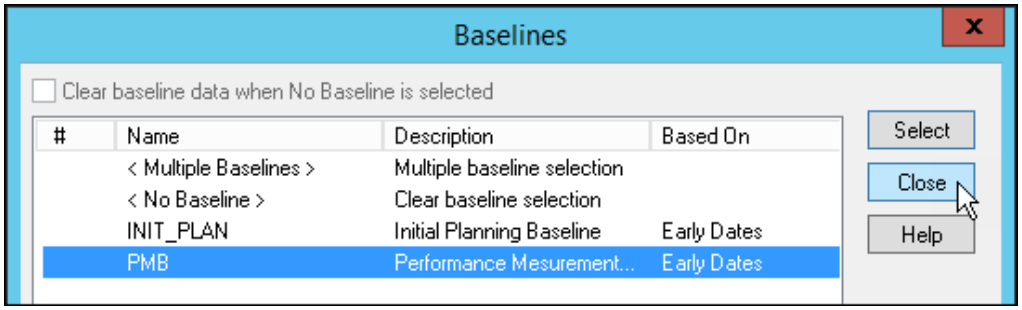
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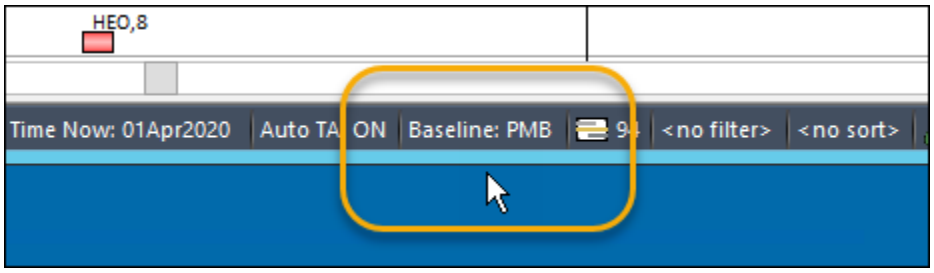
5. Click **Yes** to select the **PMB** as the current baseline.



6. Close the **Baselines** dialog.



7. At the bottom of your Open Plan window, verify you have the **PMB** selected.



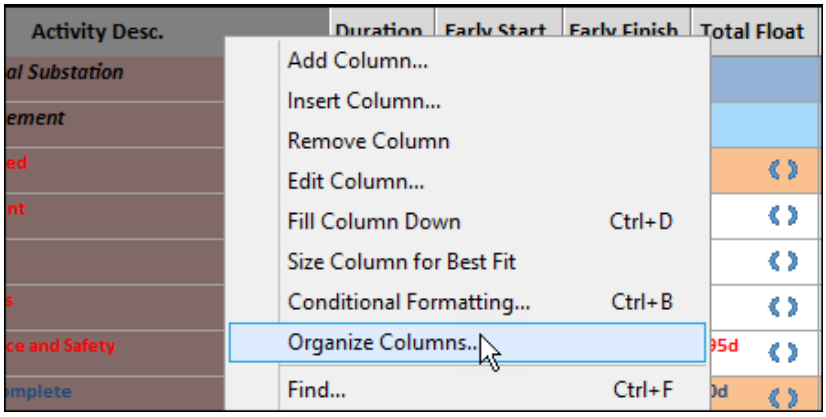
8. Click **Save**.



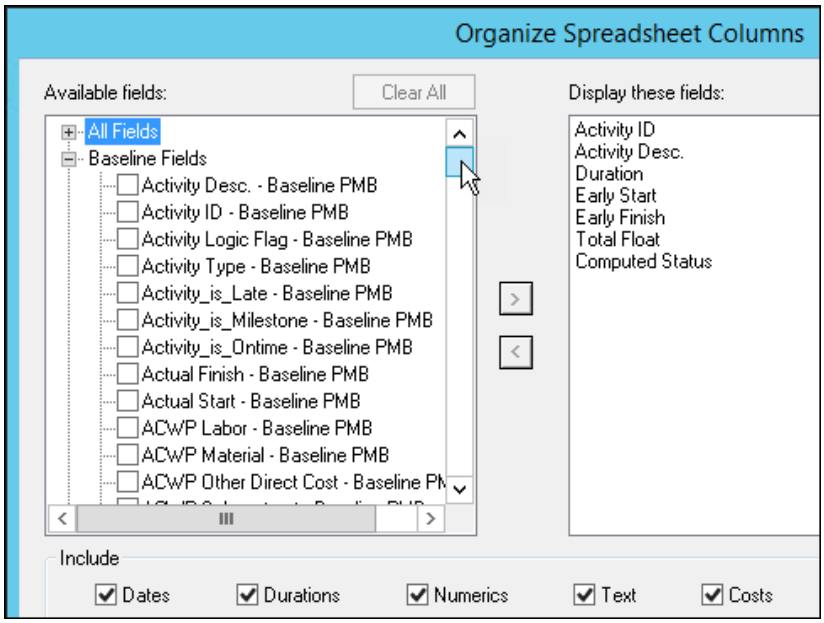
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9. Right-click on any table column header and select **Organize Columns**.



10. Expand the **Baseline Fields** group.



Note the **Baseline PMB** fields available for selection.

It is also possible to have up to three baselines selected for a single project. This helps you display interim baselines, while keeping the PMB selected. You can also create views that display prior baseline dates, allowing for comparison reporting.

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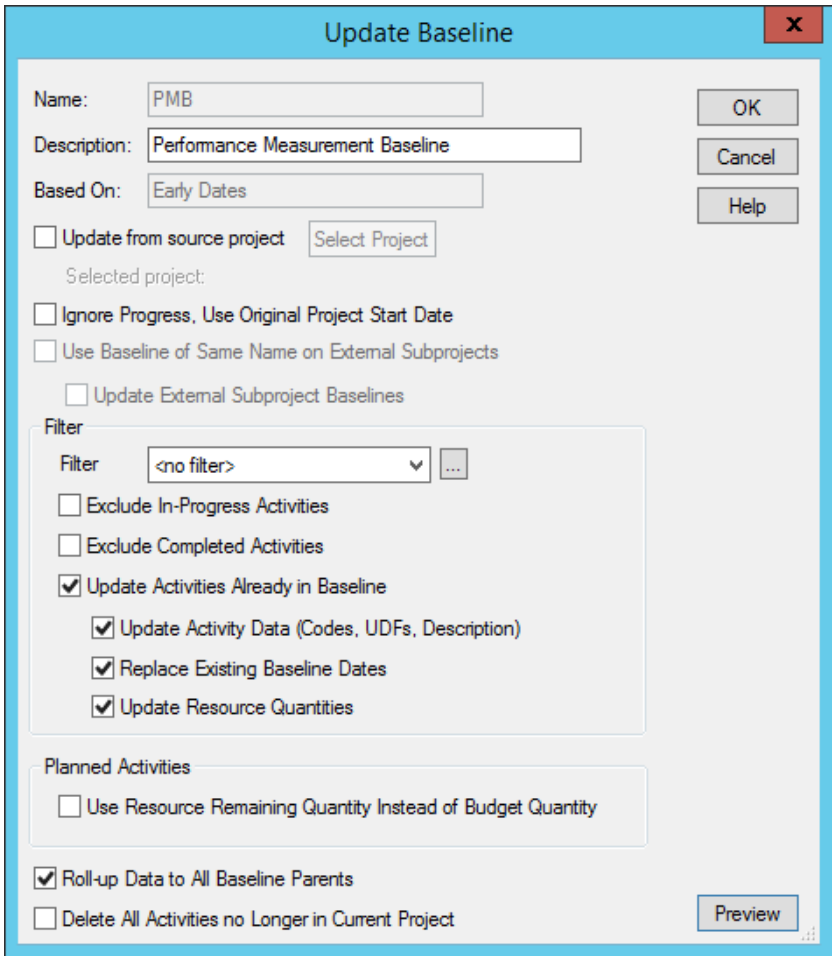
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8.6 Updating Baselines

When changes are required to your baseline the Change Control process is used to formally document the details and scope of that change.

The broad-brush steps of baseline updates are:

1. Backup the project, and/or make a copy of the PMB.
2. Make the necessary changes to the current schedule (add/remove activities, update durations, change resource assignments, etc.) based upon the change control paperwork.
3. Use the Baseline Update feature to prompt Open Plan with the appropriate settings to capture the changes.
4. Preview the changes before committing them to the PMB.
5. Commit the changes using the Continue option.



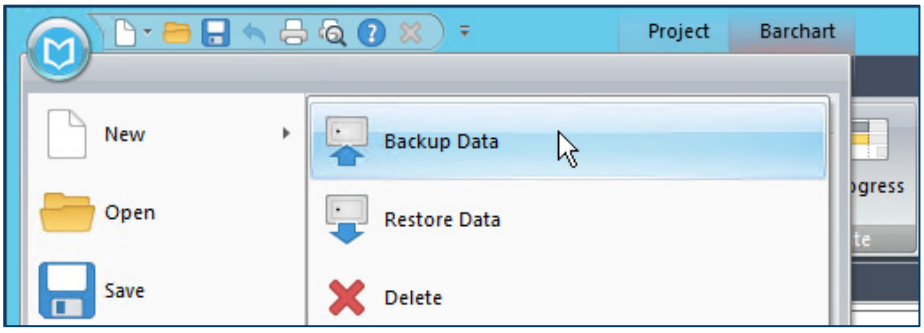
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Let's imagine that we have a signed baseline change request (BCR) to increase the scope of the **A.2.1.11350 - Lay temporary stoning for parking** activity to extend its duration from 9 to 15 days and add some rental equipment with a cost of $2,350.

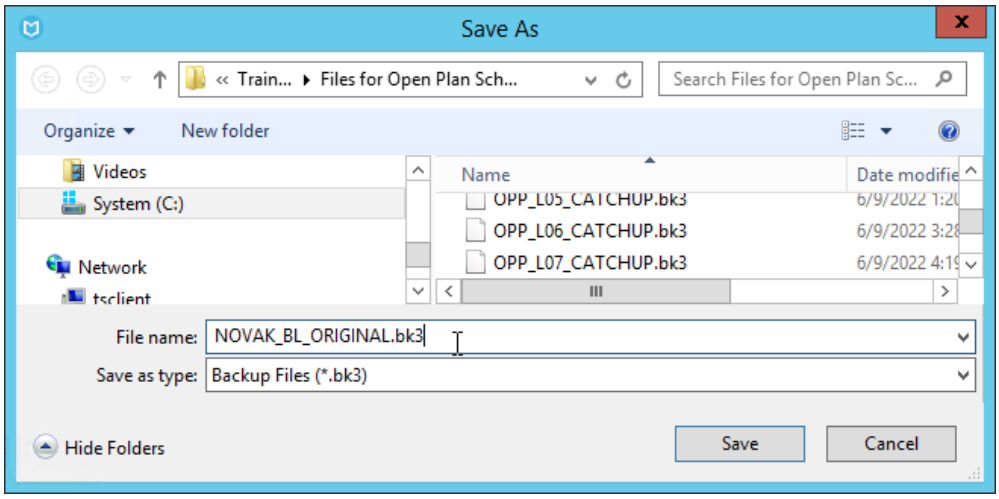
8.6.1 Activity: Baseline Updates

Follow these next steps execute a simple baseline change to your Novak project schedule.

1. Create a backup of your NOVAK project.



2. Name the file **NOVAK_BL_ORIGINAL.bk3**.

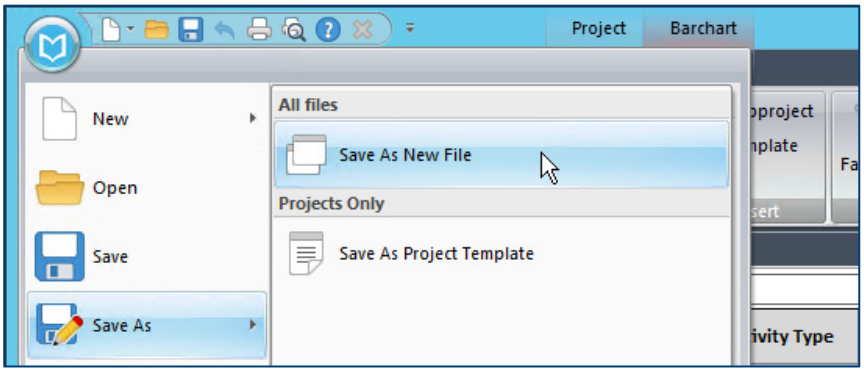


Next we should save a copy of the NOVAK project and make changes in there so that we retain the original schedule for future exercises.

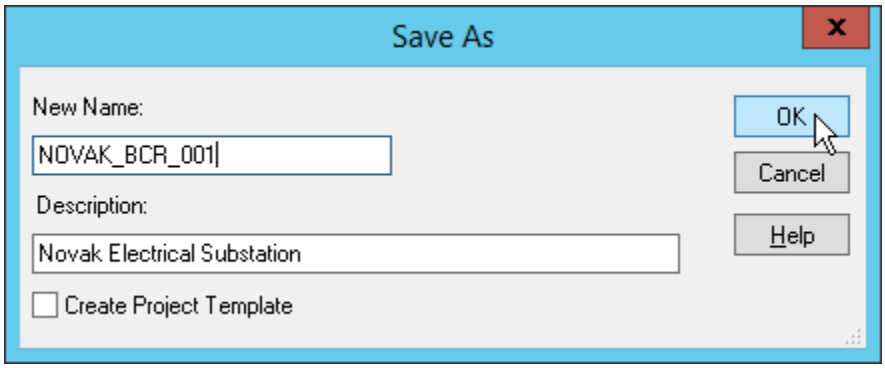
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3. Click on the **File** menu and choose **Save As**.

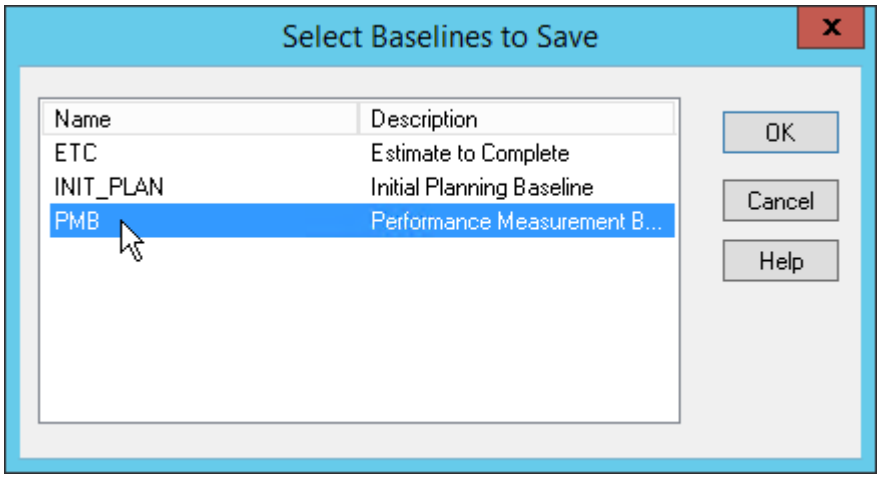


4. In the New Name: field, enter **NOVAK_BCR_001**.



5. Click **OK**.

6. In the **Select Baselines to Save** dialog, select the **PMB** baseline.

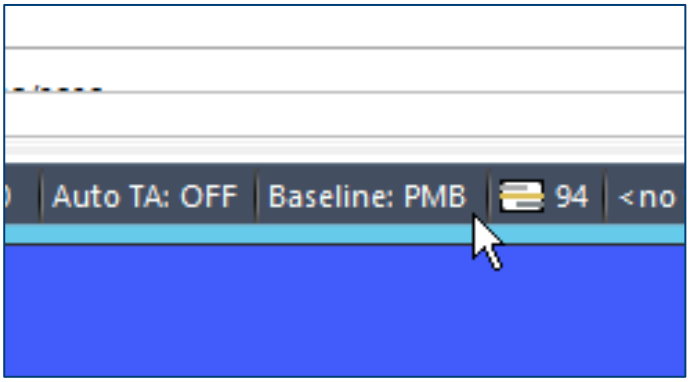


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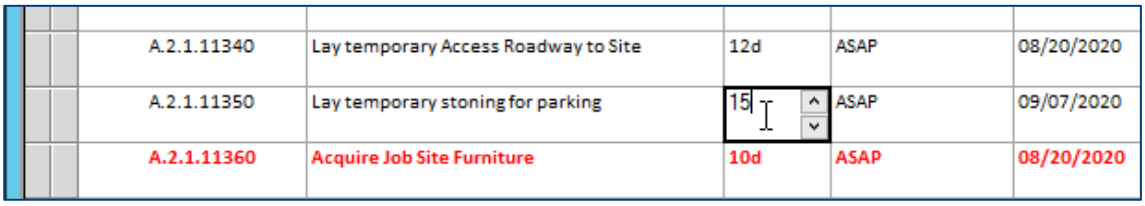
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7. Click **OK**.

8. In your new copy of the **NOVAK_BCR_001** project, verify that the PMB is assigned by checking the status bar at the bottom of the screen.

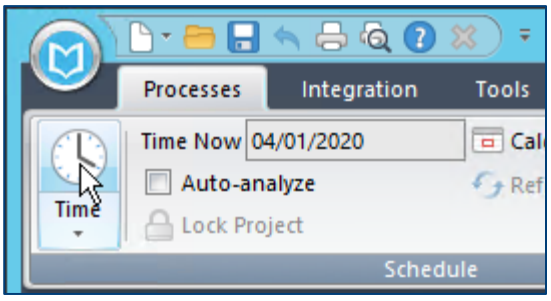


9. Locate the **A.2.1.11350 - Lay temporary stoning for parking** activity and increase the duration from 9 to 15 days.



A.2.1.11340	Lay temporary Access Roadway to Site	12d	ASAP	08/20/2020
A.2.1.11350	Lay temporary stoning for parking	15	ASAP	09/07/2020
A.2.1.11360	Acquire Job Site Furniture	10d	ASAP	08/20/2020

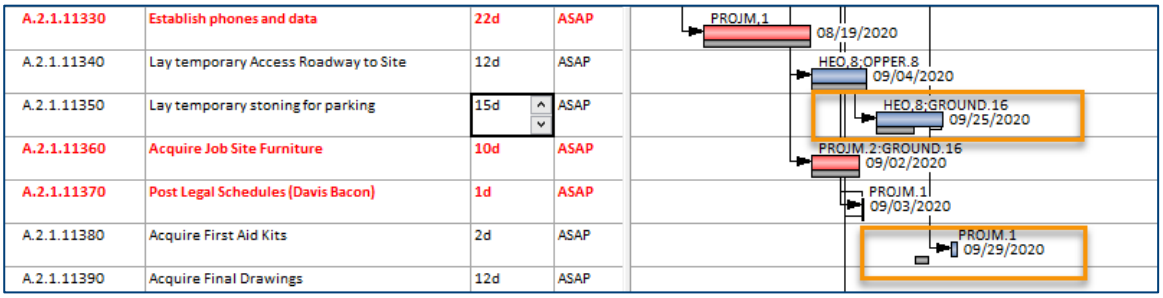
10. If necessary, go to the **Processes** tab and **Time-analyze** the schedule.



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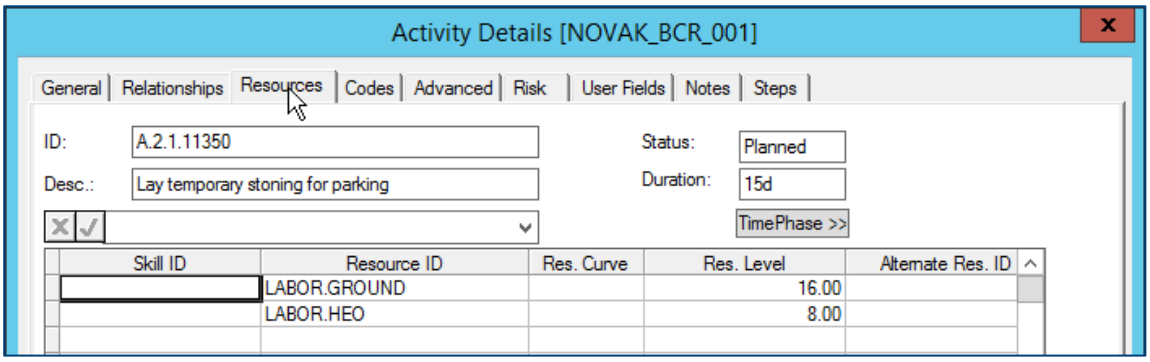
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11. Note the affected activities shifting off the original PMB baseline:



12. Double-click on the activity to open the **Activity Details** dialog.

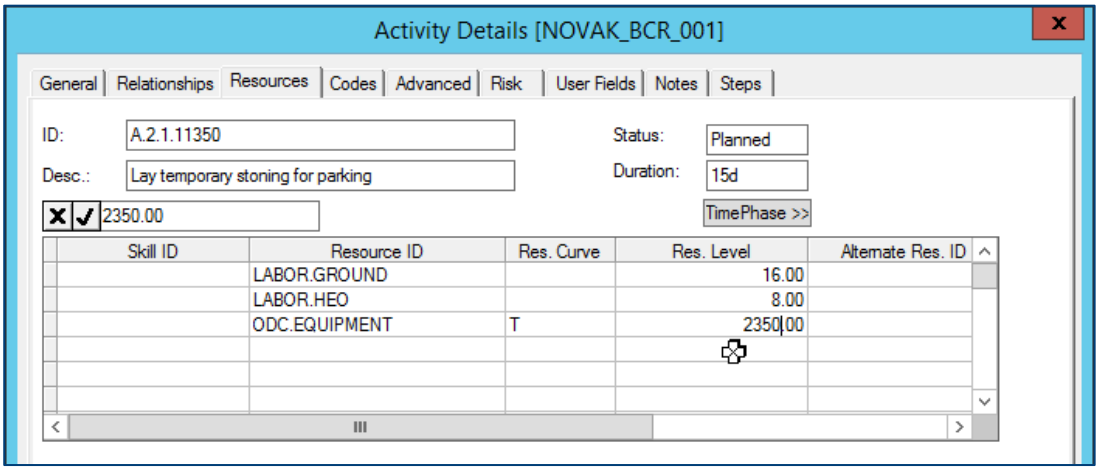
13. Click on the **Resources** tab.



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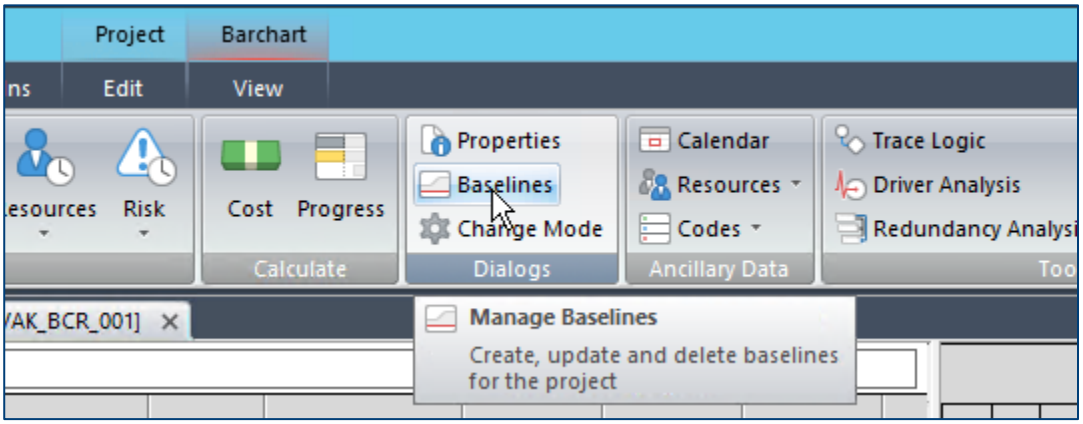
14. Add **ODC.EQUIPMENT** to the **Resource ID** field with the following Curve and Level values.



Resource ID: **ODC.EQUIPMENT**
Res. Curve: **T**
Res. Level: **2350**

15. Click **Close** to apply the change.

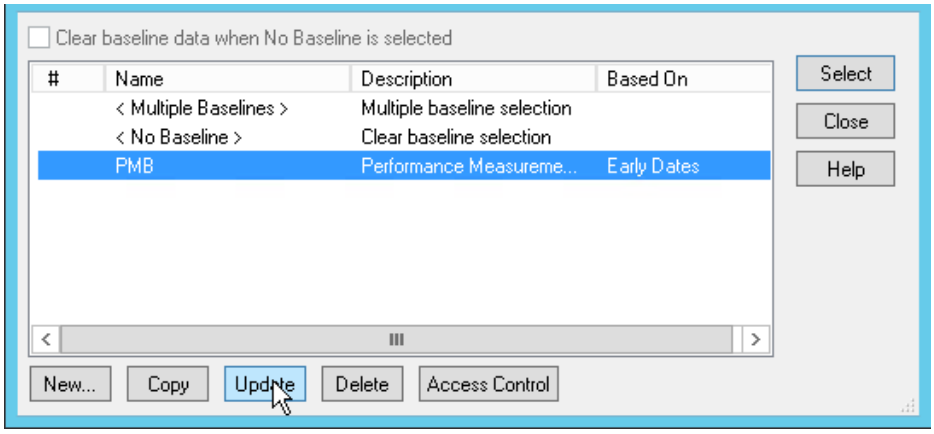
16. In the **Edit** or **Processes** ribbon click on the **Baselines** button in the **Dialogs** tool group.



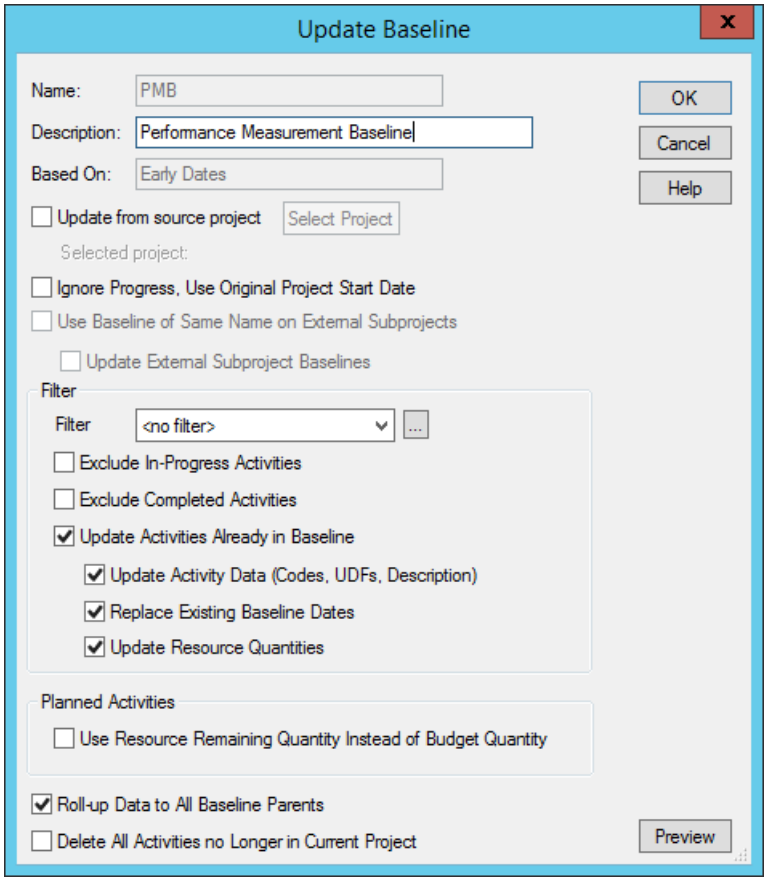
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17. In the **Baselines** dialog, select **PMB** and click **Update**.



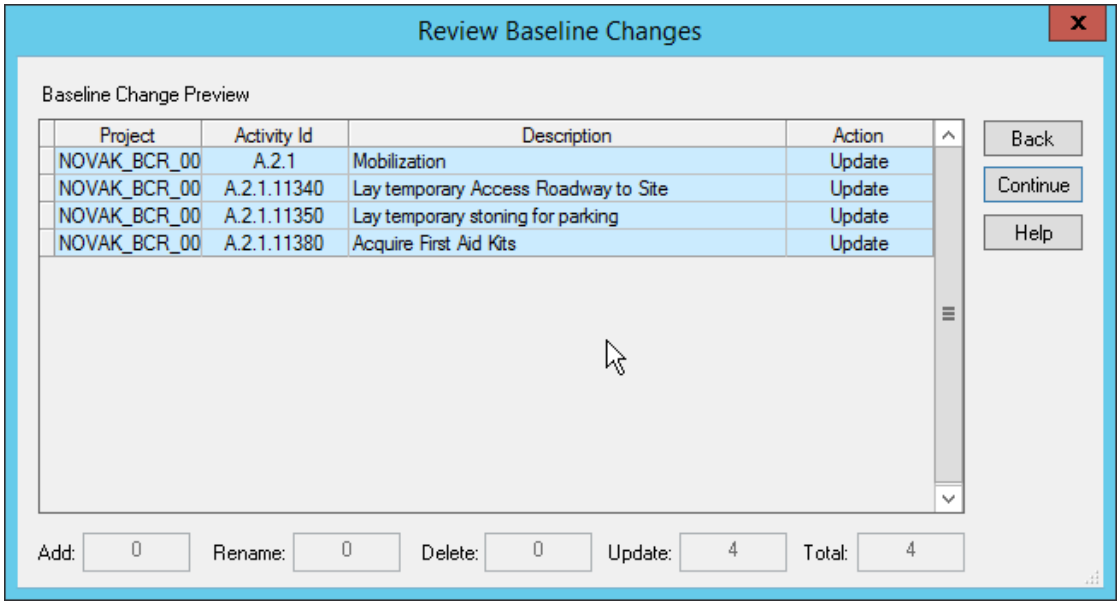
18. Familiarize yourself with the settings options presented in the **Update Baseline** dialog.



Note the options you have that can control what gets changed in the baseline. In addition to these common settings, you can also create your own filters to control the conditions for updating activities in the baseline.

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19. Click the **Preview** button at the bottom of the dialog.

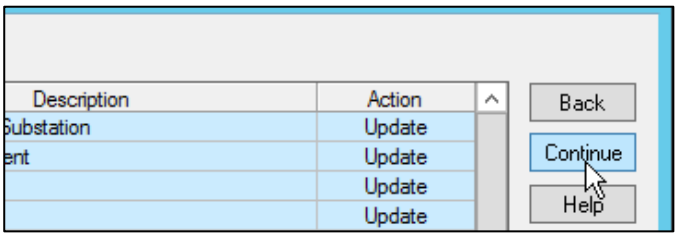


This invaluable tool allows you to verify that the changes you are about to make are affecting only the activities you intend to change.

If something unexpected is displayed here, you can click the **Back** button and make adjustments to your settings.

If all appears to be as expected, you can click the **Continue** button.

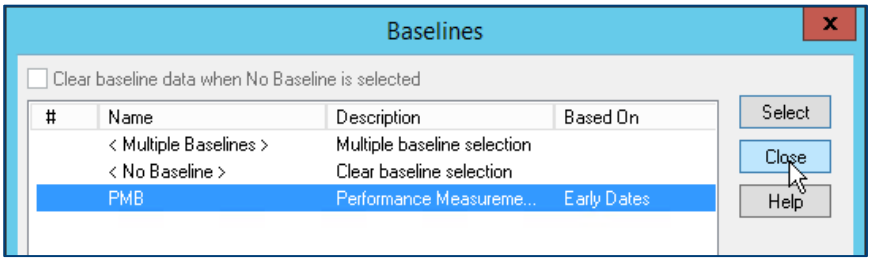
20. Click **Continue**.



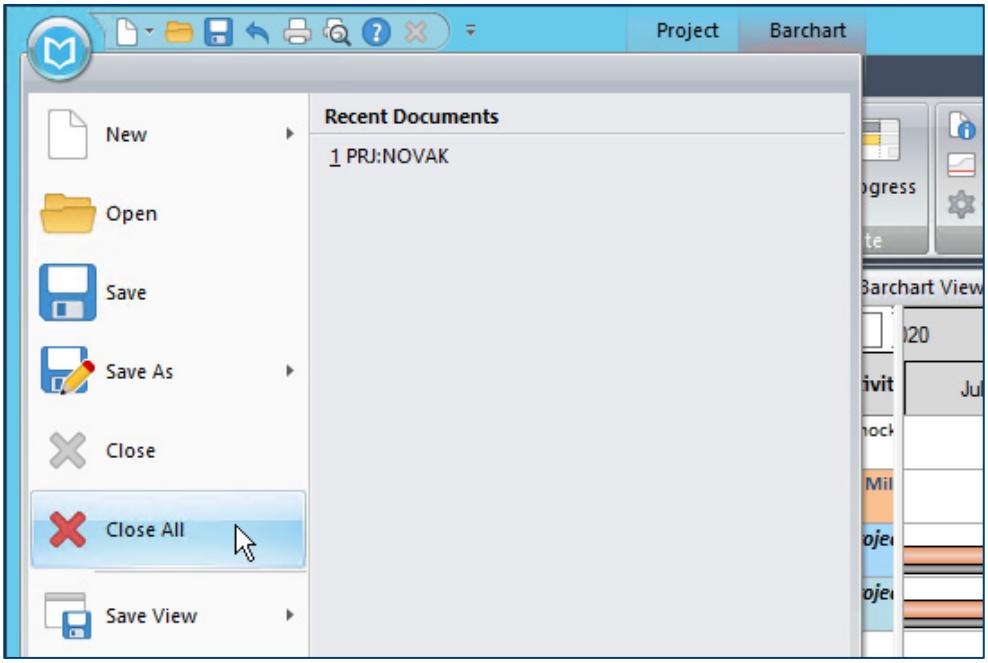
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21. Click **Close**.



22. Close the **NOVAK_BCR_001** project using the **Close All** button in the file menu.



23. Open the original **NOVAK** project to continue with this lesson using the **Recent Documents** list in the **File** menu.

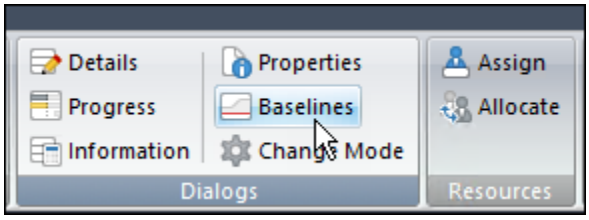
    You are now ready to move on to the next section.

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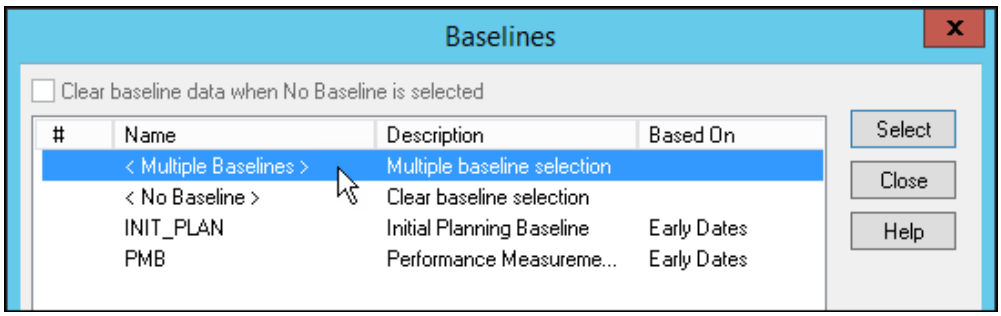
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8.6.2 Activity: Opening Multiple Baselines

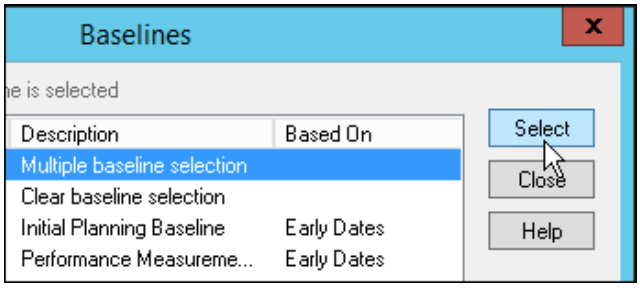
1. Click on the **Baselines** button.



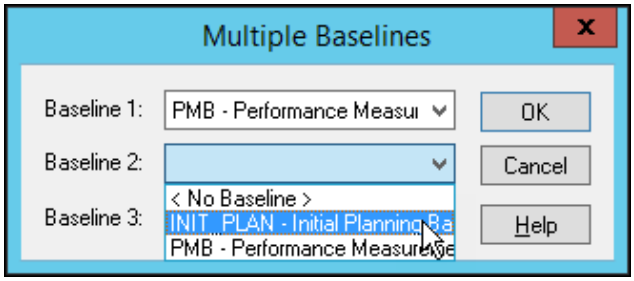
2. Click on the **< Multiple Baselines >** option.



3. Click **Select**.



4. In **Multiple Baselines**, set Baseline 1: to **PMB**, and Baseline 2: to **INIT_PLAN**.

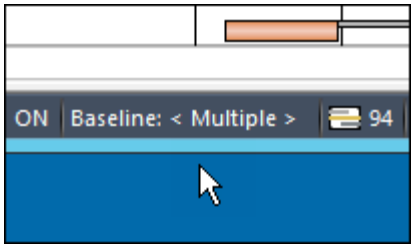


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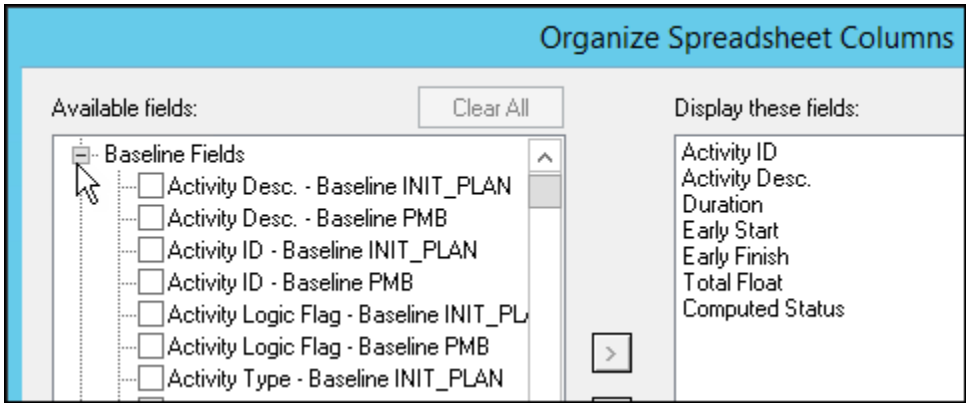
5. Click **OK**.

6. Verify the selection at the bottom of the **Open Plan** window.



7. Now, open the **Organize Spreadsheet Columns** dialog.

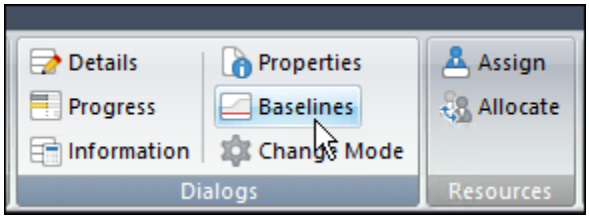
8. Note that you now have access to two sets of baseline fields; **Baseline INIT_PLAN** and **Baseline PMB**.



9. Click **Cancel** to close the dialog.

Now let's see how to return to displaying just the PMB.

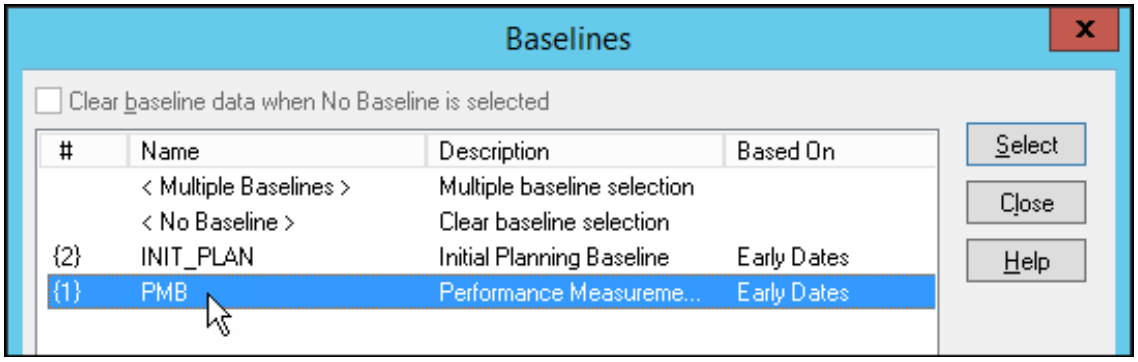
10. Click on **Baselines** once more.



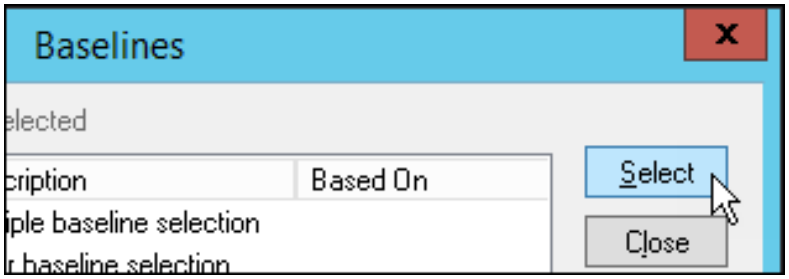
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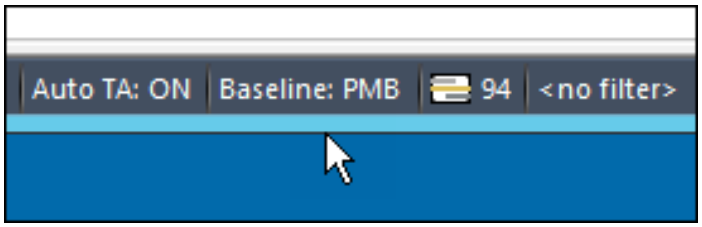
11. Select **PMB**.



12. Click the **Select** button.



13. Note that the **PMB** is now the only selected baseline.



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8.7 Estimate to Complete (ETC) Baselines

Organizations that are integrating with Cobra or PM Compass need to track Estimate To Complete (ETC) values in Open Plan. This is done by creating a baseline that stores the ETC data in its Baseline Usage Table.

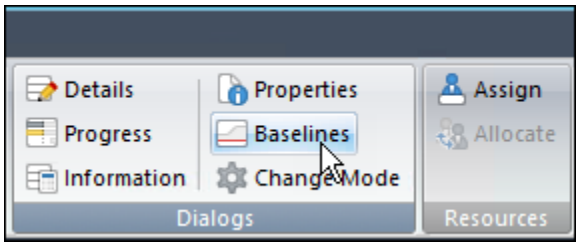
ETC values are time-phased estimates of cost calculated when we assign resources to activities. They are used to compile the Estimate At Complete or EAC value. At the beginning of the project, before any work has started, your ETC values should exactly match your baseline values. Once the project goes live, changes can be made to the ETC values to help keep variances between the forecast EAC and the baseline BAC to a minimum.

Therefore, an easy way to create the ETC baseline is to create a copy of the PMB, using that to store your original ETCs.

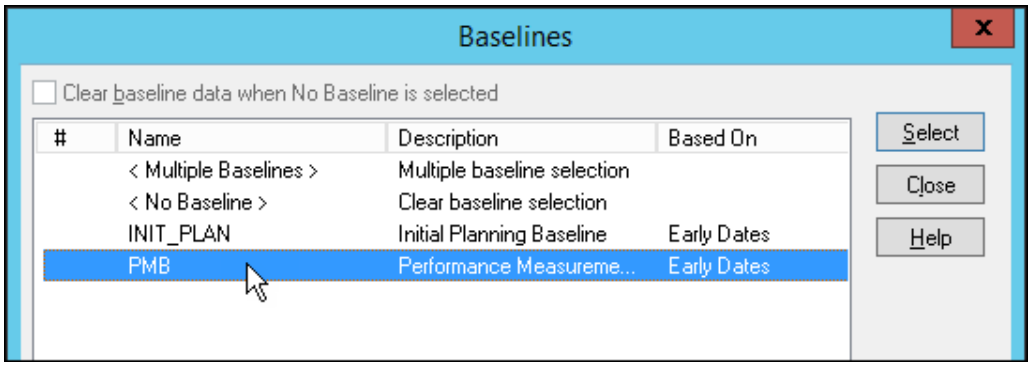
8.7.1 Activity: Creating an ETC Baseline

Follow these next steps to create an ETC baseline.

1. Open the **Baselines** dialog.



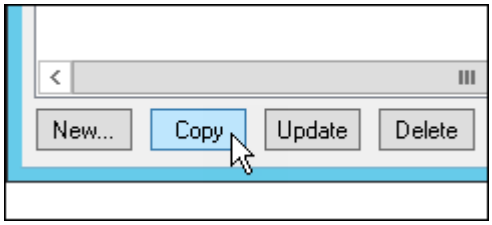
2. Select **PMB**.



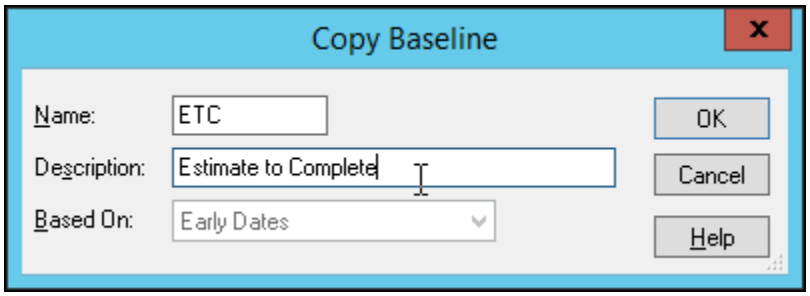
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3. Click **Copy**.



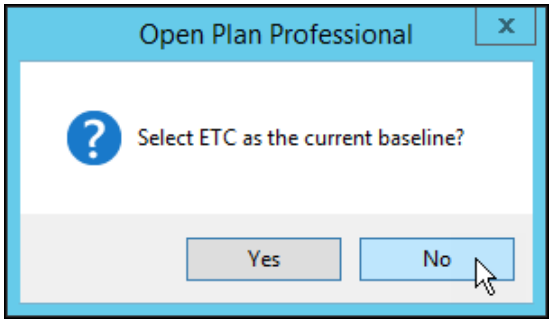
4. Enter the following name and description for the new baseline copy.



Name: ETC
Description: Estimate to Complete

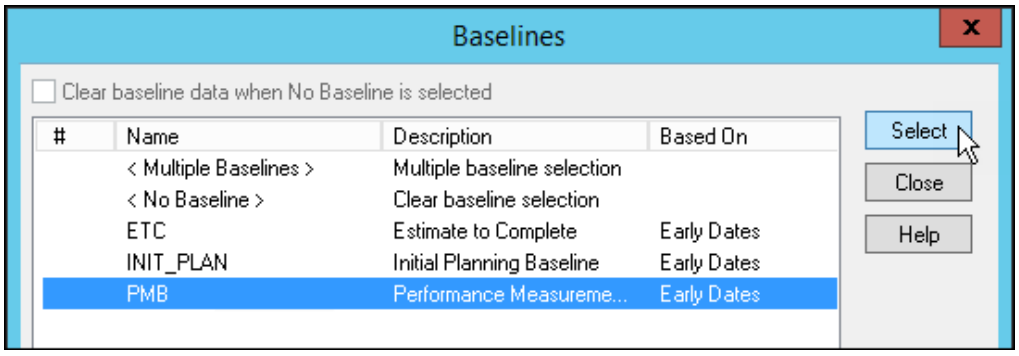
5. Click **OK**.

6. In the prompt dialog, click **No**. We will come back to this baseline later in the training.



7. Now go ahead and select the **PMB**. The ETC baseline will be featured in the Open Plan Reporting lesson.

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This concludes the lesson.

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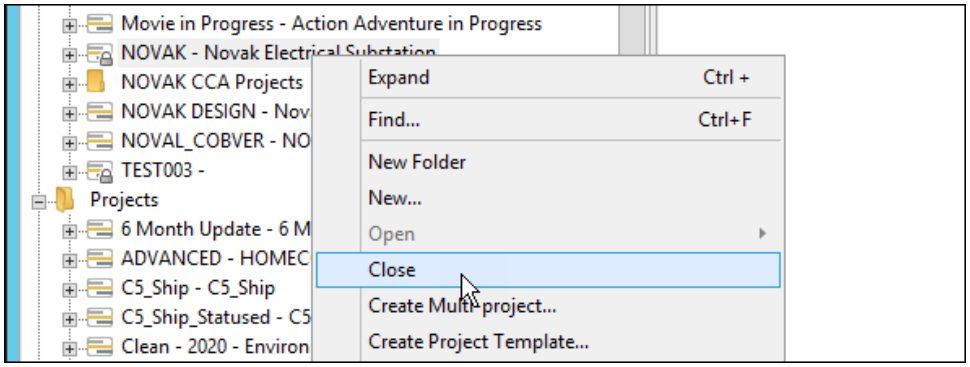
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8.8 Course Catchup

If you were unable to complete all the activities in this lesson, you can restore the final ancillary files using the following steps:

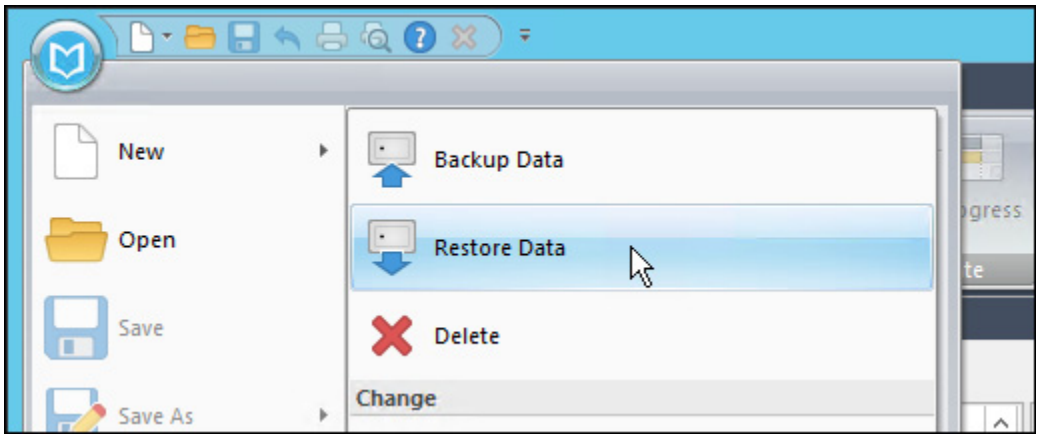
8.8.1 Activity: Course 8 – Catchup

1. Close the **NOVAK** project in the **Open Plan Explorer**.



Note: you cannot restore an open project.

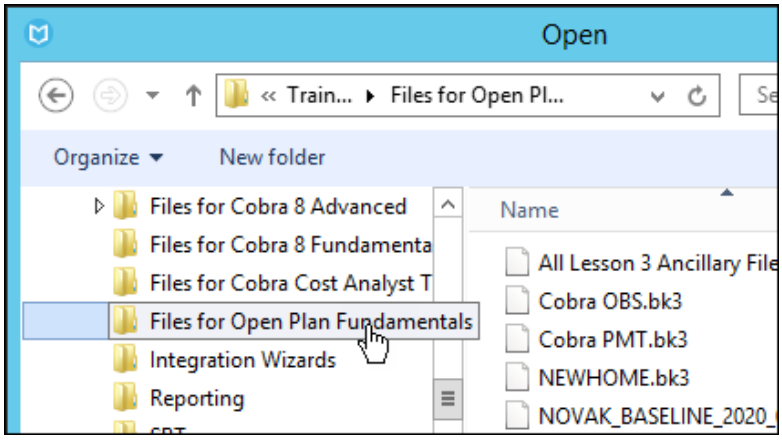
2. Click on the **File** | **Manage Files** > **Restore Data** option.



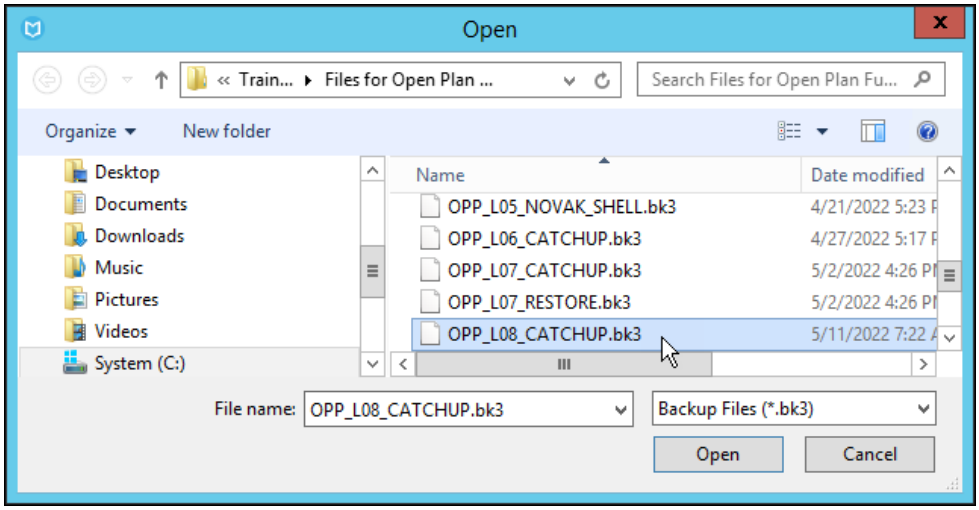
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3. In the **Open** dialog, go to **System (C:)** | **Training** | **Files for Open Plan Fundamentals**.



4. Click on the **OPP_L08_CATCHUP.bk3** file. This will restore all ancillary files created in this lesson.

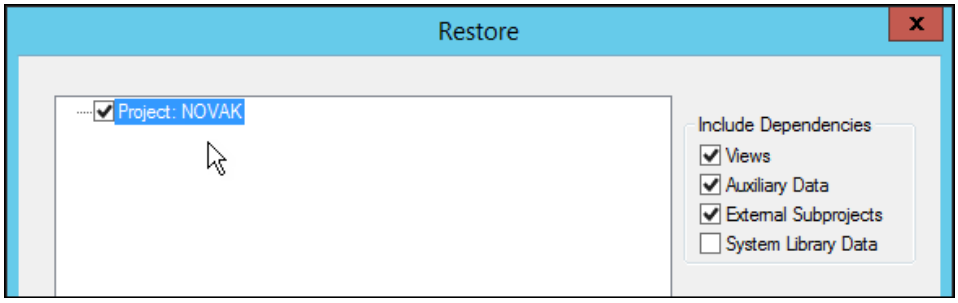


5. Click **Open**.

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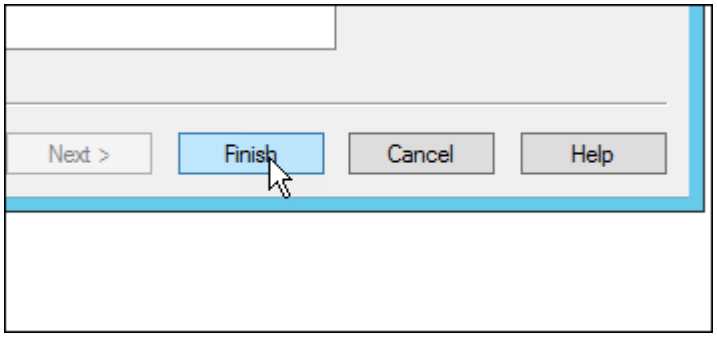
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6. In the **Restore** dialog, verify the following, and then click **Next >**.

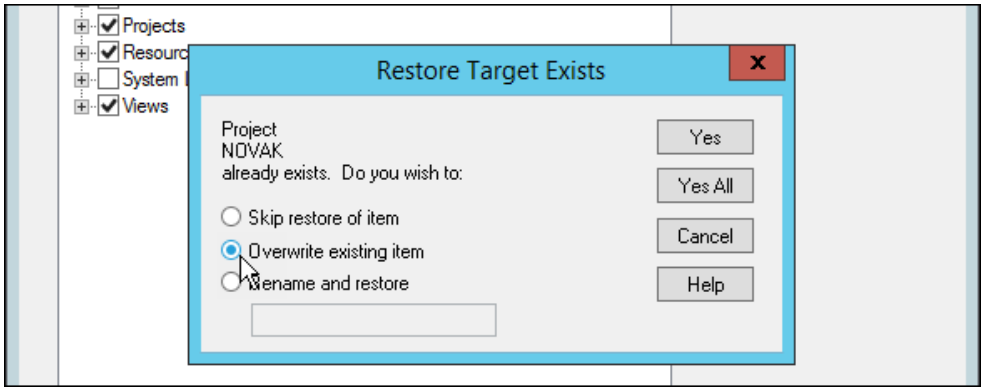


This will save additional prompts appearing during the process.

7. Click **Finish**.



8. If you see this prompt, set the '**Overwrite existing item**' option and click on the **Yes All** button, to replace all the existing project elements.

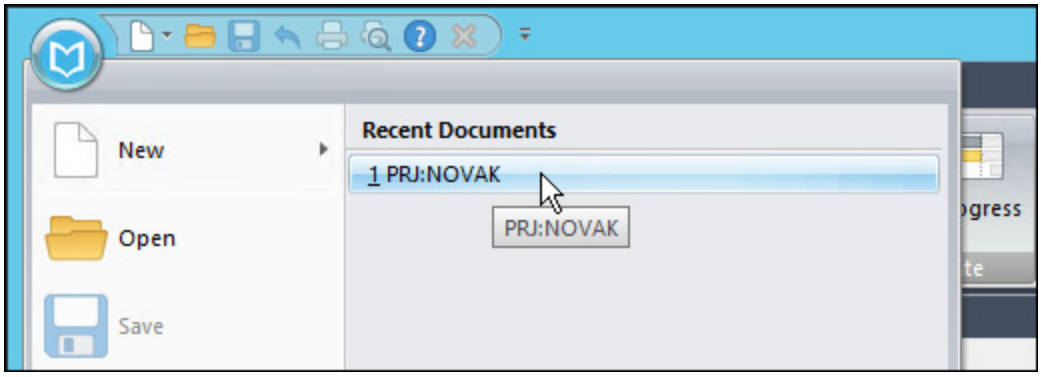


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9. Click on the **File** menu.

10. Open your restored project from the '**Recent Documents**' list in the menu.



You are now ready to continue to the next lesson.

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Open Plan Scheduler Certification Series: Entering Progress

Activity Guide

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Table of Contents

9.1 Course Introduction 4
9.1.1 In this Course 4
9.2 Preparing for Activity Progress 5
9.2.1 Determining the Update Cycle 5
9.2.2 Earned Value Update Cycle Considerations 5
9.3 Reporting Calendars 7
9.3.1 Activity: Creating a Reporting Calendar 10
9.3.2 Activity: Viewing the Reporting Calendar 14
9.4 Reporting Calendars for Cost Analysis 18
9.4.1 Activity: Assigning a Reporting Calendar 19
9.5 Entering Activity Progress 22
9.5.1 Activity: Preparing a View for Progress Entry 22
9.5.2 Activity: Adjusting the Time Scale 28
9.5.3 Activity: Entering Progress 29
9.6 Expected Finish: Explained 36
9.6.1 Activity: Entering an Expected Finish Date 38
9.6.2 Activity: Entering Activity Updates 39
9.7 Advancing the Time Now Date 41
9.7.1 Activity: Moving the Time Now Date 41
9.8 Out of Sequence Progress 43
9.8.1 Activity: May Status Entry 43
9.8.2 Activity: Entering an Out of Sequence Start 46
9.9 Course Catchup 52
9.9.1 Activity: Course 9 – Catchup 52

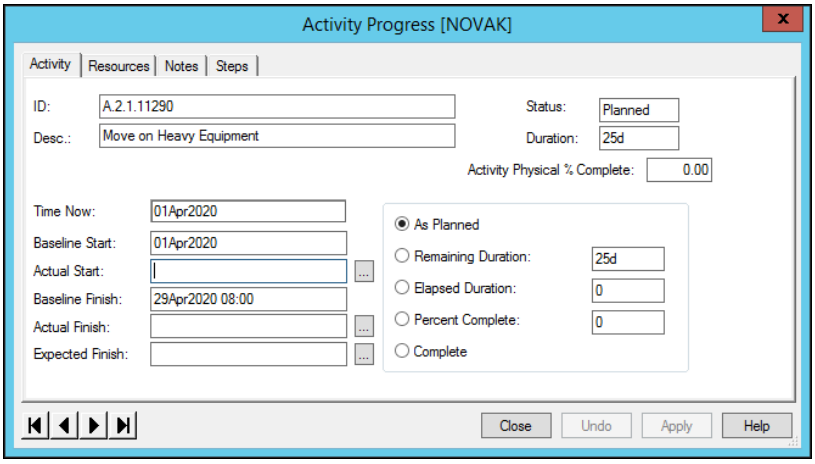
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9.1 Course Introduction

With a baseline in place, and the project getting started, the scheduler's role becomes one of statusing the project to reflect, as accurately as possible, the progress that is being made on the project.

This can be done through various methods, but primarily you will be learning how to enter progress via the Activity Progress dialog.



9.1.1 In this Course

- Preparing for activity progress
- Creating a Reporting Calendar
- Entering Activity Progress
- Expected Finish Date Explained
- Advancing the Time Now date
- Progress calculations
- Out of Sequence execution

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9.2 Preparing for Activity Progress

If you're new to scheduling, then this first section will be of interest. For more experienced schedulers, feel free to go to section 9.3.

9.2.1 Determining the Update Cycle

Once the project starts, it is best practice to decide on the update cycle. Most schedulers will opt for an end of week or bi-weekly cycle, depending on the type and size of the project.

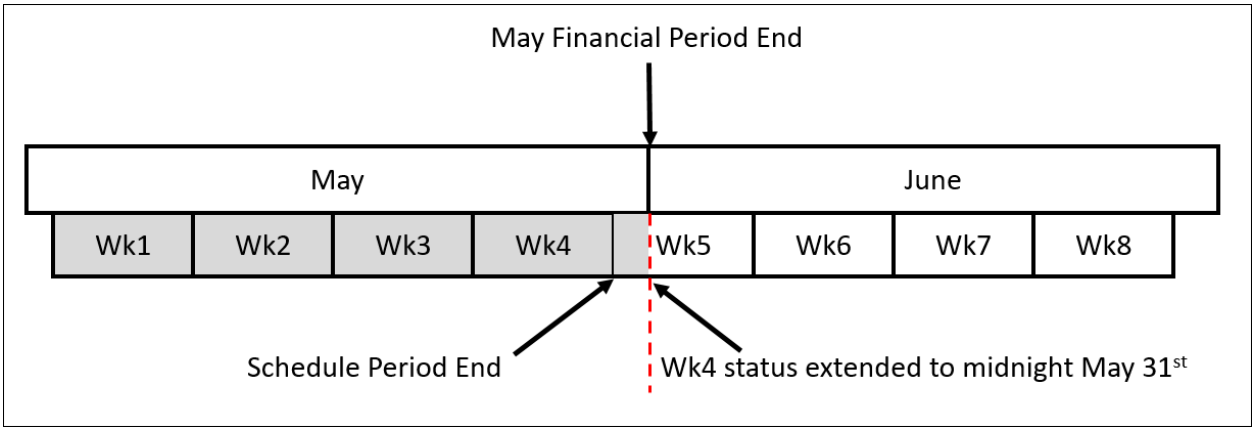
As a rule of thumb, the more frequently you perform updates, the more accurate the progress data will be. In this lesson we will begin with a weekly update cycle for the NOVAK project.

9.2.2 Earned Value Update Cycle Considerations

If your schedule is part of an integrated earned value management system (EVMS), then you will need to make sure that your schedule is statused in such a way that aligns with the company's financial period end dates.

An example of this might be the following:

You project schedule is updated on a weekly basis, usually on a Monday, to capture the prior week's progress. However, the company's financial period end date is the last day of the calendar month, and the EVMS is running the same month end cycle. It will therefore be necessary to make sure that the last schedule update cycle falls on the last day of the month, invariably not the same as the end of the week.



In the above example, the schedulers will delay the status update to the end of the financial period so as to capture all progress for the month end. This ensures that the EVMS gets credit for the entire month's progress when integrating with Open Plan.

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The above situation is where you might employ an Open Plan **Reporting Calendar**. This reporting calendar aligns with the financial calendar, and can be overlaid on the Gantt chart. This helps the schedulers see when a financial month end is coming up, and can adjust their status process to capture all progress for the period.

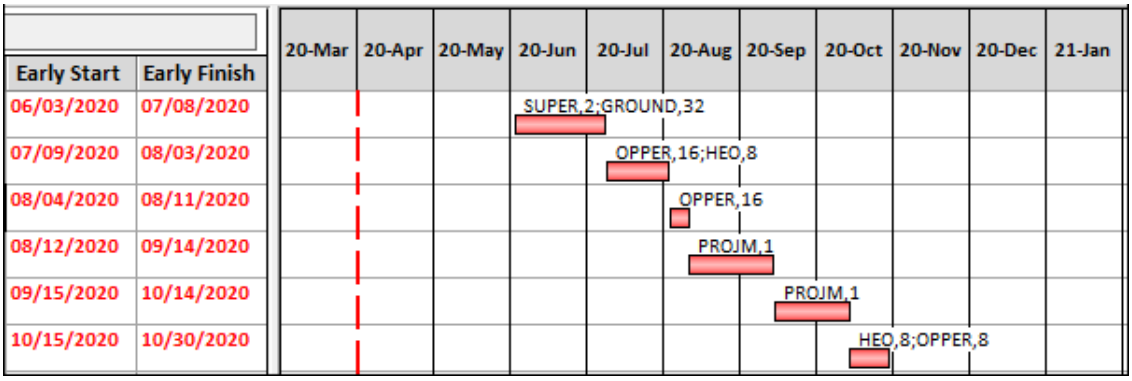
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9.3 Reporting Calendars

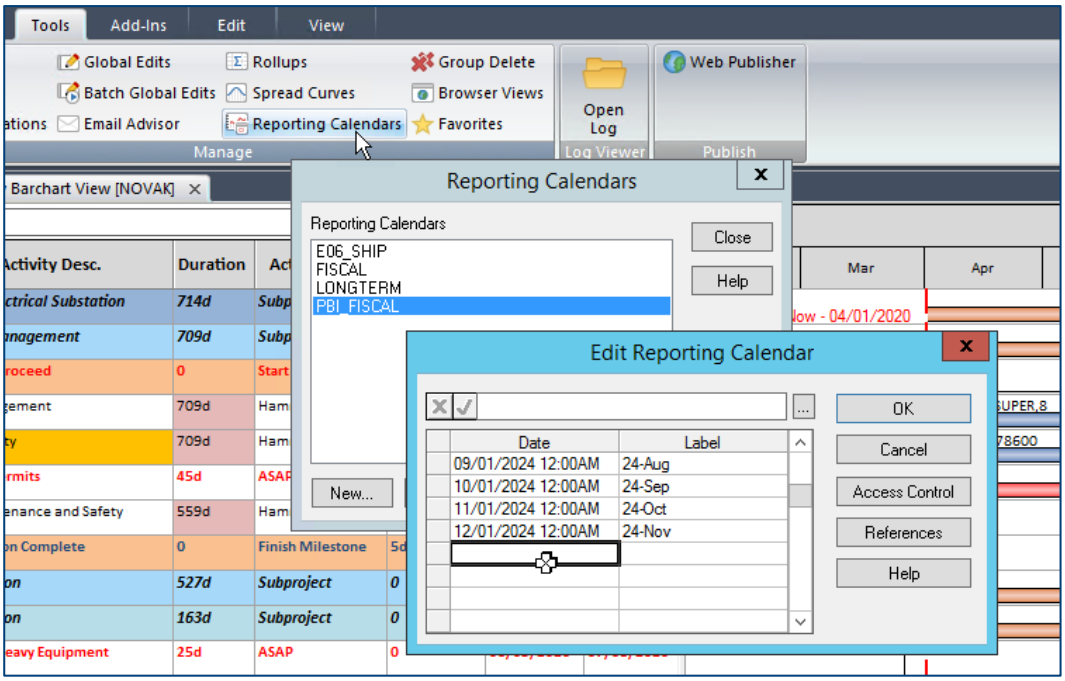
This is a natural point to take a slight detour into the concept of Reporting Calendars. As mentioned, if you are integrated with a Cobra project, you will need to setup a Reporting Calendar in Open Plan. This will provide several benefits including a clear point at which to update your schedule.

As you can see in the figure below, the Reporting Calendar has changed the date scale to display the periods defined therein.



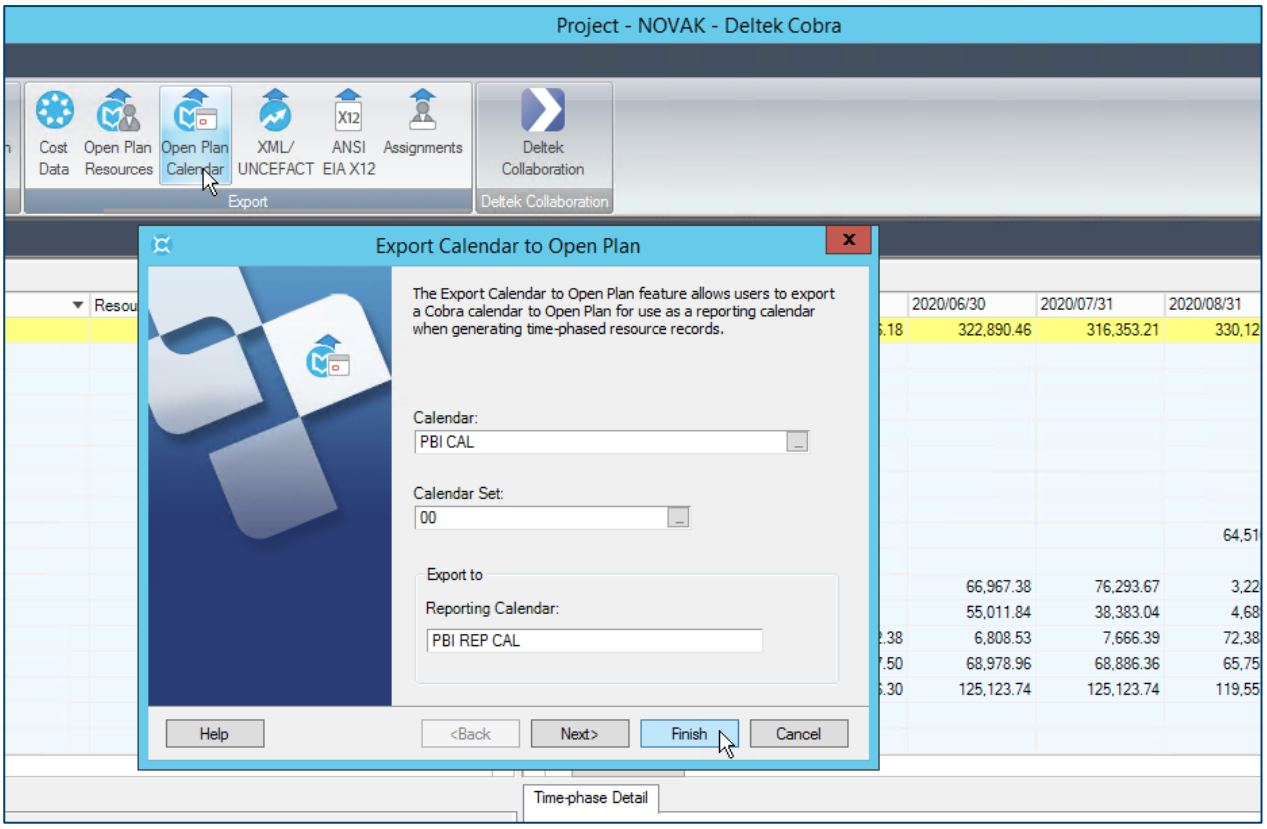
There are two ways to create a Reporting Calendar. The first method is to use the **Reporting Calendar** feature in the Open Plan **Tools** ribbon to create the required financial periods. You can type them in, or better still, use **Ctrl + V** to past a list of dates and labels from a spreadsheet.

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If Cobra is your EVM tool, you can export any Cobra financial calendar to Open Plan from within Cobra's **Integration** ribbon.

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A reporting calendar needs to be aligned with the financial period end dates used by finance. If you're integrating with Cobra or PM Compass, this Reporting Calendar will give Open Plan a compatible set of financial dates against which it will calculate the time-phased spread of resource hours and costs.

We will be using a Reporting Calendar in a later lesson, but now is a good time to create one in readiness for some additional tools covered later.

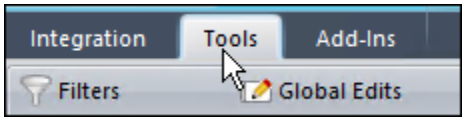
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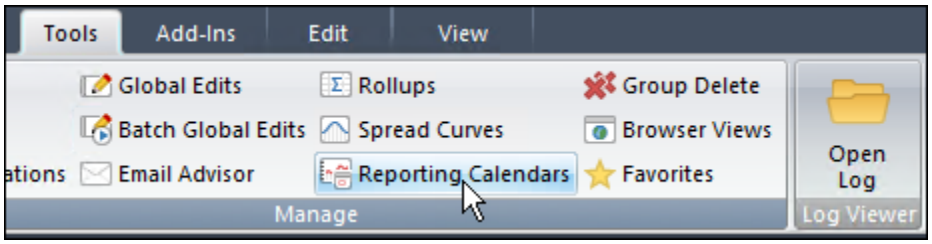
9.3.1 Activity: Creating a Reporting Calendar

Follow these next steps to create a Reporting Calendar.

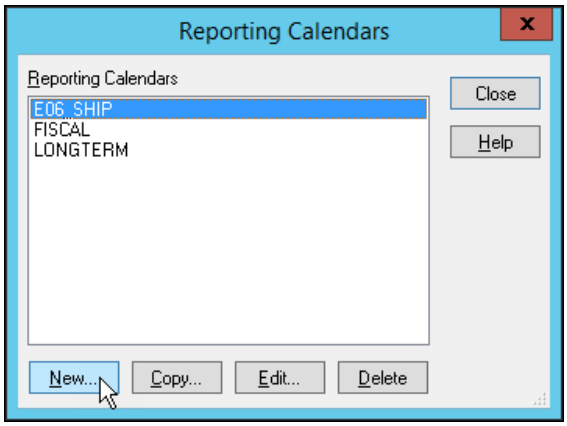
1. Click the **Tools** ribbon.



2. Click **Reporting Calendars**.



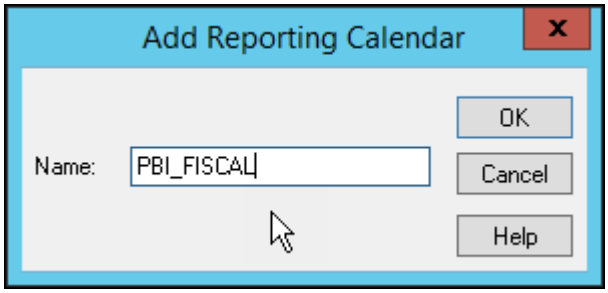
3. Click **New…**.



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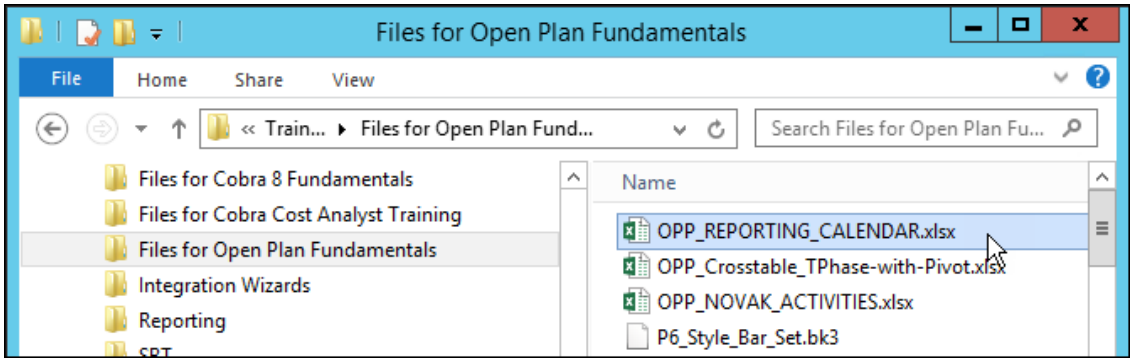
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4. In the **Add Reporting Calendar** dialog, enter the name **PBI_FISCAL**.



5. Click **OK**.

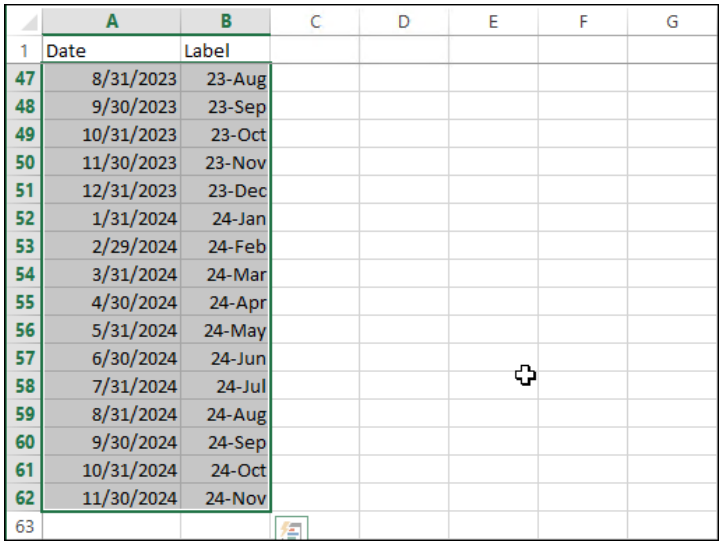
6. Go to your **Windows File Explorer** and open the **OPP_REPORTING_CALENDAR.xlsx**.



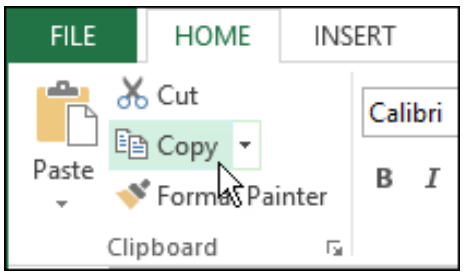
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7. Select all the records in the spreadsheet, except for the column header row.



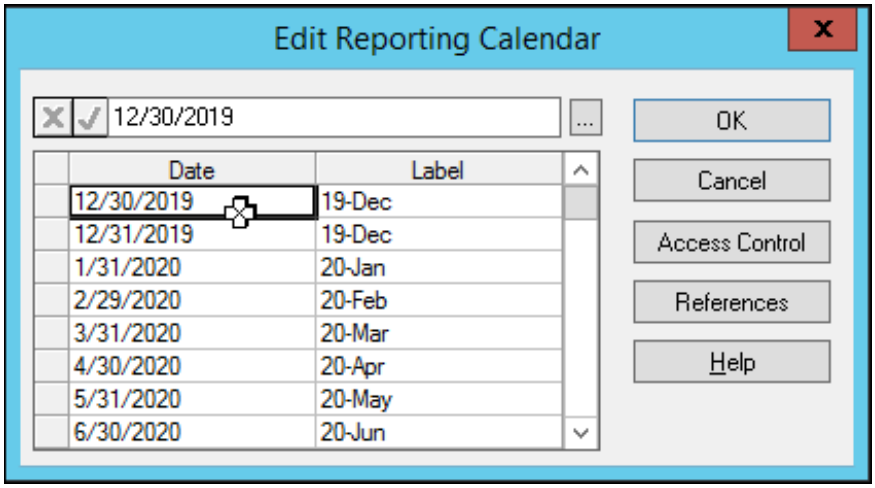
8. In the **HOME** ribbon, click **Copy**.



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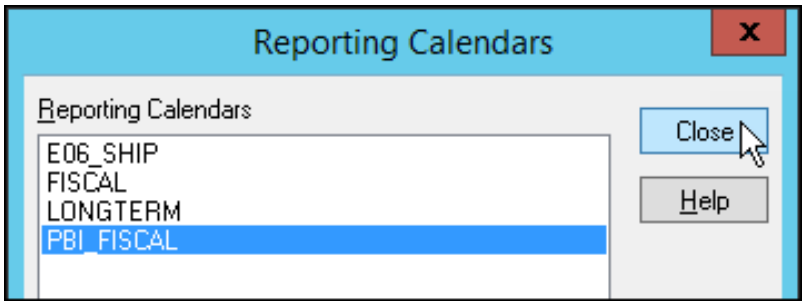
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9. Click the top '**Date**' cell and use **Ctrl + V** to paste the spreadsheet records.



10. Click **OK**.

11. Click **Close**.



12. Click **Save**.

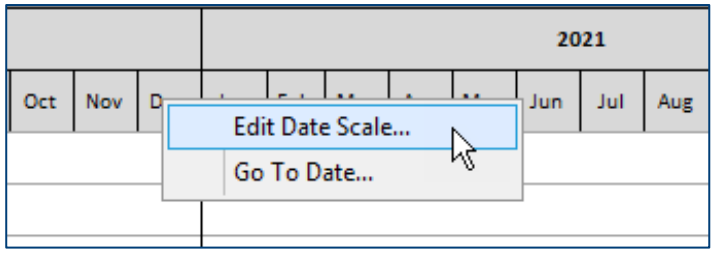
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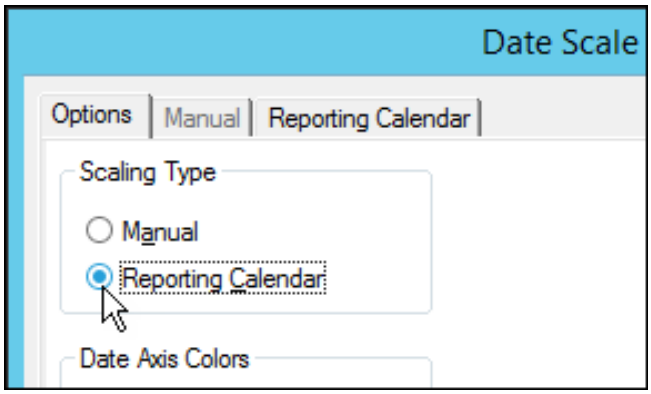
9.3.2 Activity: Viewing the Reporting Calendar

The easiest way to review your reporting calendar is to select it in the **Edit Date Scale** tool.

1. Right-click on the barchart date scale and select **Edit Date Scale…** from the menu.

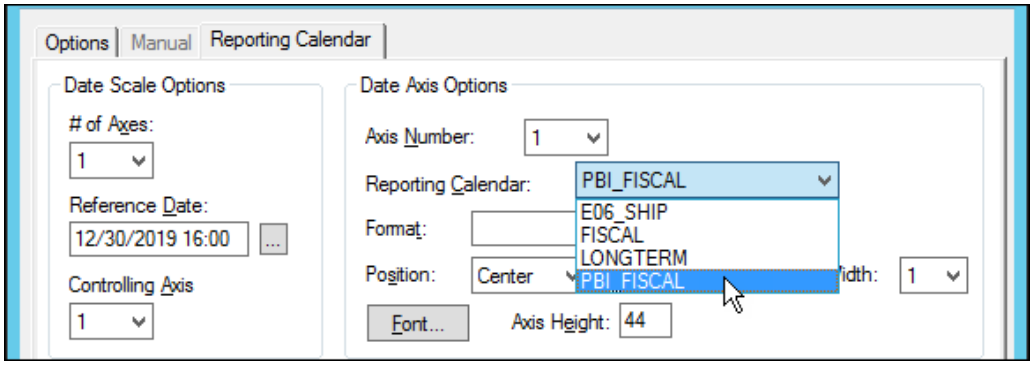


2. In the **Date Scale Preferences** dialog, select the **Reporting Calendar** option.



3. Click on the **Reporting Calendar** tab.

4. Set the **Reporting Calendar** field to **PBI_FISCAL**.

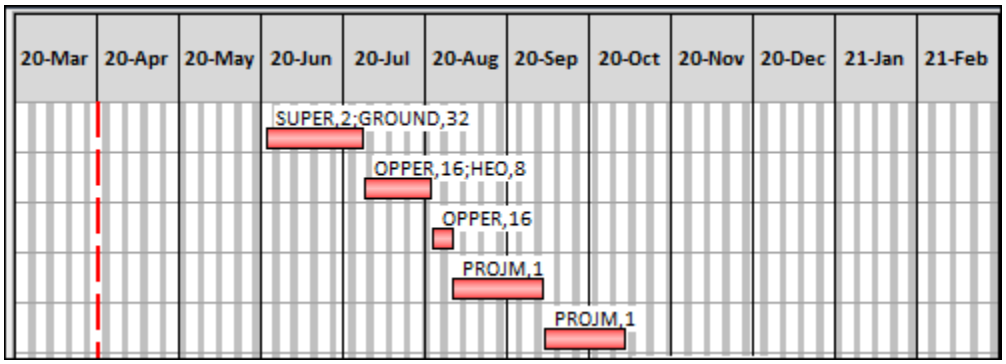


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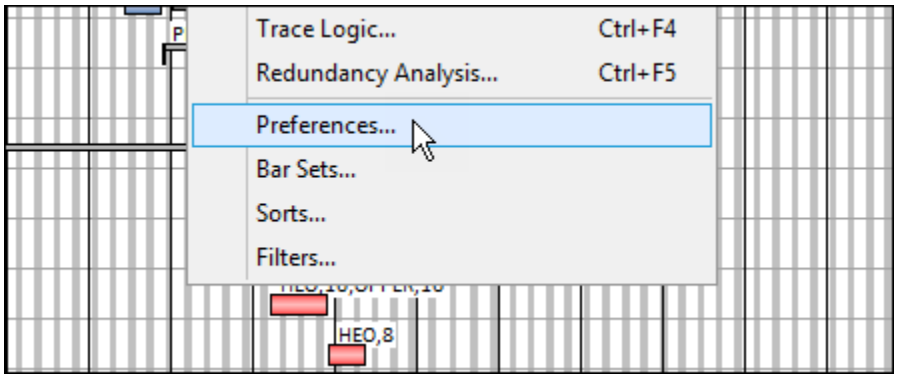
5. Click **OK**.

6. The **Date Scale** now shows the **Reporting Calendar** periods.



Also note the gray 'non-work' period shaded bars. This is due to a default setting in preferences.

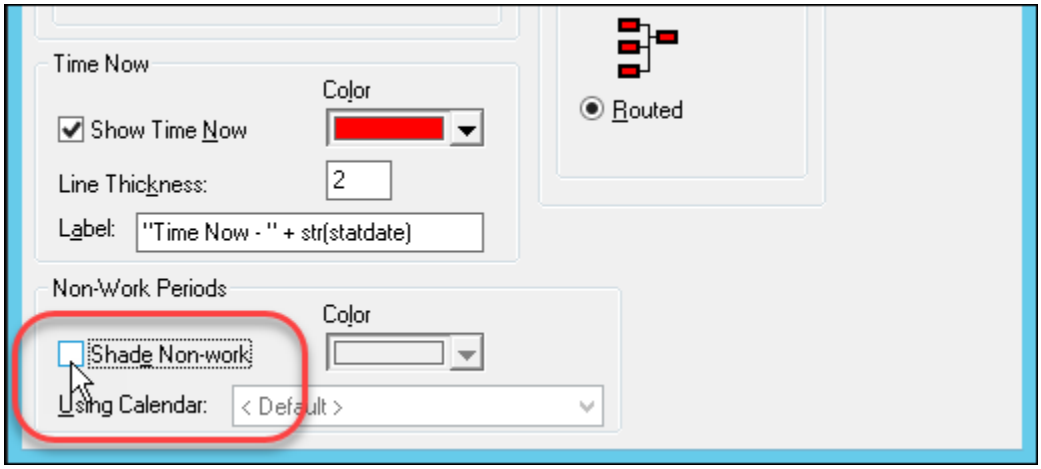
7. Right-click anywhere on the **Barchart** and select **Preferences**.



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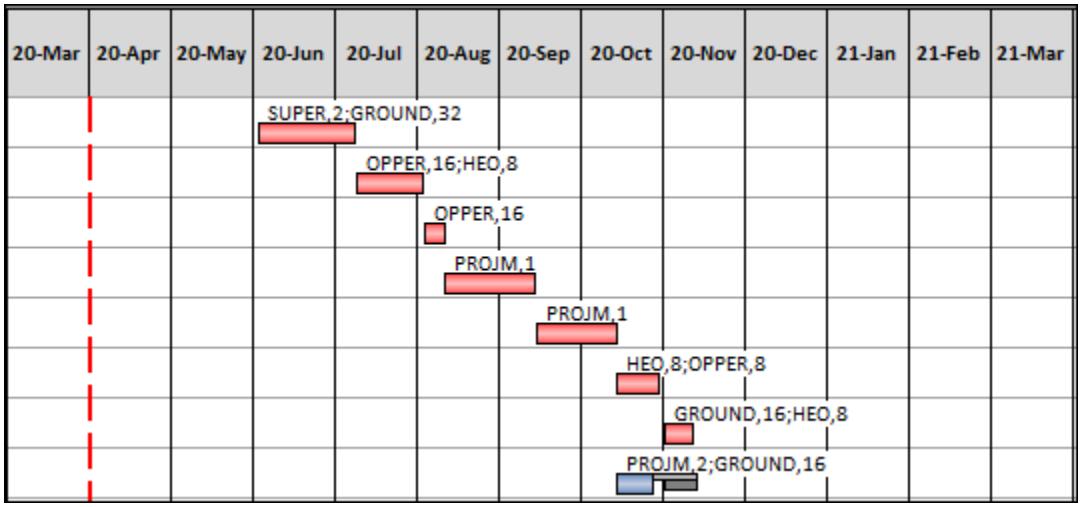
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8. At the bottom of the **Preferences** dialog, un-check the **Shade Non-work** option.



9. Click **OK**.

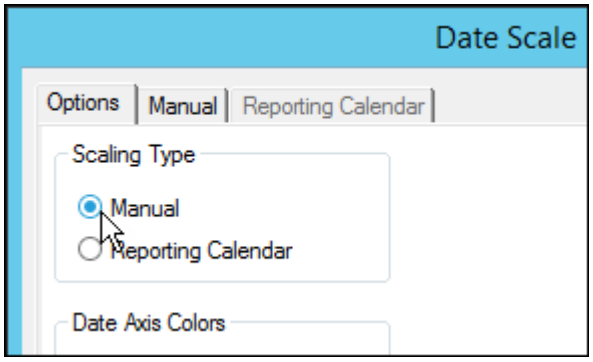
10. The **Barchart** will now appear as follows:



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11. Having reviewed the calendar, return to the **Edit Date Scale** dialog, and set the scale back to **Manual**.



12. Click **OK**.

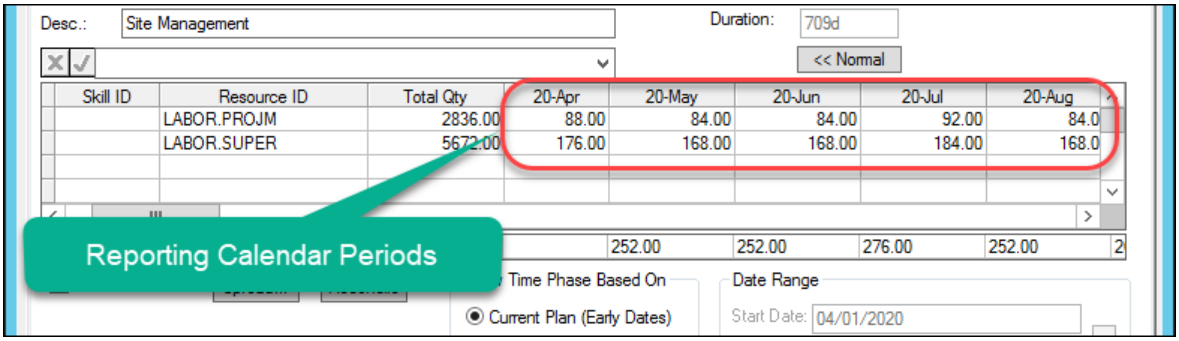
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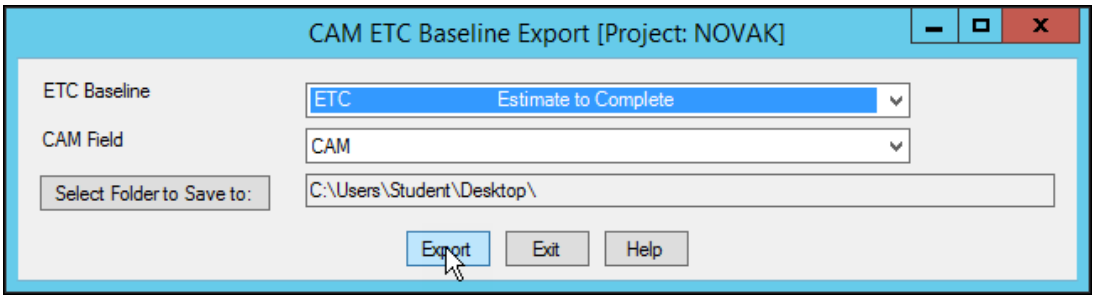
9.4 Reporting Calendars for Cost Analysis

One more thing you can do with this **Reporting Calendar** is assign it to the project via the **Costs** tab of the **Project Properties** dialog.

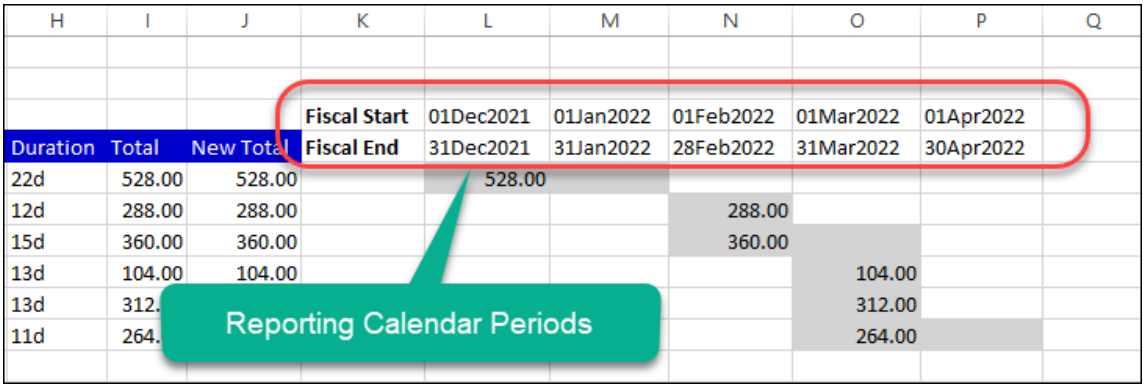
This will do two things. First, it changes the time-phase table in the **Resources** tab of the **Activity Details** dialog to display the **Reporting Calendar** periods.



Second, it will allow you to use the CAM ETC Export and Import feature for modifying ETC spread values.



The **CAM ETC Export** (8.6+) feature creates a time-phased spreadsheet of hours or cost, and uses the project's assigned Reporting Calendar dates to create the spreadsheet column dates in the output.



This feature is covered fully in the **Open Plan Scheduler - Reporting** lesson.

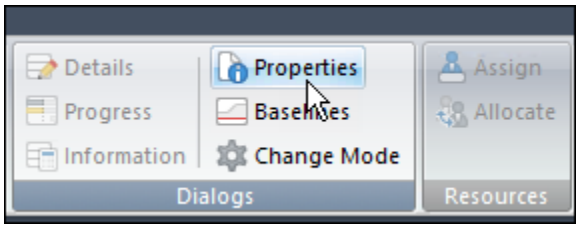
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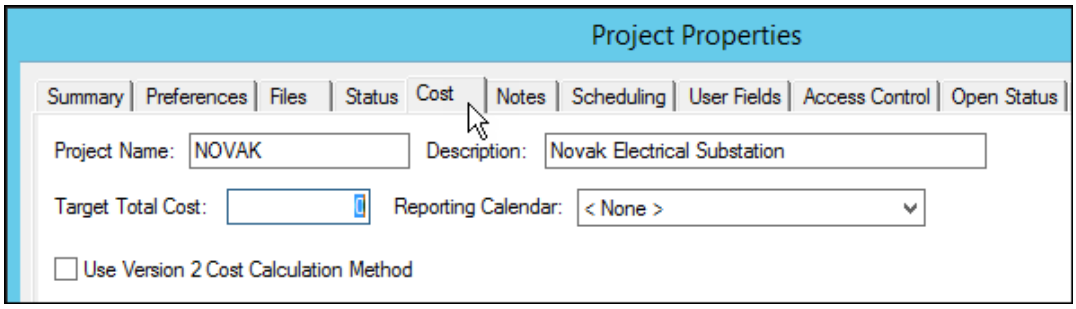
9.4.1 Activity: Assigning a Reporting Calendar

This is how you assign a Reporting Calendar to a project.

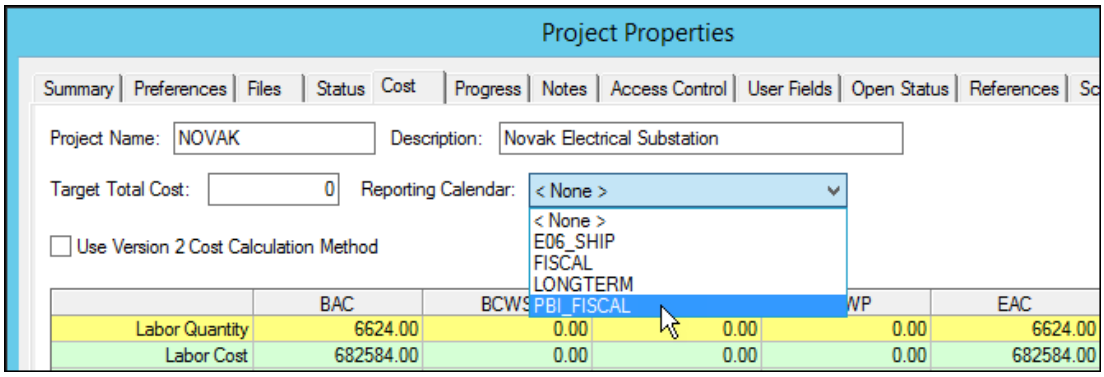
1. In the **Edit** ribbon, click on the **Properties** button in the **Dialog** tool group.



2. Click on the **Cost** tab.



3. Set the **Reporting Calendar**: field to our **PBI_FISCAL** calendar.



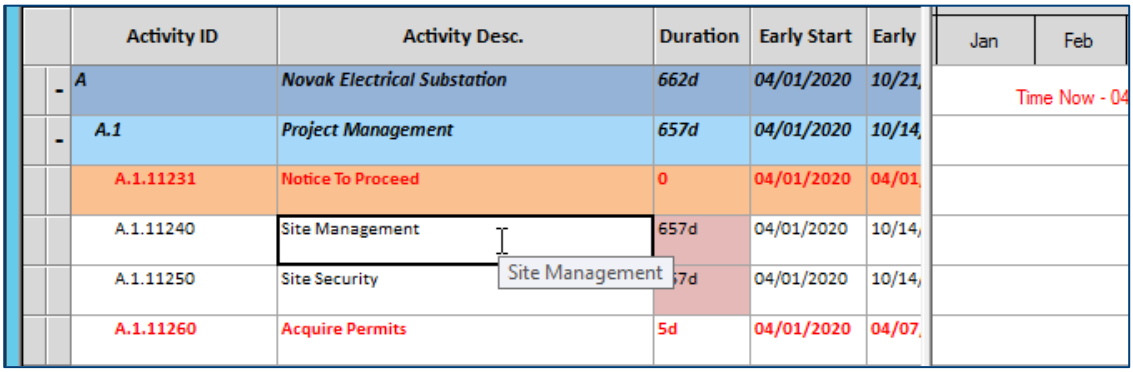
4. Click **OK**.

   Now let's take a look at the effect of that change on the time-phased data of existing resource assignments.

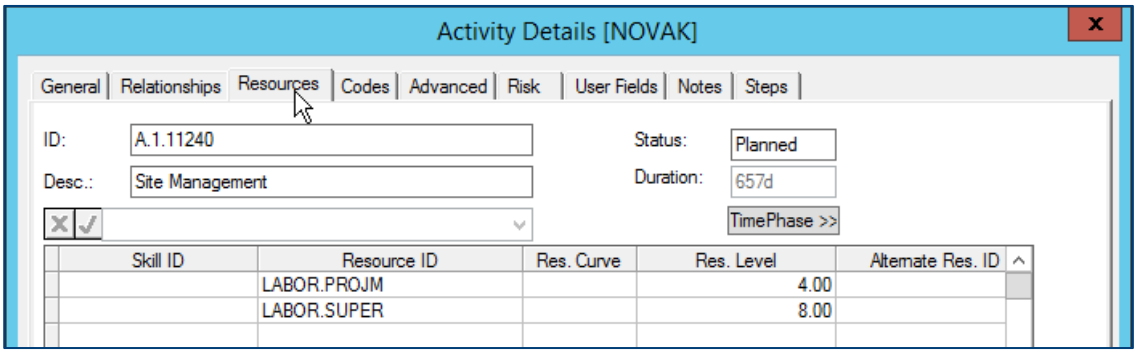
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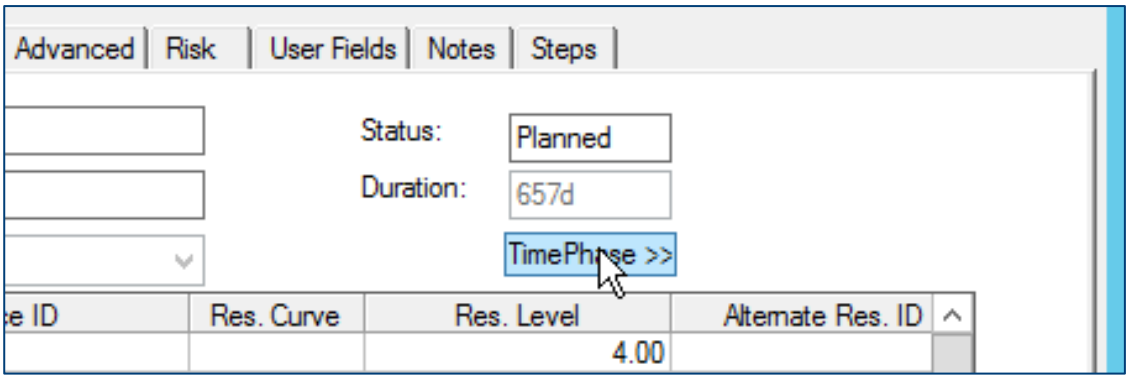
5. Locate the **Site Management** activity and double-click on it.



6. In the **Activity Details** dialog, click on the **Resources** tab.



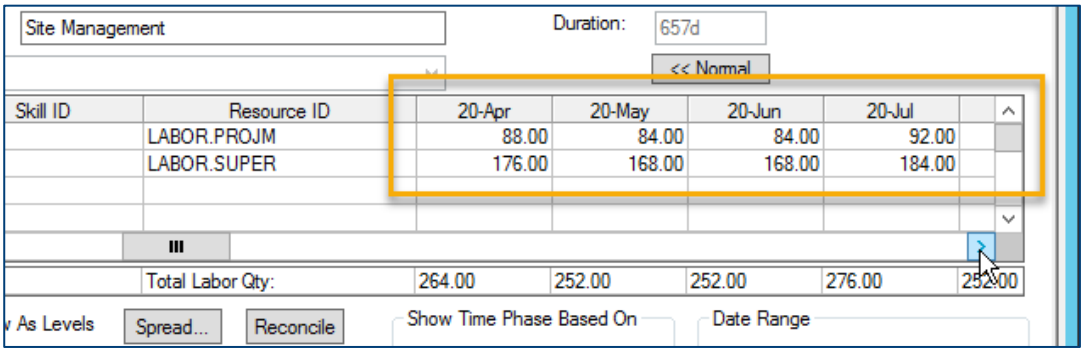
7. Click on the **TimePhase** button.



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8. Note the time-phased headers are now showing periods as set out in the **Reporting Calendar**.



9. Click the **<< Normal** button.

10. Click **Close**.

11. Click **Save**.

You are now ready with an assigned Reporting Calendar to your NOVAK project.

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9.5 Entering Activity Progress

Returning to the main topic of progress entry, it's now April 1 and the NOVAK project is mobilizing.

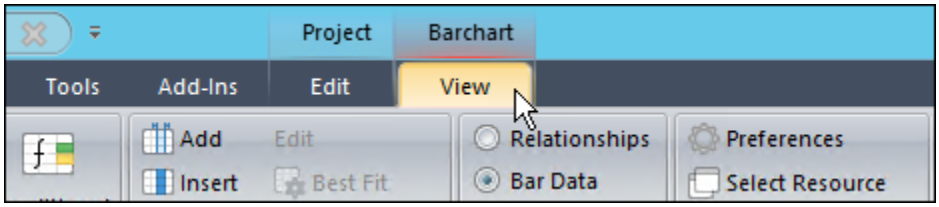
The first thing we need to do is create a View that supports the progress entry. This will involve:

- Adding columns to the Activity Barchart View's spreadsheet.
- Adjusting the Gantt chart time scale to weekly tiers

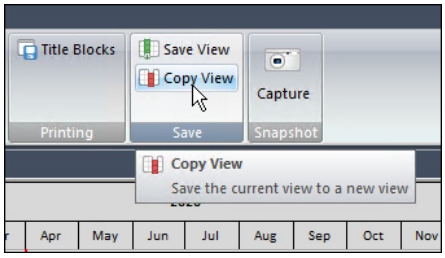
9.5.1 Activity: Preparing a View for Progress Entry

So that we don't overwrite the standard **Activity Barchart View**, we will first make a copy.

1. With the **Activity Barchart View [NOVAK]** open, click on the **View** ribbon tab.



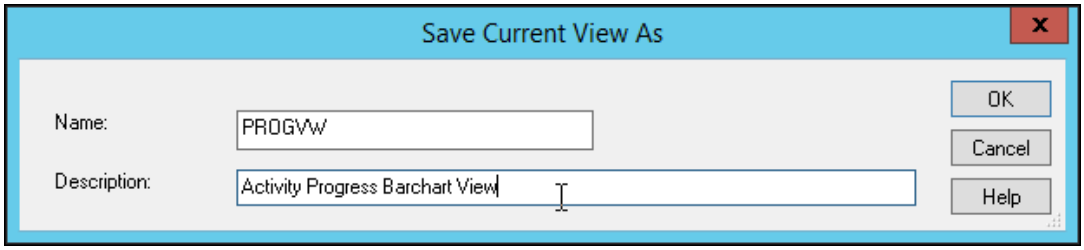
2. Go to the **Save** tool group (right end of the ribbon) and click on **Copy View**.



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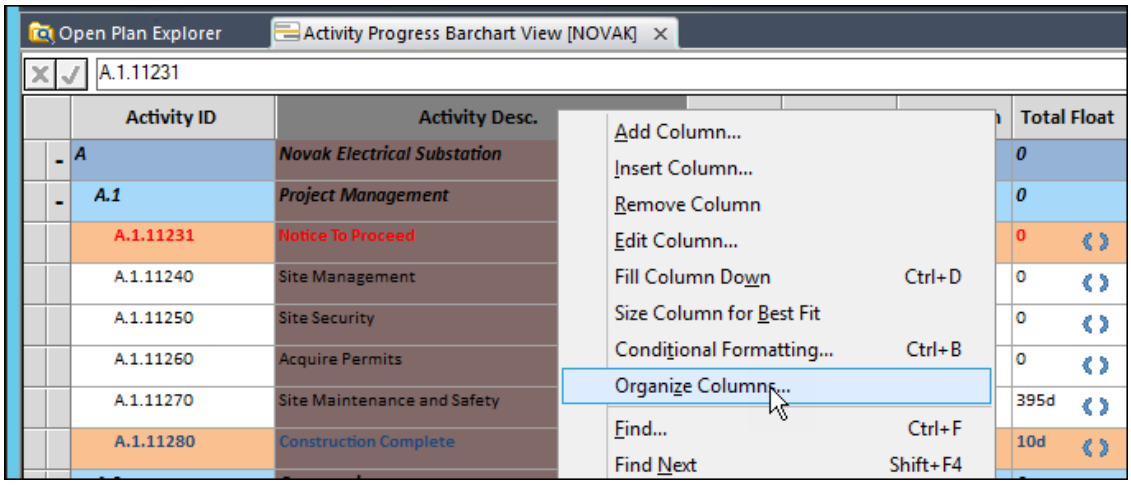
3. Enter the following in the **Name** and **Description** fields.



Name: **PROGVW**
Description: **Activity Progress Barchart View**

4. Click **OK** to make the copy.

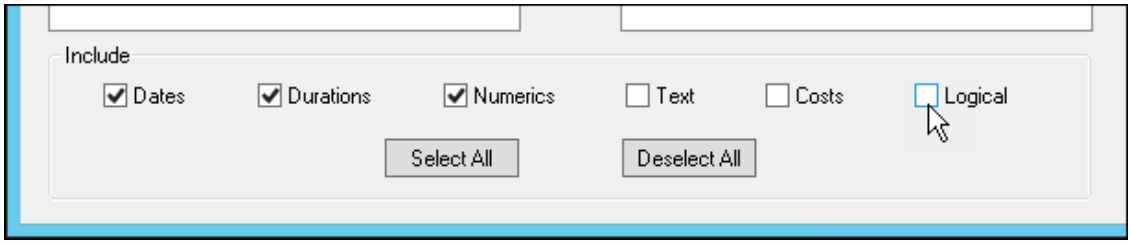
5. Right-click on the **Activity Description** and select **Organize Columns…**



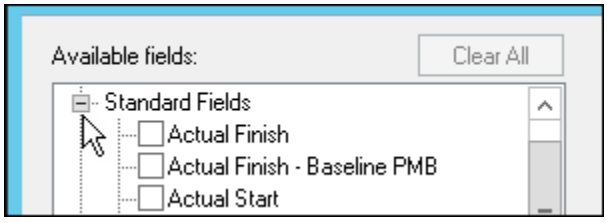
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6. Click to uncheck the **Text**, **Costs**, and **Logical** options in the **Include** group.

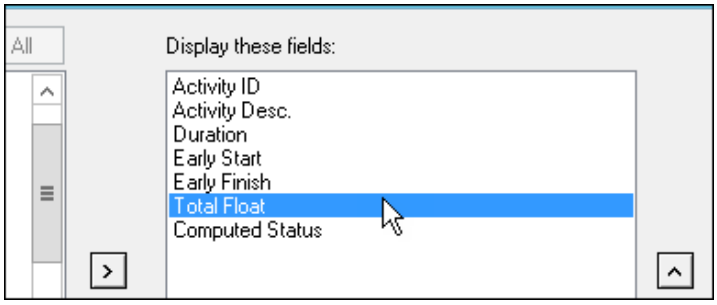


7. Expand **Standard Fields**.



8. Select the **Total Float** column.

   Note: columns selected in the Available Field list will be added above the field selected in the Display these fields:



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9. In **Available fields:** select the following:

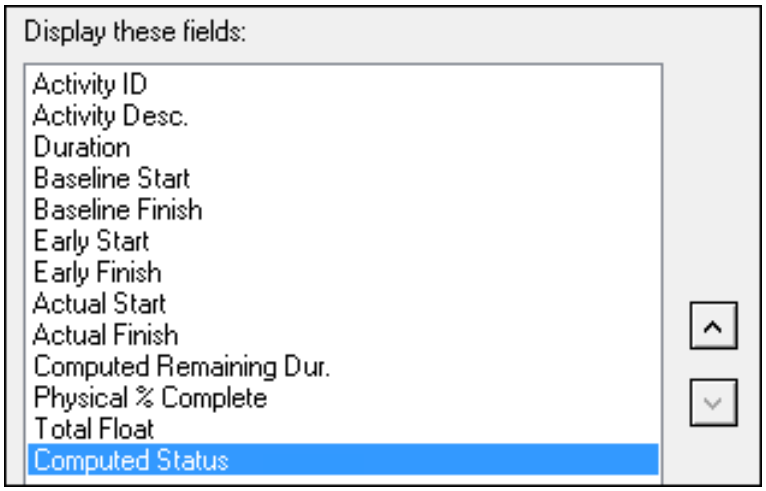
   Actual Start
   Actual Finish
   Baseline Start
   Baseline Finish
   Computed Remaining Dur.
   Physical % Complete

10. Click the '**>**' button to move the selected columns to the **Display these fields:** list.

11. Use the **Up** and **Down** arrows to move the columns.



12. Organize them into the following order.

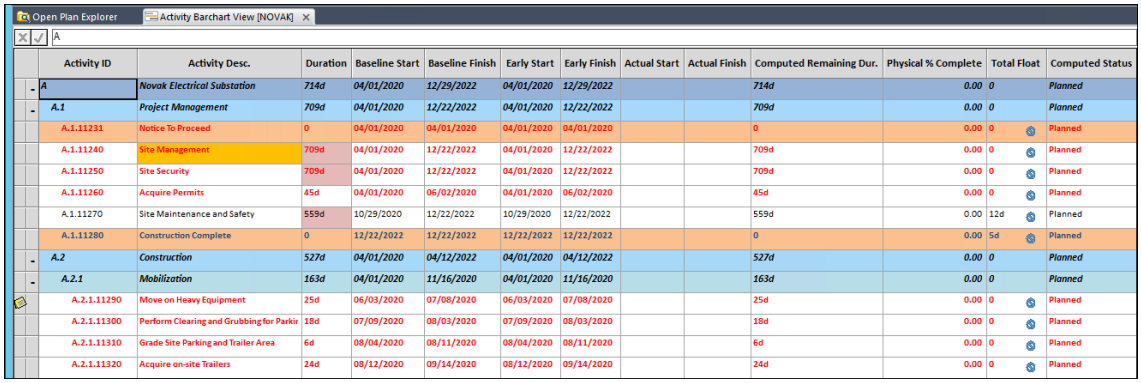


13. Click **OK**.

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14. Review the spreadsheet columns. They should appear similar to the following:

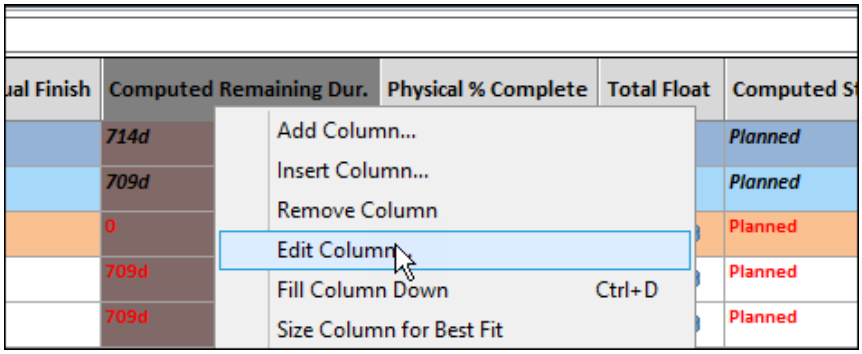


Open Plan Explorer | Activity Barchart View [NOVAK]

Activity ID	Activity Desc.	Duration	Baseline Start	Baseline Finish	Early Start	Early Finish	Actual Start	Actual Finish	Computed Remaining Dur.	Physical % Complete	Total Float	Computed Status
A	Novak Electrical Substation	714d	04/01/2020	12/29/2022	04/01/2020	12/29/2022			714d	0.00	0	Planned
A.1	Project Management	709d	04/01/2020	12/22/2022	04/01/2020	12/22/2022			709d	0.00	0	Planned
A.1.11231	Notice To Proceed	0	04/01/2020	04/01/2020	04/01/2020	04/01/2020			0	0.00	0	Planned
A.1.11240	Site Management	709d	04/01/2020	12/22/2022	04/01/2020	12/22/2022			709d	0.00	0	Planned
A.1.11250	Site Security	709d	04/01/2020	12/22/2022	04/01/2020	12/22/2022			709d	0.00	0	Planned
A.1.11260	Acquire Permits	45d	04/01/2020	06/02/2020	04/01/2020	06/02/2020			45d	0.00	0	Planned
A.1.11270	Site Maintenance and Safety	559d	10/29/2020	12/22/2022	10/29/2020	12/22/2022			559d	0.00	12d	Planned
A.1.11280	Construction Complete	0	12/22/2022	12/22/2022	12/22/2022	12/22/2022			0	0.00	5d	Planned
A.2	Construction	527d	04/01/2020	04/12/2022	04/01/2020	04/12/2022			527d	0.00	0	Planned
A.2.1	Mobilization	163d	04/01/2020	11/16/2020	04/01/2020	11/16/2020			163d	0.00	0	Planned
A.2.1.11290	Move on Heavy Equipment	25d	06/03/2020	07/08/2020	06/03/2020	07/08/2020			25d	0.00	0	Planned
A.2.1.11300	Perform Clearing and Grubbing for Parkir	18d	07/09/2020	08/03/2020	07/09/2020	08/03/2020			18d	0.00	0	Planned
A.2.1.11310	Grade Site Parking and Trailer Area	6d	08/04/2020	08/11/2020	08/04/2020	08/11/2020			6d	0.00	0	Planned
A.2.1.11320	Acquire on-site Trailers	24d	08/12/2020	09/14/2020	08/12/2020	09/14/2020			24d	0.00	0	Planned

Let’s shorten some of these column name to tighten things up a little.

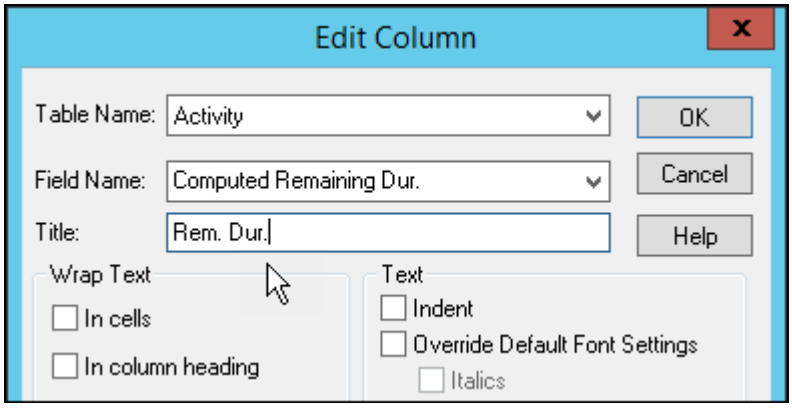
15. Right-click on the **Computed Remaining Dur.** column header and select **Edit Column…**.



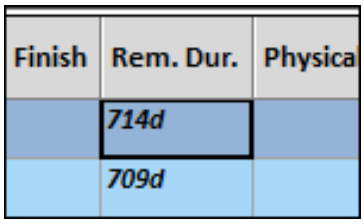
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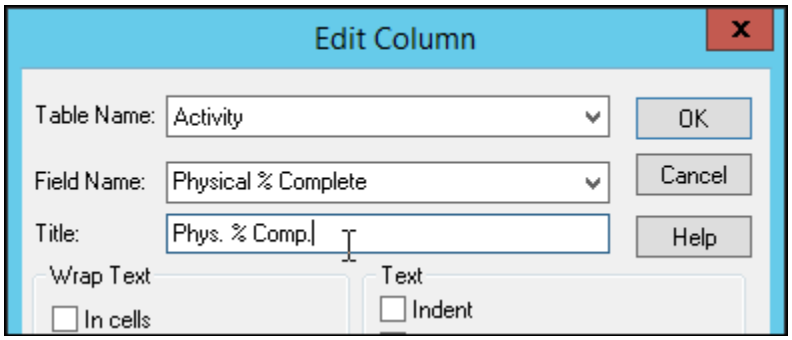
16. Replace the text in the **Title:** field with '**Rem. Dur.**'. and click **OK**.



17. The column will automatically be narrower with the shorter name.



18. Repeat this process for the **Physical % Complete** field, changing it to '**Phys. % Comp.**'.

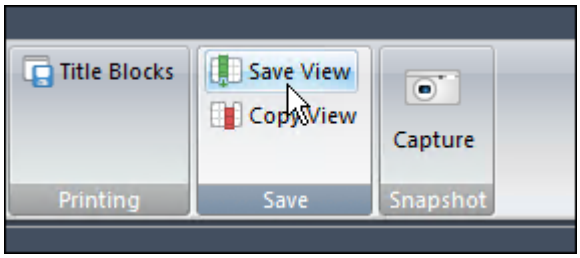


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19. Click **OK** to see the results.

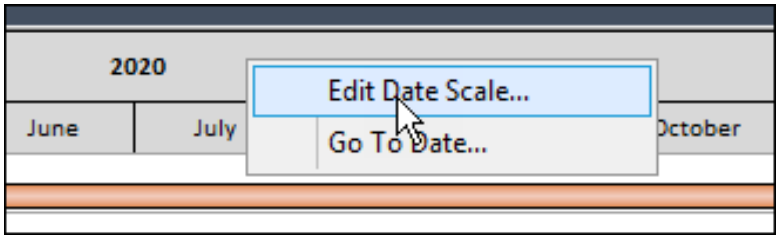
Finish	Rem. Dur.	Phys. % Comp.	Total Float
	714d	*0.00*	*0*
	709d	*0.00*	*0*

20. In the **View** ribbon, click on the **Save View** button.

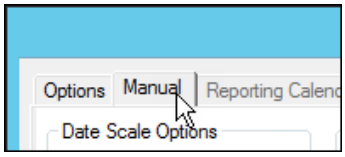


9.5.2 Activity: Adjusting the Time Scale

1. In the **Activity Progress Barchart View**, right-click on the date scale and select **Edit Date Scale…**.



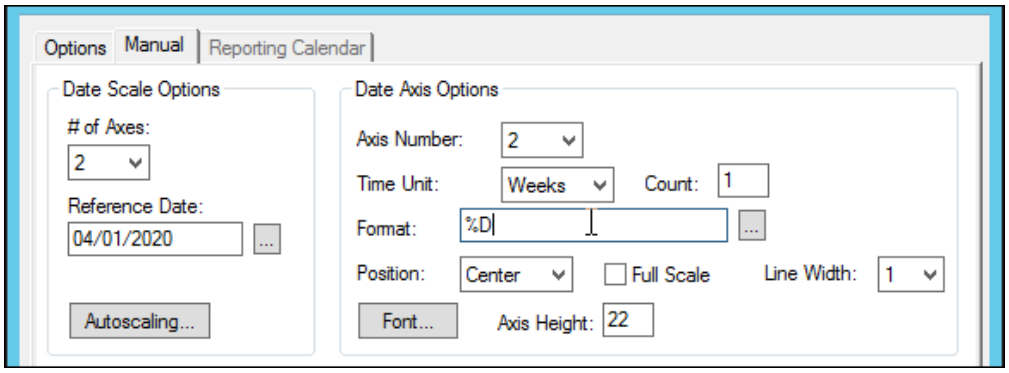
2. Click on the **Manual** tab.



3. For the number 2 Axis, change Months to **Weeks**, and the **Format** to **%D**.

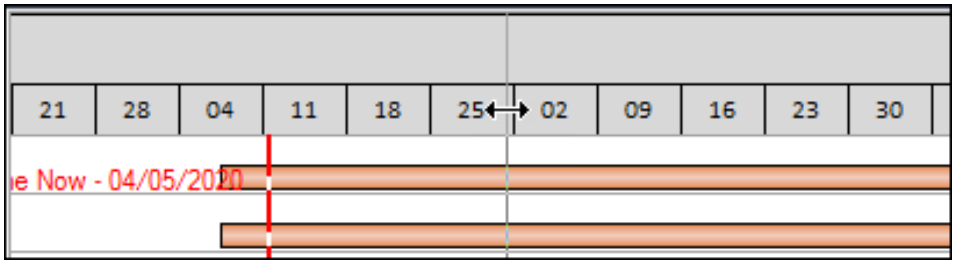
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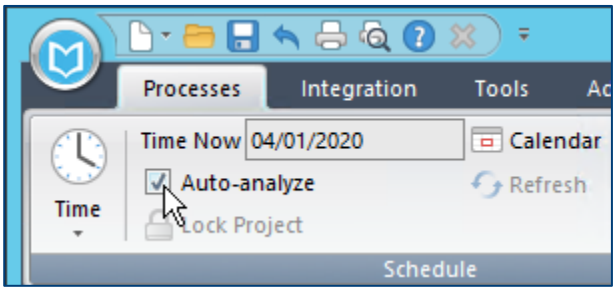
4. Click **OK**.

5. Click and drag one of the bottom tiers to the right of the **Time Now** line to zoom in to the view.



9.5.3 Activity: Entering Progress

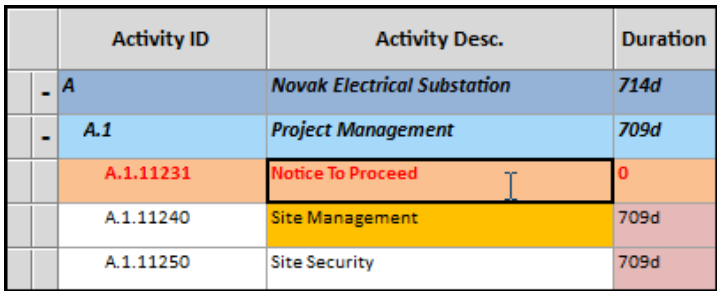
1. Click on the **Processes** tab and verify that you have the **Auto-analyze** option selected.



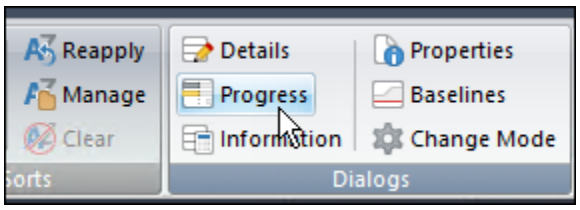
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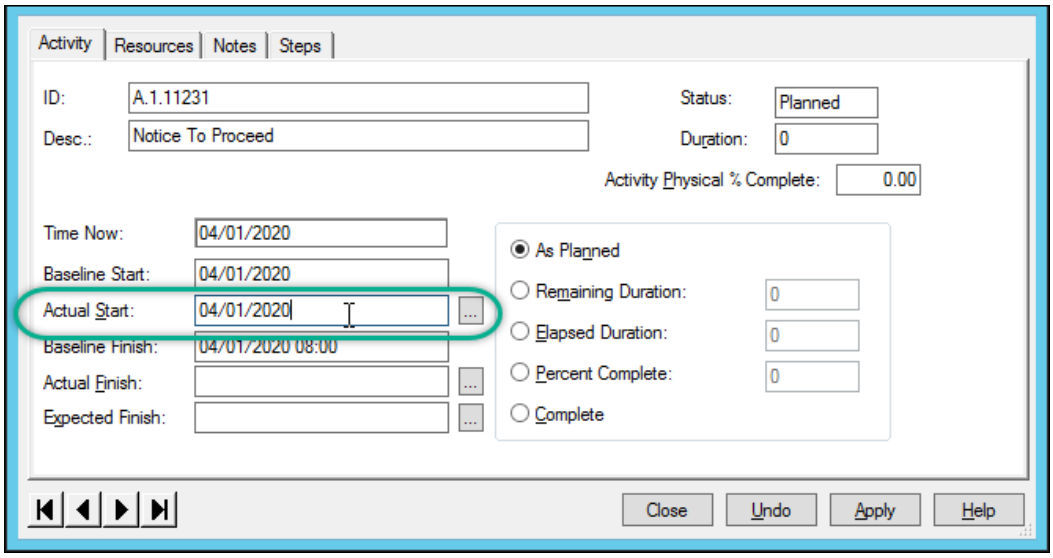
2. Select the **Notice To Proceed** activity.



3. Click on the **Edit** ribbon's **Progress** button in the **Dialogs** tool group.



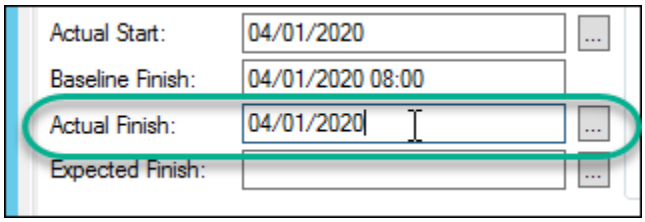
4. In the **Actual Start** field, enter **4/1/2020**.



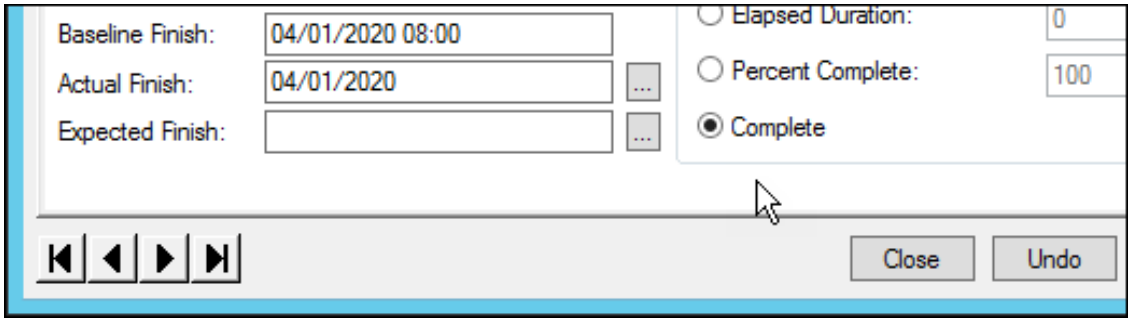
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5. Enter the same date in the **Actual Finish** field.

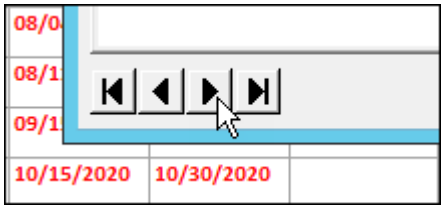


6. When you click out of the **Actual Finish** field, you will see the **Complete** radio button activated.



7. Click **Apply**.

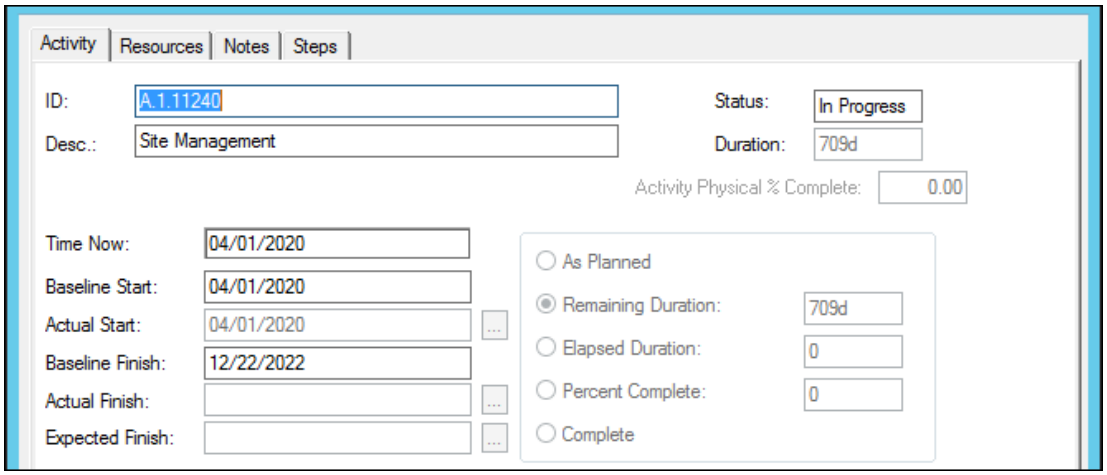
8. Click the **Next Record** button (bottom, left).



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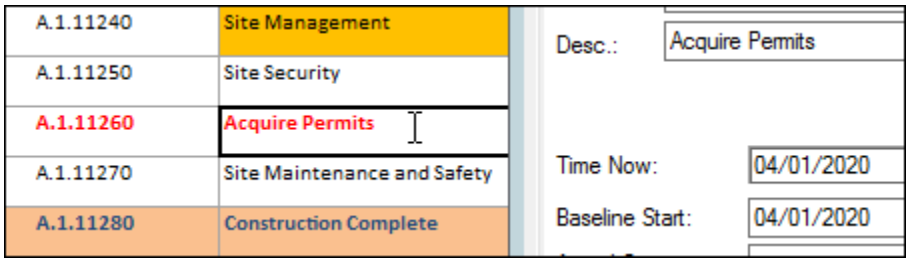
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9. Note the status of the **Site Management** activity.



This activity is a hammock and you will notice has inherited the Actual Start date from the Notice To Proceed milestone. It also shows a status of 'In Progress', and the Remaining Duration radio button is selected but inactive. You cannot enter status for a hammock directly.

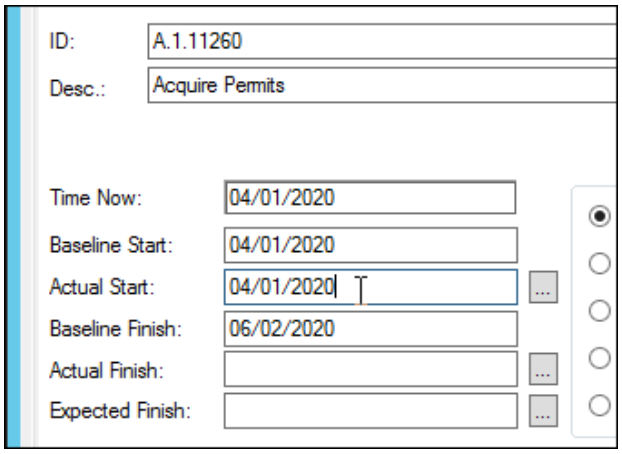
10. In the table area behind the **Activity Progress** dialog, click on the **Acquire Permits** activity.



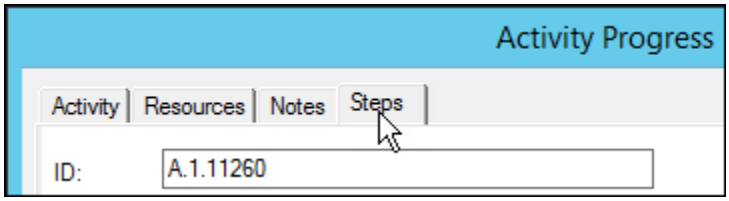
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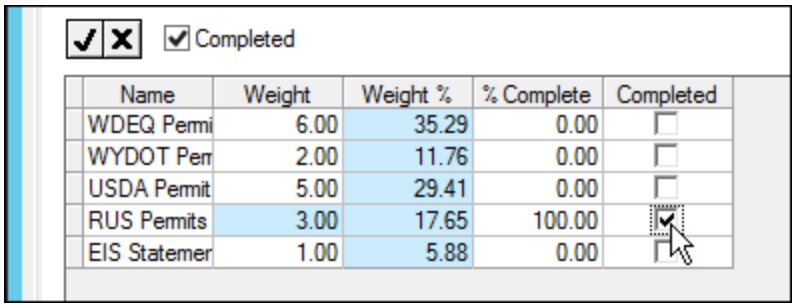
11. Enter an **Actual Start** date of **4/1/2020**.



12. Click on the **Steps** tab.

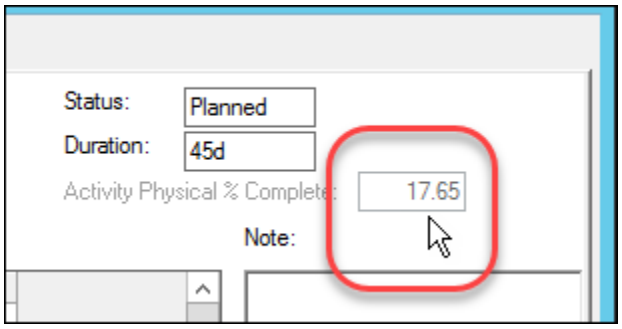


13. The **RUS** permit is in, so check that step as **Completed**.



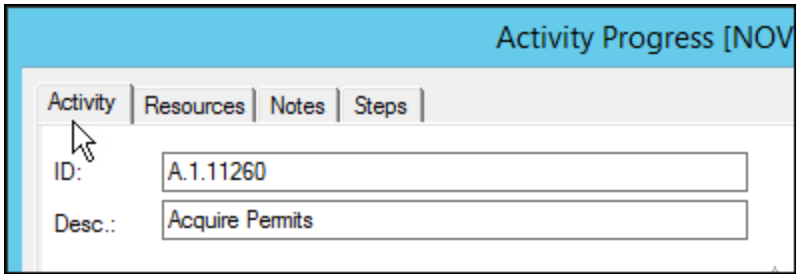
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14. Note that upon checking this box, the Step has earned its **17.65%** progress for the activity.



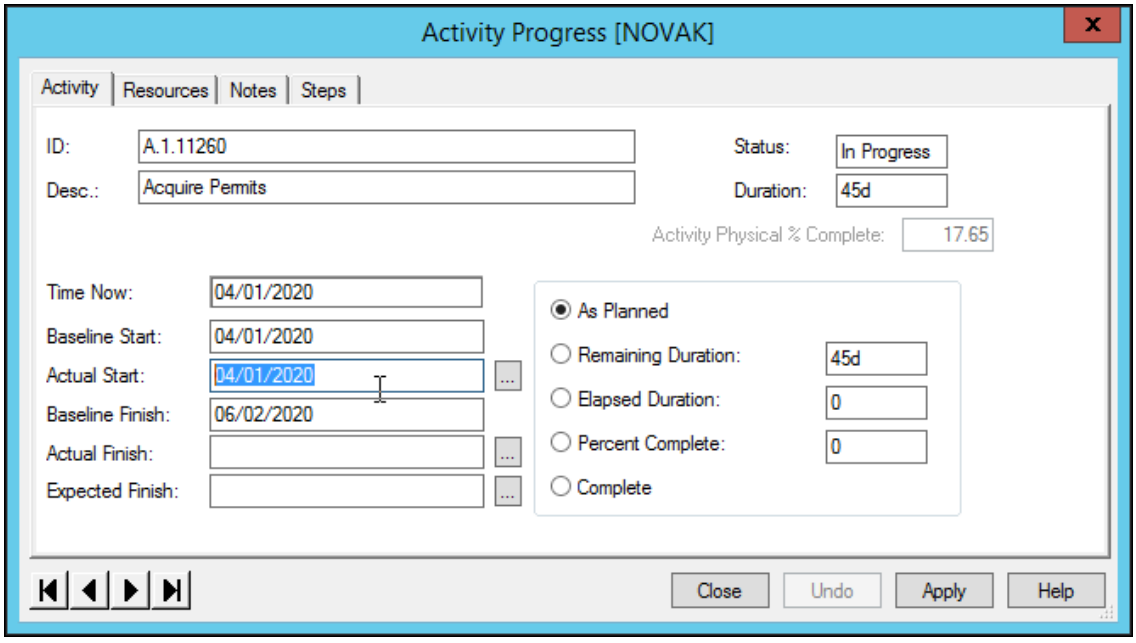
15. Click **Apply**.

16. Click on the **Activity** tab once more.



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17. Now take a look at what's going on with the activity's progress status.



Remember, at the moment we have not moved the status date forward to the beginning of the next week. The dialog has therefore not calculated the remaining, elapsed or Percent Complete fields.

The Activity Physical % Complete field has registered the 17.65% through the completion of one of the activity Steps.

The Actual Start date was manually entered and will not change.

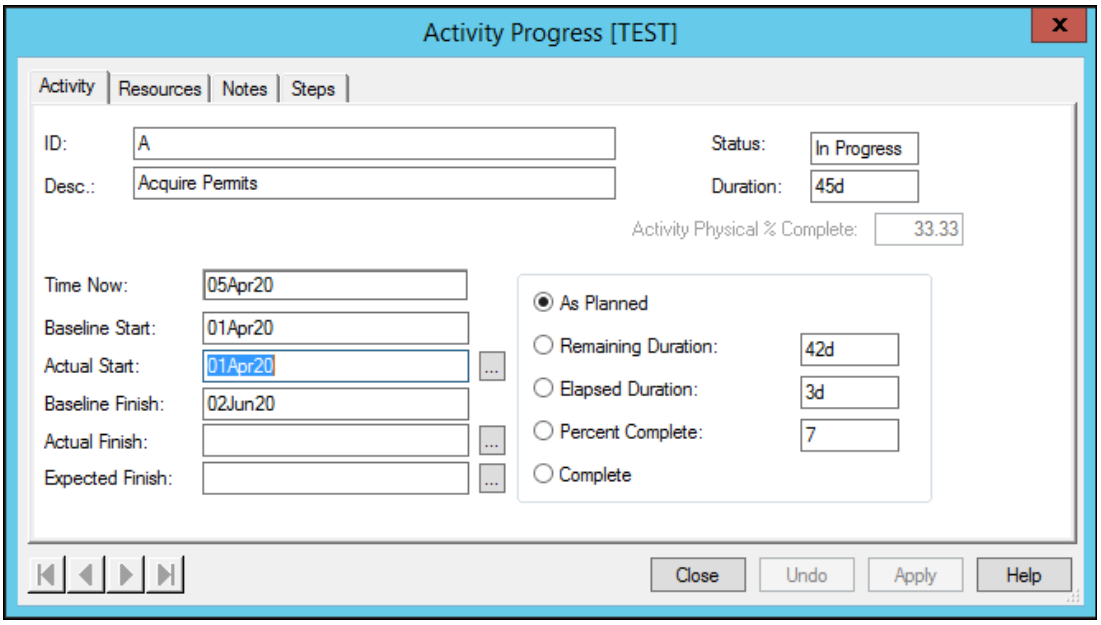
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9.6 Expected Finish: Explained

If you have been given an adjusted date for the finish of the activity, you can enter this in the Expected Finish field. This will influence the values Open Plan calculates for the Remaining, Elapsed, and Percent Complete fields.

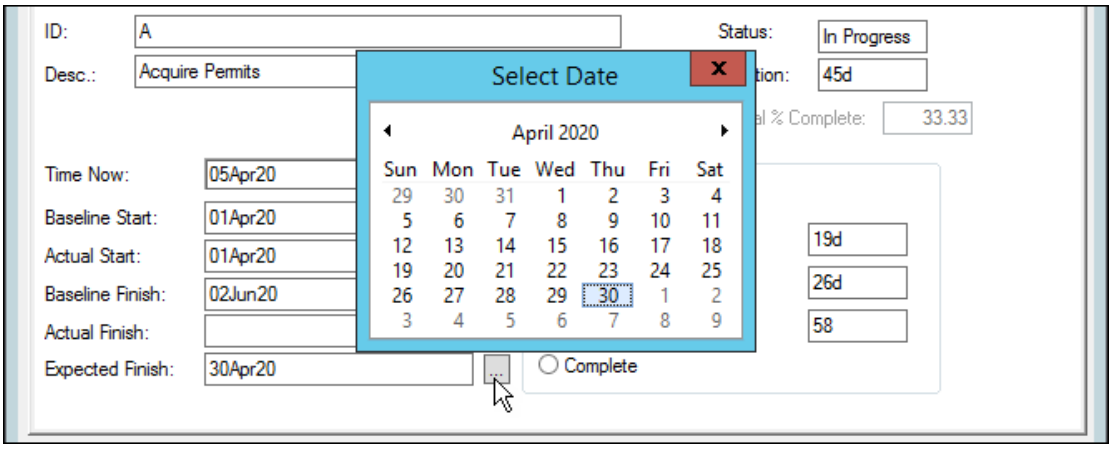
In this example, the Time Now Date has been moved to the start of the following week (8AM Sunday), and the schedule has been time analyzed.



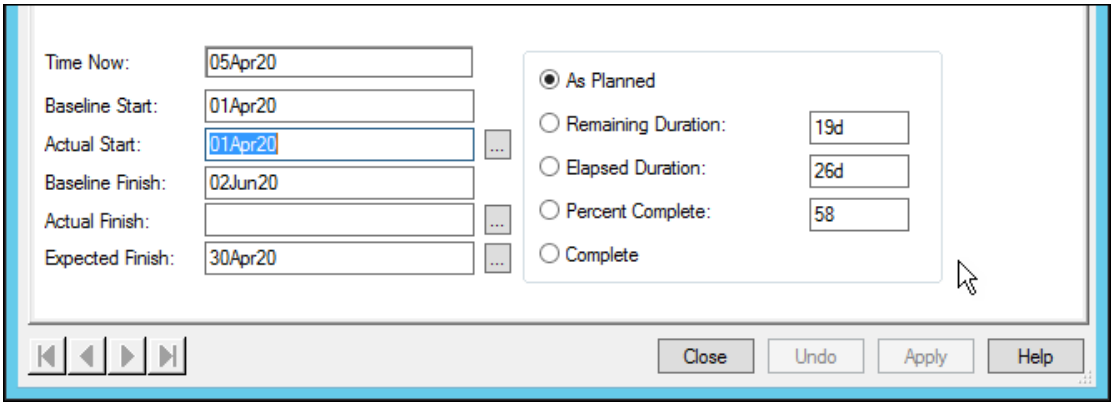
We can see that 3 days have elapsed and we have a remaining duration of 42 days. This is based upon the Baseline Finish date.

However, imagine we've been notified that both the remaining permits will arrive on or before April 30th, 2020. Let's enter that as an Expected Finish date, and time analyze the schedule.

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After Time Analysis, you can see a much improved remaining duration, elapsed duration, and percent complete. There is more progress forecasted than the Step provides for. If the permits come in as promised, this 'critical' activity will get an early jump on the grading.



Based upon the Expected Finish date, we have earned 58% Complete, progressed 26 days in just 3 days, and have only 19 days to go before the permits arrive.

The Expected Finish date is a full month earlier than planned when compared to the Baseline Finish of Jun 2nd, 2020.

Open Plan ignores an expected finish date that is on or later than Time Now if any of the following conditions exist:

- If the remaining duration is 0
- If the elapsed duration is equal or greater than the original duration
- If the percent complete is 100%
- If the Complete option is selected
- If an actual finish date is entered

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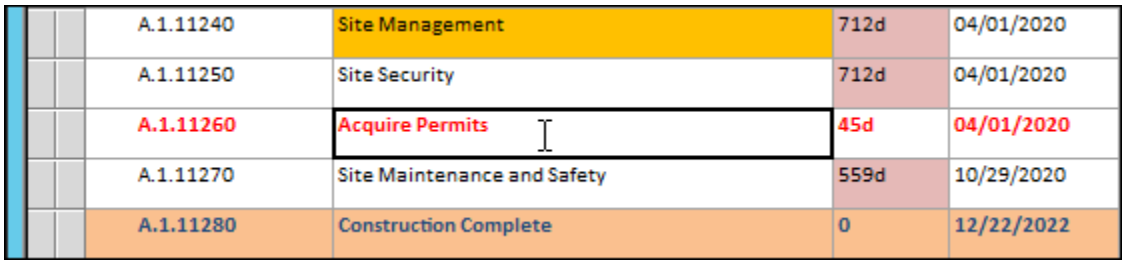
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9.6.1 Activity: Entering an Expected Finish Date

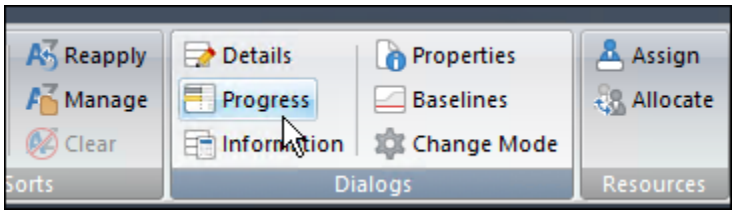
Returning to our NOVAK schedule, we have indeed received news that all our permits will be approved on or before April 30th, 2020. Great news. This is a critical activity that is holding up all on-site mobilization, clearing, and grading activities.

We will use the Expected Finish date to calculate the impact of that date on the entire schedule.

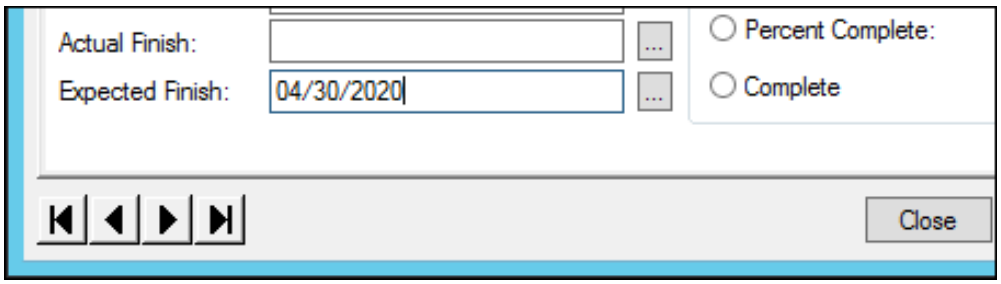
1. In the **Activity Progress Barchart View**, click on the **Acquire Permits** activity.



2. Click on the **Progress** button.



3. In the **Activity** tab, enter **04/30/2020** in the **Expected Finish** date field.



4. Click **Close**.

5. Click **Save**.

We will return to this activity later in the lesson, at which time we will see how this date has affected the entire project.

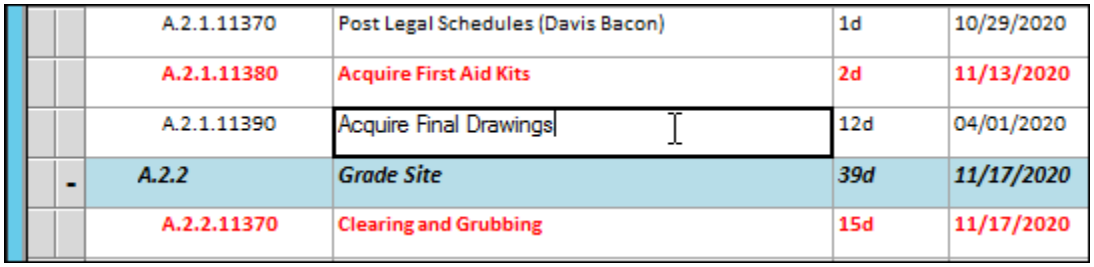
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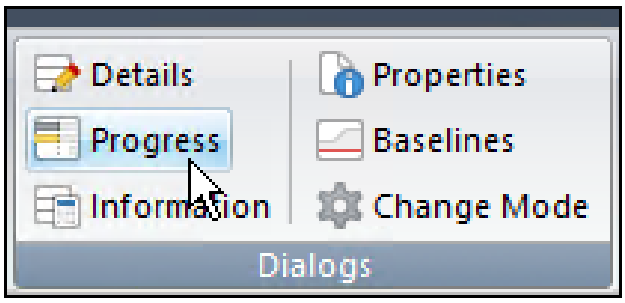
9.6.2 Activity: Entering Activity Updates

We will continue now with our activity updates.

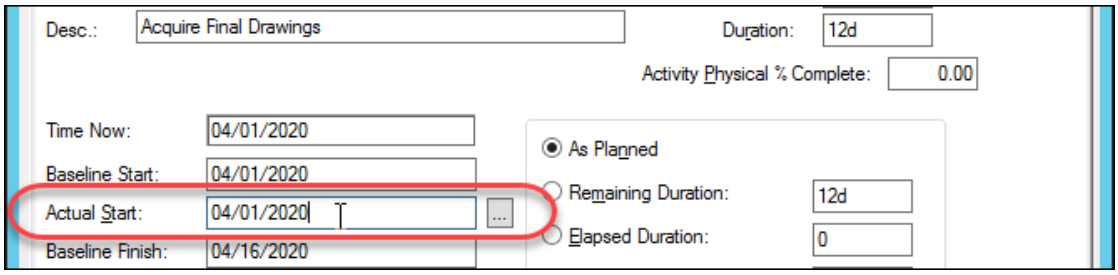
1. Select the **A.2.1.11390 - Acquire Final Drawings** activity.



2. In the **Edit** ribbon, click on the **Progress** button.



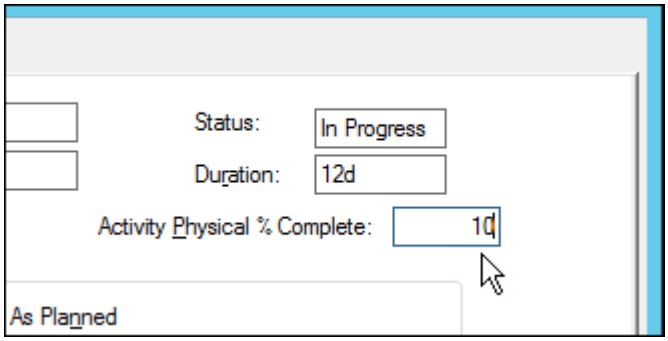
3. In the **Activity Progress** dialog, enter **4/1/2020**.



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4. 1 of the 10 expected drawings is in, so now enter **10%** in the **Activity Physical % Complete**: field.



5. Click **Apply**.

6. Click **Close**.

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9.7 Advancing the Time Now Date

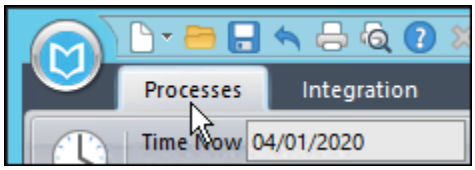
The Open Plan Time Now Date is the date from which all forward and backward pass calculations are based. It divides actual dates from planned dates and remaining duration. To properly progress the project, we advance the Time Now date and recalculate, having first entered all the progress we can report for the activities.

For the activities that have status entered, you cannot yet see the impact in the barchart. In the following exercise, you will move the Time Now date forward to the start of the following week, and then time analyze the schedule. At this point, the activities that have status will show updated remaining and elapsed duration, and a percent complete value too.

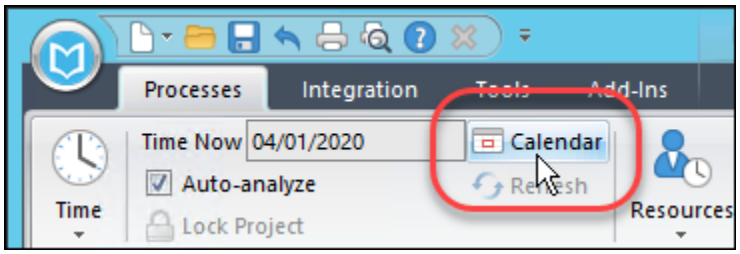
Based upon everything Open Plan understands about the activity status, it has recalculated the likely early and late dates. If this has pushed out any critical end dates, you will immediately see the impact on the project's current finish date.

9.7.1 Activity: Moving the Time Now Date

1. Click on the **Processes** tab.



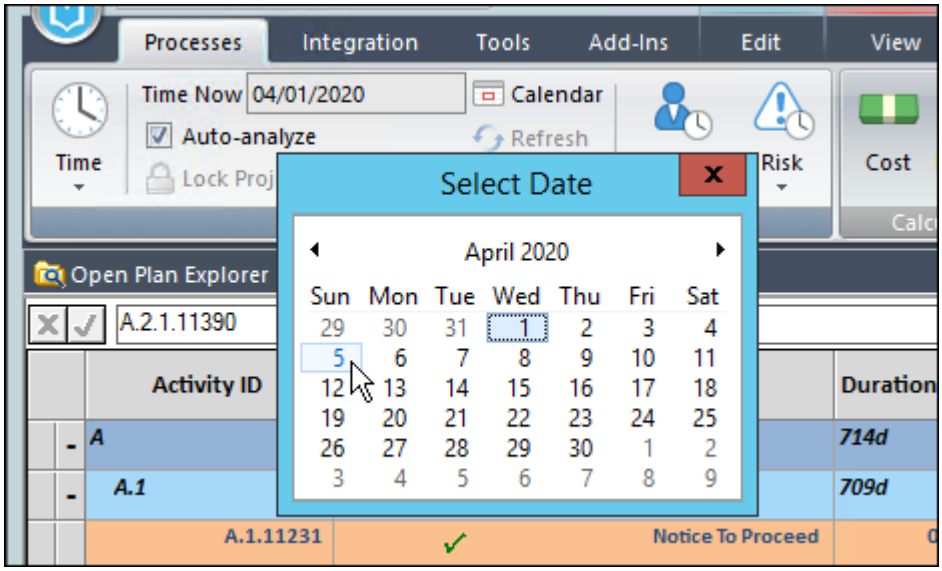
2. Click on the **Calendar** button.



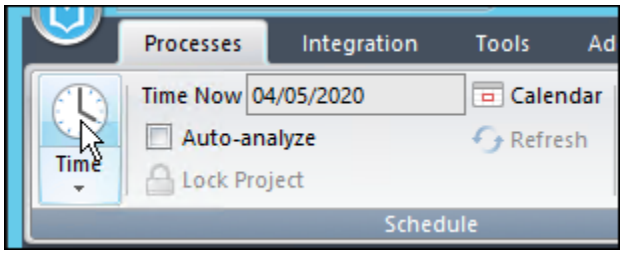
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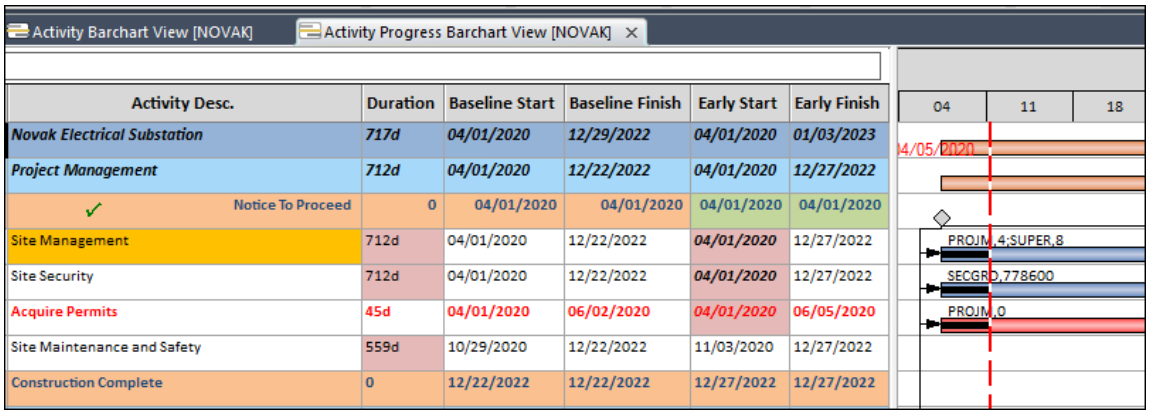
3. Select **Sunday, April 5th, 2020** as the start of the following status period.



4. Click the **Time** button.



5. Now review the status of activities in the **Activity Progress Barchart View**.



Congratulations, you just progressed your first week on the project.

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9.8 Out of Sequence Progress

Stuff happens – often out of sequence. Something gets held up by, say, material delivery issues and now we have a team standing idle? Rather, the team are re-tasked with whatever can be progressed (contrary to the baseline), hopefully mitigating other impacts downstream.

Out of sequence progress isn't a problem in itself, unless there are very high occurrences. High occurrence could suggest a need to improve the activity relationships to reflect the sequence of work more closely. But some out of sequence processing is to be expected, even in the best-built schedules.

For this next exercise, let's imagine that we've been statusing the project weekly and we're now at week ending May 9th, 2020.

9.8.1 Activity: May Status Entry

1. Make a backup of your project to a **.BK3** file using the file name:

   2020-04-05_NOVAK_STATUS.BK3

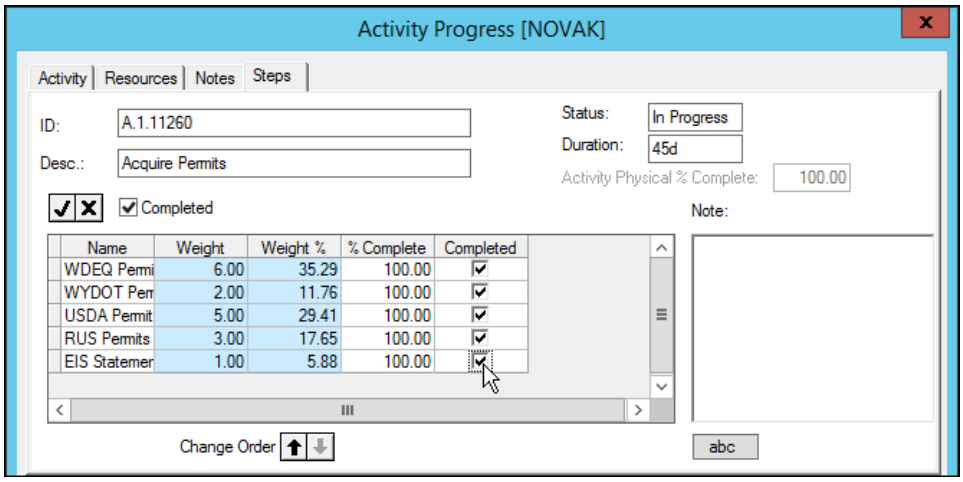
2. Using the skills you have gained so far, enter the following progress for the activities in the table below.

Activity ID	Name	Phys. % Comp.	% Complete	Rem. Dur.	Actual Start	Actual Finish	Expected Finish
A.1.11260	*Acquire Permits	100%	100%	0	4/1/2020	4/28/2020	4/30/2020
A.2.1.11290	Move on Heavy Equipment	22%			5/3/2020		
A.2.1.11390	Acquire Final Drawings	100%	100%	0	4/1/2020	4/20/2020	

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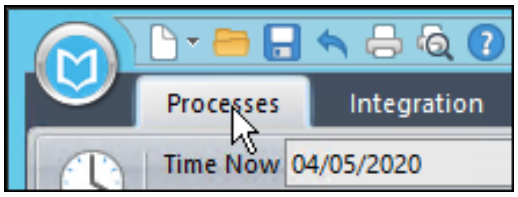
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*for Acquire Permits, complete the remaining steps to get 100% for Activity Physical % Complete.



3. Click **Save**.

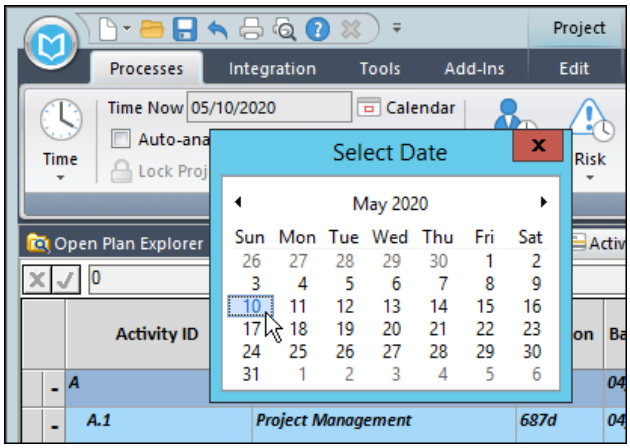
4. Click on **Processes**.



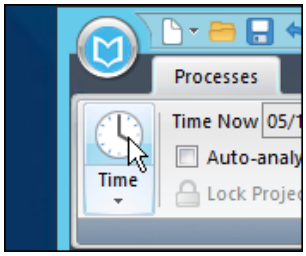
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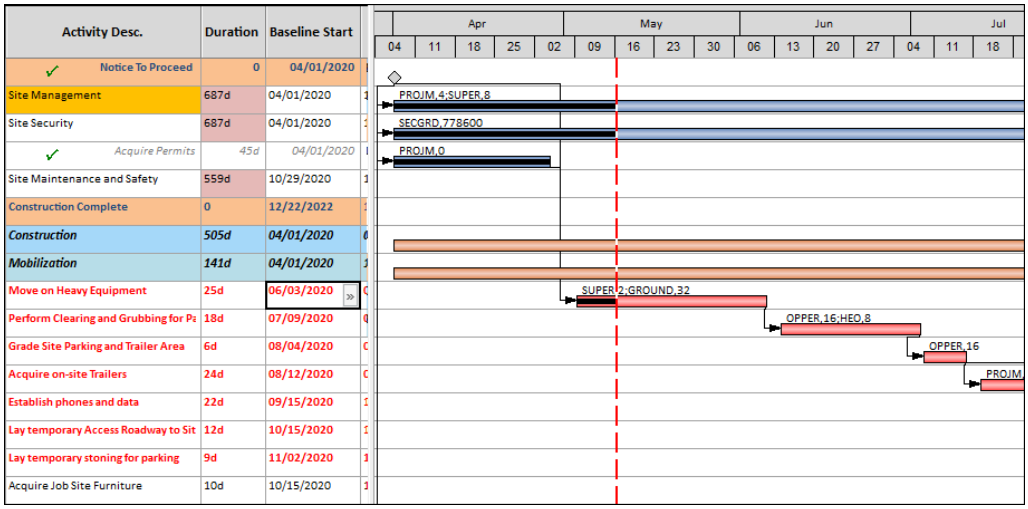
5. Click on the **Time Now:** calendar button and set the date to **May 10th, 2020**.



6. If you're not using the **Auto-analyze** option, click the **Time button** to analyze the schedule.



7. Review the schedule.



After just 5 weeks, we are ahead of schedule.

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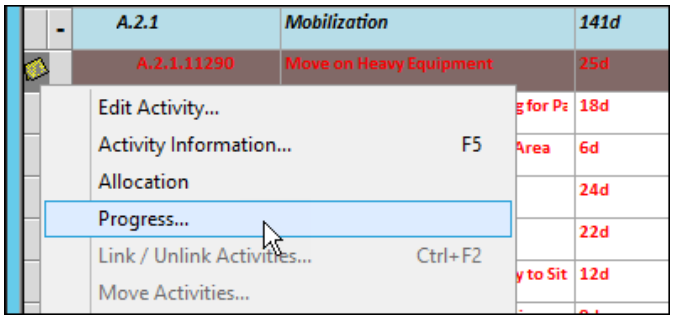
9.8.2 Activity: Entering an Out of Sequence Start

It is now Monday, May 18th, 2020 and the schedule needs to be statused for the week ending May 16th.

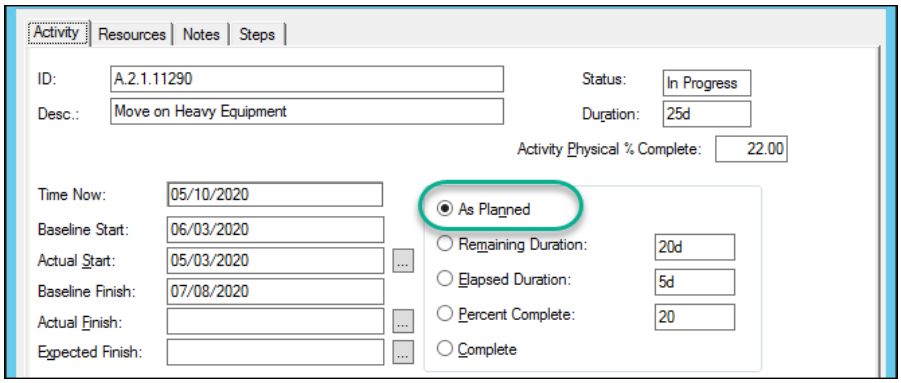
After just one week of **Mobilization**, the **Move on Heavy Equipment** activity had delivered enough equipment on site to start the **Perform Clearing and Grubbing for Parking and Trailer Area** activity.

The Site Superintendent instructed that work to start on clearing and grubbing immediately, rather than wait for the remaining equipment. This brings us to our first out of sequence status entry.

1. In the **Activity Progress Barchart View**, right-click on the outer row header for the **Move on Heavy Equipment** activity and select the **Progress…** option.



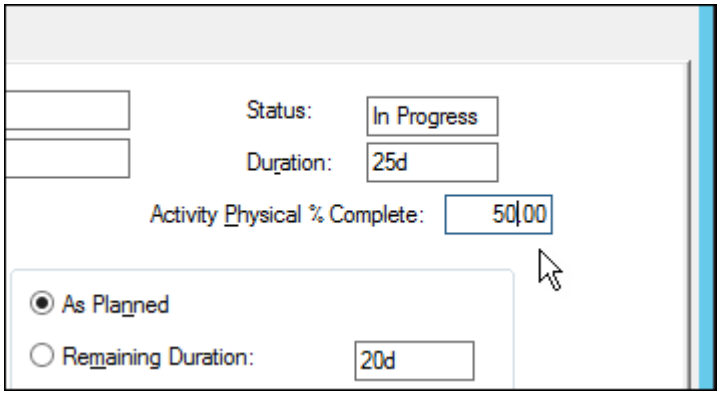
2. Let's review the **Activity Progress** settings for the **Move on Heavy Equipment** activity.



This activity is proceeding as planned, so we don't need to adjust any values other than Activity Physical % Complete. As we now have about half the heavy equipment on site, well update that to 50%. The remaining and elapsed durations, and the Percent complete will automatically be calculated when we move the Time Now date.

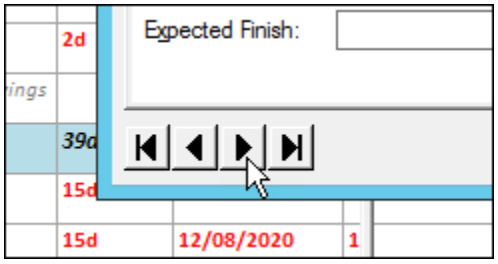
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3. Enter the revised **Activity Physical % Complete** value of **50%**.

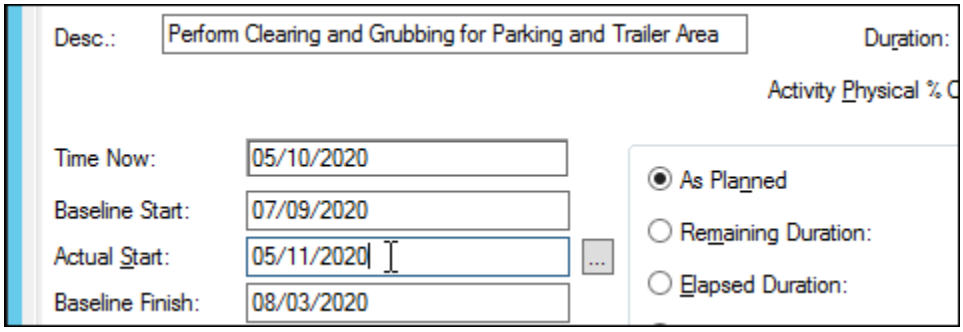


4. Click **Apply**.

5. Click the **Next Record** arrow button.



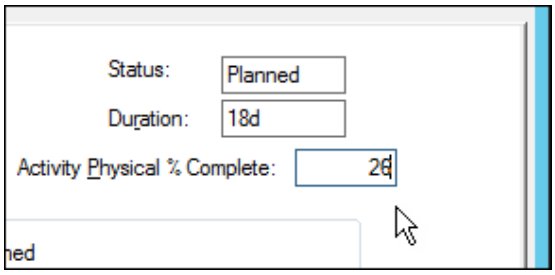
6. For activity **A.2.1.11300 – Perform Clearing and Grubbing**, work started on Monday, May 11th so enter **05/11/2020** in the **Actual Start:** field.



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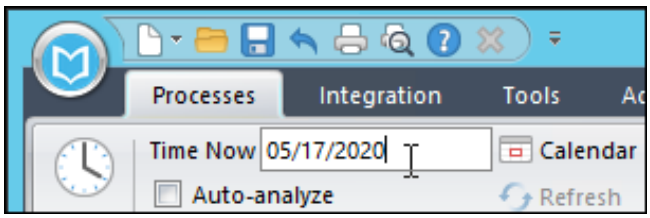
7. Now enter **26%** in the **Physical % Complete** field.



8. Click **Apply**.

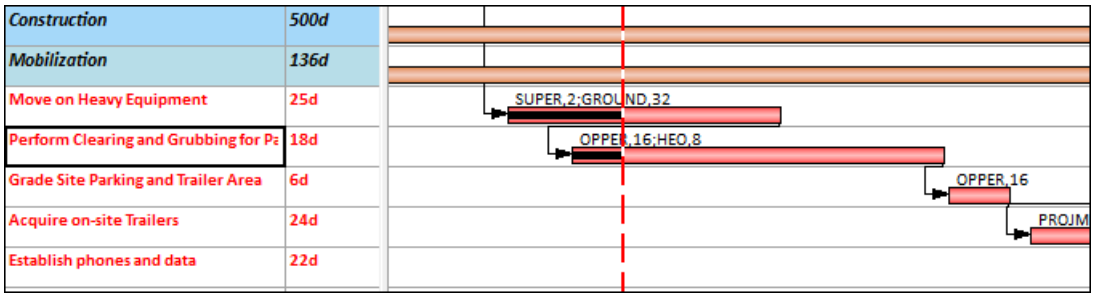
9. Click **Close**.

10. In the **Processes** ribbon, set the **Time Now** date to **5/17/2020**.



11. Click **Time** to recalculate the schedule.

12. Review the positive impact this change in sequence has had on the project.



With these early activities being on the critical path, accelerating the start of the clearing and grubbing work has brought forward the end date of the project.

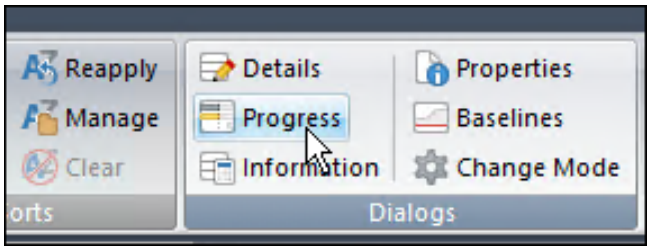
Let's now look at the Clearing and Grubbing activity's progress calculations.

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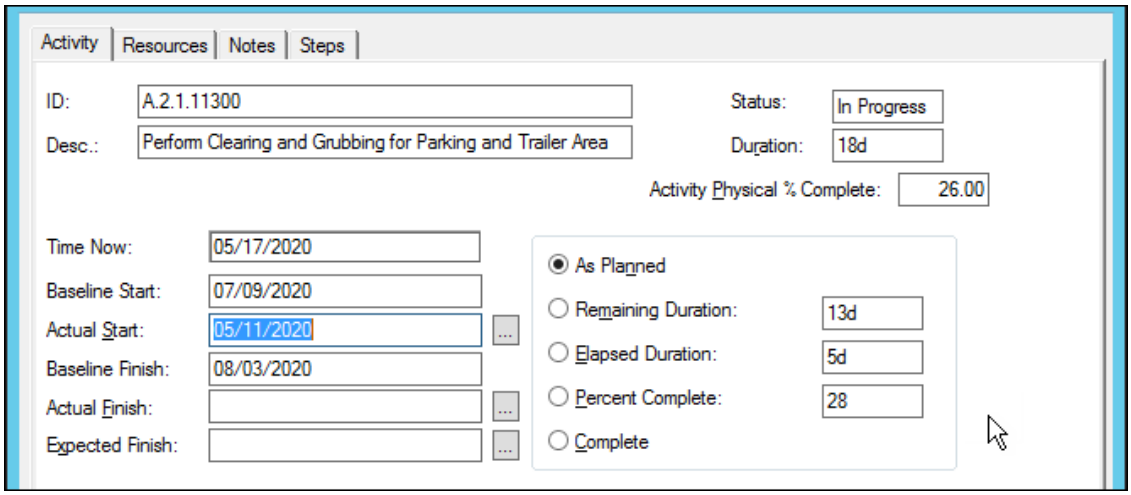
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13. Select the **A.2.1.11300 - Perform Clearing and Grubbing…** activity.

14. Click on the **Progress** button in the **Edit** ribbon.



15. Review the values calculated in the Remaining and Elapsed duration fields and the calculated Percent complete.



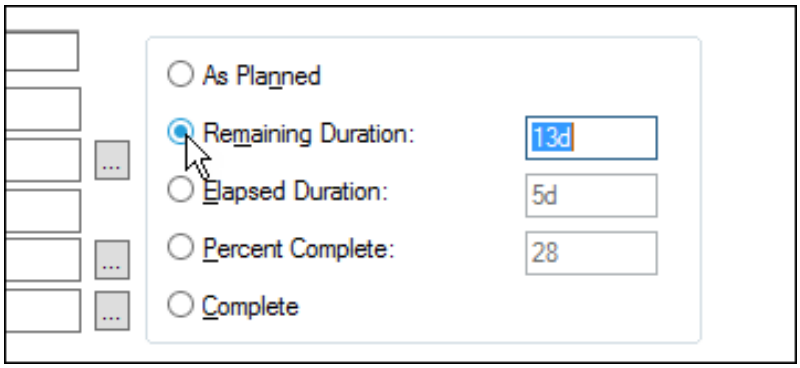
With the **As Planned** option selected, Open Plan is progressing the activity based upon elapsed duration. It's simply subtracted 5 days elapsed time from the 18 day duration, leaving 13 days remaining, and a calculated Percent Complete of 28%.

You can override any of these three values by clicking on their respective radio buttons and entering a different number. Changing any one of these three values causes the other two values to recalculate.

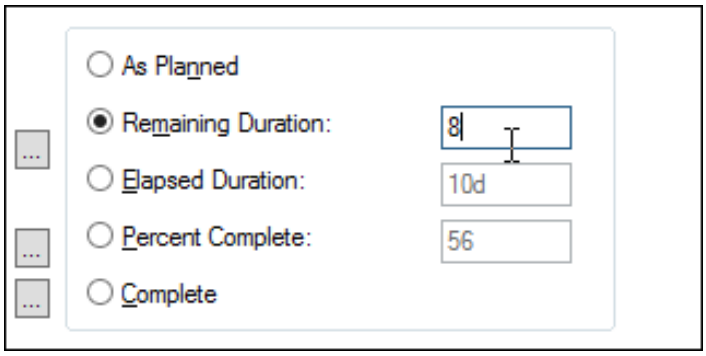
For example, the Site Super has told you that it will take only 8 more days to complete the clearing and grubbing work, as he estimates they are at least 60% through the work. Therefore we will modify the activity to reflect a remaining duration of 8 days.

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16. Click on the **Remaining Duration** radio button.

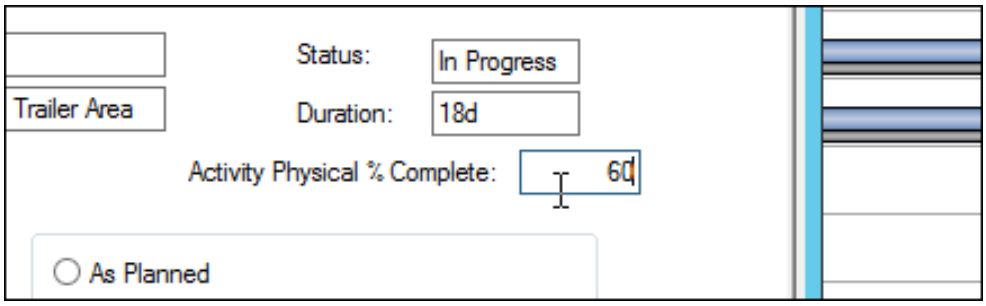


17. Enter **8** in the **Remaining Duration** field.



This change has altered the **Elapsed Duration** to 10 days and pushed the **Percent Complete** up to 56%.

18. Update the **Activity Physical % Complete** field to the reported **60%**.



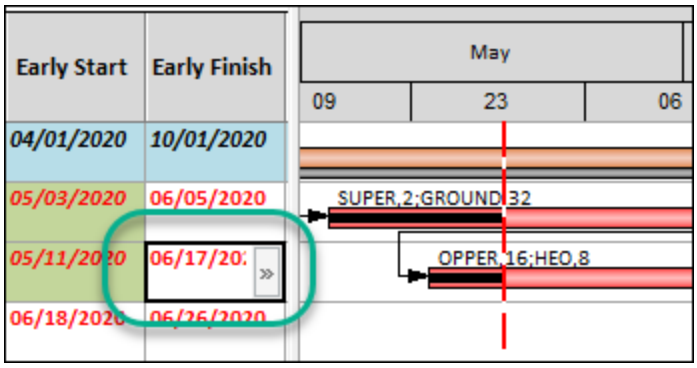
19. Click **Apply**.

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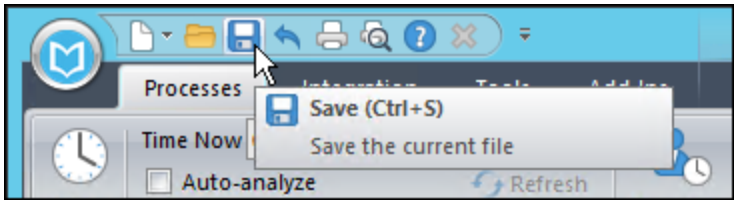
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20. Click **Close**.

21. Note the **Early Finish** date is now **06/17/2020**.

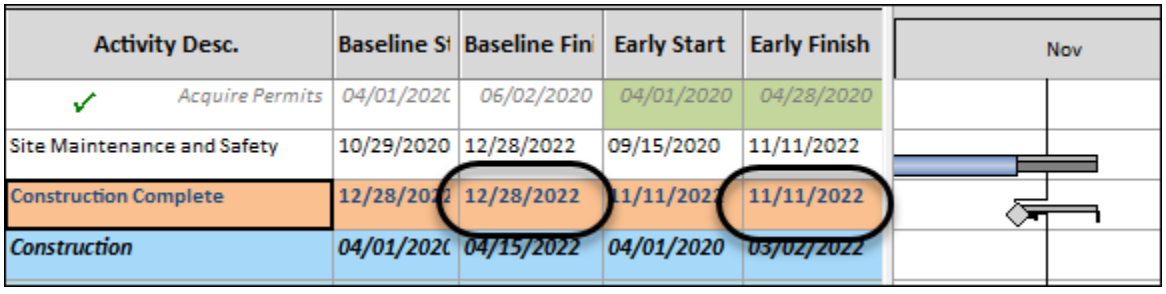


22. Click **Save**.



23. Scroll up to the **Construction Complete** milestone.

24. Note the **Baseline Finish**, and the current **Early Finish** Date.



With all these early wins, the project has changed from the baseline completion for construction date of 12/22/2022 to 11/11/2022. This out of sequence change made by the Super, and the speed of the clearing and grubbing has benefited the project by more than a month.

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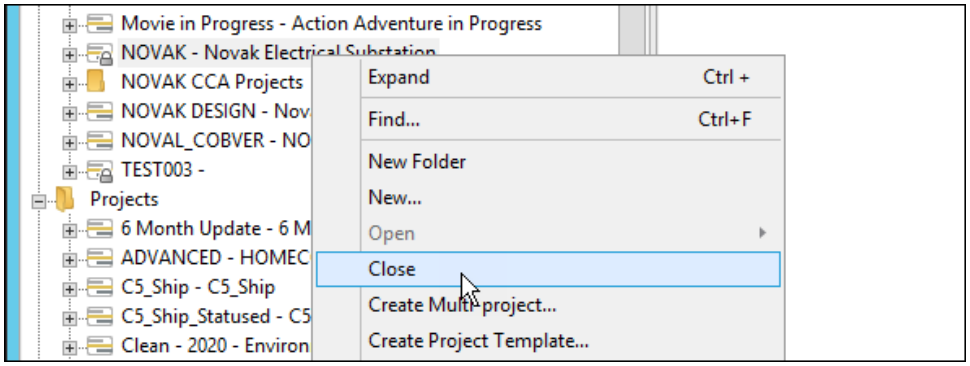
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9.9 Course Catchup

If you were unable to complete all the activities in this lesson, you can restore the final ancillary files using the following steps:

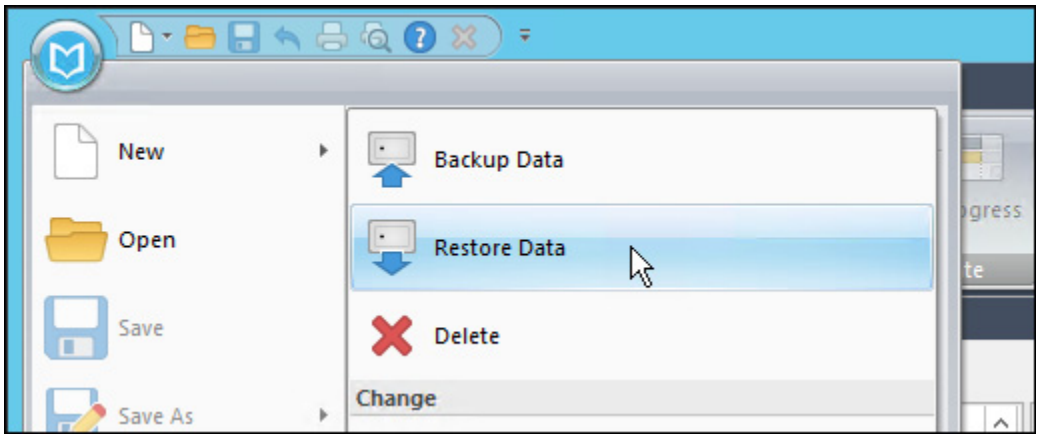
9.9.1 Activity: Course 9 – Catchup

1. Close the **NOVAK** project in the **Open Plan Explorer**.



Note: you cannot restore an open project.

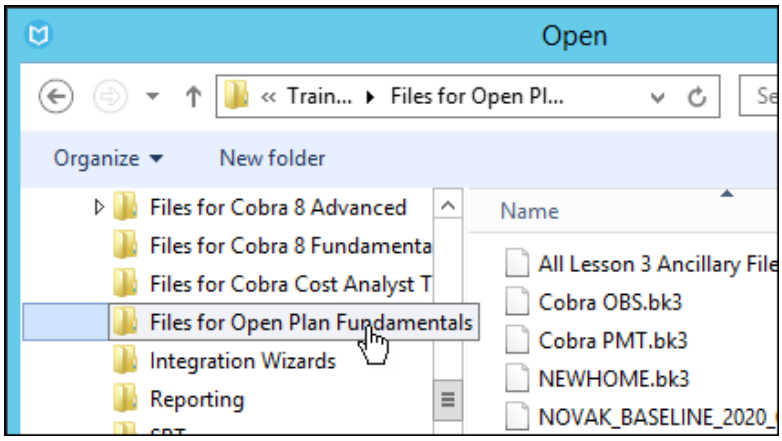
2. Click on the **File** | **Manage Files** > **Restore Data** option.



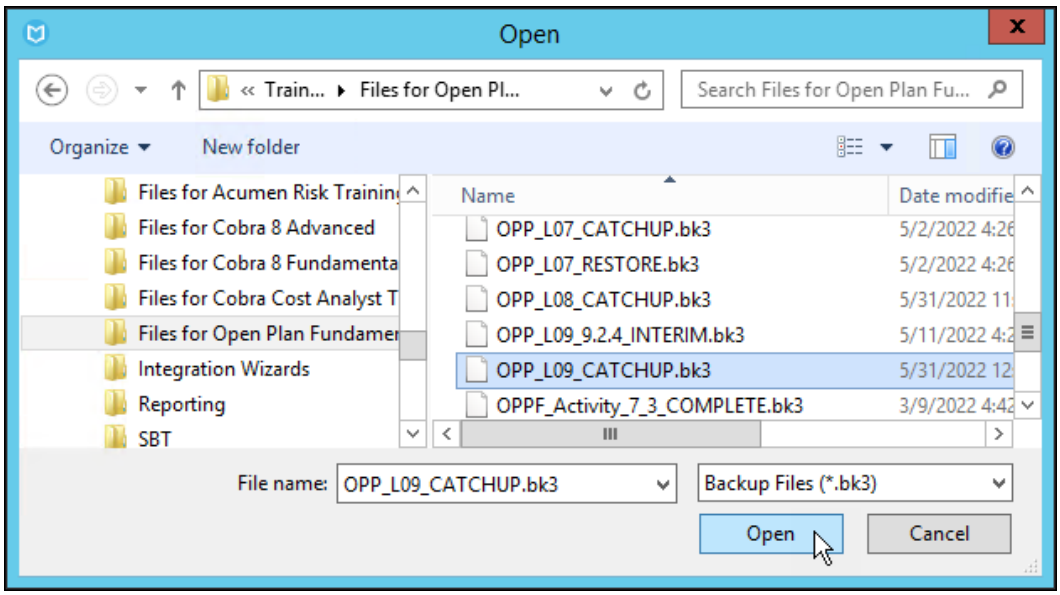
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3. In the **Open** dialog, go to **System (C:)** | **Training** | **Files for Open Plan Fundamentals**.



4. Click on the **OPP_L09_CATCHUP.bk3** file. This will restore any and all ancillary files created in this lesson.

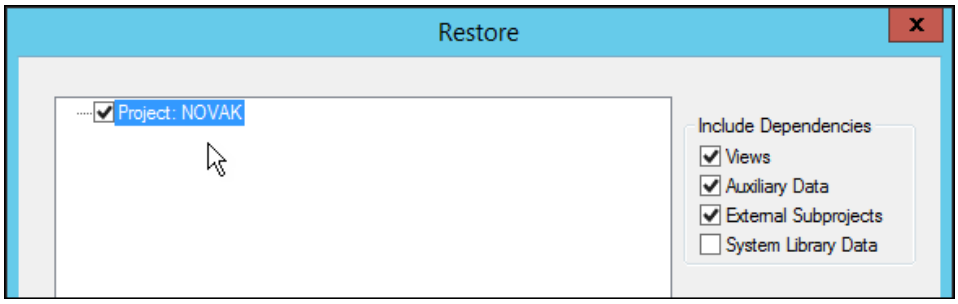


5. Click **Open**.

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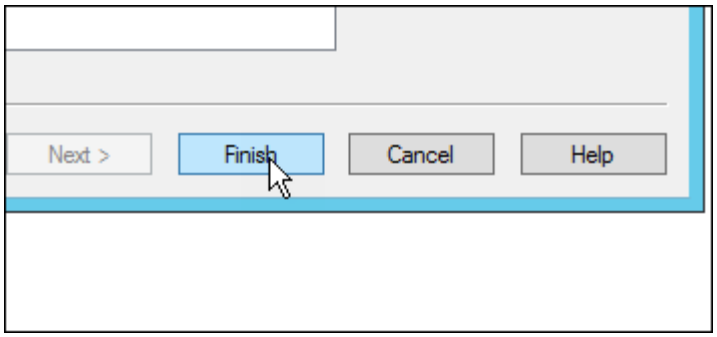
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6. In the **Restore** dialog, verify the following, and then click **Next >**.

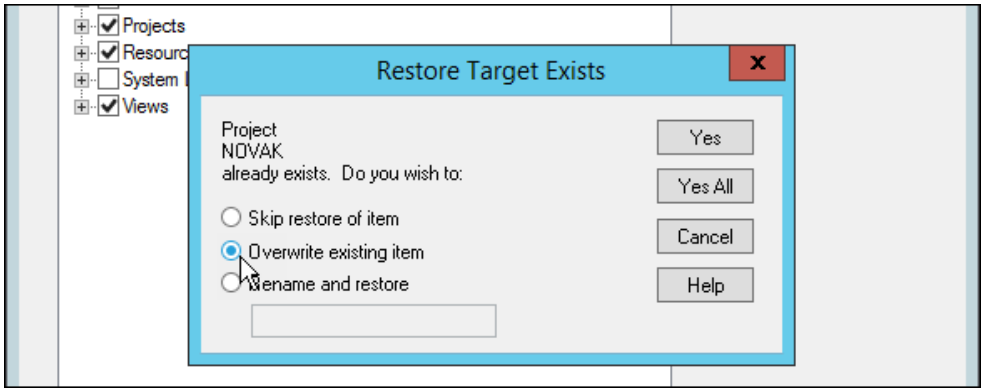


This will save additional prompts appearing during the process.

7. Click **Finish**.



8. If you see this prompt, set the '**Overwrite existing item**' option and click on the **Yes All** button, to replace all the existing project elements.

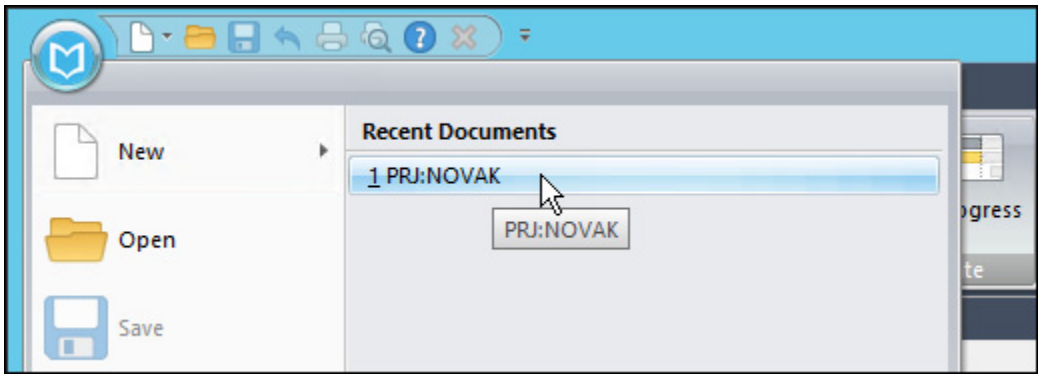


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9. Click on the **File** menu.

10. Open your restored project from the '**Recent Documents**' list in the menu.



You are now ready to continue to the next lesson.

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Open Plan Scheduler Certification Series: Reporting

Activity Guide

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Table of Contents

10.1 Course Introduction 4
10.1.1 In this Course 4
10.2 Filters 5
10.2.1 Scenario 5
10.2.2 Activity: Restoring Lesson File 6
10.2.3 Activity: Creating a Near-critical Filter 10
10.2.4 Activity: Nesting Filters 14
10.3 Outlining and Grouping 21
10.3.1 Activity: Reviewing Spreadsheet Preferences 22
10.4 Calculated Fields 28
10.4.1 Activity: Creating a Calculated Field 29
10.4.2 Activity: Creating a Variance Calculated Field 34
10.5 Controlling the Grouping 39
10.5.1 Activity: Adding a Cost Field Column to the Table 40
10.5.2 Activity: Modifying the Grouping Bands 42
10.6 Bar Sets 48
10.6.1 Criterion 50
10.6.2 Activity: Adding a Near-critical Bar 51
10.7 Time-phased Reporting 56
10.7.1 Activity: Producing Time-phased (Crosstable) Reports 57
10.8 Printing Reports 63
10.8.1 Activity: Using Print Preview 64
10.9 Title Blocks 75
10.9.1 Activity: Working with Title Blocks 76
10.10 Course Catchup 87
10.10.1 Activity: Lesson 10 – Catchup 87
10.11 Training Summary 91

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10.1 Course Introduction

Throughout this course you have been using various spreadsheet views, barcharts, and histograms that provide details of the project's data records.

As these are tremendously flexible there are a lot of details about their configuration that we have not gone into while the learning was focused on schedule development and functionality.

This lesson takes a more in-depth looks at how to modify, adjust, filter, sort, and calculate new data fields to support custom report outputs.

Again, there are questions in the Open Plan Scheduler Certification Exam about many of the details covered in this lesson.

10.1.1 In this Course

- Filters
- Outlining and Grouping
- Calculated Fields
- Editing Bar Sets
- Time-phased Crosstable Reports
- Printing Reports

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10.2 Filters

Open Plan filters provide the following:

- A way to reduce the number of activities being viewed to only those that meet the selected filter criteria.
- A way to control conditional formatting for spreadsheets.
- A way to control the appearance of activities in the barchart views (Bar Sets).
- The ability to be added as columns in tables to view details of the filter results.
- Used within the syntax of Calculated fields to control the results.
- Used to control the scope of actionable Global Edit commands.
- To control the triggers for User Validations

10.2.1 Scenario

Management would like a way to identify ‘near-critical’ activities as part of the monthly reporting process. Currently an activity is either critical [Red] (zero total float), or non-critical [Blue] with greater than zero total float.

This rather ‘Boolean’ visual indicator doesn’t warn us that there are also activities that are soon to become critical due to delays, or the addition of target dates further down the network.

Just before you start work on this filter, restore the following lesson 10 backup file.

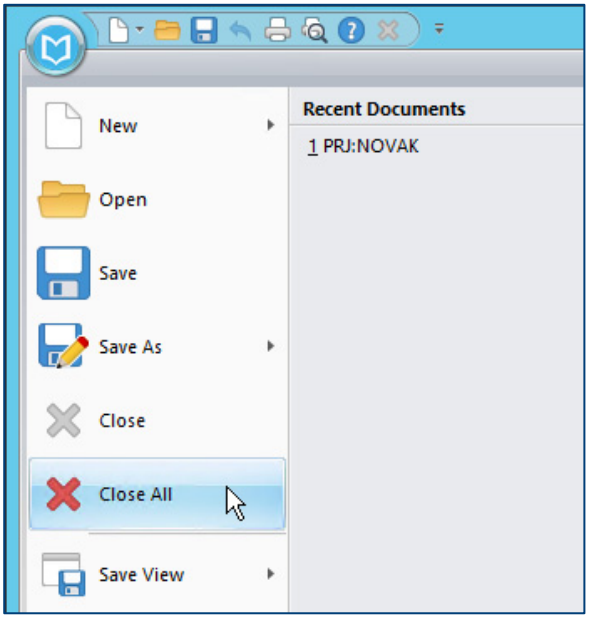
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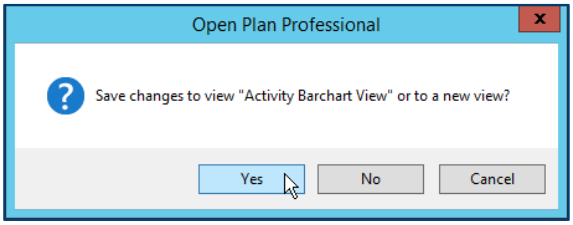
10.2.2 Activity: Restoring Lesson File

Before starting this lesson, follow these steps to restore the **L10_NOVAK_REPORTING.bk3** file. This is important if you want your results to match what you are seeing in these following lessons.

1. In the **File** menu, select **Close All**.



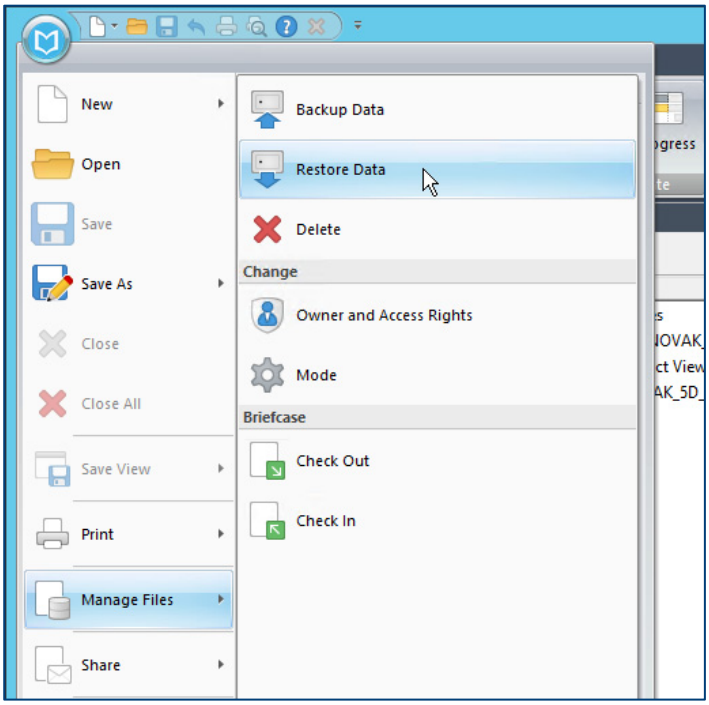
2. Click **Yes** to save any items you are prompted to save.



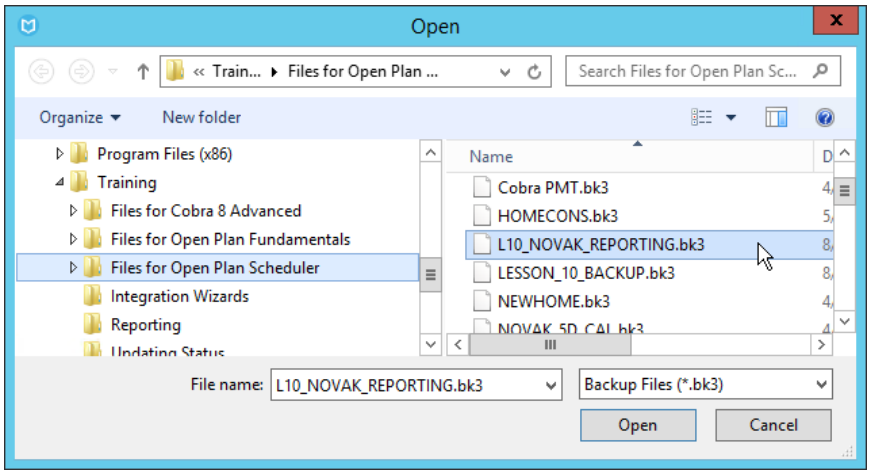
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3. In the **File** menu, select the **Manage Files > Restore Data** option.



4. In the **Open** dialog, select the **L10_NOVAK_REPORTING.bk3** file.

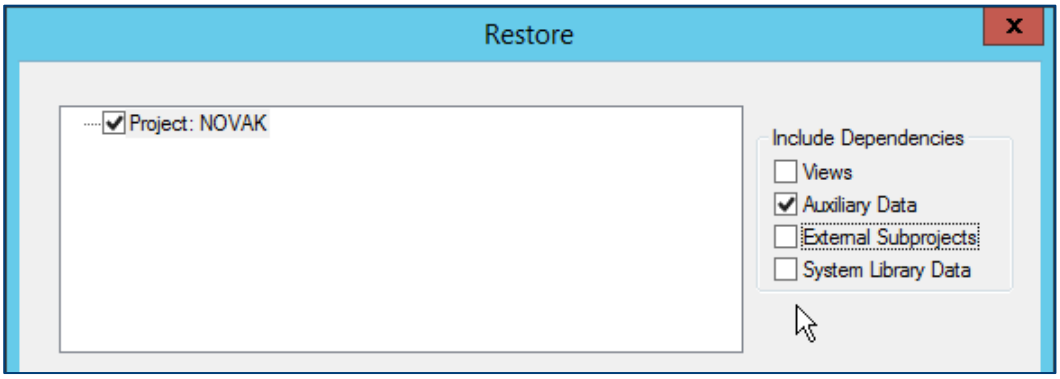


5. Click **Open**.

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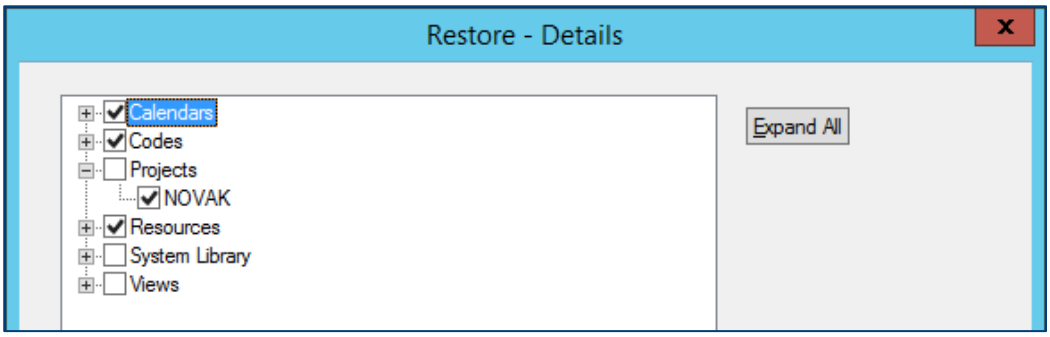
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6. In the **Restore** dialog, uncheck all but the **Auxiliary Data** options in the **Include Dependencies** list.



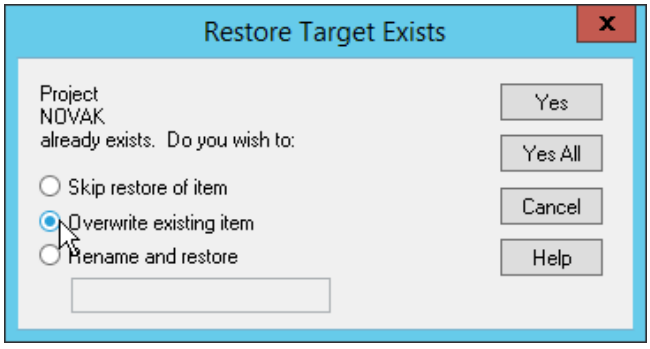
7. Click **Next >**.

8. In **Restore – Details**, verify the following items are selected.



9. Click **Finish**.

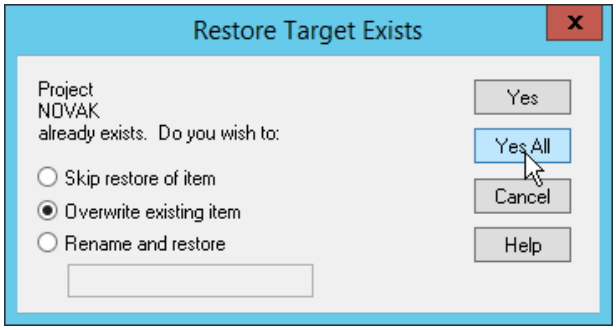
10. In the **Restore Target Exists** dialog, select the **Overwrite existing item** option.



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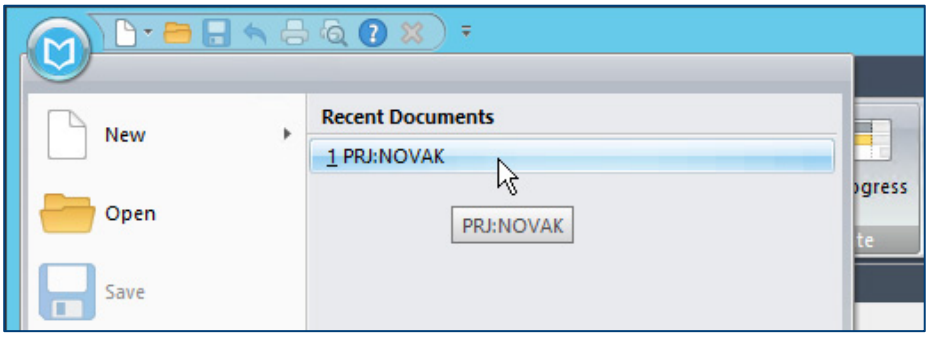
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11. Now click **Yes All**.



12. The **Restore** process will overwrite your existing **NOVAK** project with one identical to that used in these following exercises.

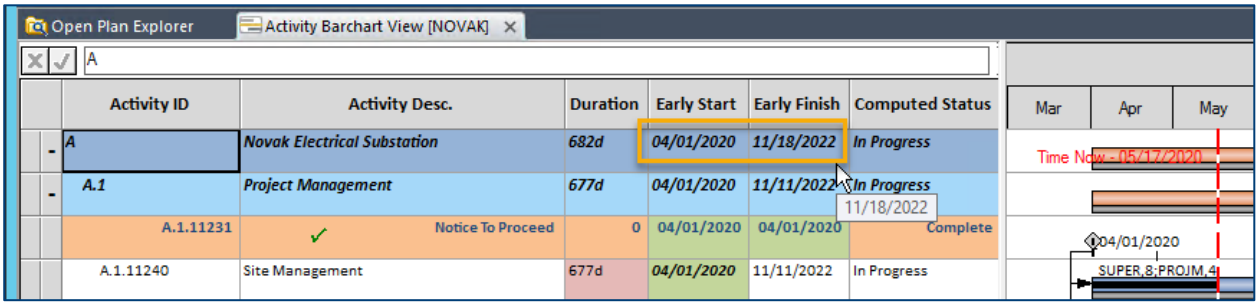
13. In the **File** menu, re-open the **Novak** project from the **Recent Documents** list.



14. Check that the **Early Start** and **Early Finish** dates for the Novak Electrical Substation project match those shown here: i.e., **4/1/2020 – 11/18/2022**.

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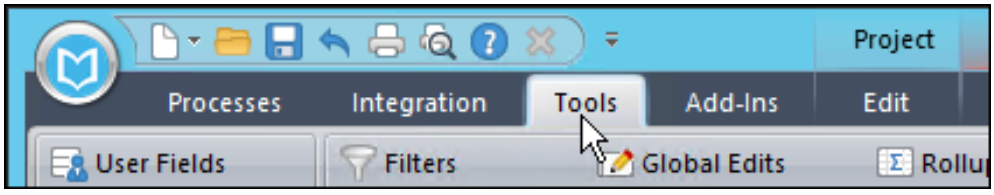
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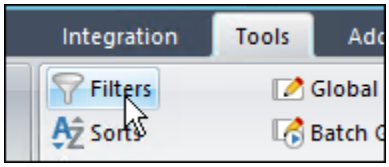
The reason we need to do this restore is to ensure that your results will be the same as those in the book when you follow these next exercises. If you have been working through this training in sequence, chances are that there are slight differences in the data. Because schedules are sensitive to all kinds of duration, relationship, resource, constraint, and countless other differences, it's nearly impossible to expect an identical outcome if you don't start from this restored version of the Novak schedule.

10.2.3 Activity: Creating a Near-critical Filter

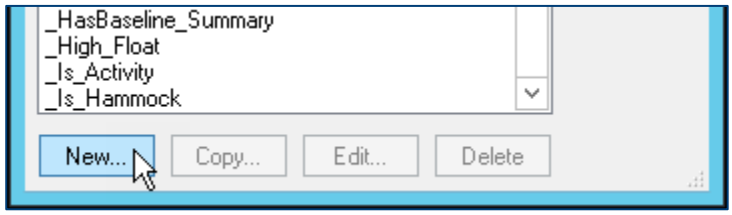
1. Click on the **Tools** tab.



2. Click the **Filters** button.



3. Click **New…**.



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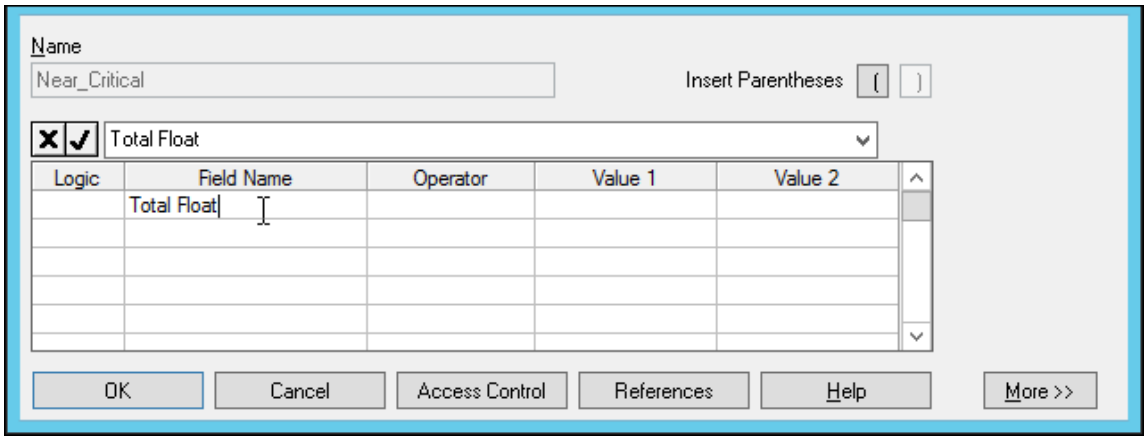
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4. Enter the **Name: Near_Critical**.

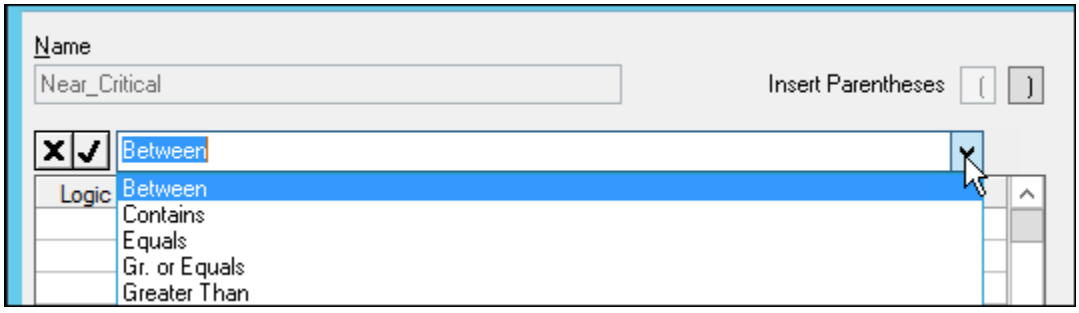


5. Click **OK**.

6. In the **Filter Expression** dialog, enter **Total Float** in the **Field Name** cell.



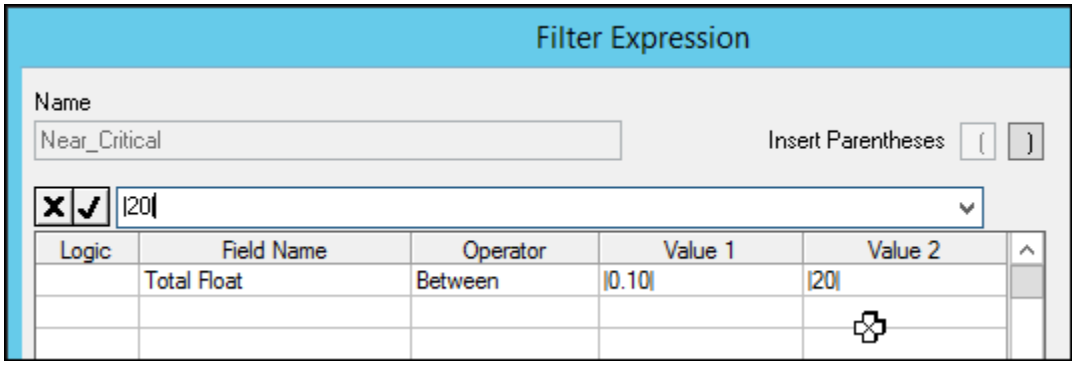
7. In **Operator** enter **Between**.



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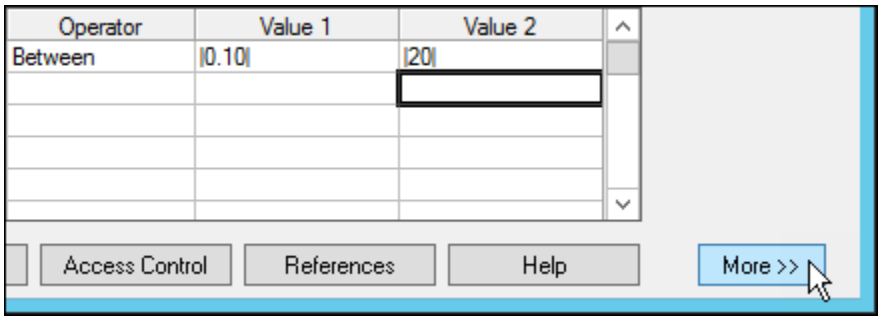
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8. In **Value 1** enter **|0.01|**, and **Value 2** enter **|20|**.

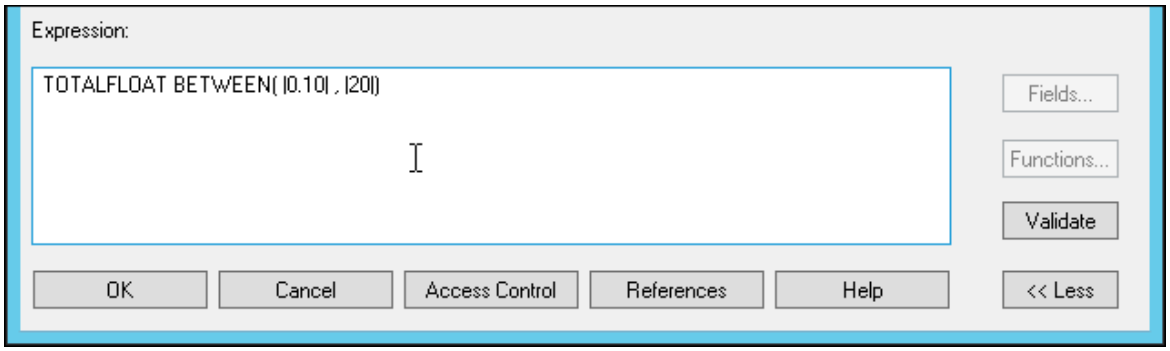


Don't forget to use the pipe '**|**' character on each side to the number values.

9. Click the **More >>** button.



10. Note the **Expression** field with your filter criteria displayed. You can use this area to type in the shorthand version of your filter.



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11. Also note that you have a **Fields…**, **Functions…** and **Validate** button to the right of the **Expression** field.

    You can use these to add more sophisticated filter criteria into the expression, and then test your syntax using the **Validate** button.

    TOTALFLOAT BETWEEN(|0.10| , |20|)

12. Click the **<< Less** button to toggle back to the expression tab.

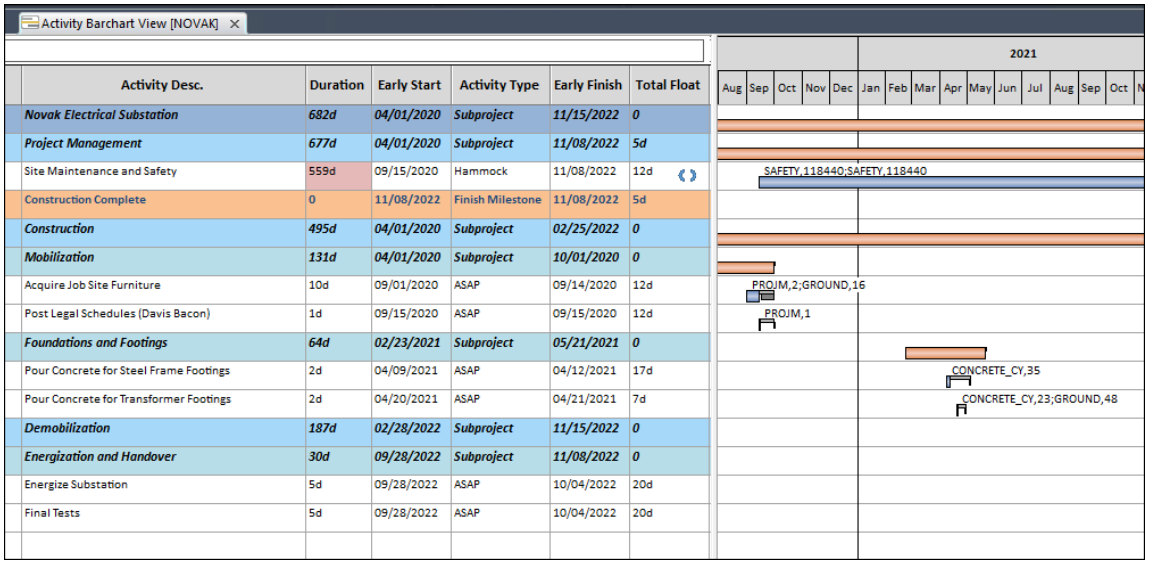
13. Click **OK**.

14. Now, to test our new filter, click **Apply**.



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15. Review the results in the **Activity Barchart View** (or similar).



Activity Desc.	Duration	Early Start	Activity Type	Early Finish	Total Float
Novak Electrical Substation	*682d*	*04/01/2020*	*Subproject*	*11/15/2022*	*0*
Project Management	*677d*	*04/01/2020*	*Subproject*	*11/08/2022*	*5d*
Site Maintenance and Safety	559d	09/15/2020	Hammock	11/08/2022	12d
Construction Complete	0	11/08/2022	Finish Milestone	11/08/2022	5d
Construction	*495d*	*04/01/2020*	*Subproject*	*02/25/2022*	*0*
Mobilization	*131d*	*04/01/2020*	*Subproject*	*10/01/2020*	*0*
Acquire Job Site Furniture	10d	09/01/2020	ASAP	09/14/2020	12d
Post Legal Schedules (Davis Bacon)	1d	09/15/2020	ASAP	09/15/2020	12d
Foundations and Footings	*64d*	*02/23/2021*	*Subproject*	*05/21/2021*	*0*
Pour Concrete for Steel Frame Footings	2d	04/09/2021	ASAP	04/12/2021	17d
Pour Concrete for Transformer Footings	2d	04/20/2021	ASAP	04/21/2021	7d
Demobilization	*187d*	*02/28/2022*	*Subproject*	*11/15/2022*	*0*
Energization and Handover	*30d*	*09/28/2022*	*Subproject*	*11/08/2022*	*0*
Energize Substation	5d	09/28/2022	ASAP	10/04/2022	20d
Final Tests	5d	09/28/2022	ASAP	10/04/2022	20d

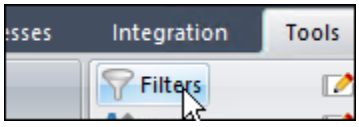
We see 7 activities that are not yet on the critical path, but are just 20 days (or less) from becoming critical.

The list includes the **A.1.11270 - Site Maintenance and Safety** hammock activity. As this is not a detail activity, let's modify our filter to exclude any activity types that are not going to impact the critical path.

To do this, we can create a separate filter that flags any activity type that could potentially be detail activities, and then nest that filter into our **Near_Critical** filter. This allows the filter to be recycled for other filters or be used standalone if required.

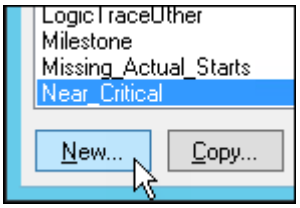
10.2.4 Activity: Nesting Filters

1. In **Tools**, click **Filters**.

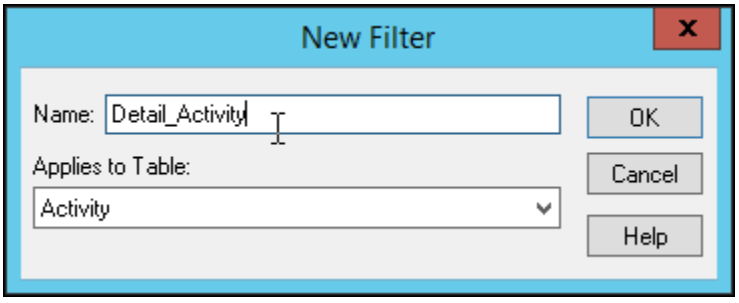


2. Click **New…**.

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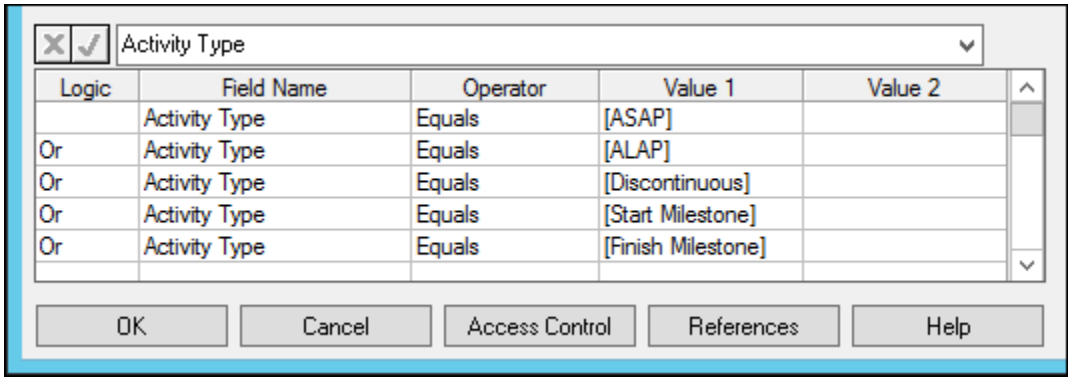


3. In the **Name:** field enter **Detail_Activity**.



4. Click **OK**.

5. Enter the following values into the filter table, or…



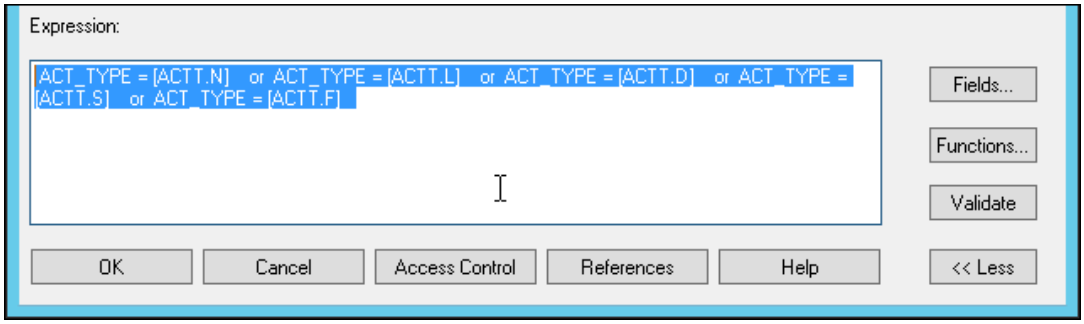
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6. If you can, copy this syntax from this document to the clipboard (**Ctrl + C**):

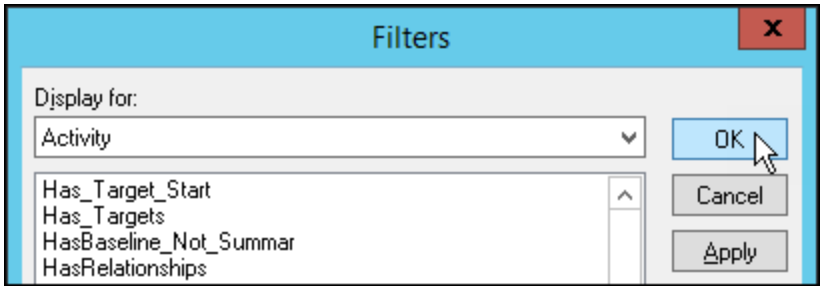
   ACT_TYPE = [ACTT.N] or ACT_TYPE = [ACTT.L] or ACT_TYPE = [ACTT.D] or ACT_TYPE = [ACTT.S] or ACT_TYPE = [ACTT.F]

   And then paste it (**Ctrl + V**) into the Expression field in the **More >>** area below.



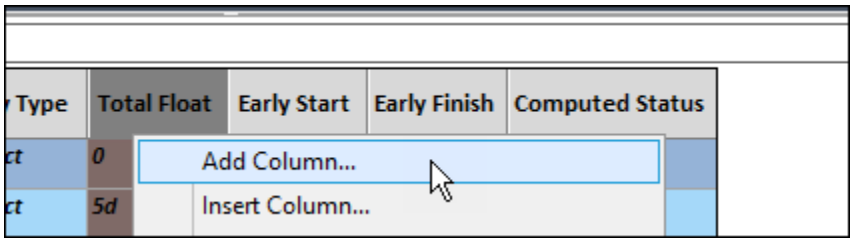
7. Click **OK**.

8. In the **Filters** dialog, click **OK**.



   We will not apply this filter just yet. There are a few more steps.

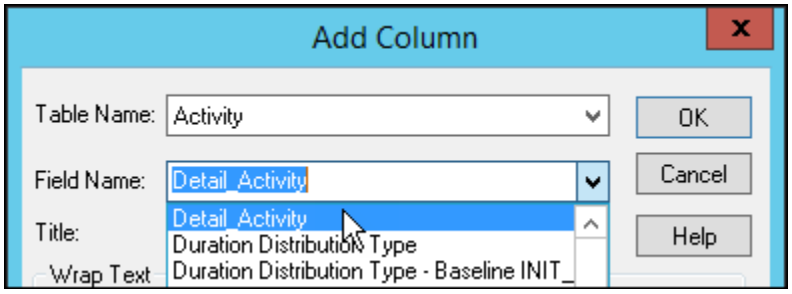
9. In the **Activity Barchart View**, use the **Add Column**… feature to add your new filter as a column in the table area.



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10. Select **Detail_Activity** in the Field Name: field.



11. Click **OK**.

12. In the **Detail_Activity** column, we see that **ASAP** and **Milestone** types are listed as '**True'** by the filter, while hammocks and subprojects are listed as '**False**'.

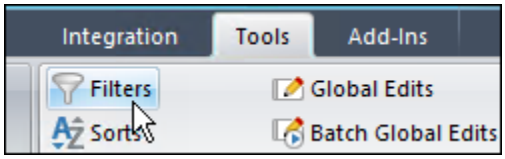
Activity Type	Detail_Activity	Early Start	Early Fin
Subproject	*False*	*04/01/2020*	*11/15/20*
Subproject	*False*	*04/01/2020*	*11/08/20*
Start Milestone	True	04/01/2020	04/01/20
Hammock	False	*04/01/2020*	11/08/202
Hammock	False	*04/01/2020*	11/08/202
ASAP	*True*	*04/01/2020*	*04/28/20*
Hammock	False	09/15/2020	11/08/202
Finish Milestone	True	11/08/2022	11/08/20
Subproject	*False*	*04/01/2020*	*02/25/20*
Subproject	*False*	*04/01/2020*	*10/01/20*
ASAP	True	*05/03/2020*	06/05/20
ASAP	True	*05/11/2020*	06/17/20

We are now ready to nest this filter into our Near-Critical filter to eliminate non-driving activity types.

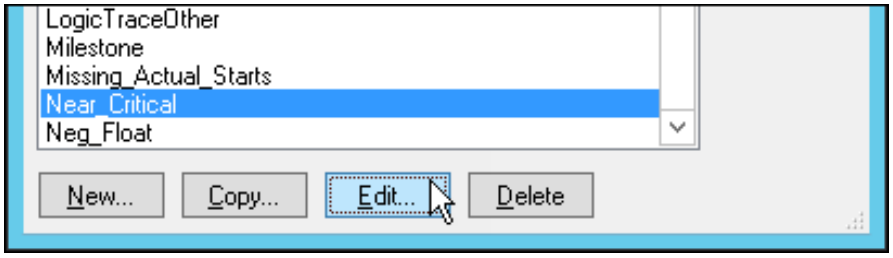
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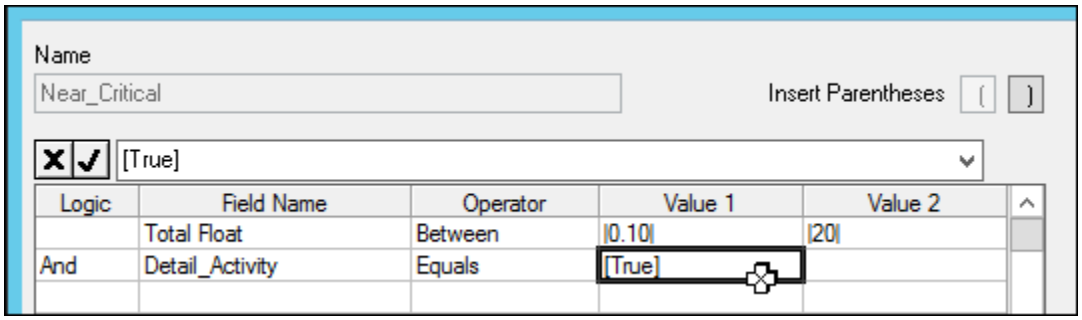
13. Click on **Tools** and then **Filters**.



14. Open the **Near-Critical** filter for editing.



15. Add the following expression to the filter:



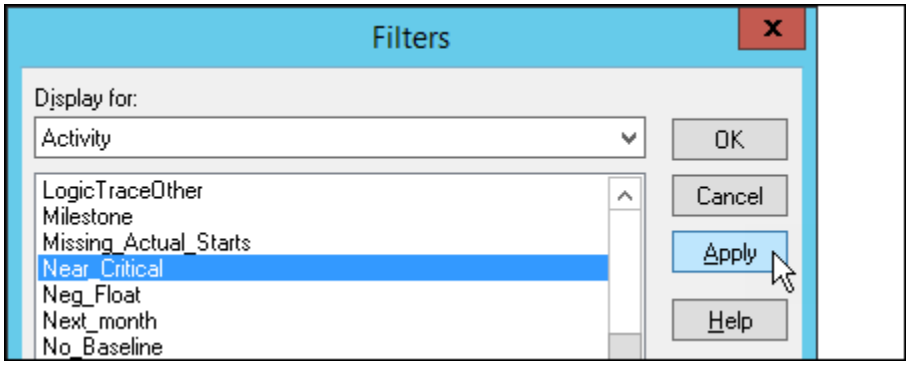
Or use **Copy** and **Paste** to replace the syntax in the **Expression** field in the **More >>** view mode.

TOTALFLOAT BETWEEN(|0.10| , |20|) and Detail_Activity = [BOOL.T]

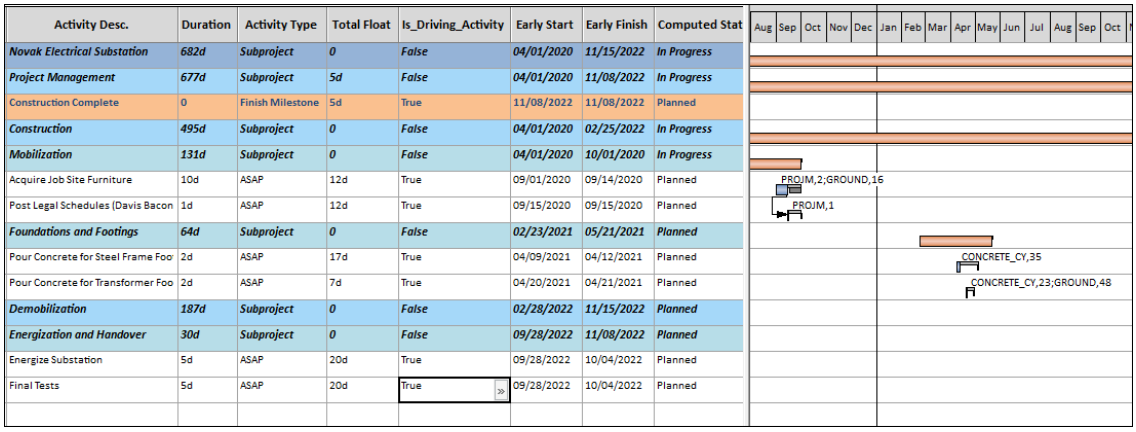
16. Click **OK**.

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17. Click **Apply**.



18. Review the results in your **Activity Barchart View**.

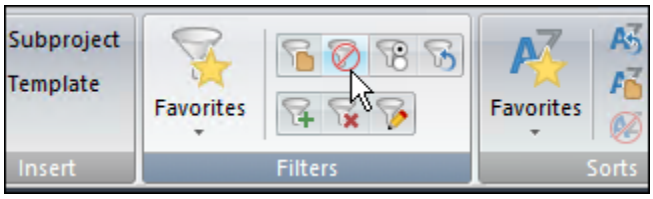


Activity Desc.	Duration	Activity Type	Total Float	Is_Driving_Activity	Early Start	Early Finish	Computed Stat
Novak Electrical Substation	*682d*	*Subproject*	*0*	*False*	*04/01/2020*	*11/15/2022*	*In Progress*
Project Management	*677d*	*Subproject*	*5d*	*False*	*04/01/2020*	*11/08/2022*	*In Progress*
Construction Complete	0	Finish Milestone	5d	True	11/08/2022	11/08/2022	Planned
Construction	*495d*	*Subproject*	*0*	*False*	*04/01/2020*	*02/25/2022*	*In Progress*
Mobilization	*131d*	*Subproject*	*0*	*False*	*04/01/2020*	*10/01/2020*	*In Progress*
Acquire Job Site Furniture	10d	ASAP	12d	True	09/01/2020	09/14/2020	Planned
Post Legal Schedules (Davis Bacon	1d	ASAP	12d	True	09/15/2020	09/15/2020	Planned
Foundations and Footings	*64d*	*Subproject*	*0*	*False*	*02/23/2021*	*05/21/2021*	*Planned*
Pour Concrete for Steel Frame Foo	2d	ASAP	17d	True	04/09/2021	04/12/2021	Planned
Pour Concrete for Transformer Foo	2d	ASAP	7d	True	04/20/2021	04/21/2021	Planned
Demobilization	*187d*	*Subproject*	*0*	*False*	*02/28/2022*	*11/15/2022*	*Planned*
Energization and Handover	*30d*	*Subproject*	*0*	*False*	*09/28/2022*	*11/08/2022*	*Planned*
Energize Substation	5d	ASAP	20d	True	09/28/2022	10/04/2022	Planned
Final Tests	5d	ASAP	20d	True	09/28/2022	10/04/2022	Planned

The change to the **Near_Critical** filter has removed that hammock. But what's the deal with those **Subproject** activities – they should have been excluded also – right?

The subproject activities are being displayed because the **Outlining** feature is overriding the filter.

19. Click on the **Clear Filters** button.



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20. Click **Save**.



In the next section, we will look at the Outlining functionality that is currently keeping the Subproject activities on the schedule.

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10.3 Outlining and Grouping

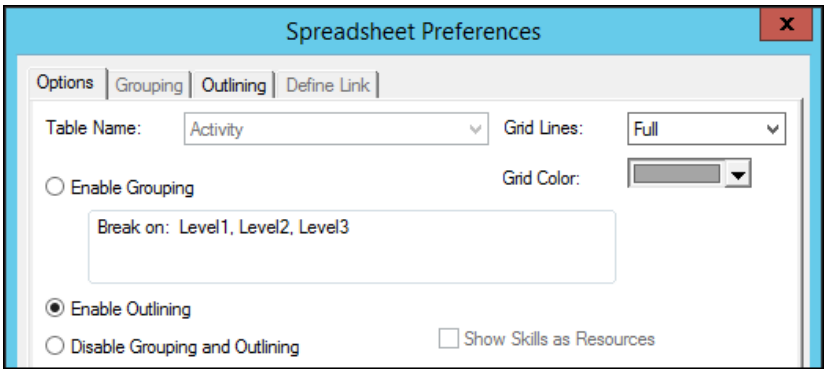
During the course we've learned that, by default at least, the Activity ID is controlling the structure because it is 'punctuated significant'. This punctuation creates a parent/child relationship between activities causing them to organize into what is in essence a work breakdown structure or WBS.

A.2.2

Activity ID	Activity Desc.	Duration	Activity Type	Total Float	Is_Driving_Activity
A	*Novak Electrical Substation*	*682d*	*Subproject*	*0*	*False*
A.1	*Project Management*	*677d*	*Subproject*	*5d*	*False*
A.1.11231	✓ Notice To Proceed	0	Start Milestone	0	True
A.1.11240	Site Management	677d	Hammock	0	False
A.1.11250	Site Security	677d	Hammock	0	False
A.1.11260	✓ *Acquire Permits*	*45d*	*ASAP*	*0*	*True*
A.1.11270	Site Maintenance and Safety	559d	Hammock	12d	False
A.1.11280	Construction Complete	0	Finish Milestone	5d	True
A.2	*Construction*	*495d*	*Subproject*	*0*	*False*
A.2.1	*Mobilization*	*131d*	*Subproject*	*0*	*False*
A.2.1.11290	Move on Heavy Equipment	25d	ASAP	0	True
A.2.1.11300	Perform Clearing and Grubbing for	18d	ASAP	0	True

When we engage our **Near_Critical** activity filter, only the actual activities are affected: the filter does not clear these parent summaries, but continues to display the activities within that structure.

The Outlining tool is part of the Spreadsheet Preferences tool. This tool can also be used to organize the schedule according to any other hierarchical codes you have assigned to your project activities.



*__Grouping__ – formerly known as **Subsections**: if you have a version of Open Plan that is earlier than the 8.5 series, this feature is called **Subsections**. The functionality, however, is the same.

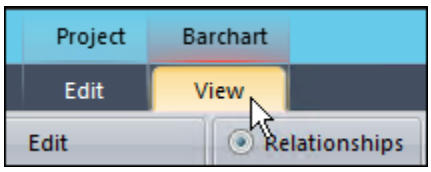
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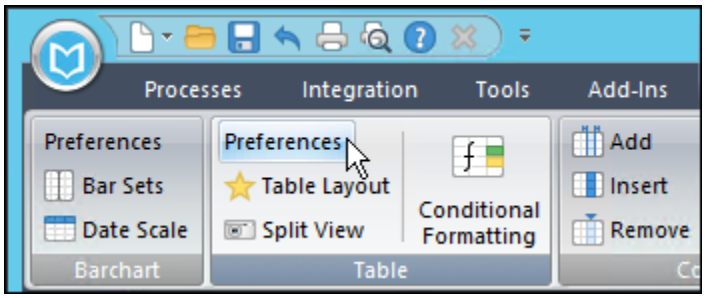
10.3.1 Activity: Reviewing Spreadsheet Preferences

In these next steps we will learn how to change from the default Outlining based on Activity ID to Grouping based on a WBS code field.

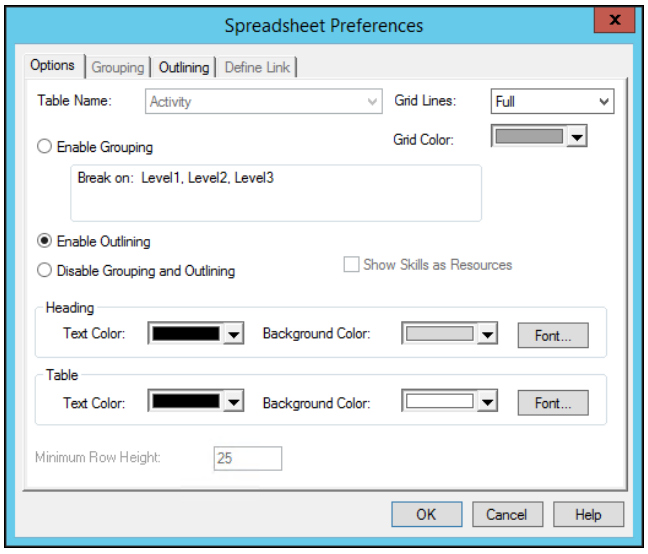
1. In the **Activity Barchart View**, click on the **View** menu.



2. In the **Table** tool group, click on the **Preferences** button.



3. Review the **Spreadsheet Preference** dialog.

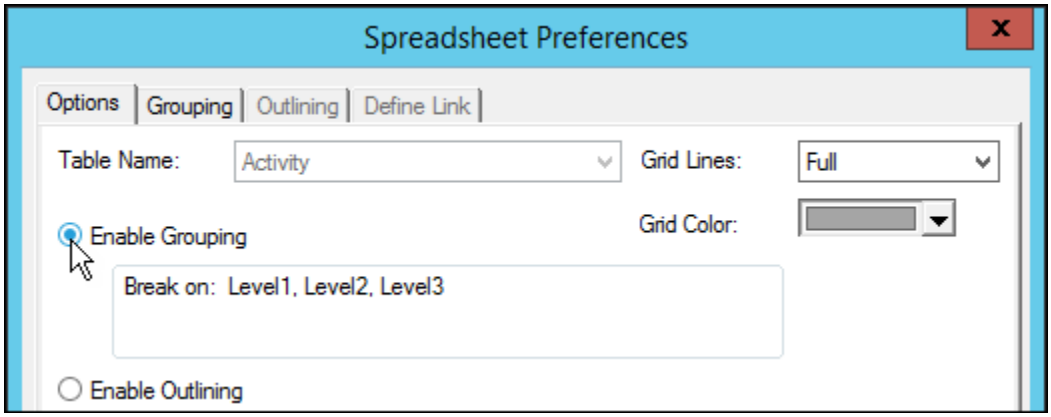


This dialog allows you to control **Outlining**, and/or **Grouping** of data in the spreadsheet views.

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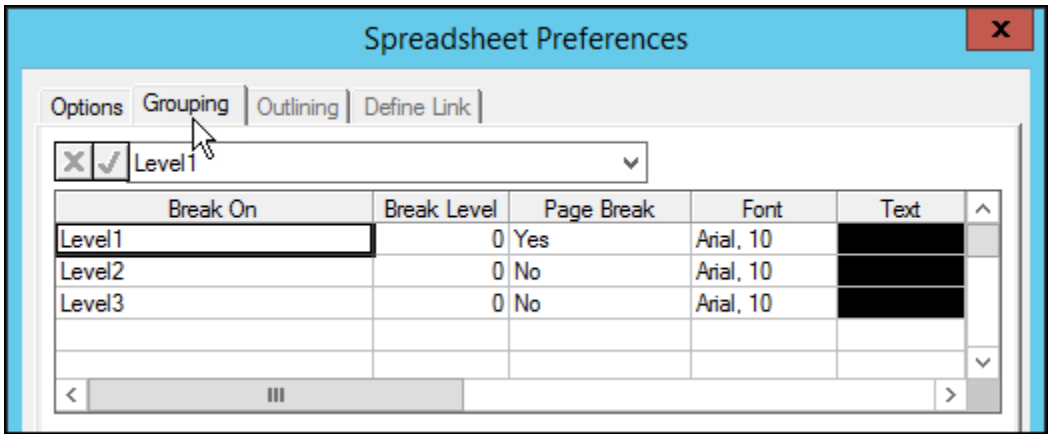
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4. In the **Options** tab, click on **Enable Grouping**.

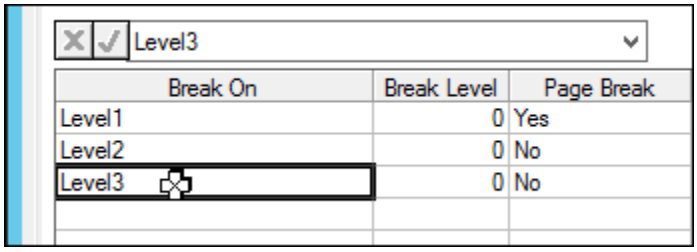


Note how the Grouping tab is enabled, and the Outlining tab is now inactive.

5. Click on the **Grouping** tab.



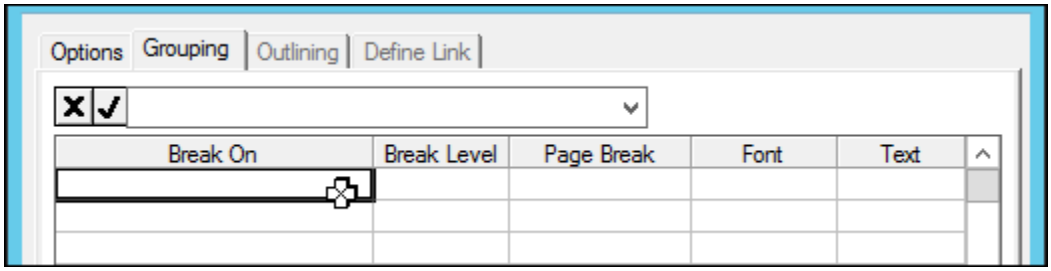
6. Select the **Level3** item in the table, and click your delete key.



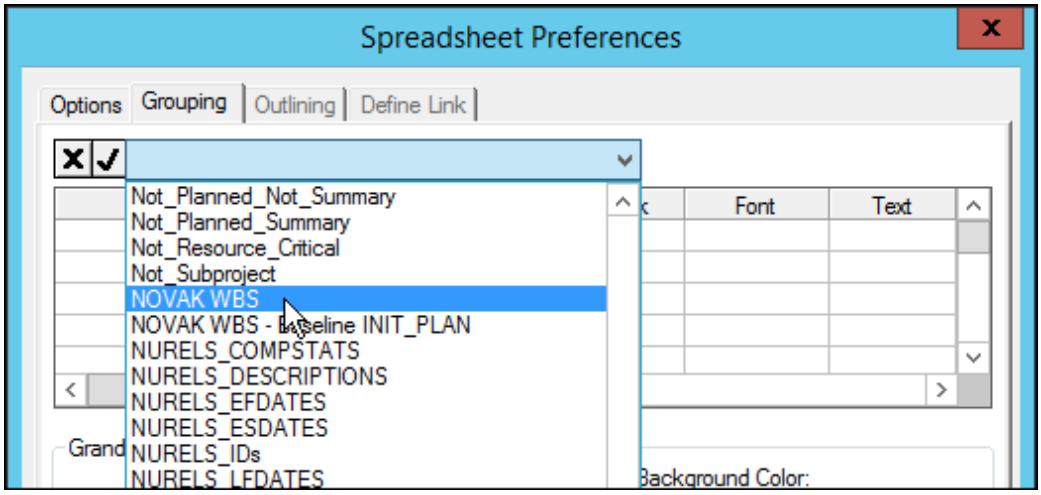
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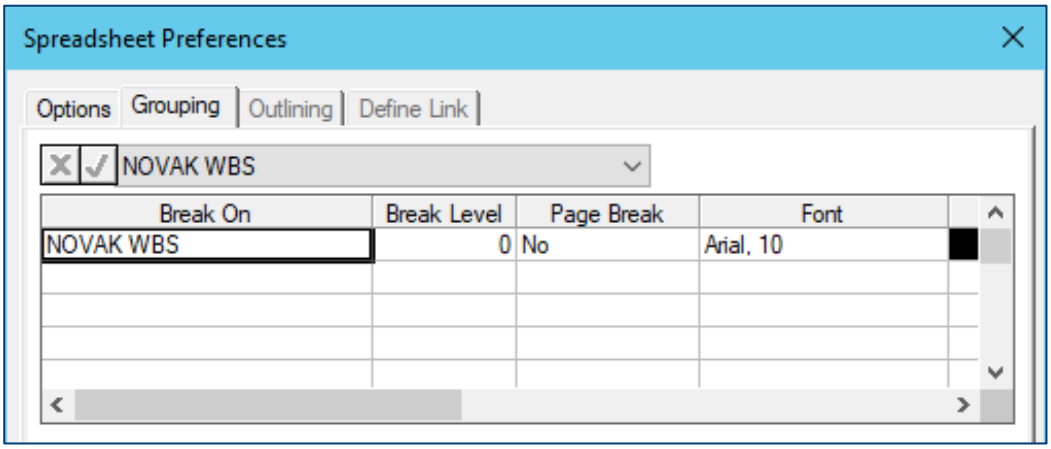
7. In the same way, delete the other two levels.



8. With the fist cell highlighted, click the dropdown above the table and scroll down to the **NOVAK WBS** field.



9. Select the **NOVAK WBS** column.

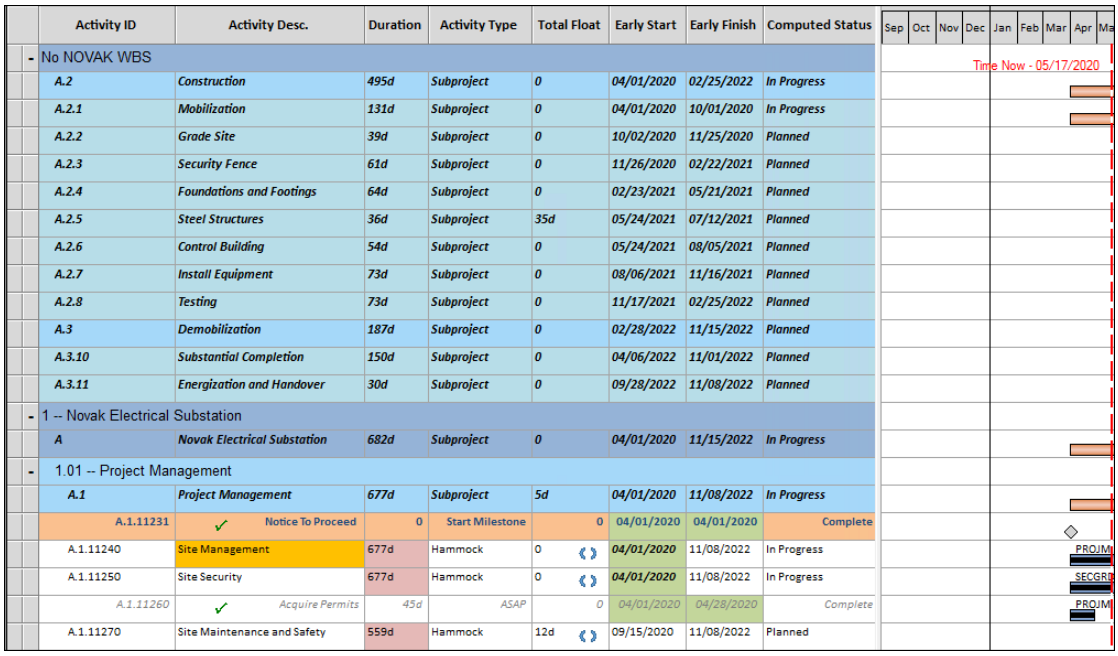


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10. Without making any other changes, click **OK**.

11. Review the results in your **Barchart** view.

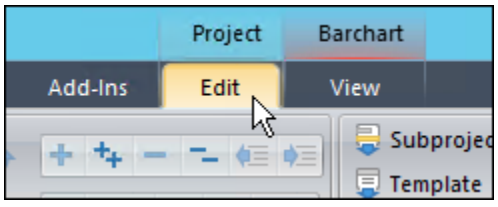


Activity ID	Activity Desc.	Duration	Activity Type	Total Float	Early Start	Early Finish	Computed Status
- No NOVAK WBS							
A.2	*Construction*	*495d*	*Subproject*	*0*	*04/01/2020*	*02/25/2022*	*In Progress*
A.2.1	*Mobilization*	*131d*	*Subproject*	*0*	*04/01/2020*	*10/01/2020*	*In Progress*
A.2.2	*Grade Site*	*39d*	*Subproject*	*0*	*10/02/2020*	*11/25/2020*	*Planned*
A.2.3	*Security Fence*	*61d*	*Subproject*	*0*	*11/26/2020*	*02/22/2021*	*Planned*
A.2.4	*Foundations and Footings*	*64d*	*Subproject*	*0*	*02/23/2021*	*05/21/2021*	*Planned*
A.2.5	*Steel Structures*	*36d*	*Subproject*	*35d*	*05/24/2021*	*07/12/2021*	*Planned*
A.2.6	*Control Building*	*54d*	*Subproject*	*0*	*05/24/2021*	*08/05/2021*	*Planned*
A.2.7	*Install Equipment*	*73d*	*Subproject*	*0*	*08/06/2021*	*11/16/2021*	*Planned*
A.2.8	*Testing*	*73d*	*Subproject*	*0*	*11/17/2021*	*02/25/2022*	*Planned*
A.3	*Demobilization*	*187d*	*Subproject*	*0*	*02/28/2022*	*11/15/2022*	*Planned*
A.3.10	*Substantial Completion*	*150d*	*Subproject*	*0*	*04/06/2022*	*11/01/2022*	*Planned*
A.3.11	*Energization and Handover*	*30d*	*Subproject*	*0*	*09/28/2022*	*11/08/2022*	*Planned*
- 1 -- Novak Electrical Substation							
A	*Novak Electrical Substation*	*682d*	*Subproject*	*0*	*04/01/2020*	*11/15/2022*	*In Progress*
- 1.01 -- Project Management							
A.1	*Project Management*	*677d*	*Subproject*	*5d*	*04/01/2020*	*11/08/2022*	*In Progress*
A.1.11231	✓ Notice To Proceed	0	Start Milestone	0	04/01/2020	04/01/2020	Complete
A.1.11240	Site Management	677d	Hammock	0	04/01/2020	11/08/2022	In Progress
A.1.11250	Site Security	677d	Hammock	0	04/01/2020	11/08/2022	In Progress
A.1.11260	✓ Acquire Permits	45d	ASAP	0	04/01/2020	04/28/2020	Complete
A.1.11270	Site Maintenance and Safety	559d	Hammock	12d	09/15/2020	11/08/2022	Planned

At the top of the table are all the subproject activities that were not mapped with a NOVAK WBS code. They have been grouped under the No NOVAK WBS heading. The WBS, and the Outline structures are slightly different, so these subproject activities are superfluous if we are looking to view our data by this WBS.

Because outlining is not selected at this time, we can use a filter to remove these unneeded subproject activities.

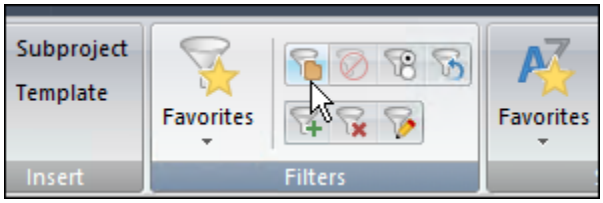
12. Click on the **Edit** tab.



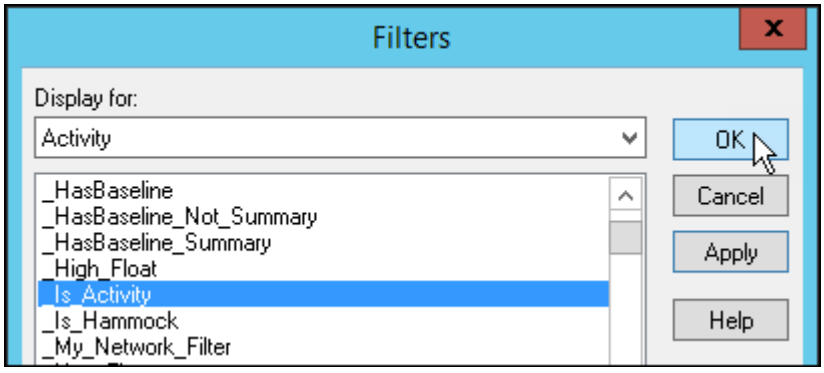
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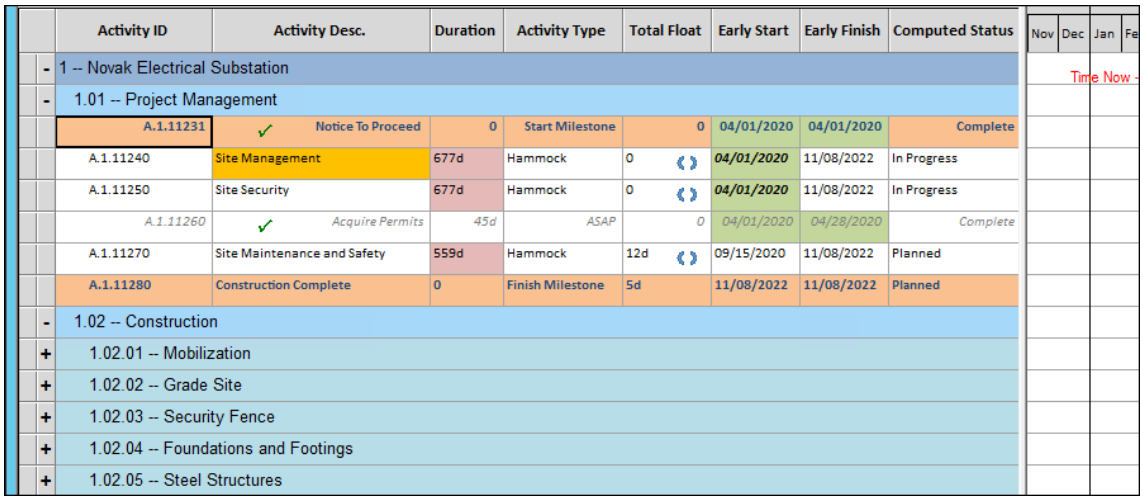
13. Click on the **Filters** button.



14. Select the **_Is_Activity** filter and click **OK**.

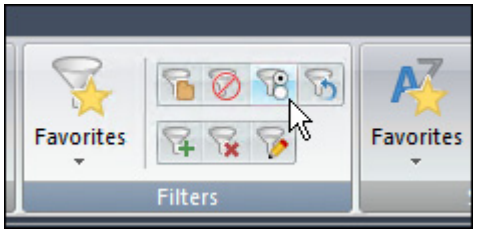


15. Note how the table is cleared of Subproject activities, leaving only activities and grouping bands on the screen.



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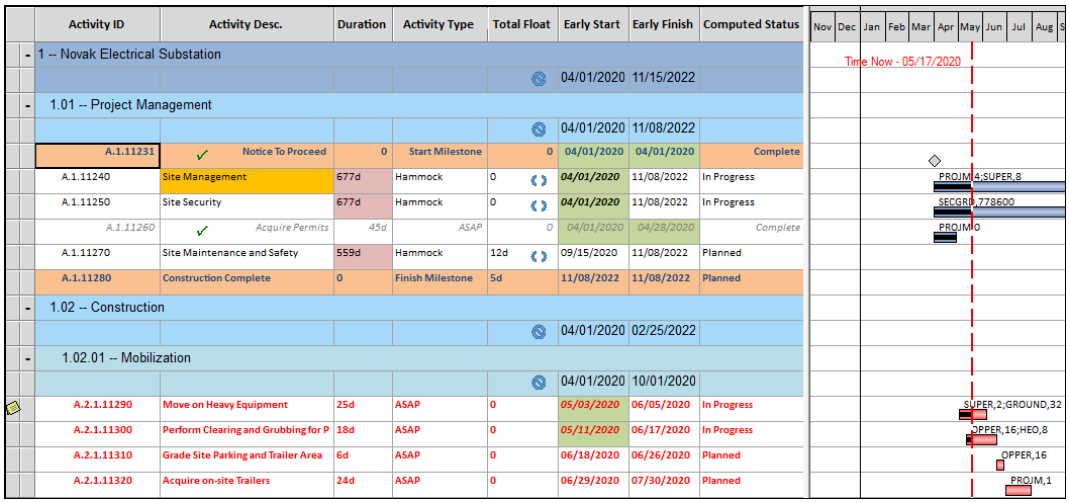
16. Return to the **Filters** tool group and click on the **Toggle Filter** option.



17. This action temporarily disengages the current filter, returning the **Subprojects** to the table area.

Activity ID	Activity Desc.	Duration	Activity Type	Total Float	Early Start	Early Finish	Computed Status
+ No NOVAK WBS							
- 1 -- Novak Electrical Substation							
A	*Novak Electrical Substation*	*682d*	*Subproject*	*0*	*04/01/2020*	*11/15/2022*	*In Progress*
- 1.01 -- Project Management							
A.1	*Project Management*	*677d*	*Subproject*	*5d*	*04/01/2020*	*11/08/2022*	*In Progress*
A.1.11231	✓ Notice To Proceed	0	Start Milestone	0	04/01/2020	04/01/2020	Complete
A.1.11240	Site Management	677d	Hammock	0	*04/01/2020*	11/08/2022	In Progress
A.1.11250	Site Security	677d	Hammock	0	*04/01/2020*	11/08/2022	In Progress
A.1.11260	✓ *Acquire Permits*	*45d*	*ASAP*	*0*	*04/01/2020*	*04/28/2020*	*Complete*
A.1.11270	Site Maintenance and Safety	559d	Hammock	12d	09/15/2020	11/08/2022	Planned
A.1.11280	Construction Complete	0	Finish Milestone	5d	11/08/2022	11/08/2022	Planned
- 1.02 -- Construction							

18. Click **Toggle Filters** once more to re-engage the **_Is_Activity** filter.



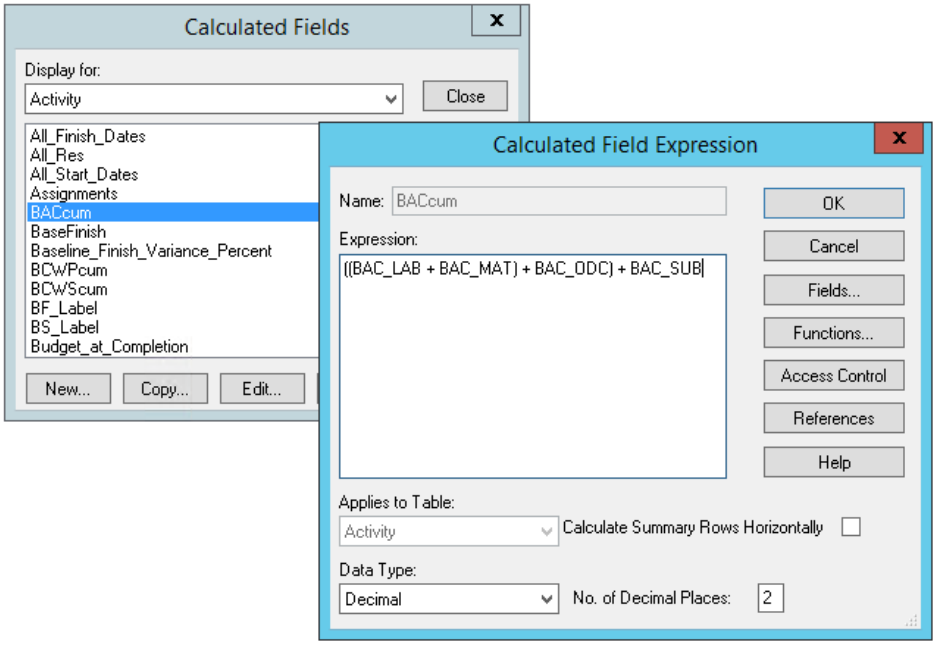
You are now seeing only the activities, organized by the **Novak WBS**.

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10.4 Calculated Fields

Calculated fields have vast potential for customization of your Open Plan metrics and reporting. User-defined calculated fields calculate the data that is not stored in the standard versions of the project database tables. With this reporting feature, you can extend the flexibility of any view by displaying the data results of a custom calculation.



The data fields displayed in an Open Plan view are typically one of three types:

Normal data entry fields: For example, an activity ID or description that can be updated by the user at any time.

Fields generated by Open Plan processes: For example, the Early Start and Early Finish dates calculated by Time Analysis.

Calculated fields defined by the user

User defined calculated fields allow you to calculate data not stored in the standard versions of the project database tables. With this powerful reporting feature, you can extend the flexibility of any view by displaying data that is a result of a custom calculation.

After you have defined a calculated field, you can choose that field as a column in a spreadsheet view or display it in an activity box just as you can with any standard field. You can also include calculated fields in custom filter and sort expressions.

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In addition to being able to name and save these calculated fields, Open Plans allows you to create and use temporary calculated fields in the following circumstances:

Export scripts (as a filter)

Spreadsheet Add Column dialog box

Spreadsheet Insert Column dialog box

Spreadsheet Edit Column dialog box

Multi-table link grids

When defining the box layouts for the network and hierarchy views

When defining box attributes for the network view (as a filter)

OLE automation

Open Plan does not allow you to delete a permanent calculated field upon which another calculated field, sort, filter, or global edit expression depends, even if the dependent is a temporary item. Temporary items remain in memory while the project is open. For this reason, even if you remove the temporary item from the current view, a permanent calculated field referring to that temporary item cannot be deleted until the project has been closed and re-opened.

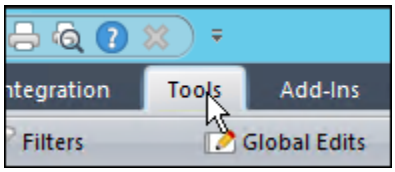
Open Plan does not store the results of calculated fields in the project database. Only the definition of the calculation is saved; the results are re-calculated each time the field is required for display. Therefore, third-party applications that query the database cannot access the results of calculated fields.

Each Calculated field can use a combination of fields and 'Excel-like' functions to create an output field that will perform an almost unlimited range of calculations, string concatenations, or other results required to adjust the content of the columns in a given table.

10.4.1 Activity: Creating a Calculated Field

You decide that a column that merges the Activity ID and the Activity Desc. fields would be useful. This is simple to do using a Calculated Field.

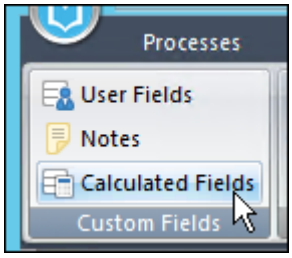
1. Click on the **Tools** tab.



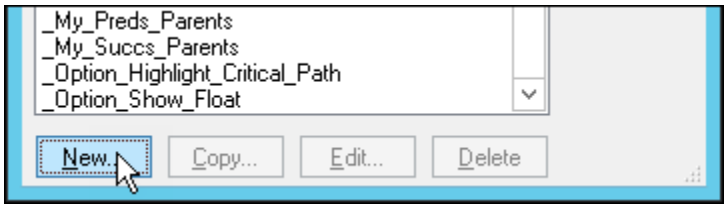
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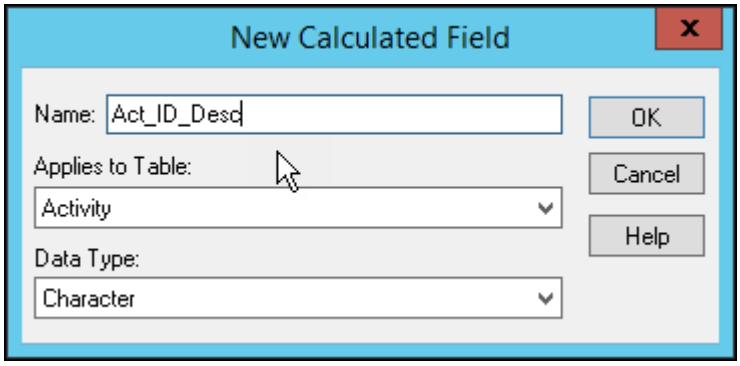
2. Click **Calculated Fields**.



3. Click **New…**



4. Enter **Act_ID_Desc** in the Name: field.

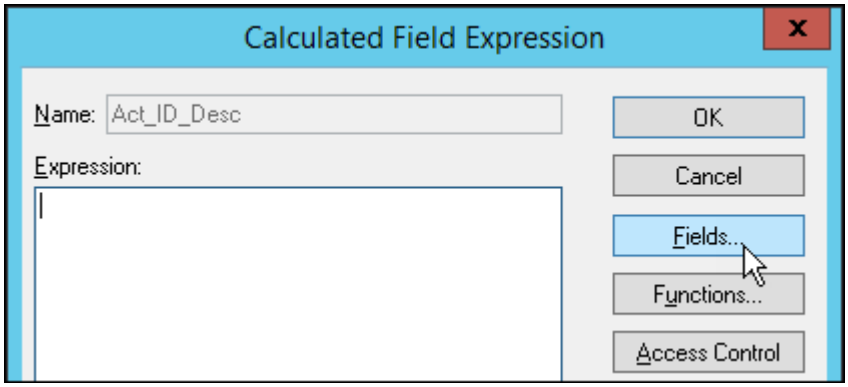


5. Click **OK**.

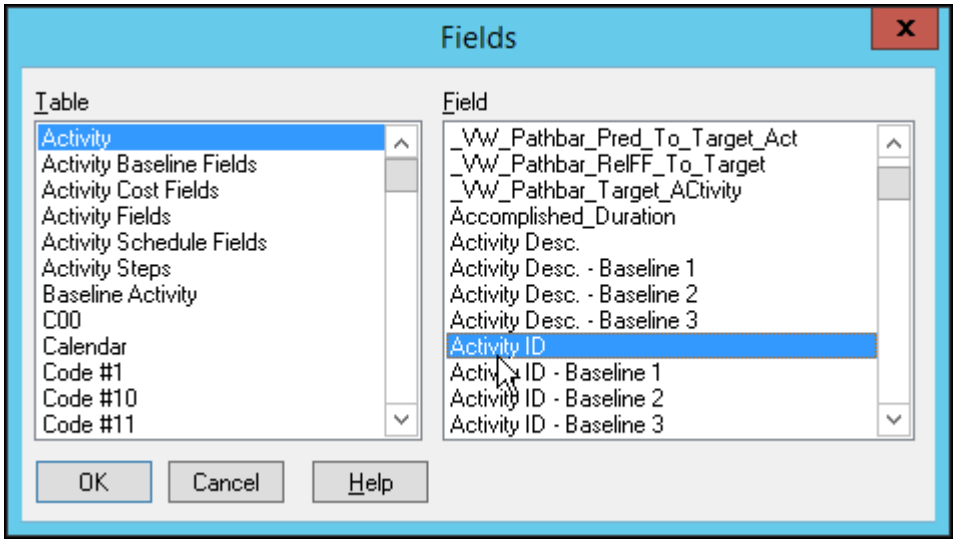
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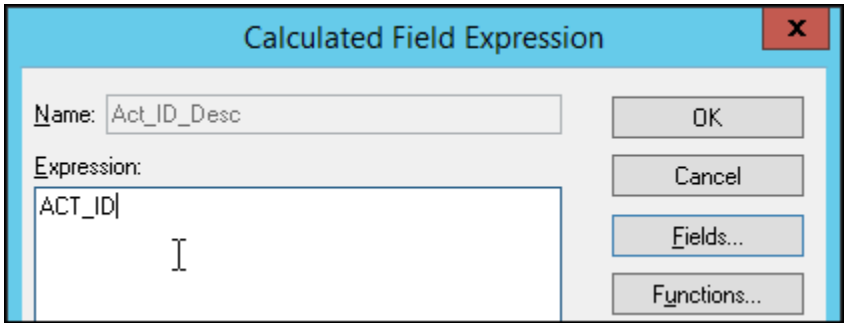
6. With the cursor in the **Expression:** box, click the **Fields…** button.



7. In the **Fields** dialog, select the **Activity ID** field.



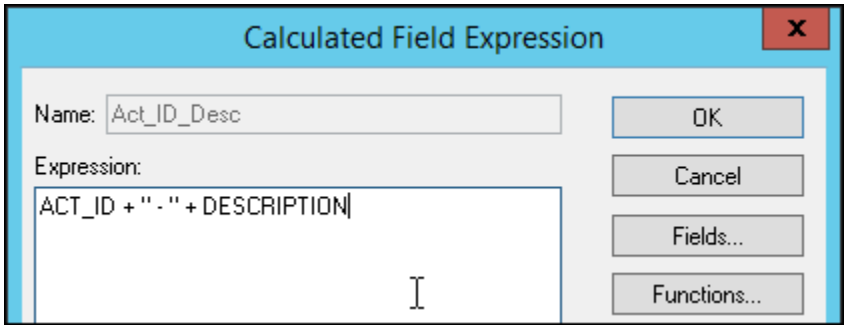
8. Click **OK**.



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9. Now click the spacebar and enter the following: **+ “ - “ +**

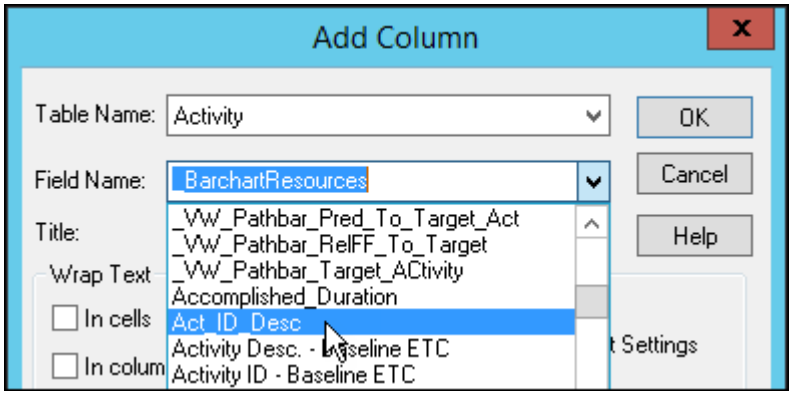


Expression: ACT_ID + “ – “ + DESCRIPTION

10. Click **OK**.

11. Click **Close**.

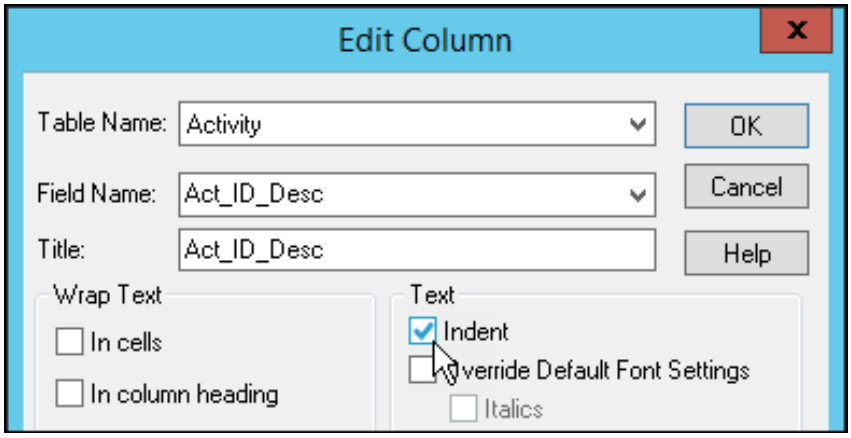
12. Right-click on the **Activity ID** column header and **Add** the **Act_ID_Desc** calculated field to your table.



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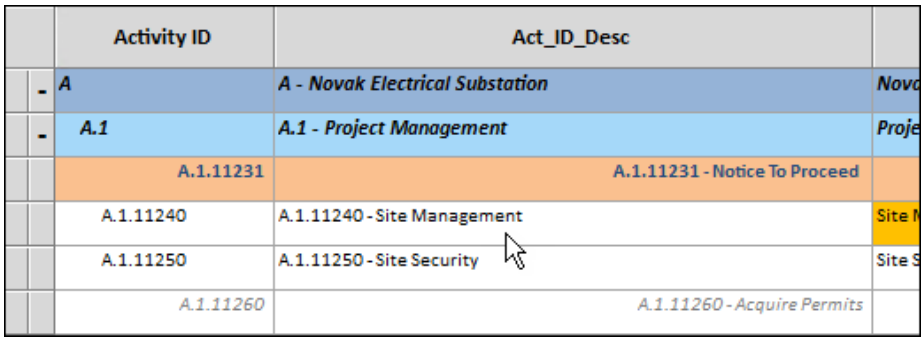
13. Now click to check the **Indent** option in the **Text** group.



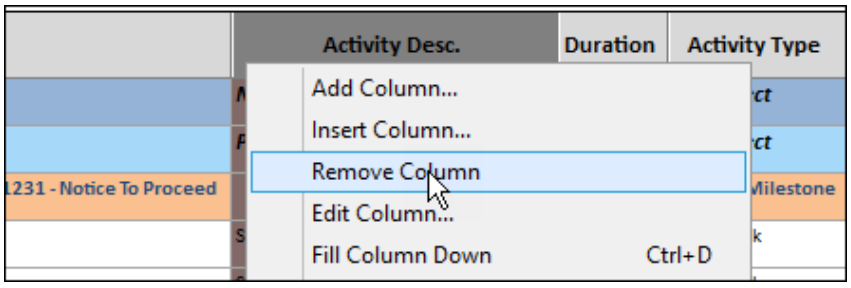
This will preserve the indentation that is present in the **Activity ID** field.

14. Click **OK**.

15. Verify that your new field is working correctly in the **Act_ID_Desc** column.



16. Now right-click on the **Activity ID** and **Remove Column**.



17. Do the same for the **Activity Description** column.

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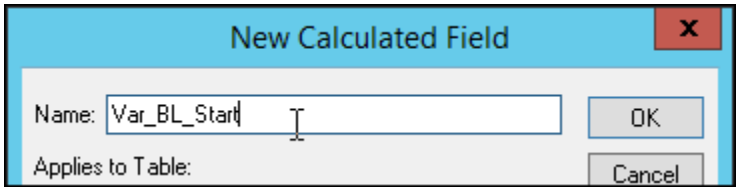
10.4.2 Activity: Creating a Variance Calculated Field

Management is interested in seeing a report that shows baseline variance values. They'd like to know by how much an activity differs from its baseline. Your task is to create a variance column based upon the delta between the early start, and the baseline early start.

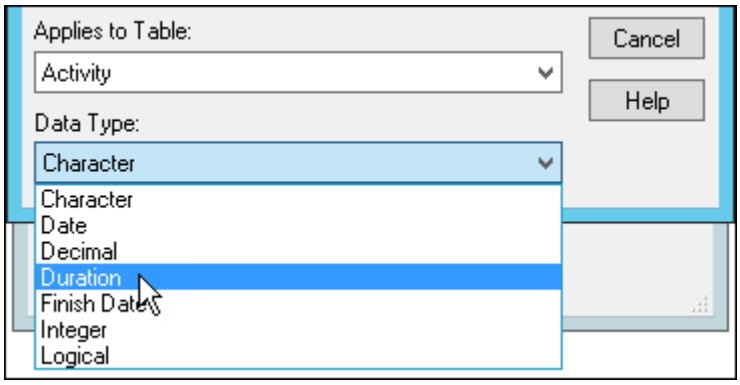
1. Open the **Calculated Fields** dialog.

2. Click **New…**.

3. Enter **Var_BL_Start** in the **Name:** field.



4. Set the **Data Type** field to **Duration**.

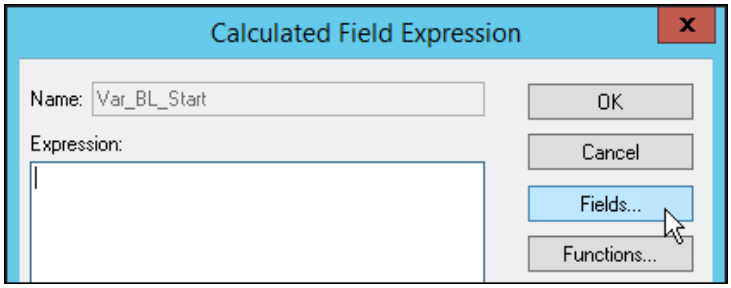


5. Click **OK**.

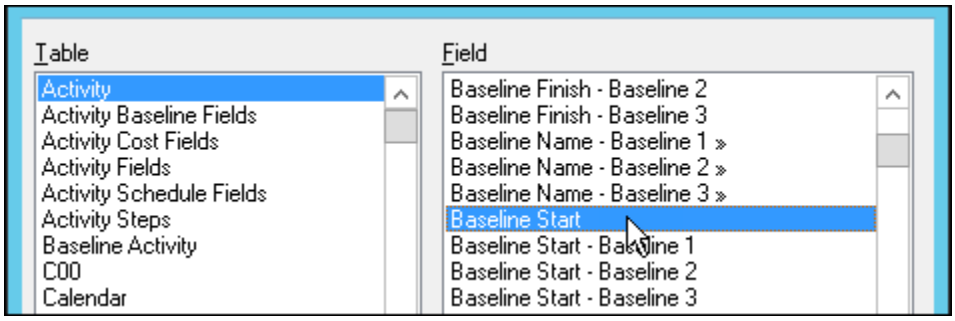
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6. Click **Fields…**.



7. Select the **Baseline Start** field.



Note: You can also type in the internal field name of BSDATE directly into the Expression box.

8. Click **OK**.

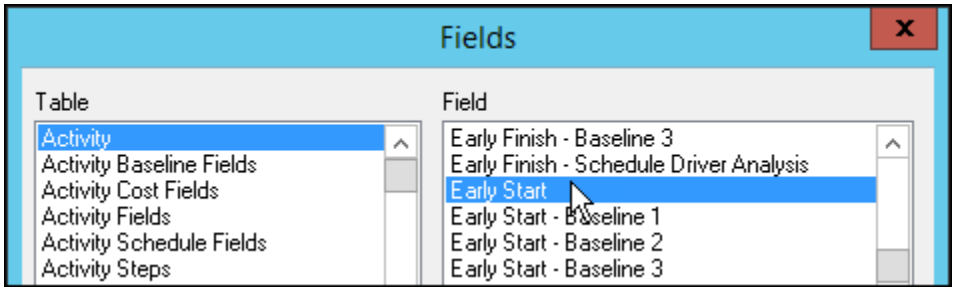
9. Type a minus character after the **BSDATE** field.



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10. Click **Fields…** again and select **Early Start**.



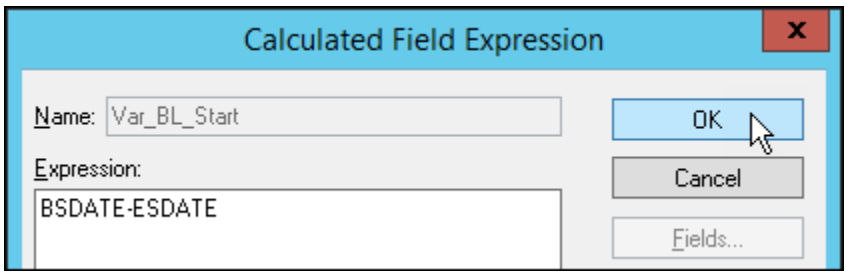
11. Click **OK**.

12. Verify your final expression.



BSDATE-ESDATE

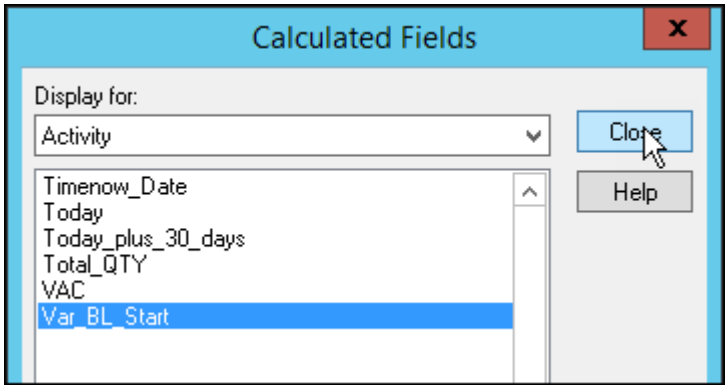
13. Click **OK** to close the **Expression** dialog.



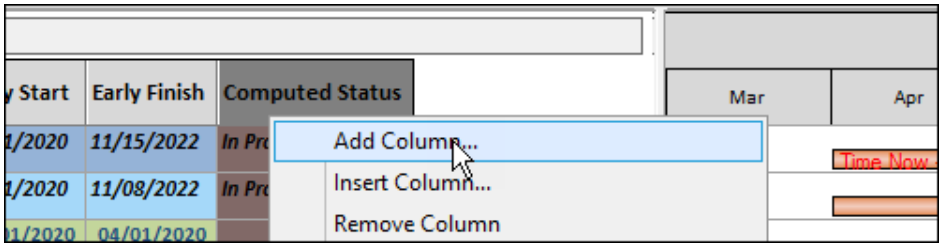
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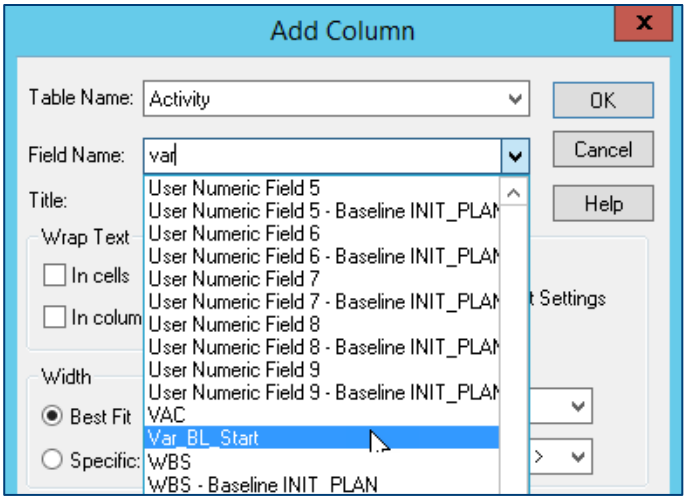
14. Click **Close**.



15. In the **Activity Barchart View**, right-click on any header and select **Add Column…**.



16. Type **Var** in the **Field Name** to search for **Var_BL_Start**.

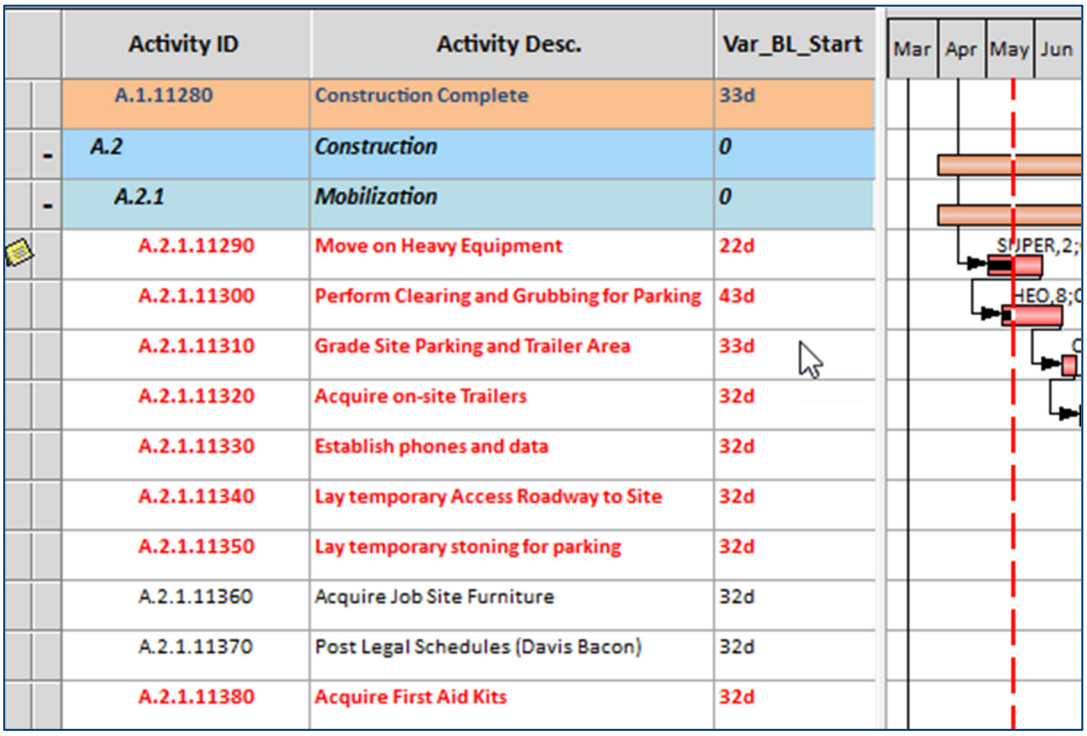


17. Click **OK**.

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18. Review the contents of the column to see variance values.



Activity ID	Activity Desc.	Var_BL_Start
A.1.11280	Construction Complete	33d
A.2	Construction	0
A.2.1	Mobilization	0
A.2.1.11290	Move on Heavy Equipment	22d
A.2.1.11300	Perform Clearing and Grubbing for Parking	43d
A.2.1.11310	Grade Site Parking and Trailer Area	33d
A.2.1.11320	Acquire on-site Trailers	32d
A.2.1.11330	Establish phones and data	32d
A.2.1.11340	Lay temporary Access Roadway to Site	32d
A.2.1.11350	Lay temporary stoning for parking	32d
A.2.1.11360	Acquire Job Site Furniture	32d
A.2.1.11370	Post Legal Schedules (Davis Bacon)	32d
A.2.1.11380	Acquire First Aid Kits	32d

We currently have a favorable variance on many of the activities due to higher than expected performance of mobilization.

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10.5 Controlling the Grouping

In the earlier Outlining and Grouping section, the last activity provided you with a grouping bar based upon the NOVAK WBS user defined field. By default, these grouping bars do not have any summary data for the activities below.

In this section we will learn how to control the appearance and placement of additional grouping bars that include summary data for certain date and cost fields.

Activity ID	Activity Desc.	Duration	Activity Type	Early Start	Early Finish	Computed Status	Total Float
- 1 -- Novak Electrical Substation							
- 1.01 -- Project Management							
A.1.11231	✓ Notice To Proceed	0	Start Milestone	04/01/2020	04/01/2020	Complete	0
A.1.11240	Site Management	677d	Hammock	04/01/2020	11/11/2022	In Progress	0
A.1.11250	Site Security	677d	Hammock	04/01/2020	11/11/2022	In Progress	0
A.1.11260	✓ Acquire Permits	45d	ASAP	04/01/2020	04/28/2020	Complete	0
A.1.11270	Site Maintenance and Safety	559d	Hammock	09/15/2020	11/11/2022	Planned	12d
A.1.11280	Construction Complete	0	Finish Milestone	11/11/2022	11/11/2022	Planned	5d
- 1.02 -- Construction							
+ 1.02.01 -- Mobilization							
+ 1.02.02 -- Grade Site							
+ 1.02.03 -- Security Fence							
+ 1.02.04 -- Foundations and Footings							
- 1.02.05 -- Steel Structures							
A.2.5.11610	Erect A-Frames	16d	ASAP	05/25/2021	06/15/2021	Planned	351d
A.2.5.11620	Erect H-Frames	12d	ASAP	06/16/2021	07/01/2021	Planned	359d
A.2.5.11630	Erect Switch Stands	5d	ASAP	06/16/2021	06/22/2021	Planned	366d
A.2.5.11640	Erect Capacitor Stands and Racks	6d	ASAP	06/16/2021	06/23/2021	Planned	365d
A.2.5.11650	Erect Control Building Steel Frames	20d	ASAP	06/16/2021	07/13/2021	Planned	351d

To give you a good example of summary dates and costs, we will add a cost field to our Activity Barchart View. In the following hands-on activities, we will add a cost field, and then learn how to control how these data appear in an additional summary grouping row.

Note: If you already have one or more cost fields in your **Activity Barchart View**, then you can skip to activity **10.5.2**, otherwise, let's go to activity **10.5.1 – Add a Cost Field Column to the table**.

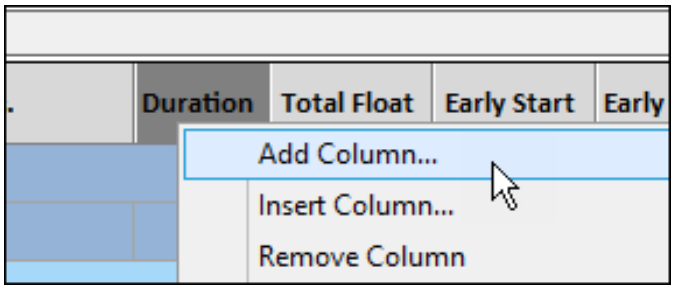
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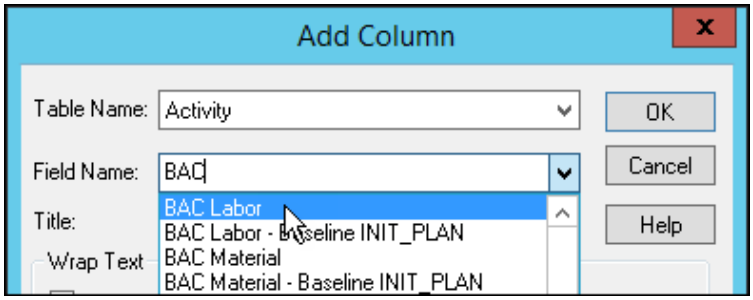
10.5.1 Activity: Adding a Cost Field Column to the Table

To assist you with the following activities, let's add the **BAC Labor** field to the barchart view.

1. Right-click on the **Duration** column header and select **Add Column…**.



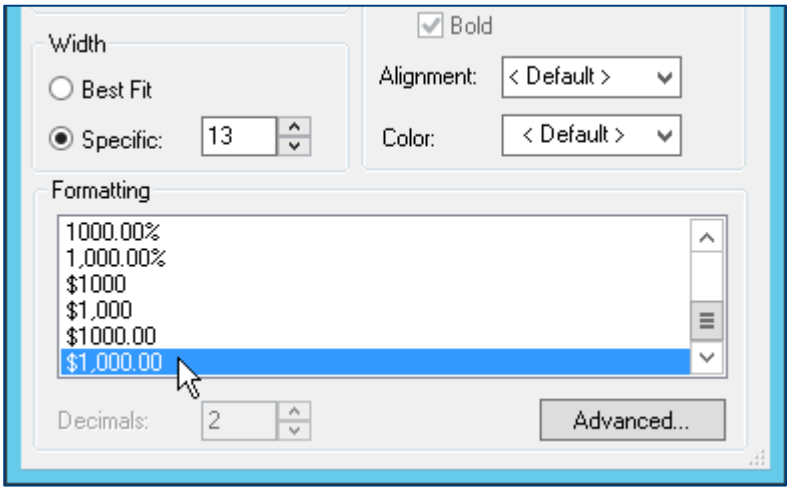
2. Select **BAC Labor**.



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3. In the **Formatting** area, scroll to the bottom of the list and choose the last option to give a currency value in the column.



4. Click **OK**.

5. Note the cost values in your **BAC Labor** column.

Activity ID	Activity Desc.	Duration	BAC Labor	Activity Type
- 1 -- Novak Electrical Substation				
- 1.01 -- Project Management				
A.1.11231	✓ Notice To Proceed	0	0.00	Start Milestone
A.1.11240	Site Management	677d	608265.28	Hammock
A.1.11250	Site Security	677d	0.00	Hammock
A.1.11260	✓ *Acquire Permits*	*45d*	*0.00*	*ASAP*
A.1.11270	Site Maintenance and Safety	559d	0.00	Hammock

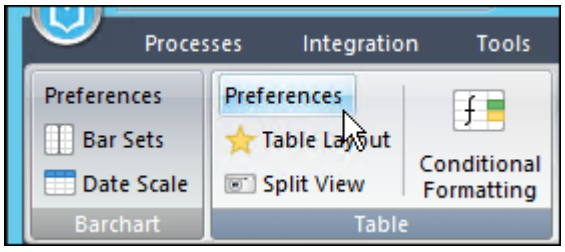
Now that we have a cost field in place, let's learn how to modify the grouping bands to see summaries of cost at different levels of the project.

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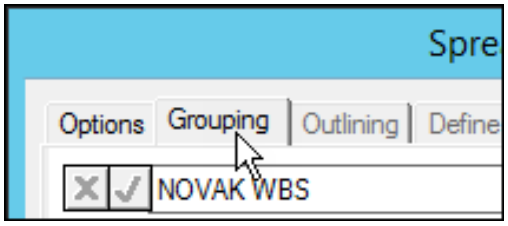
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10.5.2 Activity: Modifying the Grouping Bands

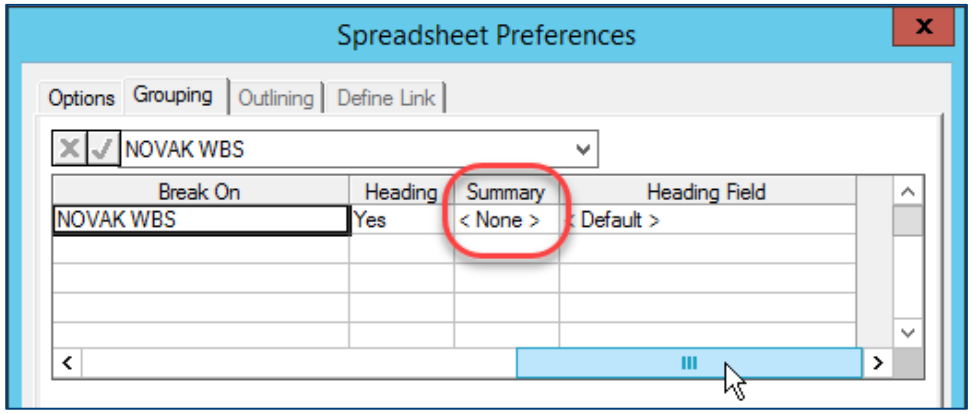
1. Continuing in the **Activity Barchart View**, click on the **View** ribbon and then click the **Preferences** button in the **Table** tool group.



2. In the dialog, click on the **Grouping** tab.



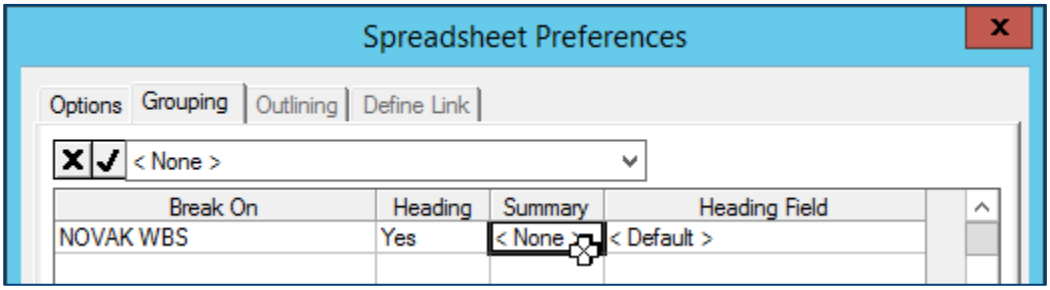
3. Scroll the table to the right until you see the **Summary** column.



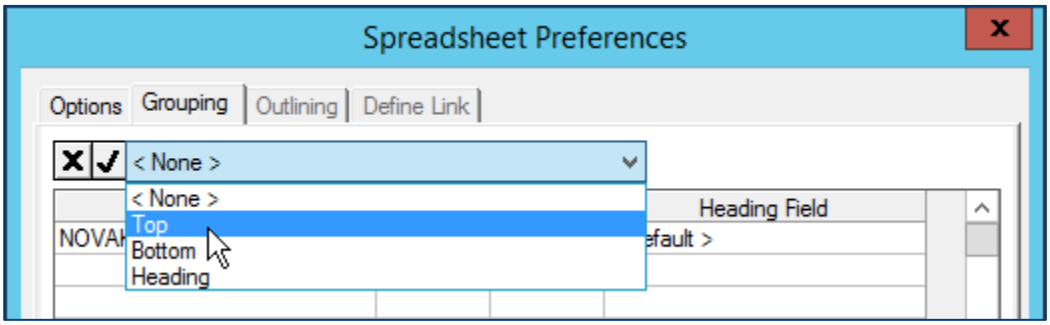
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4. Click in the **Summary** cell.



5. In the dropdown, select **Top.**



6. Click **OK**.

7. Review the results in the barchart table.

Activity ID	Activity Desc.	Duration	BAC Labor	Activity Type	Early Start	Early Finish	Computed Stat
1 -- Novak Electrical Substation							
			2048248.93		04/01/2020	11/18/2022	
1.01 -- Project Management							
			933989.33		04/01/2020	11/11/2022	
A.1.11231	✓ Notice To Proceed	0	0.00	Start Milestone	04/01/2020	04/01/2020	Compl
A.1.11240	Site Management	677d	932958.92	Hammock	04/01/2020	11/11/2022	In Progress
A.1.11250	Site Security	677d	0.00	Hammock	04/01/2020	11/11/2022	In Progress
A.1.11260	✓ Acquire Permits	45d	1030.41	ASAP	04/01/2020	04/28/2020	Compl
A.1.11270	Site Maintenance and Safety	559d	0.00	Hammock	09/15/2020	11/11/2022	Planned
A.1.11280	Construction Complete	0	0.00	Finish Milestone	11/11/2022	11/11/2022	Planned
1.02 -- Construction							
			1025352.09		04/01/2020	03/02/2022	
1.02.01 -- Mobilization							

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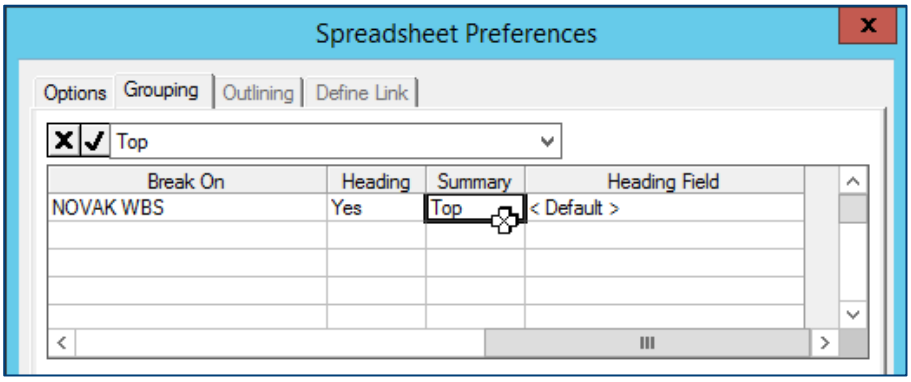
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We can see the **BAC Labor** and **Early** date summaries sitting above the activities in the group.

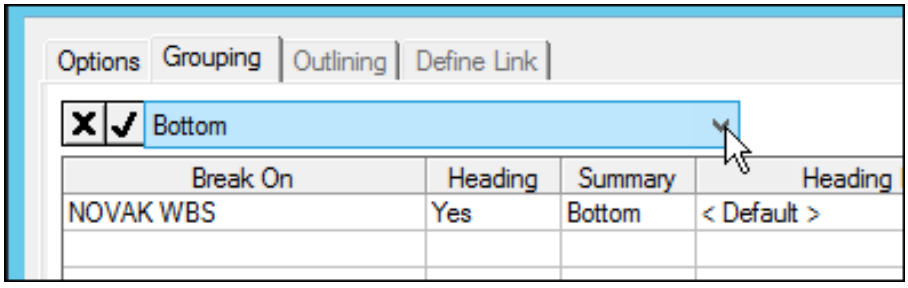
Now let's put the summary bands at the bottom of each grouping section.

8. Open the **Spreadsheet Preferences** dialog again.

9. In the **Grouping** tab, slide the table to the right and click on the **Summary Top** cell.



10. Set it to **Bottom**.

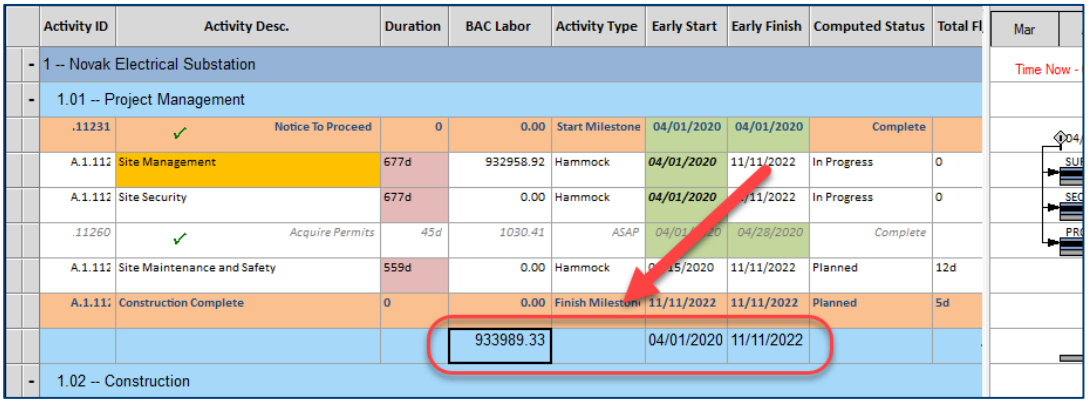


11. Click **OK**.

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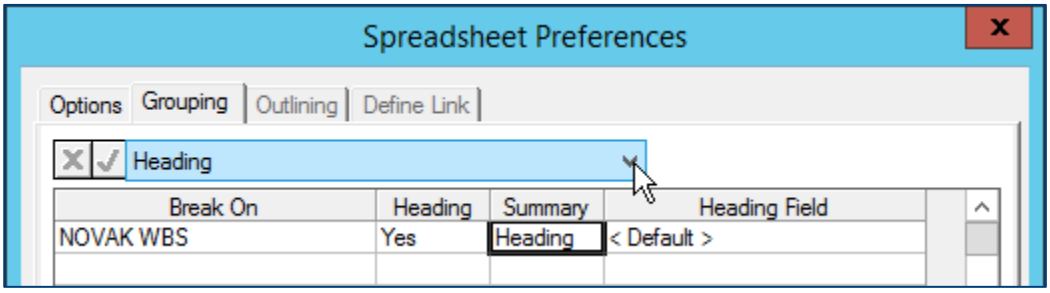
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12. Note the grouping summary band is now below all the activities in the group.



Activity ID	Activity Desc.	Duration	BAC Labor	Activity Type	Early Start	Early Finish	Computed Status	Total Fl
- 1 -- Novak Electrical Substation								
- 1.01 -- Project Management								
.11231	✓ Notice To Proceed	0	0.00	Start Milestone	04/01/2020	04/01/2020	Complete	
A.1.112	Site Management	677d	932958.92	Hammock	04/01/2020	11/11/2022	In Progress	0
A.1.112	Site Security	677d	0.00	Hammock	04/01/2020	11/11/2022	In Progress	0
.11260	✓ Acquire Permits	45d	1030.41	ASAP	04/01/2020	04/28/2020	Complete	
A.1.112	Site Maintenance and Safety	559d	0.00	Hammock	09/15/2020	11/11/2022	Planned	12d
A.1.11	Construction Complete	0	0.00	Finish Mileston	11/11/2022	11/11/2022	Planned	5d
			933989.33		04/01/2020	11/11/2022		
- 1.02 -- Construction								

13. Repeat steps 8 – 12 and this time set the **Summary** cell to **Heading**.



14. Note the results in the **Activity Barchart View**'s table.

Activity ID	Activity Desc.	Duration	BAC Labor	Activity Type	Early Start	Early Finish	Computed Status	Total Fl
- 1 -- Novak Electrical Substation			2048248.93		04/01/2020	11/18/2022		
- 1.01 -- Project Management			933989.33		04/01/2020	11/11/2022		
.11231	✓ Notice To Proceed	0	0.00	Start Milestone	04/01/2020	04/01/2020	Complete	
A.1.112	Site Management	677d	932958.92	Hammock	04/01/2020	11/11/2022	In Progress	0
A.1.112	Site Security	677d	0.00	Hammock	04/01/2020	11/11/2022	In Progress	0
.11260	✓ Acquire Permits	45d	1030.41	ASAP	04/01/2020	04/28/2020	Complete	
A.1.112	Site Maintenance and Safety	559d	0.00	Hammock	09/15/2020	11/11/2022	Planned	12d
A.1.11	Construction Complete	0	0.00	Finish Mileston	11/11/2022	11/11/2022	Planned	5d
- 1.02 -- Construction			1025352.09		04/01/2020	03/02/2022		
+ 1.02.01 -- Mobilization			124336.57		04/01/2020	10/01/2020		
+ 1.02.02 -- Grade Site			66063.84		10/02/2020	11/25/2020		

This option has placed the summaries within the **NOVAK WBS** headers. This option may be

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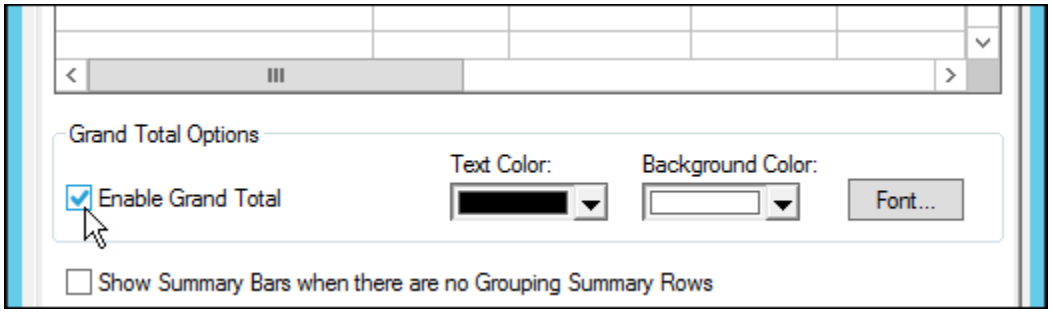
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preferable for larger schedule where a more compressed grouping will reduce the overall number of rows in the table.

Next we will add a Grand Total to the table that is formatted to make it different to the standard summary rows.

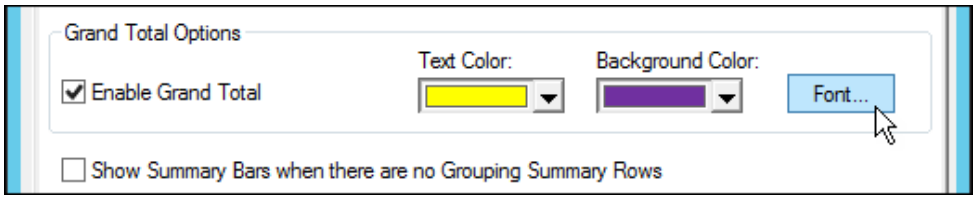
15. Open the **Spreadsheet Preferences** dialog once more.

16. If it's not already set, check the **Enable Grand Total** option below the **Grouping** table.

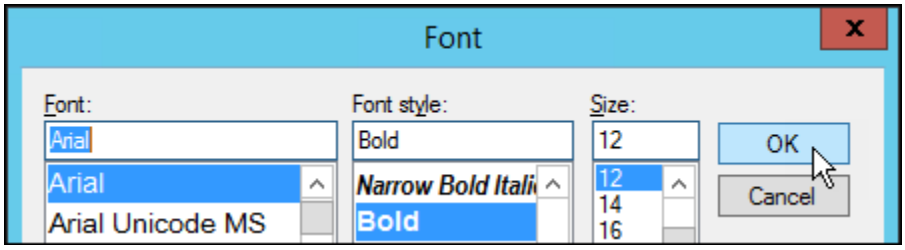


17. Change the **Text Color**:, **Background Color**: and **Font…** to something very different to those on the barchart table.

Suggestion: Yellow text on a dark Purple background.



18. Set the **Font** to **Bold**, **12pt**.

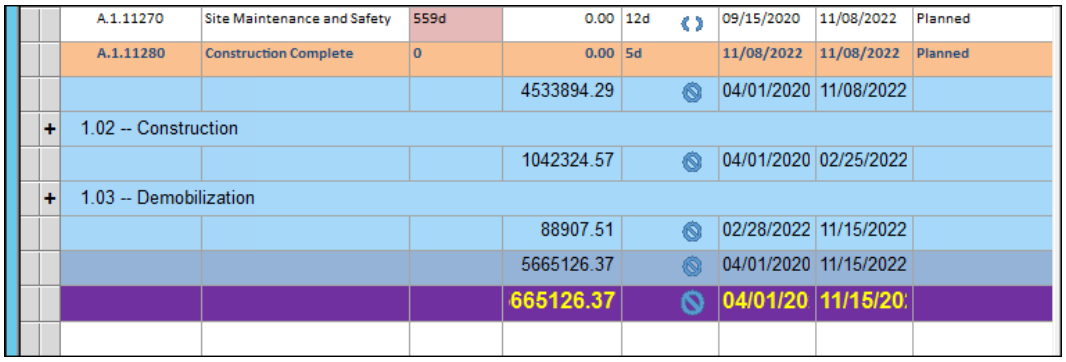


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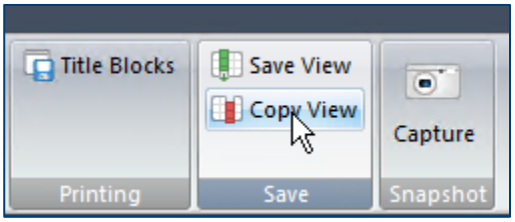
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19. Click **OK**.

20. Scroll to the bottom of the schedule, and now there's really no mistaking which bar is the **Grand Total** bar.

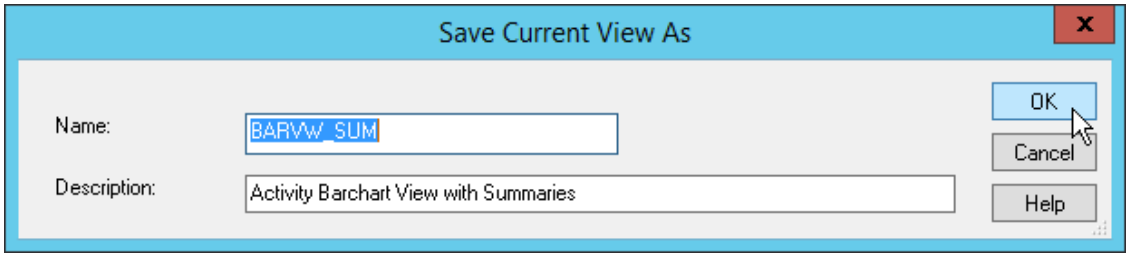


21. Still in the **View** ribbon, click on **Copy View** in the **Save** tool group over to the right.



22. In the **Save Current View As** dialog, enter:

    BARVW_SUM in the name field, and enter **Activity Barchart View with Summaries** in the **Description** field.



23. Click **OK**.

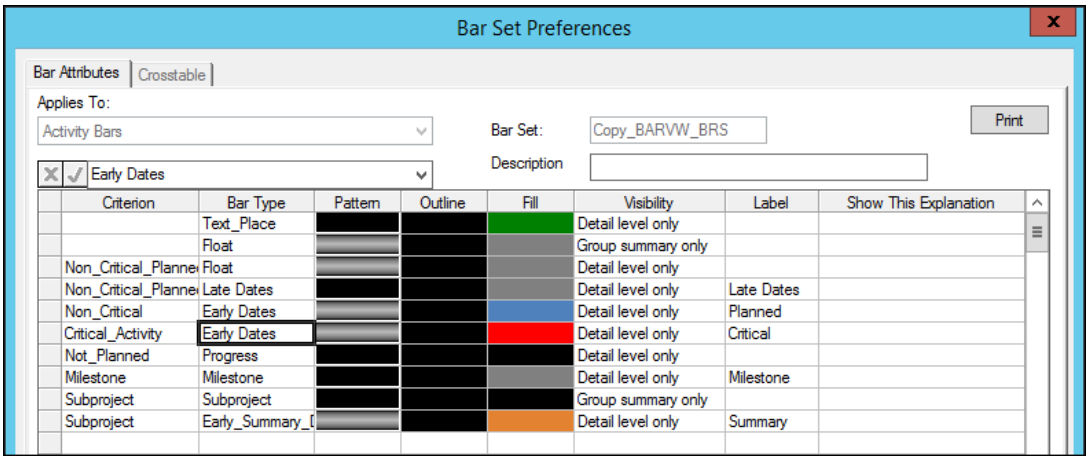
This concludes section 10.5.

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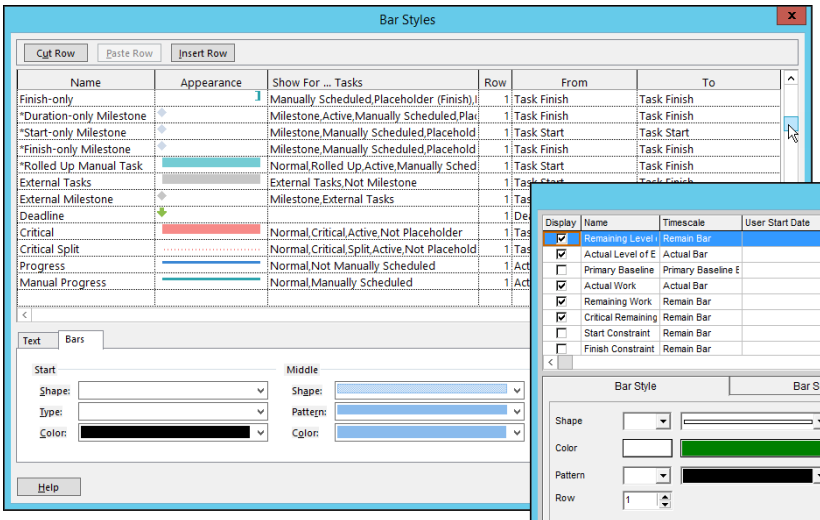
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10.6 Bar Sets

Used to control the appearance of activity bars in Gantt chart views, bar sets are customizable configurations that can be created, copied, or edited, and then applied to your view.

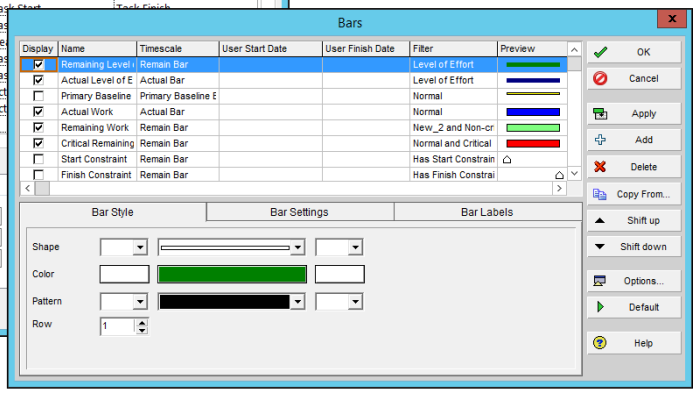


Through the use of filters (Criterion) and attribute settings, Bar Sets control what bars you see in the Gantt chart and how they appear. In many respects this is similar functionality that you find in both Microsoft Project, and Primavera P6. In both cases you work with a table to determine the ranking of a particular bar in the stack. Open Plan's Bar Set Preferences dialog uses the same method.



Microsoft Project Bar Styles

Primavera P6 Bars

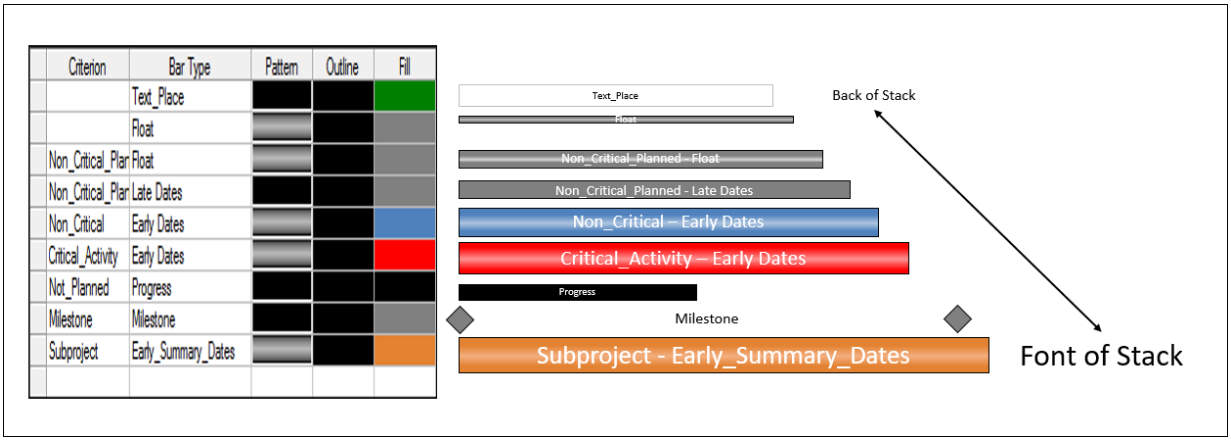


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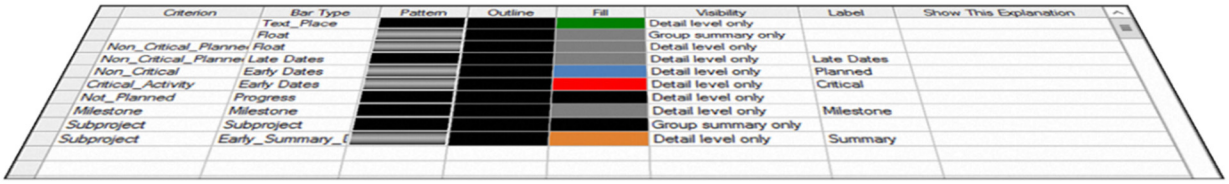
The top to bottom order of these various bars is important as it determines on which layer in the stack the bar is drawn. You may need to change the position of a bar to cause one bar to appear on top of another.

Bars defined at the top of the table are at the bottom of the stack. They could potentially be obscured by higher-ranking bars defined nearer the bottom of the table.

In the figure below, you can see that the Subproject bar at the bottom of the table will be at the front of all the other bars. While the second-from-top 'Float' bar will only be visible when float extends beyond the early dates of a higher-ranking bar.



Think of the table as the 'stack', and we see it from below, looking up. Like this:



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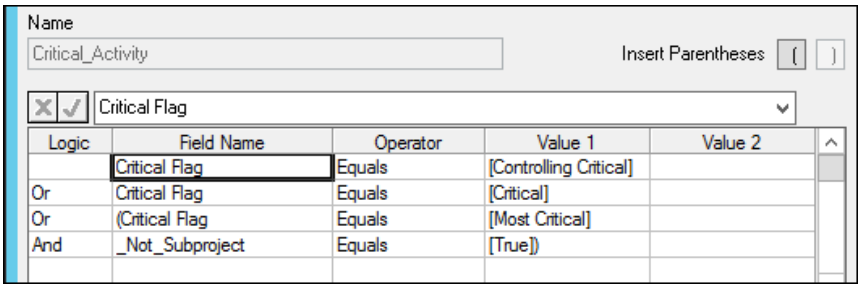
10.6.1 Criterion

Criterion are user-defined filters that will include or exclude certain bars, based on certain criteria: criteria conducive with the type of bar we are attempting to display.

For example, is it a critical activity? If so, create a red bar on the early dates.



The Critical_Activity filter is configured to locate three different types of criticality, and also exclude the higher-ranking orange Subproject bar; a bar that will obscure all other bar types if not excluded by the filter.



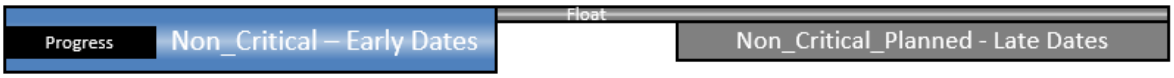
Note the need to coordinate your filters with the stack position of the table. If you're defining a lower-ranking bar, it's supporting filter will have to exclude higher-ranking bar types that would otherwise obscure it.

In the case of a critical, in-progress activity, the Progress bar is placed in front of the critical activity by being lower in the table and thus higher in the stack – so it appears on the bar as configured.



Activities with float are a good way to see the stacking system in action. This non-critical, in-progress, activity is comprised of 4 different bars:

1. **Progress** – Thin black bar that uses the Not_Planned filter.
2. **Non-Critical Early Dates** - Taller blue bar that uses the Non_Critical filter.
3. **Float** – thin grey bar uses pre-defined Bar Type that will automatically span the early start and late finish dates.
4. **Late Dates** – Taller grey bar that uses the Late Date Bar Type, and the Non_Critical_Planned filter.



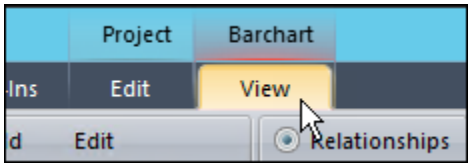
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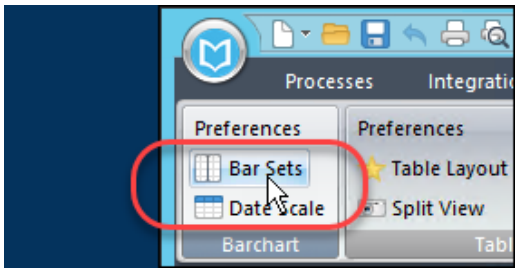
10.6.2 Activity: Adding a Near-critical Bar

The project manager has requested that we provide a 'Purple' activity bar for activities that are within 20 days' float of going critical.

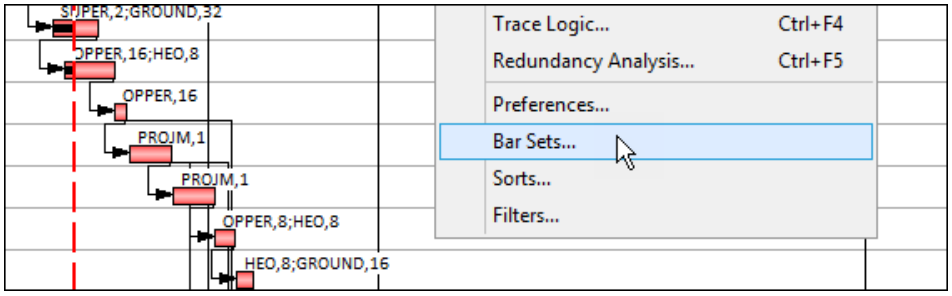
1. Click on the **View** tab.



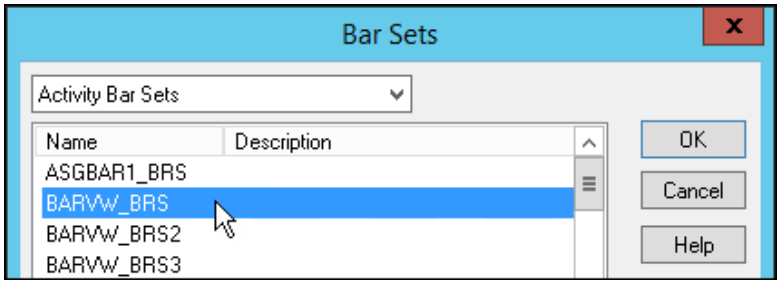
2. Click **Bar Sets** in the **Barchart** tool group.



Note: You can also right-click in the barchart area and choose **Bar Sets…** from the menu.



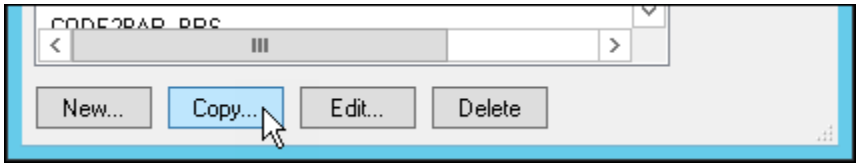
3. Select the **BARWV_BRS** view in the **Bar Sets** dialog.



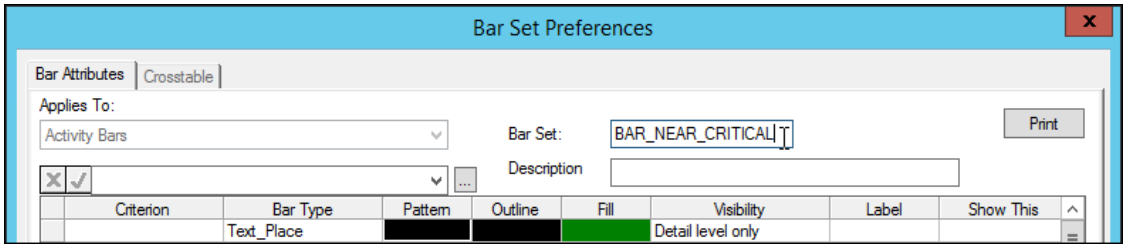
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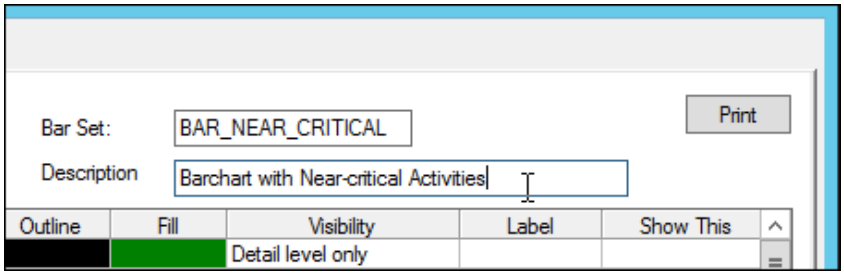
4. Click the **Copy…** button.



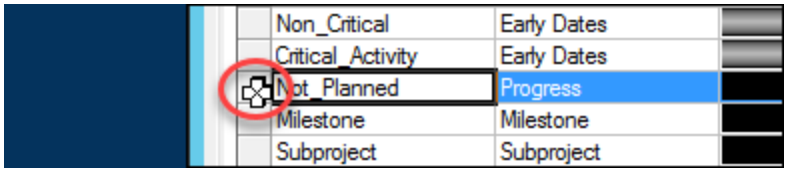
5. First, enter '**BAR_NEAR_CRITICAL**' in the **Bar Set:** field.



6. Enter a description of '**Barchart with Near-critical Activities**'.



7. Click on the row header for the **Progress** activity to select it.



8. Click the **Insert** key on your keyboard.

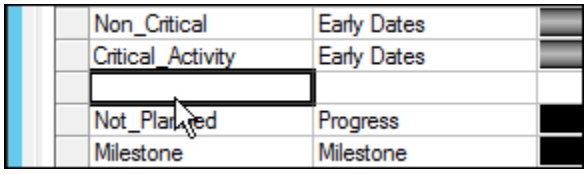


A new row is inserted above the **Progress** activity.

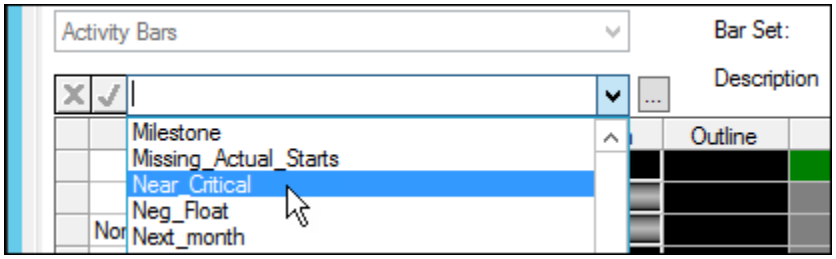
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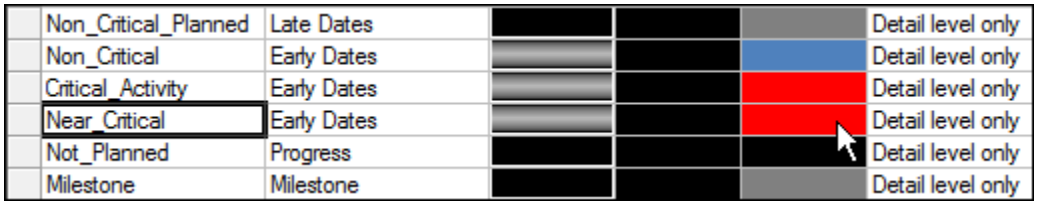
9. Click to select the **Criterion** cell for the new row.



10. In the **Criterion** dropdown field, select the **Near_Critical** filter you created earlier.

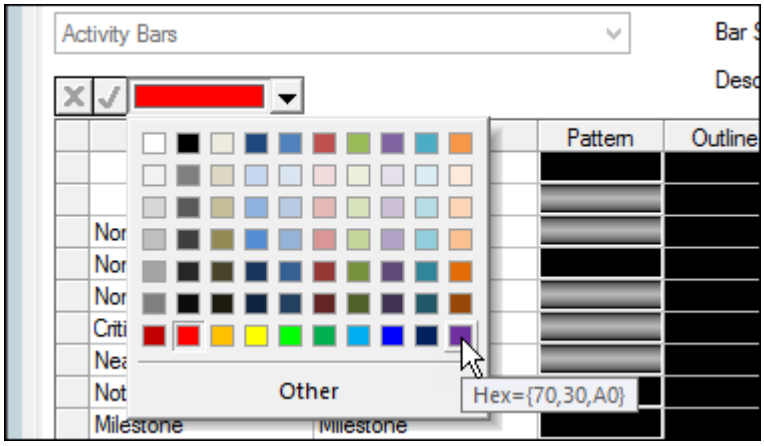


11. Notice how the new **Near_Critical** bar row has inherited the attributes of the **Critical** bar above.



We only need to edit the color to create our near-critical bar.

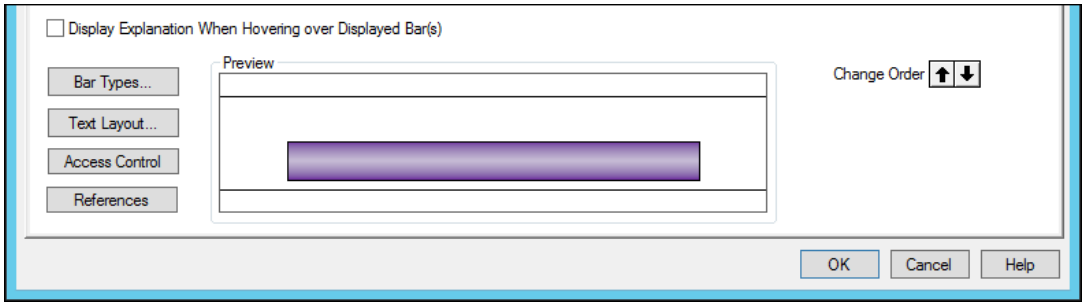
12. Click on the **Color** dropdown and select **Purple** from the resulting pallet.



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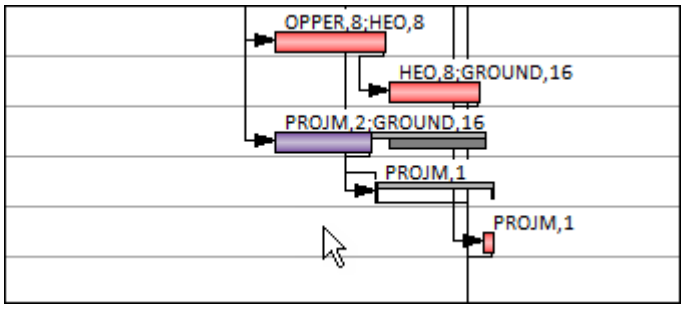
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13. Check the **Preview** box to see what your new bar will look like.

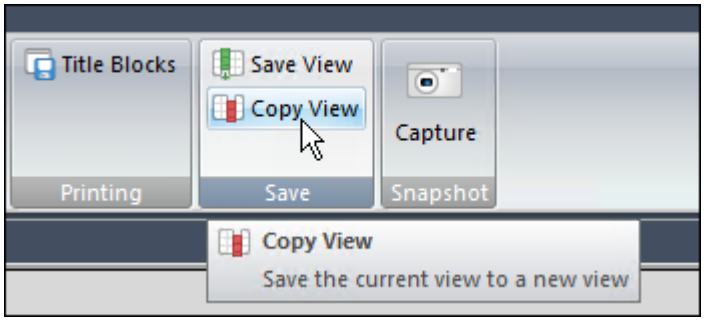


14. Click **OK**.

15. Now check the Gantt chart to see if there are any examples of your new near-critical bar.

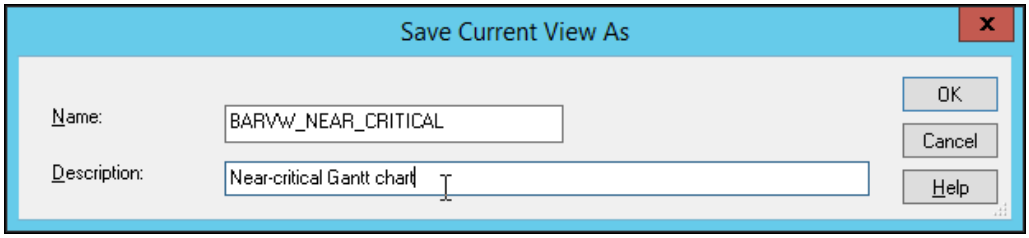


16. In the **View** menu, click **Copy View**.



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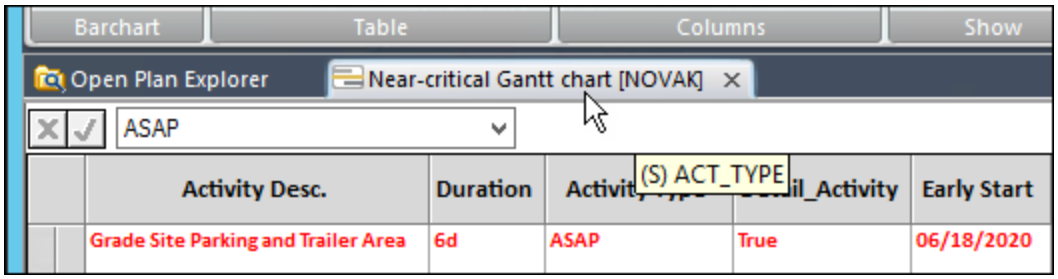
17. Enter the following in the **Save Current View As** dialog.



Name: BARVW_NEAR_CRITICAL
Description: Near-critical Gantt chart

18. Click **OK**.

19. Note the tab is now labeled '**Near-critical Gantt chart**'.



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10.7 Time-phased Reporting

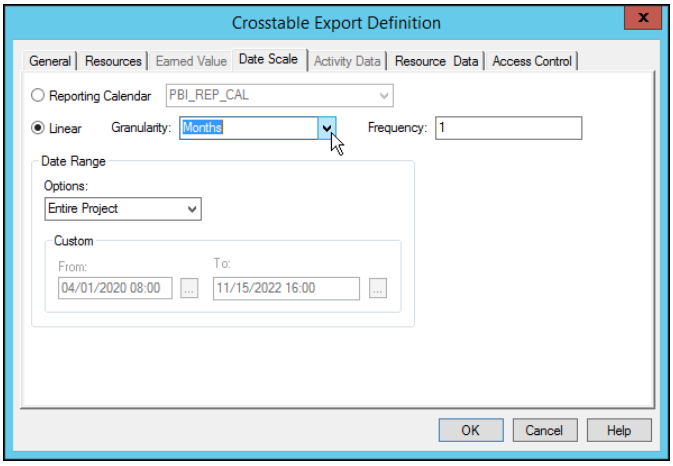
The Crosstable Data tool generates a .CSV file that can be reviewed in an Excel spreadsheet. The spreadsheet contains time-phased data based upon either a Reporting Calendar, or a standard linear calendar for yearly, quarterly, monthly, weekly, daily, even hourly data.

The Crosstable Data tool can output a wide range of resource data types including quantity, Cost, and Escalated Cost, based upon Early, Late, Schedule, Actual, and Baseline data.

	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R
1	Open Plan Enhanced Crosstab for Project: NOVAK																	
2	Open Plan Enhanced Crosstab Specification: ETC_Values																	
3	==========																	
4																		
5	Res. Units (UNIT)	Res. Desc. (DESCRIPTION)	Resource ID	Values	Usage/EV	20-Apr	20-May	20-Jun	20-Jul	20-Aug	20-Sep	20-Oct	20-Nov	20-Dec	21-Jan	21-Feb	21-Mar	21-Apr
6	Hours	Backhoe Operator	LABOR.BHO	Quantity	Early							120				32	184	16
7	Hours	Carpenters	LABOR.CARPENTER	Quantity	Early													320
8	Hours	Electrical Engineer	LABOR.ELECRICALENG	Quantity	Early													
9	Hours	Electrical Technician	LABOR.ELECTRICIAN	Quantity	Early													
10	Hours	Ground Worker	LABOR.GROUND	Quantity	Early		320	160			304		72	528	480	384		480
11	Hours	Heavy Equipment Operator	LABOR.HEO	Quantity	Early			64			168	216	216					
12	Hours	Line Worker	LABOR.LINEWRK	Quantity	Early													
13	Hours	Mason	LABOR.MASON	Quantity	Early													
14	Hours	Equipment Opperator	LABOR.OPPER	Quantity	Early			224			96	96	144					
15	Hours	Project Manager	LABOR.PROJM	Quantity	Early		40	86	115	105	110	89	84	88	80	80	92	88
16	Hours	Roofing Specialist	LABOR.ROOFER	Quantity	Early													
17	Hours	Steel Worker	LABOR.STEELWRK	Quantity	Early													
18	Hours	Site Superintendent	LABOR.SUPER	Quantity	Early		100	178	184	168	176	176	168	176	160	160	184	176
19	Hours	Team Lead	LABOR.TEAMLEAD	Quantity	Early													
20	Hours	Test Engineer	LABOR.TESTENG	Quantity	Early													
21	CY	Concrete (Cubic Yard)	MATERIAL.CONCRETE_CY	Quantity	Early													58
22	LF	Control Cable (Linear Ft.)	MATERIAL.CTRL_CABLE	Quantity	Early													
23	EA	Siemens Phase-shifting 230k	MATERIAL.TRANSFORMER	Quantity	Early													
24	Per Day	60 TON Boom Crane w/opera	ODC.CRANE	Quantity	Early													
25	LS	Safety Officer	SUBCON.SAFETY	Quantity	Early						5085.08	9322.65	8898.89	9322.65	8475.13	8475.13	9746.4	9322.65
26	LS	Security Guard	SUBCON.SECGRD	Quantity	Early		11500.74	24151.55	26451.7	24151.55	25301.62	25301.62	24151.55	25301.62	23001.48	23001.48	26451.7	25301.62
27	Hours	Backhoe Operator	LABOR.BHO	Quantity	ETC							120				32	184	16
28	Hours	Carpenters	LABOR.CARPENTER	Quantity	ETC													320
29	Hours	Electrical Engineer	LABOR.ELECRICALENG	Quantity	ETC													
30	Hours	Electrical Technician	LABOR.ELECTRICIAN	Quantity	ETC													
31	Hours	Ground Worker	LABOR.GROUND	Quantity	ETC		320	160			304		72	528	480	384		480
32	Hours	Heavy Equipment Operator	LABOR.HEO	Quantity	ETC			64			168	216	216					
33	Hours	Line Worker	LABOR.LINEWRK	Quantity	ETC													
34	Hours	Mason	LABOR.MASON	Quantity	ETC													

Crosstable spreadsheets are so called because they access multiple activity and resource tables in the database. Most views utilize just one table, and/or a subset thereof.

The Crosstable Data feature is easy to use and allows you to save your configurations for later access.



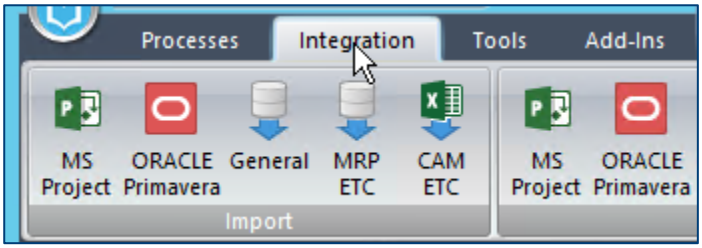
This next activity will show you how to use the Crosstable feature.

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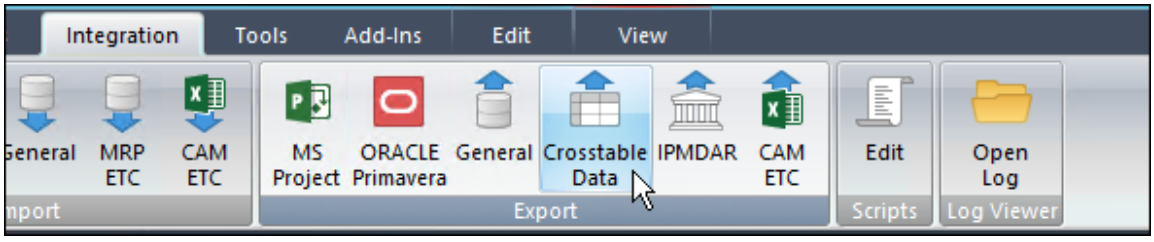
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10.7.1 Activity: Producing Time-phased (Crosstable) Reports

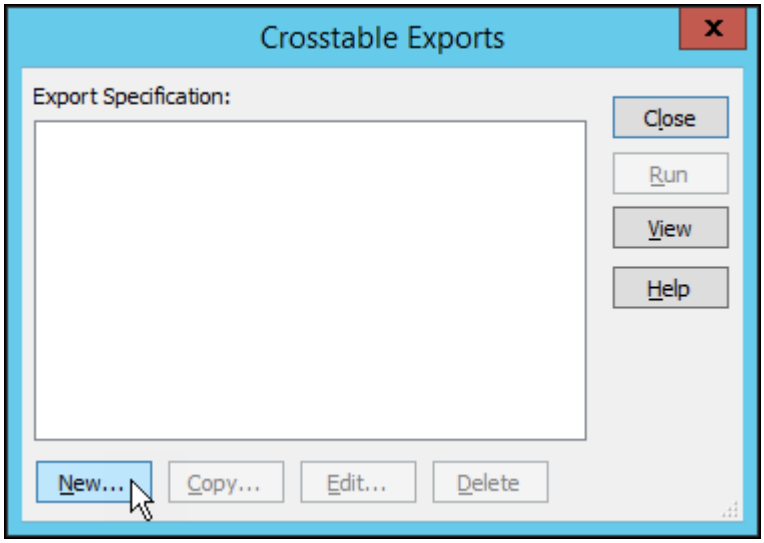
1. Click on **Integration**.



2. Click **Crosstable Data** in the **Export** tool group.



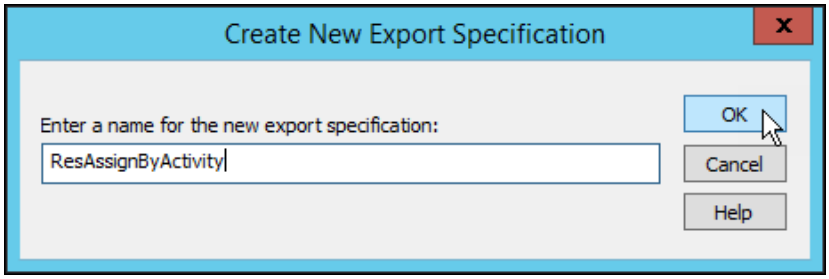
3. Click the **New…** button.



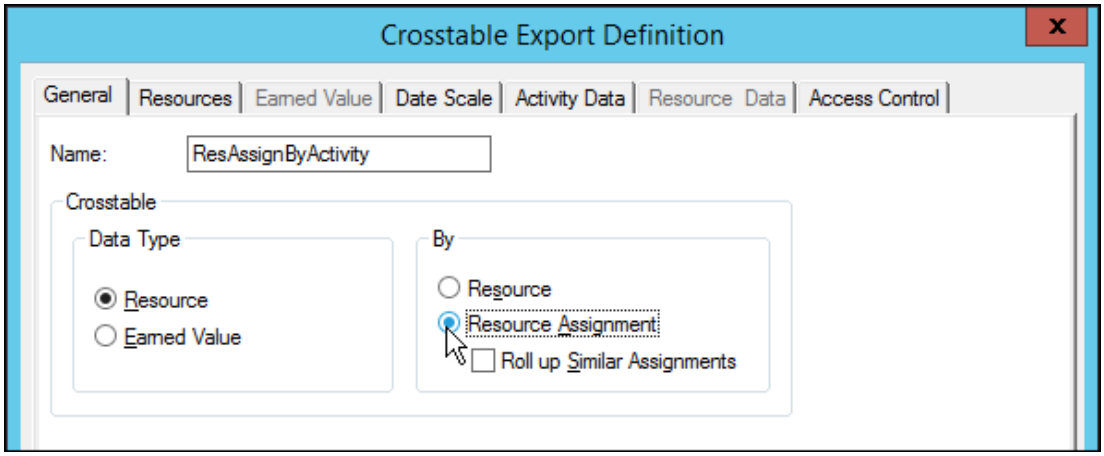
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4. Enter a name for the new Export configuration: **ResAssignByActivity**



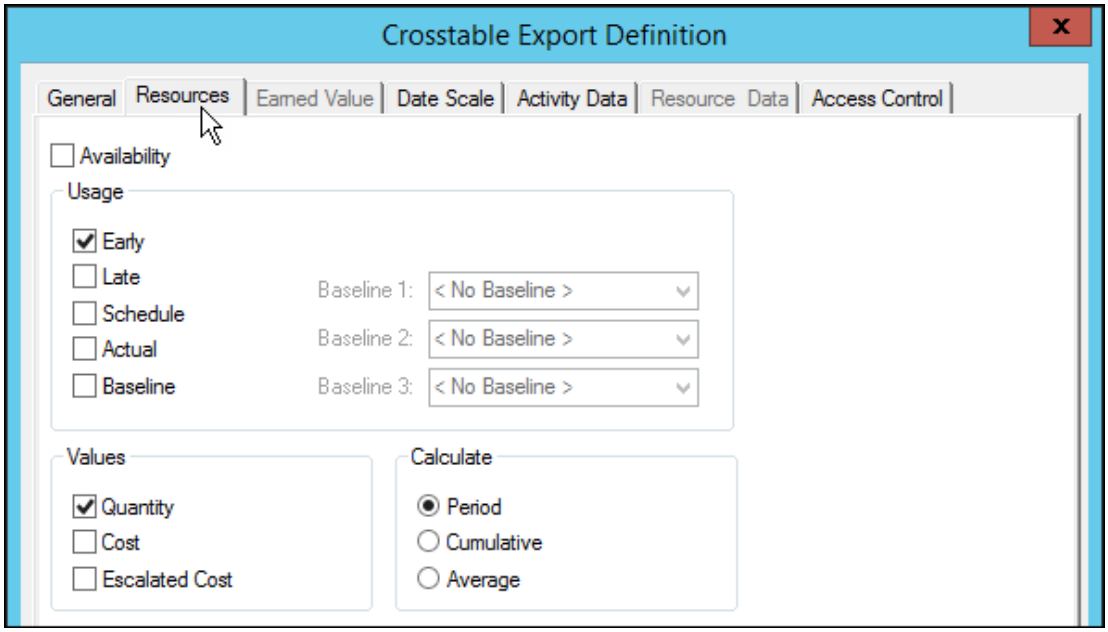
5. In the **General** tab, set **Resource Assignments**.



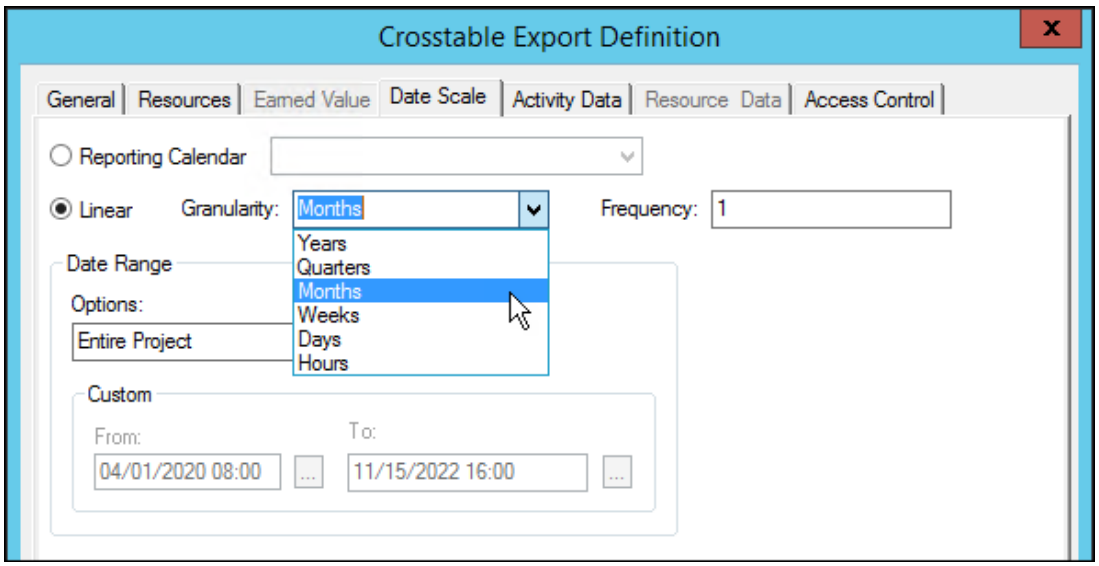
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6. In the **Resources** tab, go with **Early**, **Quantity**, and **Period**.



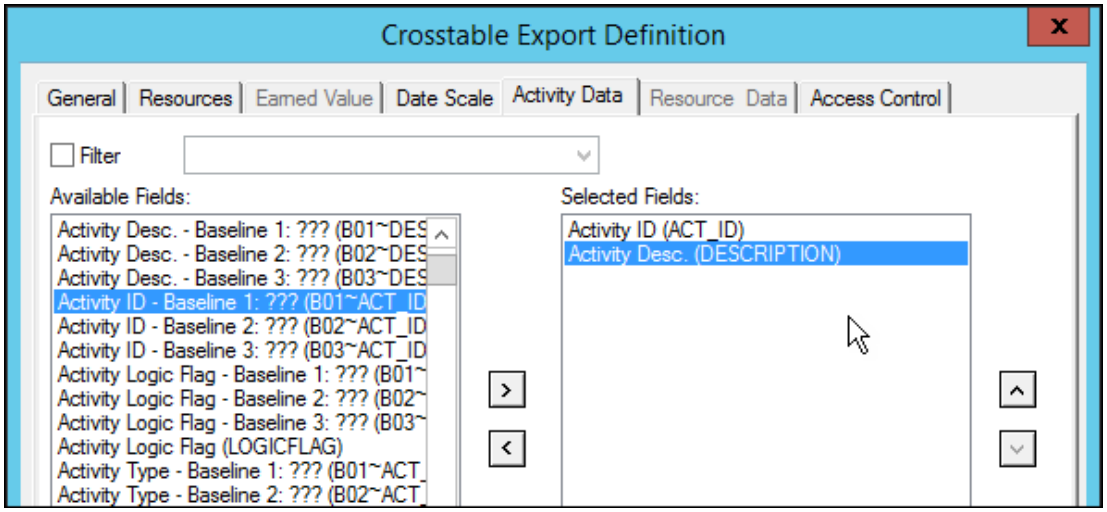
7. In **Date Scale**, set to **Linear**, **Months**, with a **Frequency** of **1**.



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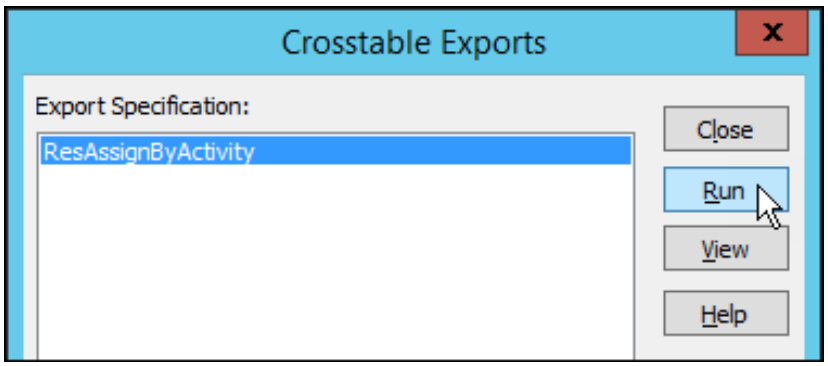
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8. In **Activity Data**, place the **Activity ID**, and **Description** in the **Selected Fields:** list.



9. Click **OK**.

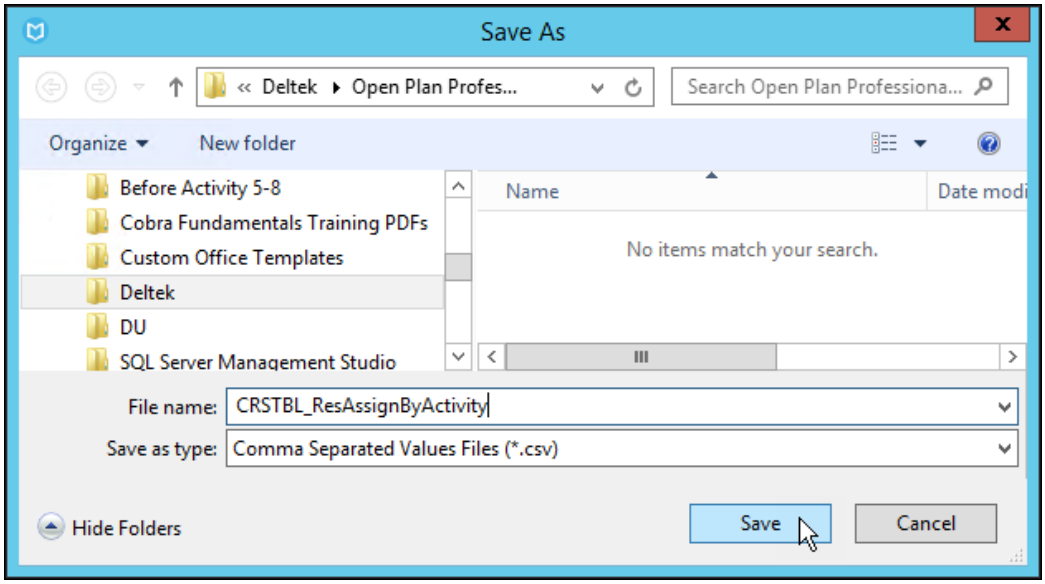
10. Click **Run**.



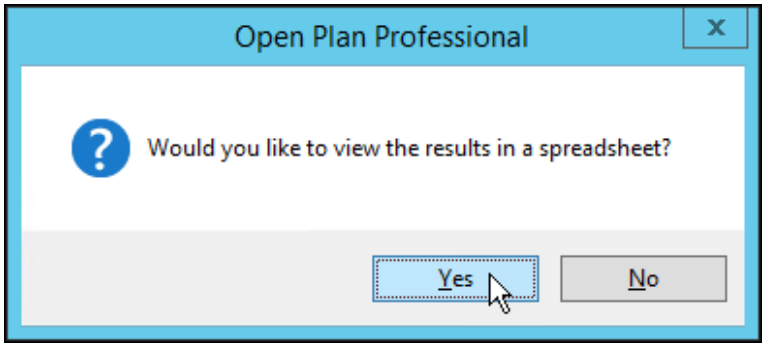
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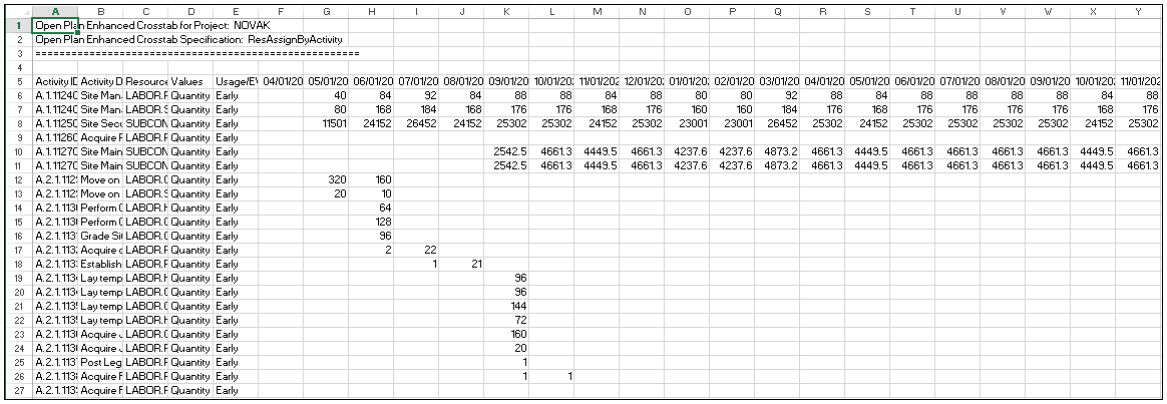
11. Enter '**CRSTBL_ResAssignByActivity**' in the **File name:** field and click **Save**.



12. Say **Yes** to the prompt.



13. Review the spreadsheet that opened on your screen.

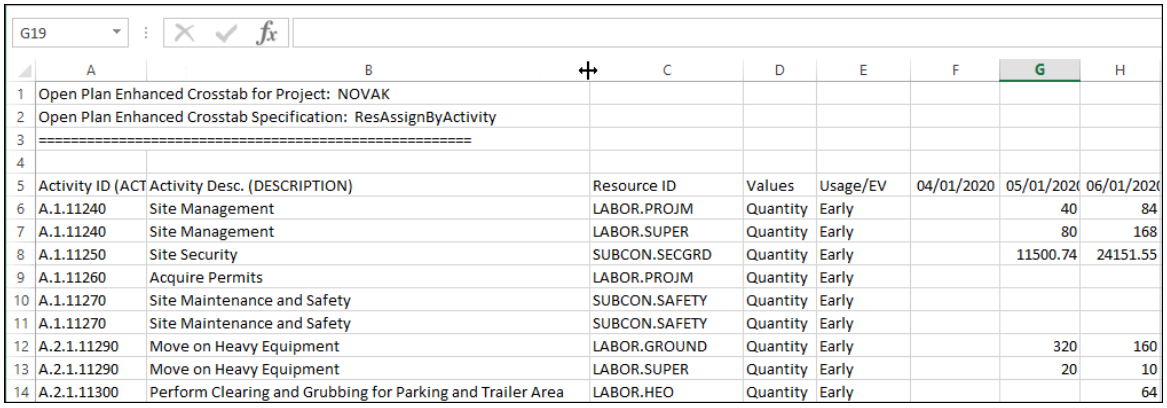


	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S	T	U	V	W	X	Y
1	Open Plan Enhanced Crosstab for Project: NOVAK																								
2	Open Plan Enhanced Crosstab Specification: ResAssignByActivity																								
3	==========																								
4																									
5	Activity ID	Activity D	Resource	Values	Usage/Ea	04/01/20	05/01/20	06/01/20	07/01/20	08/01/20	09/01/20	10/01/20	11/01/20	12/01/20	01/01/20	02/01/20	03/01/20	04/01/20	05/01/20	06/01/20	07/01/20	08/01/20	09/01/20	10/01/20	11/01/20
6	A.1.1124	Site Man	LABOR.F	Quantity	Early		40	84	92	84	88	88	84	88	80	80	92	88	84	88	88	88	88	84	88
7	A.1.1124	Site Man	LABOR.S	Quantity	Early		80	168	184	168	176	176	168	176	160	160	184	176	168	176	176	176	176	168	176
8	A.1.1125	Site Secu	SUBCON	Quantity	Early		11501	24152	26452	24152	25302	25302	24152	25302	23001	23001	26452	25302	24152	25302	25302	25302	25302	24152	25302
9	A.1.1126	Acquire F	LABOR.F	Quantity	Early																				
10	A.1.1127	Site Main	SUBCON	Quantity	Early						2542.5	4661.3	4449.5	4661.3	4237.6	4237.6	4873.2	4661.3	4449.5	4661.3	4661.3	4661.3	4661.3	4449.5	4661.3
11	A.1.1127	Site Main	SUBCON	Quantity	Early						2542.5	4661.3	4449.5	4661.3	4237.6	4237.6	4873.2	4661.3	4449.5	4661.3	4661.3	4661.3	4661.3	4449.5	4661.3
12	A.2.1.112	Move on	LABOR.C	Quantity	Early		320	160																	
13	A.2.1.112	Move on	LABOR.S	Quantity	Early		20	10																	
14	A.2.1.113	Perform (	LABOR.F	Quantity	Early			64																	
15	A.2.1.113	Perform (	LABOR.C	Quantity	Early			128																	
16	A.2.1.113	Grade Sit	LABOR.C	Quantity	Early			96																	
17	A.2.1.113	Acquire c	LABOR.F	Quantity	Early			2	22																
18	A.2.1.113	Establish	LABOR.F	Quantity	Early				1	21															
19	A.2.1.113	Lay temp	LABOR.F	Quantity	Early						96														
20	A.2.1.113	Lay temp	LABOR.C	Quantity	Early						96														
21	A.2.1.113	Lay temp	LABOR.C	Quantity	Early						144														
22	A.2.1.113	Lay temp	LABOR.F	Quantity	Early						72														
23	A.2.1.113	Acquire .	LABOR.C	Quantity	Early						160														
24	A.2.1.113	Acquire .	LABOR.F	Quantity	Early						20														
25	A.2.1.113	Post Leg	LABOR.F	Quantity	Early						1														
26	A.2.1.113	Acquire F	LABOR.F	Quantity	Early						1	1													
27	A.2.1.113	Acquire F	LABOR.F	Quantity	Early																				

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14. Widen some of the fields to the left, to see the activity ID and description, with a list of assigned resources.



	A	B	C	D	E	F	G	H
1	Open Plan Enhanced Crosstab for Project: NOVAK							
2	Open Plan Enhanced Crosstab Specification: ResAssignByActivity							
3	==========							
4								
5	Activity ID (ACT	Activity Desc. (DESCRIPTION)	Resource ID	Values	Usage/EV	04/01/2020	05/01/202(	06/01/202(
6	A.1.11240	Site Management	LABOR.PROJM	Quantity	Early		40	84
7	A.1.11240	Site Management	LABOR.SUPER	Quantity	Early		80	168
8	A.1.11250	Site Security	SUBCON.SECGRD	Quantity	Early		11500.74	24151.55
9	A.1.11260	Acquire Permits	LABOR.PROJM	Quantity	Early			
10	A.1.11270	Site Maintenance and Safety	SUBCON.SAFETY	Quantity	Early			
11	A.1.11270	Site Maintenance and Safety	SUBCON.SAFETY	Quantity	Early			
12	A.2.1.11290	Move on Heavy Equipment	LABOR.GROUND	Quantity	Early		320	160
13	A.2.1.11290	Move on Heavy Equipment	LABOR.SUPER	Quantity	Early		20	10
14	A.2.1.11300	Perform Clearing and Grubbing for Parking and Trailer Area	LABOR.HEO	Quantity	Early			64

15. Close the **Spreadsheet**.

16. Close the **Crosstable Exports** dialog.

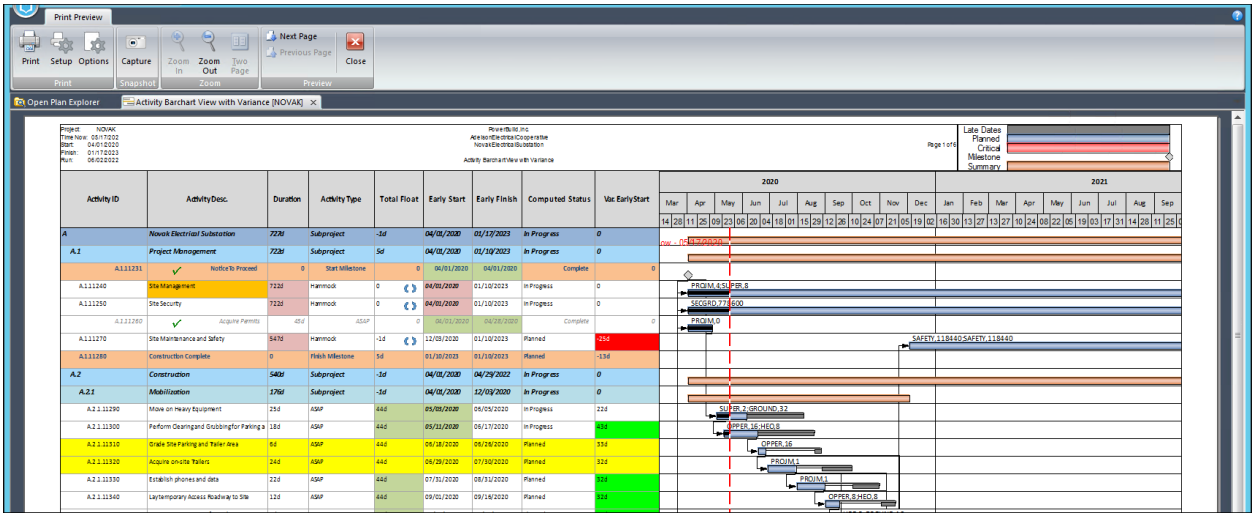


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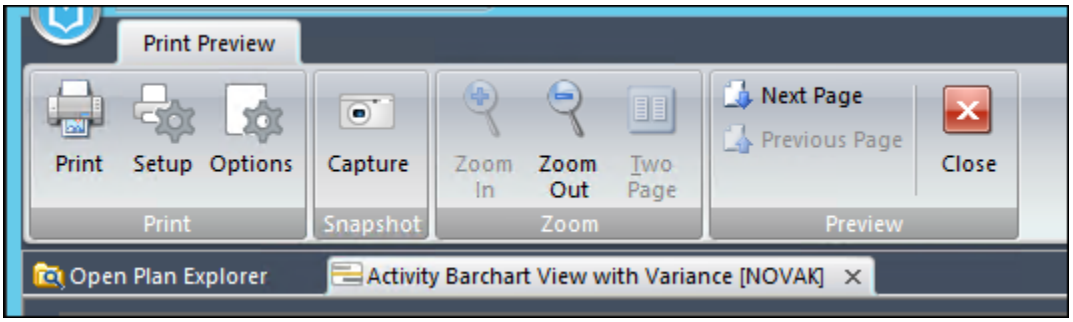
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10.8 Printing Reports

Views are the basis of printed reports in Open Plan. If you want to print out a Gantt chart, you select or create a view that displays all the data you need, then use Print Preview to finalize the appearance of the report before printing.



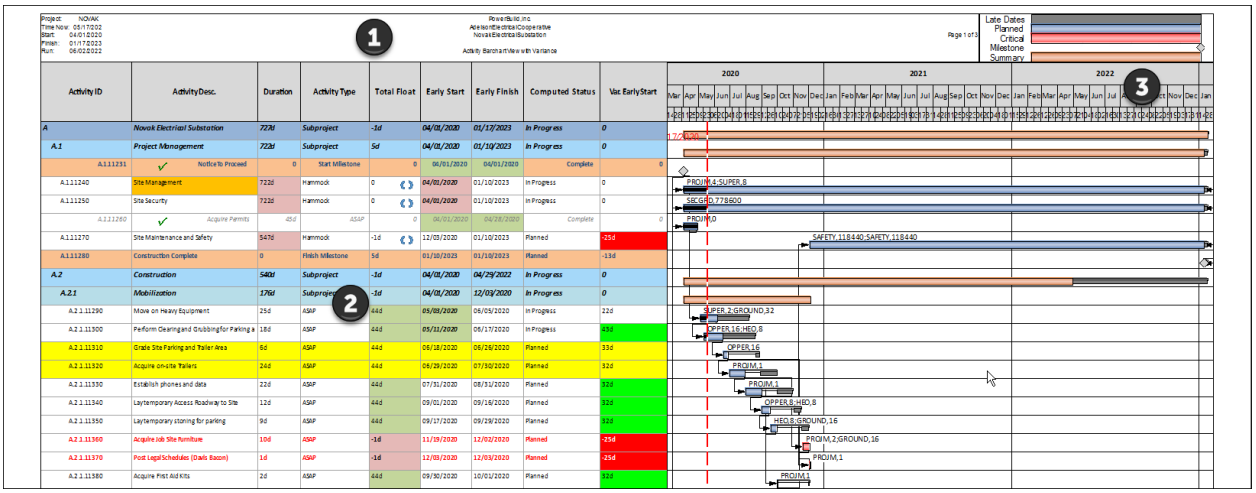
The Print Preview ribbon appears when you are in the preview mode. This offers **Print**, **Setup**, and **Options** buttons in the **Print Group**. These are all there to help you arrange the data on the page.



As well as a screen capture button, you can Zoom in or out, select a two-page view, and step to different pages using the **Next** and **Previous** page buttons.

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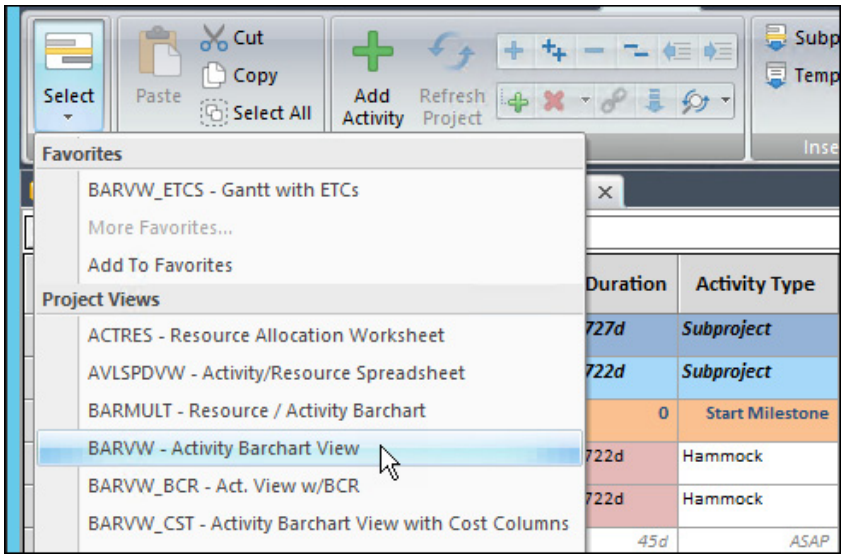
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1. Title Block – customize your headers and footers using the Title Block feature.
2. Table area is based upon the parameters as set out in the current view.
3. Legend – this is an optional legend that will display all in-use activity bars displayed in the barchart.

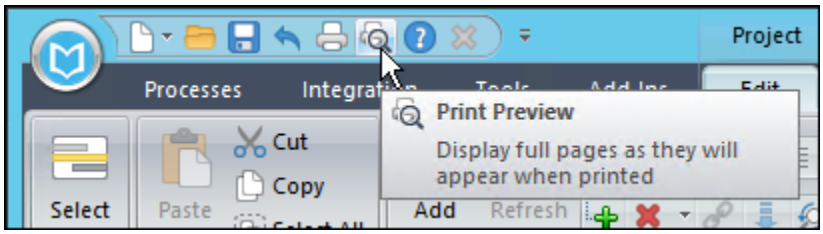
10.8.1 Activity: Using Print Preview

1. If not already selected, open the **BARVW - Activity Barchart View**.

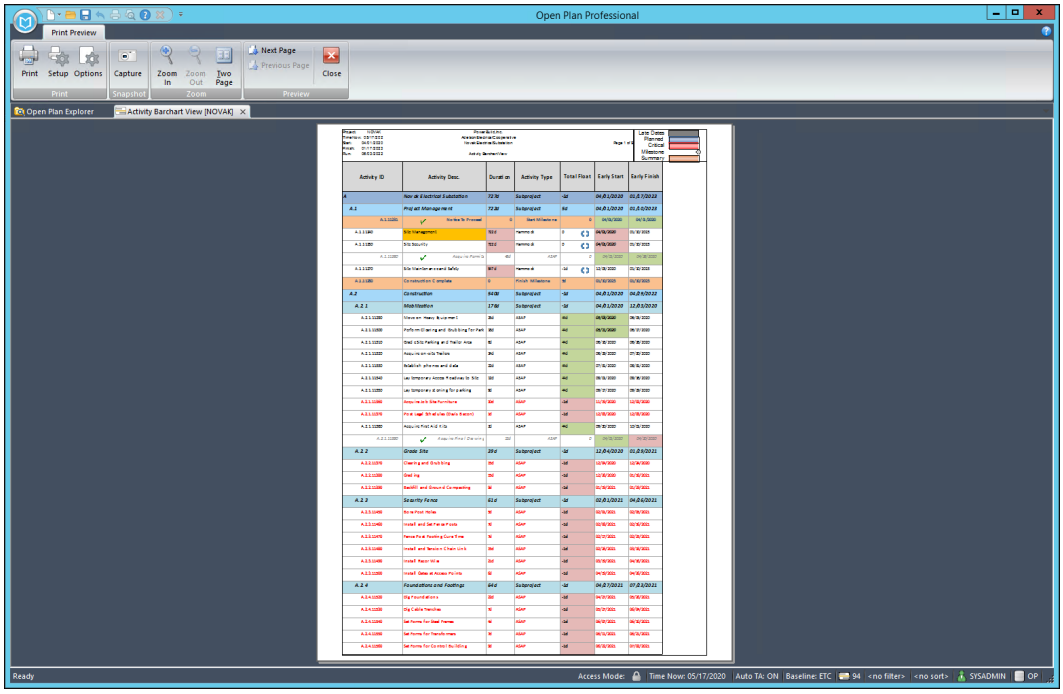


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2. Click on **Print Preview**.



3. Review the **Print Preview** screen.

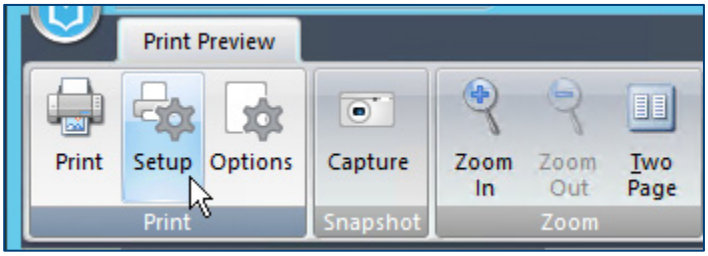


By default, the view has provided a Letter size sheet in portrait. For our barchart we need to change some settings so we see more data on each sheet.

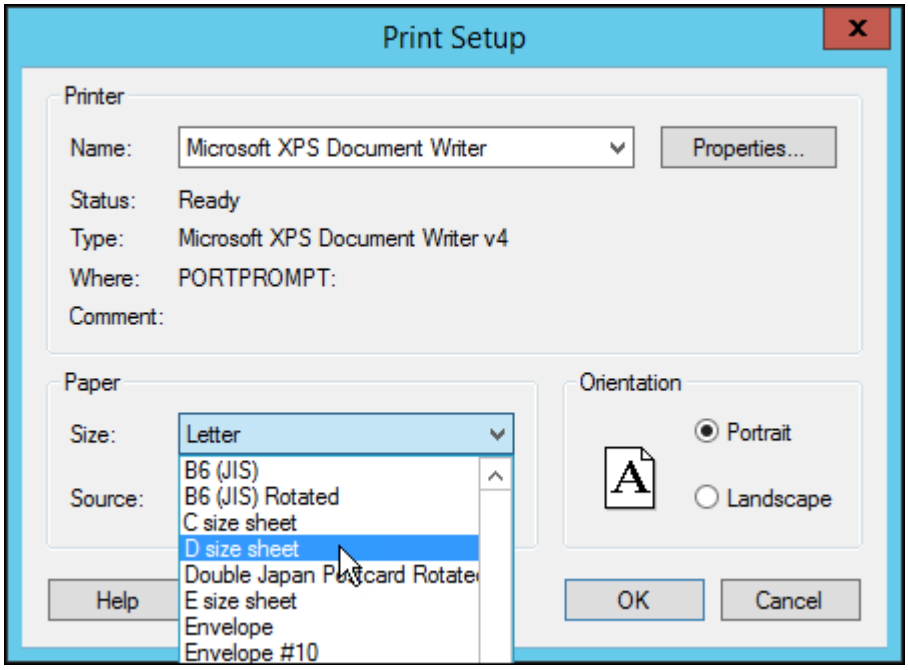
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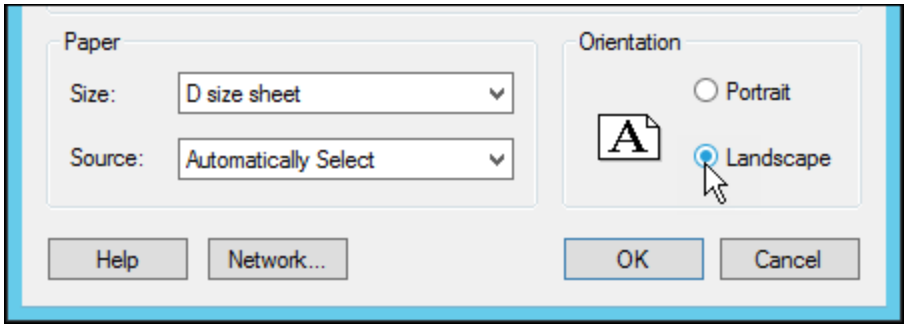
4. In the **Print Preview** ribbon, click on the **Setup** button.



5. In **Print Setup**, change the Paper Size: to **D size sheet**.



6. Select **Landscape** in the orientation radio group.

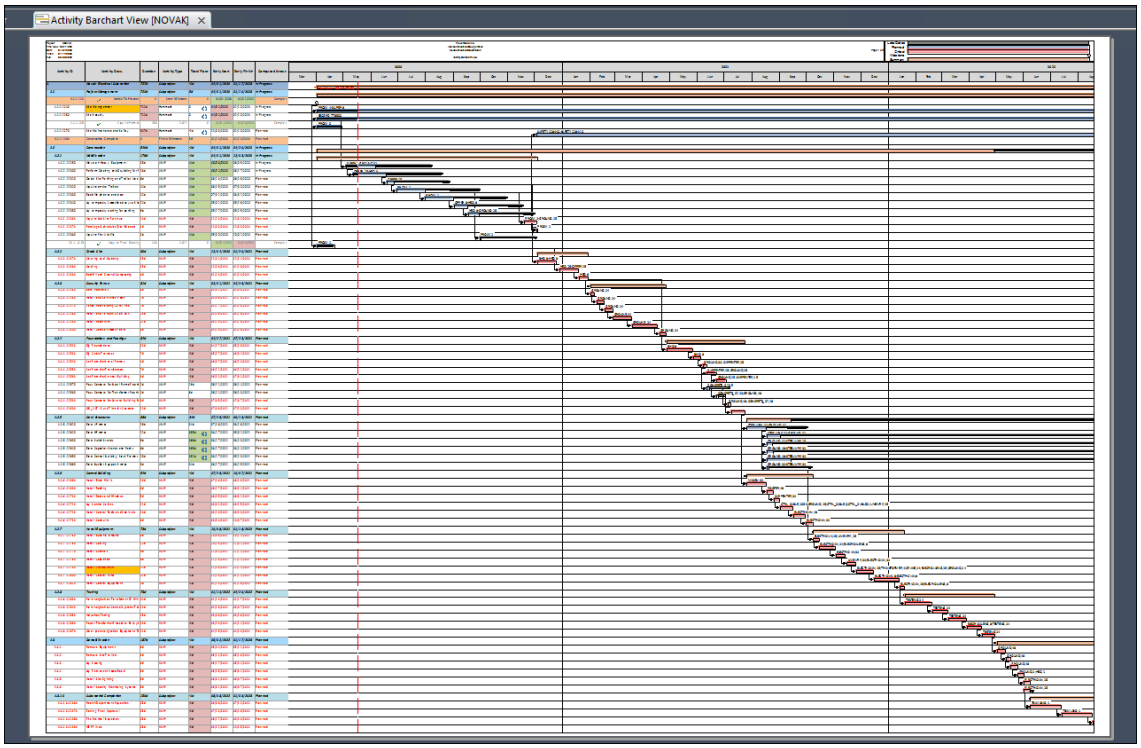


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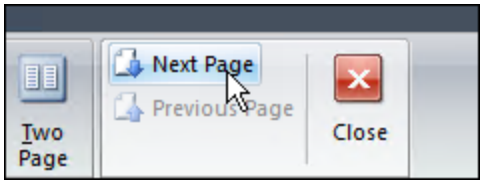
7. Click **OK**.

8. Review the changes to the sheet.



The table and barchart are now displaying the view on 22 x 34 inch plot paper. Print Preview is dependent on the installed printers on the system to determine the available sizes. In this case we are using the default Microsoft XPS Document Writer, which has a wide range of paper sizes to choose from.

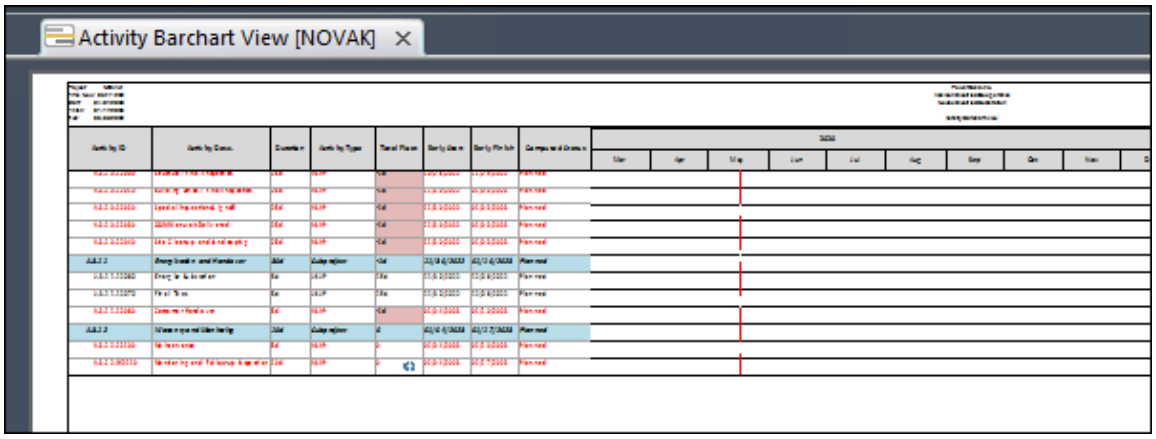
9. Click the **Next Page** button in the ribbon.



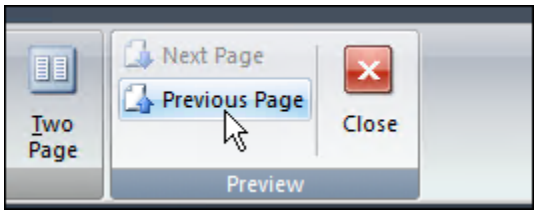
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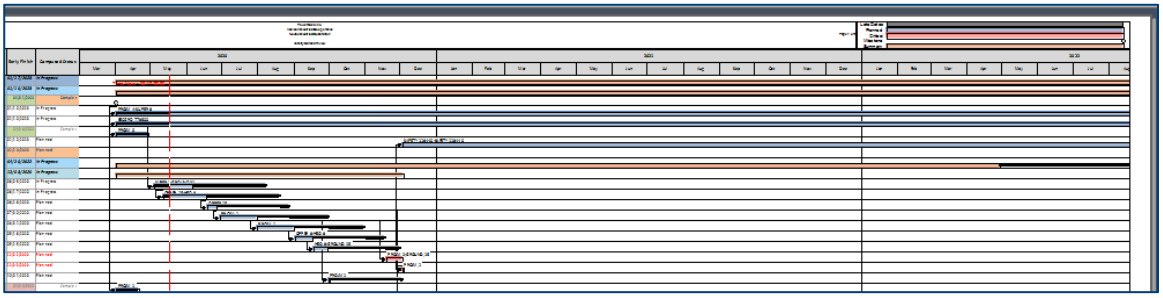
The second page shows the remaining lines that didn't fit on the first page.



10. Click on the **Previous Page** button.



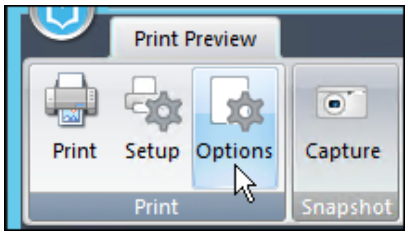
It appears that we don't have the entire duration of the schedule displayed. Let's adjust the start and finish dates for the Barchart.



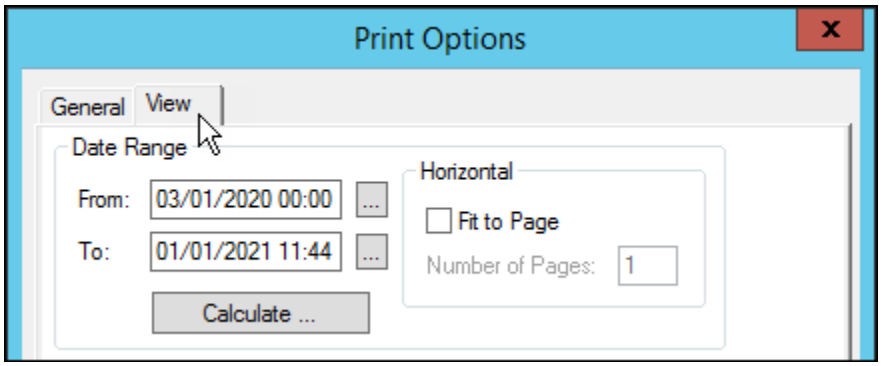
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11. Click the **Options** button.

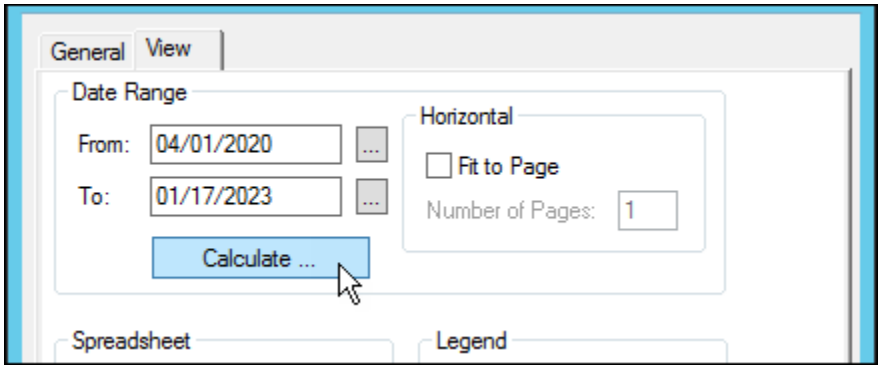


12. Click the **View** tab.



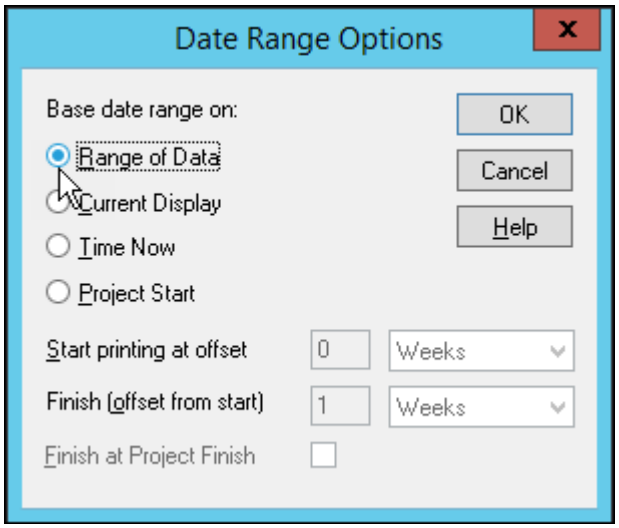
In the **View** tab, there are a couple of options for setting the date range for the report. We see here that the range ends on 01/01/2021.

13. Click the **Calculate** button.



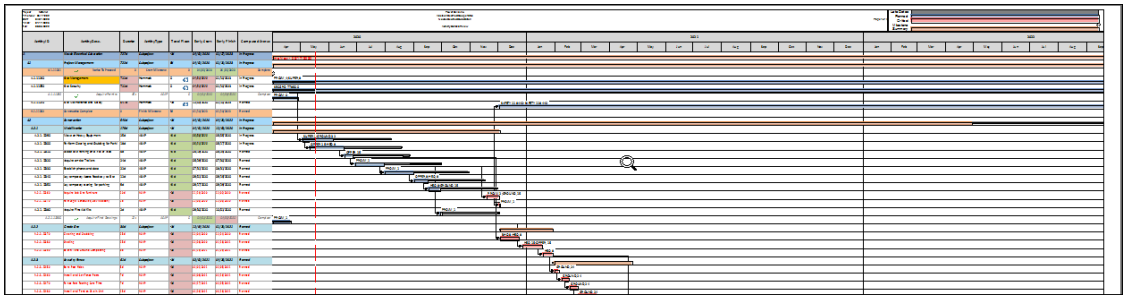
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14. Click **Range of Data** in the **Date Range Options** dialog.



15. Click **OK**.

16. Click **Ok** once more to close the **Print Options** dialog.



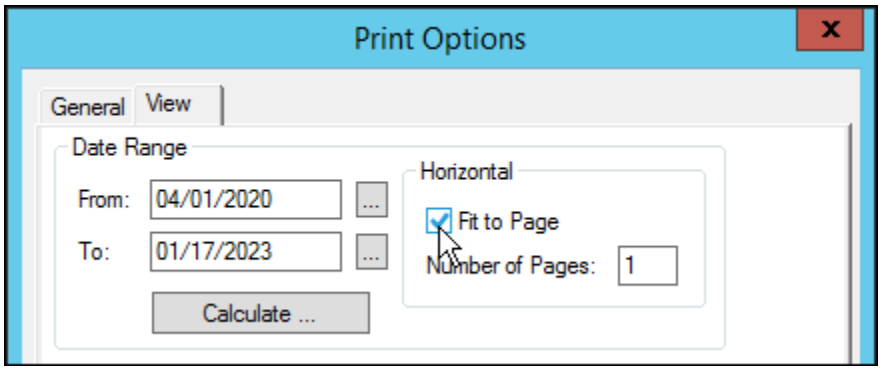
While that has expanded the Barchart date range, we're not seeing the entire Gantt chart in the first page.

Let's look at fine-tuning this with some further options.

17. Click **Options**.

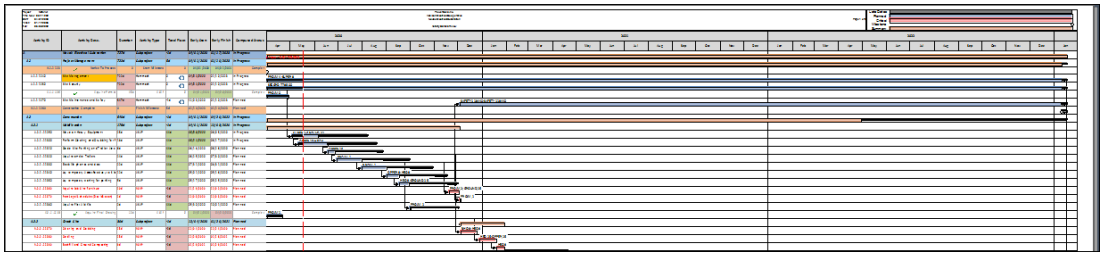
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18. In the **View** tab, click the **Fit to Page** option.



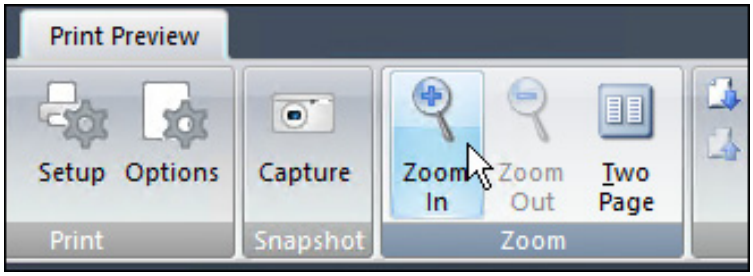
19. Click **OK**.

20. Review the results.



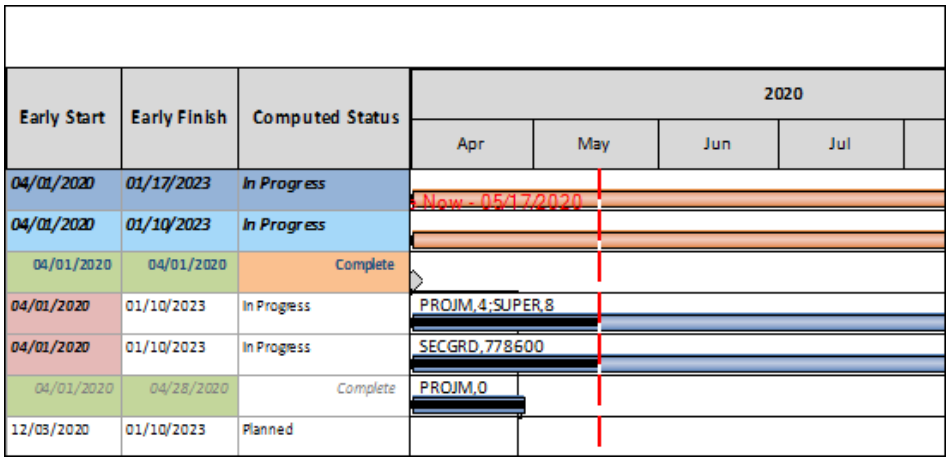
The entire date range of the Gantt chart now appears on the first page.

21. Click the **Zoom In** button a couple of times.



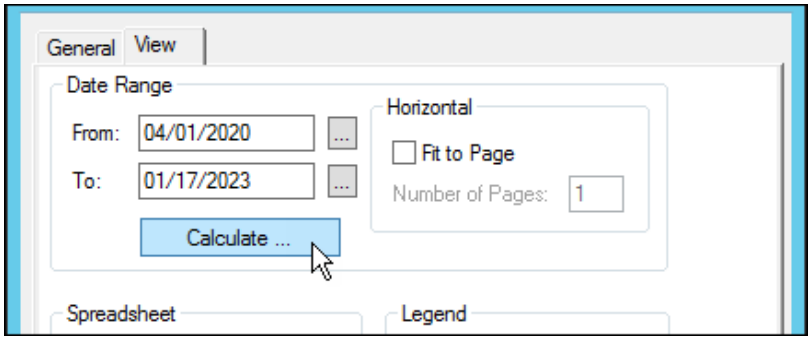
Note how the first bars in the schedule are sitting right up against the table area.

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We can improve this using an offset back in the **Options** dialog.

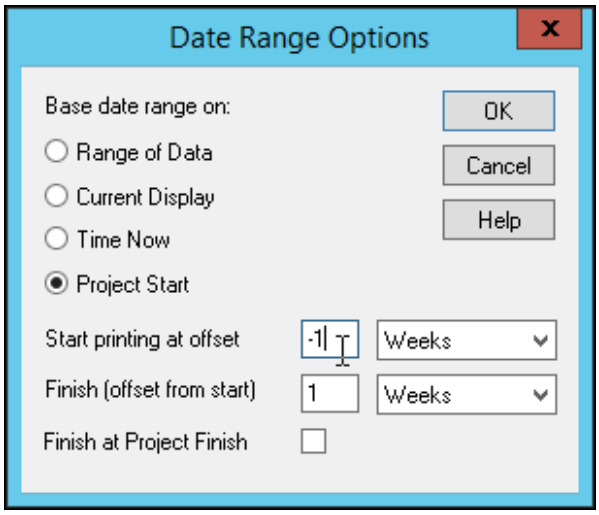
22. Open the **Options** dialog, click on **View**, and click **Calculate**.



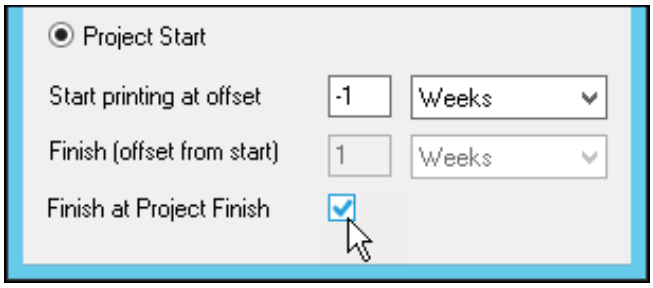
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23. Select the **Project Start** radio button and set the **Start Printing at offset** to '-1'.



24. Now select the **Finish at Project Finish** option at the bottom of the dialog.

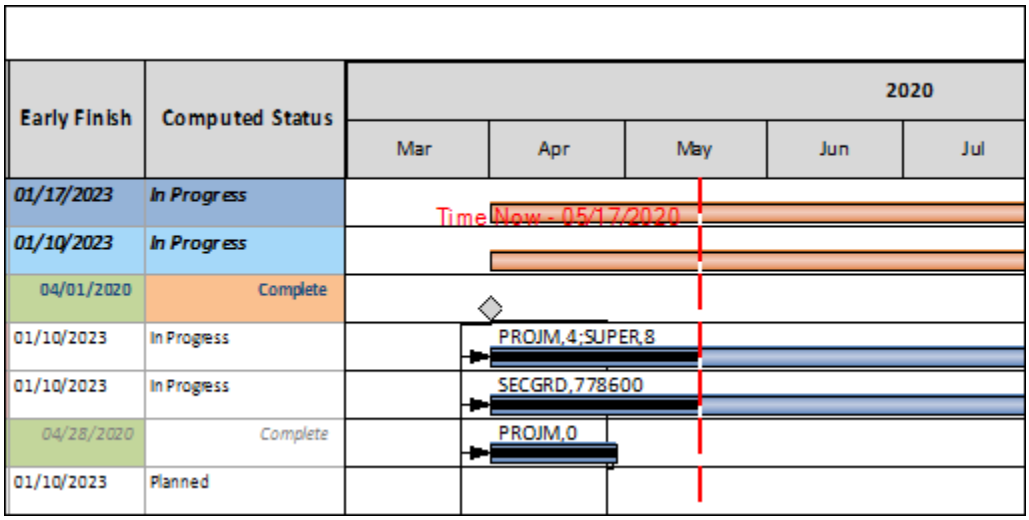


25. Click **OK** twice to close the dialogs and see the results of the change.

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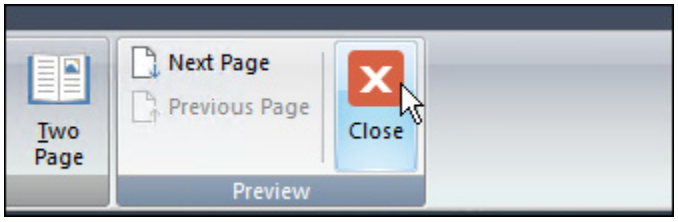
26. Review the results in the preview window.



We can now see the start of the bars, and their relationships giving a less cluttered appearance to the start of the Gantt chart.

You can now print your report.

27. Click **Close**.

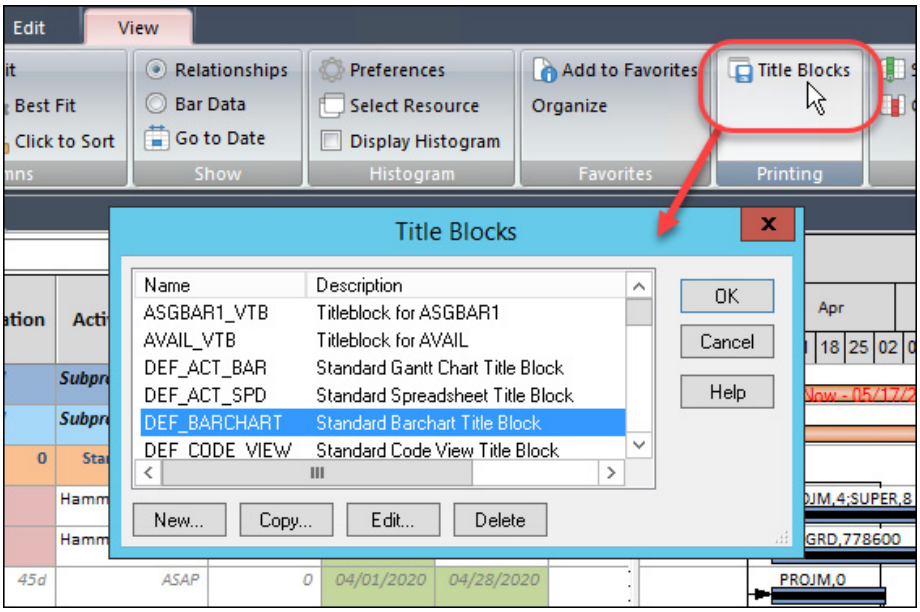


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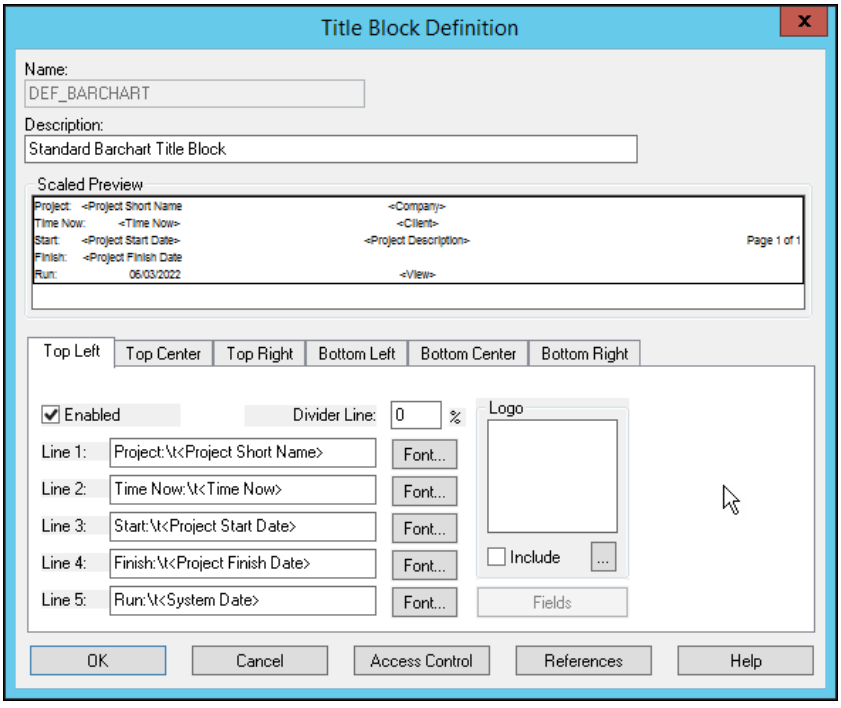
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10.9 Title Blocks

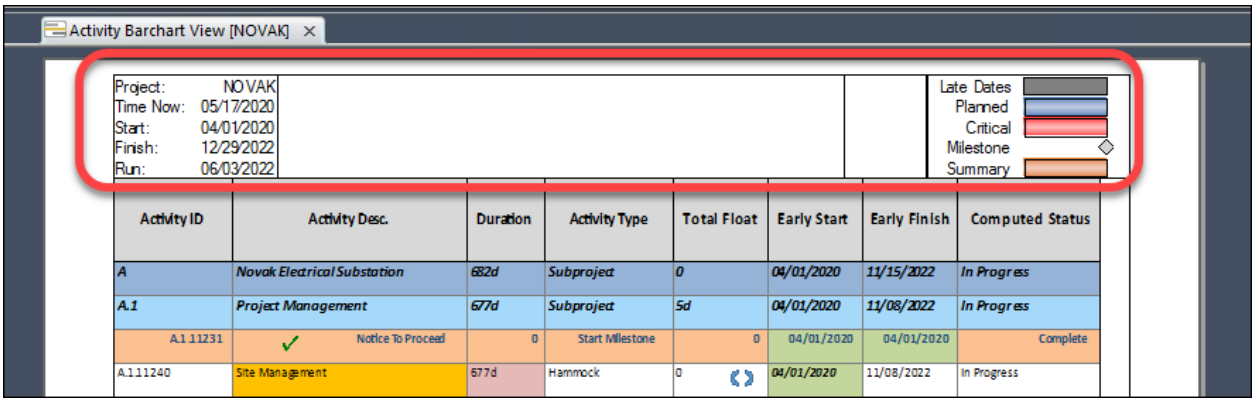
Title Blocks are the tool used to adjust the information displayed in the report header and footer area. This is fully customizable using the Title Blocks tool located in the View tab.



You can define your own named Title Block from new, or by copying an existing one and then editing it.



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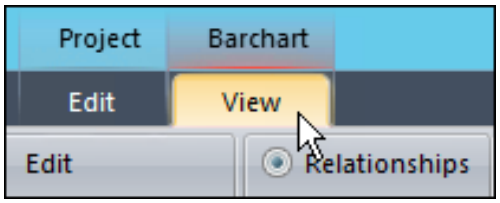


Title Blocks give us excellent control of the final report's header and footer content.

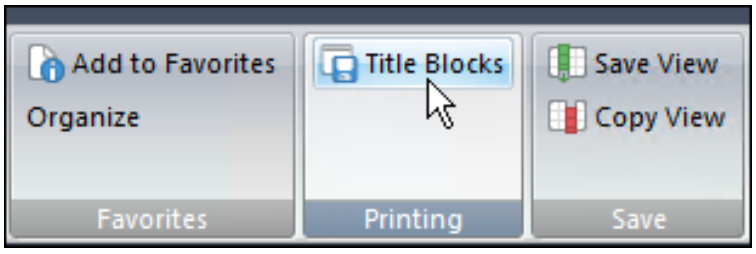
10.9.1 Activity: Working with Title Blocks

In this activity, we will learn how to control the header and footer area in Print Preview by editing the Title Blocks being used by the selected view.

1. In the **Activity Barchart View**, click on the **View** ribbon tab.



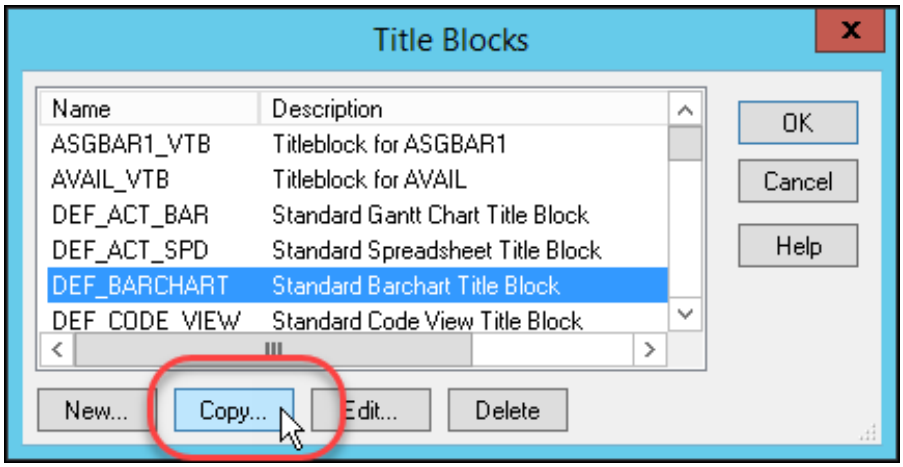
2. Click **Title Blocks** in the **Printing** group.



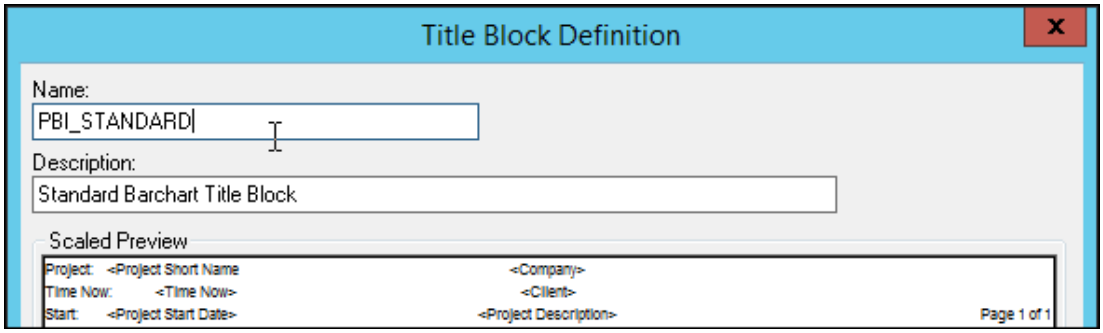
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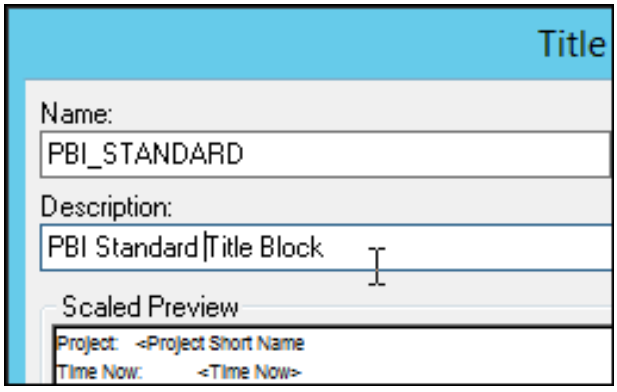
3. With **DEF_BARCHART** selected, click **Copy…**.



4. In the dialog, change the name of this copy to **PBI_STANDARD**.



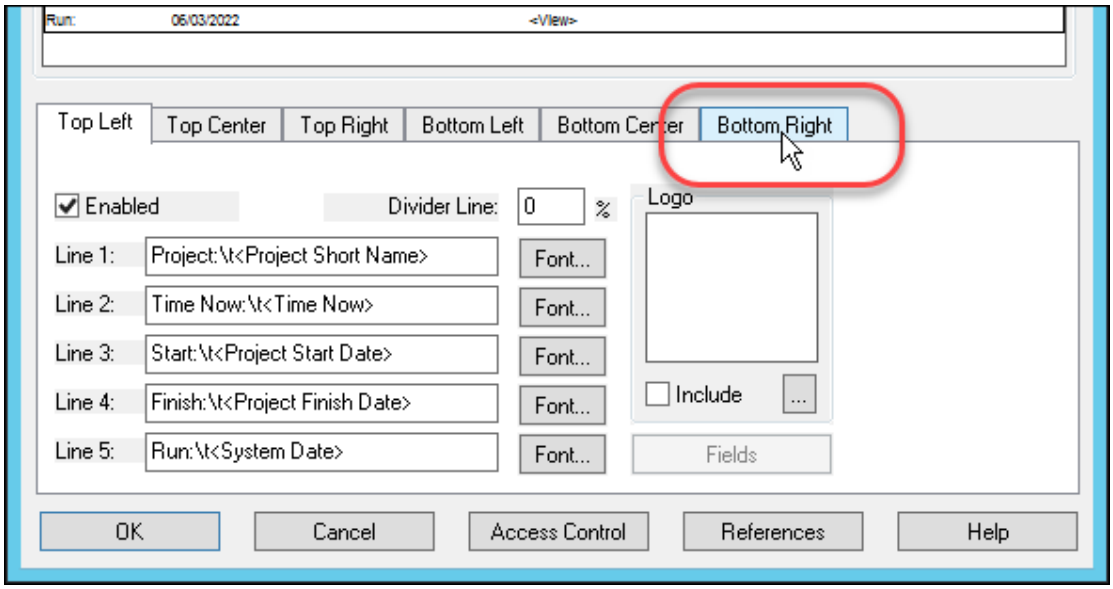
5. Change the **Description** to **PBI Standard Title Block**.



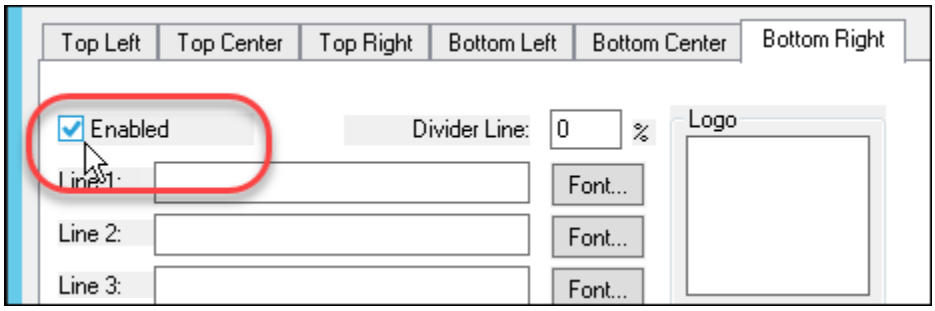
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6. Click on the '**Bottom Right**' tab.



7. First, click the **Enabled** button to the left.

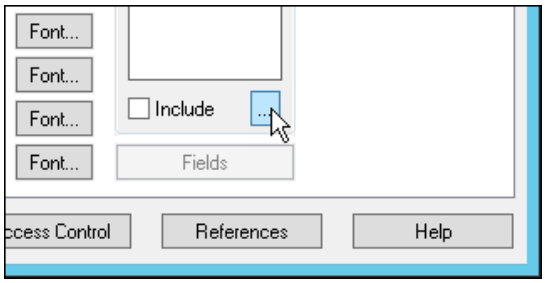


Let's add the PBI company logo to the bottom-right of the report.

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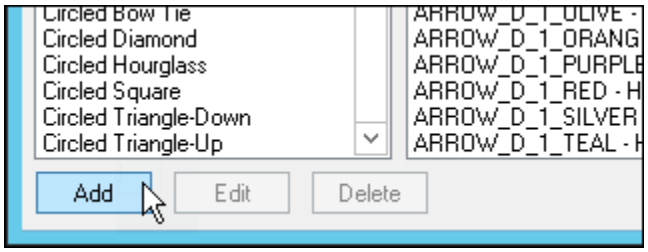
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8. Now click the ellipsis button below the **Logo** box.

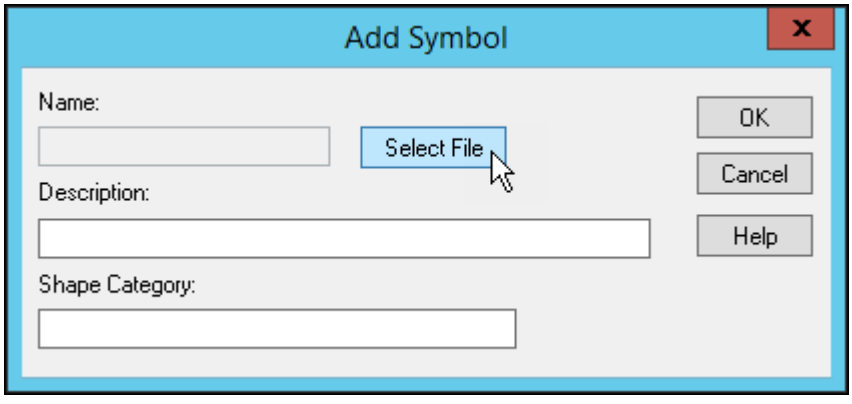


This opens the **Symbols** dialog. In Open Plan we bring images into the system via the Symbols tools. Images can be Windows Meta File (.wmf) or Windows Enhanced Meta File (.emf) formats. Keep in mind this is not for bringing large images into Open Plan. It works best for small square images of approximately 121 x 107 px, or images with ratios thereof.

9. In the **Symbols** dialog, click **Add**.



10. In the **Add** dialog, click **Select File**.

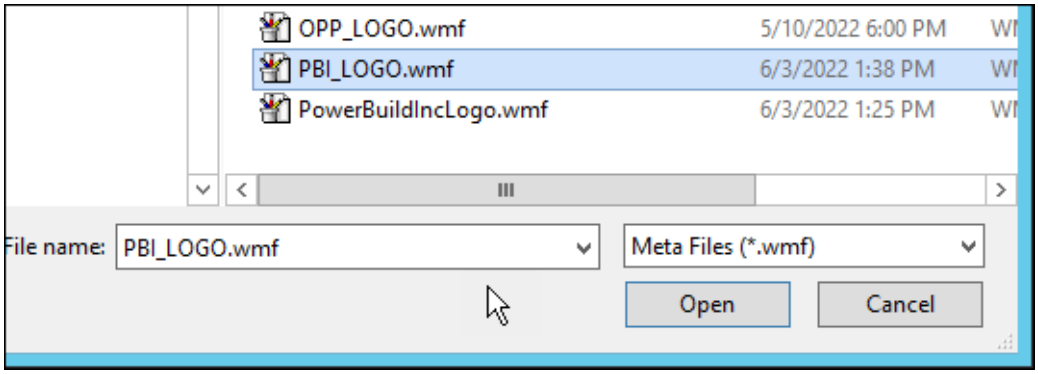


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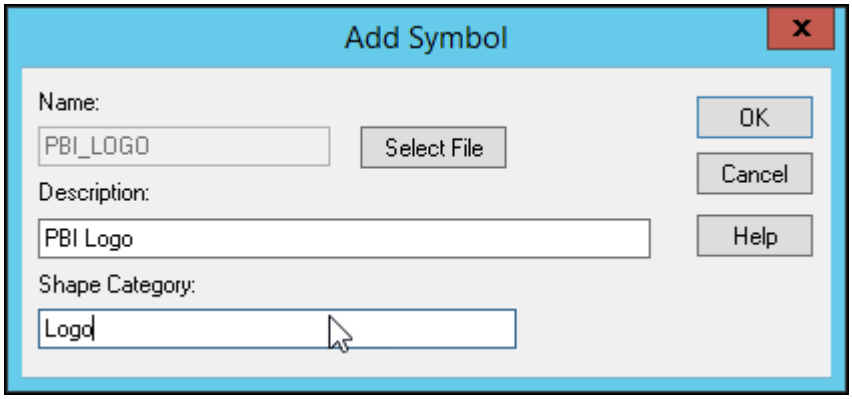
11. In the **Open** dialog, select the **PBI_LOGO.wmf** file located in:

    C:\Training\Files for Open Plan Scheduler - *Tip: Copy and Paste this path into your Open dialog's path field.*



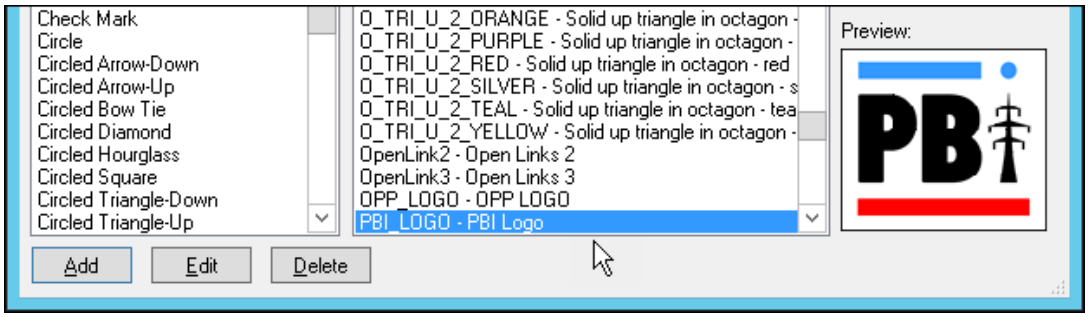
12. Click **Open**.

13. Enter the following **Description** and **Shape Category**:
    PBI Logo
    Logo



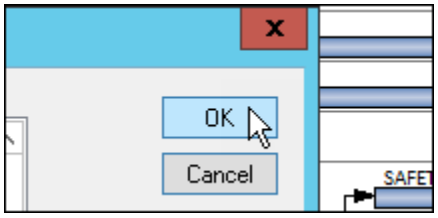
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14. Click **OK**.

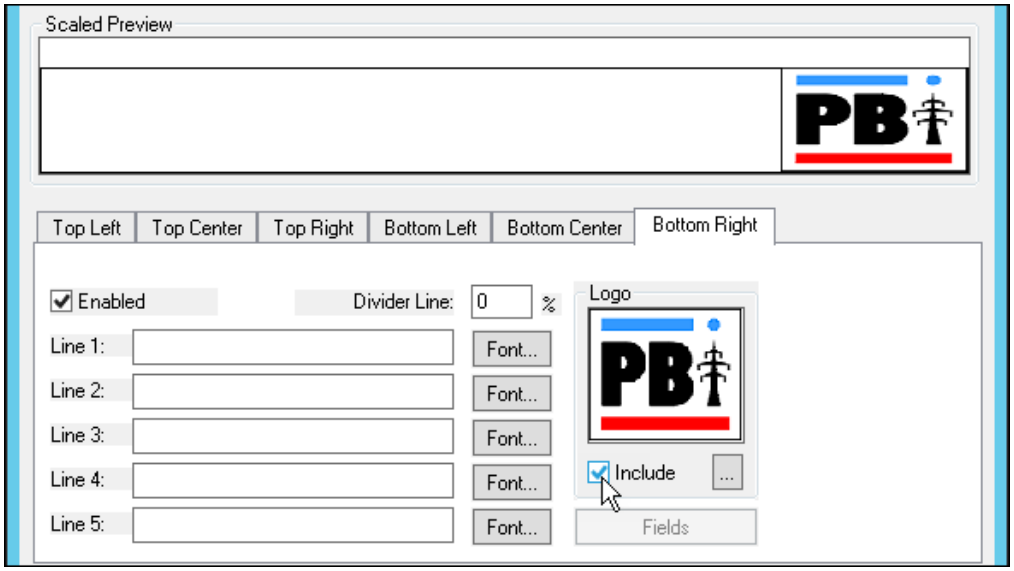


Your Logo is now loaded into the Symbols library. It will be available as a global item for all authorized Open Plan users. Let's add this logo to our Bottom Right report footer.

15. Click **OK**.

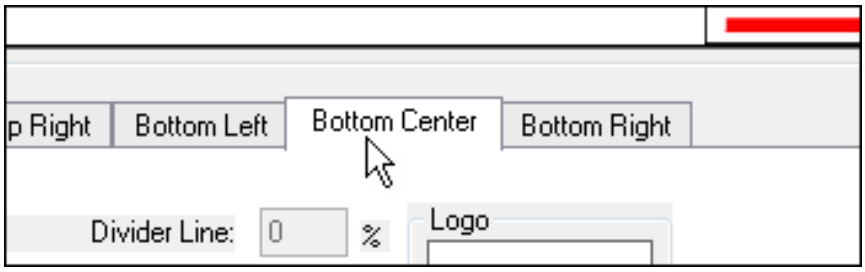


16. Back in the **Bottom Right** tab, click the **Include** field below the logo image.

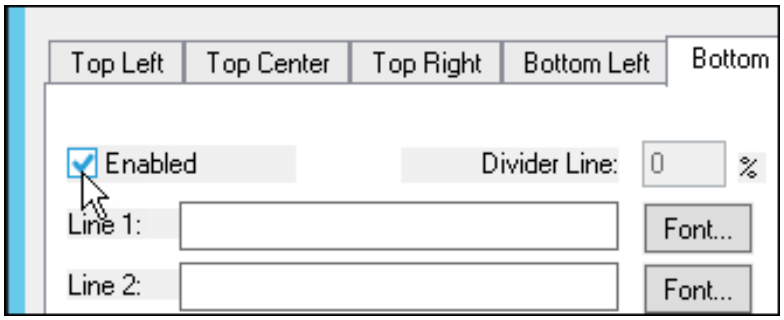


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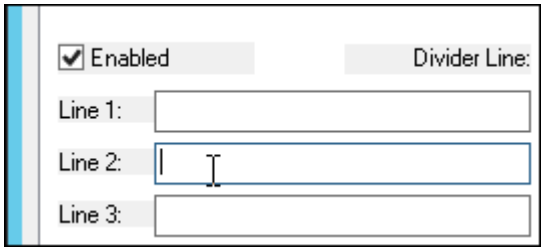
17. Click on the **Bottom Center** tab.



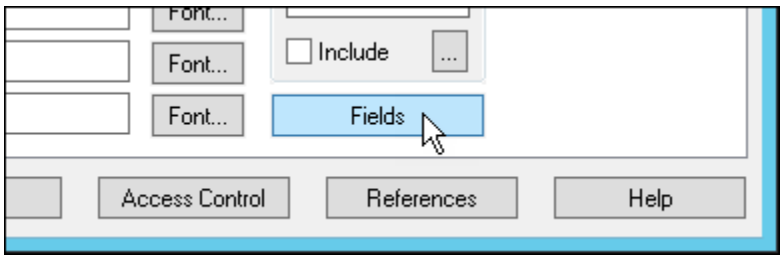
18. Click **Enabled**.



19. Click on the **Line 2** field to set focus.



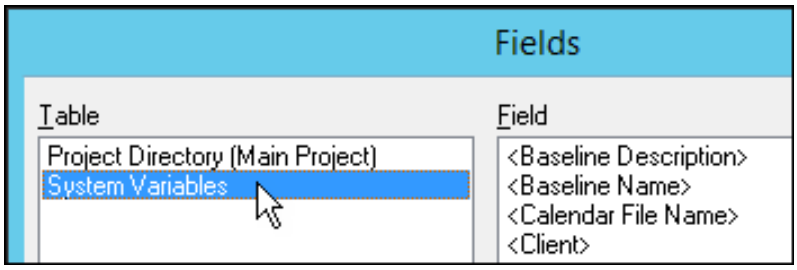
20. Click the **Fields** button.



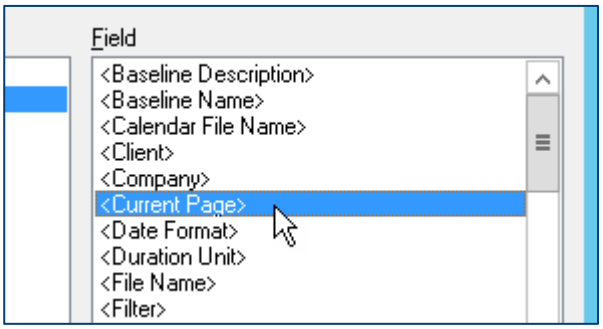
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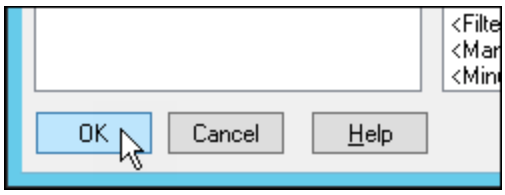
21. In **Fields**, select **System Variables**.



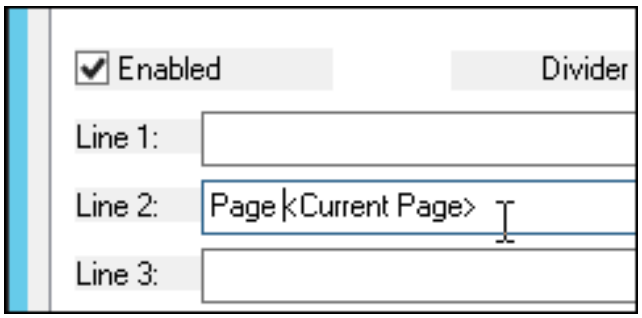
22. Select the **<Current Page>** option in the **Field** list.



23. Click **OK**.



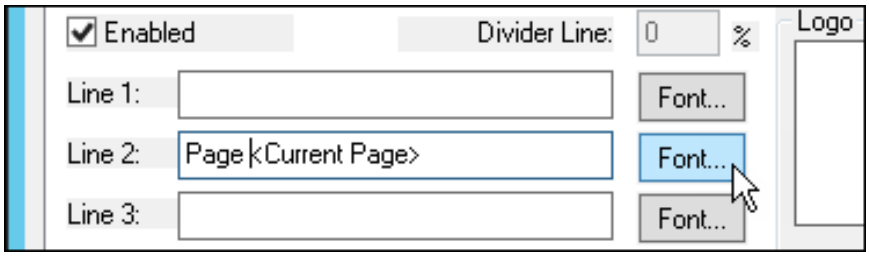
24. Place the cursor in front of the **<Current Page>** tag, and type '**Page** '. (Note the Space after Page)



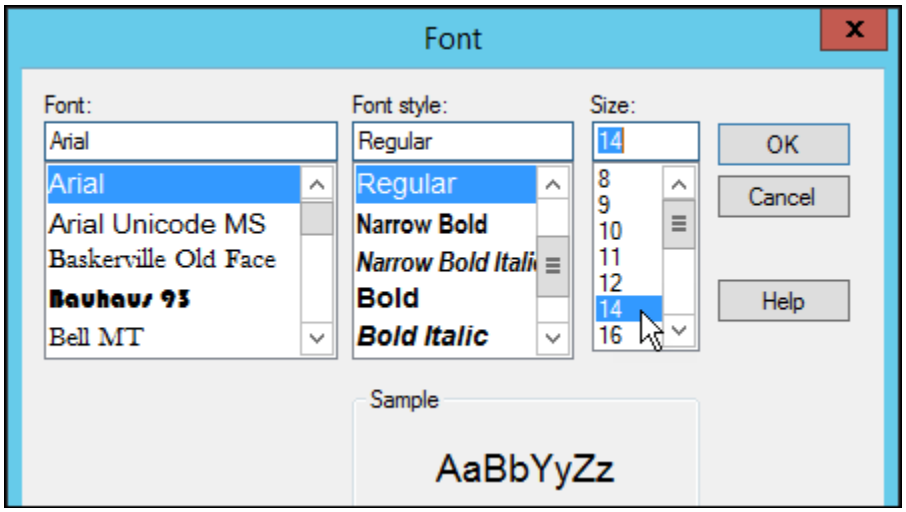
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25. Click the **Font…** button adjacent to the **Line 2** field.



26. Increase the size of the font to **14**.

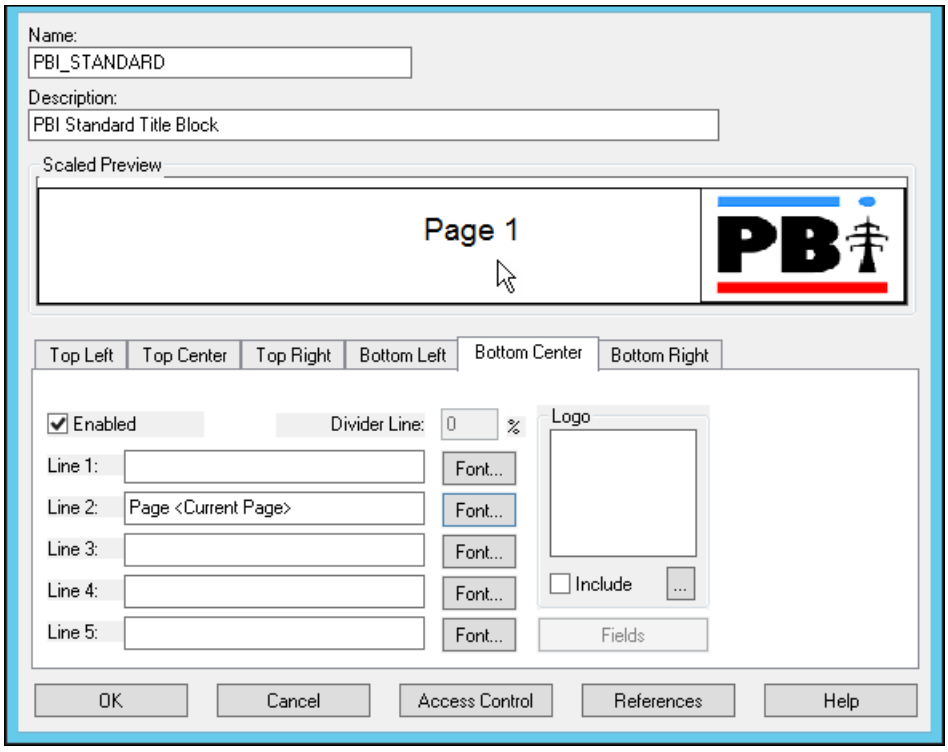


27. Click **OK**.

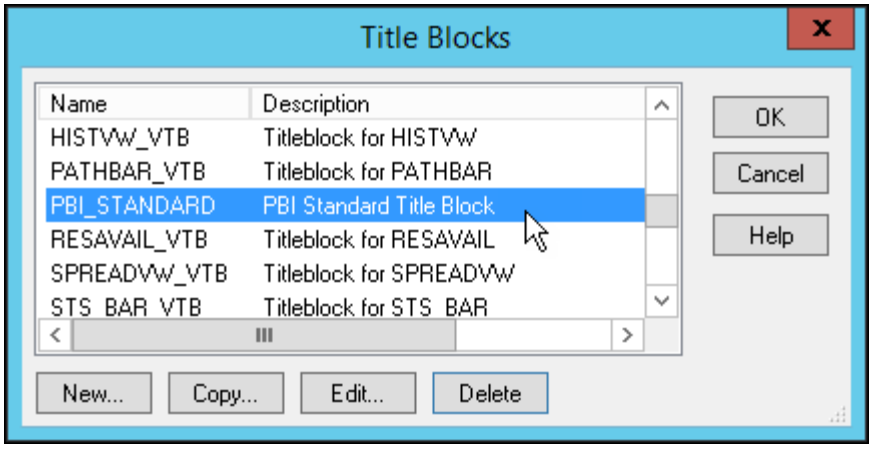
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28. If your new **PBI_STANDARD** title block looks like this, click the **OK** button.



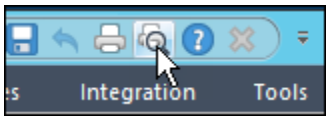
29. Select your new **Title Block** in the dialog, and click **OK**.



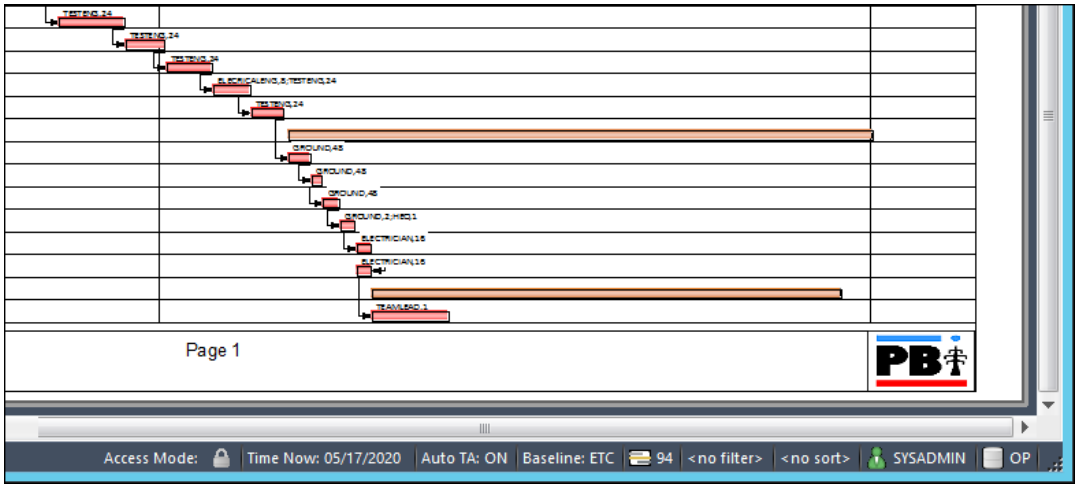
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30. Now click on the **Print Preview** button on the **Quick Access Toolbar**.



31. Zoom in and view the logo and page number now visible in the preview chart.



From here you can save the view to capture all the work you have done. Any time you want to print this D size report, simply open the view, and print.

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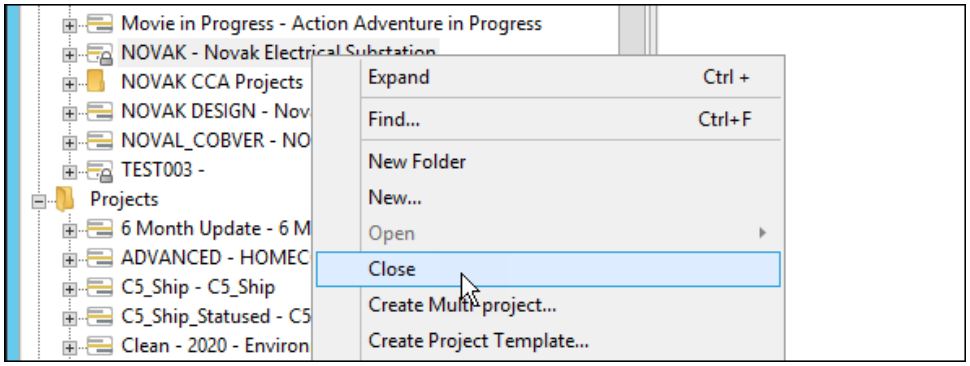
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10.10 Course Catchup

If you were unable to complete all the activities in this lesson, you can restore the final ancillary files using the following steps:

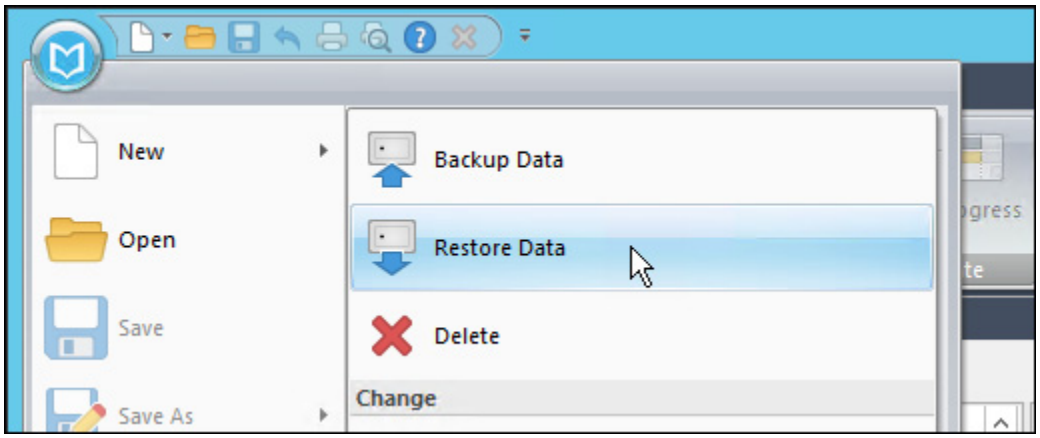
10.10.1 Activity: Lesson 10 – Catchup

1. Close the **NOVAK** project in the **Open Plan Explorer**.



Note: you cannot restore an open project.

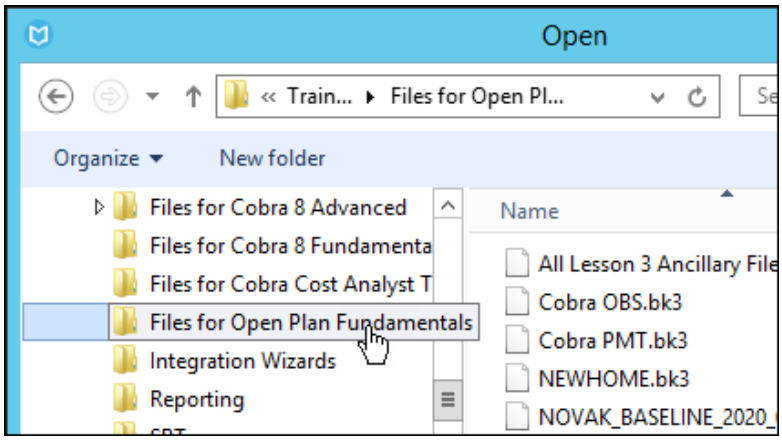
2. Click on the **File** | **Manage Files** > **Restore Data** option.



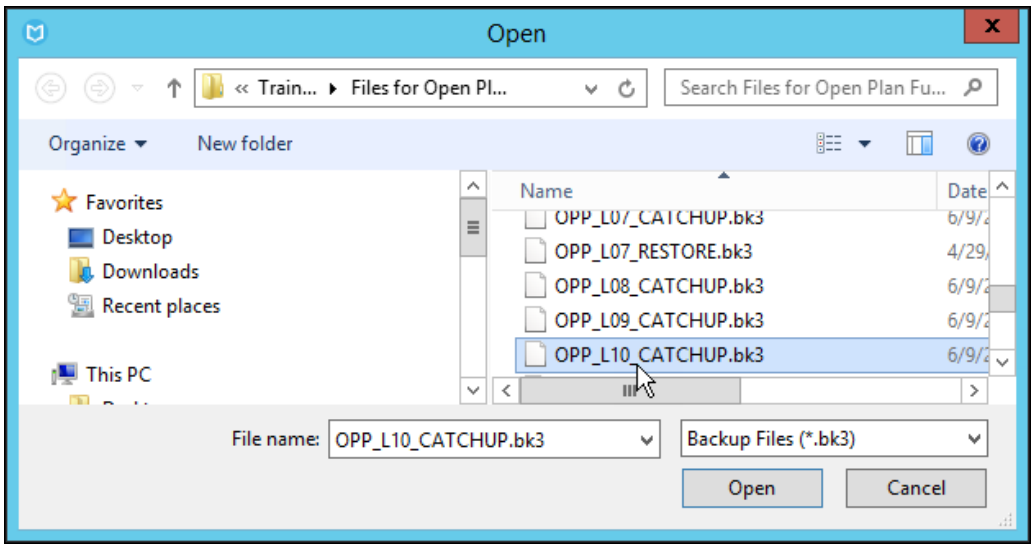
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3. In the **Open** dialog, go to **System (C:)** | **Training** | **Files for Open Plan Fundamentals**.



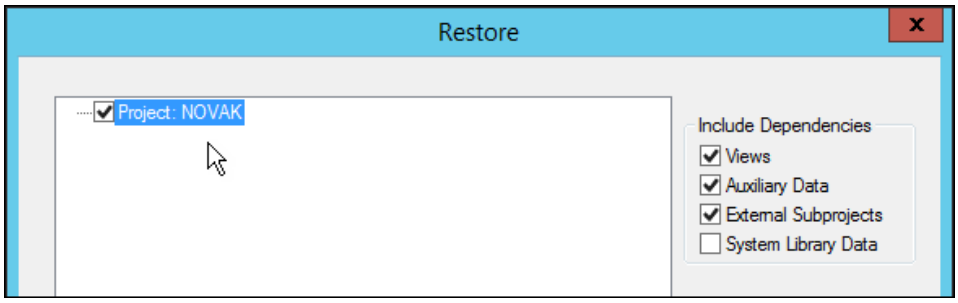
4. Click on the **OPP_L10_CATCHUP.bk3** file. This will restore any and all ancillary files created in this lesson.



5. Click **Open**.

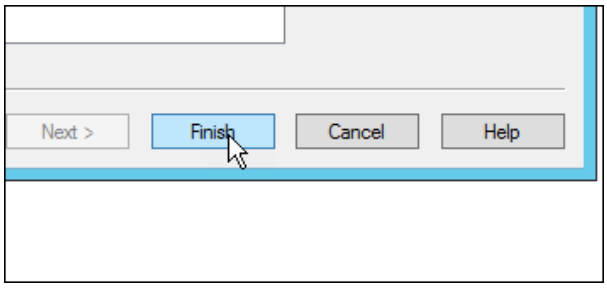
6. In the **Restore** dialog, verify the following, and then click **Next >**.

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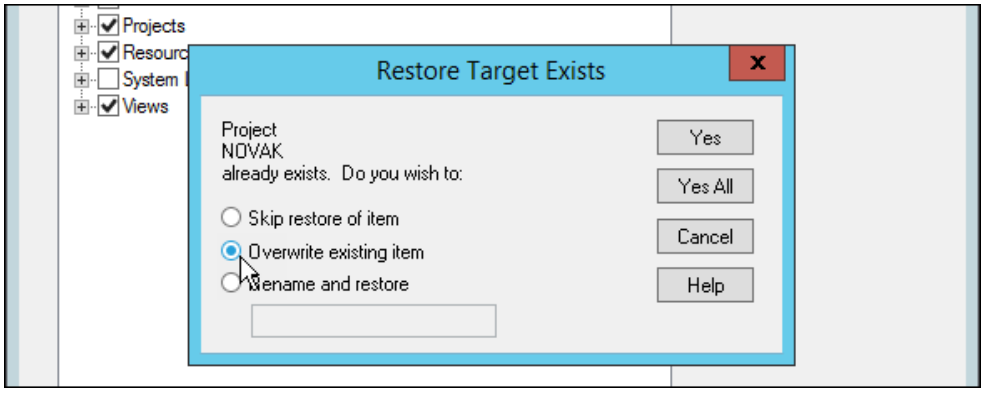


This will save additional prompts appearing during the process.

7. Click **Finish**.



8. If you see this prompt, set the '**Overwrite existing item**' option and click on the **Yes All** button, to replace all the existing project elements.

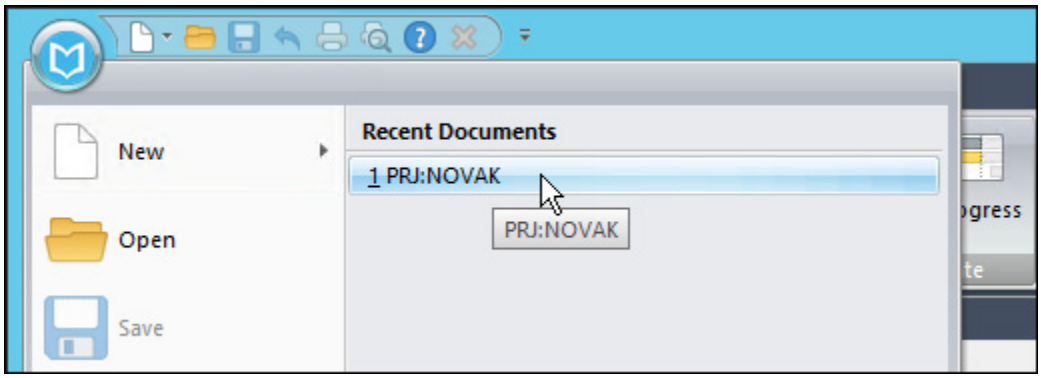


9. Click on the **File** menu.

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10. Open your restored project from the '**Recent Documents**' list in the menu.



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10.11 Training Summary

Congratulations! You have just completed all of the key steps you would go through in the creation, and then management of a new project schedule. I've attempted to take you to as many important features as possible; all the ones you will encounter when you start using Open Plan for real schedules.

Having myself made the transition from Primavera P6, after countless years with that tool, I have based some of this content on my own experience when first learning Open Plan. I do this to help you quickly get past the same hang-ups I experienced when I first started, and by hang-ups I mean those preconceptions we bring from previous software packages.

I would speculate that those of you with a Microsoft Project background may find the transition to Open Plan easier than us P6 folk. The Open Plan approach is most similar to Microsoft Project. For example, like Open Plan, you're already used to building hierarchy into the schedule using activity indentation, resources are assigned as effort by default, and you can copy and paste data quickly and easily to build your schedule; the kind of flexibility you've come to expect with Microsoft Project. On the other hand, P6 is far more ridged, and while still an excellent tool, for optimum results you have to utilized certain features, else it will fall short – the WBS, for instance.

Yes - Open Plan is vast, more so than any other tool I've experienced. Yes – it will frustrate you at times, but please, please, please, stick with it. But, as I did, you will likely have a moment when it all clicks into place and you realize the prize: full and complete command of a vastly flexible and capable application.

As you get started with Open Plan day to day, you will learn to navigate functions and features that I just couldn't find the space for in a 3-day course. Be on the lookout for the following additional features:

- Risk Analysis
- User Validations
- Microsoft Project and Primavera integration
- Earned Value reporting features
- Redundancy Analysis
- Trace Logic
- External Subprojects
- CAM ETC export, import
- Schedule Driver Analysis
- Project Templates

Last word: Spend as much time as possible getting familiar with all the views in Open Plan. Also the available standard, calculated, user, and filter fields in your system. A big part of knowing how to get data out, is knowing what you have in there.

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Open Plan Scheduler Certification Series: Miscellaneous Features

Activity Guide

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Table of Contents

11.1 Course Introduction 5
11.1.1 In this Course 5
11.2 Microsoft Project Import 6
11.2.1 Activity: Preparing for Microsoft Project Import 6
11.2.2 Activity: Loading the Microsoft Project Schedule 10
11.2.3 Activity: Reviewing the Imported Project 21
11.2.4 Activity: Verifying Project Code Files 23
11.3 Verifying the Field Mapping 31
11.3.1 Activity: Verifying the Field Mapping 32
11.4 Multi-project Environment 34
11.4.1 Definitions and Examples 35
11.5 Introduction 36
11.5.1 Activity: Editing Entries 36
11.6 Project Scheduling Priority 38
11.7 Storing Summary Usage 39
11.8 Using the Summary Usage Data 40
11.8.1 Activity: Creating a Summary Usage Table 40
11.8.2 Activity: Investigating Summary Usage Effect 42
11.9 Reserving Resources 49
11.10 Reserving a Portion of a Resource 50
11.11 Effect of Reservations on Resource Scheduling 51
11.12 Resource- Limited Resource Scheduling 52
11.13 Time-Limited Resource Scheduling 53
11.14 Effect of Reservations on Select Resource Dialog 54
11.14.1 Activity: Reserving a Resource 54
11.15 Using Project Summary Usage to Guide Resource Assignments 58
11.15.1 Activity: Resolving the Resource Conflict 61
11.16 The Multi-Project Environment 62
11.17 Keys to Successful Implementation 62
11.18 Definitions and Examples 63

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11.19 Functions 66
11.20 System Level Objects 66
11.21 Views 67
11.22 Ancillary Data 67
11.23 Miscellaneous Comments 67
11.24 Resource Management with a Master Project 68
11.24.1 Activity: Deleting the Summary Usage 68
11.24.2 Activity: Creating the Master Project 68
11.24.3 Activity: Creating the Finish to Start Relationship 73
11.25 The Hierarchical Priority Field 78
11.25.1 Activity: Cost Calculations 80
11.25.2 Activity: Creating the Baseline 81
11.26 On Your Own 83
11.27 Summary 83

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11.1 Course Introduction

Because people use Open Plan in different settings this lesson covered some of the items that are not featured in detail in the standard Open Plan Fundamentals course.

If time permits and the topics covered here are helpful to your business, you can select whatever topics you would like to cover in this entirely optional lesson.

11.1.1 In this Course

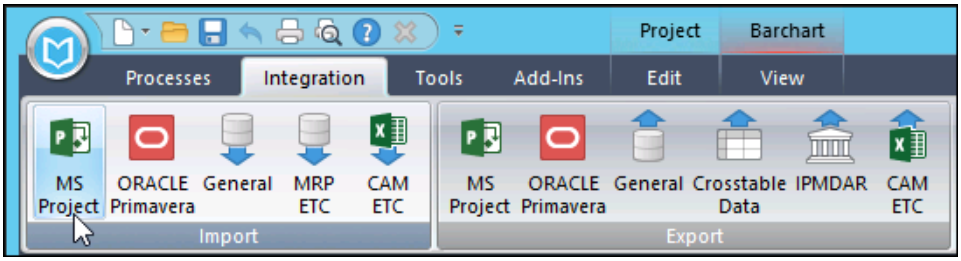
- Importing Microsoft Project MPP/XML files
- Multi-project setup in Deltek Open Plan

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11.2 Microsoft Project Import

The Microsoft Project import feature in the Integration tab allows you to connect to a Microsoft Project server database, or an MPP/XML file and load schedule data from that system.



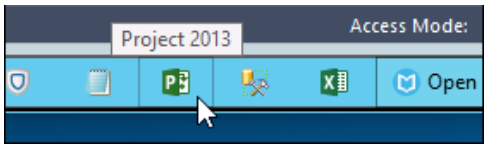
It's also possible to Export an existing Open Plan schedule in a format that can be imported into Microsoft Project, or again be done directly with the Microsoft Project Server database.

In this lesson we will look at the steps to do a typical import of Microsoft Project schedule data into the Open Plan system.

11.2.1 Activity: Preparing for Microsoft Project Import

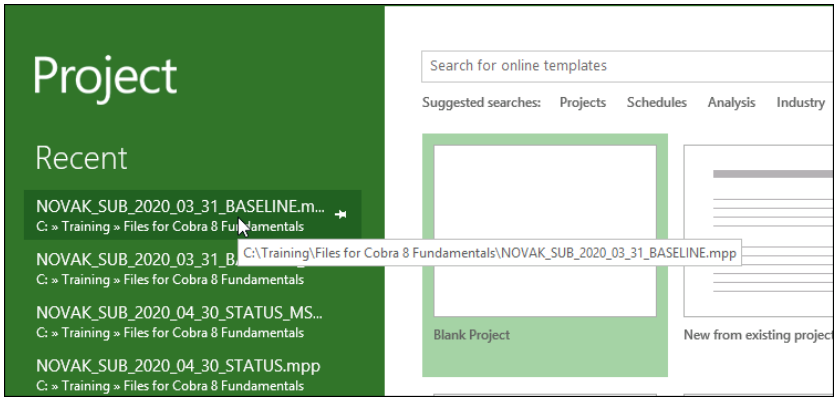
Make sure that your current installation of Microsoft Project has the Legacy format support setting switched on.

1. Click on the **Microsoft Project 13** icon on the taskbar.

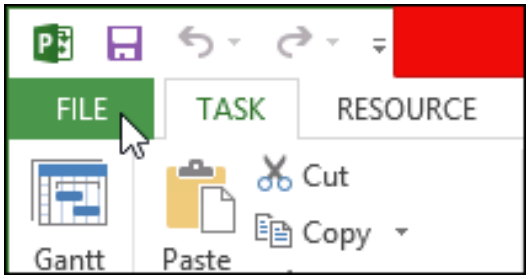


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2. In **Microsoft Project**, open the **NOVAK_SUB_2020_03_31_BASELINE.mpp** file.



3. In the resulting **Gantt Chart** view, click on the **FILE** menu.



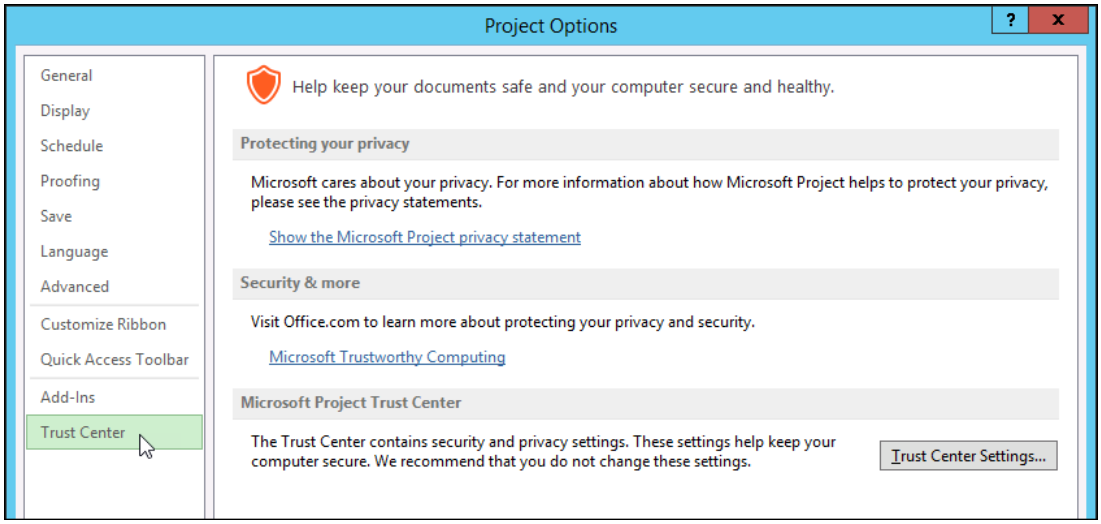
4. In File view, click the Options menu at the bottom of the list.



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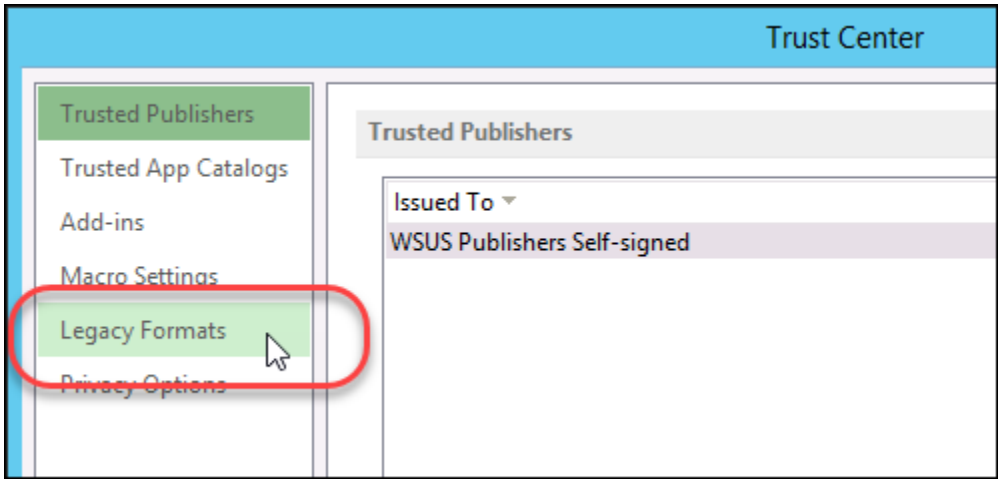
5. In **Project Options**, click on **Trust Center**.



6. Click **Trust Center Settings…**.



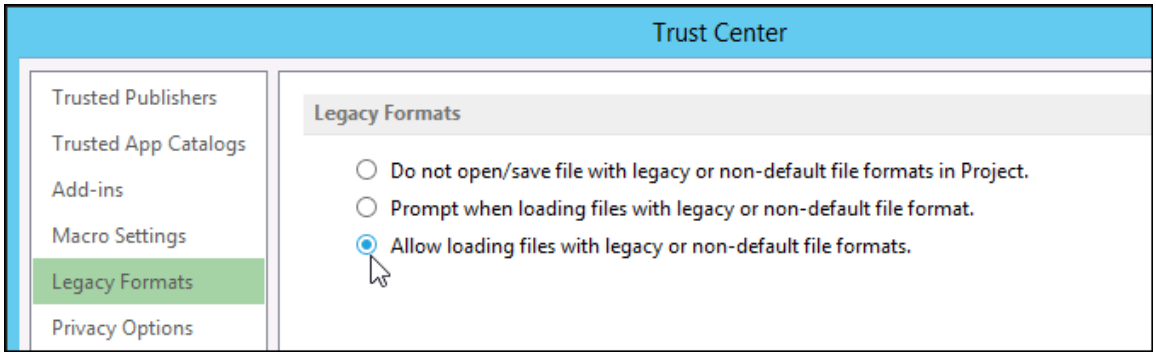
7. Select **Legacy Formats**



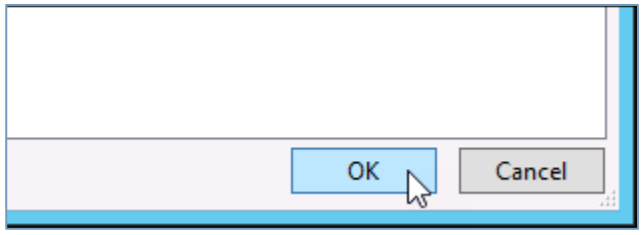
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8. Select the '**Allow loading of files with legacy or non-default files formats.**' option.

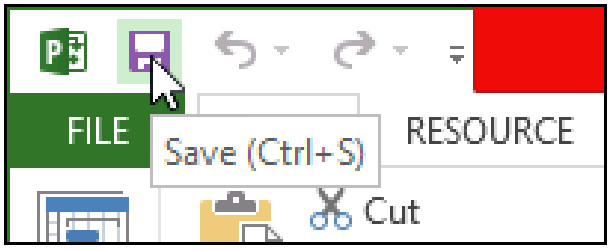


9. Click **OK**.



10. Click **OK** to close the **Project Options** dialog.

11. Click **Save**.



12. Leave the project open in Microsoft Project.

This has prepared the system to load the current Microsoft Project schedule into Deltek Open Plan.

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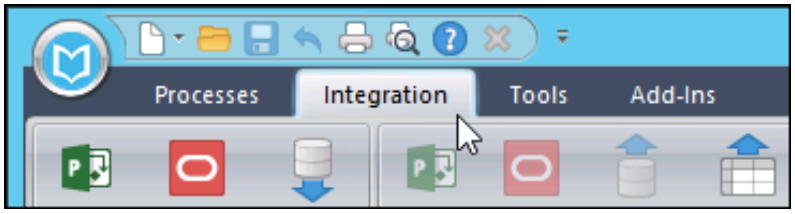
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11.2.2 Activity: Loading the Microsoft Project Schedule

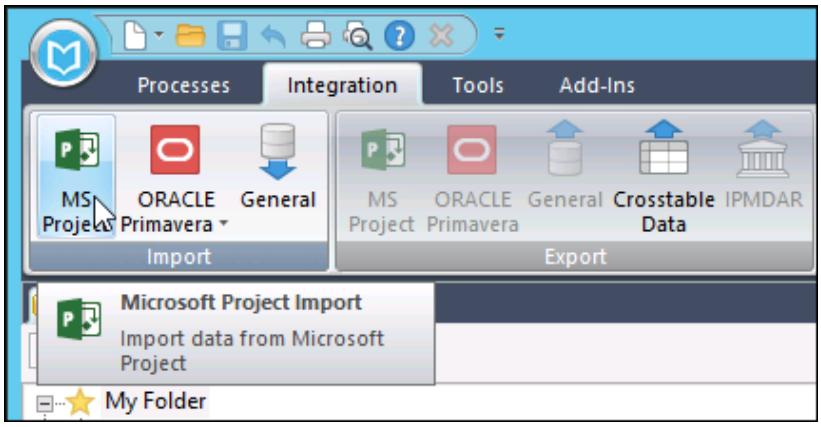
Having configured the Microsoft Project Trust Center, you are now ready to import the schedule data.

Take these next steps to import the NOVAK project into Open Plan.

1. Click on the **Integration** tab.



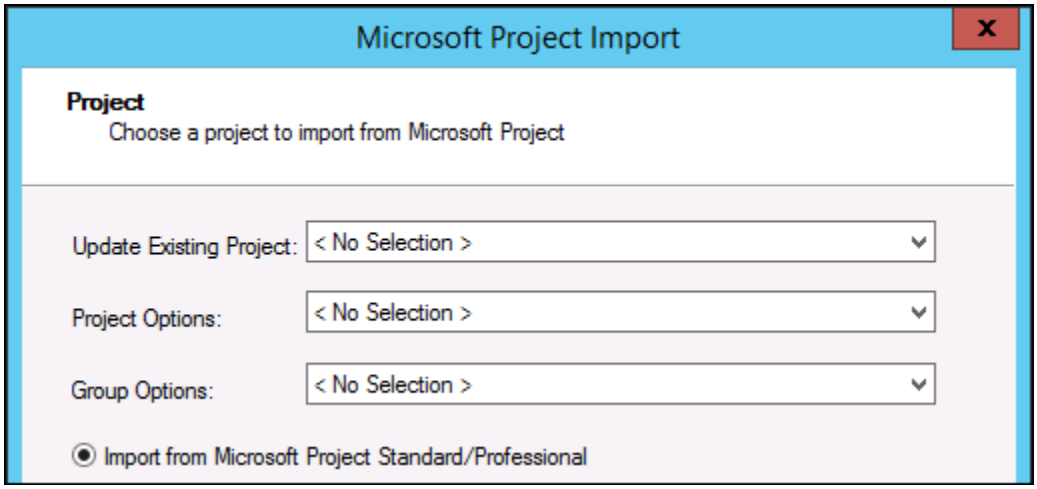
2. In the **Import** groups click on **MS Project**.



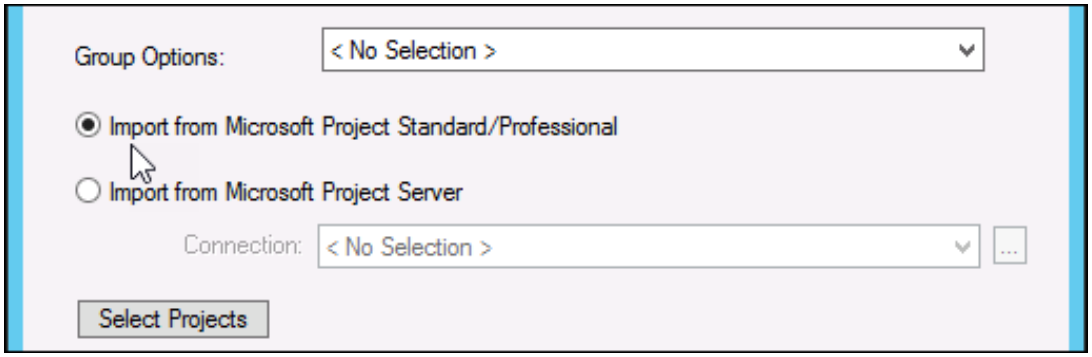
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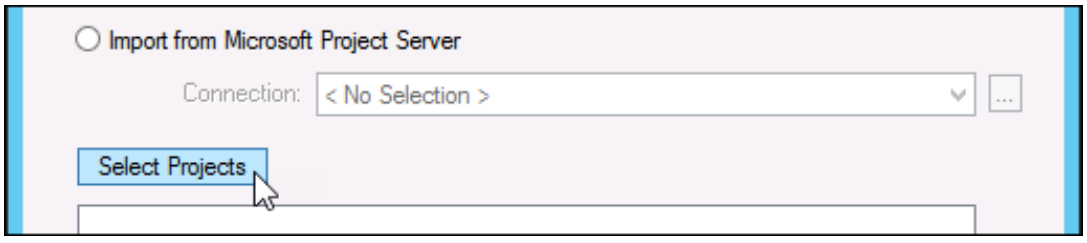
3. In the **Projects** dialog, leave the first three fields set to **< No Selection >**.



4. Verify that the '**Import from Microsoft Project Standard/Professional**' option is selected.



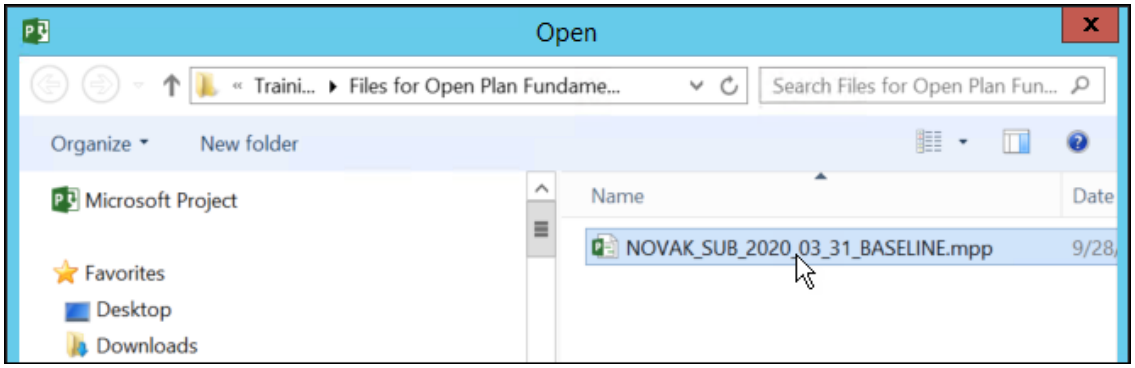
5. Click the **Select Projects** button.



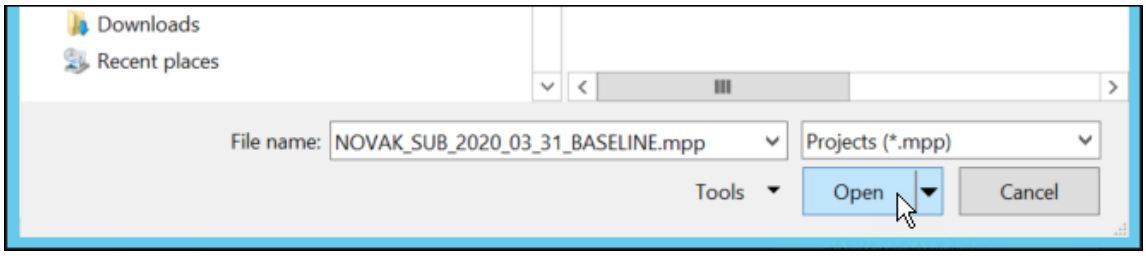
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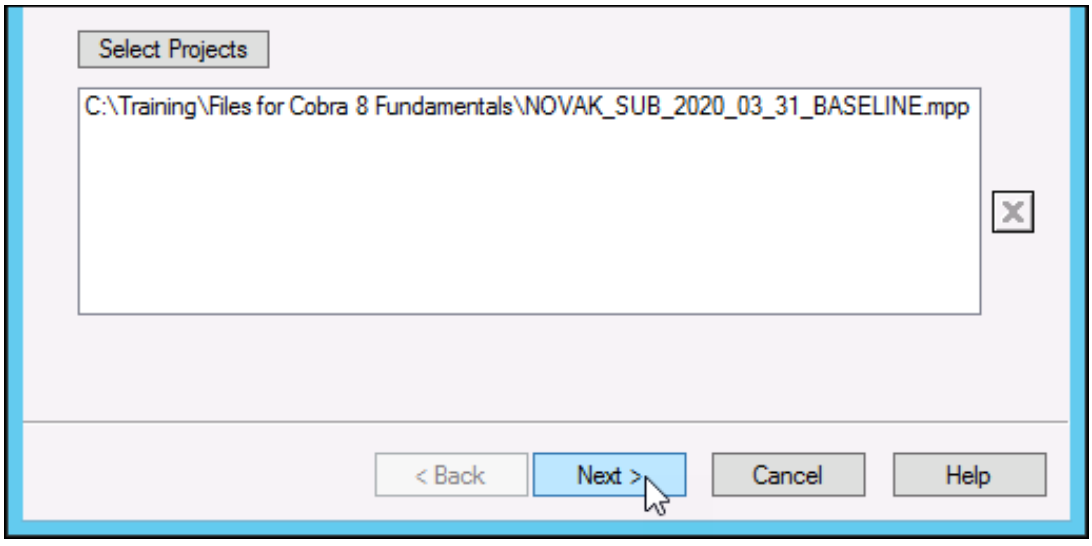
6. In the **Open** dialog, select the **NOVAK_SUB_2020_03_31_BASELINE.mpp** file.



7. Click **Open**.



8. Back in the **Project** dialog, click **Next >**.



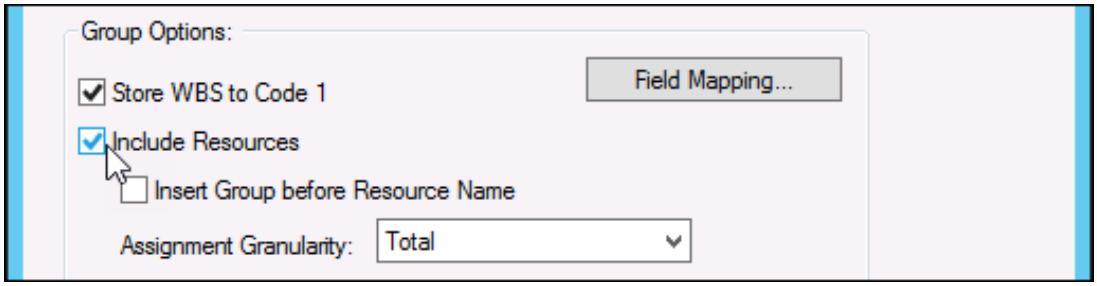
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9. In **Options**, you can adjust the import settings.

   Note: The settings used in the next part of this exercise are basic. You will need to evaluate the best settings for your situation when performing this on your production copy of Open Plan.

10. Select the **Store WBS to Code 1** and **Include Resources** options.



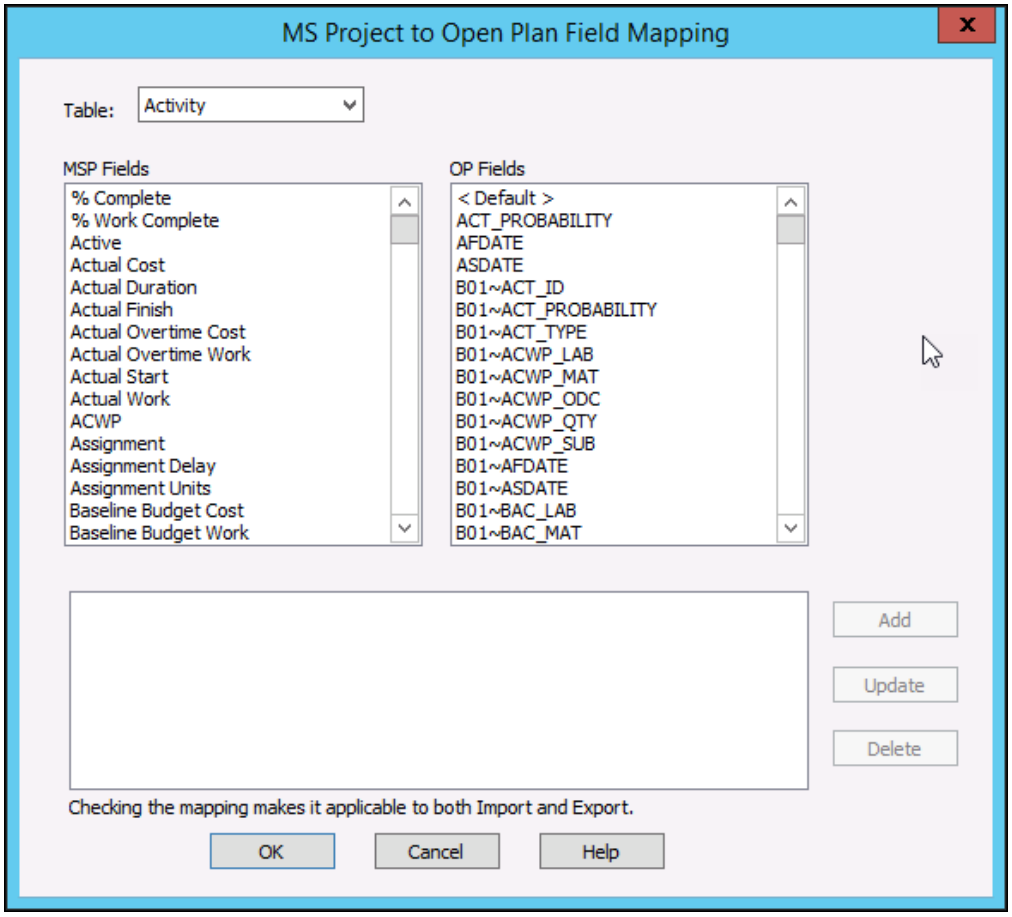
11. Click **Field Mapping…**.



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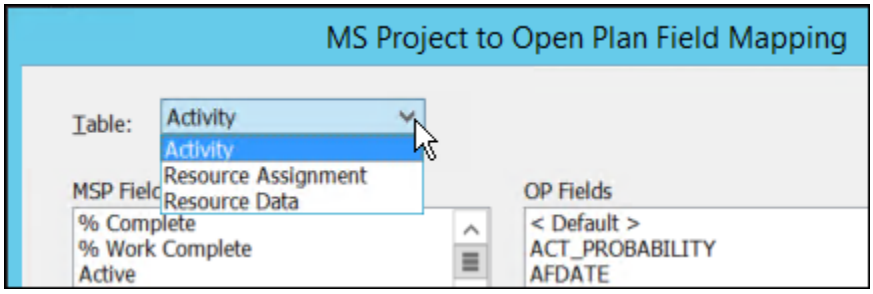
12. Review the features of the **Field Mapping** dialog.



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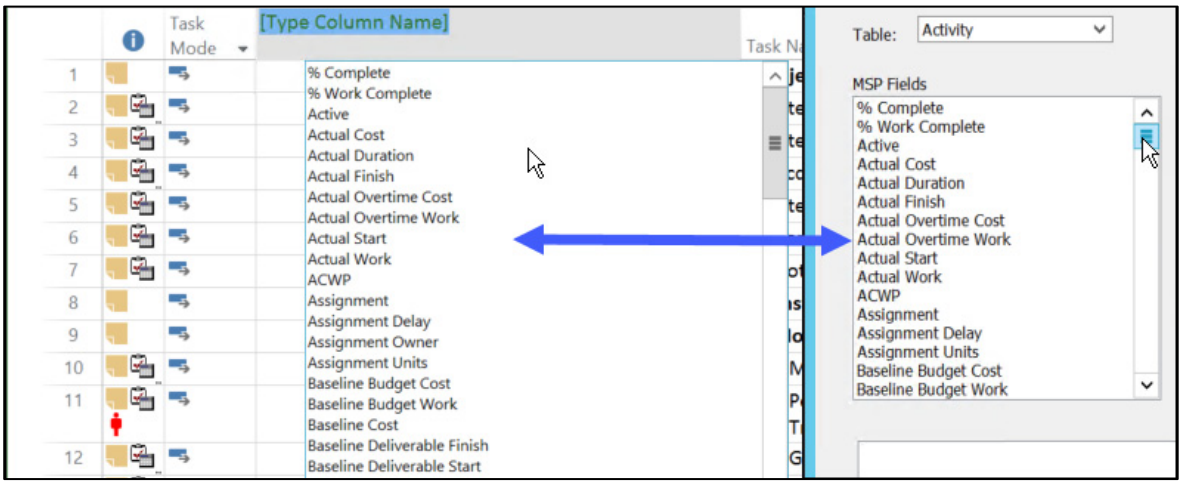
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13. Click the **Table:** field drop-down.



Note the options available to the mapper include the Activity table, the Resource Assignment table, and the Resource Data table. This means we can map records in the MS Project schedule that include not just activity data, but also the Resource Assignments table, and the Resources table.

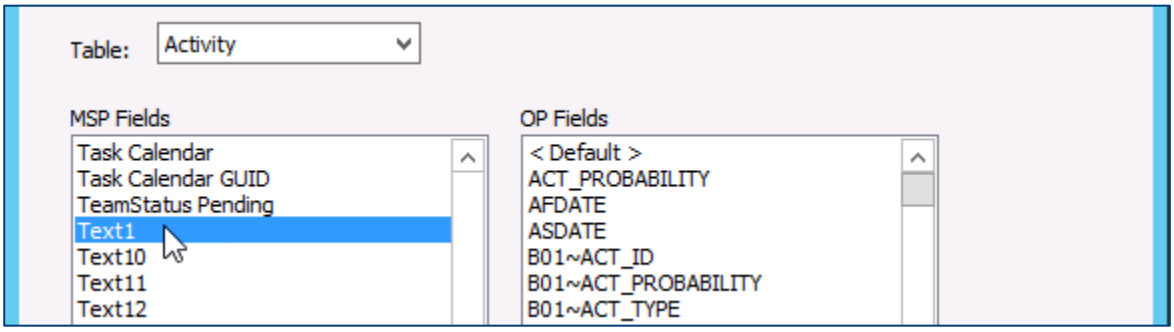
14. With **Activity** selected in the **Table:** field, the **MSP Fields** list contains the same fields as those seen in Microsoft Project when inserting a column.



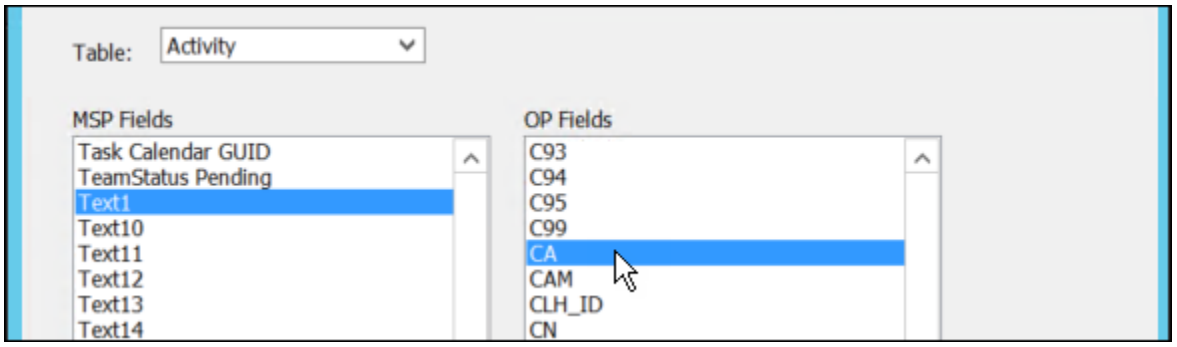
From the MSP Fields list, you can map any field to any appropriate Open Plan baseline, user defined, USER_CHR, USER_DTE, or USER_NUM fields. Here's how that works.

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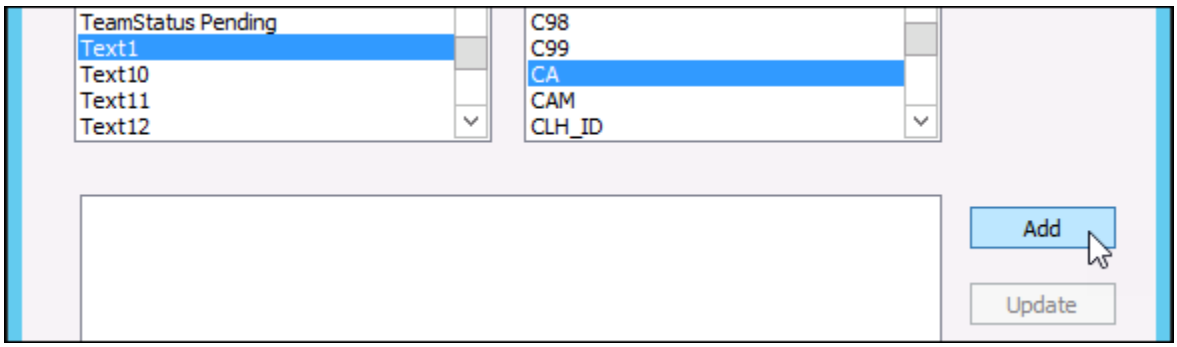
15. In the **MSP Fields** list, scroll down and select the **Text1** field.



16. In the **OP Fields** list, locate and select the **CA** field.



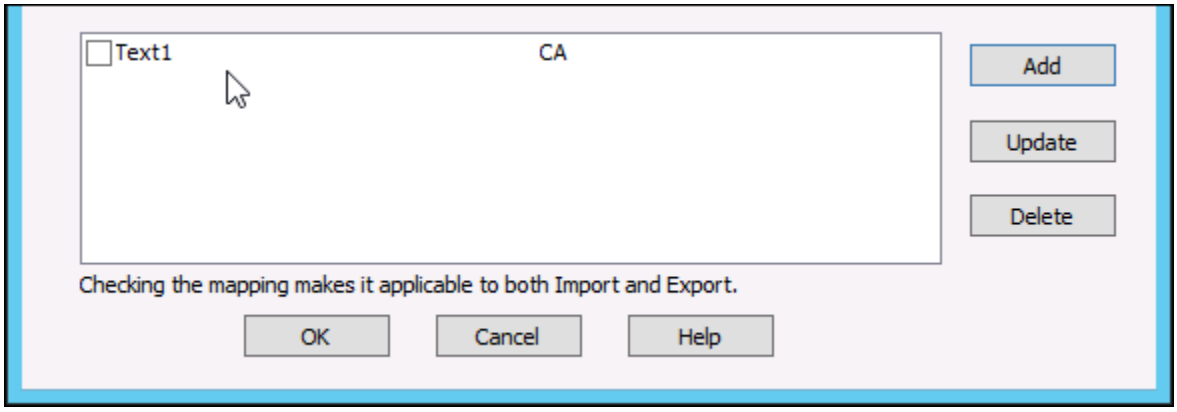
17. Click the **Add** button.



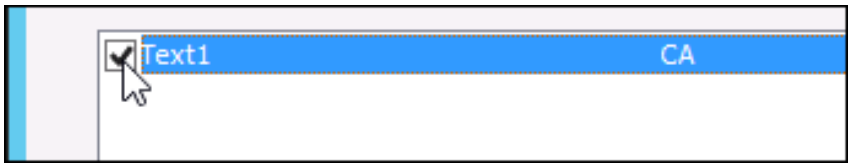
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18. The new mapping record appears in the text area below.

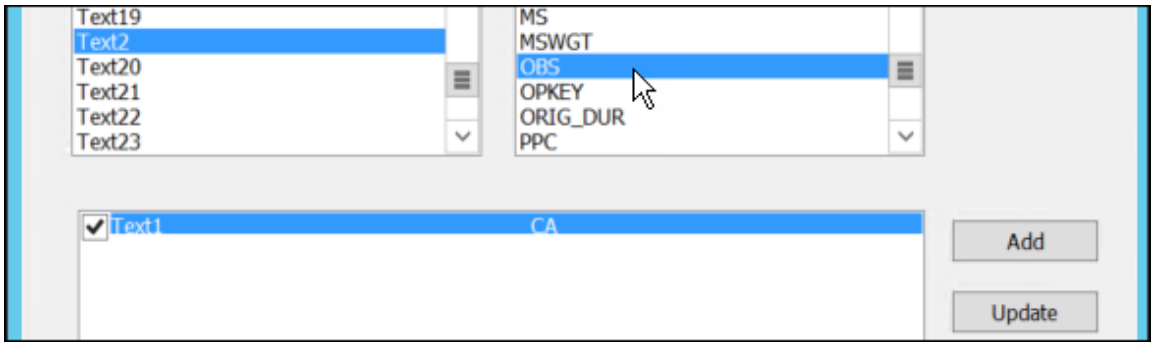


19. Click to select the new **Text1** mapping record in the text area.



Note: checking this box makes the mapping available for both import and export.

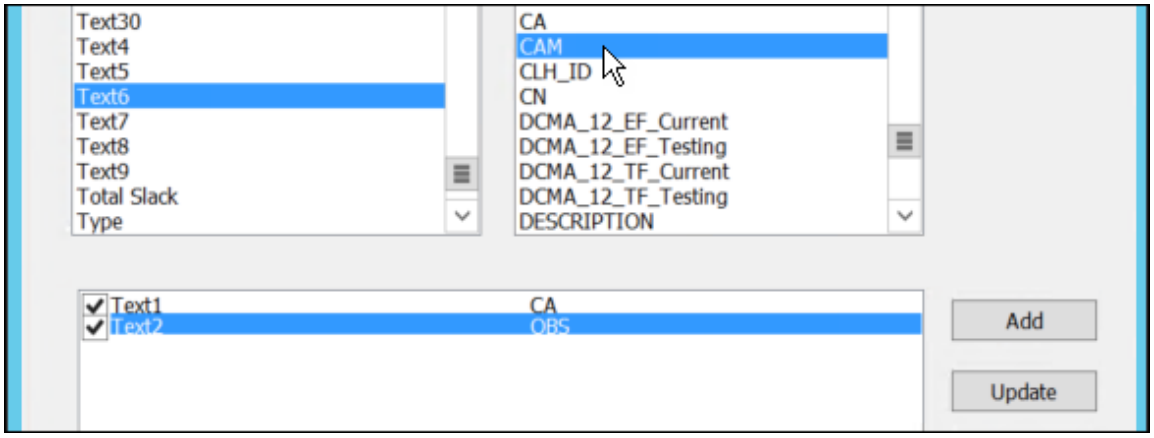
20. Repeat the steps 17 – 19, selecting '**Text2**' and '**OBS**'.



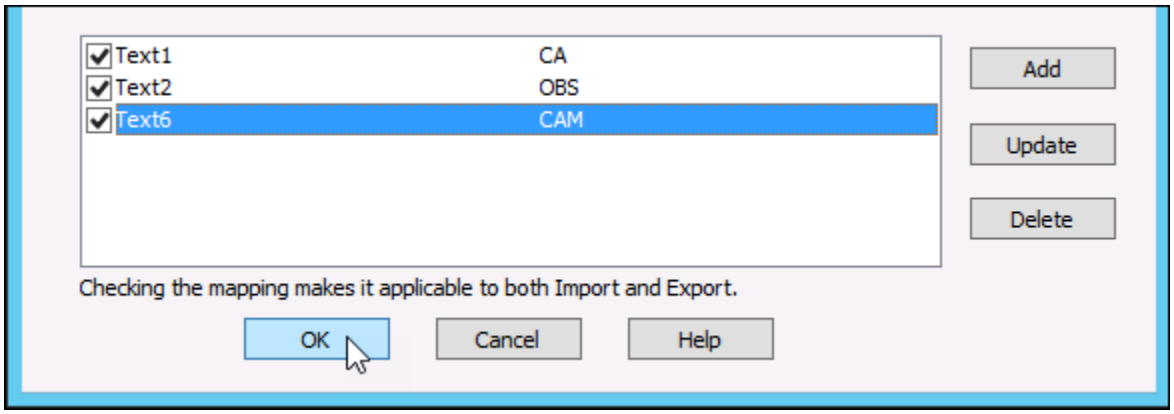
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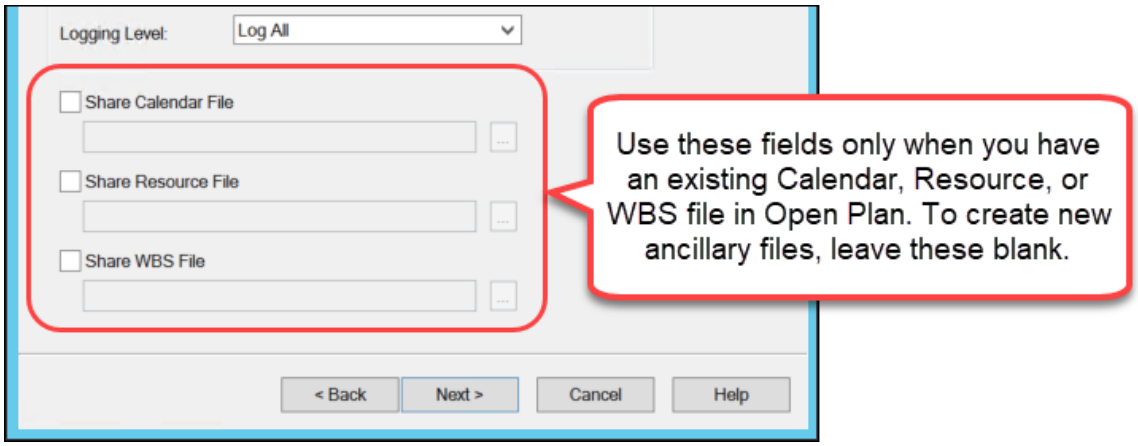
21. Repeat the steps 17 – 19, selecting '**Text6**' and '**CAM**'.



22. When you have the following mappings added and checked, click **OK** to close the **Field Mapper**.



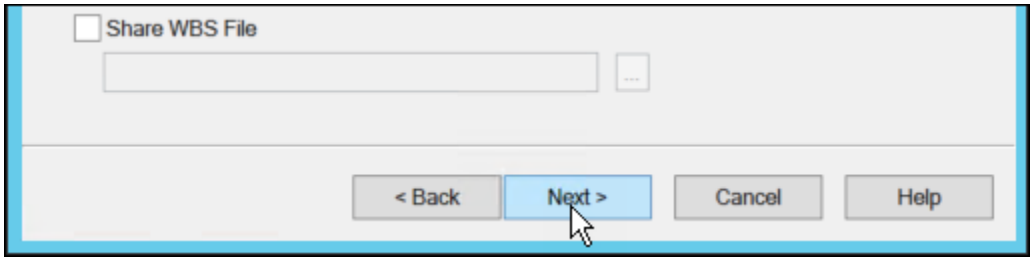
23. Leave these next three fields blank.



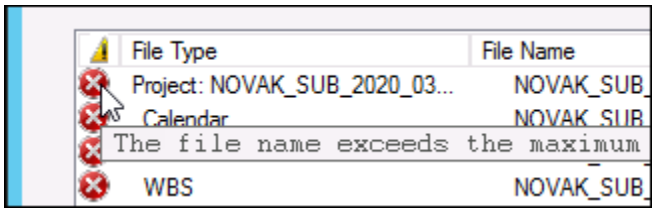
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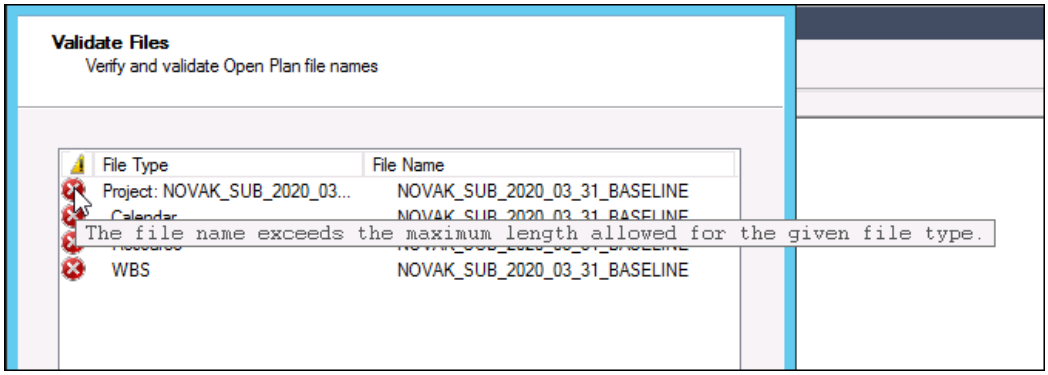
24. Click **Next >**.



25. In **Validate Files**, hover the cursor over the red ‘x’ to learn what needs to be corrected.

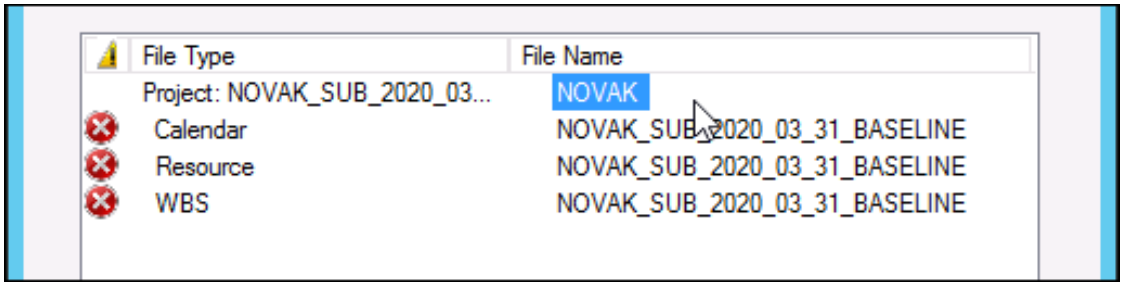


26. The validation process is reporting the name of the project is too long for the **Open Plan** system.



Message: “The file name exceeds the maximum length allowed for the given file type.”

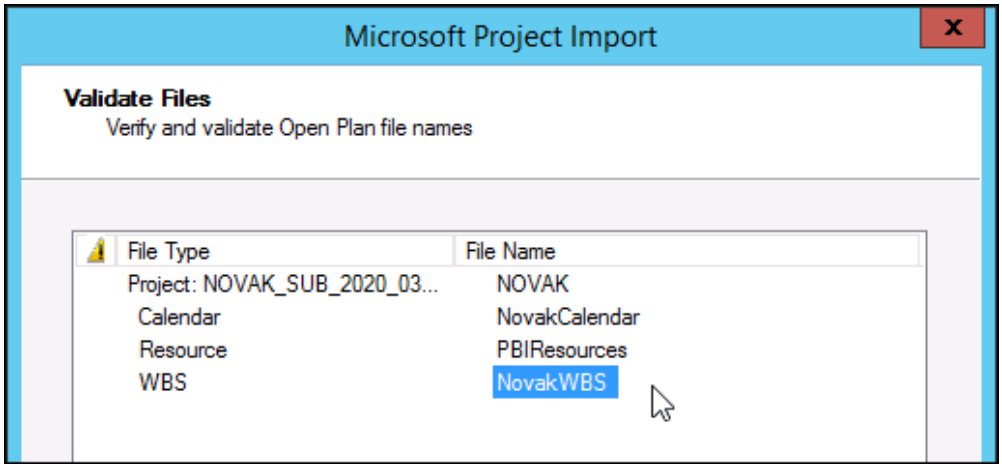
27. Shorten the name in the field to **NOVAK** by typing directly in the **File Name** field.



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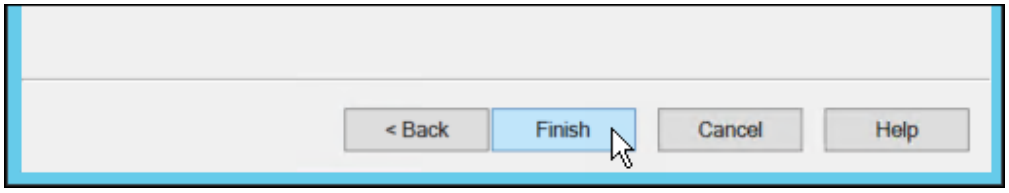
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28. Rename the **Calendar**, **Resource**, and **WBS** files as follows:

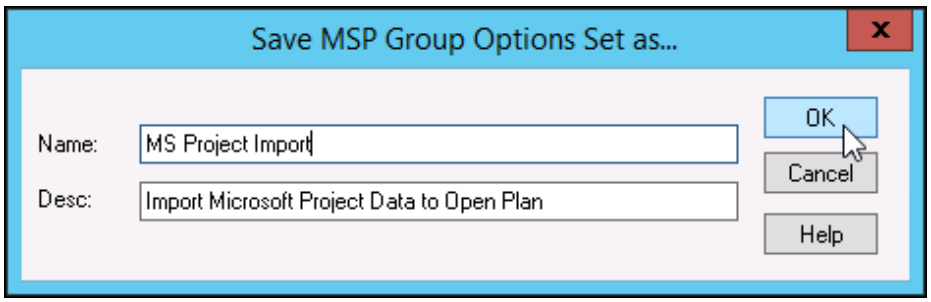


Calendar - NovakCalendar
Resource - PBIResources
WBS - NovakWBS

29. If all validations look good, click the **Finish** button.



30. In the resulting **Save MSP Group Options Set as…** dialog, enter the following:



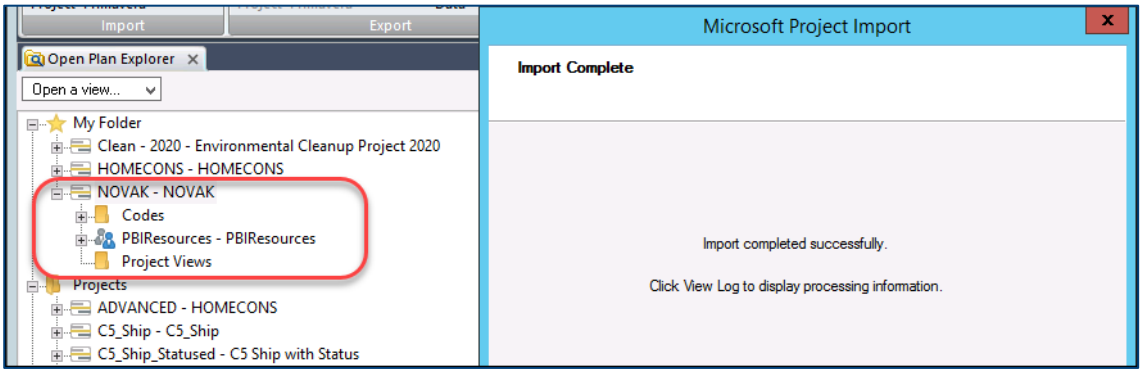
Name: MS Project Import
Desc: Import Microsoft Project Data to Open Plan

Note: This action is saving all your settings into a named group for use in a future import from Microsoft Project.

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31. Click **OK**.

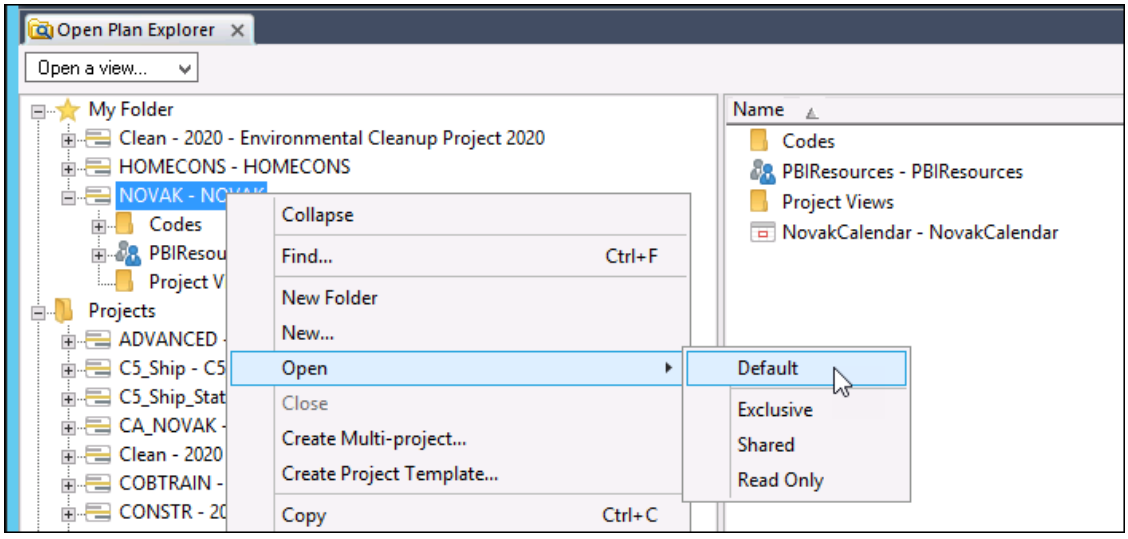


The NOVAK project has been placed into My Folder and the Projects list also.

11.2.3 Activity: Reviewing the Imported Project

We have just imported a schedule from Microsoft Project that has dates calculated by Microsoft Project. Because Microsoft Project and Open Plan use different scheduling models, it will be necessary to have Open Plan calculate its dates for the project, based upon Open Plan algorithms. We will also look at the Code files we created during import.

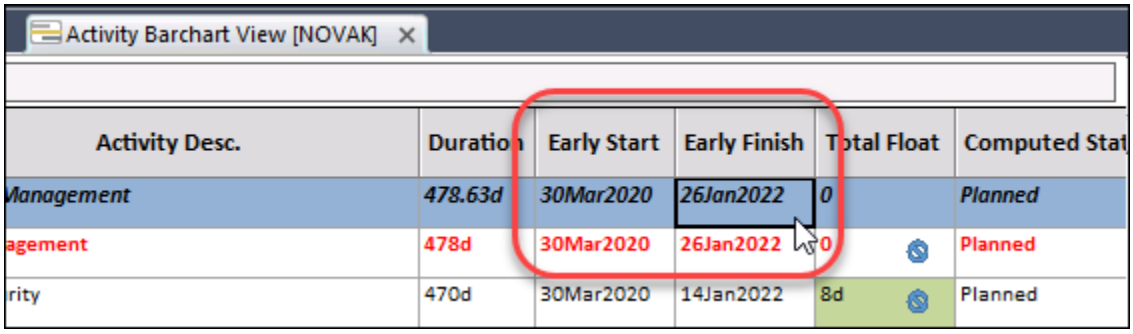
1. Open the **NOVAK** project in Open Plan to review the results of the import.



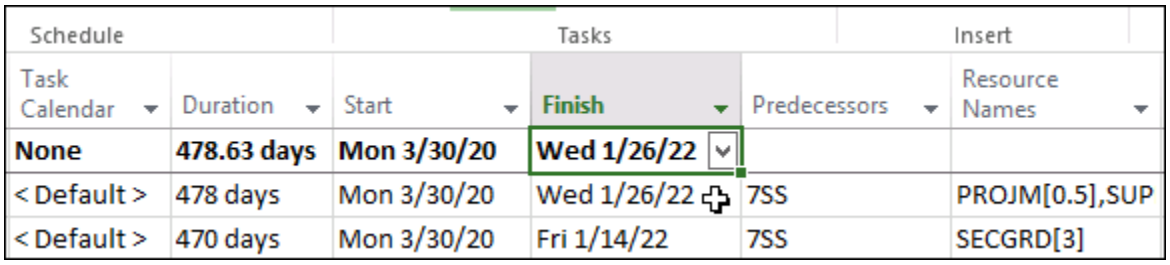
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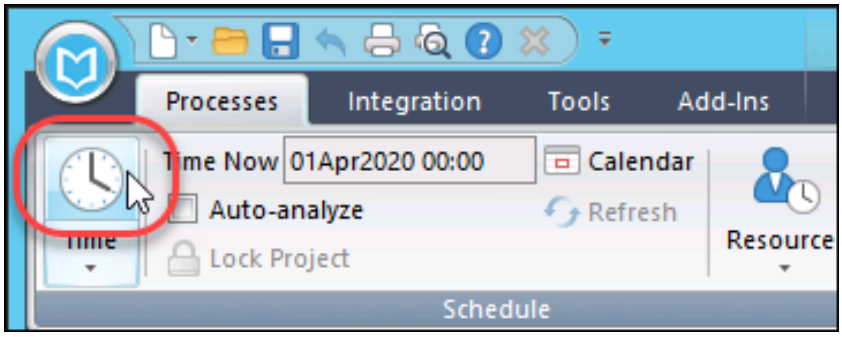
2. Note the **Early** dates on row 1 in the **Activity Barchart View**.



3. Compare the **Early Start and Finish** dates you have in Open Plan with the following Microsoft Project Start and Finish dates image below. They both match.



4. In **Processes**, click the top of the **Time** button to run the analysis and calculate the activity dates based upon the Open Plan algorithms.



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5. Review the **Early Dates** after the **Time** analysis.

Activity Desc.	Duration	Early Start	Early Finish	Total Float	Computed
Project Management	*3819h*	*01Apr2020*	*28Jan2022*	*0*	*Planned*
Site Management	478d	01Apr2020	28Jan2022	0	Planned
Site Security	470d	01Apr2020	18Jan2022		Planned
Acquire Permits	49d	01Apr2020	08Jun2020	429d	Planned

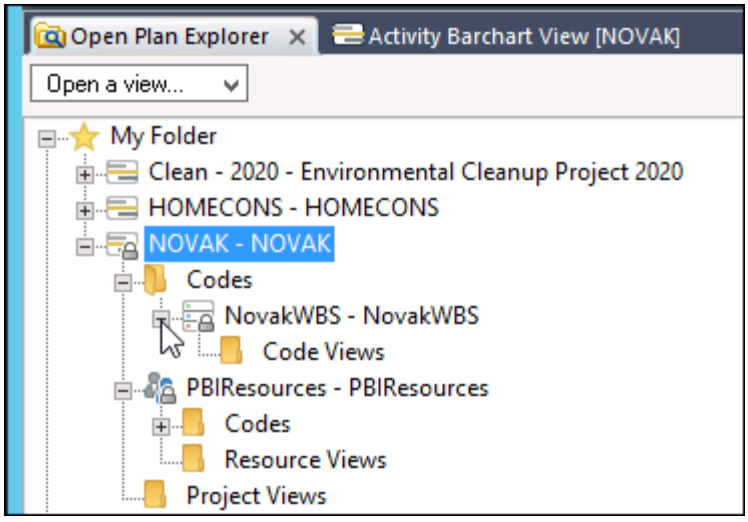
28Jan2022

The early start has slipped 1 day to 4/1/2020
The Early Finish date has slipped 2 days from 1/26/2022 to 1/28/2022.

11.2.4 Activity: Verifying Project Code Files

During the import we asked the integration process to create a WBS, Resource, and Calendar ancillary files. Take these next steps to review the results of this part of the integration.

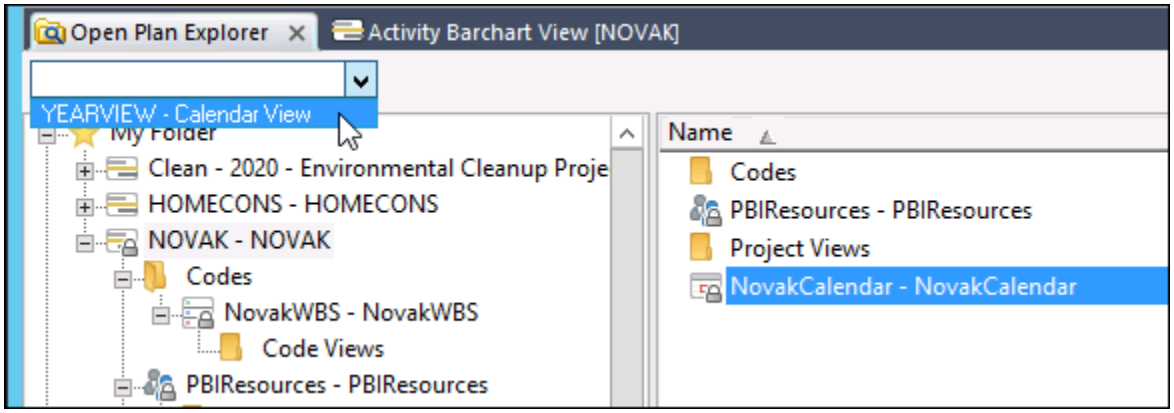
1. In the **Open Plan Explorer**, expand the **NOVAK** Project to show all its lower elements.



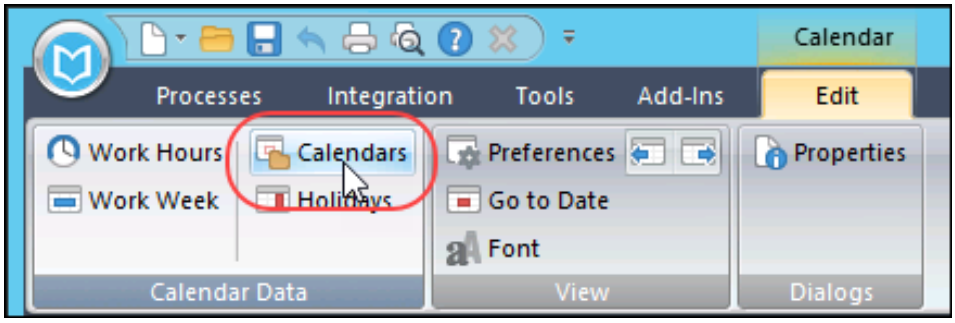
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2. Highlight the **NovakCalendar** and use the View dropdown to select **YEARVIEW**.



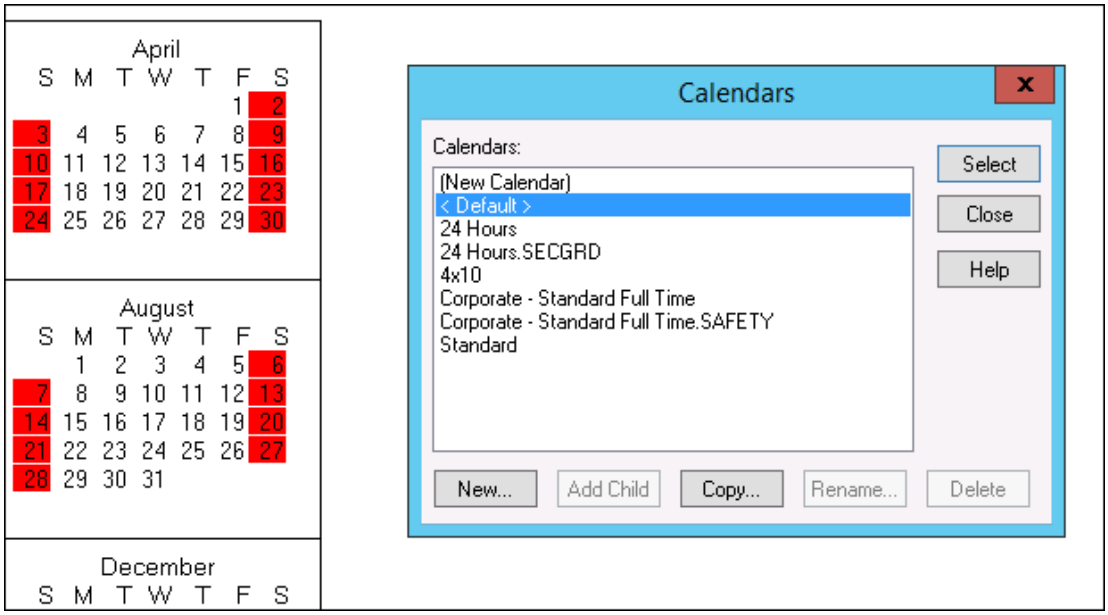
3. In the calendar **YEARVIEW**, click the **Calendars** option.



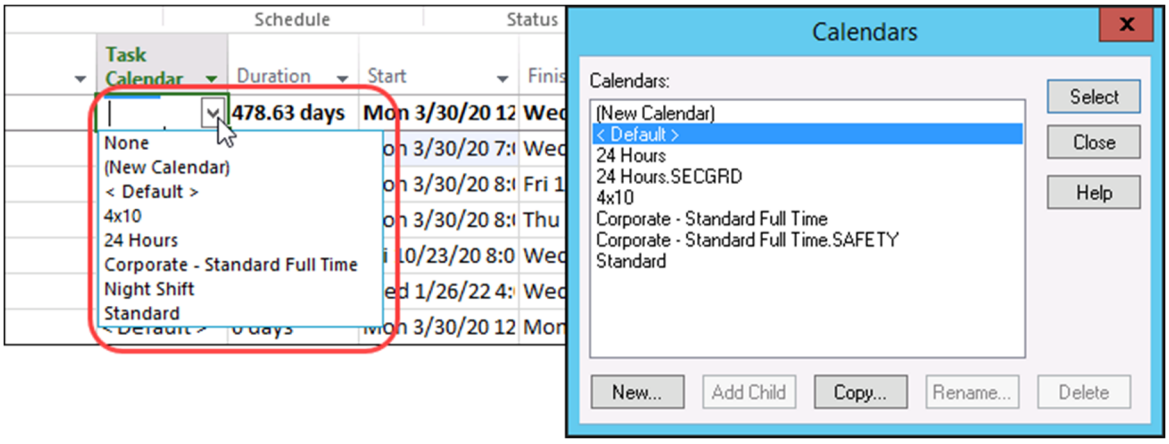
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4. Note the list of calendars loaded into the **Calendar** file that were created during integration. Each of these calendars is in-use somewhere on the Novak schedule.



When a Microsoft Project calendar is assigned to a particular resource in the Resource Sheet, that will show up in the Open Plan calendar as a child calendar.

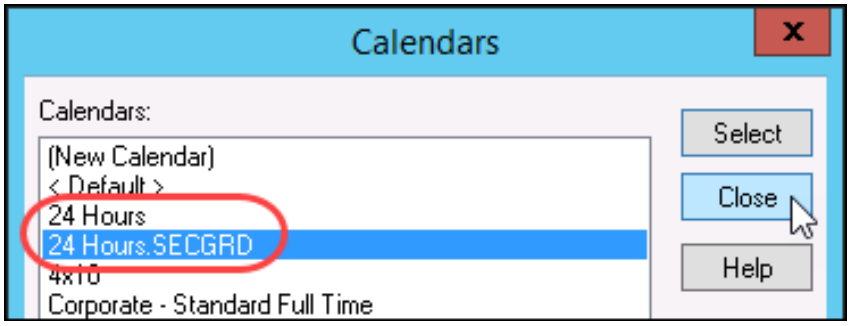


Note, for example, the '**24 Hours**' calendar, and '**24 Hours.SECGRD**' child calendar.

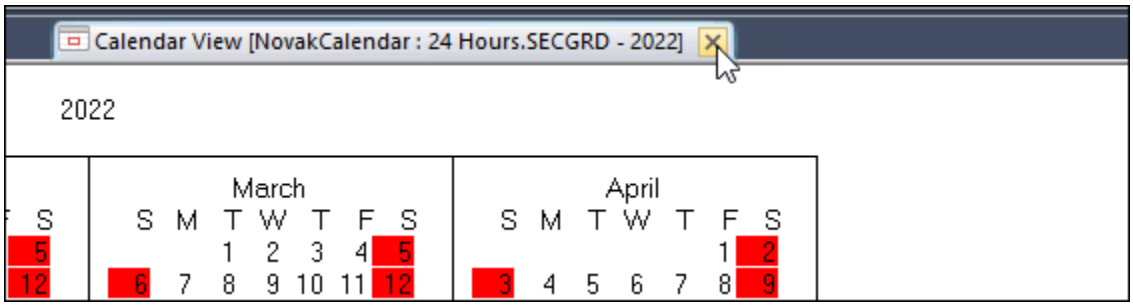
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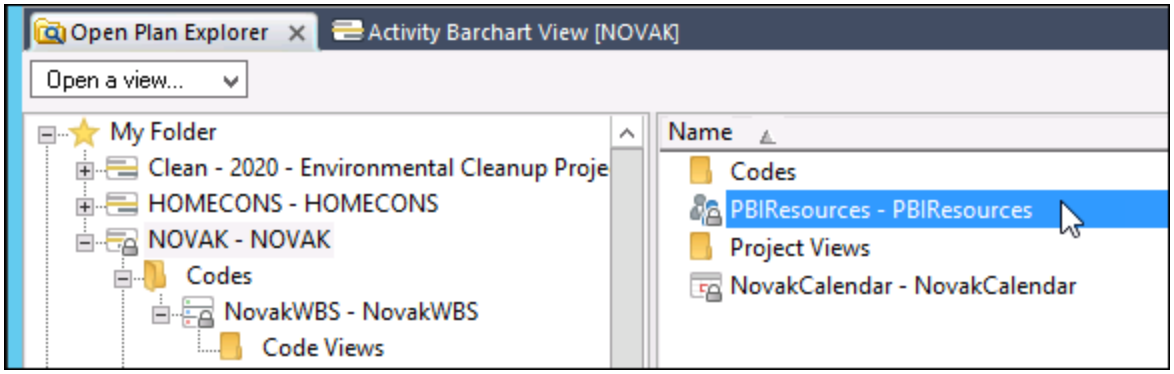
5. Click **Close**.



6. Close the **Calendar View**.



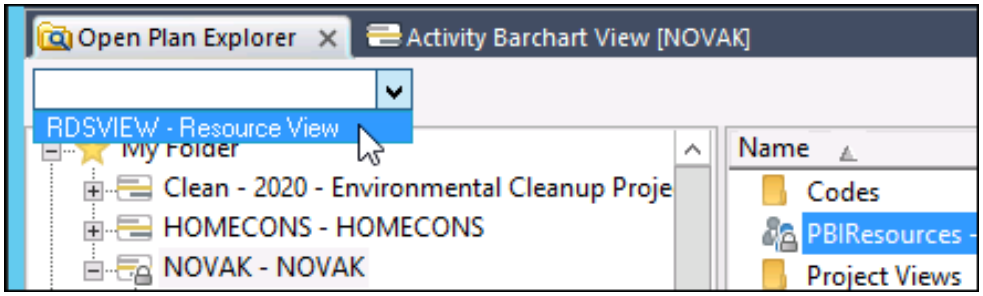
7. In the **Open Plan Explorer**, select the **PBIResources** file.



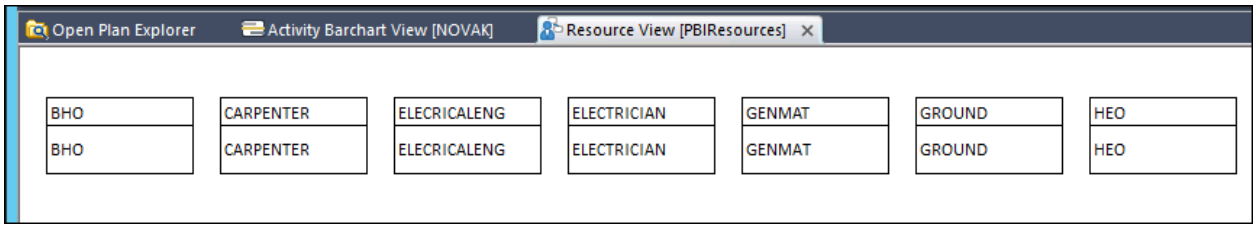
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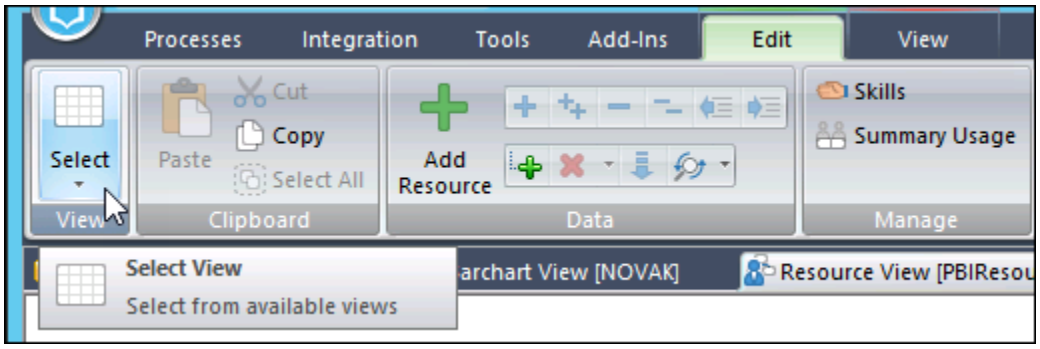
8. In the **Open a view…** field, select the **RDSVIEW**.



9. This shows there is no hierarchy in the **Resources** file.



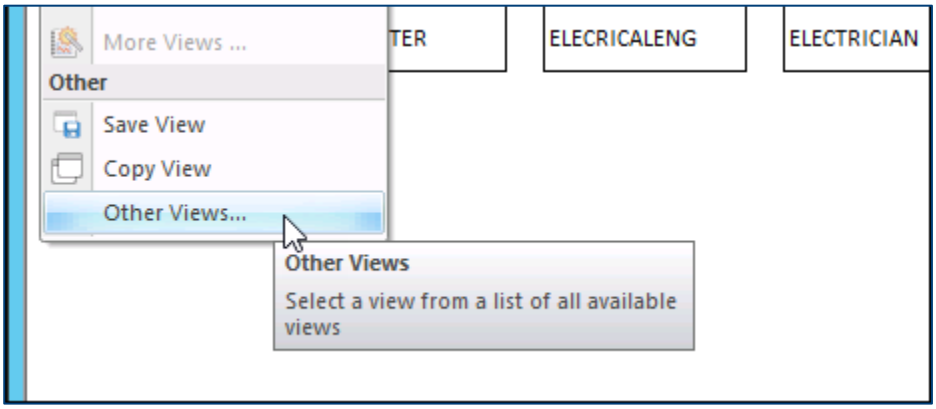
10. In the **Edit** ribbon, click on the **View | Select View** button.



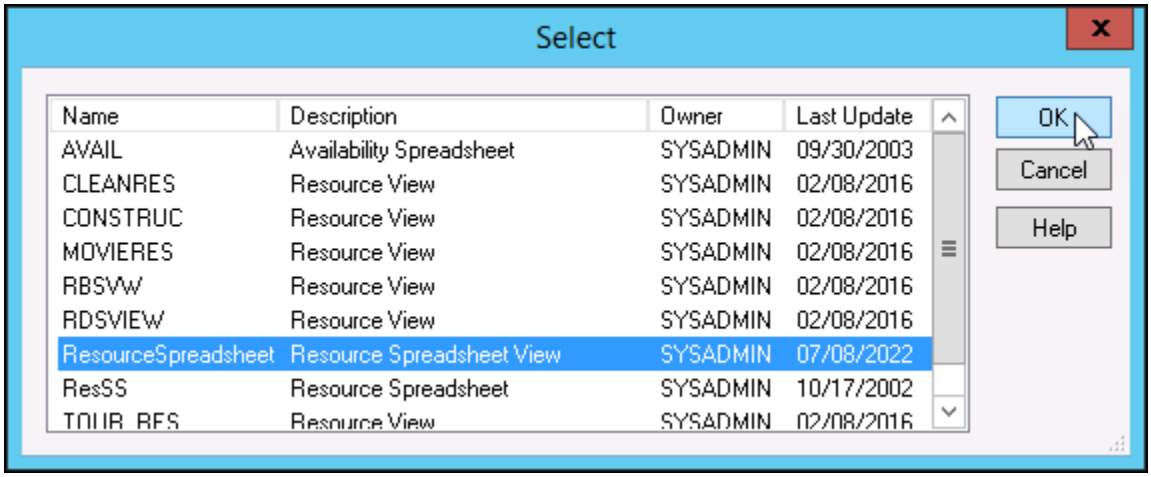
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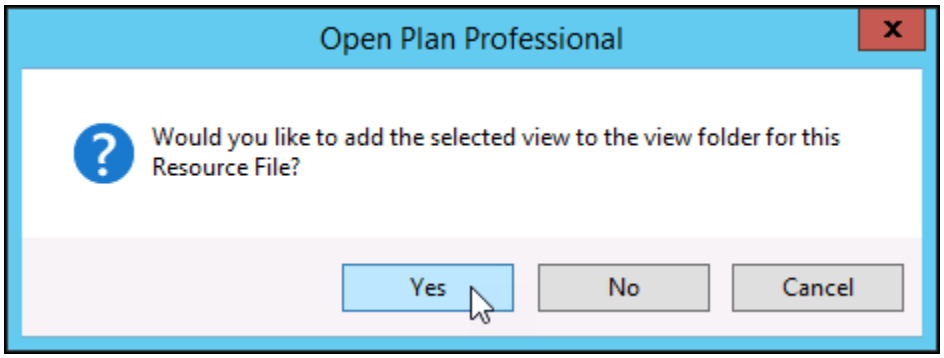
11. Click on **Other Views…**.



12. In the dialog, select the **ResourceSpreadsheet** view.



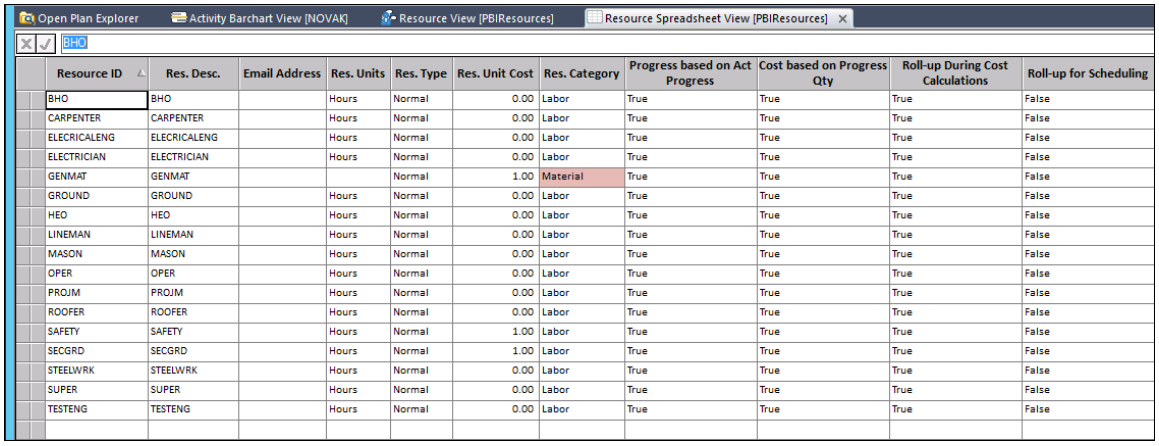
13. When prompted, go ahead and add the selected view to the view folder for this resource file.



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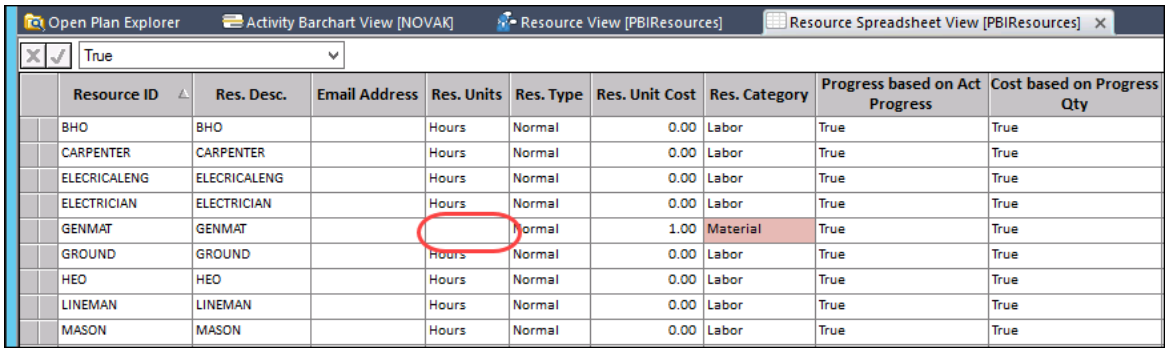
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14. You will see a table with all the allocated resources that were loaded to the file from Microsoft Project.



Resource ID	Res. Desc.	Email Address	Res. Units	Res. Type	Res. Unit Cost	Res. Category	Progress based on Act Progress	Cost based on Progress Qty	Roll-up During Cost Calculations	Roll-up for Scheduling
BHO	BHO		Hours	Normal	0.00	Labor	True	True	True	False
CARPENTER	CARPENTER		Hours	Normal	0.00	Labor	True	True	True	False
ELECRICALENG	ELECRICALENG		Hours	Normal	0.00	Labor	True	True	True	False
ELECTRICIAN	ELECTRICIAN		Hours	Normal	0.00	Labor	True	True	True	False
GENMAT	GENMAT			Normal	1.00	Material	True	True	True	False
GROUND	GROUND		Hours	Normal	0.00	Labor	True	True	True	False
HEO	HEO		Hours	Normal	0.00	Labor	True	True	True	False
LINEMAN	LINEMAN		Hours	Normal	0.00	Labor	True	True	True	False
MASON	MASON		Hours	Normal	0.00	Labor	True	True	True	False
OPER	OPER		Hours	Normal	0.00	Labor	True	True	True	False
PROJM	PROJM		Hours	Normal	0.00	Labor	True	True	True	False
ROOFER	ROOFER		Hours	Normal	0.00	Labor	True	True	True	False
SAFETY	SAFETY		Hours	Normal	1.00	Labor	True	True	True	False
SECGRD	SECGRD		Hours	Normal	1.00	Labor	True	True	True	False
STEELWRK	STEELWRK		Hours	Normal	0.00	Labor	True	True	True	False
SUPER	SUPER		Hours	Normal	0.00	Labor	True	True	True	False
TESTENG	TESTENG		Hours	Normal	0.00	Labor	True	True	True	False

15. Check for missing values in the table. See anything?



Resource ID	Res. Desc.	Email Address	Res. Units	Res. Type	Res. Unit Cost	Res. Category	Progress based on Act Progress	Cost based on Progress Qty
BHO	BHO		Hours	Normal	0.00	Labor	True	True
CARPENTER	CARPENTER		Hours	Normal	0.00	Labor	True	True
ELECRICALENG	ELECRICALENG		Hours	Normal	0.00	Labor	True	True
ELECTRICIAN	ELECTRICIAN		Hours	Normal	0.00	Labor	True	True
GENMAT	GENMAT			Normal	1.00	Material	True	True
GROUND	GROUND		Hours	Normal	0.00	Labor	True	True
HEO	HEO		Hours	Normal	0.00	Labor	True	True
LINEMAN	LINEMAN		Hours	Normal	0.00	Labor	True	True
MASON	MASON		Hours	Normal	0.00	Labor	True	True

GENMAT has a blank **Res. Unit** field.

During integration, Open Plan does it's best to interpret disparate values used in the source system and populate fields with a default value based upon the most likely required outcome.

In Microsoft Project for example, there's no equivalent field in the Resource sheet to Open Plan's 'Res. Units' field. During integration, if Open Plan finds a Res. Category of Labor, it sets the Res. Unit value to Hours by default. A category of Material, however, cannot be so easily 'guessed' at. It could be anything: lump sum, linear feet, cubic yard, etc.

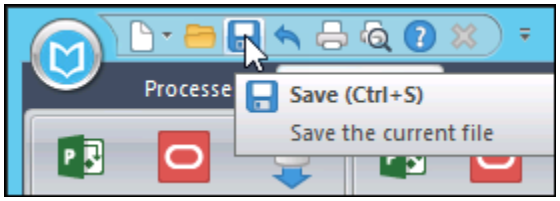
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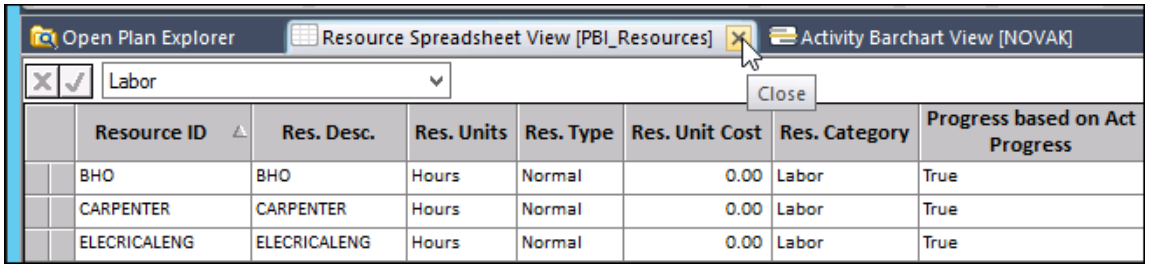
16. In the **Res. Units** field, enter **LS** for the **GENMAT** material resource.

Resource ID	Res. Desc.	Res. Units	Res. Type	Res. Unit Cost	Res. Category
BHO	BHO	Hours	Normal	0.00	Labor
CARPENTER	CARPENTER	Hours	Normal	0.00	Labor
ELECRICALENG	ELECRICALENG	Hours	Normal	0.00	Labor
ELECTRICIAN	ELECTRICIAN	Hours	Normal	0.00	Labor
GENMAT	GENMAT	LS	Normal	1.00	Material
GROUND	GROUND	Hours	Normal	0.00	Labor
HEO	HEO	Hours	Normal	0.00	Labor
LINEMAN	LINEMAN	Hours	Normal	0.00	Labor

17. Click **Save**.



18. Close the **Resource Spreadsheet**.

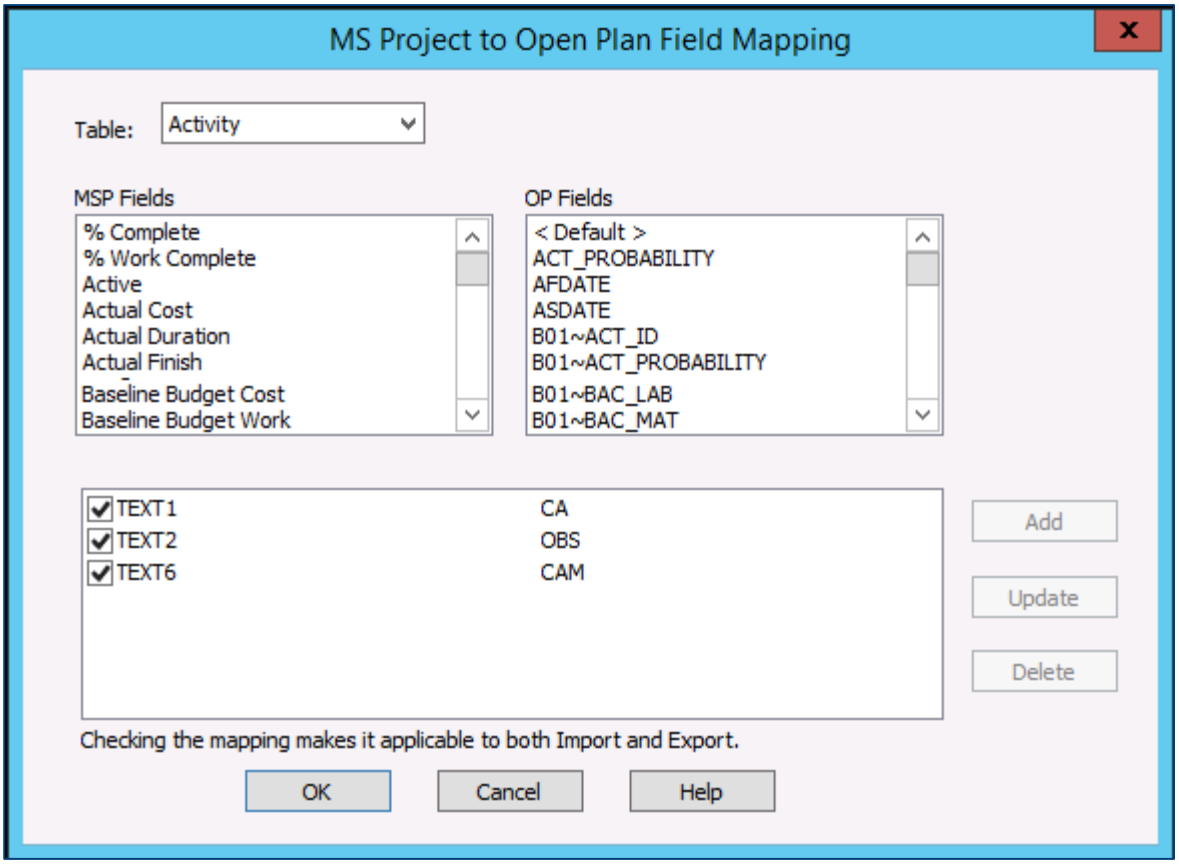


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11.3 Verifying the Field Mapping

The **Field Mapping** settings selected during the integration are directing some of the Microsoft Project user-defined custom fields to be written to existing Open Plan fields.



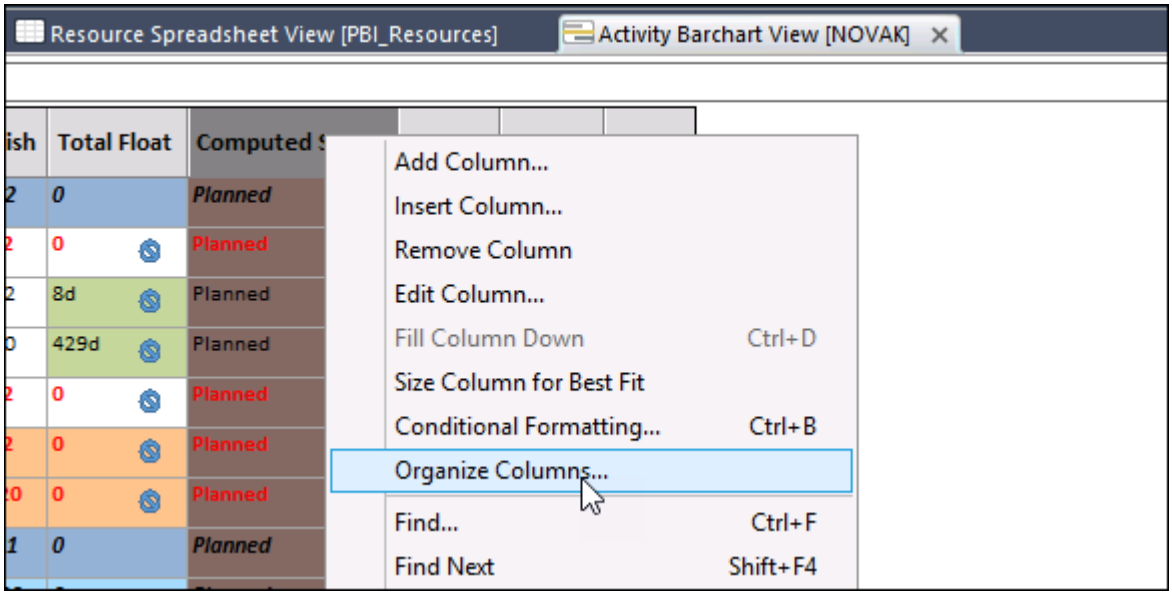
In this example, Text1 (Control Account codes), Text2 (OBS codes), and Text6 (Control Account Managers) are being mapped to their required CA, OBS, and CAM user fields.

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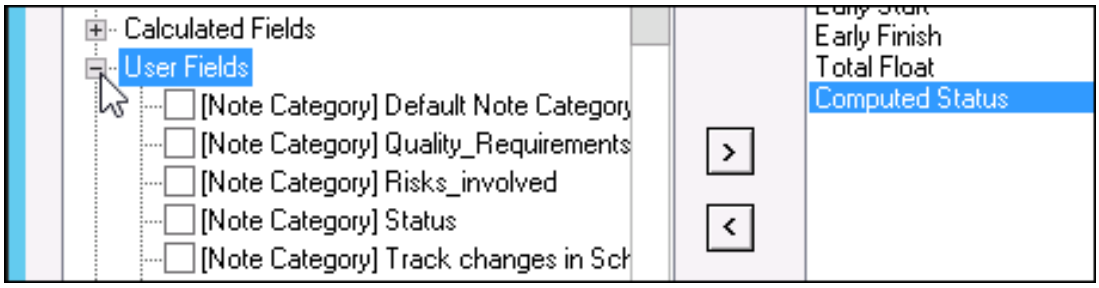
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11.3.1 Activity: Verifying the Field Mapping

1. In the **Activity Barchart View**, right-click any column header and choose **Organize Columns…**.



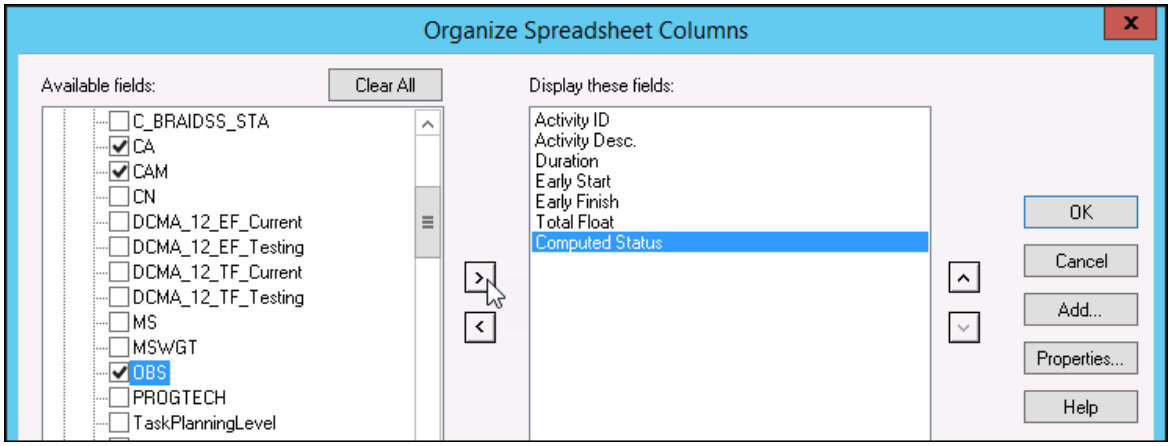
2. Expand the **User Fields** group.



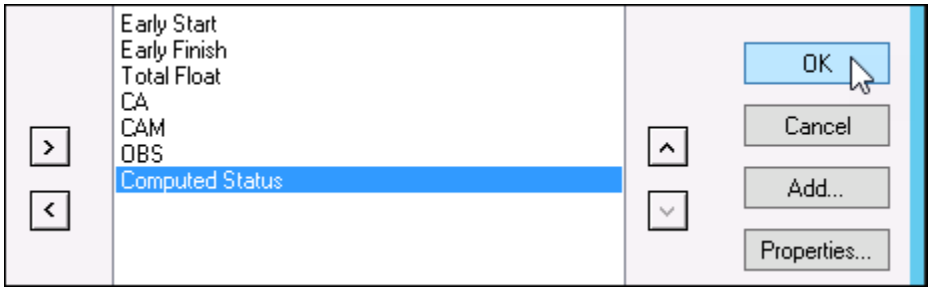
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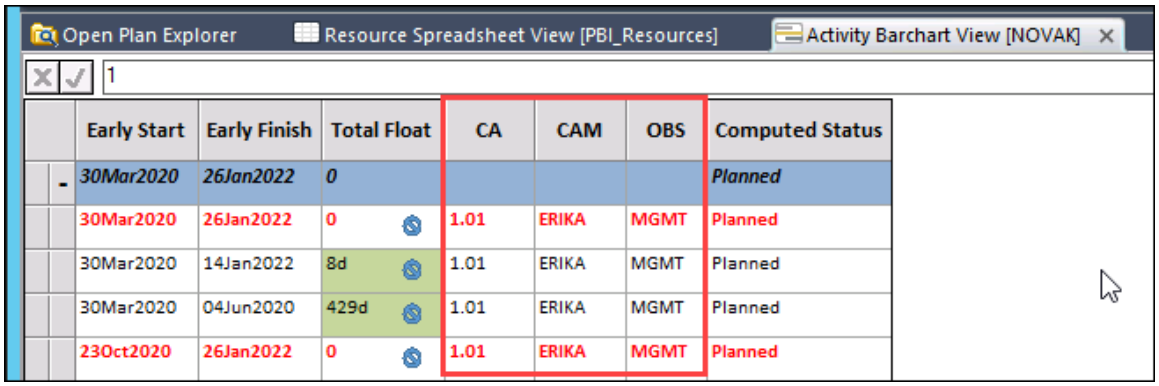
3. Select **CA**, **CAM**, and **OBS** in the **Available fields**: list and click the **>** button to move them into the **Display these fields:** list.



4. Click **OK**.



5. Review the columns in the table and confirm they contain data.



This concludes the Microsoft Project integration with Open Plan discussion.

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11.4 Multi-project Environment

The following sections will provide an overview of the terms and functionality associated with the multi-project environment.

The keys to successful implementation include:

- Up-front planning
- Focused objective
- Buy-in from all points of the organization
- Dedicated core team and implementation staff
- Cooperation and Communication

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11.4.1 Definitions and Examples

The following chart contains many of the terms, definitions, and examples associated with the multi-project environment.

Term	Definition	Example
Internal/Local Subproject	A group of activities represented as a single activity in a higher level of the same project	A 10-day activity called Manufacture Cellular Equipment is made up of several smaller duration activities. These “children” define (both cost and schedule) the parent activity (subproject).
External Subproject	An entire project represented as a single activity in a higher level project.	An entire telecommunications project is summarized into a single activity. This external subproject is one of several “special” activities that exist in a multi-project environment.
Master Project/Multi-project	A project containing one or more external subprojects.	Working in a distributed project management environment, several telecommunications projects are brought together into a single “master project” to perform time/date calculations and to report on global status.
Foreign Project	A placeholder activity used to represent projects that are not currently open.	Before we can assemble the equipment in Lexington, we have to identify and resolve shortages in Santa Clara.
Foreign Activity	A placeholder activity used to represent relationships with projects that are not currently open.	Before we can assemble the equipment we have to resolve shortages in Santa Clara
Foreign Subproject	An activity type necessary to express the hierarchical level of the foreign activity correctly.	When a foreign activity exists in a project, its parent and grandparents must exist in the project as well.

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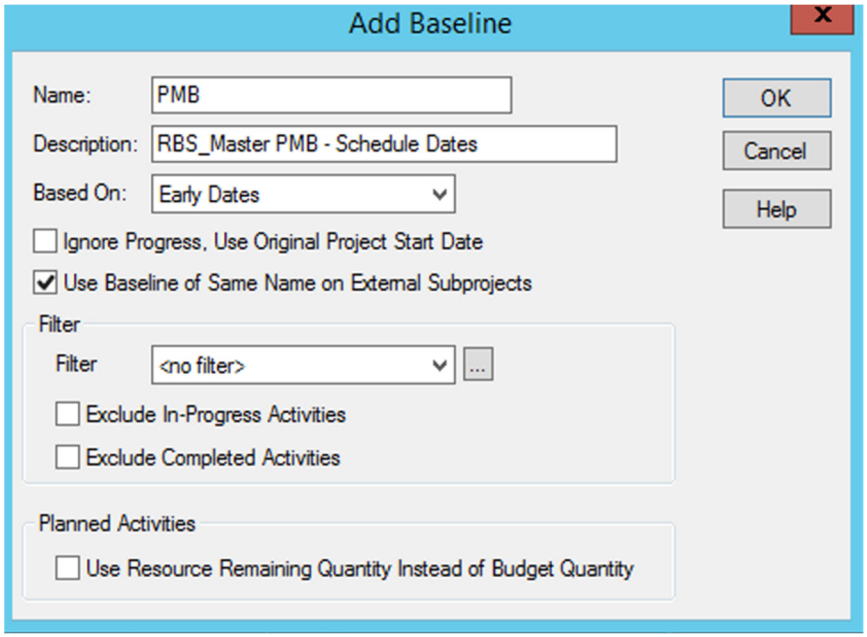
11.5 Introduction

The premise for this module is that the HOMECONS project represents a home being built in Phase I Quadrant 1 of the subdivision, and that the HOMECONS_Q2 project represents a home being built in Phase I Quadrant 2. Neither project has a resource conflict on its scheduled dates. The question is Do we have enough resources to do both projects simultaneously? There are two tools in Open Plan to help answer this question. One is the Project Summary Usage system, and the other is multi-project Resource Scheduling.

11.5.1 Activity: Editing Entries

The projects are sharing the Code file (in slot 2) called All_areas. For the HOMECONS project, all activities have the same code – P1.Q1 (Phase I, Quadrant 1). The HOMECONS_Q2 project represents a home being built in Quadrant 2, and so its Code2 entries must be edited.

Follow the steps in the table below to edit Code 2 entries.

Step	Action
1	Open the **Activity Barchart** for the project **HOMECONS_Q2**. 
2	Add a column to the spreadsheet for All_areas.

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3	Use the **Fill Column Down** feature to edit all the codes to **P1.Q2.**
4	On the **Project Properties** dialog box, go to the **Scheduling** tab.
5	Clear the checkbox: **Create Summary Usage Upon Saving Project**
6	**IF**, the Delete Summary Usage For This Project button is enabled, click **Delete**.
7	Save the project.
8	Close the view saving no changes.
9	Close the **HOMECONS_Q2** project.

Note: We will be using both the HOMECONS and HOMECONS_Q2 (both from the last chapter 5) projects to display the functionality of Project Summary Usage. Due to an urgent need by the prospective Homeowner, HOMECONS will be the higher priority project.

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11.6 Project Scheduling Priority

The project summary resource usage file allows different projects to be scheduled successively using only a single resource file. In order to realize the functionality of project summary resource usage, it is necessary to define a unique priority for each project.

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11.7 Storing Summary Usage

In order to take advantage of project summary resource usage, the resources used by a project must be saved in summary form with the resource file. This makes the data available to other projects using the same resource file. If the appropriate option is set, the summary resource usage is saved each time the project is saved.

Storing summary resource usage when you save the project is possible only when both the project and the resource file are opened in Exclusive mode. If the resource file is in Read Only mode, the summary resource usage cannot be saved.

The summary resource usage file is not saved when you perform a Save As or do a backup. Also, when you do perform a Save As or do a backup, the option to Create Summary Usage Upon Saving Project is automatically cleared on the new project.

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11.8 Using the Summary Usage Data

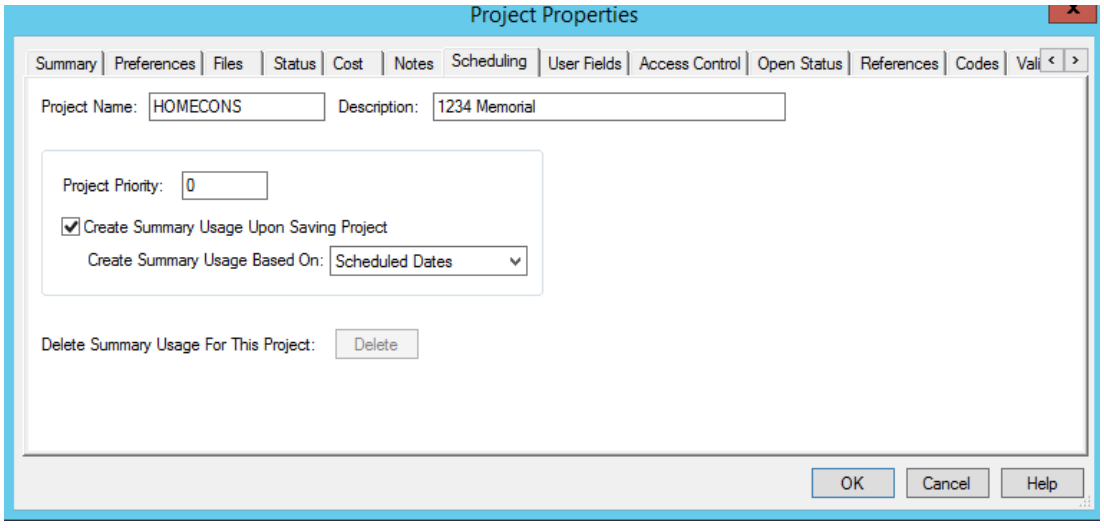
When resource scheduling a project, there is an option to Consider Usage On Other Projects that have a higher-level priority. (A higher priority is indicated by a lower-project priority numeric value.)

When using the Select Resource dialog box (discussed later) to find resources that are available, Open Plan deducts any availability used by higher-level projects.

A project has no access to the other projects directly. The priority Open Plan uses for a subsequent project is the priority at the time the summary usage data was last stored.

11.8.1 Activity: Creating a Summary Usage Table

Follow the steps in the table below to create a Summary Usage Table.

Step	Action
1	Open the **HOMECONS** project in Default mode.
2	Access the **Project Properties**.
3	On the **Scheduling** tab, set the Project Priority to zero (0).
4	Select the Create Summary Usage Upon Saving Project option.
5	Select Scheduled Dates for the Create Summary Usage Bases On option. 
6	Click **OK.**

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Step	Action
7	Run Time Limited Resource Scheduling and verify that there is no ‘exceeds’ in the log.
8	Save the project.
9	Open the **Activity Spreadsheet** View (SPREADVW).
10	Right-click anywhere in the columns and click **Preferences.**
11	Change the Table Name to **Project Summary Usage**.
12	Click **OK.** **Result:** The dialog box should match the graphic below. The report is reading data from the Project Summary Usage table just created. This table is associated with the resource file itself. Therefore, Open Plan can indicate to a lower priority project just how much of the overall resource availability is available to the lower priority project. It can do this by simply subtracting the summary usage from the availability.

SL.ELECT.HV

Project File	Resource ID	Res. Used	Start Date	Finish Date
HOMECONS	ARCH	115200.00	16Mar2020	24Apr2020
HOMECONS	HOME	19200.00	27Apr2020	01May2020
HOMECONS	SL.AC	3840.00	22Jun2020	23Jun2020
HOMECONS	SL.CARP.AH	25920.00	04May2020	14May2020
HOMECONS	SL.CARP.AH	6720.00	15Jul2020	03Aug2020
HOMECONS	SL.CARP.RN	19200.00	19May2020	25May2020
HOMECONS	SL.CARP.RN	53760.00	27May2020	15Jun2020
HOMECONS	SL.CARP.RN	7680.00	22Jun2020	23Jun2020
HOMECONS	SL.ELECT.HV	34560.00	04May2020	14May2020
HOMECONS	SL.ELECT.HV	11520.00	22Jun2020	24Jun2020
HOMECONS	SL.ELECT.HV	7680.00	01Jul2020	02Jul2020
HOMECONS	SL.ELECT.HV	7680.00	15Jul2020	16Jul2020
HOMECONS	SL.ELECT.RK	7680.00	22Jun2020	23Jun2020
HOMECONS	SL.MASON	1920.00	26May2020	26May2020
HOMECONS	SL.MASON	7680.00	16Jun2020	19Jun2020
HOMECONS	SL.MASON	5760.00	03Jul2020	07Jul2020
HOMECONS	SL.PAINT	10080.00	24Jun2020	02Jul2020
HOMECONS	SL.PAINT	14400.00	08Jul2020	21Jul2020
HOMECONS	SL.PAINT	7200.00	08Jul2020	14Jul2020
HOMECONS	SL.PLUMB	2880.00	15May2020	18May2020
HOMECONS	SL.PLUMB	4320.00	22Jun2020	24Jun2020
HOMECONS	SL.PLUMB	1920.00	15Jul2020	16Jul2020
HOMECONS	SL.ROOF	7680.00	05Jun2020	10Jun2020

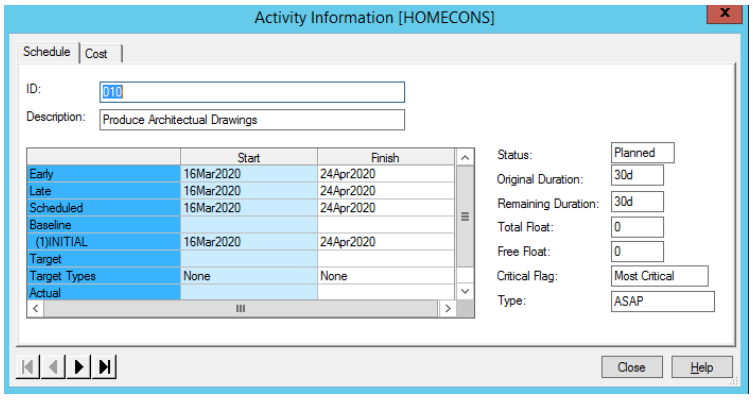
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Step	Action
13	Close the report saving no changes.
14	Close the project.

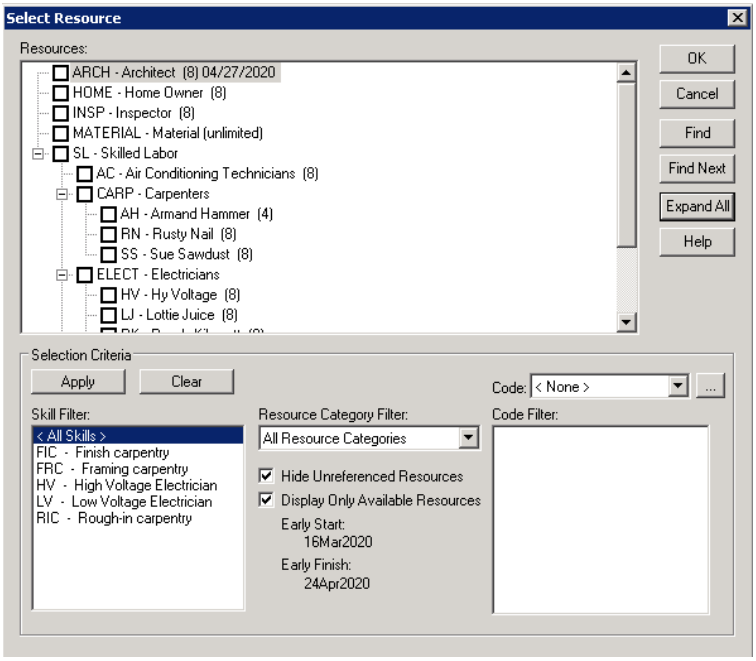
11.8.2 Activity: Investigating Summary Usage Effect

Follow the steps in the table below to investigate the effect this summary usage has on a lower priority project.

Step	Action
1	Return to the **HOMECONS_Q2** project.
2	On the Scheduling tab of the **Project Properties** dialog box, change the Project Priority to one (1).
3	Click **OK.**
4	Open the **Activity Barchart** View.
5	Go to Baselines and select **INITIAL.**
6	Highlight **Activity 010** and press **F5.** **Result:** You should see the Activity Information dialog box.  **Note:** The Scheduled Dates for this activity are 16Mar20 to 24Apr20.
7	To display which resources are available for this project close the **Activity Information** dialog box.

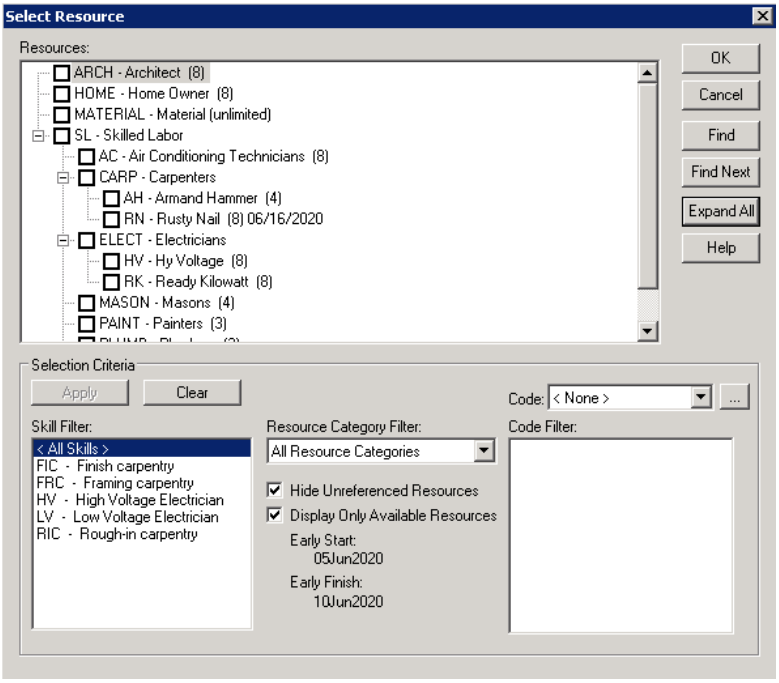
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Step	Action
8	Edit **Activity 010** and click the **Resources** tab within the Activity Details dialog box.
9	Click the **ellipsis** button.
10	Select the **Display Only Available Resources** option and the **Hide Unreferenced Resources** option.
11	Click the **Expand All** button to display the resource hierarchy as shown in the following dialog box:  **Result:** Two items will be listed: • Resources that have been assigned to an activity in this project • The remaining availability of the resources displayed Activity 010 is the only activity using the ARCH resource. The level is 8 on both the early and scheduled dates (16Mar20 to 24Apr20). The ARCH resource has availability in the resource file of 8. Therefore, we have no more ARCH resources available to Activity 010 in the HOMECONS_Q2 project before 03May20 based on the usage in the Project Summary Usage file. Should we assign this resource to Activity 010, we will have created a resource conflict. So, if we need a resource that has the same skills as the Architect, we should pick someone else. Notice that the MATERIAL resource is listed as (unlimited). This is because it has been designated “Suppress for Scheduling” in the resource file.
12	Close the **Select Resource** dialog box.

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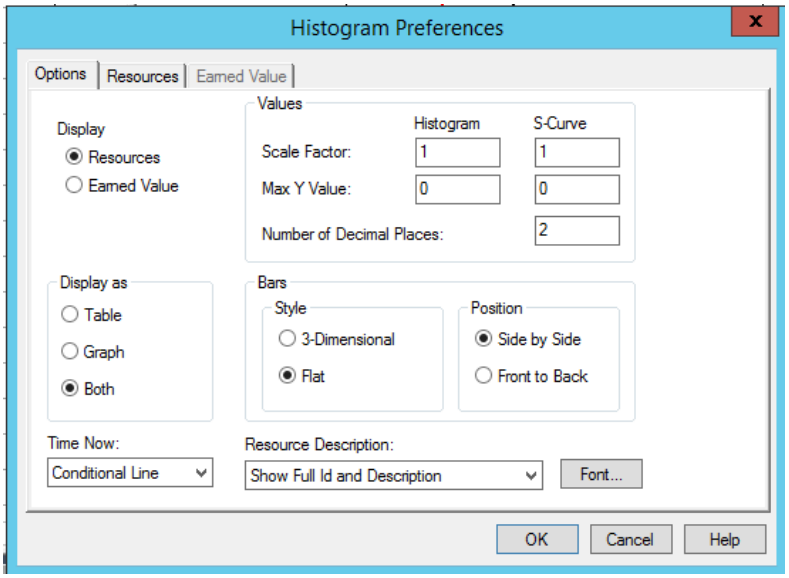
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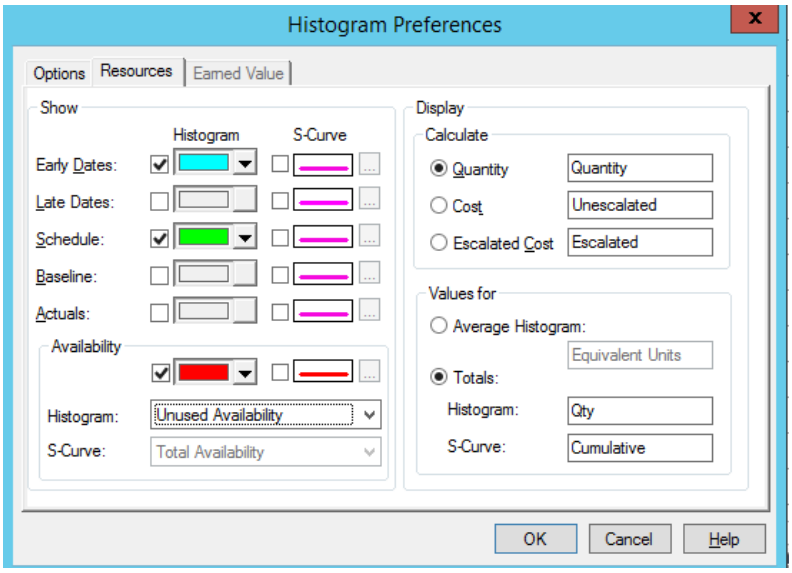
Step	Action
13	Repeat the above steps for **Activity 130.** **Note:** The SL.CARP.AH resource is used at a rate of (8) on the scheduled dates up to 05Jun20, according to the Summary resource usage. Since the availability of this resource in the resource file is also 8, we have a minimum of 6 and a maximum of 8 available to Activity 130 in the HOMECONS_Q2 project beginning on 10Jun20. Should we assign this resource to this activity, we will have created a resource conflict. The SL.ROOF resource is used at a rate of (4) on the scheduled dates from 10Jun20 to 13Jun20 on the HOMECONS project. Since the availability of this resource in the resource file is 8, we have a 4 available to the HOMECONS_Q2 project. Should we assign this resource at a level of more than 4 to Activity 130, we will have created a resource conflict. We can use Resource Histograms to view values such as those displayed with the ellipsis on the Resource tab. 
14	From the **View** tab, select the resource **SL.CARP.AH.**
15	Click **OK.**
16	Edit the **Date Scale** to make Axis **3** to have a time unit of Days.

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Step	Action
17	Click **OK.** **Result:** Set up the histogram preferences as follows:





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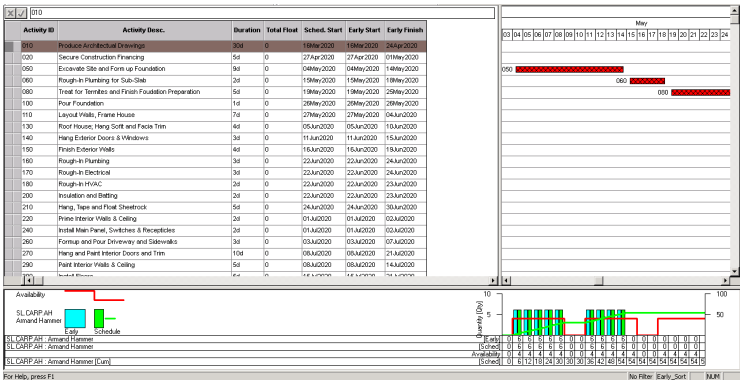
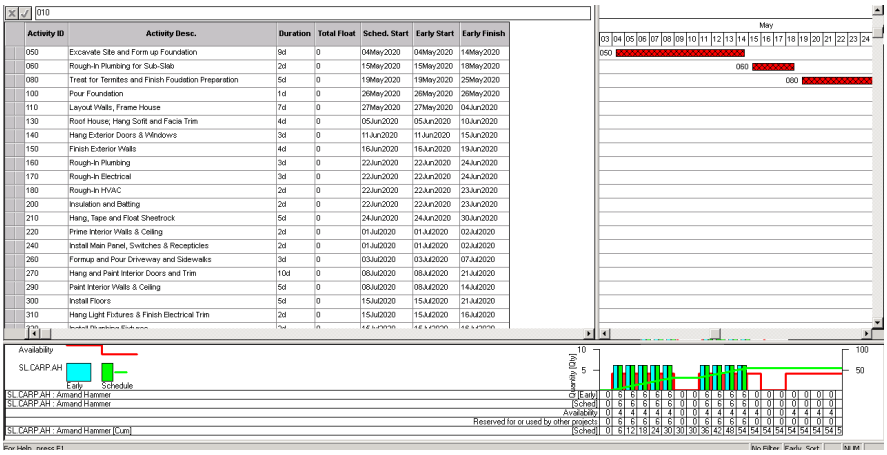
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Step	Action
17 (cont.)	**Notes:**

Part	Function
Total Availability	Displays the total availability of the resource. The histogram does not identify quantities that are reserved for another project or used by a project with a higher priority.
Unreserved Availability	Displays the availability that is not reserved for another project.
Unused Availability	Displays the availability that is not used by a project with a higher priority or reserved for another project.
Total & Reserved	Displays both the total availability and the availability that is reserved for another project.
Total & Reserved or Used	Displays both the total availability and the availability that is either reserved for another project or used by a project with a higher priority.
Total Reserved and Used	Displays the total availability, the availability that is reserved for another project, and the availability that is used by a project with a higher priority.
Unreserved and Used	Displays both the availability that is not reserved for another project and the availability that is used by a project.

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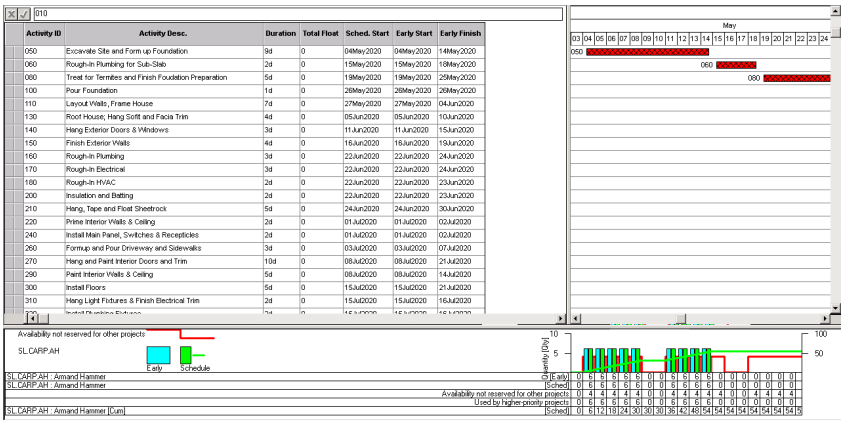
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Step	Action
18	Click **OK.** **Result:** By comparing resource assignments and usage with the availability information, you can easily see where each resource is over-or under-utilized. This report advises us that we have very little availability of the SL.CARP.AH resource for the HOMECONS_Q2 project. 
19	Click **OK.** **Result:** This report is almost the reverse of the previous report. It is displaying (in pink) how much availability there is, each day, for the SL.CARP.AH resource. 
20	Change the Histogram Preferences to Unreserved and Used

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Step	Action
21	Click **OK.** **Result:**
22	Close the barchart without saving any changes.



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11.9 Reserving Resources

There is a feature in Open Plan for reserving the availability of a resource. This feature can be used either separately or in concert with the Project Summary Usage.

Resources can be reserved for use with particular projects. This can be done at any level in the resource hierarchy. For example, you can reserve a whole department or an individual resource for a project. When you reserve an individual resource, you have two options:

- Reserving a resource completely
- Reserving a portion of a resource

If you are reserving an individual resource (as opposed to a resource pool), the resource can be reserved for a particular period of time and/or at a partial level. Thus an individual might have 50% of his time reserved for a given project during a specific 6-month period.

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11.10 Reserving a Portion of a Resource

Lower-level reservations override higher-level ones. For example, you can reserve a whole department for a particular project by assigning a project on the General tab for a resource pool. Then you can countermand this for individual members of that department (or pool) by one of two ways:

- Assign a different project on the General tab for that particular resource
- Assign a different project in the Project column on the Availability tab

Since a lower-level reservation takes precedence over the higher-level one, a child resource reservation is checked before the parent resource pool. Open Plan first checks for a reservation on the Availability tab. If a reservation is found then the search ends. If not, the General tab is checked. If no reservation is found in either spot, the parent reservation is used.

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11.11 Effect of Reservations on Resource Scheduling

Effect of Reservations on Resource Scheduling

Resource Scheduling does not include resource availability reserved for another project. The effect of reservations on resource scheduling depends on the type of resource scheduling that is performed and the options that have been set.

When an activity belongs to an external subproject, the availability considered for scheduling that activity includes:

- The availability reserved for the subproject
- Any higher level subprojects to which it belongs
- The main project

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11.12 Resource- Limited Resource Scheduling

In general, resource-limited resource scheduling restricts resource usage to availabilities that have not been reserved for another project. However, exceptions are made to this rule under the following circumstances:

- In the case of external subprojects, Open Plan may use resources that have been reserved for the master project or any higher-level subprojects in the hierarchy.
- If a threshold has been set on the resource record, Open Plan may use the reserved resource availability to the extent permitted by the threshold.

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11.13 Time-Limited Resource Scheduling

When performing time-limited resource scheduling, Open Plan may use any resource availability even though it may have been totally reserved to another project. An exception to this rule applies when the hard zero option is set. Under this circumstance, Open Plan may not use the reserved resource availability.

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11.14 Effect of Reservations on Select Resource Dialog

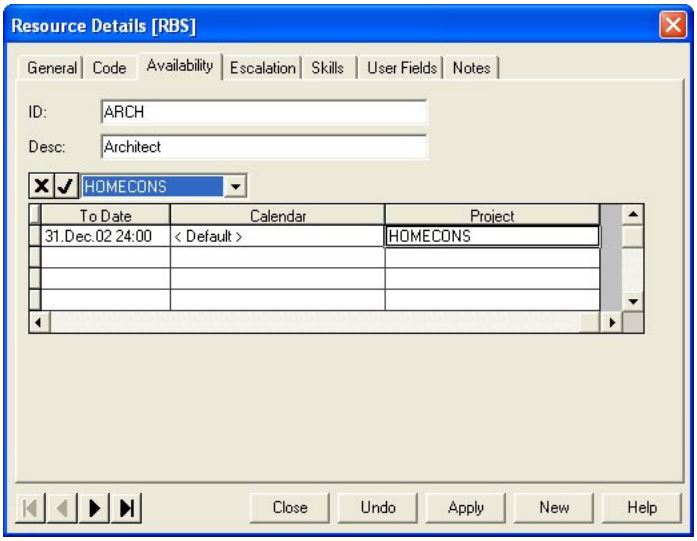
The availability levels shown on the Select Resource dialog box do not include any resource availability reserved for another project.

When an activity belongs to an external subproject, the availability shown includes:

- The availability reserved for that subproject
- The availability for any higher-level external subprojects to which it belongs
- The availability of the main project.

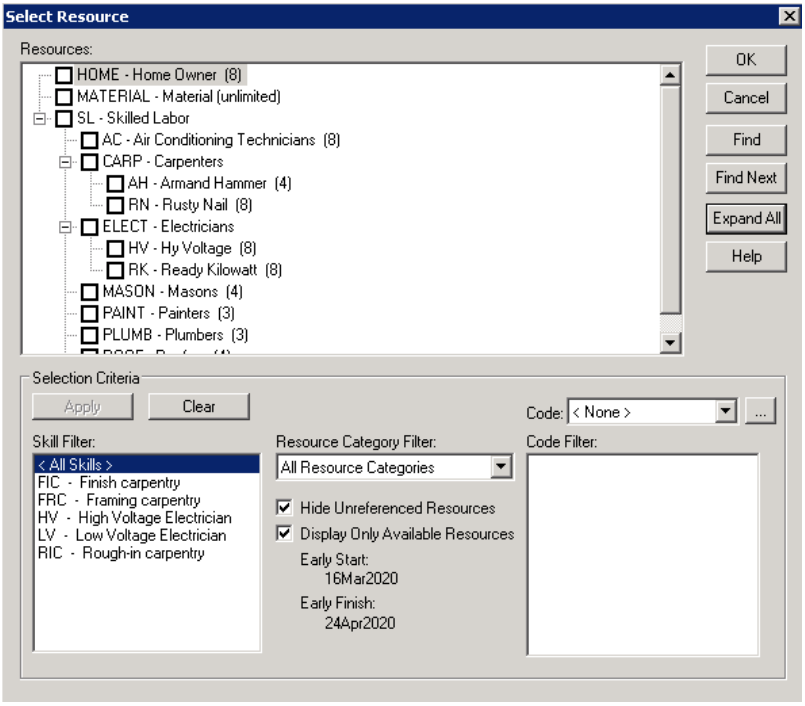
11.14.1 Activity: Reserving a Resource

Follow the steps in the table below to reserve a resource.

Step	Action
1	Close and save all projects.
2	Open the resource file RBS, and edit the ARCH resource.
3	On the Availability tab, scroll to the far right, and use the list to select the **HOMECONS** project under the Project prompt. 
4	Click **Close.**

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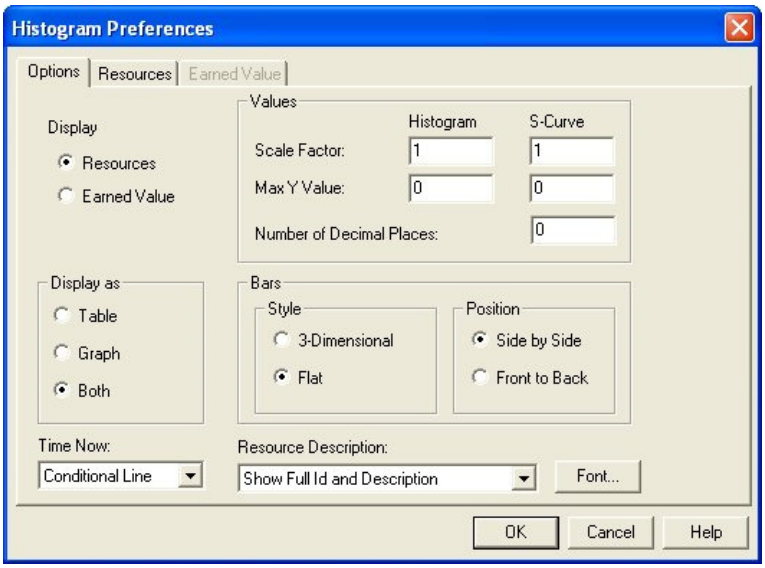
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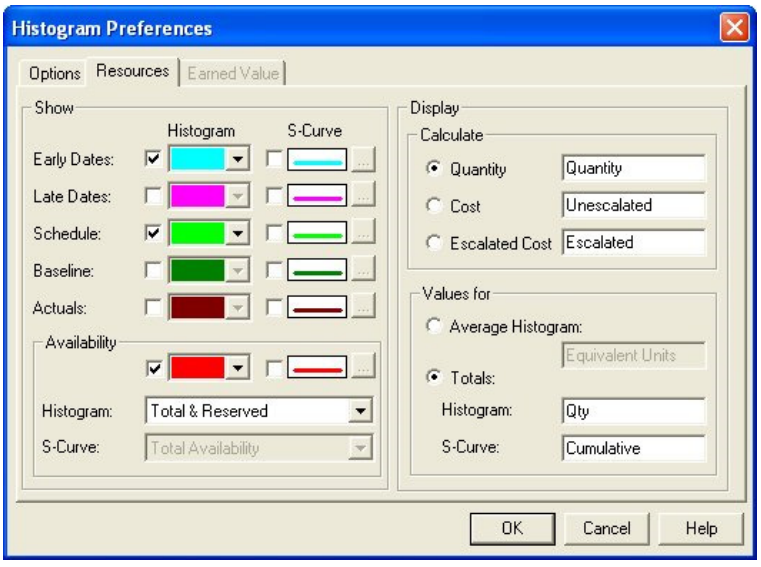
Step	Action
5	Save and close the resource file.
6	Reopen the **HOMECONS_Q2** project and the Activity Barchart View.
7	Edit Activity **010**, and click on the **Resources** tab.
8	Click the **ellipsis** button.
9	Select the **Display Only Available Resources** option and the **Hide Unreferenced Resources** option.
10	Click the **Expand All** button. **Note:** Notice that the ARCH resource does not appear at all. It has been fully reserved for another (higher priority) project.  We can again use Resource Histograms to view values such as those displayed with the ellipsis on the Resource tab.
11	From the **View** tab, select the resource **ARCH.**

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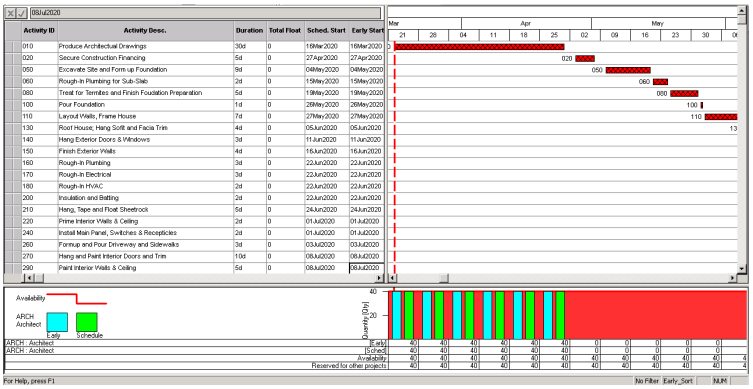
Step	Action
12	Set up the Histogram Preferences dialog box as follows:





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Step	Action
13	Click **OK.** **Result:** The dialog box should match the graphic below. **Note:** The entire availability has been reserved, in our case, for project HOMECONS. 
14	Close the barchart without saving.

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11.15 Using Project Summary Usage to Guide Resource Assignments

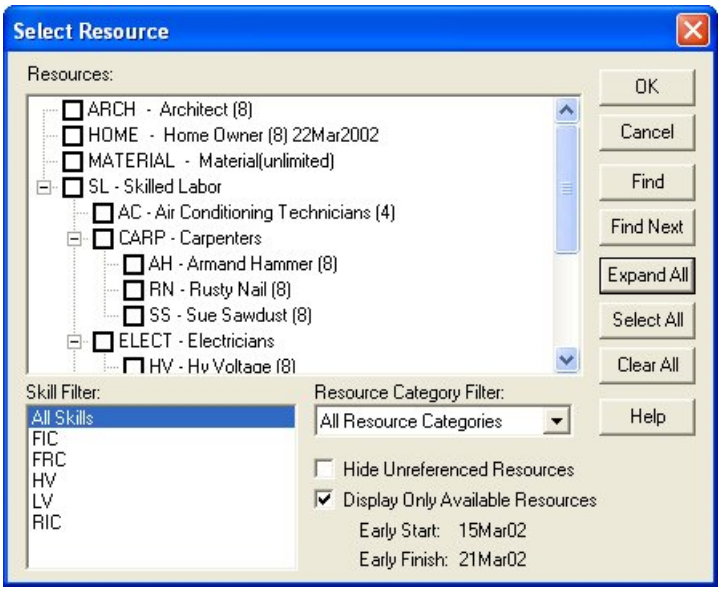
The next section will require that we modify the HOMECONS_Q2 project to be able to display additional Open Plan functionality.

Follow the steps in the table below to guide resource assignments.

Step	Action
1	Perform a Save As on the **HOMECONS_Q2** project.
2	Rename the project as **HOMECONS_SRU.** Be sure to copy the baseline.
3	In the Assignment Spreadsheet of the **HOMECONS_SRU** project, delete all resource assignments.
4	Save the project.
5	In the resource file RBS, to remove the reservation on the availability of the resource ARCH to the HOMECONS project, highlight the entire row, hit delete, and then click Close.
6	Save the resource file and close. As this project also has a Priority of 1 (one), the display of available resources is the same as for project **HOMECONS_Q2.**
7	In the Activity Barchart View of **HOMECONS_SRU**, edit **Activity 020**, and go to the **Resources** tab.
8	Click the **ellipsis** button.
9	Select the **Display Only Available Resources** option.

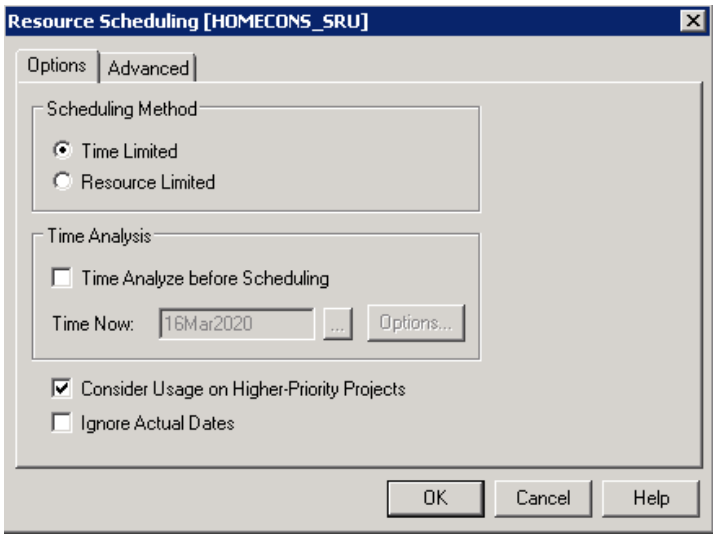
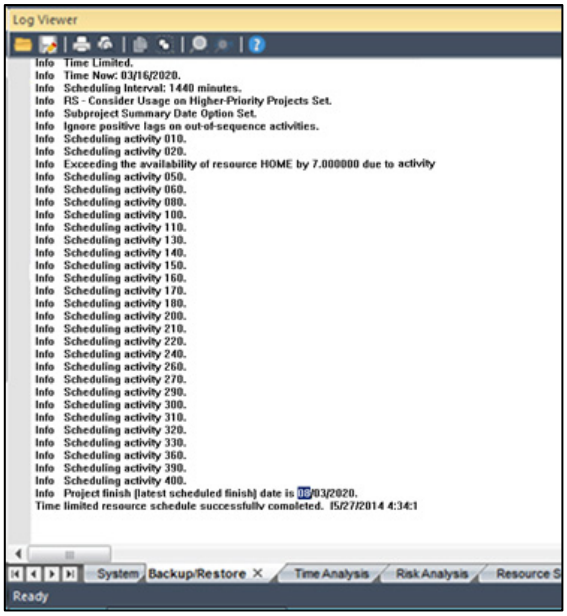
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Step	Action
10	Click the **Expand All** button. **Result:** The ARCH resource has returned! 
11	Select the resource: **HOME**
12	Click **OK.** Open Plan assigns the **HOME** resource at a level of **8** to **Activity 020.**
13	Change the level to 7.
14	Click **Close.**

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Step	Action
15	From the **Processes** tab, select R**esources Options.** Set up the dialog box like the following: 
16	Click **OK.**
17	View the log. It should look like the following: 

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11.15.1 Activity: Resolving the Resource Conflict

One way to “test the waters” to resolve the resource conflict of the HOME resource on Activity 020 is to use the Threshold feature.

Step	Action
1	Open the resource file **RBS.**
2	Edit the **HOME** resource.
3	On the General tab, verify the Threshold is 8.
4	Save and close the resource file.
5	For the project HOMECONS_SRU, run Resource Limited Resource Scheduling, selecting the Consider Usage on Higher Priority Projects option.
6	View the log. **Note:** The log indicates an “exceeds” which is rare during Resource-Limited Resource Scheduling. The “exceeds” indicates how much of the threshold was needed to eliminate the delay. Notice that the Scheduled Finish date of the project is the same as the latest Early Finish, 22Jul02. 
7	Close **HOMECONS_SRU**, saving no changes.

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11.16 The Multi-Project Environment

The following sections will provide an overview of the terms and functionality associated with the multi-project environment.

11.17 Keys to Successful Implementation

The keys to successful implementation include:

- Up-front planning
- Focused objective
- Buy-in from all points of the organization
- Dedicated core team and implementation staff
- Cooperation and Communication

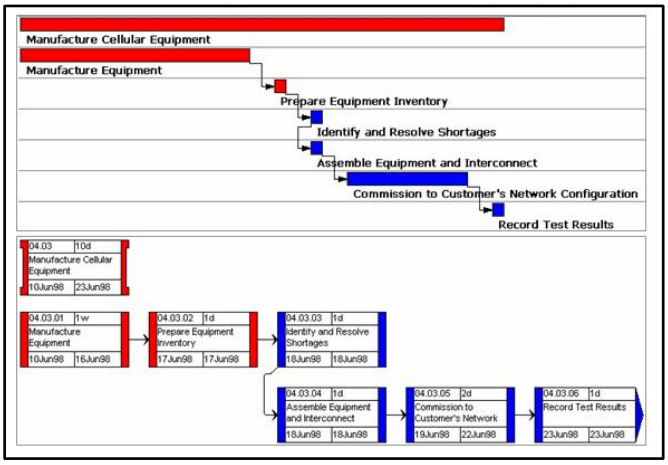
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11.18 Definitions and Examples

The following chart contains many of the terms, definitions, and examples associated with the multi-project environment.

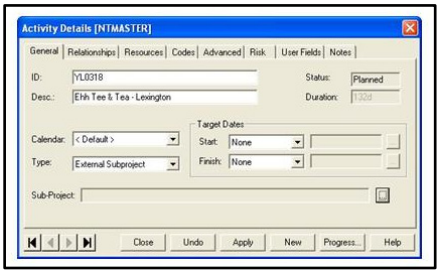
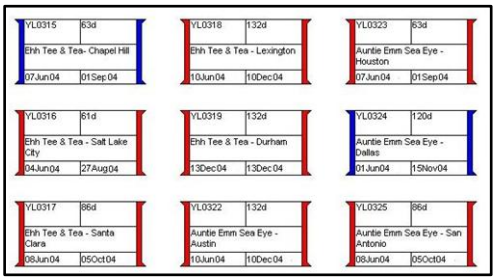
Term	Definition	Example
Internal/Local Subproject	A group of activities represented as a single activity in a higher level of the same project	A 10-day activity called Manufacture Cellular Equipment is made up of several smaller duration activities. These “children” define (both cost and schedule) the parent activity (subproject).



Internal / Local Subproject

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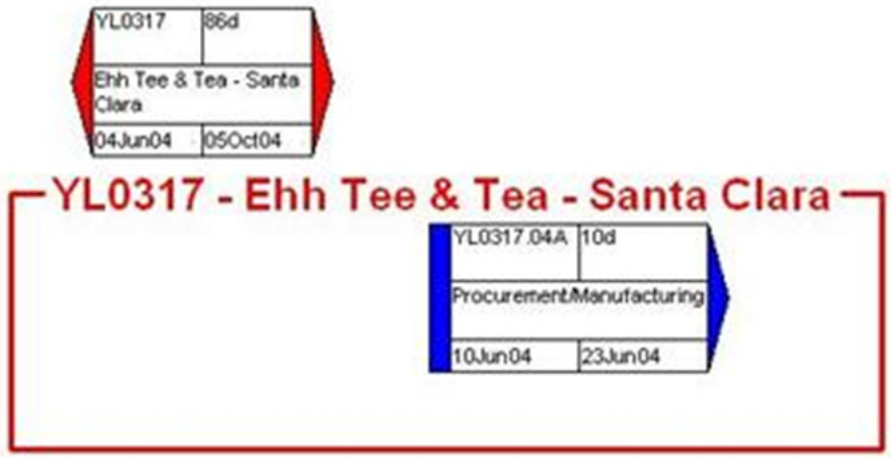
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Term	Definition	Example
External Subproject	An entire project represented as a single activity in a higher level project.	An entire telecommunications project is summarized into a single activity. This external subproject is one of several “special” activities that exist in a multi-project environment.
 *External Subproject*		
Master Project/Multi-project	A project containing one or more external subprojects.	Working in a distributed project management environment, several telecommunications projects are brought together into a single “master project” to perform time/date calculations and to report on global status.
 *Master Project/Multi-Project*		

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Definitions and Examples

Term	Definition	Example
Foreign Project	A placeholder activity used to represent projects that are not currently open.	Before we can assemble the equipment in Lexington, we have to identify and resolve shortages in Santa Clara.
Foreign Activity	A placeholder activity used to represent relationships with projects that are not currently open	Before we can assemble the equipment we have to resolve shortages in Santa Clara
Foreign Subproject	An activity type necessary to express the hierarchical level of the foreign activity correctly.	When a foreign activity exists in a project, its parent and grandparents must exist in the project as well.
		

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11.19 Functions

- Time/Date Calculations
  - Time Analysis
  - Resource Scheduling
  - Risk Analysis
- Cost/Progress Calculations
  - Cost Calculations
  - Progress Calculations
- Baselines
  - Creating a baseline in the master project
  - Creating a baseline in the external subprojects

11.20 System Level Objects

- Filters
- Sorts
- Calculated Fields
- Global Edits

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11.21 Views

- Automatic placements in the Network views
- Annotations in the Network views
- Views attached to external subprojects do not necessarily exist in the master project

11.22 Ancillary Data

- Ancillary Data Fields
- Security

11.23 Miscellaneous Comments

- Performance
- Security Issues
- “Save” Compared to “Save As”
- Reference Material

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11.24 Resource Management with a Master Project

Another way to manage the same resources across multiple projects is to create a Master project that points to all of those projects. Our multiple projects will be HOMECONS and HOMECONS_Q2.

11.24.1 Activity: Deleting the Summary Usage

Step	Action
1	Open the resource file **RBS.**
2	From the **Tools** tab, select **Manage Summary Usage**.
3	Highlight HOMECONS, and click **Delete**.
4	Click **Close**.
5	Edit the **HOME** resource, and change the Threshold from 8 to 0.
6	Save and exit the resource file.

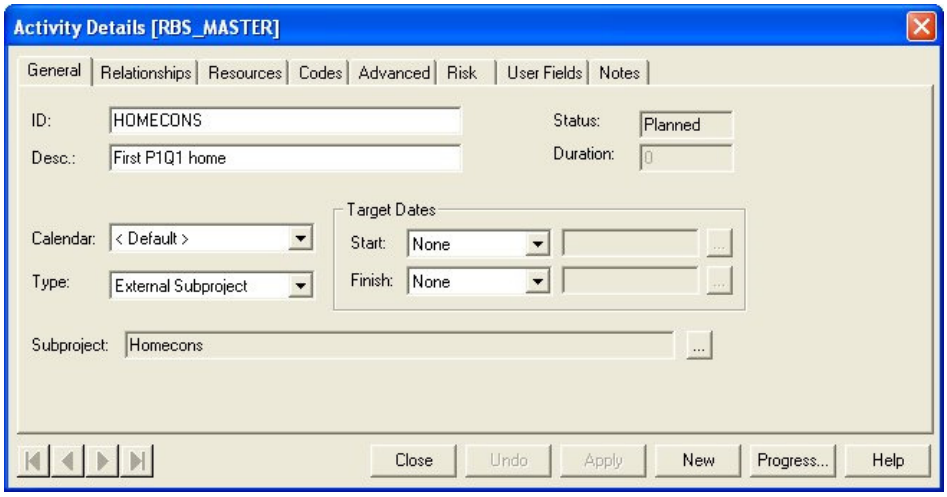
11.24.2 Activity: Creating the Master Project

Follow the steps in the table below to create the Master Project.

Step	Action
1	In the New File Wizard, create a new project named **RBS_MASTER.**
2	Enter P1Q1 and Q2 projects for the Description.
3	Click **Finish.**
4	In the Activity Barchart, add an activity: ID: HOMECONS.
5	Description: **First P1Q1** home.
6	On the General tab, change the Type to External Subproject.

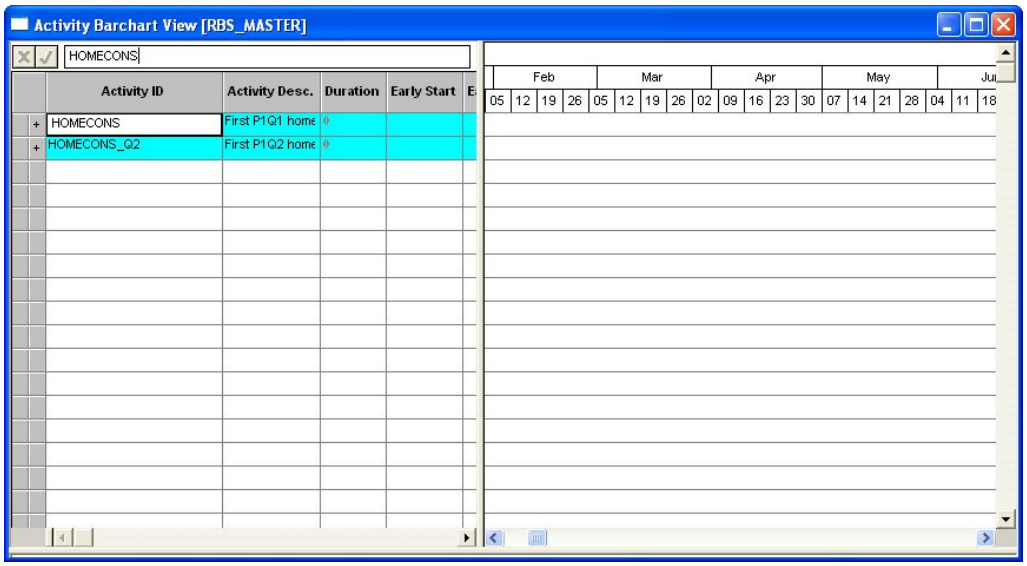
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Step	Action
7	Click on the ellipsis button for the Subproject field.
8	Select the **HOMECONS** project.
9	Click **OK.**
10	Click **Close.** 
11	From the **Edit** tab, select **Insert Subprojects**.
12	Select **HOMECONS_Q2.**
13	Click **OK.**
14	Edit the activity and type in a description of **First P1Q2** home.

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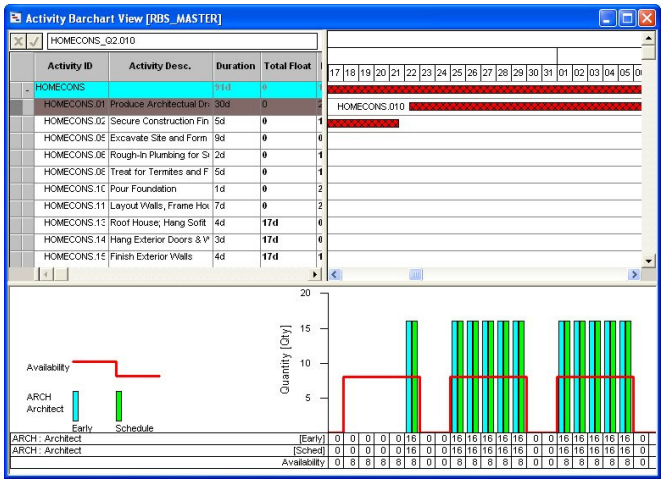
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Step	Action
15	Click Close and save the project. 
16	On the toolbar click the button: **Expand All** **Result:** The **External Subproject Open** dialog box displays.
17	Click **Yes to All**. **Result:** Open Plan expands the two external subprojects and gives you a view of the project's data through the eyes of the master project.
18	Scroll the Barchart section to where you can see the year 2020 in the date scale. **Note:** the two projects are in parallel. This is because they are duplicate projects, and we have not run any Functions (time analysis, resource scheduling, etc.) to change the data in the Master project.
19	From the **Processes** tab, run **Time Analysis** with a **Time Now** date of 16Mar20. **Note:** The two external subproject activity types now have summary bars that represent the start and end dates of each project (16Mar20 to 03Aug20). Because the projects are in parallel (at least for the moment), we know that there will be conflicts for the available resources. To prove this, follow these steps:
20	From the **View** tab, select the **ARCH resource**, and click **OK.**
21	Configure the Histogram to display both the table and graph and to display the Early and Schedule Dates and Availability.
22	Change the number of decimal places to **0.**

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Step	Action
23	Edit the date scale Axis Number 3 to have a **Time Unit of Days**.



Note: There is a period between 22Mar20 and 02May20, where the requirement for the ARCH resource is 16, with an availability of 8.

If we run Time Limited Resource Scheduling on the Master project, we will see (among others) an “Exceeds” in the Log for the HOMECONS_Q2 project on Activity 010. Resolving a conflict of this scope might be difficult.

24	From the **Processes** tab, run **Time-Limited Resource Scheduling**.

Result: The last 2/3 of the log should look like the following:

Note: Notice that in the log there are activities where an Alternate resource is suggested. This means that the Allocations that we executed in Module 2 are somewhat obsolete. Aren’t we glad we didn’t do a Lock as well?

If, on the other hand, we run Resource-Limited Resource Scheduling on the Master project, we will see the project end date moved out to September 02, 2020, due largely to the ARCH resource on its only Activity, 010. As this activity has the longest duration and no float, it seems impossible to build both houses at the same time. Running Resource-Limited Resource Scheduling is rather drastic; we do not need to alleviate ALL resource conflicts.

There is also a perceived problem with Activity 050. Although it was not loaded as a resource, Excavation Equipment will no doubt be required, and there is not likely to be enough of it to work on both homes simultaneously. One step that we will take to minimize the conflict is to create a Finish-to-Start relationship between the two Activity 050s.

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Step	Action
24	*(Note continued)*
(cont.)	We will use the split pane feature in the Network view to connect the 050 activities in the two projects, Finish-to-Start. We will then run Time Analysis and Time-Limited Resource Scheduling on the Master project to see how much the new project is delayed because of the interconnect.

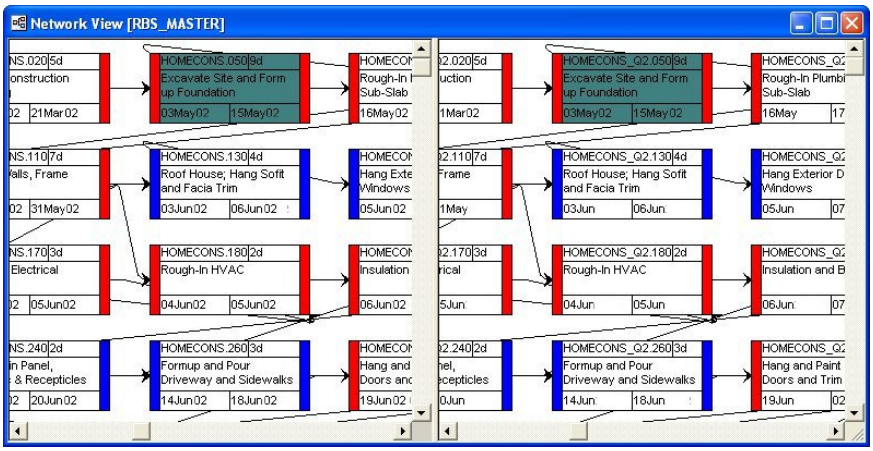
```
Scheduling activity HOMECONS_Q2.
Scheduling activity HOMECONS_Q2.010.
Exceeding the availability of resource ARCH by 8.000000 due to activity HOMECONS_Q2.010.
Scheduling activity HOMECONS_Q2.020.
Exceeding the availability of resource HOME by 8.000000 due to activity HOMECONS_Q2.020.
Scheduling activity HOMECONS_Q2.050.
Exceeding the availability of resource SL.CARP.AH by 4.000000 due to activity HOMECONS_Q2.050.
Exceeding the availability of resource SL.ELECT.HV by 8.000000 due to activity HOMECONS_Q2.050.
Exceeding the availability of resource SL.ELECT.RK by 8.000000 due to activity HOMECONS_Q2.050.
Scheduling activity HOMECONS_Q2.060.
Exceeding the availability of resource SL.PLUMB by 3.000000 due to activity HOMECONS_Q2.060.
Scheduling activity HOMECONS_Q2.080.
Exceeding the availability of resource SL.CARP.RN by 4.000000 due to activity HOMECONS_Q2.080.
Scheduling activity HOMECONS_Q2.100.
Exceeding the availability of resource SL.MASON by 4.000000 due to activity HOMECONS_Q2.100.
Scheduling activity HOMECONS_Q2.110.
Alternate resource SL.CARP.RN used in place of resource SL.CARP.AH.
Scheduling activity HOMECONS_Q2.160.
Scheduling activity HOMECONS_Q2.170.
Scheduling activity HOMECONS_Q2.180.
Exceeding the availability of resource SL.AC by 4.000000 due to activity HOMECONS_Q2.180.
Scheduling activity HOMECONS_Q2.200.
Alternate resource SL.CARP.RN used in place of resource SL.CARP.AH.
Scheduling activity HOMECONS_Q2.210.
Exceeding the availability of resource SL.PAINT by 3.000000 due to activity HOMECONS_Q2.210.
Scheduling activity HOMECONS_Q2.220.
Scheduling activity HOMECONS_Q2.270.
Scheduling activity HOMECONS_Q2.290.
Scheduling activity HOMECONS_Q2.300.
Scheduling activity HOMECONS_Q2.320.
Scheduling activity HOMECONS_Q2.360.
Scheduling activity HOMECONS_Q2.400.
Scheduling activity HOMECONS.330.
Scheduling activity HOMECONS_Q2.330.
Scheduling activity HOMECONS.130.
Delaying activity HOMECONS.130 due to resource SL.CARP.AH.
Scheduling activity HOMECONS.140.
Scheduling activity HOMECONS.150.
Scheduling activity HOMECONS.260.
Scheduling activity HOMECONS.390.
Scheduling activity HOMECONS_Q2.130.
Delaying activity HOMECONS_Q2.130 due to resource SL.CARP.AH.
Scheduling activity HOMECONS_Q2.140.
Scheduling activity HOMECONS_Q2.150.
Scheduling activity HOMECONS_Q2.260.
Scheduling activity HOMECONS_Q2.390.
Scheduling activity HOMECONS.240.
Scheduling activity HOMECONS.310.
Scheduling activity HOMECONS.
Scheduling activity HOMECONS_Q2.240.
Scheduling activity HOMECONS_Q2.310.
Scheduling activity HOMECONS_Q2.
```


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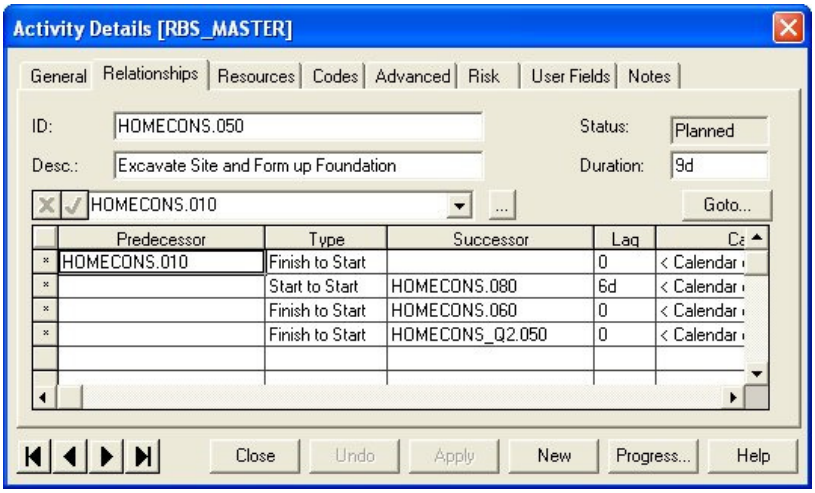
11.24.3 Activity: Creating the Finish to Start Relationship

Follow the steps in the table below to create the finish to start relationship.

Step	Action
1	Minimize the **Activity Barchart** view.
2	Open the **Network View** (FLOWVW).
3	Select **Placements** from the **View** tab, and click **Automatic Placements.**
4	Make sure **Show All Levels** is selected.
5	Click **OK.**
6	From the **View** tab, click **Split View**.
7	Rearrange the activities so that HOMECONS.050 appears in the left pane and HOMECONS_Q2.050 appears in the right pane as follows: 

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Step	Action
8	Holding down the Alt key, create a Finish-to-Start relationship between the HOMECONS.050 and HOMECONS_Q2.050. To verify that your logic is correct, edit Activity HOMECONS.050. **Result:** The relationship should look like this: 
9	Run Time Analysis with a Time Now date of 16Mar20. Make sure the Multiple Ends option is selected on the Advanced tab. This moves the end date of HOMECONS_Q2 to 02Aug20. This is acceptable. There are now 9 days of float on Activity HOMECONS_Q2.010. The project must still be analyzed from the standpoint of resource conflicts. One good way to do this is to run Time-Limited Resource Scheduling and view the log.

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Step	Action
10	Run Time Limited Resource Scheduling, and make sure the last 2/3 of your log matches the following:

```
Scheduling activity HOMECONS.060.
Scheduling activity HOMECONS.080.
Scheduling activity HOMECONS.100.
Scheduling activity HOMECONS.110.
Delaying activity HOMECONS.110 due to resource SL.CARP.RN.
Alternate resource SL.CARP.RN used in place of resource SL.CARP.AH.
Scheduling activity HOMECONS.160.
Scheduling activity HOMECONS.170.
Scheduling activity HOMECONS.180.
Scheduling activity HOMECONS.200.
Scheduling activity HOMECONS.210.
Exceeding the availability of resource SL.PAINT by 3.000000 due to activity HOMECONS.210.
Scheduling activity HOMECONS.220.
Scheduling activity HOMECONS.270.
Scheduling activity HOMECONS.290.
Scheduling activity HOMECONS.300.
Scheduling activity HOMECONS_Q2.020.
Delaying activity HOMECONS_Q2.020 due to resource HOME.
Scheduling activity HOMECONS_Q2.010.
Exceeding the availability of resource ARCH by 8.000000 due to activity HOMECONS_Q2.010.
Scheduling activity HOMECONS_Q2.330.
Scheduling activity HOMECONS_Q2.130.
Delaying activity HOMECONS_Q2.130 due to resource SL.CARP.AH.
Scheduling activity HOMECONS_Q2.140.
Scheduling activity HOMECONS_Q2.150.
Scheduling activity HOMECONS_Q2.260.
Scheduling activity HOMECONS_Q2.390.
Scheduling activity HOMECONS.330.
Delaying activity HOMECONS.330 due to resource SL.CARP.AH.
Scheduling activity HOMECONS.320.
Scheduling activity HOMECONS_Q2.240.
Scheduling activity HOMECONS_Q2.310.
Scheduling activity HOMECONS_Q2.
Scheduling activity HOMECONS.130.
Alternate resource SL.CARP.RN used in place of resource SL.CARP.AH.
Scheduling activity HOMECONS.140.
Delaying activity HOMECONS.140 due to resource SL.CARP.RN.
Scheduling activity HOMECONS.150.
Scheduling activity HOMECONS.260.
Delaying activity HOMECONS.260 due to resource SL.MASON.
Scheduling activity HOMECONS.390.
Scheduling activity HOMECONS.240.
Scheduling activity HOMECONS.310.
Scheduling activity HOMECONS.360.
Scheduling activity HOMECONS.400.
Scheduling activity HOMECONS.
```

11	Close the **Network View**, saving no changes.

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Step	Action
12	In the **Activity Barchart View**, Reconfigure the Histogram to add Late Dates. **Note:** There are far fewer 'exceeds' in the log. Notice also that the overages on the Histogram on the Late Dates occur much later than the overages on the Early Dates. These overages are almost at a manageable point. Further analysis of the work to be done concludes that Activity 010 in the HOMECONS_Q2 project should not take 30 days, as most of the work was done for the HOMECONS project.  Further analysis of the work to be done concludes that Activity 010 in the HOMECONS_Q2 project should not take 30 days, as most of the work was done for the HOMECONS project.
13	Edit the duration of **Activity HOMECONS_Q2.010** from 30 days to 5 days.
14	Run **Time Analysis.**
15	View the **Status** tab of **Project Properties**, to confirm that the end date is 02Aug20.
16	Run **Time Limited Resource Scheduling.**
17	Notice the differences in the log. The extra float gained by reducing the duration of Activity HOMECONS_Q2.010 to 5 gave the scheduler enough room where it can successfully delay this activity within its float. We are left with only one "exceeds." We have decided to subcontract the work to alleviate the conflict on Activity HOMECONS.210.

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Step	Action
17 (cont.)	Scheduling activity HOMECONS. Scheduling activity HOMECONS.010. Availability of resource MATERIAL treated as unlimited beyond end of availability data. Scheduling activity HOMECONS.020. Scheduling activity HOMECONS.050. Scheduling activity HOMECONS_Q2. Scheduling activity HOMECONS_Q2.050. Scheduling activity HOMECONS_Q2.060. Scheduling activity HOMECONS_Q2.080. Scheduling activity HOMECONS_Q2.100. Scheduling activity HOMECONS_Q2.110. Scheduling activity HOMECONS_Q2.160. Scheduling activity HOMECONS_Q2.170. Scheduling activity HOMECONS_Q2.180. Scheduling activity HOMECONS_Q2.200. Scheduling activity HOMECONS_Q2.210. Scheduling activity HOMECONS_Q2.220. Scheduling activity HOMECONS_Q2.270. Scheduling activity HOMECONS_Q2.290. Scheduling activity HOMECONS_Q2.300. Scheduling activity HOMECONS_Q2.320. Scheduling activity HOMECONS_Q2.360. Scheduling activity HOMECONS_Q2.400. Scheduling activity HOMECONS.060. Scheduling activity HOMECONS.080. Scheduling activity HOMECONS.100. Scheduling activity HOMECONS.110. Delaying activity HOMECONS.110 due to resource SL.CARP.RN. Alternate resource SL.CARP.RN used in place of resource SL.CARP.AH. Scheduling activity HOMECONS.160. Scheduling activity HOMECONS.170. Scheduling activity HOMECONS.180. Scheduling activity HOMECONS.200. Scheduling activity HOMECONS.210. Exceeding the availability of resource SL.PAINT by 3.000000 due to activity HOMECONS.210. Scheduling activity HOMECONS.220. Scheduling activity HOMECONS.270. Scheduling activity HOMECONS.290. Scheduling activity HOMECONS.300. Scheduling activity HOMECONS_Q2.330. Scheduling activity HOMECONS_Q2.130. Delaying activity HOMECONS_Q2.130 due to resource SL.CARP.AH. Scheduling activity HOMECONS_Q2.140. Scheduling activity HOMECONS_Q2.150. Scheduling activity HOMECONS_Q2.260. Scheduling activity HOMECONS_Q2.390. Scheduling activity HOMECONS.330. Delaying activity HOMECONS.330 due to resource SL.CARP.AH. Scheduling activity HOMECONS.320. Scheduling activity HOMECONS_Q2.240. Scheduling activity HOMECONS_Q2.310. Scheduling activity HOMECONS.130. Alternate resource SL.CARP.RN used in place of resource SL.CARP.AH. Scheduling activity HOMECONS.140. Delaying activity HOMECONS.140 due to resource SL.CARP.RN. Scheduling activity HOMECONS.150. Scheduling activity HOMECONS.260. Delaying activity HOMECONS.260 due to resource SL.MASON. Scheduling activity HOMECONS.390. Scheduling activity HOMECONS.240. Scheduling activity HOMECONS.310. Scheduling activity HOMECONS.360. Scheduling activity HOMECONS.400. Scheduling activity HOMECONS. Scheduling activity HOMECONS_Q2.020. Delaying activity HOMECONS_Q2.020 due to resource HOME. Scheduling activity HOMECONS_Q2.010. Delaying activity HOMECONS_Q2.010 due to resource ARCH. Scheduling activity HOMECONS_Q2.

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11.25 The Hierarchical Priority Field

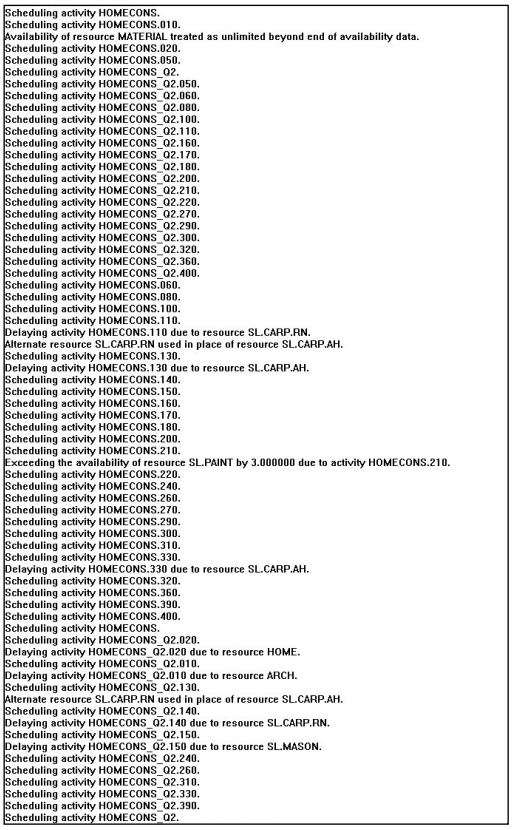
Another way to reduce conflicts during Resource Scheduling is to prioritize the projects.

Follow the steps in the table below to prioritize the projects.

Step	Action
1	From the **Activity Barchart** View, edit subproject **HOMECONS_Q2.**
2	On the **Advanced** tab, edit the Priority field to 1 (one).
3	From the **Processes** tab, select **Resource Scheduling.**
4	Select **Time Limited,** and click on the **Advanced** tab.
5	Change the First Priority to **<Hierarchical Priority Field>.**
6	Click **OK**, and check the log. **Result:** Your log should resemble the following: **Note:** It is important here that the Resource Scheduling Options remain at Time Limited, with the hierarchical priority field as the first and only priority.

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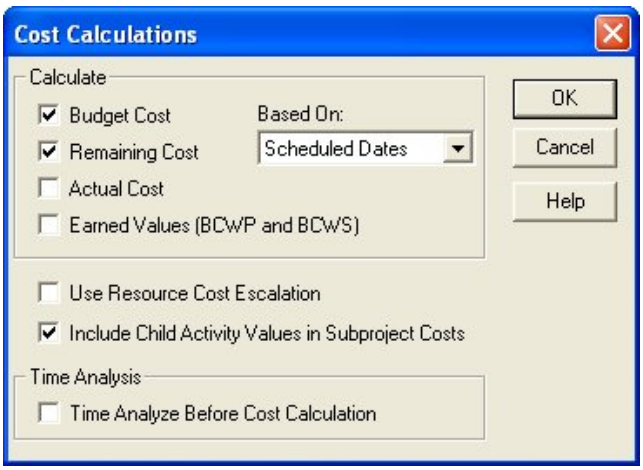
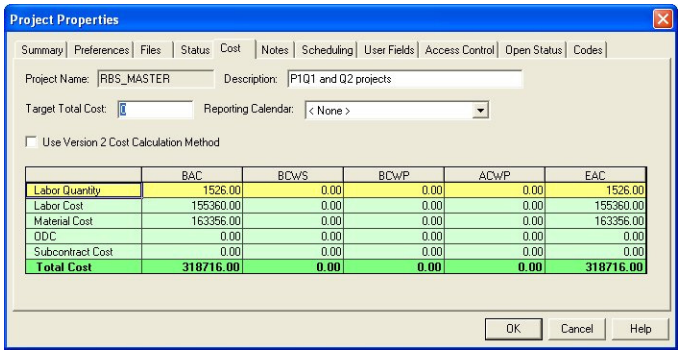
Step	Action
6 (cont.)	
7	Using the **<Hierarchical Priority Field>** results in Open Plan running Resource Scheduling on the basis that every activity that is a child of HOMECONS_Q2 has a priority of 1 (one). Recall that the default priority of an activity is 0 (zero). This makes all the activities in HOMECONS have a higher priority. When we created a logical connection between the Excavate activities in the two projects, we (in effect), prioritized the two projects. Therefore, using the <Hierarchical Priority Field> as well is redundant. As a matter of fact, the results after Resource Limited Resource Scheduling are worse. The Master project now represents two manageable projects. The resource conflicts are either not so severe, or occur much later in time so that they can be dealt with later.

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11.25.1 Activity: Cost Calculations

Follow the steps in the table below to run the cost calculations.

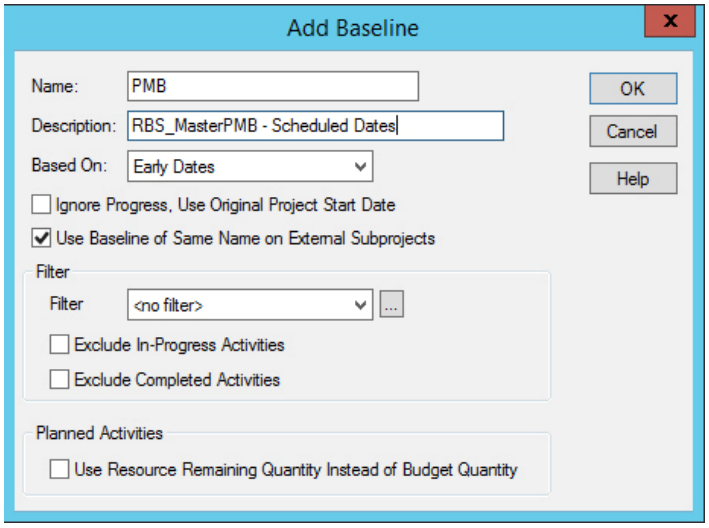
Step	Action
1	From the **Processes** tab, select **Properties**, and click the **Cost** tab.
2	Make sure the box for Use Version 2 **Cost Calculation Method** is cleared.
3	Click **OK.**
4	From the **Processes** tab, select **Cost Calculations.**
5	Make sure it is setup as follows: 
6	Click **OK.**
7	View the **Project Properties Cost** tab. BAC and Remaining should be $318,716.00.
8	Click **OK.** 

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11.25.2 Activity: Creating the Baseline

Follow the steps in the table below to create the baseline.

Step	Action
1	Select Use Baseline of the Same Name on External subprojects. This instructs Open Plan to use the PMB baseline that exists in the external subprojects. If you do not select this option, Open Plan creates a baseline with copies of the external subproject activities at the master project level. 
2	Click **OK,** select the baseline, and click Close.
3	Close the **RBS_Master** project, saving changes to the project only.
4	Open the **HOMECONS** project.
5	From the **Processes** tab, select Baselines and notice that it has two baselines (Initial and PMB).
6	Close the **Baselines** dialog box.
7	Open the Activity Barchart View. Note that two activities have been added – a Foreign Project and a Foreign Activity.
8	Edit the **Foreign Project** and note the contents of the **General** tab.
9	Edit the **Foreign Activity** and note the contents of the Relationships tab.
10	Close the **Barchart View** saving no changes.

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Step	Action
11	Open the **Network View** (FLOWVW).
12	Verify set **Placements to Manual**.
13	Right-click the **Foreign Project,** and click **Expand.**
14	Close the project and views, saving no changes.

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11.26 On Your Own

A reservation of a project at the Pool level can be overwritten by what other two reservations?
What happens if you try to open a Master project containing a different resource file from one of the external subprojects?

What is the effect of using the Hierarchical Priority Field when Resource Scheduling?

11.27 Summary

You should now be able to:

- Use the Project Summary Usage System
- Reserve a resource for a project
- Create logic between projects
- Perform Multi-project Resource Scheduling

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